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SECTION I - SUBMITTAL PROCEDURES

1.1 GENERAL

Submittal requirements, number of copies, and distribution are dependent on the type of development.

Large-Scale Development, Preliminary Plat, and or roadway drainage shall follow requirements associated with their submittal applications.

If drainage improvements are not associated with a Large-Scale Development, Preliminary Plat, and/or roadway drainage then follow In-House Large-Scale Development application requirements.

Applications are available at the Bentonville Community Development office.

In order to minimize review time by the City Engineer's staff, all submittals shall include: (1) Title Sheet, (2) Master Site Plan, (3) Drainage Plan(s), (4) Right-of-Way Sheet, (5) Plan and Profile Sheet(s), (6) Standard and Special Detail Sheets, (7) Drainage Area Map, and (8) Calculations. Combining of the above items is allowed when legibility and readability is maintained.

A written drainage report shall accompany the plan submittal. Examples of additional submittal requirements may include a grading permit, a stormwater pollution prevention plan, and erosion control plan

The word "improvement" means the construction of public or private infrastructures, roadways, drainage, utilities, and buildings.

On combination roadway-drainage projects, it is not the intent that completely separate storm drainage plans be prepared. Where the required details of the proposed storm drainage system can be adequately shown on the roadway plans without sacrificing clarity, the roadway plans will be sufficient. If a combined project submittal is made for review of only roadway or only storm drainage aspects of the project, this fact shall be clearly indicated in large, bold lettering on the Title Sheet.

Plans and Specifications for storm drainage plans are to be signed and stamped by a professional engineer registered in the State of Arkansas. Because all plans, specifications, and calculations are retained by the City for use as permanent records, neatness, clarity and completeness are very important and lack of these qualities will be considered sufficient basis for submittal rejection.

The suggested plan sheet size is 24" x 36" with all sheets in a given set of plans the same size. The Master Site Plan should include the overall scope of the project on one sheet regardless of the scale. Plan drawings will be prepared

with a maximum horizontal scale of 1" = 50'. Profile drawings for storm sewers should be drawn to a suggested horizontal scale of 1" = 20' with a maximum scale of 1" = 50'; and a minimum vertical scale of 1" = 5'. Drainage ditch profiles should be drawn at the suggested horizontal scale of 1" = 20' with a maximum scale of 1" = 50'; and a minimum vertical scale of 1" = 5'. Special cases may warrant use of larger or smaller scale drawings for increased clarity or conciseness of the plans and may be used with prior permission of the City Engineer.

Each sheet in a set of Plans shall contain a sheet number, the total number of sheets in the Plans, proper project identification and the date. Revised sheets submitted must contain a revision block with identifying notations and dates for revisions, and the revised areas must be clouded.

1.2 TITLE SHEET

Title shall include:

1. The designation of the project, which includes the nature of the project, the name or title, city, and state.

2. Index of sheets.

3. Location maps showing project location in relation to streets, railroads, and physical features. The location map shall have a north arrow and appropriate scale.

4. A project control bench mark identified as to the location and elevation.

   Horizontal and Vertical Datum:
   All drainage improvements in the City of Bentonville shall be tied to the City of Bentonville Survey Monumentation System based upon the State Plane Coordinate System, Arkansas North Zone using the North American Datum of 1983 (NAD 83). All information for newly constructed streets and roads at the time of approval shall be delivered to the City of Bentonville Engineering Department, georeferenced, in an AutoCAD compatible digital format for review and acceptance.

   All drainage construction shall use the above mentioned coordinate system and shall identify with monuments that were used for horizontal and vertical control. Elevation of controlling points shall be based on USGS NAVD 88 datum.

5. The name and address of the owner of the project and the engineer preparing the plans.

6. Engineer's seal.

1.3 Drainage Plan

The Drainage Plan shall include:

1. North arrow and scale.

2. Legend of symbols, which will apply to all sheets.

3. Name of subdivision, if applicable, and all street names and an accurate tie to at least one quarter section corner. Unplatted tracts should have an accurate tie to at least one quarter section corner.

4. Boundary line or project area.

5. Location and description of existing major drainage and utility facilities within or adjacent to the project area.

6. Location and description (size, material, etc.) of major proposed drainage facilities, along with other proposed improvements.

7. Name and description (size, material, utility owner, etc.) of each utility within or adjacent to the project area.

8. If more than one sheet is required, a match line should be used to show continuation of coverage from one sheet to the next sheet. A key should be included to show the sheet's location in relation to the overall project.

9. The registration seal of the Engineer of Record shall be placed in a convenient place on each set of plans.

10. Elevations on profiles of sections or as indicated on plans shall have U.S.G.S. data. At least one permanent bench mark in the vicinity of each project shall be noted on the first drawing of each project, and their location and elevation shall be clearly defined.

    Horizontal and Vertical Datum:

    All drainage improvements in the City of Bentonville shall be tied to the City of Bentonville Survey Monumentation System based upon the State Plane Coordinate System, Arkansas North Zone using the North American Datum of 1983 (NAD 83). All information for newly constructed streets and roads at the time of approval shall be delivered to the City of Bentonville Engineering Department, georeferenced, in an AutoCAD compatible digital format for review and acceptance.

All drainage construction shall use the above mentioned coordinate system and shall identify with monuments that were used for horizontal and vertical control. Elevation of controlling points shall be based on USGS NAVD 88 datum.

11. The top of each page shall be either north or east. The stationing of street plans and profiles shall be from left to right and downstream to upstream in the case of channel improvement/construction projects unless approved by the City Engineer.

12. Each project shall show at least 100' of topography beyond the project limits. At least 100' of topography shall be shown in areas of channel flow at the property boundary. For sites one (1) acre or smaller, the project shall show at least 50' of topography beyond the project limits. City aerial topography can be used outside of the project limits. All existing topography and any proposed changes, including utilities, telephone installations, etc., shall be shown on the plans and profiles.

13. Revisions to drawings shall be indicated above the title block in a revision block and shall show the nature of the revision and the date made. The revised area shall be clouded, unless the entire sheet is affected.

14. Utilizing the standard symbols for engineering plans, all existing utilities, telephone installations, sanitary and storm sewers, pavements, curbs, inlets, and culverts, etc., shall be shown with a broken line; proposed facilities with a solid line; land, lot, and property lines to be shown with a slightly lighter solid line. Easements shall be shown.

15. Lot lines and dimensions shall be shown where applicable.

16. Minimum floor elevation shall be shown a minimum of 3 ft. above the 100 year flood elevation, on each lot when located in a designated floodplain and in areas where flooding is known to occur or 3 ft. above the highest adjacent ground if no flood elevation is specified. All occupied buildings, whether in or out of a designated floodplain shall have the finished floor elevation a minimum of 12" above the land immediately surrounding the building.

17. It shall be understood that the requirements outlined in these standards are only minimum requirements and shall only be applied when conditions, design criteria, and materials conform to the City Specifications and are normal and acceptable to the City Engineer. When unusual subsoil or drainage conditions are suspected, an investigation should be made and a special design prepared in line with good engineering practice.

DRAINAGE DESIGN CHECKLIST
CITY OF BENTONVILLE, ARKANSAS
REVISION NO. _____
DATE: _____

_____ 1. PROJECT TITLE AND DATE

_____ 2. PROJECT LOCATION MAP

_____ 3. PROJECT DESCRIPTION

_____ 4. NAME OF OWNER AND ENGINEER – With addresses and telephone numbers.

_____ 5. SITE AREA – With a 1 mile radius.

_____ 6. UPSTREAM AND DOWNSTREAM DRAINAGE - Brief description of the drainage path from the proposed site shown on a 1" = 200' minimum scale, 2' contour topographic map. (Include an exhibit, if required.)

_____ 7. AREA DRAINAGE PROBLEMS

_____ 8. HYDROLOGIC COMPUTATIONS - Include complete runoff computations for the design frequency storm specified in the Manual for each specific type drainage system

_____ 9. OPEN CHANNEL FLOW DESIGN - Include computations for normal depth and velocity (Use Figure 9.2 or equal)

_____ 10. PAVEMENT DRAINAGE DESIGN - Include width of spread for design flow (Use Figure 7.12 or equal). Show flow in gutter for Q_{10} and Q_{100} in plan view.

_____ 11. CULVERT DESIGN - Include all computations and check for inlet/outlet control (Use Table 4.3 or equal)

_____ 12. STORM SEWER INLET DESIGN - Include all computations (Use Figure 7.12 or equal)

_____ 13. STORM SEWER DESIGN - Include all computations (Use Figure 8.1 and/or 8.2 or equal)

_____ 14. STORMWATER DETENTION DESIGN - Include the following computations and backup/support data:

SUMMARY OF RUNOFF - A Table with minimum 2, 10, 25, 50, and 100 year storm flow comparisons for existing and proposed conditions and detention volumes required if applicable - Also describe method used for determining stormwater runoff flows.

RECOMMENDATIONS/SUMMARY - Description of any drainage improvements to be made to the site - Also, the following backup/support data:

_____ a. Runoff coefficient/RCN computations (existing and proposed conditions)

_____ b. Complete runoff computations for the 2, 10, 25, 50, and 100-year storms (existing and proposed conditions)

_____ c. Detention basin size requirement computations (using an approved method)

_____ d. Release structure design computations (include release rate computations for the 2, 10, 25, 50, and 100 year storms)

_____ e. Stage-Storage and Stage-Discharge curves for the detention facility

_____ 15. DESIGN STORM DESIGNATED BY Q _____ = and design flow rate for each street crossing or drainage structure

_____ 16. Detail Plans and Specifications as required by the City of Bentonville Drainage Manual, including Project Location (Street Address and Vicinity Map).

_____ 17. AS-BUILT DRAWINGS AND CERTIFICATION that drainage facility is constructed to the City of Bentonville Standards and Ordinances and signed and sealed by an Arkansas registered engineer.

_____ 18. ADD THE FOLLOWING PARAGRAPH TO THE DRAINAGE LETTER:

Improvements as outlined in this report and depicted on the preliminary plat and design drawings shall not increase the risk of endangerment to life or have negative impacts on adjacent or downstream property or watersheds.

_____

Signed and Sealed by Professional Engineer

_____ 19. OTHER

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