

Concur date: \_\_\_\_\_ Concur by: \_\_\_\_\_ Approval date: \_\_\_\_\_ Approved by: \_\_\_\_\_  
Conditional Approval: \_\_\_\_\_

**SUBDIVISION CONSTRUCTION PLAN DEVELOPMENT REVIEW COMMENTS**

Reviewer: Christopher (Chris) A. Curb Phone: 595-3411 Engineering Project ID # [Eng ID#]  
Date Received: [Date received] Date Reviewed: [Date reviewed] Encompass ID #: [Planning #]  
Project Name: [Project Name]  
Project Address: [Project Address] # of lots [# of lots]  
Applicant's Name & Phone: [Applicant & Phone]  
Type Submittal: Subdivision Construction Plans (CP) (NOTE: See attached fee calculations.)

**PLEASE ADDRESS THE FOLLOWING COMMENTS:**

**Part A-Supplemental Information:**

1. Submit an aerial photo with 2.5' contours. Clearly outline the location of the site and show drainage basins/sub-basins boundaries on photo. (An aerial with contours can be obtained from the West Florida Regional Planning Council on 12th Avenue.)
2. Provide a copy of the latest revised County Sectional Map (or City Atlas Sheet) with proposed development boundaries delineated. (Obtain from County Tax Appraiser's Office)
3. Submit a draft copy or summary of covenants and restriction including the following:
  - a. Special deed restrictions mandatory to the Home/Property Owners Association,
  - b. Ownership, operation, and maintenance responsibilities for stormwater areas, drainage facilities, and recreational or common areas, including any required dedications.
  - c. Maintenance responsibilities for conservation easements or environmentally sensitive areas.
  - d. Maintenance responsibilities for any private streets or infrastructure.
  - e. Property owner association documents, by whatever name called.
  - f. Any other documentation or information necessary for a complete understanding of the provisions, terms or conditions (expressed or implied) on the preliminary plat.
4. Provide a copy of a proposed draft development agreement with a cost estimate for the improvements of which the County will jointly participate. This agreement will be forwarded to the County Attorney for review, approval, and recommendation to the Board of County Commissioners. This agreement must be approved prior to approval of the final plat.
5. If a development is to occur in phases, a Master Plan must be submitted and approved in accordance with LDC article 4.02.04. Subsequent Preliminary Plats and Final Plats for each Phase must be approved.
6. Provide copy of Technical Standards & Specification for this development.

**Part B-Stormwater Narrative:**

1. Provide a general description of drainage for on site, surrounding property and adjacent roadway, the project objectives and conclusions, pertinent information critical to the project, etc.
2. Explain any pertinent information from analyses of aerial topo, such as upland acreage, natural drainage patterns, and downgradient impacts associated with this project.
3. Include a brief summary of impacts to adjacent properties, receiving drainage system, and area-wide drainage systems for post development conditions. The stormwater design must provide reasonable assurance to protect adjacent properties and their associated structures, including but not limited to septic tanks, swimming pools, building foundations, etc.

4. Provide a general description of upland acreage, watercourses, water bodies, and wetlands on or adjacent to the site or into which stormwater flows.
5. If design considers more than one sub-basin area or contributing upland acreage, then provide a brief description, acreages for sub-basins and upland acreage, and map of delineated sub-basins.
6. Include a brief summary of how environmentally sensitive areas, wetlands, and water bodies are to be protected.
7. Respond in writing to comments concerns.

#### Part C- Soil Reports:

1. Provide a complete geotechnical report. Typically a minimum of one (1) test per five (5) acres is required, depending upon extent of environmental/physical conditions of the site as per LDC 4.04.13. Suggest soil data obtained from the SCS Soil Survey map, design layout, and natural topography be used to determine suitable soil boring locations. Geotechnical data should be used for swale analyses, roadway design, pond percolation design, to define subsurface and surface hydrology, and to define any areas considered unsuitable for development. Additional soil data appears applicable. [Concern]
2. The retention/detention design appears to be inconsistent with geotechnical report. [Concern] The geotechnical recommendations indicate a sand chimney as the design approach for the pond. Provide a written statement as to why underdrains are proposed instead of the of a sand chimney. Due to the perched water table a sand chimney appears more amenable.
3. The design approach appears to be inconsistent with the water table elevation. Please clarify.
4. The roadway design and construction specifications on the plans appear to be inconsistent with the geotechnical report. The pavement recommendations indicates undercutting of unsuitable soils to a depth of 3', backfilling with clean coarse sand as applicable in some areas, compaction to LBR 40, and using moisture resistant base such as graded aggregate or crushed limestone base. Based on the soil and groundwater conditions present, at minimum a moisture resistant based is required; revise details and add notes as applicable to be consistent with the geotechnical recommendations. Undercutting the road can be an in-field decision, however, the plans should make some reference.
5. Due to the perched groundwater as stated in the geotechnical report, it appears cutting the grade elevation of the road more than proposed is necessary. In addition, the roadway should be below the elevation of the lots to provide adequate grade for compliance with LDC 4.02.06D lot grading requirements.
6. Identify the location, depth and extent of all soils defined as unsuitable/non-rated for development where development is proposed to encroach into areas containing such soils. For example, soils classified Fresh Water Swamp (Fs) may require additional construction measures and other applicable agency permits. Areas with high water table may require moisture resistant road base; if applicable include base specifications on the road cross section detail.
7. Ponding areas must be in suitable locations as indicated by the geotechnical engineer's soils report.

#### Part D- Other Agency Approvals:

1. An approved FDOT drainage/driveway connection permit or proof of exemption is required prior to construction plan approval.
2. An approved Florida Department of Environmental Protection (FDEP) drainage permit (or proof of exemption) is required prior to approval of Construction Plans.
3. [FYI] Escambia County is in receipt of Florida Department of Environmental Protection (FDEP) drainage permit number 17- for this development.

4. An approved Army Corp of Engineers (C.O.E.) or FDEP dredge and fill permit (or proof of exemption) is required prior to approval of Construction Plans.
5. Santa Rosa Island Authority (SRIA) approval is required for development activities proposed at Pensacola Beach prior to County approval.
6. Approval from the Health Department is required for septic tanks prior to Public Works approval.
7. Upon review of Construction Plans a maintenance/ownership entity letter will be forwarded to FDEP.

Part E- Lot Coverage and Right of way Improvements:

1. Specify total net acreage within property boundaries and the total acreage considered within the contributing watershed.
2. Specify the square footage of impervious area for the following:
  - a. the maximum allowable lot coverage for buildings, drives and associated structures,
  - b. the total new/proposed infrastructure (roadway) for post development conditions,
  - c. the total impervious area for post development conditions,
  - d. if applicable, the total existing impervious for predevelopment conditions.
3. Indicate on plans all areas considered impervious, pervious and/or semi-impervious with applicable surface description and typical dimensions for these areas.
4. Provide typical roadway design cross-section indicating pavement type and base design, width, surface water management features (curb & gutter or swales), and sidewalk/bikeways or other labor intensive facilities. Suggest showing Common Trench for utilities on cross-section detail.
5. Provide separate cross sections for all entrance roads featuring medians, with a note explaining maintenance and ownership responsibility.
6. Provide typical County standard curb detail with 3000 PSI concrete specification.
7. Provide typical County standard cul-de-sac detail with right-of-way radius and pavement radius. Show the cul-de-sac slope on plans; maximum 10% slope, minimum gutter line slope 0.30%.
8. Pavement widths shall be 20' wide for local roads, 24' wide for collector roads, 80' outside diameter for turning circles (cul-de-sacs), and 50' outside diameter for temporary turning circles.
9. LDC4.04.05 A, states local streets asphalt will be 20' in width, which has been interpreted by the Planning Board as a minimum. However, be advised a wider asphalt road will require some adjustment to the standard for utility locations; a minimum of 2' separation between utilities is established by the Utility Coordinating Committee.
10. Minimum paving radii at intersections is 25'. Radius curbs are required; ribbon curb transitions to edge of existing paving.
11. Show 25' minimum right-of way radii at intersections; also show on final plat.
12. Show a temporary cul-de-sac at the end of ... Provide detail.
13. Show widening detail for ... It appears a turning lane median is applicable.
14. Local streets require 50' R/W when curb & gutter is utilized or 66' R/W if roadside swales are utilized.

Part F- Easements and Other Improvements:

1. Drainage easements (D/E) shall contain underground piping and must have sufficient width to accommodate pipe size; minimum 15 feet width. If the D/E is located with the S/D boundaries, then D/E is to be platted. If the D/E is outside boundary limits, then D/E is to be granted by separate instrument.
2. Drainage rights of ways (D/R/W) are required for open ditches and drainage swales as public dedicated or deeded R/W; minimum 15' feet width or as necessary for adequate maintenance

access. D/E's are not acceptable for swales/ditches, unless specifically approved by the County Engineer; private drainage easement swales for lot grading purposes may be a consideration for a variance to D/R/W requirements.

3. Show existing and proposed utilities and easements with size and purpose. Utility easements require 10' minimum width and located/centered (when practical) along rear and side lot lines.
4. Provide location and construction details for any proposed subdivision name entrance sign.
5. Street design exceeds the maximum cul-de-sac length of 1200'.
6. Block design exceeds the maximum length of 1320'.
7. Note method of sanitary sewer disposal.

#### Part G- FDEP Swale Exemption Criteria:

1. Provide calculations showing the proposed swale will percolate 80% of the runoff for a 3-year, 1-hour design storm in < 72 hours and function a "dry" system as per FAC 62-25.02 and 62-25.025.
2. Include a statement on plans and narrative, "this project qualifies for swale exemption."
3. Swale side slopes shall be equal to or greater than 3:1 or 6:1 width to depth cross-section ratio.
4. Include proper vegetative stabilization notes for side slopes; sod may be applicable.
5. Manmade inflow or outfall structures do not qualify for swale exemption criteria per FDEP policy.
6. This project does not appear to qualify for FDEP swale exemption; more information is required to provide reasonable assurance of compliance with FDEP regulations.
7. [Request] Since water quality is under FDEP jurisdiction, please provide notice to FDEP. The County will forward a copy of calculations and plans to FDEP, if necessary.

#### Part H- SW Management Plan (SW Report) & Calculations:

1. Include design assumptions, statements, and conclusions to clarify variables and results.
2. Provide runoff coefficient calculations for  $Q_{pre}$  and  $Q_{post}$ , consistent with infrastructure coverage and maximum lot coverage totals.
3. Provide time of concentration calculations with corresponding rainfall intensity duration.
4. Provide drainage calculations for retention/detention facilities, at minimum, must satisfy one of the following:
  - a. For a positive drainage outfall system,  $Q_{post} < Q_{pre}$  for a 25-year frequency of critical duration, up to and including a 24-hour duration storm event, with emergency overflow or "popoff" into a positive outfall. The positive outfall must be a functioning system.
  - b. For retention facilities designed with no positive outfall, the retention volume must be adequate to collect and percolate runoff from a 24-hour, 100-year design storm frequency including upland acreage runoff within 72 hours. Retention facilities with no positive outfall must remain under private ownership and maintenance and so noted on the plat.
5. While total on site retention may appear to be satisfactory to collect and percolate runoff from a 24-hour, 100-year design storm frequency, a reasonable attempt to provide a positive drainage outfall design is suggested/encouraged. The County may assist in obtaining acquisition of easements for disposition of surface waters if such easements are prepared and planned by the applicant. In addition, a minimum of 1' freeboard should be provided in the pond.
6. Submit revised calculations as applicable to meet FDOT requirements.
7. Drainage calculations appear to be incomplete or inconsistent.
8. Provide a complete stormwater management plan with applicable stormwater calculations. Calculations must demonstrate compliance with L.D.C. 4.04.13, 5.10.02A, & 7.15.06.
9. Show total retention/detention storage volume calculations at the outfall elevation(s) of the discharge pipe,

at the weir elevation or overflow structure(s),  
at the top of pond elevation.

**Note:** Outline the computer generated volumes as specified.

10. Provide the retention storage volume at the outfall elevation and top of detention ponds.
11. Clearly identify 100-year pond stage elevations in calculations and suggest a minimum 1 foot “freeboard” for the top of pond elevation. Add applicable notes to neighborhood lot grading plan plans to ensure adjacent properties and adjacent lots, will not flood in a 100-year storm.
12. Provide emergency overflow capability for a 25-year design storm for the detention pond.
13. Clarify  $Q_{pre} > Q_{post}$  within computer generated calculations up to an including a 24 hour event and identify the peak flowrate and maximum stage elevation.
14. As per LDC 4.02.06 F, Drainage construction of major channels or road crossings under Arterial or Collector roads must be predicated, and designed to control stormwater from, at least a 100-year storm event.
15. Provide pond recharge calculations and FDEP required treatment volume calculation.
16. Provide drawdown calculations for sand chimney, subdrain, under drains, subsoil drains, side bank drains or trench drain structure(s)
17. Pond recharge calculations appear to be inconsistent with percolation rates of soil. [Concern] The geotechnical data for this site indicates \_\_\_\_
18. Design calculations appear to be inconsistent with percolation rates for sand chimney, subdrain, under drains, subsoil drains, side bank drains or trench drain structure(s).
19. Provide capacity calculations for swales/open ditches based upon a 25-year design storm.
20. Provide velocity calculations for swales/open ditches consistent with stabilization method. Velocities  $> 3$  ft/sec requires sodded ditches. Velocities  $> 6$  ft/sec requires permanent lining; concrete. Slopes  $> 5\%$  are to be paved or concrete, unless velocity calculations indicate otherwise.
21. Provide velocity calculations for all offsite flows consistent with energy dissipator design.
22. Calculations must be signed, sealed and dated by a registered Florida Professional Engineer.
23. Provide a drainage area map, indicating sub-basins, upland acreage, and off-site flows.
24. Include a schematic diagram of proposed Stormwater collection system indicating inlets, pipe sizes, lengths and slope, contributing drainage areas, capacity calculations, etc. which are consistent with lot grading plan and gutter spread calculations.
25. Wet detention design concept appears to be applicable to this project.; provide applicable calculations if applicable.
26. Include a drainage study for the following lots:\_\_\_\_\_
27. Include gutter spread calculations, based upon a 25-year storm and consistent with drainage sub basins, for all road sections with similar slopes and type curbs. Gutter spread should not exceed the crown of the road for residential roads, and should allow an 8-foot dry driving lane of traffic for minor two-lane collector streets as per the Federal Highway Administration.
28. Provide reasonable justification for consideration to exceeding gutter spread standards; practicality is an acceptable issue in determining whether gutter spread is acceptable.
29. In determining gutter spread capacity consider the inlet capacity of proposed inlets and specify the type inlets consistent with inlet capacity analyses. In addition, the minimum spacing between connected stormwater inlets and/or manholes is approximately 400 feet due to maintenance capabilities.

#### Part I- Development in Areas of High Water Table or Flood Zones:

1. Clearly identify on the plans all jurisdictional wetlands, isolated wetlands, water bodies, natural

- water courses, and receiving waters on or abutting the site.
2. Specify on plans the 100-year flood zone elevation data as indicated on the FIRM or FHBM prepared by FEMA. If applicable specify on plans CCCL, CHHA, and Shoreline Protection Zones.
  3. The crown of all proposed roads must be a minimum four (4) feet above mean sea level elevation with reference to NGVD datum.
  4. The bottom ditches/swale elevation must be a minimum 2 inches above the water table and function as a "dry" system.
  5. If special flood hazard areas, shallow flooding areas, or coastal high flood hazard areas are applicable then clearly show and label these areas on the plans.
  6. [FYI] A special engineering report certified by a registered professional engineer or architect for flood-proofed structures may be required for proposed residential homes within the S/D by Building Safety Division in accordance with LDC article 10. Special requirements should be noted on the Final Plat and included in the covenants and restrictions.
  7. [FYI] Established minimum finished floor elevations in relation to mean sea level for the lowest floor of all proposed residential structures relative to the applicable flood zone will be required at Building Permit submittals. In addition, a "certificate of survey" from a Florida Registered Surveyor which clearly establishes these benchmarks will be required at building permit submittal.
  8. No slab supported or on-grade building shall be constructed on a lot in a subdivision where the permanent water table is less than two (2) feet below average grade of that lot unless a special engineering report is submitted with the preliminary plat and so noted on the face of the final plat and on the construction plans. The report shall be prepared by a professional engineer licensed by the State of Florida. It shall address subsurface conditions and construction methods to ensure provision of adequate foundations and safe, stable construction of all buildings, driveways and streets in the subdivision.
  9. Establish the minimum finished floor elevations in relation to mean sea level for the lowest floor of all proposed structures relative to the applicable flood zone; specify on plans.
  10. [Suggestion] To accommodate the requirements of LDC Article 10, providing additional Benchmarks in the centerline of road may expedite residential permits and assist in providing a "certificate of survey". [Concern] Building within a flood zone requires coordination with builders to ensure finish floor elevations meet Flood Zone requirements for building.
  11. Include a "certificate of survey" from a Florida Registered Surveyor which clearly establishes a benchmarks for the minimum finish floor elevation for the applicable flood zone.
  12. Describe the extent of any watercourse alterations or relocations resulting from development.

SW Exempt, De Minimus Construction, Regional System:

1. Demonstrate on plans how stormwater runoff is conveyed to receiving drainage system.
2. Show receiving drainage system has adequate capacity for post development conditions.
3. For projects within a regional area drainage system, a brief summary of the regional system including the maximum allowable lot coverage, design capacity of regional system, and post development impacts of the project is required to determine if the project is SW exempt.
4. A certified statement from the engineer of record of no significant impact to adjacent properties or area-wide drainage system is required.
5. Based upon information submitted, this project does not appear to qualify for SW exemption.

Part J- Wet-detention Design:

1. Provide calculations to show the SW facilities are designed in compliance with the Florida

- Development Manual (refer to pg. 6-60 and FAC 62-25.042) as it pertains to volume, residence time, treatment depth, littoral shelf, aquatic vegetation, and other applicable performance criteria.
2. Provide all applicable details specific to wet detention design.
  3. Consider in design the minimum orifice diameter is three (3) inches. Provide applicable details which comply with this requirement for “bleeddown” devices.
  4. Canals or lakes must be designed to have bank slopes steeper than 6:1, but flatter than 2:1, the entire banks slope from the design water surface to a point three (3) feet beyond the berm line must be grassed in a manner to guarantee a healthy growth of Pangola, Bahia or Bermuda, Centipede and/or other suitable grass.
  5. Wet detention is applicable in site specific cases where the natural water table is high; wet detention is not applicable for perched water tables.

Part K- SW Objectives and Performance Criteria:

1. Routing run off from upland/off-site acreage appears to be applicable to this design. Drainage should be routed through or around the development without impeding natural flow.
2. Show drainage conditions downstream of the project are not exacerbated due to this development.
3. Demonstrate site has a positive outfall.
4. Revise design to facilitate groundwater recharge.
5. Show that the new development will not degrade the functioning ability of the area-wide drainage system to adequately control stormwater runoff due to existing capacity, erosion or sedimentation.
6. Design requires the implementation of a Stormwater management plan; refer to LDC Article 7.15.
7. Provide measures to prevent damage to wetlands and prevent untreated stormwater runoff from adversely impact receiving water bodies.
8. The Stormwater objectives of the LDC for this project do not appear to be satisfactory in reducing capital expenditures for the County.
9. The design for this project does not appear to satisfy the stormwater objectives of the LDC 7.15.02
10. The owner’s permission recorded in writing may be required for direct Stormwater discharge onto private property. Provide an hold harmless/indemnification agreement for the pond discharge to .... Contact Nancy Stuparich at the County Attorney’s Office for updated agreement forms and/or confirmation of the agreement requirements. In addition, the same is required for drainage from roads dedicated to the County discharging to the private ponds.
11. The county encourages the developer to request the roads and streets, and the stormwater management system be dedicated to the county concurrently. If the developer so chooses to dedicate the roads and streets separate from the stormwater system, the roads and streets may be dedicated without the stormwater management system only if it is determined the roads and streets will not be negatively impacted if the stormwater management system should fail. Provide reasonable assurance the private ponds will not negatively impact the streets and roads, if it should fail. See comment R-1

Part L- General Items to Include on Plans:

1. A vicinity map of the area at a minimum scale of 1"=400', showing all adjacent existing subdivisions (including names and recording data), the tract lines of acreage parcels of land, all street and alley lines immediately adjoining the proposed subdivision, and between it and the nearest highway or thoroughfare, public facilities, and jurisdictional boundary lines.
2. Include a complete boundary/land survey including a legal description and the total acreage of the site. The survey should be certified by a registered surveyor.

3. Include a complete legal description with the total acreage and specify the origin of land survey and legal description.
4. Specify the correct number of lots on the cover sheet.
5. Add the subdivision name, current date, graphic scale, north arrow, and property tax/reference number(s) to the plans.
6. Show north arrow on each sheet of the plans.
7. Add the owner's and/or developer's name(s), address(es) and phone number(s) to the plans.
8. Specify the rights-of-way widths for County and State roads along with their designated numbers (if applicable) which front the property or tract. Also, indicate whether these roads are unpaved or private.
9. Maximum plan and profile horizontal scale is 1"=50' and/or vertical scale is 1"=5'. Correct accordingly.
10. Add general dimensions for retention/detention area construction ; primary length and width.
11. Add all applicable lot coverage dimensions for proposed improvements and layout for construction.
12. Specify the direction of flow for all surface drainage relevant to the project including on site, abutting properties, and adjacent streets.
13. Identify existing drainage system abutting the site or relevant to the proposed storm system. If none exists, then explain where the Stormwater flows to or from the site.
14. Show the proposed drainage structures associated with the development with pipe sizes, lengths, invert elevations, flow direction, and descriptions.
15. Include the plan and profiles for all proposed roads, intersections, and easements including centerline % slope of profiled roads, stormwater, utilities, and sanitary sewer pipes with existing and proposed pipe length, slopes, inverts, and grades. If necessary based upon terrain, show right and left grading requirements.
16. Each sheet signed, sealed and dated by a registered Florida Professional Engineer.

Part M- Horizontal and Vertical Control, and Topographical Changes:

1. Show existing (pre-development) 1' contours on the plan referenced to NGVD Datum.
2. Provide a minimum of two bench marks, not more than 1500 feet apart and no closer than 600 feet apart, with the location, elevation based on NVGD Datum, and the description of all benchmarks to include the section, township, and range with reference to departures and distances.
3. Add additional spot elevations to clarify drainage as needed to demonstrate drainage patterns on abutting properties, adjacent roadways and outfall areas.
4. Provide a complete grading/drainage plan by:
  - a. showing how existing contours tie into proposed contours for proposed right-of-ways, swales, and ponds,
  - b. showing directional flow arrows to clarify drainage across proposed development including lots, roads and drainage system.
  - c. clearly identifying for clarity contrast between existing and proposed contours.
  - d. showing 1' contours for proposed cut and fill areas.
5. Provide a neighborhood lot grading plan (or include on the grading/drainage plan) with directional flow arrows on the proposed lots which clarify drainage across proposed lots. Provide an 3 extra copies of the neighborhood lot grading plan (grading/drainage plan) with directional flow arrows on the proposed lots; copies will be forwarded to other relevant permitting and inspection departments to ensure compliance during residential construction.
6. Provide an 3 extra copies of the neighborhood lot grading plan (grading/drainage plan) with

directional flow arrows on the proposed lots; copies will be forwarded to other relevant permitting and inspection departments to ensure compliance during residential construction.

7. Show elevations of roadways in area(s) of connection(s) and ensure ponding or standing water in R/W is not apparent for post development conditions. When applicable provide measures to route standing or ponding water into onsite drainage system or County system.
8. Show spot elevations at intersections where proposed grades are at or near a minimum of .03%
9. Show spot elevations in the cul-de-sac to ensure adequate drainage flow line.
10. Specify minimum finished ground floor elevations for all lots within areas of flooding concern such as next to ponds, wetlands or within flood zones to ensure lots will not flood in a 100-year storm.
11. As per LDC 4.02.06-D, the minimum finished habitational floor elevation for lots shall typically be 8 inches (sodded around building) or 10" (unsodded) above finished grades of lots, unless otherwise dictated by flood zone. Finished grades shall slope from the foundation 2 ½ inch within 10 feet (2% grade) or less, excluding sidewalks, patios and driveways and then sloped at a minimum 1/16 inch per foot (0.5% grade) to a positive outfall. Indicate this requirement on the subdivision neighborhood lot grading plan by note or detail. Suggest using attached detail.
12. Horizontal control and vertical alignment appears incomplete. Show all horizontal control with radii of curves, lengths of tangents, and central angles of streets. Show all centerline grades and vertical curves; minimum acceptable grade is 0.3%. Show all centerline vertical curves for grade changes in excess of 0.4%.
13. Show proposed centerline road grades, vertical curves, and gutter line elevations at flat intersections and at inlet throats or grate tops.
14. If necessary based upon terrain, show right and left grading requirements of roadways.
15. Show higher back curb (or raised shoulder) on negative grade cul-de-sacs or on sections of roadway where stormwater may jump the curb. Specifically, this appears to be applicable at ...
16. Provide a minimum 11' wide shoulder from back of curb to R/W line with ½" per foot positive slope to 5' behind the curb.
17. Specify FDOT non-skid friction course asphalt on streets with >10% slope.

#### Part N- Utilities, Water, and Sewer Requirements:

1. Show existing underground utilities (sewers, water mains, culverts, etc.) indicating type, pipe sizes, and locations within, adjacent to, or relevant to the proposed development.
2. Show all proposed water, sanitary sewer, and all other utilities indicating type, size and locations; show the points of connection to the existing systems.
3. Conflict structures for utility conflicts are not permitted, unless reasonable justification of necessity is be provided and approved.
4. Show all proposed utility crossings under existing county roadways to be bored, not open cut. Except under conditions of existing roadway degradation or reasonable justification, County roadways are bored under and not open cut. If justification for open cutting of a County road is warranted and boring cannot be accomplished, then include County standard patch detail on plans.
5. Add note and typical utility layout detail for underground utilities **“All proposed underground utilities within R/W’s or utility conduit for road crossings shall be installed prior to paving. No streets or roads under the two (2) year warranty will be allowed to be open-cut, or jack-and-bored, unless specifically approved by the county engineer.” “To accomplish this requirement, Common Trenching is required whenever possible. If common trenching is not a feasible option, the developer shall install conduit for the utility not participating in the common trenching for all road crossings and the utility company will be required to use the**

**conduit. This shall require planning between the developer and the utility.”**

6. Provide proof that all known right-of-way users have been notified of this project, i.e., existing utilities (Cox Communications, BellSouth Communications, ECUA, ESP, Gulf Power, TAD Communications).
7. [Suggestion] Send out a “Preconstruction Meeting Notice” to all utility companies, to schedule and notify all utility companies of a preconstruction meeting and construction scheduling, notify your contractor and coordinate a schedule for common trench utility installation. Sample attached.
8. If septic tanks are proposed for lots indicate with a note on the plans.
9. Show existing or proposed fire hydrant located within 500 feet from the furthest remote point of all proposed buildings on a six (6) inch water line. Areas serviced by a four (4) inch line may utilize flushing hydrants.

Part O- Stabilization, Erosion, and Sediment Control Measures:

1. Stabilized earth berms and/or swales should be constructed along property lines where developed run off to adjoining properties is possible. Provide detail with side slopes, elevations, dimensions, soil specifications, compaction, stabilization, construction specifications and etc. Side slopes steeper than 3:1 requires sod.
2. Include on plans measure to control erosion and sedimentation consistent with velocity calculation and in accordance with FDEP standards.
3. Include applicable details for erosion and sediment control device, timing for installation, and provision for their maintenance.
4. Show applicable locations of erosion/sediment control measures and label on plans.
5. Include on the pond(s) detail(s) proper side slope stabilization notes. The entire bank slope shall be grassed in a manner to guarantees healthy growth grass (free from noxious weeds) such as Pangala, Argentine Bahia, Bermuda, Centipede or other suitable grass.
6. Side slopes or embankments 3:1 or steeper should be sodded and pinned, unless other effective measures can be applied such as geotextile materials. Specify method of stabilization on plans consistent with slope stabilization analyses.
7. Proposed open ditches or swales should be 6:1 of flatter, unless permanent stabilization is provided.
8. Work proposed next to the R/W with existing swales systems may require additional provisions to repair/restore existing drainage swales as needed to ensure adequate drainage. R/W shoulder stabilization should be in accordance with FDOT Standard Specifications for Road and Bridge Construction latest edition. Please note on plans.
9. Concrete MES are required for culverts; provide applicable detail.
10. Include on plans energy dissipators at discharge points of all pipes and flumes based upon applicable design velocities. Rip-rap dissipator detail(s) should include minimum stone weight (suggest 50 #), spread and depth dimensions. Splash pad dissipator detail(s) should include construction specifications, dimensions, material etc.
11. Topography or design layout appears conducive to erosion.
12. [Request] Add provisions to Covenants and Restrictions or notes on plans to preserve natural vegetative buffers and existing trees from unnecessary clear cutting the entire acreage during development or home construction. Preservation of natural vegetative buffer zones and existing trees will reduce impacts of erosion.
13. On sites > 1 acre, if > 1 contiguous acre is cleared, a ground cover sufficient to prevent erosion should be planted or otherwise stabilized within 10 working days on that portion of the site upon which further active construction will not be undertaken within 90 days; please note on plans.

14. For shoreline structures an anti-erosion impact statement should be included with a descriptive features of the site plan and proposed measures to be undertaken in order to prevent or minimize erosion of adjacent and down drift properties. This statement shall include any anticipated adverse impacts of the proposed structure.

Part P- County Standards and Details Applicable to Plans:

1. Include cross-section detail(s) of proposed pond(s), canal(s), or lake(s) including side slopes, the top and bottom elevations, the pond embankment stabilization notes, associated inflow/outflow structures, permanent pool elevation, FDEP elevations, etc.
2. Include cross-section detail(s) of proposed pond(s) including side slopes, the top and bottom elevations, pond embankment stabilization notes, associated inflow/outflow structures, etc.
3. All retention areas shall be located a minimum 20' from any natural watercourse, river or stream.
4. For purposes of public safety, permanently wet retention and detention basins shall either be fenced or contain side slopes that are no steeper than 4:1 (horizontal; vertical) out to a depth of two (2) feet below the control elevation. [Concern] Liability for the developer, engineer of record, or County from a child drowning.
5. Wooden privacy fence should be on private property with maintenance entity established. Chain link is the County standard for pond fencing on County property. The County's Pond Committee is currently evaluating fence standards; typically County Maintenance crews do not maintain wooden privacy fences.
6. Include a complete construction detail for sand chimney, underdrain, or side bank drain.
7. Include a complete construction detail for sand chimney. Indicate the soil lithology on the cross section detail with applicable depths to the ensure the contractor is aware of the applicable depth for installation.
8. Include a complete construction detail for sand chimney by indicating the soil lithology on the cross section detail with applicable depths to the ensure the contractor is aware of the applicable depth for installation. What type soil is the contractor trying to identify at bottom excavation?
9. Weir/outlet (emergency overflow or "pop off") details should include dimensions, elevations, material specifications, reinforcement and stabilization specifications.
10. Include a complete construction detail for outlet structure.
11. All orifices should be less than a 3" diameter. All standpipes larger than a 15" diameter should be protected by a trash rack; include details, materials and construction specs as applicable.
12. A minimum one (1) foot ground cover is required for all underground pipes; note on plans.
13. Provide typical driveway connection detail proposed for residential driveways on plans. It appears culverts with MES may be applicable, unless a dip in the drive is more amenable.
14. Stormwater pipes must be a minimum 18 inch diameter if to be maintained by the County and be designed to accommodate a 25-year storm.
15. Show drive culvert size and elevations/slope on plans; designed to accommodate a 25-year storm.
16. Show culverts for all proposed drives when crossing existing or proposed roadside swales/ditches, unless a dip in the drive is more amenable.
17. Indicate concrete mitered end sections along with their flow line elevations on all driveway pipes in County R/W or D/E. Include detail and construction specifications per FDOT standards.
18. Provide standard concrete MES detail in plans. Refer to FDOT standards.
19. Provide endwall/headwall details for pipe discharge into ponds.
20. Minimum slope of all proposed conveyance swales, roads, and gutters must be 0.3%. Identify all slopes and/or elevations on plans and show directional flow arrows to clarify drainage.
21. The minimum spacing between connected stormwater inlets and/or manholes is approximately 400

- feet due to maintenance capabilities.
22. Provide standard details for inlets.
  23. Include a cross section of all proposed swales/open ditches including side slopes, and the proper stabilization notes. Plan view should include % slope, elevations, contours, and grading requirements as necessary for construction purposes.
  24. The maximum allowable design depth for swales/open ditches located in road right-of-way is three (3) feet. Edges of ditches shall be a minimum of six (6) feet from the outside edge of pavement.
  25. If applicable include associated details for checkdams or lined ditch specifications to control erosion or sedimentation within proposed swale system(s), based upon velocity calculations.
  26. Road side swales or open ditches should not exceed 3 feet in depth and the edge of the ditch must be a minimum 4-6 foot from to the edge of the pavement.
  27. Show concrete valleys and associated details in areas of roadways in which stormwater runoff crosses the crown of a road. Through fare roads should have a minimum 10' wide valley for traffic safety reasons. The width of the valleys should be designed with consideration to the depth across the crown ( typically 1" depth per 3' of width of valley or 18:1 slope )
  28. [Strongly suggest] Revise design to include inlets (at the low points) on both sides of the road and eliminate the canted roadway sections by replacing with full crown roads. The canted roadway design is sub-standard and will result in trapped water in the curb line, when future County resurfacing projects are implemented. In addition, roadside drainage may have some adverse impacts on the lots at the low side of the canted roadway sections. Inlets on both sides of the road is good engineering practice, because it allows the system to function should one of the inlets become clogged. Gutter spread is also a consideration. In addition, if/when canted roadway sections are approved to route runoff across the road, concrete valleys are required in such sections.
  29. Show concrete flume detail(s) including dimensions, elevations, material specifications, reinforcement and stabilization specifications.
  30. County maintained ponds must be designed with side slopes which are no steeper than 3:1.
  31. The storm pipe material is not amenable or an approved material for construction within County R/W. Suggest HDPE or concrete pipe. Request not to use corrugated metal pipe due the poor durability and strength characteristics. If corrugated metal pipe is used it must be fully bituminous coated to allow an inside smooth surface.
  32. Specify either ADS or RCP. Be advised HDPE pipe installation specification must meet 1999 FDOT specification which include proper bedding, compaction in lifts, allowable 5% deflection, density testing, etc. Add notes specific to installation requirements or submit Construction Technical Specifications. County & FDOT specifications are attached; see County Spec 02200-12 for field density test requirements for trench backfill (consistent with FDOT 1999 Spec 125-8).
  33. Ribbon curb or layback type curb should be used within County R/W. FDOT Type 'F' curbs are only applicable for medians within County R/W.
  34. Provide standard inlet details and drainage structure details. Standard County inlets are required; FDOT inlets are not acceptable unless ditch bottom inlets.
  35. Provide screening (vegetative buffer, shrubs, bushes, or other natural barriers) between right-of-way and retention/detention area.
  36. Correct the subgrade compaction to LBR 40 on cross section details of the road. Include requirements for density testing standards; all unsuitable materials beneath the road require excavation and backfill with readily compactable soils in 8" lifts and stabilized to a minimum soil density of 93 % of the Modified Proctor Test (ASTM D1557) or soil density of 95% of the Standard Proctor Test (ASTM D698); Subgrade top ground surface should be compacted to a

- minimum soil density of 95 % of the Modified Proctor Test (ASTM D1557); 8" sand-clay base requires a minimum soil density of 98 % of the Modified Proctor Test (ASTM D1557)
37. Revise the concrete flume/access ramp inside flange with beveled or rounded edges for maintenance access purposes.
  38. Indicate a 2' curb transition from the edge of curb to the concrete flume entering the pond.
  39. Indicate a 2' curb transition on inlet details with 4' to the expansion joint per County standards.
  40. Include a construction detail for the underdrain cleanouts and identify locations within the ponds.
  41. Extend concrete curb radii at connection to... to protect the edge of pavement; suggest transition to ribbon curb in the radii.
  42. County standards require an asphalt thickness of 1 ½", and 2" in cul-de-sac's.

Part Q- Applicable Notes to Include on Plans:

1. "The project engineer (engineer of record) shall provide to Escambia County "as-built" record drawings for verification and approval by Escambia County one week prior to requesting a final inspection, or provide "as-built" certification that the project construction adheres to the permitted plans and specifications. The "as-built" certification or the "as-built" record drawings must be signed, sealed and dated by a registered Florida Professional Engineer."
2. "The developer/contractor shall install prior to the start of construction and maintain during construction all sediment control measures as required to retain all sediments on the site. Improper sediment control measures may result in Code Enforcement Violation.."
3. "Retention/detention areas shall be substantially complete prior to any construction activities that may increase stormwater runoff rates. The contractor shall control stormwater during all phases of construction and take adequate measures to prevent the excavated pond from blinding due to sediments."
4. "All disturbed areas which are not paved shall be stabilized with seeding, fertilizer and mulch, hydroseed and/or sod."
5. "All new building roof drains, down spouts, or gutters shall be routed to carry all Stormwater to retention/detention areas."
6. "Developer/Contractor/Home Owners Association shall reshape per plan specifications, clean out accumulated silt, and stabilize retention/detention pond(s) at the end of construction when all disturbed areas have been stabilized and at the end of the 2 year warranty period."
7. "Contractor shall maintain record drawings during construction which show "as-built" conditions of all work including piping, drainage structures, topo of pond(s), outlet structures, dimensions, elevations, grading etc. Record drawings shall be provided to the Engineer of Record prior to requesting final inspection."
8. "The owner or his agent shall arrange/schedule with the County a final inspection of the development upon completion and any intermediate inspections at (850) 595-3434. As-built certification is required prior to request for final inspection/approval."
9. "Notify Sunshine utilities 48 hours in advance prior to digging within R/W; 1-800-432-4770."
10. "All aspects of the Stormwater/drainage components and/or transportation components shall be completed prior to requesting a final inspection."
11. "No deviations or revisions from these plans by the contractor shall be allowed without prior approval from both the design engineer and the Escambia County. Any deviations may result in delays in County acceptance of improvements"
12. "The contractor shall notify FDOT 48 hours in advance prior to initiating any work in the state rights-of way."
13. "The owner or his agent shall arrange with the County Inspector an inspection all phases of road

construction 24 hours prior to commencement of each phase at (850) 595-3434.”

14. “The owner/developer should provide a copy of plans and stormwater maintenance plan to all future lot owners which clearly indicate responsibility of individual stormwater systems.”

**Part R- Maintenance Requirements:**

1. [Applicable for private ponds] Provide a copy of a Maintenance Plan to both the County and the entity/owner responsible for maintenance which includes a listing setting forth scheduled maintenance needs and operation/maintenance instructions Stormwater facilities and erosion repairs.
2. [Request] Include in the maintenance plan a continuing obligation clause as follows, “Failure to comply and continually maintain all approved elements of an approved Construction Plans for the ponds shall be a violation of County ordinances subject to enforcement and penalties.”
3. Provide adequate access to stormwater facilities for maintenance purposes. Provide adequate access around the perimeter of all ponds and provide an access ramp (minimum 6:1 slope) to the bottom of all ponds for maintenance equipment.
4. Provide adequate access to stormwater facilities for maintenance purposes. Dedicated right-of-way should be provided for adequate pond access between lots. However, a dedicated ingress/egress easement is sufficient, if a gravel drive is provided for access to the pond.
5. All Stormwater management facilities must be designed for a minimum of 20-year life, have low maintenance cost and easy legal access for periodic maintenance.
6. Due to limited design life and additional maintenance requirements, the use of underdrains is accepted, although discouraged. Request a reasonable explanation why natural percolation or the use of sand chimneys will not accommodate treatment and recharge requirements.
7. Include on plans the location, width, purpose and maintenance responsibility for all proposed easements, facilities, or R/W’s other than streets. (Private or Public?)

**Part S-Comments For Your Information:**

1. [FYI] Construction of improvements initiated prior to construction plan approval will result in double review and inspection fees as per LDC 7.15.10. However, upon approval of the Preliminary Plat, R/W’s and stormwater areas may be cleared, provided other agency requirements are satisfied including applicable permits such as dredge and fill permits.
2. A copy of an FDOT drainage connection permit is required prior to issuance of first building permit within the subdivision.
3. An “as-built” certification is required prior to final inspection of S/D. In addition a copy of the FDEP “as-built” certification is required for the Stormwater facilities prior to final inspection.
4. All areas and/or structures to be maintained by the County must be dedicated to the County by plat (preferred) or separate instrument and accepted by the BCC.
5. Density testing and core samples will be required to demonstrate compliance with County standards prior to final acceptance of roadway improvements.
6. Construction of improvements have been initiated prior to construction plan approval. Fees reflect double review and inspection fees as per LDC 7.15.10. Payment of such fees does not relieve the developer, contractor, or engineer from fully complying with the requirements of the LDC or standard specifications, in the execution of the work, nor from any other penalties which may be assessed. Design revisions to the construction plans, to obtain County Engineer approval, are required. Plan adherence must comply with the approved Construction plans, even if partially constructed improvements require relocation/removal/modification.

Part T- Additional Comments and Concerns:

1. Plans differ from approved Preliminary Plat.
2. Preliminary Plat approval is required prior to construction plan approval.
3. This project is within the boundaries of a planned County Capital Improvement Project.  
Project Name:
4. The utility locations as scaled off the plan does not match the established utility locations as established by the local Utility Coordinating Committee (UCC). Revisions from this established standard should be reviewed by the UCC. This can be accomplished by attending the next UCC meeting at Quincy's on Mobile Hwy at 12:00 the first Wed. of the month. The next meeting is ....
5. [Suggestion] Set-up a preconstruction meeting, notify all utility companies of the meeting, notify your contractor and coordinate a schedule for common trench utility installation. Sample attached.

Part U-Comments Based Initial Site Visit:

Note: All comments are based upon the Land Development Code ordinance 96-3 (LDC). Refer to Articles 3, 4, 7, and 10 of the LDC and Chapter 62-25 F.A.C. Please respond in writing if you wish to dispute any comment regarding this document.

file: h: \wpdocs\cac\subdivision\ [Eng ID#] .CP

## Escambia County As-Built Certification Form

Upon completion of construction and prior to final inspection the engineer of record or another professional engineer registered in Florida must certify that the project construction adheres to the approved plans. A final certificate of occupancy or final acceptance will not be granted until the project has been certified.

### Part 1: Project Information

<u>[Project Name]</u> Project Name	Planning/Building # <u>[Planning # ]</u>		
<u>[Project Address]</u> Project Address	Engineering # <u>[Eng ID#]</u>		
<hr/>			
Name and Title of Owner	Owner's Phone		
<hr/>			
Owner's Address	City	State	Zip

### Part 2: Statement By Entity Responsibility For Maintenance (if other than County)

The undersigned agrees to maintain and operate the Stormwater facilities to comply with Ordinance 96-3 Article 7.15.12. Responsibility for maintenance and operation may be transferred to another entity upon written notification to Escambia County Public Works Department.

<hr/>	<hr/>		
Signature	Date		
<hr/>			
Name and Title	Owner's Phone		
<hr/>			
Address	City	State	Zip

Part 3: Statement By Registered Professional Engineer (required by Ordinance 96-3 Article 7.15.11) This is to certify that project construction substantially adheres to the approved plans. The engineering features of the project have been designed/examined by me. I also state the applicant has been furnished a maintenance and operation schedule for the Stormwater facilities (if applicable).

<hr/>	<hr/>	<hr/>	<hr/>
Name of Engineer	Florida Reg. No.	Signature of Engineer	Date
<hr/>			
Company Name	(Affix Seal)		
<hr/>			
Company Address			
<hr/>			
City	State	Zip	Attach As-built Drawings if applicable

Note: While not preferred, an as-built certification letter may be substituted for this form.

### Subdivision Final Inspection Status/Report

Subdivision Name: [Project Name] Construction Phase \_\_\_\_\_ Permit # [Planning # ]  
 Location: [Project Address] Inspector(s) \_\_\_\_\_ Date: \_\_\_\_\_  
 Engineer: [Applicant & Phone] Contractor: \_\_\_\_\_  
 Type of Inspection by date: Complaint response \_\_\_\_\_ (attachment) Punch List Inspection \_\_\_\_\_  
 Final inspection \_\_\_\_\_ BCC acceptance \_\_\_\_\_ 2 - year warranty \_\_\_\_\_ Other \_\_\_\_\_

Attendants at the inspection (engineer, contractors, owners, etc.):

<u>General requirements:</u>	<u>YES</u>	<u>NO</u>	<u>NA</u>
1. As-Built Drawing/Certification received from engineer of record.	___	___	___
2. FDEP As-Built Certification received; compliance with FDEP.	___	___	___
3. Final Plat has been approved and recorded.	___	___	___
4. Developer has provided pond deed/dedication by plat or deed.	___	___	___
5. Offsite drainage easements and/or hold harmless agreements complete.	___	___	___
6. Drainage impact fee \$ _____ has been paid.	___	___	___
7. Pond maintenance fee \$ _____ has been paid.	___	___	___
<u>Erosion/Sediment Control:</u>			
8. Erosion/sediment control measures are in place prior to construction.	___	___	___
9. All sediments have been removed from streets and drainage system.	___	___	___
10. All disturbed areas of R/W are stabilized with grass or seed/mulch.	___	___	___
11. All disturbed areas of lots/parcels are stabilized, if > 1 contiguous acre .	___	___	___
<u>Stormwater Detention/Retention Areas:</u>			
12. Side slopes of pond(s) have healthy grass cover. Pond #( _____ )	___	___	___
13. Ponds are graded & constructed per plans. Pond # ( _____ )	___	___	___
14. Energy dissipators & “rip rap” installed.	___	___	___
15. Accumulated silts removed from pond.	___	___	___
16. Outfall structure of pond is constructed per plans.	___	___	___
17. Verified underdrain system/sand chimney is installed.	___	___	___
18. Ponds have gate lock (master #2245) and proper screening buffer.	___	___	___
19. All grading requirements are complete around pond area.	___	___	___
<u>Drainage System:</u>			
20. Inlet structures are built and located per plans. Inlet # ( _____ )	___	___	___
21. Roadway drainage have sufficient flow lines; no standing water.	___	___	___
22. Curb and gutter or ribbon curb meets standards.	___	___	___
23. Concrete flumes are constructed per plans.	___	___	___
24. Roadside ditches and easement ditches are constructed per plans.	___	___	___
25. Concrete valleys are constructed per plans.	___	___	___
26. Canted sections of roadways are constructed per plans.	___	___	___
27. Offsite drainage system constructed per plans. ( _____ )	___	___	___
28. Rollocks and finishing of drainage structure are complete.	___	___	___
<u>Roadway requirements:</u>			
29. Roadway width, asphalt, curbing appears to be per plans.	___	___	___
30. All flared turnouts, radii, transition @ curb per plans.	___	___	___
31. Color, location, size, and pavement markings per plans.	___	___	___
32. Traffic signs, barricades and other traffic control devices per plans.	___	___	___
33. P.C.P’s are in place on new asphalt.	___	___	___
34. Temporary cul-de-sacs/turn arounds completed.	___	___	___
35. Provided copy of density test on subgrade, finish grade, and pipe runs.	___	___	___
36. Provided core sample test results on asphalt.	___	___	___
<u>Additional requirements:</u>			
37. Tack weld the all the manhole drainage lids.	___	___	___
38. Offsite road patches meet County standards; density test provided.	___	___	___
39. Fire hydrants are installed.	___	___	___
40. See attachments included with this inspection report.	___	___	___

Disclaimer: This project has been inspected by Escambia County for compliance with the requirements of the Land Development Code. This inspection report is based on a visual inspection and does not in any way relieve the professional engineer, contractor, owner, developer or responsible party from the design requirements of the permitted plans.