

Article 4:
SUBDIVISION DESIGN STANDARDS

Article 4:**SUBDIVISION DESIGN STANDARDS****A. General Design Objectives**

The quality of Smithfield's neighborhoods and communities are mutually interdependent on the physical characteristics of the Town's individual subdivisions. Appropriate neighborhood design requires the coordination of the efforts of each subdivider or developer of land within the Town. Therefore, the design of each subdivision shall be prepared so as to be consistent with the principles and recommendations established by the Smithfield Comprehensive Plan for land use circulation, community facilities and public services, and in accordance with the following general principles:

1. The size of lots and blocks and other areas for residential, commercial, industrial, and public uses shall be designed to provide adequate light, air, open space, landscaping, and off-street parking and loading facilities.
2. The arrangements of lots and blocks and the street system shall be designed to protect and to make the most advantageous use of topography and natural physical features. Tree masses and large individual trees shall, wherever possible and consistent with the provisions of this ordinance, be preserved.

B. Minimum Design Standards

In furtherance of the purposes of this ordinance, the following minimum subdivision design standards, as applicable, shall be required and provided for with the Final Subdivision Plats and public improvements plans for any subdivision.

1. Streets**a. Street Location and Alignment**

- i) All subdivision street and related highway construction standards right-of-way and pavement widths, and geometric design standards shall be in accord with those specified by the Smithfield Comprehensive Plan, the Town's Design and Construction Standards Manual, the Virginia Department of Transportation Subdivision Design Guidelines and other applicable standards.

- ii) All subdivisions must have direct access to public dedicated and State maintained roads. Private roads which access public streets may be permitted under special considerations in accordance with the provisions of this ordinance. All subdivisions shall be designed so that no individual subdivision lots will have direct access to any road designated as controlled access unless, or where, the physiography, shape or size of the tract would preclude other methods of providing appropriate public street access.
- iii) Where traffic generated from a commercial or industrial subdivision exceeds 500 vehicles per day, or where a residential subdivision contains 50 or more dwelling units, such subdivision shall provide connectors to existing public roads at two (2) locations. Where only one connection is physically achievable, the Designated Agent, at its discretion, may require that the connecting portion of the entrance roadway shall be developed as a four-lane divided standard existing into the development for a length of not less than 250 feet. In such case, no internal public or private street connection shall be permitted to this four-lane divided entrance section into the development. If the storm elevation of a 100-year flood could be anticipated to inundate, block or obstruct a principal means of access to a residential subdivision, the principal means of access shall be designed and constructed so as to provide unobstructed access at the time of flooding.
- iv) The arrangement of streets in a subdivision shall be coordinated with and provide for the planned continuation of existing streets into adjoining properties. The design of such streets with respect to alignment, grading, drainage, cross sections, and street grades shall not be such as to cause unnecessary hardship to the owners of adjoining property to carry out the future extension of such streets.
- v) "Half street" sections (streets of less than the full street width or right-of-way required) or "partial street" sections along the property line of land proposed for subdivision shall not be permitted.
- vi) Streets in predominantly residential subdivisions shall be designed to discourage through traffic or bypass traffic which would encourage non-residential traffic patterns.

- vii) There shall be no buffer or reserve strips ("hate strips" or "spite strips") which deliberately limit access from existing or planned through streets so as to violate the intent of this ordinance and the Smithfield Comprehensive Plan.
- viii) No plat shall be approved or recorded which does not provide public street access to an otherwise landlocked property.
- ix) Cul de sacs and dead-end streets shall provide a terminal turnaround having a right of way radius as prescribed by VDOT Urban Highway Manual or the Town's Design and Construction Standards Manual. The length of the cul de sac shall not exceed the length determined by the Designated Agent, taking into consideration the existing terrain, density of development, construction difficulty, desired lot frontage characteristics, fire protection service, and other comprehensive planning matters.
- x) Temporary cul de sacs shall be constructed for those streets within a subdivision, or section thereof, which are planned for future extension, but which have been shown on a Final Subdivision Plat and have been approved by the Designated Agent to terminate temporarily in conjunction with the subdivision improvements subject to the plat approval.

b. Service Drives

Whenever a proposed subdivision contains or is adjacent to a controlled access roadway or major highway, sufficient land shall be reserved so as to provide for subsequent construction of service drives or service streets approximately parallel to such right-of-way; but the Planning Commission may, when consistent with the public convenience and necessity, waive the requirement of such provision.

Except where impractical by reason of topographic hardship, the area between the service drive and the major highway shall be sufficient to provide for landscape planting and screening. The dimension of the area between the service drive and a major highway and the points of access between the same shall be determined after due consideration of traffic safety requirements.

c. Street Extensions

Proposed streets which will extend an existing street shall be improved by the subdivider, with the type of improvement and construction materials of such improvements in accordance with the Town's Design and Construction Standards Manual, the VDOT Urban Highway Manual or other VDOT design criteria.

d. Street Signs and Names

At each street intersection, within or adjacent to the proposed subdivision, there shall be one street identification sign of a design as provided for in the Town's Design and Construction Standards Manual.

e. Alleys

Privately maintained and properly documented alley easements may be permitted at the discretion of the Town Council, provided there are agreements and documentation acceptable to the Town Council ensuring the intended access arrangements, drainage improvements, grading, construction materials, maintenance and upkeep of the alley easement. No alley easement shall be less than twenty (20) feet in width and no alley pavement shall be less than twelve (12) feet in width.

f. Street Width

The right-of-way width, pavement width and lane configuration for all public streets shall conform to the widths and configurations as designated on the transportation element of the Smithfield Comprehensive Plan, the Town's Design and Construction Standards Manual, the Major Street Plan, and as otherwise may be specified by the Town or the VDOT Urban Highway Manual.

g. Entrances

The entrance of a new street onto any public road for vehicular traffic to and from such subdivision shall be subject to the approval of the Designated Agent and shall be designed and constructed in accordance with the Town's Design and Construction Standards Manual and VDOT criteria. Horizontal separation between planned new and existing entrances shall be based on traffic impact evaluations. Minimum vertical and horizontal sight distances

between planned and existing entrances shall be a function of the appropriate design speed for the subject streets.

h. Curbs and Gutters

Curbs and gutters shall be installed by the subdivider on both sides of the street as herein provided and in accordance with the Town's Design and Construction Standards Manual, VDOT's Road and Bridge Specifications and Standards manuals and any other pertinent regulations. Curbs and gutters shall be installed on both sides of each street in all subdivisions within every zoning district in the Town of Smithfield, with the sole exception of the C-C, Community Conservation zoning district, where curbs and gutters may not be required. The decision to grant a waiver of the curb and gutter requirement in the C-C district shall be at the sole discretion of the Planning Commission.

Sidewalks and streetlights shall be installed by the subdivider on one or both sides of the street as herein provided in accordance with the Town's Design and Construction Standards Manual, VDOT's Road and Bridge Specifications and Standards manuals or as per direction of the Designated Agent. Sidewalks and streetlights may be required on one or both sides of the street depending upon the topography, intensity of the development, location with respect to schools and other public or semi-public facilities and such other factors as the Designated Agent may determine in a particular case. The decision to grant a waiver of the sidewalk and streetlights requirement shall be at the sole discretion of the Planning Commission.

i. Street Classifications

- i) The classification of proposed streets and the design sections and paving specifications related thereto shall be determined by an estimate of the anticipated vehicular traffic volume as determined by a Traffic Impact Assessment performed by the applicant in conjunction with the review of the preliminary plat. The Traffic Impact Assessment shall be prepared in accord with the Town's criteria for such studies.
- ii) Subdividers shall be required to reserve right-of-way for minor and major arterials and other transportation facilities as may be depicted on the Smithfield Comprehensive Plan, the Town Major Street Plan, and the official map.

- iii) Subdividers shall be required to construct service drives and access points as may be required to satisfy the transportation goals of the Town and as may be depicted on the Smithfield Comprehensive Plan, the Town Major Street Plan, VDOT plans, or the Official Map.
- iv) Subdividers shall be required to dedicate and construct all public streets directly serving the subject subdivision.

2. Blocks**a. Block Length**

The length of a block in a proposed subdivision shall be not less than four hundred (400) feet nor more than one thousand two hundred (1200) feet.

b. Block Width

The width of a proposed subdivision block shall be sufficient to allow two tiers of lots of minimum depth, except where fronting on controlled access streets; provided that the Designated Agent may approve a single tier of lots of minimum depth wherever physiography, access requirements, or the Smithfield Comprehensive Plan so prescribes.

c. Block Orientation

Where a proposed subdivision adjoins a controlled access street, major arterial highway, or collector street, the Designated Agent may require either (1) public service streets or private driveways parallel to such arterial or collector street, or (2) reverse frontage lots, to facilitate safe ingress or egress to the subdivision.

d. Nonconforming Blocks

The decision to grant a waiver for any proposed blocks of irregular shape or otherwise not conforming to the dimensions required in this section shall be at the sole discretion of the Planning Commission.

3. Lots**a. Relationship to Street**

Each lot shall front on a public street dedicated by the subdivision plat or deed of dedication, or on an existing approved public street.

b. Corner Lots

Corner lots shall be designed to meet front setback line requirements on both streets on which the corner lot abuts, unless otherwise specifically prescribed by the individual zoning district in which the lot is located.

c. Right-of-Way Lines

Property lines at street intersections shall be rounded with a radius of not less than fifteen (15) feet: except at an intersection of any street with a major or minor arterial street, or at other locations where traffic hazards and congestion may be anticipated, property lines shall be rounded with a radius of not less than twenty-five (25) feet, or greater if deemed necessary by the Designated Agent or the Virginia Department of Transportation.

d. Lot Size and Area

Each lot shall have at least one building site, the minimum size and area of which shall be as set forth in the Zoning Ordinance for the individual zoning district in which the lot is located.

e. Double Frontage and Reverse Frontage Lots

Double frontage or reverse frontage lots shall be permitted where essential to provide separation of residential development from streets, to overcome disadvantage of topography, or where exceptional site design permits.

f. Lot Shape

Each lot shall be of a shape which provides a satisfactory and desirable building site. No lot shall contain peculiarly shaped elongations which are designed solely to provide the necessary square footage of area or frontage on a public street. No "flag lots" or "pipe stem lots" shall be permitted.

g. Remnants

Remnants shall not be created by the subdivision of land. All remnants shall be added to abutting lots rather than remain as unbuildable lots.

h. Side Lot Lines

Side lot lines should be approximately perpendicular to the centerline bearing of the street on which the lot has frontage. Side lot lines on cul de sacs should be approximately radial to the circular curvature of the cul de sac unless otherwise constricted by special terrain conditions, landscape design considerations, or unique lot access requirements.

i. Lot Grading and Drainage

Subdivisions and subdivided lots contained therein shall be designed and improved so as to provide positive drainage in accord with a master grading and drainage plan for the subdivision. Streets, public infrastructure, mass grading, individual lot grading, dwelling placement and other improvements shall be engineered and coordinated to ensure that the storm runoff from all improved properties within the subdivision can be adequately collected, conveyed, and treated without adversely impacting adjoining lots and properties.

j. Residential Lot Development Plans

Individual residential development on subdivision lots shall respect drainage patterns and other subdivision improvements established by the subdivision plat and public improvements plans. Zoning permits for individual lots shall not be issued unless and until a Lot Development Plan, prepared in accord with the requirements of the zoning ordinance, shall be submitted and approved by the Zoning Administrator.

k. Lot sewerability

All lots shall be provided sewer laterals with adequate and necessary access to public sewer to be constructed with the subdivision improvements. A lateral schedule shall be provided with all subdivision plats and public improvements plans. It shall be the responsibility of the lot owner to maintain sewer laterals on private property.

I. Lot water service

All lots shall be provided public water service, with laterals installed at the time of subdivision development. Public water improvements shall be designed to ensure adequate pressure and flow to the elevation of the highest story of a structure on the property which would be permitted by the underlying zoning district. It shall be the responsibility of the lot owner to maintain water laterals on private property.

4. **Monuments and Corners**

a. Monument Location and Type

Permanent reference monuments shall be placed as required by the Town's Design and Construction Standards Manual.

b. Lot Corner Location and Type

All other lot corners shall be marked with permanent reference markers.

c. Visibility

Upon completion of all streets and other improvements in the subdivision, all monuments and pins required shall be clearly visible or marked with a guard stake or flag for inspection and use prior to the release of subdivision bond.

5. **Easements**

a. Minimum easement widths for public improvements, utilities, and related subdivision infrastructure shall be delineated on the Final Subdivision Plat in accord with provisions and criteria of the Town's Design and Construction Standards Manual.

b. The easement agreement and dedication documentation shall be provided in accord with the typical form provided by the Zoning Administrator.

c. No building or structure shall be constructed on any Town easement without the approval of a special waiver by the Town Council.

- d. Easements on individual subdivision lots shall be maintained by the lot owner or the applicable homeowners' association unless otherwise provided for by separate agreement.

6. Storm Drainage Systems and Stormwater Management Improvements

a. Storm Drainage Improvements

Storm drainage systems shall be provided in accord with the Town's Design and Construction Standards Manual.

b. Stormwater Management Improvements

Stormwater management systems and Best Management Practices shall be provided for storm runoff quantity and quality control in accord with the Town's Design and Construction Standards Manual, the Chesapeake Bay Ordinance, and the State's Stormwater Management Regulations.

c. Easements

Dedicated private and/or public easements shall be provided for storm drainage and stormwater management facilities in accord with the Town's Design and Construction Standards Manual. In lieu of dedication, the Planning Commission, will require that stormwater management facilities be maintained privately.

d. Floodplain Studies

Floodplain studies shall be required in accord with the provisions of the flood plain zoning classification and other land and subdivision improvements which may be impacted by the 100-year flood.

7. Water Supply and Sanitary Sewer Collection Systems

a. Authority

The Town Council shall have authority over sewer and water connections in Smithfield. No individual private well and septic service is permitted to provide domestic service for any dwelling or structure within the Town.

b. General Design and Construction Requirements

Refer to the Town's Design and Construction Standards Manual.

c. Contributing Population

Refer to water and sewerage recommendations outlined in the Smithfield Comprehensive Plan, the Town's Water and Sewer Master Plan, and the Town's Design and Construction Standards Manual.

d. Design Quantities

Refer to water and sewerage recommendations outlined in the Town's Design and Construction Standards Manual, the Smithfield Comprehensive Plan, and to data which may be otherwise provided by the Planning and Zoning Administrator.

e. Hydraulic Design Criteria

Refer to the Town's Design and Construction Standards Manual, the Smithfield Comprehensive Plan, the Virginia Department of Health's regulations and design standards, the Chesapeake Bay Ordinance, the Virginia Stormwater Management Regulations, and other adopted water and sewer facilities plans.

f. Location of Water Mains, Sewers and Appurtenances

Refer to water and sewerage standards and criteria as outlined in the Smithfield Comprehensive Plan, Virginia Drinking Waterworks Regulations, the Town's Water and Sewer Master Plan, the Town's Design and Construction Standards Manual, other applicable HRPDC manuals, guidelines and regulations, and the State Department of Health.

g. Acceptance Tests

Criteria for acceptance testing of sanitary sewer and water mains shall be as specified in the Town's Design and Construction Standards Manual.

8. Flood Plains

The Designated Agent, in the interest of the health, safety, and general welfare of the present and future inhabitants of the Town of Smithfield shall control the subdivision for development of any property which lies within a 100-year floodplain, in accordance with the following provisions:

- a. In a proposed subdivision which includes property within a floodplain along a stream, wetlands, marsh, river or other watercourse, the 100-year floodplain shall be shown on the preliminary and final subdivision plat.
- b. If an area in a proposed subdivision along a river, stream, wetlands, marsh, or other watercourse which is subject to periodic flooding has not had a 100-year flood plain specifically delineated by FEMA, the subdivider shall be required to prepare an engineering floodplain study which establishes the flood elevations and contours for both the pre-development and post-development property conditions.
- c. The 100-year floodplain elevation shall be shown on the preliminary and final subdivision plat of the property to be subdivided. The developer(s) are required to establish base flood elevation (BFE) for new development greater than 50 lots or 5 acres. For approximated area, the developer(s) shall use the BFE and floodway data from other sources.
- d. If required, the floodplain study shall be based on contour mapping prepared at a minimum scale of 1" = 100' with 2' contour intervals. The hydraulic analysis of the floodplain shall be based on standard HEC modeling (or equivalent engineering analysis technique) with minimum sections of 100' (preferably 50').
- e. Floodplain studies shall be prepared by a registered professional engineer qualified to perform such work.
- f. Certification by registered professional engineer or architect that floodproofing and anchoring methods meet watertight and structural load criteria in accordance with NFIP §60.3(c)(3).
- g. Certification by registered professional engineer or architect that any fully enclosed area below lowest floor meet design criteria in accordance with NFIP §60.3(c)(5).
- h. Certification by registered professional engineer or architect that piles, columns and structure can withstand simultaneous 100-yr wind and water loads.
- i. Certification by registered professional engineer or architect that breakaway walls meet design criteria in accordance to NFIP §60.3(a)(5).

9. Fire Protection

- a. Adequate fire hydrants shall be installed by the developer in a subdivision at locations as required by the Town's Design and Construction Standards Manual, Virginia Drinking Waterworks Regulations, and HRPDC manuals, guidelines and regulations, as necessary to provide adequate fire protection.
- b. Fire hydrants shall be installed within the public right-of-way or public access easement at the cost of the developer.
- c. All water mains shall be designed to provide hydrant flows and residual pressures to established standards set by the Town's Design and Construction Standards Manual, Virginia Drinking Waterworks Regulations, other applicable HRPDC manuals, guidelines and regulations, and the Virginia Department of Health's design standards.

10. Underground Electric, Telephone and Cable Service

- a. All electric, cable, and telephone service to subdivisions and individual lots located therein shall be placed underground. No overhead facilities shall be permitted.
- b. The subdivider shall coordinate with local power and telephone providers prior to submission of the Preliminary Site Plan to ensure adequate location, alignments, easements, maintenance access, and other design criteria can be provided.

11. Gas

- a. The subdivider shall coordinate plats and public improvements plans to ensure the properly engineering alignment and location of gas mains.
- b. Easements for gas service shall be depicted on Final Subdivision Plats.

12. Record (As-Built) Drawings

- a. Five (5) sets of record (as-built) drawings and one digital file, prepared by a certified land surveyor or registered professional engineer duly authorized by the State of Virginia to prepare the same, shall be submitted to the Town as a condition precedent to the acceptance of the facilities. A digital copy of the above information shall also be provided, along with CAD files.
- b. Final release of subdivision bonding shall not be given until all site improvements are complete and the record (as-built) drawings are submitted to and approved by the Town.