QUESTION 12
VEGETATION AND WILDLIFE

EAST CENTRAL FLORIDA REGIONAL PLANNING COUNCIL (LETTER DATED JANUARY 17, 2008)

9. While it would be nice if the FFWCC responded to your methodology letter of June 30, 2006, it is incumbent upon the applicant to follow up to ensure that the methodologies are acceptable not only to FFWCC, but to other DRI review agencies.

The Florida Fish and Wildlife Conservation Commission was provided the proposed wildlife methodologies, but has chosen not to respond formally to our request for review of wildlife methodologies, nor have they elected to formally respond to this application. Hence, we cannot provide you with the agency's verification; however, we have coordinated with the FWC on specific species and issues, including the black bear. We have held discussions with the FWC about bear management on the site relative to habitat management and human-bear interactions.

10. The response to item 9 on page 12-1 needs to include Map A from Volusia County so reviewers can assess the claim that the intent is being met. Describe how this intent is being met.

The Volusia Council of Government's (VOCG) Map A is included with in the SMMP document as an exhibit. The primary purpose of Map A is to identify environmentally sensitive areas of Volusia County that comprise a connected landscape important to the long-term future of biodiversity and water resource protection. The only area of the Restoration site included within Map A is Spruce Creek Swamp. Spruce Creek Swamp and adjacent upland buffers to the east will be set aside in perpetuity and managed to maintain natural characteristics within the proposed plan. Hence, the site design for Restoration supports the intent of Map A by protecting the portion of Spruce Creek Swamp within the project in perpetuity.

11. Can it be estimated how many bear are on the site at any given time? How can it be determined that the site is not being used for mating?

A female bear with two young were seen on the north end of the project site in January 2008, so it can be said with certainty from this observation that at least three bears have occurred on the project site at any given time. The presence of the young with the female, which were nearly a year old, indicates that reproduction is occurring in the area, which substantiates earlier FWC data from 1987 that black bears have been observed in the area of the site. Florida black bears generally occupy large home ranges at low population densities. A typical home range for females in Florida is approximately 9,000 acres and nearly 40,000 acres for male black bears, and home ranges of individuals frequently overlap. The three bears that were observed on-site, and any others that may occur in this region, would occupy a larger area that includes the project site and surrounding lands as well.

As a practical matter, it would be nearly impossible to determine whether black bears are using the Restoration site for mating. The only way to determine this with certainty would be direct observation of mating, and it is very unlikely that mating would be observed given the large home range sizes of males and females and the short time frames over which mating occurs.

12. The bear study is now 14 years old. When will another be conducted? The situation in the vicinity has changed and another should be done. Also, did that study include empirical data from this specific site? Describe the methodology for the study that determined that this is secondary bear habitat area.

Conversation with Brian Scheick, bear research biologist with FWC, revealed that their area of concentration for ongoing bear studies is within the flatwoods area of central Volusia County on public lands, which is considered primary range of the St. Johns population. Recent data collected within the region of the project site has been by questionnaire with the hunt club manager of Miami Corporation. The FWC has some occurrence data from previous years for the area, and continually collects and records data from nuisance calls and road mortalities that occur near the project site. We are not aware of any immediate plans for additional study by the FWC in the vicinity of the project site, since these lands are private properties that support relatively low numbers of bears. Secondary range of the black bear are areas of the state where bear presence is confirmed by occasional sightings, nuisance records, and roadkills, but reproduction has not been documented and population size appears to be low. Any change in the status or classification of the project site and vicinity would be at the discretion of the FWC.

13. The response to 16 on page 12.2 states that the development footprint has been revised to shift development more toward I-95. However, the footprint on the west site appears to have grown. No development should be planned for the western portion of the site, or a very limited footprint if any at all to the west.

Please see the revised Development Plan on Map H, which clearly shows that the preponderance of development will be on the east side of the project site adjacent to I-95. There is a 225-acre conservation hamlet proposed toward the west side that will construct almost totally within uplands. The access road proposed for the conservation hamlet will be constructed on an existing east-west timber road within the property.

14. The site mitigation plan should have been submitted by this time in order to provide enough time for all parties to review as a part of the sufficiency response. Please be aware that the review of this document will be deemed a sufficiency round in and of itself if not included immediately. Please do not expect the responses to this round of questions to be the last if the mitigation plan is submitted at that time.

Please see Appendix 12-1, Site Mitigation and Management Plan (SMMP) Executive Summary and the attached CD for the complete SMMP.

15. Is there enough upland habitat in the middle north/south corridor to accommodate the bear population? How will the bear/car conflicts be minimized with the advent of two new north/south roadways?

The revised Development Plan shows that the preponderance of development will be confined to the eastern side of the project site within the city limits of Edgewater. Airport Road has been removed from the plan and the alignment for Williamson Boulevard has been moved eastward on the property and development clustered around the alignment. The alignment of Williamson Boulevard is near I-95 and there is limited habitat for bear use between the proposed Williamson Road alignment and the interstate. Hence, no crossing has been proposed in this area.

There is a Conservation Hamlet tract of development proposed on the revised plan connected with the eastern development tract by an access road that will be built on an existing timber road. A 200-foot long bridge up to 20 feet in height will be constructed in the access road to provide a crossing for wildlife and habitat connection. The road will be approximately 2,400 feet in length, and the bridge crossing is much larger than effective underpasses used in the state by bears that are 8 feet high and 24 feet wide. With proper vegetative buffering, bears and other wildlife will be able to successfully utilize the bridge crossing in their movements through this area.

On the south end of the preserved area, an approximate 1.5-mile width of CR 442 will remain unimproved. Wildlife have historically used this area as a crossing for accessing lands to the south of the project site. Bears, deer, turkeys, and other wildlife can continue to use the southern part of the preserved lands as a corridor for movement under the current development plan.

Map F4, Wetland Impact Analysis (Revised) provides a view of preserved habitat that is available for bears and other wildlife on the project site. Approximately 3, 472 acres of uplands and wetlands will be preserved, restored and managed for bears and other species. The average home range size for female black bears is 9,000 acres and 40,000 acres for males. The entire project site is smaller than the average home range for females, and substantially smaller than the home range for male black bears. It is anticipated that bears will continue to use the preserved habitats of the project as part of their home range, given the fact that the majority of these habitats will be managed for bears and that bears they are now using other adjacent and regional lands as part of their home ranges. The access road to the conservation hamlet incorporates a 200-foot bridge serving as a major corridor for wildlife movement to the north and south through the interior of the project site. Airport Road has been removed from the plan and the preponderance of development has been clustered around the proposed alignment of Williamson Boulevard in the east development tract, opening up an area approximately 3,472 acre in extent, or nearly 67% of the project site.

16. The conceptual bridged wildlife underpass appears denuded of vegetation and lacks fencing. It is assumed that it will be vegetated adequately to provide enough cover for comfortable wildlife movement. Please elucidate.

Yes, a vegetated buffer will be left in the area of the proposed wildlife crossing (i.e., bridge) to provide adequate cover for wildlife movement.

EMS SCIENTISTS, ENGINEERS, PLANNERS, INC. (LETTER DATED JANUARY 14, 2008)

Response to the ECFRPC "Item 10" on page 12-1

In the letter to Steve Lau, the applicant proposed for Rugel's pawpaw surveys "a series of transects covering 50% of the site where Immokalee sand occurs" and "....flowering-season pedestrian survey in appropriate soil types to ascertain the presence of Rugel's pawpaw". Demonstrate that 50% coverage of Immokalee sand was obtained when surveying for Rugel's pawpaw (i.e. transect length and width, visibility, number of staff). Greater coverage of other suitable soils appears warranted for a species with so few known populations and such a limited geographic distribution.

The application is insufficient until such time the SMMP is submitted.

Dr. Eliane Norman, retired botany professor from Stetson University in Deland and a recognized authority with Rugel's pawpaw, was retained to further investigate presence of Rugel's pawpaw on the project site as a supplement to earlier surveys. Dr. Norman indicated, during an investigation of the site on April 3, 2008, that Rugel's pawpaw would potentially occur within open, better-drained, disturbed situations on soil types where Rugel's pawpaw has been recorded (see 2nd sufficiency response), especially non-hydric Immokalee sands, and frequently in association with other pawpaw species of the genus *Asimina*. Consequently, Dr. Norman, Dr. Michael Dennis, and Mr. Rob Bittner concentrated their investigation on April 3 on surveying representative areas of suitable soil type with openings exposing bare or sparsely vegetated soils. These areas included the FPL powerline, roadways, and a clearcut in the southeastern part of the Restoration property where open areas with low vegetation occur on Immokalee sand and other soil types known to support Rugel's pawpaw. No Rugel's pawpaw was found on the current project site. Two small areas of Rugel's pawpaw were found northeast of the project site in a non-hydric transition area between Immokalee sand and Smyrna fine sand immediately adjacent to a maintenance road in the FPL mowed powerline ROW.

The area in which the Rugel's pawpaw plant occurs is located well outside of the development footprint proposed in this application and will not be adversely affected by the project. Dr. Norman has indicated that surveys of the majority of the project site where suitable soils occur would likely not result in locating any existing populations due to the thick vegetative cover. Rugel's pawpaw is not typically found in areas that are shaded, too damp, left undisturbed for extended periods of time, or where the ground cover is too tall and/or dense. These conditions describe the vast majority of the project site, which is covered in pine plantations or wetlands with the exception of the aforementioned areas that were surveyed. Dr. Norman indicated that opening the tree canopy and disturbing the ground would be actions that would promote the growth of Rugel's pawpaw in areas where unobserved plants may occur, or seed and root stock are still viable in the soil layer. It is anticipated that restoration and management measures proposed in the SMMP will enhance habitat conditions for Rugel's pawpaw over time on the project site where suitable soils and any relic populations may occur.

Please see Appendix 12-1, Site Mitigation and Management Plan (SMMP) Executive Summary and the attached CD for the complete SMMP.

Response to the ECFRPC "Item 13" on Page 12-2

What was the methodology for establishing the location, number and design of wildlife crossings? Provide plan and cross-section views of the proposed crossings including associated wildlife fencing and other features. Demonstrate that the selected crossing locations occur along existing travel corridors for bears and other wildlife and that they will promote connectivity to the important corridors and habitats mentioned in the response to ECFRPC Item 9 on page 12-1. Provide information as to why wildlife crossings were not considered on Indian River Blvd. (southern boundary road) which would connect to Farmton. Consider utilizing smaller crossing structures in addition to larger wildlife structures. The smaller structures should be spaced at appropriate intervals on either side of larger structures in an effort to maintain overall habitat connectivity and genetic diversity by accommodating small and medium sized wildlife that would not travel the distance to larger structures. Structures should be placed at and designed for different habitat types or along ecotones to try to accommodate the maximum number of species.

The proposed development plan has undergone significant changes in response to recommendations from agencies reviewing this application. The extreme eastern side of the project site will be developed as shown on Map H, Master Development Plan and will not require a wildlife crossing in this area. An important area for a wildlife crossing within the property boundary would be between the eastern

development tract and the conservation hamlet area proposed in the west-central portion of the site. The 200-foot bridge proposed in this area will be elevated approximately 20 feet in height and would provide ample room for large and small animals to move through the corridor safely and utilize habitats north and south of the roadway. The bridge design is more than ample to allow for movements of black bears and other large wildlife, since a typical wildlife crossing design for bears is a structure 8 feet high by 24 feet wide. On the south end of the property, improvements along CR 442 would be confined in this application to the western edge of the eastern development tract. Consequently, CR 442 west of this potential intersection of Williamson Boulevard would be unimproved and in its current condition and present grade. Wildlife may cross CR 442 from preserved habitats on the Restoration site through an approximate 1.5-mile corridor, as they have historically, onto Miami Corporation property.

Response to EMS "Item 15, Paragraph 2, Page 12-3" on Page 12-3

The application is insufficient until such time the SMMP is submitted.

Please see Appendix 12-1, Site Mitigation and Management Plan (SMMP) Executive Summary and the attached CD for the complete SMMP.

Response to EMS "Question 12, C. Rugel's Pawpaw, Page 12-5" on Page 12-3

To date the applicant has not provided sufficient data to adequately determine potential listed species impacts. Specifically, the items below need to be addressed.

According to the applicant's letter to Steve Lau on June 30, 2006, the applicant proposed "to conduct 15% surveys for gopher tortoises, random pedestrian transects throughout all cover types on site to determine the presence of other listed species...". No quantifiable information was submitted that demonstrates that 15% coverage has been achieved nor do the transects in Map G-1 appear to show sufficient coverage. Provide quantifiable information that demonstrates that the gopher tortoise survey has met the coverage goal of 15% or more. Re-consider performing an aerial wildlife survey to more adequately survey forested wetlands as described in Section B., FFWCC Wildlife Methodology Guidelines for Application for Development Approval.

A census of gopher tortoises was conducted over potential gopher tortoise habitats on the project site. This resulted in a 15% census covering 383 acres. With the modification of the DRI boundaries, excluding New Smyrna Beach, the gopher tortoise transect coverage is 16%, based on a survey of 340 acres. The current development plan would provide for relocation of gopher tortoises to areas preserved and restored on the western side of the project site. A 100% census will be conducted within the development area and relocation of all identified gopher tortoises will be accomplished in accordance with an approved FWC relocation permit (see Map G1, Wildlife Census Map (Revised) for location of gopher tortoise transects).

Map G1, Wildlife Census Map (Revised) shows the location and extent of the numerous transects and sampling stations used to survey for presence of wildlife and Rugel's pawpaw on the project site and to collect qualitative data for wetlands. Numerous pedestrian and vehicle surveys conducted for nearly two years on the project site have covered many miles and the majority of the property. These surveys have been performed by experienced biologists, and with Audubon Society representatives, in search of rookeries, raptor nests, listed plant and sign of listed and other wildlife species. The referenced guidelines provide for sampling forested wetlands "…by either spot, aerial, or pedestrian surveys…" The pedestrian and spot survey methods were used to conduct a thorough investigation of the project site.

Also in the letter to Steve Lau, the applicant proposed for Rugels pawpaw surveys "a series of transects covering 50% of the site where Immokalee sand occurs" and "....flowering-season pedestrian survey in appropriate soil types to ascertain the presence of Rugel's pawpaw". Demonstrate that 50% coverage of Immokalee sand was obtained when surveying for Rugel's pawpaw (i.e. transect length and width, visibility, number of staff). Greater coverage of other suitable soils appears warranted for a species with so few known populations and such a limited geographic distribution.

The application is insufficient until such time the SMMP is submitted.

Please see the response to your earlier comment about Rugel's pawpaw surveys on the project site. We have included the draft SMMP for your review. Please see Appendix 12-1, Site Mitigation and Management Plan (SMMP) Executive Summary and the attached CD for the complete SMMP.

Response to EMS "Question 12, Wildlife Protection - Florida Black Bear; Page 12-6" on Page 12-3

The application is insufficient until such time the SMMP is submitted.

Please see Appendix 12-1, Site Mitigation and Management Plan (SMMP) Executive Summary and the attached CD for the complete SMMP.

CITY OF EDGEWATER (LETTER DATED JANUARY 11, 2008)

Provide the Site Mitigation and Management Plan when available.

Please see Appendix 12-1, Site Mitigation and Management Plan (SMMP) Executive Summary and the attached CD for the complete SMMP.

VOLUSIA COUNTY GROWTH AND RESOURCE MANAGEMENT (LETTER DATED JANUARY 15, 2008)

Question 12 C, Ruqel's Pawpaw, D. 12-4: **The SMMP should address the establishment of Rugel's Pawpaw in appropriate locations within the project. The SMMP should also include provisions for management of this plant species if any are found in subsequent surveys.**

Dr. Eliane Norman, retired botany professor from Stetson University in Deland and a recognized authority with Rugel's pawpaw, was retained to further investigate presence of Rugel's pawpaw on the project site as a supplement to earlier surveys. Dr. Norman indicated, during an investigation of the site on April 3, 2008, that Rugel's pawpaw would potentially occur within open, better-drained, disturbed situations on soil types where Rugel's pawpaw has been recorded (see 2nd sufficiency response), especially non-hydric Immokalee sands, and frequently in association with other pawpaw species of the genus *Asimina*. Consequently, Dr. Norman, Dr. Michael Dennis, and Mr. Rob Bittner concentrated their investigation on April 3, 2008 on surveying representative areas of suitable soil type with openings exposing bare or sparsely vegetated soils. These areas included the FPL powerline, roadways, and a clearcut in the southeastern part of the Restoration property where open areas with low vegetation occur on Immokalee sand and other soil types known to support Rugel's pawpaw. No Rugel's pawpaw was found on the current project site. Two small areas of Rugel's pawpaw were found northeast of the project site in a non-hydric transition area between Immokalee sand and Smyrna fine sand immediately adjacent to a maintenance road in the FPL mowed powerline ROW.

The area in which the Rugel's pawpaw plant occurs is located well outside of the development footprint proposed in this application and will not be adversely affected by the project. Dr. Norman has indicated that surveys of the majority of the project site where suitable soils occur would likely not result in locating any existing populations due to the thick vegetative cover. Rugel's pawpaw is not typically found in areas that are shaded, too damp, left undisturbed for extended periods of time, or where the ground cover is too tall and/or dense. These conditions describe the vast majority of the project site, which is covered in pine plantations or wetlands with the exception of the aforementioned areas that were surveyed. Dr. Norman indicated that opening the tree canopy and disturbing the ground would be actions that would promote the growth of Rugel's pawpaw in areas where unobserved plants may occur, or seed and root stock are still viable in the soil layer. It is anticipated that restoration and management measures proposed in the SMMP will enhance habitat conditions for Rugel's pawpaw over time on the project site where suitable soils and any relic populations may occur.

Question 12 Wildlife Protection - Florida Black Bear*, p. *12-4:

1. **The response to this question should continue to be considered insufficient. Please provide for review as part of the ADA the black bear "management plan" the applicant indicated as being developed. The applicant refers to the fact that the FWC has mapped portions of the Restoration site as "potentially suitable" for black bears. The wildlife management plan referenced in the ADA should be provided at this time rather than delayed until later in the process. The applicant clearly states that this project should not result in an adverse impact to black bears compared to other planned development in the area. However, cumulatively there will be very little black bear habitat left in the area under the post-development, build out scenario. The management plan should address cumulative impacts to black bear habitat along with appropriate measures to mitigate the potential for human-bear interaction. In addition, the revised wildlife information indicates that black bears are utilizing a wide area on site, with many signs being found in the northeast corner of the project which is shown as an area of intense development. It is recommended that the master plan be revised to set aside additional area of sufficient size and width for the movement of bears throughout the project site.**

   Please see Appendix 12-1, Site Mitigation and Management Plan (SMMP) Executive Summary and the attached CD for the complete SMMP which addresses black bear management for the Restoration project site relative to the revised development plan, which now provides 67% of the property for bears and other wildlife species. Areas excluded from the development footprint include the northeast corner of the project described in your comment.

2. **The applicant has indicated that only 15% of the suitable gopher tortoise habitat has been surveyed. Further survey work should be conducted to appropriately assess the extent of gopher tortoise use of this site.**

   The 16% survey complies with Florida Fish and Wildlife Conservation Commission's recommendation of 15% for estimating distribution and density of gopher tortoise populations within suitable habitats as necessary prior to and for inclusion within relocation permit application. The Applicant also will be required to perform a 100% survey of the gopher tortoise population prior to development activities and relocation as a condition of the relocation permit.

3. **Map G1 is difficult to read at its current scale. For further reviews please provide this information on a larger map, and overlay the wildlife information with the proposed development areas.**

A copy of Map G1, Wildlife Census Map (Revised) is enclosed on the attached CD with this response for your review, and it includes an overlay of the revised development plan on the map.

Question 12., Wildlife Protection - Roadway crossings, p. 12-5: **The applicant has stated that wildlife bridges will be used "whenever is it practicable". The criteria that will be used to determine practicability should be incorporated into the wildlife management plan as part of the SMMP. The wildlife management plan should also incorporate appropriate criteria for the design and locations of these crossings. The response to this question should be considered insufficient until the requested information is provided.**

The proposed development plan has undergone significant changes in response to recommendations from agencies reviewing this application. The extreme eastern side of the project site will be developed as shown on the revised Map H and will not require a wildlife crossing in this area. An important area for a wildlife crossing within the property boundary would be between the eastern development tract and the conservation hamlet area proposed in the west-central portion of the site. The 200-foot bridge proposed in this area will be elevated up to 20 feet in height and would provide ample room for large and small animals to move safely through the corridor and utilize habitats north and south of the roadway. On the south end of the property, improvements along CR 442 would be confined at this time to the western edge of the eastern development tract. Consequently, CR 442 west of the development footprint would be unimproved and in its current condition and present grade. Wildlife may cross CR 442 from preserved habitats on the Restoration site through an approximate 1.5-mile corridor, as they have historically, onto Miami Corporation property.

Please see Appendix 12-1, Site Mitigation and Management Plan (SMMP) Executive Summary and the attached CD for the complete SMMP.

THE NATURE CONSERVANCY (LETTER DATED JANUARY 15, 2008)

Steve Lau of FWC in his Jan 3rd email to the Regional Planning Council states that the "entire project area is likely high quality bear habitat." This is based on existing natural communities, bear occurrence data, and a significant number of bear-related calls in the vicinity to FWC. As explained, the project will result in a greater number of roadhills and human-bear conflicts. TNC's review indicates that exposure to these problems is magnified by the particular site plan proposed which would result in the construction of new roads through and directly adjacent to preserved areas, and weave strands of development into a landscape dominated by wetlands. This pattern of development has the effect of fragmenting or degrading the value of wetland corridors that remain. (The narrow strands of wetlands fragmented by proposed development east of Williamson Blvd and between Road A and Road B are prime examples of this.)

The revised development plan submitted with this response incorporates changes that respond to recommendations made by review agencies and non-governmental organizations by shifting the preponderance of development to the eastern side of the project site. Airport Road has been eliminated from the plan and the majority of development is clustered around the revised alignment for Williamson Boulevard and existing I-95. A major wildlife crossing will be installed in the access road proposed for the conservation hamlet area located west of eastern development tract to provide an avenue for bear movement in this area. We are currently working the FWC and the ECFRPC on matters associated with potential bear-human interactions. Please see the draft SMMP included with this response for further information.