



SUBDIVISION REGULATIONS OF THE CITY OF FOREST HILLS, TENNESSEE

ADOPTED: December 12, 2013

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1. GENERAL PROVISIONS

1.1 **Title.** These provisions will hereafter be known and cited as the "Subdivision Regulations of the City of Forest Hills."

1.2 Authority.

(a) **Authority.** These rules and regulations are adopted pursuant Tennessee Code Annotated Section 13-4-301 et seq. and in accordance with the Charter of the City of Forest Hills.

(b) **Planning Commission has Met State Law.** In the adoption of these Subdivision Regulations, the Planning Commission acts pursuant to the authority and powers granted by T.C.A. Sections 13-4-401 through 13-4-310, as amended. Having adopted a Major Street Plan for the jurisdiction, a copy of which is filed in Instrument number 20131216-0126854, Register's Office of Davidson County, Tennessee pursuant to T.C.A. Section 13-4-302, and having held a public hearing on these regulations, as required by T.C.A. 13-4-303, the Planning Commission has fulfilled the requirements set forth in State law as prerequisites to the adoption of these regulations.

(c) **Enforcing Officer.** It will be the duty of the City Manager of the City or his/her designated appointee to enforce these regulations and to bring to the attention of the City Attorney any violations or lack of compliance herewith.

1.3 **Purpose.** These regulations are intended to "provide for the harmonious development of the municipality and its environs, for the coordination of streets within subdivisions with other existing or planned streets or with the plan of the municipality or of the region in which the municipality is located, for adequate open spaces for traffic, recreation, light and air, and for a distribution of population and traffic which will tend to create conditions favorable to health, safety, convenience and prosperity." (T.C.A. Section 13-4-303).

1.4 **Jurisdiction.** These rules and regulations governing the subdivision of land will apply to the division of lands within the incorporated boundaries of the City of Forest Hills.

1.5 **Interpretation.** These regulations are intended to promote the health, safety, and welfare of the persons within this jurisdiction, and toward that purpose, these regulations will be liberally construed.

1.6 **Severability.** If any part or provision of these regulations or application thereof to any person or circumstance is adjudged invalid by any court of competent jurisdiction, such judgment will be confined in its operation to the part, provision, or application directly involved in the controversy in which such judgment will have been rendered and will not affect or impair the validity of the remainder of these regulations or the application thereof to other persons or circumstances, and for such purpose, the provisions or any portion of the provisions in these regulations are considered severable. The Planning Commission hereby declares that it would have enacted the remainder of these regulations even without any such part, provision, or application.

1.7 **Savings Clause.** These regulations will not be construed as abating any action now pending under or by virtue of previous Subdivision Regulations, or as discontinuing, abating, modifying, or altering any penalty accruing or about to accrue, or as affecting the liability of any person, or as waiving any right of the city under any section or provision existing at the time of adoption of these regulations, or as vacating or annulling any rights obtained by any person by lawful action of the city, except as expressly will be provided otherwise in these regulations.

1.8 **Effective Date.**

(a) **Effective Date of the Regulations.** The effective date of the Subdivision Regulations as amended will be December 1, 2013. Any concept plan submitted after December 1, 2013, will comply with these Subdivision Regulations.

(b) **Subdivisions Submitted or Approved Prior to the Effective Date.** Any subdivision submitted as a complete application or approved in preliminary or final form, but not yet expired, prior to the effective date may, at the discretion of the applicant, continue under the subdivision regulations adopted July 12, 2001, as amended, but no extensions will be granted for these subdivisions.

1.9 **Amendments.**

(a) **Enactment.** Before the adoption of any amendment to these regulations, a public hearing thereon will be held by the Planning Commission. Notice of the time and place of the public hearing will be given by publication in a newspaper of general circulation in the jurisdiction.

(b) **Codification and Distribution.** Subsequent to the adoption of any amendment to these regulations, such amendment will be incorporated into the text of these regulations in the following manner:

(1) In Section 7 of these regulations, each adopted amendment will be numbered consecutively and include a brief explanation of the amendment and the effective date.

(2) The amendment number and effective date of the amendment will be included at the end of the amended section as follows: Amendment # ____, month/day/year.

(c) Any necessary corrections to the Table of Contents, cross references and/or numbering of sections of these regulations required as a result of an amendment to these regulations, but not specifically called out at the time of the adoption of the amendment, may be made at any time and will not require formal action by the Planning Commission.

1.10 **Variances.**

(a) **Generally.** If the Planning Commission finds that extraordinary hardships or practical difficulties may result from strict compliance with these regulations, a variance from these regulations may be granted, provided that such variance will not have the effect of nullifying the intent and purpose of these regulations. The Planning

Commission will make findings based upon the evidence presented to it in each specific case that:

(1) The granting of the variance will not be detrimental to the public safety, health, or welfare or injurious to other property or improvements in the neighborhood in which the property is located.

(2) The 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) Because of the particular physical surroundings, shape, or topographical conditions of the specific property involved, a particular hardship to the owner would result, as distinguished from a mere inconvenience, if the strict letter of these regulations were carried out.

(4) The variance will not in any manner vary from the provisions of the adopted Comprehensive Plan, including its constituent elements, the Major Street Plan, or the Zoning Code for the City of Forest Hills.

(b) **Procedures.** A petition for any such variance will be submitted in writing by the applicant along with the initial filing of the concept plan. The petition will state fully the grounds for the application and all of the facts upon which the petitioner is relying.

(c) **Conditions.** In approving variances, the Planning Commission may impose such conditions as in its judgment will secure substantially the objectives, standards, and requirements of these regulations.

(d) **Additional Findings.** Certain Sections of the regulations may require additional findings to be made by the Planning Commission in order to permit variances.

2. PROCEDURES

2.1 Generally.

(a) **Review Procedures.** Before any land is subdivided, the owner of the property proposed to be subdivided, or an authorized agent, will, upon payment of applicable fees as determined by the Board of Commissioners, apply for and secure approval of the proposed subdivision in accordance with the following procedures:

(1) **Pre-Application Conference.** Before preparing a concept plan or other plat of subdivision, each applicant must schedule and participate in a pre-application conference with a member of the city's planning staff to determine the scope of the proposed subdivision and possible issues related to the development of the land. The pre-application conference may be conducted in person or via telephonic or electronic conferencing.

(2) **Concept Plan.** The concept plan is the first step in the subdivision process. The purpose of the concept plan is to provide a master plan of subdivision to show street, lot, and open space layouts, public dedications, and reservations, if

any, and proposed environmental changes for Planning Commission approval prior to the preparation of engineered construction drawings for the subdivision.

(3) **Preliminary Plat and Construction Plans.** The preliminary plat is the second step in the subdivision process. The purpose of the preliminary plat is to permit a coordinated review of the various plan documents, construction plans and grading plans related to the subdivision. These include, but are not limited to, roadway and sidewalk construction plans, storm water drainage construction plans, water and sewer construction plans, utility plans, and landscaping plans. This is to ensure proper placement of infrastructure, utility lines and boxes and to allow for mitigation measures such as screening walls and landscaping to ensure that the preliminary plat conforms to the approved concept plan and conditions.

(4) **Final Plat of Subdivision.** The final plat is the third and final step in the subdivision process. The purpose of the final plat is to show the applicant's plan of the subdivision, which, if approved, may be submitted to the Register of Deeds for recording.

(b) **Submission Date.** For the purpose of these regulations, the date the Concept Plan, Preliminary Plat, or Final Plat first appears on the Planning Commission agenda will constitute the official submittal date of the plat at which time the statutory period required in T.C.A. Sections 13-4-301 et seq. for formal approval or disapproval of the plat will commence.

(c) **Zoning Changes.** It is the intent of these regulations that the review of a Concept Plan, Preliminary Plat, or Final Plat may be carried out simultaneously with the review of a zone change application made under the Zoning Code. In addition to the application required for the requested zone change, an application for subdivision may be submitted for a coordinated review.

(d) **Reserve Parcels.** Small parcels not conforming in size or shape with all regulations will not be platted. All land within a tract proposed for subdivision will be incorporated in lots, lands held in common, or public rights-of-way.

2.2 **Meeting Schedule and Submittal Deadlines.** Prior to the beginning of each calendar year, the Planning Commission will set an annual meeting and applicable submittal deadline schedule based upon the recommendations of the City Manager and city staff. The Planning Commission may, however, cancel or re-schedule meetings if such scheduling is in the public interest and provided that the city provides adequate public notice of the schedule change pursuant to the requirements of Section 2.7. All meetings will be held in the Forest Hills City Hall, unless an alternate site is needed due to circumstances beyond the control of the City. All applicants bear the responsibility of adhering to the submittal schedule established by the Planning Commission.

2.3 **Approval of Concept Plans.**

(a) **Application Procedure and Requirements.** Following a pre-application conference pursuant to Section 2.1(a)(1), the owner of the land, or an authorized representative, may file an application for approval of a concept plan with the city. Each application for concept plan approval will:

(1) Be made on forms available from the City Manager and be accompanied by a fee as determined by the Board of Commissioners.

(2) Be accompanied by four printed copies and one PDF copy of the concept plan and include all information described in **Appendix A**.

(3) Be delivered to the City Manager in accordance with the adopted review schedule.

(b) **Staff Review.** The City Manager will initiate a review of the concept plan and any exhibits submitted in conformance with these regulations. No application will be accepted or forwarded to the Planning Commission for review and approval until all requirements of Section 2.3(a) above are satisfied. After the application is reviewed and deemed to be in compliance with all applicable regulations it will be placed on the next available regular meeting agenda of the Planning Commission. Once placed on agenda, the applicant will deliver ten additional paper copies of the concept plan to the city for distribution to members of the Planning Commission.

(c) **Planning Commission Action.** The Planning Commission will approve, conditionally approve, or disapprove the concept plan. Following the public meeting, the city will send a letter to the owner of the property describing the Planning Commission's action, including stating any conditions to the approval, or reasons for disapproval, as the case may be.

(d) **Planning Commission Discretion.** Where an approved concept plan is limited to a division of land involving: corrective plats where the changes are ministerial in nature, the Planning Commission will have the discretion to instruct the applicant to prepare a final plat in accordance with the requirements of **Appendix C**, and authorize the Secretary of the Planning Commission to execute and approve the final plat for recording without further Planning Commission hearings. Notwithstanding the foregoing, upon review of a final plat submitted pursuant to this section, if the Secretary of the Planning Commission determines that the submitted final plat represents a material change from the concept plan approved by the Planning Commission, the Secretary may refuse to execute the final plat and refer the same to the Planning Commission for review and approval.

(e) **Effective Period of Concept Plan Approval.** An approved concept plan will be effective for one year from the date of Planning Commission approval. Prior to the expiration of the concept plan approval, the effective period may be extended for additional terms, with each term not to exceed one year, upon request and if the Planning Commission deems such extension appropriate and the plan meets all requirements of the Zoning Code and Subdivision Regulations in place on the date the extension is requested (except if a variance was granted at the time of approval). The City will have no obligation to notify an applicant or owner of the expiration of a concept plan.

(f) **Reapplication of a Disapproved Concept Plan.** A reapplication for the same or substantially same, as determined by the City Manager, concept plan previously disapproved by the Planning Commission will not be accepted for a period of one year following Planning Commission's last action.

2.4 Approval of Preliminary Plats.

(a) **Application Procedure and Requirements.** Following approval of a concept plan pursuant to Section 2.3, the owner of the land, or an authorized representative, may file an application for approval of a preliminary plat with the city. Each application for preliminary plat approval will:

(1) Be made on forms available from the City Manager and be accompanied by a fee as determined by the Board of Commissioners.

(2) Be accompanied by four printed copies and one PDF copy of the preliminary plat and include all information described in **Appendix B.**

(3) Be delivered to the City Manager in accordance with the adopted review schedule.

(b) **Staff Review.** The City Manager will initiate a review of the preliminary plat and any exhibits submitted in conformance with these regulations. The purpose of the review will be to verify that the required information has been submitted, all applicable regulations and standards have been met, and it complies with the approved concept plan. Representatives of the State or the Metropolitan Government may be included in the review as appropriate. It will be the responsibility of the applicant to ensure the accuracy, completeness, and construction feasibility of the preliminary plat. No application will be accepted or forwarded to the Planning Commission for review and approval until all requirements of Section 2.4(a) above are satisfied. After the application is reviewed and deemed to be in compliance with all applicable regulations it will be placed on the next available regular meeting agenda of the Planning Commission. Once placed on agenda, the applicant will deliver ten additional paper copies of the preliminary plat to the city for distribution to members of the Planning Commission.

(c) **Planning Commission Action.** The Planning Commission will approve, conditionally approve, or disapprove the preliminary plat. Following the public meeting, the city will send a letter to the owner of the property describing the Planning Commission's action, including stating any conditions to the approval, or reasons for disapproval, as the case may be.

(d) **Effective Period of Preliminary Plat Approval.** An approved preliminary plat will be effective for one year from the date of Planning Commission Approval. Prior to the expiration of the preliminary plat approval, the effective period may be extended for additional terms, with each term not to exceed one year, upon request and if the Planning Commission deems such extension appropriate and the plan meets all requirements of the Zoning Code and Subdivision Regulations in place on the date the extension is requested (except if a variance was granted at the time of approval). The City will have no obligation to notify an applicant or owner of the expiration of a preliminary plat.

(e) **Reapplication of a Disapproved Preliminary Plat.** A reapplication for the same or substantially same, as determined by the City Manager, preliminary plat previously disapproved by the Planning Commission will not be accepted for a period of one year following Planning Commission's last action.

2.5 Approval of Final Plats.

(a) **Application Procedure and Requirements.** Following approval of a preliminary pursuant to Section 2.4, the owner of the land, or an authorized representative, may file an application for approval of a final plat with the city. Each application for final plat approval will:

- (1) Be made on forms available from the City Manager and be accompanied by a fee as determined by the Board of Commissioners.
- (2) Be accompanied by four printed copies and one PDF copy of the final plat and include all information described in **Appendix C.**
- (3) Be delivered to the City Manager in accordance with the adopted review schedule.
- (4) Include the entire subdivision for which final approval is sought.
- (5) Be a reproducible record plat the size, material, and inking of which will be as specified by the Register of Deeds. When more than one sheet is required, an index sheet of the same size will be filed showing the entire subdivision with the sheets numbered in sequence. Any shading placed on the plat face to add clarity will not cover any words or figures.
- (6) Except for minor adjustments for field conditions, comply with the approved concept plan and preliminary plat, if applicable.
- (7) If the final plat contains open space, recreational facilities, or any portion of the site in common ownership, regardless of the method of ownership, the final plat will be accompanied by the following documentation for approval by the Planning Commission and recording with the final plat:
 - (i) Plans for improvement and maintenance of the open space or facilities located thereon.
 - (ii) Articles of incorporation and bylaws of the homeowners' association or other legal entity charged with improving or maintaining the open space or facilities, where open space or facilities are to be deeded to a homeowners' association or similar organization acting on behalf of the joint owners of said property, and declaration of covenants and restrictions pertaining to each and every property within the subdivision.

(b) **Staff Review.** The City Manager will initiate a review of the final plat and all exhibits submitted in conformance with these regulations. The purpose of the review will be to verify that the required information has been submitted, all applicable regulations and standards have been met, and it complies with the approved preliminary plat and concept plan. Representatives of the State or the Metropolitan Government may be included in the review as appropriate. It will be the responsibility of the applicant to ensure the accuracy, completeness, and construction feasibility of the final plat. No

application will be accepted or forwarded to the Planning Commission for review and approval until all requirements of Section 2.5(a) above are satisfied. After the application is reviewed and deemed to be in compliance with all applicable regulations it will be placed on the next available regular meeting agenda of the Planning Commission. Once placed on agenda, the applicant will deliver ten additional paper copies of the preliminary plat to the city for distribution to members of the Planning Commission.

(c) **Planning Commission Action.** The Planning Commission will approve, conditionally approve, or disapprove the final plat. Following the public meeting, the city will send a letter to the owner of the property describing the Planning Commission's action, including stating any conditions to the approval, or reasons for disapproval, as the case may be.

(d) **Revisions to Conditionally Approved Final Plats.** If the Planning Commission grants conditional approval to a final plat, the applicant will submit a revised final plat reflecting the conditions specified by the Planning Commission within 30 days of the Planning Commission's action.

(e) **Expiration of Final Plat.** An approved Final Plat will expire if the applicant fails to record it with the Register of Deeds within one year after the date of approval by the Planning Commission. The City Manager may extend the final plat approval for 30 days if the applicant has filed an application for a letter of credit at least three weeks prior to the expiration of the final plat.

(f) **Vested Rights.** No vested rights will accrue to any plat by reason of concept plan, preliminary plat, or final plat approval until the actual signing of the final plat by the Secretary of the Planning Commission and the recording of that plat with the Register of Deeds.

(g) **Reapplication of a Disapproved Final Plat.** A reapplication for the same or substantially same, as determined by the City Manager, final plat previously disapproved by the Planning Commission will not be accepted for a period of one year following Planning Commission's last action.

2.6 Recording of Final Plat. When all conditions of approval have been met including all required certifications and signatures and the posting of any required letters of credit or the installation and acceptance of required public infrastructure improvements, the Secretary will sign the plat on behalf of the Planning Commission. The applicant will deliver to the Secretary a reproducible copy and a digital copy, in CAD or other digital format acceptable to the City Engineer, of the signed plat for recording with the Register of Deeds. The applicant will reproduce the number of copies of the signed plat required for distribution to other city and Planning Commission record files. The applicant will be responsible for any recording and reproduction fees.

2.7 Notice of Planning Commission Hearing. With respect to any Planning Commission hearing on a proposed concept plan, preliminary plat, or final plat, the city will deliver written notice of the public hearing to all record title owners of property located within 300 feet of the applicant property; provided, however, the failure to deliver a written notice will not prohibit the Planning Commission from holding a public hearing, or render any decision by the Planning Commission void or voidable. Properties owned by the applicant will not be

included in the distance measurement for public notice. The City will post a sign on the subject property providing notice of the time, place, and subject of the application in a location easily visible from the road at least 15 days prior to the public hearing. The applicant will bear the cost of producing the sign. The applicant will be responsible for ensuring that the sign remains posted until the applicable hearing date and that the sign remains positioned in a manner to best inform the public of the meeting. A failure by the applicant to maintain the sign as required herein will result in an automatic deferral without prejudice of the application until the next regularly-scheduled meeting.

2.8 **Miscellaneous.**

(a) **Dedication of Right-of-way, Public Use Lands, or Easements.** The dedication of land or use of land for public purposes may be accomplished by one of the following methods, both of which require Planning Commission approval:

(1) **Dedication by Plat.** A reproducible plat will be prepared depicting the area to be dedicated by lines and survey description. The location of surrounding property lines, roads and public utilities will be shown for reference. The placement of monuments and the location of such will be shown on the plat. Signatory data will also be included in the same manner as for a final plat. If the dedication is for a road right-of-way that, by the location of the dedication area, would divide a tract into two parcels, the plan will be created as a final plat in conformance with Section 2.5.

(2) **Dedication by Written Document (Deed or Instrument).** A written document in a form acceptable to the City Attorney may be used for dedications in lieu of a plat. The document will contain the following minimum information:

- (i) Statement of purpose for the dedication;
- (ii) A narrative survey description of the area to be dedicated;
- (iii) Conditions, if any imposed by Grantor;
- (iv) The document will contain the same signatory data as required for a final plat.

(b) **Existing Structures.** Any existing structure(s) that would become non-conforming will be demolished prior to the recording of final plat, or the building will be identified as non-conforming on the plat.

3. **SUITABILITY OF LAND AND CRITICAL LOTS.**

3.1 **Suitability of the Land.**

(a) **Generally.** Existing features that would add value to the subdivision, such as water courses, wetlands, steep slopes, forested areas, specimen trees, tree lines, cemeteries, historic sites, stone fences and other similar irreplaceable assets, should be preserved to the greatest extent reasonably possible in the design of the subdivision in addition to the natural resource requirements of the zoning code.

(b) **Suitability of the Land.** Land which the Planning Commission finds to be unsuitable for subdivision or development due to flooding as shown on FEMA maps or identified in local studies confirmed by the City Engineer, steep slopes as shown on the City's topographical maps, rock formations, slippage soils, sinkholes, other adverse earth formations or topography, utility easements, or other features which may be harmful to the safety, health, and general welfare of inhabitants of the land and surrounding areas will not be subdivided or developed unless adequate methods to solve the problems created by the unsuitable land conditions are formulated by the developer and approved by the Planning Commission. Additional technical evaluation, plans, and analysis of a proposed subdivision by a professional engineer specializing in geotechnical, soils, hydrology, and/or structures may be required.

3.2 **Critical Lots.** Any new lot located within the HP District or the FP District, and any new lot containing slippage soils will be designated as a critical lot. Furthermore, the Planning Commission may designate as critical lots any proposed lot that contains natural or manmade features that affect the feasibility of construction, including, but not limited to, the conditions described in Section 3.1. Critical lots will be designated as such during the concept plan, preliminary plat and final plat review process.

(a) **Floodplains.** Lots in floodplains will be subject to the FP District development standards of Sections 2.05 and 6.02 of the Zoning Code.

(b) **Steep Slopes.** Lots on steep slopes will be subject to the HP District standards of Sections 2.06 and 6.03 of the Zoning Code; including Section 2.06(d)(i) requiring that any new lot created within the HP District shall be comprised of not less than three acres.

(c) **Slippage Soils.** Lots with slippage soils will be subject to the development requirements of Section 6.04 of the Zoning Code.

(d) **Identification on Plats.** A star symbol will be used to identify critical lots on the face of the concept plan, preliminary plat, and final plat.

3.3 **New Critical Lots.** No new critical lots may be created as a result of the grading process.

3.4 **Prior to Preliminary Plat Approval.** Prior to approval of any preliminary plat that includes critical lots, the applicant will provide the City Manager with a preliminary grading study and a description of the measures to be taken:

- (1) To protect the natural features of the critical lots.
- (2) To minimize changes in grade, cleared area, and volume of cut or fill, and to control adverse impacts on the critical lots during and following the period of site disturbance.
- (3) To align streets to minimize disturbance of slopes.
- (4) To identify easements along property lines to meet future drainage needs.

4. REQUIREMENTS FOR IMPROVEMENTS, RESERVATIONS, AND DESIGN

4.1 **General Requirements.** Unless otherwise specified in these regulations, all subdivisions must comply with the requirements of Chapter 4.

(a) **Conformance to Applicable Rules and Regulations.** In addition to the requirements established herein, divisions of land will comply with all applicable laws, ordinances, resolutions, rules, policies or regulations, including, but not limited to the following: (1) all applicable provisions of Tennessee law, regulations, or policy, (2) the Zoning Code, Municipal Code, and applicable city policies and regulations, (3) the Major Street Plan, (4) the Comprehensive Plan, (4) all applicable rules and regulations of the Metropolitan Health Department, (5) all applicable rules and regulations of the Tennessee Department of Health, Department of Environment and Conservation, and Department of Transportation, and (6) the standards and regulations adopted by all other boards, commissions, and agencies of the county, where applicable.

(b) **Subdivision and Street Names.** The proposed name of the subdivision or streets within the subdivision will not duplicate or too closely approximate phonetically, the name of any other subdivision or street in Davidson County, Tennessee. Proposed streets connecting, or which may eventually connect, to an existing street will continue the existing street name, including streets that connect at a local, arterial or collector street. Each applicant will provide a letter from the Metro Public Works approving the street name.

4.2 Monument Requirements.

(a) **Monument Requirements.** Permanent monuments, of non-degradable material, will be placed in all subdivisions when new streets are to be constructed.

(1) All monuments will be placed on property corners or referenced to property lines or road alignments.

(2) Certification (see **Appendix D**) for placement of monuments, by a registered surveyor, will be required.

(3) Monuments will not be required where a subdivision occurs only along existing streets.

(b) **Control Monuments.** One permanent control monument, both vertical and horizontal, will be placed within each subdivision where roads are to be constructed. Control monuments will be located within dedicated right-of-way near the entrance to the subdivision and, if possible, in a non-fill area or be affixed to a natural rock outcrop and will comply with the following:

(1) Horizontal coordinates and vertical elevations will be shown on the final plat.

(2) subdivision plat and will be correlated to the Tennessee State Plane Coordinate System using North American Datum 1983 and North American Vertical Datum 1929.

(3) Reference notes (field ties) defining magnetic bearings and distances to the nearest established street line or official benchmark will be accurately described on the final subdivision plat.

(4) A description will be included on the final subdivision plat using words and/or symbols to make it easy to locate at the site.

(5) Azimuth information provided to either a second monument or a substitute such as an antenna, church spire or other natural object of which disturbance is unlikely will be included on the final subdivision plat.

(c) **Internal Monuments and Lot Pins.** One monument, for each four lots or fraction thereof in the subdivision, will be placed within sight from one to another.

(1) The monuments will be placed within dedicated rights-of-way, when possible, and will be located in non-fill areas or affixed to natural rock outcrops.

(2) In all subdivisions, lot corners and lot line breaks will be staked with non-degradable pins.

4.3 **Lot Requirements.**

(a) **Lot Arrangement.** The lot arrangement will be such that there will be no foreseeable difficulties, for reasons of topography, flood hazards, or other conditions in providing a building site and yard area. Lots proposed for creation on steep slopes will be designated on the face of the plat as critical lots in accordance with the provisions of these regulations.

(b) **Lot Dimensions.** Lot area will comply with the minimum standards of Article 4 of the Zoning Code. Residential side lot lines will be at right angles to street lines (or radial to curving street lines) unless a variation from this rule will give a better street or lot plan.

(c) **Frontage.** Each lot will have at least 40 feet of frontage onto a public street or, where approved by the Planning Commission, on to a private street, or be accessed from the street via an access easement across an adjacent lot where a joint access provides better access management, provided such joint access complies with all requirements of the Zoning Code.

(d) **Flag Lots.** Flag lots will not be permitted.

(e) **Corner Lots.** Dimensions of corner lots will be large enough to allow for street intersection radii and for erection of buildings, as stipulated by the requirements of the Zoning Code.

(f) **Additional Yard Area.** Residential lots, including corner lots, will be platted so that the depth of any yard abutting an arterial or collector street can conform to any additional yard requirements established by the zone district requirements.

4.4 **Blocks.**

(a) **Considerations for Block Length, Width, and Shape.** The lengths, widths, and shapes of blocks will be determined with due regard to:

- (1) Zoning requirements as to lot sizes;
- (2) Needs for convenient access, circulation, control, and safety of vehicular and pedestrian traffic; and
- (3) Limitations and opportunities of topography.

(b) **Easements Through Blocks.** The Planning Commission may require the dedication of an easement through blocks to accommodate utilities, drainage facilities, or pedestrian traffic.

4.5 **Requirements for Dedication of Passive Recreational Improvements.**

(a) **Generally.** Passive recreational opportunities, such as sidewalks, bicycle paths, greenways, and trails can create new connections among neighborhoods and enhance the desirability of the community. New subdivisions should further these interests as guided by the Comprehensive Plan, both within the new subdivisions and in relation to existing neighborhoods.

(b) **Requirements Recommended by Comprehensive Plan.** All applicants proposing to subdivide property within or adjacent to any area where the Comprehensive Plan recommends that sidewalks, bicycle paths, trails or greenways be constructed, the applicant will construct the improvements so indicated in the Comprehensive Plan in accordance with the city's standard specifications for such improvements. In the alternative, the applicant may (i) dedicate to the city the right of way necessary to construct such improvements, and (ii) pay the estimated cost of the improvements into an escrow with the city, pursuant to which the city will construct the improvements.

(c) **Requirements for Sidewalks or Bicycle Paths.** Where the Comprehensive Plan does not recommend sidewalks, bicycle paths, trails or greenways be constructed, all new public and private streets will include either sidewalks or bicycle paths within the right of way on at least one side of the new street, including new extensions of existing streets. All sidewalks and bicycle paths constructed within public rights of way will be constructed in accordance with the city's standard specifications for such improvements. Where a trail or greenway would serve substantially the same purpose as a sidewalk or bicycle path, the applicant may construct such a trail or greenway as a substitute for a sidewalk or bicycle path. Such trails or greenways will be constructed according to plans to be approved by the Planning Commission in consultation with the City Engineer. In the alternative, the applicant may (i) dedicate to the city the right of way necessary to construct such improvements, and (ii) pay the estimated cost of the improvements into an escrow with the city, pursuant to which the city will construct the improvements.

(d) **Maintenance of Improvements.** Except for improvements constructed pursuant to Section 4.5(b) (which must be accepted by and dedicated to the city), any sidewalks, bicycle paths, trails or greenways constructed within a private subdivision or along a private street will be maintained in perpetuity by the homeowner's association for the subdivision. Any sidewalks, bicycle paths, trails or greenways constructed in all other

subdivisions or along public streets and rights-of-way, once accepted by and dedicated to the city, will be maintained in perpetuity by the city, unless the applicable homeowner's association requests otherwise.

4.6 Requirements for Streets.

(a) **General Requirements.** All plans for street improvements require the approval of the City Engineer; and, all streets will be constructed to the specifications set forth in the City of Forest Hills Standard Street Specifications, as adopted by the city, a copy of which is attached hereto as **Appendix E** (the "**Standard Street Specifications**").

(b) **Conformity to the Major Street Plan.** The location and width of all streets will conform to the latest Major Street Plan.

(c) **Relation to Adjoining Street System.** For all new Subdivisions, the proposed street system will extend existing streets at a width no less than the required minimum width as set forth in this Section or the width of the existing street, whichever is greater.

(d) **Additional Right-of-Way Width on Existing Streets.** New subdivisions that adjoin existing streets will dedicate additional right-of-way to meet the minimum street requirements of the Major Street Plan.

(1) The entire right-of-way will be provided where any part of the subdivision is on both sides of the existing street except as provided in (3) below.

(2) When the subdivision is located on only one side of an existing street, one-half (1/2) of the required right-of-way, measured from the center line of the existing roadway, will be provided except as provided in (3) below.

(3) The amount of right-of-way dedicated will not exceed sixty (60) feet when lots are located on both sides of the street or thirty (30) feet when lots are located on one side only. Where any street requires a right-of-way greater than 60 feet then the applicant will show on the face of the Final Plat an additional area "reserved for future right-of way" and any required yard area will be measured from the reservation line.

(4) Regardless of the character of the planned street adjacent to or encompassed by a proposed subdivision the applicant will not be required to improve or construct any street to a continuous pavement width greater than thirty (30) feet.

(5) When the subdivision is located on an existing street maintained by the City, the Applicant will be required to improve the street to the Major Street Plan requirements or provide funds to the City to make improvements in the future. These funds will be placed in an escrow account dedicated to the street improvements required of the Subdivision.

(e) **Private Streets.** Private streets may be included in any subdivision in conformity with these standards and the requirements of the zoning code.

- (1) Private streets will conform to the Standard Street Specifications.
- (2) The private street (or road) will be identified on the face of the plat as an easement for lot access and as a public utility easement.
- (3) All vehicular access to the private street will be shown on the concept plan and final subdivision plat.
- (4) The declaration of covenants for the subdivision will be in form and substance acceptable to the City Attorney. The declaration of covenants will contain, in its description of the common element(s), a specific designation of the private street as the responsibility of the Owner's Association and not of the City. The declaration of covenants will also provide for a sufficient level of funding to offset the reasonable and foreseeable costs of maintaining the private street.
- (5) The City will not accept any previously constructed private street, road, or driveway for dedication to the public unless and until the following conditions are met:
 - (i) The property owners with rights to access the private street, road, or driveway will first submit a concept plan to the Planning Commission for its review and approval. The Planning Commission will review and approve the concept plan in accordance with the requirements of these Subdivision Regulations, and will result in a plat and public dedication.
 - (ii) Prior to acceptance by the city, the private street, road, or driveway will first be upgraded, at no cost to the city, to the standard for a public street in accordance with the Standard Street Specifications.
 - (iii) Each property owner with rights to access the private street, road, or driveway will donate to the city such additional right of way as may be required in order to upgrade the street to the width required for a public street.
 - (iv) The property owners with rights to access the private street, road, or driveway will deliver to the city a one-time, non-refundable cash payment to fund the reasonably expected cost to maintain the public street for ten years. The Planning Commission, in consultation with the City Engineer, will establish the amount of the maintenance fund.
 - (v) In connection with recording the final plat and dedication, the property owners with rights to access the street will execute a dedication agreement in form and substance reasonably acceptable to the City Attorney.

4.7 **Drainage and Storm Sewers.**

(a) **General Requirements.** All plans for drainage and storm sewer systems within a subdivision require the approval of the City Engineer; and, all drainage and storm sewer systems will be constructed to the specifications set forth in the City of Forest Hills Standard Drainage Specifications, as adopted by the city, a copy of which is attached hereto as **Appendix F** (the “**Standard Drainage Specifications**”).

(b) **Lot Drainage.** Lots will be arranged in a manner to permit coordination of lot drainage with the general storm drainage system for the area, including subsurface drainage.

(1) Drainage systems will be designed to avoid concentration of flow from each lot onto adjacent lots.

(2) The applicant will insure that all artesian ground waters of a permanent or temporary nature discovered during the subdivision planning, development and construction process will be intercepted and carried away to primary drainage conduits by swale ditches or in underground pipes on property line easements. Regardless of the location of property lines, intercept will be allowed at the point of artesian surfacing. The applicant will be obligated to perform this work upon evidence of any artesian water discovered during the planning, development, and construction phase of the subdivision.

(3) Any sinkhole or any natural channel serving as a means of moving ground water into the subterranean system will be identified on the final plat and will be protected as approved by the Tennessee Department of Environment and Conservation. All sinkholes in residential subdivisions will be platted as open space with such buffer area as may be required by the Planning Commission.

(c) **Storm Water Facilities.** Drainage facilities will be located in the road right-of-way, where feasible, or in perpetual unobstructed easements.

(1) **Accommodation of Upstream Drainage Areas.** A culvert or other drainage facility will in each case be large enough to accommodate potential run-off from its entire upstream drainage area, whether inside or outside the subdivision. The City Engineer will determine the necessary size of the facility. The developer will be responsible for upsizing cross-drains under existing streets due to relocation of existing drainage channels or increased run-off resulting from the subdivision.

(2) **Effect on Downstream Drainage Areas.** The effect of each subdivision on existing downstream drainage facilities outside the area of the subdivision will be determined. Where it is anticipated that the additional run-off incident to the development of the subdivision will overload existing downstream drainage facilities, provisions should be made for improvement of such drainage facilities or inclusion of detention or retention facilities within the proposed development as determined by the City Engineer. Generally, the developer's responsibility for downstream improvements will not extend beyond the second downstream structure.

(d) **Dedication of Drainage Easements.**

(1) **General Requirements.** Where a subdivision is traversed by a drainageway, channel, or stream either natural or manmade, there will be provided a storm water easement or drainage right-of-way conforming substantially to the lines of such watercourse and of such width and construction as will be adequate for the purpose. Consideration will also be given to incorporation of sewer easements parallel to or overlaying drainage easements as both generally follow the same course.

(2) **Drainage Easements.**

- (i) Where topography or other conditions are such as to make impractical the inclusion of drainage facilities within a road right-of-way, perpetual unobstructed easements at least 20 feet in width for such facilities will be provided across property outside the road right-of-way but within satisfactory access from a road. Easements will be indicated on the concept plan, the subdivision plat, and the final subdivision plat. Drainage easements will be carried from roads to natural watercourses or to other drainage facilities.
- (ii) When a new drainage system is to be constructed which will transport water across adjacent private land outside the subdivision, appropriate drainage easement(s) will be secured and indicated on the plat by notes referencing the easement recording.
- (iii) The applicant will dedicate, when required by the Planning Commission either in fee or by drainage or conservation easement, the land on both sides of existing watercourses to a distance to be determined by the City Engineer, but not less than ten feet each side.

4.8 **Public Water Facilities.**

(a) **Installation of Water Facilities.** Where a public water main is within reasonable access of the subdivision, the applicant will install water facilities, including fire hydrants, subject to the construction and materials specifications of the Metropolitan Department of Water Services. The location of fire hydrants will be as specified in applicable Metro ordinances and other Metro Code. Fire flow requirements will be as specified by the Fire Marshal. The applicant will determine the availability of sufficient fire fighting water prior to submittal of the preliminary plat. Plans will be approved by Metropolitan Department of Water Services or Fire Marshal where applicable.

(b) **Compliance.** All water systems will comply with the general instructions and detailed specifications for construction of water projects of the Metropolitan Department of Water Services, which are herewith adopted by reference. All water systems constructed within the City will comply with all applicable regulations of the State of Tennessee.

4.9 Sewerage Facilities.

(a) **General Requirements.** The applicant will design and install sanitary sewer facilities in accordance with the rules, regulations, detail specifications, and standards, where applicable, of the Metropolitan Health Department, the State Department of Health and Environment and the Metropolitan Department of Water Services. Plans will be approved by the above agencies where applicable.

(b) **Mandatory Connection to Public Sewer System or Provision for Future Connection.** No subdivision of land will be made unless each and every lot is provided with a connection to a public sanitary sewer system.

(c) **Specifications.** The construction specifications of the State of Tennessee and Metropolitan Department of Water Services are herewith adopted by reference.

4.10 **Underground Utilities.** Utilities will be located underground whenever a new public or private street is included on the plat, or where an existing public or private stub street, is to be extended.

4.11 **Open Space Easements.** Where open space easements are reserved, the legal documents establishing ownership and maintenance of the open space areas will be submitted to the Planning Commission and City Attorney with the final plat for review and approval and will be recorded by the final plat.

4.12 Improvements.

(a) **Authorization to Construct Improvements.** The approval of the concept plan and the preliminary plat by the Planning Commission will be authorization to proceed with construction of improvements within a subdivision.

(b) **Construction of Improvements.** Construction will be completed to the approved construction plans, construction specifications, and construction inspection requirements of the City Engineer. Inspections during the construction process will meet the requirements of Section 4.13. If construction has not started within two years within approval of construction plans, construction plans will be resubmitted to the applicable parties for re-approval.

4.13 Inspections During Construction.

(a) **Inspections During Construction.** All infrastructure construction is to be completed as described in the approved construction plans, construction specifications, and construction inspection requirements of the City. It will be the applicant's responsibility to contact the City for construction and inspection requirements.

(b) **Pre-construction Conference Required.** A pre-construction conference will be held, with the appropriate parties, prior to the start of construction on each project. At the pre-construction conference, the contractor and owner will sign documentation acknowledging construction and inspection requirements.

(c) **Outline for Construction Process.** Construction will follow the general outline contained in Appendix G.

(d) **Inspection Schedule.** The contractor will give 24 hours notification to the City prior to beginning work on each phase of construction. All completed work will be inspected and approved. Failure to obtain the required inspections and approvals may require work to be removed, certifications and testing by a licensed geotechnical engineering firm to be provided, or any future acceptance by the city to be jeopardized.

5. ASSURANCE FOR COMPLETION AND MAINTENANCE OF IMPROVEMENTS.

5.1 Improvements and Security.

(a) **Completion of Improvements Required Prior to Final Plat Approval.** The applicant will complete and dedicate all public improvements prior to the final plat approval.

(b) **Performance Agreement and Security.** Notwithstanding the requirement of section 5.1(a) above, in the alternative, the Planning Commission may approve a final plat and allow the recording of the same, provided that the applicant first delivers to the city a performance agreement and a letter of credit securing the applicant's obligations to construct and dedicate all public improvements required by the Planning Commission. The Planning Commission will not, however, accept a performance agreement and letter of credit from any applicant who has previously defaulted on any agreement with the city. The performance agreement and letter of credit will comply with these subdivision regulations and will be satisfactory to the City Attorney as to form, sufficiency, and manner of execution. The amount of the letter of credit will be established by the Planning Commission in consultation with the City Engineer and will be in an amount sufficient to secure the satisfactory construction, installation, and dedication of the required improvements.

(1) **The Performance Agreement.** The Performance Agreement will stipulate the work to be performed by general categories and the estimated value or cost of each category. The Performance Agreement will also stipulate a completion date for all of the work to be performed. The Performance Agreement will only be entered into by owner of the property.

(2) **The Letter of Credit.** The letter of credit will be an irrevocable standby letter of credit, issued by or confirmed by a financial institution located in Davidson County, Tennessee, or an adjoining county. The term of the letter of credit will be co-terminus with the term set forth in the performance agreement. In exceptional circumstances where the applicant demonstrates to the Planning Commission a history of successful developments within Davidson County and where the applicant demonstrates to the Planning Commission's reasonable satisfaction that the applicant has the financial capacity to complete the public improvements, the Planning Commission may accept a performance bond in lieu of a letter of credit.

(c) **Temporary Improvements.** When applicable, the applicant will build and pay for all costs of temporary improvements required by the Planning Commission, and will maintain such for the period specified by the Planning Commission. Prior to

construction of any temporary facility or improvement, bond will be posted which will insure that the temporary facilities will be properly constructed, maintained, and removed.

(d) **Costs of Improvements.** All required improvements will be made by the applicant at the applicant's expense or cost sharing. Any provisions for reimbursement by the city, or any utility district, will be by separate agreement with the applicable governmental entity.

(e) **Governmental Agencies.** Governmental agencies to which these bonds and contract provisions apply may file, in lieu of said contract or bond, a letter from an agent authorized to act in their behalf agreeing to comply with the provisions of this chapter.

(f) **Failure to Complete Improvements.** In those cases in which a performance agreement and letter of credit have been posted and required improvements have not been installed within the terms of such performance agreement, the City Manager may declare the agreement to be in default and require that all the improvements be installed regardless of the extent of the building development at the time the performance agreement is declared to be in default. The funds of the letter of credit will be used to complete the improvements.

5.2 **Inspection of Improvements.** If the City Manager finds that any of the required improvements have not been constructed in accordance with the applicable city construction standards and specifications, the applicant will be responsible for completing the improvements to the required standards. Whenever the cost of improvements is covered by a letter of credit or performance bond, the applicant and the bonding company or financial institution will be liable jointly and severally for completing said improvements according to specifications.

5.3 **Release, Reduction, or Extension.**

(a) **Satisfactory Completion.** The City Manager will not release nor reduce a letter of credit until all required improvements have been completed, inspected and approved by the City Engineer, and all associated and/or surplus construction materials are removed from the site. There will be no reduction or release of a letter of credit if there are any outstanding administrative penalties or violations related to the property.

(b) **Reduction of Letter of Credit.** The Planning Commission may reduce the amount of a letter of credit upon the applicant's demonstration of satisfactory completion of public improvements, that includes installation of the asphalt surface binder course, and then only to the ratio that the installed improvement bears to the total public improvements for the subdivision. In no event will a letter of credit be reduced below 20% percent or \$10,000.00, whichever is greater of the original principal amount. No more than three reductions will be considered by the Planning Commission. No reduction in the amount of a letter of credit may be considered until after the asphalt surface binder is applied to the entire subdivision as platted.

(c) **Extension of Performance Agreement.** The Planning Commission, upon proof of extenuating circumstances by the applicant, may extend the completion date set forth in a performance agreement and may require an increase in the amount of security to cover increases in costs.

(d) **Refer to Planning Commission.** The City Manager will refer decisions to release, reduce, or extend a performance agreement to the Planning Commission.

5.4 **Maintenance of Improvements.** The applicant will be required to maintain all improvements including all lot improvements, until acceptance of such public improvements by the city.

5.5 **Maintenance Bond upon Substantial Completion.** Following substantial completion of the public improvements within a subdivision, the developer will deliver to the city a dedication agreement, in form and substance reasonably acceptable to the City Attorney, dedicating the improvements to the city, and representing and warranting that all improvements have been constructed in a good and workmanlike manner and in accordance with all applicable laws and regulations. The developer will also deliver to the city a one-year maintenance bond in an amount of not less than 20% of the total cost of the improvements. If during the one year following substantial completion the city determines that the public improvements have failed or require maintenance, the city may call the maintenance bond in order to fund the repairs necessitated by such failure.

5.6 **Expiration of Agreements and Letters of Credit.** Should the performance agreement lapse or expire for any reason prior to completion of all required improvements, no additional building permits will be issued and the City Manager will, through the City Attorney, take any or all appropriate legal action necessary to assure completion of all public improvements. The performance agreement may be declared in default and the security will be held by the city. Only after completion of all improvements or posting of a new letter of credit will building permits again be issued.

5.7 **Disposition of Liquidated Securities.** Funds derived from liquidation of securities, as a result of performance agreement default, will be used by the city to complete the required work. Project administration, engineering, and legal fees may be charged by the city against liquidated funds to offset the city's actual costs and expenses incurred to call the security and complete the required work. Any surplus funds will be returned to the security provider after all charges and expenses are paid and required work is accepted.

6. DEFINITIONS

6.1 **Usage.** For the purpose of these regulations, certain numbers, abbreviations, terms, and words used herein will be used, interpreted, and defined as set forth in this chapter.

(a) **Meaning of Terms.** Unless the context clearly indicates to the contrary, the following will apply:

(1) Words used in the present tense include the future tense. Words used in the plural number include the singular.

(2) The word "herein" means "in these regulations."

(3) A "person" includes a corporation, a partnership, a limited liability entity, and an unincorporated association of persons, such as a club.

(4) A "building" or "structure" includes any part thereof.

(5) The word “days” means “calendar days.”

6.2 Words and Terms Defined.

Applicant. The owner or optionee of land proposed to be subdivided or his/her authorized representative.

Block. A tract of land bounded by streets or by a combination of streets and public lands, cemeteries, railroad rights-of-way, shorelines of waterways or any other barrier to the continuity of development.

Building. Any structure built for the support, shelter, or enclosure of persons, animals, chattels, or movable property of any kind. The term includes any permanent structure.

City Attorney. The attorney holding the position of attorney for the city or such licensed attorney designated by the City Attorney to furnish legal assistance for the administration of these regulations.

City Engineer. The professional engineer holding the position of engineer for the city, or such licensed engineer designated by the City Engineer, to provide the city with engineering services for the administering and enforcing the provisions of these regulations.

City Manager. The City Manager of the city or such person as designated by the City Manager responsible for enforcing the provisions of these regulations. (See also Secretary of the Planning Commission.)

Collector Street. A street that provides frontage and access with some through traffic.

Concept Plan. A plan drawn to scale that shows street, lot, and open space layouts, public dedications, and reservations, if any, and proposed environmental changes to the tract.

Construction Plans. The maps or drawings showing the specific location and design of improvements to be installed in a subdivision.

Critical Lots. Lots designated as critical during the subdivision process based on soil conditions, degree of slope, flooding, or other lot features that could affect the feasibility of construction.

Developer. The owner of land proposed to be subdivided or his authorized representative.

Easement. Authorization by a property owner creating the right for the use by another, for a specified purpose, of any designated part of his property.

Final Plat. The final map or drawing and accompanying materials, described in these regulations, on which the applicant’s plan of the subdivision is presented to the Planning Commission and which, if approved, may be submitted to the Register of Deeds for recording.

Floodplain. The land which has been or may be hereafter covered by flood water during a flood having a 1% chance of being equaled or exceeded in any given year (commonly called the 100 year flood). The floodplain is identified on either the official map issued by the Federal Emergency Management Agency or any floodplain study performed for the city by a qualified

licensed engineer. The most recent and detailed maps will be used to identify the floodplain and floodplain elevations.

Floodway. The channel of a water course and the adjacent land areas that must be reserved in order to discharge a Base Flood (as defined in the Zoning Code) without cumulatively increasing the water surface elevation more than one foot.

Frontage. That side of a lot abutting on a street and ordinarily regarded as the front of the lot, but it will not be considered as the ordinary side of a corner lot.

Comprehensive Plan. The comprehensive plan for the City of Forest Hills, Tennessee, meeting the intent of Sections 13-3-301, et seq. Tennessee Code Annotated, including any subordinate documents.

Grade. The slope of a road, other public facility, or terrain generally specified in percentage terms.

Improvements. See "Lot Improvement" or "Public Improvement."

Local Street. A street that primarily provides frontage and access, but little through traffic.

Lot. A tract, plot, or portion of land within the city intended as a unit for the purpose of land ownership, transfer of ownership, subdivision, or building development.

Lot, Flag. A lot that has a minimum frontage on a public or private street and is reached via a private drive or lane.

Metro. The Metropolitan Government of Nashville and Davidson County.

Open Space. Any portion of a subdivision that is held in joint ownership by property owners or a homeowners' association and is intended for the use or enjoyment of the occupants. Open space includes, but is not limited to, parks, plazas, courtyards, playing fields, trails, and greenways. Open space may be public or privately held and may be used for active or passive recreation. Open space can include property that is left in a natural state and has primarily scenic value.

Owner. Any person, group of persons, firm or firms, corporation or corporations, or any other legal entity having legal title to or sufficient proprietary interest in the real property, including contracts to purchase.

Parcel. A single piece of land separately owned, either publicly or privately, and may be converted into a building site.

Planning Commission. The City of Forest Hills Planning Commission created in accordance with Title 13 of the Tennessee Code Annotated and the Charter of the City of Forest Hills.

Preliminary Plat. The preliminary plat provides construction details for roadways and sidewalks, storm water facilities, water and sewer lines, utilities and other infrastructure as well as landscaping plans. This provides for a coordinated review of the various plan documents,

construction plans and grading plans related to the subdivision and ensures proper placement of infrastructure, utility lines and boxes and allows for mitigation measures such as screening walls and landscaping to ensure that the preliminary plat conforms to the approved concept plan and conditions.

Private Street. See “Street, Private.”

Public Improvement. Any drainage ditch, roadway, parkway, sidewalk, pedestrian way, tree, lawn, off-street parking area, lot improvement, or other facility for which the city may ultimately assume the responsibility for maintenance and operation or which may affect an improvement for which city responsibility is established.

Register of Deeds. The Metropolitan Davidson County Register of Deeds.

Right-of-Way. A strip of land occupied or intended to be occupied by a public facility, including but not limited to a street, sidewalk, crosswalk, electric or communication transmission line, oil or gas pipeline, water main, sanitary or storm sewer line, or for other public purposes. 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 not included within the dimensions or area of such Lots or parcels. Rights-of-Way are public owned areas of land not to be confused with or interpreted as easements.

Sanitary Sewer. Domestic wastewater collected from dwelling units, commercial, and institutions within the city and conveyed through gravity or pumped pipe network to a publicly owned treatment works. Sanitary sewers are not designed to convey storm water or groundwater.

Secretary of Planning Commission. The City Manager (also see City Manager).

Sinkhole. A sinkhole is a depression that occurs naturally in a karst area with no surface outflow of water and will be identified by the first closed contour on 2-foot contour interval map or as designated by TDEC.

Slippage Soils. Soils where the parent material is Colluvium, e.g. Delrose, as classified by The Natural Resources Conservation Service.

Specifications. Written descriptions of a technical nature of materials, equipment, construction systems, standards, and workmanship.

Steep Slope. Areas that have a finished grade of 20% or greater. No land area shall be considered a steep slope unless the steep slope area has at least a ten (10) foot vertical drop and has a minimum area of five thousand (5,000) square feet.

Street, Private. A way or place in private ownership and used for vehicular travel by the owner and those having express or implied permission from the owner, but not by other persons. A private street is not maintained by the city.

Structure. Anything constructed or erected, the use of which requires more or less permanent location on the ground or attached to something having a permanent location on the ground. Structures include, but are not limited to, athletic courts, tennis courts, swimming pools, pool houses, and stables.

Subdivision. 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.

Substantial Completion. Where the stage of constructions of public facilities has progressed to the point of rendering the facility usable for the intended purpose. Project or construction activity is complete except for cleanup, minor landscaping, etc.

Tract. A specified stretch of land to be subdivided.

Water Course. A natural or manmade channel for the movement of water.

Yard. The area of any lot where building is restricted by the Zoning Code, including front and side yards which will remain unobstructed by buildings, and rear yard which will remain unobstructed by the principal building.

Zoning Code. The Zoning Code for the City of Forest Hills.

7. ADOPTION OF REGULATIONS AND AMENDMENTS.

7.1 Original Enactment.

(a) In order that land will be subdivided in accordance with the objectives and standards set forth in these regulations, these Subdivision Regulations are hereby adopted as of November 17, 2013 and will be in full force and effect December 1, 2013.

(b) Pursuant to Sections 13-4-303, Tennessee Code Annotated, a public hearing was held on these regulations on November 17, 2013 at 6:00 PM at City Hall, 6300 Hillsboro Road, Nashville, TN.

(c) Notice of the Public Hearing was given by publication in the Green Hills News on November 6, 2013.

7.2 Notice of Public Hearing for Amendments to the Subdivision Regulations.

Prior to the consideration of amendments to the regulations or new regulations, the Planning Commission will set a date for a public hearing. The public hearing will be advertised in one newspaper of general circulation at least 30 days prior to the date of the public hearing. (Section 13-4-303, Tennessee Code Annotated).

8. APPENDICES.

APPENDIX A – CONCEPT PLAN REQUIREMENTS

APPENDIX B – PRELIMINARY PLAT AND CONSTRUCTION PLANS REQUIREMENTS.

APPENDIX C – FINAL PLAT REQUIREMENTS.

APPENDIX D – PLAT CERTIFICATES

APPENDIX E – STANDARD STREET SPECIFICATIONS

APPENDIX F - STANDARD DRAINAGE SPECIFICATIONS

APPENDIX G - OUTLINE FOR CONSTRUCTION PROCESS

APPENDIX A – CONCEPT PLAN REQUIREMENTS

Information

Subdivision Name:	_____	Current Zoning:	_____
Parcel Number:	_____	Telephone:	_____
Contact Person:	_____	E-Mail Address:	_____
Address	_____		

Checklist

____ Legal Description of subject property

Map(s) of the subject property showing the following:

- ____ Property boundary or boundaries
- ____ Total Acreage (original and ones being platted)
- ____ Contours/Topography at a no greater than a 5 foot interval
- ____ Location, width, and name of all proposed streets identified as either public or private
- ____ Location of existing and proposed sewers, water mains, culverts and other underground facilities within the development, indicating pipe sizes.
- ____ Existing utility and drainage easements on all property lines.
- ____ Vicinity Map
- ____ Existing right-of-way
- ____ Existing Street widths
- ____ Minimum required set back lines
 - ____ Front yard ____ Road Frontage
 - ____ Side yard ____ Width at building setback
 - ____ Rear yard ____ Side yard if fronting on a street
- ____ Preliminary storm water runoff calculations showing that drainage will not adversely affect adjoining property or roadways.

If project contains critical lots (Critical Lots are defined as lots created within the Hillside Protection Overlay District, the Flood Plain Overlay District, or contains slippage soil):

- ____ Map of Floodplain (if applicable)
- ____ Map of Slippage Soils (if applicable)
- ____ Map of Hillside Protection overlay and steep slopes

**APPENDIX B – PRELIMINARY PLAT AND CONSTRUCTION PLANS
REQUIREMENTS.**

Information

Subdivision Name:	_____	Current Zoning:	_____
Parcel Number:	_____	Telephone:	_____
Contact Person:	_____	E-Mail Address:	_____
Address	_____		

Checklist

General Information on Plat

- _____ Name of Subdivision
- _____ North Point
- _____ Drawn to scale of one (1) inch equals one-hundred (100) feet. In the case of large lot subdivisions, plat shall be drawn to a scale sufficient to clearly delineate the subdivision.
- _____ Location map should indicate:
 - _____ Scale: 1" = _____'
 - _____ NTS (Not to Scale)
- _____ Title Block indicates:
 - _____ Forest Hills, Davidson County, Tennessee
 - _____ Date
 - _____ Total Acres in subdivision
 - _____ Linear feet of new street
 - _____ Owner: Name, Address, phone
 - _____ Designer: Name, Address, phone (Stamp and Signature required)
- _____ Graphic scale of existing property lines
- _____ Proposed property lines
- _____ Existing streets
- _____ Proposed streets
- _____ Existing utilities
- _____ Proposed utilities
- _____ Easements for drainage
- _____ Easements for utilities
- _____ Proposed Drainage including culverts (sizes) and ditches
- _____ Street names
- _____ Open space areas
- _____ Proposed rights of way and widths (if applicable)

Identification of Natural Resources (indicate acreage and identify on map)

- _____ Floodplain with 100 year Floodplain indicated
- _____ Floodway
- _____ Wetlands
- _____ Slippage soils
- _____ Drainage ways
- _____ Slopes greater than 30%
- _____ Slopes between 20% and 30%
- _____ Slopes between 15% and 20%
- _____ Forested Areas

- _____ Detail any efforts to be undertaken to comply with zoning code with regard to natural resources.
- _____ Identification of any historic stacked walls, cemeteries, streams, or bodies of water
- _____ Identification of existing structures
- _____ Square Feet and acreage of each lot
- _____ Lot numbers
- _____ Building envelopes
- _____ Parcel #'s of each adjacent property
- _____ Contours/Topography at a no greater than a 5 foot interval

Other plans and information

- _____ Addressed Concept Plan conditions of approval
- _____ Name, address, and phone of the engineer
- _____ Name, address, and phone of the adjoining neighbors
- _____ Draft Proposal of articles of incorporation/ bylaws or covenants of the homeowners association (if applicable)
- _____ Proposed water and sewer plans or and or commitment from the Metropolitan Water and Sewer Department of the adequacy and availability of water and sewer
- _____ Street plans
- _____ Letter from Metro Public Works, Engineering Divisions, indicating review for duplication of street names and assigning addresses
- _____ Grading plan and drainage plans for the development indicating general flow of drainage and methods for detention or retention of excess run off due to development.
- _____ Storm water runoff calculations show that the drainage will not adversely affect adjoining property or roadways.
- _____ Erosion control plans indicating methods of erosion control

If project contains critical lots (Critical Lots are defined as lots created within the Hillside Protection Overlay District, the Flood Plain Overlay District, or contains slippage soil):

- _____ Notation of Critical Lots on full plat
- _____ Geotechnical study and associated construction plan (if applicable- hillside protection and slippage soils)
- _____ Proper Buffers for the building envelopes of floodway, flood plain, and steep slope (as indicated in the zoning ordinance)
- _____ Professionally developed grading plans that mitigate flooding and or slippage issues

APPENDIX C – FINAL PLAT REQUIREMENTS.

Subdivision Name: _____
Parcel Number: _____ Current Zoning: _____
Contact Person: _____ Telephone: _____
Address _____ E-Mail Address: _____

Checklist

_____ Addressed Preliminary Plat conditions of approval

General Information on Plat

- _____ Name of Subdivision
- _____ North Point
- _____ Drawn to scale of one (1) inch equals one-hundred (100) feet. In the case of large lot subdivisions, plat shall be drawn to a scale sufficient to clearly delineate the subdivision.
- _____ Location map should indicate:
 - _____ Scale: 1" = _____'
 - _____ NTS (Not to Scale)
- _____ Title Block indicates:
 - _____ Forest Hills, Davidson County, Tennessee
 - _____ Date
 - _____ Total Acres in subdivision
 - _____ Linear feet of new street
 - _____ Owner: Name, Address, phone
 - _____ Designer/Surveyor: Name, Address, phone (Stamp and Signature required)
- _____ Seal
- _____ Graphic scale
- _____ Boundary lines (lengths measured to the nearest foot and decimals to the nearest hundredth)
- _____ All lengths measured dimensioned in feet and decimals to the nearest hundredth
- _____ The values of all true bearings and angles dimensioned in degrees and minutes
- _____ Boundary lines and parcel #'s of adjoining properties not part of subdivision (indicated with dotted lines)
- _____ Zoning
- _____ Minimum required setback lines (building envelopes)
 - _____ Front yard _____ Side Yard
 - _____ Side yard if facing street _____ Rear yard
- _____ Street names
- _____ Location of dedicated streets and associated widths
- _____ Curve Data: _____ angles _____ Radii Tangents _____ Lengths
- _____ Existing buildings
- _____ Easements with dimensions and designation of type (utility, access, drainage etc.)
- _____ Proposed rights of way and widths (if applicable)
- _____ Existing and proposed public utilities with locations types and sizes
 - _____ Water lines _____ Fire hydrants _____ Sanitary sewers

- Storm sewers Culverts Other Utilities
- Open space areas
- Identification of any historic stacked walls, cemeteries, streams, or bodies of water
- Square Feet and acreage of each lot
- Lot numbers
- Articles of incorporation/ bylaws or covenants of the homeowners association (if applicable)
- Standard notes
- Certifications
 - Ownership Survey Approval of Water and Sewer
 - Approval of Streets and Drainage Approval of Recording
- Concrete monuments
- Iron pins

If project contains critical lots (Critical Lots are defined as lots created within the Hillside Protection Overlay District, the Flood Plain Overlay District, or contains slippage soil):

- Notation of Critical Lots on full plat
- Construction plans to address (erosion/grading/etc.) flooding, erosion, and slippage (where applicable)
- Proper Buffers for the building envelopes of floodway, flood plain, and steep slope (as indicated in the Zoning Ordinance)

APPENDIX D – PLAT CERTIFICATES

Certificate of Ownership and Dedication:

I (we) hereby certify that I am (we are) the owner(s) of the property shown and described hereon as evidenced in Instrument Number _____, Register's Office of Davidson County, Tennessee, and that I (we) hereby adopt the plan of subdivision of the property as shown hereon and dedicate all public roads, utilities, easements and other facilities as noted. No lot or lots as shown hereon will again be subdivided, resubdivided, altered or changed so as to produce less area than hereby established until otherwise approved by the Forest Hills Planning Commission.

_____, 2013
Owner Date

Title (if acting for partnership or corporation)

Certificate of Survey:

I hereby certify that the hereon shown subdivision plat represents a Class "___" survey having an unadjusted ratio of precision of 1: _____ and is true and correct. Approved monuments have been placed as indicated.

_____, 2013
Surveyor Date
Tenn. Registered Surveyor No.: _____

Certificate of Approval of Water and Sewer System:

I hereby certify that: (1) the water and sewer systems designated in _____ Subdivision have been installed in accordance with Metropolitan Water and Sewer Department specifications, or (2) a performance agreement and letter of credit in the amount of \$ _____ for the water system and \$ _____ for the sewer system has been posted with the City of Forest Hills, Tennessee to assure completion of such system.

_____, 2013
Supt. Metropolitan Water & Sewer Department Date

Certificate of Approval of Streets and Drainage:

APPENDIX E – STANDARD STREET SPECIFICATIONS

1.0. STREET DESIGN STANDARDS

1.1 PURPOSE

The purpose of these design guidelines and specifications is to provide adequate standards for the construction of public and private streets that is in the best interest of the safety, convenience and prosperity of the community.

1.2 DESIGN GUIDELINES

These design guidelines and specifications shall apply to the construction of public and private streets or any infrastructure within the public right-of-way in any areas within the jurisdiction of the City of Forest Hills. These specifications are intended to apply to new construction as well as to modifications and/or improvements to existing infrastructure.

The criteria contained shall be considered as minimum requirements for new developments and may be modified at the direction of the City Engineer.

1.3 AUTHORITY

The City Engineer shall make the final decision on any questions or interpretations of these design guidelines and specifications.

The City Engineer may allow changes to these design criteria for individual developments or projects. However, modifications will only be allowed if the City Engineer is satisfied that allowing the changes is in the best interest of the City. Any modifications considered shall be equivalent to these criteria. Requests for consideration of modifications to these design criteria shall be made in writing to the City Engineer. The City Engineer may require an engineering study from the Design Engineer or Developer to justify the modification request. However, any requested modifications shall be based on sound engineering principles and practices. The modifications shall not create an unsafe or hazardous condition and shall not negatively impact adjacent properties.

The City Engineer shall periodically review these technical design guidelines and specifications and shall make recommendations to the Planning Commission for revisions or updates to the design guidelines and specifications contained in this Chapter. The City Engineer may make additional design guidelines or specifications which may be issued as separate design bulletins or special provisions.

1.4 RELATIONSHIP TO OTHER DOCUMENTS

These guidelines specifications shall be considered a subset of the Subdivision Regulations. All new public or private streets shall be designed to conform to the latest revision of the City of Forest Hills Major Street Plan.

These guidelines and specifications shall be considered supportive and complimentary to the City of Forest Hills Appendix F Standard Drainage Specifications and general design guidelines.

1.5 REFERENCE STANDARDS

The following documents or standards are referenced in these specifications.

- “A Policy on Geometric Design of Highways and Streets”, “Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤ 400),” and “Roadway Lighting Design Guide”, American Association of State Highway and Transportation Officials (AASHTO)
- “Manual on Uniform Traffic Control Devices for Streets and Highways”, (MUTCD) U.S. Department of Transportation, Federal Highway Administration
- “Roadway Design Guidelines”, “Standard Roadway and Bridge Drawings”, “Standard Specifications for Road and Bridge Construction”, “Drainage Manual”, “Survey Manual” and “Traffic Design Manual”, Tennessee Department of Transportation
- “ADA Accessibility Guidelines for Buildings and Facilities”, United State Access Board
- “City of Forest Hills Subdivision Regulations”, “City of Forest Hills Standard Drainage Specifications” and “City of Forest Hills Major Street Plan”, City of Forest Hills, Davidson County, Tennessee.

1.6 ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ASTM	American Society for Testing Materials
CUD	Consolidated Utility District
FHWA	Federal Highway Administration
ITE	Institute of Transportation Engineers
MUTCD	Manual on Uniform Traffic Control Devices
NEMA	National Electrical Manufacturers Association
TDEC	Tennessee Department of Environment and Conservation
TDOT	Tennessee Department of Transportation

1.7 DEFINITIONS

Base Course - The layer or layers of specified or selected material of designed thickness placed on a subbase or a subgrade to support a surface course.

Box Culvert - A box culvert type structure consisting of a single box or multiple boxes, with or without a bottom slab, having a length, measured along the centerline of the roadway, of less than twenty feet between the inside faces of the outside walls.

Bridge - A structure erected over a stream, watercourse, highway, railroad or opening, for carrying traffic, having a length, measured along the centerline of the roadway, of more than twenty feet between the faces of end supports.

Contractor - The individual, firm, corporation, or joint venture performing the Work.

Culvert (Cross Drain) - A drainage structure which has a pipe or box opening as the inlet condition.

Detour - A temporary route for traffic around a closed portion of road.

City Engineer - The City Engineer for the City of Forest Hills.

Equipment - All machinery, apparatus, and tools necessary for the proper construction and acceptable completion of the project, plus the necessary repair parts, tools, and supplies for upkeep and maintenance.

Highway - The entire width between the boundary lines of every way publicly maintained when any part thereof is open to the use of the public for purposes of vehicular travel.

Inspector - The authorized representative of the City Engineer assigned to make detailed inspections of materials and construction.

Laboratory - Any laboratory approved by the City Engineer.

Materials - Any substance specified to be furnished or proposed for use in the construction of the project and its appurtenances.

Plans - The approved Plans, profiles, cross sections, Standard Roadway and Structure Drawings, working drawings and supplemental drawings, or exact reproductions thereof, which show the location, character, dimensions, and details of the construction to be performed.

Right-of-Way - A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to a highway and its appurtenant structures.

Roadbed - The graded portion of a highway prepared as a foundation for the pavement structure and shoulders.

Roadside - A general term denoting the area adjoining the outer edge of the roadway. Extensive areas between the roadways of a divided highway may also be considered roadside.

Roadside Development - Those items necessary to the complete highway which provide for the preservation of landscape materials and features; the rehabilitation and protection against erosion of all areas disturbed by construction through seeding, sodding, mulching and the placing of other ground covers; such suitable planting and other improvements as may increase the effectiveness and enhance the appearance of the highway.

Roadway – that portion of a highway, improved, designed or ordinarily used for vehicular travel, exclusive of the shoulder.

Shoulder - The portion of the graded width of a highway contiguous with the roadway which has been provided for the accommodation of stopped vehicles, for emergency use, and for the general enhancement of traffic operations and safety. The shoulder may be either paved or unpaved.

Sidewalk – that portion of a street between the curblines, or lateral lines of a roadway, and the adjacent property lines.

Specifications - A general term applied to all directions, provisions, and requirements pertaining to performance of the work.

State - The State of Tennessee.

Storm Sewer Drainage System - An enclosed system connected by grates, inlets or manholes for the collection and removal of roadway storm water runoff.

Street – see “Highway”.

Subcontractor - Any individual, firm, partnership, or corporation to whom the Contractor sublets any part of the Work under a contract.

Subgrade - The top surface of a roadbed upon which the pavement structure and shoulders are constructed.

Substructure - All of that part of the structure below the bearings of simple and continuous spans, skewbacks of arches and tops of footings of rigid frames, together with the backwalls, wingwalls and wing protection railings.

Superstructure - The entire structure except the substructure.

Temporary Construction Easement – an area adjacent to permanent right-of-way or other permanent easement required for use in construction of improvements.

Work - The Work shall mean the furnishing of all labor, materials, equipment, and any incidentals necessary to the satisfactory completion of the project, including the carrying out of all duties and obligations imposed by the Contract.

1.8 PROJECT PLAN STANDARDS

All final plans shall be submitted electronically in a format acceptable to the City. All street improvement construction plans shall be prepared in general accordance with TDOT Design Guidelines.

All plan sheets shall consist of at a minimum:

- Cover Sheet
- A location map with its own north indicator accurately depicting the property in relationship to nearby streets and other property in its vicinity
- General Notes
- Standard Drawings
- A legend of symbols
- Tabulated Quantities
- ROW Acquisition Table (if applicable)
- A true north indicator
- A bar scale
- Names, address, and contact information for all utilities
- The names and locations of adjoining subdivisions and streets and the location and ownership of adjoining un-subdivided property
- The names of all public ways both existing and proposed
- Areas which may be affected by flooding including the location of watercourses, floodway and flood fringe areas as shown on the most recent Flood Insurance Rate Map (F.I.R.M.) or flood boundary maps
- Existing stormwater conveyances, intermittent streams, blue line streams, and water quality buffers as required by the City's stormwater regulations
- The proposed stormwater management plan
- Proposed erosion and sediment control plans
- Plan for any movement of material (borrow/fill)

- Sink holes, rock outcrops, wetlands, excessive slope, etc
- Proposed storm drainage system with pipe locations and direction of flow noted including areas for detention or retention or for water quality including top elevation, invert information of existing and proposed drainage structures
- Horizontal and vertical control
- Typical street cross sections with locations shown for all utilities including water, sanitary sewer, gas, electric, phone, and cable for each street type in the proposed development. Locations of all utility appurtenances (transformer pads, utility boxes, poles, etc) to be shown relative to street elements including curb-and-gutter and sidewalks
- Plan and profile sheets showing existing and proposed horizontal and vertical alignment geometry, existing and proposed profiles of streets, storm drainage systems, and utilities
- Cross-sections if required
- The name of the engineer of record who shall be licensed by the State of Tennessee
- The location of existing and proposed property lines, streets, buildings, water courses, sewers, cemeteries, bridges, culverts, drain pipes, water mains, major drainage system routes, lot numbers and public utility easements
- Explanation of all easements proposed to be reserved both for private and public use
- Existing and proposed sidewalks, trails, and other pedestrian elements
- The existing and proposed topographic contours at a vertical interval of two (2) feet based on sea level with existing contours shown as dashed lines and final grading contours shown in solid lines with said existing topographic contours from field verified data for site grading for the entire development including individual lots
- Proposed traffic control signage (e.g. Stop signs and street name signs and etc.)
- Proposed pavement markings (e.g. edge lines, center lines, stop bars, and turn arrows, etc.)
- Existing and proposed traffic signs and traffic signals;
- Maintenance of traffic plan (temporary traffic control) for all construction activities

All design plans and support data must be sealed and signed by a registered Professional Engineer, licensed to practice in the State of Tennessee.

1.9 INSPECTION AND ACCEPTANCE OF WORK

The City Engineer shall inspect and approve construction at each stage for the project. This includes storm drainage system, roadway sub-grade, base stone and asphalt courses. The Contractor shall not proceed to the next stage of construction without the inspection and written approval of the City Engineer.

The City Engineer may require that construction materials, including aggregate, asphalt, concrete, and roadway subgrades be tested as outlined in the latest edition of the TDOT

“Standard Specifications for Road and Bridge Construction”. If so, a qualified independent testing laboratory approved by the City shall perform any required tests and the results of the tests shall be submitted to the City Engineer for approval. All testing shall be performed at no cost to the City. Any work not meeting these specifications shall be repaired or replaced.

Final construction inspection for approval and acceptance of streets and drainage systems will not be granted until all work has been completed in accordance with the approved plans and specifications.

2.0 DESIGN STANDARDS

2.1 GENERAL

These standards and specifications should be considered minimum requirements. Design of streets shall follow the latest editions of the TDOT “Roadway Design Guidelines” and the AASHTO “A Policy on Geometric Design of Highways and Streets” unless otherwise noted. Also, other relevant TDOT, AASHTO, FHWA and ITE design documents should be consulted for guidance. The City Engineer shall make the final decision if any questions or conflicts arise between any of the standards.

TDOT’s “Roadway Design Guidelines” and Standard Drawings may be found on-line at: http://www.tdot.state.tn.us/Chief_Engineer/assistant_engineer_design/design/Des_Resources.htm

2.2 FUNCTIONAL STREET CLASSIFICATIONS

Classifications from the City of Forest Hills Subdivision Regulations and Major Street Plan shall be used for purposes of planning and/or designing new streets.

2.3 PRIVATE STREETS

Private streets shall be designed and constructed to the same standards as required for public streets.

2.5 RIGHT-OF-WAY

The minimum right-of-way widths for new streets shall be as shown in the City of Forest Hills “Subdivision Regulations”. In some cases, right-of-way greater than that shown may be required.

2.6 STREET CROSS SECTIONS

The required number of lanes and lane widths shall be as shown in Tables 2.1. The cross sections shown are typical and should be used for most streets. Dimensions should be considered minimum values. However, the City Engineer may adjust the required cross section for a particular street.

Table 2.1 Typical Street Cross Sections

Street Classification	Description	Travel Lanes	Bike Lanes	Minimum Right-of-Way
Arterial	Two Travel Lanes & Two Bike Lanes	2 @ 12'	2 @ 4'	80'
Scenic Arterial	Two Travel Lanes & Two Bike Lanes (Landscaped)	2 @ 12'	2 @ 4'	80'
Residential Collector	Two Travel Lanes & Two Bike Lanes	2 @ 12'	2 @ 4'	60'
Local Streets	Two Travel Lanes	2 @ 10'	--	50'

2.7 EASEMENTS

Easements for utilities and drainage may be required. However, all street elements shall be located in the street right-of-way and not placed in easements. The easement width shall be of sufficient widths to permit access for both construction and maintenance of its intended purpose.

In addition to permanent easements, a Temporary Construction Easement may be needed to provide adequate construction area in the construction of a project.

2.8 DESIGN CRITERIA

Design Speed - All streets shall be designed in accordance with the minimum design speeds specified for each street classification as shown in Table 2.2. The selected design speed for new streets must approved by the City Engineer.

Design Vehicle - All streets shall be designed to accommodate the design vehicle shown in Table 2.2. The minimum turning paths for the required design vehicles shall be accommodated by the proposed street and intersection geometrics.

Maximum Grades – The maximum grades for each classification of street shall be as shown in Table 2.2. The minimum grade for all streets shall be 0.5%.

Design Traffic Volume - Traffic volumes are not usually a major factor in determining the geometric design criteria to be used in designing residential streets and subdivisions. However, the volume of traffic expected to use a street is important in determining the geometric design criteria for major streets such as arterial streets and some collector streets. Traffic volume and composition is also important in determining the required pavement thickness for a high volume or industrial street. New arterial and collector streets shall be designed to accommodate projected future traffic volumes. Typically, a design year of 20 years from the anticipated completion date shall be used unless a different period is agreed to by the City Engineer. Projects that involve isolated intersection improvements to the existing street network may use a five year traffic horizon if allowed by the City Engineer.

Design Level of Service - Unless otherwise agreed by the City Engineer, projects will be designed to achieve a Level of Service (LOS) “C” or better.

Table 2.2 Design Vehicle Requirements

Street Classification	Design Speed	Design Vehicles *	Maximum Street Grade	Minimum Curb Flow Line Grade
Arterial	45 mph	WB-50	6%	0.5%
Scenic Arterials	45 mph	WB-50	6%	0.5%
Residential Collectors	30 mph	SU-40/SBus-40	8%	0.5%
Local Streets	30 mph	SU-40/SBus-40	10%	0.5%

* Design Vehicle must be able to turn and stay out of other travel lanes for Arterials and Residential Collectors. Design Vehicle must be able to turn and stay on pavement surface for Local streets.

Horizontal and Vertical Alignment – Horizontal and vertical design parameters for each functional classification of street are shown in Tables 2.3 and 2.4. Broken-back vertical curves and compound vertical curves should be avoided. For high speed arterial

streets or for complex geometry, TDOT and AASHTO design standards and procedures shall be used.

Table 2.3 Horizontal Geometry Requirements

Street Classification	Horizontal Geometry *		
	Minimum Centerline Radius (with normal crown)	Minimum Centerline Radius (with superelevation) **	Minimum Tangent Distance Between Curves
Arterial	1,040' (for 45 mph)	711' (for 45 mph)	300'
Scenic Arterial	1,040' (for 45 mph)	711' (for 45 mph)	300'
Residential Collectors	335' (for 30 mph)	250' (for 30 mph)	100'
Local Streets	335' (for 30 mph)		100'

Sight Distance - Crest vertical curves shall be designed to provide the minimum stopping sight distance required by the latest edition of the AASHTO Greenbook. Minimum values are shown in Table 2.4. Where there are sight obstructions on the inside of curves or the inside of the median lane on divided streets, the cross section elements or the alignment may need to be adjusted if removal of the obstruction is not possible to provide adequate sight distance. Any changes must be recommended by the City Engineer and approved by the Planning Commission.

Table 2.4 Stopping Sight Distance*

Street Classification	Crest		Sag	
	Minimum K Value	Stopping Sight Distance	Minimum K Value (for Sag)	Stopping Sight Distance
Arterial	61 (for 45 mph)	360 feet	79 (for 45 mph)	360 feet
Scenic Arterial	61 (for 45 mph)	360 feet	79 (for 45 mph)	360 feet
Residential Collectors	19 (for 30 mph)	200 feet	37 (for 30 mph)	200 feet
Local Streets	19 (for 30 mph)	200 feet	37 (for 30 mph)	200 feet

* From "A Policy on Geometric Design of Highways and Streets" 2004 edition, AASHTO Exhibits 3-72 and 3-75

2.9 INTERSECTIONS

Intersection Angle - Streets shall be laid out so as to intersect as nearly as possible at right angles. The minimum angle of intersection shall be 85 degrees for all street types except local streets without approval of the City Engineer. In no case shall the angle of intersection be less than 80 degrees.

Offset Intersections - Proposed new intersections along one side of an existing street shall be located, wherever possible, directly opposite the existing intersecting street. Offset intersections occur when two T-type intersections are located in relatively close proximity. Street jogs with centerline offsets of less than one hundred fifty (150) feet shall not be permitted along local or collector streets centerline offsets of two hundred (200) feet shall not be permitted along an arterial street.

Intersection Radii - The minimum curb radius intersecting local streets shall be twenty-five (25) feet. The complete minimum radius requirements are listed in Table 2.5. The radii shown are minimums and a larger radius may be required. Design Vehicle must be able to turn and stay out of other travel lanes as outlined in Table 2.2.

Table 2.5 Minimum Intersecting Street Radii *

Street Classification	Intersecting with						
	Major Arterial	Minor Arterials	Commercial Collectors	Community Collectors	Residential Collectors	Residential Sub-Collectors	Local Streets
Arterial	50'	50'	50'	40'	30'	30'	30'
Scenic Arterials	50'	50'	50'	40'	30'	30'	30'
Residential Collectors	30'	30'	30'	30'	30'	30'	25'
Local Streets	30'	30'	25'	25'	25'	25'	25'

* These values are minimum, larger radii may be required to accommodate design vehicle shown in Table 2.2.

2.10 EMERGENCY ACCESS AND ACCESS FOR SERVICE VEHICLES

All new streets and intersections shall accommodate safe and efficient movement of emergency vehicles and service vehicles (school buses, solid waste trucks, etc). Turning templates should be used to verify that these vehicles will be adequately accommodated.

2.11 STREET ELEMENTS

Pavement Type - Streets are to be designed with asphaltic concrete pavement on compacted subgrade. Pavement thicknesses shall be as shown in the Standard Drawings unless otherwise required. The dimensions shown for each street classification are based on assumed subgrade support and traffic loadings. Arterial streets often will require a pavement design specific to that street. The City Engineer may require additional thickness or require a detailed pavement design be performed based on a soil condition analysis and projected traffic loadings.

Curb Types - New streets may be designed with standard 6" mountable curbs, curb and gutter drainage systems, or standard pavement section (no curbs) with roadside swales or grass drainage ditches. The following standard curb types shall be used on new streets:

- 6" extruded (mountable) curb – If the new street is an extension of an older street with a mountable curb system, that curb system shall be continued for the new section of street.

- 6-24 Curb and Gutter (6" curb – 24" wide with 18" gutter pan) – to be used on all arterial and collector streets without residential driveways. This is a vertical and non-mountable curb.
- Mountable Post Curb – to be used around all medians.

The City Engineer may require any one of these, or a special curb section for certain design situations such as the existence of local drainage problems, poor subsurface soil conditions, etc.

Sidewalks and Ramps - Sidewalks and curb ramps shall be constructed in all new developments. Sidewalks are only required along one side of a cul-de-sac streets.

The minimum width for new sidewalks shall be four (4) feet for Local and Residential Collector streets and five (5) feet for all other streets. All pedestrian facilities provided within a City street right-of-way shall be designed in accordance with the "ADA Accessibility Guidelines for Buildings and Facilities" from the Americans with Disabilities Act (ADA). In all cases, new sidewalks shall provide a minimum clear width of four (4) feet. The streets will not be accepted by the City until all sidewalks are installed.

Ramps meeting requirements of the "ADA Accessibility Guidelines for Buildings and Facilities" shall be installed at all intersections with sidewalks. Ramps shall be designed as shown in TDOT Standard Drawings RP-H-3 thru RP-H-9.

Sidewalk Encroachments and Obstructions - Encroachments such as utility poles, fire hydrants, utility boxes, parking meters, mailboxes, sign posts, signal poles and street furniture shall not be located within the concrete portion of a new standard five (5') foot wide sidewalk, unless approved by the City Engineer. Sidewalks shall be inspected by the City Engineer for obstructions before any concrete is poured. Tree grates, utility covers and manholes may be permitted within a sidewalk provided four (4) feet of unobstructed clearance is provided on one side.

2.12 DRAINAGE

Streets drainage shall be designed according to Appendix F, Standard Drainage Specifications.

2.13 DRIVEWAYS

In order to provide ease and convenience of ingress and egress to private property, the number and location of driveways shall be regulated. The number and location of driveways shall be controlled to provide both safety as well as maintaining efficiency of the traffic flow on public streets.

All driveways shall meet the following:

- No driveway shall be constructed within the radius return of a street intersection.
- No driveway shall be constructed with a corner clearance of less than 25 feet.
- No driveway shall be constructed in a manner which results in the encroachment of a curb return or curb radius beyond the extension of an adjacent property line unless there is joint use with the adjacent property.

2.14 BICYCLE FACILITIES

For streets with bicycle facilities, either a separate marked bicycle lane or shared outside lane shall be provided.

Bike Lane - A bike lane shall be a minimum of 4' wide and located adjacent to the outside travel lane. Bike lanes are separated from conventional travel lanes with a lane stripe and are identified by pavement markings and signing. Bikes lanes carry bike traffic in the same direction as the adjacent motor vehicle traffic.

Bicycle Shared Street - A shared street may be approved by the City Engineer. A shared street is a street in which motorists and bicyclists share the same travel lanes. Typically this is accomplished by a wider than normal outside travel lane which is shared by vehicles and bicycles. A 14' outside travel lane is used for a street designated as a bike route without a separate marked bike lane and identified by signing.

2.15 TRAFFIC CONTROL DEVICES

All signs, markings, signals and other traffic control devices installed or used shall be designed and located in conformance with the "Manual on Uniform Traffic Control Devices (MUTCD)".

Traffic Signal Warrants - Any proposed traffic signals shall meet one or more warrants from the MUTCD. The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal. An engineering study will be required for all proposed traffic signal installations in order to justify the signal. The analysis shall be submitted to the City Engineer for review and shall include capacity analysis. The City Engineer may require the study to include an evaluation of this new signal on existing adjacent signals or on signal progression along corridors. The City Engineer shall make the final decision on any new traffic signal on non-state routes. TDOT will make decisions on traffic signals on state routes.

Pedestrians – In general, all new traffic signals at intersections with sidewalks and/or pedestrian activity shall be designed to accommodate pedestrians. The City Engineer will have the final determination for locations that will not have pedestrian signals.

Traffic Signal Timing - The MUTCD, the TDOT “Traffic Design Manual” and the ADA “Accessibility Guidelines for Buildings and Facilities” should be used to determine signal timings.

The City Engineer may have specific requirements for a traffic signal and must approve the design of all traffic signals including but not limited to intersection geometry, supports, displays, phasing, timing and materials.

2.16 LIGHTING

Street Lights

See section 4.09(c), Street Lights, of the City of Forest Hills Zoning Ordinance.

The Design Engineer, Developer and/or Contractor shall coordinate with Nashville Electric Service, and the City Engineer for the locations and installation of the proposed lighting supports and foundations.

Roadway lighting design shall be in accordance with the AASHTO “Roadway Lighting Design Guide” and the TDOT “Roadway Design Guidelines” Design Manual. All fixtures, poles, and designs will be reviewed and approved by the power provider.

All lighting fixtures shall be designed or shielded to prevent glare, and to minimize light shining on or negatively affecting neighboring residents. Lighting shall be designed to have the intensities and uniformity ratio consistent with the AASHTO Roadway Lighting Design Guide for the roadway classification under consideration.

2.17 UTILITIES

When a development, addition or change in use requires new or expanded utility services (water/sewer, telephone, natural gas, cable television, electricity, etc.), the Developer is required to contact the appropriate utility companies and coordinate underground installation of the utilities.

The proposed layout of utilities should be carefully examined by the design engineer, Developer and Contractor to avoid interferences between utilities.

No utility encroachments shall be located in or on a new sidewalk unless approved by the City Engineer. Tree grates, utility covers and manholes may be permitted within a sidewalk provided that four (4) feet of unobstructed clearance is provided on one side.

2.18 STREET LANDSCAPE DESIGN

See Article V, Landscaping of the City of Forest Hills Zoning Ordinance.

2.19 TEMPORARY TRAFFIC CONTROL

Any work within the road right-of-way shall require a temporary traffic control plan for the work zone. The plan shall be prepared in accordance with Part 6 of the “Manual on Uniform Traffic Control Devices (MUTCD)”.

3.0 TECHNICAL SPECIFICATIONS

3.1 GENERAL

Street construction for the City of Forest Hills shall meet the following technical specifications.

All references are from the Tennessee Department of Transportation (TDOT) "Standard Specifications for Road and Bridge Construction", 2006 edition, as amended, unless noted differently. TDOT's "Standard Specifications for Road and Bridge Construction" may be found on-line at:

[http://www.tdot.state.tn.us/Chief Engineer/assistant engineer design/design/Des Resources.htm](http://www.tdot.state.tn.us/Chief%20Engineer/assistant%20engineer%20design/design/Des%20Resources.htm)

Any projects involving state highways or Metropolitan Nashville Davidson County Roadways shall meet the requirements of the TDOT or Metro Nashville Davidson County Roadways.

Copies of permit(s) approving work in TDOT or Metro right-of-way shall be provided to the City of Forest Hills prior to beginning work.

3.2 UTILITY COORDINATION

1. The Contractor and/or Developer is required to contact any affected or impacted utility companies and coordinate the removal, relocation and installation of all utilities as required.
2. Locating and coordination for the relocation of existing utilities is the responsibility of the Contractor and/or Developer. Some utilities may be located by using the Tennessee One-Call utility location service. However, in addition to using the Tennessee One-Call service, the Contractor and/or Developer should coordinate directly with local utility owners. Existing utilities must be protected at all times and the Contractor and/or Developer will be responsible for costs due to damage caused to any utility lines.

3.3 EXCAVATION, FILLS AND EMBANKMENTS

1. Excavation and Undercutting shall be done in accordance with Section 203 of the TDOT "Standard Specifications for Road and Bridge Construction". When unsuitable material or soft organic or plastic clays are encountered in the subgrade, the area shall be undercut and backfilled with suitable material.

2. Embankment material, preparation and placement and lift thickness shall be done in accordance with Section 205 of the TDOT "Standard Specifications for Road and Bridge Construction". Fill and backfill are to be deposited in loose layers not more than twelve (12) inches thick. Rocks, blocks of concrete and masonry materials, not more than twelve (12) inches maximum dimension, but no debris, may be used for fills if well distributed in the earth and provided further, that such materials shall not be placed against manholes, underground structures, or utilities, or in the top 24 inches of fill below finished grade. No frozen material shall be placed in backfill.
3. The City Engineer may allow the use of geotextile fabrics to strengthen backfill material in undercut areas based on the recommendations of a geotechnical report.
4. Preparation of Subgrade shall be done in accordance with Section 207 of the TDOT "Standard Specifications for Road and Bridge Construction". All traces of utility trenches shall be filled and thoroughly tamped. Spongy and unsuitable material shall be removed and replaced with stable material. All subgrades shall be maintained in satisfactory condition, protected against traffic and properly drained until base is placed.
5. Any areas where settlement occurs due to settlement or shrinkage shall be filled to the required finished grade.
6. All excavation and embankment area shall be proof rolled with a minimum 12-cubic yard tandem axle dump truck, fully loaded with soil, or other equipment approved by the City Engineer that will reveal any soft, yielding, or spongy areas. Any instability observed shall be corrected during the proof roll, to the satisfaction of the City Engineer by disking, aerating, recompacting, removing and replacing material. After taking corrective measures, affected areas shall be proof rolled to ensure the stability. The City Engineer may require additional testing as outlined in Section 205 of the TDOT "Standard Specifications for Road and Bridge Construction".

3.4 CRUSHED STONE BASE (MINERAL AGGREGATE BASE)

1. The base stone section of the road shall be constructed with mineral aggregate meeting the requirements of Subsection 903.05 of the TDOT "Standard Specifications for Road and Bridge Construction".
2. Construction Requirements - All base stone shall be placed and compacted according to Section 303 of the TDOT "Standard Specifications for Road and Bridge Construction".

- a. Prior to installation of the base stone, the Contractor and/or Developer shall have the subgrade inspected by the City Engineer. Proof rolling or testing of subgrade shall be in accordance with subsections 3.3 of these specifications. Should the Contractor begin placement of the base stone prior to obtaining the Certification of Inspection for the subgrade, the City Engineer shall have the right to require the Contractor to expose as many areas as deemed necessary to obtain valid testing of the subgrade. If the subgrade fails, the Contractor shall remove all stone in the failed areas and perform the necessary work to bring these areas into compliance.
- b. Once the Contractor and/or Developer believes there is sufficient stone depth, compaction, and proper adjustment of all castings, the City Engineer shall be notified at least 48 hours in advance of paving. All castings shall be set to the binder course level.
- c. Testing of the mineral aggregate base for local streets shall be performed by the proof rolling method as described above. Additional testing of aggregate base on Collector and Arterial streets as outlined in Section 303.09 of the TDOT “Standard Specifications for Road and Bridge Construction” may be required by the City Engineer.
- d. Once the base stone and castings have been inspected and approved, the Contractor shall be permitted to begin paving. Should any castings be disturbed prior to paving, it will be the responsibility of the Contractor to make the proper adjustments prior to paving.

3.5 BITUMINOUS PLANT MIX BASE COURSE

1. The Bituminous Plant Mix Base course shall be Grading “A” or “A-S” as shown on the plans or in the Standard Drawings. The base course shall meet the requirements of Section 903 of the TDOT “Standard Specifications for Road and Bridge Construction” unless otherwise approved.
2. Construction Requirements – The Bituminous Plant Mix Base course shall be installed in accordance with Section 307 and Subsections 407.09 through 407.18 of the TDOT “Standard Specifications for Road and Bridge Construction”.
 - a. The subgrade and mineral aggregate base must have been inspected and approved by the City Engineer prior to placement of the base course.

- b. The City Engineer shall be notified 48 hours prior to the intended time of paving so that a representative can be available for inspection throughout the placement of asphalt.
3. Weather limitations for the placement of asphaltic concrete courses shall be as indicated in Subsection 407.09 of the TDOT “Standard Specifications for Road and Bridge Construction”.

3.6 BITUMINOUS PLANT MIX BINDER COURSE

1. The Bituminous Plant Mix Binder course shall be Grading “BM2” as indicated in the plans or in the Standard Drawings meeting the requirements of Subsection 903.06 of the TDOT “Standard Specifications for Road and Bridge Construction” unless otherwise approved.
2. Construction Requirements – The binder course shall be installed in accordance with Section 407 of the TDOT “Standard Specifications for Road and Bridge Construction”.
 - a. The Bituminous Plant Mix Base course must have been inspected and approved by the City Engineer prior to installation of the binder course(s).
 - b. The City Engineer shall be notified 48 hours prior to the intended time of paving so that a representative can be available for inspection throughout the placement of asphalt.
3. Weather Limitations for the placement of asphaltic concrete courses shall be as indicated in Subsection 407.09 of the TDOT “Standard Specifications for Road and Bridge Construction”.

3.7 BITUMINOUS PLANT MIX SURFACE COURSE

1. The Bituminous Plant Mix Surface course shall be Grading “D” or “E” as shown on the plans or in the Standard Drawings. The surface course shall meet the requirements of Subsection 903.11 of the TDOT “Standard Specifications for Road and Bridge Construction” unless otherwise approved.
2. Installation of the final surface course of asphalt on new subdivision streets shall not occur before 70% of the lots in a section or phase have been built on.

3. Construction Requirements – The surface course shall be installed in accordance with Section 411 of the TDOT “Standard Specifications for Road and Bridge Construction”.
 - a. The Bituminous Plant Mix Base and/or Binder course must have been inspected and approved by the City Engineer and any failed areas corrected prior to installation of the surface course.
 - b. The City Engineer shall be notified 48 hours prior to the intended time of paving so that a representative can be available for inspection throughout the placement of asphalt.
4. Weather limitations for the placement of asphaltic concrete courses shall be as indicated in Subsection 407.09 of the TDOT “Standard Specifications for Road and Bridge Construction”.

3.8 FLEXIBLE PAVEMENT TESTING REQUIREMENTS

For all pavement installation and repairs, a system approved the City Engineer of compaction for roadway pavements shall be employed which has previously produced required bituminous pavement densities.

3.9 BITUMINOUS PRIME COAT

1. The bituminous materials and aggregate cover material for the Bituminous Prime Coat shall conform to Subsections 904.03 and 903.13 of the TDOT “Standard Specifications for Road and Bridge Construction”.
2. Construction Requirements – Installation of the Bituminous Prime Coat shall conform to Section 402 of the TDOT “Standard Specifications for Road and Bridge Construction”.

3.10 BITUMINOUS TACK COAT

1. The bituminous materials and aggregate cover material for the Bituminous Tack Coat shall conform to Subsections 904.03 and 904.01 of the TDOT “Standard Specifications for Road and Bridge Construction”.
2. Construction Requirements – Installation of the Bituminous Tack Coat shall conform to Section 403 of the TDOT “Standard Specifications for Road and Bridge Construction”.

3.11 PAVEMENT CONSTRUCTION

1. Subgrade Preparation - The subgrade shall be prepared in reasonable close conformity to the lines and grades shown on the plans. Prior to the spreading of any mineral aggregate, the subgrade shall be proof rolled with a fully loaded tandem dump truck (or other approved equipment). Any areas which pump will require undercutting, backfill and compaction. Additional proof rolling shall be performed on all repaired areas.
2. Subgrade Inspection - A request to inspect and test the subgrade shall be made to the City Engineer at least 48 hours in advance. After inspection, any deficiencies shall be noted in the field log and corrected by the Contractor.
3. Dust Control - The Contractor may be required to address dust control at various stages of construction. The Contractor shall sprinkle the street construction surfaces with water or apply a dust-allaying material when such operations are necessary to prevent a dust nuisance or if directed by the City Engineer.
4. Crushed Stone Base Installation:
 - a. The crushed stone base shall be constructed in one or more layers with the compacted thickness being that as shown on the approved plans or the Standard Drawings. If the required compacted depth of the crushed stone base course exceeds six (6) inches, the base shall be constructed in two or more layers of approximate equal thickness.
 - b. Except where mechanical aggregate spreading equipment is used to place the mineral aggregate base material, final shaping of each layer prior to compaction shall be accomplished by motor grader. In the event that mechanical spreading equipment fails to shape the base material properly, final shaping shall be done by motor grader or other approved means. Immediately following spreading, the mineral aggregate base material shall be shaped to the required degree of uniformity and smoothness and compacted to the required density prior to any appreciable evaporation of surface moisture. Compaction of each layer shall be continuous until the minimum density requirement is attained.
 - c. The thickness of the completed mineral aggregate base shall be in reasonably close conformity to the thickness shown on the approved plans or as called for by the construction standards. The thickness shall be measured at such frequency as established by the City Engineer by means of test holes or other approved methods.
 - d. After completion of the crushed stone base, it shall be maintained, smooth and uniform until covered by the following stage of construction.

- e. All manholes, water line valve boxes, and appurtenances shall be adjusted to the correct elevation. When the stone base is at a proper grade, all casting should be above the finished grade of the base stone.
5. Crushed Stone Base Inspection - A request to inspect and test the crushed stone base shall be made to the City Engineer at least 48 hours in advance. After inspection, any deficiencies shall be noted in the field log and corrected by the Contractor.
6. Bituminous Prime Coat:
- a. A Bituminous Prime Coat shall be applied uniformly over the surface of the crushed stone base by means of a pressure distributor at a uniform rate. The prime coat shall be applied at an approved rate. Any areas containing an excess or deficiency of priming material shall be corrected by the addition of blotter material or bituminous material, as directed by the City Engineer.
 - b. The Contractor shall protect all structures and concrete surfaces from the bituminous material during construction. If after the bituminous prime coat has been applied, it fails to penetrate before the time that traffic must use the street, or paving is interrupted overnight, a dry cover material shall be spread at an approved rate to prevent damage to the primed surface. An excess of cover material shall be avoided.
 - c. The Contractor shall maintain the prime coat and the surface intact until it has been covered by the following stage of construction. No succeeding stage of construction shall be placed upon the prime coat until it has properly cured.
7. Bituminous Plant Mix Installation (Base, Binder and Surface Courses):
- a. Bituminous Plant Mix Base, Binder and Surface courses shall be installed to the compacted thicknesses shown on the plans or in the Standard Drawings.
 - b. Bituminous mixtures shall be delivered and spread on the roadway in ample time to secure thorough compaction during daylight hours.
 - c. Prior to installing the binder and surface courses of asphalt, a Bituminous Tack Coat shall be applied uniformly by means of a pressure distributor at a uniform rate. The tacked surface shall be allowed to dry until it is in a proper condition to receive the next course. Tack coat shall only be applied as far in advance of the paving operations as is necessary to obtain the proper condition of tackiness. The contractor shall protect the tack coat from damage until the next course is placed.

- d. The bituminous plant mix shall be placed upon the approved stone base or asphalt course, spread and struck off to established line, grade and elevation by means of an approved asphalt paving machine. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the mixture shall be taken from the hopper of the spreading machine and shall be distributed into place by means of shovels and spread with rakes and lutes in a uniformly loose layer of such depth as will result in a completed course having the required thickness.
 - e. Thickness shall be controlled during the spreading operation by frequent measurements of the freshly spread mixture, Thickness or spread rate shall be within reasonably close conformity with that specified in the plans or in the Standard Drawings.
 - f. After the bituminous mixture has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly compacted by means of rollers.
8. Bituminous Plant Mix Inspection (Base, Binder and Surface Courses) - A request to inspect and test each of the Bituminous Plant Mix courses shall be made to the City Engineer at least 48 hours in advance. After inspection, any deficiencies shall be noted in the field log and corrected by the Contractor.

3.12 TRENCH EXCAVATION IN EXISTING STREETS

- 1. Trenches cut within the limits of the subgrade shall be excavated to neat lines to minimize disturbance of the surrounding material. All excavation for pipes and utilities shall be performed in accordance with the Section 203 of the TDOT "Standard Specifications for Road and Bridge Construction".
- 2. Trench limits shall be saw-cut into the existing pavement. Excavation width shall be limited to the minimum width required to perform the work and accomplish backfilling.
- 3. Utility trenches excavated into existing streets shall be backfilled with flowable fill. Flowable fill shall meet the requirements of Subsection 204.06 of the TDOT "Standard Specifications for Road and Bridge Construction".
- 4. Concrete curbs, gutters, driveways, median pavement, and sidewalks shall be restored as required to match existing construction. Damaged sections shall be replaced with complete new sections or squares. Patching of damaged sections is not allowed.

5. Base stone and asphalt paving shall be placed over trench backfill with thicknesses and gradations equal to the existing street pavement section. Each course of base stone and asphalt shall be thoroughly compacted with mechanical tampers.
6. Where trenches have been opened in any roadway or street that is a part of the State highway system or Metro Nashville Davidson County surfaces shall be restored in accordance with the requirements of the Tennessee Department of Transportation or Metro.

3.13 PORTLAND CEMENT CONCRETE (RIGID) PAVEMENT

1. If Portland Cement Concrete (Rigid) Pavement is indicated on the plans or justified by special circumstances, the concrete pavement materials shall meet the requirements of Subsection 501.02 of the TDOT "Standard Specifications for Road and Bridge Construction".
2. The construction of the concrete pavement shall be in accordance with Subsections 501.05 to 501.24 of the standard specifications.
3. The pavement design shall be based on an analysis of the soil conditions and the projected traffic loadings. The use of Portland Cement Concrete (Rigid) Pavement and its design shall be approved by the City Engineer.

3.14 CONCRETE STRUCTURES

1. Concrete structures shall be constructed of Class "A" Concrete, unless otherwise specified. The concrete shall be composed of a mixture of Portland Cement, aggregates, air-entraining agents, water and chemical additives when approved, combined and proportioned as specified.
2. General Conditions:
 - a. The Contractor shall examine the drawings and specifications for this portion of the work, and for other work affecting this work, and shall report to the City Engineer any discrepancies found to exist. Before starting the work the Contractor shall check all lines, levels, and previous work. The Contractor shall check shop drawings to see that they conform to the work.
 - b. The Design Engineer's drawings and schedules shall show the typical dimensions and form of concrete work and sizes and typical arrangement

of reinforcing these drawings shown the general design and extent of the concrete work with the position of columns, slabs, etc., together with reinforcement, all of which shall be installed to meet conditions as intended. The drawings are not intended to serve as shop drawings, nor to show every item in detail. Before proceeding with the work the Contractor shall submit shop drawings, bar lists, placing plans, special or explanatory details for approval showing method of reinforcement and no fabrication of material shall be started until such shop drawings have been checked by the Contractor and approved by the City Engineer.

- c. The Contractor shall lay out all concrete work, set lines and establish correct levels therefore, and be responsible for the accuracy of same. The Contractor shall see to it that at no time is the concrete structure subject to loading, or overloading, with materials and equipment.
3. Materials for Portland Cement concrete and reinforcing shall meet the requirements of Subsection 604.02 of the TDOT "Standard Specifications for Road and Bridge Construction".
 4. Sampling and testing cement and aggregates shall be performed by a recognized commercial testing laboratory approved by the City Engineer. Certified test reports and certificates shall be submitted to the City Engineer and to such other agencies or persons as required. Reports or certificates indicating compliance of any shipment of cement, aggregate or admixtures shall be placed in the hands of the City Engineer prior to use of such materials. Where reputable cement and aggregate suppliers maintain regular recognized testing services, certified copies of such tests will be accepted by the City Engineer. However, in any case of doubt as to the accuracy and/or adequacy of such tests, the City Engineer may require that cement and aggregates be tested by a recognized commercial testing laboratory which has been selected by the Contractor and approved by the City Engineer. The testing laboratory shall then test the cement and aggregates and prepare written reports showing the results of such tests on each shipment. The laboratory shall also certify that the materials covered by the report comply in all respects with these Specifications. In general, cement and aggregates shall be tested at the mill but if untested shipments require sampling and testing after arrival at the site of the work, the Contractor shall be fully responsible for delays in the progress of the work due to delays in testing and reporting.
 5. The construction of structures shall be in accordance with Section 604 of the standard specifications.

3.15 CONCRETE SIDEWALKS AND DRIVEWAYS

1. Materials for sidewalks and driveways shall meet the requirements of Subsection 701.02 of the TDOT standard specifications.
2. Concrete Strength - Concrete for sidewalks and driveways shall have minimum 28-day strength of 4,000 psi. Minimum slump shall be one (1) inch and maximum slump shall be three (3) inches, unless otherwise approved.
3. General Requirements:
 - a. Sidewalks shall be formed to “turn down” their own thickness at terminal points or ending points. The turn down or extra thickness shall extend for the width of the sidewalk.
 - b. At the request of the City Engineer, slight adjustments shall be made by the Contractor in the grades and cross-slopes of walks to connect with existing sidewalks or other work, and/or to improve drainage. Grade stakes not more than 25 feet apart shall be provided for all walk construction. Short vertical curves shall be introduced at all summits and valleys where the Algebraic difference in grade equals or exceeds two percent (2%).
 - c. Sidewalk Thickness - Sidewalks shall have a thickness of four (4) inches. The surface of concrete walks shall be cut into flags by marking with an edging tool having a radius of 1/4 inch. Flags shall be no longer than the width of the sidewalk.
4. Construction - Sidewalks shall be of the width and depth as shown on the plans and be constructed in accordance with Section 701 of the TDOT “Standard Specifications for Road and Bridge Construction”.
 - a. Preparation of Subgrade - All boulders, organic materials, soft clay, spongy material, and any other objectionable material shall be removed and replaced with approved material. The subgrade shall be properly shaped, rolled and uniformly compacted to conform with the accepted cross-sections and grades.
 - b. Expansion Joints – Expansion joints shall be installed in accordance with Subsection 701.06 of the TDOT “Standard Specifications for Road and Bridge Construction”. Maximum spacing shall not exceed twenty-five (25) feet.
 - c. Finish - Concrete sidewalks and driveways shall be finished in accordance with Subsection 701.09 of the TDOT “Standard Specifications for Road and Bridge Construction”.

- d. Where “washed” or exposed aggregate sidewalk or slab is called for on the plans, the washing of the concrete surface shall be accomplished by removing the surface paste with brushes and water from a hose at normal tap pressure. After the depth of aggregate exposure has been approved by the City Engineer the same pattern or texture shall be carried out throughout the entire slab areas and every effort shall be made to have the same finish in adjoining slabs in order to assure uniformity. If a chemical retardant is planned for use in or near the slab surface the product must be approved by the City Engineer prior to application, and must be applied strictly in accordance with the manufacturer’s directions.
- e. Curing and Protection - Concrete sidewalks and driveways shall be cured and protected in accordance with Subsection 701.10 of the TDOT “Standard Specifications for Road and Bridge Construction”.
- f. Backfilling - Backfill shall be of suitable selected material and shall be placed and tamped until firm and solid. Backfilling shall follow immediately after the concrete forms have been removed.
- g. Seasonal Limits - No concrete shall be poured on a frozen or thawing subgrade or during unfavorable weather conditions, or when the temperature is 38 degrees F. and falling.

3.16 HANDICAP RAMPS

- 1. Concrete for ramps to be Class A meeting the requirements of Sidewalks in this specification and shall be finished by light broom finish texturing. It shall meet the requirements of Subsection 701.02 of the TDOT “Standard Specifications for Road and Bridge Construction”.
- 2. Truncated dome surface shall be concrete pavers meeting the requirements of ASTM C-936. Concrete paver units shall have a truncated dome top surface for detectable warning to pedestrians.

3.17 CONCRETE CURB AND GUTTER

- 1. All concrete materials for concrete curbs and gutters shall be proportioned, mixed, and placed in accordance with section 702 of the TDOT “Standard Specifications for Road and Bridge Construction”.

2. Concrete Strength - Concrete for Curb and Gutter shall have minimum 28-day strength of 4,000 psi. Minimum slump shall be one (1) inch and maximum slump shall be three (3) inches, unless otherwise approved.
3. Construction Requirements – Construction shall be performed in accordance with Subsection 702-04 through 702.11 of the TDOT “Standard Specifications for Road and Bridge Construction”

3.18 PIPE CULVERTS AND STORM SEWERS

1. All materials shall be in accordance with Subsection 607.02 of the TDOT “Standard Specifications for Road and Bridge Construction”.
2. Excavation - Excavation for trenches, manholes and structures shall be performed in accordance with Subsection 607.05 and 611.05 of the TDOT “Standard Specifications for Road and Bridge Construction”.
3. Backfilling - Backfilling shall begin after line construction is completed, inspected and approved by the City Engineer. Backfilling shall be performed in accordance with Subsection 607.09 and 611.05 of the TDOT “Standard Specifications for Road and Bridge Construction”.
4. At locations beneath or closely adjacent to pavements, road shoulders, or other improvements subject to damage by displacement, backfill shall be tamped and thoroughly compacted in six (6) inch layers (before compaction). In other areas, backfill for the upper portion of the trenches may be placed without tamping but the backfill shall be compacted to a density equivalent to that which will result from spreading by a dozer thereon. The Contractor shall exercise precaution to prevent damage to pipes from the operation of backfilling equipment.
5. Where trenches have been cut across or along existing pavement, the backfill of such trenches shall be temporarily paved by the Contractor with the placing of crushed stone for the top six (6) inches of backfill. Such temporary pavement shall, be maintained by the Contractor until restoration of permanent pavement or until acceptance of the project.
6. Pipe Laying – Laying Pipe Culverts and Storm Sewers shall be performed in accordance with Subsection 607.07 of the TDOT “Standard Specifications for Road and Bridge Construction”
7. Pipe Joints – Joining pipes shall be performed in accordance with Subsection 607.07 of the TDOT “Standard Specifications for Road and Bridge Construction”

8. Field Strutting – When strutting or vertical elongation is required, it shall be performed in accordance with the details shown on the plans and in accordance with Subsection 607.08 of the TDOT “Standard Specifications for Road and Bridge Construction”
9. Concrete and Brick Construction – Concrete construction shall be performed in accordance with Subsection 611.06 of the TDOT “Standard Specifications for Road and Bridge Construction”. Brick construction shall be performed in accordance with Subsection 611.08 of the TDOT “Standard Specifications for Road and Bridge Construction”.
10. Special Protection:
 - a. Sheathing and bracing generally should be removed only when the trench below it has become substantially filled, and every precaution shall be taken to prevent any slides of material from the sides of the trench onto or against the top of the sewer.
 - b. The Contractor shall pump, bail or otherwise remove any water which may be found or accumulate in the trenches or other excavations, and shall provide all dams, flumes and well points or other works necessary to keep them entirely free from water until the pipe has been laid and the mortar joints and masonry has hardened sufficiently, in the opinion of the City Engineer, to withstand any damaging effect that might be caused by the presence of water.
 - c. Should underground conditions be encountered that, in the opinion of the City Engineer, might require special protection, the Contractor shall provide such protection either in the form of sheeting lumber left in place, timber foundations, gravel stabilization of subgrade or rigid concrete foundation as directed by the City Engineer.
11. Structures:
 - a. Manholes, catchbasins, inlets and pipe end walls shall be constructed in accordance with Subsection 611.02 of the TDOT “Standard Specifications for Road and Bridge Construction”. Tops of manhole castings shall be at exact finished grades unless otherwise specified. Top of yard drainage openings shall be depressed two (2) inches below finished grades. In circular structures, all brick shall be laid as headers. All joints shall be completely filled with mortar.
 - b. Manholes shall be neatly and accurately built of brick and concrete, according to City of Forest Hills Standards. Precast concrete manholes shall conform to the latest revision of the appropriate specifications set

forth in Subsection 611.02 of the TDOT “Standard Specifications for Road and Bridge Construction”.

- c. Brick shall be new, Grade Mk Sewer Brick or Grade A Concrete Building Brick. All brick shall be wetted and carefully laid and bedded full in mortar. All brick in each course of circular brick masonry shall be headers, breaking joints for those in adjoining portions with all joints entirely filled with mortar.
- d. Mortar for manholes shall be Portland Cement mortar composed of one part Portland Cement and two parts clean, sharp sand with admixture of hydrated lime in the amount of ten percent (10%) of the Portland Cement. All measurements shall be by volume.
- e. Brick manholes shall be plastered on the outside with a coating of mortar of not less than one half (1/2) inch in thickness of the same composition used in laying brick to prevent excessive infiltration of water, and on the inside of the manholes the vertical portion of the walls shall be plastered and the sloping section neatly pointed with trowel. The cover shall be sealed water tight to exclude all surface water.
- f. Steps in manholes shall be staggered and spaced not more than eighteen (18) inches vertically, and shall be so arranged that the lowest step shall be no more than two (2) feet above the bench. The top shall be no more than eighteen (18) inches below the manhole cover.
- g. Inverts shall be constructed in accordance with Subsection 611.07 of the TDOT “Standard Specifications for Road and Bridge Construction”.
- h. Cast Iron Rim and Covers matching the standard City of Forest Hills Cast Iron Rim and Covers are to be used on all inlets. Casting shall be constructed in accordance with Subsection 611.10 of the TDOT “Standard Specifications for Road and Bridge Construction”.
- i. Concrete and reinforcing steel for manholes, catch basins, culverts, etc., shall be proportioned, mixed and placed in accordance with Subsection 611.06 of the TDOT “Standard Specifications for Road and Bridge Construction”.
- j. Inlets and outlet pipes shall be constructed in accordance with Subsection 611.09 of the TDOT “Standard Specifications for Road and Bridge Construction”.

APPENDIX F - STANDARD DRAINAGE SPECIFICATIONS

Streets shall be designed so that storm water is directed to inlets. Streets shall not be used to collect and convey storm water runoff other than that which falls on the street or on a lot near/along the street or along the side/rear lot lines.

Subdivision Drainage Requirements – Each lot shall have access to a drainage system. Lots shall be laid out so as to provide positive drainage away from all buildings, and individual lot drainage shall be coordinated with the general topographic drainage pattern. Storm water runoff shall be designed so as to avoid concentrated runoff from any lot onto adjacent lots, unless the runoff is in a designed conveyance system. Lots shall be graded to allow the overall drainage system to perform as designed and avoid damage to critical structures. Critical structures shall be defined as crawl space openings, garage, finished floor and HVAC units.

Subdivision/Site Detention Requirements – Detention pond design requirements for the City of Forest Hills mirror the requirements shown in the Metro Nashville Stormwater Management Manual, Volume 2, Section 8.1 and its references. Detention ponds may be designed as dual-purpose facilities to meet both water quality/infiltration requirements and water quantity/volume control requirements.

Major and Minor Drainage Systems - The major drainage system is the storm drainage system that conveys storm water runoff from a 100-year frequency storm event. The major drainage system usually includes features such as swales, ditches, and major drainage channels, creeks, or streams. Swales along property lines that convey storm water runoff in excess of the design event for culverts that convey roadway and cross drainage along property lines are also considered a component of the major drainage system. The major drainage system shall be designed so that water from a 100-year storm event is not allowed to encroach onto critical structures as defined above.

The minor drainage system is the storm drainage system that is typically used for collecting, transporting, and disposing of storm water runoff up to the design capacity of the system. The minor drainage system usually includes features such as curb and gutter, culverts, open drainage ways, or detention ponds.

Analysis Methods - The design engineer shall determine the appropriate analysis method for determining flow volumes and design of the drainage system. The rationale method shall be an acceptable method for peak flow estimating for watersheds less than one hundred (100) acres. The design engineer should be familiar with the limitations of each of the methods so that appropriate methods are applied. The City Engineer may require a particular method on critical portions of the drainage system.

Drainage and Hydrology Calculations - Drainage and hydrology calculations shall be submitted with the construction plans. The calculations and provided documentation

shall follow requirements in the City of Forest Hills Storm Water Ordinance Section 14505. The City Engineer may require additional calculations for certain design situations.

Curb and Grate Inlets - Curb and Grate inlets shall be designed to quickly drain the storm water from the roadway. The design storm frequency and allowable spread widths are shown in the table below. Spread shall not be allowed to overtop the curb. The maximum inlet spacing is generally 400 feet unless proven otherwise by computations. Inlets should be located at uphill corners of each street intersection to prevent sheet flow of storm water across intersections.

Storm Sewer Drainage System - The design storm frequency for storm sewers shall be in accordance with the table below. All storm sewer drainage pipes located within the roadway right-of-way shall be reinforced concrete pipe (RCP). The minimum size diameter for storm sewers is 18-inches. The minimum slope shall be one-half percent (0.5%).

Drainage Design Criteria

Street Classification	Inlet Design Frequency	Storm Sewer Design Frequency	Culvert (Cross Drain) Design Frequency	Roadway Freeboard 2	Spread Width 3
Arterial	10-yr ¹	10-yr ¹	50-yr Check for 100-	50-yr	1/2 travel lane plus gutter width
Collector	10-yr ¹	10-yr ¹	50-yr Check for 100-	50-yr	1/2 travel lane plus gutter width
Local	10-yr	10-yr	10-yr Check for 25-yr	25-yr	Travel lane plus gutter width

1 50-yr for Roadway Sag Sections

2 The design high water elevation should be at or below the bottom of the roadway subgrade.

3 Bike lanes and shoulders may be used full width for spread

Culverts (Cross Drains) - Allowable flow within culverts is subject to inlet control, outlet control, or some combination of the two controls. The storm frequency for culverts shall be in accordance with the table above. The minimum size diameter for cross drains is 18-inches. The minimum slope shall be one-half percent (0.5%).

Culvert data must be shown on the plans for all culverts or cross drains. Culvert data shall include Station, Structure Type/Size, Length, Skew, Drainage Area, Design Discharge (cfs), Minimum Roadway Overtopping Elevation, Allowable Headwater Elevation, Computed Headwater Elevation, Outlet Velocity (ft/s), Inlet Invert Elevation, and Outlet Invert Elevation.

All culverts that convey storm water runoff from the road surface or that serve as cross drains shall extend to the rear setback of the lots. All culverts must have concrete or stone veneer endwalls. Outlet velocities shall be checked and appropriate outlet protection shall be provided. Rip-rap is not allowed at the inlet or outlet ends of culverts for velocity control. If necessary, concrete energy dissipator endwalls may be used.

Pipe Materials - All storm sewer drainage culverts and cross-drains located within the roadway right-of-way shall be reinforced concrete pipe (RCP). Sections of culvert located outside of the roadway right-of-way may be of a different material (i.e. HDPE).

Open Channels - Open Channels shall be designed to the same storm frequency as storm sewers, except where these channels are considered part of the major drainage system, in which case they shall be designed for the 100-year storm event. A minimum 12-inch freeboard for the design storm is required for ditches and open channels that are adjacent to streets and roads. Channels shall be designed with stable side slopes and lining to withstand velocities and shear stress for the design storm event. Vegetative channels shall have a maximum side slope of 3H:1V. Channels with bottom widths greater than 10 feet shall have a minimum bottom cross slope of 12 to 1. Parabolic or trapezoidal channels are preferred while triangular shapes should be avoided. When the depth for the design storm event exceeds three (3) feet in depth, the design engineer shall use an alternate drainage system design.

Channel lining shall be checked for both velocity and shear stress. Channel lining may be vegetative, flexible or rigid. Rip-rap shall not be allowed as a channel lining. The design engineer shall refer to Chapter 5 of the TDOT Design Division Drainage Manual for maximum velocities and permissible shear stresses of various channel linings.

APPENDIX G - OUTLINE FOR CONSTRUCTION PROCESS

Construction will follow the general outline below.

- a. Installation of erosion control measures as required by the grading permit.
- b. Clearing, grubbing, and rough grading of the tract.
- c. Installation of water and sewer.
- d. Installation of drainage, underground electrical, telephone, gas, cable TV, and other utilities.
- e. Grading and compaction of the subgrade to the required 95 percent of standard proctor. Proof rolling of the subgrade will be done in the presence of a city inspector and approved prior to installation of any stone base. The design engineer will certify that the subgrade is at the elevations described in the approved construction plans.
- f. Installation of the first lift of stone base. The stone base gradation and compaction density will be certified by a professional engineer on each lift of stone base material.
- g. Installation of the curb and gutter.
- h. Installation of the second lift of stone base.
- i. Installation of prime coat.
- j. Installation of the asphalt binder.
- k. Installation of all required traffic control devices.
- l. Construction of sidewalk, if applicable.
- m. Installation of tack coat.
- n. Installation of final asphalt wearing surface