Village of Pleak Subdivision Design Standards Ordinance
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ARTICLE III. SUBDIVISION DESIGN REQUIREMENTS (STANDARDS)

DIVISION 1. GENERALLY.

Section 1. Village policy and general requirements.

a. The Village council shall require that all land subdividers and developers shall, on all subdivisions of land in the Village and within its extraterritorial jurisdiction, as that term is defined in the Texas Local Government Code, adhere to and be governed by the policies that have been established for the provision and construction of underground utilities, street improvements, alleys or easements.

b. Water lines, sewer lines and storm sewers.

1. The subdivider or developer shall be required to construct, at his own expense, all water lines, sewer lines, storm sewer lines, drainage ditches, detention facilities, water and sanitary sewer services, if required, and structures in accordance with the current design standards in effect at the time of construction. This shall include all engineering costs for design, layout and construction supervision. Preliminary plans and layouts for all such utility lines shall be submitted by the subdivider or developer to the commission for study along with the submission of the preliminary plat of the subdivision. Final construction plans will be submitted by the subdivider at the time of filing his final plat with the commission in the same number of copies as required of the subdivision plat.

2. There will be no participation by the Village in the cost of any of the underground utility lines or drainage facilities within the subdivision except in the event of the requirement for oversize lines to serve land areas and improvements beyond the subdivision in question, or to serve other subdivisions. Each installation of this character and the terms and extent of Village participation will be considered individually upon the merits of each facility and the conditions involved.

3. Trunk lines of such systems to serve the subdivision under consideration will be considered upon each facility's individual merits for each subdivision.

c. Street improvements, curb and gutter, pavement.

1. The subdivider shall be required to construct, at his own expense, streets in accordance with current design standards in effect at the time of construction. This shall include all engineering costs for design, layout and construction supervision. Preliminary plans for such improvements shall be submitted to the commission for study and for tentative approval before any work is started in the subdivision. Detailed construction plans, including plan and profile for each street, shall be filed with the submission of the final plat in the same number of copies as required of the final subdivision plat.

d. Water and sewer facilities; land subject to flooding and otherwise inhabitable.

1. The planning commission may refuse to approve a plat when it is evident that adequate water and sewer facilities cannot be supplied within a reasonable time.

2. Land subject to flooding and land deemed by the planning commission to be uninhabitable shall not be platted for residential occupancy nor shall it be platted for such other uses as may increase danger to health, safety, life or property or aggravate the flood hazard, but such land within the plat shall be set aside for such uses as shall not be endangered by periodic or occasional inundation and shall not produce unsatisfactory living conditions.

Section 2. Changes or amendments to the design standards.

The current design standards will, from time to time require revisions and updates to allow for changing construction technology. The design standards referenced herein shall mean the current standards as of the date of adoption of this ordinance, or as they may be revised from time to time.

DIVISION 2. SPECIFIC REQUIREMENTS.

Section 3. Streets.

a. **Generally.** The arrangement, character, extent, width, grade, and location of all streets shall conform to the Village thoroughfare plan and the current design standards manual and shall be considered in their relation to existing and

planned streets or driveways, to topographical conditions, to public safety and in their appropriate relation to the proposed uses of the land to be served by such streets. Unless required by the Village, strips of land controlling access to or egress from other property, or to or from any street or alley, or having the effect of restricting or damaging the adjoining property for subdivision purposes or which will not be taxable or accessible for special improvements shall not be permitted in any subdivision. All streets shall be paved in accordance with the current design standards. All lots, tracts and reserves shall have frontage on an approved public right-of-way or access easement(s).

b. **Private streets**. Private streets or any similar privately maintained access ways are prohibited in single-family residential developments.

c. **Access.** Primary access through a mutual access easement in a commercial, town home or condominium development shall conform to all design and construction standards stated herein and in current design standards. The easement shall meet all of the requirements set forth for a public street, including but not limited to construction standards, width, curves, building lines, sight distance visibility and landscape maintenance. A mutual access agreement between the property owners and/or lessors shall be submitted to the Village for approval filed of record with the County Clerk's Office, and so noted on the plat prior to recordation of the plat. A note shall be placed on the plat defining the accessibility to the access easement by police, fire and emergency vehicles, utility operations and maintenance personnel.

d. **Streets not on plan.** When a street is not on the thoroughfare plan, the arrangement of streets in a subdivision shall:

1. Provide for the continuation or appropriate protection of existing streets in surrounding areas; or conform to a plan for the neighborhood as adopted by the Village to meet a particular situation where topographical or other conditions make continuance or conformity to existing streets impracticable.

2. Provide for future access to adjacent vacant areas that will likely develop in the future.

3. Resolve alignment with existing right-of-way and driveway openings.

e. **Minor streets.** Minor residential streets shall be so designed that their use by through traffic will be discouraged.

f. **Geometric street designs.** Standards for curvature, intersecting streets, and offset intersections are detailed in the design standards.

g. **Street widths.** Street right-of-way widths shall be shown on the thoroughfare plan and shall be designed in accordance with the design standards. Lane widths and median widths shall also be in accordance with the design standards.

h. **Half streets.** Half streets shall be prohibited, except when essential to the reasonable development of the subdivision in conforming with the other requirements of these regulations and the thoroughfare plan, and where the Village council finds it will be practical to require the dedication of the other one-half when the adjoining property is subdivided. When a partial street has been platted previously along a common property line, the other portion of the street shall be dedicated. Construction of half streets and improvements made to all on-site facilities are defined in the design standards.

i. **Cul-de-sacs.** A cul-de-sac street may be provided where the shape of a portion of the proposed subdivision or where the terrain of the land would make it difficult, uneconomical or unreasonable to plat with connecting streets. These cul-de-sacs shall be so arranged as to provide access to all lots and shall conform with the most current design standards.

j. **Dead end streets.** Dead end streets are temporary in nature and are not allowed except to provide for access to adjacent land areas and in no case shall be more than two hundred fifty feet (250') in length or equal to one lot depth, whichever is greater. A temporary turnaround shall be provided and indicated on the plat and built in accordance with the design standards.

k. **Reserves.** A one-foot (1') reserve shall be established along the side or the end of a street that abuts acreage tracts. A note shall be on the plat to define the one-foot (1') reserve.

l. **New streets.** New streets that are an extension of existing streets shall bear the names of existing streets and shall be dedicated with appropriate transitions and widths.

m. **Street names.** No new street names shall be used which will duplicate or be confused with the names of existing streets. All street names shall demonstrate good judgment and character on behalf of the subdivider based upon commonly accepted use of names and places. Street names shall be subject to the approval of the Village council at the time of final plat approval.

n. **Construction.** All streets dedicated within a subdivision in the Village or its extraterritorial jurisdiction shall be constructed in accordance with paving widths and specifications as set forth in the current design standards of the Village at the time at which the final plat is recorded.

o. **Future streets.** When a tract of land is subdivided into parcels that are larger than normal building lots, such parcels shall be arranged to permit the opening of future streets and a logical ultimate resubdivision.

Section 4. Easements.

a. Easements across lots or centered on or adjacent to rear or side lot lines shall be provided for utilities where necessary and shall be of such widths as may be reasonably necessary for the utility or utilities using same. It shall be the subdivider's responsibility to determine appropriate easement widths as required by the current design standards.

b. Where a subdivision is traversed by a watercourse, ditch, drainage way or channel, there shall be provided a storm water easement or drainage right-of-way conforming substantially with such course and of such additional width as may be designated by the Village and/or the county drainage district, subject to determination using proper engineering considerations. Maintenance easements shall also be specified. Approved utilities are permitted within the drainage easement if specified and approved as a drainage and utility easement.

c. If all cases, easements shall connect with already established easements in adjoining property, and utilities shall be located within such easements and conform to the design standards.

Section 5. Blocks.

a. The length, width, and shape of blocks shall be determined with due regard to:

   1. Provision of adequate building sites suitable to the special needs of the type of use contemplated; and

   2. Needs for convenient access, circulation, control and safety of street traffic.

b. Lengths and widths shall be in conformance with the design standards. In general, intersecting streets determining the lengths and widths of the blocks shall be provided at such intervals as to serve cross-traffic adequately and to meet existing streets or customary subdivision practices.

   1. Minimum block length shall be five hundred feet (500); however, this standard may be varied in cases where physical barriers or property ownership creates conditions where it is appropriate that these standards be varied having due regard for connecting streets, circulation of traffic and public safety.

   2. Maximum block length shall be twelve hundred feet (1200), except where no existing subdivision controls, the block length may increase to fourteen hundred feet (1400).

   3. When possible, the block width or depth shall allow two tiers of lots, back-to-back, except when prevented by the size of the property or the need to back on an identified thoroughfare. When adjacent to a thoroughfare, the subdivider may not double front lots.

c. Blocks shall be numbered consecutively within the overall plat and shall be consistent with adjacent plats.

Section 6. Lots, tracts, reserves.

a. Lots, tracts and reserves within the Village, unless the Planning Commission, for cause, may otherwise recommend approval to the Village Council, shall conform to the following minimum requirements:

1. Each residential lot, tract or reserve shall front on and have access from a dedicated public street. Any residential lot, tract or reserve having access only from an alleyway, easement or any right-of-way other than a dedicated public street shall not be permitted. No residential lot shall have access to a major thoroughfare or collector street. A variance will be considered if no other access is available.

2. The width of the lot shall be measured between the property line/right-of-way along the front building line. The width of cul-de-sacs and radial lots shall be measured along the building line using the chord or straight line.

3. The depth of the lot shall be measured as an average between the side lot lines from the property-line/right-of-way.

4. A lot area size shall be computed inclusive of all easements. There shall be a minimum buildable area, exclusive of easements, for each lot to meet the requirements set forth herein.

5. Corner lots shall be increased in size whenever necessary so as to provide that any structure to be placed thereon shall conform to the building line requirements of each street.

6. No lots may be split by any jurisdictional boundary lines.

7. Residential lots, tracts or reserves shall conform to the following requirements:

a. Lot widths - minimum standards:

1. Single family:

a. Open ditch streets- Seventy (70) feet

b. Curb and gutter streets- A minimum of 80% of lots of a subdivision or development, in its entirety and not by sections or phases, shall have a minimum lot width of 60 feet or wider. The remaining 20% of lots may have a minimum lot width of 55 feet or wider.

c. Cul-de-sac/radial – 50 feet minimum width at the front building line.

2. Two-family dwelling (Duplex) – 88 feet

3. Patio home/zero lot line – 55 feet (concrete and gutter)

4. Townhouse – 50 feet (concrete and gutter)

b. Lot size - minimum

1. Single family:

Average area of all lots within each section shall be:

a. Open ditch streets- Seventy- five hundred square feet (7500 sq. ft).

b. Curb and gutter streets- A minimum of 80% of lots of a subdivision or development, in its entirety and not by sections or phases, shall have a minimum lot size of sixty five hundred square feet (6500 sq. ft.) or larger. The remaining 20% of lots may have a minimum lot size of six thousand square feet (6000 sq.ft.) or larger.

c. Cul-de-sac/radial- Sixty-five hundred square feet (6500 sq.ft.).

2. Two-family dwelling (Duplex) – Ten thousand, five hundred square feet (10,500 sq. ft.)

3. Patio home/zero lot line - Six thousand square feet (6000 sq. ft.)

4. Townhouse – Four thousand square feet (4000 sq. ft.)

8. Side lot lines should be generally at right angles or radial to the street right-of-way lines.

9. Double frontage and reverse frontage lots shall be avoided except where essential to provide separation of residential development from traffic arteries according to the thoroughfare plan or to overcome specific disadvantages to topography and orientation. Where lots have double frontage, a front building line shall be established for each street and access shall be denied to the thoroughfare.

10. All reserves shall be labeled with their appropriate use. Landscape and detention reserves may also be designated as utility easements. When in the determination of the Village council the proposed land use is essential to the signage of public facilities, the Village council may require the intended use of the reserve to be specified.

11. All nonresidential and multifamily tracts or reserves shall front on a dedicated public street or dedicated access/fire lane easement. The design of driveways, access easements and fire lanes shall be in conformance with the current design standards.

12. In no case shall a rectangular or irregularly shaped lot contain less than the minimum square footage as designated.

Section 7. Building lines - single family, multi-family lots.

a. Building lines or setbacks shall include eaves and appurtenances when calculating the building lines or setbacks. Building lines or setback lines shall be established for all single-family and multi-family residential lots and so indicated on all subdivision plats as stipulated below:

1. Corner lots. The setback lines for corner lots shall be as follows:

a. A minimum building setback of twenty-five feet (25') shall be

provided on the front and fifteen feet (15') on the side of all corner lots where such lots side upon minor streets.

b. A minimum building setback of twenty-five feet (25') shall be provided on the front and twenty feet (20') on the side of all corner lots where such lots side upon collector streets.

c. A minimum building setback of twenty-five feet (25') shall be provided on the front of major thoroughfares and twenty-five feet (25') on the side of all corner lots where such lots side upon majors thoroughfares.

d. A minimum building setback of twenty feet (20') for a cul-de-sac.

e. Interior lots. A minimum building setback of twenty-five feet (25') shall be provided on the front of all interior lots. A minimum building setback requirements for interior lot lines shall be not less than five (5) feet from the side property line.

Section 8. Parking. Single family lots.

Each lot used for single family detached dwelling purposes shall have constructed and maintained thereon two (2) off street parking spaces. For the purpose of this subsection, the first two (2) parking spaces contained in covered garages and/or covered carports shall not be considered as off street parking spaces. For example, if a dwelling has a three (3) car garage, one additional off street parking space would be required in addition to that included within the garage. For the purpose of this section, the minimum dimensions of each parking space shall be 9 feet by 20 feet; provided, however two spaces adjacent to the other shall not be less than 18 feet by 20 feet if side by side, and not less than 12 feet by 40 feet if aligned linearly.

Section 9. Building lines - commercial, industrial lots.

a. Building lines or setback lines shall be established for all commercial and industrial lots and indicated on all subdivision plats as stipulated below:

1. Corner lots. The setback lines for corner lots shall be as follows:

a. A minimum building setback of twenty-five feet (25') shall be provided on the front and fifteen feet (15') on the side of all corner

lots that side upon minor streets.

b. A minimum building setback of twenty-five feet (25') shall be provided on the front and twenty feet (20') on the side of all corner lots that side upon secondary streets.

c. A minimum building setback of thirty-five feet (35') shall be provided on the front and twenty-five feet (25') on the side of all corner lots that side upon major streets.

2. Interior lots. A minimum building setback of twenty-five feet (25') shall be provided on the front of all interior lots that front upon minor, and secondary streets. In addition, setback requirements for interior lot lines shall be established in accordance with the most recently adopted version of the standard building codes. However, interior lots shall not be less than ten feet (10').

DIVISION 3. TOWNHOUSE AND CONDOMINIUM SUBDIVISIONS.

Section 10. Definitions.

The following words, terms, and phrases, when used in this division, shall have the meanings ascribed to them herein, except where the context clearly indicates a different meaning.

Access streets shall mean those public streets within or bounding a townhouse subdivision which serve a townhouse subdivision and other adjacent property.

Interior streets shall mean public streets not more than six hundred feet (600') long within a townhouse subdivision which are located and designed to serve a limited area within such subdivision and shall not serve other properties outside the subdivision.

Open space shall mean private property under common ownership designated for recreation area, private park, play lot area, plaza area, or ornamental area open to general view and within the subdivision. Open space does not include streets, alleys, utility easements, and required building setbacks.

Townhouse, row house or condominium shall mean a structure which is one (1) of a series of dwelling units designed for single-family occupancy, which are connected or

immediately adjacent to each other. However, a townhouse or row house shall not include a mobile home, manufactured housing and/or travel trailer.

Townhouse, row house or condominium subdivision shall mean those developments in which it is proposed to partition land into individual lots and construct townhouses which may be individually owned.

Section 11. Procedural requirements.

All persons proposing or intending to develop a townhouse subdivision within the incorporated limits of the Village or within its extraterritorial jurisdiction shall comply with the procedural requirements set out in this subdivision ordinance.

Section 12. Streets and other public ways.

a. Interior streets, if dedicated to public use, shall have a minimum right-of-way width of sixty feet (60') and shall be developed with a minimum of a thirty-six foot (36') paving section with concrete curbs and gutters in accordance with the current design standards. Dead-end access easements shall not be greater than two hundred feet (200') in length. All rear access easements shall not be dedicated as public rights-of-way, but shall be private rights-of-way and shall be privately maintained.

b. Cross streets for Townhouse subdivision shall be thirty-two (32’) feet wide, measured from inside of curb to inside of curb.

c. Alleys shall have a minimum right-of-way of twenty feet (20') and shall be developed with a concrete pavement in accordance with the current design standards.

d. All townhouse lots shall have direct access to an interior street, an access street, or a rear access easement having a width of thirty-eight feet (38') and a twenty-eight foot (28') paving section measured outside of curb to outside of curb.

Section 13. Building setback.

a. Building setback lines of twenty-five feet (25') shall be required on all lots fronting or backing on an access street.

b. Building setback lines of twenty feet (20') shall be required on all lots siding on access streets or upon a plat boundary.

c. No building setback lines shall be required on the sides of lots abutting interior streets, except where traffic safety or other factors necessitate the establishment of such records.

d. Where townhouse lots and dwelling units are designed to face upon an open or common access court rather than upon a public street, such open or common court shall be at least forty feet (40') wide and not more than two hundred feet (200') long, measured from the public street upon which the court must open. Such court may not include vehicular drives or parking area in front of dwelling units.

Section 14. Lots.

a. Lot area shall be a minimum of four thousand square feet (4,000').

b. Lot width shall be a minimum of fifty feet (50').

c. Dwelling units may be constructed up to side lot lines, and openings shall not face a side lot line unless the sidewall of the dwelling unit is at least ten feet (10') from the side lot line.

d. Lot size may be reduced under the provisions that open space is dedicated according to the following schedule:

> For every one hundred (100) square feet of open space per lot, provided the minimum lot area may be reduced by two hundred (200) square feet. No lot shall, however, have a lot area of less than four thousand (4,000) square feet, and a width of less than thirty-five feet (35').

Open Space Per Dwelling	Minimum Lot Area (sq. ft.)
0	4,000
100	4,000
200	4,000
250	4,000

Section 15. Parking.

a. Each development plat containing a multi-family residential development shall provide off-street parking spaces in accordance with the following schedule:

Unit Size	Parking Spaces Required Per Unit
Efficiency	2.0
One bedroom	2.0
Two bedrooms	3.0
Three or more bedrooms	3.0

Section 16. Utilities.

All utilities such as sanitary sewer, water, gas, telephone, television cable and electrical, shall be placed underground.

Section 17. Other requirements.

a. A townhouse subdivision shall meet all requirements of this ordinance, the provisions of this division that are permitted especially for townhouse subdivisions.

b. Deed restrictions must provide that: "No autos, trucks, boats, campers, other trailers, or vehicles of any kind shall ever be left parked on the grass or yard except as provided for in paved off-street parking space and then only as temporary parking incident to the contemporaneous use of such vehicle or object, nor shall same be left parked on any lot unless parked inside a garage."

Sections 17.1-17.9 Reserved.

DIVISION 4. PATIO HOME SUBDIVISIONS.

Section 18. Definitions.

The following words, terms and phrases, when used in this division, shall have the meanings ascribed to them herein, except where the content clearly indicates a different meaning:

Access street shall mean those public streets within or bounding a patio home subdivision which serve a patio home subdivision and other adjacent property.

Interior street shall mean public streets not more than six hundred feet (600') long within a patio home subdivision which streets are located and designed to serve a limited area within such subdivision and shall not serve other properties outside the subdivision.

Open space shall mean private property under common ownership designated for recreation area, private park, play lot area, plaza or ornamental area open to general view within the subdivision. Open space does not include streets, alleys, utility easements and required building setbacks.

Patio home shall mean a structure that is a series of dwelling units designed for single-family occupancy, which are constructed on a lot that shall have a minimum area of six thousand (6,000) square feet and shall have a zero offset on one (1) side of the lot. However, a patio home shall not include a mobile home, manufactured housing and/or travel trailer.

Patio home subdivision shall mean those developments in which it is proposed to partition land into individual lots and construct patio homes which may be individually owned and where the offset of a structure may be zero on one (1) side of the lot with an easement of ten feet (10') granted on the opposite side to the adjoining property owner for maintenance purposes.

Section 19. Procedural requirements.

All persons proposing or intending to develop a patio home subdivision within incorporated limits of the Village or within its extraterritorial jurisdiction shall comply with the procedural requirements set out in this subdivision ordinance.

Section 20. Streets and other public ways.

a. Access streets shall have a minimum right-of-way width of sixty feet (60') and shall be developed with a minimum of a thirty-six foot (36') paving section with concrete curb and gutter in accordance with current design standards.

b. Interior streets shall have a minimum right-of-way width of sixty feet (60') and shall be developed with a minimum of a twenty-eight foot (28') paving section with concrete curb and gutters in accordance with current design standards.

Section 21. Lots.

a. Lot area shall be a minimum of six thousand (6,000) square feet.

b. Lot width shall be a minimum of fifty five feet (55').

c. Dwelling units shall be constructed with a zero lot line clearance on one (1) side of lot. Doors shall not be installed in sides with zero lot line clearance.

d. Ten feet (10') must be maintained between sides of any two (2) dwelling units placed on adjacent lots.

e. Deed restrictions for zero lot line clearance must provide ten-foot (10') easement to owner whose dwelling unit is on the property line for maintenance purposes.

f. Deed restrictions must provide that: "No autos, trucks, boats, campers, other trailers, or vehicles of any kind shall ever be left parked on the grass or yard except as provided for in paved off-street parking space and then only as temporary parking incident to the contemporaneous use of such vehicle or object, nor shall same be left parked on any lot unless parked inside a garage."

Section 22. Parking.

Each lot shall have constructed and maintained thereon two (2) off street parking spaces. For the purpose of this subsection, the first two (2) parking spaces contained in covered garages and/or covered carports shall not be considered as off street parking spaces. For example, if a dwelling has a three (3) car garage, one additional

off street parking space would be required in addition to that included with the garage.

For the purpose of this section, the minimum dimensions of each parking space shall be 9 feet by 20 feet; provided, however two (2) spaces adjacent to the other shall not be less than 18 feet by 20 feet if side by side, and not less than 12 feet by 40 feet if aligned linearly.

Section 23. Utilities.

All utilities such as sanitary sewer, water, gas, telephone, television cable, and electrical service shall be placed underground.

Section 24. Other requirements.

a. A patio home subdivision shall meet all requirements of this ordinance, the provisions of this division being variations permitted especially for patio home subdivisions.

b. A patio home subdivision shall contain no less than 4 lots.

Sections 24.1-24.9 Reserved.

DIVISION 5. TWO-FAMILY DWELLING (DUPLEX) SUBDIVISIONS.

Section 25. Definitions.

The following words, terms and phrases, when used in this division, shall have the meanings ascribed to them herein, except where the content clearly indicates a different meaning:

Access street shall mean those public streets within or bounding a duplex subdivision which serve a duplex subdivision and other adjacent property.

Interior street shall mean public streets not more than eight hundred feet (800') long within a duplex subdivision which streets are located and designed to serve a limited area within such subdivision and shall not serve other properties outside the subdivision.

Open space shall mean private property under common ownership designated for recreation area, private park, play lot area, plaza or ornamental area open to general

view within the subdivision. Open space does not include streets, alleys, utility easements and required building setbacks.

Duplex home shall mean an attached residential building containing two (2) dwelling units designed for occupancy by not more than two (2) families.

Duplex subdivision shall mean those developments in which it is proposed to partition land into individual lots and construct duplex homes.

Section 26. Procedural requirements.

All persons proposing or intending to develop a patio home subdivision within incorporated limits of the Village or within its extraterritorial jurisdiction shall comply with the procedural requirements set out in this subdivision ordinance.

Section 27. Streets and other public ways.

a. Access streets shall have a minimum right-of-way width of sixty feet (60') and shall be developed with a minimum of a thirty-six foot (36') paving section with concrete curb and gutter in accordance with current design standards.

b. Interior streets shall have a minimum right-of-way width of sixty feet (60') and shall be developed with a minimum of a twenty-eight foot (28') paving section with concrete curb and gutters in accordance with current design standards.

Sections 27.1-27.9 Reserved.

Section 28. Lots.

a. Lot area shall be a minimum of ten thousand five hundred (10,500) square feet.

b. Lot width shall be a minimum of eighty-eight feet (88').

c. Front and side street and interior building lines shall meet the same requirements as for single-family lots.

d. Deed restrictions must provide that: "No autos, trucks, boats, campers, other trailers, or vehicles of any kind shall ever be left parked on the grass or yard except as provided for in paved off-street parking space and then only as

temporary parking incident to the contemporaneous use of such vehicle or object, nor shall same be left parked on any lot unless parked inside a garage."

Section 29. Parking.

Each dwelling unit shall have constructed and maintained thereon two(2) off street parking spaces. For the purpose of this subsection, the first two(2) parking spaces contained in covered garages and/or covered carports shall not be considered as off street parking spaces. For example, if a dwelling has a three(3) car garage, one additional off street parking space would be required in addition to that included with the garage. For the purpose of this section, the minimum dimensions of each parking space shall be 9 feet by 20 feet; provided, however two (2) spaces adjacent to the other shall not be less than 18 feet by 20 feet if side by side, and not less than 12 feet by 40 feet if aligned linearly.

Section 30. Utilities.

All utilities such as sanitary sewer, water, gas, telephone, television cable, and electrical service shall be placed underground.

Section 31. Other requirements.

a. A duplex subdivision shall meet all requirements of this ordinance, the provisions of this division being variations permitted especially for duplex subdivisions.

b. Density – In a duplex development, there shall be no more than eight (8) dwelling units per platted acre including all roadways.

Sections 31.1-31.9 Reserved.

DIVISION 6. MULTI-FAMILY RESIDENTIAL (APARTMENTS).

Section 32. Definitions.

The following words, terms and phrases, when used in this division, shall have the meanings ascribed to them herein, except where the content clearly indicates a different meaning:

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Access street shall mean those public streets within or bounding a multi-family residential subdivision which serve a multi-family residential subdivision and other adjacent property.

Open space shall mean private property under common ownership designated for recreation area, private park, play lot area, plaza or ornamental area open to general view within the subdivision. Open space does not include streets, alleys, utility easements and required building setbacks.

Section 33. Procedural requirements.

All those persons proposing or intending to develop a multi-family residential (apartment) subdivision shall comply with the procedural requirements set out in this ordinance.

Section 34. Application Requirements.

a. In addition to the information otherwise required to be submitted for a land plan, a land plan that provides for the development of one or more multi-family residential buildings shall provide the following information:

    1. The number of separate buildings that will contain multi-family residential dwellings units;

    2. The location of the principal entrance to each multi-family residential building;

    3. The total number of dwelling units;

    4. An itemized listing of multi-family residential dwelling units indicating the number of bedrooms in each dwelling unit.

Section 35. Private streets – general standards.

a. A development plat that contains a multi-family residential building shall provide at least one private street. The private street shall remain clear at all times for emergency vehicle access. No parking shall be allowed within the private street. A private street shall comply with the requirements of this section:

1. The minimum right-of-way width for a private street shall be twenty-eight feet (28'), which is coterminous with the pavement width measured from inside of curb to inside of curb across the surface of the pavement.

2. Intersections along private streets shall be a minimum of sixty-five (65) feet apart.

3. When a private street intersects with another private street at a ninety (90) degree angle, the private street shall provide a twenty (20) foot radius at the intersection.

4. When a private street intersects with another private street at an angle less than ninety (90) degrees, but more than eighty (80) degrees, the private street shall provide a twenty-five (25) foot radius at the intersection.

5. The centerline radius of a reverse curve on a private street shall not be less than sixty-five (65) feet. Reverse curves shall be separated by a tangent of not less than twenty-five (25) feet.

Section 36. Parking.

a. Each development plat containing a multi-family residential development shall provide off-street parking spaces in accordance with the following schedule:

Unit Size	Parking Spaces Required Per Unit
Efficiency	2.0
One bedroom	2.0
Two bedrooms	3.0
Three or more bedrooms	3.0

Section 37. Height and area regulations.

a. Height - No building or structure shall exceed two (2) stories or thirty-five feet (35').

b. Front and side street and interior building lines shall meet the same requirements as for single-family lots.

c. Lot Width - No minimum width for multi-family tracts.

d. Density (units/acre) – There shall be no more than fifteen (15) dwelling units per net platted acre. The net platted acreage shall be the total platted acreage of the plat, less any acreage occupied by:

1. lakes or ponds (not for recreational purposes)

2. irrigation canals or drainage canals

3. public uses, or

4. utility easements

e. Density (units/structure) - There shall be no more than eight (8) dwelling units per building and no dwelling unit structure shall exceed two hundred feet (200') in length.

f. Screening Device – In the event that this apartment complex abuts or is adjacent to a residential, commercial or industrial development, a screening device shall be placed along the abutting or adjoining property lines. Such a screening device shall be at least six feet (6') in height.

Section 38. Open space.

a. Except as otherwise provided in this section, each multi-family residential development shall provide open space in accordance with the following schedule:

Dwelling Unit Size	Square Feet of Open Space Required Per Dwelling Unit
Efficiency	200
One bedroom	240
Two bedrooms	320
Three bedrooms	440
Four bedrooms	500

For purposes of this section, 'open space' shall mean land within the development plat boundary that is not covered by buildings, covered walkways, parking spaces, private streets or driveways.

b. In lieu of the requirements of subsection (a), a multi-family residential development may provide for open space by complying with each of the following conditions:

1. At least ten percent of the total land area in the multi-family residential development, exclusive of land within the building line requirement area, shall be provided as open space;

2. Enclosed amenities, such as an exercise or game room, shall constitute no more than 10 percent of the open space provided;

3. Each area provided as open space is at least 20 feet wide by 60 feet long; and

4. The development plat provides for the construction of sidewalks that are a minimum of five feet in width within the right-of-way of each street that is adjacent to the development;

Section 39. Utilities.

All utilities such as sanitary sewer, water, gas, telephone, television cable, and electrical service shall be placed underground.

Section 40. Other requirements.

An apartment subdivision shall meet all requirements of this ordinance, the provisions of this division being variations permitted especially for apartment subdivisions.

Sections 40.1-40.9 Reserved.

DIVISION 7. PARK LAND, PUBLIC SITES AND OPEN SPACES

Section 41. Areas for public use.

The subdivider shall give consideration to suitable sites for parks, playgrounds, schools, and other areas for public use so as to conform to with the recommendations of the Village council. Any provisions for schools, parks, and other public uses, shall be indicated on the preliminary plat.

Section 42. Park land dedication.

a. General requirements for land to be used for single family, patio homes, townhouses, condominiums, duplex and/or multiple family residential purposes.

1. Whenever a final plat is filed of record with the County Clerk of Fort Bend County for development of a residential area in accordance with the platting regulations of the Village, such plat shall contain a clear fee simple dedication to the Village of an area of land for park purposes, which area shall equal one (1) acre for each one hundred (100) proposed dwelling units, based on the proposed subdivision or development in its entirety and not by sections or phases.

2. Any proposed plat submitted to the Village for approval shall show the area proposed to be dedicated under this section. The dedication required by this section must be within the same neighborhood and community park zones as shown on the plat. In the event the Village determines that sufficient park area is already in the public domain in the area of the proposed development, and the recreation potential for that zone would be better served by expanding or improving existing parks.

3. The dedication required by this section shall be made by filing of the final plat or contemporaneously by separate instrument unless additional dedication is required subsequent to the filing of the final plat. If the actual number of completed dwelling units exceeds the figure upon which the original dedication was based, additional dedication may be required.

b. Provision of private park land in lieu of a dedication of land.

1. A developer responsible for dedication of land under this section shall meet one hundred (100) percent of the requirements of area of land for park purposes, which shall equal one (1) acre for each one hundred (100) proposed dwelling units by the provision of private park land, based on the proposed subdivision development in its entirety and not by sections or phases. Credit for private park land will be governed by the following criteria:

a. The land offered as private neighborhood park land must be open and accessible to all residents of the platted subdivision. Land or facilities that are excluded to a portion of the subdivision residents shall not be considered as private park land.

b. Land which is unencumbered by easements, detention areas, lakes and drainage channels, including lake and drainage channel borders, or similar characteristics will qualify for private neighborhood park land at a 1:1 ratio (unencumbered private park area : park land dedication required) up to the full one hundred (100) percent credit. Land which has recreational facilities on it such as tennis courts, swimming pools, playing fields, recreation buildings, etc., will also qualify at a 1:1 ratio up to the full one hundred (100) percent credit.

c. Land which is encumbered by private easements, detention areas, lake and drainage channel borders, or other similar characteristics will qualify for private neighborhood park land in accordance with the following calculations. Twenty-five (25) percent of the encumbered private park land will qualify for private neighborhood parks (0.25:1 ratio). Additional conditions apply to encumbered park land, including:

1. Detention areas shall have (a) side slopes of a 3:1 ratio unless otherwise approved by the Village, (b) gravity flow or a pumped system, (c) a bottom with a minimum area of five thousand (5,000) square feet unless otherwise approved by the Village, and (d) field areas with a crowned

design and perimeter swale suitable for field sports. At least one (1) accessible route shall meet minimum requirements of the Americans with Disabilities Act (ADA).

2. Drainage ditches and lake borders shall have (a) side slopes of a 3:1 ratio unless otherwise approved by the Village, (b) hike/bike all weather paths, landscaping and sodding installed according to the construction standards of the Village, (c) an average minimum width of thirty (30) feet and a minimum width of twenty (20) feet from top of bank, and (d) drainage ditches and lake borders with meandering, natural contour appearances.

3. Ten (10) percent of lakes and nature reserves or land which is generally undeveloped and unsuitable for organized recreational activities without substantial development effort, but which provides desirable aesthetic qualities, such as wetlands and other wooded areas, will qualify for private neighborhood park land (0.10:1 ratio).

2. Maintenance responsibilities for private neighborhood park land shall be guaranteed in perpetuity by a Homeowners' Association or other acceptable organization created by an instrument accompanying submission of a preliminary plat and recorded with the final plat. The Village has the right to accept or reject the assurance of maintenance. The Village shall not be responsible for maintenance of private park land.

3. A list of landscaping and other improvements of special uses planned for park areas shall be submitted with the general plan, preliminary plat and filed with the final plat.

c. Additional Requirements

1. Parks should be easy to access and open to public view so as to benefit area development, enhance the visual character of the Village, protect

public safety, and minimize conflict with adjacent land uses. Any private park land dedicated under this subsection must be suitable for park, greenway, and recreation uses.

2. Consideration will be given to land that is in the floodplain or may be subject to flooding even though not in a federally regulated floodplain as long as, due to its elevation, it is suitable for park improvements.

3. Park sites should be adjacent to residential areas in a manner that serves the greatest number of users.

4. Sites should not be severely sloping or have unusual topography that would render the land unusable for organized recreational activities.

5. Sites should be located adjacent to a greenbelt system, where possible, so that connections to a trail network may be easily achieved.

6. Where physically feasible, park sites should be located adjacent to schools in order to encourage both shared facilities and the potential co-development of new sites.

7. Sites should retain existing trees or other scenic elements, where possible.

8. A proposed subdivision adjacent to a park may not be designed to restrict reasonable access to the park from other area subdivisions. Street connections to existing or future adjoining subdivisions may be required to provide reasonable access to parks.

9. Where a non-residential use must directly abut a park, the use must be separated by a screening wall or fence and landscaping. Access points to the park from the non-residential use may be allowed by the Village if a public benefit is established.

(d) Consideration and approval.

Unless provided otherwise in this section, an action by the Village shall be by the Village Council, after consideration of the recommendations of the Commission.

Section 43. School sites.

School sites for public schools shall be coordinated with the appropriate school district within whose jurisdiction the plat lies.

Section 44. Public facilities.

Public facilities such as fire stations, libraries, municipal and county buildings, and municipal utility district operations shall be platted or contained within a plat. The location of these facilities shall be coordinated with the applicable governing body and in compliance with the comprehensive plan of the Village.

Section 45. Wetlands.

If there are any areas previously designated which constitute wetlands by federal law, these areas shall be indicated on the plat and any restrictions on these areas shall be noted on the plat.

Sections. 45.1-45.9 Reserved.

Section 46. Conflict with Other Ordinances

All ordinances in force when this ordinance becomes effective which are inconsistent with, or in conflict with this ordinance are hereby expressly repealed insofar as said ordinance are inconsistent with or are in conflict with this ordinance.

ARTICLE IV. SUBDIVISION SPECIFIC DESIGN REQUIREMENTS

DIVISION 1 - GENERAL AND PROCEDURE REQUIREMENTS

1.1 General

1.1.1 These Standards describe the general requirements for the preparation of construction plans and the supporting documents required for approval by the Village of Pleak. Specific design requirements, in addition to these Standards, may be required by the Village of Pleak.

1.1.2 Construction plans for public improvements within the Village of Pleak Limits or extraterritorial jurisdiction shall be approved by the Village Engineer.

1.1.3 Construction plans for private improvements that connect to or affect the public infrastructure shall be approved by the Village of Pleak as required in the Site Development division of these Standards.

1.1.4 All projects that are required to conform to these Standards shall also be in compliance with all applicable ordinances in the Village. The following list of ordinances is for information purposes. This list may be expanded at any time.

A. Subdivision

B. Zoning

C. Flood Plain Management

D. Traffic

E. Sign

F. Water and Sewer

1.1.5 All construction plans and supporting documentation shall conform to the requirements of these Standards and regulations of all Federal, State, County, and Local entities having jurisdiction.

1.1.6 In the past, many of the streets and utilities in the area were based on City of Houston design standards and procedures. For this reason, the City of Houston "General Design Requirements for Sanitary Sewers, Storm Sewers, Water Lines, and Paving" was used as a guide in preparation of these Standards. This was done to facilitate design by engineers working in the area and as to not "re-invent the wheel" in preparation of these Standards.

1.2 Preliminary Research

1.2.1 Village Planning Commission will be available for preliminary meetings to discuss a proposed project with the project engineer and/or developer. This preliminary meeting should be scheduled with the Village Engineer staff prior to submittal of any documents for review. The purpose of this meeting is to discuss the project concepts and to establish the status of requirements and issues that may be pertinent to the project.

1.2.2 The developer shall research all existing utility and right-of-way information with Village, County, State, and other public and private utility agencies listed below:

A. Village Engineer

B. Fort Bend County Engineer

C. Fort Bend County Drainage District

D. Texas Department of Transportation

E. Telephone Company

F. Local Public Utility Company

G. Municipal Utility Districts

H. Cable Television Companies

I. Railroad Companies

J. Pipeline Companies

K. Others

1.2.3. Prior to beginning construction on a project, all applicable fees will be paid to the Village.

1.3 Capacity Allocations

1.3.1 The developer will notify the Village of the development's water and wastewater capacity requirements, expressed in equivalent single-family connections (ESFC). If the Village determines that the development's capacity requirements will have a significant impact on the Village's water or wastewater system, the Village may require the developer to do additional analysis of those impacts to determine if mitigation measures are necessary by the developer in order for the Village to maintain adequate levels of water or wastewater service, including flow rates, pressure, and other service characteristics, or to comply with the Village's regulations, Village master plans, or other governmental laws and regulations. The required additional analysis may include running hydraulic models or determining the impact to the downstream sanitary system from increased flows, as required by the Village.

1.3.2 Prior to beginning construction on a project, a current commitment of drainage capacity for the proposed development, including the status of any drainage fees that may be due or have been paid, will be required. The commitment shall be issued by the Fort Bend County Drainage District

1.4 Design Review Requirements for Public Works Projects

1.4.1 Submit one (1) copy of construction plans and supporting documentation to the Village Engineer for review. Plans will be circulated to appropriate Departments and comments will be returned to the engineer in a timely manner. When plans are submitted that conform to these Standards, without specific approval or variance request, the Village Engineer will make every effort possible to return plans within ten (10) working days from submittal by the Engineer.

1.4.2 Submit approval letters based on the preliminary project plat from all public and private utilities and other entities affected by the project. Approval letter shall state that service will be available to the project, where appropriate, and that there is no objection to the project.

1.4.3 Confirmation in writing of preliminary approval by the Fort Bend County Engineer and the Fort Bend County Drainage District Engineer should be provided to the Village.

1.4.4 After all comments have been adequately addressed, submit two (2) copies of the revised and final construction plans, with the redline plans, to the Village Engineer for approval.

1.4.5 Construction plans will be formally approved within two (2) weeks.

1.4.6 Submit the original construction plan sheets to the Village Engineer for signatures. All sheets will be signed by the Village of Pleak. A Village of Pleak approval signature block shall be provided on all sheets.

1.4.7 Submit one copy of the original construction plans and one copy reduced to eleven inches by seventeen inches (11" x 17") to the Village Engineer after the construction plans have been approved and signed by all appropriate governmental agencies.

1.4.8 All separate or special easements that may be required for construction shall be recorded in the Fort Bend County Official Records prior to final approval of the construction plans, except with specific approval of the Village Engineer.

1.5 Construction Procedure Requirements for Public Works Projects

1.5.1 Construction shall not begin until construction plans are signed by the Village of Pleak. Construction shall not begin within an existing easement or right-of-way until all permits and/or any right-of-way use agreements are negotiated between the effected parties.

1.5.2 Notify the Village Engineer at least forty-eight (48) hours prior to the pre-construction meeting for the project. Village Engineer staff must attend the pre-construction meeting.

1.5.3 Notify the Village Engineer at least forty-eight (48) hours prior to beginning construction. The Village Engineer staff will make periodic inspections. The Village Engineer shall be notified at least twenty-four (24) hours prior to each time concrete is placed on the project. The Village Engineer shall be notified at least twenty-four (24) hours prior to

all pipe inspection tests and other tests that may be required by the Village Engineer.

1.5.4 Notify the Village Engineer at least forty-eight (48) hours prior to a final inspection. The Village Engineer staff will be present during all final inspections.

1.5.5 After completion of the project and prior to the final inspection, the engineer shall provide the Village Engineer one set of reproducible record drawings and one copy of the record drawings. Record drawings shall reflect the facilities constructed and all significant horizontal and vertical changes made from the approved plans during construction.

1.5.6 For all projects, all delivery tickets for all materials (e.g., concrete, cement stabilized sand) shall be maintained by the contractor and upon written request, is made available for the review of the Village Engineer. These delivery tickets shall be maintained for a maximum of one year from the completion of the project.

1.5.7 An approved subdivision plat and all applicable easements shall be recorded in the Fort Bend County Plat Records and in the Fort Bend County Official Records prior to beginning construction.

1.5.8 Changes from approved construction plans shall be approved by the Village Engineer. The Project Engineer will submit change order requests in writing to the Village Engineer. The Village Engineer will respond in writing within five (5) working days.

1.5.9 A resident inspection by the Project Engineer, in coordination with Village Engineer, shall be provided in accordance with the requirements of the creation ordinance for any utility district.

1.6 Approval and Acceptance of Public Works Projects.

1.6.1 Public Works projects shall have final approval of the Village Engineer prior to placing the facilities in service.

1.6.2 Final approval by the Village Engineer shall be granted when the following items are complete:

A. Construction is completed in accordance with the approved construction plans and final inspection items have been completed.

B. All required information including record drawings are submitted to the Village Engineer. The Project Engineer shall certify the correctness of the record drawing and compliance of construction in accordance with these Standards.

C. Street lighting plans have been approved.

D. For construction projects within a utility district (Extraterritorial Jurisdiction only), copies of the executed payment and performance bonds, as issued by the surety company with a rating of at least B from Best's Key Rating Guide, shall be provided to the Village. For roadway construction, copies of the executed road bond, as submitted to the Commissioner's Court of Fort Bend County, shall be provided to the Village.

E. In lieu of the provisions in 1.6.2.D above, appropriate improvement bonds will be in place and copies provided to the Village for the specified period. Bonds shall be provided from bonding companies holding a certificate of authority as an acceptable surety on Federal Bonds (as published annually in the Federal Register). The requirements of each specific bond are defined for the Village of Pleak and for the Village's extra-territorial jurisdiction in the following tables.

IMPROVEMENTS COVERED BY BOND	BOND AMOUNT	BOND TYPE	BOND RELEASE	ACCEPTANCE
Within the Village Limits				
Water, sanitary sewer and drainage improvements	10% of total construction on cost.	Maintenance bond in the name of the Village When a MUD* project, maintenance bond in the name of the MUD	At acceptance by the Village One year after construction completion by the MUD	One year after construction completion or after 60% of the property within the development is complete, whichever is longer.
IMPROVEMENTS COVERED BY BOND	BOND AMOUNT	BOND TYPE	BOND RELEASE	ACCEPTANCE

Paving – Residential development	10% of total construction cost	Maintenance bond in the name of the Village	At acceptance by the Village	One year after construction completion or after 60% of the property within the development is complete, whichever is longer and not until the sidewalks in all common areas are complete.
Commercial development	10% of total construction cost	Maintenance bond in the name of the Village	At acceptance by the Village	One year after construction completion or after 60% of the property within the development is complete, whichever is longer and not until the street lights are complete.
Arterials	10% of total construction cost	Maintenance bond in the name of Village	At acceptance by the Village	One year after construction completion and not until the sidewalks and street lights are complete.
<u>Within the Extraterritorial Jurisdiction</u>				
Water, sanitary sewer and drainage improvements	10% of total construction cost	Maintenance bond in the name of the County	At acceptance by the County	Upon annexation and one year after construction completion or after 60% of the property within the development is complete, whichever is longer.
		When a MUD project, maintenance bond in the name of the MUD	One year after construction completion at acceptance by the MUD	
Paving – Residential development	10% of total construction cost	Maintenance bond in the name of the County	At acceptance by the County	Upon annexation and one year after construction completion or after 60% of the property within the development is complete, whichever is longer and not until the sidewalks in all common areas are complete.

IMPROVEMENTS COVERED BY BOND	BOND AMOUNT	BOND TYPE	BOND RELEASE	ACCEPTANCE
Commercial development – Paving	10% of total paving construction cost	Maintenance bond in the name of the County	At paving acceptance by the County	Upon annexation and one year after construction
Street Lights	100% of total street light construction cost	Performance bond in the name of the Village	At construction completion of the street lights	completion or after 60% of the property within the development is complete, whichever is longer and not until the street lights are complete,
Arterials – Paving	10% of total paving construction cost	Maintenance bond in the name of the County	At paving acceptance by the County	Upon annexation and one year after construction
Street Lights	100% of total street light construction cost	Performance bond in the name of the Village	At construction completion of the street lights	completion and not until the sidewalks and street lights are complete.

* Municipal Utility District (MUD)

F. All other public entities having jurisdiction have given their approval on the project.

G. The Village shall require a notarized certification from the Engineer or Contractor that all materials installed in the Project are completely in place in accordance with approved plans and specifications.

1.6.3 Final approval by the Village Engineer will be documented in writing.

1.6.4 Public Works projects within the Village of Pleak and extraterritorial jurisdiction will be subject to a minimum one (1) year or sixty percent (60%) build-out, whichever is longer, maintenance period. An inspection prior to the end of the maintenance period of a Public Works project shall be conducted by the Village Engineer and all other entities having jurisdiction. All facilities, including street lighting, shall be operational and in good condition prior to final acceptance of a project.

1.7 Right-of-Way Use Permits

1.7.1 All applicable permits must be obtained prior to construction of any facilities, including crossings within a street right-of-way, easement,

and/or building line, a permit must be obtained from the Village Engineer, Fort Bend County, the Texas State Department of Highways and Public Transportation, and/or governmental entity having jurisdiction.

1.7.2 Projects within the Village of Pleak extraterritorial jurisdiction must have approval of Fort Bend County prior to installation in a public right-of-way.

1.7.3 Projects within the Village Limits of Pleak must obtain a right-of-way use permit from the Village Council prior to installation in a public right-of-way.

1.7.4 Projects within any state highway right-of-way will require approval of the Texas State Department of Highways and Public Transportation.

1.7.5 A request for a right-of-way use permit issued by the Village of Pleak must be submitted with complete supporting information, to the Village Engineer by 4:00 p.m., no less than ten (10) working days prior to the Village Council meeting proposed for action on the item. Incomplete submittals will be rejected until all items are adequately addressed by the Project Engineer. Staff will review the item and submit comments to the Owner and to the Village Council prior to the Council meeting. Council will act on the request and a certified copy of the Village Council meeting minutes and/or the right-of-way use permit will be provided the Owner.

1.7.6 The Owner or authorized agent shall submit plans and supporting documents. The Owner or authorized agent shall be responsible for location of all facilities in the area of construction. All disturbed areas are to be restored after construction.

1.7.7 Private facilities permitted within a public right-of-way shall be the maintenance responsibility of the private entity. If private facilities are not maintained in good order, the permit shall be void and the facilities shall be removed at the expense of the private entity. Upon request of the Village of Pleak, or entity having jurisdiction, facilities shall be removed, relocated or replaced at no cost to the Village of Pleak.

1.8 Approval of Materials and Manufactured Items Used in Construction

1.8.1 Approvals required in these Standards are the responsibility of the developer and/or land owner. Failure to obtain appropriate approvals may be grounds for suspension of construction until appropriate approvals are granted. Specific approval is required for items that are described in these Standards. Items that do not conform to these Standards and are not allowed by specific approval shall be submitted for a variance request.

1.8.2 Specific approval, as required by these Standards, shall be specifically requested by the developer and/or owner prior to or at the time of submittal of review plans for the project. All specific approval items shall be granted by the Village Engineer in writing.

1.8.3 Construction work related to any specific approval item that has not been approved in writing should not begin until the Village Engineer has granted approval in writing. Any work that proceeds without specific approval will be subject to removal and replacement in accordance with these Standards.

1.8.4 Materials and manufactured items used in construction of a Public Works project shall be approved by the Village Engineer prior to installation. Water and sanitary sewer system appurtenances shall be subject to the approved items as listed in the Approved Products List available from the Village Engineer. Items not appearing on the approved list shall not be used for construction of public works facilities in the Village of Pleak and the Pleak extraterritorial jurisdiction.

1.8.5 The Approved Products List may be expanded to include additional items with approval of the Village Engineer. Products proposed for approval by the Village Engineer shall be locally available from a reputable supplier. A complete submittal of information regarding the proposed approved product and samples of the product shall be submitted to the Village Engineer for review. The Village Engineer shall review the product information. Final approval of the product for use in construction of public works facilities shall be provided in writing by the Village Engineer.

DIVISION 2 -CONSTRUCTION PLAN AND MISCELLANEOUS REQUIREMENTS

2.1 Required Plan Sheets

2.1.1 Cover sheet.

2.1.2 Final plat. (Recorded plat shall be included in the record drawings.)

2.1.3 Construction notes and legend.

2.1.4 Overall plans for proposed improvements.

2.1.5 Drainage area map.

2.1.6 Lot grading plan.

2.1.7 Plan and profiles.

2.1.8 Specific construction details.

2.1.9 Standard Public Works construction details.

2.1.10 Street Light Layout (shall be included in the record drawings).

2.2 Drawing Requirements

2.2.1 The seal, date, and original signature of the engineer responsible for preparation of the plans is required on each sheet. The engineer may use a stamped or embossed imprint for his/her seal, however, the embossed imprint must be shaded such that it will reproduce on prints.

2.2.2 A bench mark elevation and description is required on each sheet.

2.2.3 Label each plan sheet as to street right-of-way widths, pavement widths and thickness, type of roadway materials, curbs, intersection radii, curve data, stationing, existing utilities type and location, etc.

2.2.4 Stationing must run from left to right except for short streets or lines originating from a major intersection where the full length can be shown on one sheet.

2.2.5 A north arrow is required on all sheets and should be oriented either upward or to the right. This requirement may be waived under the following conditions: a storm or sanitary sewer whose flow is from west to east or from south to north and a primary outfall ditch whose flow is from west to east or from south to north.

2.2.6 Show all lot lines, property lines, rights-of-way lines, and easement lines.

2.2.7 A cover sheet shall be required for all projects involving three (3) or more plan and profile sheets. All plan sheet numbers should be included on the cover sheet. A vicinity map should always be included to show the project location. A Village of Pleak standard approval block shall be provided for signatures by the Village of Pleak.

2.2.8 If a roadway exists where plans are being prepared to improve or construct new pavement or to construct a utility, this roadway should be labeled as to its existing width, type of surfacing, and base thickness, if available.

2.2.9 Plans prepared for the Village of Pleak shall be prepared using permanent ink, photographic or other approved process on mylar.

2.2.10 Do not place match lines in intersections.

2.2.11 Service areas shall be delineated on the cover sheet or area map.

2.2.12 All utility lines four inches (4") in diameter or larger within the right-of-way or construction easement should be shown in the profile view. All utility lines, regardless of size, should be shown in the plan view.

2.2.13 Show flow line elevations and direction of flow of all existing ditches.

2.2.14 Show natural ground profiles along the centerline of each right-of-way or easement line except as required below. When there is a difference of 0.50 feet or more from one right-of-way or easement line to the other, show dual right-of-way profiles.

2.2.15 Resolve all known conflicts of proposed utilities with existing utilities.

2.2.16 Plans shall be standard twenty-three inch by thirty-six inch (23" x 36") Federal Aid Sheets or twenty-four inch by thirty-six inch (24" x 36") overall dimensions.

2.2.17 Details of special structures not covered by approved standard drawings, such as stream and gully crossing, special manholes, etc., should be drawn with the horizontal and vertical scales equal to each other.

2.2.18 Plans shall be drawn to accurate scale, showing proposed pavement typical cross-sections and details, lines and grades, and all existing topography within the street rights-of-way; and at intersections, the cross street shall be shown at sufficient distance in each direction along the cross street for designing adequate street crossings.

2.2.19 Grades should be labeled for the top of curb except at railroad crossings. Centerline grades are acceptable only for paving without curbs and gutters.

2.2.20 Curb return elevations and grades for turnouts shall show in the profile.

2.2.21 Gutter elevations are required for vertical curves where a railroad track is being crossed.

2.2.22 The surface elevation at the property line of all existing driveways should be shown in the profile.

2.2.23 Station all esplanade noses affected by proposed construction, both existing and proposed.

2.2.24 Station all points of curvature, points of tangency, radius returns and grade change, points of intersection in the plan view. Station all radius returns and grade change points of intersection in the profile with their respective elevations.

2.2.25 The standard scales permitted for plans and profiles of paving and utility plans are as follow:

A. Major thoroughfares or special intersections/ situations:

1" = 2' Vertical; 1" = 20' Horizontal

B. Minor streets:

1" = 4' Vertical; 1" = 40' Horizontal
(for reconstruction on minor streets, a larger scale may be required to show detail.)

C. The scales described above are the minimum allowable. Larger scales may be required to show details of construction.

D. Deviations to these scales can only be allowed with the specific approval of the Village Engineer.

2.2.26 In addition to the plan and profile sheets described above, each set of construction drawings shall contain paving and utility key drawings indexing specific plan and profile sheets. Key overall layouts may be drawn at a scale of one inch equals one hundred feet (1" = 100') or one inch equals two hundred feet (1" = 200').

2.2.27 Standard Village details, where applicable, shall be included.

2.2.28 Construction plans shall include a legend describing standard symbols that may not be described in the plans.

2.2.29 All property ownership and easement information will be shown in the construction plans. Fort Bend County recording information shall be shown in the construction plans. When ownership, easement, and right-of-way recording information is not shown on the plat included in the plans, this information will be shown on the construction plan sheets.

2.2.30 The Village Engineer shall be provided with an AutoCAD .dwg file or compatible .daf file on computer disc of all construction plans.

2.3 Graphic Standards

The graphic standards for the Village of Pleak are taken directly from the City of Houston's "General Design Requirements for Sanitary Sewers, Storm Sewers, Water Lines, and Paving". These graphic standards are provided in Appendix A.

2.4 Easements

2.4.1 All easements and recording information, existing and proposed, shall be shown in the construction plans in accordance with Section 2.2.29.

2.4.2 Storm sewer, sanitary sewer, and water line easements shall be dedicated for the specific intended use. Easements for a specific facility shall be exclusive and shall not overlap other easements, except to cross the easements.

2.4.3 Public utility easement requirements for a sixteen-foot (16') easement are as outlined in the "Typical Utility Location in 10-Foot Wide and 16-Foot Wide Easement Back-to-Back Lots and Perimeter Lots" drawing prepared by the Utility Coordinating Committee for Metropolitan Area, effective June 1, 1971. The public utility easement width for dry distribution lines may be ten feet (10'). Perimeter easement may be eight feet (8') by eight feet (8'), provided that the easement is dedicated by separate instrument or special notes on the plat.

2.4.4 Water line easements - the following minimum width easements are required when facilities are not located within public street rights-of-way or water line easements:

A. Fire hydrants located outside of public rights-of-way or water line easements shall be encompassed by a ten-foot by ten-foot (10' x 10') exclusive, easement. Fire hydrants shall not be located within any other type of easements.

B. Water meter easements shall be exclusive and should be located adjoining a public right-of-way or water line easement.

C. Two-inch (2") and smaller meters serving non-residential and multi-family developments shall be set in five-foot by five-foot (5' x 5') exclusive water meter easements.

D. Three-inch (3") and larger meters shall be set in a minimum of ten-foot by twenty-foot (10' x 20') exclusive, water meter easements.

E. When specifically approved by the Village Engineer, water mains may be located in easements not adjacent to public street rights-of-way. These water mains shall be centered in a sixteen-foot (16’) wide exclusive easement restricted to water only.

F. For new construction, any water main, except at a flush valve, located less than five feet (5') from the right-of-way line and within the right-ofway shall have a water line easement adjoining the right-of-way. Water line easements adjoining a right-of-way for mains smaller than twelve inches (12") shall have a minimum width of five feet (5'). For mains twelve inches (12”) or greater than twelve inches (12") in diameter, the easement adjoining the right-of-way shall have a minimum width of ten feet (10').

G. Water mains shall be located at the center of a ten-foot (10') water line easement, provided the easement adjoins the public right-of-way.

2.4.5 Sanitary Sewer Easements - the following minimum easement widths are required for the type of service:

A. No rear lot easements combining public utilities with buried private utilities will be allowed.

B. The width of all exclusive sanitary sewer easements shall be equal to the depth of the sewer from finished grade plus two (2) pipe diameters. Sewer shall be located in the center of the easement. The minimum width of a sanitary easement shall be sixteen feet (16') when split along a lot line, and ten feet (10') wide for easements located within a single lot.

C. Exclusive sanitary sewer easement adjoining a public right-of-way shall be five feet (5') wide provided the sewer is at least five feet (5') from the edge of the easement and the sewer is no deeper than ten feet (10'). Sewers at depths greater than ten feet (10') shall be centered within an exclusive easement parallel and adjoining the right-of-way as described in Section 2.4.5 B. Where the sanitary sewer is located less than five feet (5) from the right-of-way line within the public right-of-way, the minimum easement width shall be five feet (5') adjacent to the right-of-way.

D. Exclusive easements for force mains of all sizes shall have a minimum width of sixteen feet (16') for a single force main where the force main is not located adjacent to a public right-of-way. Where the force main is located in an easement adjacent to public rights-of-way, the force main may be located at the center of a ten-foot (10') easement. Where the force main is located less than five feet (5) from the right-of-way line within the public right-of-way, the minimum easement width shall be five feet (5') adjacent to the right-of-way.

E. Combined storm and sanitary sewer easement shall have minimum widths as required in Section 2.4.6 for storm sewer easements. Additionally, the sanitary sewer main, trunk or force main shall be located such that the centerline of the pipe shall be at least half the width of the easement, defined in Section 2.4.5 B, but not less than seven and one-half feet (7.5'), from the edge of the easement.

F. For combined storm and sanitary sewer easements located adjacent to public rights-of-way where the sanitary sewer is located along the outside of the easement, the centerline of the sanitary sewer pipe shall be at least half the width of the easement defined in Section 2.4.5 B, but not less than seven and one-half feet (7.5')

from the outside edge of the easement.

G. Where sanitary sewers or force mains are installed in easements separated from public rights-of-way by other private or utility company easements, the sanitary sewer easement should be extended along or across the private utility company easement to provide access for maintenance of the sewer or force main.

2.4.6 Storm Sewer Easements - the following minimum easement widths are required:

A. The minimum width shall be twenty feet (20') with the storm sewer centered in an exclusive easement, except as specifically approved by the Village Engineer.

B. For storm sewers greater than ten feet (10') and less than fifteen feet (15') in diameter or width, the minimum width of an exclusive easement shall be twenty-five feet (25').

C. For storm sewer greater than fifteen feet (15') in diameter or width, the minimum width of an exclusive easement shall be determined by the Village Engineer.

D. For storm sewers whose depth to flow line is greater than fifteen feet (15'), add five feet (5') to the minimum easement width specified in Section 2.4.6 A and/or 2.4.6 B, above.

E. For all easements specified in Section 2.4.6, a minimum distance of five feet (5') must be maintained from the easement line to the outside edge of the storm sewer.

F. Where approvals are granted for a special use or combination easement located along side lot or back lot, the minimum width shall be twenty-five feet (25'). The easement width shall meet or exceed all other easement requirements.

G. For specifically approved storm sewers located in an exclusive easement adjacent to public rights-of-way, the minimum easement width shall be ten feet (10'). The easement width shall meet or

exceed all other easement requirements.

2.5 Utility Locations

2.5.1 The dry utility locations for back lot easements are outlined in the "Typical Utility Location in 10-Foot Wide and 16-Foot Wide Easement Back-to-Back Lots and Perimeter Lots" drawing prepared by the Utility Coordination Committee for Metropolitan Area effective June 1, 1971. A portion of the Utility Coordination Committee drawings are provided in Appendix B.

2.5.2 All utilities shall be underground with the exception of electric primary lines. The electric primary lines, defined as feeders or three phase lines, should be located around the subdivision perimeter whenever possible.

2.5.3 Water Main Location

A. All water mains shall be located within a public right-of-way or within dedicated water main easements. The location of water mains within a public street right-of-way is described in Section 3.3.

B. Water mains shall not be located in combination easements without the specific approval of the Village Engineer.

2.5.4 Sanitary Sewer Location

A. Sanitary sewer laterals may not be located within the back lot easement.

B. Sanitary sewers of twelve inches (12") or larger in diameter are usually located within a public right-of-way or an easement adjoining the right-of-way. Large sanitary sewers shall be located within the public street right-of-way in accordance with Section 4.3.1. Sanitary sewers may be located in exclusive or combination easements provided the easement widths comply with Section 2.4.5.

C. Sanitary sewers shall not be located in side lot easements without the specific approval of the Village Engineer.

D. Sanitary sewers should be located within the right-of-way between the property line and the back of curb on the opposite side of the right-of-way from the water main.

2.5.5 Storm Sewers

A. Storm sewer shall be located in the public street right-of-way in accordance with Section 5.3.

B. All storm sewer lines shall be located within public rights-of-way or approved easements. Placement of a storm sewer in side lot and back lot easements is discouraged. Specific approval of the Village Engineer for the use of side lot or back lot easements for storm sewers should be obtained prior to plan preparation.

C. For boulevard paving sections with esplanades, the storm sewer is usually located in the center of the esplanade.

2.6 Private Facility Locations (Not Including Landscaping)

2.6.1 Installation of private facilities, including utilities, in public road rights-of-way and their adjoining easements shall be approved by the Village of Pleak.

2.6.2 Private facilities shall not conflict with other facilities in the right-of-way and shall not be located in exclusive easements as required in these Standards. All structures within the public right-of-way shall be approved by the Village Engineer and shall be located so as to not interfere with existing or proposed public facilities.

2.6.3 All facilities in the right-of-way shall be located at least two feet (2') behind the curb and all underground facilities in the right-of-way shall be located at least two and one-half feet (2.5') below the top of curb on a public street.

2.6.4 Private facilities shall be constructed in accordance with construction plans approved by the Village Engineer.

2.6.5 Landscaping within the public right-of-way or adjoining easements shall not affect public utilities or traffic visibility.

2.7 Crossings

2.7.1 Highway Crossings - All State and County Roads

A. State Highway crossings shall be constructed in conformance with the requirements of the Texas Department of Transportation.

B. A water main shall be encased in a steel pipe casing extending at least five feet (5) from outside edge of each service road or outside edge of pavement, across the right-of-way to a similar location on the other side of the highway. For highway or roadway crossings with open ditches, the casings shall extend from right-of-way to right-of-way.

C. County road crossing shall be constructed in accordance with the requirements of Fort Bend County.

D. Where additional right-of-way has been acquired or will be required for future widening, the casing, where required, should be carried to within ten feet (10') of each future right-of-way line.

2.7.2 Street Crossings

A. All water main and sprinkler line crossings under major thoroughfare boulevards shall be encased using a minimum of P.V.C. pipe, SDR 26, as shown on the Village of Pleak construction detail for "Water Main Encasement". Welded steel pipe may be substituted on street crossing, when specifically approved by the Village Engineer.

B. Conduits and sewers that do not carry liquid under pressure may be bored and jacked into place without an encasement pipe.

C. Crossings under existing concrete streets, other than major thoroughfares, shall be constructed by augering, boring and jacking. P.V.C. pipe shall be jacked into place using equipment designed for that purpose. Water may be used to facilitate the augering, boring and jacking operations. Jetting the pipe main into the place will not be permitted. When conditions exist that warrant open cut across an existing street, the Village Engineer shall specifically approve the crossing.

D. All open cut installations under existing or proposed streets shall be backfilled as shown in the Village of Pleak Construction Details. Cement stabilized sand backfill shall meet the requirements of Section 4.2.3.

E. All street crossings shall be constructed in accordance with construction plans approved by the Village. All street crossings shall be inspected by the Village Engineer. All street crossings shall meet the requirements of these Standards.

2.7.3 Railroad and Pipeline Crossings

A. For railroad crossings, the carrier pipe shall be encased in steel pipe casing extending from right-of-way to right-of-way.

B. All construction within the railroad or pipeline right-of-way shall conform to minimum requirements set out in the agreement with the owner of the right-of-way.

2.7.4 Ditch and Stream Crossings

A. Crossing under a stream or ditch is preferred by the Village. The top of the carrier pipe shall be designed to provide a minimum clearance of at least four feet (4') below the ultimate flow line and sides of the ditch and with sufficient bottom length to exceed the ultimate future ditch sections.

B. Where existing or proposed bridges have sufficient space and structural capacity for installing water mains or conduits (twelve

inches (12") or smaller) under the bridge, but above the top of the bent cap elevation, such installation will be permitted upon specific approval of the construction plans. In all cases, the water main or conduit shall be above the bottom chord of the bridge and eighteen inches (18") above the 100-year water surface elevation. All conduits attached to a bridge shall be constructed using steel pipe and shall extend a minimum of ten feet (10') beyond the bridge bent or to the right-of-way line, whichever is greater. All conduit attached to a bridge shall be maintained by the owner of the conduit or will be subject to removal.

C. Separate, free-standing crossings across drainage ways are not allowed.

D. All stream or ditch crossings shall be constructed of steel pipe from right-of-way to right-of-way.

2.8 Trench Safety

All construction within the Village of Pleak and its extraterritorial jurisdiction shall conform to the requirements of Village of Pleak and in accordance with applicable OSHA regulations, for trench safety. Trench safety is required for all excavations greater than five feet (5') in depth.

2.9 Street Lighting

2.9.1 The installation of street lighting shall be mandatory along all public streets in the Village of Pleak. For areas in the extraterritorial jurisdiction of the Village of Pleak, street lighting shall be required and reviewed by the Village of Pleak in accordance with these Standards.

2.9.2 The location of street lights will be designed by the local utility company and reviewed and approved by the Village of Pleak.

2.9.3 Private lighting systems may supplement or replace all or a portion of public street lighting as long as the net result provides equivalent lighting to the standard set herein. A perpetual entity, such as an incorporated homeowners association and/or an appropriate private entity, shall notify the Village of Pleak of its agreement to pay for the operation,

maintenance, and insurance of a private lighting system prior to installation of the system. The system shall be approved by the Village Council.

2.9.4 Street lights shall be designed in accordance with the requirements set out in Appendix E.

2.9.5. Street lights shall comply with Fort Bend County Orders for Regulation of Outdoor Lighting.

2.10 Bench Marks

2.10.1 A permanent bench mark shall be set in each subdivision section or at a spacing of one mile, whichever is greater. The bench mark shall have an elevation based on the National Geodetic Vertical Datum of 1929, current adjustment.

2.10.2 The bench mark elevation and location shall be certified by a Texas Registered Professional Land Surveyor in accordance with the Texas Society of Professional Surveyors "Standards and Specifications" for Category 8, Condition II, TSPS Second Order Vertical Control Survey. Accuracy shall comply with said specifications. All elevations will be based on the US Coast and Geodetic Datum of 1929 (NVD 1929).

2.10.3 The bench mark horizontal positions shall be certified by a Texas Registered Professional Land Surveyors "Standards and Specifications" for Category 7, Condition II, Second Order Horizontal Control. Accuracy shall comply with said specifications. All horizontal control will be based on the US Coast and Geodetic datum of 1927 (NAD 1927).

2.10.4 All bench mark locations shall be provided with ties to existing monuments including coordinates using Texas Plane Coordinate System, Central Zone.

2.10.5 Bench marks shall be constructed of a brass disc set in concrete as approved by the Village of Pleak. The concrete footing for the bench mark shall be eight inches (8") in diameter and three feet (3') deep. Concrete shall be reinforced with two number four (2-#4) rebars.

2.10.6 The construction plans shall clearly identify the location of the bench mark and shall include a complete description, coordinates and elevation, with adjustment date, of the bench mark.

2.11 Residential Lots and Improvements

2.11.1 All residential lots shall drain to a public right-of-way directly adjoining the lot. Drainage from a residential lot to a public right-of-way at the rear or side of a lot may be permitted provided the drainage system has been properly designed to accept the flow. Drainage from a residential lot to an adjoining greenbelt or golf course shall require a public easement for drainage purposes to be maintained by the homeowner's association or appropriate private entity. Drainage to a private easement shall require specific approval by the Village Engineer. Drainage to a private easement shall be noted on the recorded subdivision plat. Drainage to a Fort Bend County drainage easement shall be approved by the Fort Bend County Drainage District.

2.11.2 A lot grading plan showing proposed minimum slab elevations will be included in the construction plans. If slab elevations do not change, a notice of minimum elevation will suffice. The minimum slab elevation shall also be shown on the subdivision plat.

2.12 Flood Plain Management

2.12.1 All development shall conform with the requirements of the National Flood Insurance Program, as required by the regulations of the local governing authority having jurisdiction.

2.12.2 Amendments to the published flood maps, map revisions and all requests for changes to the base flood elevation within the Village limits shall be submitted to the Village of Pleak for approval. Technical data required by the Federal Emergency Management Agency and justification for the proposed change must be included with all requests. All requests for changes to the base flood elevation within the Village of Pleak extraterritorial jurisdiction shall be submitted to the Village of Pleak for comments.

2.12.3 All data submitted shall be prepared under the supervision of a registered professional engineer and/or a registered public surveyor and shall comply with all requirements of the Federal Emergency Management Agency.

DIVISION 3 - WATER SYSTEM DESIGN REQUIREMENTS

3.1 General

Water system design requirements are established based on land uses as established in this section.

3.1.1 Residential Development shall include all properties within the Village's extraterritorial jurisdiction.

3.1.2 Commercial Development shall include all properties within the Village's extraterritorial jurisdiction.

3.1.3 Construction and sizing of all water mains and appurtenances shall meet or exceed the requirements of the Texas Commission on Environmental Quality.

3.1.4 The Public Water System shall not extend beyond the water meter. All construction to the meter shall conform to the Standards. All private construction beyond the meter shall conform to the requirements of the Pleak Plumbing Code.

3.1.5 Design shall conform to the Village of Pleak Construction Details.

3.2 Water Main Sizing and Materials

3.2.1 Water mains in Residential Development shall have a minimum size as follows:

A. No two-inch (2”) water lines permitted.

B. Four-inch (4") mains may serve a maximum of twenty (20) lots when supported on both ends by a larger main. A dead end four inch (4") main may supply a maximum of ten (10) lots, shall not exceed four hundred feet (400') long and shall be terminated with a blow off. Fire hydrants are not allowed on a four inch (4") main.

C. Six-inch (6") mains shall be a maximum of one thousand five hundred feet (1,500') long when supported on both ends by eight-inch (8") mains or larger and shall have no more than two (2) intermediate fire hydrants. Dead end six-inch (6") mains shall not be more than six hundred feet (600') in length and shall terminate at a fire hydrant.

D. Eight-inch (8") mains are required for mains over one thousand five hundred feet (1,500') long, or when three (3) or more intermediate fire hydrants are required. Eight-inch (8") mains shall not be dead end, except as provided in Section 3.2.2.

E. Twelve-inch (12") and larger mains will be required at locations established by the Village Engineer.

3.2.2 Water mains in Commercial Developments shall have a minimum sizing as follows:

A. Minimum size of mains shall be eight-inch (8"). Maximum length of a dead-end eight-inch (8") main shall be three hundred fifty feet (350'). A dead-end main shall be terminated with a fire hydrant.

B. Twelve-inch (12") and larger mains will be required at locations established by the Village Engineer.

C. Six-inch (6") fire hydrant leads will not exceed two hundred feet (200') in length.

3.2.3 The length of a dead-end water main shall be measured from the intersection with a multiple feed (looped) main to the end of the main. The allowable length of a dead-end main with multiple sizes shall not

exceed the allowable length of smallest main as required in Section 3.2.1 and 3.2.2.

3.2.4 Water mains shall be constructed using the following materials:

A. Poly Vinyl Chloride (PVC) Pressure Pipe, four-inch (4") through sixteen-inch (16”) shall conform to the requirements of ANSI/AWWA C900, current revision, Class 150 DR 18. Pipe shall be designed and constructed in conformance with the minimum requirements of the "Manual of Water Supply Practices", AWWA Manual No. M23.

B. Ductile-Iron Pipe (D.I.P.), four-inch (4") through fifty-four-inch (54"), shall conform to the requirements of "Ductile-Iron Pipe, Centrifugally Cast in Metal Molds for Sand-Lined Molds, for Water and Other Liquids", AWWA C151, (ANSI A21.51), current revision. Pipe thickness shall be the minimum specified in C151. Under special conditions, the Village Engineer may require thickness design in conformance with the minimum requirements of "Thickness Design for Ductile-Iron Pipe", AWWA C150 (ANSI A21.51), current revision. Pipe shall be installed in conformance with the minimum requirements of AWWA C600, "Installation of Gray and Ductile Cast-Iron Water Mains and Appurtenances". Ductile-Iron Pipe shall be furnished with bituminous or cement mortar lining, AWWA C104 (ANSI A21.4). Polyethylene tube encasement shall be provided as required in Section 3.8.6 of these Standards.

C. Steel Water Pipe, four-inch (4") and larger shall conform to the requirements of "Standard for Steel Water Pipe Six Inches and Larger", AWWA C200. Steel pipe, minimum wall thickness shall conform to the thickness shown on the Village of Pleak Construction Details. All steel pipes shall have coal tar coating in accordance with "Standard for Coal-Tar Protective Coatings and Linings for Steel Water Pipelines - Enamel and Tape-Hot Applied", AWWA C203, liquid epoxy interior coating in accordance with “Liquid Epoxy Coating System for the Interior and Exterior of Steel Water Pipelines”, AWWA C210 and/or” Painting for Steel Water Storage Tanks” AWWA D102. All material used

for internal coating of steel carrier pipe must be NSF61 listed as suitable for contact with potable water as required in Chapter 290, Rules and Regulations for Public Systems, TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, latest revised..

D. Other pipe materials may be used for construction of water mains, when specifically approved by the Village Engineer.

E. Bedding and backfill shall conform to the Village of Pleak Construction Details.

F. Alternate materials which are identified in the Approved Products List may be used with specific approval from the Village Engineer.

3.2.5 Water mains and appurtenances are not allowed in the following sizes: three-inch (3"), and fourteen-inch (14").

3.2.6 All public water mains shall be installed within a water line or public utility easement or right-of-way.

3.2.7 Construction of water mains shall be in accordance with approved construction plans and the Village of Pleak Construction Details.

3.3 Location of Water Mains

3.3.1 The recommended location for water mains within the right-of-way are as follows:

A. One-Hundred Foot (100') Right-of-Way

1. All mains – five feet (5') inside right-of-way.

B. Eighty Foot (80') Right-of-Way

1. All mains – seven feet (7') or thirteen feet (13') inside right-of-way.

C. Sixty Foot (60') Right-of-Way

1. Paving width: Thirty-nine feet (39') F/F (face to face).
   a. All size mains – five feet (5') inside right-of-way.

2. Paving width: Twenty-seven feet (27') F/F (face to face).
   a. All size mains – maximum of twelve feet (12') inside right-of-way.
   b. When future widening is anticipated, location shall conform to 3.3.1A above.

D. Fifty-foot (50') Right-of-Way

1. Paving width: Twenty-seven feet (27') F/F (face to face).
   a. All main sizes – seven feet (7') from right-of-way.

2. Except when specifically approved by the City, a water line shall be placed in the center of a ten-foot (10') easement adjoining the right-of-way, when storm and sanitary sewers are both within the right-of-way.

3.3.2 Water mains shall be placed along a uniform alignment with the right-of-way. When necessary, the water main may be deflected at a fire hydrant location to accommodate proper installation of the fire hydrant. At all locations where a water main changes alignment, the location of the water main shall be clearly shown on the construction plans. A minimum distance of two feet (2') shall be maintained from the right-of-way line to the outside edge of the water line.

3.3.3 For new construction, any water main, except at a flush valve, located less than five feet (5') from the road right-of-way line and within the right-of-way shall have a water line easement adjoining the right-of-way. Water line easements adjoining a right-of-way for mains smaller than twelve inches (12") shall have a minimum width of five feet (5'). For mains greater than twelve inches (12") in diameter, the easement adjoining the right-of-way shall have a minimum width of ten feet (10').

3.3.4 When necessary, water mains may be located within the esplanade section of boulevard type streets. Mains should be located as near the

centerline as possible to avoid conflicts with future pavement widening.

3.3.5 Along streets with open ditch drainage, all twelve-inch (12") and smaller water mains may be located five feet (5') from the right-of-way line, and sixteen inch (16") and larger water mains shall be located subject to Village Engineer approval.

3.3.6 Water mains may be located at the center of a ten foot (10') waterline easement, provided the easement adjoins a public right-of-way.

3.3.7 Location of a water main in an easement not adjoining a public right-of-way shall be prohibited, except as specifically approved by the Village Engineer.

3.4 Clearance of Water Lines from Other Utilities

Water mains shall be designed and located to conform with the regulations of the Texas Commission on Environmental Quality.

3.4.1 When a water main is placed parallel to another utility line at or near the same grade, it shall have a minimum of four feet (4') of horizontal separation. When the other utility is a sanitary sewer, a minimum of nine feet (9') of separation must be provided. In the event that a minimum of nine feet (9') cannot be maintained, the sanitary sewer must be constructed of pressure type pipe with water-tight joints as used in water main construction and the clearances must be as defined in the following sections or as specifically approved by the Village Engineer. When a water main crosses a utility other than sanitary sewer, a minimum of six inches (6") of clearance must be maintained, and the water main shall have one joint of pipe, a minimum of eighteen feet (18') long, centered on the other utility.

3.4.2 For water mains crossing an existing or proposed sanitary sewer or force main, the following clearances shall be provided for protection from contamination. The minimum clearances will be approved only when justified and field conditions so dictate. The latest edition of "Rules and Regulations for Public Water Systems", Texas Commission on Environmental Quality shall be followed for minimum criteria and instructions for water line crossings.

3.4.3 When water mains and sanitary sewers are installed, they shall be installed no closer to each other than nine feet (9') in all directions and parallel lines must be installed in separate trenches. Where the nine foot (9') separation distance cannot be achieved, the following procedures shall be used.

A. Where a sanitary sewer parallels the water main, the sanitary sewer shall be constructed of ductile iron, or PVC pipe meeting AWWA specifications, having a minimum working pressure rating of one hundred fifty pounds per square inch (150 psi) or greater, and equipped with pressure type joints. The water main and sanitary sewer shall be separated by a minimum vertical distance of two feet (2'), and a minimum horizontal distance of four feet (4'), measured between the nearest outside diameters of the pipes, and the water main shall be located above the sewer.

B. Where a sanitary sewer crosses the water main, and that portion of the sewer within nine feet (9') of the water is constructed as described in Section 3.4.3 A, the water line may be placed no closer than six inches (6") from the sewer. The separation distance must be measured between the nearest outside pipe diameters. The water line shall be located at a higher elevation than the sewer, wherever possible, and one (1) joint, a minimum of eighteen feet (18') long, of the new pipe must be centered on the existing line.

3.4.4 Where water lines are installed in areas which have existing sanitary sewers, every effort should be made to maintain nine feet (9') of separation between the outside pipe diameters of the two lines. Where this separation cannot be achieved because of local conditions, which must be fully documented in any planning material submitted, the following spaces shall be observed.

A. Where a new water line is to cross or be installed in parallel with an existing sanitary sewer, and the sewer is constructed as described in Section 3.4.3 A, the separation distances specified in those rules shall apply as though the sewer were new.

B. Where a new water line is to be installed in parallel with an

existing clay, truss, or concrete gravity sewer showing no evidence of leakage and the water line is installed above the sewer a minimum of two feet (2') vertically and four feet (4') horizontally, the sanitary sewer need not be disturbed. Should excavation for the water line produce evidence that the sewer is leaking, then the sewer must be repaired.

C. Where a new water main is to cross an existing clay, truss, or concrete gravity sewer showing no evidence of leakage, the sewer need not be disturbed if the water line is to be installed at least twenty-four inches (24") above the existing sewer. A full joint of the water line, at least eighteen feet (18') long, should be centered over the sewer crossing, in this case, so as to provide maximum protection against contamination.

D. Existing clay, truss, or concrete sewer pipe which shows no evidence of leakage and because of physical limitations must remain at a higher elevation than a proposed intersecting water line or closer than two feet (2') may remain undisturbed if the water line is inserted in a joint of pressure type encasement pipe at least eighteen feet (18') long and two (2) nominal sizes larger than the water line. The encasement pipe should be centered on the sewer crossing and both ends sealed with cement grout. In lieu of this procedure, that portion of the sewer within nine feet (9') of the water line may be replaced with cast iron or ductile iron pipe with watertight joints as described in Section 3.4.3 A.

E. Unless sanitary sewer manholes and the connecting sewer can be made completely watertight and tested for no leakage, they must be installed so as to provide a minimum of nine feet (9') of horizontal clearance from an existing or proposed water line. Encasement of the water line in a carrier pipe as described in Section 3.4.4 D may be approved in special cases if the plans have approval of the Texas Commission on Environmental Quality.

3.5 Depth of Cover

Minimum depth of cover for water mains shall be as follows:

3.5.1 Twelve-inch (12") and smaller mains shall have a minimum cover of four feet (4') from the top of curb. For open ditch roadway sections, twelve-inch (12") and smaller mains shall be installed at least three feet (3') below the ultimate flowline of ditch or six feet (6) below natural ground at the right-of-way line, whichever is deeper.

3.5.2 Sixteen-inch (16") and larger mains shall have a minimum cover of five feet (5') from the top of curb. For open ditch roadway sections, sixteen-inch (16") and larger mains shall be installed at least three feet (3') below the flowline of ditch or seven feet (7') below natural ground at the right-of-way line, whichever is deeper.

3.5.3 Changes in grade to clear other utilities or underground features may be made by deflecting pipe joints. The maximum designed deflection shall be one-half (1/2) of manufacturers allowable deflection. The installation of fittings for vertical deflections or changes in grade shall not be allowed except with specific approval of the Village Engineer.

3.5.4 Use restrained joint pipe for lines sixteen-inch (16") diameter and smaller with less than four feet (4') or more than eight feet (8') of cover. The following direct bury alternates may be used:

(1) Ductile iron pipe pressure class 250 with approved restrained joints.

(2) PVC pipe with ductile iron integral restrained joints, epoxy lined and coated fittings. Use 250 psi AWWA C900 DR 14 for vertical offsets.

(3) Use only ductile iron and PVC products listed on OCE Division approved products list.

3.5.5 In lieu of restrained joint pipe (and with specific approval from the Village Engineer) welded steel pipe may be used for all water mains with cover of less than four feet (4’) or greater than eight feet (8’) and for offset assemblies. Refer to the Village of Please Construction Details for offset assembly specifications.

3.5.6 All transitions from steel pipe to approved water main materials shall be

constructed using electrically isolated flange joints.

3.5.7 Welded steel pipe shall be constructed in conformation with the Village of Pleak Construction Details.

3.6 Valves

3.6.1 All water system valves shall conform with AWWA standards and shall be designed as follows:

A. Two-inch (2") through twelve-inch (12") valves shall be resilient seated gate valves, AWWA C509, counter-clockwise opening with push-on joints. Valves shall have a complete coating on all iron parts in the valve interior to eliminate corrosion.

B. Sixteen-inch (16") and larger valves may be butterfly valves, AWWA C504, with complete interior coating to avoid corrosion of all iron parts, as approved by the Village Engineer. All butterfly valves shall be installed in a vault of adequate size and construction, as approved by the Village Engineer.

C. Cast iron valve boxes are required on all gate valves less than or equal to sixteen-inch (16") as noted below. Valve vaults are required on all valves larger than sixteen-inch (16").

D. All valves shall be sized equal to the size of the main on which it is located.

E. Valves shall be approved by the Village and shall be listed on the Approved Products List provided by the Village Engineer.

3.6.2 Spacing - valves shall be set at maximum distances along the main as follows:

A. Four-inch (4") through and including twelve-inch (12") mains -one thousand feet (1,000’)

B. Sixteen-inch (16") and larger mains – two thousand feet (2,000’)

C. All main intersections shall have a minimum of one (1) less valve

than the number of mains at the intersection.

3.6.3 Location - valves shall be located as follows:

A. All mains shall be valved within the street right-of-way. Valves shall not be placed under or within two feet (2') of ultimate pavement, except as specifically approved by the Village Engineer.

B. Valves are normally located on the projection of intersecting street right-of-way lines or at the curb return adjoining a paved street across the main. Tapping sleeves and valves are excluded from this requirement.

C. All fire hydrants shall be isolated from the service main with a valve located in the fire hydrant lead.

D. Intermediate valves not located on the projection of intersecting street right-of-way lines may be located at lot line projections or five feet (5') from fire hydrants.

E. Valves shall be placed at the end of all mains that are to be extended in the future, and extend main a minimum of twenty feet (20') past valve.

3.7 Fire Hydrants

3.7.1 Fire hydrants shall have three-way nozzle arrangement, five and one-quarter-inch (5-1/4") compression type main valve, mechanical joint boot, and conform to the requirements of AMA C502. The pumper nozzle shall be four and one-half inch (4-1/2”) threads and the hose nozzles shall be two and one-half-inch (2-1/2") threads. Fire hydrants shall be listed on the Approved Products List provided by the Village Engineer (Appendix G).

3.7.2 Spacing - fire hydrants shall be spaced along all mains six-inches (6") and larger as follows:

A. Residential Development - Five Hundred Foot (500') Spacing.

B. Commercial Development - Three Hundred and Fifty Foot (350') Spacing and at all street intersections.

C. Fire hydrants should be set at street intersections.

3.7.3 Location - fire hydrants shall be located as follows:

A. Fire hydrants shall be located three feet (3') behind the back of curb or projected future curb and be set at the point of curvature (PC) of the intersection curb radius. A parallel tee may be used for a fire hydrant lead at the water main when specifically approved by the Village Engineer.

B. On all State Highways and open-ditch roadways, set the fire hydrants or flushing valves within three feet (3') of the right-of-way.

C. Fire hydrants located between right-of-way intersections should be set at a lot line, however, this location may be adjusted five feet (5') either way to miss driveways or other obstructions, in which case the fire hydrants should not be closer than three feet (3') from curbed driveways or five feet (5') from non-curbed driveways.

D. Fire hydrants may be located in the esplanade section of Village streets only when it is not feasible to locate them between the right-of-way line and the back of the curb. In such case, it is preferable to locate the fire hydrants seven feet (7') behind the esplanade back of curb to provide access for parkway mowers; but in no instance shall they be located closer than three feet (3') from the esplanade back of curb or five feet (5') from the esplanade edge of pavement.

All fire hydrants shall be located in protected, but easily accessible, areas behind the pavement.

F. Fire hydrant elevation shall be measured from the center of the stem or nozzle to either the top of curb or natural ground, whichever applicable, and shall be a maximum of thirty-six inches (36") with a minimum clearance at the stem or nozzle of eighteen-inches (18").

3.7.4 Depth of Bury - the depth of bury for all fire hydrants shall be established such that the bury line on the fire hydrant is installed at the ground line at each location or at the finished ground after pavement construction is completed. The depth of bury for fire hydrants shall be shown on the construction plans. Minimum cover for fire hydrant leads shall be four feet (4').

3.7.5 Fire hydrants shall not be installed within nine feet (9') of a sanitary sewer system under any conditions.

3.7.6 Fire hydrants shall be color coded on the fire hydrant bonnet and caps. The color coded paint shall be as follows:

Color	Water Main Diameter (In.)
White	16”
Green	12"
Orange	8"
Red ——	6"

The body of the fire hydrant will be painted silver. All paints shall conform to the Village of Pleak Fire Hydrant Color Code.

3.8 Fittings and Appurtenances

3.8.1 Fittings shall be Ductile-Iron Compact Fittings Three-Inch (3") - Twelve-Inch (12"), AWWA C153/A21.53.84, conforming to the minimum requirements of "Gray-Iron and Ductile-Iron Fittings, Twelve-Inch (12") through Forty-Eight-Inch (48"), for Water and Other Liquids", AWWA C110 (ANSI 21.10), current revision. Fittings shall be furnished with bituminous or cement mortar lined, AWWA C104 (ANSI A21.4).

3.8.2 All fittings shall be identified and described on the construction plans.

3.8.3 Fittings are not permitted in fire hydrant leads, except as specifically approved by the Village Engineer.

3.8.4 Normally, all water main fittings have mechanical joints. Push-on joints may be used at special locations if specifically approved by the Village Engineer.

3.8.5 All plugs shall be provided with retention clamps.

3.8.6 Polyethylene tube encasement shall conform with the minimum requirements of "Polyethylene Encasement for Gray and Ductile Cast-Iron Piping for Water and Other Liquids", ANSI/AWWA C105, current revision. Soils within the project shall be tested in accordance with Appendix A of ANSI/AWWA C105 to adequately determine the requirements for encasement.

3.8.7 Concrete thrust blocking shall be required on all bends, tees, plugs and combinations thereof. Refer to Village of Pleak Construction Details for specifications.

3.10 Crossings

Installation of a water main across a proposed or existing highway, county road, public street, railroad, pipeline, or drainage way shall conform to the requirements of Section 2.7.

3.11 Water Services

3.11.1 Water Service in Residential Development

A. Water service from the main to the curb stop shall be installed using approved materials from the Approved Products List supplied by the Village Engineer.

B. Minimum size water service line and fittings shall be one inch (1")

for single meter connections for homes having more than three thousand (3,000) square feet of living area. For homes with less than three thousand (3,000) square feet of living area, a three-quarter-inch (3/4") diameter water service line will be permitted.

C. Minimum size water service line shall be one inch (1") for a far side double residential meter connection for homes less than three thousand (3,000) square feet. Minimum size water service line shall be one and one-half inches (1-1/2") for a far side double residential meter connection for homes greater than three thousand (3,000) square feet.

D. Water service lines shall be placed at a minimum depth of thirty-six inches (36") below top of pavement elevation.

E. Water meters shall be three-quarter-inch (3/4") to two-inch (2") displacement type, magnetic drive, cold water meters. Meters will be installed by the operator at the time of building construction on the lot.

F. Meter boxes shall be located just within the public right-of-way along the projection of a lot line. Location of meters on open ditch streets shall be specifically approved by the Village Engineer.

G. All water service fittings and appurtenances for all projects shall be approved by the Village and shall be listed on the Approved Products List provided by the Village Engineer (Appendix C).

H. Village maintenance shall end at the water meter. The water meter box or vault shall be constructed to meet the Village's requirements and will be maintained by the Village.

3.11.2 Water Service in Commercial Developments

A. Detector check valves shall be required on fire lines.

B. Service meters that are two inches (2") and smaller shall be set in a separate exclusive water meter easement with minimum dimensions of five feet by five feet (5' X 5') and shall be located in easily accessible areas adjoining a public right-of-way or water line easement, but protected from traffic behind curbed sections. Meters may be located in the water main easement provided the water main easement is located such that the accessibility and protection of the meter is as specified immediately above.

C. Service meters that are three inches (3") and larger and detector check valves shall be set in separate exclusive water meter easements with minimum dimensions of ten feet by twenty feet (10' X 20') and shall be located in easily accessible areas, adjoining a public right-of-way or water line easement, but protected from traffic behind curbed sections. Refer to the Village of Pleak Construction Details for details.

D. The location of the service line tee, valve, valve box and temporary plug shall be designated on the construction plans in the appropriate location to serve the "future meter".

E. All apartments or townhomes proposed in a private street development shall have one or two master meters sized adequately to serve the entire development. Exceptions to this policy may be specifically approved by the Village Engineer based on an unusual situation. Meters shall be installed in compliance with the Village of Pleak Construction Details.

F. All large meters within the Village of Pleak will be installed and maintained by the Village of Pleak, except as specifically approved by the Village Engineer. In the extraterritorial jurisdiction, all large meters will be reviewed by the Village of Pleak, installed by Contractor, and maintained by operator of District.

G. Village maintenance shall end and include the meter and check valve vaults. The vaults shall be constructed to meet the Village's requirements and will be maintained by the Village.

3.12 Overall System Layout

3.12.1 Layout and size of all water mains shall be consistent with the overall layout and phasing plan of the Village's water system. Layout of the overall system and of all water mains within the Village's extraterritorial jurisdiction shall be approved by the Village Engineer. The overall water system shall be designed to maintain adequate pressure throughout the system.

3.12.2 The layout of the water mains should provide maximum circulation of water to prevent future problems of odor, taste, or color due to stagnant water.

A. Provide a source of fresh water at each end or at multiple points in a subdivision. Provide adequate circulation and place valves and fire hydrants, so that flushing of all mains will be simplified.

B. Dead-ends should be avoided. All dead-ends should be isolated with a line valve, be as short as possible, and be equipped with a fire hydrant or blow off at the end of the main as required in Section 3.2.

C. In unavoidable permanent dead-end situations, reduce the sizes of pipe successively. Carry a six-inch (6") pipe to the last fire hydrant, then use four-inch (4") PVC to the end of the line. Provide a standard two-inch (2") blow off at the end of the main.

D. Where a water main is stubbed out for future extensions, place a valve to isolate the dead-end and provide no customer services from the dead-end until it is extended. Provide a standard two-inch (2") blow off at the end of the main.

3.13 Additional Standards

3.13.1 Construction Features - In conjunction with the design, the engineer shall determine the extent of, and fully exemplify on the plans, all special construction features required to complete the project in a manner of safety, convenience, and economics.

3.13.2 Bore and Jack - Bore and jack sections shall be clearly shown on plans by location and footage. The following criteria is generally used as a basis for setting bore and jack sections.

A. Public Streets - All public streets are to be bored and jacked regardless of surface. Bore and jack length shall be computed as roadway width at proposed bore plus five feet (5) to either side.

B. Driveways - Whenever it is cost effective, concrete driveways in good condition shall be bored and jacked. Bore and jack length shall be computed as driveway width at bore plus one foot (1') to either side. Where driveways cross culvert pipe sections along open ditch streets and the proposed water main is in close proximity and parallel to the culvert pipe, the length of bore shall be the same as the length of culvert pipe.

C. Sidewalks - When the water line crosses under a sidewalk four feet (4') or more in width and in good condition, the sidewalk shall either be bored and jacked or the sidewalk shall be removed and replaced to the Village of Pleak criteria, whichever is cost effective. Bore and jack length shall be at least the width of the sidewalk. The proposed type of construction shall be noted on the plans.

D. Trees - When saving trees and shrubs in a previously developed area is a consideration, all trees six inches (6") and larger in diameter within ten feet (10') of the centerline of the water main must be noted on the plans. The water main should be bored and jacked within the drip line of any tree larger than six inches (6") in diameter.

E. Bore Pits - Bore pits shall be at least three feet (3') from back of curb and five feet (5') from back of curb on a major thoroughfare. Bore pits in highway, county road, or railroad right-of-way shall conform to these requirements and to the requirements of the crossing permit and/or use agreement. All bore pits shall be shored in accordance with OSHA requirements. Bore pits and/or receiving pits to be located in street or driveway paving, shall be shown on plans.

3.13.3 Open Cuts - Where open cuts are required in street paving, plans should call for steel plate covers to be installed and maintained over the cut during periods when contractor is not actively engaged in work at the site. Streets that are open cut shall be "saw cut".

3.13.4 All existing developed areas shall be restored to original condition after construction.

3.13.5 Proper barricading and signage, conforming to the Texas Manual of Uniform Traffic Control Devices, must be required on all projects. Adequate signage for vehicular and pedestrian traffic will be installed.

DIVISION 4 - SANITARY SEWER DESIGN REQUIREMENTS

4.1 General

4.1.1 Sanitary sewers within the Village of Pleak's jurisdiction shall allow for orderly expansion of the system and shall conform with the comprehensive water and sewer plan for the Village of Pleak.

4.1.2 Sewers shall be sized based on the minimum requirements set out in this standard and the standard wastewater flow rates as established by the Village of Pleak.

4.1.3 All sewers shall conform to the minimum requirements of the Texas Commission on Environmental Quality “Design Criteria for Sewerage Systems".

4.1.4 Sewers shall be separated from water lines by a minimum of nine feet (9'). Where the minimum separation is not maintained, refer to Section 3.4 for allowable clearances. Sewers crossing utilities other than water, a minimum of twelve inches (12”) of clearance must be maintained.

4.1.5 The public sanitary sewer, as maintained by the Village of Pleak, shall be defined as all sewers, including stacks and service leads, that serve more than one sewer connection, that are located in public easements or street rights-of-way, and that are installed in accordance with these Standards.

4.1.6. Design shall conform to the Village of Pleak Construction Details.

4.2 Sewer Design and Materials

4.2.1 Minimum design criteria for determining the size of a sewer shall be as follows:

A. Wastewater flows shall be based on the current, approved utility phasing plan for the area. The average day flow for the design of sanitary sewers shall be based on a minimum set by the plan in gallons per day per single family connection for residential areas. Commercial, industrial, and office areas shall be designed for an average day flow that can be anticipated from the contributing area.

B. The peak design flow for sewers shall be four (4) times the average day flow of the fully developed service area. Sewers larger than eighteen-inch (18") may be sized using a peaking factor of less than four (4) with approval of the Village Engineer. The minimum allowable values for the design peak factor are presented in Appendix C of these Standards.

C. Minimum size public sewer shall be eight-inch (8").

D. Minimum size sewer service lead shall be six-inch (6") and shall not serve more than two (2) residential services.

E. Commercial sewer service lead shall be six-inch (6") pipe or larger and shall not serve more than one (1) commercial connection. Specific approval shall be required for lines less than six inches (6").

4.2.2 Sewers will be constructed of materials specified in the Village of Pleak Approved Products List.

4.2.3 Cement Stabilized Sand for Bedding and Backfill:

A. Portland Cement, Type I, ASTM C150.

B. Clean, durable sand, with less than 0.5 percent clay lumps, ASTM C142; with less than 5 percent lightweight pieces, ASTM C123; with organic impurities, ASTM C40, not showing a color darker than standard color and a plasticity index of less than six (6) when tested in accordance with ASTM D423 and ASTM D424.

C. Compact to ninety-five percent (95%) Standard Proctor Density (ASTM D2922-78 and ASTM D3017-78) in lifts of twelve inches (12") thick. Actual testing may be required as deemed necessary by the Village.

D. The cement-sand mixture shall consist of at least one and one-half (11/2) sacks of cement per cubic yard of sand. The cement-sand mixture shall have a minimum unconfined compressive strength of one hundred pounds per square inch (100 psi) in forty-eight (48) hours, when compacted to ninety-five percent (95%) of Standard Proctor Density (ASTM D2922-78 and ASTM D3017-78), without additional moisture control, cured and tested in accordance with ASTM C31.

4.3 Location of Sanitary Sewers

4.3.1 Street Right-of-Way

Sanitary sewers with a maximum depth of ten feet (10'), measured from finished grade, shall be placed within the right-of-way at least five feet

(5') from the right-of-way line, except as provided herein. All sewers that are deeper than ten feet (10') shall be centered in an exclusive easement parallel and adjoining the right-of-way. Where required in accordance with Section 2.4.5, additional easement shall be provided adjoining the right-of-way to provide required clearances.

4.3.2 Easements

A. Sanitary sewers placed in easements shall conform to the requirements of Section 2.4.5.

B. No rear sanitary sewer lines.

4.4 Design Requirements

4.4.1 Allowable Depths

Sewers shall be designed to meet or exceed the pipe manufacturer's recommendations for depth. The approved list of specific material and guidelines for sewers is available from the Village Engineer.

4.4.2 Minimum depth of a sewer shall be four feet (4') below finished grade or top of curb, whichever is lower.

4.4.3 Sewer bedding will be cement stabilized sand, as required in Section 4.2.3, or approved granular material. Bedding shall be compacted to ninety-five percent (95%) Standard Proctor Density to the spring line on sewer lines shallower than eight feet (8') and six inches (6") over pipe for sewer lines eight feet (8') deep and greater, prior to backfilling the trench. In water bearing sand, washed shell or other approved granular material will be required. Trevira wrap will be required for water bearing soil as shown in the Village of Pleak Construction Details. When water bearing sands are encountered, the Village of Pleak shall be notified immediately.

4.4.4 A mandrel test shall be performed prior to acceptance of all installed P.V.C. pipe. The initial mandrel test shall be performed thirty (30) days after the trench has been backfilled. The mandrel must move freely inside the pipe and will be pulled by hand from the upstream end of the

pipe to the downstream end. Test equipment shall conform to the requirements set out in Appendix D. A second mandrel test, after settlement has occurred, may be required by the Village Engineer to determine long term deflections. Deflections in P.V.C. pipe shall not exceed five percent (5%).

4.4.5 Hydraulic Requirements

A. Design velocity in a gravity sewer flowing full shall be a minimum of two feet (2 fps) per second. Where sewers are anticipated to flow less than one-half full, consideration should be given to increasing the slope of sewer to provide two feet (2') per second velocity in the pipe for the anticipated flowrate.

B. Minimum acceptable slopes in sewers shall be:

Size of Pipe (Inches)	Fall in Feet Per 100 Feet of Sewer
6	0.65
8	0.40
10	0.25
12	0.20
15	0.15
18	0.11
21	0.09
24	0.08

C. Sewers are to be designed so that the crowns of the pipes are matched at manholes. The upstream sewer may be designed so that the flowline of the upstream sewer is higher than the flowline of the downstream sewer. When the flowline of the upstream sewer is raised more than three feet (3') above the flowline of the downstream sewer, a drop manhole connection is required, except as specifically approved by the Village Engineer.

D. Sanitary sewer service leads shall be laid at one percent (1.0%) slope.

4.4.6 Alignment

A. Sewers should be laid in a straight alignment, where possible. Curved sewers may be allowed with specific approval of the Village Engineer.

B. Sewers less than eighteen-inch (18") in diameter may be curved by deflecting the pipe at the joint. Deflection shall not exceed one-half (1/2) of the pipe manufacturer's recommendations for joint deflection. Eighteen inch (18") and larger sewers may be curved using manufactured bends with a maximum deflection of eleven and one-quarter degrees (11-1/4°). Deflected pipe joints and bends shall be shown and specifically located on the construction drawings. Televising may be required at the Village's discretion.

4.5 Appurtenances

4.5.1 Manholes

A. Manholes should be placed at points of changes in alignment (except along a curved sewer), grade, or size of sewers, at the intersection of sewers and at the end of all sewers. Clean-outs will not be permitted on public lines.

B. Manholes should be spaced at a maximum distance of four hundred feet (400') apart.

C. Sewers laid in easements shall have a manhole in each street crossing.

D. Manholes should be located to eliminate the inflow of storm water into the sanitary sewer. The top of manhole rim elevation shall be shown on the plans for all sanitary manholes, except in the paved area. Sealed manholes may be permitted, within the 100-year flood plain, when specifically approved by the Village Engineer.

E Manholes shall be constructed in accordance with the Village of Pleak Construction Details.

F. A drop manhole should be constructed for any sewer twelve-inch (12") diameter or less that enters a manhole of greater than thirty-six inches (36") above the invert of the manhole. Sewers larger than twelve inches (12") shall be designed to accommodate a drop at the manhole using standard pipe fittings.

G. Steps in manholes will not be permitted.

H. Fiberglass manholes with precast, gasketed, concrete bottoms may be permitted for manholes that are less than eight feet (8') deep and are located within an easement. Fiberglass manholes are not allowed in street rights-of-way.

I. Manhole covers shall be cast iron, traffic bearing type ring and cover with the words "sanitary sewer" cast into the cover.

J. All manhole adjustments shall be made with precast concrete rings or kiln fired red brick.

K. All manhole covers shall be a minimum 32-inch diameter.

4.5.2 Stacks

Stacks shall be constructed for connections to sewers that are more than eight feet (8') below finished grade. Stacks shall be provided during the initial construction of the sewer.

4.5.3 Lift Stations

Lift stations shall be designed in conformance with the "Texas Commission on Environmental Quality Design Criteria for Sewerage Systems". Lift stations should be considered only when a gravity system cannot be achieved. All lift stations shall be specifically approved by the Village Engineer. The Design Engineer shall provide design requirements and pertinent data with construction plans for review. A preliminary design meeting with the Village Engineer is recommended. Lift stations shall be designed as follows:

A. Pumps shall be sized to operate at optimum efficiency. Minimum acceptable efficiency at the operating point will be sixty percent (60%), unless specifically approved by the Village Engineer.

B. Operation and maintenance should be considered in the design of the station and the location of the station.

C. Wet well working volume should be sized to allow for the recommended pump cycle time of fifteen (15) minutes for each pump.

D. Controls and equipment shall be approved by the Village Engineer. Pumps shall be manufactured by Hydromatic, Flygt or ABS, or equal. Pump controls shall be manufactured by E. G. Controls or Consolidated Electric, or equal. For equals, refer to the Village of Pleak Approved Products List.

E. Emergency operations should be considered. Provide fittings and a blind flange that will be readily accessible for emergency bypass pumping.

4.6 Service Connections

4.6.1 Sewer service leads shall not exceed one hundred feet (100') in length. Near side double sewer service leads shall not exceed five feet (5') in length and shall be located within a public right-of-way or easement.

4.6.2 Single-Family Residential Lots

A. Far side service connections shall be installed at the time of construction of the sewer. Double sewer service leads shall be located within a public right-of-way or easement.

B. Service connections shall be constructed of materials as described in Section 4.2.2.

C. Service connections should be installed at a manhole, when possible.

4.6.3 Multi-Family Residential, Commercial, and Office Development

A. Service connections shall be made at a manhole. Long service connections should be installed at the time of construction of the sewer.

B. Service connections shall be constructed of materials as described in Section 4.2.2.

4.6.4 Service Connections at Manholes

A. Service connections at manhole should be made when possible. When a service connection stub-out is not provided, an opening shall be neatly cut out of the manhole at the required elevation. The service connection shall be extended into the manhole.

B. Service connection at a concrete manhole shall be grouted in place using non-shrink grout, Fosroc Preco-Patch, or equal. For equals, refer to the Village of Pleak Approved Products List. When a hole for a service connection in a brick manhole exceeds eighteen inches (18"), the manhole shall be rebuilt above the disturbed area.

C. Service connections at fiberglass manholes shall be drilled, uniformly, through the manhole wall. A neoprene gasket shall be installed around the pipe to provide a water-tight seal through the wall. Where required, fiberglass matte and resin shall be used, in accordance with the manufacturer's recommendations, to repair wall openings.

D. Service connections entering a manhole three feet (3') or more above the flowline of the manhole shall include a drop pipe with fittings outside the manhole. The drop shall be installed adjoining and anchored to the wall of the manhole, unless specifically approved otherwise.

4.6.5 Provide adequate markings on site and accurate as built locations, so that the service connection stub-out can be recovered at the time that the connection to the service is made.

4.6.6 All connections to the public sewer system shall be approved by the Village Engineer prior to construction. Actual connections to the public sewer system shall be inspected by a representative of the Village Engineer within Village Limits or approved by the District Operator in the extraterritorial jurisdiction.

4.6.7 Service connections that are installed after initial construction of a sewer shall be constructed using a P.V.C. saddle with gasket and stainless steel straps as approved by the Village Engineer.

4.7 Unsewered Building Site

Sanitary sewer shall be extended to all building sites prior to development. Septic systems are not allowed, except as specifically approved by the Village Engineer.

4.8 Testing Installed Pipe

4.8.1. An infiltration, exfiltration or low pressure air test shall be performed. All tests shall be in accordance with the TEXAS COMMISSION ON ENVIRONMENTAL QUALITY Design Criteria for Sewage Systems and ASTM C828, C924, F141, or other appropriate procedures. Testing times are outlined in the TEXAS COMMISSION ON ENVIRONMENTAL QUALITY design criteria.

4.8.2. Deflection testing shall be performed on all flexible pipes. The test shall be conducted after the final backfill has been in place at least thirty (30) days. Testing shall be done in accordance with the TEXAS COMMISSION ON ENVIRONMENTAL QUALITY Design Criteria for Sewerage Systems.

DIVISION 5 - DRAINAGE DESIGN REQUIREMENTS

5.1 General

5.1.1 All drainage plans and construction shall meet or exceed the requirements of the Village of Pleak, Fort Bend County Drainage District, and all other entities having jurisdiction.

5.1.2 All drainage systems that are to become a maintenance responsibility of the Village of Pleak shall be enclosed storm sewers, except as specifically approved by the Village Engineer.

5.1.3 Public storm sewers are defined as sewers and appurtenances that provide drainage for a public right-of-way, or more than one private tract, and are located in public right-of-way or easement. Private storm sewers provide internal drainage for a reserve or other tract. Private storm sewer connections to public storm sewers shall occur at a manhole or at the back of an inlet as approved by the Village Engineer. All private storm sewers within the public right-of-way shall be constructed in conformance with these Standards.

5.1.4 All construction shall conform with the Village of Pleak Construction Details.

5.1.5 All storm sewers shall meet or exceed the requirements of the "Drainage Criteria Manual for Fort Bend County, Texas" and the requirements of the Village of Pleak as follows:

A. Design frequency for newly developed areas:
The design storm event for sizing storm sewers in newly developing areas will be a 2-year rain fall.

5.1.6 Design shall conform to the Village of Pleak Construction Details.

5.2 Storm Sewer Materials

5.2.1 Storm sewer and culvert pipe shall be precast reinforced concrete pipe, unless specifically approved by the Village Engineer. Concrete pipe shall be manufactured in conformance with the requirements of ASTM C 76, "Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe", current revision. Reinforced concrete pipe shall be Class III or stronger. The design engineer shall provide for increased pipe strength when conditions of the proposed installation exceed the allowable load for Class III pipe. All concrete pipe constructed in waterbearing soil or forty-two

inches (42") in diameter or larger, shall have rubber gasket joints meeting the requirements of ANSI/ASTM C 443, "Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets", current revision. Concrete pipe with a diameter of less than forty-two inches (42") may be installed using pipe with tongue and groove type joint and Ram-nek, or approved equal, as a joint filler. When specifically approved by the Village Engineer, reinforced concrete arch and elliptical pipe conforming to ASTM C506 and C507, respectively, current revision, may be installed in lieu of circular pipe. Reinforced concrete box culverts shall meet the minimum requirements of ASTM C789, "Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers", current revision. Pipe joints for arch and elliptical pipe and box culverts shall be sealed using Ram-nek or approved equal. For equals, refer to the Village of Pleak Approved Products List.

5.2.2 Storm sewer outfalls into open channels shall be constructed using corrugated steel pipe. Corrugated steel pipe shall be manufactured in conformance with the requirements of AASHTO Designation M-36-82, current revision. Pipe material shall be Aluminized Steel Type 2, meeting the requirements of AASHTO Designation M-274-791, current revision, or Precoated Galvanized Steel, AASHTO M-246, 10 mil coating on both sides. All pipe shall have a full double coating, Residential, in accordance with AASHTO Designation M-190, current revision. Pipe joints and fittings shall meet the minimum requirements of these specifications and shall have an 0-ring gasket seal meeting the requirements of AASHTO C-361, current revision. (See the Village of Pleak Construction Details).

5.2.3 Storm sewer outfalls shall have slope protection to prevent erosion. Slope protection may be constructed of slope paving or rip rap. Slope paving shall be four-inch (4") five (5) sack concrete with six-inch by six-inch (6" x 6") welded wire mesh (W14 x W1.4) or three-eights-inch (3/8") steel rebar on twenty-four-inch (24") centers, each way. Rip rap shall be a minimum of six-inch (6") broken concrete rubble with no exposed steel or well-rounded stone and shall be a minimum of eighteen inches (18") thick. Slope protection texturing shall be required where public access likely. Refer to the Village of Pleak Construction Details for minimum dimensions.

5.2.4 Alternate materials are identified in the Approved Products List and may be used with specific approval from the Village Engineer.

5.3 Location of Storm Sewer

5.3.1 Public storm sewers shall be located within a public street right-of-way or a storm sewer easement, dedicated to the public and adjoining a public street right-of-way.

5.3.2 Recommended alignment within a public street right-of-way.

A. One-hundred foot (100') right-of-way with two (2) twenty-five-foot (25') streets – along centerline of the right-of-way.

B. Eighty-foot (80') right-of-way with forty-five-foot (45') street – six feet (6') inside right-of-way.

C. Sixty-foot (60') street right-of-way.
   1. Twenty-eight-foot (28') street (except when widening is anticipated) – five feet (5') inside right-of-way.

   2. Forty-one-foot (41') street – five feet (5') inside right-of-way.

D. Fifty-foot (50') street right-of-way.
   1. Twenty-eight-foot (28') street – six feet (6') inside right-of-way.

   2. For all storm sewer located in a public street right-of-way, a minimum distance of two feet (2') shall be maintained inside the right-of-way line to the outside edge of the storm sewer.

E. Alternate locations for a storm sewer will be permitted by the Village Engineer.

5.3.3 Recommended alignment within an exclusive storm sewer easement.

A. Storm sewers placed in easements shall conform to the requirements of Section 2.4.5.

B. Storm sewers within easements shall be placed no closer than five feet (5') measured from the outside edge of the pipe to the edge of an easement, except when adjoining another easement or public right-of-way where the distance may be reduced to two feet (2'). The storm sewer shall be placed in the center of the easement. When the storm sewer easement adjoins a public right-of-way, the easement may be reduced to a minimum of ten feet (10') and the storm sewer may be aligned closer to the right-of-way line, as long as required clearances are met, with specific approval of the Village Engineer.

5.4 Construction Plan Requirements

5.4.1 A drainage map shall be included in the construction plans. The drainage area map shall include:

A. Drainage areas, including areas draining from off-site onto or adjoining the project.

B. Design storm runoff.

C. 100-year storm runoff.

D. Route of overland flow including the overflow to a drainage way sized to accommodate the 100-year flow.

E. Elevations for the 25-year and 100-year storms in the outfall channel.

F. Flow per inlet.

G. Maximum 100-year ponding elevation.

5.4.2 Detailed drainage calculations shall be submitted with the construction plans.

5.4.3 The hydraulic gradient for the design storm shall be shown on the construction drawings. Calculations for the elevation of the hydraulic gradient shall be provided with the design storm drainage calculations.

5.5 Design Requirements

5.5.1 Minimum depth of a storm sewer (measured to the top of pipe) shall be twenty-four inches (24") below top of curb or finished grade, whichever is lower. Minimum size storm sewer for main and inlet lead shall be twenty-four inch (24").

5.5.2 Storm sewers shall be bedded using cement stabilized sand (See specification in Section 4.2.3.) as shown in the Village of Pleak Construction Details.

5.5.3 Pipe Requirements

A. Reinforced concrete pipe, as described in Section 5.2.1 shall meet or exceed the following minimum requirements:

Pipe Class	Maximum Cover (Ft.)
III	15'
IV	30'

Reinforced concrete pipe installed at a depth greater than thirty feet (30') shall be designed by the engineer for the specific installation and approved by the Village Engineer. Reinforced concrete pipe shall be designed in accordance with the American Concrete Pipe Association, "Concrete Pipe Design Manual". Maximum cover on the pipe shall be measured from the top of pipe to the ultimate finished grade or natural ground, whichever is greater.

B. Corrugated steel pipe shall have a minimum thickness as follows:

Pipe Size (Inches)	Corrugations	Minimum Thickness (Inches)
24	2-2/3” x 1/2”	0.052
30-48	2-2/3” x 1/2”	0.064
54-72	3” x 1” or 5” x 1”	0.064
78-102	3” x 1” or 5” x 1”	0.079

Bedding for corrugated steel pipe shall be cement stabilized sand (See specification in Section 4.2.3.) and shall have a minimum density of ninety-five percent (95%) Standard Proctor. Corrugated steel pipe less than or equal to fifty-four inches (54") in diameter and less than thirty feet (30) deep shall have the minimum thickness given above. Corrugated steel pipe larger than fifty-four inches (54") in diameter and greater than thirty feet (30') deep shall be designed by the engineer for the specific installation and approved by the Village Engineer. Corrugated steel pipe shall be designed in accordance with the American Iron and Steel Institute, "Handbook of Steel Drainage and Highway Construction Products".

5.5.4 Storm sewers shall have a minimum clearance of six inches (6") from all other utilities. The clearance shall be measured from the outside wall of the pipe.

5.5.5 Design storm runoff shall be calculated in accordance with the "Drainage Criteria Manual for Fort Bend County, Texas".

5.5.6 Hydraulic Requirements.

A. Storm sewers shall be designed to have a minimum velocity of three feet per second (3 fps), when flowing full. Manning's formula should be used to compute the size of the storm sewer. Manning's coefficient, n, is 0.013 for concrete pipe and 0.024 for corrugated metal pipe.

B. Minimum acceptable slopes in reinforced concrete pipe storm sewers shall be:

Size of Pipe (Inches)	Fall in Feet Per 100 Feet of Sewer
24	0.17
30	0.13
36	0.10
42	0.08
48	0.07
54	0.06
60	0.05
66	0.045
72	0.040
78	0.036
84	0.033
90	0.030
96	0.028

C. Inlet capacity for the design storm shall be computed using a maximum water surface elevation equal to the top of curb at the inlet. Design capacity for a Commercial-B or H-2 inlet with a six-inch (6") standard curb shall be five (5) cubic feet per second. Design capacity for a Commercial inlet shall not exceed two and one-half (2.5) cubic feet per second.

D. Design storm flow in a street shall not exceed the capacity of the street, for the water surface equal to the top of curb, and shall not exceed the inlet capacity. Design storm flow shall meet Fort Bend County criteria.

E. For any public street, the top of curb elevation shall be at or above the 100-year flood plain elevation. For any public street, the maximum public street ponding and flow levels for the street for the extreme event analysis is the lowest of the following: (1) one foot above the natural ground or abutting lots; (2) one foot above top of the street curb; or (3) one foot

below the lowest slab elevation of buildings on abutting lots. The Village may approve an exception to the drainage requirements if the Village approves development with reduced building setbacks and the imposition of the above drainage requirements would result in the streets, sidewalks, or public parking violating federal or state disabled accessibility requirements. In that case, if the underground storm drainage system is correspondingly increased in size to handle that maximum street ponding and flow levels, the Village may allow: (1) maximum public street ponding and flow levels that are at least five inches below the lowest building slab elevations on abutting lots; and (2) regardless of any other provision of the Design Standards, building slab elevations on abutting lots that are at least one foot above the adjacent gutter.

F. The lowest chord of all bridges must be a minimum of eighteen inches (18") above the 100-year water surface elevation or in accordance with the Federal Emergency Management Agency (F.E.M.A.) regulations, latest revisions, whichever is greater.

G. The internal storm drainage system for a regional mall retail development shall be sized for a conduit capacity capable of maintaining hydraulic design conditions below parking lot elevations during a twenty-five (25) year storm with a thirty (30) minute time of concentration.

5.5.7 Storm sewers less than forty-two inches (42") in diameter shall be constructed on a straight horizontal and vertical alignment between manholes. Storm sewers greater than or equal to forty-two inches (42") in diameter may be laid along a curve using manufactured bends of less than or equal to 11-1/4°. Camera inspection may be required on storm sewers constructed along a curve.

5.6 Appurtenances

5.6.1 Manholes

A. Manholes shall be placed at all changes in alignment (except sewers

laid along a curve), grade and size of storm sewers; at the intersection of two or more storm sewers; at all inlet leads; and at the end of all storm sewers.

B. Maximum spacing between manholes shall be seven hundred feet (700').

C. Manhole covers shall be cast iron, traffic bearing, type ring and cover with the words "storm sewer" cast into the cover.

5.6.2 Inlets

A. Curb inlets shall be spaced and sized to intercept the calculated runoff for the design storm. The water surface elevation at the inlet shall be less than or equal to the top of curb for the design storm flow.

B. Maximum travel distance of water in the street to a curb inlet shall be three hundred feet (300') on a major thoroughfare and in a commercial area. The maximum travel distance of water in the street permitted in a single-family residential area shall be six hundred feet (600').

C. Curb inlets should be located on the intersecting side street at an intersection with major thoroughfare. Locations on the major thoroughfare at intersections shall be specifically approved by the Village Engineer.

D. Grated inlets will not be permitted in an open ditch.

E. Backslope swale interceptors shall be placed in accordance with the requirements of Fort Bend County.

F. H-2 curb inlets are required on all streets that do not access residential lots (D-106). B-B curb inlets may be used on streets with access to residential lots. B-B type curb inlets must have grate inlet lids.

G. Inlets must be backfilled with 1.5 sacks per cubic yard of cement stabilized sand placed to the top of first stage inlet.

5.6.3 Safety End Treatments (SET)

Safety End Treatments (SET) must be placed on drainage culverts for commercial driveways, public streets, and residential driveways that cross open ditches located in the public right-of-way that are adjacent to and parallel to the public street. Safety End Treatments (SET) specifications shall meet Texas Department of Transportation requirements.

DIVISION 6 - PAVING DESIGN REQUIREMENTS\

6.1 General

6.1.1 All paving plans and construction shall be approved by the Village of Pleak for all streets within the Village of Pleak and its extraterritorial jurisdiction.

6.1.2 All paving plans and construction shall also be approved by the Fort Bend County Engineer, for work outside the Village Limits of Pleak.

6.1.3 All streets shall be concrete curb and gutter.

6.1.4 Street design should conform to all applicable planning tools, such as the Village of Pleak Subdivision Ordinance, the Texas Manual on Uniform Traffic Control Devices, major thoroughfare plans, master plans, etc. Other considerations for design should include street function, street capacity, service levels, traffic safety, pedestrian safety, and utility locations. These additional considerations may effect the minimum requirements set forth herein. Refer to the Fort Bend County Major Thoroughfare Plan.

6.1.5 Fire lane easements shall be specified on all multi-family and non-residential plats. All fire lane easements must have access to public roadways. Location, alignment width, and construction specifications shall be reviewed and approved by the Village Engineer.

6.1.6 Design shall conform to the Village of Pleak Construction Details.

6.2 Street Pavement Widths and Right-of-Way Widths

6.2.1 Minimum Allowable Pavement Width

A. A minor street (single family residential) shall be twenty-seven feet (27') wide measured from the inside of curb to inside of curb. Minimum width of right-of-way shall be sixty (60') feet. For asphalt paving sections with open road-side ditches, a minimum of a seventy (70) foot right-of-way width a thirty-two (32) foot asphalt roadway section with two (2) foot gravel shoulders.

B. A collector street means a street whose function is: (a) to collect and distribute traffic between major thoroughfares and minor streets, (b) to collect and distribute traffic between multiple subdivisions, (c) to serve commercial tracts or other nonresidential tracts, or (d) to serve planned unit development. It is not necessarily of continuous routing for long distances, has intersections at grades, provides direct access to abutting property, and shall include each street designated as a collector street on the thoroughfare plan or so designated by the Commission and Village Council. Minimum paving width of a collector street shall be forty (40) feet measured inside curb to inside curb. Minimum width of right-of-way shall be eighty (80) feet.

C. A major thoroughfare (undivided) shall be a minimum of two (2) twenty-four (24) foot lanes of paved width measured from the inside of curb to inside of curb, with a fifteen (15) foot median for a four (4) lane divided roadway, or a fifty-one (51) foot paved width measured inside curb to inside curb for a four (4) lane undivided roadway. Minimum width of right-of-way shall be one hundred (100) feet.

D. Alleys may be required in commercial and industrial districts. Service alleys in commercial and industrial districts shall have a minimum concrete pavement width of twenty feet (20’). An easement may be substituted upon approval of the Village if the easement is also an extra width fire lane easement. In residential districts, alleys shall be parallel, or approximately parallel to the frontage of the street. Alleys in residential districts shall provide a minimum of twenty feet (20’) of right-of-way and twelve feet (12’) of concrete pavement.

H. Access streets shall have a minimum right-of-way width of sixty feet (60') and shall be developed with a minimum of a thirty-six foot (36') pavement section measured inside of curb to inside of curb.

I. In the event private interior streets or private rear access easements are utilized in a townhouse subdivision, provisions shall be included in the restrictive covenants for such subdivision to ensure that there is adequate funding for the perpetual maintenance of such private streets and rear access easements.

6.3 Grading and Layout Requirements

6.3.1 Minimum gradient on gutter shall be 0.30 percent. For special conditions where the gutter must be placed at a flatter grade, the minimum grade may be 0.25 percent with specific approval of the Village Engineer.

6.3.2 Inlet spacing as defined in Section 5.6.2.

6.3.3 Maximum cut measured from finished grade at the right-of-way line to top of curb shall be 1.75 feet. The recommended maximum slope for driveways shall be ten (10) to one (1) slope. Variation of this requirement may be allowed with specific approval of the Village Engineer.

6.3.4 Minimum one percent (1%) fall around intersection turnout for a minimum radius of twenty-five feet (25’). Grade for larger radius shall

be determined on an individual basis.

6.3.5 All streets shall have a six-inch (6”) or 4”x12” high concrete curb as shown in the Village of Pleak Standard Details, unless otherwise specifically approved.

6.3.6 Cul-de-sac pavement:

A. Single family, residential - pavement radius measured to the back of curb shall be forty feet (40’).

B. Multi-family, residential, commercial, and industrial – radius measured to the back of curb shall be fifty feet (50’).

C. Cul-de-sac pavement with an unpaved median is permitted. The minimum pavement width for the cul-de-sac will be forty feet (40’) for single family residential areas and fifty feet (50’) for multi-family residential, commercial, and industrial areas. Right-of-way radius shall be increased to accommodate the increased paving width.

D. The distance from the back of curb of a cul-de-sac to the right-of-way line shall be a minimum of ten feet (10’).

E. Curb radii at the transition to the cul-de-sac shall have a minimum radius of twenty-five feet (25’) in single family residential areas and thirty-five feet (35’) in other areas.

F. Maximum lengths of cul-de-sac streets for residential subdivision shall be one thousand feet (1,000’), serving a maximum of twenty-four (24) residential lots. Maximum length of cul-de-sac streets for commercial or industrial developments shall be six hundred feet (600’). A traffic analysis may be required in commercial or industrial areas to determine high traffic volumes that may be generated from the development, reducing the maximum length of cul-de-sac allowed.

6.3.7 Minimum slope for the gutter of a cul-de-sac or of the long radius of an L-type street shall be 0.60 percent.

6.3.8 Major thoroughfares with a centerline radius of the right-of-way less than two thousand feet (2,000') shall be designed considering recommendations for super elevation in accordance with the American Association of State Highway and Transportation Officials, "A Policy on Geometric Design of Highways and Streets", 1984, or latest edition. Signage and design speed shall be considered for all curved thoroughfares. A maximum rate of super elevation should be 0.04 for urban conditions.

6.3.9 The amount of cross slope over the pavement section should be shown on the plans (the usual cross slope is three-eights-inch (3/8") per foot from the curb line to quarter point, and one-fourth-inch (1/4") per foot from quarter point to centerline, and one-eighth-inch (1/8") per foot for left turn lanes).

6.3.10 When connecting to an existing curbed street, the gutter lines for the proposed and existing streets shall be matched.

6.3.11 Proposed top of curb elevations should be designed to match the top of the curb at an existing inlet.

6.3.12 Top of curb elevations shall be shown on the construction plans.

6.3.13 Gutter elevations are required for vertical curves where a railroad tract is being crossed.

6.3.14 Where railroad crossings are not at right angles to the pavement slab, vertical curves should be calculated for each curb line and should be posted at ten-foot (10') intervals in the profile.

6.3.15 Vertical curves shall be designed when algebraic difference in grades exceed one percent (1%). Elevations shall be shown on the construction plans at ten-foot (10') intervals through vertical curves. The gradient for tangents to vertical curves at railroad crossings shall be a maximum of 3.5 percent (3.5%). All crest vertical curves shall be determined by sight distance requirements for the design speed. The minimum design speed on any vertical curve shall be based on the street classification.

6.3.16 Intersections:

A. Curb radii shall be twenty-five feet (25') minimum in residential areas and thirty feet (30') minimum in commercial or industrial areas or on major thoroughfares. Refer to Appendix F for allowable curb radii at intersections for various intersecting streets.

B. Streets and traffic lanes shall be properly aligned across an intersection. Proposed streets shall be aligned with existing streets.

C. When turnouts are provided at an existing street, the ultimate cross section is required to the end of curb return. Pavement transition is required to reduce the pavement width to the existing cross section.

D. Intersections should be designed as high point in the drainage system, when possible.

6.3.17 Pavement width transitions shall conform to Appendix F of the Design Standards. Minimum transition lengths shall meet or exceed requirements of the Texas Manual of Uniform Traffic Control Devices.

6.3.18 Left turn lanes shall conform to Appendix F of the Design Standards. Minimum bay storage lengths may need to be calculated as per traffic analysis. The referenced standards are minimum requirements. Middle block left turns may be permitted when approved by the Village Engineer.

6.3.19 Median openings for major thoroughfares shall conform to Appendix F of the Design Standards. When areas adjoining the right-of-way are not planned for immediate development, esplanade openings may be spaced one thousand feet (1,000') apart when specifically approved by the Village Engineer.

6.3.20 Horizontal dowels are required when making a connection of a proposed street to an existing concrete street that has no exposed steel.

A. Dowels shall be number four (#4) bars, sixteen inches (16") long, eighteen inches (18") center-to-center, embedded eight inches (8") and epoxied.

B. As an alternate to paragraph A above, saw cut and remove existing

concrete to expose a minimum of ten inches (10”) of longitudinal steel, in good condition, with an equivalent cross section area of steel equal to the proposed pavement steel.

6.3.21 Dead-end streets designed to be extended in the future shall have fifteen inches (15”) of reinforcing steel exposed beyond the pavement, coated with asphalt and wrapped with burlap for future pavement tie.

6.3.22 Paving headers shall be placed at the end of all concrete slabs.

6.3.23 All concrete to be removed shall be removed either to an existing joint or a sawed joint.

6.4. Sidewalks

6.4.1 Sidewalks may be installed at the expense of the developer in the manner described in this section. Sidewalks shall be four feet (4’) in width on each side of all public residential streets. Sidewalks of five feet (5’) in width are required on each side of a collector street and a major thoroughfare. Construction of a sidewalk along a single-family residential local street may be deferred until a lot is improved, provided there is a note regarding sidewalk construction on the recorded subdivision plat.

6.4.2 Sidewalk wheelchair ramps shall be required at all intersections.

6.4.3 Sidewalk construction in an esplanade: Concrete sidewalk, six inches (6”) thick may be constructed in all esplanades. All concrete sidewalks in esplanades shall be a minimum of six feet (6’) wide as measured from the esplanade nose. Patterned concrete or brick may be used with specific approval of the Village Engineer.

6.5 Traffic Control Devices

6.5.1 Type III barricades shall be permanently installed at the end of all dead-end streets not terminating in a cul-de-sac and at all turnouts. Barricades must meet the requirements of the Texas Manual of Uniform Traffic Control Devices for Type III Barricades. Type III barricades must be Scotchlite brand, or approved equal, high intensity sheeting on a nominal two-by-eight inch (2"x8") non-pressure treated #2 pine wood, painted white with latex enamel paint.

6.5.2 Traffic and street signage locations shall be shown on the paving site plan in the construction plans. Traffic signals shall conform to the requirements of the Texas Manual on Uniform Traffic Control Devices. Prior to final approval of a construction project, all signage shall be installed in accordance with the approved construction plans.

6.5.3 Traffic Signs

A. Standard sign blanks shall be aluminum conforming to ASTM B209; alloy 5052-H38. Preparation of aluminum sign blanks must conform to specification MIL-C-5541C. The coating material must be included on the OPL-871706-10 list or subsequent additions thereto. Sheeting for signs must be Scotchlite, or approved equal. Visual Impact Performance (VIP) Diamond Grade Sheeting shall be used on all signs on all roadways classified as Collector or greater, Scotchlite brand, or approved equal, High Intensity Sheeting shall be used on all other road signs. Signs shall be mounted on a 2-3/8 inch diameter by twelve foot (12') long galvanized tubular post with vandal proof mounting brackets.

B. Street name signs shall be at least nine inches (9") in height. The sign sheeting color type shall be green, electrocut film #1177. Sheeting for signs must be Scotchlite, or approved equal. Visual Impact Performance (VIP) Diamond Grade Sheeting shall be used on all street name signs on all roadways classified as Collector or greater. Scotchlite brand, or approved equal, High Intensity Sheeting shall be used on all other street name signs. All signs

shall include three inch (3”) size hundred blocks and abbreviated roadway classifications. All three inch (3”) numbers and letters shall be 7/16” stroke width. “No Outlet” signs, where required or used, shall be incorporated into the street name signs and the yellow background with black three inch (3”) lettering shall be at the end of the sign pointing towards the “No Outlet”.

C. The nine inch (9") street name sign blanks shall be aluminum conforming to ASTM B209; alloy 5052-H38 or 2154-H38. Preparation of aluminum sign blanks must conform to specification MIL-C-5541 C. The coating material must be included on the QPL-81706-10 list or subsequent additions thereto. The sign blanks shall be extruded aluminum and shall be installed on tubular sign supports with a minimum sign length of thirty inches (30") and a maximum length of forty-eight inches (48"). When a "No Outlet" is included, the maximum sign length is fifty-four inches (54"). Letters shall be white six inch (6") upper case with Helvetica Medium, font #H0907 letter style. The six inch (6") letters shall have a stroke width of 1-1/4 inch. To accommodate longer street names, alternative stroke widths may be approved.

D. Overhead street name signs are required on all traffic signals. Overhead street name signs shall be fourteen inch (14") in height, with green electrocut film #1177. Signs shall be Scotchlite brand, or approved equal, VIP sheeting and the aluminum shall be 0.125 gauge with radius corners. Preparation of aluminum sign blanks shall conform to specification MILC-5541 C. The coating material must be included on the QPL-81706-10 list or subsequent additions thereto. All signs shall include four inch (4") size hundred blocks and abbreviated roadway classifications. All four inch (4") numbers and letters shall be 13/16 inch stroke width. The fourteen inch (14") signs shall include a ^{3}/% inch white border on the outside edge of sign. Letter :sizes shall be eight inch (8") upper case with a 1-11/16 inch stroke width.

E. All permanent and temporary (construction zone) traffic control devices shall conform to the Texas Manual of Uniform Traffic Control Devices and Texas Department of Transportation standards

(where applicable), latest revision.

F. All posts shall be mounted in concrete eighteen inches (18") deep with a minimum of three inches (3") in diameter of concrete surrounding the post. All sign posts and signs shall remain in their natural condition with no painting or coating allowed.

6.5.4 Pavement markings shall be shown on the approved construction plans. All pavement markings shall be retro-reflective material applied to the road surface in a molten state by screed/extrusion, suspend extrusion or spray means, with a surface application of glass beads. For lane delineation, reflectors shall be used on all roadways classified as Collectors or greater. The Village Engineer may approve variations of types of materials due to phasing, temporary construction, etc. All pavement markings shall comply with the Texas Manual of Uniform Traffic Control Devices and Texas Department of Transportation Standards, latest revision.

6.5.5 Developer shall install traffic control devices as warranted by a traffic study approved by the Village Engineer.

6.5.6. Traffic Signal hardware for mast arms and other appurtenances shall be designed to meet Texas Department of Transportation load requirements.

6.6 Miscellaneous Requirements

6.6.1 Roadway connections to existing roadways shall be accomplished using a "Metropolitan Intersection", except as specifically approved by the Village Engineer.

6.6.2 All special, non-standard items, such as bomanite or concrete pavers and special signage, that are installed by the developer, shall be specifically approved by the Village Engineer and shall be maintained by the developer or his assigns. Any maintenance of non-standard items by the Village Engineer will be done using standard materials and methods.

6.6.3 All materials and workmanship shall conform to the Texas Department of Transportation Stand Specifications, 1993, and the Texas Manual on Uniform Traffic Control Devices, 1980, and any revisions thereto.

6.6.4 Developer shall install traffic control devices as deemed necessary.

6.7 Roadway Geometric Design

6.7.1 Horizontal Curvature and Vertical Curves

Horizontal curvature and vertical curve criteria for roadways are referenced to and shall conform to the major thoroughfare study for additional design criteria when special traffic hazards exist.

6.7.2 Storage Length

Storage lengths provided in turning lanes should be sufficiently long to store the maximum number of vehicles likely to accumulate during a critical period. A storage length which is too short could cause vehicles to undesirably back up into through traffic lanes.

Storage lengths should be calculated if turning volumes are known or may be accurately estimated. The formula for calculating storage length is:

L = 25N Where:

L = Length of storage lane in feet and,

N = Number of vehicles expected in the queue during the peak thirty (30) minute traffic period, using a Poisson Distribution, ninety percent (90%) confidence level, and a ninety (90) second arrival period.

Where analysis indicates that dual left-turn lanes are needed, a lane distribution of fifty-five percent (55%) in the leftmost lane and forty-five percent (45%) in the rightmost lane should be used for calculations.

Unless a longer storage length is indicated by the calculation, the minimum length of a left-turn storage lane for collector level or lower streets is one-hundred feet (100') from the nose to the point of transition. On major streets (collectors and thoroughfares), the minimum length is one-hundred fifty feet (150').

6.7.3 Intersection Sight Distance:

Each intersection design should consider the required sight distances before establishing corner right-of-way clips. Unless larger clips are indicated at a particular intersection, a twenty foot by twenty foot (20' X 20') triangular public open space corner clip, measured at the property line, is required on corner lots at the intersection of two public streets. A fifteen foot by fifteen foot (15' X 15') triangular corner clip or easement is required at the intersection of a public street and a dedicated alley. Intersection sight distance requirements shall conform to the major thoroughfare study for criteria.

6.7.4 Geometric street design standards shall conform to Appendix F of the Design Standards.

6.8 Points of Access Streets

(A) Points of Access. Single-family residential subdivisions, including patio home and townhouse subdivisions, shall have an adequate number of access points to provide for an orderly and safe movement of vehicular traffic. The minimum number of points of access from said subdivisions shall be as follows:

(1) Subdivisions with 50 or fewer lots - one (1) point of access

(2) Subdivisions with 51 to 125 lots - two (2) points of access, or one (1) point of access if that access is via a boulevard street section with no lots having direct access to the divided boulevard street section serving as said access

(3) Subdivisions with 126 to 250 lots - two (2) points of access, with at least one (1) point of access via a boulevard street section of at least one hundred twenty feet (120') in length (end of median to end of median), with no lots having direct access to the boulevard street section serving as said access, and at least one (1) point of access being directly to a collector or major

thoroughfare.

(4) Subdivisions with more than 251 lots - the number of access points shall be determined by the Village; however, there must be at least two (2) points of access, with at least one (1) point of access via a boulevard street section of at least one hundred twenty feet (120') in length (end of median to end of median), with no lots having direct access to the boulevard street section serving as said access, and at least one (1) point of access being directly to a collector or major thoroughfare.

6.9 Signs in residential subdivisions.

(A) Signs shall not be permitted in residential subdivisions except as specifically authorized in this section. No person shall cause a sign to be erected, constructed, relocated, altered, repaired or maintained until a special sign permit for such has been issued by the Mayor or his designee, and the requisite fee paid, except as otherwise provided in this section.

For purposes of this section the term "sign" shall refer to the area where graphics are displayed, including the immediate supporting structure. "Graphics" shall refer to the lettering and or logos that will be attached to, or engraved into a sign. "Graphics area" shall be measured by drawing a rectangle around the largest area of actual lettering and or logos and measuring the inside area.

(B) All applications for a special sign permit under this chapter shall include a drawing to scale of all proposed signs, all existing signs maintained on the premises and visible from the right-of-way, a drawing of the plot plan indicating the proposed location of the sign(s), and specifications. All applications for signs in the Right of Way shall contain a provision where the applicant shall hold the Village harmless from any and all claims, demands or cause of action brought by anyone or any entity for damages either directly or indirectly relating to the placement or existence of the proposed sign in the right of way. The Mayor or his designee may at any time in the appropriate case determine that there exists special circumstances and conditions necessitating the applicant provide the Village with additional security or impose additional conditions he determines necessary under the specific

circumstances. The permit may also contain special conditions the Mayor or his designee determines are necessary to insure compliance with this article or to protect the public and public property. It is unlawful for any person doing work under a permit to violate any special condition or other provision of the permit.

(C) To identify a single family residential development, two (2) detached identification signs may be constructed at each subdivision street entrance on opposite sides. A street intersection with an esplanade may also include a blade sign in compliance with this section. For purposes of this section a "blade sign" shall refer to as a sign placed in the median of a boulevard street.

Such signs will be subject to the following minimum conditions and restrictions:

(1) The signs must be of a masonry composition for permanent identification of a subdivision.

(2) Blade signs shall not exceed 3.5 feet in height above finished grade within a distance of fifteen (15) feet of the nose of the esplanade. Outside of this area, the height of the blade sign shall not exceed seven (7) feet in height above finished grade. Finished grade at a blade sign shall not exceed an elevation as determined by a 4:1 (horizontal: vertical) slope from the top of curb.

(3) Signs that are setback 0- 9.99 feet from the street right-of-way shall not exceed one hundred (100) square feet) in area; graphics area shall not exceed fifty (50) square feet.

(4) Signs that are setback 10 - 19.99 feet from the street right-of-way shall not exceed three hundred (300) square feet in area; graphics area shall not exceed eighty (80) square feet.

(5) Signs that are setback over 20 feet from the street right-of-way shall not have a specific limitation on area but shall be reviewed by the Mayor or his designee, premised upon safety and the objectives of this section, but the graphics area shall not exceed one hundred (100) square feet.

(6) The bottom of a sign shall not exceed a height of 18 inches above adjacent (natural) grade.

(7) The sign shall not be illuminated except by reflective flood light type illumination. There shall not be any flashing or intermittent lights. Lights which are not effectively shielded to prevent beams of light from being directed at any portion of the traveled way and/or brilliance as to cause glare or impair vision, or which otherwise interfere with the driver's operation of motor vehicle, are prohibited. All lighting shall comply with Fort Bend County regulations and all other state, local and federal regulations and requirements.

(8) The sign shall meet the wind load requirements of the building code.

(9) All signs shall be located in such a manner to: (i) avoid conflicts with utility lines; (ii) not encroach upon traffic visibility and appropriate sight distances necessary for the safe movement of traffic and pedestrians; and (iii) any other related safety concerns as determined by the Mayor or his designee.

(10) All signs, trees, shrubs, flowers, grass, vegetation, ferns, watering systems, lighting systems, ornamental gates, columns, or other ornamental features, materials and related landscaping denoting the entrance to a neighborhood or subdivision shall be maintained by the applicant or applicant's assignees, with any such assignment requiring prior authorization of the Mayor.

(D) Temporary or directional signs mean any sign(s) intended to be displayed for a limited period of time only; not exceeding the time limitations contained in this subsection, and shall be subject to the following minimum conditions and restrictions:

(1) Notwithstanding anything herein to the contrary, the placement, duration, and the number of signs shall be based upon the need demonstrated in the application as provided for in section (b) herein, including sign proximity, sight distances, and related health, safety and welfare requirements, as

determined by the Mayor or his designee after review of the application.

(2) Temporary signs shall not exceed a maximum of thirty-two (32) square feet.

(3) Signs may be displayed for a period up to 24 months or when 80% of the homes in the subject residential subdivision have been sold.

(4) Temporary signs may be displayed only on private property with written consent of the property owner.

(5) Temporary signs may be located at intersections where the road turns onto different streets leading up to the subdivision entrance. If there are no turns, only one (1) temporary sign will be allowed per mile. All temporary signs are required to comply with 2,000 foot spacing from any other freestanding sign.

(E) The Mayor or his designee may suspend or revoke any permit issued under the provisions of this section whenever he shall determine that the permit is issued in error or on the basis of incorrect or false information supplied, or whenever such permit be issued in violation of any of the provisions of this section or any other ordinance of this Village or laws of this state or the federal government. Such suspension or revocation shall be effective when communicated in writing to the person to whom the permit is issued, or the owner of the sign facilities or the responsible party of the premises upon which the sign facility is located. If a permit is revoked the Village may remove or cause to be removed the sign facilities with out liability to the owner thereof. The Village shall upon removal not be responsible for the storage and/or safe keeping of the sign facilities or remnants thereof and shall have no liability to preserve the same or to exercise reasonable care for the removed sign or parts thereof.

(F) Any sign located in the public right-of-way may be temporarily or permanently removed, destroyed, or relocated at any time as determined by the Village without compensation to the person

owning or placing the sign.

(G) The Village Council may consider appeals on the basis that such regulations and/or standards will, by reason of exceptional circumstances, aesthetics or surroundings, constitute a practical difficulty or unnecessary hardship. The appeal must be submitted in writing to the Mayor or his designee within seventy-two (72) hours of the action being appealed. The Village Council in addressing such appeal may, in the interest of the public welfare and to ensure compliance with this section may establish conditions of operation, location, arrangement, proportionality scale, materials and construction of any use for which a permit is authorized herein. In authorizing the location of any use listed for a special sign permit, the Village Council may impose such development standards and safeguards as the conditions and location indicate important to the welfare and protection of adjacent property from glare, offensive view or other undesirable conditions. The revocation and appeal provisions in this section govern over any other conflicting provision in this Code.

DIVISION 7 - SITE DEVELOPMENT REQUIREMENTS

7.1 General

7.1.1 Site development plans for all site developments within the Village of Pleak and its extraterritorial jurisdiction shall be approved by the Village Engineer prior to construction.

7.1.2 Site developments, not including single family residential, shall include any project that affects public water, wastewater, storm drainage, or paving facilities.

7.1.3 All site developments shall conform to the requirements of these Standards, the Southern Standard Building Code, and applicable rules and regulations of the Village of Pleak.

7.1.4 All wastewater, drainage and paving site development improvements shall be privately owned, operated and maintained up to and including the connection to the public system. All water site development

improvements shall be privately owned, operated and maintained up to but not including the meter and meter vault.

7.1.5 Site development improvements which serve more than one private party, are located within public street rights-of-way or easements, are located within the Village of Pleak Village limits, and meet the design standards set forth herein may be accepted by the Village of Pleak for operation and maintenance.

7.2 Design Review Requirements for Site Development Plans

7.2.1 All site development plans for proposed developments shall be submitted to the Village Engineer for approval prior to construction. Site development plans shall show all proposed water, wastewater, paving, parking, drainage, and flood protection facilities.

7.2.2 A traffic impact study shall be required for any development proposal expected to generate traffic volumes that will significantly impact the capacity and/or safety of the street system in accordance with Section 1.4.2 of these Standards.

7.2.3 Two (2) copies of the site development plans shall be submitted to the Village Engineer for review. The Village Engineer will respond within fourteen (14) days with an approval letter and/or with plans showing the required changes.

7.2.4 When plan changes are requested, two (2) copies of the revised site development plans shall be resubmitted to the Village Engineer for final review and issuance of an approval letter.

7.2.5 Site development plans for projects located within the Village of Pleak shall be submitted to the Code Enforcement Department, with the Village Engineer approval letter attached, and construction plans, for issuance of a permit prior to construction.

7.3 Building Slab Elevations

Minimum building slab elevations within the Village Limits of the Village of Pleak shall be set at or above the elevation shown on the recorded plat, twelve inches (12") above the 100-year flood plain elevation and maximum ponding elevation, or eighteen inches (18") above natural ground or twelve inches (12") above the top of curb at the front of the lot, whichever is higher. Building slabs shall conform to the Village of Pleak Ordinance No. 595 or latest edition on flood damage prevention. Minimum building slab elevations within the extraterritorial jurisdiction of the Village of Pleak shall conform to the requirements of Fort Bend County.

7.4 Water Service

Water service lines and meters shall be sized in accordance with requirements set out in Division 3 of these Standards.

7.5 Sanitary Sewer Service

Sanitary sewer service leads are normally installed during construction of the public sanitary sewer. When a sanitary sewer service lead is to be installed for a site development, refer to requirements set out in Division 4 of these Standards. All lots, tracts, or reserves shall be connected directly to a public sanitary sewer by a single lead, except as specifically approved by the Village Engineer. The Village Engineer shall be contacted for all sanitary sewer connections for commercial projects within the Village and its extraterritorial jurisdiction.

7.6 Site Drainage Requirements

All commercial, industrial, office, recreational, and multi-family tracts deeper than one hundred feet (100') measured from the right-of-way line shall have an internal drainage system. The internal drainage system shall collect all site runoff beyond one hundred feet (100') from the right-of-way line into a storm sewer system that shall connect to the public drainage facilities in the area, except with specific approval. The one hundred foot (100') area adjacent to the right-of-way may sheet flow to the roadway drainage system if the roadway system is designed to accommodate the additional sheet flow from development.

7.6.1 The internal site storm sewer shall be connected to a public storm sewer at a manhole or at an inlet adjoining the site. The site drainage outfall shall

be connected to the nearest existing drainage system with adequate capacity to serve the drainage area. Where extension of the existing drainage system is required, all costs for extension shall be the responsibility of the development.

7.6.2 All internal site storm sewer extended into a public right-of-way or easement shall be reinforced concrete pipe at least twenty-four inches (24") in diameter. Only one connection will be allowed into the back of a curb inlet. Storm sewers shall be reinforced concrete pipe, ASTM C-76, Class III, with rubber gasket joints, ASTM C-443.

7.6.3 All internal facilities shall be designed by a registered professional engineer and shall be sized to drain the site in accordance with these Standards.

7.6.4 Drainage calculations shall be submitted with all site development plans. Other supporting data may be required by the Village Engineer.

7.6.5 When the site drains directly into a Fort Bend County drainage facility and/or into a highway right-of-way, the appropriate governmental entity (entities) shall approve the site development connection to public facilities.

7.7 Non-residential Driveways

7.7.1 The location and the width of all non-residential driveways that will connect to a public street must be reviewed and approved by the Village prior to construction. All driveways, residential and non-residential, must be installed in compliance with the Village of Pleak Construction Details.

7.7.2 Driveways serving non-residential and multi-family tracts that connect to a street classified as an arterial, highway, or freeway must be 35 feet wide. Other nonresidential driveways must be 25 to 35 feet wide. Single family residential driveways shall be a minimum of ten feet (10') wide at the right-of-way line.

7.7.3 It is the Village's policy to minimize whenever practicable the number of non-single family residential driveways on all arterial and collector streets in order to reduce the number of conflict points and facilitate

traffic flow. To facilitate that policy, driveways shall be placed no closer than the following distances from adjacent streets and driveways (measured from the projected curb line of the existing intersecting street or driveway to the projected curb line of the proposed driveway). More than one driveway is allowed as long as it meets the following criteria:

Roadway Classification	Minimum Separation
Highways/Freeways Intersecting Highway/Freeways U.S. 59, U.S. 90A, S.H. 99	TxDOT Requirements
Highways: S.H. 99, S.H. 6, U.S. 90A	TxDOT Requirements
Arterial: As indicated on Thoroughfare Plan	165’
Major Collector: As indicated on Thoroughfare Plan	165’
Minor Collector: As indicated on Thoroughfare Plan	165’
Local Street	75’
Cul-de-sac	50’

7.7.4. If the separation requirements for non-single family residential driveways cannot be met because of the location of existing driveways on adjoining tracts, joint access driveways or access easements across adjoining tracts should be used. When minimum separation requirements

cannot be met with the existing private driveway on the adjacent

property and joint access cannot be obtained, the controlling factor shall be to maximize the distance between the subject property's private driveway and the public cross street.

7.7.5 On streets classified as collectors, arterials, and highways that do not contain medians, non-residential driveways must align with driveways on the opposite side of the street or meet the minimum separation requirements.

7.7.6 At a signalized intersection in which one public street terminates at the intersection of a connecting cross street, a driveway shall not be placed on the cross street as to be in alignment with the terminating street. If the requirements for driveways otherwise allow the placement of a driveway at that location, the driveway width must match the cross-section of the intersecting public street. Non-residential driveway connections to the public street shall be approved and inspected by the Village of Pleak.

7.7.7 Single access driveway radii shall not extend beyond the projection of a property corner to the back of curb.

7.7.8 Driveways shall be located and designed so as to have adequate sight distances along the intersecting street.

7.7.9 Non-residential minimum driveway radii accessing **a** highway or greater shall have a radii of 35 feet (35'). Radii for driveways on other roadways shall be a minimum of 25 feet (25'). Refer to the Village of Pleak Construction Details for further information.

7.8 Fire Lanes

7.8.1 Fire lane easements shall be created on all multi-family and non-residential tracts. All fire lane easements must have access to public roadways and shall be located so that no building is greater than one hundred and fifty feet (150') from either a fire lane or a public street right-of-way.

7.8.2 Fire lanes shall be either twenty feet (20) wide with twenty-five foot (25') radii or twenty-four feet (24') wide with twenty-foot (20') radii.

7.8.3 Fire lanes shall be constructed using the same pavement structural requirements as public pavement. Alternate materials may be used with specific approval from the Village Engineer.

7.8.4 Fire lanes shall be designed to drain in compliance with the site development requirements.