

**APPENDIX C**  
**PUBLIC FACILITIES IMPACT ANALYSIS**



## APPENDIX C

### PUBLIC FACILITIES IMPACT ANALYSIS

#### A. Potable Water Analysis

The subject site of the proposed Future Land Use Map amendment will receive its potable water service from The Taylor Coastal Water and Sewer District (TCW&SD). The TCW&SD, by public ordinance, is a special water and sewer district in an area of unincorporated Taylor County serving the communities of Dekle Beach, Boggy Bay, Ezell Beach, Keaton Beach, Cedar Island, Lindsey Island, Dark Island and Fish Creek. A system located along C.R. 361, Keaton Beach Road, near the proposed development supplies treated water from a subsurface withdrawal system (pump and well) to the aforementioned communities.

Taylor County has adopted a Level of Service (LOS) standard for Community Potable Water Systems for the communities located within the TCW&SD service areas of 100 gallons per capita per day. See Section IX., Consistency Analysis, for policy information.

According to the Consumptive Use Permit number 2-93-00183, issued by the Suwannee River Water Management District (SRWMD), the existing potable water system has permitted capacities for maximum daily use or withdrawal of 360,000 gpd or 0.3600 MGD and an average daily withdrawal of 128,500 gallons per day (gpd) or 0.1285 million gallons per day (MGD).

A maximum build-out scenario will be used to determine the overall potable water demand created by the proposed development on the TCW&SD potable water system. Maximum build-out was determined using 624 residential units, 400-room conference hotel and 150,000 square feet of commercial space and other uses within the proposed development for this Comprehensive Plan Amendment. A Potable Water Demand matrix providing what other types of establishments or uses will generally exist within the development is furnished in Table C.1.

#### **Potable Water “Maximum Development Scenario”**

The “Maximum Scenario” is a planning exercise to analyze whether or not a local utility could adequately support the maximum demand created by amending the Comprehensive Plan and maintain the adopted Level of Service through the maximum build-out of the development.

The potable water analysis presented here is based on this “Maximum Scenario”, which assumes the “worst case” by factoring into the analysis the effects of build-out as described above. This scenario gives an estimate of the impact the proposed development would have on the TCW&SD water supply by assuming immediate and complete build-out based on the maximum density and intensity allowed.

Maximum build-out of the proposed development would result in a projected potable water demand increase of approximately 1.24 MGD for the Proposed FLUM Maximum. The Potable Water Demand Estimate furnished in Table C.1 provides the estimated potable water demand. The Residential Demand use, the unit potable water demand for each type of establishment is based upon a reference provided by TCW&SD. The Total 1.24 MGD MDD furnished in Table C.1 represents approximately 8% less than the potable water demand that would occur for the Adopted FLUM Maximum. The unit potable water demand for Residential Units is 250 gallons per day. The 250 gpd furnished for the 2.5 residents per unit will meet the Level of Service (LOS) standard for potable water adopted by Taylor County of 100 gallons per capita per day.

According to John Gentry of TCW&SD staff the current demand on the system is presently near its capacity and does not have adequate capacity for the proposed development. However, a new well or wells could be constructed and pumped to furnish the additional potable water demand for the development for the "Maximum Development Scenario". Mr. Gentry stated there may be enough capacity in the area of the existing well field to provide the additional potable water due to the small draw down that occurs at the existing well head. According to SRWMD there are no indications that the projected demand will exceed available supply for the next 20 years. See SRWMD's attached response letter concerning potable water capacity.

A water use permit would be required by the Suwannee River Water Management District (SRWMD) to drill a new well(s). A construction permit for a new well system, including disinfection, is required by the Florida Department of Environmental Protection (FDEP). Taylor County ordinance requires 200 foot well head protection areas (200-foot radius) at all wells.

**TABLE C.1  
POTABLE WATER DEMAND**

Type	Units or Rooms	Total Area (sf)	Estimated Capita or Seats	Unit Demand (gpd)	Area Demand (gpd/100 sf)	Total Demand (gpd)
Residential Units <sup>1</sup>	624	n/a	n/a	250	n/a	156,000
Conference Hotel Rooms <sup>2</sup>	400	n/a	n/a	125	n/a	50,000
Commercial Space <sup>3</sup>	n/a	150,000	n/a	n/a	12	18,000
Restaurants <sup>4</sup>	n/a	n/a	500	120	n/a	60,000
Golf Country Club (Restaurant) <sup>5</sup>	1	n/a	300	125	n/a	37,500
Golf Course Maintenance Facility <sup>6</sup>	1	n/a	n/a	600	n/a	600
Outside Food Operation (Cabana Bar) <sup>7</sup>	3	n/a	n/a	1,500	n/a	4,500
Pool/Recreational Facility <sup>8</sup>	1	n/a	200	25	n/a	5,000
Detached Restrooms for Golf Course, etc. <sup>9</sup>	12	n/a	n/a	500	n/a	6,000
Irrigation <sup>10</sup>	n/a	5,445,000	n/a	n/a	n/a	484,898
Total - Annual Average Daily Demand (AADD) (gpd)						822,498
Total AADD (MGD)						0.82
Potable Water Maximum Daily Demand (MDD)	822,498 gpd		Times Max Day factor of 1.5		1,233,747	
Fire Protection	Estimate 3,500 gpm for 3 hours				10,500	
Total Maximum Daily Demand (MDD) (gpd)						1,244,247
<b>Total MDD (MGD)</b>						<b>1.24</b>

Source: WadeTrim (October 2008)

Footnoted references 2 through 9 below taken from Community Water System Source Book, Joseph Ameen, received from Taylor Coastal Water and Sewer District staff and utilized by TCW&SD

<sup>1</sup> Present residential demand utilized by TCW&SD

<sup>2</sup> Motel or Hotel

<sup>3</sup> Office Building

<sup>4</sup> Restaurants, seats estimated using ITE data

<sup>5</sup> Clubs, County

<sup>6</sup> Service Station

<sup>7</sup> Fountain Service

<sup>8</sup> Clubs, County

<sup>9</sup> Other Establishment

<sup>10</sup> Irrigation application rate of one inch per week over 125 acres or 5,445,000 sq. ft.



**BIRKITT**  
ENVIRONMENTAL  
SERVICES, INC.

November 4, 2008

Jon Dinges, P.E.  
Director of Resource Management  
Suwannee River Water Management District  
9225 County Rd 49  
Live Oak, FL 32060

**Subject: Environmental Resource Permit Number ERP05-0618,  
The Reserve at Sweetwater Estuary, Taylor County**

Dear Mr. Dinges:

The permittee for the Reserve at Sweetwater Estuary is currently preparing an amendment to the Taylor County Comprehensive Plan. Preparation of the amendment package includes a planning level analysis of potable water supply required by and available to the proposed development. The proposed development is expected to result in a projected potable water total Maximum Daily Demand of approximately 1.24 Million Gallons per Day. The source for this proposed demand would be instillation of a new well(s) in the well field located at the Taylor Coastal Water and Sewer District wellfield located at 18800 Keaton Beach Road/CR 361, Keaton Beach, FL 32348. It is our understanding that there is no regional supply plan for this area and that there is currently no limitations on supply. We are respectfully requesting that the Suwannee River Water Management District provide acknowledgment that there should be sufficient water available to accommodate the projected water supply demands (listed above) for the proposed development.

We thank you for your time and attention in this matter. Please feel free to contact us with any questions or concerns that you may have.

*people and nature*

BIRKITT ENVIRONMENTAL SERVICES, INC.

Beverly F. Birkitt  
President

Noah L. Silverman  
Project Manager

Cc: Dr. J. Crayton Pruitt, Secret Promise, Ltd.  
Steve Lewis, Lewis, Longman & Walker, P.A.  
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Jim Zinner, Wade Trim

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# SUWANNEE RIVER WATER MANAGEMENT DISTRICT

November 17, 2008

Ms. Beverly F. Birkitt  
Birkitt Environmental Services, Inc.  
550 N Reo ST, Suite 105  
Tampa, FL 33609

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BY BES

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Lake City, Florida

DON QUINCEY, JR.  
Chiefland, Florida

DAVID STILL  
Executive Director  
Lake City, Florida

Subject: The Reserve at Sweetwater Estuary, Taylor County

Dear Ms. Birkitt:

The Suwannee River Water Management District (District) received an inquiry from you on November 7, 2008, regarding the availability of potable water to serve the proposed development known as "The Reserve at Sweetwater Estuary."

At this time, there is no regional supply plan for this area, thus there are no indications that projected demands will exceed available supplies for the next twenty (20) years. Constraints on a potential water use would be identified during the water use permitting process under Part II, Chapter 373, Florida Statutes.

If you have any questions, please contact me at 800.226.1066.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Sagul".

Tim Sagul, P.E.  
Assistant Director, Resource Management

TS/lgw

Water for Nature. Water for People

## **B. Sanitary Sewer Analysis**

The subject site of the proposed Future Land Use Map amendment will also receive its wastewater service from the Taylor Coastal Water and Sewer District (TCW&SD).

Taylor County has adopted a Level of Service (LOS) standard for sanitary sewer for residential uses of 100 gallons per capita per day and will also comply with 64E-6 Florida Administrative Code for private on-site disposal and nonresidential uses. See Section IX., Consistency Analysis, for policy information.

There is an existing Taylor Coastal Water and Sewer District (TCW&SD) WWTP located approximately 2 miles east of the community of Keaton Beach that serves the community of Keaton Beach at this time. See Appendix E for the Wastewater Treatment Plant Site Analysis.

According to the FDEP State of Florida Domestic Wastewater Facility Permit number FLA325864 the existing WWTP has a design capacity of 0.08 millions gallons per day (MGD) or 80,000 gallons per day (gpd) and discharges treated effluent to a 10-acre spray field that is fenced and planted with Bermuda grass.

A maximum build-out scenario will be used to determine the overall waste water flow created by the proposed development on the TCW&SD waste water system. Maximum build-out was determined using 624 residential units, 400-room conference hotel and 150,000 square feet of commercial space and other uses within the proposed development for this Comprehensive Plan Amendment. A Wastewater Flow matrix providing what other types of establishments or uses will generally exist within the development is furnished in Table C.2.

### **Sanitary Sewer “Maximum Development Scenario”**

The “Maximum Scenario” is a planning exercise to analyze whether or not a local utility could adequately support the maximum demand created by amending the Comprehensive Plan and maintain the adopted Level of Service through the planning timeframe.

The sanitary sewer analysis presented here is based on this “Maximum Scenario”, which assumes the “worst case” by factoring into the analysis the effects of build-out as described above. This scenario gives an estimate of the impact the proposed development would have on the TCW&SD Sanitary Sewer System by assuming immediate and complete build-out at maximum density and intensity allowed.

The unit wastewater flows generated for each type of establishment for the proposed development is based upon Table 1 of "For System Design ESTIMATED SEWAGE FLOWS" Chapter 64E-6 F.A.C. (2003) and the unit flow for residential units is 250 gpd. The 250 gpd provided for each residential unit containing 2.5 residents per unit will meet the LOS standard for sanitary sewer adopted by Taylor County of 100 gallons per capita per day. The other establishments and uses will be provided service based upon Table 1, 64E-6 F.A.C, to meet the LOS standard for sanitary sewer adopted by Taylor County.

Maximum build-out of the proposed development will produce a wastewater flow of approximately 0.31 MGD for the Proposed FLUM Maximum. See Table C.2 for the estimated wastewater flows that will be generated from the proposed development. The 0.31 MGD ADDF furnished in Table C.2 represents approximately 22% less than the waste water that would be generated for the Adopted FLUM Maximum.

Based on the size of the existing WWTP and the anticipated flows from the proposed development, the existing WWTP will not have sufficient capacity to connect the subject development and it is not feasible to expand the existing WWTP.

A new WWTP could be designed and constructed on TCW&SD property adjacent to the existing WWTP. It is proposed that irrigation of the effluent onto a spray field, similar to the existing WWTP, will be utilized for discharging the effluent from the new WWTP. According to the WWTP Feasibility Study, see Appendix E, a new WWTP could process the additional wastewater flows generated from the proposed development.

**TABLE C.2  
WASTEWATER FLOWS – ANNUAL AVERAGE DAILY FLOW (AADF)**

Type	Units or Rooms	Total Area (sf)	Estimated Capita or Seats	Unit Demand (gpd)	Area Demand (gpd/100 sf)	Total Demand (gpd)
Residential Units <sup>1</sup>	624	n/a	n/a	250	n/a	156,000
Conference Hotel Rooms <sup>2</sup>	400	n/a	n/a	100	n/a	40,000
Commercial Space <sup>3</sup>	n/a	150,000	n/a	n/a	0.10	150
Restaurants <sup>4</sup>	n/a	n/a	500	40	n/a	20,000
Golf Country Club (Restaurant) <sup>5</sup>	1	n/a	300	25	n/a	7,500
Golf Country Club Employees <sup>6</sup>	n/a	n/a	30	15	n/a	450
Golf Course Maintenance Facility <sup>7</sup>	1	n/a	n/a	250	n/a	250
Outside Food Operation (Cabana bar) <sup>8</sup>	3	n/a	30	20	n/a	1,800
Pool/Recreational Facility <sup>9</sup>	1	n/a	200	10	n/a	2,000
Detached Restrooms for Golf Course, etc. <sup>10</sup>	12	n/a	n/a	250	n/a	3,000
Total AADF (gpd)						231,150
Applying a maximum 3 month multiplier of 1.35 to the AADF gives an approximate design flow of			312,053	gpd, or	<b>AADF 0.31</b>	<b>MGD</b>

Source: WadeTrim (October 2008)

References from Table 1 "For System Design ESTIMATED SEWAGE FLOWS" Chapt. 64E-6 F.A.C. (2003)

<sup>1</sup> Average of 2 bedrooms with 751-1200 sq. ft. of building and 3 bedrooms with 1201-2250 sq. ft. of building area

<sup>2</sup> Hotel & Motels (a) Regular per room

<sup>3</sup> Shopping centers without food or laundry per square foot of floor space

<sup>4</sup> Food Operations (a) Restaurant operating 16 hours or less per day per seat, seats estimated ITE data

<sup>5</sup> Country club (a) per member or patron - capita estimated without feasibility study performed

<sup>6</sup> Country club (a) per employee per 8 hour shift

<sup>7</sup> Service stations per water closet

<sup>8</sup> Food Operations (e) Bar and cocktail lounge per seat

<sup>9</sup> Swimming and bathing facilities, public per person

<sup>10</sup> Parks, public picnic (a) with toilets only per person

### **C. Solid Waste Analysis**

Solid waste disposal for the proposed development will be transported to the Aucilla Area Solid Waste Facility, a Class I Landfill. The facility is managed by the Aucilla Area Solid Waste Administration, an entity that was created by an interlocal agreement between four counties: Dixie, Jefferson, Taylor, and Madison. The purpose of the Aucilla Area Solid Waste Facility is to facilitate the efficient and economic disposal of solid waste generated within the four participating counties. The facility is located approximately 45 miles north of the proposed development, and approximately one mile southeast of Greenville in Madison County.

According to the Florida Department of Environmental Protection (FDEP) permit number 0009721-004-SO the Aucilla facility is being constructed in phases. Cell 1 and Cell 2 are already built and in operation, while cells 3 through 6 are proposed future cells. The Facility is 21 acres of which 10.5 acres is being used for Cell 1 and 10.5 acres is being used for Cell 2. According to Aucilla Area Solid Waste Administration staff, the facility currently processes an average of 150 to 300 tons per day. The FDEP permit states the facility will not receive greater than 500 tons in any one day. The Aucilla Facility is not projected to reach full capacity until year 2012.

Taylor County has adopted a Level of Service (LOS) standard for solid waste of 0.78 pounds per capita per day. See Section IX., Consistency Analysis, for policy information.

A maximum build-out scenario will be used to determine the overall solid waste created by the proposed development. Maximum build-out was determined using 624 residential units, 400-room conference hotel and 150,000 square feet of commercial space and other uses within the proposed development for this Comprehensive Plan Amendment. A Solid Waste Generation Estimate chart providing other types of establishments or uses that will generally exist within the development is furnished in Table C.3.

#### **Solid Waste “Maximum Development Scenario”**

The “Maximum Scenario” is a planning exercise to analyze whether or not a local utility could adequately support the maximum demand created by amending the Comprehensive Plan and maintain the adopted Level of Service through the planning timeframe.

The solid waste analysis presented here is based on this “Maximum Scenario”, which assumes the “worst case” by factoring into the analysis the effects of build-out as described above. This scenario gives a conservative estimate of the impact the proposed development would have on the Aucilla Facility by assuming immediate and complete build-out.

The Solid Waste Generation Estimate matrix, furnished in Table C.3 provides the estimated solid waste generation. At maximum build-out the development will result in a projected average daily volume of solid waste increase of approximately 4.8 tons per day. This projection is based upon solid waste being generated at 4.5 pounds per capita per day for residential areas, 5.5 pounds per 1,000 square feet per day for commercial area, and 1.5 pounds per capita per day for recreational areas. The 0.76 Average Annual Solid Waste

Generated furnished in Table C.3 represents approximately 5% less than the solid waste that would be generated for the Adopted FLUM Maximum. The 4.8 tons per capita per day of solid waste accepted by the Aucilla Area Solid Waste Facility Taylor County will meet the Level of Service (LOS) standard for solid waste adopted by Taylor County of 0.78 tons per capita per year.

Solid waste generated by the proposed development will not have a significant impact on the Aucilla facility, as it only represents less than a 4 percent increase in the amount of solid waste on a daily basis. There will be negligible effect on the capacity of the Aucilla Area Solid Waste Facility by waste generated from the subject development.

**TABLE C.3  
SOLID WASTE GENERATION**

Type	Units or Rooms	Estimated Capita or Restaurant Seats	Estimated Average Capacity (%)	Estimated Area per Unit or Total (sq. ft.)	Average Unit Solid Waste Generated (lbs/capita/day, lbs/area/day)	Total Solid Waste Generated (tons/day)
Residential Units <sup>1</sup>	624	2.50	100	n/a	4.5	3.51
Conference Hotel Rooms <sup>2</sup>	400	n/a	80	750	5.5	0.66
Commercial Space <sup>3</sup>	n/a	n/a	n/a	150,000	5.5	0.41
Restaurant <sup>4</sup>	1	500	100	12,500	5.5	0.03
Golf Country Club (Restaurant) <sup>5</sup>	1	300	100	7,500	5.5	0.02
Golf Course Maintenance Facility <sup>6</sup>	1	n/a	50	6,000	5.5	0.01
Outside Food Operation (Cabana Bar) <sup>7</sup>	3	30	100	750	5.5	0.002
Pool/Recreational Facility <sup>8</sup>	1	200	80	n/a	1.5	0.12
Average Daily Solid Waste Generated (tons/day)						4.77

<b>Average Annual Solid Waste Generated (tons/capita/year)<sup>9</sup></b>	<b>0.76</b>
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Source: WadeTrim (October, 2008)

<sup>1</sup> Estimate based on 4.5 pounds/capita/day for residential areas

<sup>2</sup> Estimate based on 5.5 pounds/1000 sq. ft./day - commercial area

<sup>3</sup> Total area of Commercial Space listed, estimate based on 5.5 pounds/1000 sq. ft./day - commercial area

<sup>4</sup> Area of restaurant based on no. of seats at 25 sq.ft. per seat, estimate based on 5.5 pounds/1000 sq. ft./day - commercial area

<sup>5</sup> Total area of restaurant based on no. of seats based on 25 sq.ft. per seat, estimate based on 5.5 pounds/1000 sq. ft./day of commercial area

<sup>6</sup> Estimated 6,000 sq.ft. facility, estimate based on 5.5 pounds/1000 sq. ft./day of commercial area

<sup>7</sup> Area of restaurant based on no. of seats at 25 sq.ft. per seat, estimate based on 5.5 pounds/1000 sq. ft./day - commercial area

<sup>8</sup> Based on 1.5 pounds/capita/day

<sup>9</sup> Capita based upon 60% seasonal residential occupancy, 50% conference hotel room occupancy and reference number 3 for commercial space