

CHAPTER 9
ENGINEERING DESIGN & UTILITIES

Table of Contents

Part I.	Engineering Design.....	1
Section 9.01.	General Provisions	1
9.01.01.	Purpose and Intent.....	1
9.01.02.	Applicability	1
9.01.03.	General Requirements.....	1
9.01.04.	Other Codes	1
Section 9.02.	Platting Requirements	2
9.02.01.	Purpose.....	2
9.02.02.	Subdivision Design Standards	2
9.02.03.	Easements	2
9.02.04.	Plat Recordation Prior to Construction	3
9.02.05.	Performance Surety for Subdivisions and Site Plan Construction Projects.....	3
9.02.06.	Compliance with Design Requirements.....	4
Section 9.03.	Construction and Inspection Requirements	5
9.03.01.	Purpose.....	5
9.03.02.	Commencement of Construction	5
9.03.03.	Types of Inspections	5
9.03.04.	Privately Owned Bridges	5
Section 9.04.	Stormwater Management Requirements	6
9.04.01.	Purpose.....	6
9.04.02.	Performance Criteria.....	6
9.04.03.	Erosion and Stormwater Pollution Control.....	7
9.04.04.	Properties, Swales, and Road Surfaces Adjoining Construction Sites	7
9.04.05.	Land and Facilities Affected Outside the City.....	7
Section 9.05.	Land Modification of Platted Residential Lots.....	7
9.05.01.	Clearing and Earthwork	7
9.05.02.	Construction on Platted Residential Lots.....	8
Part II.	Utilities and Lighting.....	9
Section 9.06.	Utilities.....	9
9.06.01.	Establishment of Requirements and Regulations.....	9
9.06.02.	General Requirements.....	9
9.06.03.	Potable Water System	9
9.06.04.	Sanitary Sewer Systems, Industrial Wastes, and Low Pressure Effluent Pumping System.....	12
9.06.05.	On-Site Wastewater Treatment/Disposal Systems	13
9.06.06.	Interim “Package-type” Wastewater Treatment Facilities.....	14
9.06.07.	Reclaimed Water Systems	15

Section 9.07. Outdoor Lighting Requirements..... 16

9.07.01. Purpose.....16

9.07.02. Approved Materials and Methods of Installation16

9.07.03. Shielding and Filtering.....16

9.07.04. Requirements for Shielding and Filtering.....16

9.07.05. Parking Lot Lighting.....17

9.07.06. Roadways.....18

9.07.07. Prohibitions19

9.07.08. Exemptions19

List of Tables

Table 9-1: Requirements for Shielding and Filtering.....17

Chapter 9. Engineering Design and Utilities

Part I. Engineering Design

Section 9.01. General Provisions

9.01.01. Purpose and Intent

The purpose of this section is to set forth engineering design regulations for residential and nonresidential uses as required in this Land Development Code. This section sets forth uniform regulations, requirements, and procedures to protect the health, safety, and welfare of the citizens and to assure a quality of life to the citizens of the City. The Land Use Administrator may adopt technical manuals that relate to technical requirements pertaining to the City's water, wastewater, reclaimed water, drainage, street, and other systems.

9.01.02. Applicability

The design and construction requirements shall apply to:

- A.** Nonresidential and residential subdivision projects (applies to subdivisions with private or public roadway dedications);
- B.** Nonresidential and residential site plan projects; and
- C.** City and other public agency owned projects.

9.01.03. General Requirements

A. Utility Lines

- 1.** Utility lines for all new development projects shall be installed underground. Switchgear, pumps, transformers, and other appurtenances shall be allowed aboveground, but shall be shielded with landscaping as required in this Land Development Code. Connections from distribution lines, mains, and collectors in the public or utility rights-of-way or easements shall be placed underground.
- 2.** All redevelopment projects shall relocate existing on-site overhead utility lines underground. The Land Use Administrator may allow exceptions to this requirement if it is determined that such relocation is not feasible based upon the unique determination of the real property.
- 3.** For all new private and public development projects, underground communications conduit(s) shall be installed in accordance with City standards.

B. Traffic Control Devices

All traffic control devices shall meet the more stringent requirements of the latest edition of the Manual of Uniform Traffic Control Devices, Florida Department of Transportation Design Standards Road and Bridge Technical Specifications, Florida Highway Administration Standard Highway Signs, and Florida Department of Transportation Traffic Engineering and Operations Manuals.

9.01.04. Other Codes

Wherever the requirements of this Land Development Code conflict with the latest promulgated standards of the following agencies, the stricter standard shall apply:

A. Florida Department of Transportation

City of Palm Coast Unified Land Development Code
Chapter 9 - Engineering Design and Utilities

- B. St. Johns River Water Management District
- C. Florida Department of Environmental Protection
- D. United States Army Corps of Engineers
- E. Florida Fish and Wildlife Conservation Commission

Section 9.02. Platting Requirements

9.02.01. Purpose

The purpose of this section is to establish requirements for the subdivision of land in the City and to ensure compliance with **Chapter 177, Florida Statutes**.

9.02.02. Subdivision Design Standards

In addition to the requirements stated in other sections of this Code, subdivisions shall be designed according to the following:

A. Blocks

1. Block Length

Block length shall not exceed 1,400 feet, nor be less than seven hundred (700) feet, except that a maximum deviation of five (5) percent may be allowed by the Land Use Administrator.

2. Block Width

The width of any block shall be of sufficient dimensions to accommodate two (2) tiers of lots, except where one (1) tier of lots abuts an area of nonresidential development, an arterial street, a railroad, utility rights-of-way, or on landfill fingers.

B. Lots

All lots shall conform to the dimensional, yard, and building setback requirements of the applicable zoning district development standards. In addition, the following requirements shall apply:

1. Width

Corner lots shall be fifteen (15) percent greater in width than interior lots.

2. Depth

- a. Lots along arterial streets shall be deep enough to accommodate the two (2) required front yard setbacks.
- b. Flag lots are prohibited unless approved as part of a Master Planned Development.

3. Orientation

Residential lots shall not be platted in such a way that vehicular ingress and/or egress to/from those individual lots is provided from abutting limited access roadways or arterials.

9.02.03. Easements

A. Drainage Easements

1. Drainage easements of a width required for conveying and maintaining an adequate storm drainage system shall be provided, at a minimum width of ten (10) feet, where required by the Land Use Administrator, along waterways, natural watercourses, and drainage ways.
2. Whenever a subdivision lies wholly or partly in any area for which the City has adopted a drainage plan, and is traversed by a natural or designed watercourse for which such plan requires a drainage easement or right-of-way, such easement or right-of-way shall be set forth on the preliminary and final plat and shall be dedicated to the City for public use.

B. Utility Easements

Utility easements for both underground and aboveground facilities shall be provided where required by the Land Use Administrator. Such easements shall have a minimum width of ten (10) feet and shall normally be laid out on property lines. In all cases, such easements shall be dedicated to the perpetual use of the public. Where lots abut along a common property line, the easement may be centered along said common property line.

C. Pedestrian Easements

Pedestrian easements or walkways shall be provided through the interior of lots where such easements are required by the Land Use Administrator. Pedestrian easements shall be at least ten (10) feet wide and shall be laid out along side or rear property lines. In all cases, such easements shall be dedicated to the perpetual use of the public.

D. Public Sidewalk Easements

Where necessary to reroute a public sidewalk through private property due to inadequate right-of-way or for tree protection, an eight (8) foot easement shall be provided.

E. Private Easements

Private easements (or spite strips) between the road and the subdivision boundary or between subdivision boundaries shall not be permitted unless conditions under which the adjacent parcel can be connected to the road or adjacent property are established.

F. Easements and Right-of-Way Maintenance

The City will maintain only those easements, rights-of-way, and public sites which it accepts for maintenance.

9.02.04. Plat Recordation Prior to Construction

A request to record an approved plat must include all required development orders, all recording costs and fees, and either:

- A. Evidence of satisfactory completion of all required subdivision infrastructure based on a Final Inspection Report; or
- B. A surety guaranteeing funds to construct all subdivision improvements, should the developer default in the obligation to complete them.

9.02.05. Performance Surety for Subdivisions and Site Plan Construction Projects

At such time when the City agrees to accept the dedication of any public improvements, the developer shall execute performance and maintenance sureties that guarantee the required improvements against all defects in workmanship or materials, including failure to construct in accordance with approved plans and specifications.

A. Performance Surety

1. Plat and Site Plan Performance Surety Amount. A plat or site plan surety must be in the form of a cash bond, performance bond, or letter of credit. The cost estimate amount of the surety shall be based on one hundred twenty (120) percent of the sum of the following costs, as certified under seal by the project engineer of record:

- a. Required subdivision public infrastructure improvements costs.
- b. Costs of all required improvements relating to public road right-of-way.
- c. Costs of all required off-site public infrastructure improvements.

The amount of surety is subject to approval by the Land Use Administrator.

2. Performance Surety Release

Upon completion of all performance surety guaranteed improvements and inspections by the City, performance sureties shall be released by the Land Use Administrator. This action must be initiated, in writing, by the Developer.

B. Maintenance Surety

1. Plats and Site Plans with Public Improvements Maintenance Surety

A maintenance surety for public improvements shall be submitted upon release of the performance surety. The maintenance surety provides a guarantee that the required improvements were completed without defects in workmanship or materials. The expiration date shall be twelve (12) months after the date of the final inspection of the required improvements.

2. Maintenance Surety Amount

The amount of the maintenance surety shall be based on twenty (20) percent of the actual/present day costs of construction, as certified under seal by the project engineer of record, and subject to approval by the Land Use Administrator.

3. Maintenance Surety Release

The maintenance surety may be released no earlier than one (1) year after the completion of the required improvements by the Land Use Administrator. This action must be initiated, in writing, by the Developer.

9.02.06. Compliance with Design Requirements

All land development improvements for projects proposed as subdivisions or site plans with private or public roadway dedications, shall comply with all the requirements of this Land Development Code, which contain design and construction information for the following:

- A. Horizontal and vertical dimensional design requirements.
- B. Roadway, parking, and vehicle access ways.
- C. Pedestrian pathways, sidewalks, and recreational trails.
- D. Storm drainage, potable water, reclaimed water, and sanitary sewer infrastructure improvements.
- E. Clearing, earthwork, and grading.

Section 9.03. Construction and Inspection Requirements

9.03.01. Purpose

- A.** The purpose of this section is to establish requirements for the inspection of the construction of all site development improvements on both subdivision and site plan projects. The construction inspection procedures set forth in this chapter and City standards ensure conformity of construction with approved development orders, this Land Development Code, and any conditions of approval.
- B.** Separate construction inspection requirements for water and sewer improvements are established in Part II of this chapter. Inspections shall be performed as required by the Land Use Administrator.

9.03.02. Commencement of Construction

Commencement of construction or disturbance of land of any type is prohibited unless:

- A.** A final development order is issued;
- B.** All requisite federal, state, county, and City site work permits for the project are obtained, as evidenced by a certification, under seal, by the engineer of record, with copies of all permits attached to the certification; and
- C.** A preconstruction conference for the project is scheduled and held with the City, when required.

9.03.03. Types of Inspections

- A.** The following construction inspections shall be held during the course of the construction of the project:
 - 1.** Scheduled mandatory key checkpoint inspections.
 - 2.** Scheduled or requested minor inspections and field conferences
 - 3.** Unscheduled site visits and inspections.
 - 4.** All other inspections required by the governing contract for a specific project.
 - 5.** Scheduled final inspection for punch list work.
 - 6.** Scheduled reinspection of punch list work.
 - 7.** Scheduled final inspection walkthrough, as required prior to the developer submitting a request for the following:
 - a.** Release of surety.
 - b.** Acknowledgement of completion of required subdivision improvements to allow final plat recordation.
 - c.** Acceptance of roadways dedicated to the City.
 - d.** Issuance of a certificate of occupancy.

9.03.04. Privately Owned Bridges

Privately owned bridges shall meet the design, construction, inspection, maintenance, and reporting criteria in accordance with the Florida Department of Transportation and federal standards.

Section 9.04. Stormwater Management Requirements

9.04.01. Purpose

The purposes of the stormwater management requirements are:

- A.** To provide for design criteria and construction requirements to achieve effective stormwater management.
- B.** To provide a mechanism for mitigating the damaging effects of uncontrolled and unplanned stormwater runoff.
- C.** To improve the public health, safety, and welfare by providing for the safe and efficient capture and conveyance of stormwater runoff and the correction of stormwater problems.
- D.** To encourage and facilitate urban water resources management techniques including, but not limited to, the retention/detention of stormwater runoff and the enhancement of the environment.
- E.** To allow low impact development alternative designs of stormwater facilities that minimize adverse impacts on the existing ecology and environment.

9.04.02. Performance Criteria

All projects shall comply with the following performance criteria:

- A.** Stormwater runoff shall be subjected to the Florida Department of Environmental Protection Best Management Practices prior to discharge into natural or artificial drainage systems.
- B.** Stormwater runoff shall meet the minimum permitting requirements of the St. Johns River Water Management District, the Florida Department of Environmental Protection, the Army Corps of Engineers, and the City.
 - 1.** Stormwater systems constructed outside of or contributing to the City of Palm Coast Master Stormwater Management System as defined in the Palm Coast Comprehensive Land Use Plan (CLUP) Volume 3, shall be designed and constructed to attenuate a 100-year, 24-hour rainfall (Florida Department of Transportation rainfall data) event. It must be demonstrated that the post-development peak rate of discharge does not exceed the predevelopment peak rate of discharge for a 100-year, 24-hour storm event.
- C.** Regarding site alteration activities:
 - 1.** No site alteration shall cause siltation, pollution, flooding of adjacent or downstream properties or wetlands, or reduce the natural retention or filtering capabilities of wetlands.
 - 2.** All site alteration activities shall provide for such water retention and settling structures and flow attenuation devices as may be necessary to ensure that the requirements of this section are met.
- D.** Adherence to maximum grades and stabilization for side slopes of lakes, canals, ditches, and waterways.
- E.** Stormwater retention/detention areas shall be naturally shaped.
- F.** Water shall not be diverted into a natural buffer area for retention purposes where such water level change will adversely affect the health or survivability of retained trees.
- G.** A positive drainage system shall be provided which shall not adversely impact downstream, upstream, or adjacent lands.

- H. Where practicable and feasible, natural vegetation shall be used as a component of drainage design consistent with St. Johns River Water Management District regulations.
- I. Runoff from adjacent lands shall be considered, and provisions for conveyance of such runoff shall be included, in any proposed drainage design.
- J. It is presumed that the lowering of the water table for the purpose of constructing detention/retention basins and for the purpose of permanently protecting road construction does not conflict with this Land Development Code if all of the following are met:
 - 1. The development is permitted by the St. Johns River Water Management District and the City;
 - 2. The lowering of the water table has no adverse effect on wetlands; and
 - 3. The lowering of the water table does not increase flows to the detriment of neighboring lands.

9.04.03. Erosion and Stormwater Pollution Control

All development shall comply with erosion control best management practices and stormwater pollution control measures, as adopted by the state and contained in the Florida Erosion and Sediment Control Inspector’s Manual as published by the Florida Department of Environmental Protection.

9.04.04. Properties, Swales, and Road Surfaces Adjoining Construction Sites

- A. Owners and contractors are jointly and severally responsible for protection of properties and the functionality of existing swales, ditches, drainage structures, and road surfaces adjoining a construction site or within an area affected by equipment and activities associated with construction.
- B. Owners and contractors are jointly and severally subject to the same limitations and responsibilities for activities on adjoining properties as on the permitted construction site.
- C. Damage to private land, public rights-of-way, or other property shall be repaired prior to issuance of a certificate of occupancy. In case of damage to private property or to public rights-of-way, it shall be the joint and severable responsibilities of the owner and contractor to make repairs as directed by the Land Use Administrator.

9.04.05. Land and Facilities Affected Outside the City

Where stormwater and other waters drain from lands outside the City, facilities within the City shall be designed in accordance with this Land Development Code, as if the entire area being drained was within the City.

Section 9.05. Land Modification of Platted Residential Lots

9.05.01. Clearing and Earthwork

- A. The City permits the modification of land for purposes such as grading, filling, excavation, unsuitable soils removal, and certain tree removal on vacant residential lots as set forth in **Chapter 11**, prior to the issuance of a building permit. Persons desiring to modify a residential lot prior to the issuance of a building permit must apply for and obtain a Right-of-Way Access and Lot Grading Permit and shall be subject to the following general permit conditions:
 - 1. The lot, if vacant of any structures, shall be directly adjacent to a lot with a permitted structure and both lots shall be under the same ownership.

2. Prior to performing any work, a copy of the permit shall be posted on the site.
3. If wetlands or the presence of any endangered species are discovered, additional requirements may be imposed by the City to protect natural resources.
4. A time limit of four (4) months shall be allowed from the date the permit was issued until the work is completed. When the work is completed a final inspection shall be requested by the applicant. If the work is not completed within four (4) months, the City will monitor the site and may initiate code enforcement procedures. Passing the final inspection shall mean that the work is complete.
5. The owner shall preserve trees and vegetation in accordance with the tree preservation requirements set forth in **Chapter 11**.
6. After completion of the work, the owner of the property shall request a final inspection from the City, which will confirm if the clearing was completed in accordance with the permits.
7. Prior to the final inspection the following shall be completed:
 - a. Swales shall be graded to the proper grade and cross section.
 - b. After the swale has been graded and prior to sodding, a swale elevation survey shall be prepared by a Florida licensed land surveyor to verify the swale elevations are correct.
 - c. All disturbed areas of the site and public road right-of-way shall be stabilized with vegetation. All rights-of-way and any areas subject to erosion shall be sodded in accordance with the Florida Department of Transportation Design Standards.
 - d. All tree barricades, silt fences, and construction debris shall be removed from the site or adjacent sites, if present.
 - e. Repair of all road damage associated with permitted work shall be jointly and severally the responsibility of the property owner and permittee, and shall be completed prior to the completion or expiration of the permit.
 - f. Replacement trees, if required, shall be planted.
- B.** Vacant lots are exempt from this permit if the lot is only to be cleared by hand cutting of nonprotected trees and removal of existing vegetation. This includes mitigation type mowing for wildfire control/mitigation. This exemption only pertains to platted single-family residential lots and not adjacent reserve parcels, unplatted lands, or stand-alone lots of any type.

9.05.02. Construction on Platted Residential Lots

- A.** Residential dwelling units, other structures, and surrounding site work on platted single-family residential lots shall be designed and constructed in conformance with this Land Development Code. Property owners or their agents shall obtain a building permit from the City prior to the construction of any aboveground or underground structure.
- B.** In addition to a building permit, a Right-of-Way Access Permit shall be obtained from the City.

Part II. Utilities and Lighting

Section 9.06. Utilities

9.06.01. The requirements and regulations contained in this section are established to ensure the adequate provision of potable water (water), fire protection/suppression, sanitary sewer (wastewater), and reclaimed water facilities necessary to:

- A.** Meet City level of service requirements;
- B.** Provide adequate service capacities for individual projects; and
- C.** Meet the requirements of other related codes and standards adopted by the federal, state, City, or regional agencies.

9.06.02. General Requirements

A. Connection to the City Utility System

Unless specifically allowed otherwise herein, all water, fire protection/suppression, sanitary sewer, and reclaimed water improvements shall be designed to connect to the City's central utility systems.

B. Construction Standards

The design and construction of facilities for providing water, fire protection/suppression, sanitary sewer, and reclaimed water shall comply with City standards and state regulations.

C. Private Potable Wells

The City will allow the use of individual potable water wells if approved by the St. Johns River Water Management District. However, for all new development that requires site plan or subdivision approval that is within one (1) mile of central service, the development shall be required to connect to the central service. For development that does not require site plan or subdivision approval, the development shall be required to connect to the potable water system if central service is available within one hundred fifty (150) feet of the lot line. In the event that central service is not available in either instance, the development shall be required to connect within one (1) year from the date that central service becomes available.

D. Private Nonpotable Wells

Irrigation systems and swimming pools may be served by a separate private water supply system provided that no interconnection of any kind occurs between the private system and the public utility system, its water mains, the utility's water service line, the customer's water service line, a building's potable water plumbing pipes, or any pipe or line connection or extension and then only if reclaimed water service is not available. If available, reclaimed water shall be used for all appropriate uses. The design, permitting, construction, and use of this type of well shall comply with the most current regulations of the Flagler County Health Department, the Florida Department of Environmental Protection, and the St. Johns River Water Management District, as appropriate.

9.06.03. Potable Water System

A. Conditions Precedent to Water Services

1. Water service may be activated if all permit conditions of the Florida Department of Environmental Protection are completed and the water distribution system has been approved and accepted by the City.
2. Except where otherwise permitted, all new development shall connect to the City's potable water system. New development shall pay all impact, installation, and line extension fees prior to the issuance of building permits or the initiation of service.

B. Required Meters

1. All residential facilities shall have individual meters for each dwelling unit unless a master meter installation is approved by the City in a utility agreement.
2. The property owner shall keep meter sites readily accessible with a minimum three (3) feet of clearance around the meter/backflow assembly for meter reading and maintenance.

C. Water Mains Location/Sizing

1. Trunk lines shall have a pipe diameter meeting minimum requirements for fire flow and user consumption based on Florida Department of Environmental Protection regulations and standard engineering practices. Water mains shall be located within a public right-of-way or within a corridor (private rights-of-way) approved by the Land Use Administrator. All mains to which fire hydrants are connected shall be a minimum of six (6) inches in diameter and in conformance with National Fire Protection Association (NFPA) standards. In no case shall a water main be smaller than four (4) inches. To the maximum extent feasible, distribution lines shall be located parallel to and behind the back of the curb or edge of the pavement. Water mains shall be located to minimize conflicts with other utilities and existing or proposed structures.
2. All new development service lines and appurtenances thereto shall be installed and all costs shall be paid by the applicant. Upon construction completion and acceptance of the system, it shall be the design engineer's responsibility to ensure that the system is properly certified and accepted by the Florida Department of Environmental Protection and that certified "as-built" drawings, consisting of one (1) signed and sealed set of plans plus a CD (compact disc) containing electronic files are provided to the City, in accordance with City standards. Under no circumstance shall the system be activated by anyone other than the Land Use Administrator.

D. Booster Pumps/Fire Protection Systems

It is prohibited and unlawful to modify or connect any booster pump or fire protection system to the City's potable water distribution system or to any water distribution system to which the City supplies water, except for consecutive public water systems, without the express written permission of the Land Use Administrator.

1. Any person planning to connect or modify any booster pump or fire protection system shall submit a detailed plan prepared by a Florida professional engineer to the Land Use Administrator for review and approval.
2. After submission of a detailed plan for connection or modification, the Land Use Administrator may approve the plan, with or without specified conditions or modifications, or reject the plan.

E. Potable Water Backflow Prevention Devices

All new construction shall have installed on all potable water and fire prevention system lines, a backflow prevention device acceptable to Florida Department of Environmental Protection and of a size and design determined to be appropriate by the Land Use Administrator. All residential construction shall have a double-check device that shall be supplied and installed by the City at the owner's expense. All commercial lines two (2) inches or smaller shall have a reduced pressure zone backflow preventer installed by the City at the owner's expense. All commercial or industrial construction lines larger than two (2) inches shall have a reduced pressure zone backflow preventer or double-check detector/device (fire line only). The City approved device shall be installed at the owner's expense by a licensed contractor, inspected by the City, and certified by a licensed and certified backflow prevention technician or a certified City backflow prevention technician. All backflow prevention devices shall be installed and maintained in accordance with City standards.

F. Fire Line Devices

All fire line devices shall be installed and certified by a licensed fire protection contractor. The device shall be installed at a location determined by the Land Use Administrator, and in those cases that require installation on private property; the location is subject to approval by the property owner. Backflow prevention devices on fire lines must be UL (underwriters laboratories) listed for fire protection systems. Backflow preventers shall be installed and maintained in accordance with City standards.

G. Cross Connections and Interconnections

It is unlawful for any person to cause a cross connection with the City's potable water system, reclaimed water system, wastewater system, or raw water system. All service connections shall comply with the City standards.

H. Connection/Temporary Connection

1. The owner of each lot or parcel of land within the City, proposed for occupancy for any use, shall cause such building, structure, or use to be connected to the public water distribution system of the City, and shall use such facilities at the same time as a certificate of occupancy is issued, or sooner, with prior approval by the City.
2. For temporary connection to the City water system for construction not involving new lines, a metered connection to a fire hydrant may be permitted. The meter and backflow preventer shall be supplied by the City and the user must comply with City standards.

I. Utility Line Extensions - Service Line Extensions

Service line extension requests shall be submitted to the Land Use Administrator for approval. If approved, the applicant may proceed with the installation of the service line extension after coordinating installation with the Land Use Administrator. All costs associated with the utility line or service line extension shall be the applicant's responsibility. All work and connections shall be performed by a Florida licensed contractor licensed to perform underground utility work.

J. Utility Main Extension Reimbursement Policy

1. Procedure for the Utility Main Extension Reimbursement Policy

In the event that any person or developer is required by the City to extend water, sewer, or reclaimed water lines or increase line size to a size larger than the minimum line size required

for that development's needs, that person or developer may request reimbursement for the additional cost of such extension or increased line size in accordance with the following procedures:

- a. Engineering drawings and design calculations shall be submitted to the Land Use Administrator indicating the size and location of the proposed lines or the appurtenances thereto. The submittal shall also include preliminary cost estimates showing the cost difference for construction of the proposed oversized main versus the cost for the minimum size main that would be required to serve the parcel or development in accordance with the City's design standards.
- b. The Land Use Administrator shall review the entire submittal and shall make a determination of the eligibility of the proposal for reimbursement, based on the conformity of the proposed improvements with City standards and with the criteria established in **Subsection 9.06.03.C**.
- c. The City may enter into an agreement for reimbursement with the person making the submittal based on a finding that the trunk line(s) and appurtenances thereto comply with City standards. The agreement between the City and the person or developer will, at a minimum, include timeframes and conditions of reimbursement. The trunk line(s) and appurtenances are required to be appropriately sized and located. Adequate water and sewer treatment plant capacity must exist for the area anticipated to be served.

9.06.04. Sanitary Sewer Systems, Industrial Wastes, and Low Pressure Effluent Pumping System

A. Conditions Precedent to Wastewater Service

Wastewater service will be available only after all permit conditions of the Florida Department of Environmental Protection are complied with and the wastewater collection system has been approved and accepted by the City.

B. Wastewater Connection Required

1. Except where otherwise permitted, all new development shall connect to the City's sewer system. New development shall pay all impact, installation, and line extension fees prior to the issuance of building permits or the initiation of service.
2. If the City sewer system is available, all existing development located within one hundred (100) feet of a City sewer line (including pressure effluent pumping lines), except single-family homes on lots larger than one (1) acre, are required to connect within one (1) year from the date of system availability. The owner of the property shall pay for all connection impact, installation and line extension fees.
3. Upon agreement by the City, connection to the City sewer system may be deferred until it is deemed in the public interest to make connection mandatory due to financial or public health considerations.
4. The City may refuse wastewater from any lot or parcel of land upon which there is located any institutional, commercial, or industrial plant, building, or premises that does not comply fully with City standards; or that does not utilize City water; or that does not supply proper metering of its wastewater.
5. The discharge of wastewater into the City sanitary sewer system from air conditioning/heating units is prohibited.

C. Wastewater Design and Inspection

1. The developer shall install house or site service connections. Each property connected to the sanitary sewer system shall have a cleanout or manhole located at the property line for cleaning the service from the cleanout to the sanitary main.
2. It is prohibited and unlawful to enter the City sewer system or appurtenance thereto, or make any connections thereto without the approval of the Land Use Administrator. It is unlawful for any person to tap, cut, or in any way use any line, branch, or part of the City sewer collection or sewage treatment facilities without such approval.
3. The Land Use Administrator, as a condition of the City providing utility service, shall be permitted to enter upon all properties for the purpose of inspection, observations, measurement, sampling, and testing.

D. Lift (Pumping) Stations

All lift stations to be dedicated to the City for ownership and maintenance shall conform to the requirements of this section and City standards and shall be designed as submersible stations.

1. Prior to the construction of a lift station, the applicant's engineer shall submit construction drawings and design calculations for review and approval by the City.
2. All lift stations shall be dedicated by a fee simple interest conveyance to the City for ownership and maintenance responsibility, unless otherwise approved by the Land Use Administrator.
3. Lift station sites shall have unimpeded access for emergency maintenance vehicles and shall restrict access to the wet well, valve vault, and electric control panel to prevent entry by unauthorized individuals.

E. Industrial Waste Pretreatment and Disposal

1. Generators of industrial waste that are deposited into the City sanitary sewer shall comply with the pretreatment and disposal requirements of the City.
2. All users shall comply with Florida Department of Environmental Protection permit conditions and any other applicable federal and state regulations to which the Publicly Owned Treatment Works is subject.
3. All pretreatment and disposal systems and appurtenances shall be designed to meet all applicable requirements of the Florida Department of Environmental Protection, Flagler County Health Department, and the City to prevent the introduction of pollutants into the sanitary sewer system, which will interfere with the proper functioning of the system or cause or contribute to the contamination of receiving waters or the atmosphere.

9.06.05. On-Site Wastewater Treatment/Disposal Systems

On-site wastewater treatment may be permitted by the City only in the EST-1, EST-2, and AGR Districts and in conformity to this section.

A. Permit Required

A septic tank permit shall be obtained from the Flagler County Health Department prior to the issuance of a building permit. However, a building permit shall not be issued for the construction of such facility unless consistent with the Comprehensive Plan and this Land Development Code.

B. Design and Performance Standards

1. A copy of the permit received from the Flagler County Health Department and all related information or documentation shall be submitted to the City.
2. Individual wastewater treatment/disposal systems, such as septic tanks, shall be located in an area that can be incorporated into a central sewer system when available. Systems shall be constructed and operated to ensure that they, either on an individual or cumulative basis, will not adversely impact public health or natural resources or cause undue expense to the City.
3. On-site wastewater treatment is prohibited in areas served by centralized wastewater treatment. Where septic tank use is permitted, septic tank systems shall be installed in conformance with the Flagler County Health Department requirements. Development shall be prohibited unless an alternative on-site disposal system (e.g., package-type wastewater treatment plant) is determined by the Land Use Administrator to be sufficiently effective to prevent degradation of adjacent surface waters or groundwater by the Florida Department of Environmental Protection, Flagler County Health Department, and the City, and provisions for the plant's eventual retirement and connection of the development to the central sanitary sewer system are adequate and binding.
4. The installation of on-site sewage disposal and treatment systems on sites one (1) acre or less is prohibited. Sites greater than one (1) acre of contiguous upland area in areas designated as Greenbelt on the City's Future Land Use Map that are served by municipal potable water service may be served by on-site sewage disposal systems if site environmental factors are appropriately addressed and the systems are installed in accordance with all applicable state and local regulations. If public potable water supply service is not available, the minimum site for the installation of on-site sewage disposal systems shall be two (2) acres.

9.06.06. Interim "Package-type" Wastewater Treatment Facilities

The use of interim or package-type wastewater treatment facilities shall be subject to approval by the City Council based on an agreement that specifically provides for the eventual transition to City facilities.

A. Design and Performance Standards

1. Small package-type wastewater treatment plants, as defined below, shall not be permitted in areas where improper levels of treatment and/or inadequate effluent disposal may result in adverse impacts on water or other natural resources (e.g., groundwater aquifers and surface water systems), unless the plant's owner provides sufficient financial resources or surety for the City to assume responsibility for operating and maintaining the collection, treatment, and effluent disposal components in compliance with regulatory requirements and standards. The following minimum criteria and procedures shall be adhered to in the implementation of this Code:
 - a. Small package-type wastewater treatment plants are defined as prefabricated and component assembled plants of 100,000 gallons or less per day of treatment capacity, or any plant which is considered or identified to be of an interim nature.
 - b. The location and siting of such facilities shall be limited to areas where improperly treated effluent shall not adversely impact the quality of regional water resources by lateral surface/subsurface flow or by percolation.

- c. Existing package-type or interim wastewater treatment plants currently meeting treatment and effluent quality standards may continue to be operated if the facility is being properly operated and maintained and wastewater treatment and effluent standards are continually being met.
 - d. Measures shall be undertaken to assure the provision of financial resources by wastewater treatment plant owners to adequately cover the costs of rehabilitating, operating, and maintaining each wastewater treatment and disposal facility, and of connection to regional facilities, if applicable, at the appropriate time.
2. Interim or package-type wastewater treatment facilities shall connect to the municipal sanitary sewer system when the access to the system becomes available. The following criteria and procedures shall be adhered to in the implementation of this standard:
- a. Package-type or interim wastewater treatment plants currently meeting treatment and effluent quality standards may continue to operate if:
 - (1) The facility is properly operated and maintained and wastewater treatment and effluent standards are satisfactorily met; and
 - (2) The facility is phased out at the option of the City, without cost to the City, and connected to the City system when sufficient capacity is available.
 - b. When a private facility is phased out and connected to the City sewer system, all costs of connection to the central system and discontinuing the interim use is the obligation of the owner of the private facility.
3. Where soil conditions permit, an interim package treatment plant may be permitted if:
- a. Sewer lines and lift stations are constructed to City standards;
 - b. Impact fees for future connections to the City system are paid or a surety is provided; and
 - c. The developer agrees to discontinue operation of the package plant and connect to the City system, when available.
4. Existing development with central wastewater treatment shall connect to the City system as soon as possible after the City system is available or if the existing system is found to have deficiencies that are likely to create a serious health or pollution problem. Property owners shall pay the impact fee and connection fee then in effect.

9.06.07. Reclaimed Water Systems

Reclaimed water system construction and materials shall comply with City standards.

A. Conditions Precedent to Reclaimed Water Services

Reclaimed water service shall be activated only after all permit conditions of the Florida Department of Environmental Protection are completed and the reclaimed water distribution system has been approved and accepted by the City.

B. Compliance with State Regulations

In the operation and use of the City’s reclaimed water system, the City and all users shall at all times comply with all applicable regulations of the Florida Department of Environmental Protection relative to the reuse of reclaimed water.

C. Design and Performance Standards

All reclaimed water systems shall meet applicable requirements of the Florida Department of Environmental Protection and the City.

D. Connection Permit Required

It is prohibited and unlawful to connect to any public reclaimed water main or appurtenance without prior approval from the Land Use Administrator and the acquisition of all required state and local permits.

E. Reclaimed Water Lines.

All new developments shall provide a reclaimed water system for irrigation purposes, unless otherwise approved by the Land Use Administrator. If reclaimed water is not available at the time of construction, a connection shall be provided with backflow prevention to the potable water system until the reclaimed water is available.

Section 9.07. Outdoor Lighting Requirements

9.07.01. Purpose

This section provides specific development requirements to regulate outdoor lighting in order to provide for sufficient lighting levels to meet use needs, but to reduce or prevent light pollution and light disturbance. Reducing or preventing light pollution means, to the extent reasonably possible, ensuring the reduction or prevention of glare and light trespass, the conservation of energy and the promotion of safety and security, in general conformity with the “dark sky” goals and recommendations.

9.07.02. Approved Materials and Methods of Installation

The provisions of this section are not intended to prevent the use of any material or method of installation not specifically proscribed by this section, if any such alternate has been specifically approved. The Land Use Administrator may approve any such alternate if the proposed design, material, or method:

- A.** Provides approximate equivalence to the specific requirements of this section; or
- B.** Is otherwise satisfactory and complies with the intent of this section.

9.07.03. Shielding and Filtering

All outdoor light fixtures shall be fully shielded as required in this section. All outdoor light fixtures required to be filtered by this section shall have glass, acrylic, or translucent enclosures (quartz glass does not meet this requirement).

9.07.04. Requirements for Shielding and Filtering

The requirements for shielding and filtering light emissions from outdoor light fixtures are set forth in the following table:

Table 9 - 1: Requirements for Shielding and Filtering

Fixture Lamp Type	Shielded	Filtered
Low Pressure Sodium	None	None
High Pressure Sodium	Fully	None
Metal Halide	Fully	Yes
Fluorescent	Fully	Yes
Quartz	Fully	None
Incandescent Greater than 160 W	Fully	None
Incandescent 160 W or less	None	None
Mercury Vapor	Not permitted	Not permitted
Glass Tubes filled with Neon, Argon, Krypton	None	None

9.07.05. Parking Lot Lighting

General exterior lighting shall provide adequate illumination to safely guide vehicles and pedestrians into, out of, and within a site, and deter vandalism. Exterior lighting sources shall render colors faithfully so that pedestrians and vehicle operators are able to distinguish colors and differentiate objects within their field of vision and be arranged so as to eliminate on-site glare and spillover onto adjacent properties, public streets, and highways.

A. Plan Required

An illumination plan prepared by a Florida licensed professional engineer with expertise in the field of illumination shall be submitted for each parking facility. Each parking facility shall meet the pedestrian security requirements as set forth in **Section 14 of IESNA - RP-20-98 Lighting for Parking Facilities, 1998** or current edition. Such plan shall comply with all requirements as outlined in this section.

B. Full Cutoff Light Fixtures

Luminaires shall be designed to ensure that no candela occurs at or above an angle of ninety (90) degrees above the horizontal plane (nadir). This applies to all lateral angles around the luminaire. Such candela information shall be determined by a photometric test report (plan) from the lighting contractor. Any structural part of the luminaire for all types of lighting providing cutoff angle shielding shall be permanently attached, except that accent uplighting for trees and building walls may be allowed to exceed the ninety (90) degree angle plane, subject to review and approval by the Land Use Administrator if determined to provide an equivalent public benefit.

C. Shielding Requirement

Lighting shall be designed to prevent direct glare, light spillage, and hazardous interference with automotive, aircraft, and pedestrian traffic on adjacent streets and on all adjacent properties.

D. Design Requirement

1. The maximum height of light poles in areas other than pedestrian areas shall be thirty-five (35) feet, including the base. Light poles exceeding thirty-five (35) feet in height shall not be allowed unless approved through a special exception use order or development agreement. For pedestrian areas, the maximum height of a light pole shall be sixteen (16) feet, including the base.
2. Fixtures shall be designed as integral design elements that complement the design of a development through style or by blending into the landscape material. Bright colors such as

primary and secondary colors including, but not limited to, white, are prohibited for light pole uses.

3. Light poles shall not be placed in required parking lot landscape islands of less than five hundred (500) square feet or anywhere else on the site where they will conflict with existing or proposed shade trees. Light pole locations shall be depicted on all sets of site plans to ensure no conflicts between utilities and landscaping.
4. Full lighting details shall be supplied for light fixtures (to include lumens and wattage), poles, and photometric plans.

9.07.06. Roadways

All new development abutting or containing public or private roadways shall provide street lighting within those roadways meeting the following requirements:

A. Installation

All infrastructure associated with lighting shall be installed including, but not limited to, pole boxes, conduits, etc., concurrent with the development.

B. Plan Required

An illumination plan prepared by an expert in the field of illumination shall be submitted for each roadway segment that is adjacent to the proposed development and required by the Land Use Administrator to be illuminated. The illumination requirements for roadway facilities shall meet the more stringent standards set forth in American National Standards Institute, Illuminating Engineering Society of North America (ANSI/IESNA) RP-8-00 (R2005) and Florida Department of Transportation Standards (latest editions). Such plan shall comply with all requirements as outlined in this section.

C. Full Cutoff Light Fixtures

Luminaires shall be designed to ensure that no candela occurs at or above an angle of ninety (90) degrees above the horizontal plane (nadir). This applies to all lateral angles around the luminaire. Such candela information shall be determined by a photometric test report (plan) from the lighting contractor. Any structural part of the luminaire for all types of lighting providing cutoff angle shielding shall be permanently attached, except that accent uplighting for trees and building walls may be allowed to exceed the ninety (90) degree angle plane, subject to review and approval by the Land Use Administrator if the lighting is determined to provide an equivalent public benefit. All light fixtures shall be standard fixture types as determined by the City.

D. Shielding Requirements

Lighting shall be designed to prevent direct glare, light spillage, and hazardous interference with automotive, aircraft, and pedestrian traffic on adjacent streets and on all adjacent properties.

E. Design Requirements

1. Light pole locations shall be depicted on all sets of the plans to ensure that no conflicts exist between proposed utilities and proposed landscaping.
2. Full lighting details shall be supplied for light fixtures (to include lumens and wattage), poles, and photometric plans.

9.07.07. Prohibitions

A. Outdoor Building, Landscaping, and Signs

The unshielded outdoor illumination of any building or landscaping is prohibited except for incandescent fixtures with lamps of one hundred (100) watts or less.

B. Mercury Vapor

The installation of mercury vapor fixtures is prohibited.

9.07.08. Exemptions

A. Nonconforming Fixtures

Outdoor light fixtures installed prior to August 19, 2008 are exempt from the provisions of this section; provided, however, that no change in use, replacement, structural alteration, or restoration of outdoor light fixtures may be made unless it thereafter conforms to the provisions of this section.

B. Ornamental Lighting

Ornamental street lighting is exempt from the provisions of this section and is a permitted lighting installation.

C. Construction and Emergency Lighting

Lighting necessary for construction or emergencies is exempt from the provisions of this section if temporary and discontinued immediately upon the completion of the construction work or abatement of the emergency necessitating said lighting.

D. Searchlights

The use of searchlights is prohibited unless a permit specifying conditions is issued by the Land Use Administrator.

E. Request for Exemption.

Any person may submit a written request for an exemption from the requirements of this section. The request for exemption shall be submitted in writing to the Land Use Administrator and shall contain the following information:

1. Specific exemption requested.
2. Type and use of exterior light involved.
3. Duration of time for requested exemption.
4. Type of lamp and calculated lumens.
5. Total wattage of lamp or lamps.
6. Sketch to scale showing location of proposed exterior light.
7. Previous exemptions granted, if any.
8. Physical size of exterior light and type of shielding provided.
9. Any additional information required to make a reasonable evaluation of the request for exemption.