

QUESTION 17 - WATER SUPPLY

- A.1. Provide a projection of the average daily potable and non-potable water demands at the end of each phase of development. If significant seasonal demand variations will occur, discuss anticipated peaks and duration.**

Table 17-1 provides an estimate of the average daily potable and non-potable water demand for the Elkton DRI. Total average daily potable water demand at project build out is estimated to be 1.294 million gallons per day (MGD). Total daily non-potable water demand is estimated at 0.608 MGD. Non-potable water demand will consist of irrigation for landscaped areas associated with public space, educational, office and retail/service uses. The landscaped areas will require an average of 1 inch of irrigation water per week during the dormant season from October to February and a peak demand of 2 inches per week during the growing season (March through September).

The estimated water demand in Table 17-1 is preliminary and for planning purposes only. Daily consumption rates are based on yearly averages, which will vary throughout the year. Significant seasonal non-potable (irrigation) water demand may occur during drought periods, but potable water demand is not expected to have significant seasonal demand variations.

**Table 17-1
POTABLE/NON-POTABLE WATER DEMAND**

TABLE 17-1

LAND USE	DEVELOPMENT	POTABLE WATER DEMAND (MGD)	NON-POTABLE WATER (IRRIGATION) DEMAND (MGD)	TOTAL WATER DEMAND (MGD)
Phase 1				
Single-family Residential	1,000	0.350	0.181	0.531
Multi-family Residential	245	0.074	0.018	0.092
Retail	90,000	0.009	0.006	0.015
Flex Industrial	28,000	0.004	0.003	0.007
Office	40,000	0.006	0.004	0.010
Elementary School	650	0.010	0.008	0.018
Phase 1 Total		0.452	0.220	0.672
Phase 2				
Single-family Residential	1,080	0.378	0.195	0.573
Multi-family Residential	185	0.056	0.014	0.069
Retail	50,000	0.005	0.003	0.008
Flex Industrial	42,000	0.006	0.004	0.011
Office	40,000	0.006	0.004	0.010
Park	10	0.003	0.002	0.005
Phase 2 Total		0.453	0.223	0.676
Phase 3				
Single-family Residential	520	0.182	0.094	0.276
Multi-family Residential	570	0.171	0.043	0.214
High School	1,500	0.023	0.018	0.041
Elementary School	650	0.010	0.008	0.018
Park	10	0.003	0.002	0.005
Phase 3 Total		0.388	0.165	0.552
Total Buildout		1.294	0.608	1.901

Prepared by Prosser Hallock, July 2006

A.2. Describe how this demand information was generated, including the identification of the consumption rates assumed in the analysis.

The following assumptions were used to estimate the demand information contained in Table 17-1. Potable demand rates are based on Chapter 64E-6.00 Florida Administrative Code. Non-potable demand for non-residential uses was assumed to be 5,000 gpd per acre of irrigation area.

<u>Land Use</u>	<u>Potable Demand</u>	<u>Non-Potable Demand</u>
Single-family Residential	350 gpd/unit	181 gpd/unit (1)
Multi-family Residential	300 gpd/unit	75 gpd/unit (2)
Retail	0.1 gpd/ksf	0.067 gpd/ksf
Office	150 gpd/ksf	100 gpd/ksf
Flex Industrial	150 gpd/ksf	100 gpd/ksf
Elementary School	15 gpd/student	12 gpd/student (3)
High School	15 gpd/student	12 gpd/student (4)
Park	250 gpd/restroom	200 gpd/restroom

- (1) 725 gpd/ac and 0.25 landscaped acres per lot
- (2) 5000 gpd/ac x 15% irrigated area / 10 du/ac
- (3) 5,000 gpd/ac x 15% irrigated area x 10 ac/650 students
- (4) 5,000 gpd/ac x 15% irrigated area x 25 ac/1500 students

B. Provide a breakdown of sources of water supply, both potable and non-potable, by development phase through project completion. Use the format below.

Table 17-2 outlines the sources for the estimated potable and non-potable water demand. Potable water will be supplied off-site by St. Johns County Utility Department (SJCUD). The primary source for non-potable water (irrigation) will be precipitation. The secondary source for irrigation shall be reuse provided by the utility department’s off-site wastewater treatment facility. The existing wells onsite may be utilized as a tertiary source for irrigation until reuse is fully available. Actual irrigation requirements will be determined during final design in order to suit each project area as it is developed and the lowest quality water source of water will be selected at that time. Energy conservation measures may include low water demand plant materials, water efficiency, low-flow fixtures, and other similar measures, as appropriate.

**Table 17-2
POTABLE/NON-POTABLE WATER SUPPLY (MGD)**

	ON-SITE SUPPLY (MGD)			OFF-SITE SUPPLY (MGD)	TOTAL SUPPLY (MGD)
	GROUNDWATER	SURFACE WATER	TOTAL		
Potable	0	0	0	1.294	1.294
Non-Potable	0	0	0	0.608	0.608
Total	0	0	0	1.902	1.902

C. If water wells exist on-site, locate them on Map H and specify those that will continue to be used. Also locate on Map H all proposed on-site wells. (For residential developments, if individual wells for each lot are proposed, simply indicate the number of units to be served, general locations, and any plans for eventual phase-out). Indicate the diameter, depth, and pumping rates (average and maximum) for each

of the existing wells and project this information for the proposed wells (for lots served by individual dual wells, this information may be grouped for projection purposes). Also provide a breakdown of the wells with regard to potable and non-potable sources.

A search of the St. Johns River Water Management District Geographic Information System revealed five (5) existing wells within the Elkton DRI property. Per the St. Johns River Water Management District Geographic Information System, four (4) of the existing wells are 6-inch diameter casings that combined are permitted to withdraw 47.7 million gallons per year. The fifth well is a 10-inch diameter casing, drilled to a depth of 60 feet, and the pumping rate for this well is unknown. These wells are all currently being used for irrigation of agricultural crops.

The existing wells will be considered for non-potable or irrigation use until such time that reuse is available from the St. John's County Utility Department.

D. If on-site water wells are used, will this result in interference with other water wells or result in adverse impacts to underlying or overlying aquifers? Document the assumptions underlying this response.

The potable water needs of the Elkton DRI will be served by an off-site supply. It is not anticipated that on-site water wells will be used for potable water. The existing on-site wells, along with stormwater ponds and shallow wells will be considered for irrigation until reuse is available.

E. Who will operate and maintain the internal water supply system after completion of the development?

SJCUD will operate and maintain the internal water supply system at the completion of development. The potable water system will be constructed in the public right-of-way or in dedicated easements that will be owned and maintained by SJCUD. The irrigation systems on residential and commercial parcels will be owned and maintained by the individual owners. Irrigation systems within common areas may be owned and maintained by homeowners associations or by one or more community development districts. Irrigation or reuse lines within the public right-of-way may also be dedicated and maintained by SJCUD.

F.1. If an off-site water supply is planned, indicate the name, size and location of offsite supplier.

(a) The projected excess capacities of the water supply facilities to which connection will be made at present and for each phase through completion of the project,

- (b) Any other commitments that have been made for this excess capacity,**
- (c) A statement of the agency of firm's ability to provide services at all times during and after development. (This agency must be supplied with the water demand and supply tables in paragraphs A and B above).**

Off-site potable water service from SJCUD will be provided. Notification of the Elkton DRI development to SJCUD by the Applicant is provided on the following page. SJCUD's statement indicating its ability to provide service to the Elkton DRI development is provided on the subsequent page.

ST. JOHNS COUNTY, FLORIDA

Board of County Commissioners



P.O. Box 3006
St. Augustine, Florida 32085-3006
Phone: (904) 471-8486 / Fax: (904) 471-8993

PROSSER HALLOCK, INC.

June 16, 2006

JUN 20 2006

RECEIVED

Via Fax (904-730-3413) & U.S. Mail

Ryan Stilwell
Prosser Hallock, Inc.
13901 Sutton Park Drive South, Suite 200
Jacksonville, FL 32224

**RE: Elkton Development of Regional Impact (DRI) – Tax Parcel ID (see attached)
Water & Sewer Availability**

Dear Mr. Stilwell,

This letter summarizes the ability of the St. Johns County Utility Department (SJCUD) to serve the proposed Elkton DRI. According to your correspondence on May 18, 2006, the proposed development includes 2,873 single family units, 746 multi-family units, 2,800 students, 20 restrooms associated with parks, and 405,400 sf of commercial space. This development is scheduled in five phases over 15 years, as indicated in your availability request. The projected water and sewer usage for phase 1 is approximately 346,340 gpd and 286,550 gpd, respectively and is anticipated to build out at 1,326,365 gpd and 1,080,495 gpd, respectively.

Potable Water

The water service will be provided by the CR 214 water treatment plant and can be made available along Vermont Blvd approximately 2,000 feet north of SR 207. Infrastructure to the connection point must be provided. The developer will be required to install a 24" water main along Vermont Blvd and a minimum 20" water main along SR 207 to the proposed Elkton DRI entrance (near Parcel 15). Please note that pipe sizes are preliminary and could change based on more relevant information. Also note that work along SR 207 will require a FDOT permit.

Water mains must be looped within the proposed Elkton DRI and along CR 305 to ensure availability of adequate fire flow and level of service. In addition, the SJCUD requests that the developer propose a minimum 2-acre site for dedication to the SJCUD for a potable water booster tank. The site should be located in the northwest section of the DRI with access to SR 207 or CR 305.

Sewer

Sewer capacity will not be immediately available for the proposed Elkton DRI; however, the SJCUD will work with the developer to provide such service. The SJCUD has plans to construct a new wastewater treatment plant within the vicinity of SR 206 and CR 305 for developments

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primarily west of the I-95 corridor. A meeting will have to be scheduled to discuss this further. At a minimum, the developer will be required to pay for the development's share of the treatment capacity. Transmission mains will be required from the development to the wastewater treatment plant.

Reuse

The proposed Elkton DRI is required to be a residential reuse community. Reuse will be provided from the wastewater treatment plant referenced above. Initially, reuse will be provided from Floridan wells until such time that the DRI's reuse flow needs are met by sewer collected from this corridor. The developer will also be required to propose a minimum 2-acre site for dedication to the SJCUD for a reuse water storage tank. The site should be located in the central section of the development.

Water and sewer conveyance and treatment are not absolutely guaranteed until the proposed development is issued a Concurrency Certificate. At that time, the developer must contact the SJCUD to confirm any infrastructure upgrades previously identified to accommodate water, sewer and reuse service to the proposed development. Please note that most of the infrastructure upgrades listed above may qualify for reimbursement from SJCUD water and sewer unit connection fees. More information can be provided at your request.

If you should have any questions, please do not hesitate to contact me at (904) 471-8486 ext. 226 or tshoemaker@co.st-johns.fl.us.

Sincerely,



Teri L. Shoemaker, P.E.
St. Johns County Utility Department

cc: Bill Young, Utility Director
Neal Shinkre, Utility Engineering Manager
Mickhael Sulayman, Chief Engineer

Elkton DRI Tax Parcel ID Numbers:

140260 0000
140480 0000
140360 0000
137450 0000
140620 0000
140620 0010
140500 0000
140650 0000
140750 0000
140650 0000
140525 0000
140320 0000
140520 0000
140320 0000
140490 0000
140340 0000
140350 0000
140525 0040
140525 0040
140525 0020
140510 0000

- F.2. If service cannot be provided at all times during and after development, identify the required capital improvements, timing, cost, and proposed responsible entity for each phase in which service is unavailable.**

It is anticipated that service can be provided at all times during and after development.

- G. Please describe any water conservation methods or devices incorporated into the plan of development. What percentage of reduction is anticipated over conventional plans?**

Reduction in water consumption may be accomplished by the use of low flow plumbing fixtures as specified in the Water Conservation Act, Chapter 553.14, Florida Statutes. Reuse water for irrigation may be available to the Elkton property and will be utilized once available to minimize the need for surface water. Master planning efforts will include the utilization of existing vegetation within parks and open space areas to the greatest extent possible, together with the use of xeriscape, drought resistant native plantings, and other vegetation and landscape design features to reduce the water demand for irrigation.

- H. Indicate whether proposed water service will be provided within an established service area boundary.**

The Elkton DRI property is within the existing franchise area for St. John's County Utility Department.