Exhibit A

ARTICLE 10.100

SUBDIVISION ORDINANCE

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Article I0.100 Subdivision Ordinance

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SECTION 1: Adopted

These regulations, authorized by Chapter 212 of the Texas Local Government Code, shall govern every person, firm, association or corporation owning any tract of land within the city limits of the City of Sanger who may hereafter divide the same into two (2) or more parts for the purpose of laying out any subdivision of any tract of land or any addition to said City, or for laying out suburban lots or building lots, or any lots, streets, alleys, parks or other portions intended for public use, for the use of purchasers or owners of lots fronting thereon or adjacent thereto.

SECTION 2: Definitions

A

Acreage, Net. The acreage included within the boundary line of a subdivision, tract, parcel, lot, etc., but excluding all public ways.

Addition. Lots, tracts, or parcels of land lying within the corporate boundaries of the City which is intended for the purpose of development.

Administrative Officers. Every officer referred to by title, i.e., city manager, city attorney, city engineer, director of public works, etc., and shall be the person so retained in this position by the City or his duly authorized representative.

Agricultural Purposes. Farming and/or ranching, not residential, commercial or any other use.

Alley. A minor way used primarily for vehicular service to the rear or side of properties otherwise abutting on a street and designed for the special accommodation of the property it reaches and not intended for general travel or primary access.

Applicant. A developer submitting an application for development.

B

Build. To erect, convert, enlarge, reconstruct, restore, or alter a building or structure.

Building. Any structure designed, used, or intended to be used for human occupancy or use or to support the human occupancy or use of land, including mobile homes.

Building Line. A line beyond which buildings must be set back from the right-of-way line or property line.

C

Camper. See *Recreational Vehicle*.

City or the City. The City of Sanger, Texas.

City Council. The duly elected governing body of the City.

City Engineer. The City Engineer of the City, the City's consulting engineers, or their duly authorized representatives.

City Manager. The City Manager of the City.

Code. The City of Sanger Code of Ordinances.

Commercial Tract. Any tract containing any type of land-use except for single-family detached residential and two-family (duplex) residential uses and agriculture use. Requirements and standards for religious and educational land uses shall be the same as the character of the predominant surrounding land use. Nothing contained in this definition shall be considered as limitations to or repeal of the definitions set forth in the City's fire prevention code.

Commission. The official City Planning and Zoning Commission of the City as appointed by the City Council. See *Planning and Zoning Commission*.

County or the County. Denton County, Texas.

Cul-De-Sac. A short residential street having but one vehicular access to another street and terminated by a vehicular turnaround.

D

Developer. The legal or beneficial owner or owners of a lot or any land proposed to be included in a proposed development including the holder of an option or contract to purchase, or other person having an enforceable proprietary interest in such land.

Development. Any manmade change to improved or unimproved real estate, including but not limited to, buildings or other structures, paving, drainage or utilities, but not agricultural activities.

Development Exaction. Any dedication of land or easements for, construction of, or monetary contribution toward construction of a public improvement required as a condition of plat approval by the City under these regulations.

Director of Development Services. The individual who manages all development capabilities of the City, including all planning and zoning activities, building

inspections and Code enforcement, or his or her designee.

Director of Public Works. The individual who manages, administers, and directs operations of the City's Public Works Department.

DRDCT. Deed Records of Denton County, Texas.

E

Easement, Emergency Access. A private street, alley or paved place dedicated to the public for the purpose of providing access to adjacent structures by emergency vehicles such as fire equipment, police or ambulances, the boundaries of which are continuously and permanently marked.

Engineer. Whenever used without a prefix, shall refer to a registered professional engineer retained by a subdivider.

Escrow. A deposit of cash with the City in accordance with City Code.

Extraterritorial Jurisdiction or ETJ. The unincorporated area outside of and contiguous to the corporate boundaries of the City as defined and established in accordance with Chapter 42 of the Local Government Code.

F

Floodplain. Area of land lying below the fully developed 100-year water surface elevation or Federal Emergency Management Agency Base Flood Elevation, whichever is greater.

Floodplain Development Permit. A permit required before any development activity occurs within a floodplain or Federal Emergency Management Agency designated Special Flood Hazard Area. This shall require a separate submittal to the Floodplain Administrator.

Flood Study. A study performed for a specific land disturbance site that examines, analyzes, evaluates, or determines the hydraulic and hydrologic characteristics of flood hazards for a site or an area of interest.

Floodway. The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base (100-year) flood without cumulatively increasing the water surface elevation more than a designated height (1.00 feet).

Frontage. The side of a lot, parcel or tract abutting a street right-of-way and ordinarily regarded as the frontal orientation of the lot.

Fully Developed Conditions. All existing developed areas that reflect current land use or current zoning, and all existing undeveloped areas that reflect anticipated future land use designated by zoning classification, by the City, or by an accepted concept plan.

H

HUD-Code Manufactured Home. A single or multi-section home which requires transport to the site and installation that was built on or after June 15, 1976, according to the rules of the United States Department of Housing and Urban Development, and as defined by Article 5221f, Revised Civil Statues of Texas, now or as hereinafter amended.

HUD-Code Manufactured Home Subdivision. A development of a single lot divided into more than one stand for the placement of HUD-Code Manufactured Homes, accessory uses, and service facilities, meeting all requirements of this Code and any applicable deed restrictions and state laws.

L

Lot. Land occupied or to be occupied by a building and/or accessory building and including such open spaces as are required by City Code and having its principal frontage on a public street or officially approved place.

Lot Improvement. Any building, structure, work of art or other object or improvements of land on which they are situated, whether immediate or future, which includes streets, alleys, utilities, drainage modifications, access modifications including curb cuts and other similar activities covered by these regulations. Lot improvements include off-site work accomplished for the betterment of removed building lots.

Lot of Record. A lot which is part of a subdivision, the plat of which has been recorded with the County Clerk, Denton County; or a parcel of land, the deed for which was recorded with the County Clerk, Denton County, prior to November 1961.

M

Main, Approach. An off-site main which brings water or sewer service to the subdivided property.

Main, Border. A water or sewer main located in a roadway, alley or utility easement abutting the perimeter of the property of a subdivider.

Main, Sewer or Sewer. Used without any prefix shall refer to a sanitary sewer (excluding service lines).

Main, On-Site. A water or sewer main located in a roadway, alley, or easement within the perimeter of the property of a subdivider and which provides service only within a subdivider's property.

Main, Oversize. A water or sewer main which the system's master plan requires or which the City elects to construct or have constructed of larger diameter than that required to provide service to the property of a subdivider.

Main, Public. A pipe or conduit which is a part of a public water distribution system (excluding service lines).

Main, Private. A pipe or conduit which is not part of the public water distribution center and is maintained by a private entity.

Manufactured Housing. Any residential structure which is fabricated off-site (in whole or in part) and is assembled on the lot to a permanent foundation. Structures of this type include modular homes, prefabricated homes, or any other structure commonly classified as manufactured housing.

Master Plan. The comprehensive plan of the City and adjoining areas as adopted by the City Council and the City Planning and Zoning Commission, including all its revisions. This plan indicates the general location recommended for various land uses, transportation routes, public and private buildings, streets, parks and other public and private developments and improvements.

May. Permissive.

Mayor. The duly elected presiding officer of the City Council of the City.

Mobile Home. A moveable structure built before June 15, 1976, and used primarily for residential purposes and any structures driven or towed to a site by the same conveyance.

Mobile Home Park. Areas for renting or leasing sites for Mobile Homes.

N

NCTOG. North Central Texas Council of Governments.

O

One Hundred Year Water Surface Elevation. The water surface elevation established by hydrologic/hydraulic analysis of a stream, river, creek, or tributary based upon the 100-year rainfall event. This elevation is considered to be the fully developed (ultimate) or effective (existing, Base Flood) water surface elevation, whichever is higher.

Open Space. That part of any lot or tract that is used for recreational purposes, both passive and active, but not including areas used for parking or maneuvering of automobiles or drives or approaches to and from parking areas.

Owner. An all-inclusive term denoting the person with primary responsibility toward the City to see that these subdivision rules and regulations and the City Code are complied with. The term includes person, firm, corporation, partnership or agent, attorney-in-fact, manager or director, developer. Such term as used in this chapter always includes one (1) or more of the persons enumerated in this section who own all or any part of the land which is contemplated to be developed.

P

Planning and Zoning Commission. The body of seven (7) appointed members charged with the responsibility of reviewing for approval all subdivisions, preliminary plats and final plats in the City. See *Commission*.

Plat, Conveyance. A record of property approved by the City for the purpose of sale or conveyance in its entirety or interests thereon defined.

Plat, Development. A plat reflecting new construction or the enlargement of any exterior dimension of any building, structure, or improvement on property previously final platted or not required to be platted.

Plat, Final. A map or drawing prepared according to the provisions of this ordinance, and containing all surveying and legal data, dedications, and certificates necessary to the recording of same in the plat records of the County.

Plat, Preliminary. A map or drawing on which is shown the subdivider's proposed arrangement of streets, lots, easements and other public spaces and facilities in the subdivision, and which is intended for review and study by the City, and not for recording.

PRDCT. Plat Records of Denton County, Texas.

Private Road. See *Street, Private*.

R

Recreational Vehicle or RV. A vehicle, either self-propelled or towed, which is not classified as a Travel Trailer or HUD-Code Manufactured Home that is so constructed to permit occupancy for sleeping purposes.

Recreational Vehicle Park. A parcel of land which is used solely for the rental or lease of lots for transient campers, trailers, motor homes, or temporary parking of any other Recreational Vehicle that is not a Hude-Code Manufactured Home.

Replatting. A process, also referred to as resubdivision, that modifies any part or all of any block or blocks of a previously platted subdivision, addition, lot, or tract.

Residential Tract. Any tract of land developed for the purpose of single-family detached or two-family domestic living (religious and educational institutions may also be included). Requirements and standards for religious and educational institutions shall be the same as the character of the predominant surrounding land-use.

Resubdivision. See *Replatting*.

Right-of-Way. A strip of land occupied or intended to be occupied by a street, crosswalk, railroad, road, electric transmission line, oil or gas pipeline, water main, sanitary or storm sewer main or for another special use. The usage of the term "right-of-way" for land platting purposes means that every right-of-way established as shown on a final plat is to be separate and distinct from the lots or parcels adjoining such right-of-way and not included within the dimensions or areas of such lots or parcels. Right-of-way intended for streets, crosswalks, water mains, sanitary sewers, storm drains or any other use involving maintenance by a public agency shall be dedicated to public use by the maker of the plat on which such right-of-way is established.

S

Service Line. A water or sewer pipe running from the water or sewer main to the property to which water or sewer service is given.

Sewer, Sanitary. A pipe or conduit for water-carried wastes from residences, business buildings, institutions, and industrial establishments, and to which storm, surface and ground water are not normally admitted, and which is a part of the public sewage collection system.

Sewer, Storm or Storm Drain. A pipe, conduit or channel which carries storm and surface water and drainage but excludes domestic sewage and industrial wastes.

Shall. Wherever used in the Code, will be interpreted in its mandatory sense.

Standard Specifications. The document published by the North Central Texas Council of Governments entitled "Standard Specifications for Public Works Construction" and all subsequent revisions thereto and other specifications as adopted by the City.

Standard Specifications and Codes of the City. All improvements constructed within the City and shall be in accordance with all revisions, as adopted by the City.

Street. A way for vehicular traffic, whether designated a street, highway, thoroughfare, parkway, throughway, road, avenue, boulevard, lane, place or however otherwise designated.

Street, Collector. A street which is continuous through several residential or other districts and is intended as a connecting street between such districts and thoroughfares, highways, or business districts.

Street, Commercial. Any street situated so that fifty percent (50%) or more of the property abutting it is zoned for other than low-density residential development.

Street, Dead-End. A street, other than a Cul-De-Sac, with only one (1) outlet.

Street, Private. Any road or street that is not dedicated to the City and is maintained by the property owner.

Street, Residential. A street which is intended primarily to serve traffic within a neighborhood or limited residential district which is used primarily for access to abutting properties and which is geometrically designed to discourage high speeds and through traffic.

Street Right-of-Way Width. The shortest distance between the lines which delineate the rights-of-way of a street.

Subdivider. An individual, firm, association, syndicate, partnership, corporation, or other organization dividing or proposing to divide land, or making improvements to such land, to affect a subdivision of land hereunder for himself, or for itself, or for another.

Subdivision. Any division of any lot, tract, or parcel of land into two (2) or more parts for the purpose of sales or of building development, whether immediate or future. It also includes re-subdivision or re-platting of land, lots, or tracts. Divisions of land for agricultural purposes in parcels of five (5) acres or more shall not be included within this definition, unless any such division of five (5) acres or more includes the planning or development of a new street or extension of public utilities.

Subdivision, Short-Form. Any subdivision plat which meets the requirements therefore contained in this article.

Surveyor. A licensed land surveyor or a registered public surveyor, as authorized by the state statutes to practice the profession of surveying.

T

Telecommunications Service. The transmittal of voice, data, image, graphics, and other communications between or among points by wire, fiber optics, or other similar facilities, as well as the rental, lease, or furnishing of the facilities to accomplish such transmittal, but does not include the provision to the public of any "wireless service," as defined by law, and does not include long distance transmissions.

Telecommunications Service Provider. Any person that supplies Telecommunication Services to others within the City in exchange for money or other value.

Thoroughfare. A principal traffic thoroughfare continuous across the City, intended to connect remote parts of the City, or areas adjacent thereto, and act as a principal connecting street with state and interstate highways.

Thoroughfare Plan. The official map depicting the City's existing and future street system and roadway network, together with explanatory text. The Thoroughfare Plan includes the thoroughfare map.

Travel Trailer. Any vehicle or similar portable structure which is not more than eight (8) feet wide or longer than forty (40) feet and can be legally moved on state highways without a special permit, and having no foundation other than wheels, jacks, or skirting, and so designed or constructed as to permit occupancy for sleeping purposes.

U

Utility Easement. An interest in land granted to the City, to the public generally, and/or to a private utility corporation, for installing or maintaining utilities across, over or under private land, together with the right to enter thereon with machinery, vehicles, and people necessary for the maintenance of said utilities.

Used for. Includes the phrases, "arranged for," "designed for," "intended for" and "occupied for" and shall apply exclusively to physical uses.

V

Valley Storage. The water volume between the water surface and the ground surface that occupies a given reach of a river. For the purpose of this manual, the valley storage is computed with respect to the 100-year water surface elevation.

Variance. A modification from the terms of this Code, as applied to a specific tract of property, if the modification is not contrary to the public interest and, due to special conditions, a literal enforcement of the Code would result in unnecessary hardship, and so that the spirit of the Code is observed, and substantial justice is done.

SECTION 3: Purposes, Authority, and Jurisdiction

Under the authority of Chapter 212 of the Texas Local Government Code, as amended, which is hereby made a part of these regulations, the City does hereby adopt the following regulations to control the subdivision of land within the corporate limits of the City and in the unincorporated areas lying within the ETJ of the City, in order to provide for the orderly development of the areas and to secure adequate provisions for traffic, light, air, recreation, transportation, water, drainage, sewage and other facilities.

Any owner of land inside or within the ETJ of the City wishing to subdivide such land shall submit to the Planning and Zoning Commission a plan of subdivision which shall conform to the minimum requirements set forth in these regulations. Any owner subdividing his land into parcels of greater than ten (10) acres each for agricultural or single-family use and not involving new streets or the extension of public utilities shall be exempt from these requirements.

No subdivision plat shall be filed for record and no lot in a subdivision inside of or within the ETJ of the City shall be improved or sold until the plat shall have been considered and approved by the Planning and Zoning Commission. The City shall have the authority to prohibit the installation of public utilities in unapproved subdivisions and to prohibit the issuance of building permits for structures on lots in an unapproved subdivision.

All property not subdivided into lots, blocks and streets, or property to be resubdivided within the City or within its ETJ, shall hereafter be laid out under the direction of the Planning and Zoning Commission and no other subdivision will be recognized by the City.

Any violation of any provision of this article outside the corporate limits of the City shall not constitute a misdemeanor nor shall any fine be applicable to a violation within the ETJ of the City, however, a district court shall have the power to grant any or all types of injunctive relief in such cases.

SECTION 4: Procedure

A. Pre-Application Conference

1. Prior to the filing of a plat, the subdivider shall request a pre-application conference with the Director of Development Services, Fire Marshal, and City Engineer concerning compliance with the Master Plan, the ultimate land use of the proposed development, the suitability of the location of the proposed subdivision, the most advantageous subdivision plan, the arrangement of streets, alleys and lots, and the layout of utility lines and availability of service from trunk mains.
2. No applications may be submitted to or accepted for filing with the Director of Development Services during the pre-application conference.
3. No application required by this chapter will be accepted for filing until after the subdivider completes a pre-application conference.
4. No rights derived from Chapter 245 of the Texas Local Government Code, as amended, shall accrue from any pre-application conference, development review process or documents offered for review in connection therewith. There shall be no vested rights based on a pre-application conference.

B. General Application Contents

1. Application contents generally. All applications and filings shall meet the requirements as defined by the subdivision application checklist and engineering standards, as exists or may be amended, which shall be established and maintained by the Director of Development Services and City Engineer, respectively.

    a. Filing Procedure.

        i. All Plats shall be filed with the Director of Development Services, who will make a preliminary study of the plat. Any plat which is found to be incomplete or requires significant changes shall not be accepted for filing and shall be returned to the subdivider for additions or changes before resubmission.

        ii. All applications and filings for approval required by this chapter shall be filed electronically with the Director of Development Services.

        iii. All applications and filings for approval required by this chapter shall be accompanied by a letter of intent to the Director of Development Services providing the subdivider's name and address, the contact information of the person(s) preparing the submitted documents, and designating a point of contact for future correspondence. The letter shall also state the intent of the plat application, briefly describing the

location, amount of land, and particulars as to the intended use(s) of the property and requesting that the plat be reviewed and considered by the appropriate approval body, such as the Planning and Zoning Commission or Director of Development Services.

iv. The subdivision application checklist, as it exists or may be amended, shall prescribe the procedures for filing.

v. All applications and filings shall occur only on official development services schedule dates, published as part of the subdivision application checklist.

vi. If an application or filing is rejected by the Director of Development Services, then it is not considered filed under this chapter or the law or regulation governing the application or filing, including Chapter 212 of the Texas Local Government Code, if applicable.

vii. An application must be considered complete and officially filed in accordance with subsection C.3 of this section prior to being processed for review and consideration.

b. Development review schedule dates. The Director of Development Services shall publish schedules of the official development review processing dates.

c. Fees required. No plat will be considered filed with the City until and unless the prescribed application fees as defined in Appendix A of this Code have been paid.

d. Delinquent city taxes on property. An application shall not be deemed complete, nor shall it be approved, if there are delinquent city taxes on the subject property.

2. Modification of applications prior to approval. The subdivider may modify a complete application following its filing and prior to the expiration of the period during which the City is required to act on the application only in accordance with the following conditions:

a. If the modification is for revisions requested by the City, and the modification is received at least fourteen (14) calendar days prior to the time scheduled for decision on the application, the application shall be decided within the original period for decision (from the original official filing date) prescribed by this chapter.

b. Any other modifications to an application will not be accepted.

C. Initiation, complete application, and expiration

1. Initiation by owner. An application required under this chapter may be initiated only by the owner of the land subject to the application, or by the owner's duly authorized representative. If the applicant is a representative of the property owner, the application shall include a written and notarized statement from the property owner, such as a duly executed "power of attorney," authorizing the representative to file the application on the owner's behalf.

2. Applicability. The procedures within this section shall apply to all applications that are required by the City and submitted in accordance with this chapter.

3. Determination of completeness. Every application shall be subject to a determination of completeness by the Director of Development Services. An application must be determined to be complete in order to be accepted for review by the City.

a. The application shall only be accepted by the Director of Development Services for processing when it is accompanied by all documents required by, and prepared in accordance with, the requirements of this chapter. A typographical error shall not, by itself, constitute an incomplete application.

b. A determination of completeness shall not constitute a determination of compliance with the substantive requirements of this chapter.

i. If the application does not contain all information as defined by the application checklist, as it exists or may be amended, and/or does not conform to all standards required by any ordinance, law, or regulation governing the application, then it shall be considered incomplete. The subdivider shall be notified in writing within ten (10) business days if the submitted application is incomplete.

ii. The City shall reject all incomplete applications and provide written notice of the rejection to the subdivider by one of the following methods: mail, email, delivery service, or hand delivery or other delivery method of written notice by the Director of Development Services. The written notice need not identify all reasons why the application was deemed incomplete. If the notice contains one or more reasons why the application was deemed incomplete, addressing the reason(s) identified in the notice does not guarantee acceptance of a subsequent application.

iii. If the application is determined to be complete, the application shall be processed as prescribed by this chapter.

(d) It is not guaranteed that an accepted, complete application will be approved, if after the application is deemed complete, it is determined that the application does not comply with this chapter and all other applicable laws or regulations.

4. 30-day action extension request.

a. Request. An applicant may submit in writing a request to extend the 30-day action in relation to the decision time for plats of thirty (30) days, as mandated by state law.

b. Received. If the applicant requests an extension, such request must be received by the municipal authority on or before the eleventh (11th) calendar day prior to the municipal authority's deadline to act at which action would have to be taken on the application (based on the 30-day requirement in state law). Extension requests that are not received by that day shall not be considered properly submitted, and action shall be taken on the application at such meeting as scheduled.

c. Requirements maintained. Submission of a request to extend the 30-day action, and acceptance of such waiver by the municipal authority, shall not be deemed in any way a waiver of any requirement within this subdivision chapter. A waiver from requirements herein is a separate and distinct process.

5. Official filing date. The 30-day time period established by state law for taking action on an application shall commence on the official filing date of the complete application pursuant to the development services schedule, published as part of the subdivision application checklist. The official filing date shall be defined as the date the application is deemed complete by the responsible official in the manner prescribed by subsection C.3.

D. No officer or employee of the City shall perform, or cause to be performed, any work upon any streets or in any addition or subdivision of the City, unless all requirements of these regulations have been complied with by the owner of the addition or subdivision.

E. The City hereby defines its policy to be that the City will withhold improvements of any nature whatsoever, including the maintenance of streets, issuance of building permits or furnishing of sewage facilities and water service, until the subdivision plat has been approved by the Planning and Zoning Commission. No improvements shall be initiated, nor any contracts executed until this approval has been obtained.

F. Any owner or developer of any lot, tract or parcel of land located within the corporate limits of the City or within its ETJ who may wish to affect a subdivision of such land shall conform to the general procedure described as follows:

1. The subdivider shall prepare and submit a Preliminary Plat to the Director for Development Services in accordance with Sec. 5 Preliminary Plat for subdivisions not eligible for the Short-Form Subdivision procedure;

2. In the case of a proposed phased development, the subdivider shall file a preliminary plat showing the entire proposed subdivision, the various phases by which the subdivision will be developed, and lots that will be sold within the phase to be developed upon approval of the final plat the Planning and Zoning Commission. If the subdivision is to be developed in phases or units, an overall master development plan for street, drainage, water and sewer improvements shall be submitted to the City Engineer by the subdivider's engineer at the time the first phase of construction is submitted for approval. This overall plan shall show the layout of streets and easements, lot configurations, water and sewer main locations and sizes, fire hydrant locations, manhole locations and drainage improvements;

3. After approval of the preliminary plat by the Director of Development Services the subdivider may then prepare a Final Plat in accordance with Sec. 6 Final Plat of all or a portion of the land included in the preliminary plat for submission to and approval by the Planning and Zoning Commission;

4. Upon completion of required public facilities and acceptance by the City or the filing of a performance bond by the developer which covers said facilities that are not complete, copies of the approved final plat in the number determined by the director of development services shall be submitted to the county clerk for recordation with Denton County. The recording of the final plat shall be the responsibility of the Director of Development Services;

5. In subdivisions approved for phased development no building permits shall be issued by the building official until the public improvements, including installation of franchise utilities, within that phase are completed and accepted by the City;

6. The subdivider shall include in the conditions of sale for each lot within the subdivision a notice to the purchaser that no certificate of occupancy shall be issued for any structure or building constructed therein unless and until the Planning and Zoning Commission has approved and accepted that phase of the subdivision;

7. All proposed improvements are to be installed or constructed at the subdivider's own cost and expense, unless otherwise noted herein; and

8. Where a plat of a lot of record of undivided property is proposed to be subdivided and meets the criteria for abbreviated procedures set forth under

the Sec. 7 Short-Form Subdivision, and provided all the requirements therein have been met, the subdivider may submit a final plat to the Planning and Zoning Commission for approval. Where circumstances in the opinion of the Director of Development Services warrant, such plat may receive administrative approval, which action shall authorize the building official to issue a building permit for improvements on said parcel

SECTION 5: Preliminary Plat

A. Procedure for approval of preliminary plat.

1. On reaching conclusions as recommended in Sec. 4 Procedure, any owner or developer of any lot, tract or parcel of land located within the corporate limits of the City or within its ETJ who may wish to affect a subdivision of such land shall have prepared a preliminary plat for submission to the city for staff approval of subdivisions not eligible for the Short-Form Subdivision procedure.
2. The preliminary plat as described in subsection B shall be submitted electronically to the Director of Development Services on the dates specified in the development services schedule and shall include a formal request for consideration by the Director of Development Services.
3. A preliminary plat is required for all new subdivisions, phasing of any master subdivisions, and replats.
4. A fee set by the approved fee schedule per plat as defined in Appendix A shall be collected by the Director of Development Services when a preliminary plat is submitted to the city for staff approval. The plat will not be reviewed or considered in any respect until such fee has been collected and the deliverables required on the subdivision application checklist are provided.

B. Form and content of preliminary plat. The plat shall be drawn to a scale of not to exceed one inch equals hundred feet (1" = 100') maximum. The preliminary plat shall show or be accompanied by this information:

1. Legal description (metes and bounds) with total acreage.
2. Description and location of all permanent survey monument pins, control points, and ties and reference to the survey corner at two points to the Texas State Plane Coordinate System North Central Zone 1983-1999 datum. The point of beginning (POB) shall be clearly marked including state plane coordinates, NAD 83.
3. An accurate location of at least two (2) corners of the subdivision with reference to original corners of the original survey of which the subdivision is a part or an existing permanent monument to an approved and recorded

plat or permanent markers established by and approved by the City Engineer.

4. An accurate location of the subdivision in reference to the deed records of the county which shall include the volume and page of the deed of the property to be subdivided.
5. Northpoint and date.
6. Scale (both graphic and written) appropriate for the level of detail and not to exceed one inch equals one hundred feet (1"=100'), unless otherwise approved the Director of Development Services.
7. Legend for any symbols used.
8. Location/vicinity map showing the location of the subject property, existing and proposed streets and thoroughfares covering an area at least one thousand feet (1,000') outside the proposed subdivision.
9. Title block with the following information:
    a. Plat type (ex: "preliminary plat", "final plat", etc.);
    b. The title or name of the proposed subdivision, which must not be so similar to that of an existing subdivision as to cause confusion;
    c. Total number of lots and HOA/open space lots;
    d. Survey name and abstract number;
    e. Gross acreage;
    f. Right-of-way acreage if dedicated;
    g. Date of preparation and subsequent revisions;
    h. Block with name(s), address, phone number, and email of preparer, owner, developer, engineer, and/or surveyor.
10. Existing Features.
    a. Location and dimension of all boundary lines (accurate in scale) with dimensions and bearings including lot lines, building lines, and City limits lines (if within two hundred (200) feet of the subject tract).
    b. The location, name, and width of all existing or platted streets or other public ways within or adjacent to the tract, parks, existing permanent structures, land dedicated within or contiguous to the subject property, railroads, rights-of-way, easements, and other important features, such as

abstract lines, political subdivision or corporation lines, and school district boundaries.

c. Existing sewer mains, water mains, drainage culverts or other underground structures within the tract and immediately adjacent thereto with pipe sizes, grades, locations, and dimensions indicated, if available.

d. Contours with intervals of two (2) feet or less, referred to mean sea level datum. In areas where the terrain is relatively flat, supplementary contours shall be shown so that the average horizontal distance between said lines does not exceed two hundred (200) feet.

e. Subdivision name of adjacent properties from the PRDCT or ownership information for adjacent unplatted properties from the DRDCT with recording information.

f. Location of existing fire hydrants and fire lanes, if available.

11. New Features.

a. The proposed streets and their names, alleys, easements, blocks, lots, building lines, etc., with principal dimensions. The width of rights-of-way (from centerline to both edges as well as from edge to edge) for streets and alleys and the proposed pavement width shall be shown.

b. Length and radii of all street segments.

c. Curve table for all streets, drives, and alleys.

d. Acreage or square footage of rights-of-way dedicated should be shown, including corner clips and deceleration/turn lanes on the plat.

e. Lot and block numbers (lot number are numbers; and block numbers are letters), square footage, and other description according to the real estate records of the City or county auditor and recorder; also, designation of the proposed uses of land within the subdivision.

f. All parcels of land intended to be dedicated for public use or reserved in the deeds for the use of all property owners in the proposed subdivision, together with the purpose or limitations of such reservations.

g. The proposed layout, numbers, setback lines and approximate dimensions of proposed lots, blocks, parks, etc.

h. Location of proposed fire hydrants and fire lanes.

i. USPS Postmaster approved location of mailboxes (if cluster mailboxes).

j. Proposed building line with square footage of the lot and proposed use.

k. Proposed parking layout.

l. Table showing the following information:

i. Listing of the lots with square footage and the associated lot widths at the front building line.

ii. Square footage of the total building footprint and of each land use (if available).

iii. Number of required and provided parking spaces.

iv. Required and provided total landscaped area and front yard landscaped area.

m. Existing and proposed FEMA 100-year floodplain boundaries and elevation. Include minimum finished floor elevations (minimum 2 feet above the 100-year elevation) of all lots adjacent to floodplain. If the site does not contain a floodplain, note that: "No 100-year floodplain exists on the site." A floodplain reclamation study will be required with final plat if necessary.

n. Submittals for preliminary plats shall include plans, documents, and information adequate for the review of the provision of public improvements to the properties involved. This includes but is not limited to streets, water service, wastewater service, franchise utilities, street lighting, and stormwater detention (ex: preliminary drainage plan, preliminary utility plans, floodplain study, traffic impact study, etc.).

o. One (1) electronic copy of the typical cross-sections of proposed streets showing the width of pavement, type of pavement and location and widths of sidewalks when not in conformance with standard details.

p. Digital Approval Section. A digital signature block, including a timestamp, shall be placed on the face of each preliminary plat by the subdivider. The signature block shall appear in the upper right corner on the face of each preliminary plat and bear a label which reads: "Approved for Preparation of Final Plat."

C. Processing of preliminary plat.

1. The City Engineer shall check the preliminary plat as to its conformity with the and the standards and specifications set forth or referred to herein.

2. Within thirty (30) days after the preliminary plat application is accepted, the Director of Development Services shall approve or disapprove such plat, or conditionally approve it with modifications. The subdivider shall be informed by mail or e-mail of the action taken.
3. The Director of Development Service's approval or conditional approval of a preliminary plat shall be deemed as an expression of approval of the layout submitted on the preliminary plat as a guide to the installation of streets, water, sewer, and other required improvements and utilities, and to the preparation of the final plat. Approval or conditional approval of a preliminary plat shall not constitute automatic approval of the final plat.
4. Approval or conditional approval of a preliminary plat shall be effective for a period of one hundred eighty (180) days after the approval date.
5. If a final plat for the subdivision, or a portion thereof, has not been submitted, or if a change in requirements has not occurred which would affect the preliminary plat, at the end of the one hundred eighty (180) days after approval, then Director of Development Services may declare the preliminary plat null and void, unless the subdivider has requested and received an extension of time.

D. Exceptions. Where the subdivider may request exceptions or a waiver of these regulations or disagrees with the intent or interpretation of the requirements set forth herein, the Director of Development Services may submit such requests of the subdivider to the Planning and Zoning Commission with recommendations for either an approval or disapproval.

SECTION 6: Final Plat

A. Procedure for approval of final plat.

1. The submission of a preliminary plat and its approval by the City Engineer shall be a condition precedent to the acceptance of an application for a final plat.
2. Final plat may not be submitted until the civil engineering plans are sufficiently complete as determined by the City Engineer.
3. All changes, alterations, and modifications required on the preliminary plat and from the civil plan review shall be incorporated into the final plat.
4. The final plat may constitute only that portion of the approved preliminary plat which the subdivider proposed to record and develop at that time, provided that such portion conforms to all requirements of these conditions.
5. The final plat shall be submitted to the Planning and Zoning Commission through the Director of Development Services on the dates specified within

the development services submission schedule. The plat shall be transmitted electronically and shall include a formal request for consideration by the Planning and Zoning Commission.

6. A fee set by the approved fee schedule per plat as defined in Appendix A shall be collected by the Director of Development Services when a final plat is submitted to the city for staff approval. The plat will not be reviewed or considered in any respect until such fee has been collected and the deliverables required on the subdivision application checklist are provided.

7. The final plat shall be accompanied by a letter from the electric, gas, and water companies stating that all easements are satisfactory for the installation and maintenance of their respective utilities. The letter shall be accompanied by an electronic copy of the final plat showing the proposed utility plans. No letter shall be required from service providers where the City is the sole provider of electric or water service.

B. Form and content of final plat.

1. The plat shall be printed on white bond paper measuring twenty-four (24) inches by thirty-six (36) inches. The scale shall not exceed one inch equals hundred feet (1" = 100') maximum. The drawing shall be neat, legible, and suitable for filing for record in the office of the county clerk of Denton County. The paper quality shall be durable and free of any tears, folds, or blemishes. Patching and pasting of paper or other attachments are not acceptable. Allowance shall be made for a one-half (1/2) inch border at the top, bottom, and right edges of the sheets, and a one and one-half (1-1/2) inch border at the left edge of the tracing sheets.

2. The final plat is to be reviewed electronically by city staff prior to submitting prints and tax certificates for filing. A printed copy are only required after approval by the Planning and Zoning Commission.

3. When more than one sheet is used for a plat, a key map showing the entire subdivision on a smaller scale shall be shown on the first sheet.

4. The final plat may constitute all or only a portion of the approved preliminary plat, but any portion thereof shall conform to all the requirements of these regulations unless an exception has been granted by Director of Development Services or Planning and Zoning Commission.

5. If final plats are submitted for approval for portions or sections of the proposed subdivision, each portion or section shall carry the name of the entire subdivision but shall bear a distinguishing letter, number or subtitle. Block letters shall run consecutively throughout the entire subdivision, even though such subdivision might be finally approved in sections.

6. The final plat shall show or be accompanied by this information:

a. The plat shall be drawn to a scale shall not exceed one inch equals hundred feet (1" = 100') maximum, unless otherwise approved in advance by the Director of Development Services.

b. The boundary marked with heavy weighted lines with accurate distances and bearings, a metes and bounds description of the boundary (error of closure shall not exceed one (1) in fifty thousand (50,000) for the plat boundary), exact acreage to the hundredths, and the exact location and width of all existing or recorded rights-of-way intersecting the boundary of or bordering on the tract. One (1) copy of the traverse closure sheet shall be enclosed.

c. The name and address of the owner, subdivider, and engineer.

d. The name of the licensed state land surveyor or registered public surveyor making the survey and preparing the plat.

e. The name of the proposed subdivision.

f. Subdivision name of adjacent properties from the PRDCT or ownership information for adjacent unplatted properties from the DRDCT with recording information.

g. North point, date, scale, and acreage being subdivided.

h. True bearings and distances to the nearest established street lines, official monuments or subdivision corner, which shall be accurately described on the plat. Municipal, township, county or abstract survey lines shall be accurately tied to the lines of the subdivision by distances and bearings, where applicable.

i. Description and location of all permanent survey monument pins, control points, and ties and reference to the survey corners at two points to the Texas State Plane Coordinate System North Central Zone 1983-1999 datum. The Point of Beginning (POB) shall be clearly marked including State Plane Coordinates, NAD 83.

j. An accurate location of at least two (2) corners of the subdivision with reference to an original corner of the original survey of which the subdivision is a part or an existing permanent monument on an approved and recorded plat or permanent markers established by and approved by the City Engineer.

k. An accurate location of the subdivision in reference to the deed records of the county which shall include the volume and page of the deed of the property to be subdivided.

l. The exact layout, including:

- **i.** Street and/or alley names;
- **ii.** The length of all arcs, radii, internal angles and points of curvature, length and bearing of the tangents;
- **iii.** All existing and proposed easements for right-of-way, public services, utilities, or any other easements and any limitations of the easements;
- **iv.** Show centerline of existing street. Dimensions from centerline to edges of existing and proposed right-of-way on both sides of the centerline;
- **v.** All lot numbers and lines, with accurate dimensions in feet and hundredths and with bearings and angles to street and alley lines to the nearest second.

m. The accurate location, material, and approximate size of all monuments.

n. The accurate outline description of all property which is offered for dedication for public use, such as parks, etc., with the purpose indicated thereon, and all property that may be reserved by deed covenant for the common use of the property owners in the subdivision.

o. A signed and notarized copy of private restrictions (if any), that are filed for record in the office of the county clerk shall be provided with the final plat.

p. 3” x 3” recording box in the lower right-hand corner.

q. A title block with the following information shall be provided on each page:

- **i.** Plat type (ex: “preliminary plat”, “final plat”, etc.);
- **ii.** The title or name of the proposed subdivision, which must not be so similar to that of an existing subdivision as to cause confusion;
- **iii.** Total number of lots and HOA/Open Space lots;
- **iv.** Survey name and abstract number;
- **v.** Gross acreage;

vi. Right-of-way acreage, if dedicated;

vii. Date of preparation and subsequent revisions.

r. Standard notation to be added on the plat:

i. "All lots comply with the minimum size requirements of the zoning district."

ii. "This property may be subject to charges related to impact fees and the applicant should contact the City regarding any applicable fees due."

iii. "All common areas, drainage easements, and detention facilities will be owned and maintained by the HOA/property owner. Any common area within the City's right-of-way will require a facilities agreement, to be reviewed and approved by the City."

iv. "Notice – selling a portion of this addition by metes and bounds is a violation of state law and is subject to fines and withholding of utilities and building permits."

v. "This plat does not alter or remove existing deed restrictions, if any, on this property."

vi. "Minimum finished floor elevations (min. FFE) are at least two (2) feet above the 100-year floodplain." – Add this note only if subject property is within or adjacent to the floodplain: "The subject property does not lie within a 100-year floodplain according to Community Panel No._____, dated _____, of the National Flood Insurance Rate Maps for Denton County, Texas."

vii. "The purpose of this plat is _____[state the purpose]_____."

viii. "Bearings are based on the State Plane Coordinate System, Texas North Central Zone (4202), North American Datum of 1983 (NAD '83)".

s. City limits line, if within two hundred (200) feet of the subject tract.

t. Location map showing existing and proposed streets and thoroughfares covering an area at least one thousand (1,000) feet outside the proposed subdivision.

u. One electronic copy of approved civil/construction plans along with GIS/Cad files for all approved public improvements.

v. *Reserved.*

w. <u>For conveyance plats only</u>: All conveyance plats must be titled

"conveyance plat" and carry the following text:

"Conveyance plat is a record of property approved by the City of Sanger for the purpose of sale or conveyance in its entirety or interests thereon defined. No building permit may be issued, nor development begin, nor permanent public utility service provided until a final plat is approved, filed of record and public improvements are accepted in accordance with the City of Sanger Code of Ordinances. Selling a portion of this property by metes and bounds, except as shown on an approved, filed and accepted conveyance plat, final plat or replat is a violation of the state law."

x. Certification by a registered public surveyor or licensed state land surveyor, registered in the State of Texas, to the effect that the plat represents a survey made by him or under his direct supervision and that all monuments shown thereon have been verified and exist, and that their location, size and material are correctly shown. Such surveyor's certificate may be prepared as follows:

State of Texas
County of Denton

I hereby certify that this plat is true and correct and was prepared from an actual survey of the property made on the ground under my supervision.
(Engineer or surveyor seal)

_____ _____

Licensed Professional Engineer OR
Registered Public Land Surveyor
Texas R.P.L.S. No. _____.

Date

y. A certificate of ownership and dedication of all streets, alleys, parks and playgrounds to public use forever, signed and acknowledged before a notary public, by the owner or authorized representative and lien holder of the land, and a complete and accurate description of the land subdivided, and the streets dedicated. Such owner's certificate may be prepared as follows:

State of Texas
County of Denton

I (we), the undersigned, owner(s) of the land shown on this plat within the area described by metes and bounds as follows:

(Metes and Bounds Description of Boundary)

NOW, THEREFORE, KNOW ALL PERSONS BY THESE PRESENTS:

THAT _____, acting herein by and through its duly authorized officer does hereby adopt this plat designating the hereinabove described property as _____ (lot/lock/subdivision), an addition to the City of Sanger, Texas, and does hereby dedicate to the public use forever by fee simple title, free and clear of all liens and encumbrances, all streets, thoroughfares, alleys, fire lanes, drive aisles, parks, and watercourses, and to the public use forever easements for sidewalks, storm drainage facilities, utilities, and any other property necessary to serve the plat and to implement the requirements of the subdivision regulations and other City codes and do hereby bind ourselves, our heirs, successors and assigns to warrant and to forever defend the title on the land so dedicated. Further, the undersigned covenants and agrees that he/she shall maintain all easements and facilities in a state of good repair and functional condition at all times in accordance with City codes and regulations. No buildings, fences, trees, shrubs, or other improvements or growths shall be constructed or placed upon, over, or across the easements as shown, except that landscape improvements may be installed, if approved by the City of Sanger. The City of Sanger and public entities shall have the right to access and maintain all respective easements without the necessity at any time of procuring permission from anyone.

WITNESS MY HAND this ___ day of _____, 20___.

_____, owner

_____, TItle and Company (if applicable)

State of Texas
County of Denton

Before me, the undersigned authority, on this day personally appeared, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he/she executed the same for the purposes and considerations therein expressed and in the capacity therein stated.

Given under my hand and seal of office this ____ day of _____, 20__.

Notary Public in and for the State of Texas”

(X) The following certificate shall be included on the plat in a manner that will allow the signatures of the designated officials and the affixing of the City seal.

_____ _____

Chairman
Planning & Zoning Commission
City of Sanger, Texas

Date

z. Certificate from City tax collector and from the proper official of other taxing agencies within whose jurisdiction the proposed subdivision lies showing that all ad valorem taxes, liens and fees have been paid on the tract to be subdivided.

C. Processing of final plat.

1. The Director of Development Services shall check the final plat for conformity with the requirements of this chapter and transmit his or her recommendations to the Planning and Zoning Commission in writing.

2. Within thirty (30) days after the final plat application is accepted, the Planning and Zoning Commission shall approve, conditionally approve, or disapprove the plat.

3. If the final plat is disapproved, the Director of Development Services shall give written notice to the subdivider by mail or e-mail stating the reasons for disapproval.

SECTION 7: Short-Form Subdivision

A. Procedure for Short-Form Subdivision.

1. Any subdivision or replat thereof which may be determined to fall within the following criteria may be termed a "Short-Form Subdivision" and shall comply with the abbreviated procedures set forth herein. "Plats for record" or "lots of record" of unplatted property shall be deemed to meet these criteria if:

a. The land in question is not being subdivided into more than three (3) lots;

b. The subdivision or use of the land subdivided does not necessitate any appreciable alteration of utility installations, streets, alleys or building setback lines; and

c. The tracts so subdivided conform in size and shape to the lots in the vicinity and the zoning in the immediate area.

2. All design, engineering, improvements and drawing information standards provided in these regulations applicable to all subdivisions shall be applicable to the Short-Form Subdivisions. Preliminary platting is not required.

3. If the Director of Development Services finds that the final plat meets all the provisions of these regulations, he/she shall present the final plat to the Planning and Zoning Commission for review.

4. A fee set by the approved fee schedule for the plat as defined in Appendix A of this Code shall be collected by the Director of Development Services when a short form plat is submitted to the City for approval. The short form plat will not be reviewed or considered in any respect until such fee has been collected and the deliverables required on the short form plat application checklist are provided. After all requirements have been met, the plat and all other necessary instruments shall be filed for record with the County Clerk by the City Secretary.

5. In the case of plats for record, after all requirements have been met, administrative approval may be granted and the final short form plat properly filed.

B. Construction of Improvements.

1. The developer shall contract for construction of the public improvements required for the subdivision, except where City participation is involved. In cases of City participation, the developer/owner shall comply with State statutes and City regulations regarding competitive bidding, if required by law.

2. The developer's engineer shall administer the contract.
3. A pre-construction conference shall be required, held at a location designated by the City. This conference shall be attended by the City Engineer or authorized representative, the developer's engineer, the engineer's inspectors, the contractor(s), and other appropriate representative as deemed necessary by the City.
4. One (1) electronic set of construction plans and specifications for water, sanitary sewer, paving and drainage improvements, prepared by a registered professional civil engineer, shall be submitted to the City Engineer.
5. The approval of the construction plans by the City Engineer shall be effective for a period of two (2) years after the approval date, unless the developer has requested and received an extension of time. Construction plans which have expired shall be resubmitted to the City Engineer for approval before any construction is begun. The design of the proposed improvements shall be based on the City's construction requirements which are in effect at the time of resubmittal.
6. Construction plans must be submitted electronically and approved prior to construction of the public improvements, must have profiles drawn on sheets, measuring twenty-four (24) inches by thirty-six (36) inches in electronic form, the same size as the final plat, and must include the following information:

    a. A plan and profile of each street with top of curb grades shown. Each sheet shall include north point, scale, date and benchmark description to mean sea level datum. Unless otherwise approved by the City, scales shall be one inch equals forty feet (1" = 40') horizontally and one inch equals four feet, five feet or six feet (1" = 4', 5' or 6') vertically. Each plan shall show the seal and signature of the registered professional civil engineer who prepared it.

    b. The typical cross-sections of proposed streets showing the width of roadways and type of pavement and location and width of sidewalk.

    c. A plan and profile of proposed sanitary sewers, with grades and pipe sizes indicated and showing locations of manholes, cleanouts, etc., and a plan of the proposed water distribution system showing pipe sizes and locations of valves, fire hydrants, fittings, etc., in conformance with the applicable criteria presented in Sec. 11 Improvements. Unless otherwise approved by the City, scales shall be one inch equals forty feet (1" = 40') horizontally and one inch equals four feet, five feet or six feet (1" = 4', 5' or 6') vertically. Each plan shall show the seal and signature of the registered professional civil engineer who prepared the plan. Each sheet shall

include north point, scale, date and benchmark description to mean sea level datum.

d. A plan and profile of the proposed storm sewers, showing hydraulic data, pipe grades and sizes, manholes, inlets, pipe connections, outlet structures, etc., in conformance with the criteria as shown in Sec. 11 Improvements. Unless otherwise approved by the City, scales shall be one inch equals forty feet (1" = 40') horizontally and one inch equals four feet, five feet or six feet (1" = 4', 5' or 6') vertically. Each plan shall show the seal and signature of the registered professional civil engineer who prepared it. Each sheet shall include north point, scale, date and benchmark description to mean sea level datum.

e. A plan of all the other utilities, showing the relative locations proposed for the water, sewer, storm sewer and gas mains, utility poles, TV and electrical services, street lighting, traffic-control signs, and street signs, and acknowledged by the appropriate representative of each agency involved.

SECTION 8: Amending Plat

A. Any person who wishes to revise a subdivision plat which has been previously filed for record must make an application of the proposed revised plat to Planning and Zoning Commission. An amendment of a subdivision may be done for one of the following purposes:

1. To correct an error in a course or distance shown on the preceding plat;

2. To add a course or distance that was omitted on the preceding plat;

3. To correct an error in a real property description shown on the preceding plat;

4. To correct any other type of error or omission on a previously filed plat;

5. To replat one or more lots fronting on an existing street if:

a. The owners of all lots join in the application for amending the plat;

b. The amendment does not attempt to remove any restrictions;

c. The amendment does not increase the number of lots; and

d. The amendment does not create or require the creation of a new street or make necessary the extension of municipal facilities.

B. A public hearing is not required for the approval and issuance of an amended plat.

C. The City Manager and Director of Development Services are delegated the approval responsibility of an amended plat. At any time, the City Manager or Director of Development Services may elect to present the plat for approval to the Planning and Zoning Commission, neither the City Manager nor the Director of Development Services shall disapprove a plat, and upon refusal to approve the amended plat shall refer the amended plat to the Planning and Zoning Commission.

SECTION 9: Replatting

A. General

1. Replatting or resubdividing a plat, or a portion thereof, without vacation of the immediate previous plat, is hereby authorized and shall be deemed valid and controlling, when approved, after a public hearing by the Planning and Zoning Commission during which citizens and interested parties have an opportunity to be heard. The replat shall comply, when applicable, with the following general requirements:

a. It shall be signed and acknowledged by all the owners of the particular property which is being replatted or resubdivided.

b. It shall not attempt to alter, amend, or remove any covenants, easements or restrictions.

B. Procedure for approval of replats.

1. The submission of a preliminary plat and its approval by the City Engineer shall be a condition precedent to the acceptance of an application for a replat.

2. A replat may not be submitted until the civil engineering plans are sufficiently complete as determined by the City Engineer.

3. All changes, alterations, and modifications required on the preliminary plat shall be incorporated into the replat.

4. The replat may constitute only that portion of the approved preliminary plat which the subdivider proposed to record and develop at that time, provided that such portion conforms to all requirements of these conditions.

5. The replat shall be submitted to the Planning and Zoning Commission through the Director of Development Services on the dates specified within the development services submission schedule. The replat shall be transmitted electronically and shall include a formal request for consideration by the Planning and Zoning Commission.

6. A fee set by the approved fee schedule per replat as defined in Appendix A

shall be collected by the Director of Development Services when a replat is submitted to the City for staff approval. The replat will not be reviewed or considered in any respect until such fee has been collected and the deliverables required on the subdivision application checklist are provided.

7. The replat shall be accompanied by a letter from the electric, gas, and water companies stating that all easements are satisfactory for the installation and maintenance of their respective utilities. The letter shall be accompanied by an electronic copy of the replat showing the proposed utility plans. No letter shall be required from service providers where the City is the sole provider of electric or water service.

C. Form and content of replat.

1. Replats or resubdivisions shall show or be accompanied by the information that is required for preliminary plats or final plats, whichever is applicable. Replats or resubmissions shall not be docketed for Planning and Zoning Commission consideration unless the requirements of this chapter are met.

D. Processing of a replat.

1. The City Engineer shall check the replat for conformity with the requirements of this chapter and transmit his or her recommendations to the Planning and Zoning Commission in writing.

2. Within thirty (30) days after the replat application is accepted, the Planning and Zoning Commission shall approve, conditionally approve, or disapprove the replat.

3. If the replat is disapproved, the Planning and Zoning Commission shall give written notice to the subdivider by mail or e-mail stating the reasons for disapproval.

E. Additional requirements. The following additional requirements for approval shall apply, in any resubdivision or replatting of a subdivision, without vacating the immediate previous plat, if any of the proposed area to be resubdivided or replatted was, within the immediate preceding five (5) years, limited by an interim or permanent zoning classification to residential use for not more than two (2) residential units per lot, or if any lot in the immediate previous subdivision was limited by deed restriction to residential use for not more than two (2) residential units per lot:

1. Notice of Planning and Zoning Commission hearing shall be given in advance, in the following manner:

a. Publication at least fifteen (15) days in advance of hearing being published in the official newspaper of the City of Sanger.

b. Written notice of such public hearing forwarded, with a copy of this subsection (e) attached, by the Planning and Zoning Commission to owners (as the ownerships appear on the last approved ad valorem tax roll of such governing body) of all lots in the immediately preceding subdivision plat not less than fifteen (15) days prior to the date of such hearing. Such notice may be served by depositing the same, properly addressed and postage paid, in the post office in closest proximity to the City hall of the City of Sanger, provided, however, if such immediate preceding subdivision plat shall contain more than one hundred (100) lots, such notice shall be mailed only to those owners of lots which are located within two hundred (200) feet of the lot or lots which are sought to be replatted or resubdivided.

2. If the proposed replat requires a variance or is protested in accordance with this subsection, the proposed replat must receive, in order to be approved, the affirmative vote of at least three-fourths of the members present of the Planning and Zoning Commission.

For a legal protest, written instruments signed by the owners of at least 20% of the area of the lots or land immediately adjoining the area covered by the proposed replat and extending two hundred (200) feet from that area, but within the original subdivision, must be filed with the Planning and Zoning Commission prior to the close of the public hearings.

3. Provided, however, compliance with subsections (1) or (2) of this subsection (e) shall not be required for approval of a replat or resubdividision of a portion of a prior plat, if all of the proposed area sought to be replatted or resubdivided was designated or reserved for usage other than for single- or multi-family residential usage, as indicated by notation on the last legally recorded plat or in the legally recorded restriction applicable to such plat.

SECTION 10: General Plat Requirements

All requirements pertaining to lot size, yard size, dwelling size, lot coverage, height, parking, loading and screening contained in the current zoning ordinance of the City shall be adhered to for development under this article.

A. General.

1. Conformity with Comprehensive Plan. The subdivision shall conform to the comprehensive plan of the City and the parts thereof.

B. Streets.

1. The arrangement, character, extent, width, grade and location of all proposed streets shall conform to the general plan of the community, and their relationship shall be considered to that of the existing and planned streets,

to topographical conditions, to public convenience and safety, and in their appropriate relation to the proposed uses of the land to be served by such streets.

2. The reservation in private ownership of strips of land, at the end of offered or existing streets intended solely or primarily for the purpose of controlling access to property not included in the subdivision shall be prohibited.
3. Where such is not shown in the general plan for the community, the arrangement of streets in a subdivision shall:
   a. Provide for the continuation or appropriate projection of existing principal streets in surrounding areas;
   b. Conform to a plan for the neighborhood approved or adopted by the City to meet a situation where topographical or other conditions make continuation of or conformance to an existing street impracticable; and
   c. Be planned so that they shall intersect, as nearly as possible, at right angles.
4. Residential streets shall be aligned so that their use by through traffic is discouraged.
5. In phased developments, streets which are continuous through more than a single phase shall be provided with temporary turnarounds (at the point of temporary termination) until the street is fully constructed per the original approved plan.
6. Developers shall be required to coordinate all planning and engineering work with all adjacent property owners/developers.
7. Street jogs with centerline offsets of less than one hundred twenty-five (125) feet (shall be avoided.
8. The street minimum right-of-way widths and centerline radius shall be in accordance with the City's thoroughfare plan and shall conform to the following:

Code	Type of Street	Minimum RIght-of-Way Width	Minimum Centerline Radii	Intersection
FW	Freeway	200 feet	Varies	Varies
P4U	Principal arterial four lane undivided	75 feet	150 feet	1,000 feet
P3U	Principal arterial three lane undivided	75 feet	85 feet	1,000 feet

Code	Type of Street	Minimum RIght-of-Way Width	Minimum Centerline Radii	Intersection
M4U	Minor arterial four lane undivided	80 feet	90 feet	1,000 feet
C2U	Collector two lane undivided	60 feet	75 feet	500 feet
R2U	Residential/local two lane undivided	50 feet	70 feet	250 feet

9. Streets shall be classified according to the following:

a. Arterial (Principal). Principal arterial streets can occur in three (P3U) or four (P4U) lane streets that are intended to move high volumes of traffic quickly between larger sub-areas of the City or ETJ. These roadways deal with greater vehicular traffic counts and can accommodate transit services rather than pedestrian or bicycle facilities. They are typically characterized by limited direct access at minimal and controlled points, generally at intersections with other arterial streets or larger collector roads. See Sanger Comprehensive Plan.

b. Arterial (Minor). The main function of minor arterial streets (M4U) with four (4) lanes provide movement within sub-areas of the City but with lower traffic volumes as Principal Arterial. M4U streets provide more direct access to commercial and high-density residential properties, with moderate transit, bicycle and pedestrian facilities due to the more localized usage patterns. See Sanger Comprehensive Plan.

c. Collector. 2-Lane Collector Streets (C2U) carry traffic from residential/local streets to Principal and Minor Arterial streets. They may serve local facilities such as schools and churches. Uses served would include medium and high density residential, limited commercial facilities, elementary schools, some small offices and as direct access within industrial parks. Collector streets also carry heavy traffic to major commercial and industrial facilities from thoroughfare. Uses would include office parks, industrial parks, and community level commercial facilities. Transit services are low while bicycle and pedestrian facilities are more utilized, which can include street parking.

d. Residential/Local. Carries traffic from residential and commercial areas to collector streets and interconnects individual sites. Local streets carry light traffic volumes and trips are of a short duration.

10. Street widths proposed for industrial subdivisions or commercial developments shall not be less than that required for a collector.

11. Half streets shall be prohibited, except where there is no alternative for reasonable development of the subdivision in conformance with the other requirements of these regulations and where the City finds it will be practicable to require the dedication of the other half when the adjoining property is subdivided. Wherever a half street has already been provided adjacent to an area to be subdivided, the other remaining portion of the street shall be platted within such subdivision. Where part of a residential or collector street is being dedicated along a common property line, the first dedication shall be one-half (1/2) of the proposed street right-of-way plus five (5) feet unless a construction easement on the adjoining parcel has been obtained, and the developer shall construct the half street or place in escrow cash for the estimated half-paving cost as determined by the City Council.

12. Cul-de-sacs in residential additions shall not be longer than six hundred (600) feet from the nearest intersection, except under unusual conditions with the approval of the City Council, and there shall be provided at the closed-end a turnaround having a minimum outside roadway diameter of eighty-one (81) feet. In industrial areas, cul-de-sacs shall not exceed one thousand (1,000) feet from the nearest intersecting street, and there shall be provided at the closed-end a turnaround having a minimum outside roadway diameter of one hundred (100) feet and a minimum street property line diameter of one hundred (100) feet. Alternate turnaround designs in residential tract developments which provide adequate turnaround area may be considered or approved by the City.

13. All streets shall be paved, and paving shall conform to the requirements of Sec. 11 Improvements, of these regulations.

14. Street grades shall be established regarding topography, proposed land-use and the facilities in the area surrounding the land to be subdivided. Minimum grades shall be five-tenths percent (0.50%) on concrete streets and five-tenths percent (0.50%) on all other types of street paving. Cross (transverse) slopes between pavement and the right-of-way shall not be less than 100:1 or steeper than 3:1. Where necessary, additional right-of-way or slope easement shall be provided to meet this requirement.

15. Street name markers shall be installed in accordance with the prescribed type currently in use by the City or an approved equal, as approved by the City Manager. Street markers and erections will be at the expense of the subdivider.

16. The materials for all traffic-control and regulatory signs shall be furnished by the subdivider and installed by the City for all intersections within or abutting the subdivision. Such signs shall be in strict compliance with the regulations

of the Federal Highway Administration and according to the requirements of the Manual on Uniform Traffic-Control Devices, latest edition. No signs will be placed in undeveloped portions of the subdivision.

17. The subdivider shall comply with the guidelines and criteria for driveways, including the design requirements, grades, spacing, and access standards as provided by the City's thoroughfare plan.

18. If a proposed development is projected to generate a lesser traffic volume than would normally require roadways as specified in the City's thoroughfare plan, the developer may install a "minimum acceptable alternative" approved by the City Engineer and Director of Development Services. The full right-of-way and pavement thickness are unchanged. Only the outside two (2) lanes would be paved in this situation. The City Engineer must approve the use of this option.

C. Alleys.

1. Alleys are not required, except where the City has determined that one is necessary for adequate service access, such as off-street loading, unloading and parking consistent with and adequate for the uses proposed.

2. All alleys shall be paved with reinforced concrete, and the paving shall conform to Sec. 11 Improvements of these regulations.

3. All alleys must be privately maintained by the homeowners' association or other entity.

4. The minimum width of any alley shall be twenty (20) feet in industrial and commercial areas and fifteen (15) feet in residential areas.

5. Alley intersections, sudden changes in alignment, and dead-end alleys shall be avoided.

6. Residential driveway and alley pavement cuts must be approved by the City Engineer onto loop and major thoroughfares. Alleys on frontage roads shall be provided along side and rear lot lines which front on loop and major thoroughfares for rear entrance.

D. Gated Community/Private Streets.

1. Private streets in gated communities shall conform to the same standards regulating the design and construction of public streets. A gated community will only be permitted in a planned development (PD) zoning district.

2. Any gate installation must conform to the following provisions:

a. All gate installations must be approved by the Director of Development Services or his or her duly authorized representative or the Fire Department prior to installation. The installation must be completed and tested prior to the City's acceptance of the subdivision.

b. Gate design may incorporate one or two gate sections to meet the required minimum gate width of twenty-four (24) feet. If the entrance will incorporate a median, guard shack or similar structure that necessitates a divided gate arrangement, the gate widths may be reduced if approved by the City, but in no case shall any single gate or street pavement have a clear opening of less than twenty (20) feet.

c. Approach and departure areas on both sides of a gated entrance must provide adequate setbacks and proper alignment to allow free and unimpeded passage of emergency vehicles through the entrance area. All entry gates must be setback a minimum of one hundred (100) feet from any adjacent public street right-of-way to allow for vehicle stacking out of the public travel lanes. Any exception must be approved by the Director of Development Services.

d. Automatic gate installations must conform to the design and performance guidelines established by the City's fire chief and Director of Public Works.

e. All components of the gate system must be maintained in an approved operating condition, with all components serviced and maintained on a regular basis as needed to ensure proper gate operation. A proper power supply shall be maintained to all electrical and electronic components at all times.

f. Each security gate regulated under this section will be subject to a performance test as determined by either the fire chief or public works or a designated City official. Upon failure of a performance test, the security gate system shall be disabled and maintained in the open position until repaired and shall not be placed back in service until tested and authorized by the City.

g. All streets, gates and other fire protection features, signage, and equipment are subject to periodic inspection by the City and must be repaired immediately if found to be in condition of disrepair. The City shall have the right to enter the subdivision and disable, open, or remove any gate, device, or other feature that impedes or controls vehicle access at the sole expense of the homeowner's association. Emergency repairs shall be assessed against the homeowner's association.

h. The person or corporation in control of the property is responsible for, and liable for any violations of this section. This includes, but is not limited to, the developer, property owner, the homeowner's association and its officers, if applicable, or other who may own or exercise control over the property.

3. Property Associations Required. Subdivisions developed with open spaces, parks, private streets or alleys must have a mandatory property owners association which includes all property served by private streets or alleys. The association shall own and be responsible for the maintenance of private streets, alleys, parks, open spaces, and other homeowner association appurtenances. The association documents shall be reviewed by the City Attorney and subject to approval by the City to ensure that they conform to this and other applicable City ordinances and concerns. The documents shall be filed of record prior to the approval of the final plat. Lot deeds may not be dissolved without the prior written consent of the City. No portion of the association documents pertaining to the maintenance of the private streets and alleys and assessments therefore may be amended without the written consent of the City.

4. Private Street Lot. Private streets and alleys must be constructed within a separate lot owned by the property owners' association. This lot must conform to the City's standards for public street and alley right-of-way. An easement covering the street lot shall be granted to the City providing unrestricted use of the property for utilities and storm drainage systems and the maintenance of same. This right shall extend to all utility providers including Telecommunications Service Providers, operating within the City. The easement shall also provide the City or its contractors with the right of access for any purpose related to the exercise of a governmental service or function, including but not limited to fire and police protection, inspection and code enforcement, trash collection or utility maintenance. The easement shall permit the City to remove any vehicle or obstacle within the street lot that impairs emergency access.

5. Construction and Maintenance Cost. The City shall not pay for any portion of the cost of construction or maintaining a private street. The homeowners' association shall maintain an escrow account as approved by the City for all road maintenance.

6. Reserved.

7. City Utilities. Water, sewer and drainage facilities placed within the private street and alley lot shall be installed to City standards and dedicated to the City as part of the approval of the final plat. All City regulations relating to infrastructure, financing, developer cost participation and capital cost recovery shall apply to developments with private streets except for those applying to internal street construction.

a. Street lights and signs shall be installed and maintained by the homeowners' association subject to approval by the City.

b. The property association documents shall give the City the right, after

giving written notice, to perform maintenance upon streets and alleys to protect health, safety and welfare of the residents and to place a lien upon the lots within the association to recover the cost of such maintenance.

8. Plans and Inspections. Developments proposed with private streets must submit to the Director of Development Services the same plans and engineering information required to construct public streets and utilities. Requirements pertaining to inspection and approval of improvements prior to issuance of building permits shall apply. Inspection fees charged for these services as defined in Appendix A of this Code shall also apply. The City may periodically inspect private streets and require repairs necessary to ensure emergency access.

9. Waiver of Services. The subdivision final plat, property deeds and property owners' association documents shall note that certain City services shall not be provided on private streets. Among the services which will not be provided are: routine police patrols, street lighting, enforcement of traffic and parking ordinances and preparation of accident reports. All private traffic regulatory signs shall conform to the Texas Manual of Uniform Traffic-Control Devices. Depending on the characteristics of the proposed development other services may not be provided.

10. Petition to Convert to Public Streets. The property association documents shall allow the association to request that the City accept private streets and alleys and the associated property as public streets and right-of-way upon written notice to all association members and the favorable vote of seventy-five (75) percent of the association membership. However, in no event shall the City be obligated to accept said streets and alleys as public. Should the City elect to accept the streets and alleys as public, the City may inspect the private streets and assess the lot owners for the expense of needed repairs concurrent with the City's acceptance of the street and alleys.

The City will be the sole judge of whether repairs are needed. The City may also require, at the association's expense, the removal of guard houses, access control devices, landscaping or other aesthetic amenities located within the street lot. The association document shall provide for the City's right to such assessment. Those portions of the association documents pertaining to the subject matter contained in this paragraph shall not be amended without the written consent of the City.

11. Hold Harmless. On the subdivision final plat shall be language whereby the property owners association, as owner of the private streets and appurtenances, agrees to release, indemnify, defend and hold harmless the City, any governmental entity and public utility for damages to the private street occasioned by the reasonable use of the private street by the City,

governmental entity or public utility, for damages and injury (including death) arising from the condition of said private street; for damages and injury (including death) arising out of the use by the City, governmental entity or public utility of any restricted access gate or entrance; and for damages and injury (including death) arising out of any use of the subdivision by the City, governmental entity or public entity. Further, such language shall provide that all the owners of all lots shall release the City, governmental entities and public utilities for such damages and injuries. The indemnifications contained in this paragraph apply regardless of whether such damages and injury (including death) are caused by the negligent act or omission of the City, governmental entity or public utility, or their representative officers, employees, or agents.

12. Sidewalks and Bikeways.

a. Sidewalks. Sidewalks shall be constructed in accordance with City standards for all lots adjoining dedicated streets, along major thoroughfares where lots do not adjoin the street or in other areas as required by the City. Sidewalk construction may be delayed until development of lots, but in locations not adjacent to lots and across bridges and culverts, the sidewalk shall be constructed with the other improvements to the subdivision or addition. Exceptions to this section must be approved by the City.

b. Pedestrian Accesses. The City may require, in order to facilitate pedestrian access from the streets to schools, parks, playgrounds, or other nearby streets, perpetual unobstructed easements at least fifteen (15) feet in width. Easements will be indicated on the plat.

c. Bikeways. Hike and bike sidewalks, designed and located according to City standards, shall be constructed along streets designated for hike and bike trails. Such sidewalks shall be built by the owner at the time of site development.

13. Drainage and Storm Sewers.

a. General Requirements. All plats shall conform to the City's standards for drainage facilities.

b. Design of Facilities. Design of storm sewer systems shall be in accordance with City standards. Materials and construction shall conform to the standard specifications.

14. Secondary Access. All gated subdivisions shall provide a secondary access point accessible by means approved by the City and the fire marshal for emergency services unless specifically exempted by the City.

15. Federal Requirements. The post office requires seven (7) day access for mail delivery. If a security gate or fencing is used, a key keeper box with retractable key reel that will accommodate a post office arrow lock and/or the device (mechanical/electronic) needed to gain access into complex, must be installed next to the door or gate that the carrier uses to enter the complex. (Systems that use a keyboard to punch in codes, in most cases, will accept a post office arrow lock in the control panel).

Note: Carriers must not carry keys, written codes, electronic openers or badges for entrance into buildings or complex.

E. Lots.

1. Lot Size. The size or area of the lot shall be measured in square feet and shall conform to the zoning requirements for the applied zoning district.

2. Corner Lots. Corner lots with a width of less than seventy-five (75) feet are to be at least five (5) feet wider than the average of interior lots in the block. Corner lots with a width of less than eighty-five (85) feet adjacent to a thoroughfare are to be at least fifteen (15) feet wider than the average of interior lots in the block.

3. Lot Shape. Lots should be rectangular where practicable. Sharp angles between lot lines should be avoided. The ratio of depth to width should not ordinarily exceed two and one-half to one (2-1/2:1).

4. Lot Facing.

a. Each lot shall be provided with adequate access to an existing or proposed street by frontage on such street. Residential lots shall front on residential class streets, as defined in Sec. 11 Improvements;

b. Double frontage lots are prohibited except where the lot has rear frontage on thoroughfares; and

c. Wherever feasible, each lot should face the front of a similar lot across the street. In general, an arrangement placing facing lots at right angles to each other should be avoided.

5. Lot Lines. Radial to street frontage, and the following note may be used on the plat in lieu of bearings: "All side lot lines are perpendicular or radial to street frontage unless otherwise noted."

6. Lot Numbering. All lots are to be numbered consecutively within each block. Lot numbering may be cumulative throughout the subdivision if the numbering continues from block to block in a uniform manner that has been approved on an overall preliminary plat.

7. Lot Grading. Finished grade for the building site will be not less than six

(6) inches above the top of the curb grade or alley pavement or two (2) feet above the adjacent base flood elevation as defined by the Federal Emergency Management Agency, whichever is greater. In any case, the property line grades adjacent to the street should not be below the top of curb grade.

8. Exceptions: Plats involving cluster developments or zero-lot lines shall be reviewed by the City on a case-by-case basis.

F. Easements.

1. Use. Where necessary to provide access for the purposes of maintenance, construction or other service, easements shall be provided for poles, wires, conduits, storm sewers, sanitary sewers, water lines, open drainage, floodplains, gas lines or other utilities. Such easements may be required across parts of lots, including rear and side lot lines, where alleys are not provided.

2. Size. Where possible, easements shall be provided fully located upon one (1) lot and shall be not less than fifteen (15) feet in width. Where such is not feasible, easements shall be not less than seven and one-half (7-1/2) feet on each side of the lot line.

a. Where overhead utility service on poles is allowed, an additional easement of five (5) feet on each side shall be provided. The full width of easements shall not be less than twenty-five (25) feet.

b. Where a subdivision is bounded by a watercourse, drainage way, channel or stream, there shall be provided a stormwater easement or drainage right-of-way conforming substantially to the lines of such watercourse, or of such width to provide for any future anticipated construction, plus a minimum of ten (10) feet on each side.

3. Where Required by the City, Emergency Access Easements shall have: (i) a clear, unobstructed width of twenty-four (24) feet; (ii) an all-weather surface constructed and maintained by the owner; (iii) a connection at each end to a dedicated public street or have a turnaround of suitable size at the dead-end; and (iv) appropriate turning space at inside corners to permit free movement of fire trucks. An emergency access easement may be used as a driveway to gain access to parking or loading spaces but shall not be used for parking. The limits of the easement shall be marked by the City, and the marking shall be maintained by the City.

G. Blocks.

1. The lengths, widths and shapes of blocks shall be determined with regard to the following items:

a. Provision of adequate building sites suitable to the special needs of the type of use proposed;

b. Zoning requirements as to lot sizes and dimensions;

c. Needs for convenient access, circulation, control and safety of traffic; and

d. Limitations of topography.

2. Where no existing subdivision controls, the blocks shall not exceed one thousand (1,000) feet in length nor be less than five hundred (500) feet in length, except in certain instances where topographical features warrant special consideration. These limits shall be exceeded only upon specific approval by the Director of Development Services. Blocks longer than six hundred (600) feet shall be avoided in business districts including City and ETJ Regional Commercial (RC), Neighborhood Commercial (NC), and Downtown Urban Retail and Urban Mixed Use zoning districts.

3. Blocks are to be numbered or lettered consecutively within the overall plat and/or section of an overall plat, as recorded.

H. HUD-Code Manufactured Home Subdivision.

1. Location.

a. Mobile homes/manufactured home parks are prohibited within the City limits.

b. HUD-Code Manufactured Homes may only be located in the appropriate zoning districts as permitted in Exhibit 14A of this Code.

2. Platting. HUD-Code Manufactured Home Subdivisions are governed by the same requirements for all other subdivisions. Both preliminary and final plats will be required, and both will be subject to the specifications of Sec. 5 Preliminary Plat and Sec. 6 Final Plat of this article.

3. Streets. Each HUD-Code Manufactured Home Subdivision must abut a public street and provide access there from. Each lot/unit may only be accessed from a private interior street. Minimum pavement widths of interior streets shall be twenty (24) four to allow for emergency vehicle and trash removal access and shall have a nine (9) foot parking lane on one side of the street, and a marked fire lane. All streets must be maintained by the development owner.

4. Screening. Each HUD-Code Manufactured Home Subdivision must include a landscaping/screening plan to buffer the park from adjoining land uses. (This plan must receive approval from the City Engineer.) A landscaped strip of not less than ten (10) feet in width shall be established and maintained within the

development's property along the exterior boundaries. Fencing and other materials must also be used as approved by the City.

5. Utilities. A master water meter and backflow prevention device shall be installed at the connection to the public water main. The water and sewer lines in each HUD-Code Manufactured Home Subdivision must remain private and will be maintained by the development owner. The development owner is responsible for the entire water and sewer usage fees and individual lots will not be billed by the City.

6. Prohibited Use. No HUD-Code Manufactured Home for the purpose of residential living shall be located outside an approved HUD-Code Manufactured Home Subdivision. HUD-Code Manufactured Homes in approved developments must be used for no other purpose than residential and will be not allowed outside an approved HUD-Code Manufactured Home Subdivision. These regulations shall not apply to Manufactured Housing.

7. Additional Requirements. All other sections of this document shall apply as appropriate to HUD-Code Manufactured Home Subdivisions. The City Council may also impose additional conditions, requirements or limitations concerning the design, development and/or operation of said development as it deems necessary for the protection and general welfare of adjacent properties and the public interest.

8. Filing Fees. Refer to Appendix A of this Code for applicable filing fees and charges.

I. Survey Monuments and Lot Markers.

1. Permanent Survey Reference Monuments. Permanent type monuments shall be placed at each corner and angle point of the boundary survey of the subdivision, and on all property line points of curve and tangent. These monuments shall be class "B" concrete, eight (8) inches in diameter, and thirty-six (36) inches long. A three-fourths (3/4) inch diameter steel bar eighteen (18) inches long shall be placed in the center of this monument to denote the exact point being marked. These monuments shall be set so that they are flush with the finished grade or below ground, if necessary, in order to avoid being disturbed.

2. Lot Markers. All lot corners shall be located and marked with one-half (1/2) inch reinforcing bar, eighteen (18) inches long, or approved equal, and shall be placed flush with the ground, or below ground, if necessary, in order to avoid being disturbed.

3. Common boundaries. If the adjacent, abutting or adjoining property outside the subdivision does not belong to the subdivider of the subdivision being considered, then the subdivider must acquire written agreement between himself and the owner or owners of the adjacent, abutting, or adjoining

property as to the common boundary line between said properties. In the event the subdivider of the subdivision under consideration and the owner or owners of the adjacent, abutting, or adjoining properties cannot agree on a common boundary line, then the City shall act, at the expense of the subdivider of the subdivision being considered to establish the legal boundary, and at least three (3) permanent markers shall be placed, with the consent of the City and the property owners involved, establishing an agreed point which shall be tied to the original survey or ancient subdivision as provided thereof.

4. Schedule for Placement. At the developer's option, permanent monuments and lot markers may be placed before or following construction of on-site improvements. If installed prior to construction, the final plat of the subdivision will be filed for record as set forth in Sec. 6 Final Plat of these regulations. If installed following construction of improvements, the plat will be held for filing until, and the certificates of occupancy will be issued when, the monuments and markers are set (see Sec. 11.M. Surveyor's Certificate).

SECTION 11: Improvements

The subdivider shall place these improvements in all new subdivisions, in accordance with all applicable regulations, including Article 13.2800 Municipal Setting Designation (MSD). The satisfactory installation of these improvements, with due regard to any limitations or requirements imposed by existing or potential MSDs, shall be a precedent to the final approval and acceptance of the subdivision by the City.

A. Standard Specifications and Construction Details.

1. All improvements proposed for any subdivision to be developed under the jurisdiction of these ordinances shall be furnished and installed by the subdivider in accordance with the applicable divisions of the NCTCOG standard specifications for public works construction, as adopted by the City and the other applicable specifications noted herein, or in the absence of such specifications and details, to meet the approval of the City.
2. References are made herein to specific divisions, items and sections of the NCTCOG standard specifications, and it is not intended to preclude other portions of the NCTCOG standard specifications that may be appropriate and applicable to the development of a subdivision. Therefore, by reference to the fact that the City has adopted the NCTCOG standard specifications for public works construction, the NCTCOG standard specifications, latest edition as amended, are to be considered a part of this ordinance.
3. All improvements, even in previously approved but still unimproved subdivisions, or in re-subdivided tracts, shall conform to the City's current

regulations and specifications for street, drainage and utility construction.

4. Where reference is made within these regulations to the standard specifications, it shall be understood that the word "owner" is to be interpreted as the developer or subdivider and the words "engineer," "inspector," and "owner's representative" are to be interpreted as the developer's engineer. Where the standard specifications allow options not specifically addressed by these regulations, the developer's engineer shall request guidance from the City Engineer in writing.

B. Street Paving – Concrete.

1. Concrete Strength Requirements.

a. Concrete Curb and Gutter. Concrete curb and gutter shall be constructed thirty (30) inches in width and in accordance with division 8, item 8.2, of the Standard Specifications. Reinforced concrete pavements and monolithic curb refer to division 5, item 5.8, of the Standard Specifications.

2. Pavement Thickness Requirements. The following specifies minimum standards required for the pavement and subgrade design for roadways and alleys within the City. These minimum standards are not intended to replace the professional judgment of the geotechnical engineer for any specific project. The standards may need to be expanded or modified on a case-by-case basis as determined necessary and appropriate by the geotechnical engineer, and as approved by the City Engineer.

All roadways and alleys shall have a geotechnical investigation and pavement and subgrade design performed. Results of the geotechnical investigations, engineering analyses, and recommendations shall be presented in a geotechnical report for roadways (the "Report"). Where recommendations within the Report differ from these minimum standards, the more stringent criteria shall apply. The Report and any subsequent reevaluations or supplemental reports shall be signed and sealed by a licensed professional engineer in the State of Texas trained and qualified to provide geotechnical engineering analyses and pavement and subgrade design recommendations.

a. Residential/Local Street, Residential/Estate Street and Alley Construction.

i. The subdivider shall, at his own cost and expense, pay for constructing all residential streets and alleys within his subdivision and one-half (1/2) of all existing and/or proposed perimeter streets. Monies for the construction of the one-half (1/2) street shall be placed in an escrow account if the construction of the street is to be deferred to a later date.

ii. A six (6) inch thickness of three thousand six hundred (3,600) p.s.i. reinforced concrete pavement on a compacted sub-base shall be required. All steel reinforcing shall be deformed No. 3 bars on eighteen (18) inch center both ways or No. 4 bars on twenty-four (24) inch centers both ways.

iii. Where the plasticity index of the soil is twelve (12) or greater, stabilization of the subgrade, eight (8) inches thick with six (6) percent hydrated lime by weight, shall be required. Compaction of the lime stabilized sub-grade shall be according to the Standard Specifications, division 4, item 4.6., section 4.6.4(d).

iv. Unless otherwise approved by the City Engineer, the concrete shall be placed using either forms or slipform paver. Concrete strength shall be increased to four thousand (4,000) p.s.i. for hand poured concrete.

v. Any proposed pavement section of lesser thickness or alternate materials shall be fully documented by the design engineer to substantiate the fact that such alternate will provide an equivalent capacity for the pavement noted above and must be approved by the City Engineer.

b. Collector, Commercial, or Industrial Street and Alley Construction.

i. The subdivider shall, at his own cost and expense, pay for constructing all streets and alleys within his subdivision and one-half (1/2) of all existing and/or proposed perimeter streets. Monies for the construction of the one-half (1/2) street shall be placed in an escrow account if the construction of the street is to be deferred to a later date.

ii. Collector streets and alleys shall, at a minimum, be designed and constructed with eight (8) inch thickness of four thousand (4,000) p.s.i. reinforced concrete pavement on a compacted sub-base. All steel reinforcing shall be deformed No. 4 bars on eighteen (18) inch centers both ways.

iii. Where the plasticity index of the soil is twelve (12) or greater, stabilization of the subbase with an eight (8) inch thickness of six (6) percent hydrated lime by weight will be required. Compaction of the lime stabilized sub-grade shall be according to division 4, item 4.6., section 4.6.4(d), of the Standard Specifications.

iv. Unless otherwise approved by the City Engineer, the concrete shall be placed using either forms or slipform paver. Concrete strength shall be increased to four thousand five hundred (4,500) p.s.i. for hand poured concrete.

v. Any proposed pavement section of lesser thickness or alternate materials shall be fully documented by the design engineer to substantiate the fact that such alternate will provide an equivalent capacity for the pavement noted above and must be approved by the City Engineer.

c. Major or Secondary Thoroughfare Construction.

i. On roadways, adjacent to the proposed subdivision, that are designated to be major or secondary thoroughfares (except class A Loop Highway), the subdivider shall be required to construct, at his own cost and expense, one-half (1/2) of the street section, up to a width of twenty-four (24) feet, measured to face of curbs, with integral curbs on each side.

ii. Where thoroughfares traverse a subdivision, the subdivider shall be required, at his own cost and expense, to construct a twenty-four (24) foot wide section on each side of the roadway.

iii. Thoroughfares shall be designed and constructed with a nine (9) inch thickness of four thousand (4,000) p.s.i. reinforced concrete pavement on a compacted sub-base. All steel reinforcing shall be deformed No. 4 bars at eighteen (18) inch centers both ways.

iv. Where the plasticity index of the soil is twelve (12) or greater, stabilization of the subgrade, ten (10) inches thick with six (6) percent hydrated lime by weight, shall be required. Compaction of the lime stabilized sub-grade shall be according to division 4, item 4.6., section 4.6.4(d), of the Standard Specifications.

v. Unless otherwise approved by City, the concrete shall be placed using either forms or slipform paver. Concrete strength shall be increased to four thousand five hundred (4,500) p.s.i. for hand poured concrete.

vi. Any proposed pavement section of lesser thickness or alternate materials shall be fully documented by the design engineer to substantiate the fact that such alternate will provide an equivalent capacity for the pavement noted above and must be approved by the City Engineer.

3. Paving Width Requirements.

a. Residential/Local Streets, Residential/Estate Streets, Collector Streets, and Alleys.

i. Residential/local two-lane undivided street paving shall be a minimum of thirty-one (31) feet in width, measured between the faces of curbs.

ii. Collector street paving shall be a minimum of forty (40) feet in width, measured between the faces of the curbs.

b. Thoroughfares. The following minimum pavement widths are set by this ordinance for the construction of thoroughfares as follows:

Thoroughfare Classification	Minimum Right-of-Way Width	Minimum Pavement Width Between Faces of Curbs
Class A (Loop)	180 feet	Two 12' traffic lanes on each side of the roadway centerline
Class B (Major)	120 feet	Three 12' traffic lanes divided by a 16' median
Class C (Major)	100 feet	Three 11' traffic lanes divided by a 15' median
Class D (Secondary)	80 feet	Four 11' traffic lanes or two 12' traffic lanes and two 10' parking lanes

Note: The minimum width of a median adjacent to a left turn shall be five (5) feet.

c. Street returns.

i. The minimum radii for all street returns shall be twenty (20) feet on collector and minor streets and thirty (30) feet on thoroughfares.

ii. Returns for driveways on minor streets shall be ten (10) feet. Driveway returns onto commercial and industrial property shall be a minimum of fifteen (15) feet and a maximum of twenty-five (25) feet except in special cases.

4. Miscellaneous.

a. Reinforcing Steel. Steel furnished for street and alley paving shall meet division 2, item 2.2., sections 2.2.6. and 2.2.7, of the Standard Specifications.

b. Sawed Dummy Joints. Refer to division 5, item 5.8., section 5.8.2, of the Standard Specifications.

c. Expansion Joints. Refer to division 5, item 5.8., section 5.8.2, of the Standard Specifications.

d. Longitudinal Pavement Slopes. The maximum longitudinal slopes are as follows:

Type of Street	Maximum Slope
Class A - Major Thoroughfare	6%
Class B - Major Thoroughfare	6%
Class C - Major Thoroughfare	6%
Class D - Secondary Thoroughfare	8%
Class E - Collector	8%
Class F - Collector	8%
Class G - Minor (Residential)	10%

Maximum grades for an alley shall be eight (8) percent within thirty (30) feet of its intersection with a street and fourteen (14) percent elsewhere. Maximum longitudinal slopes within one hundred (100) feet of intersections shall not exceed two (2) percent.

e. Transverse Pavement Slopes. The transverse pavement slope for all non-divided streets may consist of either a straight cross slope or a parabolic curve from the pavement centerline to the gutter. The crown at the pavement centerline shall be four (4) inches above the gutter grade on residential streets and six (6) inches on collector streets and secondary thoroughfares. For divided streets, the transverse slope shall be as required by the City Engineer.

f. Lime Stabilization. Refer to NCTCOG Standard Specifications, division 4, item 4.6.

C. Sidewalks. Refer to division 8, item 8.3, of the NCTCOG Standard Specifications.

1. Concrete sidewalks shall be constructed on both sides of streets and thoroughfares, except in industrial areas and along residential/estate streets, by the subdivider. The sidewalks shall have a width of not less than five (5) feet and thickness of not less than four (4) inches and shall be constructed of three thousand (3,000) p.s.i. concrete on both sides of all streets within the subdivision and of a width not less than eight (8) feet on all major thoroughfares. Sidewalks shall be constructed one (1) foot from the property line within the street or thoroughfare right-of-way and shall extend along the street frontage including the side of corner lots and block ends. Alternate sidewalk designs may be considered and shall be approved on a case-by-case basis by the City Engineer.

2. Construction of sidewalks adjacent to curb in residential areas will be considered where driveway entrances are constructed from the rear of lots on each side of the street for the full length of the block or where mountable curbs are installed. In these instances, the sidewalks shall be six (6) feet wide.
3. Sidewalks in commercial areas shall be a minimum width of six (6) feet or extend from the back of the curb to the building line as required by the City.
4. Sidewalks in industrial areas and planned developments will be as required by the City.
5. All concrete for sidewalks shall be placed on a two (2) inch sand cushion.
6. Cross slope of sidewalks shall be that of the curb adjacent to the sidewalk. The cross slope of the sidewalk shall be one-fourth (1/4) inch per foot starting at the back of the curb. The maximum ground slope from the back of the curb to the property line shall not exceed six (6) percent. If it does exceed six (6) percent, a retaining wall, that is acceptable to the City, shall be provided on the property line or the private property graded to a 4:1 maximum slope.

D. Drainage and Storm Sewer Improvements.

1. General. Drainage facilities shall be provided and constructed by the developer in accordance with all City standards and the following basic requirements. If development utilizes residential/estate street section and is located within the ETJ of the City of Sanger at the time improvements are constructed, the developer's engineer shall follow the current Denton County Subdivision Rules and Regulations as outlined in section VIII - chapter IV titled "drainage-design."

   Where it is necessary, in order to properly serve the subdivision, that existing City utilities be extended or that drainage facilities be constructed outside the subdivision, such extensions or facilities are herein referred to as "off-site improvements," and the subdivider shall install these off-site improvements at their own expense.

2. Runoff Calculations.

   a. The selection of which method to use for calculating runoff depends upon the size of the contributing drainage area at the most downstream point of the project. The "rational method" is acceptable for designing projects in which the drainage area is less than two hundred (200) acres. A unit hydrograph method is required for projects with larger drainage areas.

   b. No matter which method is used to calculate runoff, a developer or builder of property greater than one (1) acre in size, or any property that was platted as a part of an overall tract which was greater than one (1) acre in size (including churches and schools), shall either demonstrate

through engineering analysis that the proposed improvements to the property will not increase stormwater leaving the site or otherwise adversely affect surrounding properties, or develop the property so that the rate of runoff created by the development as it leaves the property does not exceed the rate of runoff, velocity of runoff, depth of runoff, or general flow characteristics as calculated in the existing condition.

c. Runoff computations shall be based upon fully developed watershed conditions in accordance with the land use projections in the latest master plan.

i. Off-Site Flows for Developed Upstream Watershed. The design engineer may take the effects of upstream detention into account if the hydrologic and hydraulic information for the existing upstream ponds are shown on the construction plans and the information can be verified by record drawings or a record survey. An emergency overflow path between the existing detention ponds and the proposed site shall be identified and clearly indicated on the construction plans. The design engineer shall confirm the hydrologic and hydraulic effects of upstream facilities in accordance with subsection D.

ii. Off-Site Flows for Undeveloped Upstream Watershed. If an undeveloped upstream property exists, the design engineer shall assume fully developed conditions without detention.

d. Procedure for drainage areas less than two hundred (200) acres:

i. Computation of stormwater runoff for drainage areas less than two hundred (200) acres shall be by the "rational method," which is based on the principle that the maximum rate of runoff from a given drainage area for an assumed rainfall intensity occurs when all parts of the area are contributing to the flow at the point of discharge. The formula for calculation of runoff by the "rational method" is:

$$Q = Cf * C * I * A$$

Q = Maximum Rate of Discharge (cfs)

Cf = Frequency Factor to adjust for storms more intense than 10-year (per NCTCOG iSWM Technical Manual)

C = Coefficient of Runoff (dimensionless)

I = Rainfall Intensity (in/hr.) (use Appendix 11A - IDF curve)

A = Drainage Area (ac)

The typical runoff coefficients below are for smaller, more frequent events (10-year and less). Less frequent, but higher intensity storms

require adjustment to account for the diminished impact of initial abstraction and infiltration (Wright-McLaughlin Engineers, 1969, NCTCOG iSWM Technical Manual). The Frequency Factor (Cf) should be applied to adjust the runoff higher based on the storm frequency. In no case should the adjusted runoff coefficient (C * Cf) exceed 1.0.

Zoning District	Coefficient of Runoff
Agricultural	0.30
Ranch Density	0.55
Medium Density	0.60
Town Residential	0.65
Multi-Family Residential	0.80
Manufactured Home Residential	0.55
Lake	1.00
Regional Commercial	0.85
Neighborhood Commercial	0.85
Light Industrial	0.80
Urban Single Family Residential	0.60
Urban Multi-Family Residential	0.80
Urban Mixed Use	0.80
Urban Retail	0.85
Public Facilities	0.70

FREQUENCY FACTOR FOR RATIONAL FORMULA

Recurrence Interval (years)	C_f
10 or less	1.0
25	1.1
50	1.2
100	1.25

ii. Time of Concentration. Soil Conservation Services (SCS) methodology shall be used to determine the time of concentration (T_C). This method separates the flow through the drainage area into sheet flow, shallow concentrated flow, and open channel flow. The T_C is the sum of travel times for sheet flow, shallow flow, and open channel flow. The time of concentration flow path and sheet flow path shall be made available to the City upon request.

(a) Sheet Flow. The maximum allowable length for sheet flow is three hundred (300) feet for undeveloped drainage areas and one hundred (100) feet for developed areas. When selecting n for sheet flow, consider cover to a height of about 0.1'. This is the only part of the plant cover that will obstruct sheet flow. The T_t in minutes for sheet flow is determined using the following equation:

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}S^{0.4}}$$

T_t = Travel Time (hr)

n = Manning's Roughness Coefficient (see table below)

L = Flow Length (ft)

P_2 = 2-Year, 24-Hour Rainfall

S = Slope of Hydraulic Grade Line (land slope, ft/ft)

Surface Description	n
Smooth Surfaces (Concrete, Asphalt, Gravel, or Bare Soil)	0.011
Fallow (no residue)	0.05
Cultivated Soils	
Residue Cover <20%	0.06
Residue Cover >20%	0.17
Grass	
Short Prairie Grass	0.15
Dense Grasses	0.47
Range (Natural)	0.13
Woods	
Light Underbrush	0.40
Dense Underbrush	0.80

(b) Shallow Concentrated Flow. Shallow Concentrated Flow begins where sheet flow ends. A projected slope should be established along the flow line for the shallow concentrated flow length. The T_t in minutes for shallow concentrated flow is determined by the following equation:

$$T_t = \frac{L}{3600V}$$

T_t = Travel Time (hr)

L = Flow Length (ft)

V = Velocity (fps)

Unpaved = 16.1345 * $(S)^{0.5}$

Paved = 20.3282 * $(S)^{0.5}$

(c) Open Channel Flow. Open Channel Flow is where the runoff is located within a defined channel or, in some cases, closed storm systems. The T_t for open channel flow is determined using the following equation:

$$T_t = \frac{L}{3600V}$$

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

T_t = Travel Time (hr)

V = Average Velocity (ft/s)

r = Hydraulic Radius (A/P) (ft.)

A = Cross Sectional Area (ft^2)

P = Wetted Perimeter (ft.)

s = Slope of the Hydraulic Grade Line (Channel Slope, ft/ft)

n = Manning's Roughness Coefficient

The engineer shall compare the calculated time of concentration to the inlet time listed in the Coefficient of Runoff table in subsection 2.d.i. above. If the engineer desires to use a calculated time of concentration (T_C) value which differs from the value in the table in subsection 2.d.i above, the engineer shall provide information to justify the time of concentration (T_C) calculations.

e. Procedure for drainage areas greater than two hundred (200) acres:

i. For drainage areas in excess of two hundred (200) acres where the use of the "rational method" does not provide reliable results, the use of a unit hydrograph method shall be made. The use of a unit hydrograph calculation will be based upon standard and accepted engineering principles subject to the approval of the City Engineer. Acceptable methods include the Soil Conservation Services (SCS) technical release number 55 or the United States Corps of Engineers HEC-HMS models for drainage areas two hundred (200) acres or more.

(a) Modeling Requirements

i. 24-hour storm duration using an SCS Type II distribution

ii. Rainfall values from NOAA Atlas-14

iii. The SCS Curve Number (CN) method shall be used to calculate loss rate and value shall be taken from technical release number 55.

iv. Tc values shall be calculated as shown in Section 11.D.2.d.ii

v. Muskingum Cunge method shall be used for routing through drainage systems. Modified Puls shall be used when detailed hydraulic modeling is available or at the discretion of the city.

ii. The unit hydrograph method shall be based upon fully developed watershed conditions assuming no effects from the small on-site detention facilities for maintaining the rate of runoff as if the property was developed according to the future land use plan, which is included in the City's most recent Comprehensive Plan. The detention effects of large regional detention facilities can be considered in unit hydrograph methods.

iii. Circumstances that may require the use of a unit hydrograph method include sizing open channels, reclaiming floodplains, creating lakes, or building other types of drainage-related facilities on major drainage courses. Design engineers of these types of facilities should be aware that the requirement of designing for fully developed watershed conditions will mean that they will have to calculate these fully developed flows instead of using the flows calculated in the Federal Emergency Management Agency's (FEMA) flood insurance studies for the City or Denton County.

3. Design Storm Frequencies. The approved drainage system shall provide for positive overflow at all low points. The term "positive overflow" means that when the inlets do not function properly or when the design capacity of the conduit is exceeded, the excess flow can be conveyed overland along a grassed or paved course. Normally, this would mean along a street or alley, or shall require the dedications of special drainage easements on private property

Storm Drainage Facility	Design Recurrence/ Frequency	Freeboard	Freeboard Reference Point
Enclosed Pipe Systems (Non-Sump Areas)	10-Year	1 foot	From Gutter Elevation
Roadside Ditches	10-Year	None	From Lowest Point of Containment
Enclosed Pipe Systems (Drainage Sump Areas)	100-Year	None	From Gutter Elevation

Storm Drainage Facility	Design Recurrence/ Frequency	Freeboard	Freeboard Reference Point
City Street Rights-of-Way	100-Year	None	From Top of Curb
Channels and Creek Improvements	100-Year	1 Foot	From Top of Channel or Creek and/or Based on Direction from the Floodplain Administrator
Culverts	100-Year	1 Foot	From Top of Curb
Bridges	100-Year	2 Foot	From Low Chord of Bridge
Pedestrian Bridges	10-Year	Non	From Low Chord of Bridge
Detention/Retention Basins	100-Year	1 Foot	From Lowest Point of Containment
Structures Adjacent to Floodplains	100-Year	2 Foot	From Finished Floor Elevation

4. Street and Alley Capacity.

a. For residential streets, the depth of flow, based upon the 100-year storm, shall not exceed the top of curb. For other street classifications, at least one dry lane in each direction must remain operational during a 100-year storm.

b. The flows created by the 100-year storm shall be contained within the capacity of all paved alleys.

c. The first-floor elevations of all residential and other structures shall be set at a minimum elevation of one foot above the top of the street curb elevation or the alley invert, and with positive drainage provided away from the structure. Positive overflow sections shall provide a minimum of 1 foot of freeboard from the overflow invert adjacent to structures and the corresponding first floor elevation of all residential and other structures.

5. Inlet Placement and Capacity.

a. Storm sewer inlets shall be designed and installed along paved streets to ensure safe and efficient drainage during extreme weather events. For residential streets, the depth of flow, based upon the 100-year storm, shall

not exceed the top of curb. For other street classifications, at least one dry lane in each direction must remain operational during a 100-year storm. Inlet placement and spacing shall be determined to achieve the design criteria above. If the City Engineer deems gutter flow excessive based on the design criteria above, adjustments to storm sewer design or inlet locations may be made to address adverse conditions.

b. Inlets shall be placed upstream from an intersection whenever possible. At any intersection, only one street shall be crossed with surface drainage and this street shall be the lower classified street. When an alley intersects a street, inlets shall be placed in the alley whenever flow down that alley would cause the capacity of the intersecting street to be exceeded. The maximum allowable flow across any street resulting from a 5-year storm event shall not exceed five (5) cubic feet per second (cfs).

c. The minimum inlet size shall be five (5) feet for an on-grade inlet or ten (10) feet for a sag. No more than twenty (20) feet of inlet shall be placed along one gutter at any given location. Minimum sizes of laterals shall be eighteen (18) inches for use with 5-foot inlets, 21-inch laterals with 10-foot, 15-foot, and drop inlets and 24-inch laterals for 20-foot inlets. Where laterals tie into trunk lines, place the laterals on a 60-degree angle with the trunk line and connect them so that the longitudinal centers intersect.

6. Pipe Design Standards.

a. Storm sewer conduit shall be sized to flow full. Manning's equation shall be used to estimate conduit size and calculate friction losses along the pipe.

b. Detailed design parameters and calculations shall be developed in accordance with the North Central Council of Governments (NCTCOG) Integrated Stormwater Management (iSWMTM) Technical Manual – Hydraulics Section for Closed Conduit Systems.

c. Minimum and maximum velocities in pipes:

i. The minimum velocities in conduit shall be two and one half (2.5) feet per second.

ii. Maximum velocity in the pipe shall not exceed twelve (12) feet per second.

iii. The maximum discharge velocities in the pipe shall also not exceed the permitted velocity of the receiving channel or conduit at the outfall to prevent erosive conditions. The maximum outfall velocity

of a conduit in partial flow shall be computed for partial depth and shall not exceed the maximum permissible velocity of the receiving channel unless controlled by an appropriate energy dissipater (e.g. stilling basins, impact basins, riprap protection).

d. In general, stormwater shall be carried in concrete pipe conduit, but other types of conduit can be used to carry stormwater. However, prior permission to use other conduit materials must be obtained from the City Engineer.

e. Hydraulic gradient:

i. Conduits must be sized, and slopes must be set such that runoff flows smoothly down the drainage system. To ensure this smooth passage, the hydraulic gradient must be at the proper elevations. The hydraulic grade line shall be established and shown on the plans for all storm sewer design.

ii. The hydraulic grade line shall in no case be closer to the surface of the ground or street than one (1) foot.

iii. Hydraulic gradient calculations shall account for all head losses that may occur in the storm sewer line. Friction head loss shall be determined by direct application of Manning's Equation. Minor losses due to turbulence at structures shall be determined using Appendix 11B of this section.

iv. The hydraulic grade begins at the outfall of the system.

v. The starting hydraulic grade line at an outfall into a creek or channel shall be the 100-year fully developed water surface unless an approved flood hydrograph is available to provide a coincident flow elevation for the system's peak. If an approved flood hydrograph is available to provide a coincident flow elevation for the system's peak, coincident peak flows can be considered using the discharge frequencies in the below table.

FREQUENCIES FOR COINCIDENTAL OCCURRENCES

Area Ratio	100-Year Design	
	Main Stream	Tributary
10000:1	2	100
	100	2
1000:1	10	100

FREQUENCIES FOR COINCIDENTAL OCCURRENCES		
Area Ratio	**100-Year Design**	
	Main Stream	**Tributary**
	100	10
100:1	50	100
	100	50
1:1	100	100
	100	100

7. Culvert Design.

a. One (1) foot of freeboard is required between the 100-year fully developed water surface elevation and the top of curb elevation. Exceptions must be approved in writing by the City Engineer.

b. Culverts must be designed using standard methods and engineering judgment. Culverts shall be designed in accordance with the latest edition of the Texas Department of Transportation (TxDOT) Hydraulic Design Manual. Where TxDOT design standards conflict with those provided by the City's standards, the more stringent design criteria shall apply.

c. Culvert hydraulic grade line calculations shall consider both inlet and outlet control.

d. Culverts shall be skewed such that impacts due to the flood and normal flow angles of attack on the structure are minimized.

e. The maximum velocity at a culvert outfall shall be six (6) feet per second without energy dissipation.

f. Stream stability shall be assessed when determining the number of barrels, height and width and culvert skew. Potential for scour shall be accounted for in the design.

g. Culvert calculations shall be provided to the City for review. For creeks that have been modeled in the HEC-2 or HEC-RAS program, culverts and bridges can be sized using the HEC-2 or HEC-RAS model. Calculations may include, but are not limited to, headwall, tailwater, and flowline elevations, lowest adjacent grade and structure elevations, inlet and outlet control calculations and velocity calculations.

8. Bridges.

a. Two (2) feet of freeboard is required between the 100-year fully developed water surface elevation and the low chord of the bridge. Exceptions to this requirement must be approved by the City Engineer in writing.

b. The skew of the bridge piers and abutments shall be oriented as close to the normal or flood direction of flow resulting in an angle of attack as close to 0 degrees as possible.

c. Bridges shall be designed using standard methods.

d. Stream stability shall be assessed when designing the abutments and interior bents of the bridge. Scour shall be accounted for in the design.

i. A scour analysis performed in accordance with TxDOT guidelines and procedures shall be submitted with bridge design plans. Scour revetment shall be provided and shall be designed using methodology outlined in *HEC-18 Evaluation Scour at Bridges* and *HEC-23 Bridge Scour and Stream Instability Countermeasures: Experience, Selection, and Guidance*. Alternative methodologies for scour analysis and revetment may be approved at the discretion of the City Engineer.

e. Bridge calculations shall be provided to the City for review. For creeks that have been modeled in the HEC-2 or HEC-RAS program, bridges can be sized using the HEC-2 or HEC-RAS model. Calculations may include, but are not limited to, headwall, tailwater, and flowline elevations, lowest adjacent grade and structure elevations, inlet and outlet control calculations and velocity calculations.

9. Channels.

a. Natural channels and their floodplains should be protected to minimize environmental, maintenance, and flooding issues per the Floodplain Ordinance. All natural channels with a drainage area over 100 acres should be preserved, to the extent possible, and surrounded by an Erosion Control Zone (see below) and/or Floodplain Zone. If excessive erosion conditions exist, then stabilization measures should be employed as approved by the City Engineer.

b. For smaller drainage areas, open channels are discouraged in urban areas. Open channels may be used instead of an enclosed system when the pipe size, necessary to carry the design storm event, exceeds the capacity of two (2) 60-inch RCP. Open channels shall not be permitted when two (2) 60-inch RCP pipes will carry the design flow, unless approved by

the City Engineer. Any channel modification must meet the applicable requirements of all Local, State, and Federal Regulatory Agencies.

c. Open channel design criteria:

i. Channels may be left in their natural state provided that the channel velocities are 6.0 feet per second or less and that one (1) foot of freeboard is available during the design storm event.

ii. If the natural channel is to be replaced by an improved channel, the flow from the 100-year design flood must be contained within the improved channel while allowing for one (1) foot of freeboard.

iii. Improved channels shall be trapezoidal shaped with a minimum bottom width of four (4) feet and include a lined section if the design velocity is greater than six (6) feet per second. Lining types such as concrete, rock walls and gabions may be used upon approval of the City Engineer. The maximum velocity allowed in concrete lined channels is fifteen (15) feet per second.

iv. Unless shown to be feasible in a soils report sealed by a licensed professional engineer in the State of Texas and approved by the City Engineer, improved channels shall have minimum side slopes of:

(a) Four (4) feet horizontal to one (1) foot vertical for earthen, grassed-lined side slopes.

(b) 1.5 feet horizontal to one (1) foot vertical for concrete-lined side slopes in rock.

v. Where practicable, all unpaved channels should have enough grade to avoid ponding during backwater flow conditions. A minimum slope of 0.50% is required for earthen channels and swales, except those used as part of a wetlands area.

vi. The developer or owner shall use low maintenance vegetation for vegetative cover, as approved by the City Engineer prior to planting. The selection of materials shall comply with the current ground cover listing for North Central Texas furnished through the Texas Agricultural Extension Service.

vii. Any work that disturbs a natural stream or channel shall have a memorandum prepared by an environmental professional to satisfy jurisdictional determination as required by the US Army Corps of Engineers (USACE). Any further mitigation or permitting as required by the results of the memorandum shall be required prior to acceptance of the project.

d. Manning's equation can be used to design channels and determine water surface elevations and velocities when backwater effects are negligible. Where backwater effects occur, channels and roadside ditches must be designed using models accepted by FEMA.

e. The Erosion Clear Zone (ECZ) are needed to mitigate the risks of erosion in both natural, improved, and man-made channels by preventing construction close to the channel. The ECZ may be wider than the floodplain and shall be fully contained within a drainage easement and one of the following shall apply.

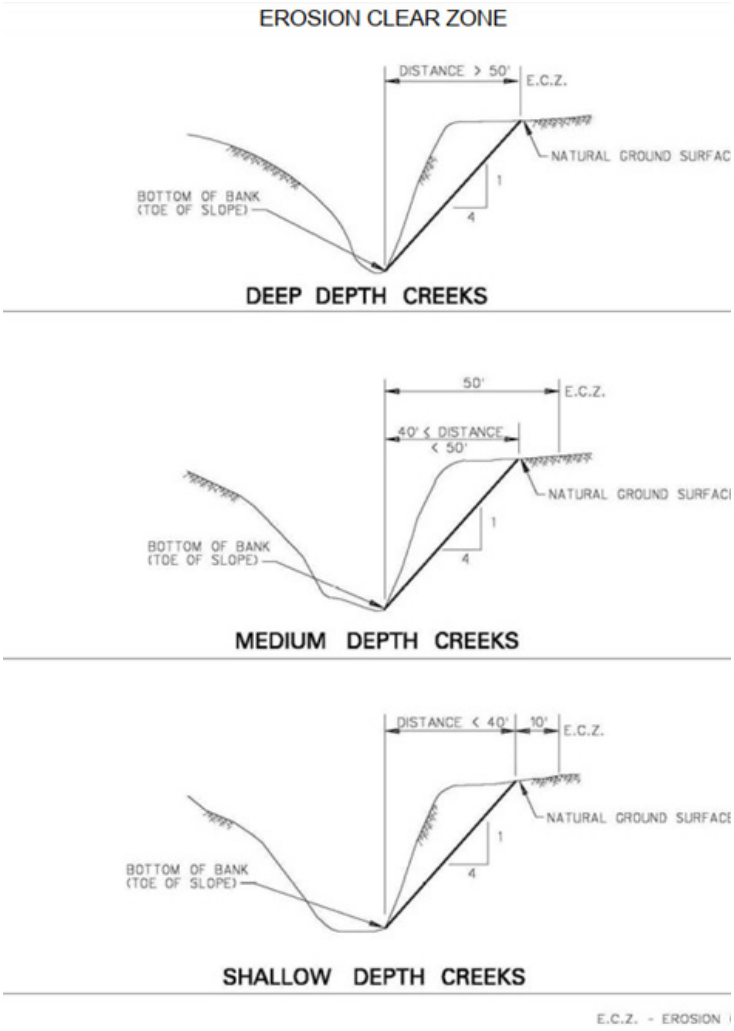
i. When a line is projected from the toe of the slope of the bank of the natural creek on a four horizontal to one vertical slope to the natural ground surface.

(a) If the resulting intersecting line is greater than 50 feet horizontally from the toe of the natural bank, the ECZ shall be located at the inter-section point. This is illustrated in the figure below, Deep Depth Creeks.

(b) If the resulting intersecting line is at least 40 feet, but less than 50 feet horizontally from the toe of the natural bank, additional footage shall be added to the requirements, so that a total of 50 feet measured horizontally from the toe of the bank is in the setback. This is illustrated in the figure below, Medium Depth Creeks.

(c) If the resulting intersecting line is less than 40 feet horizontally from the toe of the natural bank, additional 10 feet shall be added to the requirements. This is illustrated in the figure below, Shallow Depth Creeks.

ii. In lieu of an ECZ, a plan to stabilize and protect the banks of the creek with design calculations shall be approved by the Engineering Department prior to construction.



f. All channel sections must consider and account for channel stabilization in their design, ensuring subcritical flow throughout the channel reach, except at designated drop structures or energy dissipators specifically designed to handle supercritical flow conditions. This requirement pertains to all sections whether they are left in their natural condition or are modified in any manner. The design of all drainage channels and swales shall ensure adequate capacity and minimum maintenance to overcome the result of erosion, silting, sloughing of bends or similar occurrences.

g. When performing hydraulic analyses for channel or drainageway design, the starting water surface shall be based on the following criteria:

i. When the ratio of the drainage area of the receiving creek (at the confluence location) to the drainage area of the channel or drainageway being designed is fifteen (15) or greater, the 10-year water surface of the receiving creek shall be used as the starting water

surface for hydraulic design calculations. For creeks where the 10-year water surface is not available, the slope-area method will be used for starting design calculations.

ii. When the ratio of the drainage area is less than fifteen (15), the 100-year elevation on the receiving creek shall be used as the starting water surface for design calculations.

Ration of Receiving Creek Drainage Area to Channel/Drainageway Drainage Area	Starting Water Surface for Hydraulic Design Calculations
15 or greater	10-year water surface of receiving creek
Less than 15	100-year elevation of receiving creek
Unavailable 10-year water surface for receiving creek	Slope-area method

10. The following zone of influence analysis should be performed to determine the need for detention. A structural control providing detention has a "zone of influence" downstream where its effectiveness is large enough to be noticed and quantifiable. Beyond this zone of influence the stormwater effects of a structural control become relatively small and insignificant compared to the runoff from the total drainage area at that point. A general rule of thumb is that the zone of influence can be considered to be the point where the drainage area controlled by the detention facility comprises 10% of the total drainage area. This is known as the 10% Rule. As an example, if a structural control drains 10 acres, the zone of influence ends at the point where the total drainage area is 100 acres or greater. For additional information, refer to NCTCOG iSWM Technical Manual – Hydrology Section. New development in Sanger shall do the following:

a. Provide on-site detention facilities to limit the peak discharge of the development to pre-project levels for both the 2-year and 100-year storm events at the point(s) of discharge, or;

b. Study downstream facilities throughout the zone of influence to determine if the receiving drainage facilities and/or natural channels have the capacity to convey the fully developed 100-year storm event with appropriate freeboard, and the fully developed 100-year storm event is conveyed within public right of way or existing drainage and/or floodplain easements.

c. If the study determines that the necessary capacity with appropriate freeboard does not exist, the developer must construct the improvements to provide the necessary capacity or provide on-site detention facilities.

d. If the study determines that the drainage and/or floodplain easements do not exist, the developer must obtain the necessary easements, or provide on-site detention facilities.

e. Typical steps in a downstream assessment include:

i. Determine the outfall location(s) of the site and the pre-development and post-development site conditions.

ii. Using a topographic map determine a preliminary lower limit of the zone of influence (at the next junction beyond the 10% point).

iii. Using a hydrologic model determine the pre-development peak flows at each junction beginning at the development outfall(s) and ending at the next junction beyond the 10% point. Undeveloped off-site areas are modeled as "fully developed" for both the pre-development and post-development analyses. Evaluate the discharge of the 2-year and 100-year fully developed storms.

iv. Change the land use on the site to post-development conditions and rerun the model.

v. Compare the pre-development and post-development peak discharges at the downstream end of the model. If the post-developed flows are higher than the pre-developed flows, extend the model downstream. Repeat steps (c) and (d) until the post-development flows are less than the pre-developed flows.

vi. Downstream assessments are unnecessary if a development is less than 5% of the overall watershed at the outfall of the development.

f. A downstream assessment may be required if the City has reason to believe that on-site detention may increase the fully developed 100-year peak flow due to coincidental peaks. If the assessment demonstrates coincidental peaks, on-site detention facilities will not be an acceptable option. Downstream improvements may be required if downstream capacity and easements are inadequate to convey the increased site flow. This will be determined by the Director of Engineering on a case-by-case basis.

11. Detention Design. Detention/retention facilities shall be designed for the 2- and 100-year design flood according to the following criteria:

a. Dedicated detention/retention basins shall also include an additional one (1) foot of freeboard and one (1) foot of sediment storage (added to the depth of the pond). The volume of runoff storage for drainage areas greater than fifty (50) acres shall be computed using unit hydrograph procedures. Acceptable unit hydrograph procedures are provided in Sec. 11 Improvements of this article.

For drainage areas less than or equal to fifty (50) acres, the above methods are recommended; however, the modified rational method can be employed as detailed in the NCTCOG iSWM Technical Manual.

b. Criteria established by the State of Texas for dam safety (TAC Title 30, Part 1, Chapter 299) and impoundment of state waters (Texas Water Code Chapter 11) shall apply, where required by the State and where, in the Engineer's judgment, the potential hazard requires these more stringent criteria. Lakes and dams will be designed with the top of the dam established by the routed design flood as defined by current Texas Commission on Environmental Quality (TCEQ) standards and regulations and shall assume fully developed watershed conditions based on the best available land use projections.

c. A detention facility shall have enough gradient to ensure positive drainage to the outlet structures to avoid nuisance conditions such as standing water, odors, insects, and weeds. A minimum slope of 0.50% towards the outlet structure is required for all detention facilities.

d. Detention areas in parking lots shall not be:

i. In required parking spaces but in extra spaces.

ii. Behind speed bumps unless the speed bumps are made with reinforced concrete.

iii. Deeper than six (6) inches unless otherwise approved by the City Engineer and warning signs shall be posted.

e. Drainage Easements and Maintenance Agreement.

i. Requirement. A perpetual, non-exclusive drainage easement and maintenance agreement shall be granted for all detention/retention facilities, regardless of size or ownership configuration.

ii. Easement Scope. The easement shall grant the necessary right of access, ingress, egress, and passage for the purpose of inspecting,

maintaining, repairing, and upgrading the detention/retention facility. This includes, but is not limited to, activities such as vegetation management, sediment removal, outlet structure maintenance, and emergency repairs.

iii. Maintenance Agreement. The maintenance agreement shall clearly define the responsibilities of all parties involved in the ongoing upkeep of the detention/retention facilities. This shall include provisions for routine maintenance tasks in accordance with subsection h.

f. Detention facilities shall be designed to empty in less than 24 hours, unless it is also serving as an erosion control facility.

g. The following criteria shall apply for pond and spillway geometry:

i. Detention basin embankments shall have a 10-foot crown width. For access to the pond bottom, provide a maintenance ramp of at least 10 feet wide with a maximum slope of 15%. Twelve (12) feet in width is required next to vertical walls.

ii. Fencing may be required around the detention area at the discretion of the City Engineer.

iii. Grassed side slopes shall be 4:1 or flatter and less than 20 feet in height. Slopes protected with concrete riprap shall be no steeper than 2:1. A detailed geotechnical investigation and slope stability analysis is required for grass and concrete slope pavement slopes greater than 12 feet in height. A concrete-lined or structural embankment can be steeper with the approval of the City Engineer.

iv. A non-erodible emergency spillway shall be provided above the 100-year maximum storage elevation with sufficient capacity to convey the fully developed flood mitigation storm assuming blockage of the closed conduit portion outlet works with 6 inches of freeboard. Spillway requirements must also meet all appropriate state and federal criteria. Design calculations will be added for all spillways.

v. Where the outflow structure conveys flow through the embankment in a conduit, the conduit shall be reinforced concrete and designed to support the external load. The conduit is to withstand the internal hydraulic pressure without leakage under the full external load and must convey water at the design velocity without damage to the interior surface of the conduit. Antiseep collars or other acceptable piping protection shall be provided for all conduits that discharge through the embankment.

vi. If the outflow structure discharges flows into a natural stream or unlined channels, discharge shall be at a non-erosive rate.

vii. Dry detention basins are sized to temporarily store the volume of runoff required to provide flood protection up to design storm, if required. As such, pilot channels should follow the edges of the basin to the extent practical. The bottom of the basin shall have a minimum grade of 1%, although swales may have minimum grades of 0.5%. Concrete flumes shall be provided for slopes less than 0.5% and may have slopes as shallow as 0.2%. They shall be at least 6 feet wide.

h. Detention facilities used as a sediment control device shall meet the following requirements:

i. The sediment control facility shall be designed with minimal velocities such that sediment is dropped and not picked up by flows at any time during the storm event;

ii. The basin shall be designed with adequate sediment storage area so that sediment removal is not required more than twice a year. Expected removal periods greater than twice a year must be specified in the maintenance plan and approved by the City Engineer; and,

iii. Sediment control facilities cannot be used to meet detention requirements unless the volume of sediment is included in the calculations for the detention basin design.

i. The owner shall maintain detention/retention facilities unless the facilities are dedicated to the City. The following measures are required to ensure the facility functions properly:

i. Facilities should be mowed at least twice a year to control weeds and discourage woody growth;

ii. Debris, litter and accumulated sediment should be removed from detention facilities at least twice a year. Particular attention should be given to removal of debris, litter and sediment around outlet structures; and,

iii. Detention basins designed for sediment removal shall be maintained as specified in the maintenance plan and approved by the City with construction plan submittal.

12. Flumes. The widespread use of flumes is not recommended. Flumes shall not be permitted when the purpose of a permanent flume is to carry runoff down the sides of earthen channels. A flume may be used to direct overflow runoff along property lines until the runoff can be intercepted by streets or

conduits. Flumes crossing sidewalks shall be covered or bridged such as to minimize Residential danger to pedestrians.

13. Grading and Drainage.

a. Surface runoff from residential lots shall cross no more than one additional lot before being directed toward the street or a dedicated drainage system. When the flow reaches the second lot, side lot swales shall be in place to direct the flows to the street or to a dedicated City drainage system within an easement in the rear yard. Furthermore, no more than one lot may drain to a second lot before the flow is directed to a street or to a dedicated City drainage system. Where lot to lot drainage occurs, the lot lines shall be aligned, and a dedicated private drainage easement shall be provided.

b. Three general categories of residential lot grading and drainage plans are anticipated within the City of Sanger as shown in Figure No. 1. Specific deviations from these three plans will be considered on an individual basis by the City Engineer.

c. When adjacent to the floodplain, the finished floor elevation (FFE) of commercial buildings shall be two (2) feet above the 100-year fully developed based flood elevation (BFE) of the ultimate floodplain. The FFE elevation of residential buildings shall be two (2) feet above the 100-year fully developed based flood elevation (BFE).

14. Floodplain Management.

a. Floodplain Development Permit (FDP) shall be required for all proposed development in an area of special flood hazard (floodplain). Please see the FDP application for procedures.

b. If study involves a FEMA flood zone, 2 flood study reports should be submitted, 1 for fully developed watershed conditions for the City and 1 post-construction FEMA LOMR for existing watershed conditions for City and FEMA including FEMA review fees.

c. Where construction occurs within a FEMA defined floodplain with established floodway, a CLOMR and LOMR must be obtained from FEMA unless a variance for CLOMR is obtained from the City.

d. Flood studies shall include the following storm events: 2-, 5-, 10-, 25-, and 100-year.

e. Construction within a FEMA or City defined floodplain shall not increase the 100-year existing or fully developed water surface elevation.

f. If the stream has a floodplain defined without base flood elevations, then base flood elevations shall be developed by the engineer using existing watershed conditions and post project conditions for the FEMA submittal.

g. Construction within a FEMA defined floodplain fringe with an established floodway shall not increase base flood elevations by more than approved in the FEMA hydraulic floodway model and most current FIS.

h. Floodway elevations shall be based on an equal degree of encroachment and equal reduction in conveyance on both sides of the stream.

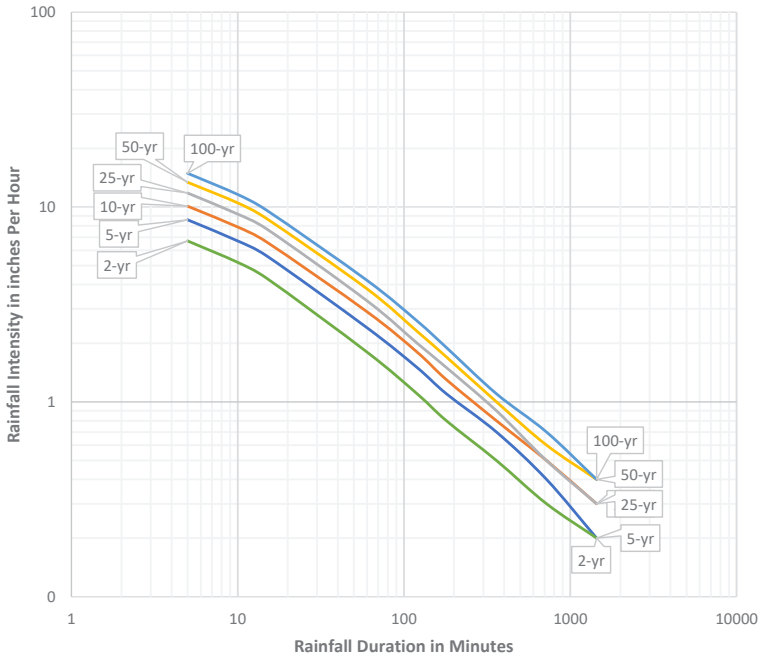
i. Encroachments or increased flows shall not increase flood damages.

j. No adverse impacts to adjacent property owners shall result from development within the 100-year existing or fully developed floodplain.

k. Construction shall not introduce erosive velocities (6 ft/s) for any of the analyzed storm events.

l. Construction shall result in no loss of valley storage for Clear Creek, Duck Creek, and Ranger Branch, and a 15% maximum loss of valley storage for any other tributary for any reach, except at bridge and culvert crossings where it can be proven that there are no detrimental effects downstream. City Floodplain Development Permit Application must be submitted including any accompanying materials such as tables, model output, etc.

Appendix 11A. Intensity - Duration - Frequency Curve



APPENDIX 11B. MINOR HEAD LOSSES

Entrance Losses

1. Equation

$$HL = Ke\frac{(V_2)^2}{2g}$$

Where

HL = Head Loss (feet)

V_2 = Velocity in Downstream Pipe (ft/s)

Ke = Head Loss Coefficient

G = Gravity Constant (32.2 ft/s^2)

2. Entrance Loss Coefficient

Type of Structure and Design of Entrance	Ke
Concrete Pipe	
Projecting from fill:	
Socket End (Groove End)	0.2
Square Cut End	0.5
Headwall or Headwall and Wingwalls	
Socket End of Pipe (Groove End)	0.2
Square Edge	0.5
Rounded (radius = 1/12D)	0.2
Mitered to conform to fill slope	0.7
End section conforming to fill slope	0.5
Beveled edges, 33° to 45° bevels	0.2
Side- or slope-tapered inlet	0.2
Pipe or Pipe Arch Corrugated Metal	
Projecting from fill (no headwall)	0.9
Headwater or headwall and wingwalls square-edged	0.5
Mitered to conform to fill slope, paved or unpaved slope	0.7
End section conforming to fill slope	0.5
Beveled edges, 33° to 45° bevels	0.2
Side- or slope-tapered inlet	0.2
Box, Reinforced Concrete	
Headwall parallel to embankment (no wingwalls):	
Square-edged on 3 edges	0.5

APPENDIX 11B. MINOR HEAD LOSSES	
Entrance Losses	
Rounded on 3 edges to radius of 1/12 barrel dimension or beveled on 3 sides	0.2
Wingwalls at 30° to 45° to barrel	
Square-edge rounded to radius of 1/12 barrel dimension or beveled on 3 sides	0.2
Wingwalls at 10° to 25° to barrel	
Square-edged at crown	0.5
Wingwall parallel (extensions of sides):	
Square-edged at crown	0.7
Side or slope-tapered inlet	0.2

E. Water Systems. Water systems shall be of enough size to furnish adequate domestic water, to furnish fire protection to all lots and shall conform to the City's comprehensive plan and meet the requirements, in all respects, of the Texas Department of Health. The City Engineer shall make the final determination of the adequacy of water mains proposed

1. Materials.

a. Water Mains.

i. All water mains twelve (12) inches in diameter and smaller may be AWWA C900 polyvinyl chloride (PVC) pipe or an approved equal. Water mains larger than twelve (12) inches in diameter may be constructed with either pre-tensioned or pre-stressed concrete steel cylinder pipe, AWWA C900 polyvinyl chloride (PVC) pipe or an approved equal.

ii. The subdivider shall comply with all applicable NCTCOG Standard Specifications, division 2, item 2.12., sections 2.12.5., 2.12.8., and 2.12.20.

b. Gate Valves. Gate valves shall be furnished in accordance with the NCTCOG Standard Specifications, division 2, item 2.13., section 2.13.1.

c. Fire Hydrants.

i. Fire hydrants shall be furnished in accordance with the NCTCOG Standard Specifications, division 2, item 2.14.

ii. The subdivider shall furnish drawings with complete detailed dimensions of the fire hydrant proposed for the subdivision.

2. Installation and Testing.

a. Water Mains, Fittings, Gate Valves and Fire Hydrants.

i. The subdivider shall comply with all applicable NCTCOG Standard Specifications in division 6, for installing materials that comply with the standards of the City.

ii. Prior to approval of plans and specifications for ductile iron pipe, the subdivider shall perform a soil survey to establish the corrosive characteristics of the soil at, and along, the alignment of the proposed water mains. If the corrosive characteristics of the soil are found to be excessive or indicate a potential for a corrosive condition, then an approved polyethylene encasement or wrapping shall be installed to protect the pipe in accordance with the NCTCOG Standard Specifications, division 2, item 2.9., section 2.9.5.

iii. Tap installations on PVC pipe will be made by attaching a bronze service clamp equipped with a sealed threaded port on the periphery of the main; then drilling through the pipe wall to complete each service port. Taps may be made either on an uncharged system or into a main under pressure.

b. Location.

i. All water mains shall be constructed within street rights-of-way or easements dedicated to the City.

ii. Easements shall be provided for water mains which parallel any state numbered highway.

iii. Water mains shall be installed in or extended along all frontage streets of the proposed subdivision and shall be connected to all existing water mains where convenient. Provision of water mains in conjunction with cul-de-sac streets shall be at the discretion of the City Engineer. To ensure reliability of service, dead-end mains of adequate capacity shall not exceed three thousand (3,000) feet in length. Adequate capacity shall be determined by the standards for fire flow as adopted by the City and/or required by the State of Texas whichever is more stringent.

iv. In single-family zoning districts commonly referred to as “residential sections,” the minimum size of water main shall be eight (8) inches in diameter. Where intervals between “cross-connecting” mains must exceed one thousand two hundred (1,200) feet, or where dead-ends must exist, eight (8) inch diameter or larger mains shall be installed.

v. Eight (8) inch diameter and larger mains shall be installed in zoning

districts commonly referred to as "commercial", "industrial," or "multifamily" with minimum size eight (8) inch diameter intersecting mains every six hundred (600) feet as required by the City. Where dead-ends must exist, eight (8) inch diameter or larger mains shall be installed. The minimum limits set forth in the above shall not be exceeded except upon the specific approval by the City Engineer, city building official and the Fire Chief, but in no event shall these requirements be less than the minimum required by the City and/or the State of Texas whichever is more stringent.

vi. All valves buried in the ground shall be provided with cast-iron valve boxes of proper dimensions to fit over the valve bonnets and to extend to such elevation at or slightly above the finished street grade or ground line, as approved by the City. Tops shall be complete with covers marked "water" and shall be adjustable. Valve boxes shall be set vertical and concentric with the valve stem.

Any valve box which has so moved from its original position as to prevent the application of the valve key shall be satisfactorily reset by the developer at his own expense. A reinforced concrete pad of the dimensions, 3'-0" x 3'-0" x 6", shall be poured around all valve boxes that are outside the pavement section, unless otherwise directed by the City.

vii. Fire hydrants shall be placed to conform to the requirements as adopted by the City. Each hydrant shall be set upon a slab of stone or concrete not less than four (4) inches thick and not less than one (1) square foot of surface area. Where solid rock exists in the bottom of the trench and same is excavated to the proper depth to form a foundation for the hydrant, the slab of stone or concrete above specified may be omitted.

The hydrant shall be set perpendicular, and to the proper depth, and shall be carefully and substantially blocked against firm trench walls using class 2,000 concrete.

viii. Fire hydrants shall be installed and operable prior to the erection of any building in which any combustible material is used as determined by the Fire Chief.

F. Sanitary Sewers. Sanitary sewer facilities shall be furnished and installed to adequately service the subdivision and shall conform to the City's sanitary sewer plan and meet the requirements, in all respects, of the Texas Commission on Environmental Quality or its successors. The adequacy of the sewerage facilities provided by the subdivider shall be determined by the City.

1. Materials.

a. Sewer Mains and Appurtenances.

i. Sanitary sewer mains shall be constructed using polyvinyl chloride (PVC) pipe.

The subdivider shall comply with the applicable Standard Specifications of division 2, which are related to the materials for the sewer mains accepted by the City.

Connections shall be made with a fabricated fitting specifically designed for the purpose. Field-glued connections are not allowed. When PVC pipes pass through a manhole wall, a water-tight connection shall be achieved using approved watertight sleeves or boots with materials compatible with both PVC and concrete and designed to resist long-term exposure to wastewater and environmental conditions, or using an alternative connection method that meets or exceeds current safety and performance standards as approved by the City Engineer.

ii. The minimum diameter of sewer mains shall be eight inches (8”). Six (6) inch diameter sewer mains may be acceptable only for short distances (not to exceed four hundred (400) feet) and only in locations where the main will not be extended, as approved by the City Engineer.

iii. Manholes shall be constructed in accordance with the applicable NCTCOG Standard Specifications, division 6, item 6.7., section 6.7.2.(i).

The manholes shall be placed at points of change in alignment, grade, size of sewer, the intersection of sewers; at the right-of-way lines of major and secondary thoroughfares, whether existing or proposed, and the end of all sanitary sewer mains subject to extension.

Maximum manhole spacing for sewers with straight alignment and uniform grades should be determined to assure continuous operation based on available Gleaning equipment. The maximum manhole spacing shall be five hundred (500) feet in all cases.

iv. Standard cleanouts shall be constructed at the ends of all sanitary sewers not subject to extension and shall be in accordance with the applicable Standard Specifications, division 6, item 6.7., section 6.7.2(j).

b. Lift Stations and Force Main.

i. All lift stations shall be designed and constructed with two (2) or more sewage pumps, and the stations shall be capable of pumping the design maximum flow with the largest pump out of service. Detailed

layout, projected flows, design data, plans and specifications of the lift station and pumps shall be submitted to the City Engineer prior to the purchase and installation of the pumps.

All force mains shall be polyvinyl chloride (PVC) or an approved equal, furnished in accordance with the applicable NCTCOG Standard Specifications, division 2.

For the initial flows or at design for average flows, a cleansing velocity of at least two (2) feet per second shall be maintained, with the velocity not to exceed five (5) feet per second at the peak pumping rate. Where high points are necessary in the design of the force main, automatic air relief valves shall be placed at high points in the force main to prevent air locking.

ii. The design of the lift station and force main shall comply, in all respects, with the "design criteria for sewerage systems" of the Texas Commission on Environmental Quality (TCEQ) or its successors.

c. Location. Wherever possible, sewers shall be in the alleys or easements and shall be a minimum of five (5) feet to six and one-half (6-1/2) feet deep to the invert. Easements shall be provided for sewer mains which parallel any state-numbered highway.

d. Installation and Testing.

i. All sewers shall be laid in straight alignment where possible with a uniform grade between the manholes. In those cases where horizontal curvature must be utilized to serve a particular area, the minimum radius of curvature shall be one hundred (100) feet.

Grades and appurtenances of sanitary sewers shall conform to the requirements of the Texas Commission on Environmental Quality (TCEQ) or its successors and the following are the minimum and maximum slopes which should be provided for a velocity greater than two (2) feet per second and less than ten (10) feet per second when flowing full.

Sanitary Sewer Pipe Diameter (inches)	Minimum Slope (%)	Maximum Slope (%)
6	0.50	12.35
8	0.335	8.40
10	0.25	6.23
12	0.20	4.88

Sanitary Sewer Pipe Diameter (inches)	Minimum Slope (%)	Maximum Slope (%)
15	0.15	3.62
18	0.115	2.83
21	0.095	2.30
24	0.08	1.93
27	0.07	1.65
30	0.06	1.26
33	0.055	1.26
36	0.045	1.12
39	0.04	1.01
> 39	*	*

* For pipes larger than 39 inches in diameter, the slope is determined by Manning's formula to maintain a velocity greater than two (2) feet per second and less than ten (1) feet per second when flowing full.

ii. The excavation, embedment and backfill requirements for the sewer pipe shall all be in accordance with the applicable Standard Specifications, division 6, item 6.2. On non-ferrous pipe, class B+ embedment shall be used per Standard Specifications, division 6, item 6.2.9.(c)(6).

iii. Performance tests of the sewer mains, manholes and appurtenances shall be performed and documented by the subdivider in accordance with the procedures and requirements of the Standard Specifications, division 6, item 6.7.

Visual inspection by photographic means (either video or film) shall be required on all sewer mains under the proposed street pavement and shall be performed after completion and acceptance of the street subgrade but prior to the final paving.

Prior to any testing being performed, the subdivider shall submit for approval to the City Engineer a full description of the method for testing and the procedures that are to be employed.

G. Utility Services.

1. All services for utilities shall be installed for each lot in such a manner to eliminate the necessity for disturbing the street and the alley pavement, curb, gutter, sidewalks and drainage structures when connections are made. Water meters shall not be located within the approach or driveway of any property.

2. The subdivider shall provide separate service lines for water and sanitary sewerage to each lot or point of metering. The developer shall install separate service lines for each potential business.

3. Water service lines shall be in accordance with Standard Specifications, division 6.7., and shall be provided with a corporation stop at the main and a curb stop located at least two (2) feet outside of curb at a depth of not less than one and one-half (1-1/2) feet. All service lines shall be on an individual basis. No bullhead connections allowed.

   A meter box, meter yoke and miscellaneous fittings shall be furnished and installed by the subdivider and shall conform to the standard materials currently used by the City.

4. Sanitary sewer service lines shall have a minimum diameter of four (4) inches in residential districts and six (6) inches in commercial and industrial districts, shall meet the same requirements for sanitary sewers described above, shall be constructed from the main to the building using wyes and necessary bends, and shall have a minimum cover at the property line of four (4) feet, where possible.

5. The subdivider shall place a suitable marker at the point where said service lines are stubbed out so that these lines can be easily located for connection by the City. Suitable markers shall be "W" for water and "S" for sewer stamped in top of curb, or edge of the pavement if no curb is constructed. Letters shall have a minimum height of two (2) inches and a minimum width of two (2) inches.

6. The subdivider shall make arrangements with all other appropriate utility companies for the extension of their respective utility lines and service, including telephone and cable services, to and within the addition and for any costs or refunds of such costs.

7. The use of underground electrical services and transmission lines is required for all subdivisions.

H. Street Lighting.

1. Street lighting shall conform to the latest edition of the Illuminating Engineering Society Lighting Handbook. Aggregate poles with approved fixtures shall be used and lighting levels, as recommended, shall be provided for very light traffic in residential areas, medium traffic on collector streets, and heavy traffic on thoroughfares. In no instance shall the spacing between streetlights exceed four hundred (400) feet.

2. The street lighting plan shall be approved by the City Engineer. The street lighting plan shall include all information required on plats for each plan sheet.

3. Initial cost of installation of street lighting shall be borne by the subdivider. Street lighting shall not be installed in undeveloped areas, unless monitored and maintained by the developer, until homes/businesses have been occupied within one hundred (100) feet of the light.

I. **Construction Contracts.** The subdivider shall contract for construction of the street, drainage, water and sewer improvements in accordance with the plans and specifications approved by the City.

J. **Record Drawings (As-Built Plans).** The subdivider shall furnish the City Engineer one (1) set of reproducible as-built drawings and one electronic copy compatible with the City of Sanger's CAD system prepared and certified correct by the subdivider's engineer within thirty (30) days after completion of construction. These as-built drawings shall be twenty-two (22) inch by thirty-four (34) inch sheets and shall show complete details of the installation improvements and appurtenances as required by the City, including, but not limited to:

1. Plans, profiles and cross sections of all streets and alleys;
2. Plans, profiles and cross sections of all drainage projects;
3. Locations of water and sewer mains with respect to property lines;
4. Size, manufacturer and location with respect to property corners of all water valves and fire hydrants;
5. Profiles of sanitary sewers with manhole locations referenced to property corners;
6. Detailed diagrams of any special installations such as inlets, junction boxes, headwalls, bores, roadway crossing, siphons and channel crossings;
7. The size, materials and locations with respect to property corners of all water and sewer service lines installed;
8. Locations and quantities of rock excavation and pavement cut;
9. Locations of other utilities encountered;
10. Oversize designations (if any) for water and sewer mains; and
11. Ground elevation of each lot at the front and rear building lines to be shown on the grading plan.

K. **Inspection.** The subdivider shall provide inspection service through his/her engineer to ensure that construction is being accomplished in accordance with the plans and specifications approved by the City Engineer. The subdivider shall notify the City Engineer forty-eight (48) hours prior to commencement of construction. This notice shall give the location and date of the start of construction. If the City Engineer determines it necessary, he/she shall have the right to inspect any construction work being performed to ensure that it is proceeding in accordance with the intent of the provisions of this article.

L. **Testing**. The City will determine which lab is to be used for testing service, testing services will be arranged and paid for by the owner/developer. It shall be the responsibility of the developer's engineer to coordinate the scheduling of all required tests with the testing laboratory. Testing shall be conducted in accordance with the procedures set forth in part III of the Standard Specifications for like work at the frequency specified therein or as directed by the City Engineer.

M. **Surveyor's Certificate**. The subdivider shall furnish a certificate, prepared and certified correct by the subdivider's surveyor, stating that the positions of all monuments and lot markers have been confirmed, or corrected, if necessary, following completion of on-site public improvements to conform to the location of same on the final plat of the development.

N. **Contract Completion Certificate**. The subdivider shall furnish the City a "contract completion certificate" prepared and certified correct by the subdivider's engineer showing an itemized final statement of all costs, including engineering, related to the construction as required by the City, within ten (10) days after completion of construction, and indicating that all improvements have been completed in accordance with the approved plans and specifications.

O. **Acceptance**. The City's acceptance of such work shall be by the City's approval and endorsement of the contract completion certificate. Such acceptance by the City will not be given until satisfactory record drawings have been received by the City.

P. **Affidavits**. The subdivider and the contractor shall furnish the City a subdivider's payment affidavit stating that all payments due the contractor have been paid and a contractor's payment affidavit stating that any and all amounts due for labor, materials, supplies, services or claims in conjunction with said construction have been paid in full. These affidavits shall be furnished within thirty (30) days following acceptance of work by the City.

Q. **Compliance by Subdivider**. The City shall not be obligated to permit connection of any water or sewer extension to existing system facilities or provide service therefrom or to reimburse any oversize main cost prior to the full compliance by the subdivider with all the requirements of this article.

SECTION 12: Final Fees and Charges

The schedule of fees and charges shall be paid to the City when any plat is tendered for approval. Each of the fees and charges shall be paid in advance.

A. The administrative officials shall calculate the basic fees and charges for plat review in accordance with the fee schedule found in Appendix A of this Code.

SECTION 13: Maintenance Bond or Escrow Account

The subdivider shall furnish a good and sufficient maintenance bond in the amount of ten (10) percent of the contract price, or in such amount as approved by the City, with a reputable and solvent corporate surety, in favor of the City, to indemnify the City against any repairs which may become necessary to any part of the construction work performed in connection with the subdivision, arising from defective workmanship or materials used therein, for a full period of two (2) years from the date of final acceptance of the entire project. Final acceptance will be withheld until said maintenance bond is furnished to the City.

A. The subdivider may, in lieu of providing a maintenance bond, deposit in an interest-bearing escrow account with a reputable financing institution, an amount equal to ten (10) percent of the contract price or in such amount as approved by the City.

B. This escrowed amount shall be on deposit, in favor of the City, to indemnify the City against any repairs which may become necessary to any part of the construction work performed in connection with the subdivision, arising from defective workmanship or materials used therein, for a full period of two (2) years from the date of final acceptance of the entire project. Final acceptance will be withheld until said escrow account has been established to the satisfaction of the City.

C. On such date when the maintenance period expires, the City shall release the escrow account, plus all accrued interest, to the subdivider, less any maintenance or repair costs incurred by the City due to defective workmanship or materials.

SECTION 14: Extension to Extraterritorial Jurisdiction of City

A. The subdivision regulations of the City, as it now exists or may hereafter be amended, is hereby extended to all of the area lying within the ETJ of the City, and the rules and regulations within said subdivision regulations governing plats and subdivision of land shall be applicable to such area within said ETJ from and after the date of final passage of this ordinance.

B. Subdivisions or platting of any tract of land within the ETJ of the City shall be regulated by these subdivision regulations.

C. Private streets are permitted within the ETJ only when each of the following conditions is met:

1. At the time a plat is to be filed for recordation, Denton County has refused to accept the dedication of the associated streets as public streets;

2. The Planning and Zoning Commission finds that the property being platted cannot at present be annexed into the City limits, permitting the streets to be dedicated as public streets;
3. The City Engineer finds that the proposed private streets have been or shall be constructed to the City's standards for a public street;
4. The Planning and Zoning Commission finds that the proposed private streets shall be maintained by a properly-created property owners association and shall provide adequate easements for public utilities, stormwater drainage, and the exercise of a governmental service or function, including but not limited to fire and police protection, inspection and code enforcement, trash collection, postal delivery, and utility maintenance; and
5. The Planning and Zoning Commission finds that the creation of the proposed private streets does not interfere with the orderly development of the area and ability to provide for adequate transportation, utilities, and public services to properties within the plat and the adjacent areas.

SECTION 15: Other Requirements

A. Exceptions. These rules and regulations are the standard requirements of the City. A variance or waiver of any of these rules and regulations may be granted by the City Council, upon a showing that there are special circumstances or conditions affecting the property in question and that enforcement of the provisions of this ordinance will deprive the applicant of a substantial property right, and that such variance or waiver, if granted, will not be materially detrimental to the public welfare or injurious to other property rights in the vicinity.

B. Penalty. Any person, firm or corporation who shall violate any of the provisions of this article or who shall fail to comply with any provision hereof in the City of Sanger shall be guilty of a class C misdemeanor and be subject to a fine of not more than two-hundred dollars ($200.00). Each day that such violation continues shall constitute a separate offense and shall be punishable, accordingly.

C. City Required to Advertise for Bids. If any subdivision improvements are eligible for refunds or potential refunds to the subdivider for off-site paving or oversize, border or approach water or sewer mains, the City is required by law to take competitive bids for the work involved. Competitive bids will be taken by the City, and the contract award will be made by the City Council in accordance with procedures established by state laws and the ordinances of the City.