



Nassau County Engineering Services  
96161 Nassau Place  
Yulee, FL 32097

*Robert T. Companion, PE*  
*County Engineer*

### Technical Memorandum

October 25, 2019

To: Michael S. Mullin, County Manager  
Taco E. Pope, Assistant County Manager

RE: **Ordinance 99-17 – Roadway and Drainage Standards  
Driveway Regulation Revisions**

Engineering Services was tasked with reviewing the current Nassau County Roadway and Drainage Standards, Ordinance 99-17, and make recommendations for updates to the regulations in order to clarify existing discrepancies as well as provide more specific criteria for driveway provisions.

The following chart details the issues with the effected sections of the current ordinance as well as the recommended amendments to Ordinance 99-17.

Current Issue	Section(s)	Desired Outcome	Proposed Updates / Language
Driveway permits are issued for 6-month duration with one free 6-month extension. Many applicants require more than 6 months to complete the construction. This requires added paperwork for requests to extend an additional 6-months.	6.1.2	Update the permit duration period to 12-months, with a 6-month extension period (total of 18 months) before new permit and fee are required.	Permit duration updated to 12 months, with no-cost 6-month extension.
The Board has requested that maintenance of driveway culverts (side-drains) be the responsibility of Nassau County. The regulations should be updated to ensure that the County is performing maintenance when needed to ensure the swales and drainage facilities are functioning correctly	8.6.2	Maintenance of the culverts is only conducted when needed to maintain drainage functionality. Road crews should not respond to driveway surface crack issues.	Maintenance of residential culverts on public roadways maintained by Nassau County is the responsibility of Nassau County. Maintenance of any driveway connection, or any other access across public and private right-of-way or drainage facilities, for the purpose of protecting the integrity of the roadway edge is the responsibility of the owner. In the event one or more sections of a driveway connection is disturbed during maintenance to a drainage facility within a county road right-of-way, Nassau County shall repair, if able, or replace the disturbed section(s) using like material.

Current Issue	Section(s)	Desired Outcome	Proposed Updates / Language
Existing driveways were being damaged, when used to access lots for proposed construction or mobile home installation. The culverts could be crushed requiring County funds be expended to reconstruct	9.1.2	Create requirements for existing driveway inspections with an appropriate fee for an inspection before and after construction / installation is complete.	Any existing access point in use after redevelopment will require a right-of-way permit. Existing driveways shall be inspected before and after development activities by the engineering services director or his/her designee to determine that no damage has occurred to the drive surface, roadway edge, side drain, or end treatments due to development activities.
The distance requirements between driveways needed to be clarified.	9.2.1 (b) 9.2.2. (e)	Driveway separation distances are measured irrespective to property ownership / boundaries. DRC approved plans shall supersede.	The nearest adjacent driveway shall be defined as any existing access point regardless of whether the existing access point is used to access the right-of-way permit applicants parcel or a neighboring parcel or property.  Driveway locations and minimum distance requirements in platted subdivisions, shall be as specified in the Final Engineering Plans as reviewed and approved by the Development Review Committee.
Shared access driveways on Major and Minor Collectors, were being constructed by private owners after property conveyance at higher than average costs	9.2.2 (a)	The construction of the shared access driveway should be the developer's responsibility.	Shared access easements shall be recorded on the development plat. Proposed access improvements may be subject to Development Review Committee review. Shared access driveway improvements within the County right-of-way shall be installed by the developer or a construction bond for shared access improvements shall be in place prior to final plat approval. Shared access driveways installed as well as any other development improvements will be bonded in accordance with the provisions of Article 12 of this Ordinance.
Commercial lot access from local roads should be allowed as approved by DRC and the County Engineer	9.2.2 (f) and Figure 1	Commercial lot access from local roads should be allowed as approved by DRC and the County Engineer	Commercial lots shall not receive access from local roads unless authorized by Development Review Committee approval or the County Engineer.
Driveway widths, flare sizes and radius do not provide enough flexibility for homes with three car garages or connections on roadways with higher speeds. Spacing should be reduced for subdivisions	9.3.1 tables and Figure 1	Allow up to 22' wide driveways with speed-based flare requirements to accommodate larger garages and turning movements from high speed roads.	Single Residence driveways can be constructed up to 22' wide. Flares are 5 ft for roadways with posted speed limits less the 35 mph, 10' for roadways at 35-50 mph, and 15' for roadways over 50 mph. Driveway separation spacing was reduced to 50' on local roads.

Current Issue	Section(s)	Desired Outcome	Proposed Updates / Language
Discrepancies were found between the ordinance language and Figure 1	9.2.2, 9.3.1, and Figure 1	Language and figure should match	Figure 1 redrawn to match ordinance language
Discrepancies were found between the ordinance language, FDOT requirements, and Figure 2	9.2.2, 9.3.1, and Figure 2	Language, FDOT requirements, and figure should match	Figure 2 redrawn to match ordinance language
End treatment requirements only allowed cast in place mitered end sections. Cast-in-place is more costly than pre-cast options	9.5.5	Complete rewrite of the end treatment language to allow more flexibility in using pre-cast mitered ends, while maintaining safe roadway and shoulder conditions for motorists.	Tables were created to detail when each end treatment is appropriate.
Paving depth requirements from the edge of the roadway are more stringent than FDOT requirements.	9.6.1	Paving requirements should protect motorists leaving the roadway, protect the roadway edge, and protect the culvert	Permanent pavement for commercial driveways shall extend at least to the end of the driveway curb radius, or to the right-of-way line, whichever is greater. Permanent pavement for residential driveways shall extend a minimum of five (5) feet from the edge of travel lane or 2' past the edge of the driveway culvert closest to the right-of-way line, whichever is greater.
Culvert pipe materials currently limited to RCP, and asphalt coated CMP	11.11.5.5	More flexibility in material choices for culvert pipe materials, by allowing certain materials in appropriate applications.	All of section 11.11.5.5 rewritten.

If you have any questions about the recommended ordinance revisions listed above, please let me know.

Sincerely,



Robert T. Companion, PE  
County Engineer

5.3.2. In addition to the requirements of section 5.3.1 above, the following documentation is required to be submitted to the engineering services department prior to construction bond release:

- a. Documentation from the responsible utility company approving water and sewer installations and acceptance of same;
- b. Surveyor's certification (see Exhibit 3);
- c. A construction bond, securing the completion of sidewalks, if applicable;
- d. Test reports prepared by a licensed testing laboratory as required by article 11 of this ordinance;
- e. Documentation from the department of environmental protection verifying acceptance of certification of completion of the sewer and/or water system;
- f. If roads and related drainage improvements are dedicated to the county, a maintenance bond meeting the requirements of article 12 of this ordinance;
- g. A copy of record covenants and restrictions and/or other publicly recorded or filed documentation which establish the property owners' association.

5.3.3. Dedication and acceptance of maintenance of roads:

Pursuant to F.S. § 177.081(3), roads within a subdivision shall be dedicated to the public. The board of county commissioners shall not accept roadways for maintenance. The responsibility for maintenance of the roadways and associated infrastructures for a subdivision shall be the responsibility of an established homeowners' association or the developer.

The homeowners' association or developer shall be required to sign the plat for the association to assume the maintenance of the roadways and associated infrastructure for the subdivision and to show a provision for same in the recorded covenants and restrictions for the subdivision.

(Ord. No. 2003-66, § 1, 12-22-03; Ord. No. 2017-04, 1-23-17)

ARTICLE 6. - PERMITS

Section 6.1. - Right-of-way permits.

6.1.1. An application for right-of-way permit shall be submitted to, and approved by, the engineering services department prior to commencement of any planned construction activities within county right-of-way. Construction activities include, but are not limited to: utility installations, driveway connections, sidewalks, drainage alterations, and construction or placement of fences, walls, signs, and other appurtenances or structures unless exempted by provisions of subsection 8.4 herein. Right-of-way permits are required as a separate application from Development Review Committee approval. Right-of-way permits fees shall not be required for construction activities that are approved through Development Review Committee subject to the provisions of subsection 6.2 herein.

6.1.2. Upon approval by the engineering services department, the right-of-way permit shall allow the described construction for a specified period not to exceed twelve (12) months from the date of approval. Right-of-way permits for construction may be extended with prior written approval from the engineering services department up to a total period of eighteen (18) months. Additional extensions beyond a total permit period of eighteen (18) months shall require a new application for right-of-way permit to be submitted and approved including payment of all applicable fees.

6.1.3. Right-of-way permits and all construction work within county rights-of-way shall comply with provisions set forth in Ordinance 97-14.

Section 6.2. – Development Review Approval

8.5.3. Jetting of utilities under any roadway is prohibited. Where a utility is found to be illegally jetted under an existing roadway, the roadway section shall be removed to a depth and width and the roadway section reconstructed as directed by the engineering services department.

8.5.4. Open cutting of existing pavement and side roads under the jurisdiction of Nassau County generally will not be allowed. Under certain conditions, such as subsurface obstructions, limited space for jacking, high water table, or substandard roadway surface, open cutting may be allowed with approval of the engineering services department. The applicant shall provide written justification for approval of open roadway cuts. Primary consideration will be given to the age and condition of the existing roadway pavement and safety and convenience to the public. Where open roadway cuts are permitted, replacement of fill, base and surface course shall be in conformance with requirements set forth by the engineering services department. Flowable fill or an equivalent material is the required method for reconstruction of open roadway cuts.

8.5.5. All areas disturbed by construction activities within county right-of-way shall be restored to the standards specified for new construction, or restored to a condition equal to conditions prior to the disturbance if the prior conditions exceeded new construction standards.

8.5.6. Drainage shall be maintained throughout the construction or installation process and shall not be blocked, restricted, or inhibited unless otherwise approved by the engineering services department. All roadway swales shall be returned to design grade within thirty (30) days of completion of the utility installation.

(Ord. No. 2017-04, 1-23-17)

#### Section 8.6. - Right-of-way improvements and owner responsibilities.

8.6.1. No fencing, shrubs, trees or construction other than grassing shall be placed in the right-of-way without prior county approval or permit.

8.6.2. Construction of any driveway connection or other access across public and private right-of-way or drainage facilities is the responsibility of the individual owner. Maintenance of residential culverts on public roadways maintained by Nassau County is the responsibility of Nassau County. Maintenance of any driveway connection, or any other access across public and private right-of-way or drainage facilities, for the purpose of protecting the integrity of the roadway edge is the responsibility of Nassau County. In the event one or more sections of a driveway connection is disturbed during maintenance to a drainage facility within a county road right-of-way, Nassau County shall repair, if able, or replace the disturbed section(s) using like material. No person shall block or impede the flow of water through any county or private drainage facility, nor shall leaves, trash or other materials be placed in or burned within the aforementioned facilities.

8.6.3. All driveway and/or drainage connections to and/or across public right-of-way shall require a permit. The pipe size and invert depth of all side drains/driveways culverts shall be approved by the county. In cases where the driveway connection does not require a pipe, the driveway should be constructed with a minimum of six (6) inches of reinforced concrete (three thousand (3,000) psi) to conform with the existing flow line of the roadside swale, or as established by the engineering services department. Swale driveways may be allowed, if approved by the engineering services department.

8.6.4. Any connection to public roadways found to be installed incorrectly or without permit shall be subject to enforcement procedures, fines and/or removal of the facility by the engineering services department. The owner/applicant has the option to replace the facility at the owner/applicant's expense upon approval of the engineering services department.

8.6.5. All privately owned facilities shall be continuously maintained by the owner, a property owners' association, the developer, or other entity approved by the county and designated in the construction application. Failure to adequately maintain the facilities shall be a violation of this ordinance.

(Ord. No. 2017-04, 1-23-17)

## ARTICLE 9. - ACCESS MANAGEMENT

### Section 9.1. - General.

Nassau County has the authority to establish, control, and limit points of ingress and egress from county roadways to ensure the safety and efficiency of its roadway system. These standards are intended to implement Florida law. Consequently, this ordinance shall be consistent with the latest version of the Florida Department of Transportation (F.D.O.T.) "Manual of Uniform Standards for Design, Construction and Maintenance for Streets and Highways" (Green Book), F.D.O.T. "Roadway and Traffic Design Standards" (Standards), and the United States Department of Transportation "Manual on Uniform Traffic Control Devices" (MUTCD) unless specifically revised by this ordinance or the standard details. References will be made to the F.D.O.T. "Standard Specifications for Road and Bridge Construction" (Specifications). No facilities for ingress or egress to county roadways shall be constructed unless they comply with the standards set forth in this ordinance.

9.1.2. Development or redevelopment of abutting and existing parcels: Any property being redeveloped or altered, such that it requires alterations to the pavement or parking areas, shall be inspected by the engineering services director or his/her designee to determine that all provisions of this ordinance are being met.

Any existing access point in use after redevelopment will require a right-of-way permit. Existing driveways shall be inspected before and after development activities by the engineering services director or his/her designee to determine that no damage has occurred to the drive surface, roadway edge, side drain, or end treatments due to development activities.

Any existing access points not in use after redevelopment of a parcel shall have the unused apron removed and any dropped curb section along the street at abandoned access points shall be replaced with a new curb (and sidewalk if previously existing) at the expense of the property owner.

### Section 9.2. - Location of connections.

#### 9.2.1. Separation of access points:

- a. Access for all land uses located on segments of the major roadway networks as defined in the traffic circulation element of the comprehensive plan shall comply with the following:

Functional Class of Roadway	Distance Between Access Points
Primary arterial or minor arterial	Access to the State Highway System must comply with the rules of the Department of Transportation Chapter 14-97, State Highway System Access Management Classification System and Standards

- b. The distance between access points shall be measured from the centerline of the proposed driveway or roadway to the centerline of the nearest adjacent roadway or driveway. The nearest adjacent driveway shall be defined as any existing access point regardless of whether the existing access point is used to access the right-of-way permit applicants parcel or a neighboring parcel or property.

- c. Lots shall not, in general, derive access from a collector road. Where driveway access from a collector road may be the only possible access for several adjoining lots, the engineering services director may require that such lots be served by combined access drives in order to limit possible traffic hazards from multiple access to such streets. Where possible, driveways should be designed and arranged so as to avoid requiring vehicles to back into traffic on collector roads.
- d. Commercial driveway connections shall align with other driveways on the opposite side of an undivided roadway or shall be offset a minimum of one hundred (100) feet. Offset requirements may be increased where auxiliary lanes are required.
- e. Residential driveway connections shall be restricted to local roads unless otherwise approved by the engineering services department. Planned developments shall incorporate design of the roadway systems to alleviate residential connections to major and minor collectors.

9.2.2. Number of access points: Access for all land uses located on roads under the jurisdiction of this ordinance shall in addition to the requirements above comply with the following:

- a. New development sites shall be required, where possible according to the engineering services director, to share access points. Shared access easements shall be recorded on the development plat. Proposed access improvements may be subject to Development Review Committee review. Shared access driveway improvements within the County right-of-way shall be installed by the developer or a construction bond for shared access improvements shall be in place prior to final plat approval. Shared access driveways installed as well as any other development improvements will be bonded in accordance with the provisions of Article 12 of this Ordinance.
- b. Commercial parcels shall be allowed a maximum of two (2) accesses along each street fronting the parcel.
- c. Commercial properties located at the intersection of two (2) roads (corner property) shall be limited to one (1) access point for the first one hundred (100) feet of property frontage from the intersection.
- d. Non-commercial property located at the intersection of two (2) roads shall be limited to one (1) access point for the first one hundred (100) feet of property frontage from the intersection.
- e. Driveway location: No driveway may be constructed closer than one hundred (100) feet to the right-of-way line of any intersection or the nearest driveway except for single family dwellings located on marginal access or minor streets intersecting with a marginal access or minor street, where minimum separation shall be fifty (50) feet. Driveway locations and minimum distance requirements in platted subdivisions, shall be as specified in the Final Engineering Plans as reviewed and approved by the Development Review Committee.
- f. Commercial lots shall not receive access from local roads unless authorized by Development Review Committee approval or the County Engineer.

9.2.3. Residential driveway connections shall be restricted to local roads unless otherwise approved by the engineering services department. Planned developments shall incorporate design of the roadway systems to alleviate residential driveway connections to major and minor collectors.

### Section 9.3. - Driveway design.

9.3.1. Driveway widths, spacing, radii, and minimum angles for residential and commercial driveways shall be based on the following guidelines (See Figure 1 for a depiction of the measurement criteria):

Residential Driveways	Local Roads	Minor Collectors	Major Collectors
Nominal width			
Single residence (W)	12—22 ft.	12—22 ft.	16—22 ft.
Two or three residence (W)	20—24 ft.	20—24 ft.	22—26 ft.
Minimum flare (F)	<35 mph = 5 ft.; 35-50 mph = 10 ft. ; >50 mph = 15 ft.		
Minimum spacing			
From property line (P)	5 ft.	5 ft.	15 ft.
From street corner (C)	50 ft.	100 ft.	100 ft.
Between driveways (S)	50 ft. *	100 ft.	100 ft.
Minimum angle (A)	80 degrees	80 degrees	80 degrees

\*Driveway locations and minimum distance requirements in platted subdivisions, shall be as specified in the Final Engineering Plans as reviewed and approved by the Development Review Committee

Commercial Driveways	Local * Roads	Minor Collectors	Major Collectors
Nominal width			
One-way (W)	16 ft.	16 ft.	16—20 ft.
Two-way (W)	24—30 ft.	24—36 ft.	24—36 ft.
Minimum radius (R)	25 ft.	30 ft.	35 ft.
Minimum Flare (F) (optional in lieu of radius)	<35 mph = 10 ft.; 35-45 mph = 15 ft. ; >45 mph = 20 ft.		
Minimum spacing			
From property line (P)	25 ft.	30 ft.	35 ft.
From street corner (C)	100 ft.	100 ft.	100 ft.
Between driveways (S)	100 ft.	100 ft.	100 ft.
Minimum angle (A)	80 degrees	80 degrees	80 degrees

Note: These design values are typical minimum standards but may be adjusted by the engineering services department as required for the projected traffic conditions or for other good cause.

\*If commercial access is granted on local road by Development Review Committee or the County Engineer.



9.3.2. The location of the driveway should be compatible with the internal movement of traffic and the planned parking layout. The location of the driveway connection shall never allow vehicles to back across the throat of a driveway or back into the "through" travel lane. Developments with thirty thousand (30,000) square feet gross floor area or more shall be a minimum of seventy-five (75) feet of storage lane at the entrance to avoid obstructing through traffic.

9.3.3. In the event that the guidelines set forth in this section will cause hardship or make driveway installation impossible, the engineering services director may relax these requirements if suitable justification is demonstrated.

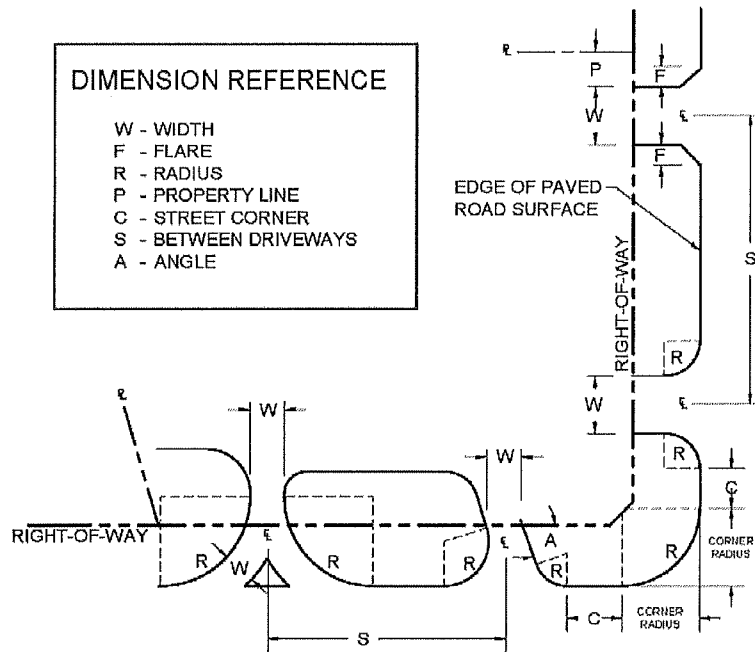


Figure 1: Driveway Connection Diagram

#### Section 9.4. - Driveway grades.

Figure 2 established maximum grade changes for driveways from the three (3) classes of roadways. For the values shown, no vertical curve connecting the tangents is necessary. For grade changes more abrupt than those in Figure 2, vertical curves at least ten (10) feet in length shall be used to connect tangents.

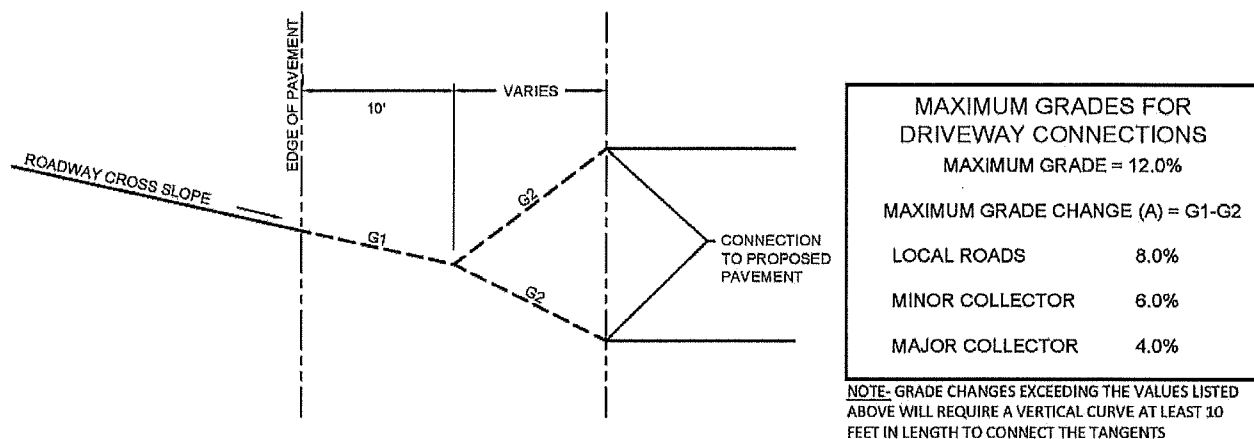
#### Section 9.5. - Connection design.

9.5.1. The plans submitted for review shall depict the proposed improvements for driveway connections and driveway approaches. The plans shall provide the driveway size, width, return radii, angle to the roadway, approach taper length, existing and proposed pavement marking, existing and proposed drainage pipes or other drains (including pipe size and type of material), and existing and proposed grades (including pavement design).

9.5.2. Proposed connections shall have no fences, walls, hedges, or other obstacles that will obstruct vision between a height of two and one-half (2½) feet and ten (10) feet above the centerline grade of the intersecting driveway, per F.D.O.T. Standards, Index No. 546.

9.5.3. All connections, both commercial and residential, to paved roadways shall be permanent type pavement, including Portland Cement Concrete or asphaltic concrete. Gravel, bituminous surface treatments, and other materials without a permanent surface are prohibited.

9.5.4. Pavement design requirements of commercial driveway connections, for the extent of permanent pavement required in section 9.6 below, including stabilized subgrade, base course, and surface course, shall equal or exceed the requirements of the adjacent roadway travel lane. Pavement design requirements of residential driveway connections, for the extent of permanent pavement required in section 9.6 below, shall equal or exceed the requirements for local roads, with the exception of Portland cement concrete driveways which shall have a minimum pavement thickness of six (6) inches.



*Figure 2: Maximum Grade Change For Driveway Connections*

9.5.5. All culvert ends shall be constructed with end treatments in accordance with the table below.

Driveway End Treatment Requirements	
Posted Roadway Speed	End Treatment Required*
30 mph or less	No end treatments required
31-44 mph	Pre-cast mitered end section with 4:1 slope (Detail No. 24) Cast-in-place mitered end section per Detail No. 24 & FDOT Design Standards Index No. 273
45 mph or greater	Cast-in-place mitered end section per Detail No. 24 & FDOT Design Standards Index No. 273. Pre-Cast mitered end with 4:1 slope may be used, in lieu of cast in place mitered ends only where the distance requirements meeting the requirements of Table 3, below, is present.

\* All erosion provisions set forth in Article 10 shall be met.

Table 3 – Minimum Distance Requirements for Pre-Cast Mitered End Sections

Design Speed	45 mph & less	50	55	60 & above
Distance From Edge of Travel Lane to Center of the Culvert	6 ft.	8 ft.	8 ft.	14 ft.

(Ord. No. 2017-04, 1-23-17)

Section 9.6. - Connection limits.

9.6.1. Permanent pavement for commercial driveways shall extend at least to the end of the driveway curb radius, or to the right-of-way line, whichever is greater. Permanent pavement for residential driveways shall extend a minimum of five (5) feet from the edge of travel lane or 2' past the edge of the driveway culvert closest to the right-of-way line, whichever is greater. The County Engineer may grant a variance for an asphalt-millings residential driveway meeting the requirements of "Alternate Asphalt-Millings Driveway Installation Drawing" and bound with a chip seal mix / emulsion. A notarized owner's certification that the asphalt-millings driveway be maintained per "Alternate Asphalt-Millings Driveway Installation Drawing" in perpetuity shall be required. Asphalt-millings construction shall extend to the right-of-way / property line. Should a failure to maintain the asphalt-millings driveway result in damage to the side drain / culvert, the property owner shall be liable for the cost to replace the culvert and reconstruct the driveway.

9.6.2. Easement for ingress/egress: Easements dedicated for ingress and egress to provide access to property not having direct access on a state, county, or approved private roadway, shall be in conformance to the Nassau County Zoning Ordinance and this ordinance.

Section 9.7. - Temporary driveway connections.

9.7.1. Temporary driveway connections shall be permitted for activities which do not require a permanent driveway connection. Examples of activities that may obtain a temporary driveway connection may include, but are not limited to:

- a. Temporary construction driveways;
- b. Silviculture operations;
- c. Agriculture activities;
- d. Borrow pit and mining activities.

9.7.2. Right-of-way permits shall be obtained for all temporary driveway connections and shall meet the requirements of article 8 of this ordinance. Right-of-way permits for temporary connections shall expire after a twelve (12) month period and may be extended for additional six (6) month periods upon payment of the applicable right-of-way permit fee.

9.7.3. Temporary driveway connections shall be paved for a minimum of five (5) feet from the edge of travel lane or paved shoulder. If a ditch or swale is present, a side drain is required which meets the requirements of section 11.11.3 of this ordinance. Any unpaved portion of the driveway connection shall be constructed to ensure that erosion will not occur that could affect the roadway drainage system.

9.7.4. Upon expiration of the temporary driveway connection permit, the driveway connection shall be removed and the right-of-way shall be restored to its original condition.

11.11.5.5. The following pipe materials and cross-sections are approved for use by the engineering services department as listed below. Pipe materials and material suppliers shall be FDOT approved:

Pipe Material:

- a. Pipe materials permitted under paved County maintained roadways, County owned ROW (except residential side drains / driveway culverts), primary (as determined by County Staff) residential development roadways, and primary (as determined by County Staff) multi-family drive aisles:

Reinforced Concrete Pipe (RCP);

Elliptical Reinforced Concrete Pipe (ERCP);

Concrete Box Culvert.

- b. Pipe materials permitted under non-County maintained roadways, secondary residential development roadways, and secondary multi-family drive aisles

Reinforced Concrete Pipe (RCP);

Elliptical Reinforced Concrete Pipe (ERCP);

Concrete Box Culvert;

Polypropylene Pipe (HP);

- c. Pipe materials permitted under green areas:

Corrugated Polyethylene Pipe (HDPE);

Polypropylene Pipe (HP);

Reinforced Concrete Pipe (RCP);

Reinforced Concrete Elliptical Pipe (ERCP);

Concrete Box Culvert.

- d. Pipe utilized for residential side drains / driveway culverts along paved roadways:

Reinforced Concrete Pipe (RCP);

Reinforced Concrete Elliptical Pipe (ERCP);

Polypropylene Pipe (HP);

Corrugated Polyethylene Pipe (HDPE)

Bituminous Coated Corrugated Steel Pipe (CMP)

Bituminous Coated Elliptical Steel Pipe (ECMP)

e. Pipe utilized for cross drains, side drains, and driveway culverts along dirt roadways:

Polypropylene Pipe (HP);

Corrugated Polyethylene Pipe (HDPE)

Bituminous Coated Corrugated Steel Pipe (CMP)

Bituminous Coated Elliptical Steel Pipe (ECMP)

f. Pipe materials permitted for use onsite for Non-residential Development:

Corrugated Polyethylene Pipe (HDPE);

Polypropylene Pipe (HP);

Reinforced Concrete Pipe (RCP);

Reinforced Concrete Elliptical Pipe (ERCP);

Concrete Box Culvert.

11.11.6. Other drainage structures:

11.11.6.1. The Florida Department of Transportation Roadway and Traffic Design Standards shall be used as a guideline for selection and construction of all drainage structures, including but not limited to: manholes, inlets, pipe end treatment, and box culverts.

11.11.6.2. Bridges shall be designed and constructed in accordance with the Florida Department of Transportation Standards and Specifications, Florida Department of Transportation Structures Design Guidelines, and American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges.

11.11.7. Special flood hazard areas. All proposed roadways shall have a centerline elevation equal to or greater than the base flood elevation of the special flood hazard area.

(Ord. No. 2017-04, 1-23-17)

## ARTICLE 12. - BONDING

### Section 12.1. - General.

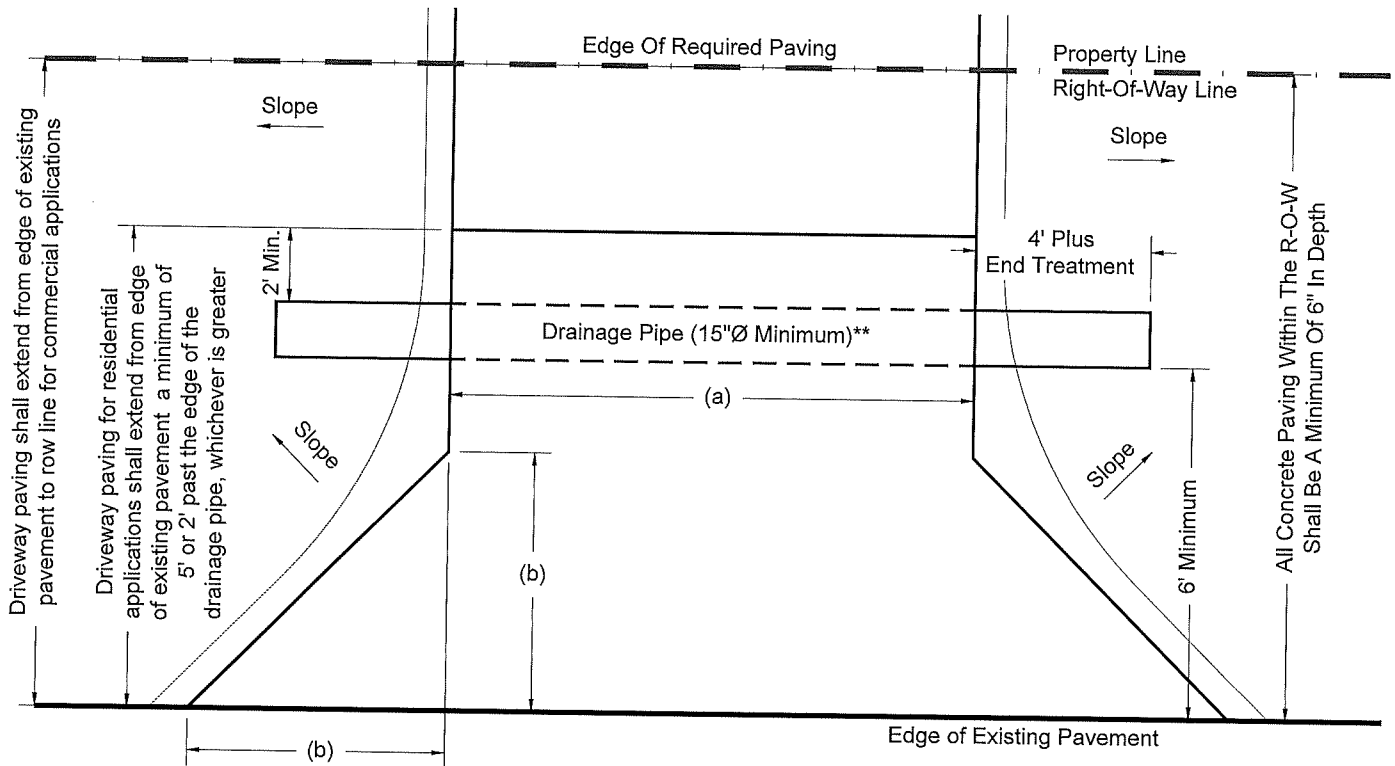
12.1.1. Bonds shall be required for all roadway, drainage, and water and sewer construction within a platted subdivision, for all roadway and drainage construction outside a development's project boundaries, and for all construction within county or municipal service district right-of-way.

12.1.2. The bonds referred to in this section may be in the form of a certified or cashier's check, irrevocable letter of credit, escrow agreement, surety bond, or three-party agreement under which an institutional lender providing construction financing to the owner binds itself to the county, the forms of which shall be subject to approval by Nassau County.

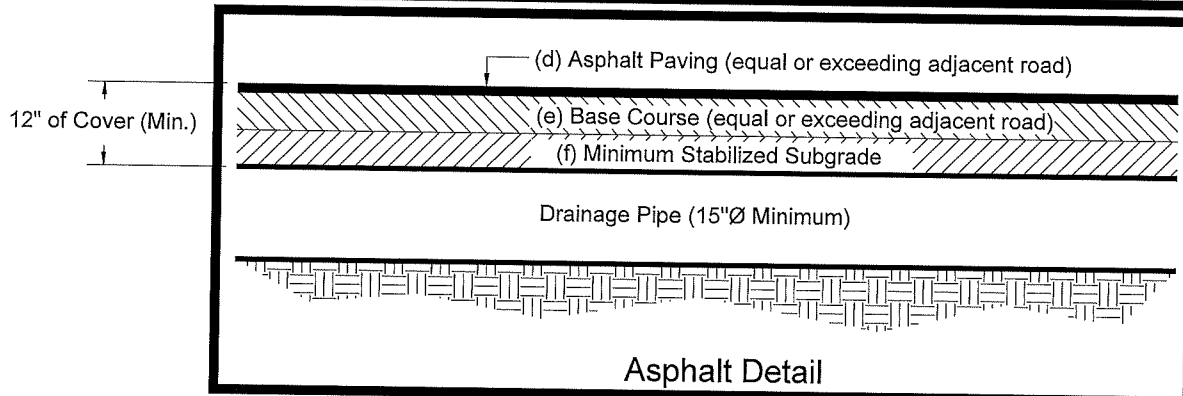
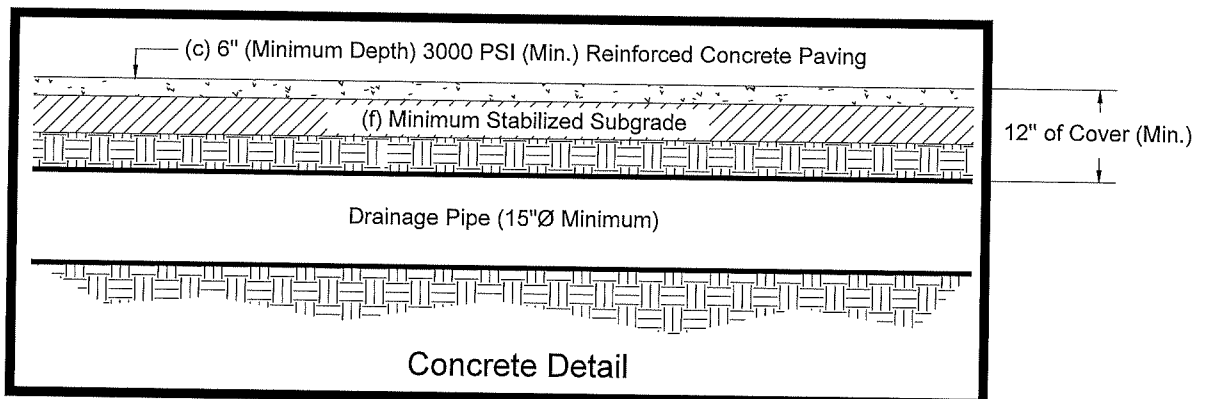
12.1.3. Surety bonds referred to in this section shall be payable to the order of Nassau County Board of County Commissioners on a form acceptable to the county. Each bond shall include language covering all improvements constructed on private or public easements and right-of-way within the platted area, and any off-site improvements if required.

# Typical Paved Driveway Installation Drawing

\*\*See Detail 24 For End Treatment Requirements

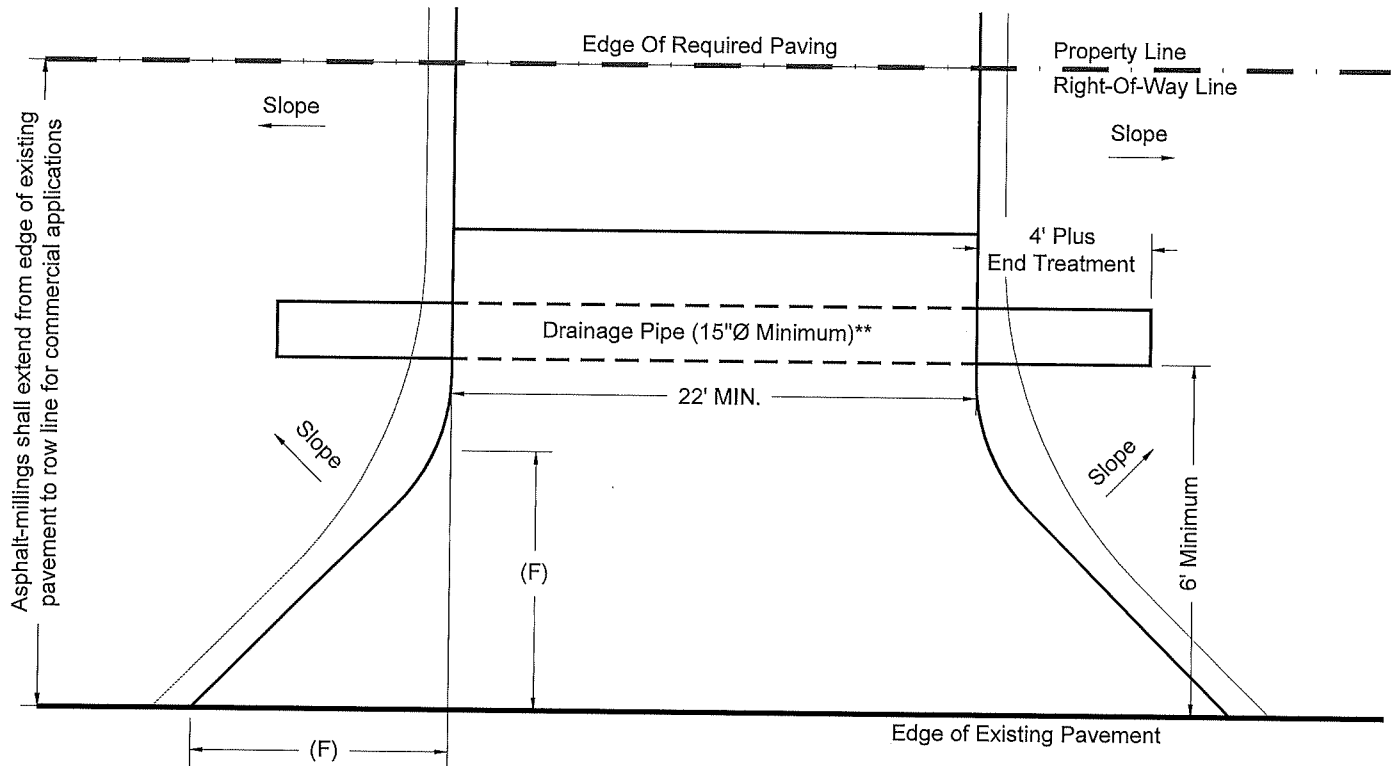


Plan View



# Alternate Asphalt-Millings Driveway Installation Drawing

\*\*See Detail 24 For End Treatment Requirements



Plan View

