

SUBDIVISION REGULATIONS



BRISTOL, TENNESSEE
MARCH 2001

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PREPARED BY THE
BRISTOL TENNESSEE PLANNING COMMISSION

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ARTICLE I

GENERAL PROVISIONS

101. Title

These regulations shall, hereinafter, be known and cited as the Subdivision Regulations of Bristol Tennessee and the Bristol, Tennessee Planning Region.

102. Authority

These subdivision regulations are adopted by the Bristol Tennessee Municipal-Regional Planning Commission (hereinafter referred to as "Planning Commission"), in pursuance of the authority and powers granted by Sections 13-3-401 through 13-3-411, and 13-4-301 through 13-4-309, Tennessee Code Annotated. The Planning Commission has fulfilled the requirements set forth in state law as pre-requisites to the adoption of these subdivision regulations having adopted a major road plan for the jurisdictional area, and filed a certified copy of the plan with the Sullivan County Registrar of Deeds (hereinafter referred to as "County Registrar "), as required by Sections 13-3-402 and 13-4-302, Tennessee Code Annotated, and having held a public hearing as indicated in Section 801, of these subdivision regulations.

103. Jurisdiction

These Subdivision Regulations shall apply to all subdivisions, as herein defined, located within Bristol, Tennessee, and its extraterritorial region as established by resolution of the Local Government Planning Advisory Committee. No land shall be subdivided within the jurisdictional area until the owner or the owner's agent submits a plat as required by these subdivision regulations, obtains Planning Commission approval of the plat, and the approved plat has been filed with the Sullivan County Registrar of Deeds.

104. Policy and Purpose

The intent of the Planning Commission is to encourage and foster the development of exceptional living, working and commercial environments through the preservation of trees and other natural amenities, creation of green spaces in our residential and commercial areas, and ensure safe environments for non-motorized movements of people through the construction of sidewalks, walking paths, and bikeways. The quality of life within the City of Bristol Tennessee and its planning region can be directly affected by these regulations through their implementation during the development process.

The policy of the Planning Commission is to review plats and proposed subdivision developments for conformity with adopted plans, including the long range Major Thoroughfare Plan, the Capital Improvements Program, the Zoning Ordinance of Bristol Tennessee, and the Zoning Resolution of Sullivan County. The policy of the Planning Commission is to require conformity as a condition of plat approval.

The policy of the Planning Commission is also to review plats and proposed subdivision developments in the context of existing land use and development, population distribution, and traffic impacts. The Planning Commission will consider the needs and best interests of the immediate community and may require that a particular subdivision exceed the minimum standards set within these Subdivision Regulations when specific site conditions or immediate community conditions warrant.

The regulations herein shall supplement and facilitate the enforcement of the provisions and standards contained in the Zoning Ordinance of Bristol Tennessee (hereinafter referred to as "Zoning Ordinance").

These Subdivision Regulations are adopted for the following purposes:

1. To promote the public health, safety, and general welfare of the City of Bristol Tennessee and Sullivan County, Tennessee.
2. To guide the development of the City of Bristol Tennessee and the planning area considering the suitability of nonresidential and public areas and having regard for the most beneficial land use in such areas.
3. To provide for adequate light, air, and privacy; to secure safely from fire, flood, and other dangers; and to prevent overcrowding of the land and undue congestion of population.
4. To enhance the character and economic stability of the area and encourage the orderly, beneficial development of the jurisdictional area.
5. To preserve the value of land, buildings, structures and improvements throughout the Bristol Tennessee planning jurisdiction and to minimize conflicts among the uses of land and buildings or structures.
6. To guide public and private policy and action providing for transportation, water, sewerage, recreational areas, and other public requirements and facilities.
7. To require the design for the beneficial relationship between the uses of land and buildings and the efficient traffic movement throughout the jurisdictional area.
8. To establish reasonable standards of design and procedures for subdivisions and resubdivisions; to further the orderly layout and use of land; and to insure proper legal descriptions and proper monumenting of land in order to protect the public.
9. To ensure public facilities are available and will have a sufficient capacity to serve the proposed subdivision.
10. To prevent the pollution of air, streams, and bodies of water; to assure the adequacy of drainage facilities and to safeguard the water table.
11. To preserve the natural beauty and topography of the City of Bristol Tennessee and the planning region and to ensure appropriate development with regard to these natural features.
12. To provide for open spaces through efficient design and layout of the land, including the use of average density in providing for minimum width and area of lots, while preserving the density of land as established in the zoning ordinance.
13. To encourage subdivision design which would maximize the conservation of all forms of energy.

105. Interpretation, Conflict, and Severability

105.1 Interpretation

These Subdivision Regulations shall be held to be the minimum requirements for the promotion of health, safety, and general welfare.

105.2 Higher Standards

These Subdivision Regulations are not intended to interfere with, abrogate, or annul any other ordinance, rule, or regulation, statute, or other provision of law. Where any provision of these Subdivision Regulations imposes restrictions different from those imposed by any other portion of this ordinance, or by any other ordinance, rule, regulation, or other provision of law, whichever provisions are more restrictive or impose higher standards shall control.

105.3 Private Provisions

These Subdivision Regulations are not intended to abrogate any easement, covenant, or any other private agreement or restriction; provided, however, such covenant, or any other private agreement or restriction shall be considered a private contract between the parties of interest, and as such is beyond the jurisdiction of the Planning Commission or the City of Bristol Tennessee.

105.4 Severability

If any part or provision of these Subdivision Regulations or application thereof is judged to be invalid by any court of competent jurisdiction, such judgment shall be confined to the part, provision, or application directly involved in the judgment and shall not affect or impair the validity of the remainder of these regulations or the application thereof to other persons or circumstances. The Planning Commission hereby declares that it would have enacted the remainder of these regulations without any such part, provision, or application.

106. Pre-existing Provisions

These Subdivision Regulations shall not abrogate any action pending under prior subdivision regulations; or discontinue, abate, modify, or alter any penalty or liability of any person; or waive any right of the governing body under any section or provision existing at the time of adoption of these Subdivision Regulations. Nor shall these Subdivision Regulations vacate or nullify any rights obtained by any person by lawful action of the governing body, except as expressly provided otherwise in these regulations.

106.1 Previously Approved Subdivisions

The approval granted on any Final plat prior to the effective date of these Subdivision Regulations shall remain in force and effect for the time period stipulated by the regulations under which the approval was first granted.

In the instance in which the period of preliminary approval shall have passed with any portion or section of the subdivision not having received final approval, and the applicant wishes an extension of the preliminary approval, the Planning Commission may:

1. Permit the remaining portion of the subdivision to be constructed and receive approval under provisions set forth in the regulations when preliminary approval was originally granted, or;
2. Determine that the plat approval is expired and that a new plat must be presented subject to the provisions of these Subdivision Regulations.

In making this determination, the Planning Commission shall consider all available pertinent facts, including the impact to public safety and the long-term implications to public maintenance. The current state and active pursuit of construction and development activities within the subdivision shall be given due consideration in the course of the Planning Commission's deliberation on this question.

107. Resubdivision of Land

107.1 Procedures for Resubdivision

If any change is proposed in an approved or recorded subdivision plat which would affect the layout of any public street, alley, street or area reserved thereon for public use, or any lot line shown on such plat, or if the change would affect any map, plan, or plat legally recorded before the adoption of any subdivision regulations, such change shall be amended by the same procedure, rules, and regulations as for the approval of subdivisions set forth herein.

107.2 Procedures for Subdivision Where Future Subdivision Is Foreseen

Whenever a parcel of land is subdivided, the Planning Commission may require that the subdivision and development of such parcel of land allow for the future opening of public ways and infrastructure and the ultimate extension of adjacent public ways and infrastructure. The Planning Commission may also require that dedications providing for the future opening and extension of such public ways and infrastructure be indicated on the plat.

108. Vacation of Plats

Any plat or any part of any plat may be vacated by the owner or owners by the submission of a written request to the Planning Commission specifying the plat or part of the plat to be vacated. The Planning Commission shall follow the same procedure for approval of plats in its consideration and subsequent action. The Planning Commission may reject any request that would abridge or destroy any public rights in any of its public uses, improvements, or public ways and infrastructure. Such a request shall be denied or approved, and if approved, duly recorded or filed to void the recorded plat and may divest all public rights in the public ways and public grounds and all dedications laid out or described in such plat. When any lot or lots have been sold the plat may be vacated in the manner herein provided only if all of the owners of lots on the plat shall agree in writing.

109. Variances

109.1 General

The Planning Commission may grant a variance from these regulations if found that extraordinary hardships or practical difficulties may result from strict

compliance with these regulations. Provided, however, such variance shall not have the effect of nullifying the general intent and purpose of these Subdivision Regulations. Further, the Planning Commission shall not approve variances unless found that based upon written evidence presented to the Planning Commission in each specific case that:

1. Granting the variance will not be detrimental to the public safety, health, or welfare, or be injurious to other property or improvements in the neighborhood in which the property is located;
2. Conditions upon which the request for a variance is based are unique to the property for which the variance is sought and are not applicable generally to other property;
3. Particular physical surroundings, shape, or topographical condition of the specific property involved create a particular hardship (not self-imposed) to the owner, as distinguished from a mere inconvenience, if the strict letter of these regulations were carried out;
4. The variance will not in any manner alter the provisions of the land development plan, the major road plan, or any zoning regulations; and
5. The variance is the minimum deviation from the regulations required to alleviate the condition unique to the property.

Where the Planning Commission concludes that the purpose of these Subdivision Regulations may be specifically served to an equal or greater extent by an alternative proposal, condition, or circumstance, the Planning Commission may approve other variations to these Subdivision Regulations.

109.2 Procedures and Conditions

Each and every variance or modification of these Subdivision Regulations sought by a sub-divider shall be specifically applied for, in writing, by the sub-divider. Any condition shown on the plat that would require a variance or modification shall constitute grounds for disapproval of the plat unless a written application for modification or variance is made. In approving any variation or modification from these Subdivision Regulations the Planning Commission shall state fully in the minutes the grounds for the variation or modification and all of the facts upon which the decision is made.

In approving variations or modifications, the Planning Commission may impose such conditions that will substantially secure the objectives, standards, and requirements of the Subdivision Regulations.

110. Enforcement, Violation, and Penalties

110.1 General

1. Authority

The enforcement of these Subdivision Regulations and the penalties for violations are provided pursuant to Title 13, Tennessee Code Annotated.

2. Enforcing Officer

The duty of the City Manager or his designee, (hereinafter referred to as "the Enforcing Officer)" is to enforce these Subdivision Regulations and to bring to the attention of legal counsel any violations or lack of compliance herewith.

3. Recording of Plats

Pursuant to Sections 13-3-402 and 13-4-302, Tennessee Code Annotated, no plat of a subdivision of land within the jurisdictional area shall be received or recorded by the County Registrar until the plat has received final approval of the Planning Commission in accordance with these Subdivision Regulations. The plat shall not be considered as having been approved unless such approval has been endorsed in writing on the plat by the Planning Commission Secretary in the manner prescribed by Section 205, of these Subdivision Regulations.

4. Use of Unapproved Plats

Pursuant to Sections 13-3-410 and 13-4-306, Tennessee Code Annotated, no owner or agent of the owner of any land shall convey such land contrary to the provisions stated herein.

5. Public Ways and Utilities

Pursuant to Sections 13-3-406 and 13-4-307, Tennessee Code Annotated, the legislative bodies of the City of Bristol Tennessee or Sullivan County shall not, nor shall any public authority, accept, lay out, open, improve, grade, pave, or light any public way; lay or authorize the laying of water mains or sewers; or construct or authorize the construction of other facilities or utilities in any public way located within the City of Bristol Tennessee or its planning region unless such way shall have been accepted, opened, or otherwise received the legal status of a public way prior to the attachment of the Planning Commission's jurisdiction, or unless such way corresponds in its location and lines to a way shown on a subdivision plat approved by the Planning Commission.

However, if the proposed construction is disapproved by the Planning Commission, the governing board of the public body may override the Planning Commission as provided in Title 13, Tennessee Code Annotated by the passage of the measure by the majority of the entire membership of the governing board.

Within the jurisdiction of these Subdivision Regulations, any state highway constructed or to be constructed with state funds as a part of the State Highway System shall first be submitted to the Planning Commission by the Tennessee Commissioner of Transportation. In the instance such proposal is disapproved by the Planning Commission, the Tennessee Commissioner of Transportation shall have the power to overrule the disapproval of the Planning Commission.

6. Building Permits

No building permit shall be issued for the construction of any building or structure located on a lot subdivided or sold in violation of any provision of these Subdivision Regulations. Any individual requesting a building permit for a lot located within an established subdivision shall provide evidence that the plat of subdivision wherein such lot is located has been approved and appropriately recorded in accordance with these subdivision regulations or previous regulations in effect at such time the plat was approved and appropriately recorded.

No building permit shall be issued for the construction of any building or structure located on a lot approved for the use of a subsurface sewage disposal system prior to the issuance of a permit from the Sullivan County Environmental Office, State of Tennessee, Department of Environment and Conservation.

7. Access to Lots by Public Way or Private Easement

Pursuant to Sections 13-3-411 and 13-4-308, Tennessee Code Annotated, no building permit shall be issued and no building or structure shall be erected on any lot within the City of Bristol Tennessee or its planning region, unless the public way giving access to the lot upon which the building or structure is proposed to be placed shall have been accepted or opened or shall have otherwise received the legal status of a public way prior to that time, or unless such way corresponds in its location and lines with a way shown on a subdivision plat approved by the Planning Commission, or on a street plat made and adopted by the Planning Commission, or unless such lot fronts upon a permanent easement which conforms to all rules, regulations and specifications set forth, herein.

In any instance where a permanent easement is used to provide access to a lot or tract of land having been or being separated by deed or plat from other property, such easement shall be at least fifty (50) feet in width. When a permanent easement is proposed to provide access to more than one (1) lot or tract of land, an access way shall be constructed within the easement which will meet or exceed the standards for design and construction set forth in Section 503, "Streets and Pedestrian Ways", and Appendix A, of these regulations. The Planning Commission shall act to ensure that the responsibility for future maintenance of any such access way lying within a permanent easement remains the sole responsibility of the owners unless the City accepts the access way into the public system in accordance with the provisions outlined in Section 503-2.

110.2 Penalties for Violations

1. Recording of Unapproved Plats

No County Registrar shall receive, file, or record a plat of a subdivision within the planning region without the approval of the Planning Commission as required in Sections 13-3-402 and 13-4-302, Tennessee Code Annotated. Any County Registrar so doing shall be deemed guilty of a misdemeanor, punishable as other misdemeanors as provided by law. Any County Registrar, receiving, filing or recording a plat of a subdivision in violation of Section 110-1-3, of these regulations, shall be deemed guilty of a violation of the above-cited provision of the Tennessee Code Annotated.

2. Use of Unapproved Plats

Sections 13-3-410 and 13-4-306, of the Tennessee Code Annotated, provides that whoever being the owner or agent of the owner of any land transfers, sells or agrees to sell or negotiates to sell such land by reference to or exhibition of or by other use of a plat of subdivision of such land without having submitted a plat of such subdivision to the Planning Commission and obtained its approval, shall be deemed guilty of a misdemeanor punishable as other misdemeanors as provided by law. In addition the description by metes and bounds in the instrument of transfer or other document used in the process of selling or transferring shall not exempt the transaction from such penalties. The City through the City Attorney may enjoin such transfer or sale or agreement by action of injunction.

3. Illegal Buildings or Structures

Any building or structure erected or to be erected in violation of the subdivision regulations shall be deemed an unlawful building or structure. The Enforcing Officer through action of the Building Official shall bring action or enjoin such erection or cause the building or structure to be vacated or removed as provided in Sections 13-3-411 and 13-4-308, Tennessee Code Annotated.

110.3 Civil Enforcement

Appropriate actions and proceedings may be taken to prevent any violation of these regulations, to prevent unlawful construction, to recover damages, to restrain, correct, or abate a violation, or to prevent illegal occupancy of a building, structure, or premise. These remedies shall be in addition to the penalties described in Section 110-2, of these Subdivision Regulations.

111. Repeal of Previous Regulations

Upon the adoption and effective date of these Subdivision Regulations, the Bristol Tennessee Planning Area Subdivision Regulations, dated August, 1987, adopted as amended, are hereby repealed.

112. Fees for Plat Review

Any individual who is seeking to subdivide property within the City of Bristol or its planning region, shall pay to the City a plat fee as specified by City Resolution. Such fee shall be paid at the time of submission of a preliminary subdivision plat, or in the instance of a minor subdivision where no preliminary plat is required, at the time a final subdivision plat is submitted.

END OF ARTICLE I

ARTICLE II

PROCEDURES FOR PLAT APPROVAL

201. General Procedure

201.1 Plat Approval Requirements

Before any contract is executed for the sale of any parcel of land which is proposed to be subdivided and before any permit for the erection of any building or structure in a proposed subdivision shall be granted, the owner or his authorized agent shall apply for and secure Planning Commission approval of the proposed subdivision in accordance with the procedures of this article.

201.2 Classification of Subdivisions

The Planning Commission shall classify each subdivision proposal as either major or minor as defined herein. (See ARTICLE VII, Definitions.)

1. Review Procedure

The sub-divider shall follow the procedure described below in order to secure plat approval.

a. Minor Subdivision

1. Pre-application conference with the staff of the Department of Development Services is suggested, including submittal of a scaled drawing or survey of the proposed subdivision, for preliminary discussion and review.
2. Submittal of a final plat prepared in accordance with the specifications in Section 304, herein, for approval by the Planning Commission.
3. Within the Bristol, Tennessee Planning Region, and within the Corporate Limits of the City of Bristol, Tennessee, minor plats creating no more than two (2) lots may be approved in conformance with the provisions of Tennessee Code Annotated 13-3-402 and 13-4-302 (a) respectively. The approved plat may be endorsed in writing on the plat by the Secretary of the Planning Commission upon certification by the planning staff that the subdivision complies with all provision of these regulations and no request for a variance has been submitted.
4. All Minor subdivision approvals granted under Section 201-2-1-a-3 above will be presented to the Planning Commission for information purposes.

b. Major Subdivision

1. The applicant shall meet with the staff of the Department of Development Services in a pre-application conference for preliminary discussion and review on the proposed subdivision.
2. (Optional) Submittal of a sketch plat, prepared in accordance with Section 301, herein for Planning Commission approval.
3. Submittal of the preliminary plat, prepared in accordance with Section 302, herein for Planning Commission approval.
4. Securing of approval of construction documents.
5. Submittal of the final subdivision plat prepared in accordance with Section 304, herein, for Planning Commission approval.

201.3 Official Submission Date

For the purpose of these Subdivision Regulations, the date of the regular meeting of the Planning Commission at which the subdivision plat is first considered as an agenda item, including any adjourned date thereof, shall constitute the official submittal date of the plat. This date shall commence the statutory period required in Sections 13-3-404 and 13-4-304, Tennessee Code Annotated, for formal approval or disapproval of the plat.

201.4 Coordination of Zoning Applications with Subdivision Approval

1. General Provisions

a. Intent

The intent of these *Subdivision Regulations* is for the subdivision review to be carried out simultaneously with the review of site plans or development proposals required under the Zoning Ordinance. The plans required for site plan approval under the zoning requirement which involve the subdivision of land, or as herein provided, shall be submitted in a form to satisfy the requirements of these *Subdivision Regulations*.

b. General Requirement.

Whenever a proposed project is submitted under the cluster development provisions or zero-lot line provisions of the Zoning Ordinance and the application entails the division of the land into two (2) or more lots, parcels, sites, units, plots, or interests for the purpose of offer, sale, lease or development, including resubdivision, subdivision approval by the Planning Commission shall be required in addition to all other procedures and approvals required in the Zoning Ordinance. This provision shall also apply to condominium subdivisions and to residential or non-residential developments.

201.5 Special Provisions Governing Unit Ownership (Condominium) Subdivisions

1. General Provisions

a. Intent

This section is intended to augment the general legislation of Sections 6-27-101 through 66-27-123, Tennessee Code Annotated, entitled "Horizontal Property Act," by providing supplemental rules and regulations for the implementation of the act, as specifically authorized in Section 66-27-121, Tennessee Code Annotated.

b. Applicability

Whenever a developer, the sole owner, or the co-owners of a building(s) or structure(s) declare through the submission of a master deed, lease, or plat their desire to submit their property to a horizontal property regime, as established and provided by Sections 66-27-101 through 66-27-123, Tennessee Code Annotated, each such condominium or horizontal property regime created under the authority of Tennessee Code Annotated provisions for the purpose of sale or transfer of real property is subject to the provisions of these Subdivision Regulations.

2. Submission of Plat Required

Prior to the sale or transfer of any property incorporated in the horizontal property regime, the developer, sole owner, or co-owners of such property shall submit to the Planning Commission a subdivision plat of such property in the manner prescribed by these Subdivision Regulations. Such plat, if approved, shall be filed with the County Registrar in the manner prescribed by these Subdivision Regulations.

3. Determination of Subdivision Type

Condominium subdivisions shall be classified by the Planning Commission during the plat review process as either horizontal condominiums or vertical condominiums as defined in Article VII of these Subdivision Regulations.

4. Procedure and Content

An applicant seeking approval of a condominium subdivision shall follow the normal procedure for subdivision approval, as set forth in these Subdivision Regulations.

The plats, plans, and documents submitted by an applicant seeking approval of a condominium subdivision shall conform with the specifications set forth in Article III of these Subdivision Regulations and any other applicable requirements.

201.6 Flood Conditions

Where protection against flood damage is necessary, in the opinion of the Planning Commission, flood-damage protection techniques, as deemed appropriate by the Planning Commission may include:

1. The imposition of restrictions enforceable by the Planning Commission to regulate the future type and design of uses within the flood prone areas;

2. Flood protection measures designed so as not to increase, either individually or collectively, flood flows, height, duration, or damages, and so as not to infringe upon the floodway;
3. The installation of flood warning systems;
4. The use of fill, dikes, levees, and other protective measures;
5. Construction of water supply and waste treatment systems so as to prevent the entrance of or contamination of flood waters; and
6. The location and installation of all electrical service so that the system is protected from inundation by the regulatory flood.

The acceptability of any flood protection methods formulated by the subdivider or their agent shall be determined by the Planning Commission, which shall be guided by the policies set forth in Section 104 and Section 201-4, of these regulations and the Floodplain Regulations of the City of Bristol Tennessee.

202. Sketch Plat (Major Subdivisions Only)

202.1 Purpose of Sketch Plat

The Planning Commission recommends the submission of a sketch plat from the developer for a pre-application conference with the Department of Development Services staff. The sketch plat should be a concept plan for design purposes and should be used to discover all factors that may have an impact on the proposed development. The purpose of the review is to advise the sub-divider on the proposed subdivision before substantial amounts of time and money have been invested in a development that may contain elements contrary to these Subdivision Regulations. The sketch plat may be submitted to the Planning Commission for review and approval.

202.2 Sketch Plat Requirements

The sketch plat shall include the information set forth in Section 301. A minimum of 8 copies shall be submitted to the Department of Development Services staff.

202.3 Approval of Sketch Plat

Planning Commission approval of the sketch plat shall constitute authorization to prepare detailed plans and specifications.

202.4 Expiration of Approval

The approval of the sketch plat shall expire within one (1) year of the date of Planning Commission approval. An extension may be granted by the Planning Commission upon proper application.

203. Preliminary Plat (Major Subdivisions Only)

203.1 Application Procedure and Requirements

A sub-divider shall file a preliminary plat for review and approval with the Planning Commission. The failure of the sub-divider to satisfy the requirements

of this section with full and correct information shall be cause for disapproval of a preliminary plat.

The preliminary plat shall be prepared in accordance with Section 302, and:

1. Be properly submitted to the Department of Development Services on or before the third Monday of the month for review and approval by the Planning Commission at the subsequent month's regular Planning Commission meeting. The regularly scheduled meeting date of the Planning Commission is the third Monday of each month;
2. Shall include the appropriate application form and plat fee;
3. Be accompanied by a minimum of eight (8) copies of the preliminary plat as described herein. Prior to submission to the Planning Commission, the applicant shall provide ten (10) copies of the original submission or a corrected version;
4. Be accompanied by a minimum of five (5) copies of construction documents as described in Section 303, of these regulations, or by a statement from the Enforcing Officer that such plans have been previously submitted and approved; and
5. The applicant shall also submit an electronic copy of the proposed Preliminary Subdivision Plat and Construction documents consistent with the requirements of the Department of Development Services.

203.2 Administrative Review

An administrative review meeting shall be conducted on the preliminary plat, construction documents and any exhibits submitted in conformance with these regulations. This review shall include the Department of Development Services staff to the Planning Commission and any other appropriate City staff persons. The review shall be held prior to the regularly scheduled Planning Commission meeting at which the plat is to be considered. The findings of the staff shall be presented to the Planning Commission in the form of a recommendation.

203.3 Notice of Hearing

The Planning Commission shall hold a hearing as required by Chapters 3 and 4, of Title 13, Tennessee Code Annotated, on each plat brought before the Planning Commission.

203.4 Preliminary Approval

After the Planning Commission has reviewed the preliminary plat, proposed development contracts, exhibits, and the results of the administrative review, the applicant shall be advised of any required changes. If the subject subdivision is located within the corporate limits, the Planning Commission shall approve, conditionally approve, or disapprove the preliminary plat within thirty (30) days after the date of the regular meeting of the Planning Commission at which the hearing on preliminary approval, including adjourned date thereof, is held. Accordingly, the Planning Commission shall officially act within sixty (60) days on a preliminary plat of any subdivision located within the Planning Region.

Following approval of the preliminary plat by the Planning Commission, a Certificate of Preliminary Approval shall be issued by the Secretary of the Planning Commission when requested by the applicant. Upon receiving preliminary approval, the applicant may proceed to apply for final subdivision plat approval consistent with Section 204. of these regulations.

After the Planning Commission approves, conditionally approves, or disapproves the preliminary plat, one copy of the proposed preliminary plat shall be returned to the developer with the date of approval, conditional approval, or disapproval thereon. If a preliminary plat is disapproved the Planning Commission shall state specific reasons for disapproval which shall be entered into the minutes of the meeting.

The Preliminary Plat shall not be considered finally approved until all required changes to the preliminary plat or construction drawings have been completed, submitted for review, and certified by the staff as having been corrected consistent with the Planning Commission approval.

203.5 Effective Period of Preliminary Approval

The approval of a preliminary plat shall be effective for a period of twelve (12) months, at the end of which time final approval of the subdivision plat must have been obtained from the Planning Commission. Any preliminary plat, or portion thereof, not receiving final approval within a period of twelve (12) months shall be null and void, and the developer shall be required to submit a new preliminary plat. The new preliminary plat shall be subject to the zoning provisions and the subdivision regulations in effect at the time of submission.

203.6 Zoning Regulations

Every preliminary plat shall conform to any existing zoning regulations and subdivision regulations applicable at the time of proposed final approval. However, any plat which has received preliminary approval shall be exempt from any subsequent amendments to such zoning ordinance or these Subdivision Regulations rendering the plat nonconforming as to bulk, use, or development standards, provided that final approval of the plat, or affected portion thereof, is obtained within the effective period set forth in Section 203-5.

203.7 Land Auctions

Land auctions involving the subdivision of property may be authorized by Planning Commission by the tentative approval of a preliminary plat, as provided for in these regulations. When such subdivision includes the need for public improvements through the provision of streets or utilities, provision shall be made for a bond, letter of credit, or other surety instrument as provided for in these regulations, as with a final plat. Securing of approval of construction documents must precede the establishment of the surety instrument, unless waived by the Planning Commission upon staff recommendation. Upon the successful auction on such properties, if a subdivision of land occurs in the auction process a final plat shall be submitted prior to the actual transfer of properties. Failure to submit a final plat shall be a violation to these Subdivision regulations and shall be subject to all penalties accordingly.

The City Attorney, acting as agent of the Planning Commission, shall enjoin any auction in violation of these regulations.

204. Final Subdivision Plat (Minor and Major Subdivision)

204.1 Application Procedure and Requirements

A sub-divider shall file a final plat for review and approval with the Planning Commission. The failure of the sub-divider to satisfy the requirements of this section with full and correct information shall be cause for disapproval of a final plat.

The final plat shall be prepared in accordance with Section 304, and:

1. Be properly submitted to the Department of Development Services by the end of the working day, at least fourteen (14) days prior to the next regular scheduled meeting of the Planning Commission at which time the plat is to be officially reviewed;
2. Shall include the appropriate application form and plat fee;
3. Must be accompanied by a minimum of ten (10) copies of the final subdivision plat as described herein;
4. The final plat must comply substantially with the preliminary plat, where such plat is required;
5. The final plat must be accompanied by formal irrevocable offers of dedication to the public of all public ways and uses, utilities, parks, and easements, in a form approved by the City's legal counsel, as applicable (see Section 305). The subdivision plat shall be marked with a notation indicating the formal offers of dedication;
6. Except as provided for in Section 501-7, unless all required public infrastructure improvements have been constructed and approved by the City Engineer, the final plat must be accompanied by a surety instrument in an amount satisfactory to the City Engineer and in a form satisfactory to the City Attorney as specified in Section 401, "Improvements and Surety". The surety instrument shall include provisions that shall comply with all the terms of the resolution of final subdivision plat approval required by the Planning Commission. The surety instrument shall include the completion of all required subdivision and off-site improvements and that all improvements and land included in the irrevocable offers of dedication shall be dedicated to the governing body free and clear of all liens and encumbrances on the premise(s);
7. When the subdivision shall be served by a public utility other than the City of Bristol Tennessee, the final plat shall be accompanied by written assurance from the public utility company or companies serving the subdivision that necessary utilities have or will be installed or are included within the surety instrument required in 204-1-6 above or that connections to the public utility have been approved; and

8. If the final plat contains open space, recreational facilities, or if any portion of the site is in common ownership, the final plat shall include the following documentation for approval by the Planning Commission:
 - a. Plans for improvement and maintenance of the open space or facilities located thereon;
 - b. Articles of incorporation and bylaws of the co-owners association or other legal entity (where open space or facilities are to be deeded to a co-owner's association or similar organization acting on behalf of the joint owners of said property). The association shall be charged with improving or maintaining the open space or facilities, and declaration of covenants and restrictions pertaining to each and every property within the subdivision; and
 - c. Declaration of covenants and restrictions pertaining to open space and facilities which assure the continued use of said facilities for the purpose intended, where open space or facilities are to be retained by the developer.

204.2 Infrastructure Improvements

1. Public Infrastructure

The Planning Commission may require that all public infrastructure improvements be installed and dedicated prior to the signing of the final subdivision plat by the Secretary of the Planning Commission. If the Planning Commission does not require that all public infrastructure improvements be installed and dedicated prior to signing of the final subdivision plat, an adequate surety instrument (see definition) shall be approved. The Planning Commission shall establish the amount and form of such surety instrument based upon the recommendation of the City Engineer (see Section 401-2). The City shall not officially accept streets, sections of street or public infrastructure nor shall the surety instrument be released, until record drawings thereof have been prepared and submitted to the City by a licensed professional and approved by the City Engineer.

Evidence shall be provided that the surety instrument shall have been established at the time of application for final subdivision plat approval. The Planning Commission shall require the applicant to indicate on the plat all public ways and improvements to be dedicated. All districts for water, fire, and utility improvements which shall be required to be established or extended and any other special requirements deemed necessary by the Planning Commission in order for the subdivision plat to conform to the major road plan and the land development plan for the jurisdictional area shall be indicated on the plat.

The Developer shall be required to maintain all public infrastructure improvements until acceptance by the governmental body (see Section 403).

2. Private Infrastructure

All private infrastructure improvements must be constructed and approved by the City Engineer prior to final plat approval by the Planning Commission.

204.3 Endorsement of Notations

The notations and certifications required by Section 304-3 of these Regulations shall appear upon the final plat and shall be endorsed by appropriate officials and other persons prior to application for final subdivision plat approval. The certificate of Planning Commission approval shall be signed only in accordance with the provisions in Section 205, of these regulations.

204.4 Hearing and Decision on Final Plat

The Planning Commission shall hold a hearing as required by Section 13-3-404 and 13-4-304, Tennessee Code Annotated, on each final plat brought before the Planning Commission. The Planning Commission shall act within thirty (30) days for subdivision located within the corporate limits of Bristol, Tennessee, or sixty (60) days for subdivision located in the Bristol Tennessee planning region, after submission of the plat. The Planning Commission shall approve, modify, or disapprove the final subdivision plat by resolution, and shall set forth in detail any conditions to which the approval is subject, or reasons for disapproval. In no event shall the period of time stipulated by the Planning Commission for completion of required improvements exceed one (1) year from the date of final resolution.

Failure of the Planning Commission to act upon a plat within the prescribed time shall be deemed approval of the plat. In such event, when requested, a certificate of approval entitling the sub-divider to proceed, as specified in Section 204-4 and Section 205 of these regulations, shall be issued by the Secretary of the Planning Commission. The applicant, however, may agree to an extension of the time for Planning Commission review.

One (1) copy of the final subdivision plat shall be returned to the sub-divider with the date of approval, conditional approval, or disapproval noted thereon.

204.5 Vested Rights

No vested rights shall accrue to any preliminary or final plat until all conditions of approval shall have been met and until the Secretary of the Planning Commission shall have signed the plat. All requirements, conditions, or regulations adopted by the Planning Commission, applicable to the particular subdivision or to all subdivisions generally, shall be deemed a condition of approval for the subdivision prior to the time of the signing of the final plat by the Secretary of the Planning Commission.

205. Signing and Recording of Subdivision Plat

205.1 Signing of Plat

The final plat shall not be signed by the Secretary of the Planning Commission until the following conditions have been met:

1. When a surety instrument is required the Secretary of the Planning Commission shall endorse approval on the plat after the instrument has been approved by the City Engineer and City Attorney and after all the conditions of the resolution pertaining to the plat have been satisfied; or,

2. When installation of improvements is required, the Secretary of the Planning Commission shall endorse approval on the plat after all conditions of the resolution have been satisfied and all improvements satisfactorily completed and approved by the City Engineer. There shall be written evidence that the required public facilities have been installed in a manner satisfactory to the governing body as shown on certifications by the appropriate governmental representative(s) and that necessary land dedications and improvements have been accomplished; or
3. When the conditions of this section are satisfied the Secretary shall sign the permanent reproducible original of the subdivision plat.

205.2 Recording of Plat

The staff of the Department of Development Services shall be responsible for filing the approved plat with the County Registrar's office within five (5) working days following the date of final signature. The owner of the property or his authorized agent shall be responsible for payment of the filing fee, as well as any fees imposed by the City of Bristol Tennessee prior to such filing. Any individual requesting a building permit for a lot located within an established subdivision shall provide evidence that the plat of the subdivision wherein such lot is located has been approved and appropriately recorded.

205.3 Sectionalizing Major Subdivision Plats

Prior to granting final approval of a major subdivision plat, the Planning Commission may permit the plat to be divided into two (2) or more sections and may impose such conditions upon the filing of each section as the Planning Commission may deem necessary to assure the orderly development of the subdivision.

END OF ARTICLE II

ARTICLE III

SPECIFICATIONS FOR DOCUMENTS TO BE SUBMITTED

301. Sketch Plat (optional)

301.1 General

Sketch plats shall be prepared in ink and be drawn to a convenient scale no smaller than one hundred (100) feet to an inch.

301.2 Features

The sketch plat shall include:

1. Name of the proposed development and a scale drawing of tract(s) being developed;
2. The tax map number, parcel number, and size of the original tract(s) being subdivided;
3. Any notation of any existing legal rights-of-way or easements, or other encumbrances affecting the property;
4. The approximate topography of the site, at no more than five (5) foot intervals, extended into adjacent properties;
5. Any areas that may be affected by flooding; including mapped 100-year floodplains and floodways;
6. General public ways and lot patterns adjacent to and proposed in the development;
7. A vicinity map of the property;
8. The approximate north point;
9. Name of owner of the tract(s) and owners of adjoining property;
10. Name of person who prepared the plat;
11. Zoning classification of adjacent property and the tract(s) of the development;
12. Creeks or bodies of water;
13. Any existing structural and unique natural features; and
14. Approximate location and size of existing utilities adjacent to the development or existing in the proposed development area.

302. Preliminary Plat

302.1 General

The preliminary plat shall be prepared by a surveyor at a scale no smaller than one hundred (100) feet to an inch. The plat shall be prepared in ink, and the sheets shall be numbered in sequence if more than one sheet is used.

302.2 Features

The preliminary plat shall include:

1. The location of the property to be subdivided with respect to surrounding property(s) and public way(s);
2. The names of all adjoining property owners of record or the names of adjoining developments to include lot and block numbers within two hundred (200) feet of all property lines. The lot pattern of surrounding development shall be shown within that area located within two hundred (200) feet of the proposed development;
3. The location, name, and width of all existing and adjoining public ways including alleys;
4. The location and dimensions of all boundary lines of the property, figured to the nearest one hundredth (1/100) of a foot;
5. The location and, if applicable, the name of existing water bodies, streams, and other pertinent features, such as swamps, railroads, buildings, structures, parks, cemeteries, drainage ditches and bridges;
6. The location, dimensions, type, and deed references of all existing easements;
7. The location and width of all proposed easements, alleys, public ways, and building setback lines;
8. The location, dimension, boundary information, lot number, and area of all proposed lots;
9. The position and dimensions of all existing buildings and structures. Within proposed condominium developments, cluster developments or zero lot-line developments all existing or proposed buildings and structures;
10. The location, dimension, and boundary information of all property proposed to be set aside for park or playground use or other public or private reservation, with designation of the purpose thereof, and conditions, if any, of the dedication or reservation;
11. The limits of the floodway and 100-year flood fringe areas and the associated 100-year flood elevation and regulatory flood protection elevation including the community panel number(s) and effective date(s);

12. The name and address of the owner(s) of land to be subdivided and the sub-divider (if other than the owner);
13. The date of the plat, approximate true north point, scale and title of the subdivision;
14. Sufficient data to determine readily the general location, bearing, and length of all lines within the area to be subdivided;
15. The name of all new public ways, as approved by the Planning Commission;
16. The zoning classification of all lots as well as an indication of all uses other than residential proposed by the sub-divider;
17. A corner of the property tied by bearing to the nearest minute and distance to the nearest one-tenth of a foot to the nearest street intersection, or to a corner of a subdivision or to a tract from which the property is carved, or to a permanent identifiable corner, or to a nearby permanent identifiable reference point. In case of creation of a new tract, a tie must be made by bearing and distance to an identifiable corner of the parent tract;
18. A map key showing relation of the subdivision to all public ways, railroads, and water courses in all directions to a distance of at least one-half (1/2) mile (suggested scale: one (1) inch to one thousand (1,000) feet);
19. Contours at vertical intervals of not more than two (2) feet. Vertical intervals of not more than five (5) feet may be shown where the average slope of an area exceeds thirty (30) percent (contours to be field surveyed or taken from aerial photographs acceptable to the Planning Commission);
20. Sullivan County Tax Map and parcel number of the parent tract(s) of the development;
21. The location and size of all existing and proposed water, sanitary sewer and storm sewer lines as well as the location of all existing and proposed fire hydrants;
22. The location and dimensions of all existing and proposed streets or ways and rights-of-way. A cross-section of all proposed streets or ways shall be shown on the plat to ensure compliance with the requirements of these regulations. Streets or ways proposed to be constructed with differing standards shall be so indicated on the plat;
23. The following notations:
 - a. explanation of drainage easements;
 - b. explanation of site easements;
 - c. explanation of reservations;
 - d. for any lot where public sewer or water systems are not available, the following information shall be provided:

1. areas to be used for subsurface sewage disposal systems and the results of preliminary soils analysis.
 2. water wells (existing and proposed);
 3. rock outcroppings, marshes, springs, sinkholes, and natural storm drainage ways:
- e. draft of proposed restrictive covenants, if any, to be imposed and designation of areas subject to special restrictions;
24. Submission of traffic impact, if applicable, as set forth in Section 503-1-6;
25. The name and address of the surveyor that prepared the plat. The plat must also contain the surveyor's seal with original signature and date across the seal as per state requirements;
26. A designation of any lot containing topographic slopes of fifteen (15) percent of greater (see Section 502-1-3);
27. All information as required by the *Tennessee Land Surveyors Laws and Regulations*; and
28. A form for endorsement of Planning Commission approval of the preliminary plat, to read as follows:

<p>Approved by the Bristol Regional Planning Commission, with such exceptions or conditions as are indicated in the minutes of the commission on _____.</p> <p style="text-align: center;">(date)</p> <p>Preliminary plat approval shall not constitute final approval for recording purposes.</p>
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The Planning Commission may require additional information, other than listed above, to be shown on the preliminary plat.

302.3 Design Documents

In addition to the information required in section 302-2, the following design documents must be submitted in conjunction with the preliminary plat:

1. Profiles showing existing and proposed elevations along the centerlines of all proposed public ways;
2. Where a proposed street intersects an existing public way or ways, the elevation along the centerline of the existing public way within 250-feet of each side of the intersection;
3. Radii of all curves, length of tangents, and central angles on all proposed public ways;

4. Where proposed public ways are required, horizontal stationing shall be at fifty (50) foot intervals. Horizontal dimensions and vertical elevations shall be to an accuracy of one hundredth (1/100) of a foot;
5. Plans indicating the locations and typical cross-section of proposed public way pavements, including curbs and gutters, pavement sections, sidewalks, drainage easements and rights-of-way;
6. Plan view showing the location and size of proposed sanitary sewers, storm sewers, water mains, gas mains, electric lines, phone lines, or any other utility;
7. The location, size, elevation and other appropriate description of any existing facilities or utilities shall be shown. This shall include but not be limited to; existing public ways, sanitary sewers, storm sewers or drainage ways, water mains, gas lines, electric lines, phone lines, easements, water bodies, streams, or other pertinent information;
8. The following information must be shown in subdivisions containing a flood prone area, or area known to be subject to flooding:
 - a. Plans drawn to scale showing the nature, location, dimensions, and elevation of any part of the subdivision within a flood prone area, including the stream or water body embankments, floodway, 100-year flood fringe, the regulatory flood elevation, and the regulatory flood protection elevation;
 - b. Typical valley cross-section showing the channel or the stream, elevation of land areas adjoining each side of the channel, cross-sectional areas to be occupied by the proposed development, and high-water information, if required by the Planning Commission;
 - c. Surface-view plans showing elevations and contours of the ground;
 - d. Pertinent buildings or structures, fill or elevations of public ways; and
 - e. Water supply, sanitary facilities, soil types, and other pertinent information, as required by the Planning Commission.
9. A comprehensive drainage study of the development containing but not limited to the following information:
 - a. Drainage map showing the entire drainage shed containing the subdivision and the location of the subdivision in the drainage shed;
 - b. Location, size and capacity of existing storm sewer systems, closed and open channel, discharging onto the subdivision or that will receive storm water runoff from the subdivision;
 - c. Storm water runoff calculations for the 2-year and 10-year frequency storm events for both the pre and post-developed conditions;
 - d. A narrative describing how storm water flows will be accommodated for storm water runoff entering the subdivision and how the subdivision will discharge storm water runoff on downstream properties;

- e. A location map and preliminary design of any storm water retention or detention facilities;
 - f. Location, size and capacity of all water bodies, streams, creeks or other waterways that will receive storm water from the subdivision; and
 - g. Information on how the 100-year storm event will impact the subdivision.
10. Design calculations for the proposed water system and sanitary sewer system showing that the proposed size of these utilities meets the design requirements of the City and the Tennessee Department of Environment and Conservation.

The City Engineer may require submission of additional design information other than listed above should the information be deemed relevant in regards to the overall development of the subdivision.

303. Construction Plans

303.1 General

Prior to the submission and approval of any final plat, construction plans shall be prepared and approved for all improvements required by these regulations either as part of the preliminary plat approval process (Section 203) or as a separate submission. Plans shall be drawn at a scale of no more than one inch equals fifty (50) feet. Plans shall be in compliance with the specifications in Article V and the Appendices of these regulations. Approval of plans must precede actual construction.

The construction plans shall be prepared and stamped by the appropriate licensed professional. Five (5) copies of the construction plans shall be submitted to the City Engineer. Other than the clearing of brush, no excavation or construction shall take place until the construction plans have been approved.

303.2 Features

The following shall be shown on the construction plans:

1. Profiles showing existing and proposed elevations along the centerlines of all public ways;
2. Where a proposed street intersects an existing public way or ways, the elevation along the centerline of the existing public way within two hundred and fifty (250) feet of the intersection;
3. Radii of all curves, lengths of tangents, and central angles on all proposed public ways;
4. Where proposed public ways are required, horizontal stationing shall be at fifty (50) foot intervals. Horizontal dimensions and vertical elevations shall be to an accuracy of one hundredth (1/100) of a foot;

5. Plans and profiles indicating the locations and typical cross-section of public way pavements, including curbs and gutters, pavement sections, sidewalks, drainage easements, rights-of-way, manholes, and drop inlets;
6. The location and type of existing and proposed signs and pavement markings;
7. The location, size, and invert elevations of proposed sanitary sewers, storm sewers, water mains, gas mains, electric lines, phone lines, or any other utility. The connection to the existing utilities must also be shown. Proposed sanitary sewers, storm sewers and water mains must have an associated profile;
8. The location, size, type, elevation and other appropriate description of any existing facilities or utilities shall be shown. This shall include but not be limited to; existing public ways, sanitary sewers, storm sewers or drainage ways, water mains, gas lines, electric lines, telephone lines, easements, water bodies, streams, or other pertinent features;
9. If the subdivision borders a lake, river, or stream, the distance and bearings of a meander line established not less than twenty (20) feet back from the ordinary high-water mark of such waterways;
10. The licensed professional shall prepare for any portion of a subdivision containing a flood prone area, or an area known to be subject to flooding, information necessary for the Planning Commission to determine the suitability of the particular site for the proposed development, as follows:
 - a. Plans drawn to scale showing the nature, location, dimensions, and elevation of any part of the subdivision within a flood prone area, including existing or proposed fill, and the relationship to the location of the stream channel, floodway, 100-year flood fringe, the regulatory flood elevation, and the regulatory flood protection elevation;
 - b. Typical valley cross-section showing the channel of the stream, elevation of land areas adjoining each side of the channel, cross-sectional areas to be occupied by the proposed development, and high-water information, if required by the Planning Commission;
 - c. Surface-view plans showing elevations and contours of the ground;
 - d. Pertinent buildings or structures, fill, or elevations of public ways;
 - e. Water supply, sanitary facilities, soil types, and other pertinent information, as required by the Planning Commission; and
 - f. Specifications for building or structure construction and materials, floodproofing, filling, dredging, grading, storage of materials, water supply, and sanitary facilities.
11. Proposed and existing contours at a maximum 2-foot interval unless otherwise approved;

12. In addition to the other requirements of this section, construction plans for condominium subdivisions or developments proposing zero lot-line or cluster developments shall contain all underground and overhead utilities, regardless of proposed ownership, and the construction design of all public facilities that are proposed for dedication to the governing body;
13. A notation for construction plans approval by appropriate persons or governmental representatives;
14. The name and address of the appropriate licensed professional that prepared the plans. The plans must also contain the licensed professional's seal with an original signature and date across the seal as per state requirements;
15. Date of plans, including any revision dates;
16. An erosion and sediment control plan shall be prepared for each development submitting construction plans. Such plans shall demonstrate the manner in which the general principles for erosion and sediment control as set forth in Sections 502-5-1 – 502-5-5 are to be implemented on the site. All plans must be consistent with the requirements of the *Tennessee Erosion and Sediment Control Handbook* and the City of Bristol Tennessee. Copies of approved erosion and sediment control plans and permits issued by the State shall be submitted to the City of Bristol Tennessee to demonstrate compliance with Tennessee Department of Environment and Conservation regulations; and
17. A notation for construction plans approval by the City Engineer.

The City Engineer may require submission of additional construction documents other than listed above should the documents be deemed relevant in regards to the overall construction of the subdivision.

304. Final Subdivision Plat

304.1 General

The final subdivision plat shall be prepared on transparent drafting film at a scale no smaller than fifty (50) feet to the inch on 18" x 24" sheets. The use of an appropriate smaller scale may be permitted for lots larger than one (1) acre. When more than one (1) sheet is required, an index sheet of the same size shall be filed showing the entire subdivision with the sheets numbered in sequence. The applicant shall also submit an electronic copy of the proposed Final Subdivision Plat consistent with the requirements of the Department of Development Services.

Construction Plans, if required as described in Section 303 of these regulations shall have been approved as part of the Preliminary Plat approval process by the Planning Commission. The submission and approval of the Final Subdivision Plat shall not proceed the approval of Construction Plans as set forth in Section 303.

304.2 Features

The final plat shall include:

1. The map depicting the location of the subdivision;
2. The names of adjoining property owners of record or the names of adjoining developments including lot and block numbers;
3. The names and widths of all existing or adjoining rights-of-way for public ways;
4. The exact boundary lines of the tract, determined by a field survey, showing angles to the nearest minute and distance to the nearest one hundredth (1/100) of a foot. All subdivision plats in the corporate limits and the planning region require the following accuracy:

REQUIRED ACCURACY OF SURVEYS
IN THE CORPORATE LIMITS AND THE PLANNING REGION

<u>Average Lot Size</u>	<u>Unadjusted Accuracy</u>
One (1) Acre or Less	Category "I" Urban and Subdivision
Greater than One (1) Acre but Less than Ten (10) Acres	Category "II" Suburban and Subdivision
Ten (10) Acres or More	Category "III" Other Land Surveys

In no instance shall the accuracy of the survey be less than the standards set forth in Title 62, Chapter 18, of the Tennessee Code Annotated. The survey shall be tied into a Coordinate System acceptable to the City of Bristol Tennessee.

5. A corner of the property tied by bearing to the nearest minute and distance to the nearest one-tenth of a foot to the nearest street intersection, or to a corner of a subdivision or to a tract from which the property is carved, or to a permanent identifiable corner, or to a nearby permanent identifiable reference point. In case of creation of a new tract, a tie must be made by bearing and distance to an identifiable corner of the parent tract;
6. The location and name of all water bodies, large streams or rivers, railroads, parks and cemeteries;
7. The limits of the floodway and 100-year flood fringe and the associated 100-year flood elevation and regulatory flood protection elevation including the community panel number(s) and effective date(s);
8. The location, name and width of all proposed easements and rights-of-way for public ways as well as the building setback lines on all lots;
9. The location, boundary calls, lot number, E- 911 address and area of all subdivided lots. All dimensions shall be field run to the nearest one

hundredth (1/100) of a foot and angles to the nearest minute. Lot areas shall be shown to the nearest square foot.;

10. The location, area, boundary information and dimensions of all property to be set aside for park or playground use or other public or private reservation, with a designation of the purpose thereof, and conditions, if any, of the dedication or reservation;
11. The owner(s) name and address of the land being subdivided;
12. The name and address of the sub-divider if other than the owner;
13. The name and address of the surveyor that prepared the plat. The plat must also contain the surveyor's seal with an original signature and date across the seal as per state requirements;
14. The date of the plat, north arrow, scale, and title of the subdivision;
15. Sufficient data to determine readily the location, bearing, and length of all lines shown on the plat. This shall include the radius, central angle, and arc length of curved property lines. The location of all monuments and pins shall be indicated on the plat;
16. The location, dimensions, type and deed references of all existing easements;
17. The zoning classification of all lots, as well as an indication of uses other than residential proposed by the sub-divider;
18. The total acreage within the subdivision;
19. For any lot where public sewer or water system is not available, the following shall be shown:
 - a. Areas to be used for subsurface sewage disposal shall be indicated on the plat by the TDEC Division of Ground Water Protection;
 - b. Water wells (existing and proposed); and
 - c. All restrictions placed on the properties by the Sullivan County Environmental Office, State of Tennessee, Department of Environment and Conservation. These restrictions shall be placed on the final plat or may be attached to the final plat because of a lack of space, but when attached, the attachment shall be of size and material consistent with the final plat or sheets and indicated on a master sheet as part of the final plat.
20. Applicable certifications in the form reproduced in these regulations shall appear upon the final plat. All required certificates shall bear the original signature of the approving or authorizing agent at the time of application for final plat approval, except that the form for endorsement of the Planning Commission's approval for recording shall appear unsigned at the time of application for approval;

21. State Department of Environment and Conservation, public water and sewer design layout and approval, if applicable; also, actual design plans for filing in appropriate governmental representative's office;
22. Commitment notes may be printed or stamped on the final plat reflecting location and dimension of non-public easements, or extent of other agreements or factual data, in lieu of drafted illustration, when applicable, and as approved by the Planning Commission;
23. All information as required by the Tennessee Land Surveyors Laws and Regulations; and
24. In addition to the other information required by this section: the final plat of any condominium subdivision shall contain:
 - a. Building locations and boundary calls. The survey shall show complete and accurate boundary calls of the parcel(s) on which the condominium is located together with exterior dimensions and locations relative to those boundaries of the building(s) which constitute the condominium subdivision;
 - b. Datum plane or other suitable vertical location reference in order that the upper and lower limits of each level of each condominium unit may be identified specifically in relation to the vertical reference, (e.g., an appropriate permanent monument or other acceptable reference datum or fixed known point). Elaborate exterior elevations and architectural detail are not necessary to satisfy this requirement; and
 - c. A copy of deed covenants, the charter and by-laws of any homeowners' association established; and special information which the Planning Commission may require to protect the rights of future owners of the condominium or the public in general.

The Planning Commission may require additional information, other than listed above, to be shown on the final plat.

304.3 Plat Certificates and Notations

1. Certification showing that the landowner(s) offer for dedication public ways, rights-of-way, and any site for public use; and that the landowner(s) consent to the subdivision plan.

<p>CERTIFICATE OF OWNERSHIP AND DEDICATION</p> <p>I (we) hereby certify that I am (we are) the owner(s) of the property shown and described hereon and that I (we) adopt this plan of subdivision with my (our) free consent, establish the minimum building restriction lines, and dedicate all streets, alleys, walks, parks and other open spaces to public and private use as noted, along with all necessary easements for the construction of cut and fill slopes, cut and fill ramps, inlet and outlet ditches or channel changes beyond the right-of-way limits of the street.</p> <p>_____</p> <p>DATE</p> <p>_____</p> <p>OWNER</p>
--

2. Certification by a registered land surveyor that the accuracy of the land survey meets the requirements in these regulations and that all monuments have been established in the field.

CERTIFICATE OF ACCURACY		
I hereby certify that the plan shown and described hereon is a true and correct survey to the accuracy required by the Bristol, Tennessee, Municipal-Regional Planning Commission and that the monuments have been placed as shown hereon to the specifications of the Tennessee Land Surveyors Laws and Regulations.		
_____	_____	_____
DATE	REGISTERED SURVEYOR	LICENSE NUMBER

3. Certification by appropriate governmental or quasi-governmental official(s) that sanitary sewer and/or water system(s) has/have been installed.

CERTIFICATE OF APPROVAL OF UTILITY SYSTEMS	
I hereby certify that the following utility systems for this subdivision are available or have been installed or appropriate surety posted with the Bristol, Tennessee Municipal-Regional Planning Commission in accordance with current local and/or state government requirements.	
<u>Water System</u>	
_____	_____
Date	Authorized Signature/Title
<u>Sanitary Sewer System</u>	
_____	_____
Date	Authorized Signature/Title

CERTIFICATE OF GENERAL APPROVAL FOR INSTALLATION OF SUBSURFACE SEWAGE DISPOSAL WITH RESTRICTIONS	
"Approval is hereby granted for lots _____ defined as _____, _____ County, Tennessee as being suitable for subsurface sewage disposal (SSD) with the listed or attached restrictions.	
Prior to any construction of a structure, mobile or permanent, the plans for the exact house/structure location must be approved and an SSD system permit issued by the Division of Ground Water Protection. Water taps, water lines, underground utilities and driveways should be located at the side property lines unless otherwise noted. And cutting filling or alterations of the soil conditions may void this approval."	
_____	_____
Date	Environmental Specialist Division of Ground Water Protection

4. Certification on the final plat by appropriate governmental representative that the sub-divider has complied with one of the following:

- a. Installation of all public way improvements in accordance with the requirements of these regulations; or
- b. In lieu of compliance with subdivision improvement requirements, certification that surety has been posted by the subdivider in an amount approved by the appropriate governmental representative to guarantee completion of all improvements;
- c. Or public way improvements are not required.

CERTIFICATE OF APPROVAL OF STREETS	
I hereby certify that:	
1.	The streets designated on this final subdivision plat are available and do not require extensions or improvements.
2.	The streets designated on this final subdivision plat have been installed and/or upgraded per the approved plans and specifications.
3.	Appropriate Surety has been posted with the Bristol, Tennessee Regional Planning Commission to assure completion of the street extensions and/or improvements in case of default.
Date	_____
Authorized Signature	_____
Title	_____

- 5. For subdivisions containing common open space or facilities, certification on the final plat of dedication of common areas in accordance with procedures established in these regulations.

CERTIFICATION OF COMMON AREAS DEDICATION	
In recording this plat, certain areas of land are designated as common areas intended for use by the homeowners within _____, for	
Name of Subdivision.	
recreation and related activities.	
The above-described areas are not dedicated for use by the general public, but are dedicated to the common use of the homeowners within the named subdivision.	
"Declaration of Covenants and Restrictions", applicable to the above-named subdivision, is hereby incorporated and made a part of this plat.	
Date	_____
Owner	_____

- 6. Certification on the final plat of Planning Commission approval for recording of the plat.

CERTIFICATE FOR APPROVAL FOR RECORDING	
<p>I hereby certify that the subdivision plat shown hereon has been found to comply with the Subdivision Regulations, for Bristol, Tennessee, except for variances, if any, as noted in the minutes of the Planning Commission and that it has been approved for recording in the Office of the County Registrar.</p>	
<p>_____</p> <p>Date</p>	<p>_____</p> <p>Secretary, Planning Commission</p>

7. Notation of Possible Flooding

If any portion of the land being subdivided is subject to flooding, as defined in these regulations, a notation shall be made on the plat. The notation shall indicate that development or modification of the land within any floodway is prohibited and that development within 100-year flood fringes shall be done in such a manner so that any building or structure shall be protected against flood damage to at least the regulatory flood protection elevation. The regulatory flood elevation shall be stated in the notation. Any additional restrictions imposed by the Planning Commission upon development within flood prone areas also shall be indicated on the plat.

8. Notation of Health Restrictions

Any modifications or limitations which may be imposed by the Sullivan County Environmental Office, State of Tennessee, Department of Environment and Conservation shall be clearly indicated on the plat.

9. Notation of Private Restrictions

Private restrictions, trusteeships and their periods of existence shall be indicated on the plat or reference to such an instrument shall be made on the plat. If the restrictions and trusteeships are of record, the plat shall note where they are recorded.

10. Notation of Drainage Easements

The following notation shall be placed on the plat: Public utility and drainage easements where shown hereon are intended to indicate an easement for construction, operation and maintenance of public utilities and drainage structures; including but not limited to; sanitary sewers, water lines, telephone signal conduits, electric conductors, drainage pipes, and natural gas lines, as well as the drainage of surface water.

305. Dedication of Offer Form

The form of the offer of irrevocable dedication, required by Section 204-1-5 of these regulations, shall be as reproduced in this section and approved by the City Attorney. The form may be modified as required by the City Attorney.

Copies of this form may be obtained at the Department of Development Services offices.

FORM FOR OFFER OF IRREVOCABLE DEDICATION

THIS AGREEMENT, made and entered into as of the _____ day of _____, 20____, by and between _____, hereinafter designated as the "Developer"; and _____, a _____, having its office and place of business at _____, Tennessee, hereinafter designated as the "Local Government".

WHEREAS, the Bristol Tennessee Regional Planning Commission, hereinafter designated as the "Planning Commission", is in the process of approving a subdivision plat entitled _____, dated _____, and prepared by _____; and

WHEREAS, said plat designates certain public improvements consisting of _____ to be dedicated to the Local Government, free and clear of all encumbrances and liens, pursuant to the requirements of the Planning Commission and the Local Government; and

WHEREAS, the Developer, simultaneously herewith, shall post a surety instrument with the Planning Commission for the construction, maintenance, and dedication of said public improvements, if required;

WHEREAS, the Developer is desirous of offering for dedication the said public improvements and land to the Local Government more particularly described in Schedule "A" attached hereto;

WHEREAS, the Developer has delivered deeds of conveyance to the Local Government for the said land and public improvements as described herein;

NOW, THEREFORE, in consideration of the sum of one dollar (\$1.00) lawful money of the United States paid by the Local Government to the Developer and other good and valuable consideration, it is mutually AGREED as follows:

- A. The Developer herewith delivers to the Local Government deeds of conveyance for the premises described in Schedule "B" attached hereto, said delivery being a formal offer of dedication to the Local Government until the acceptance or rejection of such offer of dedication by the Local Government.**
- B. The Developer agrees that said formal offer of dedication is irrevocable and can be accepted by the Local Government at the time of delivery.**
- C. The Developer agrees to complete the construction and maintenance of the land and improvements pursuant to the surety instrument and the requirements of the Planning Commission. The Developer agrees to comply with any ordinances, regulations, requirements, covenants, and agreements that may be imposed by the Local Government with respect thereto. Upon acceptance of the offer of dedication, the Developer shall furnish to the Government a sworn statement certifying that the premises are free and clear of all liens and encumbrances and shall furnish to the Planning Commission a check for all necessary fees and taxes to record the deeds heretofore delivered.**

Owner covenants with Local Government that Developer is seized and possessed of the property above described and hereby conveyed, the Developer has a good right and full authority to convey same, that same is unencumbered other than by any Deed of Trust of record, and except therefore that Developer will forever warrant and defend the title thereto against the lawful claims of all persons whomsoever.

IN WITNESS WHEREOF the parties hereto have executed this Agreement on the day and date first above written.

DEVELOPER: _____

SIGNATURE: _____

NAME: _____
(PLEASE TYPE OR PRINT)

TITLE: _____

(SEAL)

ATTEST OR WITNESS:

SIGNATURE: _____

NAME: _____
(PLEASE TYPE OR PRINT)

LOCAL GOVERNMENT: _____

BY: _____

NAME: _____
(PLEASE TYPE OR PRINT)

TITLE: _____

(SEAL)

ATTEST OR WITNESS:

SIGNATURE: _____

NAME: _____
(PLEASE TYPE OR PRINT)

ARTICLE IV

ASSURANCE FOR COMPLETION AND MAINTENANCE OF IMPROVEMENTS

401. Improvements and Surety

401.1 Completion of Improvements

Before the final subdivision plat is signed by the Planning Commission Secretary, as specified in Section 205 of these regulations, all applicants shall complete, to the satisfaction of the City Engineer, all public way, water, sanitary sewer, and other improvements, including lot improvements on the individual lots of the subdivision, as required in these regulations and approved by the Planning Commission. The applicant shall dedicate such improvements to the governing body free and clear of all liens and encumbrances on the property and public improvements. To this end, record drawings must be submitted as discussed in Section 204-2 herein, and receive approval by the City Engineer or other designated official prior to the recordation of the final plat.

401.2 Surety Instrument

The Planning Commission may waive the requirement that the applicant complete and dedicate all public improvements prior to the signing of the final subdivision plat by providing, as an alternative, that the applicant post an approved surety instrument at the time of plat submission for final subdivision approval. Such surety instrument shall be in an amount established by the City Engineer and approved by the Planning Commission as sufficient to guarantee to the governing body the satisfactory construction, installation, and dedication of any uncompleted portion of required public improvements. The surety amount shall include an additional ten (10) percent over and above the cost of securing all necessary public improvements to cover the rate of inflation over the surety period.

When a performance bond is utilized, the performance bond shall comply with all statutory requirements and shall be satisfactory to the City Attorney as appropriate, as to form, sufficiency, and manner of execution as set forth in these regulations. Accordingly, such performance bond must be officially filed and approved as illustrated in Appendix E of these regulations. Only corporate insurance companies authorized to do business in the State of Tennessee shall file such performance bonds with the City.

When a letter of credit is utilized the letter of credit shall also be satisfactory to the City Attorney as to form, sufficiency, and manner of execution as set forth in these regulations. Accordingly, such letter of credit must be officially filed and approved consistent with Appendix E of these regulations. Only commercial banks and federally chartered savings and loan associations located in Sullivan County, Tennessee, Washington County, Tennessee, Washington County, Virginia, or Bristol, Tennessee and Virginia shall be acceptable institutions for the issuance of documentary letters of credit as required for the purposes of these regulations.

The City Engineer is responsible for establishing the total amount of the surety. All such surety instruments shall be segregated into cost estimates for each specific type of public improvements, i.e., streets, drainage, lot improvements, utilities, etc. (See required surety instrument form in Appendix E).

The period within which required public improvements must be completed as assured through the use of a surety instrument shall be specified by the Planning Commission in the approval action of the final subdivision plat and shall be incorporated into the surety instrument. This period shall be for one (1) year and shall not in any event exceed two (2) years from the date of final plat approval. Should such surety ever be extended by the Planning Commission according to these regulations, the price of completing all required public improvements must be reanalyzed and reestablished by the Planning Commission, upon the recommendation of the City Engineer, in order that the surety instrument be adequate to cover the cost of all public improvements. The surety amount shall include an additional ten (10) percent over and above the cost of securing all necessary public improvements to cover the rate of inflation over the extension period.

The City Engineer may periodically recommend reductions in the amount of the surety as the public improvements are completed, and the City Manager may allow the surety to be so adjusted. When the City Engineer determines that all public improvements subject to the surety have been completed satisfactorily, the surety may be released by the City Manager.

401.3 Temporary Improvements

The applicant shall build and pay for all costs of temporary improvements required by the Planning Commission and shall maintain the temporary improvements to a reasonable satisfaction for the period specified by the Planning Commission. Prior to construction of any temporary facility or improvement, the applicant shall file with the City Engineer a separate suitable surety instrument for temporary facilities which shall ensure that the temporary facilities will be properly constructed, maintained, and removed. The surety amount shall include an additional ten (10) percent over and above the cost of securing all temporary facilities or improvements to cover the rate of inflation over the surety period.

401.4 Costs of Improvements

All required improvements shall be made by the applicant at their expense. Any provisions for reimbursement by the governing body or any other agency shall be stipulated clearly in the provisions of any development contracts or agreements.

401.5 Failure to Complete Improvements

In those cases in which surety instruments have been posted and the required public improvements have not been installed within the terms of such agreements, the Planning Commission may declare such surety to be in default and require that all the public improvements be installed regardless of the extent of the building development at the time the surety is declared to be in default. In all subdivisions for which surety instruments guaranteeing the performance of such contracts are posted, if the public improvements are not completed within the time period specified (including any extension thereof approved as provided

in Section 401-2 above), no additional building permits may be issued for any lot or portion of such property until such public improvements are either completed, in accordance with the Planning Commission's decision and to the satisfaction of the governing body or other agency ultimately responsible for acceptance of the public improvements, or new contracts and surety instruments guaranteeing the construction thereof are executed.

401.6 Acceptance of Dedication Offers

Acceptance of formal offers of dedication of public ways, easements, and parks shall be by formal action of the governing body responsible for acceptance of the facilities. Such action shall be in the form of a resolution recommended by the Planning Commission to the appropriate body. The approval by the Planning Commission of a subdivision plat shall not be deemed to constitute or imply an acceptance by the governing body of the facilities of any public way, easement, or other ground shown on the plat. The Planning Commission may require the plat to be endorsed with appropriate notes to this effect.

402. Inspection of Improvements

402.1 General Procedure

The City Engineer shall provide for the inspection of required improvements during construction and ensure their satisfactory completion. If the appropriate governmental representative finds upon inspection that any of the required improvements have not been constructed in accordance with the applicable construction standards and specifications, the applicant shall be responsible for completing the improvements to the required standards. Whenever the cost of improvements is covered by a surety instrument, the applicant and the financial institution issuing the surety instruments shall be liable severally and jointly for completing said improvements according to specifications.

402.2 Release or Reduction of Surety Instrument

1. Certificate of Satisfactory Completion

The governing body or other agency ultimately responsible for acceptance of the required public improvements shall not accept dedication of the required public improvements nor release nor reduce any surety instruments guaranteeing the construction of same until the appropriate governmental representative submits a certificate stating that all required public improvements have been satisfactorily completed. Upon such approval and recommendation, the governing body or other agency ultimately responsible for acceptance of the public improvements, thereafter, may accept the dedicated public improvements in accordance with the procedures set forth in Sections 401-6 of these regulations.

2. Reduction of Surety Instruments

The surety instruments guaranteeing performance of all development contracts may be reduced upon actual dedication and approval of public improvements and then only to the ratio that the public improvement dedicated bears to the total public improvements for the plat. In no event

shall the surety be reduced below twenty-five (25) percent of the principal amount prior to final acceptance of all items covered under such instruments.

403. Maintenance of Improvements

403.1 General

The applicant shall be required to maintain all improvements including all lot improvements for one (1) year from the date of final acceptance of the public improvements by the governmental body.

403.2 Maintenance Surety Instrument

The applicant shall be required to file a Maintenance Surety Instrument with the governing body prior to acceptance of the required public improvements. The Maintenance Surety Instrument shall be in effect for a period not to exceed twelve (12) months from the time of approval of the required public improvement construction by the City Engineer and in a form satisfactory to the City Attorney. The Maintenance Surety Instrument shall represent ten (10) percent of the total amount of the surety instrument filed with the Planning Commission to construct the required public improvements, but not to exceed \$10,000.00. In the event the developer constructed the required public improvements prior to plat recordation and thus did not post a surety instrument, the City Engineer shall recommend an amount for the Maintenance Surety Instrument subject to the maximum noted above. All Maintenance Surety Instruments shall be approved by the Planning Commission prior to becoming effective. The Maintenance Surety Instrument shall be required for each section of an approved development as construction of the required public improvements of each section is approved. For developments where construction of the required public improvements is approved in total without sections, the Maintenance Surety Instrument shall cover the entire development.

Instances when such Maintenance Surety Instrument shall need to be “called” or utilized to repair damages, the original applicant shall first be notified prior to such pending action and a review by the Planning Commission shall be required prior to the utilization of such Maintenance Surety Instrument.

404. Deferral or Waiver of Required Improvements

The Planning Commission may defer or waive at the time of preliminary plat approval the provision of any or all such improvements that are not requisite to preserving the interest of the public health, safety, and general welfare, or which are inappropriate, because of inadequacy or lack of connecting facilities. Such a decision must be based on sound planning and engineering principals and must receive City staff recommendation prior to a decision to defer or waive such improvements.

Whenever deemed necessary by the Planning Commission to defer the construction of any improvement required herein because of incompatible grades, future planning, inadequate or lack of connecting facilities, or other reasons, the developer may be required to pay a share of the costs of the future improvements. Any required designation of costs shall first be approved by the governing body prior to the signing of the final subdivision plat by the Secretary of the Planning Commission. Such an agreement shall require the deposition of funds or a surety instrument ensuring completion of said improvements prior to final plat approval.

405. Issuance of Certificates of Occupancy

The Department of Codes Enforcement shall not issue an occupancy permit for any building or structure in the subdivision or any affected section thereof prior to construction of all required infrastructure improvements being approved by the City Engineer, except that an occupancy permit may be issued if the only required infrastructure improvement remaining to be completed is the installation of the Bituminous Surface Course on the street.

END OF ARTICLE IV

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ARTICLE V

REQUIREMENTS FOR IMPROVEMENTS, RESERVATIONS, AND DESIGNS

501. General Requirements

501.1 Conformance to Applicable Rules and Regulations

In addition to the requirements established herein, all subdivision plats shall comply with all applicable laws, ordinances, resolutions, rules, or regulations, including, but not limited to:

1. All applicable provisions of Tennessee law, regulations, or policy;
2. Any zoning ordinance, building and housing codes, and all other applicable laws or policies of the City of Bristol Tennessee, or where applicable, Sullivan County, Tennessee;
3. The standards and regulations adopted by all other boards, commissions, and agencies of the City of Bristol Tennessee, or Sullivan County, where applicable;
4. The adopted general plan and major road plan;
5. The rules of the Sullivan County Environmental Office, State of Tennessee, Department of Environment and Conservation;
6. The rules, as applicable, of the Federal Highway Administration or Tennessee Department of Transportation, if the subdivision or any lot contained therein abuts a non-local highway;
7. The standards and regulations adopted by all other boards, commissions, and agencies of the governing body, where applicable; and
8. The Tennessee Land Surveyors Laws and Regulations.

Plat approval may be withheld when any subdivision is not in conformity with the above rules or with the provisions set forth in Section 104, of these regulations.

501.2 Self-Imposed Restrictions

If the owner places restrictions on any of the land contained in the subdivision greater than those required by any zoning ordinance or these regulations, such restrictions or references thereto shall be recorded with the County Registrar on a separate form, along with the final subdivision plat.

501.3 Monuments

Permanent reference monuments and lot pins of non-degradable material shall be placed in all subdivisions as follows:

1. Control Monuments

At the discretion of the City Engineer, a minimum of three (3) permanent control monuments, containing both vertical and horizontal data, shall be located within each subdivision where new streets are to be constructed. These monuments shall be constructed of stone or concrete which is not less than thirty (30) inches in length; nor less than four (4) inches square or five (5) inches in diameter; and marked on top with a cross, brass plug, iron rod, or other durable material securely embedded. The monument shall have a non-corrosive tag bearing the surveyor's registration number or company name. The monument shall have horizontal coordinates and vertical elevations shown on the final plat. The horizontal coordinates and vertical elevations must be in a datum acceptable to the City.

Reference notes (field ties) defining magnetic bearings and distances to the nearest established street line or official benchmark shall be accurately described on the plat. All control monuments shall be located within the dedicated right-of-way, along curve points or lot lines and within line of sight of one another. These monuments are to be placed near the entrance to the subdivision and, if possible within a non-fill area or be affixed to natural rock outcrops. The location of all control monuments shall be described on the final plat with words and symbols that facilitate locating the monuments in the field.

Monuments will generally not be required within minor subdivisions (as defined by these regulations) when the subdivision occurs along existing streets. The Planning Commission retains the right, however, to require monuments within minor subdivisions where flooding or other extraordinary conditions are found to exist. Monuments shall be placed only after all street construction is complete and curbs have been backfilled or drainage ditches cut.

2. Internal Lot Pins

In all subdivisions, lot corners and all lot line breaks shall be marked in the field by iron rods, pipe, or pins at least eighteen (18) inches long and one-half (1/2) inch in diameter. All new corners shall have a cap or non-corrosive tag bearing the surveyor's registration number or company name. The top of the corner marker must be set flush with the ground.

3. Rivers, Streams and Other Water Bodies

The lines of lots that extend into rivers, streams or other water bodies shall be marked in the field by iron rods, pipe or pins at least eighteen (18) inches long and one-half (1/2) inch in diameter. The marker shall be placed on the line that extends into the water body a minimum of ten (10) feet from the top of the bank. The marker shall have a non-corrosive tag bearing the surveyor's registration number or company name.

501.4 **Character of the Land**

1. Unsuitable Land

Land which the Planning Commission finds to be unsuitable for subdivision or development areas shall not be subdivided or developed unless adequate methods for implementing the subdivision or development are formulated by the developer and approved by the Planning Commission. To determine if the land is unsuitable for subdivision or development, the land must have limitations due to flooding, improper drainage, steep slopes, rock formations, adverse earth formations, topography, utility easements or other features determined to be harmful to the safety, health, and general welfare of inhabitants of the land and surrounding properties. Such land shall be set aside for uses that will not involve such a danger.

2. Lots Subject to Flood

Where protection against flood damage is necessary, in the opinion of the Planning Commission, flood-damage protection techniques may include, as deemed appropriate by the Planning Commission:

- a. The imposition of any surety and deed restrictions enforceable by the Planning Commission to regulate the future type and design of uses within the flood prone areas;
- b. Floodproofing or protection measures designed so as not to increase, either individually or collectively, flood flows, height, duration, damages and so as not to infringe upon the floodway;
- c. Installation of flood warning systems; and
- d. The use of fill, dikes, levees, and other protective measures.

The acceptability of any flood protection methods formulated by the subdivider or his agent shall be determined by the Planning Commission, which shall be guided by the policies set forth in Section 104 and Section 201-6 of these regulations.

Where a lot in any flood prone area must be improved to provide a building site free from flooding, such improvements shall be made outside the floodway by elevation or fill to at least the regulatory one hundred year flood protection elevation. The improvements shall extend at least twenty-five (25) feet beyond the limits of intended buildings or structures. Any fill shall be protected against erosion by ground cover deemed appropriate by the City Engineer.

On nonresidential building sites outside a floodway, but subject to flooding, the use of structural floodproofing methods as an alternative to landfill, may be approved by the Planning Commission.

3. Lots Located on Steep Slopes

Due to the potential threat to health and safety posed by development located on lands with excessive slopes, lots with slopes in excess of 15% shall be individually approved by the Planning Commission. The following regulations shall apply to these lots:

- a. Natural vegetation shall be preserved to the maximum extent possible;
- b. Natural drainage ways and systems shall be maintained, except that surface water may be diverted around a house or slope area to a natural drain using acceptable construction techniques;
- c. Operations that increase loads, reduce slope support, and cause instability of the slope shall be prohibited to the maximum extent possible which will permit reasonable development of the site. These include filling, irrigation systems, accessory buildings or structures, and on-site sewage disposal systems;
- d. Where sanitary sewers are not available any on-site subsurface sewage disposal system shall be shown on the site plan and located to avoid slide-prone areas. Said system shall be approved by the Sullivan County Environmental Office, State of Tennessee, Department of Environment and Conservation prior to the Planning Commission's review;
- e. Erosion control measures shall be employed to prevent all soil material from leaving the site. Additionally, soil from excavation on the site shall not be disposed as fill on a potential slide area. All areas must have permanent ground cover installed that will prevent erosion of soil material;
- f. No building permit shall be issued for the construction of a building or structure without verification by the Department of Codes Enforcement that the above safeguards are in place. In addition, no building permit shall be issued without an approved erosion and sediment control plan; and
- g. The City has provisions for development in difficult terrain within these regulations.

501.5 Subdivision Name

The proposed name of the subdivision shall not duplicate or too closely approximate phonetically the name of any other subdivision in the area covered by these regulations. The Planning Commission shall have authority to designate the name of the subdivision at the time of sketch or preliminary plat approval.

501.6 Authorization to Construct Improvements

Approval of the preliminary plat by the Planning Commission and approval by the City Engineer of construction plans shall constitute authorization to

construct improvements within a subdivision. No construction shall take place until construction plans are officially approved.

502. Lot Requirements

502.1 Lot Arrangement

1. General

The lot arrangement shall be such that there will be no foreseeable difficulties, or variances required, for reasons of size, shape, topography, flood hazards, or other conditions in securing permits to build on all lots in compliance with the applicable zoning regulations and Sullivan County Environmental Office, State of Tennessee, Department of Environment and Conservation regulations. Lot arrangement shall insure acceptable conditions for providing driveway access and off-street parking to buildings or structures on such lots from an approved public way. All lots shall contain an adequate building site free from flooding. In all cases, proposed lots must be shown to be buildable lots. All lots that cannot be shown as buildable lots must be incorporated into acceptable lots or designated common areas within the subdivision.

502.2 Lot Dimensions

Lot dimensions shall comply with the minimum standards of the applicable zoning regulations. All building setbacks shall be indicated for each lot shown on the plat. Lot dimensions shall also comply with the following:

1. Where lots are more than double the minimum area required by any zoning regulations, the Planning Commission may require that such lots be arranged to allow further subdivision. In addition, the Planning Commission may require the opening of future public ways where necessary to serve potential lots;
2. Dimensions of the corner lots shall be large enough to allow for the construction of buildings or structures, and shall provide for the minimum front yard setback requirements from all public rights-of-way except alleys;
3. The minimum lot frontage on a public way shall be fifty (50) feet, except for lots located within the radius of a cul-de-sac which may have a minimum lot frontage of thirty-five (35) feet;
4. All lots must be a minimum of fifty (50) feet wide at the front building line, except for planned developments or when allowed by the applicable zoning district regulations;
5. "Pipestem" or "flag" lots shall be discouraged from development and approved by the Planning Commission only when an alternative lot design or configuration has been proven to be infeasible;
6. The Planning Commission may require alternative designs, which require street construction in order to minimize curb cuts on existing highways and streets; and

7. Depth and width of properties reserved or designed for business, commercial or industrial purposes shall be adequate to provide for off-street parking and loading facilities or other infrastructure required for the type of use and development contemplated, and as established in any zoning regulations.

502.3 Building or Structure Setbacks from High Voltage Electric Lines

In the case of electric transmission lines where easement widths are not definitively established, a minimum building setback line from the center of the transmission line shall be established as follows:

<u>Voltage of Line</u>	<u>Building and Structure Setback</u>
7.2 KV	15 feet
13 KV	25 feet
46 KV	37 1/2 feet
69 KV	50 feet
161 KV	75 feet

If lines of different voltage levels are present, the setback for the highest voltage line shall apply.

The Developer is responsible for determining that any and all building or structure setback lines meet or exceed the standards outlined in the National Electrical Safety Code, the National Electrical Code, OSHA Work Rule, or any other applicable industry code. All easements and building or structure setbacks from electric transmission lines must be approved by the Bristol Tennessee Electric System prior to consideration by the Planning Commission.

502.4 Double Frontage Lots and Access to Lots

1. Double Frontage Lots

Double frontage and reversed frontage lots shall be avoided, except where necessary to provide separation of residential development from non-residential local, arterial or collector status streets, or to overcome specific disadvantages of topography and orientation. The Planning Commission shall have authority to require double frontage lots where deemed appropriate for public safety.

2. Access from Non-Residential Local, Collector or Arterial Public Ways

The Planning Commission may require that lots shall not be accessed directly from non-residential local, collector or arterial public ways. Where driveway access from such public ways may be necessary for several adjoining lots, the Planning Commission may require that the lots be served by a combined access drive in order to limit possible traffic hazards. Driveways shall be designed and arranged so as to avoid requiring vehicles to back onto non-residential local, collector or arterial public ways. The Planning Commission may require such lots to be arranged for access from a frontage street or arranged for access through an internal residential street.

3. Minimum Access Distances

The design of driveway connections shall be subject to approval by the City of Bristol Tennessee. The minimum distance from a proposed driveway curb cut to an adjacent street right-of-way is regulated as follows:

- a. Driveways connecting to state highways are subject to the most current control standards of the Tennessee Department of Transportation but as a minimum shall be no closer than 100 feet to the closest right-of-way line of another public way intersecting that state highway or any nose of a median opening;
- b. Driveways connecting to streets (not subject to the standards of the Tennessee Department of Transportation) shall be no closer than 50 feet to the closest right-of-way of another public way intersecting that local street or any nose of a median opening;
- c. Driveways connecting to multi-lane divided highways shall be aligned with existing or proposed median openings when possible;
- d. The distance between any property line intersecting a frontage property line and the nearest edge of a driveway shall be at least 15 feet except in the radius of a cul-de-sac where the nearest driveway edge shall be at least five (5) feet from the property line. Joint driveways between adjacent residential parcels are permitted with a separation of zero feet;
- e. In the event median openings are required on divided highways, the design shall meet the most current standards of the Tennessee Department of Transportation. The ability to serve a driveway with a median opening on a divided highway is not guaranteed;
- f. If the physical size or configuration of a lot does not permit the location of a driveway to meet these standards (terrain notwithstanding), then the distance between the new driveway and existing intersecting public ways, median openings and/or adjacent non-residential driveways shall be maximized; and
- g. Driveways may be required to be further from the features listed above if traffic design issues are shown by field measurement or analysis to require such action.

4. Permit Requirements

- a. The construction of driveways is subject to obtaining a permit from the City of Bristol Tennessee Department of Operations, Director of Public Services.
- b. The construction of driveways connecting to state highways are subject to obtaining a permit from the Tennessee Department of Transportation.

502.5 Soil Preservation, Grading, Erosion Control, and Seeding

1. Soil Preservation

Topsoil shall not be removed from residential lots or used as spoil, but shall be redistributed so as to provide cover on the lots and cover between any sidewalks and curbs. Topsoil shall be stabilized by an appropriate ground cover that will prevent erosion.

Permanent soil stabilization shall be applied to denuded areas within fifteen (15) days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within fifteen (15) days to denuded areas that may not be at final grade but will remain undisturbed for longer than thirty (30) days.

2. Lot Drainage

Lots shall be designed to provide positive drainage away from all buildings or structures. Individual lot drainage shall be coordinated with the general storm drainage pattern for the area. Drainage shall be designed so as to avoid concentration of storm drainage water from each lot to adjacent lots, except within drainage easements or street rights-of-way.

The builder of any building or other structure is responsible for designing and constructing a suitable drainage scheme that will convey surface water to the drainage system constructed within the subdivision without ponding water on the lot or under the building or structure.

The Planning Commission reserves the right to require that the developer set minimum elevations on all floors, patios, and building or structure appurtenances. This prerogative to establish elevation exists in addition to any ordinances that refer to regulatory flood elevation requirements. The intent of the preceding paragraph is to give the Planning Commission summary review powers over any calculated or historical evidence of storm water presence in overland or channel conditions.

The subdivision developer will insure that all artesian ground waters of a permanent or temporary nature encountered within the right-of-way will be intercepted and conveyed to primary drainage conduits along swales, ditches or in underground pipes located on property line easements. Regardless of the location of property lines, interception will be allowed at the point of artesian surfacing. The developer is obligated to perform this work upon evidence of artesian water for a period of one (1) year following acceptance of all streets and utilities.

3. Sinkholes

Any sinkhole or natural channel which serves or has served as a means of moving or storing ground water including all designated floodways, shall be included in designated conservation easements.

The following Sinkhole and Drainage Well Plan information and approval from the appropriate regulating agency must be provided prior to the

alteration of the natural drainage for a watershed discharging to such features as sinkholes and drainage wells.

- a. Proposed onsite and offsite drainage channels that are tributary to a sinkhole throat or drainage well inlet shall be delineated, along with appropriate hydraulic calculations to define the existing and altered (if appropriate) 100-year floodplain and to confirm that offsite flooding will be not be increased;
- b. Detailed contours are to be shown for all sinkholes that are to receive storm water runoff from the site. These contours are to have a maximum interval of 2 feet and are to be verified by field surveys;
- c. A geologic investigation of all sinkholes receiving storm water runoff from the site shall be performed. The report from this investigation shall be signed and sealed by a licensed professional experienced in geology and groundwater hydrology and shall contain the following:
 1. Location and nature of aquifers;
 2. Potential for siltation problems;
 3. Foundation problems that may be expected around sinkholes;
 4. Details of drainage structures to be built in sinkholes;
 5. Any other factors relevant to the design of drainage from sinkholes;
 6. Plans showing the 100-year floodplain. This floodplain shall be designated as a drainage easement on final subdivision plat; and
 7. Details of plans for grading and clearing of vegetation within the 100-year floodplain.
- d. Compliance with any and all conditions that may be required by the local government, Federal Government or the State of Tennessee shall be documented. The Tennessee Department of Environment and Conservation Division of Ground Water Protection is the primary regulatory agency for sinkholes and drainage wells. Drainage into a sinkhole may require a permit for a Class V well under rules for Underground Injection Control (UIC);
- e. Demonstration that development will not occur within the area the 100-year floodplain. The 100-year flood elevation may be lowered by construction of a detention pond. Calculations that document a lowering of the 100-year flood elevation shall be based on the 100-year, 24-hour storm using an appropriate safety factor for discharge into the sinkhole.

4. Erosion and Sediment Control

There shall be minimum changes in the rate of natural erosion and sedimentation resulting from the development process. An erosion and sediment control plan shall be presented with the construction plans

submitted in conformance with Section 303-2 of these regulations. The erosion and sediment control plan shall incorporate the following principals:

- a. Clearing and grading limits shall be designated on the layout design;
- b. Clearing shall be minimized and existing vegetation shall be preserved to the maximum feasible degree;
- c. Grading shall be strictly limited to those areas involved in current construction activities;
- d. Disturbed areas shall be protected and stabilized;
- e. Structural and vegetative measures to control the velocity and volume of runoff shall be required;
- f. Sediment basins and traps shall be required as necessary;
- g. Adequate maintenance of all planting and structural measures shall be assured.

All properties adjacent to the site of land disturbance shall be protected from sediment deposition. This may be accomplished by preserving a well-vegetated buffer strip around the lower perimeter of the land disturbance; by installing perimeter controls such as sediment barriers, filters, dikes or sediment traps; or by a combination of such measures.

All erosion and sediment control plans and measures must meet the requirements of the Tennessee Erosion and Sediment Control Handbook, the standards of the City and any local, State and Federal requirements.

5. National Pollutant Discharge Elimination System (NPDES) Permit

Construction activities on the development may not commence until a copy of the approved NPDES permit is provided to the City Engineer (if applicable).

502.6 Debris and Waste

Trees, timber, debris, junk, rubbish, or other waste materials of any kind may not be buried within the development or left or deposited on any lot, in any natural drainageway (such as sinkholes, underground streams or channels, or wet weather stream beds or floodways) or public ways as a result of the construction process. The removal of such waste shall be required prior to issuance of any certificate of occupancy for any lot, the release of any surety instrument, or acceptance of public improvements.

502.7 Fencing or Barriers

The subdivider or developer may be required to furnish and install fencing or to construct earthen barriers wherever the Planning Commission determines that a hazardous condition exists. Such fencing or barriers shall be constructed according to standards established by the Planning Commission.

The Planning Commission may require fencing and barrier easements on the final plat and establishment of assurances for maintenance of the fencing or barriers prior to final plat approval. Should the fencing or barriers not be installed prior to final plat approval, any such requirements shall be noted on the final plat. Earthen barriers may be substituted where appropriate and with the approval of the Planning Commission. No building permit for any lot in the subdivision will be issued until all required fencing or barriers have been installed.

502.8 Water Bodies and Watercourses

If a tract being subdivided contains a water body, or portion thereof, lot lines shall be drawn to distribute the entire ownership of the water body among the adjacent lots. The Planning Commission may approve an alternative plan whereby the ownership of and responsibility for safe maintenance of the water body will not become a governmental responsibility. This approval may require that alternative plan be included in the restrictive covenants or homeowners association agreement of the subdivision.

When the proposed subdivision design includes lots with areas which are covered permanently or periodically by water, such lots shall include areas adequate to observe all required setbacks and public health requirements while providing an adequate building site which shall not require variances from these regulations or the applicable zoning regulations. For the purposes of these regulations, covered by water shall be defined as any area shown on FEMA flood maps as being within a designated floodplain, any blue line stream depicted on a U.S.G.S. topographic map, any permanent body of water, or any area subject to periodic flooding as determined by local experience.

Where a watercourse separates the buildable area of a lot from the public way to which such lot has access provisions shall be made for installation of a culvert or other structure approved by the City Engineer. No certificate of occupancy shall be issued for a building or structure on such a lot until the culvert installation is completed and approved by the City Engineer.

502.9 Blocks

1. Blocks shall have sufficient width to provide for two (2) tiers of lots of appropriate depth. Exceptions to this prescribed block width may be permitted in blocks adjacent to non-residential local, collector or arterial streets, railroads, or waterways or other features acceptable to the Planning Commission.
2. The lengths, widths, and shapes of blocks shall be determined with due regard to:
 - a. Provision for adequate building sites suitable to the special needs of the type of development contemplated;
 - b. Any zoning requirements as to lot sizes, setbacks and dimensions;
 - c. Needs for convenient access, circulation, control and safety of vehicular and pedestrian traffic; and
 - d. Limitations and opportunities of topography.

3. Block lengths in residential areas shall not exceed twelve hundred (1,200) feet, except as the Planning Commission deems necessary to secure efficient use of land or desired features of the public way pattern. Wherever practicable, blocks along non-residential local, collector or arterial routes shall not be less than eight hundred (800) feet in length.
4. Blocks designed for industrial or commercial uses shall be of such length and width as may be deemed suitable by the Planning Commission.
5. In any block, the Planning Commission may require the reservation of an easement through the block to accommodate utilities, drainage facilities and/or pedestrian traffic.

503. Streets and Pedestrian Ways (general provisions)

503.1 Street Standards

The following standards shall apply to all streets, both public and private.

1. Frontage on Improved Public Ways

No subdivision shall be approved unless the area to be subdivided meets the access requirements set forth in Section 110-1-7 of these regulations. When new street construction is proposed, all construction shall be in accordance with the provisions of these regulations.

2. Grading and Improvement Plan

Public ways shall be graded and improved to conform to the standards required by this section and the design shall be approved by the City Engineer in accordance with the specifications required herein. No construction of streets shall begin until such plans have been approved.

3. Improvements in Floodable Areas

The finished elevation of proposed public ways subject to flood shall be no less than one foot above the regulatory flood protection elevation (the 100-Year Flood Elevation). The Planning Commission shall require profiles and elevations of public ways located in regulatory flood areas to determine compliance with this requirement. All drainage structures shall be of sufficient size to discharge flood flows without increasing flood height. Where fill is used to bring the finished elevation of any public way to the required elevation, such fill shall not encroach upon a floodway and the fill shall be protected against erosion by appropriate ground cover or other methods deemed acceptable by the City Engineer.

4. Topography and Arrangement

- a. Residential streets should be designed to discourage fast movement through the use of curvilinear alignment and discontinuities in the street;

- b. All public ways shall be designed to obtain as many building sites as possible at or above the grades of the public ways. Grades of public ways shall conform as closely as possible to the original topography;
- c. All public ways shall be properly integrated with the existing and proposed system of public ways and dedicated rights-of-way as established on the major road plan or the land development plan;
- d. All public ways shall be properly related to special traffic generators, (i.e. industries, business districts, schools, churches and shopping areas or centers) population densities and to the pattern of existing and proposed land use;
- e. In commercial and industrial developments, public ways and other access routes shall be planned in connection with the grouping of buildings or structures, location of rail facilities and the provision for alleys, truck loading and maneuvering areas, pedestrian walks and parking areas. Walks and parking areas shall be designed to minimize conflict of movement between the various types of vehicular traffic and pedestrian traffic.

5. Access to Arterial and Collector Routes

Where any subdivision borders on or contains an existing or proposed arterial or collector route the Planning Commission may require that access to such public ways be limited by requiring:

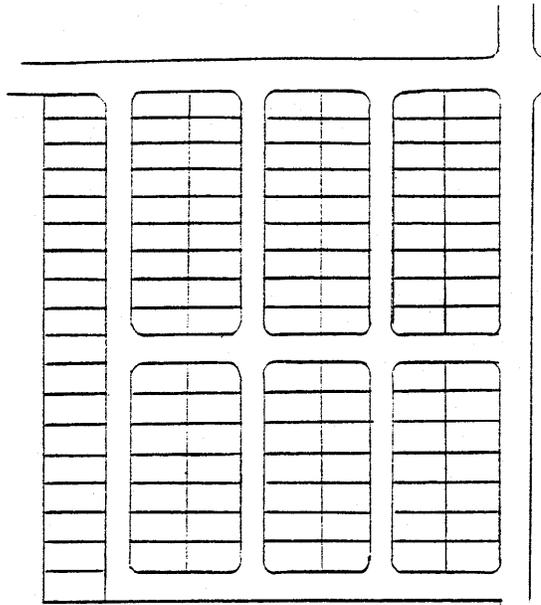
- a. The subdivision of lots so as to limit direct access on the arterial or collector route and require the lots to front on a non-residential local or residential street;
- b. A series of cul-de-sacs, "U" shaped public ways, or short loops entered from and designed generally at right angles to such a parallel public way, with the rear lines of the lots along the arterial or collector route; or
- c. A marginal access or service public way, separated from the arterial or collector route by a landscaped or grass strip and having access thereto at suitable points.

6. Traffic Impact Study

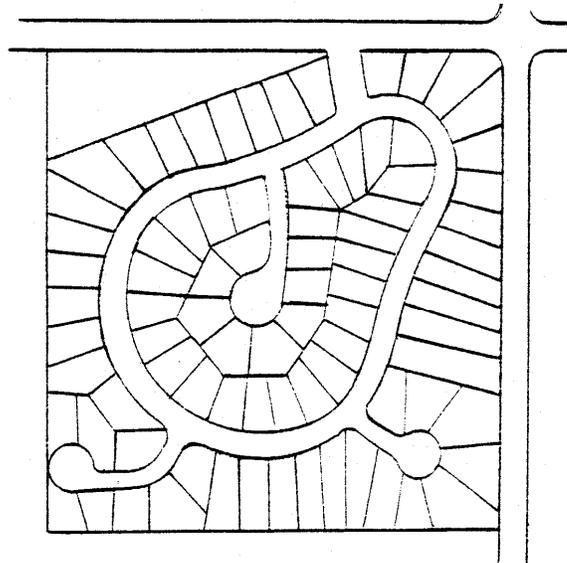
At the discretion of the Planning Commission, any subdivision may be required to prepare a traffic impact study. When requested, a licensed engineer with a demonstrated expertise in traffic engineering shall prepare the study. The study shall be in accordance with standards and procedures supplied by the City Traffic Engineer.

The City Traffic Engineer shall be required to make a recommendation concerning the need for a traffic impact study to the Planning Commission for any subdivision containing fifty (50) or more dwelling units, or commercial or industrial developments comprising five (5) acres or more.

When required, the study will provide information as to current and projected



Traditional Layout



Desirable Layout

Subdivision Designs
Figure V-1



traffic levels along all streets adjacent to or directly impacted by the subdivision. Prior to development of the study, the applicant and the engineer that will prepare the study shall meet with the Department of Development Services staff for purposes of establishing the scope and design parameters of the study. Any improvements proposed to offset the traffic impact of the subdivision shall be indicated in the study.

7. Reserve Strips

The creation of reserve strips adjacent to a proposed public way in such a manner as to deny access from adjacent property to such public way shall not be permitted unless specifically approved by the Planning Commission. Where the Planning Commission determines the use of a reserve strip would protect the public safety by providing a safer street configuration or other element of design that is clearly in the public interest, the reserve may be allowed or required. In any instance where a reserve strip is granted, the grounds for and extent of such waiver shall be noted in the minutes of the Planning Commission meeting where such waiver is approved.

8. Traffic Control Devices

a. Public Streets

The developer shall purchase and install appropriate temporary and permanent traffic control signage. All signs, sign materials, and locations must conform to the Manual of Uniform Traffic Control Devices (MUTCD) and must be approved by the City Transportation Engineer.

b. Private Streets

Traffic control devices on private streets shall meet the same standards as public streets and must be approved by the City Transportation Engineer. The developer, owner or homeowners association will be responsible for maintenance of traffic signage on private streets.

c. Pavement Markings

The developer shall be responsible for the application or removal of temporary and permanent pavement markings required due to the subdivision. All markings including location, size, type and material must meet the requirements in the MUTCD and be approved by the City Transportation Engineer.

d. Traffic Signals

Installation of traffic signals must meet the Requirements of the MUTCD and must be approved by the City Transportation Engineer. The developer shall be responsible for installation of the traffic signals.

e. Traffic Control During Construction

All aspects of traffic control during construction of the development shall conform to the MUTCD and must be approved by the City Transportation

Engineer. The developer shall be responsible for installation and maintenance of construction traffic control devices.

f. Guardrails

The developer shall be responsible for the placement of guardrails where warranted by the AASHTO *Roadside Design Guide* or when required by the Planning Commission. The guardrail type installation, location, and material must be approved by the City Transportation Engineer.

g. Plat Recording and Issuance of Building Permits

No plat shall be recorded nor any building permit issued until the approved traffic control devices have been installed as set forth in this Section. Provided, however, that in any instance where temporary traffic control devices are utilized as provided in this Section the plat may be recorded and such permanent signs included in the surety instrument.

9. Street Names

All proposed street names must be approved by the Planning Commission upon recommendation by the City Transportation Engineer.

503.2 Private Streets

Where control and maintenance of any street is proposed to remain in private ownership such streets shall be designed and constructed to the public street standards as herein provided. A permanent access, utility and drainage easement over such streets shall be provided to each and every parcel or lot that is to gain access therefrom.

The developer, and ultimately, the homeowner's association or other legal entity incorporated for the maintenance of the development shall be responsible for the maintenance of all streets, components, traffic control materials, drainage structures, drainage ways and rights-of-way or easements upon completion of construction and subsequent approval by the City Engineer. The provisions for maintaining such private improvements must be approved by the Planning Commission. The legal documents establishing ownership and maintenance of the easement shall be submitted with the final plat for review and approval and shall be recorded with the final plat. All private improvements shall be completed prior to final plat approval. Subsequent requests by the owner for the dedication to or maintenance of such streets and drainage facilities by the City shall require that all such facilities be improved to public facility standards by the owner prior to consideration of dedication and acceptance by the City.

Private streets shall conform to the following provisions:

1. All hardware such drop inlets and all drainage structures shall meet the standards set forth herein and in other design standards approved by the City Engineer and contained in the City of Bristol Construction Standards.
2. All curbs shall meet or exceed the standards set for in these regulations for public streets. Subject to approval of the City Engineer, materials may be varied to conform to alternative materials chosen for private streets.

3. Pavement and base thickness shall equal or exceed the load bearing capacity, cross sectional area, structural integrity and life expectancy of public streets specified herein. Subject to the requirements of this section and approval of the City Engineer, alternative street construction surfacing materials such as concrete (including exposed aggregate) and pavers may be utilized.
4. Vehicular access shall be shown on the plat, and shall be approved by the Planning Commission except in the instance of straight driveways serving single lots.
5. Parking bays may generally be permitted upon or adjoining private streets provided that in all instances an open unobstructed travel way of sufficient width to provide access for emergency vehicles is maintained and the design does not require vehicles to back into the street.

503.3 Requirements for Dedications, Reservations, or Improvements

Where a proposed subdivision adjoins or encompasses either a substandard street or a route depicted upon the major road plan that is to be opened, widened or realigned, the following shall apply:

1. Undeveloped Property

- a. Substandard Streets

Substandard streets encompassed by or adjacent to the proposed subdivision shall be improved by the developer in accordance with the minimum standards set forth in Section 504-4, Tables V-1, V-2 and V-3 for that street portion located within the boundaries of the subdivision or the abutting street half.

- b. Planned Routing

When applicable, the street(s) layout within the subdivision shall conform to the routing depicted upon the major road plan. The amount of right-of-way for the type of street required shall be dedicated up to a maximum of that required for construction of Collector routes. Where a depicted street requires a right-of-way greater than that required for construction of a Collector status street, the developer shall show on the face of the plat an additional area reserved for future right-of way and any required yard area shall be measured from the reservation line.

The developer will not be required to improve or construct any street within a residential area greater than that of a collector street as defined and depicted in these regulations unless an approved traffic impact study required such construction.

2. Developed Property

When property containing existing buildings or structures is being divided in order to place each building or structure on a separate lot and the future right-of-way will fall within the footprint of an existing building or structure, the

subdivider may be required to reserve additional area necessary for the future right-of-way. This provision shall be imposed to provide for the compliance with the major road plan. The Planning Commission shall require such dedication if sufficient land area remains to allow the reasonable use of the property. The plat shall also contain a note that states when any existing building or structure is demolished, the setback requirements for any new building or structure shall be measured from the reservation line.

3. Required Improvements or Dedications

All on-site traffic improvements identified as being required in a traffic impact study prepared in accordance with the requirements of these regulations shall be made by the developer upon land which the developer controls. Any off-site improvements identified in such study shall be made on a pro-rata basis to the extent the subdivision contributes to the requirement for such improvement(s). The Department of Development Services staff shall be responsible for calculating the extent of participation required in off-site improvements subject to the approval of the City Manager.

503.4 Street Lighting

1. General

- a. All new public streets within the corporate limits of the City of Bristol Tennessee shall be equipped with street lighting. The Planning Commission may require the installation of street lighting in private developments.
- b. The Planning Commission may require public and private streets outside of the corporate limits to be equipped with street lighting upon recommendation by the Sullivan County Highway Department.

When street lighting is required in developments outside the corporate limits, a homeowners association or other funding mechanism shall be required that shall ensure the continued payment for electricity to operate such street lighting. Prior to final plat approval, the homeowners association or other approved entity shall have executed an electric service contract with the Bristol Tennessee Electric System. If the development is subsequently incorporated by Bristol, Tennessee, the City shall assume the cost of operating such lighting consistent with the applicable agreement with the Bristol Tennessee Electric System.

- c. Within the corporate limits of Bristol, Tennessee required street lighting shall be constructed under agreements promulgated between the City and the Bristol Tennessee Electric System.

2. Conformance to Standards

All street lighting on a public or private street will be installed to the specifications of the Illuminating Engineering Society for public streets and shall be approved by the Bristol Tennessee Electric System and the City Transportation Engineer.

3. New Streetlights on Existing Streets

The Planning Commission may require the installation of streetlights on existing unlit public streets for the portion of the street fronting the development.

503.5 Underground Utilities

The Planning Commission may require installation of underground utilities where deemed appropriate (i.e. electric, phone, catv, etc.).

503.6 Limitations – Curb, Gutter and Sidewalk Provisions

Notwithstanding any other provision of these regulations to the contrary, curbs, gutters, or sidewalks shall not be required in any subdivision located outside the City limits of the City of Bristol Tennessee, unless both public water and sanitary sewage systems are to be made available within eighteen (18) months after the subdivider requests approval of the subdivision. The construction of ditch section streets in this instance shall meet the requirements of 504-4-2-b, Appendix A, and Appendix B.

503.7 Pedestrian Ways

1. Sidewalks – Commercial and Industrial Subdivisions

Sidewalks shall be required along all existing and proposed streets in commercial and industrial subdivisions unless granted a variance by the Planning Commission. Developments proposing the construction of new streets shall construct sidewalks on each side of the proposed street. Developments proposing the subdivision of land on one side of an existing street, shall construct sidewalks on that side of the street the subdivision is proposed. All sidewalks shall adhere to the Americans with Disabilities Act Guidelines and Requirements and the provisions of these regulations. The developer, when appropriate, may be required to dedicate additional right-of-way to accommodate the required sidewalks.

2. Sidewalks – Residential Subdivisions.

Sidewalks are not required in new residential subdivisions. When constructed, sidewalks shall adhere to the Americans with Disabilities Act Guidelines and Requirements and the provisions of these regulations.

3. Location of Sidewalks

Sidewalks shall be included within the dedicated non-traffic portion of the right-of-way or in easements indicated on the plat. A median strip of grassed or landscaped area that is at least three (3) feet wide shall separated all sidewalks from adjacent curbs or pavement, except, within ten (10) feet of intersections, non grass strip will be required. No sidewalk shall be constructed closer than eighteen (18) inches from the right-of-say line. Typical street cross sections with sidewalks are shown in Appendix A of these regulations.

4. Sidewalk Width

When constructed, the width of sidewalks shall be as set forth below. Sidewalk widths shall be exclusive of encroachments such as utility poles, fire hydrants, parking meters, sign standards, street furniture, etc.

SIDEWALK WIDTH

<u>A. Street Classification</u>	<u>Minimum Sidewalk Width (Ft)</u>
Alley	N/A
Residential	4
Non-residential local	5
Collector	6
Arterial	6

5. Alternate Pedestrian Ways

When proposed, the Planning Commission may approve pedestrian walkways at locations other than along the rights-on-way of streets. The Planning Commission may approve such an alternative system, upon the recommendation of staff, when it is determined that the location and design meet ADA requirements, the design is determined safe for pedestrian movement, and the location enhances the overall design of the development.

6. Alternative Pedestrian Ways

The Planning Commission may approve pedestrian walkways at locations other than along the rights-of-ways of streets. The Planning Commission may approve such alternative designs when it is determined that the design is ADA compliant, the design is determined to be safe for pedestrian traffic, and the design is complimentary to the proposed development, and if any, existing pedestrian ways.

The Planning Commission may require a twenty (20) foot wide easement for such pedestrian ways and the easement shall be indicated on the plat.

504. Functional Design Criteria

504.1 Purpose

The standards set forth in this section are required in order to provide public ways of suitable design to safely accommodate prospective traffic and afford satisfactory access to police, fire-fighting, sanitation and street-maintenance equipment. These standards are designed to coordinate public ways so as to compose a convenient and safe transportation system and avoid undue hardships to adjoining properties. These provisions are intended to establish appropriate standards for the design of streets in subdivisions that will:

1. Promote the safety and convenience of vehicular traffic;
2. Protect the safety of neighborhood residents;
3. Minimize crime in residential areas;

4. Protect the residential qualities of neighborhoods by limiting traffic volume, traffic speed and noise;
5. Encourage the efficient use of land;
6. Minimize the cost of street construction;
7. Minimize the construction of impervious surface thereby protecting the quantity and quality of the community's water resources.

504.2 Design Hierarchy

There is hereby established a design hierarchy according to street function. The purpose of the hierarchy is to establish clear functional guidelines and limitations to be utilized in the design of streets.

1. New Streets

Each proposed street shall be classified and designed for its entire length to meet or exceed the minimum standards for one of the following street types:

- a. Alley
- b. Residential Street
- c. Non-Residential Local Street
- d. Major Collector Street
- e. Minor Collector Street
- f. Arterial Street

2. Existing Streets

Each street abutting or affecting the design of a subdivision or land development which is not already classified on the City's major road plan shall be classified according to its function, design and use by the Planning Commission at the request of the applicant and upon recommendation by the Department of Development Services staff during the plan review process. The classification of existing streets shall include the hierarchy of Section 504-2-1 and may also include classifications of higher order as determined by the adopted major road plan.

3. Traffic Volume Calculations

Trip generation rates and methodology for proposed subdivisions shall be determined using the trip generation rates found in the latest edition of the Institute of Transportation Engineers' Trip Generation Manual.

504.3 Street Hierarchy Criteria and Service Restrictions

This section is intended to provide information as to the function, design capacity and service limitations of the various street types presented in Section 504-2.

1. Alleys

a. Street Function

Alleys serve to provide access to the rear of adjacent properties without allowing for frequent use of through traffic. All alleys shall be designed as a single lane street with geometry sufficient to allow movement of traffic.

b. Design Capacity and Service Restriction

An alley shall not be designed on the basis of traffic capacity, but only upon the ability to provide access to the rear of adjacent properties.

c. Street Access

Alleys may intersect with a collector or lower classification street. However, intersections between alleys must include sufficient right-of-way to allow turning movements. Alleys must connect to public ways at each end. Dead-end alleys are not permitted.

2. Residential Street

a. Street Function

Residential streets are designed to provide access to individual residential properties as well as access to the higher classification street network. The residential street provides for neighborhood circulation and neighborhood traffic as the majority of the traffic movements. Residential streets offer the lowest level of mobility and discourage through traffic movement.

b. Design Capacity and Service Restriction

The residential street is designed based on the number of dwelling units accessing the street. Residential streets should be designed to discourage fast movement through the use of curvilinear alignment and discontinuities in the street system.

c. Street Access

If the total number of dwelling units accessing the residential development exceeds 150, a minimum of two (2) access points must be provided and one (1) of the access points must be to a street of higher classification.

3. Non-Residential Local Street

a. Street Function

Non-residential local streets are designed to provide access to individual commercial and industrial properties as well as access to the higher classification street network. The non-residential local street provides for

circulation in the commercial and industrial areas and discourages through-traffic movements.

b. Design capacity and service restriction

The non-residential local street is designed where the anticipated traffic volumes do not exceed 2,500 trips per day. Whenever possible, non-residential local streets shall be designed to minimize residential lot frontage and access.

c. Street Access

A minimum of two (2) intersections must be provided on the non-residential local street that accesses another street of the same or higher classification. This provision shall not apply to cul-de-sacs.

4. Collector Street

a. Street Function

Collector streets accumulate traffic from lower classification systems and distributes the traffic to the arterial transportation systems. Conversely, the collector street also distributes traffic from the arterial transportation system to the lower street classification system. Major collectors are those that may have a need for additional right-of-way for such things as sidewalks. Minor collectors are those that do not have the need for additional right-of-way to accommodate other multi-modal attributes but still need new adequate right-of-way for vehicular movement.

b. Design Capacity and Service Restriction

The collector street is designed for anticipated traffic volumes ranging from 2,500 to 6,000 trips per day. Collector streets shall be designed to have no residential lot frontage or access.

c. Street Access

A minimum of two (2) intersections must be provided on the collector streets that access another street of the same or higher classification.

504.4 General Design

The general design of all public ways shall conform to the standards presented in this section and as set forth in Appendix A.

1. Typical Street Sections

Typical sections to be used for design of streets are shown in Appendix A.

2. Street Edge Requirements

a. Curb and Gutter Streets

Curbs and gutters are required on all streets that have a non-residential local or higher classification. Curbs and gutters are required on all residential streets excepted as noted below in Section 504-4-2-b.

b. Ditch Section Streets

Side ditch construction may be allowed when lot frontages average at least 150 feet and are not less than 100 feet. This provision also requires that driveway access, considered as a minimum of twenty (20) feet in width, shall not exceed 20% coverage of any ditch section street. Side ditch construction must be approved by the Planning Commission at the time of Preliminary Plat approval and be shown on construction plans approved by the City Engineer. Construction must be consistent with these regulations and the construction standards of the City of Bristol Tennessee.

When topographic conditions necessitate that two or more driveway connections be located so as to exceed a ditch coverage of 50 feet, when measured from the outside edges of any two driveways, culvert size and design must be approved by the City Engineer and included in construction drawings and drainage plans at the time of approval. Any such design shall be constructed at the time of street construction and shall be made part of the surety instrument.

The intention of these regulations is to require natural vegetative ditches where possible.

Ditches shall be treated at the time of street construction to minimize erosion. Treatments may include sodding or seeding with mulching, geotechnical fabrics or blankets, or other synthetic materials, which aid in the establishment and maintenance of a natural vegetative cover. Concrete liners may be utilized where natural vegetative cover is not feasible, as determined by the City Engineer. All treatments shall be approved by the City Engineer and shown on the drainage and erosion control plans.

All side ditches shall be designed to have a minimum of 2% slope and not to exceed 12% slope unless approved by the City Engineer.

Lots located in subdivisions approved with side ditch construction shall not be further subdivided in a manner to violate the provisions allowing the side ditch construction. The final plat shall include a statement forbidding the resubdivision of lots with street frontage of less than 150 feet.

c. Limitations – Curb, Gutter and Sidewalk Provisions

Notwithstanding any other provision of these regulations to the contrary, curbs, gutters, or sidewalks shall not be required in any subdivision located outside the City limits of the City of Bristol Tennessee, unless both public water and sanitary sewage systems are to be made available within eighteen (18) months after the subdivider requests approval of the subdivider's plan of subdivision. The construction of ditch section streets in this instance shall meet the requirements of 504-4-2-b, Appendix A, and Appendix B.

3. Rights-of-Way and Travel Way Width

Minimum right-of-way and travel way widths shall be provided as shown in the following table:

**TABLE V - 1
MINIMUM TRAVEL WAY AND RIGHT-OF-WAY WIDTHS**

Street Classification	NUMBER OF DWELLING UNITS					
	1 – 10		11 – 30		> 30	
	Travel Way Width (ft)	R.O.W. Width (ft)	Travel Way Width (ft.)	R.O.W. Width (ft)	Travel Way Width (ft.)	R.O.W. Width (ft)
Alley	12	20	12	20	12	20
Residential	22	40	24	40	28	50
Split	12	20	12	20	12	20
Loop	12	20	12	20	N/A	N/A
Non-Residential Local	28	50	28	50	28	50
Major Collector	40	70	40	70	40	70
Minor Collector	40	60	40	60	40	60
Frontage	24	50	24	50	24	50

a. Travel Way Width

Travel way width indicates the distance between the faces of the curbs on curbed streets, or edge of pavement to edge of pavement on ditch section streets.

b. Split Streets

Split streets are only allowed under the residential street classification. The maximum distance allowed between median cuts or crossovers on split street is 500 feet. Split streets are one-way streets.

c. Loop Streets

Loop streets are only allowed under the residential street classification. The maximum length allowed for a loop street is 1,000 feet. A maximum of twenty (20) dwelling units can access a loop street. Loop streets are one-way streets.

d. Reduction in Right-of-Way Width

The Planning Commission may approve reduction of the right-of-way width for residential streets upon recommendation of the City Engineer and under the following conditions:

1. The site is located within a Zero Lot-Line or Cluster Development;
2. The residential street contains all required utilities and expansion of the street or utility system is not appropriate;
3. The reduced right-of-way is of sufficient width to contain all roadside appurtenances such as streetlights, guardrails, curbs, shoulders, drainage ditches, sidewalks, pedestrian or bicycle paths, traffic control devices, cut and fill slopes, etc. unless separate rights-of-way

or easements are being provided elsewhere for the appurtenances or the appurtenances are not required by the proposed development. In no instance shall a right-of-way have a width of less than twenty (20) feet.

e. Increase in Right-of-Way Width

The Planning Commission shall have the ability to require greater right-of-way widths than established in these regulations upon recommendation of the City Engineer and when necessary to adequately provide for infrastructure construction.

f. On-Street Parking

The Planning Commission reserves the right to request that City Council establish parking restrictions on a street based on public safety, travel way width, type or density of the development, street design, topography, etc. and upon the recommendation of the Department of Development Services staff.

4. Design Standards

Table V-3 provides general information regarding street design standards.

5. Intersections

- a. Streets shall intersect as nearly as possible to a 90 degree angle for a minimum of fifty (50) feet from the intersection. A proposed intersection of two (2) public ways at an angle of less than seventy-five (75) degrees shall not be permitted. No more than two (2) public ways shall intersect at any one point unless specifically approved by the Planning Commission.
- b. Centerline offsets of less than one hundred fifty (150) feet between T-type intersections shall not be permitted except where the intersected public ways have separated dual travel ways without median openings at either intersection. Where public ways intersect arterial or collector routes, their alignment shall be continuous. Intersections of arterial or collector streets shall be at least eight hundred (800) feet apart.
- c. Minimum curb or edge of pavement radius shall be determined as specified below:

TABLE V-2
Minimum Radius of Returns For Street Intersections

STREET CLASSIFICATION	MINIMUM RETURN RADIUS*
RESIDENTIAL	25 feet
NON-RESIDENTIAL LOCAL	40 feet
COLLECTOR	40 feet
HIGHER ORDER STREETS	As determined by the City Engineer

When streets of different classifications intersect, the return radius shall be determined by the value for the higher classification street. A radius

larger than shown may be required by the City Engineer based on a traffic analysis and/or the anticipated vehicular turning movements.

- d. Whenever a proposed street intersects an existing or proposed street of higher classification, the street of higher classification shall be designated as the through street unless otherwise recommended by the Department of Development Services staff.
- e. The maximum longitudinal grades allowed on the minor street at all intersections are defined in Table V-3 of these regulations.
- f. Adequate sight distance must be provided at all intersections as defined in Table V-3. Where the sight distance line lies outside the public right-of-way, a sight distance easement is required.

6. Acceleration and Deceleration Lanes

- a. Deceleration or turning lanes may be required by the Planning Commission along existing and proposed streets as determined by a traffic impact study or when recommended by the City Transportation Engineer.
 - 1. The lane width shall be the same as the required width of the street through lanes.
 - 2. The minimum lane width shall be maintained throughout the storage length of the turn lane. The storage lane shall be a minimum of 100 feet in length. The City may require a storage lane length in excess of 100 feet based on a traffic impact study.
 - 3. A taper of sufficient length to meet the standards of the Tennessee Department of Transportation shall be provided.
- b. Acceleration lanes are required when indicated as necessary by a traffic impact study or when recommended by the City Transportation Engineer. The design shall be as per the recommendation of the City Engineer.

7. Arrangement of Dead-End Streets

a. Stub Streets

Construction of stub streets may be permitted or required by the City within the proposed development under the following circumstances:

- 1. The stub street will provide access to a future phase of the development and/or adjacent properties;
- 2. The stub street will provide for the future extension of a street that conforms to the adopted major road plan;
- 3. Stub streets do not require a temporary turnaround. Stub streets can be no longer than one lot in length. A maximum of two (2) lots may front on a stub street (one lot each side).

TABLE V-3

GENERAL DESIGN STANDARDS FOR STREETS

DESIGN FEATURE	MINIMUM DESIGN REQUIREMENT	
Design Speed		
Alley	20 mph	
Residential	25 mph	
Non-Residential Local	25 mph	
Collector	35 mph	
Arterial	40 mph – subject to approval	
Maximum Grade		
Alley	12 %	
Residential	12 %	
Non-Residential Local	10 %	
Collector	8 %	
Minimum Grade		
All Streets	1 %	
Horizontal Curvature	To be designed as per applicable AASHTO standards. Minimum 25 mph design speed = 175 feet.	
Maximum Superelevation	To be designed as per applicable AASHTO standards. Maximum superelevation = .04 ft/ft.	
Minimum Tangent Between Reverse Curves	To be designed as per applicable AASHTO standards. A minimum tangent of 50 feet must be provided on residential streets. A minimum tangent of 100 feet must be provided on non-residential local and higher classification streets.	
Minimum Stopping Sight Distance	To be designed as per applicable AASHTO standards. For 25 mph: Crest K = 20, Sag K = 30	
Minimum Radius of Return at Intersection		
	Residential	Non-Residential
At right-of-way line	25 ft.	30 ft.
At edge of pavement/face of curb	25 ft.	40 ft.
Minimum Intersection Sight Distance	Ten (10) times the design speed of the through street in feet or a minimum of ten (10) times the posted speed limit of the through street in feet, whichever is greater. See Figure in Appendix A.	
Maximum Grade at Intersections		
Alley	5 % (within 50 feet)	
Residential	5 % (within 50 feet)	
Non-Residential Local	3 % (within 50 feet)	
Collector	3 % (within 100 feet)	
Pavement Crown	The pavement crown shall slope downward from the centerline of the street to the edge of the paved surface at ¼ inch per foot, except in those locations with superelevation.	
Turnaround Standards for Dead End Street (Permanent and Temporary)		
	Residential	Non-Residential
Pavement radius	45 feet	50 feet
Right-of-way radius	55 feet	60 feet
Maximum Length	600 ft or 36 dwelling units	500 feet

b. Permanent Dead-End Public Ways

The terminus of a public way shall not be closer than 150 feet to the subdivision boundary unless continuation of the public way is required by the Planning Commission for access to adjoining property. However, the Planning Commission may require the reservation of an appropriate easement to accommodate drainage facilities, pedestrian traffic, utilities or other infrastructure. A cul-de-sac turnabout shall be provided at the end of a dead-end public way in accordance with the design standards of these regulations.

For greater convenience to traffic and more effective police and fire protection, permanent dead-end public ways shall, in general, be limited in length in accordance with the design standards of these regulations.

The cul-de-sac design standards for a permanent dead-end public way are shown in Table V-3.

c. Temporary Dead-End Public Ways

Temporary dead-end public ways may be permitted only within subsections of a phased development for which the proposed street extension in its entirety has been approved as part of an approved preliminary plat.

A cul-de-sac turnabout shall be provided at the end of a temporary dead-end public way in accordance with the design standards of these regulations. The length requirement of a temporary dead-end public way is the same as the requirements for a permanent dead-end public way.

The cul-de-sac design standards for a temporary dead-end public way are shown in Table V-3.

8. Railroads and Limited Access Highways

Railroad and limited access highway rights-of-way, where so located as to affect the subdivision of adjacent lands, shall be treated as follows:

- a. In residential areas, a buffer strip at least twenty (20) feet wide in addition to the normal lot setback may be required by the Planning Commission adjacent to the railroad or limited access highway right-of-way. The buffer strip must be contained on the lot in an easement. The strip is reserved for screening and buffering of the development.

Screening for railroads and limited access highways must meet the requirements of Section III0, Manufacturing Standards, M-3 zone of the City Landscape Ordinance.

Screening in the buffer strip shall be placed so as not to interfere with sight distance, either at street intersections or at railroad-highway surface grade crossings.

- b. In commercial and industrial areas, the nearest public way extending parallel or approximately parallel to the railroad shall, wherever

- c. All designs of at-grade railroad crossings must be approved by the City Transportation Engineer.

9. Bridges

Bridges determined by the Planning Commission to be of primary benefit to the subdivider shall be constructed at the expense of the subdivider without reimbursement from the governing body. The sharing of expenses for the construction of bridges not of primary benefit to the subdivider, as determined by the Planning Commission, shall be fixed by special agreement between the City Council or County Commission, and the subdivider. The cost shall be charged to the subdivider pro rata as to the percentage of his development so served.

Bridge design and construction shall be approved by the appropriate governing body.

Bridges shall be designed so that the bottom of any part of bridge (excluding abutments and piers) is a minimum of one foot above the regulatory flood elevation.

505. Street Design Standards

The street design standards are included in these regulations as Appendix A, and are adopted as a part hereof. These design standards shall be the minimum standards for any subdivision within the Planning Commission's jurisdictional area.

506. Drainage and Storm Sewers

506.1 General Requirements

All subdivisions shall provide adequate provisions for storm water or floodwater run-off channels or basins as determined by the City Engineer. The storm water drainage system shall be separate and independent from any sanitary sewer system.

506.2 Nature of Storm Water Facilities

1. Storm Water Design Standards

The storm water design and construction specifications are included in these regulations as Appendix B, and are adopted as a part thereof. These specifications shall be the minimum standards for any subdivision within the Planning Commission's jurisdictional area.

a. Location

The subdivider may be required by the City Engineer to transport by closed conduit or open channel any spring or surface water that may exist prior to or as a result of the subdivision. Such drainage facilities shall be located in the public right-of-way, wherever feasible, or in

perpetual unobstructed easements of appropriate width. These drainage facilities shall be constructed in accordance with the standards and specifications of the governing body.

b. Accessibility to Public Storm Sewers

Where a public storm sewer system is accessible, the developer shall install storm sewer facilities, or if no public storm sewer systems are within a reasonable distance, adequate provision shall be made for the disposal of storm water subject to the standards contained herein. Inspection and approval of the storm sewer facilities shall be by the City Engineer.

c. Accommodation of Upstream Drainage Areas

A culvert or other drainage facility shall in each case be sized to accommodate potential runoff from the entire upstream drainage area, whether inside or outside the subdivision. The size shall be based on the standards set forth in Appendix B.

d. Effect on Downstream Drainage Areas

The developer shall prepare and submit to the City Engineer a study about how storm water runoff from the proposed subdivision impacts existing downstream properties and drainage facilities.

Increased flow rates, volumes, and velocities of storm water generated by a development must be calculated and may only be released if the increased runoff is conveyed to an adequate downstream watercourse or drainage facility without adverse impact (as determined by the City Engineer) upon the land over which the waters are conveyed or upon the watercourse or drainage facility into which such waters are discharged.

Where the additional runoff incident to a development will overload an existing downstream drainage facility, the Planning Commission may withhold approval of the subdivision until provisions have been made for adequate improvement of such drainage facilities.

The developer may be required to construct adequate downstream drainage facilities, contribute a pro-rata share toward the construction of adequate downstream drainage facilities, or install on-site storm water management facilities to mitigate the downstream impacts. The Planning Commission reserves the right to require pro-rata share contributions or downstream improvements where storm water management facilities are not appropriate for the overall drainage facilities and the City in general.

On-site storm water management facilities proposed to reduce the peak rate of discharge to the off-site drainage facilities in lieu of downstream improvements shall not cause increased peak flows or velocities detrimental to downstream properties or drainage facilities. When storm water management facilities are utilized, the peak rate of discharge after development shall not exceed the predevelopment peak rate. Adequate provision must be made to prevent erosion due to changes in the

discharge and adequate provision must be made for downstream accommodation of increased volumes of runoff.

Should the City Engineer determine that downstream conditions dictate additional control of storm water, the developer shall install flow control devices as approved by the City Engineer.

Storm water management facilities shall be platted as perpetual drainage easements. Estimated increases in discharge velocity shall be mitigated by energy dissipation devices where required to prevent erosion.

The drainage system shall be designed to honor natural drainage divides, where practical. Surface waters shall not be concentrated and discharged onto adjoining property at rates and/or velocities exceeding predevelopment conditions unless an easement expressly authorizing such discharge has been granted by the owner of the affected land or unless the discharge is into an adequate natural watercourse or drainage system.

e. Floodplain Areas

The floodway shall be preserved from any and all destruction or damage resulting from clearing, grading, or filling of earth, waste material or stumps. Any subdivision which contains flood prone land shall be subject to the special provisions set forth in Sections 201-6 and 501-4 of these regulations and the Bristol Tennessee Planning and Zoning Ordinance and Sullivan County Zoning Regulations.

f. Storm Water Management and Discharge Control

The general policy of the City is to allow release of the increased volume of storm water generated by a development rather than require storm water management facilities if the increased runoff can be conveyed to an adequate drainage way which will not cause downstream flooding, erosion or adversely impact downstream properties.

Any drainage system that discharges surface runoff without detention, shall route its water along a designated public drainage easement. A drainage system can be allowed to discharge along an existing (prescriptive) but non-recorded easement if all of the following are true:

1. Post-development flow is less than or equal to the pre-development flow at the same location.
2. The drainage system discharge approximates the width and velocity of the flow which existed prior to development and does not cause erosion.

506.3 Dedication of Drainage Easements

1. General Requirements

Where the subdivision is traversed by a watercourse, drainage way, channel, or stream, there shall be provided a storm water easement or drainage right-

of-way of adequate width that conforms to the requirements set forth below and in Appendix B.

2. Drainage Easements

- a. Where topography or other conditions make the inclusion of drainage facilities within a public right-of-way impracticable, perpetual unobstructed drainage easements shall be provided across property outside the public right-of-way lines and with satisfactory access to public ways. Easements shall be indicated on the preliminary and final plats. Drainage easements shall be carried from the public right-of-way to a natural watercourse, existing drainage facility or existing drainage easement.
- b. When downstream drainage improvements are proposed which will require additional easements across private land outside the subdivision, appropriate drainage easements must be secured by the developer and indicated on a plat amendment for that property.
- c. The applicant shall dedicate, when required by the Planning Commission, either in fee, or by drainage or conservation easement, the land on both sides of an existing watercourse for a distance to be determined by the City Engineer.
- d. Areas along watercourses and low-lying lands within any floodway, as determined by the City Engineer pursuant to Section 201-6 of these regulations shall be preserved and maintained as required by the adopted flood management ordinance whether or not included in areas for dedication.

507. Water Facilities

507.1 General Requirements

1. All subdivisions within the corporate limits of the City of Bristol Tennessee shall provide a public water supply to each lot therein. When a subdivision is outside the corporate limits of the City of Bristol Tennessee but inside the Planning Boundary of the Bristol Regional Planning Commission and where a public water main is within reasonable access of the subdivision, as determined by the Planning Commission, and the subdivision is determined to not be more than 1000-feet from a public water main, the subdivider shall provide a public water supply to each lot therein, including fire hydrants. The public water authority of jurisdiction, the City of Bristol Tennessee and the State of Tennessee Department of Environment and Conservation, must approve the design, installation and material specifications utilized in the extension of the public water system. The Planning Commission may vary this requirement when topographic, geologic conditions, or other mitigating factors make the extension of public water lines infeasible. Prior to such a determination by the Planning Commission the staff shall submit a recommendation on such a variance request. The Planning Commission reserves the right to require the subdivision to extend a public water main to the subdivision if the existing public water main is not within 1000-feet of the subdivision if deemed so appropriate.

2. All provisions of Appendix C must be met.
3. The City or Public Water Authority of Jurisdiction may extend water service to within 1000 feet of any proposed development, necessitating the installation of a public water system as provided above.
4. Where required for fire protection water mains shall not be less than six (6) inches in diameter. Larger diameter lines may be required in order to provide appropriate fire flow.
5. All water systems, whether public or private, located in a flood prone area shall be floodproofed to the regulatory flood protection elevation. All water supply facilities located below the regulatory flood protection elevation shall be designed to prevent the infiltration of floodwaters into the water supply system and discharges from the system into floodwaters.
6. All water systems, whether public or private, shall be constructed utilizing materials that comply with all federal, state and local materials specifications.
7. In rural areas where a public water system is not available, the Planning Commission may approve subdivision of lots with private wells. However, lots proposed to be served by wells and subsurface sewage disposal systems shall be a minimum of one (1) acre in area and have received approval from the State of Tennessee, Department of Environment and Conservation office for the location of a well and subsurface sewage disposal system compliant with Section 508-3 below.

507.2 Fire Hydrants

Fire hydrants in residential areas shall be located no more than 900 feet apart as measured along the servicing street and be within 450 foot of any residential lot. Fire hydrants in commercial and industrial areas shall be located no more than 500 feet apart as measured along the servicing street and be within 250 foot of any commercial or industrial lot. The City Engineer and Fire Chief may require a closer spacing based on physical site conditions, city fire codes, types of structures, spacing of structures, etc.

508. Sewage Facilities

508.1 General Requirements

The applicant shall install sanitary sewer facilities in a manner prescribed by the regulations of the Tennessee Department of Environment and Conservation and by the City Engineer. All plans shall be designed and approved in accordance with the rules, regulations, specifications, and standards, of any applicable governing body or appropriate unit thereof.

508.2 Mandatory Connection to Public Sewer System

1. All subdivisions within the corporate limits of the City of Bristol Tennessee shall provide public sanitary sewer facilities to each lot therein. When a subdivision is outside the corporate limits of the City of Bristol Tennessee but inside the Planning Boundary of the Bristol Regional Planning commission and where a public sanitary sewer main is within reasonable access of the

subdivision, as determined by the Planning Commission, and the subdivision is determined to not be more than 1000-feet from the public sanitary sewer line, the subdivider shall provide a public sanitary sewer system to each lot therein and shall connect the facilities to the public system. The Planning Commission may vary this requirement when topography, geologic conditions, or other mitigating factors make the extension of public sanitary sewer lines infeasible. Prior to such determination by the Planning Commission the staff shall submit a recommendation on such a variance request. The Planning Commission reserves the right to require the subdivider to extend a public sanitary sewer line to the subdivision if the existing public sanitary sewer line is not within 1000-feet of the subdivision if deemed so appropriate.

2. The City or County may extend sewer service to within 1000 feet of any proposed development, necessitating the installation of public sanitary sewer as provided above.
3. All public sanitary sewer systems shall be constructed utilizing materials that comply with all federal, state and local specifications.

508.3 Subsurface Sewage Disposal System Requirements

If public sanitary sewer facilities are not available and subsurface sewage disposal systems are proposed, lot areas shall not be less than the minimum required by the office of the Tennessee Department of Environment and Conservation – Division of Ground Water Protection or Sullivan County Zoning Resolution, whichever is greater, and the subsurface sewage disposal system must be approved for a minimum three (3) bedroom, or greater, dwelling unit. All pertinent soil absorption tests shall be made as directed by the Environmentalist and the results submitted to the local TDEC office for approval.

The subsurface sewage disposal system, including the size of the septic tank and size of the tile fields or other secondary treatment device, also shall be no less than that required by the TDEC, Division of Ground Water Protection or Sullivan County zoning whichever is greater. The entire subsurface sewage disposal system, including all tile fields associated therewith, shall be located on the same lot with the principal building or structure that the system will serve. When it is determined to be required by the TDEC, Division of Ground Water Protection, the area approved for the installation of an initial and duplication area for the subsurface sewage disposal system shall be indicated on the final plat by the local TDEC office. No construction shall be approved within this area without the written approval of the Sullivan County Environmental Office, State of Tennessee, Department of Environment and Conservation.

The Planning Commission may prohibit installation of sewage disposal facilities requiring soil absorption where such systems will not function due to high groundwater, flooding, or unsuitable soil characteristics. The Planning Commission may require that the subdivider note on the face of the plat and any deed of conveyance that tile fields are prohibited in designated areas.

For Subdivision Plats consisting of pre-existing septic systems, the local TEDC office shall illustrate the approximate location of the entire septic system(s) to ensure that the system(s) does not impose upon any proposed lot. If the existing system(s) does cross a proposed property line, an easement shall be illustrated

on the plat as well. The applicant shall also verify that approval for the existing system(s) was secured, and a permit is on file with the Tennessee Department of Environment and Conservation, Division of Ground Water Protection (TDEC), formerly known as the Health and Environment office. The local TDEC office shall verify such record and stamp the proposed plat indicating prior approval.

Any dwelling and septic system, which were constructed and maintained prior to the adoption of the State of Tennessee's Department of Health subsurface sewage disposal regulations (April 15, 1974) and with no SSDS permit on file, the local TDEC office shall illustrate the approximate location of the septic system for that lot and the Division of Ground Water Protection shall approve a duplicate SSDS reserve area.

508.4 Design Criteria for Sanitary Sewers

1. General

These design criteria are not intended to cover extraordinary situations. Deviations can be allowed and may be required in those instances where considered justified by the Planning Commission.

2. Design Factors

Sanitary sewer systems shall be designed for the ultimate tributary population. Due consideration must be given to any current zoning regulations and approved planning reports, where applicable. Sewer capacities shall be adequate to accommodate the anticipated maximum hourly quantity of sewage and industrial wastes, if appropriate, together with an adequate allowance for infiltration and other extraneous flow. All sanitary sewer system designs must meet the requirements of Appendix D.

509. Utility Easements

509.1 Permanent Easements

Perpetual unobstructed easements along all lot lines, and additionally across lots, if deemed necessary by the Planning Commission, shall be provided for utilities (private or public). Such easements shall be at least ten (10) feet wide, except for across-lot easements that shall be at least twenty (20) feet wide. The subdivider shall take such actions as are necessary to ensure the coordination and continuation of utility easements established on adjacent properties with those proposed within the development. All easements shall be indicated on the final plat.

509.2 Temporary Construction Easements

Temporary construction easements exceeding the width of permanent easements may be required as necessary until completion of any one project.

510. Public Uses

510.1 Plat to Provide for Public Uses

Whenever a tract to be subdivided includes a proposed school, recreation use, a portion of a major public way, or other public use, as indicated on the land development plan and/or major road plan, or any portion thereof, such tract shall be suitably incorporated by the developer into the plat when first presented for review by the Planning Commission.

After proper determination of its necessity by the Planning Commission and the appropriate governmental representative(s) involved in the acquisition and use of such site, and after a determination has been made to acquire the site by the public agency, the site shall be suitably incorporated by the developer into the plat prior to final approval by the Planning Commission and recording of the plat.

510.2 Referral to the Governing Body Concerned

The Planning Commission shall refer any plat presented which proposes development of properties known to be under consideration for public use to the governing body concerned with acquisition of the land. The Planning Commission may propose alternate areas for such acquisition and shall allow the appropriate governing body thirty (30) days for reply.

Among the areas which the Planning Commission may propose for public acquisition, when deemed appropriate and consistent with the policies and purposes set forth in these regulations, is any land within a floodway or 100-year flood fringe as determined by the procedure outlined herein.

The acquiring agency's recommendation, if affirmative, shall include a map showing the boundaries and area of the parcel to be acquired and an estimate of the time required to complete the acquisition.

510.3 Notice to Property Owner

Upon receipt of an affirmative report, the Planning Commission shall notify the property owner and shall designate on all plats any areas proposed to be acquired by any governing body. Upon such designation by the Planning Commission, any reserved portion of any floodway or 100-year flood fringe shall not be altered from its natural state by the development in any manner whatsoever, except upon written approval of the Planning Commission.

510.4 Duration of Land Reservation

The acquisition of land reserved by a governing body on the final plat shall be initiated within twenty-four (24) months of notification, in writing, from the owner that the owner intends to develop the land. Such letter of intent shall be accompanied by a plat of the proposed development and a tentative schedule of construction. Failure on the part of the governing body to initiate acquisition within the prescribed twenty four (24) months shall result in the removal of the "reserved" designation from the area of acquisition and the freeing of the property for development in accordance with these regulations.

511. Preservation of Natural Features and Amenities

Existing features which would add value to residential development or to the area as a whole, such as significant geologic features, watercourses and falls, historic features, and similar irreplaceable assets, shall be preserved in the design of the subdivision, as

required by the Planning Commission. The grade of the land shall not be changed nor shall any natural features be removed or relocated until a preliminary subdivision plat has been approved by the Planning Commission.

512. Nonresidential Subdivisions

512.1 General

If a proposed subdivision includes land that is zoned for a commercial or industrial purpose, the layout of the subdivision with respect to the land shall provide for any provisions as the Planning Commission may require. A nonresidential subdivision shall also be subject to all the requirements of the site plan approval as set forth in the applicable zoning ordinance. The site plan approval may proceed simultaneously with the plat approval at the discretion of the Planning Commission. A nonresidential subdivision shall be subject to all the requirements of these regulations, as well as such additional standards set forth by the Planning Commission, and shall conform to the proposed land development plan, major road plan and the provisions of the applicable zoning ordinance.

512.2 Standards

In addition to the principles and standards in the regulations, which are appropriate to the planning of all subdivisions, the subdivider shall demonstrate to the satisfaction of the Planning Commission that the public way, parcel, and block pattern proposed is specifically adapted to the uses anticipated and takes into account other uses in the vicinity. The following principles and standards shall be observed:

1. Proposed industrial parcels shall be suitable in areas and dimensions to the types of nonresidential development anticipated;
2. Public way rights-of-way and pavements shall be adequate to accommodate the type and volume of traffic anticipated;
3. Special requirements may be imposed by the governing body with respect to any public way, curb, gutter, and sidewalk design and construction specifications;
4. Special requirements may be imposed by the governing body with respect to the installation of public utilities, including water, sewer, and storm water drainage;
5. Every effort shall be made to protect adjacent residential areas from potential nuisance from the proposed nonresidential subdivision, including the provision of extra depth in parcels backing on existing or potential residential development and provisions for permanently landscaped buffer strips, when necessary; and
6. Public ways carrying nonresidential traffic, especially trucks, normally shall not be extended to the boundaries of adjacent existing or potential residential areas.

END OF ARTICLE V

ARTICLE VI

DIFFICULT TERRAIN REGULATIONS

601. General Requirements and Minimum Standards of Design

601.1 Intent and Purpose

The intent of the difficult terrain regulations is to supplement these subdivision regulations and:

1. Provide for the safe design and construction of developments in difficult terrain;
2. Minimize flooding, ponding, landslides, mudslides, soil instability, erosion and downstream siltation due to development;
3. Protect rare and critical environments, such as aquifers and recharge areas, wildlife, fragile soils and geologic structures; and
4. Encourage good land planning and design while providing for mitigation of adverse impacts of land development on problem terrain regardless of zoning.

The purpose of the difficult terrain regulations is to provide construction standards better suited to more extreme topographical or irregular land areas, which are proposed for development, and reduce the need for variance requests. The difficult terrain regulations may be used in conjunction with these subdivision regulations on sites that contain difficult terrain areas. The purpose of the difficult terrain regulations is not to supplant criteria contained in the other articles of these subdivision regulations when these subdivision regulations may be utilized.

Much of the undeveloped land within the Bristol City limits consists of "difficult terrain." This article seeks to promote responsible residential development of such land, which will be functional, attractive, safe, serviceable, maintainable, affordable, and which will create a sense of "community."

601.2 Qualifying Requirements

The following qualifying requirements shall be met prior to consideration by the Planning Commission for designation as a difficult terrain development:

1. A tract or parcel of land proposed for a difficult terrain application shall be either in one ownership or filed jointly by all owners of the property;
2. The holder of a written "option to purchase" the land shall, for purposes of this application, be deemed to be the owner of said land;
3. A portion of a tract or parcel of land or a phase of the total development must be above 1) an average slope of 15% or more, determined from a contour

map that has contour intervals of five feet or less, using the following formula:

$$S = \frac{0.0023 \times I \times L}{A} \text{ where:}$$

"S" is the average natural slope of the parcel:

0.0023 is the conversion factor for square feet to acres;

"I" is the contour interval in feet or distance between adjacent contour lines;

"L" is the total length in feet of the contour lines within the parcel

"A" is the area in acres of the parcel

or: 2) have a topographic feature that precludes the development of any portion of the parcel under the other articles of these subdivision regulations.

4. The developer must provide sanitary sewer service;
5. Street design must be of curb and gutter construction, or an approved alternative as set forth in these regulations;
6. A public water supply must be provided meeting a minimum fireflow of 750 gpm for a minimum of two (2) hours duration and such other requirements of the City of Bristol Tennessee Fire Department Chief and City Engineer;
7. Property must be located within the planning region of the City of Bristol Tennessee;
8. The other articles of these subdivision regulations shall apply unless otherwise noted;
9. The property owner(s) of record shall agree that a clause will be added to the final plat stating the "future resubdivision, which creates additional lots on this plat, will not be permitted," and included in any restrictive covenants applied to the development.

601.3 Application and Procedure

An application for a difficult terrain development shall include the following:

1. A cover letter addressed to the Deputy City Manager of Development requesting a preapplication conference to be held between the applicant and the Department of Development Services staff for an understanding of the difficult terrain regulations and to discuss the applicant's proposed plans.
2. A sketch plat that includes the items required by Section 301 of these subdivision regulations.
3. Procedure for approval shall consist of the following:

- a. Preliminary plat submission and content as required in Section 302 of these subdivision regulations with the following exception:

The Planning Commission shall not approve the preliminary plat until the information required in Section 302-3 of these subdivision regulations is submitted to and approved by the City Engineer.

- b. Final plat submission and content as outlined in Section 304 of these subdivision regulations. The Planning Commission shall not approve the final plat until the information required in Section 303 of these subdivision regulations is submitted to and approved by the City Engineer.

601.4 Development Standards

The following street standards shall apply to developments constructed under the Difficult Terrain Provisions.

1. Rights-of-way and pavement width:

- a. Residential Streets

Residential streets developed under the Difficult Terrain Regulations may have a decreased right-of-way width of 36 feet and a minimum pavement width of 18 feet, or a right-of-way width of 38 feet and a minimum pavement width of 22 feet, depending upon the number of dwelling units accessed by the street. (see Table VI-1) On-street parking is prohibited.

- b. Dead End Streets

Permanent dead end cul-de-sac streets shall be no longer than one thousand five hundred (1,500) feet, measured along the centerline from the entrance street right-of-way to the center of the cul-de-sac, nor serve more than thirty (30) dwelling units. The permanent dead end street shall have a right-of-way radius of not less than fifty (50) feet and a circular turn around with a radius of the paved area not less than forty-five (45) feet. A transition curve radius of not less than forty (40) feet for connecting the turnaround with the end of the street is required, and the maximum grade of any portion of the turnaround shall not exceed five (5) percent.

When unusual topographic or other conditions exist where a circular turn around may not be constructed, an alternative turn around may be approved upon recommendation of the technical review staff. When alternative designs are approved, the Planning Commission may require additional rights-of-ways and street improvements.

- c. Loop Streets

Loop streets, which are constructed as one-way streets, shall have a minimum right-of-way width of twenty (20) feet and pavement width of twelve (12) feet. On-street parking is prohibited.

d. Split Streets

In the event that residential streets cross difficult land contours, the street bed may be split into two lanes, one in each direction. The minimum pavement width for each lane is 12 feet. Wherever practicable, there shall be one right-of-way which encompasses both lanes, and which has a minimum width of 50 feet. When one right-of-way is not possible or desirable, each lane shall have a minimum right-of-way width of twenty (20) feet and pavement width of twelve (12) feet. On-street parking is prohibited. The minimum vertical and horizontal separation shall be as determined by the City Engineer. Guardrails may be required in some instances.

e. Other Requirements

All other streets shall meet requirements as set forth in Article V and Appendix A of these subdivision regulations.

2. Grades of Streets

a. Residential Maximum Grade

The intention of the difficult terrain regulations is that the maximum grade on residential streets shall be 15%. When unusual topographic or other conditions exist street portions may be approved which exceed 15 % percent, but not more than 18 %, provided the proposed street section and design are recommended by the technical review staff. No design shall be approved which does not meet the minimum health and safety standards of the technical review staff recommendation. Street intersections shall not exceed 5% grade for a minimum of fifty (50) feet from the intersection on all intersecting streets.

b. Horizontal Curves, Vertical Curves, and Tangents

Shall be as required below:

Horizontal Curves – The minimum allowable horizontal radius of curvature at the centerline of the proposed street right-of-way shall meet the following standards:

<u>Design speed (mph)</u>	<u>Minimum centerline radius (feet)</u>
20	110
25	175

Alternative designs such as switchbacks may be permitted in unique conditions where the standard horizontal geometry requirements cannot be met, if approved by the City Engineer. Such alternative design shall meet standards of safety and shall allow for the safe passing of vehicles on all two-way streets, and shall allow for the passage of emergency vehicles.

Vertical Curves – All changes in grade shall be connected by a vertical curve. The vertical alignment should ensure that drivers could negotiate

hills in adverse weather and that sight distances are adequate for safety. Unless otherwise approved by the City Engineer, on residential streets designed for a maximum speed of twenty-five miles per hour, changes in grade requiring a crest vertical curve shall have a minimum length in feet equal to twenty (20) times the algebraic difference in percent of grade. Changes in grade requiring a sag vertical curve shall have a minimum length in feet equal to thirty (30) times the algebraic difference in percent of grade. Streets designed for a maximum speed of twenty (20) miles per hour may reduce the minimum length of vertical and sag curves upon recommendation of the technical review staff as follows: Sag (20 mph) – twenty (20) times the algebraic difference in percent of grade, and Crest – ten (10) times the algebraic difference in percent of grade.

601.5 Lots

1. Lots must be served by public sanitary sewer.
2. Lots must contain a buildable area within that portion of the lot, exclusive of the required front, rear, side-yard setback, and easements, which will contain the ground floor of the proposed dwelling and garage to be built on the lot. The lot shall be contoured to provide a driveway which shall not exceed a slope greater than 8% within the street right-of-way, and may not exceed 20% along its length. All residential lots must provide for off street parking as provided for in the difficult terrain regulations.
3. Flag lots, lots with excessive depth in relation to width, and irregularly shaped lots are permitted, if necessary, for development under the difficult terrain regulations provided all yard and area requirements are met.
4. Grading for the lot is to be kept at a minimum and should relate to the natural contour of the land. Finished contours must round off in a natural manner at the top and ends of cut and fill slopes.

601.6 Required Improvements

1. Street Construction

a. Street Plans

Street construction plans shall be provided to the Department of Development Services by the developer for approval by the City Engineer. The plans shall show the information required in Section 301, Article V and Appendix A of these subdivision regulations. Plans shall be approved prior to grading and street construction.

b. Grading

The subdivider shall grade the street per the approved typical section. All street embankments must be constructed per the *Tennessee Department of Transportation (TDOT) Standard Specifications for Road and Bridge Construction* (latest revision). Due to special topographical conditions, deviation from the above will be allowed only with specific approval of the City Engineer. All grading and fill shall be approved by the City Engineer prior to the installation of curbing and streets.

The developer is responsible for having a geotechnical engineer certify that all street embankments were constructed in accordance with the approved specifications. The City reserves the right to have the geotechnical engineer verify specification compliance at the developer's expense.

c. Erosion Control

The subdivider shall prepare an erosion control plan for review and approval by the City Engineer. Erosion and sediment control devices shall be installed and maintained in accordance with the *Tennessee Erosion and Sediment Control Handbook*. The subdivider shall install and utilize approved erosion control measures during the development process. These will be maintained until vegetation is in place to stabilize disturbed features. Failure to comply with the approved erosion control plan shall result in a stop work order until compliance is achieved.

d. Compaction

Fill for streets shall be compacted to meet requirements of the Bristol City Engineer and Section 205 of the TDOT Standard Specifications for Road and Bridge Construction (latest revision). The subgrade shall be prepared in accordance with the current standard specifications of TDOT, Section 207.

e. Pavement Base Course

After preparation of the subgrade, the street shall be surfaced with an approved material conforming to the Technical Specifications of the City of Bristol Tennessee.

1. Gravel Base

Gravel base course shall be six inches (after compaction) of crushed stone placed and compacted in accordance with the current standard specifications of the Tennessee Department of Transportation, Section 303, Class A, Grading D.

After compaction, the gravel base shall be a minimum width exceeding all curb and gutter street sections and shall provide a permanent base for required curbing. On ditched sections, the gravel base shall be three feet wider than the required pavement width.

f. Asphalt Pavement

After preparation of the base course the street shall be paved with a bituminous base and a wearing surface.

1. Bituminous Base

The bituminous base shall be a minimum of three (3) inches (after compaction) of bituminous plant mix (hot mix) finished and compacted in accordance with the current standard specifications of

the Tennessee Department of Transportation, Section 307, Grading B.

2. Wearing Surface

The bituminous wearing surface shall be a minimum of one (1) inch (after compaction) of asphalt concrete pavement installed and compacted in accordance with the current standard specifications of the Tennessee Department of Transportation, Section 411, Grade D.

The wearing surface shall be in place prior to acceptance of the street by the City and relinquishment of the surety instrument.

g. Curbs and Gutters and Other Drainage Considerations

1. Curbs and Gutters

Curbs and gutters are required on all streets, except as herein provided, and the City Engineer must approve design of curbs as provided for in Appendix A.

TDOT 6-30 concrete curb and gutter shall be required on low sides of streets to accommodate drainage consideration.

TDOT Type "A" Detached Concrete Curbs shall be required on high sides of streets.

Rolled or Miami Concrete Curbs may be utilized or integrated into the curbing system when the use of such curbing shall be demonstrated to meet the drainage requirements determined by the City Engineer. The use of such curbing shall necessitate the integration of drainage structures utilizing open throat designs unless otherwise approved by the City Engineer.

2. Side Ditch Construction

Side ditch construction may be permitted when lot frontages average 125 feet and when demonstrated that driveway access (measured as a minimum twenty (20) feet) shall not exceed 15% of any ditch section. Side ditch construction must be approved by the Planning Commission and constructed in a manner consistent with these subdivision regulations and the recommendations of the technical review staff .

When topographic conditions necessitate that two or more driveway connections be located so as to exceed a ditch coverage of 50 feet, when measured from the outside edges of any two driveways, culvert size and design must be approved by the City Engineer and included in construction drawings and drainage plans at the time of approval. Any such design shall be constructed at the time of street construction and shall be made part of the surety instrument.

The intention of these subdivision regulations is to require natural vegetative ditches where possible. All ditches shall be a minimum

two feet in depth with a front slope of three-to-one and a rear slope not exceeding two-to-one where required by topography considerations.

Ditches shall be treated at the time of street construction to minimize erosion. Treatments may include seeding and sodding, fabric or other synthetic materials, which aid in the establishment and maintenance of a natural vegetative cover. Concrete liners may be utilized where natural vegetative cover is not feasible, as determined by the City Engineer. All treatments shall be approved by the City Engineer and entered on all drainage and erosion control plans, and included in surety instrument determinations.

All side ditches shall be designed not to exceed 15% slope unless approved by the City Engineer. Due to extreme slope conditions, the City Engineer may require measures to reduce runoff velocities and to protect adjoining properties from increased runoff volumes.

3. Design Consistency

Street design with curb-and-gutters or open ditches shall be consistent along the entire length of street unless approved by the City Engineer.

4. Driveway Culverts

A minimum inside diameter of fifteen (15) inches is required for all driveway culverts. Drainage plans shall indicate proposed driveway culvert sizes designed to accommodate at a minimum a 10 year storm runoff for all street sections. All driveway culvert ends shall have a flared end section or shall provide for a concrete headwall which shall not restrict the flow of the culvert. All culverts shall be of Class III reinforced concrete pipe or 16 gauge corrugated metal materials.

h. Pedestrian Circulation

When a pedestrian circulation system is proposed, a Pedestrian Circulation Plan shall be submitted and shall not be implemented unless approved by the Planning Commission after review and recommendation from the technical review staff. Any such approval shall only be granted upon the determination of acceptable public maintenance and liability considerations. The plan shall provide for walkways, sidewalks, trails, and ramps, to provide for safe pedestrian movement outside the paved street surface.

The Pedestrian Circulation Plan should address the movement of people of all ages and abilities as distinct and different from the movement of vehicles. The Plan is to obtain the following information:

1. The people to be served, i.e., those within the proposed development, within the surround community, etc;

2. The route proposed for pedestrians, i.e., sidewalk in the right-of-way or walking path outside the right-of-way;
3. The grade of the pedestrian path;
4. How the plan meets American With Disabilities Act guidelines;
5. Who has the responsibility of maintaining walking paths located outside the public right-of-way.

The provisions of this section shall not imply that the construction of sidewalks or separate pedestrian circulation systems are required.

i. Guardrails

Guardrails are required where directed by the City Engineer in consultation with the City Transportation Engineer.

Roadside treatment shall meet standards specified in the latest edition of the AASHTO Roadside Design Guide, as amended.

j. Street Lighting

All streets shall have lighting, which shall conform to American National Standard Practice for Roadway Lighting and comply with requirements of the Bristol Tennessee Electric System.

k. Safety Requirements Obligations

All required street signage, pavement markings, and street lighting, as well as the removal of existing pavement markings that are required to be removed as a consequence of proposed subdivision shall be the financial responsibility of the developer and included in on surety instrument determinations. Installation and/or removal shall be completed in consultation with the City Engineer, City Traffic Engineer, and Deputy City Manager of Operations or his designate.

2. Storm Drainage System

- a. A storm drainage plan shall be submitted for approval by the Planning Commission upon review and recommendation by the City Engineer. The plan shall include the information as outlined in Sections 302, 303 and Appendix B of these subdivision regulations. A licensed professional shall certify all storm drainage plans.

All storm drainage plans shall be designed to meet the requirements of Appendix B of these subdivision regulations.

- b. On-site detention or retention of storm water for the development may be required if, in the opinion of the City Engineer, necessary to mitigate storm water runoff created by the proposed development.

3. Vegetation

Vegetation is necessary to stabilize steep hillsides, retain moisture, prevent erosion, and enhance the natural scenic view. All efforts should be made to protect and maintain the existing vegetation. The following regulations shall apply:

- a. Immediate planting of vegetation is required to maintain necessary cut and fill exposed slopes, to stabilize these areas with plant roots, and to minimize erosion;
- b. Every effort should be made to conserve topsoil that is removed during construction for later use on areas requiring vegetation or landscaping; and
- c. Disturbed soil surfaces will be stabilized in accordance with the approved erosion control plan before final approval of the subdivision plat by the City.

601.7 Parking

1. Each lot on a two-way street where on-street parking is permitted by the City shall be required to provide two parking spaces, either in a garage or to the side or rear of the building or structure.
2. Each lot on a one-way street, or a street where on-street parking is not permitted by the City shall provide three parking spaces, which can be provided in a garage, to the side or rear of the building or structure, or in the driveway. Parking areas must be shown on the preliminary plat.

602. Difficult Terrain Definitions

Difficult Terrain – A portion of a tract or parcel of land or a phase of the total development must have 1) an average slope of 15% or more, determined from a contour map that has contour intervals of five feet or less, using the following formula:

$$S = \frac{0.0023 \times I \times L}{A} \text{ where:}$$

- a. "S" is the average natural slope of the parcel;
- b. 0.0023 is the conversion factor for square feet to acres;
- c. "I" is the contour interval in feet or distance between adjacent contour lines;
- d. "L" is the total length in feet of the contour lines within the parcel
- e. "A" is the area in acres of the parcel

or: 2) have a topographic feature that precludes the development of any portion of the parcel under other articles of these subdivision regulations.

Exposed Slope – All the face of a cut or fill, from the toe to the top, whether the surface is retaining walls, riprap, natural vegetation or other materials.

Natural Drainage – This shall mean water that flows by gravity in channels via the surface topography of the earth prior to changes made by the efforts of man.

Pedestrian Circulation Plan – A plan that addresses the safe movement of people of all ages and abilities, and provides for the mobility of people, distinct from the movement of automobiles.

Site Development – This shall mean altering terrain and/or vegetation.

Slope Plan – A plan for development, clearly depicting all proposed grading including the location, extent and treatment of all exposed slopes.

Technical Review Staff – The technical review staff shall consist of the Deputy City Manager of Operations or his designate, the Deputy City Manager of Development or his designate, the City Engineer, the Chief of Police or his designate, and the Fire Chief or his designate.

Transition Slope – This shall be a slope contained wholly within the buildable area used to transition from the grade of the level building site to the natural or engineered finished grade of the yard area.

END OF SECTION 602

TABLE VI - 1

**RESIDENTIAL
(2 LANES)**

# UNITS	R-O-W WIDTH	PAVEMENT WIDTH	ON STREET PARKING
<10	36'	20'	NO
10-30	38'	22'	NO
31-50	40'	24'	NO
>50	44'	28'	YES – one side only

**DEAD END
(CUL-DE-SAC)
(2 LANES)**

# UNITS	R-O-W WIDTH	PAVEMENT WIDTH	ON STREET PARKING
<10	36'	18'	NO
10-20	38'	22'	NO
21-30	40'	24'	NO

Note: parking shall be prohibited on all cul-de-sac circles

**LOOP
(1 LANE)**

# UNITS	R-O-W WIDTH	PAVEMENT WIDTH	ON STREET PARKING
*			
30 Maximum	20'	12'	NO

**SPLIT
(2 LANE)**

# UNITS	R-O-W WIDTH	PAVEMENT WIDTH	ON STREET PARKING
30 Maximum	50' Minimum	12'	NO

ARTICLE VII
DEFINITIONS

701. Usage

1. For the purpose of these regulations certain numbers, abbreviations, terms, and words shall be used, interpreted, and defined as set forth in this article.
2. Unless the context clearly indicates to the contrary, words used in the present tense include the future tense and words used in the plural include the singular.
3. A "person" includes a corporation, a partnership, and an unincorporated association of persons, such as a club; "shall" is always mandatory; "used" or "occupied", as applies to any land or building, shall be construed to include "intended, arranged, or designed to be used or occupied".

702. Words and Terms Defined

Alley -- A public or private right-of-way primarily designed to serve as secondary access to the side or rear of those properties whose principal frontage is on a street.

Applicant -- The owner of land that is proposed to be subdivided or his authorized representative.

Architect -- An architect or landscape architect certified and registered by the Tennessee State Board of Architectural and Engineer Examiners to practice in Tennessee pursuant to Title 62, Chapter 2, Tennessee Code Annotated.

Arterial Street -- A major street that serves the major centers of activity of urbanized areas and carries most of the trips entering and leaving the urban area as well as most of the through movements bypassing the central City.

Base Flood Elevation -- The highest elevation, expressed in feet above sea level, of flood waters occurring in the regulatory base flood. The regulatory base flood is a flood with a 1% probability of occurrence in a given year (100-year flood).

Block -- A portion of a city bounded on at least three (3) sides by streets.

Bristol Planning Region -- The planning boundary of the City of Bristol Tennessee established pursuant to Tennessee Code Annotated 13-3-101 and 13-3-102.

Buildable Lot -- A lot that conforms to the requirements set forth in the Bristol Tennessee Planning and Zoning Ordinance and these Subdivision Regulations and contains sufficient area to construct a building or structure without encroachment into the building setbacks, easements, floodway, approved subsurface sewage disposal system areas or other restricted areas. The lot topography should also allow for construction of a building or structure.

Building -- A structure designed for habitation, shelter, storage, trade, manufacture, religion, business, education, and the like. A structure or edifice inclosing a space within its walls, and usually, but not necessarily, covered with a roof.

Building Permit -- An official document issued by the governing body authorizing construction or buildings or structures.

Building Setback Lines -- Lines internal to a lot, which are generally parallel with, and a specified distance from, the street right-of-way line(s) or other lot boundary lines and which creates an area between the lines and lot boundary lines in which no building or portion of a building or structure shall encroach.

Capital Improvements Program -- A proposed schedule projects, listed in order of priority, together with cost estimates and the anticipated means of financing each project. All major projects requiring the expenditure of public funds, over and above the annual local government operating expenses, for the purchase, construction, or replacement of the physical assets of the community are included.

Certificate of Occupancy -- An official document issued by the governing body granting permission to occupy a building or structure.

Certificate of Preliminary Approval -- A document issued by the Planning Commission certifying that a Preliminary Subdivision Plat has received either approval as submitted or approval subject to conditions.

City Attorney -- The person designated by the governing body to provide legal assistance for the administration of these and other regulations.

City Engineer -- The person designated by the governing body to provide engineering assistance for the administration of these and other regulations and is certified and registered by the Tennessee State Board of Architectural and Engineer Examiners pursuant to Title 62, Chapter 2, Tennessee Code Annotated.

Cluster Development -- A development design technique that concentrates buildings or structures in specific areas on the site to allow the remaining land to be used for recreation, common open space and preservation of environmentally sensitive features.

Department of Codes Enforcement -- A department of the City of Bristol Tennessee that is responsible for enforcement of the conditions and requirements of the Bristol Tennessee Planning and Zoning Ordinance and these Subdivision Regulations.

Condominium -- A system of separate ownership of individual units in a multiple-unit building or system or buildings as allowed under the provisions of Title 66, Chapter 27, Tennessee Code Annotated, which provides the mechanics and facilities for formal filing and recordation of divided interests in real property, whether the division is vertical or horizontal.

Conservation Easement -- An easement granting a right or interest in real property that is appropriate to retaining land or water areas predominately in their natural, scenic, open, or wooded condition; retaining such areas as suitable habitat for fish, plants, or wildlife; or maintaining existing land uses.

Construction Documents or Plans -- The maps, drawings, specifications, calculations and any other information location and design of infrastructure and other improvements to be installed in the subdivision in accordance with the requirements of these regulations and the Bristol Tennessee Planning Commission.

Corner Lot -- A lot situated at the intersection of two (2) or more vehicular ways.

Covenants -- An agreement or contract entered into by two or more parties in a subdivision, or other real property, setting forth conditions and standards that are specific to the property in question.

Cul-de-sac -- A street having only one outlet.

Dedication -- The appropriation of land, right-of-way, easements or infrastructure by the owner for the use of the public, and accepted for such use by or on behalf of the public..

Department of Development Services -- The Bristol Tennessee Department of Development Services.

Department of Operations -- The Bristol Tennessee Department of Operations.

Developer -- The legal or beneficial owner of a lot or of any land included in a proposed development including the holder of an option or contract to purchase, or other persons having enforceable proprietary interests in such land, and which undertakes the activities covered by these regulations. In as much as the subdivision plan drawings are merely a necessary means to the end of assuring satisfactory development, the term "developer" includes "subdivider", "owner" or "builder" even though the persons and their precise interests may vary at different project stages.

Double Frontage Lots -- Lots that have frontage on two streets, except for corner lots.

Drainage -- Surface or ground water runoff.

Drainage System -- Closed conduits, open channels or natural systems that convey surface or ground water.

Drainage Way -- A man-made or natural area that conveys surface or ground water.

Dwelling Unit -- A room, or rooms connected together constituting a separate, independent residence for human occupancy and containing independent cooking and sleeping facilities.

Easement -- A right of use over the property of another.

Encumbrance -- A claim, lien, charge or liability attached to and binding real property.

Enforcing Officer -- The City Manager or his designee to be responsible for enforcing the provisions of these regulations.

Engineer -- A person certified and registered to practice engineering by the Tennessee State Board of Architectural and Engineer Examiners pursuant to Title 62, Chapter 2, Tennessee Code Annotated.

Fill -- Material placed to raise the height of an area.

Flag Lot -- A lot configured to provide access to a public street or way through a narrow portion or neck, usually with a lot or lots located between the buildable portion of the lot and the public street or way.

Flood -- Inundation of water over land not usually covered by water.

Flood Prone Area -- The area of the floodplain that has a one (1) percent or greater chance of being flooded in any given year.

Floodplain -- A land area adjoining a river, stream watercourse, bay, or lake which is subject to a one (1) percent or greater chance of flooding in any given year.

Floodplain Regulations -- The regulations found in Chapter 7 of the Bristol Tennessee Planning and Zoning Ordinance entitled "CHAPTER 7 – FLOOD PLAIN DISTRICTS."

Floodproofing -- Any combination of structural or nonstructural additions, changes, or adjustments to properties, buildings and structures which eliminates potential flood damage.

Floodway -- The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the 100-year flood without cumulatively increasing the water surface elevation more than one foot at any point.

Flood Fringe -- All that land in the 100-year floodplain not lying within a delineated floodway.

Frontage -- The line of property abutting a street.

Frontage Street – A street which is generally parallel and adjacent to a main thoroughfare such as a collector street, arterial street or a limited access street, which provides adjacent property access to the thoroughfare via the frontage street. Frontage streets segregate local traffic from the usually higher speed thoroughfare and intercept driveways of residents and commercial establishments along the thoroughfare. Frontage streets not only provide more favorable access to adjacent properties than the usually faster moving thoroughfare, but also help to preserve the safety and capacity of the thoroughfare.

General Plan -- The official statement of the Planning Commission which sets forth major policies concerning future development of the jurisdictional area and meeting the provisions set forth in Sections 13-3-301, 13-3-302, and 13-4-102, Tennessee Code Annotated.

Governing Body -- Governing body of institution, organization or territory means that body which has ultimate power to determine its policies and control its activities.

Governmental Representative -- An person authorized to act on behalf of the governing body.

Grading -- Any stripping, cutting, filling, stockpiling or movement of earth or land by man or machine.

Homeowners Association -- An association of people who own homes in a given area formed for the purpose of improving or maintaining the quality of the area; an association formed by a land developer or the builder of condominiums or planned unit developments to provide management for and maintenance of property in which they own undivided, common interest.

Horizontal Property Act -- "The Tennessee Horizontal Property Act", as codified in Title 66, Chapter 2, Tennessee Code Annotated.

Improvements -- A valuable addition made to property or amelioration in its condition, amounting to more than mere repairs or replacement, costing labor or capital, and intended to enhance its value, beauty or utility or to adapt it for a new or further purposes. Generally has reference to buildings, but may also include any permanent structure or other development, such as street, sidewalks, sewers, utilities, etc.

Jurisdictional Area -- For the purposes of these regulations, the Jurisdictional Area shall be the Planning Boundary of the City of Bristol Tennessee established in keeping with Sections 13-3-102, 13-3-201, and 13-3-301, Tennessee Code Annotated.

Land Auction -- The selling of a tract of land or portion thereof by public auction.

Land Development Plan -- A document that establishes a plan or scheme to guide communities in making decisions regarding land usage or development.

Land Surveyor -- A land surveyor certified and registered by the Tennessee State Board of Land Survey Examiners pursuant to Title 62, Chapter 18, Tennessee Code Annotated, to practice in Tennessee.

Legal Counsel -- The person designated by the governing body to provide legal assistance.

Licensed Professional -- A qualified individual licensed by the State of Tennessee to provide the type of service required. The individual must also be competent in the area of service they provide.

Lot -- One of several parcels into which property is divided. Any portion piece, division or parcel of land.

Lot Number -- The official number assigned to a lot for identification purposes.

Maintenance Surety Instrument -- A surety instrument guaranteeing against defects in workmanship or materials for a period of time following completion of the work.

Major Road Plan -- The plan adopted by the Planning Commission, pursuant to Section 13-3-402 and 13-4-302, Tennessee Code Annotated, showing, among other things, "the general location, character, and extent of public ways...(and) the removal, relocation, extension, widening, narrowing, vacating, abandonment or change of use of existing public ways..."

Major Subdivision -- All subdivisions not classified as minor subdivisions including but not limited to subdivisions of five (5) or more lots or subdivisions of any size requiring any new or improved street, the extension of government facilities, or the creation of any public improvements, or containing any flood prone area.

Metes and Bounds -- The boundary lines of land with their terminal points and angles. A way of describing land by listing the compass directions and distances of the boundaries..

Minor Subdivision -- Any subdivision containing less than five (5) lots fronting on an existing public way; not involving any new or improved public way, the extension of public facilities, or the creation of any public improvements, and not in conflict with any provision of the adopted general plan, major street or road plan, zoning ordinance, or these regulations.

Monument -- Visible marks or indications left on natural or other objects indicating the lines and boundaries of a survey. For the purposes of these regulations a monument is a permanent marker placed to specify a point or boundary as required by these regulations in the process of the subdividing of property.

National Flood Insurance Program -- A program established by the U.S. Government in the National Flood Insurance Act of 1968, and expanded in the Flood Disaster Protection Act of 1973, in order to provide flood insurance at rates made affordable through a federal subsidy in local political jurisdictions which adopt and enforce floodplain management programs meeting the requirements of the National Flood Insurance Program Regulations. The program regulations are found at 24 Code of Federal Regulations, Chapter X, Subchapter B.

Off-Site -- Any thing not located within the area of the property to be subdivided, whether or not in the same ownership of the applicant for subdivision approval.

One Hundred-Year Flood -- A flood having a one (1) percent chance of being equaled or exceeded in any given one (1) year period.

Open Space -- Any parcel or area of land or water essentially unimproved and set aside, dedicated, designated or reserved for public or private use or enjoyment, or for the use and enjoyment of owners and occupants of land adjoining or neighboring such open space.

Owner -- The person in whom is vested the ownership, dominion, or title of property; proprietor. He who has dominion of a thing, real or personal, corporeal or incorporeal, which he has a right to enjoy and do with as he pleases, even to spoil or destroy it, as far as the law permits, unless he be prevented by some agreement or covenant which restrains his right.

Planning Commission -- A public planning body established pursuant to Title 13, Chapters 2 or 5, Tennessee Code Annotated, to execute a partial or full planning program within authorized area limits. For the purposes of these regulations, Planning Commission shall mean the Bristol Tennessee Regional Planning Commission.

Plat -- A scaled map of a specific land area showing the location and boundaries of individual parcels of land subdivided into lots.

Preliminary Approval -- Approval granted by the Planning Commission of the preliminary drawing or drawings, described in these regulations, indicating the proposed manner of layout of the subdivision.

Preliminary Plat -- The preliminary drawing or drawings, described in these regulations, indicating the proposed manner of layout of the subdivision.

Premise(s) -- Land with its appurtenances, buildings and structures thereon.

Private Easement -- An easement in which the enjoyment is restricted to one or a few individuals.

Public Facilities -- Facilities, buildings, structures or property owned and maintained by any governing body.

Public Hearing -- The right of the public to appear and give evidence.

Public Improvement -- Any infrastructure or other facility for which a governing body may ultimately assume the responsibility for maintenance and operation.

Public Sanitary Sewer System -- A sanitary sewer system, owned, or operated by a governing body.

Public Utility -- A business or service which is engaged in regularly supplying the public with some commodity or service which is of public consequence and need such as electricity, gas, water, sanitary sewer facilities, transportation, telephone, etc.

Public Way -- Any street, alley, sidewalk, lane or way that provides for the unimpeded movement of pedestrians or vehicles.

Record Drawings -- Drawings containing information regarding how something was constructed.

Regulatory Flood -- For the purpose of these regulations the regulatory flood is the one hundred-year flood.

Regulatory Flood Protection Elevation -- The elevation of the regulatory flood plus one (1) foot.

Reservation -- A clause in deed or other instrument of conveyance by which the grantor creates, and reserves to himself, some right, interest, or profit in the estate granted, which had no previous existence as such, but is first called into being by the instrument reserving it.

Reserve Strip -- A portion of land set aside to prevent and prohibit access to the adjoining property from a right-of-way or street.

Resubdivision or Lot Boundaries -- A change of any approved or recorded subdivision plat altering the number of lots incorporated within the confines of the original plat.

Reversed Frontage -- See double frontage.

Right-of-Way -- A strip of land occupied or intended to be occupied by a vehicular way, crosswalk, railroad, transmission line, oil or gas pipeline, water main, sanitary or storm sewer line, or for any other special use. The usage of the term "right-of-way", for land platting purposes, shall mean that every right-of-way hereafter established and shown on a final plat is to be separate and distinct from the lots or parcels adjoining such right-of-way and shall not be included within the dimensions or areas of such lots or parcels.

Road -- See Street.

Sale -- A contract between two parties by which the seller, in consideration of the payment or promise of payment, transfers to the buyer the title and possession of property.

Setback -- A distance from a property line within which placement of a building or structure is prohibited. Setback requirements are normally stipulated in a zoning ordinance

Sinkhole -- A natural depression in a land surface connecting with a subterranean passage, generally occurring in limestone regions and formed by solution or by collapse of a cavern roof

Site Plan -- A plan, prepared to scale, showing accurately and with complete dimensioning, the boundaries of a site and the location of all buildings, structures, uses, principal site development features, and all other information or improvements as required by CHAPTER 10 – SITE PLAN REQUIREMENTS of the Bristol Tennessee Planning and Zoning Ordinance.

Street -- Any street, avenue, boulevard, parkway, drive or other which: (1) is an existing state, county, or private or municipal roadway; or (2) is shown upon a plat approved pursuant to law; or (3) is approved by other official action; or (4) is shown on a plat duly filed and recorded in the office of the County Recording Officer prior to the appointment of planning board and the grant to such board of the power to review plats; and includes the land between the street right-of-way line, whether improved or unimproved and may comprise pavement, shoulders, gutter, curbs, sidewalks, parking areas and other areas within the street lines.

Structure -- Any construction, or any production or piece of work artificially built up or composed of parts joined together in some definite manner. That which is built or constructed; an edifice or building of any kind.

Stub Street -- A short street usually constructed with the intent of later extension.

Subdivider -- Any person who (1) having an interest in land, causes it, directly or indirectly, to be divided into a subdivision or who (2) directly or indirectly, sells, leases, or develops, or offers to sell, lease, or develop, or advertises for sale, lease, or development, any interest, lot, parcel site, unit, or plot in a subdivision or who (3) engages, directly or indirectly, or through an agent in the business of selling, leasing, developing, or offering for sale, lease, or development a subdivision or any interest, lot, parcel site, unit, or plot in a subdivision or who (4) is directly or indirectly controlled by or under direct or indirect common control with any of the foregoing.

Subdivision -- "Subdivision" means the division of a tract or parcel of land into two (2) or more lots, sites, or other divisions requiring new street or utility construction, or any division of less than five (5) acres for the purpose, whether immediate or future, of sale or building development, and includes resubdivision and when appropriate to the context, relates to the process of resubdividing or to the land or area subdivided. (See Sections 13-3-401 and 13-4-301, Tennessee Code Annotated.)

Subsurface Sewage Disposal System -- An underground sanitary sewer disposal system such as a septic tank and tile field system.

Sullivan County Registrar of Deeds -- The official repository of recorded deeds, subdivision plats and other documents that are required by these Subdivision Regulations.

Surety -- An instrument with a sum of money fixed as a penalty, binding the party(s) to pay the same: conditioned, however, that the payment of the penalty may be avoided by the performance by one or more of the parties of certain acts. The term surety may include a variety of financial instruments including performance bonds, letters-of-credit, escrow accounts and similar sureties. The amount and form of such surety instruments shall in all regards be sufficient to guarantee to the governing body or other agency

ultimately responsible for acceptance of the facilities satisfactory construction, installation, and dedication, free and clear of any encumbrances, of the incomplete portion of required improvements. Such surety instruments shall comply with all statutory requirements and shall be satisfactory to legal counsel as to form, sufficiency, and manner of execution, as set forth in these regulations

Surveyor -- A land surveyor certified and registered by the Tennessee State Board of Land Survey Examiners pursuant to Title 62, Chapter 18, Tennessee Code Annotated.

Temporary Improvement -- Any improvement built and maintained by a subdivider during construction of the subdivision and removed prior to release of the surety or recordation of the plat.

Tile Field -- The area required to enclose the seepage tile included as a component of a subsurface sewage disposal system.

Travel Way -- The traveled path, or the path used for travel, within located limits of the way.

Trusteeship -- Fiduciary relationship between trustee and beneficiary wherein trustee holds title to property for the benefit of the beneficiary.

Use -- The specific purposes for which land or a building or structure is designed, arranged, intended, or for which it is or may be occupied or maintained. The term "permitted use" or its equivalent shall not be deemed to include any non-conforming use.

Vacate -- An action by which the Planning Commission officially approves the elimination of previously approved property lines and returns the boundaries of a parcel to their original configuration.

Variance -- A dispensation permitted on individual parcels of property as a method of alleviating unnecessary hardship by allowing a reasonable use of the building, structure, or property, which, because of unusual or unique circumstances, is denied by the terms of the Subdivision Regulations.

Way -- A passage, path, road or street. In a technical sense, a right of passage over land.

Zoning Ordinance -- A statute, legally adopted pursuant to Title 13, Chapters 4 or 7, Tennessee Code Annotated, for the purpose of regulating by district, land development or use for a designated area. For the purposes of these regulations, Zoning Ordinance shall mean either the Zoning Ordinance of the City of Bristol Tennessee or the Zoning Resolution of Sullivan County, Tennessee.

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ARTICLE VIII

ADOPTION OF REGULATIONS AND AMENDMENTS

801. Adoption and Amendment

For the purpose of providing for the public health, safety, and general welfare the Planning Commission may from time to time amend these regulations. Before the adoption of any amendment to these regulations, a public hearing thereon shall be held by the Planning Commission, as required in Chapters 3 and 4, Title 13, Tennessee Code Annotated.

802. Enactment

In order that land shall be subdivided in accordance with the objectives and standards set forth in these regulations, these subdivision regulations are hereby adopted this the **19th day of March** and immediately shall be in full force and effect. Pursuant to Sections 13-3-403 and 13-4-303, Tennessee Code Annotated, a public hearing was held on these regulations **the 19th day of March, 2001 at 6:00 p.m., in the Bristol Tennessee Slater Center, in Bristol, Tennessee**, notice of which was given by publication in the Bristol Herald Courier on **January 14, 2001**.

Chairman,
Bristol Tennessee Municipal/Regional Planning Commission

Date

ATTEST:

Secretary,
Bristol Tennessee Municipal/Regional Planning Commission

Date

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APPENDICES

- Appendix A - Street Design Standards
- Appendix B - Storm Drainage Design Standards
- Appendix C - Water Line Design Standards
- Appendix D - Sanitary Sewer Design Standards
- Appendix E - Surety Forms
- Appendix F - Planning Boundary Map

APPENDIX A

STREET DESIGN STANDARDS

General Information

1. Streets shall be provided to give access to properties as set forth in the City of Bristol Tennessee Subdivision Regulations.
2. All rights-of-way shall conform to the standards as set forth in the City of Bristol Tennessee Subdivision Regulations.
3. Dedication of streets shall conform to the standards as set forth in the City of Bristol Tennessee Subdivision Regulations.
4. Street edge treatments, i.e. curb and gutter, ditch section streets, etc. shall conform to the standards as set forth in the City of Bristol Tennessee Subdivision Regulations.
5. Street Construction shall conform to the latest revision of the Tennessee Department of Transportation Standards Specifications for Road and Bridge Construction.
6. The majority of the design requirements for streets can be found in Article V of the City of Bristol Tennessee Subdivision Regulations.
7. The intent of the City is that all street design meets or exceeds the requirements of A Policy on Geometric Design of Highways and Streets, latest revision, published by the American Association of State Highway Transportation Officials.

Street Plan and Profile Requirements

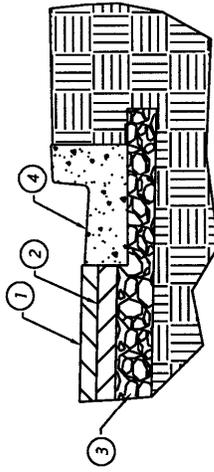
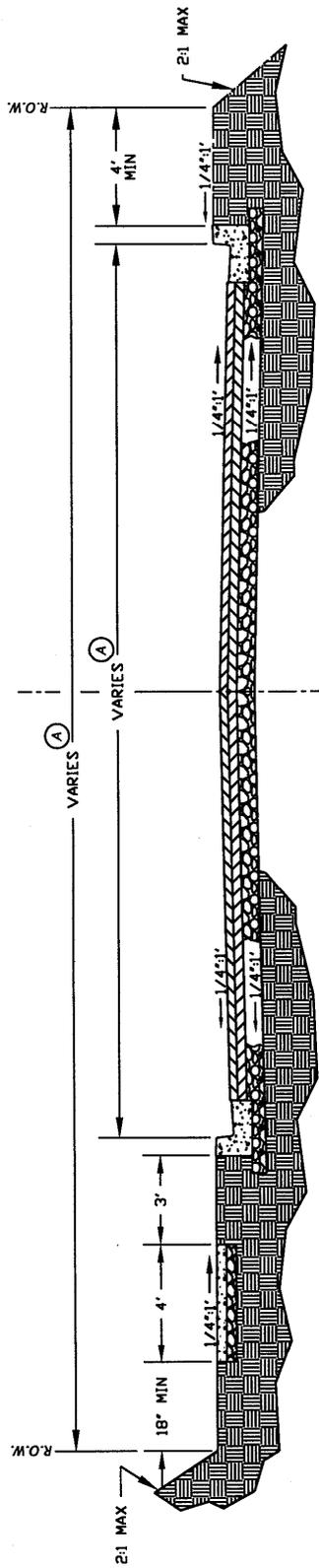
1. All sidewalks must have curb-cut ramps designed and located to conform with the Americans With Disabilities Act, the Tennessee Department of Transportation and the City of Bristol Tennessee standards and specifications.
2. The locations of guardrail shall be indicated on the plans.
3. All driveway entrances and the size, length, and type of driveway entrance culvert shall be indicated where applicable on the subdivision plans.

Proposed Street Construction Plan and Profile Preparation

1. Stations shall be indicated on the plan view at the following locations:
 - a. Every 100 feet on centerline.
 - b. Points of Curvature.
 - c. Points of Tangency.
 - d. Street centerline intersections.
 - e. Subdivision limits or construction phase limits.
 - f. Turnaround radius points.

2. Existing and proposed topography at a minimum of 2-foot contour interval shall be shown in the plan view.
3. Erosion and sediment control plan and narrative shall be provided.
4. The limits of construction shall be shown on the plan view. In order to minimize the disturbance of the existing terrain, the construction limits shall be no further than 20-feet from any proposed grading shown on the plan view.
5. Existing street centerline profiles for a 250 feet minimum distance shall be shown to insure a proper grade tie when a proposed street is an extension of an existing street.
6. When a proposed street intersects with an existing street the centerline profile of the existing street shall be shown for a 250 feet minimum distance to the right and left of the proposed intersection.
7. A profile centerline grade line of all proposed street construction shall include:
 - a. Percent of grade of tangent lines. The minimum grade for streets shall be one (1) percent. The maximum grade of street construction shall be 12 percent for residential streets, 10 percent for non-residential local streets and 8 percent for collector streets.
 - b. Elevations and stations at the beginning and the end of all vertical curves.
 - c. The length of vertical curves.
 - d. The elevations computed every 100 feet on all tangent sections, and elevations computed every 25 feet in all vertical curves.
 - e. Elevations and stations at all:
 - (1) Centerline intersections of streets.
 - (2) Street centerline intersections with the boundaries of a subdivision or phase of construction.
 - (3) Culvert and storm sewer crossings.
 - (4) Curb inlets.
8. All proposed and existing culverts, storm sewer crossings, sanitary sewer crossings, water line crossings and utility crossings shall be shown on the street profiles at the proper location and grade when known.
9. Grade profiles of proposed curb and gutter construction in cul-de-sacs are to be computed along the face of the curb starting at the beginning of the curb return, following counter clockwise the face of curb around the cul-de-sac thence to the end of the return opposite the point of beginning.
10. If a temporary cul-de-sac is to be constructed at the end of a street which is intended to be extended with the development of the abutting property, the proposed grade and centerline profile shall be carried through to provide for the future extension of the proposed street for a distance of 300 feet beyond the subdivision boundary.
11. Street construction shall be provided along the full frontage of all lots.

12. All street improvements must be constructed within the dedicated street right-of-way.
13. The maximum centerline grade of permanent cul-de-sacs may not exceed five (5) percent.
14. If a difference exists in elevations on proposed curb grades on opposite sides of the street, curb elevations showing top of right curb and top of left curb shall be shown on the plans.
15. A profile of all curb returns at street intersections must be shown on the plans.
16. Street landings shall be provided at all intersections. A minimum 50-foot landing with a maximum grade of five (5) percent must be provided for residential streets. Non-residential local streets require a minimum 50-foot landing with a maximum grade of three (3) percent. Collector streets require a minimum 100-foot landing with a maximum grade of three (3) percent.
17. The general design standards for streets are shown in Table V-3 of these regulations.
18. The minimum intersection sight distance for all streets shall be ten (10) times the posted speed limit or design speed, whichever is greater. Commercial entrances are considered street intersections for the purpose of sight distance calculations. The City Engineer may require the plans to show a profile of the sight distance line to determine if adequate distance is available at the proposed intersection location.
19. The following illustrations show typical street design requirements:



**PAVEMENT COURSES
NTS**

PAVING SCHEDULE

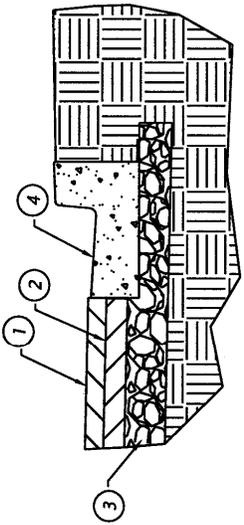
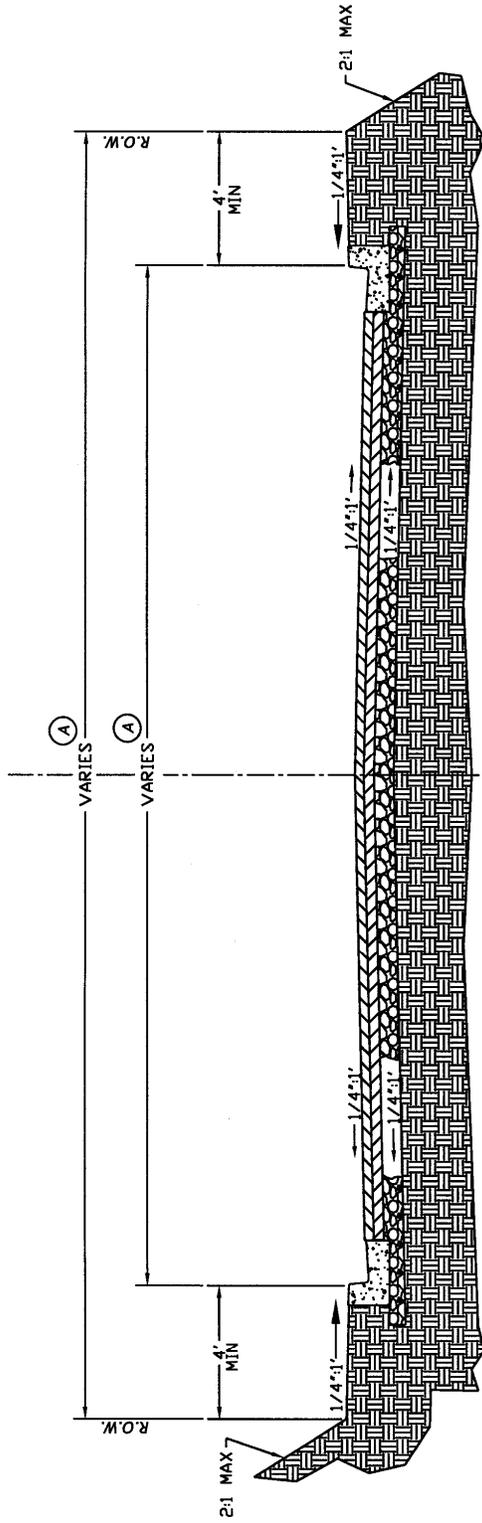
- ① 1" BITUMINOUS SURFACE
- ② 3" BITUMINOUS BASE
- ③ 6" BASE AGGREGATE
- ④ TDOT 6-30 CURB AND GUTTER

**TYPICAL SECTION
CURB AND GUTTER STREET
RESIDENTIAL WITH SIDEWALK**

FIGURE A-1

A TRAVELWAY WIDTHS		
DWELLING UNITS	TRAVELWAY WIDTH	R.O.W. WIDTH
1-9	22	40
10-30	24	40
>30	28	50





PAVEMENT COURSES
NTS

PAVING SCHEDULE

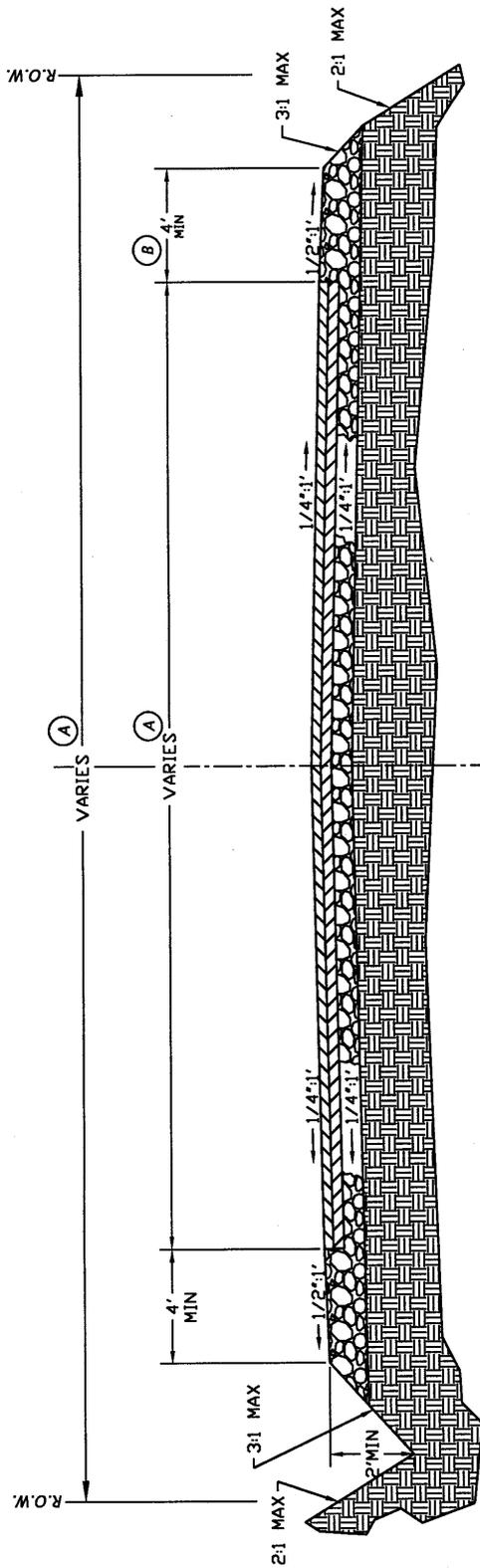
- ① 1" BITUMINOUS SURFACE
- ② 3" BITUMINOUS BASE
- ③ 6" BASE AGGREGATE
- ④ TDOT 6-30 CURB AND GUTTER

TYPICAL SECTION
CURB AND GUTTER STREET
RESIDENTIAL STREETS
NO SIDEWALKS

FIGURE A-2

① DWELLING UNITS	TRAVELWAY WIDTH	R.O.W. WIDTH
1-9	22	40
10-30	24	40
>30	28	50

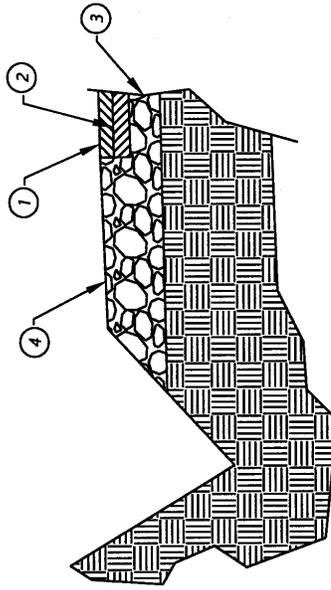




(A) TRAVELWAY WIDTHS

DWELLING UNITS	TRAVELWAY WIDTH	R.O.W. WIDTH
1-9	22	40
10-30	24	40
>30	28	50

(B) GREATER THAN 4' SHOULDER MAY BE REQUIRED IN AREAS WHERE GUARDRAIL IS REQUIRED.



PAVEMENT COURSES
NTS

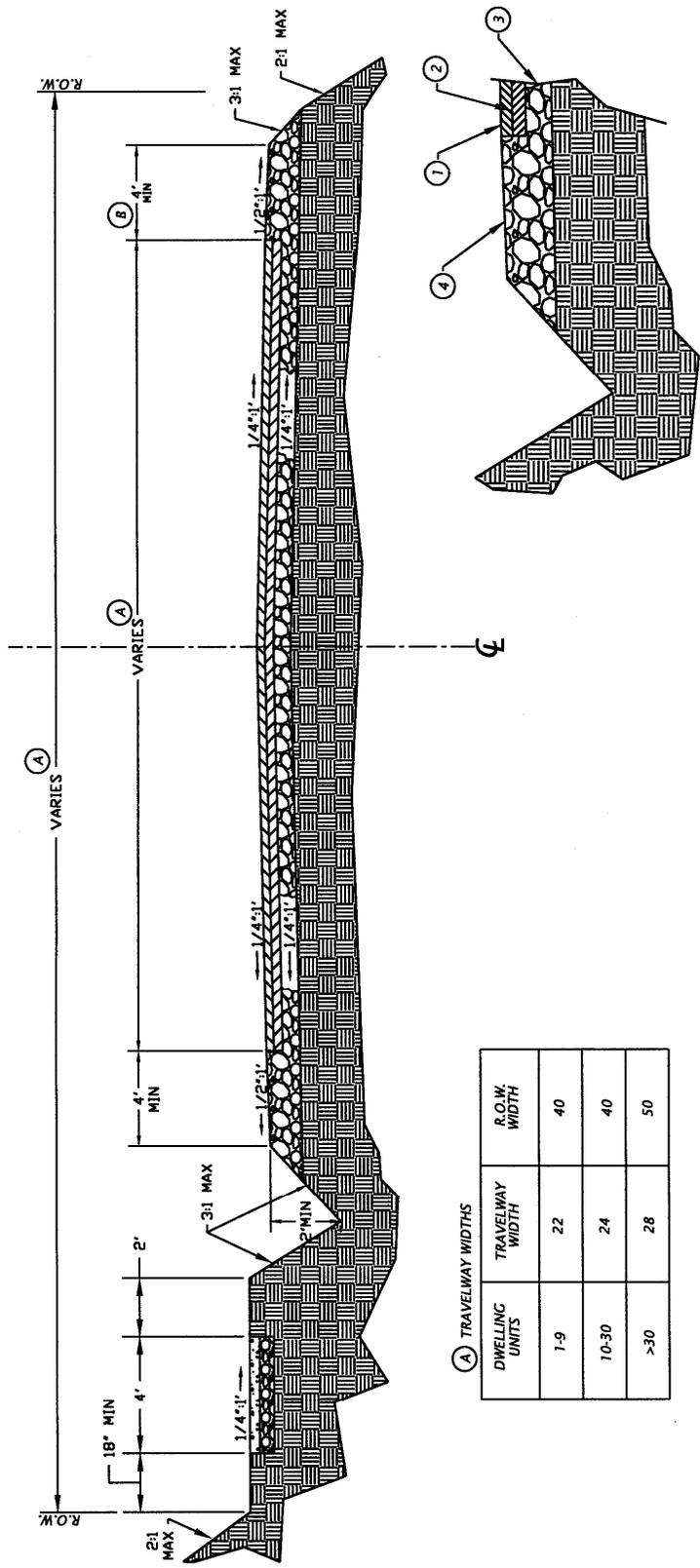
PAVING SCHEDULE

- ① 1" BITUMINOUS SURFACE
- ② 3" BITUMINOUS BASE
- ③ 6" BASE AGGREGATE
- ④ BASE AGGREGATE SHOULDER

TYPICAL SECTION
DITCH SECTION STREET
RESIDENTIAL STREETS
NO SIDEWALKS

FIGURE A-3





(A) TRAVELWAY WIDTHS

DWELLING UNITS	TRAVELWAY WIDTH	R.O.W. WIDTH
1-9	22	40
10-30	24	40
>30	28	50

(B) GREATER THAN 4" SHOULDER MAY BE REQUIRED IN AREAS WHERE GUARDRAIL IS REQUIRED.

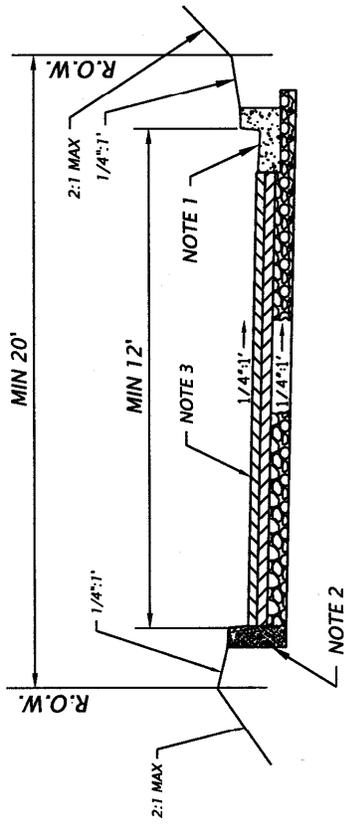
PAVEMENT COURSES
NTS

PAVING SCHEDULE

- ① 1" BITUMINOUS SURFACE
- ② 3" BITUMINOUS BASE
- ③ 6" BASE AGGREGATE
- ④ BASE AGGREGATE SHOULDER

TYPICAL SECTION
DITCH SECTION STREET
RESIDENTIAL STREETS
WITH SIDEWALK
FIGURE A-4





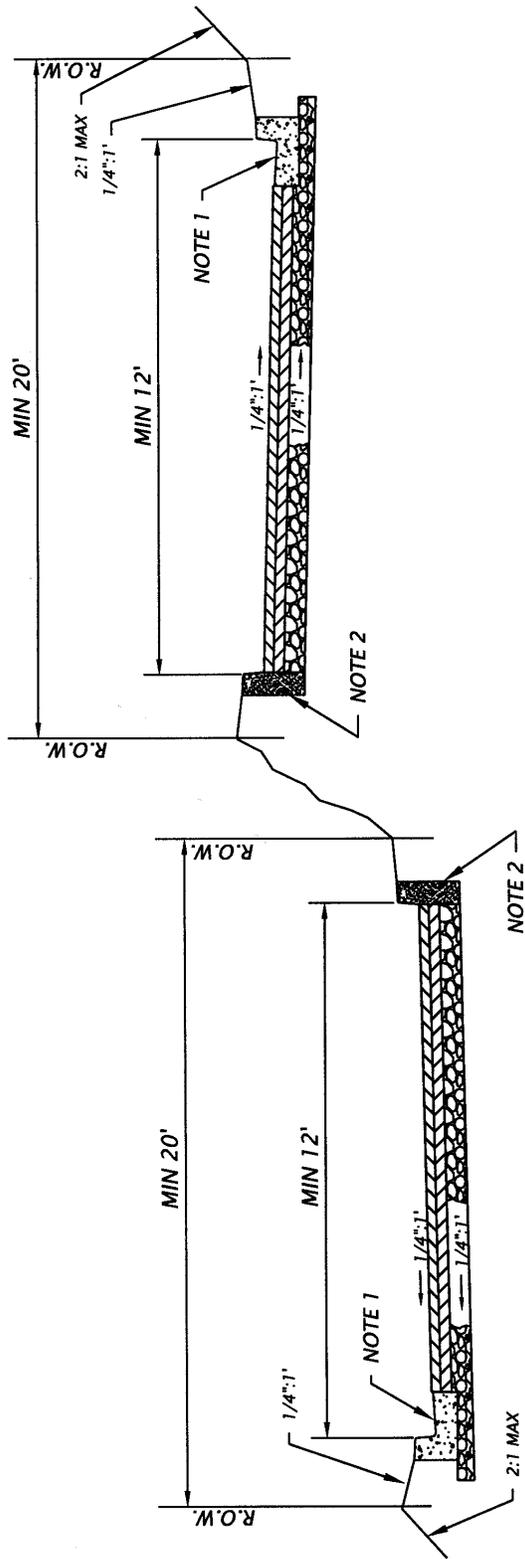
NOTES:

1. TDOT 6-30 CONCRETE CURB AND GUTTER
2. TDOT TYPE "A" 6" DETACHED CONCRETE CURB
3. MAXIMUM LENGTH OF LOOP STREET IS 1000 FEET
4. LOOP STREETS ARE ONE-WAY STREETS
5. A MAXIMUM OF 20 DWELLING UNITS CAN ACCESS A LOOP STREET

**TYPICAL SECTION
RESIDENTIAL LOOP STREET**

FIGURE A-5





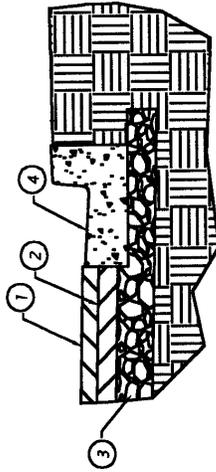
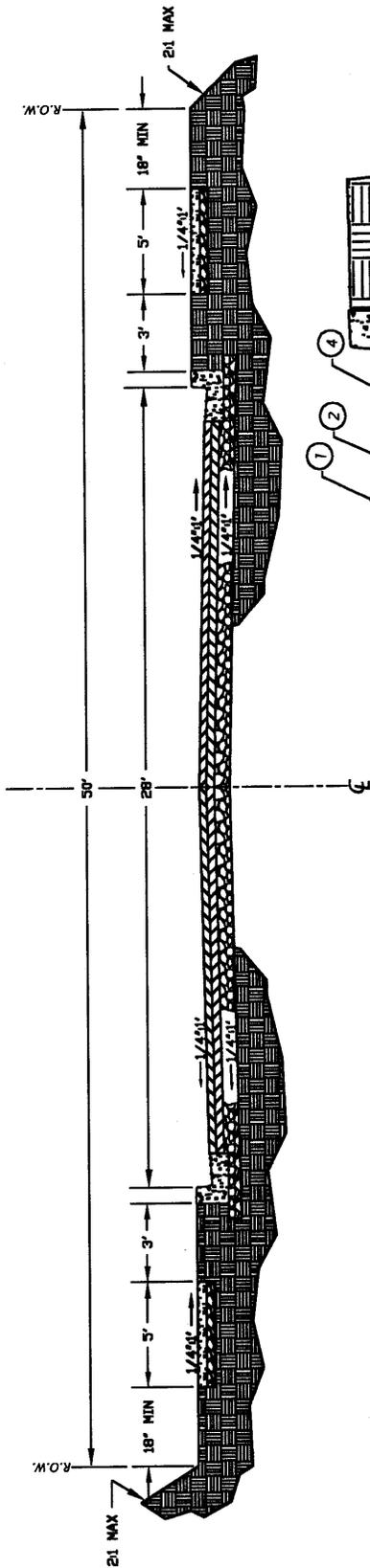
NOTES:

1. TDOT 6-30 CONCRETE CURB AND GUTTER
2. TDOT TYPE "A" 6" DETACHED CONCRETE CURB
3. THE MAXIMUM DISTANCE BETWEEN CROSSOVERS IS 500 FEET

TYPICAL RESIDENTIAL SPLIT STREET

FIGURE A-6





**PAVEMENT COURSES
NTS**

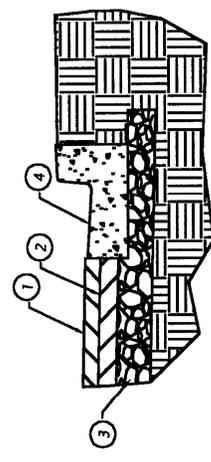
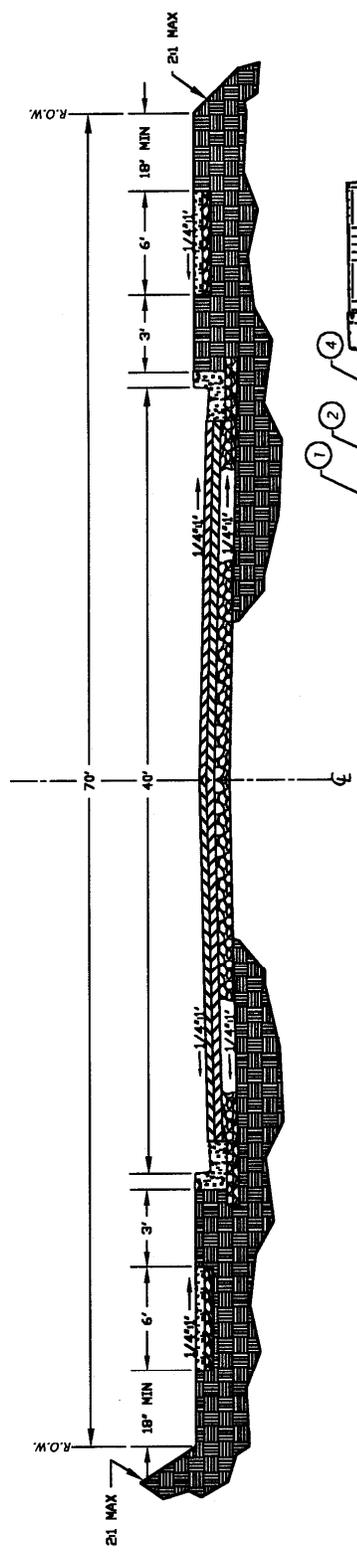
PAVING SCHEDULE

- ① 1" BITUMINOUS SURFACE
- ② 3" BITUMINOUS BASE
- ③ 6" BASE AGGREGATE
- ④ TDOT 6-30 CURB AND GUTTER

**TYPICAL SECTION
CURB AND GUTTER STREET
NON-RESIDENTIAL LOCAL STREETS**

FIGURE A-7





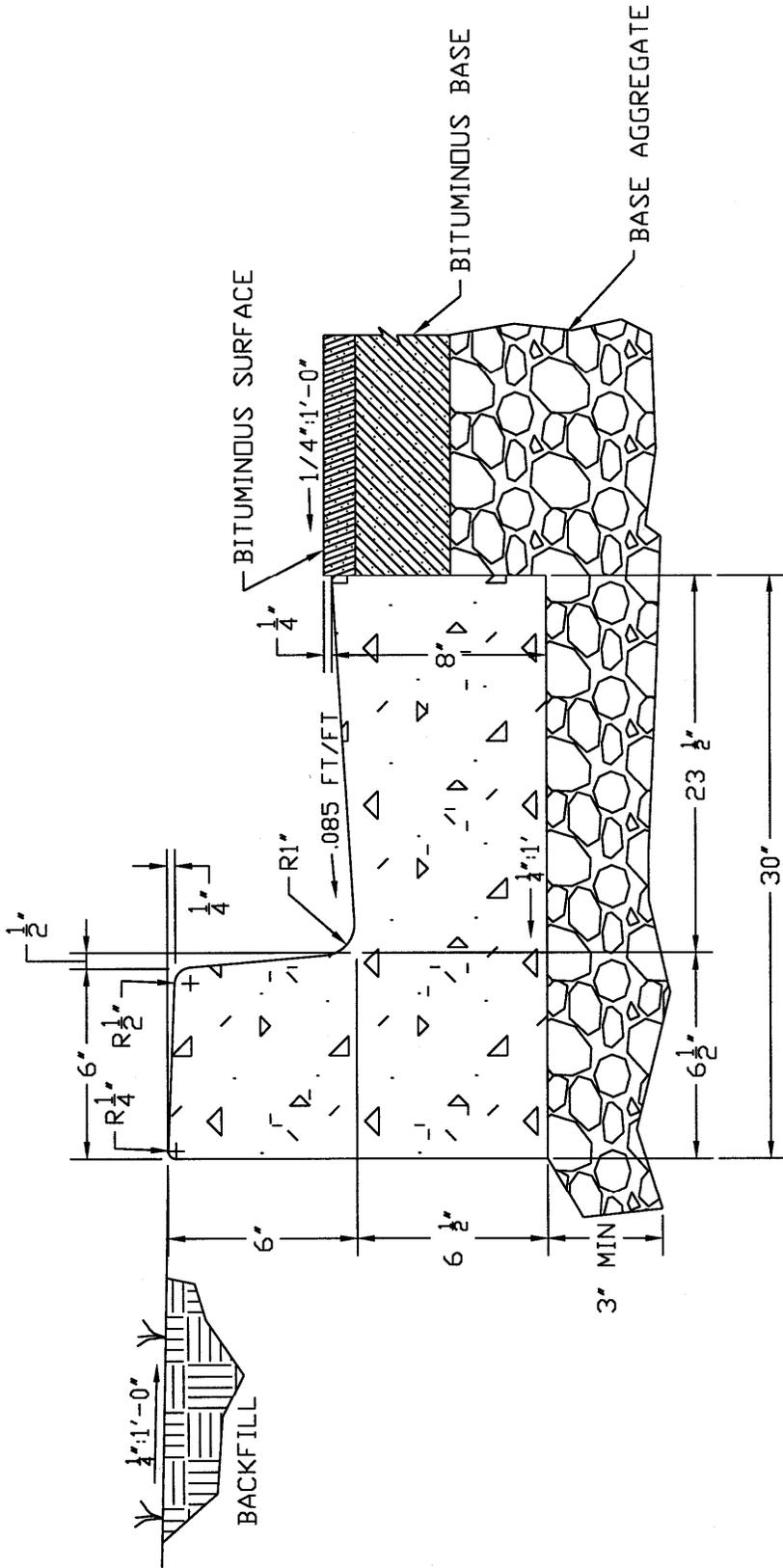
**PAVEMENT COURSES
NTS**

- PAVING SCHEDULE
- ① 2" BITUMINOUS SURFACE
 - ② 3" BITUMINOUS BASE
 - ③ 8" BASE AGGREGATE
 - ④ TDOT 6-30 CURB AND GUTTER

**TYPICAL SECTION
CURB AND GUTTER STREET
COLLECTOR STREETS**

FIGURE A-8

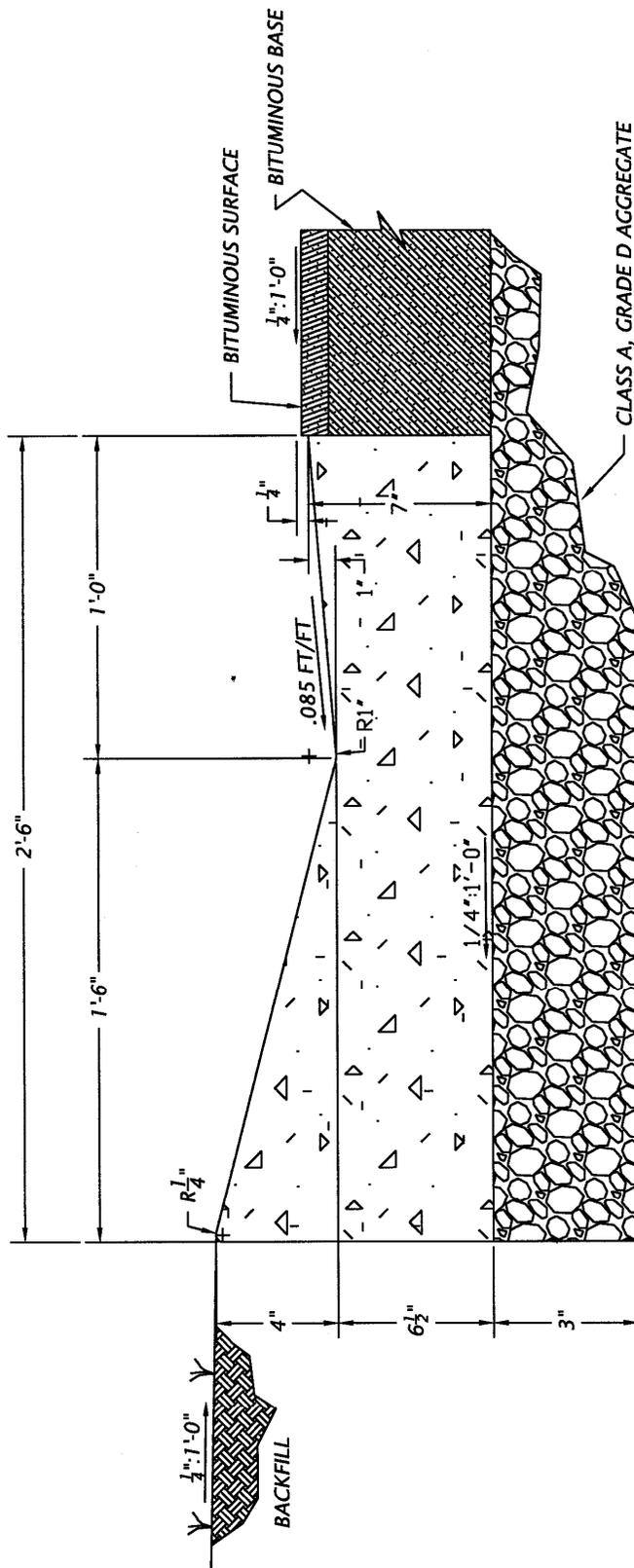




TDOT 6-30 CURB & GUTTER

FIGURE A-9

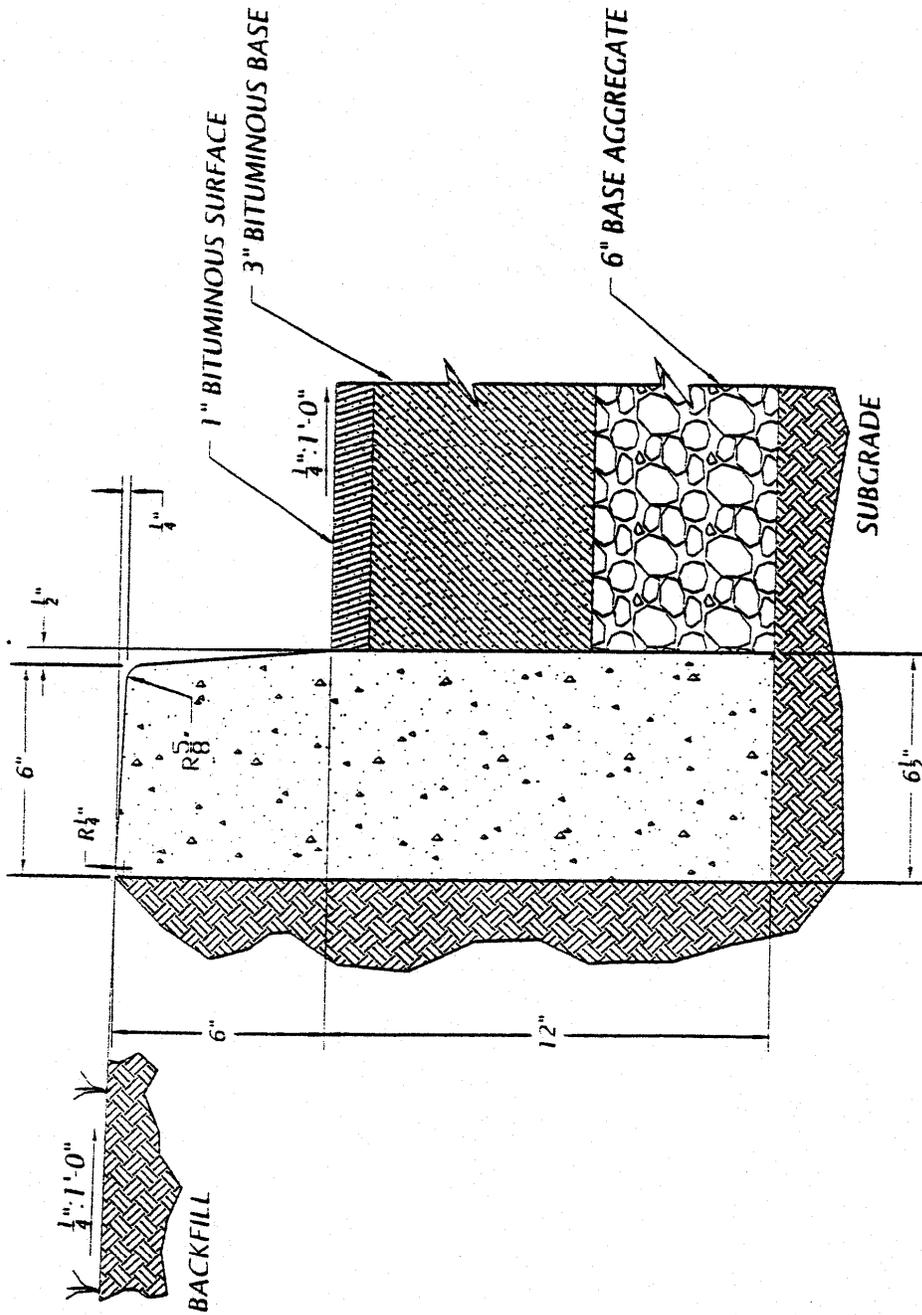




CONCRETE ROLLED CURB

FIGURE A-10

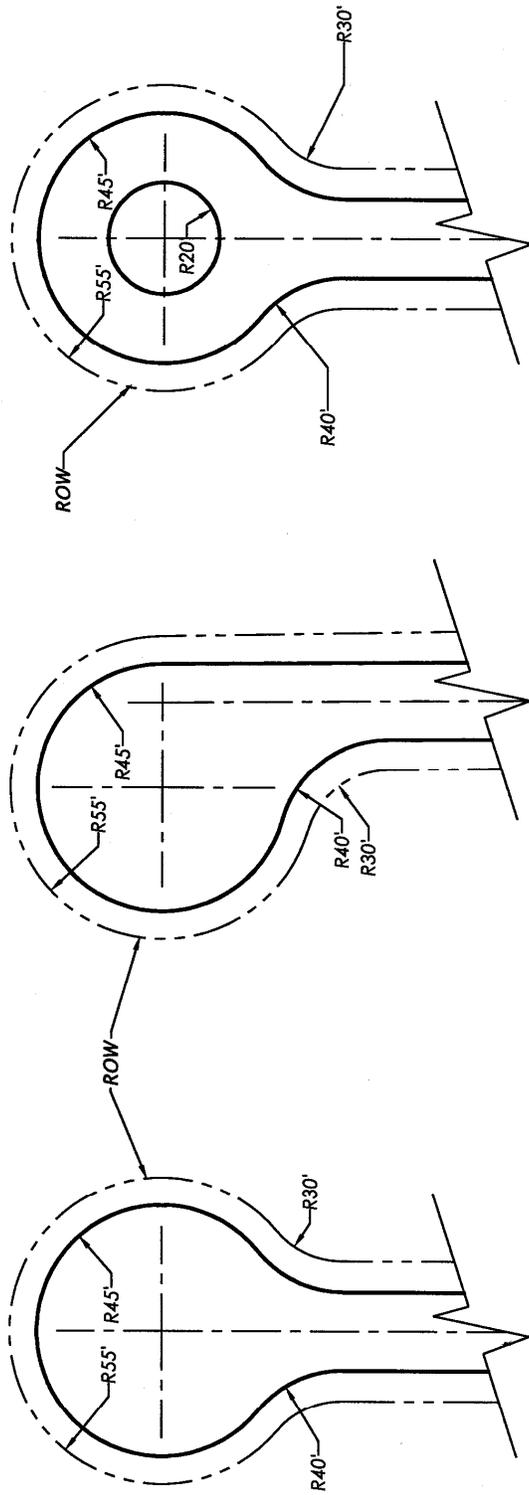




TYPE "A"
6" DETACHED CONCRETE CURB

FIGURE A-11

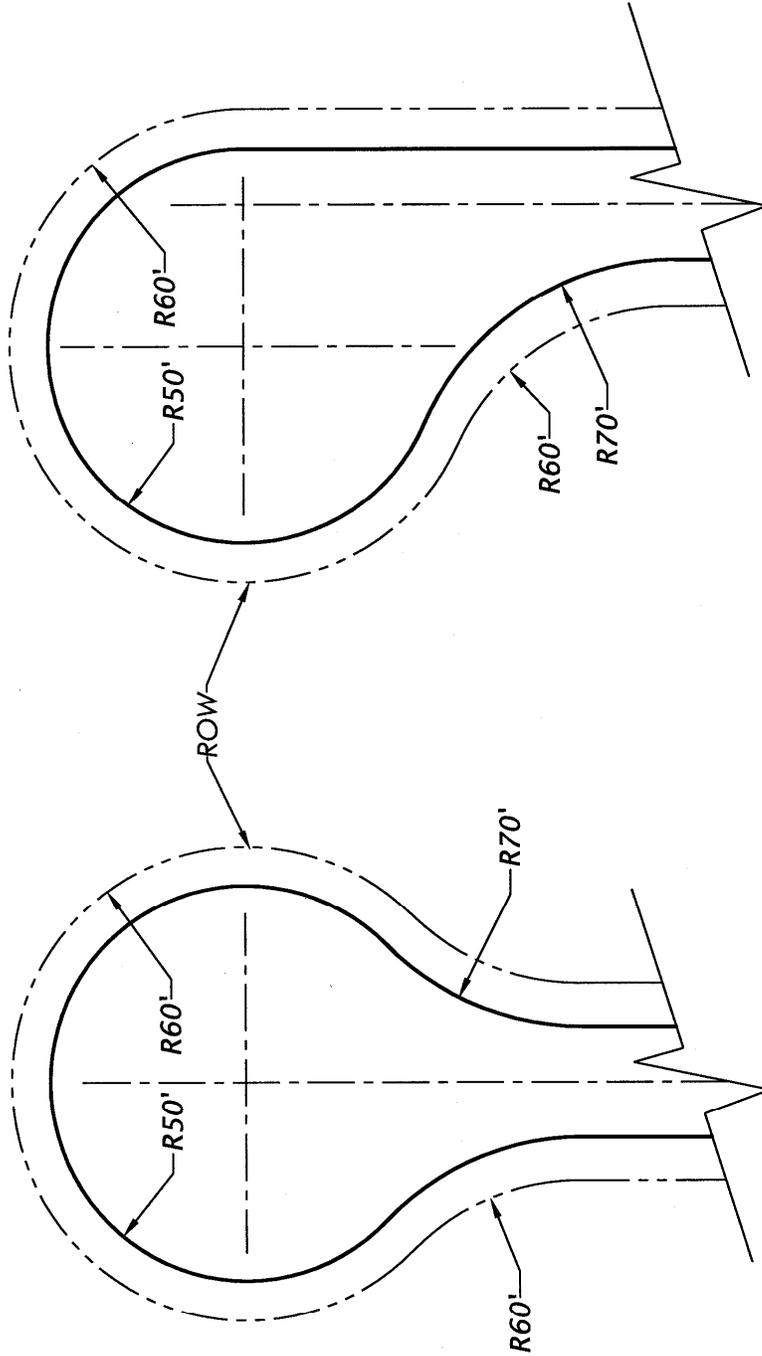




RESIDENTIAL STREETS
CUL-DE-SAC

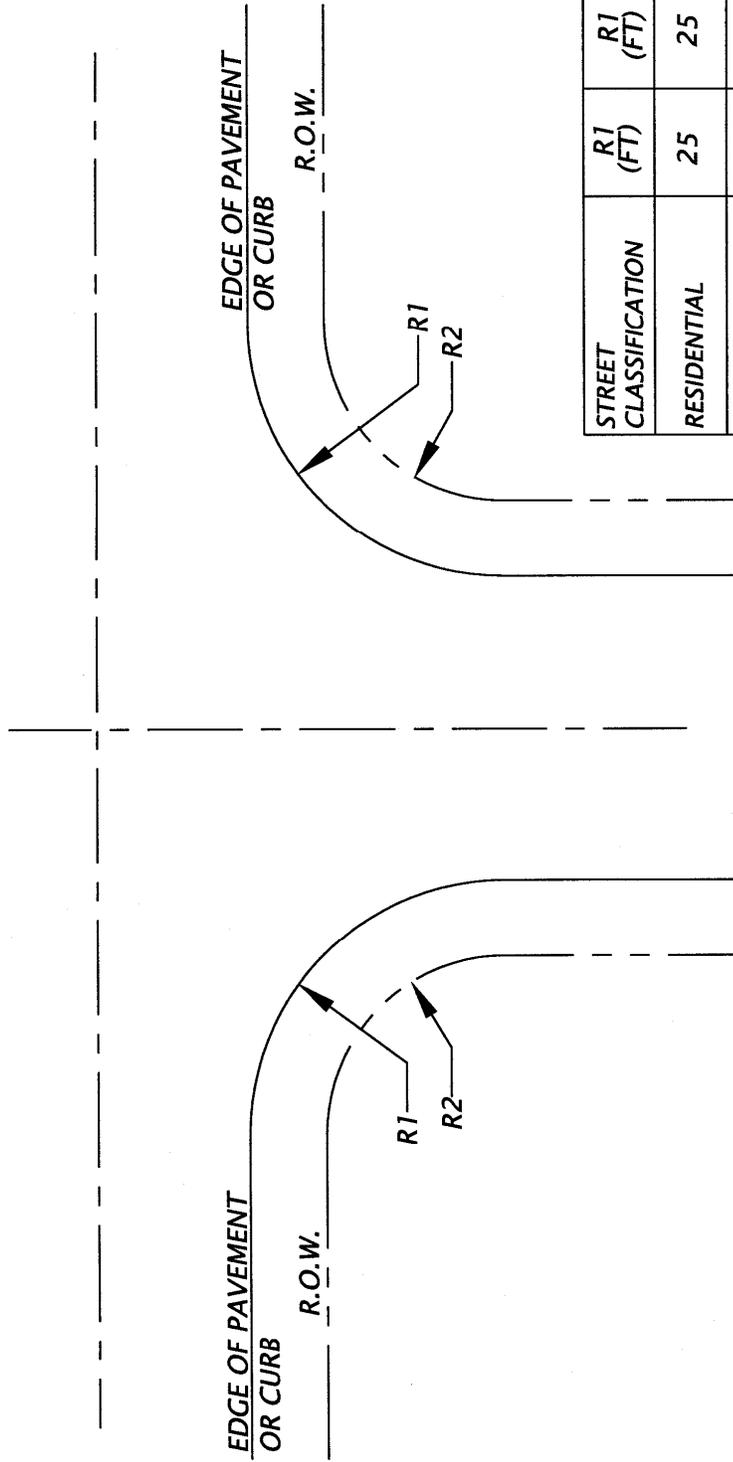
FIGURE A-12





NON-RESIDENTIAL LOCAL STREETS
 CUL-DE-SAC
 FIGURE A-13



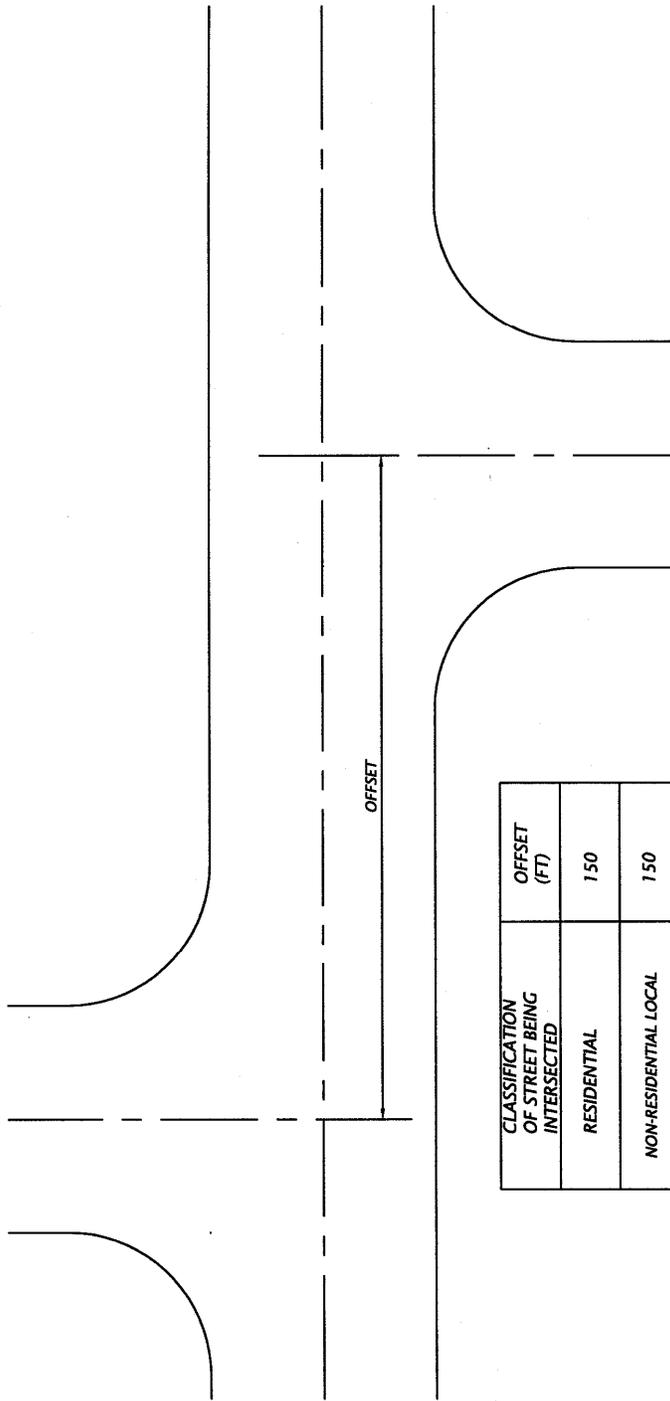


STREET CLASSIFICATION	R1 (FT)	R1 (FT)
RESIDENTIAL	25	25
NON-RESIDENTIAL LOCAL	40	30
COLLECTOR	40	30



STREET INTERSECTION GEOMETRY

FIGURE A-14

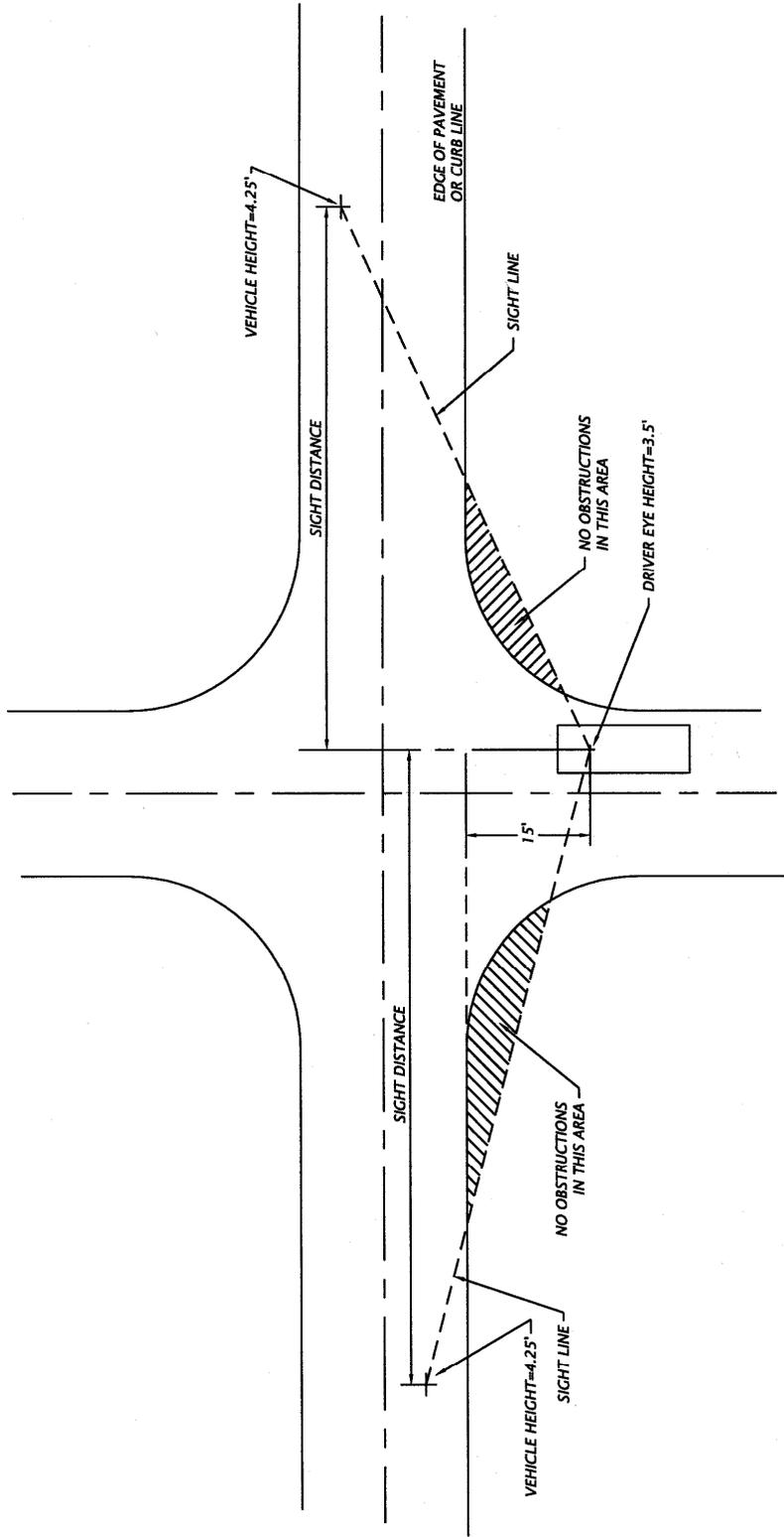


CLASSIFICATION OF STREET BEING INTERSECTED	OFFSET (FT)
RESIDENTIAL	150
NON-RESIDENTIAL LOCAL	150
COLLECTOR	800
ARTERIAL	800

STREET INTERSECTION OFFSET REQUIREMENTS

FIGURE A-15





SIGHT DISTANCE (FT) = THE GREATER OF TEN (10) TIMES THE POSTED SPEED LIMIT OR
 TEN (10) TIMES THE DESIGN SPEED

DESIRABLE SIGHT TRIANGLE

FIGURE A-16



APPENDIX B

STORM DRAINAGE DESIGN STANDARDS

GENERAL

Drainage Systems

1. The overall drainage system is divided into two parts, the minor system and the major system.
 - a. The minor drainage system (normally designed for the 10-year storm) consists of storm sewer appurtenances and conduits such as inlets, manholes, street gutters, roadside ditches, swales, small underground pipes and small channels which collect the storm water runoff and transport it to the major drainage system.
 - b. The major system (designed for the less frequent storm up to the 100-year event) consists of natural waterways, large man-made conduits, and large water impoundments. In addition, the major system includes some less obvious drainage ways such as overland relief swales and infrequent temporary ponding at storm sewer appurtenances. The major system includes not only the trunk line system, which receives the water from the minor system, but also the natural backup system which functions in case of overflow from or failure of the minor system. Overland relief must not flood or damage houses, buildings or other property.
2. The intent of these regulations is to require that public facilities meet or exceed applicable drainage laws.
3. Special attention is invited to:
 - a. The most current version of the Tennessee Erosion and Sediment Control Manual and the most current version of the Virginia Erosion and Sediment Control Handbook.
 - b. The most current version of the Virginia Department of Transportation Drainage Handbook.
 - c. The most current version of the Virginia Department of Transportation Road and Bridge Standards.
 - d. The most current version of the Tennessee Department of Transportation Standard Roadway and Structure Drawings.

Remarks

1. Designers and reviewers are encouraged continually to seek better solutions to the design of drainage systems.
2. These storm drainage policies, guidelines, criteria and standards will continually be re-evaluated as additional research and basic information becomes available.

POLICY AND REQUIREMENTS FOR ADEQUATE DRAINAGE

Minimum Requirements

1. The drainage system must have the hydraulic characteristics to accommodate the maximum expected flow of surface waters for a given watershed, or portion thereof, for the duration and intensity of rainfall as specified in this Section.
2. Determination of the size and capacity of the drainage system shall be based on the planned development, existing zoning or existing development, whichever is greater, within the watershed.
3. The drainage system shall be designed:
 - a. To honor natural drainage divides,
 - b. To account for both off-site and on-site surface waters,
 - c. To convey such waters to a natural watercourse or an existing storm drainage facility,
 - d. To discharge the surface waters into a natural watercourse at the natural elevation, or into an existing facility of adequate capacity.
4. The drainage system shall be designed such that the properties, over which the surface waters are conveyed, from the development site to the discharge point(s), are not adversely affected.
5. Concentrated surface waters shall not be discharged on adjoining property, unless an easement expressly authorizing such discharge has been granted by the owner of the affected land or unless the discharge is into a natural watercourse, or other appropriate discharge point as set forth above.
6. The owner or developer may continue to discharge storm water which has not been concentrated into a lower lying property if:
 - a. The peak rate after development does not exceed the predevelopment peak rate,
 - b. The increase in volume caused by the development will not have an adverse impact on the lower lying property, and
 - c. There is no existing drainage problem on the downstream property.
7. If the discharge conditions are not met and the discharge may aggravate an existing drainage problem or cause a drainage problem, the developer must provide a drainage system satisfactory to the City Engineer, to preclude an adverse impact upon the adjacent or downstream property.
8. Drainage structures shall be constructed in such a manner that they may be maintained at a reasonable cost. To facilitate design, construction, and maintenance, drainage facilities shall meet and conform, insofar as practical, to the City and the Virginia Department of Transportation standards.
9. If off-site downstream construction and easements are necessary to obtain an adequate outfall, no plans shall be approved until such storm drainage easements, extending to the nearest natural and well-defined, adequate, stabilized watercourse, or adequate man-made drainage channel or pipe, have been obtained and recorded.

10. Storm sewers shall be discharged into the area least likely to erode.
 - a. Generally, discharging at the floodplain limit into an adequate watercourse channel leading to the main streambed is better than disturb the floodplain by extending the storm sewer.
 - b. If an adequate watercourse channel does not exist the only alternative is to discharge into the main streambed.
 - c. In either case, energy dissipation devices are required.
11. The requirements of the City relating to erosion and sedimentation control, and the further requirements for protection of stream-beds by the detention or retention of surface waters, set forth in this Section must be satisfied.
12. All drainage ways, including overland relief pathways, must be separated from buildings.
13. Consideration must be given in the preparation of the plans to preclude adverse impacts due to higher rates and volumes of flow that will occur during construction.
14. In those cases in which the drainage plans of a proposed development do not satisfy these minimum requirements because the necessary off-site facilities or improvements are lacking, the developer shall delay development until the necessary off-site facilities or improvements are constructed or other arrangements suitable to the City are made.
 - a. In such event, the plat or plans, if otherwise satisfactory, will be approved when the requirements of this Article are satisfied.
 - b. Alternatively, the developer may choose to supply the off-site facilities that are necessary for adequate drainage.

Submission of Narrative Description

1. In addition to plats, plans, and other documents that may be required, a description of the outfall of the storm drainage system and of non-concentrated discharge(s) of surface waters from the development site shall be submitted as part of the relevant subdivision construction plan or site plan unless the provisions of paragraph 8 of this section apply.
 - a. The additional submission shall include a narrative, computations and sketches describing the major elements (pipe, channel, natural watercourse stream, etc.) of the outfall drainage system(s), including discharges of non-concentrated surface waters from the development site.
 - b. The downstream review, divided into reaches, shall note the existing surrounding topography, soil types, embankments, vegetation, structures, abutting properties, etc., which may be impacted by drainage and shall conclude with a written opinion, signed and sealed by the designer as to the adequacy of the downstream system(s) for the critical storm return period.
2. Where erosion is an issue, the critical storm return period referred to in the preceding paragraph normally would be the two-year storm.
3. Where an existing facility is at issue (such as a storm sewer system, highway culvert, etc.), the return period would be that storm return frequency which begins to exceed the capacity of the existing facility up through the normal design standard for that type of facility.

4. Where house flooding is involved, the critical storm return period normally would be the storm that begins to flood the structure up through the 100-year flooding event.
5. Where open streams are involved, the designer must assess the stream adequacy to receive the two-year run-off without causing erosion or over-bank flooding using the methodology as outlined in the Virginia Erosion and Sediment Control Handbook.
6. The downstream extent of this review shall be:
 - a. To the point at which an adequate channel is found; or
 - b. To the point at which the total drainage area is at least 100 times greater than the area of the development site in question; or
 - c. To the limit of the nearest 100-year floodplain.
7. The City Engineer shall have the right to require further downstream analysis, where the submitted narrative and all related plats and plans are insufficient to show the true impact of the development on the surrounding and other lower lying properties.
8. The narrative description may be omitted when the storm sewer discharge is into a pipe or other drainage system meeting current design standards and the peak rates of non-concentrated flows onto adjoining properties are not increased by the development.

POLICY ON DETENTION OF STORM WATERS

General

1. The intent of this policy is to encourage the design of developments to minimize the adverse effects of increased storm water runoff on all downstream drainage ways.
2. The intent of this policy is to encourage a regional approach in the implementation of storm water detention, rather than numerous small, marginally effective individual on-site ponds.
3. Detention facilities must be provided in all storm drainage plans proposed for development in The City of Bristol Tennessee unless waived by the City Engineer.

Detention Measures

1. Except where otherwise prohibited, detention, either alone or in a combination with other measures, is an acceptable option for meeting the City and State requirements for protecting receiving waterways from erosion and flooding resulting from development run-off.
2. Detention of storm water is desirable in many cases to alleviate existing downstream drainage problems and to preclude the development of new ones.
 - a. Detention is mandatory where the existing downstream drainage system is clearly inadequate and its expansion or improvement is either financially prohibitive or unacceptable for aesthetic or other compelling reasons.
 - b. In some areas of a watershed, detention may cause increased peak flows to occur on the major streams and tributaries. Therefore, the downstream impact must be carefully investigated.

- c. The City reserves the right to prohibit detention of storm water where and when detention of the storm water is not in the best interest of the City.
3. The release rate from ponding areas shall approximate that of the site prior to the proposed development for the design storm, but adequate alternate drainage must be provided to accommodate major storm flows.
4. Detention ponds should be designed to reduce peak runoffs downstream by providing adequate storage.
 - a. Care must be taken to ensure that such ponds do not become nuisances or health hazards.
 - b. The licensed professional should strive to design detention facilities that require minimal maintenance. The maintenance responsibility shall be clearly stated on the plans.
 - c. Where dual-purpose facilities are provided, flat grades encountered, or poor draining soils found, provisions for adequate low flow drainage may be required.

Location of Detention Facilities

1. All detention facilities that receive storm runoffs from public infrastructure shall be within storm drainage easements, and shall be maintained by the City of Bristol Tennessee.
2. Although this policy is primarily concerned with maintaining post-development peak outflow at the level of the pre-development condition, this policy may be applied under certain conditions for the purpose of correcting an existing inadequate outfall. When used in this fashion, such a facility also may aid in meeting the requirement for adequate detention.
3. Wherever storm water management facilities are planned in areas within 300 feet of a residence or active recreational area, special design attention shall be directed toward the safety aspects of the facility including such factors as mild bottom slopes along the periphery of a detention pond extending out to a point where the depth exceeds two feet, flat lateral and longitudinal slopes where concrete low flow channels are used, outlet structures with properly fastened trash racks which will inhibit unauthorized entrance, and posted warning signs.
4. In addition, credit for recreational open space shall no be allowed in those areas where detention facilities are located unless the area can reasonably be used for recreational purposes. For example, some detention ponds could be used for active recreational use if the low flows are totally separated from the play areas by a piping system.
5. Underground detention facilities may not be used in residential developments, including townhouses, condominiums and apartments. Underground detention facilities may be used in other commercial and industrial developments where private maintenance agreements are executed and are not located in a City storm drainage easement.

POLICY ON OFF-SITE DRAINAGE IMPROVEMENTS

Purpose and Intent

In the interest of the health, safety and welfare when the appropriate land use has been determined for any area to be developed, the City of Bristol Tennessee reserves the right to require the developer to show that off-site downstream drainage can be accommodated

(considering the planned development of the contributing watershed) without damage to existing facilities or properties before such development is approved for construction.

POLICY ON DEVELOPMENT IN FLOODPLAINS

Purpose and Intent

As stated in Chapter 7 of the City of Bristol Tennessee Planning and Zoning Ordinance:

The purpose of the Floodplain Management Ordinance is to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas. The Floodplain Management Ordinance is designed to:

1. Restrict or prohibit uses that are vulnerable to water or erosion hazards, or which cause damaging increases in erosion, flood heights, or velocities.
2. Require that uses vulnerable to floods, including community facilities, be protected against flood damage.
3. Control the alteration of natural floodplains, stream channels, and natural protective barriers that accommodate floodwaters.
4. Control filling, grading, dredging and other development that may increase erosion or flood damage.
5. Prevent or regulate the construction of flood barriers that will unnaturally divert floodwaters that may increase flood hazards.

General

Development in the floodplains of the City of Bristol Tennessee must be per the requirements of the Floodplain Management Ordinance found in Chapter 7 of the City of Bristol Tennessee Planning and Zoning Ordinance.

HYDROLOGIC DESIGN

Acceptable Hydrologies

1. All retention and detention facilities must be designed utilizing the Soil Conservation Service (SCS) Technical Release Number 20 and Technical Release Number 55 methodology.
2. Storm drainage systems can be designed utilizing the Rational Formula or the SCS TR-55 methodology. The Rational Formula can only be used when the contributing drainage area to a storm drainage system is less than 100 acres.

Soil Conservation Service Hydrology

The Soil Conservation Service (SCS) Hydrology consists of Technical Release Number 20 (TR-20) and Technical Release Number 55 (TR-55). This hydrology is preferred and acceptable for all applications

Rational Formula

The Rational Formula, $Q = CIA$, is acceptable for design of drainage systems where the contributing drainage area is less than 100 acres, except the rational method is not authorized for designing detention/retention facilities.

- Q = Rate of run-off in cubic feet per second
- C = Run-off coefficient (ratio of run-off to rainfall)
- I = Rainfall intensity in inches per hour
- A = Area of drainage basin in acres

1. Run-off Coefficient (C): The run-off coefficient used to compute flow to the point of interest shall be the composite of the "C" factors for all the areas tributary to the point of interest. The table at the end of Appendix B provides examples of run-off coefficient values.
2. Rainfall Intensity (I): The rainfall intensity shall be determined from the rainfall frequency curve provided in the Figure at the end of Appendix B. The 10-year frequency shall be used to design storm drains of minor drainage systems; the 100-year frequency curve shall be used to design drainage ways of major drainage systems.
3. Time of Concentration (t_c): The time of concentration is the time required for water to flow from the hydraulically most remote point of the drainage area to the point under investigation. Flow time in conduits may be estimated by the hydraulic properties of the conduit. Inlet time is the time required for the run-off to reach the inlet of the storm sewer and includes overland flow time and flow time through established surface drainage channels such as swales, ditches and street gutters.
 - a. The recommended minimum inlet time is five (5) minutes.
 - b. When estimating inlet times the following suggestions are made to assist the designer:
 1. Estimate the overland time, time for run-off to reach established surface drainage channels such as street gutters and ditches.
 2. Estimate the time of flow through the established surface drainage channels from the channel's hydraulic properties.
 - c. Judgment should be used in estimating the time of concentration or any portion of the time of concentration. Often the initial time may be based on the first few inlet areas.
 1. If the uppermost area has a low runoff rate with long times of concentration, and major portions of the lower area have high runoff rates with short times of concentration, then the first inlet time may not necessarily be based solely on its own land use.
 2. The above statements also would be true of the converse case; that is, the uppermost area producing high runoff rates with short times of concentration and the lower areas producing low runoff rates with long times of concentration.
4. Area (A): Areas shall be determined from field run topography, current U.S. Geological Survey quadrangle sheets, or City of Bristol Tennessee Topographical Maps. Watershed maps showing applicable divides, contributing areas and adopted Comprehensive Plan recommendation or existing zoning, whichever is greater, must accompany all computations.

Other Hydrologies

The City recognizes that many hydrologies are available, especially in the form of computer software. The City Engineer may approve other hydrologies for specific applications provided that the alternatives are demonstrated to be appropriate for the purpose intended.

CLOSED CONDUIT SYSTEM

Design Flow

The closed conduit system shall be designed for a 10-year rainfall frequency when the intended use is to function as the minor drainage system. Design flows shall be determined by the methods previously discussed and pipes will be sized by the amount of run-off actually entering the system.

Storm Sewer Pipe

1. The size of the storm sewer pipe may be determined utilizing the Manning Formula.
2. Adjustments of pipe sizes as determined by the Manning Formula may be necessary due to hydraulic gradient considerations. Other guidelines related to size and configuration of storm sewer pipe are as follows:
 - a. The Minimum size of pipe will be 15 inches in diameter.
 - b. Pipes shall be designed for flows intercepted by the inlets.
 - c. Pipes 18 inches in diameter and larger may be constructed on horizontal curves. The maximum allowable curvature will be based on the manufacturers recommended maximum curvature.
 - d. The maximum length between access openings shall not exceed 400 feet for pipes less than 36 inches in diameter or 800 feet for pipes 36 inches in diameter or greater. Access openings may be in the form of an inlet, manhole, junction box or other approved appurtenance.
 - e. Prefabricated tee sections, wye sections and bends are not permitted.
 - f. Any changes in horizontal and vertical alignment shall require an access opening. An exception to this is the horizontal curvature allowed in 18 inch and larger pipe.
 - g. In general, there may not be a reduction in pipe size greater than one increment along the direction of flow.
 - h. Minimum cover for storm sewer pipe shall be three (3) feet from finished grade to the outside top of pipe, except where approved structural correction is provided when cover requirements cannot be met.
 - i. Minimum easement widths shall be 20 feet for pipe sizes less than 36 inches in diameter and 30 feet for pipe sizes from 36 inches to 72 inches in diameter. Where multiple pipes are installed, the edge of the easement shall be ten (10) feet clear of the outside wall of the pipe. No storm drainage pipe shall be installed within five feet of a building foundation loading plane, or closer than 15 feet to the building foundation, whichever is greater. Storm sewers to be maintained by the City of Bristol Tennessee shall be within dedicated storm drainage easements.

- j. Storm sewers shall be designed to provide an average velocity when running full of not less than two and one half feet per second.
- k. The need for concrete anchors must be investigated on storm sewer lines with slopes of 20 percent or greater. If anchors are required, the design professional shall show a detail on the plans of the spacing requirements and anchor geometry.
- l. All storm sewer pipes shall be Class III or higher, Reinforced Concrete Pipe (RCP) or High Density Polyethylene Pipe (HDPE).
- m. When storm sewers are provided, they shall not outfall in the front yard of a lot, but shall be extended at least to within 20 feet of the rear property line in lots up to one half acre in size and at least 50 feet to the rear of the house on larger size lots. If the storm sewer outfalls on a lot or adjacent to a lot on which a building exists that will remain, the building must be shown with topography of the area between the building and the outfall. Finished floor elevations of the building shall also be provided.
- n. In general, drainage facilities may not be terminated short of the subdivision boundary unless an adequate outfall exists at this point.

Pipe and Culvert Materials

Pipe and culvert materials acceptable for storm drain construction with the accompanying roughness coefficients are shown below:

Material	Manning "n"
Reinforced Concrete Pipe, Class III or higher	0.013
HDPE Pipe	0.013

Energy and Hydraulic Gradients

The hydraulic grade line (HGL) for pressure flow is the piezometric surface, i.e. the height to which water will rise in a piezometer. The hydraulic grade line (HGL) for open channel flow is equal to the water surface elevation. The energy grade line (EGL) is the line showing the total energy of the flow above some arbitrary horizontal datum. The vertical distance between the HGL and EGL is the velocity head.

1. At storm sewer junctions the total energy loss at the junction is the difference in elevation between the energy grade lines of the upstream and downstream pipes. To establish these gradients for a system, requires starting at a point where the hydraulic and energy gradients are known or can readily be determined.
2. Generally, when the energy and hydraulic gradients must be determined, the pipes are assumed to have uniform flow.
3. The total energy losses at a junction is assumed to be made up of one or more of the following losses:
 - a. Expansion loss when storm water enters the junction.
 - b. Contraction loss when storm water leaves the junction.
 - c. Bend loss due to the change in horizontal direction of storm water velocity.
4. Storm sewer systems generally shall be designed as non-pressure systems. In general, if a drop in the structure between the inverts of the incoming and outgoing pipes is

5. Storm sewer systems may be designed for pressure flow if approved by the City Engineer in the preliminary design stage. The hydraulic gradient for the design flows shall not be above the elevation of one foot below the established ground elevation nor more than five feet above the crown of the pipe. For curb opening inlets the gutter flow line is considered the established ground elevation.
6. If possible the energy losses through a junction should be accounted for by a drop across the junction equal or greater than the junction energy loss.

Closed Conduit Design Calculations

In general, design calculations required for submittal to the City are as follows:

1. A copy of the drainage plan showing drainage divides, contributing areas and the adopted Comprehensive Plan or existing zoning, whichever allows the densest development.
2. Storm water run-off quantities, drainage areas and runoff coefficients.
3. Pipe design calculations:
 - a. For storm sewer systems or portions of systems designed for pressure flow, a storm sewer profile with energy and hydraulic gradients drawn on the profile shall be submitted.
 - b. Energy and Hydraulic gradients do not need to be submitted for non-pressure systems.
4. Energy loss calculations at storm sewer junctions.

OPEN CHANNELS

Design Criteria

1. In general, roadside and median ditches shall be designed with sufficient capacity to contain the runoff for a 10-year storm. For determining whether or not special linings will be required to prevent erosion and the lining dimensions, the 2-year storm shall be used.
 - a. All special channels shall be designed for storm frequencies in accordance with the importance of the road and its vulnerability to inundation, should the capacity be exceeded.
 - b. Where the velocity exceeds the allowable velocity as determined from the type of soil the channel is constructed from, the ditch shall be lined.
 - c. If the newly constructed channel alongside, or leading from, any street providing access to lots to be occupied, or through, or alongside any such lots, is not well stabilized within 120 days after initial attempts to stabilize, or 120 days after issuance of any residential or nonresidential occupancy permit for such lots, whichever occurs first, the channel must be lined with concrete.
 - d. In the event that the channel is constructed during winter months the 120 days shall run from March 15 the following spring.

- e. Well stabilized shall mean a good stand of grass must be growing and not showing any visible evidence of erosive forces. Sod shall be growing well and knitted into the underlying soil.

Channel Size and Shape

1. The size of a channel shall primarily be established by the Manning Formula.
2. General guidelines related to the size and shape of channels are:
 - a. Low flow sections should be considered in the design of channels with large cross-sections.
 - b. Channel bottom widths greater than 10 feet shall be built with a minimum cross slope of two (2) percent.
 - c. The side slopes of a channel shall be a function of the channel material. The side slopes throughout the entire length of a channel shall be stable.
 - d. Channels to be constructed on horizontal curves should be investigated to see if the channel section must be modified due to superelevation of the water.
 - e. A minimum 20-foot drainage easement shall be provided for all channels with a top width up to 10 feet. The easement width for channels with a top width of greater than 10 feet is 15 feet plus the channel top width with a minimum of 5 feet on one side.
 - f. All channels to be maintained by the City of Bristol Tennessee shall be within dedicated Storm Drainage Easements.

Channel Design Calculations

In general the following design calculations shall be required for submission of plans to the City:

1. Design flows shall be determined by use of the Manning Equation.
2. Contributing drainage area including a drainage divide map and runoff coefficients.
3. Channel capacity calculations shall be shown for each section of the channel with similar properties. The calculations shall include flow for the 2-year, 10-year and 100-year storm events. The velocity and depth of flow for these events must also be provided.
4. A note shall be placed on the plans stating "All grass-lined channels must be in a well stabilized condition and show no signs of erosion at the time of final acceptance by the maintaining authority".
5. Typical channel cross-section and slope shall be shown.
6. The plans shall show the channel lining or ground cover that will be utilized to prevent erosion.

STORM SEWER APPURTENANCES

General

1. Wherever possible storm sewer appurtenances should conform to the current Virginia Department of Transportation Road and Bridge Standards. Special designs are subject to the approval of the City Engineer.
2. Storm sewer appurtenances shall be designed for the run-off generated by the 10-year frequency storm.

Curb Inlets

The length of the curb inlet opening is dependent of the inlet location, pavement, geometry, and the amount of flow approaching the inlet. General guidelines pertaining to design of curb inlets in street are as follows:

1. Water shall be picked up on continuous grades of residential streets before the spread into the street exceeds one-half the travel way in each direction or 10 feet from the face of the curb, whichever is less, for a rainfall intensity of 3.5 inches per hour.
2. Storm water shall be picked up on continuous grades of non-residential local and collector streets before the spread into the street exceeds one-half the travel way in each direction or 8 feet from the face of the curb, whichever is less, for a rainfall intensity of 3.5 inches per hour.
3. In general inlets on continuous grades should be designed to intercept 100 percent of the flow for a rainfall intensity of 3.5 inches per hour. Inlets on continuous grade can be designed with a percentage of the 10-year storm flow bypassing the inlet. Any bypass flow must be accounted for at the next downstream inlet.
4. The spacing of inlets on continuous grades is governed by the spread of flow in the street.
5. Inlets in sumps must be designed to take flow from the inlets drainage area and any bypass flow that may occur from upstream inlets.
6. Sump inlets located in streets shall be designed with the same spread criteria as stated previously for inlets on continuous grades.
 - a. The spread requirements must be met at the point above the sump location where the street grade is 0.2 percent. The design flow to a sump inlet from each direction must be calculated.
 - b. Adherence to the spread requirements is not necessary at the 0.2 percent street grade for inlets at sump locations within the turnaround of a cul-de-sac. However, flow depth, flow direction and grading must be checked and the turnaround designed to prevent local flooding of adjacent property.
 - c. The amount of flow to the sump inlet must be checked to see that the flow is not directed at driveway entrances where the storm water could "jump" the curb.
 - d. Appropriate overland relief must be provided in sump areas for storm events that exceed the 10-year intensity.

- e. The minimum length of inlet throat at sump locations shall not be less than six (6) feet.
7. All inlets must be designed to intercept the 10-year storm flows without the flow topping the curb.
8. When street grades are less than two (2) percent, a maximum of two (2) cubic feet per second may be allowed to cross the intersections of residential streets. Flows in excess of two (2) cubic feet per second but no more than four (4) cubic feet per second will be allowed to cross intersections of residential streets when the grade across the intersection is two (2) percent or greater.
9. No flows shall be allowed to cross non-residential local, collector or higher category streets.
10. The length of curb inlet throats shall not be less than two and one half (2.5) feet.
 - a. Curb inlets in streets can easily be designed in accordance with the above guidelines by use of the Charts in the VDOT Drainage Manual.
11. Curb inlets shall not be built within curb returns.
12. The most common type of inlet to be utilized in design is the VDOT DI-3B series for inlets on grade and the VDOT DI-3C series for inlets in sump locations.

Yard Inlets

1. Yard inlets should be designed to intercept the 10-year storm flows.
2. Yard inlets should be positioned in such a way that they intercept all the design flow approaching the inlet.
3. Any area that is inundated by water ponding at a yard inlet for the 10-year storm flows shall be within a storm drainage easement.

Grate Inlets

When grate inlets are utilized in sumps and on grades in conjunction with throat inlets, the additional interception capacity of the grate shall not be utilized in calculating the inlet interception capacity of the inlet.

Open Top Structures

Open top structures are not permitted.

Energy Dissipation Devices

1. The terminal ends of all pipes and paved channel storm sewer systems shall be evaluated to be sure that the receiving surface will experience no erosion due to the design discharge.
2. Where the design discharges have velocities greater than the erosive velocity of the receiving surface, an energy dissipation device shall be designed or a standard energy dissipation device shall be specified.

3. When riprap is used for erosion control, the riprap shall be sized according to the velocities at the receiving surface and in accordance with the Virginia Erosion and Sediment Control Handbook.

Drainage in Residential Areas

The intent of the section is to utilize closed conduit systems for residential subdivisions that utilize curbed roads.

1. General guidelines to be observed in drainage design in residential subdivisions developments in which curbed roads are required:
 - a. No quantity of design surface runoff across lots shall be erosive.
 - b. Quantities of surface runoff greater than two (2) cubic feet per second that flow through lots shall be picked up and conveyed in a closed storm drainage system except that the Planning Commission upon the recommendation of the City Engineer may approve an open channel where the preservation of a natural drainage way is desirable or the use of an open channel will not interfere with use of the property.
 - c. Lots generally shall be graded in such a manner that surface runoff does not cross more than three lots before being collected in a storm sewer system. This system may be open channel, closed conduit, or a combination of both.
2. The following general guidelines are to be observed in drainage design in residential subdivisions in which ditch section streets may be utilized:
 - a. No quantity of design surface runoff across lots shall be erosive.
 - b. Drainage from rights-of-way should flow in an easement along lot lines whenever possible.
 - c. Once drainage is concentrated in rights-of way, the storm water shall be transferred to a logical point of discharge, preferably a storm sewer system, either open channel, closed conduit, or a combination of both.
 - d. In fill sections, a ditch at the toe of a fill may be necessary. If the toe of the fill area is outside of the right-of-way, the drainage ditch must be in an easement.
3. If how drainage concentrated in the rights-of-way ultimately will be handled cannot be established, the affected lots shall be restricted until such time as a grading plan showing ultimate drainage disposition has been submitted and approved.

Inlet Design Calculations

In general, design calculations required for submission to the City are as follows:

1. A calculation showing the spread of gutter flow in the street is within the allowable range.
2. Calculations showing the percent of interception of gutter flow.
3. Capacity calculations for all inlets.
4. Evaluation of the terminal ends of piped and paved ditch systems for the possible need of energy dissipation devices.

5. A drainage divide plan that clearly shows all the on-site and any off-site acreage and the runoff coefficient for each inlet.
6. Calculations should be provided for both the 3.5 inch per hour intensity storm and the 10-year storm event.

CULVERTS

Design Flow

1. Culverts shall generally be designed for the 25-year rainfall frequency when crossing under non-residential local roads or higher classification.
2. Culverts under residential roads shall be designed for the 10-year rainfall frequency.
3. Culverts shall be checked for the effects of the 100-year storm. No flooding of building structures shall result from the 100-year design flow.

Size

1. In general, culverts shall be hydraulically designed in accordance with the U. S. Department of Transportation's latest publication, "Hydraulic Charts for the Selection of Highway Culverts."
2. General guidelines in selection of culvert size are as follows:
 - a. Headwater depth for design discharge shall not exceed a height greater than one and one-half (1.5) feet below the edge of the shoulder of a road
 - b. In general the maximum allowable headwater above the crown of a culvert shall not be greater than five (5) feet.
 - c. Headwater depth for the design discharge shall not cause water to rise above the top of approach channels that are adjacent to improved land or above the established floodplain easements.
 - d. Headwater depth at design discharge shall cause no flooding of existing or proposed building structures.
 - e. Outlet velocities shall be calculated. If outlet velocities equal or exceed erosive velocities of channel linings, then riprap or some other form of energy dissipation device shall be placed at the culvert outlet.

Culvert Materials

Unless otherwise approved by the City Engineer, all culverts shall be reinforced concrete pipe, minimum Class III.

RETENTION AND DETENTION FACILITIES

General Requirements

1. Storm water retention and detention facilities are incorporated in the design of storm drainage systems to reduce the peak rate of discharge of the drainage system, reduce downstream erosion problems, possibly reduce the capital cost of the drainage system

2. Detention measures are extremely helpful for development in areas where downstream storm drainage systems are not adequate to receive the increased run-off being generated by the upstream development. These detention measures may be an adequate manner for meeting offsite drainage requirements.
3. Some methods for achieving storm water detention are as follows:
 - a. Parking lot storage.
 - b. Retention and detention ponds.
 - c. Recreation area storage.
 - d. Road embankment storage.
 - e. Street and secondary drainage system storage during extreme intensity storms.
4. The 2-year, 2-hour and the 10-year, 2-hour storms shall be used for the design of retention and detention facilities.
5. Emergency spillways in ponds shall be designed to discharge the 100-year, 2-hour storm.
6. Design of retention and detention facilities require the determination of actual volumes of rainfall occurring in a specific time and the actual volume of storm runoff in the same specified time. Routing of these volumes shall be incorporated into the design calculations.
7. Other design parameters include the maximum allowable rate of runoff, characteristics of the developed area, and limitations of the developed area such as the maximum size of storage basin that can be incorporated in the topography.

Retention and Detention Ponds

1. Small ponds created by constructing low earth dams across natural drainage courses or by excavating and regarding of a development site provide capacity for storm water runoff detention.
 - a. Storm water permanently retained in these ponds may be considered potential resource suitable for a variety of uses, including fire fighting, irrigation supplies and recreational sources.
 - b. In addition to providing storm water discharge reduction capabilities, detention ponds provide storage for sediment and pollution control in runoff, especially during the construction phase of development.
 - c. If embankments are used to dam natural drainage courses, they must be designed according to accepted practices, both engineering and environmental.
2. Detention ponds and their primary outlet or spillway shall be designed to detain the increased runoff generated by development of a site based on the 2-year and the 10-year frequency storms. Emergency or secondary spillways for detention ponds shall be designed using the 100-year frequency storm, and the storm runoff hydrograph shall be

3. Outlets and emergency spillways shall be placed on either undisturbed ground or on a stabilized foundation and not in fill areas.
4. Design calculations for detention ponds shall be submitted with the site drainage plan and shall generally include the following:
 - a. Hydrographs of the 2-year, 10-year and 100-year storm inflow to the facility.
 - b. Volume of storage vs. depth of storage curve.
 - c. Outlet design calculations.
 - d. Head discharge curve for the selected outlet size.
 - e. The routed discharge hydrograph from the facility for the 2-year, 10-year and 100-year inflows.
 - f. Emergency spillway design calculations for ponds with storage in excess of two acre-feet shall include a freeboard safety factor such that the top of the dam is a minimum of two feet above the crest elevation of the emergency spillway and a minimum of one foot above the maximum design stage of the 100-year frequency emergency spillway design storm.
 - g. Calculations or effects (if any) on established floodplain boundaries.
5. Other items that shall be included with or on the plans are:
 - a. When possible, the shape of the pond should conform to the natural topography.
 - b. Identification of required easements.
 - c. Landscaping and fencing around detention ponds when access exposes the public to unusual risk.
 - d. Properly executed maintenance agreements when required.

Maintenance Design Considerations

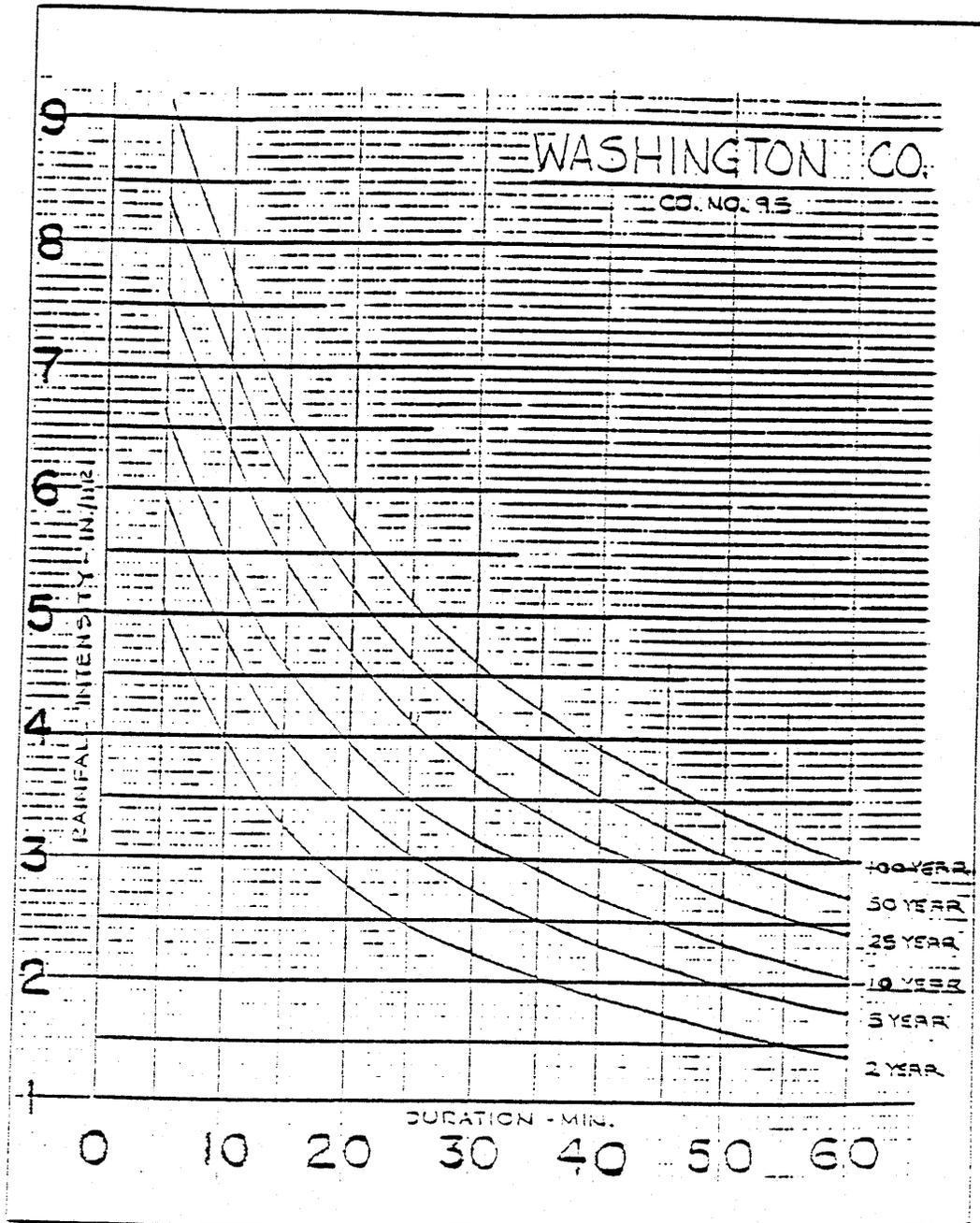
1. The maintenance impact of storm water management facilities is considered to be a primary concern to the City and to the future operations of these facilities.
2. Design Professionals in the preparation of plans for construction are urged to include maintenance and operation of these facilities as one of the primary design considerations.
3. The following shall be included in design considerations:
 - a. All access ways shall be designated on plans and cleared, graded, or constructed with the facility construction.
 - b. Proximity of facilities to the public right-of-way shall be considered in order to minimize the length of access-way.

- c. Multiple accesses on major facilities should be provided.
- d. Ingress/egress easements must be established for access-ways.
- e. Grading of the access to and around facilities shall not create steep slopes (maximum 4:1), in order to accommodate easy maintenance-vehicle access.
- f. Major facilities including wet ponds, underground chambers, etc., shall consider accessibility with at least one all weather access roadway to include a minimum of ten foot wide surface to the satisfaction of the City Engineer.
- g. As these facilities are generally in close proximity to dwellings and may be subject to vandalism, principal spillways and other devices shall be designed to minimize tampering.
- h. The design of dry pond bottoms shall include a concrete trickle ditch from the principal inlets to the outlets. The minimum pond floor slope shall be 2% into the trickle ditch.
- i. Where trash racks are provided, they shall be removable as a unit by unbolting, without destroying the structure.

**Recommended Coefficient Of Runoff Values For
Various Selected Land Uses**

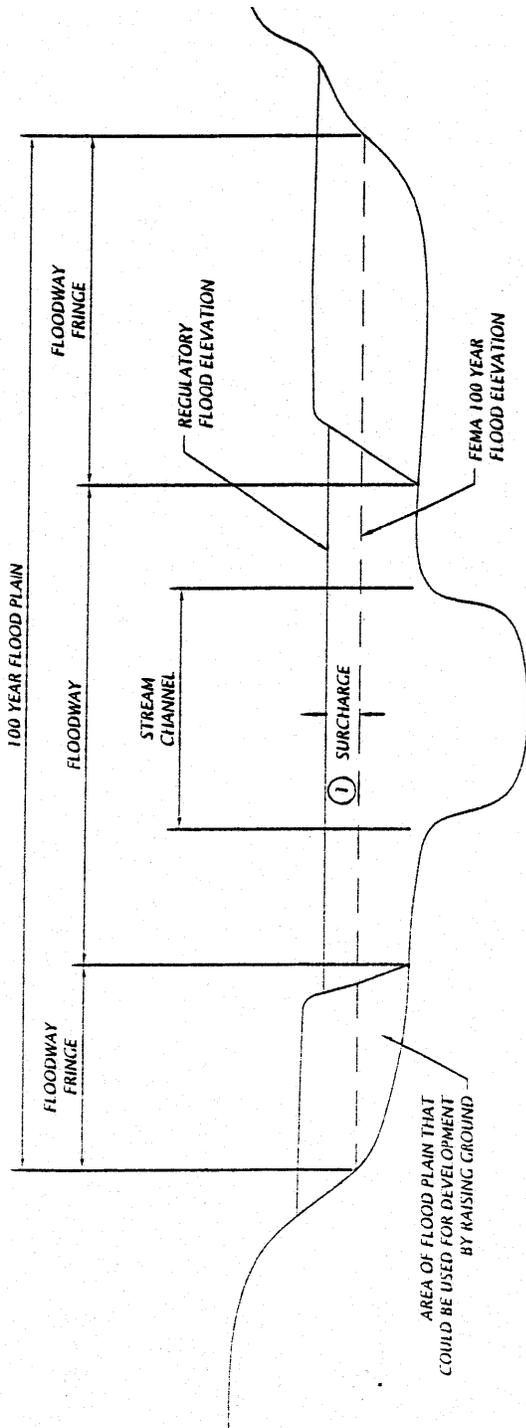
Description of Area	Runoff Coefficients
Business: Downtown Areas	0.70 - 0.95
Neighborhood Areas	0.50 - 0.70
Residential: Single-Family Areas	0.30 - 0.50
Multi Units-Detached	0.40 - 0.60
Multi Units-Attached	0.60 - 0.75
Suburban	0.25 - 0.40
Residential (1/2 Acre Lots or Larger)	0.30 - 0.45
Apartment Dwelling Areas	0.50 - 0.70
Industrial: Light Areas	0.50 - 0.80
Heavy Areas	0.60 - 0.90
Parks, Cemeteries	0.10 - 0.25
Playgrounds	0.20 - 0.40
Railroad Yard Areas	0.20 - 0.40
Unimproved Areas	0.10 - 0.30

Table B-1



Source: VDOT

Plate 5-16



① SURCHARGE NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT)

FLOODWAY SCHEMATIC

FIGURE B-2



APPENDIX C

WATER LINE DESIGN STANDARDS

General Information

1. All subdivisions within the corporate limits of the City of Bristol Tennessee shall provide a public water supply approved by the water authority of jurisdiction, the City of Bristol Tennessee and the State of Tennessee Department of Environment and Conservation.
2. When a subdivision is outside the corporate limits of the City of Bristol Tennessee but inside the Planning Boundary of the Bristol Regional Planning Commission and where a public water main is within reasonable access of the subdivision, as determined by the Planning Commission, and the subdivision is determined to not be more than 1000-feet from a public water line, the subdivision shall provide a public water supply, including fire hydrants. The public water supply shall meet the requirements and be approved by the water authority of jurisdiction, the City of Bristol Tennessee and the State of Tennessee Department of Environment and Conservation.
3. All water systems located in a flood prone area shall be floodproofed to the regulatory flood protection elevation. All water supply facilities located below the regulatory flood protection elevation shall be designed to prevent the infiltration of floodwaters into the water supply system.
4. All water systems shall be constructed utilizing materials that comply with all federal, state and local materials specifications.

GENERAL REQUIREMENTS

1. All water mains, their sizes, valves, fire hydrants, etc. and their relationship to other utilities shall be shown as indicated below:
 - a. Wherever practical, water lines and the associated appurtenances shall be placed outside of paved areas. In general, water lines shall be placed a minimum of 5 feet behind the curb line on curb and gutter streets and in the shoulder on ditch section streets. Placement of water lines under sidewalks should also be avoided where practical.
 - b. Water lines should be placed in public rights-of-way where possible. A minimum 20-foot utility easement is required for all water lines placed outside of public rights-of-way. The City Engineer may require a larger easement based on site conditions, size of water line, water line depth or other unusual conditions.
2. Design Criteria:
 - a. All water main construction shall comply with the requirements of the public water authority of jurisdiction, the American Water Works Association, the City of Bristol Tennessee and the Tennessee Department of Environment and Conservation.
 - b. All water mains shall have a minimum cover of three (3) feet unless otherwise approved by the City Engineer.
 - c. No underground utilities may be placed in the same trench as the water line.

- d. All water mains shall be a minimum of Pressure Class 350, Ductile Iron Pipe unless otherwise approved by the City Engineer.
- e. Swivel fittings must be provided for all fire hydrant lines. Swivel fittings must be used to connect the valve to the water main and the fire hydrant to the valve. Rods may be used in lieu of swivel fittings where approved by the City Engineer.
- f. All water mains shall be capable of supplying an instantaneous peak demand of 2 gpm per connection. Water mains must also maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow.
- g. Wide variations in pressure above the minimum requirement of 20 psi may be inherent in the design of a distribution system but pressures no greater than 100 psi should be delivered to the customer (unless higher pressures are requested). The 100 psi maximum pressure requirement can be met by pressure reducing valves in vicinity of each customer's source line, or by designing the distribution system to limit the maximum pressure.
- h. All assumptions and any flow data used must be clearly documented and submitted with the hydraulic calculations. If actual flow data is not available theoretical calculations shall be based on all storage facilities half-full and the Hazen-Williams friction factor appropriate for the type of pipe being used but in no case greater than 130.
- i. Where feasible, all water lines shall be looped. Dead end water lines are not desired in order to provide better water circulation through the system.
- j. Air release valves shall be installed at high points in the water line. Blow offs shall be installed at low points in the water line. Blow offs shall also be installed at the end or terminal water lines. Hydrants should be utilized for these purposes where feasible.
- k. Where utilized, blow-offs shall be a minimum of 2-inch and provide a minimum flushing velocity of two (2) feet per second. No flushing device shall be directly connected to any sanitary or storm sewer nor be subject to flooding or plugging.
- l. Criteria for fire hydrants is as follows:
 - 1. Fire hydrants in residential areas shall be located no more than 900 feet apart as measured along the servicing street and be within 450 foot of any residential lot. Fire hydrants in commercial and industrial areas shall be located no more than 500 feet apart as measured along the servicing street and be within 250 foot of any commercial or industrial lot. The City Engineer and Fire Chief may require a closer spacing based on physical site conditions, city fire codes, types of structures, spacing of structures, etc.
 - 2. A minimum of 750 gpm flow with a minimum residual pressure of 20 psi shall be provide for all fire hydrants unless lower flow requirements are approved by the Fire Chief and City Engineer. The Fire Chief and City Engineer may require flow capabilities in excess of this requirement based on the type of development.
 - 3. Fire hydrants shall not be connected to water mains that are not capable of providing a flow of 500 gpm at a residual pressure of 20 psi.
 - 4. In general fire hydrants should be located at street intersections, commercial/industrial entrances, ends of water lines in cul-de-sacs and the middle of long blocks. Fire hydrants should be place on property lines.

5. When placed at intersections fire hydrants should be placed five (5) feet from the point of curvature of the curb return.
6. Fire hydrants shall meet the latest revision of the American Water Works Association Standard C502.
- m. A minimum of six (6) inch diameter water lines are required in all residential developments. A minimum of eight (8) inch diameter water lines are required in all commercial and industrial developments. The City Engineer and Fire Chief may require larger diameter water lines in developments based on fire flow requirements or estimated usage.
- n. Water Main Separation:

Water main separation from sanitary sewer and storm sewer systems shall meet the requirements of the Tennessee Department of Environment and Conservation. In general the requirements are as follows:

1. The following factors should be considered in providing adequate separation:
 - a. Materials and type of joints for water and sewer pipes.
 - b. Soil conditions.
 - c. Service and branch connections into the water main and sewer line.
 - d. Compensating variations in the horizontal and vertical separations.
 - e. Space for repair and alterations of water and sewer pipes.
 - f. Offsetting of pipes around manholes.
 - g. Water mains and sanitary or storm sewers shall not be laid in the same trench.
 - h. Parallel Installation
 1. Normal conditions – Water mains shall be laid at least 10 feet horizontally from any sanitary sewer, storm sewer or sewer manhole, whenever possible. The distance shall be measured edge to edge.
 2. Unusual conditions – When local conditions prevent a horizontal separation of 10 feet, a water main may be laid closer to a storm or sanitary sewer provided that:
 - a. The bottom of the water main is at least 18 inches above the top of the sewer.
 - b. Where this vertical separation cannot be obtained, the sewer shall be constructed of materials and with joints that are equivalent to water main standards of construction and shall be pressure tested to assure water-tightness prior to backfilling.

2. Crossings

- a. Normal conditions – Water mains crossing house sewers, storm sewers or sanitary sewers shall be laid to provide a separation of at least 18-inches between the bottom of the water main and the top of the sewer, whenever possible.
- b. Unusual conditions – When local conditions prevent a vertical separation of 18-inches, the following construction shall be used;
 1. Sewers passing over or under water mains should be constructed of materials and with joints that are equivalent to water main standards of construction and shall be pressure tested to assure water-tightness prior to backfilling.
 2. Water mains passing under sewers shall, in addition, be protected by providing:
 - A vertical separation of at least 18 inches between the bottom of the sewer and the top of the water main.
 - Adequate structural support for the sewers to prevent excessive deflection of joints and settling on and breaking the water main.
 - The length of water pipe to be centered at the point of crossing so that the joints will be equidistant and as far as possible from the sewer.
 - Both the sewer and the water main shall be constructed of materials and with joints that are equivalent to water main standards of construction and shall be pressure tested to assure water-tightness prior to backfilling.
- c. Sewer manholes – No water pipe shall pass through or come into contact with any part of a sewer or sewer manhole.

o. Surface Water Crossings

Surface water crossings, both over and under water, present a special problem that should be discussed with the City Engineer before final plans are prepared.

1. Above-water crossings – The pipe shall be:
 - a. Adequately supported.
 - b. Protected from damage and freezing.
 - c. Accessible for repair or replacement.
2. When crossing water courses which are greater than 15 feet in width:
 - a. The pipe shall be restrained joint ductile iron pipe.
 - b. Valves shall be provided at both ends of the water crossing so that the section can be isolated for test or repair. The valves shall be easily accessible and not subject to flooding.

- c. Sampling taps should be available at each end of the crossing.
 - d. Permanent taps should be made for testing and locating leaks.
- p. Cross Connections
- 1. There shall be no physical connection between the distribution system and any pipes, pumps, hydrants or tanks whereby unsafe water or other contaminating materials may be discharged or drawn into the system.
 - 2. The approval of the City of Bristol Tennessee and the Tennessee Department of Environment and Conservation shall be obtained for interconnections between potable water supplies.
 - 3. Neither steam condensate nor cooling water from engine jackets or other heat exchange devices shall be returned to the potable water supply.
- q. Chambers of pits containing valves, blow offs, meters or other such appurtenances to a distribution system, shall not be connected directly to any storm drain or sanitary sewer, nor shall blow offs or air-relief valves be connected directly to any sewer. Such chambers or pits shall be drained to the surface of the ground where they are not subject to flooding by surface water, or to absorption pits underground.
- r. Valves are to be placed at all intersections of water mains on each branch but at no time greater than 4000 feet apart.

3. Plans Requirements

- a. All water line plans submitted for review by the City of Bristol Tennessee shall show the following information:
 - 1. Date, scale, location map and north arrow.
 - 2. Plan view of the water line showing:
 - a. All existing and proposed utilities, streets, buildings, structures, sidewalks, streams, drainage swales, trails, and other features of the proposed project area.
 - b. Existing and proposed topography at a two (2) foot contour interval.
 - c. Existing and proposed property boundary information including property lines, easements, rights-of-way, floodway boundary, 100-year flood fringe boundary, etc.
 - d. Size and location of all proposed water lines, location, fire hydrants, valves, blow offs, air releases, water meters, service lines, fire lines, detector check vaults, etc.
 - e. Stationing of the proposed water line at a maximum of 100-foot intervals.
 - 3. Profile of the water line showing:
 - a. Scale.

- b. Stationing of the proposed water line at a maximum of 100-foot intervals.
 - c. Location and stationing of all intersecting water lines, fire hydrants, blow offs, air releases, highway crossings, pipe types different than standard push-on joint, pressure class 350 ductile iron pipe.
 - d. Existing and proposed ground elevation lines.
 - e. Existing and proposed street centerlines when crossing.
 - f. Existing and proposed utility crossings.
- 4. Seal, signature and date of the Engineer who prepared the drawing. The Engineer must be licensed by the State of Tennessee.
 - 5. A sheet showing details such as blocking dimensions, trench bedding and backfill, fire hydrant installation, service connection installation including meter setting and box, valve installation, highway crossing installation, stream crossing installation, air release detail, blow off detail, etc.
- b. The City Engineer may require additional information to be shown on the water line design documents other than the items listed above.

APPENDIX D

SANITARY SEWER DESIGN STANDARDS

Applicability

1. All subdivisions within the corporate limits of the City of Bristol Tennessee shall provide public sanitary sewer facilities approved by the City of Bristol Tennessee and the Tennessee Department of Environment and Conservation.
2. When a subdivision is outside the corporate limits of the City of Bristol Tennessee but inside the Planning Boundary of the Bristol Regional Planning commission and where a public sanitary sewer main is within reasonable access of the subdivision, as determined by the Planning Commission, and the subdivision is determined to not be more than 1000-feet from the public sanitary sewer line, the subdivision shall provide a public sanitary sewer system to each lot therein and shall connect the facilities to the public system. The sanitary sewer system shall be approved by the City of Bristol Tennessee and the Tennessee Department of Environment and Conservation.
3. All public sanitary sewer systems shall be constructed utilizing materials that comply with all federal, state and local specifications.

General and Hydraulic

1. Type of Sewers

The City of Bristol Tennessee sanitary sewer system is designed to provide total containment of sanitary wastes and maximum exclusion of infiltration and inflow. Systems that do not meet these criteria shall not be approved.

2. Compliance with Design Criteria

These criteria are to establish the minimum requirements for the design of sanitary sewer systems. The design must be in accordance with these requirements and the requirements of the Tennessee Department of Environment and Conservation.

3. Tributary Population

- a. Sewerage facilities shall be designed for the estimated ultimate tributary population.
- b. Consideration shall be given to the adopted Comprehensive Plan and Zoning, and to the maximum anticipated capacity of uses such as, but not limited to, institutions, industrial parks and apartment developments.
- c. Trunk and sub-trunk sewers shall be designed normally on the basis of the adopted Comprehensive Plan densities and/or zoning, whichever is greater, unless the City Engineer approves otherwise.
- d. Design analysis shall be provided for all trunk, subtrunk and collecting sewers.

4. Sewage Flow:

a. Recommended Average Design Flows:

Type of Development		Design Flow (GPD)
Residential:	General	100/person
	Single Family	370/resident
	Multifamily	300/unit
Commercial:	General	2000/acre
	Motel	130/unit
	Office	30/employee
		0.20/net sq.ft.
Industrial:	General	10,000/acre
	Warehouse	600/acre
School Site:	General	16/student

b. Sewers shall be designed to carry a peak flow when full as determined from applying the appropriate peak flow factor to the average flow.

1. Lateral and Submains: Minimum peak flow should be not less than 400 percent of the average design flow. Lateral is defined as a sewer that has no other common sewers discharging into it. Submain is defined as a sewer that receives flow from one or more lateral sewers.
2. Main, Trunk and Interceptor Sewers: Minimum peak design flow should not be less than 250 percent of the average design flow. Main or trunk is defined as a sewer that receives flow from one or more submains. Interceptor is defined as a sewer that receives flow from a number of main or trunk sewers, force mains, etc.

5. Location of Sewers and Manholes

a. In general, sewers shall be located on legally established street rights-of-way. The City prefers the sewer to be located outside of the paved street area.

1. When the sewer must be located in the paved area of streets the manholes shall be located as to fall on the centerline of the street or in the middle of the travel lane. Placement of manholes in the common vehicular wheel paths in streets should be avoided.
2. Manholes placed in streets must also be placed outside of the spread of storm water gutter flow.
3. The horizontal and vertical separation between sewers and waterlines shall be in accordance with requirements of the Tennessee Department of Environment and Conservation and the City of Bristol Tennessee. In general the requirements are as follows:
 - a. Horizontal Separation: Whenever practical, sewers should be laid at least 10 feet horizontally from any existing or proposed water main. The distance should

be measured edge to edge. Should local conditions prevent a lateral separation of 10 feet, a sewer may be laid closer than 10 feet to a water main if the sewer is laid in a separate trench and if the elevation of the top (crown) of the sewer is at least 18 inches below the bottom (invert) of the water main.

- b. Vertical Separation: Whenever sewers must cross under water mains, the sewer shall be laid at such elevation that the top of the sewer is at least 18 inches below the bottom of the water main. When the elevation of the sewer cannot be varied to meet the above requirement, the water main shall be relocated to provide this separation or reconstructed with mechanical-joint pipe for a distance of 10 feet on each side of the sewer. One full length of water main should be centered over the sewer so that both joints will be as far from the sewer as possible.
 - c. When impractical to obtain proper horizontal and vertical separation as stipulated above, the sewer shall be designed and constructed equal to the water main pipe and shall be pressure-tested to assure water-tightness (see Appendix C). Such arrangements are discouraged and adequate reason shall be provided to justify the design. Any variations from this statement must be approved by the Tennessee Department of Environment and Conservation and the City of Bristol Tennessee.
4. Sanitary sewer service shall be provided to each lot in the subdivision such that the main shall be extended to the nearest property line of the lot to be served.
 5. Generally, proposed sanitary sewers shall not be located closer than 15 feet from existing or proposed buildings or structures.
 6. Manholes for access to sewers shall be provided:
 - a. At all intersections of sewers that are 8-inches in diameter or larger.
 - b. At all points of change in horizontal and vertical alignment.
 - c. At the terminal end of lines 8-inch diameter or larger.
 - d. At intervals not exceeding 400-feet on all sewers 15-inches in diameter and less and not exceeding 500-feet on all sewers for sewers 18-inches to 30-inches. Greater spacing may be permitted in larger sewers and in those carrying settled effluent.
 7. When necessary to drop the elevation of the sewer at a manhole 2-feet or greater, an outside drop connection shall be provided for the sewer.
 8. Flow channels in manholes shall be of such shape and slope to provide smooth transition between inlet and outlet sewers and to minimize turbulence. A minimum of 0.1-feet of drop must be provided through all manholes. Channeling height shall be to the crowns of the sewers. Benches shall be sloped from the manhole wall toward the channel to prevent accumulation of solids.
 9. Manholes for sewers up to 21-inches shall have a minimum of 4-feet inside diameter. Manholes for sewers 24-inches up to 36-inches shall have a minimum 5-feet inside diameter.
 10. Line connections to existing manholes shall be made by coring the manhole wall and installation of a flexible boot.

11. When designing a new sewer to tie into existing manholes, the bench elevation at the inside manhole wall shall be shown on the plans. The invert of the new tie-in should not be lower than the existing bench unless approved by the City Engineer. When the existing sewer line is larger than the new connection, the crown of the new pipe shall be no lower than the highest crown of any existing lines within the manhole.
12. In general where different size pipes enter and exit a manhole, the crowns of the pipes should match.
13. All sanitary sewer manholes or appurtenances subject to infiltration of surface water shall be provide with a watertight manhole frame and be indicated as such on the plans.
14. Ventilation of gravity sewers shall be provided where there are continuous watertight sections greater than 1,000-feet in length.
15. Sewers adjacent to or crossing streams shall be designed per the requirements of the Tennessee Department of Environment and Conservation and the City of Bristol Tennessee. In general the requirements are as follows:
 - a. The top of all sewers entering or crossing streams shall be at a sufficient depth below the natural bottom of the streambed to protect the sewer line. In general, the following cover requirements must be met:
 1. One (1) foot of cover (poured in place concrete) is required where the sewer is located in rock.
 2. Three (3) feet of cover is required in stabilized stream channels.
 3. Seven (7) feet of cover or more is required in shifting stream channels.
 - b. Sewers located along streams shall be located outside of the streambed and sufficiently removed therefrom to minimize disturbance or root damage to streamside trees and vegetation.
 - c. Sewer outfalls, headwalls, manholes, gateboxes or other structures shall be located so they do not interfere with the free discharge of flow of the stream.
 - d. Sewers crossing streams shall be designed to cross the stream as nearly perpendicular to the stream flow as possible and shall be free from change in grade. To prevent the french drain effect of the sewer crossing the stream, check dams must be installed on both sides of the stream in the pipe conduit trench. This must be separate from any concrete encasement.
 - e. Sewers entering or crossing streams shall be constructed of ductile iron pipe with mechanical joints, concrete encased, or shall be so otherwise constructed that they will remain watertight and free from changes in alignment or grade. Sewer systems shall be designed to minimize the number of stream crossings.
 - f. Manholes must be placed on each side of a stream crossing unless otherwise approved by the City Engineer.
16. Sewer lines should not be located underneath detention/retention facilities, ponds, lakes or other bodies of water unless specifically approved by the City Engineer.
17. Ductile iron pipe must be used for sewer lines constructed in fill areas.

18. Check dams shall be installed in the bedding and backfill of all new or replaced sewer lines to limit the drainage area subject to the french drain effect of gravel bedding. Major rehabilitation projects should also include check dams in the design. Dams shall consist of compacted clay bedding and backfill at least three (3) feet thick to the top of the trench and cut into the walls of the trench two (2) feet. Alternatively, concrete may be used, keyed into the trench walls. Dams shall be placed no more than 500 feet apart. The required location is upstream of each manhole. All stream crossings will include check dams on both sides of the crossing.

6. Minimum Sewer Size

The minimum pipe diameter for sanitary sewers shall be eight (8) inches.

7. Hydraulic Design Criteria

The hydraulic design and determination of sewer size shall be based on the following conditions:

- a. Sewers shall have a uniform slope and straight alignment between manholes.
- b. Unless otherwise approved, the minimum slope of a sewer line should be a minimum of 0.5 percent or the slope required to produce an average velocity of not less than 2.0 feet per second during design average flows, whichever is greater. Terminal lines should have a minimum slope of at least 0.8 percent or the slope required to produce an average velocity of not less than 2.0 feet per second during design average flows, whichever is greater.
- c. Sewers shall be designed to be free flowing with the hydraulic grade below the pipe crown and with hydraulic slopes sufficient to provide an average velocity of not less than 2.0 feet per second during design average flows. Computations of velocity of flow shall be based on a coefficient of roughness "n" in the Manning formula of 0.013.
- d. The maximum permissible velocity at average flow (before applying the peak factor) shall not exceed 15 feet per second. The City Engineer may allow for design of flow in excess of 15 feet per second where special provision are made in the design to protect against internal erosion or displacement by shock.
- e. Suitable drop manholes shall be provided to break steep slopes to limit the velocities in the connecting sewer pipes between manholes. Where drop manholes are impractical for reduction of velocity, the sewer shall be of abrasion resistant materials.
- f. Invert channels in terminal manholes shall be built at a slope of not less than one inch per one foot.
- g. The deflection angle between entering and exiting pipes should not be less than 90 degrees.

Structural

1. Pipe Materials

The City will allow the use of Polyvinyl Chloride (SDR 35 and SDR 26), and Ductile Iron (Pressure Class 350) pipe in construction of public sanitary sewer extensions. Only one type of pipe material can be placed between manholes.

2. Minimum Cover

All sewer lines shall have a minimum of three (3) feet of cover over the top of the pipe.

3. Maximum Permissible Depth

The maximum permissible depth of cover for sewer pipes is as follows:

Pipe Material	Maximum Depth
PVC – SDR 35	Up to 12-feet
PVC – SDR 26	Up to 18-feet
DIP – Pressure Class 350	18-feet and greater

4. Trench Width

The width of trench at or below the top of the pipe shall not exceed 24-inches plus the diameter of the pipe. The trench must be no closer than 6-inches and no further than 18-inches from the side of the pipe.

5. Slope Anchorage

Sewers on 18 percent slope or greater shall be anchored securely with concrete anchors or equal. Suggested minimum anchorage spacing is as follows:

- a. Not over 36 feet center to center on grades 18 percent and up to 25 percent.
- b. Not over 24 feet center to center on grades 25 percent and up to 35 percent.
- c. Not over 16 feet center to center on grades 35 percent and over.

Preparation of Plans

1. Construction Drawings

An engineer registered in the State of Tennessee must prepare the plans and design analysis for all proposed public sewer extensions. The design must meet the requirements of the Tennessee Department of Environment and Conservation and the City of Bristol Tennessee. Such plans shall be in conformance with the foregoing design criteria and show the following information:

- a. Plans shall be drawn on sheets measuring 24-inches wide by 36-inches long. The upper half of the drawing shall show the sewer location in plan and the lower half, the profile of the sewer and ground surface.
- b. A general layout sheet shall be provided showing but not limited to the following:
 - 1. Existing and proposed streets, curbs, entrances, parking areas, access roads, railroads, bridges, guardrails, travel ways, sidewalks and trails.
 - 2. Existing and proposed lots, rights-of-way, easements, floodways, 100-year flood fringes and other boundary information.
 - 3. Existing sanitary sewer facilities including location, stationing, sizes, manhole top elevations, manholes invert elevations, manhole stations, watertight castings,

vented manholes, service line location and size, cleanouts and other appurtenances.

4. Existing and proposed underground and overhead utilities including location, type, size, poles, guy wires, etc.
 5. Proposed sanitary sewer facilities including location, sizes, manholes, service line location and size, cleanouts and other appurtenances.
 6. Existing and proposed structures, buildings, houses, signs, recreation areas, fences, gates, etc.
 7. Existing and proposed topography with a maximum contour interval of two (2) feet. Topography should show streams, drainage ways, water bodies, wooded areas, rock outcrops, swamps, wetlands and other important topographic features.
 8. If the project is in a regulatory flood area then the floodway location and elevation, and the 100-year flood fringe location and elevation must be shown.
- c. The layout sheet shall be the same scale as that used for the plan, but in no case be smaller than 100 feet per inch.
- d. The profile shall show but not be limited to the following information:
1. Proposed pipe grade, length, size, stationing and type.
 2. Manhole invert elevations of all incoming and exiting pipes, top elevations of castings, drop connections and numbering.
 3. Pipe cradles, anchors, and encasements and check dams.
 4. Existing and proposed utility crossings including type and size of the crossing.
 5. Existing and proposed street centerlines.
 6. Connections to existing manholes including inverts of entering and exiting pipes, top elevation of casting and bench elevations.
 7. Existing and proposed grades.
 8. Bored and tunneled crossings including casing pipe size and length, beginning and ending stations, carrier pipe type and size.
 9. Stream crossings.
- e. The horizontal scale for profiles shall be the same as that used for the plan, but in no case be smaller than 100 feet per inch. The vertical scale shall in no case be smaller than ten feet per inch.

2. Easements

Before approval of construction drawings can be made, all offsite easements shall be obtained and recorded.

3. Service Lines

When sewer systems are being installed for a subdivision, the developer shall install service lines from the sanitary sewer main to the property or easement line where sidewalks are not to be constructed. Where sidewalks are proposed for construction, the service line shall be constructed to five (5) feet beyond the back of the sidewalk. The following criteria apply to the service lines:

- a. The service lines shall be shown on the sewer construction drawings.
- b. The service line size shall not be less than 4-inches.
- c. In general the service line shall be constructed out of the same material as the main where the service line connects.
- d. Only one lot can be connect to a service line.
- e. The service lines shall be designed to meet the requirements of the City of Bristol Tennessee Plumbing Code.
- f. The service line shall enter the sanitary sewer through a manufactured wye, tee or approved sewer saddle.
- g. In general, the service line slope should be a minimum of 1/4 inch fall per foot or run (2.08% slope). Service line slopes down to 1/8 inch fall per foot of run (1.04% slope) may be used when approved by the City Engineer and the Department of Codes Enforcement.
- h. Connections of the service line to the manholes are allowed. When connecting the service line to a manhole, the crown of the service line should match the crown of the exiting line. The invert of the manhole must also be formed to accommodate the service line.
- i. The deflection angel between the service line pipe and the exiting main shall not be less than 90 degrees.
- j. The minimum cover allowed over service lines is three (3) feet.
- k. A cleanout shall be place on all service lines at the property line, right-of-way line or easement line.

APPENDIX E

PERFORMANCE BOND

BRISTOL TENNESSEE REGIONAL PLANNING COMMISSION

Bond Number: _____

KNOW ALL MEN BY THESE PRESENT, That

(Name of Developer)

(Address of Developer)

a _____, hereinafter called the "Principal",
(Corporation, Partnership or Individual)

and _____
(Name of Surety)

(Address of Surety)

hereinafter called the "Surety", are held and firmly bound unto the City of Bristol Tennessee, hereinafter called the "City", in the penal sum of _____ Dollars and _____ Cents (\$_____) in lawful money of the United States, for the payment whereof to the City, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly to these presents.

WHEREAS, application was made to the Bristol Tennessee Regional Planning Commission, hereinafter called the "Planning Commission", for approval of a subdivision shown on a plat entitled

"_____
_____"

said final plat being approved on _____ by the Planning Commission upon certain conditions, one of which is that a performance bond is to be filed with the Planning Commission to guarantee certain improvements as listed in Attachment A in the subdivision named above.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall within one (1) year from the date of final plat approval will, truly and faithfully make and perform the required improvements in said subdivision in accordance with the design documents approved by the City, then this obligation is to be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, it is hereby understood and agreed that in the event that any required improvements have not been installed as provided by the design documents approved by the City, within the term of this Performance Bond, the City may thereupon declare this bond to be in default and collect the sum remaining payable there under, and upon receipt of the process thereof, the City shall install such improvements as are covered by this Performance Bond and commensurate with the extent of building development that has taken place in the subdivision but not exceeding the amount of such proceeds.

IN WITNESS WHEREOF, this instrument is executed this the _____ day of _____, 20____.

WITNESS:

(Signature)

(Printed Name)

PRINCIPAL:

(Signature)

(Printed Name)

WITNESS:

(Signature)

(Printed Name)

SURETY:

(Signature)

(Printed Name)

(Attorney-in-Fact Signature)

(Attorney-in-Fact Printed Name)

COUNTERSIGNED: (Resident Agent)

(Agency Name)

(Agency Address)

(Agent Signature)

(Agent Printed Name)

(Sample Letter of Credit)
BANK OR SAVINGS AND LOAN LETTERHEAD

City of Bristol Tennessee
Department of Development Services
POB 1189
Bristol, Tennessee 37621-1189

Date _____

Attention: Deputy City Manager of Development

Subject: Irrevocable Letter of Credit No. _____
Expiration Date _____

Gentlemen:

We hereby open our Irrevocable Letter of Credit No. _____ in your favor for the account of ____ (Name of Developer) ____, ____ (Address) ____, hereinafter call the "Developer" for a sum not exceeding _____ Dollars and _____ Cents (\$ _____), available by your sight drafts at any time during the life of this letter of credit on the ____ (Name of Bank or Savings and Loan) ____ and accompanied by the document specified below:

A certified statement signed by the Deputy City Manager of Development of the City of Bristol Tennessee, stating that the drawing is for the explicit purpose of providing for the improvements required of the Developer by the approved design documents for ____ (Name of Subdivision) ____ and the conditions of final approval of the subdivision plat by the Bristol Regional Planning Commission granted on ____ (Date) ____ and any subsequent time extension.

All drafts must bear the clause "Drawn under the ____ (Name of Bank or Savings and Loan) ____ Letter of Credit No. _____ dated _____."

We hereby engage with the drawers, endorsers, and bona fide holders that all drafts drawn in compliance with the terms of this credit shall be duly honored upon presentation and delivery of the documents. This Irrevocable Letter of Credit shall remain in full force and effect for a period of one (1) year from the date hereof.

The drafts shall be presented at ____ (Name of Bank or Savings and Loan) ____, ____ (Address) _____. This credit shall also be terminated upon the Deputy City Manager of Development giving written release to the Developer stating that the Developer well and truly performed and fulfilled the obligations of the required improvements in ____ (Name of Subdivision) ____ in compliance with the Bristol Regional Planning Commission approval.

Sincerely,

Authorized Officer
Title