

October 18, 2013

Pender County Planning & Community Development
Administrative Building
805 S. Walker St.
Burgaw, NC 28425

RE: Cardinal Pointe Subdivision
Preliminary Master Plan Submittal

Dear Sirs:

This letter addresses the review of a preliminary master plan for the development to be known as Cardinal Pointe. The development is being created by the Owners, Jeff and Nonie Morris. They are submitting a preliminary master plan for approval by the Pender County Planning Board.

Cardinal Pointe Subdivision is planned on a +/- 104 acre tract (multiple tracts to be combined after approval) located on US HWY 17, 0.7 miles north or Sloope Point Road. The development is located on the east side of US HWY 17. A portion of the property is currently occupied by the Cardinal Acres mobile home park. This existing facility will be closed and the property redeveloped after project approval. The majority of the property is undeveloped land. This subdivision is envisioned to be developed in three phases. The first phase will include the development of the western 1/3 (+/- 33 acres) of the property along with the development of the waste water system planned for the eastern most portion of the property. Phase 2 (+/- 33 acres) will include the center portion of the property and the Phase 3 (+/- 38 acres) will include the remaining eastern portion of the property. 2.5 acres on US HWY 17 will be used for commercial purposes. These uses will be consistent with the PD zoning

The following paragraphs address the technical and regulatory issues that will be encountered by the owner in developing this project. At this time all technical aspects are subject to change after more complete study and engineering design is preformed on the property.

Water - The water system as planned will be tied to the Pender County Public Water System located along US HWY 17. The system will be developed to meet Pender County and the NCDENR - Public Water Supply Section. The

system will meet or exceed the regulations as stated under Title 15A, Subchapter 18C.

Wastewater - Sewage generated on the site will be collect via a subdivision wide collection system. The collection system will be designed and installed to meet the regulations of NCDENR DWQ rules Title 15A, Subchapter 2T. This sewer system will convey sewage to the east on the property to a treatment and disposal system planned for the eastern most reaches of the property. The developer has set aside approximately 8 acres for this treatment and disposal. The developer has hired a professional soil scientist and will begin the extensive evaluation and testing process after this master plan is approved. At this time the disposal system that seems best suited for this development will include secondary treatment of the effluent with surface disposal. All development and construction of the treatment and disposal system will be designed and constructed to 15A NCAC 02H .0400. Enclosed, please find information regarding a wastewater system that will possibly be used.

Stormwater - The subdivision is envisioned to be a "high density" development as determined by NCDENR DWQ under the coastal stormwater rules. Stormwater controls (BMPs) are envisioned to be multiple small stormwater ponds to be located throughout the planned development. The ponds will work as treatment devices to meet current NCDENR DWQ regulations regarding quality standards and to meet North Carolina requirements. The "ponds" are envisioned to be located in the planned open areas and be treated as an amenity. Landscaping will be planned to enhance visual appeal of the ponds. The planned roads will act of a "conduit" to capture and convey stormwater runoff towards the ponds for treatment. All plans and specification will be designed to meet the current regulations under 15A NCAC 2H Sections .1000 thru .1020.

Sedimentation and Erosion Control - No clearing or grubbing of this subdivision will occur until the engineering plans meet exceed the requirements as spelled out in 15A NCAC Chapter 4. Plans will be reviewed and approved by NCDENR - LQS. All required BMP's will be installed and operational prior to any land disturbing activities.

Wetlands - The entire site has been surveyed for jurisdictional wetlands. The property has had some preliminary work associated with the wetlands preformed in March, 2006. At that time a portion of the property was surveyed and a US Army Corps of Engineer's Jurisdictional Determination was granted. Based on this JD and a preliminary entrance road design a wetland impact was designed and the Developer purchased credits toward this impact through the "Ecosystem Enhancement Program". The cost of

purchasing these credits amounted to \$14,675.50. During this time frame a cross culvert was installed to the proper grade and the entrance road was rough graded into the project. The entrance planned for this project will use the same footprint.

After approval of this master plan the entire site will be revisited by the US Army Corps of Engineers. The final engineering design will be planned with "avoidance" practice first and then minimized. If additional wetland impacts are unavoidable all areas will be mitigated. No work will begin without all permits being secured.

Open Space and Recreational Areas - Open spaces and recreational areas are shown on the proposed master plan. The open spaces have been carefully planned to provide access and use throughout the development. In the open space multiple surface walking trails are planned as an enhancement to the development. The plan as presented includes approximately 20 acres (+/-20% of the project) of open area for use by the residents of the subdivision.

Road Construction and Connections - At this time all roads except the entrance and exit roads will be private. The entrance and exit roads will be built in accordance with North Carolina DOT requirements. These roads can be used to enhance connectivity to Topsail Greens subdivision to the south and future development on property to the north. The proposed HOA associated with this development will be responsible for the operation and maintenance of the roads. All the roads will be built to meet or exceed North Carolina Department of Transportation standards except with regards to road radiuses. All other planned construction, geometry and layout of the roads will comply with NCDOT "Subdivision Roads Minimum Construction Standards" manual as issued in January, 2000 or as updated by the State. The estimated daily trips created by this development at build out would be approximately 1608. This number was derived by using the Institute of Transportation Trip Generation Manual. A more formal traffic impact analysis may be required before a driveway permit is issued by NCDOT.

In closing, the construction timing of this project will be determined by the completion of the wastewater permitting process. This permitting process may take from 4 to 6 months to complete. After the exact number of gallons has been established, a final number of home sites will be determined.

The above statements and opinions are based on this Engineer's review of the project to date. The review consisted of a field reconnaissance of the property, multiple meetings and discussions with the Developer, the Surveyor

and the Soil Scientist. These opinions are based on thirty years of experience in the land development and civil engineering profession. Should you have further detailed questions or comments.

Sincerely yours;



Bradford Sedgwick
NC PE 26378

