

CITY OF O'FALLON, ILLINOIS
SUBDIVISION ORDINANCE

IMPROVEMENT PLANS CHECK SHEET

Project Name _____

City No. _____

Initial Submittal ___ Yes ___ No

Resubmission # _____

Date _____

All development and subdivision of land within the City and within the 1.5 mile area of extraterritorial subdivision jurisdiction shall conform to the standards adopted within this ordinance and development manual, as well as the standards adopted herein by reference.

Owner

City
Review
Y N

Y N

Filing fee and plan review deposit paid? Amounts _____

___ ___ 1. The following standards are herein adopted by reference. Illinois Department of Transportation (IDOT) Standard Specification for Road and Bridge Construction. ___ ___

Standard Specifications for Water and Sewer Main Construction in Illinois.

IDOT Drainage Manual.

"Illinois Urban Manual", dated December 2002 or more recent publication date. (The Illinois Urban Manual is a compilation and updating of the "Standards and Specifications for Soil Erosion and Sediment Control" (the Yellow Book) published by the Illinois Environmental Protection Agency.

"Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control" (the Green Book) prepared by the Northeastern Illinois Soil Erosion and Sedimentation Control Steering Committee.

___ ___ 2. The requirements set forth in this Development Manual shall be considered as minimum requirements and nothing contained herein shall be construed to mean that the subdivider cannot construct or provide improvements of a higher type. ___ ___

Project Name _____
Date _____

City No. _____

- ___ ___ 3. All proposed water and sanitary sewer facilities shall comply with the minimum requirements and recommendations of the Environmental Protection Agency of the State of Illinois, the City Engineer and the City Council. When a proposed subdivision is reasonably accessible to a public sewer system and/or water distribution system, the subdivider shall provide the subdivision with a complete sanitary system and/or water distribution system to be connected to the proper public system(s). An analysis of the demand for water service and discharge into the sanitary sewer receiving system may be required by the City Engineer to determine if there are any significant system-wide impacts that may harm the City's utility system or services. ___ ___
- ___ ___ 4. Upon the City's review of any development and upon its determination, communicated to Applicant in writing, that a traffic safety or service level concern or any other such infrastructure service or public safety concern may reasonably exist relating to the construction or development to be permitted by the City, the City may subsequently require the Applicant, at Applicant's cost, to submit a traffic study or such other study as may be needed to address the identified concern. The City may accept such studies as presented by the Developer, however, the City may require additional studies to be prepared as necessary to ensure the standards herein are conformed to and that the public safety and welfare is protected. The City may, at its discretion, direct the conduct of such studies and may require such studies to be paid for by the Developer/subdivider. ___ ___
- ___ ___ 5. Permanent monuments of stone or reinforced concrete with a one-quarter (1/4) inch iron rod cast in the center and of suitable size set in such a manner that they will not be moved by frost shall be placed in the field as required by the Statutes of the State of Illinois as revised and are in effect at such time. ___ ___
- ___ ___ 6. All lot corners shall be marked by one-half (1/2) inch iron pins not less than twenty-four (24) inches in length and driven into the ground and shall not protrude above the ground surface more than one and one-half (1 1/2) inch. The lot corners shall be installed and certified by a Professional Land Surveyor prior to the release of the letter of credit. ___ ___
- ___ ___ 7. The street and alley arrangement shall be such as to not impose undue hardship upon the owners of adjoining property when they plat their own land and seek to provide for convenient access thereto. Reserve strips controlling access to streets are prohibited except where their control is placed with the City Council. ___ ___

Project Name _____
Date _____

City No. _____

- | | | | | | |
|-----|-----|-----|---|-----|-----|
| ___ | ___ | 8. | The arrangement of rights-of-way in a subdivision shall provide for the continuation of the existing streets or rights-of-way in adjoining areas, unless the City deems such continuation undesirable for reasons of topography or design. Where subdivision streets or rights-of-way are continuations or extensions of existing streets or rights-of-way, the width thereof shall be of the same or greater width as the existing street or right-of-way except that in no case shall the street or right-of-way in the subdivision be of less width than hereinafter provided by the typical cross section shown on typical cross sections hereto attached. | ___ | ___ |
| ___ | ___ | 9. | Where, in the opinion of the City, it is desirable to provide future street access to adjoining areas, the streets and rights-of-way in the subdivision shall be extended to the property line. If deemed necessary by the City, any temporary dead-end street shall be provided with a temporary turn-around. Access shall not be denied to any parcel or part of a parcel of ground by the subdividing of land. When cross-access between properties is provided or required, it shall be noted on the plat, and recorded ingress-egress easements shall be provided to the City. | ___ | ___ |
| ___ | ___ | 10. | Streets shall intersect, as nearly as possible, at right angles. | ___ | ___ |
| ___ | ___ | 11. | Local and collector street curb intersections shall be rounded by radii of at least twenty-five (25) feet. | ___ | ___ |
| ___ | ___ | 12. | Street intersections with center line offsets of less than one hundred twenty-five (125) feet are prohibited, unless otherwise permitted and approved by the City. | ___ | ___ |
| ___ | ___ | 13. | Dead-end streets shall have a length no greater than eight hundred (800) feet except as provided herein. If topography justifies a need for a greater length, dead-end streets or cul-de-sacs designed to be so permanently, may be longer than eight hundred (800) feet and will terminate in a circular open space having a radius at the outside of the pavement of at least forty (40) feet and a diameter at the outside of the right-of-way of at least one hundred (100) feet. Temporary dead-end streets may be permitted at a greater length if the City determines that a through connection is feasible and likely in the near future and other design requirements are met. Unless otherwise approved, the Developer shall install at the entrance of all dead-end streets for which the terminus is not visible from the entrance a "no outlet" sign or other approved signage indicating that the street has no outlet. | ___ | ___ |
| ___ | ___ | 14. | Local streets shall be designed so as to discourage through traffic. | ___ | ___ |

Project Name _____
Date _____

City No. _____

- | | | | | |
|-----|-----|---|-----|-----|
| ___ | ___ | 15. No local street grade shall be in excess of eight (8) percent and no collector street grade shall be in excess of five (5) percent, except as otherwise approved by the City due to the adverse topographic conditions for adequate drainage. The minimum grade of any new street shall not be less than one (1) percent except where vertical curves in the grade line of the street make this provision inapplicable. A minimum of 500 L.F. of the existing street grade shall be shown from the point of extension for the new street to aid in evaluating the vertical alignment. | ___ | ___ |
| ___ | ___ | 16. The City shall not approve streets which will be subject to frequent inundation or flooding, per IDOT standards, or as otherwise specified herein. | ___ | ___ |
| ___ | ___ | 17. Alleys may be required in multiple-family districts and commercial or industrial districts unless other definite and assured provision is made for service access, such as off-street loading, unloading and parking consistent and adequate for the use proposed. | ___ | ___ |
| ___ | ___ | 18. Dead-end alleys shall not be permitted, except where provided with adequate turn-around facilities at the dead-end, or where such dead-end alleys provide the only access to off-street parking. | ___ | ___ |
| ___ | ___ | 19. Alleys, where provided, shall have a right-of-way of not less than twenty (20) feet. | ___ | ___ |
| ___ | ___ | 20. The minimum right-of-way of local, collector, and arterial streets shall be in accordance with the typical cross sections hereto attached. | ___ | ___ |
| ___ | ___ | 21. Intersection of more than two (2) streets at one (1) point shall be avoided. | ___ | ___ |
| ___ | ___ | 22. Where the subdivision abuts on or contains an existing or proposed arterial street, the City may require that marginal access streets be provided in order that no lots front on such existing or proposed arterial street. | ___ | ___ |
| ___ | ___ | 23. Dedication of half-streets shall be discouraged, but may be permitted whenever there is no other logical method of platting. However, wherever there exists a dedicated or platted half-street or alley adjacent to the tract to be subdivided, the other half of the street or alley shall be platted, unless otherwise permitted by the City. | ___ | ___ |

Project Name _____
Date _____

City No. _____

- ____ 24. All new streets, which are created and dedicated for use within a subdivision, shall be graded, drained and surfaced in accordance with the minimum requirements herein below set forth and in a manner which will provide complete and adequate drainage of all the streets, alleys and public grounds in the entire subdivision, including any such work which may be necessary in order to provide adequate and satisfactory drainage along the side of any existing public street which lies adjacent to the subdivision. _____
- ____ 25. In general, all such new streets within the subdivision and all work to be undertaken thereon shall be designed and constructed according to the specifications and policies adopted by the Division of Highways of the Department of Transportation of the State of Illinois, as the same are in effect at the time the Preliminary Plat and plans for such improvement work are submitted for approval. _____
- ____ 26. Grading Roadway and Side Slopes. The roadway shall be considered to be that part of the improvement which lies between the right-of-way lines, which roadway shall be constructed in accordance with the standards and typical cross sections as provided for in this Manual. _____
- ____ 27. Curbing. Combination concrete curb and gutters shall be built in accordance with the detail shown in this Manual. The minimum distance from back of curb to back of curb shall be as shown in the street cross-sections attached to this Manual, and all curbs at driveways shall be mountable. _____
- ____ 28. Street Construction Standards. All streets within the jurisdictional authority of the City, other than county and state highways, shall be designed as provided for in this Manual, or as determined by specific needs and designed accordingly. All streets shall be improved with pavements bounded by integral concrete curbs and gutters in accordance with the minimum criteria set forth in this Manual and shall be laid out and constructed substantially in accordance with the standards hereto attached. _____
- ____ 29. All new residential driveway aprons must be six (6) inch PCC concrete. All other driveway entrances, including multi-family three-units and above, shall be constructed to the same pavement thickness as the street it accesses. _____
- ____ 30. The earth sub-base shall have not less than ninety-five (95) percent of compaction and shall extend across the entire width of the roadway and two feet behind the back of curb. In some instances, it might be necessary that the subgrade be disked or tilled to dry it to the proper moisture content for construction. _____

Project Name _____
Date _____

City No. _____

- ___ ___ 31. The Developer shall daily clean all mud and dirt from the pavement surface that has accumulated due to construction work or as a result of storm water erosion within the subdivision. No materials, debris, field trailers, etc., shall be stored on the completed pavement or within the recorded right-of-way lines. ___ ___
- ___ ___ 32. Utility Lines. Underground utility lines in street or alley rights-of-way shall be installed prior to the construction of such streets and/or alleys. All trenches for utility lines made in the subgrade, and all trenches made outside the subgrade where the inner edge of the trench is closer than two (2) feet to the edge of any pavement, shoulder, curb or sidewalk shall be backfilled full depth to the subgrade elevation with coarse aggregate CA-6 or CA-11. The backfill shall be compacted by tamping it in eight (8) inch lifts. Jetting to achieve compaction will not be allowed. ___ ___
- ___ ___ 33. The City shall have the authority to permit the type, number, and location of all entrances, exits, and circulation patterns located on or accessing any development site or any public or private street within the City's jurisdiction. ___ ___
- ___ ___ 34. Where appropriate and as directed by the City Engineer, traffic calming measures shall be incorporated to expedite the safe movement of traffic. ___ ___
- ___ ___ 35. Each lot in the subdivision shall be provided at the property line with a connection to a public sanitary sewer system. The termination or termini of the subdivision sewerage system shall be located at a point acceptable to the City Engineer. The construction of the sewer system shall conform to the approved plans and specifications and all work should be properly inspected and approved by the City Engineer. Trenches shall be backfilled per the requirements of this Ordinance and Manual. ___ ___
- ___ ___ 36. Where connection to a public sanitary sewer system is not feasible, subdivisions with lots greater than 40,000 square feet may be on a temporary septic system where standard seepage test or other investigations, conducted by the Madison or St. Clair County Health officials or their representatives, indicated that the ground in the subdivision is suitable for individual sewage disposal facilities dependent upon seepage of the effluent into the soil. These temporary systems may remain until such time that a public sewerage system can take and treat the wastes. Nothing in this subsection 2 shall waive the requirement in subsection 1 to construct the onsite collection system in anticipation of public sewers. ___ ___

Project Name _____
Date _____

City No. _____

- | | | | | |
|-----|-----|--|-----|-----|
| ___ | ___ | 37. Sewer systems and sewage treatment facilities shall meet the requirements set forth by the Illinois Environmental Protection Agency, Department of Public Health of the State of Illinois, applicable public sewer system, and the City. No oxidation ponds, seepage lagoons, or holding lagoons, will be permitted. Sanitary and storm sewer systems shall not be combined. "Package plants" or other private multi-user treatment facilities are prohibited with the one and one-half (1½) mile extraterritorial subdivision review jurisdiction area. | ___ | ___ |
| ___ | ___ | 38. Sewer mains with house service stubs to each lot shall be installed prior to the construction of street pavements. Service stubs shall be installed at the centerline of each lot and shall extend to within one (1) foot of the front lot line. Sewer laterals may not share a common trench. | ___ | ___ |
| ___ | ___ | 39. Design of public sewers shall follow the Standard Specifications for Water and Sewer Main Construction in Illinois, the City of O'Fallon Standard Specifications, and Title 35 Illinois Administrative Code, Subtitle C, Chapter 2, Part 370: Illinois Recommended Standards for Sewage Works. | ___ | ___ |
| ___ | ___ | 40. In subdivisions not required to install community sewage collection systems under this section, individual sewage disposal systems may be permitted. | ___ | ___ |
| ___ | ___ | 41. Regardless of locations, lot size, or number of lots, a subdivision shall be disapproved where the City or Madison or St. Clair County Department of Public Health official finds that the drainage, soil conditions, disposal facilities, or other conditions will tend to produce health problems. | ___ | ___ |
| ___ | ___ | 42. Sanitary sewers shall be extended through the end of all stub streets and capped. They shall also be extended in such other areas as necessary to facilitate future extensions for anticipated development. | ___ | ___ |
| ___ | ___ | 43. Sanitary sewers shall be noted on dedicated plan and profile sheets or on a utility plan. Plans shall also include details for manholes, laterals, trench excavation, and any specialties. Profiles shall include grades and pipe size including manhole tops and inverts. Grading plan shall include finished floor and basement floor elevations to facilitate review of freeboard requirements. Where lift stations are included, these shall be detailed with all relevant piping, structures, pumps and site information. | ___ | ___ |

Project Name _____
Date _____

City No. _____

- | | | | | | |
|-----|-----|-----|--|-----|-----|
| ___ | ___ | 44. | Lift station and force main calculations are required with sanitary sewer plans and shall be constructed in accordance with City of O'Fallon Standard Specifications and the requirements of this Manual. | ___ | ___ |
| ___ | ___ | 45. | Detailed calculations for gravity sewer design as well as copies of the IEPA permit applications shall be submitted for every development within the City limits or its 1.5 mile jurisdiction. | ___ | ___ |
| ___ | ___ | 46. | Each subdivision shall have an interconnected public water distribution system supplying all lots with water from a source approved by the City of O'Fallon and the Illinois Environmental Protection Agency. | ___ | ___ |
| ___ | ___ | 47. | Each lot in the subdivision shall be provided at the property line with a connection, including yolk and meter tile, to a water system approved by the City of O'Fallon. The construction of the water system shall conform to the approved plans and specifications and all work shall be properly inspected and approved by the City Engineer. Water mains shall be constructed prior to the construction of street pavements. Trenches shall be backfilled as per the requirements of this Ordinance and Manual. | ___ | ___ |
| ___ | ___ | 48. | Fire hydrants shall be installed by the subdivider as part of the water distribution system. Single family residential developments shall have fire hydrants spaced at no more than 600 feet from hydrant to hydrant, measured along the street centerline, or as special site conditions may dictate. Multi-family residential development hydrant spacing shall not exceed 400 feet, and high hazard development hydrant spacing shall not exceed 300 feet. No fire hydrant shall be placed on a main smaller than six (6) inches in diameter. | ___ | ___ |
| ___ | ___ | 49. | Where fire hydrants or fire department connections are located in an area where vehicles may be parked or standing, said parking or standing shall be restricted for ten (10) feet in each direction from the hydrant or connection. | ___ | ___ |
| ___ | ___ | 50. | The minimum fire flow from a single fire hydrant in any Use Group shall be 1000 gallons per minute at 20 psi residual pressure unless the new hydrant is ordered on a pre-existing main. | ___ | ___ |
| ___ | ___ | 51. | The minimum fire flow from the next two (2) fire hydrants in any Use Group shall be a cumulative 1000 gallons per minute at 20 psi residual pressure. | ___ | ___ |

Project Name _____
Date _____

City No. _____

- | | | | | |
|-----|-----|--|-----|-----|
| ___ | ___ | 52. Fire flow on all new fire hydrant installations shall be tested by the Developer or contractor and witnessed by a representative of the Engineering Department. | ___ | ___ |
| ___ | ___ | 53. Private hydrants: Additional private fire hydrants shall be required on developed property, private streets, and/or parking lots, at spacing between fire hydrants as required by the Use Group as set forth in this Manual. All private hydrants must meet the City of O'Fallon Standard Specifications, testing requirements, and fire flow requirements of public fire hydrants. | ___ | ___ |
| ___ | ___ | 54. The Department of Engineering and Public Works shall approve all designs and shall alter the design requirements as necessary to meet the City water system plan. The City shall specify the type, kind and quality of pipe, fire hydrants, valves, valve boxes, and appurtenances. The contractor shall furnish and install these items. The work shall be inspected by the City. | ___ | ___ |
| ___ | ___ | 55. Water mains, hydrants and taps shall be constructed in compliance with the current adopted ICC Fire Prevention Code Appendices B, C, and D, Illinois Plumbing Code, Standard Specifications for Water & Sewer Main Construction in Illinois, Illinois Environmental Protection Agency, and City of O'Fallon Standard Specifications. | ___ | ___ |
| ___ | ___ | 56. All commercial developments shall be served by a minimum eight (8) inch main. Residential subdivisions shall be served by a minimum six (6) inch main. | ___ | ___ |
| ___ | ___ | 57. Water mains shall be extended through the end of all stub streets and in such other areas as necessary to facilitate future extensions for anticipated development to include frontage along roads. At the direction of the City, additional water mains shall be required to establish needed loops and connection to ensure adequate connectivity volumes and supply. | ___ | ___ |
| ___ | ___ | 58. Fire hydrants and water mains shall be placed along the full length of the property to be developed that abuts an existing and/or proposed improved public way. Developer shall be responsible for the cost of said hydrants and water main in sufficient size to serve the development. The City may pay for an upgrade of the main to a larger size to coincide with the overall distribution system plan and the main may be laid on the opposite side of the street to coincide with the location of other existing or proposed mains. | ___ | ___ |

Project Name _____
Date _____

City No. _____

- | | | | | |
|-----|-----|---|-----|-----|
| ___ | ___ | 59. Every community water supply system shall have adequate pipe sizes, water pressure, supply, and sufficient fire hydrants to provide fire protection to meet local neighborhood needs in accordance with the standards of the City of O'Fallon. The City Engineer may require construction of water utilities consistent in a manner necessary to accommodate a system of minimum of twelve (12) inch mains generally located on a one (1) square mile grid. | ___ | ___ |
| ___ | ___ | 60. No water shall be turned on for service in premises in which the plumbing does not comply with this Ordinance and Manual. Plumbers and contractors are prohibited from turning the water on to any service pipe except upon the order or permission of the City Engineer. | ___ | ___ |
| ___ | ___ | 61. No more than one building shall be supplied from one service pipe. Whenever possible, the service pipe shall enter the building in a direct line with the corporation stop and tap. Meter shall be located near the street right-of-way. | ___ | ___ |
| ___ | ___ | 62. The operation of utility valves shall be limited to Department of Public Works personnel. No valves shall be operated by any contractor without the prior approval of the City Engineer. | ___ | ___ |
| ___ | ___ | 63. It shall be unlawful for any person not authorized by the City to tamper with, alter or injure any part of the City waterworks or supply system, or any meter. | ___ | ___ |
| ___ | ___ | 64. Connections between potable water systems and other systems or equipment containing water or other substances of unknown or questionable quality are prohibited except when and where approved cross-connection control devices or methods are installed, tested and maintained to insure proper operation on a continuing basis. | ___ | ___ |
| ___ | ___ | 65. All waterlines shall be noted on dedicated plan sheets or on a utility plan. Plans shall include details for valves, fire hydrants, and trench excavation and backfill. Trench detail shall clearly note minimum bury depth. | ___ | ___ |
| ___ | ___ | 66. Pressure calculations as well as copies of the Illinois Environmental Protection Agency permit applications shall be submitted for every development within the City limits and its one and one-half (1½) mile jurisdiction. | ___ | ___ |
| ___ | ___ | 67. All waterlines constructed within the City and within its one and one-half (1½) mile extraterritorial review authority shall comply with the City of O'Fallon standards and water system requirements. | ___ | ___ |

Project Name _____
Date _____

City No. _____

- ___ ___ 68. A permanent street marker shall be provided by the Developer and placed at each intersection designating the names of the streets entering said intersection and shall comply with the specifications as provided by Ordinance of the City of O'Fallon. Additionally all traffic signs, regulatory and information signage shall be provided and placed by the Developer at all locations as directed by the City. ___ ___
- ___ ___ 69. All telephone, electric and cable TV shall be placed underground throughout a subdivided area. Said conduits or cables and gas lines shall be placed within designated easements or public right-of-way in a manner that will not conflict with other utilities and as approved by the City Engineer. Where telephone and electric service lines are placed underground entirely throughout a subdivided area, said conduits or cables shall be placed within easements or dedicated public ways in a manner which will not conflict with other underground services. Further, all transformer boxes shall be located so as not to be unsightly or hazardous to the public. ___ ___
- ___ ___ 70. The installation of all telephone, electric and cable TV facilities shall be made in compliance with the applicable orders, rules, and regulations of the Illinois Commerce Commission now or hereinafter effective. The Developer shall be responsible for compliance with the rules and regulations, now and hereinafter effective and filed with said Commission pursuant to the Illinois Public Utilities Act. ___ ___
- ___ ___ 71. The Developer or Contractor shall be responsible for locating of all existing private and public utilities. Any relocation, bracing, coordination, and associated costs shall be borne by the Developer or Contractor. ___ ___
- ___ ___ 72. Street lights shall be installed and in good working order immediately upon completion of the roadway base course. ___ ___
- ___ ___ 73. Street light style, spacing and location will be specified by the City Engineer. The Developer shall be responsible for purchase, installation, and commissioning of the appropriate street lights. ___ ___
- ___ ___ 74. The Developer shall arrange with the appropriate electric company to energize the street light system as soon as possible. The Developer shall be responsible for all connection fees. ___ ___
- ___ ___ 75. The City shall be billed for energy usage. Maintenance of the street light network within the development shall be the Developer's responsibility until formal acceptance of the subdivision improvements by the City. ___ ___

Project Name _____
Date _____

City No. _____

- ___ ___ 76. Reports of outages made to the City in the interim will be addressed by the City of O'Fallon Public Works Department or a hired Contractor at the expense of the Developer. ___ ___
- ___ ___ 77. No private parking lot lighting or other lighting shall be mounted in public right-of-way or utility easements on utility poles or street lights. All such lighting shall be restricted to the private residential, commercial, institutional, or industrial parcel on which lighting is sought. ___ ___
- ___ ___ 78. Concrete sidewalks not less than four (4) inches in thickness and four (4) feet in width shall be constructed within the street right-of-way and adjacent to the property line. ___ ___
- ___ ___ 79. All sidewalks shall be a concrete section across the entire breadth and width at driveways or entryways and shall be of a thickness equivalent to the street cross-section. Minimum thickness shall be six (6) inches. Six (6) bag mix with two (2) inch clean limestone rock sub-base on compacted subgrade, per IDOT standards, is required. ___ ___
- ___ ___ 80. All sidewalks shall be accessible to the handicapped in accordance with the Americans with Disabilities Act (ADA) and the Illinois Accessibility Code. At locations where the sidewalk crosses a driveway entrance, the driveway must conform to ADA requirements. In the case of conflict, the more stringent requirements shall apply. Curb ramps accessible to the disabled shall be provided in accordance with the current edition of IDOT Standard 424001. ___ ___
- ___ ___ 81. In those subdivisions where a bikeway or trail is required per the City's Official Map and Comprehensive Plan, including any bicycle masterplan, they shall be designed and constructed by the Developer in accordance with the applicable IDOT and City standards. The Bikeway improvements within any development shall be located and designed to facilitate maximum connectivity of dwellings or other uses within the development to the Bikeway network. Where the bikeway is to be located in a location where a sidewalk is otherwise required, the City may allow the installation of the bikeway in lieu of the installation of a sidewalk in that location. The bikeway shall be located in a public easement, right-of-way, or other interest allowing for public ingress and egress to and from the development as approved by Council on the Final Plat. ___ ___

Project Name _____
Date _____

City No. _____

- ___ ___ 82. In addition to the installation of curbs or gutters along the streets as required by this Manual, storm sewers and other drainage appurtenances shall be constructed throughout the entire subdivision to carry off water from all inlets and catch basins, and be connected to an adequate outfall. The storm water drainage system shall be separate and independent of the sanitary sewer system and shall be in accordance with drainage laws of the City and the State of Illinois. Specifically, the flow rate and velocity of post-development storm water runoff from the site shall not exceed the flow rate and velocity of pre-development run-off from the site. Storm water detention, retention, or other BMP structures shall be designed, constructed, and maintained to achieve this. ___ ___
- ___ ___ 83. During the final improvement plan phase, the entire subdivision shall be analyzed for the effects of the 100-year storm to assure that buildings are properly elevated (lowest structure opening 1 foot above the 100-year storm hydraulic gradeline) above the floods occurring beyond the design capabilities of the storm water structures. Trenches shall be backfilled as required herein. ___ ___
- ___ ___ 84. The Developer shall be responsible for constructing adequate facilities for the control, collection, conveyance, acceptable discharge of storm water, other surface water and subsurface water which may be detrimental to the safe and convenient use of any portion of the area. The storm drainage system shall provide for runoff from the entire area of the subdivision. It shall take into account land outside the subdivision limits, which normally drains across the area of the subdivision as well as the effects of the subdivision upon downstream drainage systems. As primary focus, the drainage system for the subdivision shall make use of, protect, and improve, as needed, the natural drainage system. Drainage facilities shall be designed and constructed in accordance with the standards and procedures specified in these regulations. ___ ___
- ___ ___ 85. Design Storm. All storm drainage facilities shall be designed with sufficient capacity and freeboard where necessary to convey the peak rates of runoff from storms with the appropriate average return frequency. ___ ___
- ___ ___ 86. 2 year – Water quality BMPs which will be required in the future to comply with the City's NPDES Stormwater Phase II permit requirements. ___ ___

Project Name _____
Date _____

City No. _____

- | | | | | |
|-------|-------|---|-------|-------|
| _____ | _____ | 87. 10 Year – All drainage facilities within road and easements from catch basins grates to outlet structures. Pavement encroachment, or maximum in-street spread, for drainage should be designed according to Section 1-303.01 of the Illinois Department of Transportation Drainage Manual. | _____ | _____ |
| _____ | _____ | 88. 25 Year – All cross culverts under drives, minor and local streets, as well as improved streams, swales and ditches. Pavement encroachment, or maximum in-street spread, for drainage should be designed according to Section 1-303.01 of the Illinois Department of Transportation Drainage Manual. | _____ | _____ |
| _____ | _____ | 89. 50 Year – All cross culverts and bridges constructed under residential collector and arterial streets. | _____ | _____ |
| _____ | _____ | 90. 100 year – All detention/retention basins and bridges. The lowest opening elevation in all habitable buildings shall be the 100-year hydraulic gradeline (HGL) elevation plus one foot; Drainage ditches, open channels, and natural drainage ways shall have zero created head compared with predevelopment conditions at the upstream property line along said drainage way up to the 100-year flood frequency if any increase in flooding up to the 100-year frequency storm affects upstream structures or collector roads (or higher category roads), unless the Developer acquires permanent flood easements to cover the area with increased flooding levels up to the 100-year flood event from the parties upstream whose structures and/or roads (collector level or higher) will experience an increase of flooding; Drainage ditches, open channels, and natural drainage ways which have no potential to increase flooding upstream of structures or collector roads (or higher category roads) up to the 100-year event, shall not have a created head greater than 0.1 feet at the upstream property line of the project property along said drainage way unless easements are obtained from the upstream property owner to cover the increases of flooding up to 100-year event, or unless there is a storm sewer, culvert, bridge, dam or other drainage structure within two hundred (200) feet downstream of the upstream property line on said drainage way in which case the created head shall not be greater than 0.5 feet at the upstream property line of the project property along said drainage way unless easements are obtained from the upstream property owner to cover the increases of flooding up to 100-year event. | _____ | _____ |

Project Name _____
Date _____

City No. _____

- | | | | | |
|-----|-----|--|-----|-----|
| ___ | ___ | 91. Storm Water Discharge. The discharge of all storm water shall be into an established wetlands, watercourse, or drainage structure as approved by the City. Where the discharge shall be into or through private property, proper easements or drainage rights in a form acceptable to the City Attorney shall be secured by the Developer for the City. | ___ | ___ |
| ___ | ___ | 92. Permanent easements, at least twenty (20) feet in width, shall be provided in all cases where storm drainage facilities are installed in land other than the street right-of-way. The centerline of pipes shall be no closer than five (5) feet and the top of the slope for channels shall be no closer than five (5) feet to the boundaries of the drainage easements. Easements shall also be provided for storm drainage facilities that may need to be installed in the future to serve underdeveloped land within the watershed that normally drains across the area of a proposed development. All easements shall be clearly delineated and described on the final plat. | ___ | ___ |
| ___ | ___ | 93. In all instances, unless otherwise waived, a Drainage Analysis Map shall be submitted showing the tributary watershed area, sub-drainage basins, and the downstream area affected by runoff. Drainage computations shall consider the entire tributary area (on-site and off-site) of those drainage basins contributing runoff to all design points. See also Section 3.6. | ___ | ___ |
| ___ | ___ | 94. Roadway underdrains shall be required where a soils report states this is needed, and their installation shall be performed by the Developer and as directed by the City or its duly authorized agent, to protect the stability of the roadway. | ___ | ___ |
| ___ | ___ | 95. Suitable head wall or <i>precast</i> end sections shall be provided at the open end of any pipe. Culverts under streets shall have a minimum cover of thirty (30) inches and shall be extended to a minimum of ten (10) feet from the edge of pavement, unless otherwise approved by the City Engineer. | ___ | ___ |
| ___ | ___ | 96. Catch basins shall be provided so that no portion of any road shall drain in one direction more than 300 feet without catch basins on both sides of the road, unless otherwise approved by the City Engineer. | ___ | ___ |

Project Name _____
Date _____

City No. _____

- ___ ___ 97. The hydraulic capacity and the required size and slope of storm sewer pipes and channels shall be established by using the Manning equation. The hydraulic capacity of driveway and roadway cross culverts shall be established only after considering both the inlet and outlet control conditions. The lower of the two flow rates obtained shall be the actual rated capacity. The upstream backwater shall not encroach onto adjacent properties unless backwater is contained within existing watercourse or wetland limits, does not encroach upon roadway beyond existing IDOT standards or driveway areas, and the necessary drainage easements are secured from those affected property owners. ___ ___
- ___ ___ 98. House and foundation drains shall in no case be permitted to discharge onto a roadway surface. Discharge to existing wetlands, watercourses, and storm drainage facilities shall be made. All such drainage connections shall be made prior to construction of, or be made so as not to cause damage to, pavement surface. Any damage to roadway or its appurtenances will be the responsibility of the property owner from whose property the drain is discharging. ___ ___
- ___ ___ 99. All pipes and drainage structures shall be thoroughly cleaned by the Developer before acceptance by the City and again following final construction of homes or structures within the subdivision. The Developer shall supply a letter of credit to secure such cleaning. ___ ___
- ___ ___ 100. Existing wetlands/watercourses proposed to receive storm drainage discharge shall be analyzed to determine the downstream effects on any watercourse or existing storm drainage system for its adequacy to receive the proposed drainage discharge. The extent to which downstream studies are conducted shall be commensurate with the probable impact of the proposed development. Where it is anticipated that the additional discharge resulting from the proposed subdivision will overload the existing downstream drainage system, the City may deny the subdivision until the Applicant has adequately provided for improvements to the drainage system. ___ ___
- ___ ___ 101. Each lot on any final plat or final development plan shall have identified on the plat of record an elevation height that shall be the minimum elevation of the lowest opening (first floor, walkout basement, or basement window) to adjacent grade. This elevation shall be determined and established by the elevation of the 100-year storm in any drainage way or structure adjacent to that lot or surrounding area that may subject that lot to potential flooding from any of those drainage ways. That elevation will then be required to have one (1) foot of freeboard. All lots shall be noted on the plat of record as either suitable or unsuitable for walkout basements. ___ ___

Project Name _____
Date _____

City No. _____

- ___ ___ 102. When the street side of any principal structure will be constructed below roadway elevation, the Developer shall submit documentation from an engineer showing how they propose to protect the structures from storm water runoff in excess of the design capacity of the roadway. ___ ___
- ___ ___ 103. Detention basins shall be located on outlots maintained by the homeowner's association. A Special Service Area may be created for potential maintenance by the City should the homeowner's association become defunct, unable or unwilling to provide sufficient maintenance of the detention basins. ___ ___
- ___ ___ 104. Additional design standards, as appropriate, may be required by the City Engineer. ___ ___
- ___ ___ 105. Scour protection shall be provided for all ditches and storm sewer discharges. The amount of scour protection shall be determined by the flow rate and velocity of the storm water in the drainage structure. ___ ___
- ___ ___ 106. Hydraulic Calculations for Pipes, Culverts, and Open Channels are to be as follows. Gravity Versus Pressure Flow for Enclosed Systems: Two design philosophies exist for sizing storm drains under the steady uniform flow assumption. The first is referred to as open channel, or gravity flow design, in which the water surface within the conduit remains open to atmospheric pressure. Pressure flow design, on the other hand, requires that the flow in the conduit be at a pressure greater than atmospheric. For a given flow rate, design based on open channel flow requires larger conduit sizes than those sized based on pressure flow. While it may be more expensive to construct storm drainage systems designed based on open channel flow, this design procedure provides a margin of safety by providing additional headroom in the conduit to accommodate an increase in flow above the design discharge. However, there may be situations where pressure flow design is desirable. For example, on some projects, there may be adequate headroom between the conduit and inlet/access hole elevations to tolerate pressure flow. In this case, a significant cost savings may be realized over the cost of a system designed to maintain open channel flow. Also, in some cases it may be necessary to use an existing system which must be placed under pressure flow to accommodate the proposed design flow rates. Under most ordinary conditions, it is recommended that storm drains be sized based on a gravity flow criteria at full flow or near full. Pressure flow design may be justified in certain instances. As hydraulic calculations are performed, frequent verification of the existence of the desired flow ___ ___

Project Name _____
Date _____

City No. _____

condition should be made. Storm drainage systems can often alternate between pressure and open channel flow conditions from one section to another. (From Urban Drainage Design Manual, Hydraulic Engineering Circular No. 22, U.S. Department of Transportation Federal Highway Administration).

- ___ ___ 107. For gravity flow conditions, Manning's formula shall be used. ___ ___
- ___ ___ 108. Pipe friction losses, h_f , may be calculated by the Darcy formula, the Hazen-Williams formula, or the friction slope method. ___ ___
- ___ ___ 109. *Culverts*: Classified as having either entrance or outlet control. Either the inlet opening (entrance control), or friction loss within the culvert or backwater from the downstream system (outlet control) will control the discharge capacity. ___ ___
- ___ ___ 110. Entrance Control. Entrance control occurs when the culvert is hydraulically short (when the culvert is not flowing full) and steep. Flow at the entrance would be critical as the water falls over the brink. If the tailwater covers the culvert completely (*i.e.*, a submerged exit), the culvert will be full at that point, even though the inlet control forces the culvert to be only partially full at the inlet. The transition from partially full to full occurs in a hydraulic jump, the location of which depends on the flow resistance and water levels. If the flow resistance is very high, or if the headwater and tailwater levels are high enough, the jump will occur close to or at the entrance. ___ ___
- ___ ___ 111. Outlet Control. If the flow in a culvert is full for its entire length, then the flow is said to be under outlet control. The discharge will be a function of the differences in tailwater and headwater levels, as well as the flow resistance along the barrel length. ___ ___
- ___ ___ 112. Alternatively, refer to the Federal Highway Administration website for these charts (www.fhwa.dot.gov/bridge/hec05.pdf). Download applicable design manuals, reports, and FHWA hydraulics engineering such as [Bridge Waterways Analysis Model \(WSPRO\)](#), FHWA Culvert Analysis, and HDS 5 Hydraulic Design of Highway Culverts from www.fhwa.dot.gov/bridge/hydsoft.htm. These are applicable when flow in the upstream channel is subcritical. ___ ___

Project Name _____
Date _____

City No. _____

- ___ ___ 113. Open Channels/Bridges: Proper evaluation of the velocity, depth, and width of flow requires analyses of the structures and conditions that impact the flow. Boundary flow conditions upstream and downstream from the open channel system must be established. The standard-step backwater method, using the energy equation, can be used to determine the depth, velocity, and width of flow. Major stream obstructions, changes in slope, changes in cross-section, and other flow controls can cause significant energy loss. In these cases, the energy equation does not apply and the momentum equation must be used to determine the depth, velocity, and width of flow. ___ ___
- ___ ___ 114. Hydraulic calculations for open channels may also be made by the U.S. Army Corps of Engineer's 'HEC-2 Water Surface Profiles' or 'HEC-RAS River Analysis System' computer programs. The HEC-2 program computes water surface profiles for one-dimensional steady, gradually varied flow in rivers of any cross section. HEC-RAS is an integrated system of software, designed for interactive use in a multi-tasking, multi-user network environment. The system has separate hydraulic analysis components, data storage and management capabilities, graphics and reporting facilities. The HEC-RAS system is intended for calculating water surface profiles for steady gradually varied flow. The system can handle a full network of channels, a dendritic system, or a single river reach. Like HEC-2, HEC-RAS is capable of modeling subcritical, supercritical, and mixed flow regime water surface profiles. (from www.hec.usace.army.mil). ___ ___
- ___ ___ 115. If detention basins are necessary, they must be designed in accordance with the requirements of this Development Manual and currently accepted engineering design practices. Included in the design submission must be the following. Map showing site, its location within the watershed, and the watershed limits. All detention facilities shall be analyzed with hydrograph and storage routing techniques. ___ ___
- ___ ___ 116. Examination must be made of the routing of stormwater through the site and its flow path as it is discharged from the site. Sub-drainage basin limits within the watershed must be delineated. ___ ___
- ___ ___ 117. Designation of the location(s) of the proposed detention basin(s). Provide analysis for the stormwater runoff from those areas tributary to the proposed detention facility. Existing and proposed conditions must be evaluated. Peak storms with return frequencies for the 10, 25, and 100-year events shall be analyzed as follows. For detention basins with drainage areas less than two hundred (200) acres, the engineer shall use the Rational Method for Detention Storage (a.k.a. the ___ ___

Project Name _____
Date _____

City No. _____

Modified Rational Method, or the Chicago Method) as described in the Illinois Department for Transportation Drainage Manual under Chapter 4–Hydrology and Chapter 12–Detention Storage and as further defined below. Existing and proposed “C” factors for agricultural, pastures, or wooded areas shall be 0.20 or less unless an extensive survey of soil types and land slopes is presented to verify that a higher value is justified; Existing and proposed “C” factors for paved and building areas shall be 0.90 or more. This excludes aggregate surfaces which should be evaluated based on the condition and slope of the aggregate surface; Existing and proposed “C” factors for lawns shall be 0.20 or more unless an extensive survey of soil types and land slopes is presented to verify that a lower value is justified; For commercial developments, “C” factors for the proposed development shall be calculated by a full tabulation of the proposed surface areas in the development when known, or by calculating the road “C” factor within the right-of way and by calculating a composite “C” factor based on the maximum allowed coverage (pavement and building area) per lot for the development; For residential developments, “C” factors for the proposed development shall be calculated by a composite section of the typical road and lot configuration showing the average amount of paved and building areas per lot, and a full tabulation of the park, other green spaces, and lakes within the development.

____ 118. Please note that the engineer may also use one of the unit hydrograph methods as described below for drainage areas under 200 acres if they can demonstrate that sub-watersheds have significantly non-homogeneous land use or significantly different sub-watershed timing that effect the proper design of said detention facilities. _____

____ 119. For detention basins with drainage areas greater than 200 acres, the engineer shall use a unit hydrograph routing method that is generally accepted to the Illinois Department of Natural Resources Office of Water Resources such as the Clark or TR-20 unit hydrograph methodologies inside computer programs such as HEC-1 or HEC-HMS or other computer programs accepted by the Illinois Department of Natural Resources Office of Water Resources, and as further defined below. Rainfall Data and Distributions should be utilized as described in Bulletin 70 and Circular 173 as published by the Illinois State Water Survey. Enough durations of each required frequency must be run to determine the peak storm duration for each frequency; Time of Concentrations may be determined as described in either TR-55 or the IDOT Drainage Manual. Lag time if utilized may be assumed to be equal to 0.6 times the time of concentration; The selected curve numbers or other runoff coefficients must be calibrated to surveys of existing flood frequencies in other local watersheds which have already _____

Project Name _____
Date _____

City No. _____

been modeled. This information shall be provided to the City. If the engineer does not have calibrated curve numbers for a similar watershed, the City will provide curve numbers with such a basis.

- ___ ___ 120. The detention basin may be designed to drain dry or to retain water for extended periods after rain events. All detention/retention basins must be properly maintained and kept free of algae growth, trash, and other debris. ___ ___
- ___ ___ 121. The depth-area-volume relationship of the basin is dependent on the storage volume needed to reduce the peak inflow rate to some desired peak outflow rate. As the natural contours in the site dictate, ponding depths should be kept as shallow as possible. However, where stormwater storage depths exceed four (4) feet, a bench width of six (6) feet should be provided around the entire perimeter of the basin (exclusive of bermed areas). Outlets from normally dry detention basins can take on a number of forms, limited only by safety and maintenance considerations. Outlet pipe must be at least twelve (12) inches in diameter to facilitate maintenance. If less capacity is required than a twelve (12) inch pipe would provide, flow should be throttled at the pipe entrance. Trash racks or perforated risers are required at inlets to help guard against plugging of the pipe. ___ ___
- ___ ___ 122. The side slope of the basin should be no steeper than four horizontal to one vertical (4:1) for the safety of mechanical mowing equipment and the safety of people during those times when water is being stored. All grades on the bottom of this basin should be at least two (2) percent so that the bottom will drain quickly and leave no wet spots. A low flow concrete channel shall be provided in the basin. ___ ___
- ___ ___ 123. An emergency spillway outlet shall be provided for discharge of flows in the event the storage capacity is exceeded or the primary outlet is non-functional. The emergency spillway shall be designed for the 100-year storm frequency event assuming the basin is dry, or at normal pool for a wet basin, and the primary outlet is non-functional (plugged) at the start of the rainfall event. ___ ___
- ___ ___ 124. Easements should be included if necessary and access roads provided to allow vehicles and other equipment the access needed for maintenance of the basin. ___ ___
- ___ ___ 125. If detention is to be of the wet basin, (retention type), the volume needed for temporary storage must be provided above the normal pond elevation. ___ ___

Project Name _____
Date _____

City No. _____

- | | | | | |
|---|---|--|---|---|
| — | — | 126. The outlet structure of wet basins (retention type) must be constructed such that the pond level is maintained. The side slopes beneath the water surface of the pond should be two horizontal to one vertical (2:1), to a depth of three or four feet to discourage the growth of aquatic plants unless a wetland system is developed along the shoreline of the pond. If fish are to be stocked in the pond, at least twenty-five (25) percent of the ponds area should be at least ten (10) feet deep. | — | — |
| — | — | 127. An as-built survey of detention basin grades and outlets with an accompanying storage calculation will be required upon completion of the proposed detention basin. Any completed basin below 95% of the design storage shall be regraded and reseeded to obtain the original design storage. | — | — |
| — | — | 128. Detention dams which meet the criteria as a regulated dam as described in the most recent version of “Rules for Construction and Maintenance of Dams” by the Illinois Department of Natural Resources – Office of Water Resources require an IDNR, Office of Water Resources permit prior to City approval for construction. | — | — |
| — | — | 129. Variances are requested for this development (provide a list, description and justification for each variance requested on a separate sheet). | — | — |

This check sheet is not intended to be an exhaustive listing of items to be reviewed by the City. It is a guide to assist with the preparation of preliminary plats and subsequent review by the City of O’Fallon.

Project Name _____
Date _____

City No. _____

COMPLETED AND SUBMITTED BY:

Engineer/Surveyor Date

Owner Date

REVIEWED BY CITY OF O'FALLON

Engineering Date

Planning Date

Initial Submittal Date _____

Resubmittal #1 Date _____