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Ordinance No. 2017 - 03

**AN ORDINANCE Amending Chapter 153 of the Troy Municipal Code
(Also known as the Subdivision Ordinance)**

**ADOPTED BY THE CITY COUNCIL
OF THE CITY OF TROY, ILLINOIS**

THIS 6TH DAY OF MARCH 2017

**Whereas, the City of Troy, Madison County, Illinois presently has in force Chapter 153
– Subdivision Code which is contained in the Troy Municipal Code and is also
known as the Subdivision Ordinance; and**

**Whereas, the Planning Commission has performed a review of the city's Subdivision
Ordinance and believes that changes are necessary to comply with updated state
requirements and standards and to help more effectively manage development in
the City; and**

Whereas, the Planning Commission has determined that the review of the Subdivision Ordinance should be done in three phases with the chapters titled Utilities, Administration and Enforcement, Improvements, Stormwater and Erosion Control, and Appendix A: Standard Specifications being the second phase; and

Whereas, the Planning Commission held a public hearing on February 13, 2017 to consider amending the second phase of the Subdivision Ordinance; and

Whereas, as a result of said hearing, the Planning Commission has made a recommendation (Recommendation 2017-01PC) to the City Council that they enact said amendments to the Subdivision Ordinance and Troy Municipal Code of Ordinances; and

Whereas, the City Council has duly considered the matter and the recommendation of the Planning Commission and has determined and concluded that it is in the best interest of the City, and in compliance with the powers conferred upon the City, to amend the existing Subdivision Ordinance and Troy Municipal Code of Ordinances.

Now, Therefore, Be It Ordained by the Mayor and the City Council of the City of Troy, Illinois as follows:

SECTION 1: The recitals contained above in the preamble of this Ordinance are hereby incorporated herein by reference, the same as if set forth in this Section of this Ordinance verbatim, as findings of the City Council of the City of Troy, Illinois

SECTION 2: That certain sections of *Chapter 153 Subdivision Code* of the Troy Municipal Code of Ordinances are amended as described in Exhibit A.

SECTION 3: That the Stormwater and Erosion Control sections of *Chapter 153 Subdivision Code* of the Troy Municipal Code of Ordinances are deleted in their entirety and placed in a newly created chapter titled *Chapter 156 Stormwater and Erosion Control* as described in Exhibit A

SECTION 4: All ordinances or resolutions, or parts of ordinances or resolutions in conflict herewith, to the extent of such conflict, are hereby changed and amended to comply with this Ordinance; and to the extent the same cannot be so amended, are hereby repealed to the extent of such inconsistency.

SECTION 5: That if any section or provision of this Ordinance is declared invalid for any reason, such invalidity shall not affect or impair any of the remaining sections or provisions of this Ordinance which can be given effect without the invalid section or provision, and to this end, the sections and provisions of this Ordinance are declared to be severable.

SECTION 6: This Ordinance shall be in full force and effect from and after its passage and approval as provided by law and shall be published in pamphlet form by the authority of the City Council.

Passed by the City Council of the City of Troy, Madison County, Illinois, approved by the Mayor, and deposited in the office of the City Clerk this sixth day of March, 2017.

Aldermen:

DeCarli Aye
Greenfield Aye
Hendrickson Aye
Italiano Aye

Jackson Aye
Partney Aye
Turner Aye

Total:
7 Ayes
0 Nays

APPROVED:


Allen P. Adomite
Mayor, City of Troy, Illinois

ATTEST:



Jamie Myers, City Clerk

Building & Zoning Dept.

TROY SUBDIVISION CODE

§ 153.005 INCORPORATION OF FIGURES AND STANDARDS.

(A) Certain design concepts, standards and related matters addressed herein are further clarified by illustrations and examples contained in Appendix A to this chapter. Accordingly, the following appendices to this chapter are hereby incorporated into these regulations.

Appendix A:	
Standard Specification Plan Sheets #1.	Typical Street Construction Details
Standard Specification Plan Sheets #2.	Typical Sanitary Sewer Construction Details
Standard Specification Plan Sheets #3.	Typical Water System Construction Details

(B) The requirements indicated in the appendices shall be as effective and binding as the narrative portions of this chapter.

§ 153.065 DESIGNING SIDEWALKS.

(B) In residential areas, sidewalks shall be a minimum of 5 feet in width and:

- (1) The sidewalks shall be located 36 inches behind the curb along streets.
- (2) Because driveways in a new residential subdivision cannot be effectively located until lots are sold and developed, thereby inhibiting the initial installation of sidewalks throughout the development, the subdivider/developer may require that individual owners install sidewalks in accordance with these provisions at the same time that the owner's driveway is constructed. Failure to do so by the owner shall not release the subdivider/developer from the ultimate responsibility for installation of the sidewalks. No final building inspection will be considered complete until sidewalks and/or driveways are constructed and approved.
- (3) Accessible ramps meeting the Americans with Disabilities Act (ADA) Design Standards shall be installed at street intersections at the time the streets are in built, and not on a lot by lot basis. The adjoining sidewalks may be installed at the time the driveway is installed as defined in the above paragraph.
- (4) When 90% of the lots are developed within a block or a phase, whichever comes first, the remaining sidewalks on undeveloped lots shall be installed by the subdivider/developer within 120 days of the last occupancy permit being issued.

UTILITIES

§ 153.080 GENERAL STANDARDS FOR UTILITIES.

All utility lines, including gas, electric power, lights, telephone and CATV lines, shall be located underground in proper easements throughout every subdivision. Underground service connections to the property line of each unit shall be installed at the developer's expense.

§ 153.081 SPECIFIC STANDARDS FOR WATER SERVICES.

It is the responsibility of the subdivider/developer to install or have installed all water mains necessary to serve the proposed development. In addition, the subdivider/developer shall connect the water mains within the subdivision to the public water system, under the direction and supervision of the City, but at no cost to the City.

- (A) **Construction plans.** The subdivider/developer's engineer shall first prepare detailed construction plans, determine a complete bill of materials and complete all forms and submissions required for a permit from the IEPA.
- (1) The plans shall be reviewed by the City Engineer and Director of Public Works prior to submittal to the IEPA. It is the subdivider/developer's responsibility to secure IEPA approval.
 - (2) Design and construction shall be in accordance with the applicable portions of the current edition of the *Standard Specifications for Water and Sewer Main Construction in Illinois*.
 - (3) Plans for and actual installation of, all water mains shall assure at least a 5-foot separation from all other utilities. The *Standard Specifications for Water and Sewer Main Construction in Illinois* specify the separation between water and sewer utilities.
- (B) **Main requirements.** Every water main extension installed by a subdivider/developer, either inside or outside the limits of his or her subdivision, shall be a minimum of 6 inches in diameter.
- (1) If the water main will supply industrial or commercial developments, it shall be a minimum of 12 inches in diameter.
 - (2) If a water main extension will ultimately serve future developments, the City may require the main to be larger than the minimum size. In other instances, the Director of Public Works may require water mains to exceed the minimum sizes. In these cases, the City will pay the difference in material cost from the minimum required size to the requested size. If the same developer constructs the adjoining property, the City's contribution shall be reimbursed.

- (3) If the water main will supply industrial or commercial developments, it shall be a minimum of 12 inches in diameter.
 - (4) All water mains shall be constructed of either ductile iron meeting the requirements of AWWA C-151, or Class 200 PVC water main meeting the requirements of ASTM D-2241 and having slip-on joints with rubber gaskets meeting the requirements of ASTM D-3139.
 - (5) Gate valves shall be Underwriters Lab approved resilient seat gate valves AWWA C-509 and shall be installed in valve boxes as approved by the City.
 - (6) All bends and fittings shall be restrained mechanical joints conforming to AWWA C111 and C600.
 - (7) The subdivider/developer shall install THWN soft drawn solid No. 12 copper tracer wire with all water mains, and connected to all valves and hydrants, in order to facilitate future underground location. For proper hookup, the wire shall be made available at intervals no greater than 500 feet.
 - (8) Where the trench for any water main or service line crosses under the location of a street, drainage structure, right-of-way or other paved areas, it shall be backfilled with crushed stone being CA-6 according to the "Illinois Standard Specifications for Road and Bridge Construction".
 - (9) Water mains shall be extended around the full circumference of all cul-de-sacs to the last lot.
- (C) *Fire hydrants.* The subdivider/developer shall submit a plan to the City for review of fire hydrant locations within the development.
- (1) The spacing between fire hydrants shall not exceed 500 feet in single-family residential areas or 300 feet in all other zoning districts.
 - (2) Upon approval of the plan, the subdivider/developer shall install hydrants at the designated locations.
 - (3) Without substitution, hydrants shall be 3-way Mueller Centurion Model A-423 or Clow Medallion Model F-2545 with a 5¼-inch barrel, a 4-foot bury, 2½-inch discharges, a 4½-inch steamer connection, and National Standard threads.
 - (4) All hydrants shall stand plumb and shall be located per the following or as directed by the Director of Public Works. Hydrants with pumper nozzles shall have hose nozzles parallel with, and the pumper nozzle perpendicular to, the curb line. Hydrants located behind curbs where sidewalks extend close to or about the curb shall be set so that no portion of the pumper or hose nozzle caps will be less than 12 inches from the back edge of the sidewalk and 4 feet from the back of curb. Where set between the curb and sidewalk, or between the sidewalk and property line, no portion of the hydrant or nozzle cap shall be within 12 inches of the sidewalk or 4 feet from the back of curb

where no sidewalk exists. Where no curb exists, the hydrant shall be no closer than 8 feet from the edge of pavement and 6 feet from the flow line of the drainage ditch.

- (D) *Water service lines.* Water service lines shall be a minimum 1-inch inside diameter Type K copper or 1-inch CTS SDR 9 250 PSI polyethylene tubing.
- (E) *Testing.* The subdivider/developer shall be required to provide air testing, sampling, and backfill testing as required by the IEPA, in order for the City to obtain an operating permit.
 - (1) As a minimum, a testing agency or firm shall not be considered as qualified unless it is independent of the contractor installing the water system, demonstrate competency in the performance of air and mandrel tests, follow standard safety practices for performing testing in confined spaces, and are insured, including for errors and omissions. As such, the City has the right to approve or not approve any agency or firm.
 - (2) The Public Works Department shall be present during the performance of all testing work and shall be notified of the time and place of testing at least 48-hours prior to commencement of the test.
- (F) *IEPA approval.* No water service taps shall be made until such time as the City has received an operating permit from the IEPA.
- (G) *Maintenance.* The subdivider/developer shall be responsible for all maintenance of water mains, valves, hydrants, and service connections until such time as the paving of the streets and the grading adjacent to the sewer is complete, and the improvements are officially accepted by the City Engineer and/or the Director of Public Works.

§ 153.082 SPECIFIC STANDARDS FOR PUBLIC SANITARY SEWERS.

It is the sole responsibility of the subdivider/developer to provide a sanitary sewage disposal system for every subdivision or development which complies with the regulations of the State Department of Public Health ("Private Sewage Disposal Licensing Act and Code," being ILCS Ch. 225, Act 225, §§ 1 *et seq.*), the IEPA and/or the Madison County On-Site Sewage Disposal Ordinance. In addition, the subdivider/developer shall connect the sanitary sewer mains within the subdivision or development to the public sewer system under the direction and supervision of the City but at no cost to the City.

- (A) *Requirements for extension of existing mains.*
 - (1) If the public sanitary sewer system is within 300 feet of the proposed subdivision or development, and the system has the available capacity, the subdivider/developer shall extend the existing system and sewer to his or her entire proposed development at his or her own expense.

- (2) Should the public sanitary sewer system be more than 300 feet away from the proposed subdivision or development, the City may negotiate with the subdivider/developer to share the cost of extending the existing system and sewer.
- (B) **Construction plans.** The subdivider/developer shall employ a professional engineer registered in the state to first prepare detailed construction plans, including the extension of any existing public sewer main, determine a complete bill of materials and complete all forms and submissions required for a permit from the IEPA.
- (1) The plans shall be reviewed by the City Engineer and/or Director of Public Works prior to submittal to the IEPA. It is the subdivider/developer's responsibility to secure IEPA approval.
 - (2) Design and construction shall be in accordance with the applicable portions of the current edition of the *Standard Specifications for Water and Sewer Main Construction in Illinois*.
 - (3) As part of the plans, the subdivider/developer shall locate every sanitary sewer main within the area between the pavement edge and the right-of-way line of the street or within an easement parallel to the right-of-way.
 - (4) The City shall retain the right to disapprove the proposed location of any sewer main.
- (C) **Sewer mains.** Pipes used for sewer mains shall either be polyvinyl chloride (PVC) sewer pipe conforming to ASTM D 3034, type PSM for sizes 8 to 15 inches and ASTM F-679-89 for sizes 18 to 36 inches, or Ductile Iron Pipe conforming to ANSI A 21.51 (AWWA C-151), class thickness 52 designed per ANSI A 21.50 (AWWA C-150).
- (1) For PVC pipe, the standard dimension ratio (SDR) shall be a minimum of 35 for sewer mains and laterals less than 12 feet in depth. For sewer mains and laterals greater than 12 feet in depth the SDR shall be a minimum of 26. Also, all drop manholes shall be constructed with SDR-26 pipe.
 - (2) The PVC plastic pipe shall have a minimum cell classification of 12454-C and shall have a minimum pipe stiffness of 46 pounds per inch (317 kPa).
 - (3) Joints for PVC sewer pipe shall conform to ASTM D-3212.
 - (4) FA-6, CA-16 or CM-16 conforming to the requirements of IDOT and manufactured from crushed limestone installed to a minimum depth of 4 inches shall be used as bedding for all PVC sewer mains.
 - (5) Ductile iron pipe shall be tar (seal) coated and/or cement lined per ANSI A 21.4 (AWWA C-104) with mechanical or rubber ring (slip seal or push-on) joints.
 - (6) Mechanical joints and push-on joints for ductile iron pipe shall conform to AWWA C111 and AWWA C600.

- (7) The minimum allowable size for sewer mains shall be 8 inches in diameter.
- (a) The City may require the main to be larger than the minimum size to provide capacity to serve future, adjacent tributary lands. Also, for other reasons, the Director of Public Works may require sewer mains to exceed the minimum sizes. In these cases, the City will pay the difference in material cost from the minimum required size to the requested size. If the same developer constructs the adjoining property, the City's contribution shall be reimbursed.
- (8) Both PVC and ductile iron pipe shall be installed and backfilled with CA-6 aggregate in conformance with the *Standard Specifications for Water and Sewer Main Construction in Illinois* and the Standard Specification Plan Sheets.
- (9) Where a sewer main crosses under the location of a street, drainage structure, right-of-way or other paved areas, the trench shall be backfilled with CA-6 aggregate or other approved granular material and satisfactorily compacted to the Standard Specification Plan Sheets.
- (D) *Service connections.* The subdivider/developer shall provide a 6-inch service connection for each residential lot, accomplished by way of a "Y" fitting matching the diameter of the sewer main and the service lateral, made from the same material as the pipes, and installed in the sanitary sewer main in order to provide for connection of the laterals to the sewer main.
- (1) The "Y" fitting shall be installed in the sewer main in such a manner so that the centerline of the service riser will be 45 degrees above a horizontal plane through the center of the main.
- (2) Material joining the "Y" fitting to the pipes shall be free from cracks and shall adhere tightly to each joining surface.
- (3) A log, locating all "Y" fittings by indicating accurate measurements for the distance from the downstream manhole and the depth of the connection at the main, shall be established by the contractor and maintained during installation as a permanent record of the locations and shall be provided to the City prior to the issuance of any occupancy permit.
- (E) *Service laterals.* The subdivider/developer shall provide a 6-inch service connection at the "Y" for each residential lot, the lateral of which, shall be extended at least 10 feet into the lot, as measured from the lot line, and at least 3 feet beyond any dedicated easement so as to avoid conflict with other utilities, and then extended vertically to a minimum of 3 feet above the finished grade level where it shall be terminated with a glued cap capable of withstanding air testing pressures.
- (1) All sewer lines shall be installed using a laser to align the sewer to the correct vertical grade and horizontal alignment.

- (2) Any transition in the lateral from the "Y" fitting to the vertical shall be made by the use of a series of 45 degree elbows or through the use of a 6-inch 90-degree "long sweep."
 - (3) The end of the sewer lateral as it extends above grade shall be sealed with a 6-inch cap securely glued into place so as to withstand air test procedures.
 - (4) Pipes used for service laterals shall be 6-inch polyvinyl chloride (PVC) sewer pipe conforming to ASTM D 3034, type PSM for service lines.
 - (5) For the PVC pipe, the standard dimension ratio (SDR) shall be a minimum of 35.
 - (6) The PVC pipe shall have a minimum cell classification of 12454-C and shall have a minimum pipe stiffness of 46 pounds per inch (317 kPa).
 - (7) Joints for PVC sewer pipe shall conform to ASTM D-3212.
 - (8) The minimum allowable grade is 1.0%.
 - (9) Service lines shall be installed and trenches backfilled with CA-6 aggregate in conformance with the *Standard Specifications for Water and Sewer Main Construction in Illinois*.
 - (10) CA-6 granular aggregate to a minimum depth of 4 inches shall be used as bedding for all PVC sewer laterals.
 - (11) Where a sewer lateral crosses under the location of a street, drainage structure, right-of-way or other paved areas, the trench shall be backfilled with CA-6 aggregate or other approved granular material and satisfactorily compacted.
 - (12) In order to facilitate future location of service laterals, the subdivider/developer shall assure that an "X" is cut into the top back of curb at the point under which the lateral passes.
- (F) **Manholes.** The subdivider/developer shall provide sanitary sewer manholes within the proposed subdivision or development as part of the sewer system design and at locations necessitated by the design.
- (1) The manholes shall be constructed of pre-cast Portland cement concrete in conformance with ASTM C-478 and shall be constructed in such a way so as to prevent the leakage of sewage from the manhole or the infiltration of ground water into the manhole. All manholes shall be "Type A" in design and be at least 4 feet in diameter equipped with A-lock rubber gaskets. Risers and slabs shall be in accordance with ASTM C478. Lifting holes shall be provided in the bases and risers. Lifting hooks shall be provided in flat slabs. Manhole steps shall be constructed of copolymer polypropylene plastic.
 - (2) Minimum wall thickness for manholes shall be 5 inches.

- (3) Cones and sections shall be substantially free from fractures, large or deep cracks and surface roughness.
 - (4) Slabs shall be sound and free of gravel pockets.
 - (5) Manhole steps shall be furnished and installed and shall be either gray cast iron conforming to ASTM A 48 or polypropylene coated steel reinforcing rods with load and pullout ratings conforming to OSHA requirements.
 - (6) Pre-cast inverts shall be provided in the base sections to accommodate pipe openings with side channel walls extending to roughly the center of the sanitary sewer pipe. Grouting is required around pipes to provide a consistent smooth invert. Special care shall be taken to see that the openings through which pipes enter the structure shall be provided with "A-Lok" flexible watertight connections conforming to ASTM C 923, "Standard Specifications for Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes".
 - (7) Special care shall be taken to see that the openings through which pipes enter the structure shall be provided with flexible watertight connections conforming with ASTM C 923, Standard Specifications for Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes.
 - (8) The maximum distance between manholes shall be 400-feet.
- (G) *Manhole frames and lids.* Castings shall conform to ASTM A 48 and shall be Neenah R-1772, East Jordan 1022 or equivalent cast iron frame and lids with concealed pick holes and self-sealing gaskets in the lid.
- (1) Sanitary sewer manhole frame and grates shall be capable of handling H-20 loadings.
 - (2) In areas that are subject to surface water ponding, frames with stainless steel bolt-down gasketed lids and concealed pick holes which are Neenah R-1915 or equivalent may be required to prevent ground water infiltration.
 - (3) The word "SANITARY" shall be cast in the lids of all sanitary sewer manholes.
 - (4) Lids and frames shall be properly sealed at the time they are adjusted to finished grade. Mastic sealant shall be applied between the concrete and flange of the frame before the lid bolts are tightened.
 - (5) Adjusting rings may be necessary to place the frame and lid at the correct elevation. Rings may be applied to a height of 8 inches. If the adjustment requires more than 8 inches, a barrel section must be installed under the cone section.

- (H) **Sanitary sewer lift stations.** The design of lift stations shall conform to "Title 35: Environmental Protection; Subtitle C: Water Pollution; Chapter II: Environmental Protection Agency; Part 370: Illinois Recommended Standards for Sewage Works; Subpart D: Sewage Pumping Stations" of the State of Illinois Rules and Regulations, and the *Standard Specifications for Water and Sewer Main Construction in Illinois*, latest edition.
- (1) The owner/developer shall install all necessary lift station(s) and appurtenances at no cost to the City. Lift stations shall be considered part of the improvements. The lift station shall be placed within a permanent easement.
 - (2) All lift station materials, equipment types, and requirements shall be furnished and installed in accordance with details and specifications of the City's Public Works Department. The lift station equipment shall include emergency pumping capabilities to pump the design peak flow without electric commercial power.
 - (3) Every lift station shall be located off the traffic way of streets and alleys and shall be enclosed by a fence which has been approved in advance by the City; provided, however, that within subdivisions with restrictions of record, the fence shall conform to the restrictions except that the height of the fence may be varied if required to adequately conceal the lift station components. Areas inside the fence shall be rocked with 6 inches of CA-6 aggregate.
 - (4) The subdivider/developer shall provide a permanent road surface of either asphalt or concrete for access to any lift station so that lift stations are readily accessible by maintenance vehicles during all weather conditions.
 - (5) A 2½ inch flushing hydrant shall be located within 25 feet of the lift station for cleaning purposes.
 - (6) Sewage lift station structures and mechanical equipment shall be protected from physical damage and designed to remain operational during a 100-year flood event.
 - (7) Sewage lift station pumps and appurtenances shall be Flygt pumps without exception
 - (8) Electrical systems and components shall comply with the National Electrical Code requirements for Class 1, Group D, Division 1 locations.
 - (9) Electrical panel and controls shall be manufactured by either Climex or Stacon.
 - (10) The subdivider/developer shall also equip the lift station with an emergency generator. The diesel generator shall be Cummins, Caterpillar, or Onan.
 - (11) The lift station shall be equipped with a high-water alarm light and a multi-trode communication/emergency telemetering system of the City's choice. For redundancy in design, the lift station shall also have a high-level emergency float.
 - (12) Under no circumstances shall the wet well inlet be less than 4 feet above the pumps.

- (13) Wet wells shall be a minimum 5 feet in diameter. Valve vaults shall be a minimum 5 feet by 5 feet square. Safety hatches shall be installed on all aluminum access hatches approved by the Director of Public Works.
 - (14) The emergency high-water mark should be below the lowest basement elevation for all the homes served by the lift station. If allowed by the City by variance, a check valve to prevent backflow should be installed at the right-of-way line on all sewer services with basements lower than the emergency high-water mark.
 - (15) Sanitary sewer force main shall be pressure tested and installed with THWN No. 12 tracer wire.
 - (16) *Existing System Improvements:* Improvements to downstream sewerage facilities including sewers and pump stations may be required to provide sufficient capacity to serve the increase in tributary flow of a proposed sanitary sewer extension as determined by the Director of Public Works. If the improvements are required solely for the development, the City will require the owner/developer to pay all the cost of the downstream sewer system improvements to provide for the increased capacity. If the improvements are also required for future development, the City will pay the difference in cost from the minimum required improvements to the requested improvements. If the same developer constructs the future development(s), the City's contribution shall be reimbursed.
 - (17) All lift station components, design criteria and IEPA permit application shall be reviewed by the City Engineer and/or Director of Public Works prior to approval for construction.
- (I) *Inspection and testing sanitary sewer system piping.* All sections of all sanitary systems, including sewer mains and laterals, shall be air and mandrel tested by a qualified testing agency or firm hired by the subdivider/developer who bears all cost for the testing.
- (1) Testing of sewer mains and laterals shall be performed within 60 days after completion of installation.
 - (a) As a minimum, a testing agency or firm shall not be considered as qualified unless it is independent of the contractor installing the sanitary sewer system, demonstrate competency in the performance of air and mandrel tests, follow standard safety practices for performing testing in confined spaces, and is insured, including for errors and omissions. As such, the City has the right to approve or not approve any agency or firm.
 - (b) The Director of Public Works shall be present during the performance of all testing work and shall be notified of the time and place of testing at least 48-hours prior to commencement of the test.

- (2) When air testing, all sanitary sewer mains and laterals which are 8 inches or less in diameter shall be pressurized to at least 4 psi above the surrounding ground water pressure. A section of pipe shall be considered to have "passed" air testing if the pressure does not drop below 3 psi for a minimum duration of 5 minutes.
 - (3) Sewer mains over 8 inches in diameter shall be tested as required by the City Engineer.
 - (4) The testing agency or firm shall notify both the subdivider/developer and the City in writing of the results of all tests as soon as possible after the tests are performed.
 - (5) Should any test fail, the subdivider/developer shall make repairs and arrange for the test to be performed again and shall continue to make repairs and perform testing until each section of pipe has passed the tests.
- (J) *Inspection and testing of sanitary sewer manholes.* All sanitary sewer manholes shall be vacuum tested in accordance with ASTM C1244 - 05ae1 Standard Test Method for Concrete Sewer Manholes by the negative air pressure (vacuum) test prior to backfill.
 - (K) *Maintenance.* The subdivider/developer shall be responsible for all maintenance of sewer mains, manholes, lift stations, service connections and service laterals until such time as the paving of the streets and the grading adjacent to the sewer is complete and the improvements are officially accepted by the City Engineer and/or Director of Public Works.
 - (L) *Warranty.* The subdivider/developer shall notify the City in writing when initiating the operation of any new sanitary sewer system and shall thereafter be responsible for any and all defects in the system including sewer mains, manholes, lift stations, service connections and backfill settlement for a period of two years.

§ 153.083 (RESERVED)

§ 153.084 SPECIFIC STANDARDS FOR OTHER UTILITIES.

It shall be the responsibility of the subdivider/developer to forward plans for the subdivision/development to the respective providers of electric, natural gas, telephone and cable television services.

- (A) Gas, electric power, telephone and cable television, and other utilities except surface stormwater facilities shall be located underground throughout the subdivision. Except, however, that the following shall be excluded from this requirement:
 - (1) Poles used exclusively for street lighting.
 - (2) Antennas, associated equipment and supporting structures used for furnishing communication services.

- (3) Equipment appurtenant to underground facilities such as surface mounted transformers, pedestal mounted terminal boxes and meter cabinets, and concealed ducts.
 - (4) Temporary poles, overhead wires and associated overhead structures used for a period not to exceed 6 months which are necessary to provide utility service until the permanent service is completed.
 - (5) Poles, wires and controller cabinets necessary for the operation of traffic signals.
 - (6) Poles, overhead wires and associated overhead structures used for the transmission of electric energy at nominal voltages in excess of 34,500 volts.
 - (7) Other utility facilities which may be exempted by the City Council based on a recommendation from the Director of Public Works.
- (B) The utility companies shall develop and submit to the subdivider/developer proposed layouts for their facilities so that the subdivider/developer may approve the layouts and forward them to the City for review as part of the City's approval process.
 - (C) Underground service connections for the utilities shall be provided at the property line of each platted lot.
 - (D) All conduits or cables for the utilities shall be located within easements or public rights-of-way in such a manner that they do not interfere with other underground services or utilities.
 - (E) No underground utilities shall be constructed until their physical location is reviewed in writing by the City Engineer and/or Code Enforcement Officer.
 - (F) The subdivider/developer shall also secure recommendations from the electric company for street lighting in any new subdivision and shall present plans for the street lighting to the City for approval prior to installation.
 - (1) LED lighting shall be installed once it is an available option from the electric company.
 - (2) The City reserves the right to reject lighting plans based on style and photometrics.
 - (3) The City reserves the right to request photometrics for street lighting to verify adequate lighting is being provided for public safety.

§ 153.085 SAFETY PROVISIONS.

It shall be the responsibility of the subdivider/developer to provide all necessary and appropriate safety features within any subdivision or development, including but not limited to guard rails, retaining walls, curbing and revised grading at hazardous or potentially hazardous locations. Hazardous locations might include where water is impounded next to roadway, in areas of high fills, along large culverts and near steep embankments.

§ 153.086 STANDARDS FOR EASEMENTS.

In designing any subdivision, the subdivider/developer shall provide easements for drainage and storm sewers and for all utilities including sanitary sewers; gas mains; water mains; and underground electric, telephone and cable television lines.

- (A) *Utility easements.* Unless utilities are to be installed in the public rights-of-way, utility easements not less than 20 feet wide for sanitary sewers and not less than 15 feet wide for gas mains, water mains and underground electric, telephone and cable television lines shall be provided along all rear lot lines and along those side lot lines where necessary.
- (1) As a common practice, in the case of abutting lots the easements shall be designed so that they are apportioned evenly on either side of the lot lines.
 - (2) Preliminary plats shall be submitted to the appropriate utility companies for their input regarding the location of utility easements.
 - (3) Water mains and sewer mains should normally be installed in easements on opposite sides of a street and located as near to the center of the easements as possible.
 - (4) Easements of greater width may be required along or across lots when necessary for the extension of sewer mains or other utilities or where both water and sewer lines must be located in the same easement.
 - (5) The final location and minimum widths of all easements shall at the discretion of the City Engineer.
- (B) *Drainage easements.* Adequate easements for stormwater drainage shall be established along any natural drainage channel and in any other locations as may be necessary to provide satisfactory disposal of stormwater from streets, alleys and all other portions of the subdivision.
- (1) In no case, shall the easements be less than 15 feet in width.
 - (2) Easements to access and maintain drainage retention and detention facilities shall also be provided as necessary.
 - (3) Plans depicting drainage easements shall indicate the direction of water flow by the use of arrows.
 - (4) In addition to the easement area, the City of Troy shall be granted the use of additional space adjacent to the easement as may be required for working room during the construction, reconstruction, maintenance, or repair of the aforementioned sewer or sewers, including stormwater improvements.

- (5) The City of Troy may from time to time enter upon said premises to construct, reconstruct, maintain, or repair the aforesaid sewer or sewers, including stormwater improvements, and may assign its rights herein to the State, County, or other political subdivisions of the State.
- (C) *Pedestrian Access Route Easements.* A 10-foot wide easement shall be provided along lot lines according to § 153.061.
- (D) *Restrictions.*
 - (1) No person shall erect any structure or fence or plant any tree or shrub in any easement or within any street or alley right-of-way, except at the owner's risk with respect to all costs for demolition, removal or reconstruction thereof.
 - (2) Utilities, public and private, in order to have access for repair or to have alternate access through the owner's property shall have the right to destroy any such improvements within an easement, with the responsibility to restore the area only by grading and seeding. It shall be unlawful for any person to deny access to the easements to authorized officials upon display of proper identification.

ADMINISTRATION AND ENFORCEMENT

§ 153.120 SCHEDULE OF FEES.

- (A) The following schedule establishes fees for the various procedures listed in this subchapter, which are intended to defray the administrative costs connected with the procedures and as such do not constitute a tax or other revenue raising device:

TABLE 153.120: FEES	
<i>Procedure</i>	<i>Fee</i>
Filing of preliminary plat	\$150 plus \$15 per lot or actual review costs, whichever is greater
Filing of improvement plan	\$40 per lot
Filing of final plat	\$250
Inspection of improvements	3% of the estimated cost of improvements or actual review costs, whichever is greater
Nonresidential subdivision/site development plan review	\$500 minimum plus any additional costs

Application for variation	\$250
Application for amendment to the text of the Troy Subdivision Code	\$250
* Fees shall be deemed waived for any application filed by a City Official, the Planning Commission or the Code Enforcement Officer when acting in an official capacity and on behalf of the City.	

- (B) Until the fees have been paid, no request for any of the above shall be deemed to have been filed and no procedure shall be initiated.

§ 153.121 AUTHORITY.

- (A) The primary authority for administration and enforcement of the provisions of this chapter shall be vested in the following:
- (1) Code Enforcement Officer;
 - (2) City Engineer;
 - (3) Planning Commission; and
 - (4) City Council.
- (B) In addition to the above, other officials, appointees or employees of the City may be required and authorized to perform functions authorized in this chapter.

§ 153.122 CODE ENFORCEMENT OFFICER.

There is hereby created the position of Code Enforcement Officer who is hereby authorized and empowered to administer and enforce provisions of this chapter as listed in [§ 153.124](#).

- (A) The Code Enforcement Officer, in administering and enforcing the provisions of this chapter, shall be responsible for but not limited to the following specific duties:
- (1) To review and forward preliminary and final plats to the Planning Commission;
 - (2) To transmit improvement plans to the Director of Public Works and City Engineer for his or her review;
 - (3) To issue stop orders as necessary when the City Engineer determines that approved improvements are being constructed in violation of this chapter;
 - (4) To pursue actions authorized in [§ 153.169](#) when a subdivider/developer fails to complete required improvements;

- (5) To evaluate and make decisions concerning proposed minor changes in approved final plats;
- (6) To review and forward applications for variations to the Planning Commission;
- (7) To periodically review the provisions of this chapter to determine whether revisions are needed and to make recommendations on such matters to the Planning Commission as necessary;
- (8) To maintain up-to-date records of matters pertaining to this chapter, including but not limited to preliminary plats, "as-built" records of completed improvements, final plats, variations and amendments; and
- (9) To provide information to subdivider/developers and developers and to the general public on matters related to this chapter.

§ 153.123 CITY ENGINEER.

The City Engineer, as appointed by the Mayor with the advice and consent of the City Council, is hereby authorized and empowered to administer and enforce all applicable provisions of this chapter and shall be responsible for but not necessarily limited to the duties specified in the various sections of this chapter.

§ 153.124 PLANNING COMMISSION.

The Planning Commission, a 9-member Board appointed by the Mayor, shall hereby be authorized and empowered to administer and enforce all applicable provisions of this chapter as listed herein.

- (A) For the purposes of this chapter, 5 members of the Planning Commission shall constitute a quorum and no meeting or public hearing shall be conducted by the Commission without a quorum being present.
- (B) The concurring vote of 5 members of the Planning Commission shall be necessary to decide in favor of the applicant any matter upon which it is required to pass.
- (C) The Planning Commission in administering and enforcing the provisions of this chapter shall be responsible for the following specific duties:
 - (1) To review preliminary plats and report its findings and recommendations to the City Council;
 - (2) To hear and review applications for variations and report its findings and recommendations to the City Council;
 - (3) To hear and review applications for amendments to the text of this chapter and report its findings and recommendations to the City Council;

- (4) To conduct in accordance with law meetings and public hearings at the call of the Planning Commission Chairperson, Administration and Community Services Chairperson, Mayor, City Council, City Clerk or at such other times as the Planning Commission may determine;
- (5) To compel by action of the Chairperson the attendance of witnesses at meetings and hearings, to allow the testimony of witnesses or any other person or his, her or their designated agent or attorney, and to administer oaths to those who so testify;
- (6) To keep records of its hearings and other official actions and minutes of its proceedings showing the vote of each member upon each question, or if absent or failing to vote, indicating that fact; and
- (7) To file immediately in the office of the City Clerk a copy of every rule, regulation, order, requirement, decision or determination of the Planning Commission, the contents of which shall be public record.

§ 153.125 COMPLAINTS.

Whenever any person alleges that a violation of the provisions of this chapter has occurred, that person shall file a written complaint on forms provided by the Code Enforcement Officer. The Code Enforcement Officer shall record the complaints, promptly investigate and, if necessary, institute appropriate corrective action.

§ 153.126 CORRECTIVE ACTION ORDERS.

Whenever the Code Enforcement Officer finds, by complaint, inspection or otherwise, any development in violation of this chapter, he or she shall so notify the responsible party and shall order appropriate corrective action.

§ 153.127 CONTENTS OF ORDER.

Every order to take corrective action shall be issued in writing and shall at least include:

- (A) A description of the premises sufficient for identification;
- (B) A statement indicating the nature of the violation;
- (C) A statement of the corrective action necessary to effect compliance;
- (D) The date by which the violation must be corrected;
- (E) A statement that the alleged violator is entitled to a conference with the Code Enforcement Officer and/or the City Engineer if he or she so desires;

- (F) The date by which an appeal of the corrective action order must be filed, and a statement of the procedure for so filing; and
- (G) A statement that failure to obey a corrective action order may result in the imposition of fines.

§ 153.128 SERVICE OF ORDER.

A corrective action order shall be deemed properly served upon the owner, subdivider/developer or developer, if it is:

- (A) Served upon him or her personally;
- (B) Sent by certified mail to his or her last known address; or
- (C) Posted in a conspicuous place on or about the affected premises.

§ 153.129 STOP WORK ORDERS.

Whenever any work is being done in violation of any provision of this chapter, the Code Enforcement Officer's corrective action order may state that the violation must cease immediately, in which case, the corrective action order is equivalent to a stop work order.

§ 153.130 EMERGENCY MEASURES.

Notwithstanding any other provisions of this chapter, whenever the Code Enforcement Officer determines that any violation of this chapter poses an imminent peril to life or property, he or she may institute, without notice or hearing, any necessary proceedings to alleviate the perilous condition.

IMPROVEMENTS

§ 153.160 IMPROVEMENT PLANS.

- (A) Following approval of any preliminary plat by the City Council, but prior to submission of the final plat, the subdivider/developer shall submit plans to the Code Enforcement Officer for review by the City Engineer, for those improvements to be installed within or in conjunction with the proposed subdivision.
 - (1) The subdivider/developer shall submit two copies and one electronic copy of the plans, specifications and any other supporting documentation.
 - (2) The plans and specifications shall be signed and sealed by the professional engineer registered in the state who was responsible for its preparation.

(B) Until the City Engineer certifies in writing that to the best of his or her knowledge the proposed improvements conform to the standards imposed in this chapter:

- (1) The Code Enforcement Officer shall not issue any permit to allow construction of the improvements; and
- (2) The City Council shall not act upon the application for final plat approval.

§ 153.161 REQUIREMENTS FOR FILING.

(A) *Generally.* Plans and specifications for improvements shall consist of black line prints not larger than 30 inches by 36 inches. The plans, together with related specifications shall provide all of the information listed herein.

(B) *Improvement plans.* The subdivider/developer shall submit as part of his or her improvement plans, street and drainage plans prepared in accordance with generally accepted engineering standards and all relevant requirements in these regulations, and including but not limited to the following items:

- (1) A title page containing the name of the subdivision, a location map, with scale and north arrow, a title block for the name of the developer and engineer, and the engineer's seal, as well as:
 - (a) A list of standards and specifications or standard drawings, which as an option, may be shown on a separate sheet; and
 - (b) A summary of quantities which as an option may be shown on another sheet.
- (2) Street plan and profile sheets to a horizontal scale of 1 inch equals 20 feet or 1 inch equals 50 feet and a vertical scale of 1 inch equals 2 feet, or 1 inch equals 5 feet, or 1 inch equals 10 feet, and including but not limited to the following items:
 - (a) Title block with subdivision name, identification of information on sheet, vertical and horizontal scale and sheet number;
 - (b) North arrow;
 - (c) One or more benchmarks;
 - (d) Existing and proposed survey monuments;
 - (e) Profiles of existing ground and proposed centerline of pavement;
 - (f) Locations, sizes and invert elevations of all existing and proposed storm sewer manholes, storm sewers and catch basins showing connections to any existing or proposed storm sewer systems;
 - (g) Plans of existing utilities, proposed lots, street right-of-way, pavements, curb and/or gutter, catch basins, storm sewer (including size), drainage arrows and the like;
 - (h) All percent grades and curve data;

- (i) Elevations for existing ground and proposed pavement grade, storm sewer inverts, inverts and tops for catch basins and retention basins;
 - (j) Locations and typical cross-section of sidewalks;
 - (k) Radii of all curves and lengths of tangents on all streets; and
 - (l) Locations of street signs.
 - (3) Street cross-section sheets showing existing and proposed grades to a scale of 1 inch equals 10 feet, or 1 inch equals 5 feet with sufficient sections to indicate the typical finished section of each street, as well as curbs/gutters and catch basins; and
 - (4) Construction detail sheets showing sidewalk ramp designs to a scale of 1 inch equals 5 feet, or 1 inch equals 10 feet with sufficient information including proposed grades and slope to verify ADA compliance.
- (C) Grading and drainage plan sheets according to § 156.103(A) to a horizontal scale of 1 inch equals 20 feet
- (D) *Erosion control plan.* The subdivider/developer shall submit, as part of his or her improvement plans, an erosion control plan as required in §156.105(E)(2), and which shall also include but not be limited to the following items:
- (1) Existing topography of the subdivision or development site, including adjacent land within approximately 100 feet of the site boundaries drawn at no greater than 2-foot contour intervals and clearly portraying the conformation and drainage pattern of the area;
 - (2) The location of existing buildings, structures, utilities, water bodies, floodplains, drainage facilities, vegetative cover, paved areas and other significant natural or human-made features on the site and any adjacent land within approximately 100 feet of the site boundaries;
 - (3) A general description of the predominant soil types on the site, their location and their limitations for the proposed use;
 - (4) Proposed use of the site, including present development and planned utilization; areas of excavation, grading and filling; proposed contours, finished grades and street profiles; provisions for storm drainage, including the control of accelerated runoff, with a drainage area map and computations; kinds and locations of utilities; and areas and acreages proposed to be paved, covered, sodded or seeded, stabilized with vegetation or left undisturbed.
 - (5) Identification of the person(s) or entity that will have legal responsibility for maintenance of erosion control structures and measures after development is completed. *Note: The City maintains only those storm sewers that convey water from a public right-of-way, and then only to a point of natural discharge. The*

subdivider/developer, a homeowner's association or individual property owners retain maintenance responsibility for stormwater drainage facilities located within subdivided lots and common land areas.

- (6) A proposed schedule for phasing of stripping, clearing, rough grading, construction, final grading and landscaping, identifying:
- (a) The expected date on which clearing will begin and an estimation of how long cleared areas will be exposed; and
 - (b) The sequence of clearing, installation of temporary sediment control measures, installation of storm drainage, paving streets and parking areas, and establishment of permanent vegetative cover.

(E) **Water mains and sanitary sewer plan.** The subdivider/developer shall also submit plans for the proposed extension of water and sewer mains throughout the subdivision, which have been prepared by a professional engineer registered in the state in accordance with the requirements of the Illinois Environmental Protection Agency and all relevant requirements in these regulations. The plans shall include but are not limited to the following items:

- (1) A title page containing the name of the subdivision, a location map, with scale and north arrow, a title block for the name of the developer and engineer, and the engineer's seal, as well as:
 - (a) A list of standards and specifications or standard drawings which, as an option, may be shown on a separate sheet; and
 - (b) A summary of quantities which, as an option, may be shown on another sheet.
- (2) Water and sanitary sewer system plan and profile sheets to a horizontal scale of 1 inch equals 20 feet or 1 inch equals 50 feet, and a vertical scale of 1 inch equals 2 feet, or 1 inch equals 5 feet, or 1 inch equals 10 feet, and including but not limited to the following items:
 - (a) Title block with subdivision name, identification of information on sheet, vertical and horizontal scale and sheet number;
 - (b) North arrow;
 - (c) One or more benchmarks;
 - (d) Plans of existing and proposed sewer and water mains including valves, hydrants, bends, manholes and main sizes;
 - (e) Locations of existing and proposed natural gas, electric, telephone and other utilities;
 - (f) Profiles of existing grade, proposed grade, water mains, manholes and sewer main;
 - (g) Elevations of manhole inverts and tops of frame;
 - (h) Locations and limits of trench backfill; and

- (i) Locations of force mains and lift stations, along with detail sheet for any such lift stations.
- (F) *Other features.* The subdivider/developer shall also submit plans or illustrations of the following features:
 - (1) Any flood-prone areas detailed on a topographical map at the same scale as required in the preliminary plat illustrating that all lots and improvements will be above the regulatory flood evaluation;
 - (2) High water elevations of all lakes and streams adjoining or within the tract;
 - (3) Locations of all wooded areas;
 - (4) Locations, dimensions and areas of any parcels to be reserved for parks, playgrounds, bike paths or other public purposes as detailed in §153.087;
 - (5) All proposed measures to permanently control erosion and sedimentation; and
 - (6) Any other information as the City Engineer may reasonably require to perform his or her duties under this section.
- (G) *EPA permit applications.* The appropriate permit forms as required by the Illinois Environmental Protection Agency shall be completed by the subdivider/developer's engineer and submitted in conjunction with the water main and sanitary sewer plans for the City's review and subsequent signature.
- (H) Drainage calculations according to §156.103(B) which validate storm sewer sizes and catch basin spacing along with an illustration of the various drainage areas and/or watersheds, and which are to be reviewed by the City Engineer.
- (I) Pavement design calculations according to §153.041(B) and §153.043(B) as required including soil subgrade modifications calculations by a geotechnical engineer. Assumed traffic shall match the approved Traffic Assessment Study prepared in §153.143(A) as applicable.
- (J) Water main sizing calculations according to §153.081(A) as required to justify pipe sizes shown on the plans.
- (K) Sanitary sewer main and lift station calculations according to §153.082(B)(H) as required to justify pipe sizes, lift station design element sizes (e.g., wet well, pumps, etc.) as shown on the plans.
- (L) Construction cost estimates for public improvements shall be updated based on further design refinement to meet the improvement plan standards.

- (M) *Improvements checklist.* A completed "Improvement Plan Checklist" signed by both the subdivider/developer and his or her engineer who prepared the improvement plans.

§ 153.162 REQUIREMENTS FOR APPROVAL.

No improvements shall be constructed by the subdivider/developer until all required improvement plans and applicable permit forms have been received by the City, reviewed, found acceptable as submitted and approved in writing.

- (A) Should plans not be found acceptable, written approval may be issued based upon a requirement that corrections set forth by the City are made, incorporated into the plans by the developer's engineer. Should this happen, two sets of the plans and one electronic copy shall be resubmitted to the City for review and approval.
- (B) Approval is also contingent upon the City receiving copies of IEPA water and sewer permits and IDOT entrance and right-of-way permits all indicating approval by those agencies.

§ 153.163 CONSTRUCTION AND INSPECTION OF IMPROVEMENTS.

- (A) The City shall not be obligated to accept ownership and/or maintenance of any proposed improvements unless the improvements have been inspected during construction and accepted by the City.
- (B) Following submittal and acceptance of the improvement plans, the subdivider/developer shall call a pre-construction meeting at the job site with the City Engineer, the subdivider/developer, his or her engineer, representatives of the utilities involved and the contractor(s) in attendance.
- (C) During the course of construction, the subdivider/developer or his or her duly authorized representative shall notify the Building & Zoning Department at least 48 hours in advance of the need for the following inspections which shall be considered the minimum requirement:
 - (1) *Required earthwork inspections:*
 - (a) Subsequent to stripping and clearing but prior to excavating or placing fill material;
 - (b) Upon completion of rough grading;
 - (c) Prior to fine sub-grading;
 - (d) At the time compaction density tests are performed on sub-grade (reviewed by Code Enforcement Officer or City Engineer); and
 - (e) Upon completion of final grading.

- (2) *Required pavement inspections:*
 - (a) Immediately prior to placement of curbs and/or gutters;
 - (b) Subsequent to fine sub-grading and prior to placement of the lower pavement course; and
 - (c) Prior to placement of each succeeding course of pavement (base, surface and the like).
- (3) *Required drainage inspections:*
 - (a) Prior to placement of storm sewer backfill; and
 - (b) Prior to construction of gutter outlets into catch basins.
- (4) *Required sewer and water inspections:*
 - (a) Prior to backfilling the connection to the existing main; and
 - (b) Daily during the construction of sanitary sewers and water mains if the latter are installed by the subdivider/developer's contractor.
- (D) The City Engineer or a designated City employee shall inspect the improvements while they are under construction and at the milestones indicated herein.
 - (1) If the inspections determine that improvements are being built in violation of this chapter or the approved plans, the inspector shall promptly notify the Code Enforcement Officer who, in turn, shall issue a stop work order.
 - (2) Proceeding in violation of a stop work order is a violation of this chapter.
- (E) The City Engineer and/or Code Enforcement Officer and accompanied by the subdivider/developer or his or her engineer shall also inspect improvements upon their completion.
 - (1) The City shall not accept any completed improvements until the City Engineer has verified to the best of his or her ability that each complies with the provisions of this chapter.
 - (2) The subdivider/developer shall be notified in writing of all improvements which are not acceptable and shall thereafter correct or replace the improvements until they meet the City's requirements.
 - (3) All monuments and pins delineating the subdivision shall have been set prior to the final inspection.
- (F)
 - (1) If field changes are necessary or problems arise during construction, the developer shall immediately contact the Building & Zoning Department.
 - (2) Notes on the field changes shall be kept in the City's project file and forwarded to the developer's engineer for future reference.

§ 153.164 REQUIREMENTS FOR "AS-BUILT" RECORDS.

As-built information will be provided to the "Engineer of Record" who will have a Professional Land Surveyor prepare record drawings based on as-built information. Within 30 days after the completion and acceptance of all improvements, the Engineer for the developer shall deliver record drawings ("as-built" plans) in the form of two black line prints and one electronic copy for each of the improvements constructed. As-builts will contain the information on the design drawings, plus the following additional information:

- (A) As-builts are to document changes between the design and construction. All information that is incorrect due to changes during construction will be corrected. Incorrect or no longer relevant information will be erased or struck through.
- (B) Water and sewer record drawings shall include the location and depth of all service laterals; the size, location and flow line elevations of all mains; the top and flow line elevations of all manholes, valves, hydrants; and any other pertinent information.
 - (1) Any water and sewer facilities constructed in a horizontal or vertical location materially different than the design location will have their design location struck through and will be redrafted at the constructed location.
 - (2) Any dimensions or callouts (e.g., type, location, size, material, etc.) to water and sewer facilities will be corrected as necessary.
- (C) Grading record drawings shall include revised contouring and directional arrows indicating the flow of stormwater, front and rear, for each lot in the subdivision.
- (D) *GIS Requirements.* The City of Troy has implemented geographical information systems (GIS) technologies to store, manage, and maintain spatially-related data. As a result, during installation actual point coordinate locations (X, Y, and Z) shall be captured. All developers shall submit digital as-built plans according to the following requirements:
 - (1) *Submittal Requirements.* As-built digital plan drawings shall be submitted showing the location and details of the actual constructed improvements. The as-built shall be submitted with a sealed cover letter from a licensed Illinois Land Surveyor indicated that the location and elevation of the following items shown in the as-built have been verified under the direct supervision of the surveyor with an error of closure of not more than 1:5,000 feet.
 - (2) *Water System Items.* Inventory water system fittings and valves (elevation at top of fitting/ valve), fire hydrants (elevation to the bottom of the cap on the steamer fitting), and top of pipes every 200 feet along straight runs. Indicate pipe and valve sizes/materials.
 - (3) *Sanitary Sewer System Items.* Inventory manholes (cover elevation, invert elevation(s) and pipe diameter(s)).

- (4) *Storm Sewer System Items.* Inventory catch basins, inlets, manholes, and pipe outfalls (elevation at top of cover, bottom of throat, invert(s) and pipe diameter(s).
- (5) *Property.* Inventory property corner pins and easements being granted to utility companies.
- (6) *Datums.* Submissions shall use the following Geographic Projection and Datum:
 - (a) Projection. State Plan Illinois West.
 - (b) Horizontal Datum. NAD83 (North American Datum of 1983).
 - (c) Vertical Datum. NAVD88 (North American Vertical Datum of 1988).
 - (d) Datum Conversion. NADCON
 - (e) Unit of Measure. US Survey Foot
- (E) No building permits shall be issued for any lots within a subdivision until the record drawings have been provided to the City.

§ 153.165 REQUIREMENTS FOR ASSURANCE OF COMPLETION.

The City Council shall not approve any final plat of subdivision and therefore the final plat shall not be entitled to recording until:

- (A) All improvements required in the approved improvements plan have been completed by the subdivider/developer at his or her expense, inspected by the City Engineer, and dedicated to the City or other appropriate entity; or
- (B) At the discretion of the City Council and in accordance with the provisions below, the subdivider/developer has provided the City with legal assurance to guarantee the satisfactory completion and dedication of all required improvements.

§ 153.166 ACCEPTABLE FORMS OF ASSURANCE.

At the direction of the City Council, the required legal assurance shall be in the form of an escrow deposit.

- (A) Any funds to be held in escrow shall be deposited with the City Treasurer.
- (B) Every escrow deposit shall be in the form of:
 - (1) Cash;
 - (2) An irrevocable letter of credit or commitment from a lending institution guaranteeing to the City the availability of the escrow funds from time to time upon demand; or

- (C) The amount of an irrevocable letter of credit shall be equal to 1½ times the City Engineer's estimate of the cost of constructing the unfinished portion of the required improvements plus all required inspection fees. The estimate shall initially be prepared by the subdivider/developer's engineer and subsequently reviewed and adjusted by the City Engineer, as he or she deems appropriate.
- (D) For any improvements that will be dedicated to some other governmental entity, assurance shall be posted with the official designated by the entity.

§ 153.167 TERM OF ASSURANCE, EXTENSION.

The initial term of any escrow agreement shall not exceed 1 year. If all the required improvements have not been completed by the end of the 1 year period, the Code Enforcement Officer with the advice and consent of the City Council may either extend the escrow agreement for 1 year only or may proceed as per §153.169.

§ 153.168 RELEASE OF BOND, ESCROW DEPOSIT.

- (A) The City Clerk or Treasurer may release up to 75% of the amount of the escrow deposit upon receipt of written authorization from the City Engineer.
 - (1) The amount which the City Engineer authorizes to be released shall be equal to the value of improvements actually completed in accordance with approved plans.
 - (2) If escrow was provided in the form of an irrevocable letter of credit, the City Engineer may designate a portion of the reserved credit to be released and no longer obligated to the City.
- (B) The balance of the amount of the escrow deposit shall not be released until:
 - (1) The City Engineer has notified the Code Enforcement Officer in writing that all required improvements have been satisfactorily completed;
 - (2) The improvements have been dedicated to and accepted by the City or other appropriate entity; and
 - (3) The subdivider/developer has posted the maintenance bond required by § 153.192.

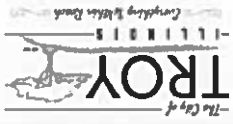
§ 153.169 FAILURE TO COMPLETE IMPROVEMENTS.

If all required improvements have not been completed by the end of the 1-year period (or 2-year period in the case of an extension), the Code Enforcement Officer with the assistance of the City Attorney may;

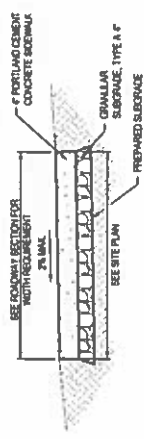
- (A) Require the surety to perform on the bond and to pay to the City an amount equal to the cost of completing the required improvements as estimated by the City Engineer or the amount of the bond not theretofore released, whichever is less;

- (B) Order the City Treasurer to retain all escrowed funds needed to complete the required improvements and to return the balance, if any, of the funds to the subdivider/developer; or**
- (C) Require the subdivider/developer to submit a new escrow deposit in an amount sufficient to cover any increase in the cost of constructing the required improvements.**

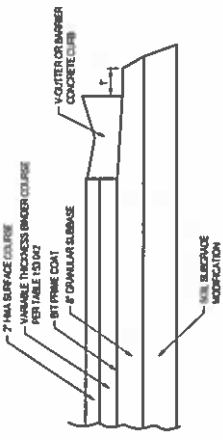
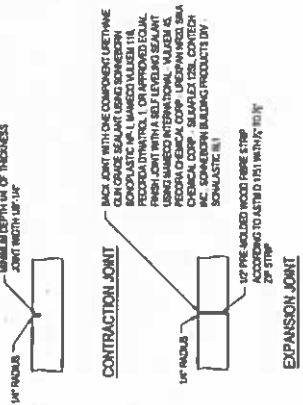
NO.	DATE	REVISIONS



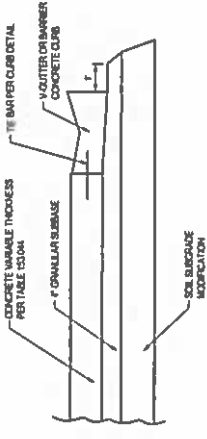
NOTES
CONTRACTION JOINTS ARE TO BE ON 45' CENTERS
EXPANSION JOINTS ARE TO BE ON 110' CENTERS AND AT POINTS OF CURVATURE
EXPANSION JOINT REQUIRED BETWEEN THE SIDEWALK AND EXISTING PAVEMENT OR STRUCTURES



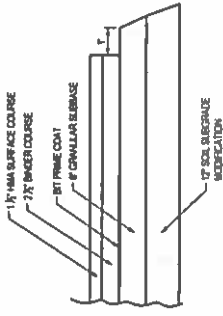
PC CONCRETE SIDEWALK DETAIL



TYPICAL ASPHALT PAVEMENT EDGE DETAIL



TYPICAL CONCRETE PAVEMENT EDGE DETAIL



TYPICAL MULTIUSE PATH PAVEMENT AND EDGE DETAIL

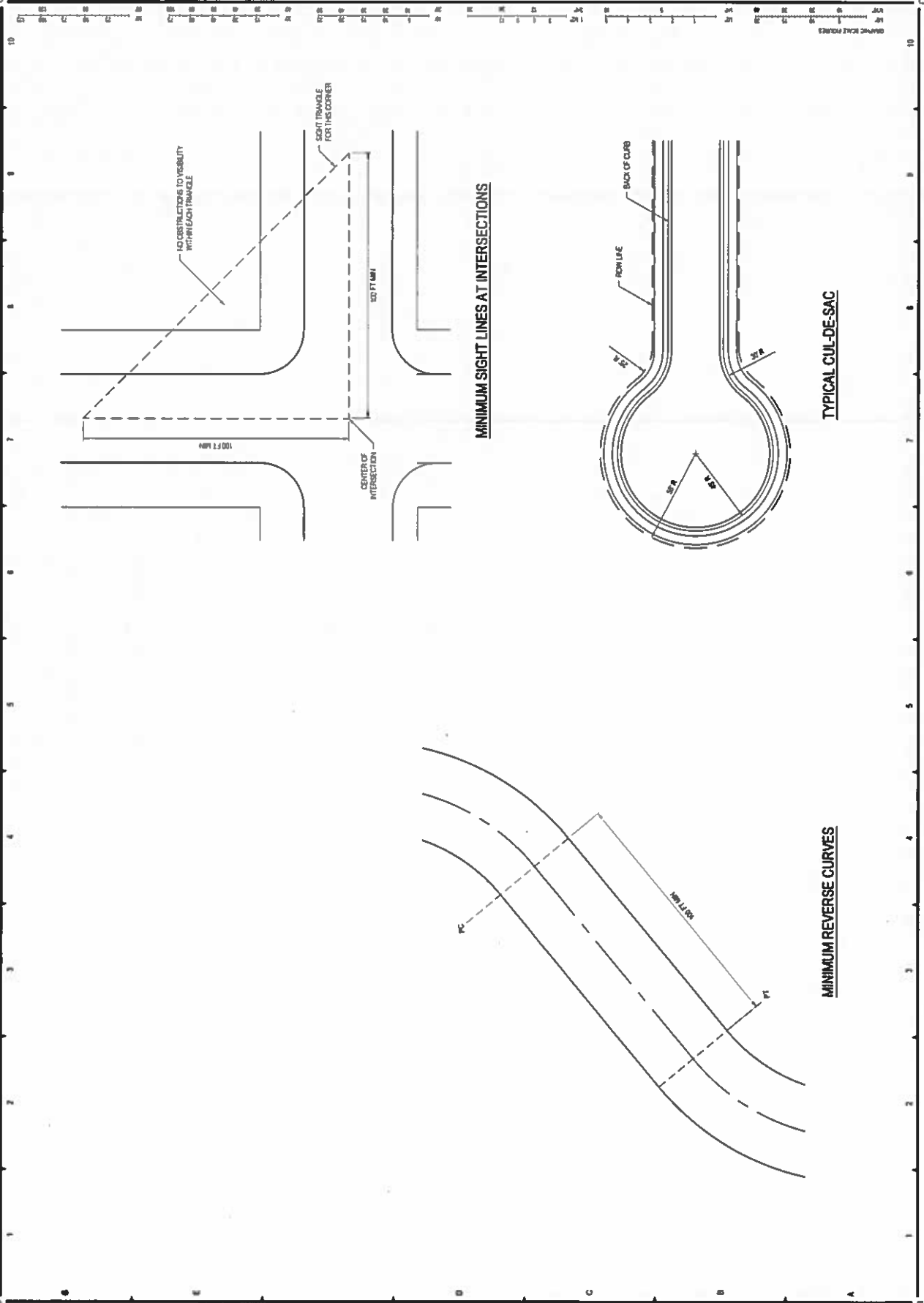
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CITY OF TROY, ILLINOIS
STREET CONSTRUCTION DETAILS

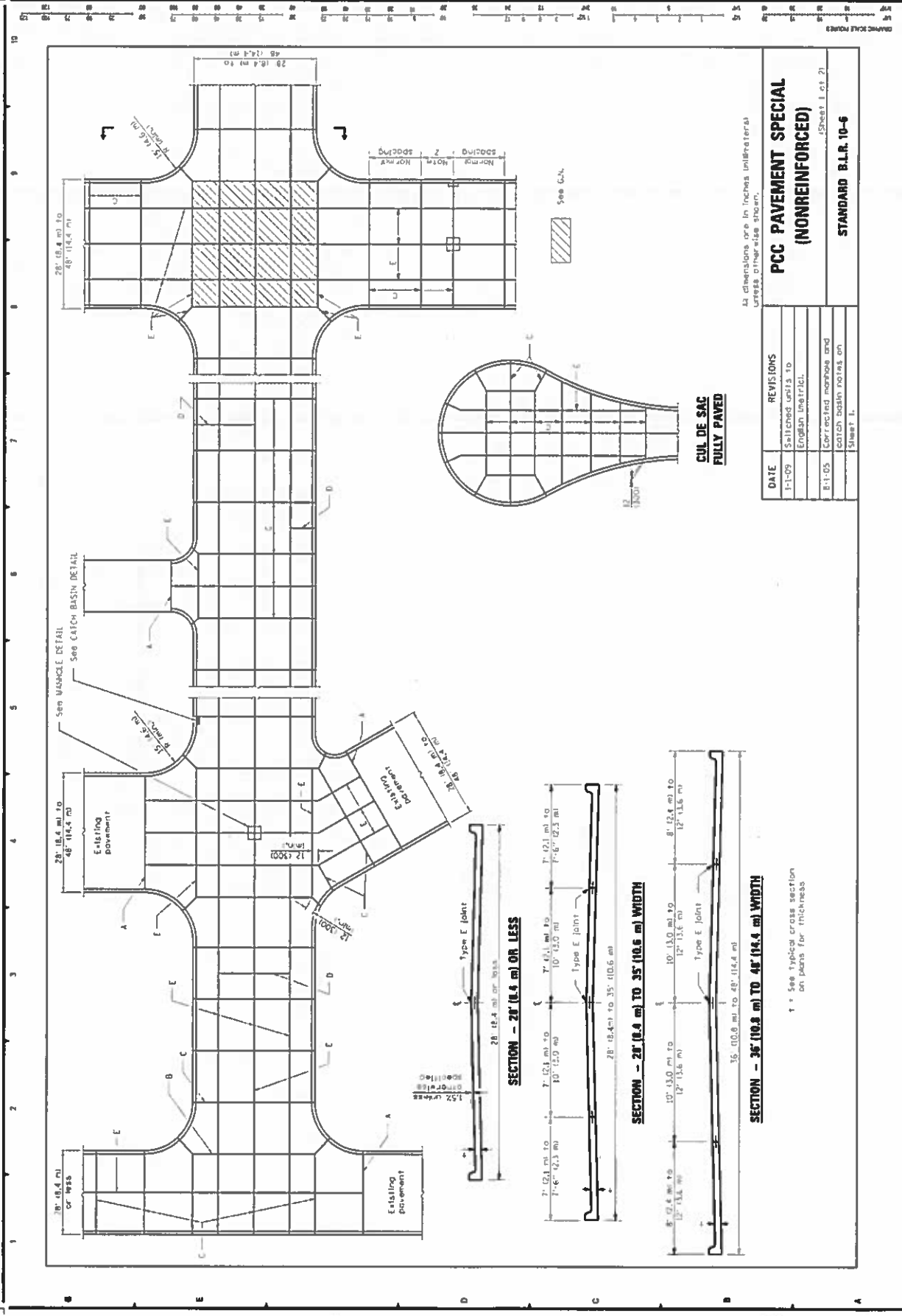
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NO.	DATE	REVISIONS



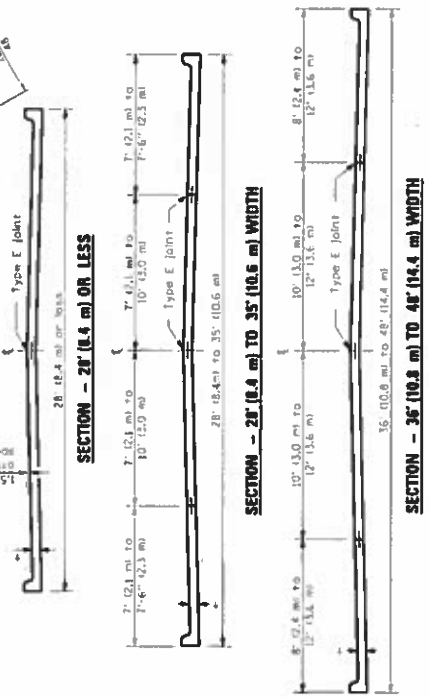
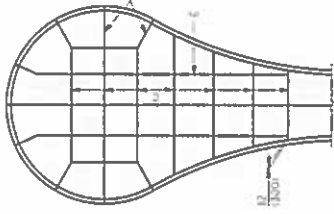
DATE	REVISIONS
1-1-09	Switched units to English metric.
8-1-05	Corrected materials and catch basin notes on Sheet 1.

PCC PAVEMENT SPECIAL (NONREINFORCED)

1. All dimensions are in inches unless otherwise noted. Otherwise shown.

STANDARD B.L.R. 10-6

(Sheet 1 of 2)



1. See typical cross section on plans for thickness.

STORMWATER DRAINAGE AND DETENTION, SOIL EROSION AND SEDIMENT CONTROL

GENERAL PROVISIONS

§ 156.001 PURPOSE AND INTENT.

The purpose of this chapter is to diminish threats to public health and safety, protect property, prevent damage to the environment and promote public welfare by guiding, regulating and controlling the design, construction, use and maintenance of any new development or redevelopment or other activity which disturbs or breaks the topsoil or otherwise results in the movement of earth and/or changes the stormwater drainage pattern and/or stormwater flows from that which would have occurred if the land had been left in its natural state. This stormwater runoff and resulting soil erosion could result in the inundation of damageable properties, the erosion and destabilization of downstream channels and the pollution of valuable stream and lake resources. This chapter regulates these activities to minimize adverse impacts caused by new development and redevelopment.

This chapter is adopted to accomplish the following objectives:

- (A) To assure that new development or redevelopment does not increase the drainage or flood hazards, or create unstable conditions susceptible to soil erosion;
- (B) To protect new buildings and major improvements to buildings from flood damage due to increased stormwater runoff and soil erosion;
- (C) To protect human life and health from the hazards of increased flooding and soil erosion on a watershed basis;
- (D) To lessen the burden on the taxpayer for flood control projects, repairs to flood-damaged public facilities and utilities, correction of channel erosion problems and flood rescue and relief operations caused by stormwater runoff and soil erosion quantities from new development or redevelopment;
- (E) To protect, conserve and promote the orderly development of land and soil, water, air, animal and plant resources;
- (F) To preserve the natural hydrologic and hydraulic functions of watercourses and floodplains and to protect water quality and aquatic habitats; and

- (G) To preserve the natural characteristics of stream corridors in order to manage flood and stormwater impacts, improve water and groundwater quality, reduce soil erosion, protect aquatic and riparian habitat, maintain quality forest resources, provide recreational opportunities, provide aesthetic benefits and enhance community and economic development.
- (H) To comply with the General National Pollutant Discharge Elimination System (NPDES) Permit No. ILR40 regulations and the Notice of Intent (NOI) submitted to the IEPA in 2003.
- (I) To establish requirements and promote regular, planned maintenance of stormwater management facilities.

§ 156.002 APPLICABILITY.

This chapter applies to all new development or redevelopment in the City. Except as otherwise provided in this chapter, persons, the state and its agencies or political subdivisions, the United States of America and its agencies or political subdivisions, or any agent, servant, officer or employee of any of the foregoing which meets the following provisions, shall not commence any development activities without first having obtained development plan approval from the Code Enforcement Officer of the City:

- (1) Any new development or redevelopment containing an area 5,000 or more square feet of total impervious surface (i.e., streets, roof, patio or parking area or any combination thereof);
- (2) Any land disturbing activity (i.e., clearing, grading, stripping, excavation, fill or any combination thereof) that affects an area of 10,000 or more square feet;
- (3) Any development that results in change in the direction of stormwater runoff from a site;
- (4) Any activity resulting in a wetland impact;
- (5) Any development that is located partially or completely in a regulatory floodway or floodplain.

§ 156.003 EXEMPTIONS.

Development plan approval shall not be required for the following:

- (1) The agricultural use of land, including the implementation of conservation measures included in a farm conservation plan approved by the Soil and Water Conservation District and including the construction of agricultural structures;

- (2) The maintenance of any existing stormwater drainage/detention component or structure or any existing soil erosion/sediment control component or structure; including dredging, tree removal or other function which maintains the original design capacities of the above; and
- (3) The construction of, improvements to or the maintenance of any street performed by any unit of government whose powers grant that authority except as follows:
 - (a) Public road developments performed by units of government that result in less than 1.5 acres of new impervious area or less than the 1.5 acres of impervious area per linear mile shall meet the stormwater detention, water quality and buffer standards to the maximum extent practical due to the limited site conditions.
 - (b) Public road developments performed by units of government that result in more than 1.5 acres of new impervious area or more than 1.5 acres of impervious area per linear mile shall meet the standards of this section.
- (4) The City may deny or revoke any exemption pursuant to the section at any time for any project that the municipality believes may pose a threat to the public health, safety, property, or the environment.

§ 156.004 EXCEPTIONS.

The Planning Commission may, in accordance with the following procedures, authorize exceptions to any of the requirements and regulations set forth in this chapter:

- (1) Exceptions to the City requirements within this chapter shall be made by application for a variation, stating fully the grounds of the application and the facts relied upon by the applicant. The application shall be filed in the Building & Zoning Department. In order for the application to be granted, it shall be necessary that the Planning Commission find all of the following facts with the respect to the land referred to in the application:
 - (a) That the land is of a shape or size or is affected by such physical conditions or is subject to such title limitations or record, that it is impractical for the applicant to comply with all of the requirements of this chapter;
 - (b) That the exception is necessary for the preservation and enjoyment of a substantial property right of the applicant; and
 - (c) That the granting of the exception will not be detrimental to the public welfare, environment or injurious to other property in the vicinity of the subject's property.

- (2) Each application for a variation shall be made to the Code Enforcement Officer. The Administrator will review and transmit the application to the Planning Commission, which shall review the application.
- (3) The Planning Commission shall hold a public hearing on each application for variation within 30 days after receiving the application in the manner prescribed by ordinance. Within 30 days after public hearing, the Planning Commission shall make a recommendation to the City Council. The City Council will render a decision in the form of a written resolution which will note if the request is approved or denied and the conditions thereof, or it shall take other action as appropriate.

§ 156.005 RESPONSIBILITY.

The applicant shall not be relieved of responsibility for damage to persons or property otherwise imposed by law, and the City or its officers or agents will not be made liable for the damage by:

- (1) Approval of the development plan under this chapter;
- (2) Compliance with conditions attached to it by the Code Enforcement Officer;
- (3) Failure of the City officials to observe or recognize hazardous or unsightly conditions;
- (4) Failure of the City officials to recommend denial or to deny a development plan; or
- (5) Exemptions from development plan requirements of this chapter.

§ 156.006 OTHER RELEVANT PERMITTING.

Other permitting. All permits required by federal, state and local authorities shall be officially approved prior to the issuance of improvement plan approval. The acquisition of these permits shall be the sole responsibility of the applicant. These may include, but are not limited to, §404 of the Clean Waters Act, §106 of the National Historic Preservation Act, permitting required by the Illinois Department of Natural Resources, Office of Water Resources in accordance with the Rivers, Lakes and Streams Act, ILCS Ch. 615, the Soil and Water Conservation Districts Act, ILCS Ch. 70, the Farmland Preservation Act, ILCS Ch. 505, the Illinois Groundwater Protection Act, ILCS Ch. 415 and the National Pollutant Discharge Elimination System Permit (NPDES) through the Illinois Environmental Protection Agency, Division of Water Pollution Control. Compliance is also required with the City's Zoning Ordinance.

For general but not inclusive locations of designated wetlands refer to mapping prepared jointly by the U.S. Department of Interior, Fish and Wildlife Service and the Illinois Department of Natural Resources, Office of Resource Conservation; National Wetlands Inventory Mapping. The applicant may be required to provide a field investigation by a qualified wetland delineator.

§ 156.007 NPDES COMPLIANCE.

New and redevelopment that is applicable to this chapter (per §156.002) must comply with the NPDES regulations (the General NPDES Permit No. ILR40 and the Notice of Intent (NOI) for the particular site being developed). NPDES compliance is obtained by adhering to this chapter, completing the NPDES NOI permit application, and getting an ILR40 permit.

- (1) According to the General NPDES Permit No. ILR40 and the NOI, the City will comply and implement activities as outlined in the sections for:
 - (a) *Public education and outreach on stormwater impacts.*
 - (b) *Public involvement/participation.*
 - (c) *Illicit discharge detection and elimination.*
 - (d) *Construction site stormwater runoff control.*
 - (e) *Post-construction stormwater management in new development and redevelopment.*
 - (f) *Pollution prevention/good housekeeping.*

(2) For all regulated activities described in §156.002, pre- and post-construction erosion and sediment control measures and stormwater management BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this ordinance. Various BMPs and their design standards are listed in the "Illinois Urban Manual".

§ 156.008 INCORPORATION OF FIGURES AND STANDARDS.

Certain design concepts, standards and related matters addressed herein are further clarified by illustrations and examples contained in Appendix A to this chapter. Accordingly, the following appendices to this chapter are hereby incorporated into these regulations.

Appendix A:	
Standard Specification Plan Sheets #4.	Typical Soil Erosion and Sediment Control Details
Standard Specification Plan Sheets #5.	Typical Storm Sewer Construction Details

The requirements indicated in the appendices shall be as effective and binding as the narrative portions of this chapter.

§ 156.009 INFORMATION ACCESSIBILITY TO THE PUBLIC.

Documents relating to the adherence to this chapter are available for review by request at City Hall.

§ 156.010 DEFINITIONS.

In addition to the definitions in §153.008, for the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

ADVERSE IMPACTS. Any negative impact on plant, soil, air or water resources affecting their beneficial uses including recreation, aesthetics, aquatic habitat, quality and quantity.

BASE FLOOD ELEVATION or BFE. The elevation at all locations delineating the level of flooding resulting from the 100-year frequency flood event, which has a 1% chance of occurring in any given year.

BEST MANAGEMENT PRACTICES or BMP. A measure used to control the adverse stormwater-related effects of development, and includes structural devices (e.g., pre-treatment grit catch basins, storage tanks, etc.), green infrastructure, (e.g., swales, filter strips, infiltration trenches, and site runoff storage basins designed to remove pollutants, reduce runoff rates and volumes, and protect habitats) and nonstructural approaches, such as public education efforts to prevent the dumping of household chemicals into storm drains.

BUFFER. An area of predominantly vegetated land adjacent to channels, wetlands, lakes, or ponds for the purpose of stabilizing banks and reducing contaminants, including sediments, in stormwater that flows to such areas.

BYPASS FLOWS. Stormwater runoff from upstream properties tributary to a property's drainage system, but not under its control. Many times, this is a pre-existing condition.

CATCH BASIN. A receptacle, located where a street gutter opens into a storm sewer, designed to retain matter that would not readily pass through the sewer and to allow stormwater runoff to enter the sewer.

CHANNEL. Any defined river, stream, creek, on-stream lake or impoundment, ditch, culvert, gully, ravine, or natural or human-made drainageway, which has a definite bed and bank or shoreline, in or into which surface or groundwater flows, either constantly or intermittently.

CHANNEL MODIFICATION. Alteration of a channel by changing the physical dimensions or materials of its bed or banks. **CHANNEL MODIFICATION** includes damming, riprapping (or other armoring), filling, widening, deepening, straightening, relocating, lining and significant removal of bottom or woody rooted vegetation. **CHANNEL MODIFICATION** does not include clearing human-made debris or removal of trash.

COMPENSATORY STORAGE. An artificially excavated, hydraulically equivalent volume of storage within the floodplain used to balance the loss of natural flood storage capacity when fill or structure are placed within the floodplain.

CONDUIT. Any pipe, sewer or culvert used for the conveyance or movement of water, whether open or closed.

CRITICAL DURATION STORM. The design storm which provides the highest flood discharges/ water surface elevation for the flooding source.

DETENTION BASIN. A facility constructed or modified to provide for the temporary storage of stormwater runoff and the controlled release by gravity of this runoff at a prescribed rate during and after a flood or storm.

DETENTION TIME. The amount of time stormwater is held within a detention basin.

DRAINAGE PLAN. A plan, including engineering drawings and supporting calculations, which describes the existing stormwater drainage system and environmental features, including grading, as well as proposed alterations or changes to the drainage system and environment of a property.

DRAINAGEWAY. A watercourse, gully, swale, dry stream, creek or ditch which naturally carries stormwater runoff or which is fed by street or building gutters or by stormwater sewers.

DRY BASIN. A detention basin designed to drain after temporary storage of stormwater flows and to normally be dry over much of its bottom area.

EROSION. The general process whereby soil or earth is moved by rainfall, flowing water, wind or wave action.

EXCESS STORMWATER RUNOFF. The volume and rate of flow of stormwater discharged from a new development or redevelopment which is or will be in excess of that volume and rate which existed before development or redevelopment.

FLOOD FRINGE. That area as designated by the Federal Emergency Management Agency (FEMA) on either side of the floodway. This area is subject to inundation from the base flood but conveys little or no flow.

FLOOD INSURANCE RATE MAP (FIRM). A map prepared by FEMA that depicts the Special Flood Hazard Area (SFHA) within a community. This map includes insurance rate zones and regulatory floodplains and may or may not depict regulatory floodways.

FLOODPLAIN. The land adjacent to a body of water with ground surface elevations at or below the base flood or the 100-year frequency flood elevation which is subject to inundation

FLOODWAY. The channel and that portion of the floodplain, including on-stream lakes, adjacent to a stream or watercourse which is needed to store and convey the anticipated existing and future 100-year frequency flood discharge with no more than a 0.1-foot increase in stage due to any loss of flood conveyance or storage and no more than a 10% increase in velocities.

FREEBOARD. An increment of height added to the BFE, groundwater table, or 100-year design water surface elevation to provide a factor of safety for uncertainties in calculations, unknown local conditions, wave action, non-stationary climate, and unpredictable effects such as those caused by debris jams.

GREEN INFRASTRUCTURE. Any stormwater management technique or practice that reduces runoff volume through preserving, restoring, using, or enhancing the processes of infiltration, evapotranspiration, and reuse. Approaches may include green roofs, naturalized detention facilities, trees and tree boxes, rain gardens, vegetated swales, vegetated buffers, wetlands, infiltration planters, porous and permeable pavements, porous piping systems, dry wells, vegetated median strips, reforestation/revegetation, rain barrels, and cisterns, and protection and enhancement of riparian buffers and floodplains.

HYDROGRAPH. A graph showing for a given location on a stream or conduit, the flow rate with respect to time.

ILLINOIS URBAN MANUAL. A publication of best management practices commonly used in an urban setting produced by the Association of Illinois Soil and Water Conservation Districts, published October 2013. <http://www.aiswcd.org/illinois-urban-manual/>

IMPERVIOUS SURFACE. The area of property that is covered by materials other than soil and vegetation and that has no intended capacity to absorb water, such as parking lots, driveways, sidewalks, patios, tennis courts, roofs and other structures.

INFILTRATION. The passage or movement of water into the soil surfaces.

INLET. A receptacle, located where a street gutter opens into a storm sewer, designed to retain matter that would not readily pass through the sewer and to allow stormwater runoff to enter the sewer.

KARST. A type of topography or landscape characterized by features, including but not limited to, surface depressions, sinkholes, rock pinnacles/ uneven bedrock surfaces, underground drainage, and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

LOESSAL SOIL. A sediment, commonly non-stratified and unconsolidated, composed predominately of silt sized particles with accessory clay and sand.

MAJOR DRAINAGE SYSTEM. That portion of a drainage system needed to store and convey flows beyond the capacity of the minor drainage system generally consisting of storm sewers/ culverts or swales/ ditches that directly connect to a street system in dedicated easements between property lines that directly convey storm water to the street or road storm sewers or detention facilities.

MAXIMUM EXTENT PRACTICABLE. Highest level of runoff volume reduction that is achievable for the development as determined by the applicant and approved by the City Engineer.

MINOR DRAINAGE SYSTEM. That portion of a drainage system designed for the convenience of the public and generally on private property. It consists of yard inlets, pipe drains from downspouts, small open channels, and yard swales and, where manmade, is to be designed to handle the 2-year runoff event.

MODIFIED RATIONAL METHOD. As described in the Illinois Department of Transportation "Drainage Manual", this method is based on the principal that the maximum rate of runoff from a given drainage area occurs at that point in time when all parts of the watershed are contributing to the flow. The rainfall generating the peak flow is assumed to be of uniform intensity for the entire watershed when the rainfall duration is equal to the time of concentration.

NATURAL DRAINAGE. Channels formed in the existing surface topography of the earth prior to changes made by unnatural causes.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES). The NPDES permit program was created in 1972 by the Clean Water Act, (CWA). The CWA prohibits anybody for discharging "pollutants" through a "point source" into a water of the United States unless they have an NPDES permit. The permit will contain limits on what can be discharged, monitoring and reporting requirements, and other provisions such as erosion control at construction sites to ensure that discharge does not hurt water quality or people's health.

ONE HUNDRED-YEAR (100-YEAR) STORM EVENT. A rainfall, runoff or flood event having a 1% chance of occurring in any given year.

OVERLAND FLOW PATH. A design feature of the major stormwater system which carries flows in excess of the minor stormwater system design capacity in an open channel or swale, or as sheet flow or weir flow over a feature designed to withstand the particular erosive forces involved.

PEAK FLOW. The maximum rate of flow of water at a given point in a channel or conduit.

POSITIVE DRAINAGE. Providing overland flow paths for all areas of a property, including depression areas, which drain to channels or storm sewer.

RETENTION BASIN (WET PONDS). A facility designed to completely retain a specified amount of stormwater runoff without release except by means of evaporation, infiltration, emergency bypass or pumping.

RUNOFF. The water or drainage derived from melting snow or rain falling on the land surface, flowing over the surface of the ground, or collected in channels or conduits.

SEDIMENTATION. The process that deposits soils, debris, and other materials - either on other ground surfaces or in bodies of water or stormwater drainage systems.

SINKHOLE (KARST AREAS). A land surface depression or blind valley which may or may not have surface openings to cavernous underground areas and are the result of water movement through silts and jointed limestone. These conditions make the areas unstable and susceptible to subsidence and surface collapse. Fractures in the limestone may channel runoff water to public or private water supplies, making those sources especially susceptible to groundwater contamination.

SLOPE DISTURBANCE LINE. The line which delineates relatively level building areas from areas where slopes exceed 1 foot vertical in 6 foot horizontal and where special erosion control precautions must be taken.

STORM SEWER. A closed conduit or pipe for conveying collected stormwater.

STORMWATER DRAINAGE SYSTEM. All means, natural and human-made, used for conveying stormwater to, through or from a drainage area to the point of final outlet from a property. The **STORMWATER DRAINAGE SYSTEM** includes but is not limited to any of the following: conduits and appurtenance features, canals, channels, ditches, streams, culverts, streets, storm sewers, detention basins, swales and pumping stations.

STORMWATER. Runoff from the surface of the land resulting from precipitation or snow or ice melt.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP). Set of drawings or other documents submitted as a prerequisite to obtaining a stormwater management approval, which contains all information and specifications of drainage systems and environmental features proposed after the development of a property.

STREAM. Any river, creek, branch, or natural or human-made drainageway which has a definite bed and bank or shoreline, in or into which surface or groundwater flows, either constantly or intermittently.

TEN-YEAR (10-YEAR) STORM EVENT. A runoff, rainfall, or flood event having a 10% chance of occurring in any given year.

TIME OF CONCENTRATION. The elapsed time for stormwater to flow from the most hydraulically remote point in a drainage basin to a particular point of interest in that watershed.

TRIBUTARY WATERSHED. All of the land surface area that contributes runoff to a given point.

TWENTY-FIVE YEAR (25-YEAR) STORM EVENT. A runoff, rainfall, or flood event having a 4% chance of occurring in any given year.

TWO-YEAR (2-YEAR) EVENT. A runoff, rainfall or flood event having a 50% chance of occurring in any given year.

VOLUME CONTROL STORAGE. The volume of storage required to detain a specified amount of runoff from the new impervious area of development on the site.

WATER TABLE. The upper limit of a free water surface in a saturated soil or underlying material.

WATERSHED. All land area drained by, or contributing water to, the same stream, creek, ditch, lake, marsh, stormwater facility, groundwater or depressional area.

WATERS OF THE UNITED STATES (WOTUS). The term refers to wetlands, streams, and water bodies that are under the US Army Corps of Engineers regulatory jurisdiction.

WET BASIN. A detention basin designed to maintain a permanent pool of water after the temporary storage of stormwater runoff.

WETLANDS. Defined by regulation as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”

STORMWATER DRAINAGE AND DETENTION

§ 156.020 DRAINAGE PLAN SUBMITTALS.

Each applicant shall submit the following information to ensure that the provisions of this chapter are met. The submittal shall include sufficient information to evaluate the environmental characteristics of the property, the potential adverse impacts and benefits of the development on water resources both on-site and off-site, and the effectiveness of the proposed drainage plan in managing stormwater runoff, and meet the provisions of §156.002. The applicant’s “Engineer’s Hydraulic/Hydrologic Drainage Summary and Certification” shall include the following information submitted for both existing and proposed property conditions for all new development or redevelopment:

- (A) *Topographic Mapping.* A topographic survey of the property at two-foot contours unless otherwise specified or approved by the City. If the mapping is compiled using a digital format (CAD) and the global positioning system (GPS), the applicant will provide both paper and digital copies including CAD drawings and GPS points.

- (B) ***Aerial Mapping.*** An aerial photograph of the property including all off-site areas that contribute drainage to the site.
- (C) ***Site Drainage Plan.*** A plan showing existing drainage and proposed drainage for the property and 100 feet surrounding the property at a scale of not more than 100 feet to 1 inch and including the following:
- (1) Title, scale, north arrow, legend, seal of licensed professional engineer, date and name of person preparing plans;
 - (2) A vicinity map showing the relationship of the site to its general surroundings at a scale of not less than 2,000 feet to 1 inch;
 - (3) Property boundary, dimension and approximate acreage;
 - (4) Building setback lines;
 - (5) All existing or proposed easements;
 - (6) All existing and proposed structures and sizes;
 - (7) Roads, streets and associated stormwater inlets including finished grades;
 - (8) All existing, abandoned or proposed water main or monitoring wellhead locations;
 - (9) All sanitary or combined sewer lines, septic systems and aeration systems;
 - (10) Banks and centerline of streams and channels;
 - (11) Shoreline of lakes, ponds and detention basins with normal water level elevation;
 - (12) Known farm drains and tiles;
 - (13) Location, size and slope of stormwater pipes and drainage swales;
 - (14) Depressional storage areas;
 - (15) Detention and/or retention facilities;
 - (16) Direction of storm flows for each lot in the development indicated by flow arrows in front, sides and rear of all lots;
 - (17) Area in square feet of existing and proposed impervious surface;
 - (18) Off-site drainage areas contributing runoff to the site;
 - (19) Base flood elevation, flood fringe, and regulatory floodway;
 - (20) The limits of designated regulatory and non-regulatory wetland areas;

- (21) The location and limits of known sinkholes (i.e. karst areas);
 - (22) Any known designated natural areas, prime farmland; and
 - (23) Any known proposed environmental mitigation features.
- (D) *Soils Mapping.* A copy of the Soil and Water Conservation District maps for the property including all off-site areas that contribute drainage to the site and the applicable soils classification data.

§ 156.021 DRAINAGE REPORT.

A narrative report and all computations that support the design of the drainage system to include:

- (A) *Design Narrative and Computations*
- (1) A statement describing the basis of design for the final drainage network components and any applicable engineering assumptions and calculations;
 - (2) A statement of the drainage system's provision for handling events greater than the 100-year, 24-hour runoff by a state licensed professional engineer. Emergency overflow paths should be provided to prevent building structure flooding for events greater than the 100-year, 24-hour storm.
 - (3) Hydraulic calculations, prepared by a professional engineer licensed by the state shall be provided for all proposed storm sewers, ditches and curbs.
 - (4) Flow rates and velocities at critical points in the drainage system (e.g., in pipes, at pipe outfalls, and in conveyance ditches) including in the supporting documentation;
 - (5) Cross-section data for open channel flow paths and designated overland flow paths;
- (B) *Detention Report Requirements.* For detention facilities in general, the engineer must submit the following for review of the detention facility:
- (1) Elevation vs. Discharge tables or curves for all frequencies;
 - (2) Elevation vs. Storage tables or curves for all frequencies;
 - (3) Inflow calculations and data for all frequencies;

- (4) Site plan showing appropriate design information including tables (see example below) that summarize data from (a), (b), and (c) above;

"DESIGN" - SUMMARY OF FLOWS FROM BASIN AT GIVEN STORM DURATIONS								
STORM FREQUENCY	DURATION	POOL ELEV.	STORAGE (CU. FT)	PRE-DEV. TOTAL FLOW (CFS)	POST-DEVELOPMENT			
					LOW-FLOW (CFS)	OVERFLOW (CFS)	TOTAL FLOW (CFS)	OUTLET VELOCITY (FPS)
NORMAL POOL	2 HR	526.00	0	-	-	-	-	-
2-YEAR	2 HR	528.20	117,750	10.70	11.10	0.00	11.10	2.5
5-YEAR	2 HR	528.60	165,412	18.10	7.30	11.10	18.40	3.2
10-YEAR	2 HR	529.50	234,796	23.95	7.54	16.44	23.98	4.1
100-YEAR	2 HR	530.50	274,938	24.00	8.60	15.45	24.05	4.8

- (5) Hydraulic grade-line computations for pipes entering and leaving the basin for all frequencies;
- (6) If the embankment contains fill material, a levee/dam, or if a retention (i.e. wet) pond is proposed, a geotechnical report is required;
- (7) Structural calculations for the outlet control structures.
- (8) 100-year stage discharge hydrograph.

(C) *Minimizing stormwater runoff volumes and release rates.*

- (1) *Release rates.* In the selection of a drainage plan for a new development or redevelopment, the applicant shall evaluate and implement site design features which prevent the increase in runoff volumes and rates from the site for the most critical design storms.
- (2) The applicant's drainage plan submittal shall include evaluations of site design features which are consistent with the following hierarchy:
- a. Preserve regulatory floodplains, flood-prone and wetland areas;
 - b. Minimize impervious surfaces on the property, consistent with the needs of the project;
 - c. Provide infiltration of runoff on-site;
 - d. Attenuate flows by use of open vegetated swales and natural depressions and preserves the existing natural stream channel;

- e. Provide stormwater retention structures;
- f. Provide wet or wetland retention structures;
- g. Provide dry detention structures; and
- h. Construct storm sewers.

(D) *Water quality.*

- (1) The drainage system should be designed to minimize adverse surface and groundwater quality impacts off-site, to adjacent properties, and on the property, itself. When designers propose detention or retention pond designs, all flows from the development shall be routed through the basin (i.e., flows from any storm event shall not bypass the ponds).
- (2) Only if allowed by the City Engineer as an exceptional circumstance, when it is not practical or feasible to route all of the project's flow to the detention basin, the design of the basin shall compensate for the bypass flow, and the designer must prove that the bypass flow will not cause downstream problems such as flooding or erosion.
- (3) In cases where detention facilities are practical and the long-term maintenance of the facilities are provided for, detention of stormwater shall be promoted throughout the property's drainage system to reduce the volume of stormwater runoff and to reduce the quantity of runoff pollutants. For example, detention basins shall incorporate design features to capture stormwater runoff pollutants.
- (4) The developer is encouraged to consider creative ways to manage stormwater impacts. As such, the development may provide water quality treatment for runoff from increased impervious areas to minimize impacts of post-development stormwater runoff on water quality. If used, the drainage report shall include a description of the water quality protection and volume control measures incorporated into the design. Volume control practices may be incorporated into the detention plan as a water quality control practices. If used, the first inch of runoff from the new impervious area of development on the site is considered the water quality control storage. For example, green infrastructure such as permeable pavement or infiltration basins may be used as a best management practices for water quality treatment and volume control practices.

- (E) *Multiple Uses.* The drainage system should incorporate multiple uses to the maximum extent practicable. Uses considered compatible with stormwater management include open use, aesthetics, aquatic habitat, recreation (boating, fishing, trails), wetlands, and water quality mitigation.

§ 156.022 DRAINAGE CONVEYANCE SYSTEM DESIGN CRITERIA.

- (A) The minor drainage system shall provide for capacity to pass the 2-year peak flow rate without flooding/ damaging property during the critical 100-year storm event.
- (B) The major drainage system shall provide for capacity to pass the 10-year peak flow rate with safe passage of the critical 100-year storm event. Storm sewer design shall be sized on the assumption that they will flow full under the design discharge but will not be placed under the pressure head. Hydraulic grade line calculations shall be performed that demonstrate that sewer rims are not inundated at the design storm.
- (C) Culvert and storm sewer design and construction shall conform to the IDOT Drainage Design Manual, unless defined otherwise in this section.
- (D) All drainage systems shall provide an overland flow path that will pass the 100-year event flow at a stage at least 1 foot below the lowest grade, adjacent to a structure, in the vicinity of the flow path. If the drainage area is less than 20 acres, the major drainage system pipes and inlets may be sized for the 100-year flow instead of providing an overland flow path.
 - (1) The overland flow path shall be protected from any development, such as fencing, landscaping, storage sheds, pools, or other obstructions which could impair its function by impeding flow. This protection shall be established through a properly recorded covenant running with the land, restricting the use of the overland flow path area.
 - (2) Structures adjacent to an overland flow path shall have a lowest opening elevation 6 inches above the base flood elevation (BFE) for tributary areas 20 acres or less or 1 foot above the BFE for tributary areas greater than 20 acres.
- (E) Street ponding and flow depths shall conform to IDOT "Drainage Manual" allowable encroachment requirements but in no case shall exceed curb heights.
- (F) The minimum diameter for storm sewers shall be 12 inches.
- (G) The minimum diameter for road culverts shall be 15 inches. A minimum of 2 feet of freeboard shall be provided below the roadway shoulder to the 25-year flood elevation.
- (H) All storm sewer pipes under roads or sidewalks shall be reinforced concrete pipe, Class II minimum, conforming to applicable sections of the IDOT Standard Specifications for Road and Bridge Construction, latest edition. Under grass areas the use of Corrugated Polyethylene (PE) pipe with a smooth interior is allowed conforming to the applicable sections of the IDOT Standard Specifications for Road and Bridge Construction, latest edition. The use of any other storm sewer pipe or materials must be approved by the City Engineer.
- (I) Culverts and storm sewers constructed in residential subdivisions shall be extended to the rear of the lots. Storm sewers will not be allowed to terminate in the front or middle of a lot.

- (J) Permanent erosion control protection must be provided at the ends of discharging storm sewer pipes in which the storm event velocity exceeds 2 feet per second.
- (K) Storm sewers designed with greater than 10% slope or with discharge velocities greater than 5 feet per second (fps), shall have approximately 20 feet of the pipe constructed at 0.5% slope at the outlet and shall have an erosion control system provided.
- (L) Curb inlet and catch basin spacing shall not exceed a maximum gutter drainage flow distance of 250 feet. Inlet and basin spacing shall also be provided as needed to limit stormwater encroachment into the driving lane to 6 feet during the design storm for a minor drainage system.
- (M) All new or improved stormwater drainage swales created in new developments shall not allow overland drainage to exceed 250 feet without being captured by a storm sewer system. The velocity of flow in these drainage swales shall not exceed 5 fps unless measures are taken to avoid erosion.
- (N) No paved surface overland flow grades and/or slopes shall be greater than 1.0%. Paved surface overland flow grades and/or slopes for swales and ditches shall not have a slope less than 0.3%.
- (O) Reinforced concrete paved swales and ditches a minimum of 4 feet wide are required to be designed and constructed for any drainage swale with a slope less than 1.0%.

§ 156.023 DESIGN METHODS.

- (A) *Peak Discharge.* Site runoff control for large storms, up to the 100-year event, is essential to protect against immediate downstream erosion and flooding.
 - (1) Post-development discharge rates for new developments and redevelopments shall not exceed the existing condition discharge rates.
 - (2) Any concentrated stormwater discharges leaving the site must be conveyed into an existing channel, storm sewer, or overland flow path with adequate downstream stormwater capacity and will not result in increased erosion, flood damage, or other drainage hazards. In addition to discharge rate, demonstration of this shall include a comparison of existing and post-development velocity, volume, and hydrograph at the location where stormwater leaves the site. Post-development velocity and runoff volume shall be less than 110% of the existing conditions for the 100-year critical duration storm.
 - (3) The design of stormwater management systems shall not result in any transfer of water between watersheds unless no reasonable alternative exists as determined by the City Engineer.

(B) Calculation Methodology.

- (1) Unless a continuous simulation approach to drainage system hydrology is used, all design rainfall events shall be based on the Illinois State Water Survey's Bulletin 70.**
 - a. The first quartile point rainfall distribution shall be used for the design and analysis of conveyance systems with critical durations less than or equal to 6 hours.**
 - b. The second quartile distribution shall be used for storms with durations greater than 6 hours and less than or equal to 12 hours.**
 - c. The third quartile point rainfall distribution shall be used for the design and analysis of detention basins and conveyance system with critical durations greater than 12 and less than or equal to 24 hours.**
 - d. The fourth quartile distribution shall be used in the design and analysis of systems with durations greater than 24 hours.**
 - e. The NRCS Type II distribution may be used as an alternate to the Huff distributions.**
 - f. The total rainfall value for the design storm shall be adjusted for the "St. Louis Urban Effect" as given in Table 4, Illinois State Water Survey Circular 172.**
- (2) The Rational Method may be used to calculate discharges for drainage areas of 20 acres or less and the storm storm water conveyance (i.e. storm sewer) design. The Rational Method shall not be used to determine detention storage requirements.**
 - a. TR-55 may be used to calculate discharges for areas that drain less than 100 acres. TR-55 with a pond-routing program such as TR-20 or HEC-1 may be used to confirm stormwater storage requirements.**
 - b. TR-20, WinTR-20, HEC-1, HEC-HMS, or a City approved hydrograph producing a hydrologic model shall be used to determine the peak runoff rates for areas with a drainage area greater than 100 acres and to confirm the stormwater storage requirements for facilities that have a drainage area of 10 acres or more.**
 - c. Runoff calculations for all off-site tributary land shall be based on either the anticipated future land use conditions or existing land use conditions as approved by the City Engineer.**

- (C) Antecedent moisture. Average antecedent moisture conditions shall be assumed when calculating runoff curve numbers for use in the NRCS (SCS) TR-55 method.**

§ 156.024 DETENTION FACILITIES.

- (A) *Release rates.* Post-development discharge rates for new developments and redevelopments shall not exceed the existing condition discharge rates from the property for the 2-year, 10-year, 25-year, 50-year, and 100-year critical storm event to discharge rates at or below those which existed prior to development. As a minimum to determine the critical storm, the ½-, 1-, 2-, 3-, 6-, 12-, and 24-hour storm events shall be analyzed. Additionally, the discharge from a stormwater detention facility shall not cause an increase in flooding or channel instability downstream when considered in aggregate with other developed properties and downstream drainage capacities.
- (B) *Design methodologies.*
- (1) Detention, along with green infrastructure, non-structural and structural BMPs, are recommended for projects involving more than 0.5 acre of new impervious area.
 - (2) Green infrastructure and non-structural BMPs are required to control stormwater runoff for projects with less than 0.25 acre of new impervious area.
- (C) *Detention basin outlet design.*
- (1) The detention basin outlet control structure shall be designed to account for observed or anticipated downstream tailwater elevations. The tailwater elevations used in the detention model shall be for the particular storm frequency being routed through the detention basin.
 - (2) An emergency spillway or overflow device shall be provided and set at an elevation equivalent to the 100-year design high water.
 - a. The maximum high water elevation shall be computed based on a routing of the design storm (100-year critical storm event or 24-hour event, whichever produces the higher pond elevation) assuming the low flow outlet is blocked with high water elevation at the overflow structure's sill.
 - b. A minimum freeboard of 1 foot shall be provided above the design high water elevation. The freeboard should be measured from the design high water elevation to the top of the berm.
 - c. The overflow path shall not be located on top of the outlet pipe.
 - (3) The outflow pipe shall be sized for the developed flow rate.
 - (4) Control structures and overflow structures are to be reinforced concrete, including precast. Other approved materials may be allowed only for underground detention with the approval of the City Engineer.

- (5) **Minimum detention outlet size.** Where a single pipe outlet or orifice plate is to be used to control discharge, it shall have a minimum diameter of 12 inches. If this minimum orifice size permits release rates greater than those specified in this section, and regional detention is not a practical alternative, outlets, structures such as perforated risers or multi-stage flow control orifices/weirs shall be used. For example, in smaller basins a smaller rectangular or V-notch weir could be used to control discharge with the approval of the City Engineer. The minimum area for an individual control device in a multi-stage control is 12.56 square inches (equivalent to a 4-inch circular pipe).

(D) **General detention pond requirements**

- (1) **Pool Elevation for ponds.** The limits of maximum ponding in dry basins or ponds and permanent lakes or ponds shall not be closer than 30 feet horizontally to any building, and not less than 2 feet vertically between the lowest sill elevation of any building.
- (2) **Pool Elevation for parking lots.** The limits of maximum ponding in parking lots shall not be closer than 10 feet horizontally from any building and not less than 1 foot vertically below the lowest sill elevation of any building. Parking lots used for automobiles shall have a maximum depth of 6 inches of water.
- (3) **Detention basin elevations:**
- a. If the detention basin discharges to a piped sewer system, the low elevation of the detention basin shall be above the 25-year, critical storm hydraulic elevation of the receiving storm systems, as applicable.
 - b. If the detention basin discharges to an open channel, or to a piped sewer system affected by flood levels in a nearby downstream open channel, then the low elevation of the basin is desirable to be above the 100-year flood elevation in the open channel as established by the FEMA Flood Insurance Study.
 - c. In all cases mentioned above, if the low elevation of the basin is below the receiving system hydraulic grade or channel flood elevation, then the basin shall be sized to store the entire design storm volume, unless otherwise approved by the City Engineer.
- (4) The maximum side slopes for dry basins or ponds, and the fluctuating area of permanent ponds or lakes shall be 3:1 (3 feet horizontal, one foot vertical) without fencing.
- (5) Dry basins or ponds and the fluctuating areas of permanent ponds or lakes are to be appropriately vegetated to the maximum high water elevation. Areas above that elevation shall be appropriately stabilized and vegetated. Sod and mowing above that elevation may be approved and is required for dam embankment slopes and downstream toe areas for wet basins where riprap is not appropriate.

- (6) Permanent erosion control protection must be provided at the ends of discharging pipes or swales in which the storm event velocity exceeds 2 feet per second. Stone riprap, scour stop, or appropriate vegetation are required, unless otherwise approved.
- (7) In basins with concrete walls or riprap covered slopes, provisions should be made for mowing equipment to reach the bottom (ramps or similar).
- (8) Railroad tie walls cannot be used where water will be in contact with the railroad tie wall.
- (9) *Detention basin fencing.* A 4-foot (minimum) fence shall be provided around the perimeter of any basin where the side slopes exceed 3:1 (3 feet horizontal, 1 foot vertical). Fencing material shall be approved by the City and shall NOT consist of post and rail or other fencing which prevents easy observation of required detention basin maintenance. For example, privacy fencing should not be used.
- (10) Existing depressional storage volume will be maintained and the volume of detention storage provided to meet the requirements of this chapter shall be in addition to existing storage.
- (11) *Detention on prime farmland.* The placement of detention basins shall avoid the utilization of prime farmland. All detention basin construction shall examine potential impacts to adjacent agricultural land and shall address measures that will be implemented to eliminate the impacts.
- (12) *Basin inlet and outlet orientation.* The distance between detention inlets and outlets shall be maximized. Inlets and outlets shall be at opposite ends of the basin, providing that the orientation does not create undue hardship based on topography or other natural constraints. There shall be no low flow bypass between the inlet and outlet, and paved low flow channels shall not be used.
- (13) Any development involving the construction, modification, or removal of a dam as defined in 17 Ill. Admin. Code Part 3702 (Rules of Construction of Dams) shall obtain an IDNR/OWR Dam Safety permit or a letter stating no permit is required prior to the start of such activity.
- (14) *Infiltration Basins.* Infiltration basins may be used as detention facilities subject to the following:
 - a. The basin must be designed to dewater within 48 hours following the end of the 100-year critical duration storm event.
 - b. The underlying soils must have an infiltration rate of at least 0.5 inches/hour as determined by an engineer.
 - c. Pretreatment facilities must be provided to prevent obstruction.
 - d. The basin must be at least 200 feet away from any water supply wells.

- e. Runoff from the areas that have water quality concerns or are subject to frequent winter deicing must not be routed to the infiltration facility.
- f. The bottom of the infiltration basin must be at least 4 feet above the seasonal high groundwater elevation.
- g. Infiltration BMPs shall be selected and located based on suitability of soil and shall be constructed where a minimum depth of 24 inches between the bottom of the facility and the infiltration horizon exists. Soil tests, taken at the same location that the BMP will exist, shall demonstrate a stabilized infiltration rate.
- h. Areas proposed for infiltration BMPs shall be protected from sedimentation and compaction during construction.
- i. Infiltration BMPs shall not receive runoff from disturbed areas until the entire contributory drainage area is stabilized with vegetation.
- j. It is ideal for roof drains and sump pumps to be tributary to infiltration or vegetative BMPs. Catchment facilities for water re-use is also permitted.

(15) ***As-Built survey.*** An as-built survey of the detention basin showing the final constructed slopes, storage volumes, and outlet structure configuration shall be submitted to the City Engineer for approval prior to the issuing of any building permits.

- a. As part of the as-built survey, a monument shall be set to reference the predicted detention basin high water elevation. The monument should be labeled "100-year storm high water" and should be graded to the proper elevation and be located on a common ground near the pond outlet pipe.

(16) ***Pond Ownership.*** Residential detention/retention basins shall be located on outlots maintained by the homeowners association. Commercial or industrial basins shall be located in a regional outlot owned by a corporation or on the developed lot and maintained by the commercial property owner. A special service area may be created for potential maintenance by the City should the homeowners' association or corporation become defunct, unable, or unwilling to provide sufficient maintenance of the detention/ retention basin(s).

(E) ***Wet detention basin design (retention).*** In addition to the other requirements of this subchapter, wet detention basins shall be designed to remove stormwater pollutants, to be safe, to be aesthetically pleasing and as much as feasible to be available for recreational use.

(1) ***Wet basin depths.*** Wet basins shall be at least 3 feet deep, excluding near-shore banks and safety ledges. If fish habitat is to be provided, they shall be at least 8 feet deep over 25% of the bottom area to prevent winter kill.

- (2) **Wet basin shoreline slopes.** The side slopes of wet basins at the normal pool elevation shall not be steeper than 3:1 (horizontal to vertical). It is recommended that aquatic vegetation be established around the perimeter to provide protection from shoreline erosion. For basins in excess of 5 acres, riprap shoreline protection shall be provided.
 - (3) **Permanent pool volume.** The permanent pool volume in a wet basin at normal depth shall, at a minimum, be equal to the runoff volume from its watershed for the 2-year, 24-hour event (calculated during dry weather conditions).
 - (4) **Permanent pool depth.** Permanent retention ponds or lakes are to be designed to minimize fluctuating lake levels. Maximum fluctuation from the permanent pool elevation to the maximum ponding elevation shall be 3 feet.
 - (5) **Soil borings.** To ensure soils are conducive to impound water, if a retention (i.e., wet) pond is proposed, a geotechnical report with soil borings is required.
- (F) **Dry detention basin design.** In addition to the other requirements of this subchapter, dry basins shall be designed to remove stormwater pollutants, to be safe, to be aesthetically pleasing and as much as feasible to be available for multiple uses. Paved low flow channels may be used in a dry basin, provided provisions are made to prevent ponding.
- (1) **Dry basin drainage.** Dry basins shall be designed so that 80% of their bottom area shall have standing water no longer than 72 hours for any runoff event less than the 100-year event. Grading plans shall clearly distinguish the wet portion of the basin bottom. Underdrains directed to the outlet may be used to accomplish this requirement.
 - (2) **Velocity dissipation.** Velocity dissipation measures shall be incorporated into dry basin designs to minimize erosion at inlets and outlets and to minimize resuspension of pollutants.
 - (3) **Maximum depths.** The maximum depth of water in a dry detention basin or pond shall not exceed 4 feet. Projects which need a deeper basin to attain the required detention volume due to physical constraints may be evaluated on a case-by-case basis. The design and construction of dams greater than 6 feet or as directed by the City must be sealed and certified by a professional engineer registered in the state with demonstrated expertise in geotechnical engineering.
 - (4) **Flow through the pond.** All ends of pipes discharging into a dry basin or pond shall be conveyed to the low flow pipe or control structure, by means of a concrete swale or permeable swale meeting the following criteria.
 - a. Vegetated swales shall be a minimum 4:1 lateral (25%) slope to the center and a minimum 2.0% longitudinal slope to ensure positive drainage. Permeable swales shall be a minimum of 6 inches deep and 4 feet wide or 1.3 times the diameter of the pipe entering the basin, whichever is greater. The bottom of the detention basin shall be sloped a minimum of 2% towards the edge of the swale.

- b. Reinforced concrete paved swales according to the typical details are required to convey swales with a slope less than 1.0%.

(G) *Underground detention basin design.*

- (1) Adequate access for basin maintenance and inspection shall be provided. A means of visual inspection from the ground surface of the low flow device, overflow weir and outlet structure is necessary. Access shall also be provided to allow for cleaning of the low flow device from the ground surface.
- (2) Underground basins shall be acceptable for non-residential projects only.
- (3) Acceptable materials for underground basins are poured-in-place or precast reinforced concrete, RCP, HDPE, and aluminized CMP. The CMP gauge shall be approved by the City prior to installation.
- (4) Provide immediate manhole access from ground surface for both sides of the low flow device. Also, provide a manhole at upstream end of underground basins, for access, inspection, to facilitate maintenance and air release.
- (5) Adequate flow line spot elevations, sections and profiles including pipe length and slope shall be labeled to define basin and pipe geometry.
- (6) Structural pretreatment or pretreatment chambers are required immediately upstream of an underground detention facility to collect debris and grime prior to allowing it to enter the detention chamber.

(H) *Detention in floodways.* The placement of detention basins within the floodway is prohibited.

- (1) *Detention in flood fringe areas.* The placement of a detention basin in a flood fringe area shall require compensatory storage for 1.5 times the volume below the base flood elevation occupied by the detention basin including any berms. The release from the detention storage provided shall still be controlled consistent with the requirements of this section. The applicant shall demonstrate its operation for all stream-flow and floodplain backwater conditions. Excavations for compensatory storage along watercourses shall be opposite or adjacent to the area occupied by detention. All floodplain storage lost below the existing ten-year flood elevation shall be replaced below the existing 10-year elevation. All floodplain storage lost above the existing 10-year flood elevation shall be replaced above the existing 10-year flood elevation. All compensatory storage excavations shall be constructed to drain freely and openly to the watercourse.
- (2) *On-stream detention.* On-stream detention basins are discouraged but allowable if they provide regional public benefits and if they meet the other provisions of this chapter with respect to water quality and control of the 100-year 24-hour events from the property. If on-stream detention is used in watersheds larger than 1 square mile, the applicant will use hydrographic modeling to demonstrate that the design will not increase the water level for any properties upstream or downstream of the property. Also, impoundment of the stream as part of on-stream detention:

- a. Shall not prevent the migration of indigenous fish species, which require access to upstream areas as part of their life cycle, such as for spawning;
- b. Shall not cause or contribute to the degradation of water quality or stream aquatic habitat;
- c. Shall include a design calling for gradual bank slopes, appropriate bank stabilization measures and a pre-sedimentation basin;
- d. Shall not involve any stream channelization or the filling of wetlands;
- e. Shall not occur downstream of a wastewater discharge;
- f. Shall not contribute to the duration or flood frequency of any adjacent land.

(I) *Detention in wetlands, rivers, streams, lakes, ponds or depressional storage areas.*

- (1) Existing wetlands, rivers, lakes, ponds or depressional storage areas shall not be modified for the purposes of stormwater detention unless it is demonstrated that the proposed modifications will maintain or improve its habitat and ability to perform beneficial functions and shall comply with §156.006.
- (2) Existing storage and release rate characteristics of wetlands, rivers, lakes, ponds or depressional storage areas shall be maintained and the volume of detention storage provided to meet the requirements of this chapter shall be in addition to this existing storage.
- (3) *Alteration of drainage patterns.* Site drainage patterns shall not be altered to substantially decrease or increase the existing area tributary to the wetlands, rivers, lakes, ponds or depressional storage areas.
- (4) *Detention/sedimentation.* All runoff from the development shall be routed through a preliminary detention/sedimentation basin designed to capture the 2-year, 24-hour event and hold it for at least 24 hours, before being discharged to the wetland, river, lake, pond or depressional storage area. This basin shall be constructed before property grading begins and shall be maintained throughout the construction process.

(J) *Street detention, parking lot detention.*

- (1) *Street detention.* Streets are not to be used as part of the detention system.
- (2) *Parking lot detention.* The maximum stormwater ponding depth in any parking area shall not exceed 6 inches for more than 4 hours.

(K) *Buffer Areas.* Buffer areas shall be required for all areas defined as Waters of the United States (WOTUS). The buffer areas for all WOTUS shall extend landward from the ordinary high water mark. The buffer area for jurisdictional or mitigated wetlands shall extend from the edge of the delineated wetland. A property may contain a buffer area that originates from WOTUS on another property. Buffer area are divided into 2 types: linear buffers and water body buffers.

- (1) **Linear buffers.** A 30-foot-wide minimum buffer shall be designated along both sides of all channels meeting the definition of WOTUS.
- (2) **Water body buffers.** Water body buffers shall encompass all non-linear bodies of water meeting the definition of WOTUS including wetlands, lakes, and ponds.
 - a. For all water bodies with a total surface area less than 2.5 acres, a minimum buffer width of 30 feet shall be established.
 - b. For all water bodies with a total surface area greater than 2.5 acres, a minimum buffer width of 40 feet shall be established.
- (3) **Easements.** Buffer areas shall be located within special easements or covenants for use by the managing district, local unit of government, homeowners association, or other entities responsible for the adjacent stormwater facilities, ponds, lakes, or channels.
- (4) **Development within a Buffer Area.** All buffer areas shall be maintained free from development including disturbance of soil, dumping or filling, erection of structures, and placement of impervious surfaces except as follows:
 - a. Passive recreation (e.g., birdwatching, picnicking)
 - b. Trails running parallel to the buffer. Trails should be no wider than 10 feet and the runoff from such facilities is diverted away from the WOTUS or managed before flowing to the WOTUS.
 - c. Minor structures relating to parks and recreation uses less than 300 square feet.
 - d. Utility structures including drainage facilities, except private sewer collection systems such as septic systems shall not be constructed within the buffer areas.
 - e. Boat docks, ramps, piers, and beaches.
 - f. Unimproved access through buffer areas for maintenance purposes.

(L) Infiltration practices.

- (1) **Generally.** To effectively reduce runoff volumes, infiltration practices including basins, trenches, and porous pavement shall be located in hydrologic soil groups "A" and "B" as designated by the USDA Natural Resources Conservation Service. Infiltration basins and trenches designed to recharge groundwater shall not be located within 75 feet of a water supply well or building foundation. A sediment settling basin shall be provided to remove coarse sediment from stormwater flows before they reach infiltration basins or trenches. Stormwater shall not be allowed to stand more than 72 hours over 80% of the dry basin's bottom area for the maximum design event to be exfiltrated. The bottom of infiltration basins or trenches shall be a minimum of 4 feet above the seasonally high groundwater and bedrock level. Engineering calculations demonstrating infiltration rates shall be included with the application.

- (2) **Vegetated filter strips and swales.** To effectively filter stormwater pollutants and promote infiltration of runoff, sites should be designed to maximize the use of vegetated filter strips and swales. Whenever practicable, runoff from impervious surfaces should be directed onto filter strips and swales comprised of native grasses and forbs before being routed to a storm sewer or detention basin. Vegetated filter strips and swales should be designed such that the time of concentration within the area is at least 10 minutes.
- (M) **Safety considerations.** The drainage system components, especially all detention basins, shall be designed to protect the safety of any children or adults coming in contact with the system during runoff events-
- (1) **Side slopes.** The side slopes of all detention basins at the 100-year, 24-hour pool shall be as level as practicable to prevent accidental falls into the basin and for stability and ease of maintenance.
 - (2) **Safety ledge.** All wet detention basins shall have a level safety ledge at least 4 feet in width, 2-3 feet below the normal water depth, or it must be protected by an enclosed fence at least 48 inches in height.
 - (3) **Velocity.** Velocities throughout the surface drainage system shall be controlled to safe levels (<10 fps) taking into consideration rates and depths of flow.
- (N) **Accommodating flows from upstream tributary areas.** Stormwater runoff from areas tributary to the property shall be considered in the design of the property's drainage system. Flows from upstream areas that are not to be detained should be routed around the basin being provided for the site being developed, unless approved by the City Engineer.
- (1) **Upstream areas not meeting ordinance requirements.** When there are areas not meeting the storage and release rates of this chapter tributary to the applicant's property or there are known downstream flooding issues, regionalized detention on the applicant's property shall be explored by the applicant or the City. When it is deemed beneficial by the City or the applicant to explore such a design, the following steps shall be followed:
 - a. The applicant shall compute the storage volume needed for his or her property;
 - b. Areas tributary to the applicant's property, not meeting the storage and release rate requirements of this chapter, shall be identified; and
 - c. Using the areas determined above plus the applicant's property area, total storage needed for the combined properties shall be computed.
 - (2) Allowable release rates and storage shall be computed using the combined property areas. If tributary areas are not developed, a reasonable fully developed land cover, based on local zoning, shall be used for the purposes of computing storage.

- (3) Once the necessary combined storage is computed, the City may choose to pay for over-sizing the applicant's detention basin to accommodate the regional flows. If regional storage is selected by the City, then the applicant's responsibility will be limited to the storage for his or her property as computed above. If regional storage is rejected by the City, the applicant shall bypass all tributary area flows around the applicant's basin whenever practicable. If the applicant must route upstream flows through his or her basin and the upstream areas exceed 1 square mile in size, the applicant must meet the provision of §156.104(C)(8)(b) for on-stream basins.
- (4) *Upstream areas meeting ordinance requirements.* When there are areas which meet the storage and release rate requirements of this chapter, tributary to the applicant's property, the upstream flows shall be bypassed around the applicant's detention basin if this is the only practicable alternative. However, if the City decides to route tributary area flows through an applicant's basin, the final design stormwater releases shall be based on the combined total of the applicant's property plus tributary areas.
- (O) *Early completion of detention facilities.* Where detention, retention or depressional storage areas are to be used as part of the drainage system for a property, they shall be constructed as the first element of the initial earthwork program. Any eroded sediment captured in these facilities shall be removed by the applicant on a regular basis and before project completion in order to maintain the design volume of the facilities.
- (P) *Maintenance considerations.* The stormwater drainage system shall be designed to minimize and facilitate maintenance. Turfed side slopes shall be designed to allow lawn mowing equipment to easily negotiate them. Wet basins shall be provided with alternate outflows which can be used to completely drain the pool for sediment removal. Pumping may be considered if drainage by gravity is not feasible. Pre-sedimentation basins shall be included, where feasible, for localizing sediment deposition and removal. Site access for heavy equipment shall be provided.

§ 156.025 OTHER DRAINAGE REQUIREMENTS.

- (A) *Drainage into wetlands, rivers, streams, lakes, ponds and depressional storage areas.* Wetlands, lakes, ponds and depressional storage areas shall be protected from damaging modifications and adverse changes in runoff quality and quantity associated with land developments.
- (B) *Loessal soils.* Care must be taken to avoid open flow discharges of stormwater over silt (loessal) soils due to high potential for erosion.
- (C) *Sinkholes, karst area.* The following requirements apply for new developments or redevelopments where sinkholes are determined to be present:
 - (1) A stormwater detention basin shall not be placed in or over a sinkhole or located closer than 100 feet from the rim of a sinkhole;

- (2) The outflow from a stormwater detention basin, channel, ditch or any stormwater runoff generated as a result of a new development or redevelopment shall not empty into or be directed, redirected by any means into or through any sinkhole;
 - (3) If, after the review of the stormwater drainage plan, the Code Enforcement Officer and/or City Engineer may determine that more detailed information is required, a sinkhole evaluation may be required. A sinkhole evaluation, which addresses the geologic, engineering and environmental factors resulting from a new development or redevelopment, shall be performed by a professional with experience and expertise in karst topography who shall certify the results of the evaluation. This evaluation shall be the responsibility of the applicant and performed at no cost to the City. After a review of this evaluation and with the consultation of the County Soil and Water Conservation District, the Administrator may either approve or disapprove the drainage plan as submitted;
 - (4) Whenever a new sinkhole appears or it becomes apparent that the sinkhole has not yet been identified, it shall be reported to the County Soil and Water Conservation District.
- (D) *Special Management Areas.* The City may require additional stormwater control measures for stormwater discharges to special management areas including, but not limited to:
- (1) Water bodies listed as "impaired" on Illinois' Clean Water Act 303(d).305(b) Integrated List.
 - (2) Any water body or watershed with an approved Total Maximum Daily Load (TMDL).
 - (3) Critical areas with sensitive resources (e.g., karst areas, groundwater recharge areas highly vulnerable to contamination, drainage areas to water supply reservoirs, source water protection zones, etc.)
- (E) *Sump Pump Drainage.* It is illegal to discharge groundwater from sump pump to sanitary sewer, across property lines, across sidewalks, and to City streets. Direct discharge into the City storm sewer is the best location, so as part of the storm sewer system, sump pump collection systems are required in all new developments. Sump pump collection systems shall consist of:
- (1) The pipe system for sump pump drainage shall consist of 6-inch diameter SDR 35 PVC pipe at a minimum depth of 36 inches.
 - (2) A cleanout shall be located every 400 feet or less, at every change in direction, and at every junction of 2 or more pipe mains.
 - (3) The sump pump collection piping system shall be located in the front yards. It will be connected to the stormwater drainage conveyance system within the subdivision at appropriate intervals not exceeding 500 feet. The pipe slope shall be a minimum of 0.25%.

- (4) All service lines to the main shall be privately owned and maintained and shall be a 1½ inch diameter Schedule 40 PVC pipe. Homeowners are responsible for burying their sump pump line from the house to the collection system. The discharge pipe must have a check valve within 1 foot of the floor grade and at a union or other approved coupling for easy disconnection for repair and replacement.
- (5) The sump pump collection system main shall be located in a utility easement dedicated to the City.
- (6) All connections to the sump pump drainage system main shall be a tee fitting cut into the main and inspected by the Code Enforcement Official.
- (7) The sump pump drainage pipe is intended for sump pump drainage only. Surface drainage shall not be allowed into the pipe.
- (8) All newly constructed buildings are required to connect to the sump pump drainage system. The owner/developer shall install THWN soft drawn solid No. 12 copper tracer wire that is taped on the side of the pipe at 10-foot intervals (minimum) and provide double length loop inside ½-inch CPVC conduit extending 8 inches above the ground surface at cleanouts.

In the rare case where a collection pipe is not feasible, the City Engineer may approve sump pump discharge at grade within 5 feet of the building if the discharge is contained within the property and will not cross property lines.

- (F) *Roof Drains.* Roof drains may discharge at grade within 5 feet of the property line with a “pop-up” drain emitter. The City may allow roof drain connections in manholes by permit only.

SOIL EROSION AND SEDIMENT CONTROL

§ 156.030 PURPOSE.

The purpose of this chapter is to control soil erosion on land that is disturbed or undergoing changes to existing grades by adding, removing, or relocating dirt on site for non-agricultural purposes and to preserve the natural terrain and waterways of land within the incorporated portions of the City. Soil erosion scars the land and creates sediment that clogs storm sewers and road ditches, chokes streams and creates silt lakes, all of which pose a threat to public health and safety. The provisions of this chapter are intended to provide a natural community environment, to sustain aesthetic, recreational, fish, and wildlife habitat and values, to prevent soil erosion and to reduce costly repairs to gullies, washed out fills, water conveyance systems, roads and embankments. Application of the regulations in this chapter will effectively control soil erosion and sedimentation.

§ 156.031 SCOPE.

All soil erosion and sediment control-related measures are required to be constructed and maintained for any land disturbance activity permitted under §156.002. In addition, any person, firm, corporation or business that is performing an activity which has the potential to create erosion shall first apply to the designated Code Enforcement Official for approval of required erosion control plans and issuance of a grading permit as specified in this chapter.

§ 156.032 APPLICABLE REGULATIONS.

The following requirements shall be met:

- (A) Illinois Environmental Protection Act - ILCS Ch. 415, Act 5, § 12, from Ch. 111-1/2, pars. 1011 and 1012;
- (B) Illinois Pollution Control Board Rules and Regulations - Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter I: Pollution Control Board, Part 302 Water Quality Standards; and
- (C) Illinois Pollution Control Board Rules and Regulations - Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter I: Pollution Control Board, Part 304 Effluent Standards.

§ 156.033 GENERAL PRINCIPLES.

It is the objective of this chapter to control soil erosion and sedimentation caused by development activities, including clearing, grading, stripping, excavating and filling of land, in the City. Measures taken to control soil erosion and off-site sediment runoff shall be adequate to assure that sediment is not transported from the site by a storm event of 2-year, 24-hour event frequency or less. The following principles shall apply to all new development or redevelopment activities within the City and to the preparation of the submissions required under division § 156.034.

- (A) Soil disturbance shall be conducted in such a manner as to minimize erosion. Areas of the development site that are not to be graded shall be protected from construction traffic or other disturbance until final seeding is performed. Soil stabilization measures shall consider the time of year, site conditions, and the use of temporary or permanent measures.
- (B) Natural vegetation should be retained and protected wherever possible. Area immediately adjacent to natural watercourses should be left undisturbed wherever possible.

- (C) Special precautions shall be taken to prevent damages resultant from any necessary development activity within or adjacent to any stream, lake, pond, sinkhole or wetland. Preventive measures shall reflect the sensitivity of these areas to erosion and sedimentation.
- (D) The smallest practical area of land should be exposed for the shortest practical time during development.
- (E) Sediment basins or traps, silt fences, filter barriers, diversions and any other appropriate sediment or runoff control measures shall be installed prior to site clearing and grading and maintained to remove sediment from runoff waters from land undergoing development.
- (F) In the design of erosion control facilities and practices, aesthetic and the requirements of continuing maintenance should be considered.
- (G) Provision shall be made to accommodate the increased runoff caused by changed soil and surface conditions during and after development. Drainageways should be designed so that their final gradients and the resultant velocities and rates of discharge will not create additional erosion on-site or downstream.
- (H) Permanent vegetation and structures should be installed as soon as practical during development.
- (I) If a site is to be void of vegetation during the construction process for long periods of time, a temporary seeding and/or mulch shall be applied. The mulch shall be adequate to protect the site from sheet erosion until the temporary seeding is established.
- (J) Those areas being converted from agricultural purposes to other land uses shall be vegetated with an appropriate protective cover prior to development.
- (K) All waste generated as a result of site development activity shall be properly disposed of and shall be prevented from being carried off the site by either wind or water.
- (L) All construction sites shall provide measures to prevent sediment from being tracked onto public or private roadways.
- (M) All temporary soil erosion and sediment control practices shall be maintained to function as intended until they are no longer needed.

§ 156.034 EROSION AND SEDIMENT CONTROL PLAN SUBMITTAL REQUIREMENTS

(A) *Design and Operation Standards and Requirements.*

- (1)** Each applicant shall submit the information as regulated to ensure that the provisions of this chapter are met. The submittal shall include sufficient information to evaluate the environmental characteristics of the property, the potential adverse impacts of the development related to erosion both on-site and off-site, and the effectiveness of the proposed erosion and sediment control plan in reducing sediment loss.
- (2)** Submissions shall be prepared in accordance with the standards and requirements contained in the "Illinois Urban Manual", most current update, prepared by the U.S. Department of Agriculture, Natural Resources Conservation Services (formerly Soil Conservation Service) for the Illinois Environmental Protection Agency and recognized by the Madison County Soil and Water Conservation District, which standards and requirements are hereby incorporated into this ordinance by reference.
- (3)** Properties and channels adjoining development sites shall be protected from erosion and sedimentation. At points where concentrated flow leaves a development site, energy dissipation devices shall be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity of flow from the structure to the watercourse so that the natural physical and biological characteristics and functions are maintained and protected.
- (4)** Disturbed areas shall be stabilized with temporary or permanent measures within 14 calendar days following the end of active hydrologic disturbance, or re-disturbance, consistent with the following criteria or using an appropriate measure as approved by the Code Enforcement Official.
 - a.** Appropriate temporary or permanent stabilization measures shall include seeding, mulching, sodding, and/ or non-vegetative measures.
 - b.** Areas of embankments having slopes greater than or equal to 3H:1V shall be stabilized with staked-in-place sod, mat, or blanket in combination with seeding.
 - c.** Erosion control blankets shall be required on all interior detention basin side slopes between the normal water level and the high-water level.
 - d.** The 14-day stabilization requirement may be precluded by snow cover or where construction activity will resume within 21 days from when the active hydrologic disturbance ceased, then stabilization measures do not have to be initiated on that portion of the site by the 14th day after construction activity temporarily ceased, given that portion of the site has appropriate soil erosion and sediment controls.

- (5) Land disturbance activities in streams shall be avoided, where possible. If disturbance activities are unavoidable, the following requirements shall be met:
- a. Where stream construction crossings are necessary, temporary crossings shall be constructed of non-erosive material.
 - b. The time and area of disturbance of a stream shall be kept to a minimum. The stream, including bed and banks, shall be restabilized within 48 hours after channel disturbance is completed or interrupted.
- (6) Soil erosion and sediment control measures shall be appropriate with regard to the amount of tributary area as follows:
- a. Disturbed areas draining greater than 5,000 square feet but less than 1 acre shall, at a minimum, be protected by a filter barrier (including filter fences) which at a minimum, meet the applicable specification sections in the IDOT "Illinois Standard Specifications for Road and Bridge Construction" and "Illinois Urban Manual" to control all off-site runoff. Vegetated filter strips, with a minimum width of 25 feet, in the direction of flow, may be used as an alternative only where runoff in sheet flow is expected.
 - b. Disturbed areas draining more than 1 but fewer than 5 acres shall, at a minimum, be protected by a sediment trap and a filter barrier or equivalent control measure at a point downslope of the disturbed area.
 - c. Disturbed areas draining more than 5 acres shall, at a minimum, be protected by filter barrier and a sediment basin with a perforated filtered riser pipe or equivalent control measures at a point downslope of the disturbed area.
 - d. Sediment basins shall have both a permanent pool (dead storage) and additional volume (live storage) with each volume equal to the runoff amount of a 2-year, 24-hour event over the on-site hydrologically disturbed tributary drainage area to the sediment basin. The available sediment volume below normal water level, in addition to the dead storage volume shall be sized to store the estimated sediment load generated from the site over the duration of the construction period. For construction periods exceeding 1 year, the 1-year sediment load and a sediment removal schedule may be submitted. A detention basin may serve as the sediment basin if a filtered perforated riser pipe protects the outflow pipe.

- e. The maximum drainage area for overland flow to a silt fence shall not exceed ½-acre per 100-feet of fence. In addition, the maximum allowable slope distances contributing runoff to a silt fence are as follows:

Slope (%)	Max Spacing Along Slope (ft)
25	50
20	75
15	125
10	175
Flatter than 10	200

- (7) All storm sewers that are or will be functioning during construction shall be protected by an inlet protection control measure and cleaned once the site has been stabilized.
- (8) If dewatering services are used, adjoining properties and discharge locations shall be protected by erosion. Discharges shall be routed through an effective sediment control measure (e.g., sediment trap, basin, erosion fence, or other appropriate measures).
- (9) All temporary soil erosion and sediment control measures shall be removed within 30 days after final site stabilization is achieved or after the temporary measures are no longer needed. Trapped sediment and other disturbed soil areas shall be permanently stabilized. Typically, a site is stabilized when permanent vegetation is established over at least 75% of the area or when otherwise approved by the City.
- (10) A stabilized mat of aggregate under laid with filter cloth shall be located at any point where traffic will be entering or leaving a construction site of a major development to or from a public right-of-way, street, alley, or parking area. Any sediment or soil reaching an improved public right-ow-way, street, alley, or parking area shall be removed by scraping or street cleaning as accumulations warrant and transported to a controlled sediment disposal area. The Code Enforcement Official may require additional stabilized construction entrance methods.
- (11) Earthen embankments shall be constructed with side slopes no steeper than 3H:1V. Steeper slopes may be constructed with appropriate stabilization as recommended by a Geotechnical Engineer and approved by the City Engineer.
- (12) Stormwater conveyance channels, including ditches, swales, and diversions, and the outlet of all channels and pipes shall be designed and constructed to withstand the expected flow velocity from the 2-year frequency storm without erosion. All constructed or modified channels shall be stabilized within 48 hours.

- (13) Temporary diversions shall be constructed, as necessary, to direct all runoff from hydrologically disturbed areas to the appropriate sediment trap or basin.
 - (14) Soil stockpiles shall not be located in a flood-prone area or a designated buffer protecting Waters of the United States. Soil stockpiles are defined as having greater than 100 cubic yards of soil and will remain in place for more than 7 days. Soil stockpile locations shall be shown on the soil erosion and sediment control plan and shall have the appropriate measures to prevent erosion of the stockpile.
 - (15) A concrete wash-out pit shall be located on-site to control concrete waste from trucks for projects that include concrete work.
 - (16) Handbooks: Standards and specifications contained in the "Illinois Urban Manual", as amended, and the planning procedures sections of the "Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control", as amended, are referenced in this ordinance as guidance for presenting soil erosion and sediment control plan specifications and delineating procedures and methods of operation under site development for soil erosion and sediment control. In the event of conflict between provisions of said manuals and this ordinance, this ordinance shall govern.
 - (17) The applicant shall provide adequate receptacles for the deposition of all construction material debris generated during the development process. The applicant shall not cause or permit the dumping, depositing, dropping, throwing, discarding or leaving of construction material debris upon or into any development site, channel, or Waters of the United States. The applicant shall maintain the development site free of construction material debris.
- (B) *Plan Submittal Requirements.* An "Erosion and Sediment Control Plan" shall be submitted for both existing and proposed property conditions; new developments or redevelopments meeting the requirements of §156.002. The plan shall show/contain the following information:
- (1) All erosion and sedimentation control measures necessary to meet the objectives of this ordinance throughout all phases of construction and permanently after completion of development of the site.
 - (2) Outfalls, drainage tributary areas, and 2-year, 24-hour storm frequency volumes required to evaluate whether the requirements in §156.034(A)(6) are being met.
 - (3) Location of the slope disturbance lines.
 - (4) The proposed phasing of development of the site, including stripping and clearing, rough grading and construction, and final grading and landscaping. Phasing should identify the expected date on which clearing will begin, the estimated duration of exposure of cleared areas, and the sequence of clearing, installation of temporary sediment control measures, installation of storm drainage, paving streets and parking areas, and establishment of permanent vegetative cover. All design and related work,

where required by law, shall be prepared under the direct supervision of an Illinois Licensed Professional Engineer.

- (5) Seeding mixtures and rates, types of sod, method of seed-bed preparation, expected seeding dates, type and rate of lime and fertilizer application, and kind and quantity of mulching for both temporary and permanent vegetative control measures.
- (6) Construction details for all erosion and sedimentation control measures used on the project (e.g., ditch checks, inlet protection, sediment basins, stone riprap, construction entrances, erosion control blanket, concrete wash-out pits, etc.). Appropriate construction details are included herein in Appendix 4, and may be supplemented by the IDOT "Highway Standards" for Temporary Erosion Control Systems or the "Illinois Urban Manual" Practice Standards.
- (7) Provisions for maintenance of control facilities, including easements and estimates of the cost of maintenance.
- (8) Identification of the person(s) or entity which will have legal responsibility for maintenance of erosion control structures and measures after development is completed.
- (9) The applicant shall certify and sign on the drawing that all clearing, grading, drainage and construction shall be accomplished in strict conformance with the erosion and sediment control plan.

§ 156.035 MAINTENANCE OF CONTROL MEASURES.

All temporary measures and permanent erosion and sediment control must be maintained in an effective working condition as identified by required inspections. This includes the following:

- (A) Repair, replace, or maintain erosion and sediment control structures after a singular or cumulative rainfall event(s) of 0.5 inches or more over a 24-hour period.
- (B) Make adjustments to the sedimentation and erosion control plan and methods, as needed, to accomplish the intended purpose.
- (C) If a repair is necessary, it shall be initiated within 3 working days of the inspection. If the issues are not corrected, the City may prepare an incidence of non-compliance (NOI) document and send it to the Illinois Environmental Protection Agency. The contractor will be responsible for any fines issued or penalties imposed.
- (D) Built up sediment shall be removed from silt fences when it has reached $\frac{1}{3}$ the design height of the fence.
- (E) Washout areas shall be inspected for depth of sediment, and built up sediment shall be removed when it reaches 50% of the design depth of the basin.

§ 156.036 EROSION AND SEDIMENT CONTROL INSPECTIONS AND NOTIFICATIONS.

- (A) *Erosion and Sediment Control Inspections.* Plans for upgrading, stripping, excavating, and filling work as approved by the Code Enforcement Official shall be maintained at the site during the progress of the work. The permittee shall inspect and maintain on-site records of such inspections at the intervals specified as follows:
- (1) Upon completion of installation of sediment and runoff control measures (including perimeter controls and diversions), prior to proceeding with any other earth disturbance or grading.
 - (2) After rough grading.
 - (3) After final grading, and
 - (4) Weekly and after each rainfall event of 0.5-inches or more over a 24-hour period. Rainfall events will be measured using a local gauge or the National Oceanic and Atmospheric Administration (NOAA) website as a reference.
 - (5) If inspections are not being performed, the City may prepare an incidence of non-compliance (NOI) document and send it to the Illinois Environmental Protection Agency. The contractor will be responsible for any fines issued or penalties imposed. Any necessary repairs to soil erosion and sediment control measures shall be made and reported in the on-site inspection records. Copies of the inspection records shall be submitted to the Code Enforcement Officer in a monthly inspection report.
- (B) *Notifications.* To facilitate inspections by the Code Enforcement Official and to ensure compliance with the approved erosion and sediment control plan, the grading or building permit, and this ordinance, the permittee shall notify the Code Enforcement Official within 2 working days in writing of the completion of the construction stages specified in the following:
- (1) Upon completion of installation of sediment and runoff control, prior to proceeding with any other earth disturbance or grading,
 - (2) After stripping and clearing,
 - (3) After rough grading,
 - (4) After final grading and seeding,
 - (5) After final stabilization and landscaping, prior to removal of sediment controls.
- If work is to be done in phases, the permittee shall give notice at the completion of each work stage within each phase.

§ 156.037 SPECIAL PRECAUTIONS.

If at any stage of the grading of any development site, the Code Enforcement Official determines by inspection that the nature of the site is such that further work authorized by an existing permit is likely to imperil any property, public way, stream, lake, wetland, or drainage structure, the Code Enforcement Official may require as a condition of allowing the work to be done that such reasonable special precautions be taken as is considered advisable to avoid the likelihood of such peril.

- (A) "Special Precautions" may include, but shall not be limited to, a more level exposed slope, construction of additional drainage facilities, berms, terracing, compaction, or cribbing, installation of plant materials for erosion control, and recommendations of a soil scientist or geotechnical engineer, which may outline requirements for further work.
- (B) Where it appears that storm damage may occur due to incomplete grading at the site, work may be stopped and the permittee required to install temporary structures or take such other measures as may be required to protect adjoining property or the public safety.

§ 156.038 RESPONSIBILITY.

The applicant shall not be relieved of responsibility for damage to persons or property otherwise imposed by law, and the City or its officers or agents will not be made liable for such damage, by:

- (A) The issuance of a permit under this ordinance,
- (B) Failure of the City officials to observe or recognize hazardous conditions,
- (C) Failure of the City officials to recommend denial of or to deny a permit, or
- (D) Exemptions from the permit requirements of this ordinance.

LONG TERM MAINTENANCE RESPONSIBILITY

§ 156.040 MAINTENANCE AGREEMENT.

Maintenance of stormwater drainage facilities and erosion and sediment control facilities located on private property shall be the responsibility of the owner of that property. Before a site development permit is obtained from the City, the applicant shall execute a "Stormwater Maintenance Agreement" with the City guaranteeing that the applicant and all future owners of the property will maintain its stormwater drainage system. The "Stormwater Drainage Maintenance Agreement" shall be in the form as provided for by the City. Such agreement shall be recorded with the Recorder of Deeds of Madison County.

- (A) The maintenance agreement shall also specifically authorize representatives of the City to enter onto the property to inspect the drainage and erosion control system(s). The maintenance agreement shall also stipulate that if the Director of Public Works notifies the property owner in writing of maintenance problems which require correction, the property owner shall make such corrections within 30 calendar days of such notification.
- (B) If corrections are not made within this time period, the City may have the necessary work completed and assess the cost to the property owner.
- (C) The City has the option of requiring a bond to be filed by the property owner for maintenance of the stormwater drainage and erosion control system(s). If the City Engineer based on study determines a bond is desirable, he shall recommend a bond amount for consideration by the City Council. The City Council shall decide whether or not the bond and amount will be charged, and if the decision is affirmative, include by resolution this bond with the other assurances in the manner and form required by the Subdivision Code.

INSPECTIONS

§ 156.050 INSPECTIONS.

The Code Enforcement Officer or his or her designated representative shall make inspections as hereinafter required and shall either approve that portion of the work completed or shall notify the permittee wherein the work fails to comply with the stormwater drainage or erosion and sedimentation control plan as approved. Plans for grading, stripping, excavating and filling work bearing the stamp of approval of the City Engineer shall be maintained at the site during progress of the work.

- (A) In order to obtain inspections and to ensure compliance with this chapter, the permittee shall notify the Code Enforcement Officer within 2 working days of the completion of the construction stages specified below:
 - (1) Upon completion of installation of the stormwater drainage and erosion and sediment control measures (including perimeter controls and diversions), prior to proceeding with any other earth disturbance or grading;
 - (2) After stripping and clearing;
 - (3) After rough grading;
 - (4) After final grading;
 - (5) After seeding and landscaping deadlines; and
 - (6) After final stabilization and landscaping, prior to removal of sediment controls.

- (B) If stripping, clearing, grading and/or landscaping are to be done in phases or areas, the permittee shall give notice and request inspection at the completion of each of the above work stages in each phase or area. If an inspection is not made and notification of the results given within 5 working days after notice is received by the City from the permittee, the permittee may continue work at his or her own risk without presuming acceptance by the City. Notification of the results of the inspection shall be given in writing at the site.
- (C) *Biweekly inspections.* Biweekly inspection reports shall be submitted to the City as site development work progresses. Except for permits involving the development of one single-family dwelling, the biweekly reports must be certified by a registered professional engineer describing the current status of construction for proposed drainage and detention system including whether drainage construction and erosion control has been installed in accordance with construction plans. Reports shall define whether maintenance has been provided as needed for the erosion control.

§ 156.051 SPECIAL PRECAUTIONS.

If at any stage of the grading of any development site, the Code Enforcement Officer determines by inspection that the nature of the site is such that further work authorized by an existing permit is likely to imperil any property, public way, stream, lake, wetland or drainage structure, the Code Enforcement Officer may require as a condition of allowing the work to be done that reasonable special precautions be taken as is considered advisable to avoid the likelihood of such peril. **SPECIAL PRECAUTIONS** may include but shall not be limited to a more level exposed slope, construction of additional drainage facilities, berms, terracing, compaction or cribbing, installation of plant materials for erosion control, and recommendations of a registered soils engineer and/or engineering geologist which may be made requirements for further work. Where it appears that storm damage may result because the grading on any development site is not complete, work may be stopped and the permittee required to install temporary structures or take any other measures as may be required to protect adjoining property or the public safety. On large developments or where unusual site conditions prevail, the Code Enforcement Officer may specify the time of starting grading and time of completion or may require that the operations be conducted in specific stages so as to ensure completion of protective measures or devices prior to the advent of seasonal rains.

§ 156.052 AMENDMENT OF PLANS.

Major amendments to stormwater drainage and detention or erosion and sediment control plans shall be submitted to the Code Enforcement Officer and shall be processed and approved or disapproved in the same manner as the original plans. Field modification of a minor nature may be authorized by the Code Enforcement Officer by written authorization to the applicant.

PERMITTING

§ 156.060 APPLICATION FOR PERMIT.

A completed "Engineer's Hydraulic/Hydrologic Drainage Summary and Certification," shall be submitted by the owner of the property or his or her authorized agent to the Code Enforcement Officer and shall bear the name(s) and address(es) of the owner or developer of the site, the contractor(s) and any consulting firm retained by the applicant, together with the name of the applicant's principal contact at the firm. For any development subject to the requirements of § 156.002 each application shall include certification that any land clearing, construction or development involving the movement of earth shall be in accordance with the plans approved.

§ 156.061 BOND REQUIRED.

The applicant for a development plan may be required to file with the City a faithful performance bond or bonds, letter of credit or other improvement security satisfactory to the City in an amount deemed sufficient by the Code Enforcement Officer and/or City Engineer to cover all costs of improvements, landscaping, maintenance of improvements and landscaping, and soil erosion and sediment control measures for a period specified by the City, and engineering and inspection costs to cover the cost of failure or repair of improvements installed on the site.

§ 156.062 REVIEW AND APPROVAL.

Each application for a development plan shall be reviewed and acted upon according to the following procedures:

- (A) The Code Enforcement Officer and/or City Engineer will review each application to determine its conformance with the provisions of this chapter. The Code Enforcement Officer may also refer any application to the County Soil and Water Conservation District, a consulting engineer retained by the City and/or any other public agency within whose jurisdiction the site is located for review and comment. Within 30 days after receiving an application, the Code Enforcement Officer and/or City Engineer shall, in writing:
 - (1) Approve the application if it is found to be in conformance with the provisions of this chapter;
 - (2) Approve the application subject to any reasonable conditions as may be necessary to secure substantially the objectives of this chapter; or
 - (3) Disapprove the application, indicating the deficiencies and the procedure for submitting a revised application and/or submission.
- (B) No development plan shall be approved for an intended development site unless:

- (1)
 - a. The development, including but not limited to subdivision or planned unit development, has been approved by the City where applicable; or
 - b. The proposed earth moving is coordinated with any overall development program previously approved by the City for the area in which the site is situated; and
 - (2) All relevant federal and state permits have been received for the portion of the site subject to soil disturbance as noted in § 156.006.
- (C) Failure of the Code Enforcement Officer to act on an original or revised application within 30 days of receipt shall authorize the applicant to proceed in accordance with the plans as filed and in compliance with the regulations contained herein unless the time is extended by agreement between the Code Enforcement Officer and the applicant. Pending preparation and approval of a revised plan, development activities shall be allowed to proceed in accordance with conditions established by the Code Enforcement Officer.

§ 156.063 FINAL CERTIFICATION.

Prior to final approval by the City, a registered professional engineer shall certify that detention basin has been constructed in accordance with construction plans and proposed volume has been provided. An "as-built" survey of the detention basin prepared by a state licensed surveyor shall be included with the certification for approval.

§ 156.064 EXPIRATION OF APPROVAL.

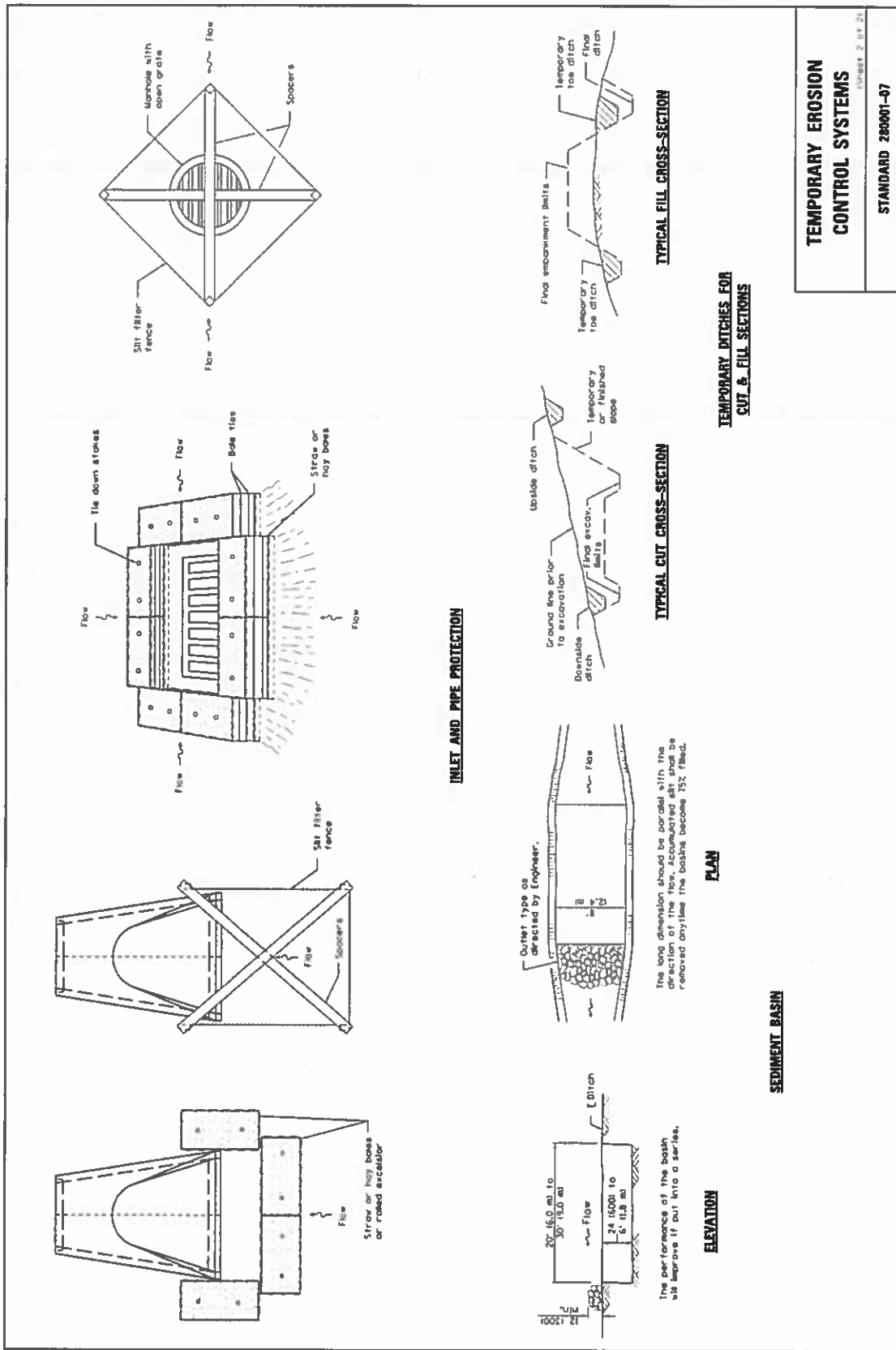
Every development plan shall expire and become null and void if the work authorized by the plan has not been commenced within 180 days or if not completed by a date which shall be specified in the plan; except that the Code Enforcement Officer may, if the applicant presents satisfactory evidence that unusual difficulties have prevented work being commenced or completed within the specified time limits, grant a reasonable extension of time if written application is made before the expiration date of the plan. The Code Enforcement Officer may require modification of the erosion control plan to prevent any increase in erosion or off-site sediment runoff resulting from any extension.

ENFORCEMENT

§ 156.070 STOP WORK ORDER; REVOCATION OF PLAN APPROVAL.

- (A) In the event any person having obtained an approved development plan pursuant to this chapter violates the terms of the plan, or carries on-site development in such a manner as to materially adversely affect the health, welfare, environment or safety of persons residing or working in the neighborhood of the development site or so as to be materially detrimental to the public welfare or injurious to property or improvements in the neighborhood, the Code Enforcement Officer may suspend or revoke the development plan.
- (1) Suspension of approval shall be by a written stop work order issued by the Code Enforcement Officer and delivered to the applicant or his or her agent or the person performing the work. The stop work order shall be effective immediately, shall state the specific violations cited, and shall state the conditions under which work may be resumed. A stop work order shall remain in effect until the next regularly scheduled meeting of the Planning Commission at which time the conditions of §153.064 can be met.
 - (2) No development plan shall be revoked until a hearing is held by the Planning Commission. Written notice of the hearing shall be served on the applicant, either personally or by registered mail, and shall state:
 - (a) The grounds for complaint or reasons for suspension or revocation, in clear and concise language; and
 - (b) The time when and place where the hearing will be held.
- (B) *Serving of notice.* The notice shall be served on the applicant at least 5 days prior to the date set for the hearing. At the hearing, the applicant shall be given an opportunity to be heard and may call witnesses and present evidence on his or her behalf. At the conclusion of the hearing the Planning Commission shall make a recommendation to the City Council. At its next regularly scheduled meeting, the City Council shall decide by resolution whether the development plan shall be revoked.

NO.	DATE	REVISIONS



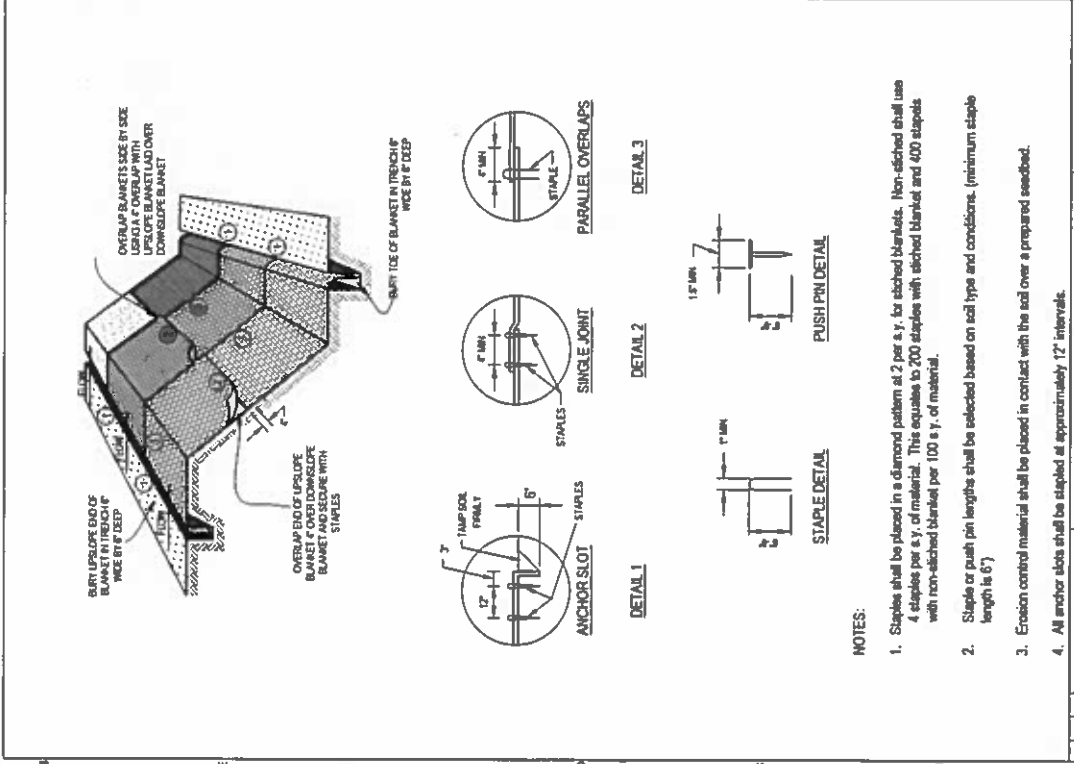
STANDARD 280001-07

14-191027-0001-01 - 04/15/2014 - 01/15/2017 - CITY OF TROY ENGINEERS STREET AND DRAINAGE CITY ENGINEERS CITY OF TROY DETAIL 02/22/17

File No.
14-015027
Drawing No.

Sheet 1 of 1

EROSION CONTROL
BLANKET INSTALLATION DETAILS



NOTES:

1. Staples shall be placed in a diamond pattern at 2 per s.y. for staked blankets. Non-staked shall use 4 staples per s.y. of material. This equates to 200 staples with staked blanket and 400 staples with non-staked blanket per 100 s.y. of material.
2. Staple or push pin lengths shall be selected based on soil type and conditions. (minimum staple length is 6")
3. Erosion control material shall be placed in contact with the soil over a prepared seedbed.
4. All anchor slots shall be staked at approximately 12" intervals.

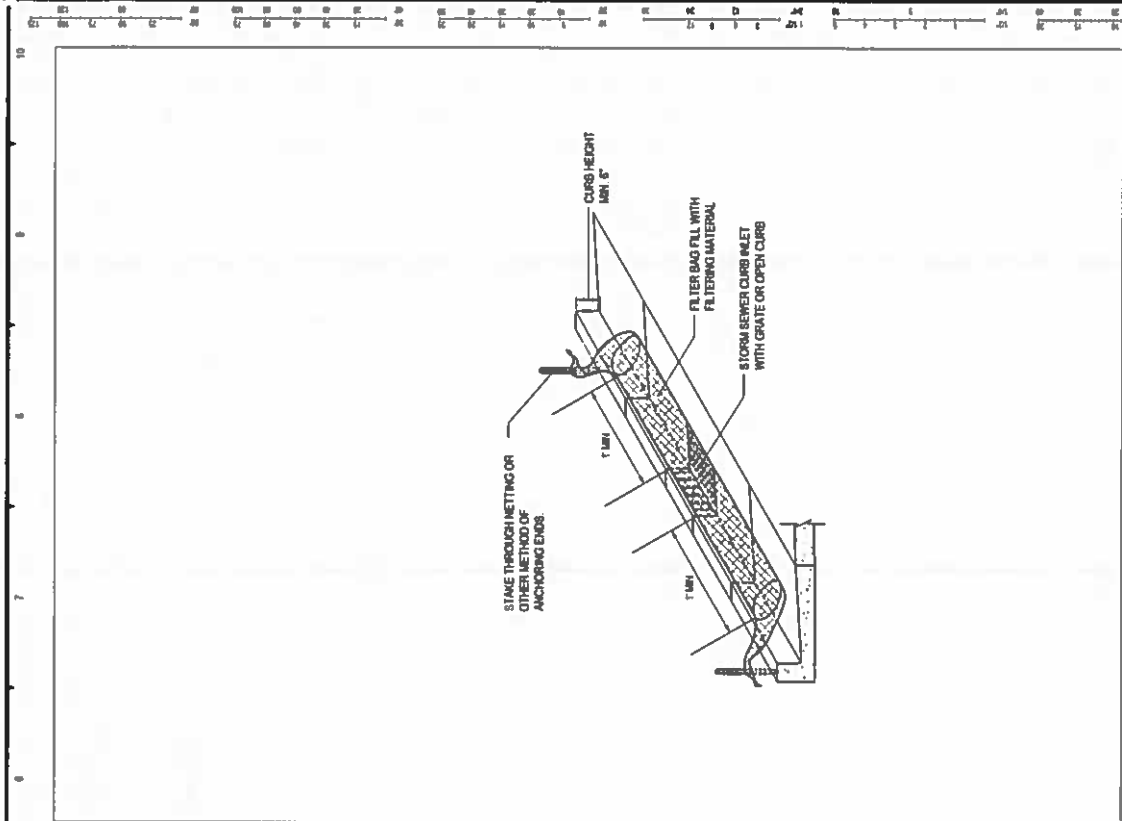
NO.	DATE	REVISIONS



CITY OF TROY, ILLINOIS
SOIL EROSION AND SEDIMENT CONTROL
DETAILS

DATE: 02/22/17
SHEET NO: 4.4

4.4



REFERENCE	Project	Design	Check	Approve
	Date	Date	Date	Date

STANDARD DWG NO
IUM-561C
SHEET 1 OF 1
DATE 01/11/11

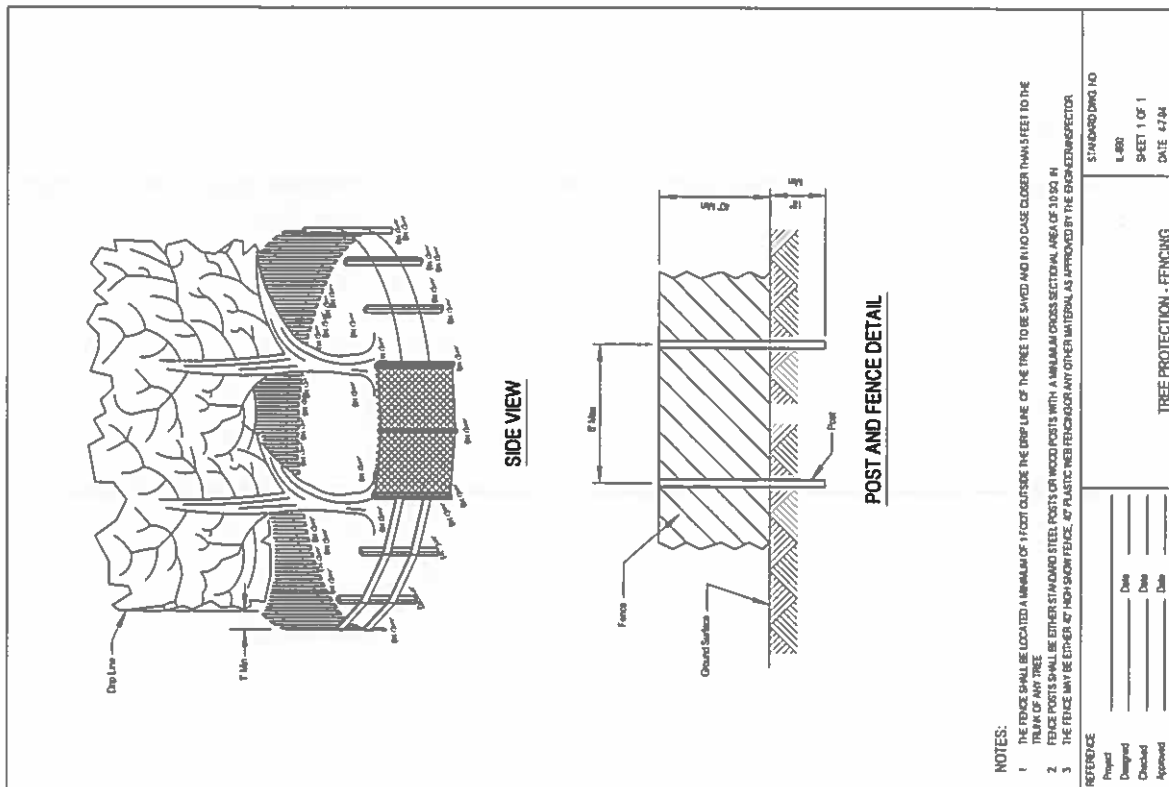
INLET PROTECTION
PAVED AREAS
CURB PROTECTION



CITY OF TROY, ILLINOIS
 SOIL EROSION AND SEDIMENT CONTROL
 DETAILS



NO.	DATE	REVISIONS



NOTES:

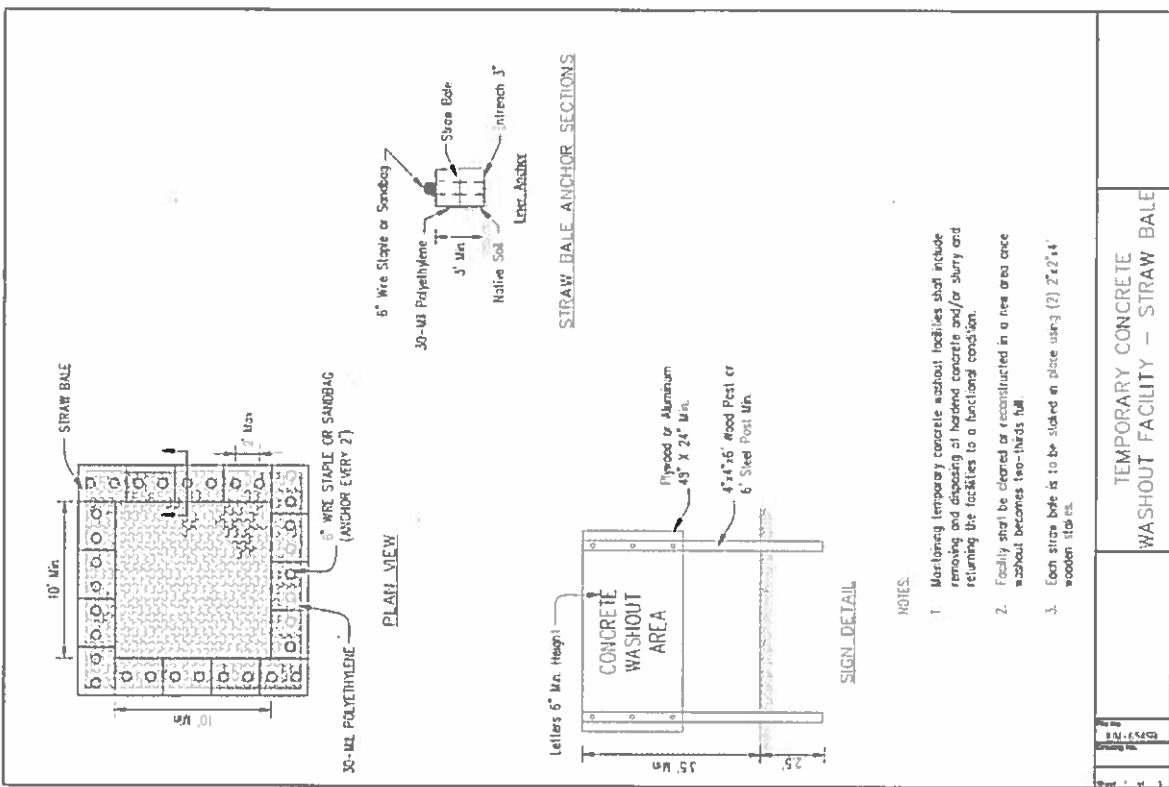
1. THE FENCE SHALL BE LOCATED A MINIMUM OF 1 FOOT OUTSIDE THE DWP LINE OF THE TREE TO BE SAVED AND NO CASE CLOSER THAN 5 FEET TO THE TRUNK OF ANY TREE.
2. FENCE POSTS SHALL BE EITHER STANDARD STEEL POSTS OR WOOD POSTS WITH A MINIMUM CROSS SECTIONAL AREA OF 30 SQ. IN.
3. THE FENCE MAY BE EITHER 42" HIGH OR 72" HIGH FENCE. 42" PLASTIC WEB FENCE OR ANY OTHER MATERIAL AS APPROVED BY THE ENGINEER/INSPECTOR.

REFERENCE

Project	Date
Designed	Date
Checked	Date
Approved	Date

STANDARD Dwg. NO. L-880
 SHEET 1 OF 1
 DATE 4/24

TREE PROTECTION - FENCING



NOTES:

1. Mortaring temporary concrete washout facilities shall include removing and disposing of hardened concrete and/or slurry and returning the facilities to a functional condition.
2. Facility shall be cleared or reconstructed in a new area once washout becomes too-third full.
3. Each straw bale is to be staked in place using (2) 2"x2"x4" wooden stakes.

TEMPORARY CONCRETE WASHOUT FACILITY - STRAW BALE

END OF DOCUMENT

PROJECT NO. 2017-001 CITY OF TROY, ILLINOIS ENGINEERING DEPARTMENT

CITY OF TROY, ILLINOIS
STANDARD SPECIFICATIONS FOR TYPICAL
STORM SEWER CONSTRUCTION DETAILS

DATE: 02/27/17
SHEET NO. 5.2

NO.	DATE	REVISIONS

