



**Storm Resiliency & Infrastructure Development
Review Committee**

**New Development
Revised Drainage Design Criteria
Considerations (Part 2)**

**Department of Public Works & Planning Department
April 12, 2019**

Agenda



- Review Previously Approved Drainage Design Criteria Revisions

- Additional Potential Drainage Design Criteria Revisions

- Potential Plan Forward

Review Previous Approved Drainage Design Criteria Revisions



- **Expansion of Pre-Development Survey** – Concern is associated with new development not accounting for off-site drainage that is contributing to the development area.
 - At a minimum, provide topo survey for the area that is within 100 ft. of the new development. This requirement will be mandated with no exceptions.
 - Design Professional will determine any additional topo survey (beyond the 100 ft.) required to ensure that all contributing area is included with development's design.
- **Enhancing the By-Passing of Off-site Stormwater** – Concern is that the by-pass drainage system is not adequately designed to accommodate the stormwater flow from adjacent property.
 - Currently, drainage by-pass systems are designed utilizing the 25-Year Storm.
 - The expansion of the Pre-Development Survey, previously recommended, would provide for increased assurance of capturing adjacent contributing areas and improve designs.
 - Enhanced requirement to provide information that validates area drainage breaks (to show large areas contributing to the site) will support improved designs.

Review Previous Approved Drainage Design Criteria Revisions



- **Maintenance of Drainage Plans** – Concern is associated with stormwater flooding during new development construction. There have been no formal plans required that reflect the management of drainage during active construction activities...need a proactive plan that is reviewed & approved.
 - Require a Maintenance of Drainage Plan with the 10-set review process that will describe Pre-Construction and During-Construction activities that clearly defines all phases of temporary/permanent drainage systems to maintain appropriate stormwater flow.

Review Previous Approved Drainage Design Criteria Revisions



Awaiting SSPAC Review/Approval

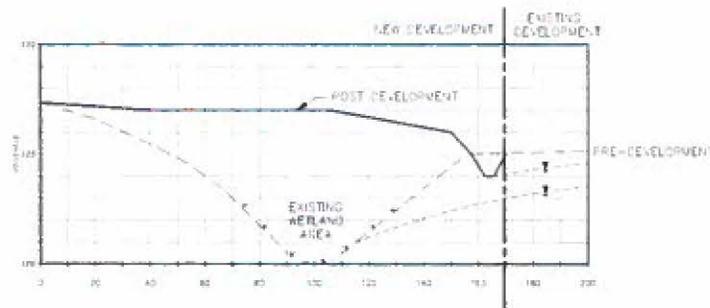
Awaiting Revision to Land Development Procedures Manual

Awaiting Implementation Schedule

Additional Potential Drainage Design Criteria Revisions



- **Soil Permeability on Filled Lots** – Concern is associated with less permeable soil that will restrict Groundwater flow and increase Groundwater levels in adjacent areas.
 - Public Works & Planning Department working with Geotechnical Professionals to determine impacts (if any) and criteria by which to evaluate and address (if required).



Recommendation: Require use of AASHTO Class A-3 Soil for fill or allow for a Pre vs Post analysis by a Certified Geotechnical Engineer to ensure that the fill material will not adversely impact the filled wetlands and/or low areas. All fill shall be placed and compacted in accordance with the Development's Engineer.

Potential Drainage Design Criteria Revisions



- **Backyard Drainage Swales** – Concern is for Private Property Owners modifying (filling) the rear-lot drainage swales which results in rear-lot flooding.
 - Previously (approximately 5 years ago), the Land Development Procedures Manual was revised to require all Backyard Drainage Swales to be a closed drainage system that included an drainage inlet every 3rd Lot.
 - We believe this criteria is appropriate but need to ensure that the system is adequately designed and constructed to function appropriately.

Recommendation: No modification to the criteria, however, include this component of the drainage system to the required Compliance Inspection (Stormwater Management Facility).

Potential Drainage Design Criteria Revisions



- **Shorten life of 10-Set Review Plans** – Concern is that construction of a development project can begin and then sit dormant or proceed very slowly. Concerns with incomplete stormwater management systems (MOD, Siltation Control, Dust Control, Pond Safety...4:1 sideslopes or fencing) and “blighted” conditions (Vegetative Control & Debris) for long periods of time.
 - Currently, an approved 10-set design plan is valid for 5 years (matching SJRWMD Permits).
 - It is not believed that by reducing the approval period, the issues described above will be addressed satisfactory.
 - Potential to add a requirement for Monthly Inspection Reports (of active construction sites) that require status and condition information of all components that are of concern.
 - Stormwater Management System
 - Blight “Appearance” Conditions

Recommendation: For 10-set development projects, require monthly inspection reports to be performed and submitted to the Planning Department.

Potential Drainage Design Criteria Revisions



- **Design Standard related to Lot Coverage Impervious Consumption** – Concern that the drainage design parameters for new development (focus was residential) do not accurately predict impervious area...which results in increased stormwater runoff quantities.
 - Currently, new development drainage calculations are based on the property's Zoning Lot Coverage requirement. When a Building Permit application is submitted (either for a new home or when modifications to the home are to be constructed...like a patio), the Planning Department ensures compliance.
 - Potential to sample Zoning Lot Coverage from older/established developments to determine if the design impervious values are appropriate.
 - Additional challenge is the regulation of un-permitted improvements.

Recommendation: Restrict impervious area to development's design value and have the information available for Planning Department compliance review during Building Permit application submittals.

Potential Drainage Design Criteria Revisions



- **Forestry...Water Consumption documented per Tree Size on Existing Property** – Concern is that the removal of Trees from a site adversely impacts (increases) stormwater runoff from a site and it is not being managed.
 - The City of Jacksonville is currently engaged with a Study to evaluate Tree impacts on Stormwater Management. The Study is a partnership with the Green Infrastructure Center and Florida Forest Service.
 - Study will provide info on Runoff Quantity-Flow Peak Time-Infiltration Impacts

Recommendation: Await results of the Study to determine impacts and make recommendations concerning any warranted stormwater management design criteria changes from Tree Removal/Tree Planting. The Study is nearly complete and anticipate a Final Report by the end of May '19.

Additional Potential Drainage Design Criteria Revisions



■ Flood Plain Management

- Applicability – Managing low areas outside mapped Flood Plain
 - Require areas that are identified to be lower than the adjacent Flood Plain to follow the Flood Plain mitigation requirement

Sec. 652.204. - Submission of additional data to establish flood hazard areas.



To establish flood hazard areas and base flood elevations, pursuant to Part 5 of this Chapter the Floodplain Administrator may require submission of additional data. Where field surveyed topography prepared by a Florida licensed professional surveyor or digital topography accepted by the community indicates that ground elevations:

- (a) Are below the closest applicable base flood elevation, even in areas not delineated as a special flood hazard area on a FIRM, the area shall be considered as flood hazard area and subject to the requirements of this Chapter and, as applicable, the requirements of the Florida Building Code.
- (b) Are above the closest applicable base flood elevation, the area shall be regulated as special flood hazard area unless the applicant obtains a Letter of Map Change that removes the area from the special flood hazard area.

Recommendation: Enforce COJ Ordinance (OR 652.204) – Regulate all area that is adjacent to Mapped Flood Plain and is lower than the Base Flood Elevation. The regulation shall be the same as the Mapped Flood Plain.

Additional Potential Drainage Design Criteria Revisions



■ Flood Plain Management (cont)

- Permit Expiration – Limiting time area and Flood Plain are disturbed
 - Require Separate Flood Plain Permit for development not requiring 10-Set
 - Limit Flood Plain Permit to 180 days

Sec. 652.406. - Expiration.



A floodplain development **permit** or approval shall become invalid unless the work authorized by such **permit** is commenced within 180 days after its issuance, or if the work authorized is suspended or abandoned for a period of 180 days after the work commences. Extensions for periods of not more than 180 days each shall be requested in writing and justifiable cause shall be demonstrated.

Recommendation: Modify City Ordinance to require a separate Flood Plain Permit for Developments not requiring a 10-set and enforce COJ Ordinance (OR 652.406) for the Permit expiration (180 days). For developments requiring a 10-set, the 10-set approval will be adequate for Flood Plain management.

Potential Drainage Design Criteria Revisions



- **Compare Current Building Code to Palm Coast Ordinance** – To evaluate other municipality process and criteria for management of development (residential) impervious area.
 - Development Services was able to search Palm Coast's municipal code and determined that the Palm Coast's process/criteria to ensure compliance with the development's design is similar to Jacksonville.

Bill Killingsworth, Director of Planning & Development Department
Separate Presentation on this Subject

Potential Plan Forward



- Formalize detailed Design Criteria Modifications
- Obtain Subdivision Standards & Policy Advisory Committee approval
- Revise Land Development Procedures Manual to reflect approved revisions



Storm Resiliency & Infrastructure Development Review Committee

Questions/Input?

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