

# JOURNAL



Florida  
Engineering  
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An aerial photograph of a dam under construction. The dam structure is made of concrete and is surrounded by a large area of gravel. A large crane is visible on the right side of the dam. The background shows a large body of water with some marshy areas.

**Land and  
Resource Use**

# Top Five Potential Site Selection Surprises



Every new development or re-development project starts with an evaluation of the underlying land and the myriad of political, social and technical issues that are physically or administratively connected to that land. Land acquisition professionals typically have their own due diligence check lists that they have developed over time to try and catch any issues that may impact the efficient development of the parcel in question.

Most of the issues are very straightforward and can be assessed on face value. However, some of the issues can be very complex and can be overlooked during the due diligence process.

The following is a brief description of these top five potential surprises.

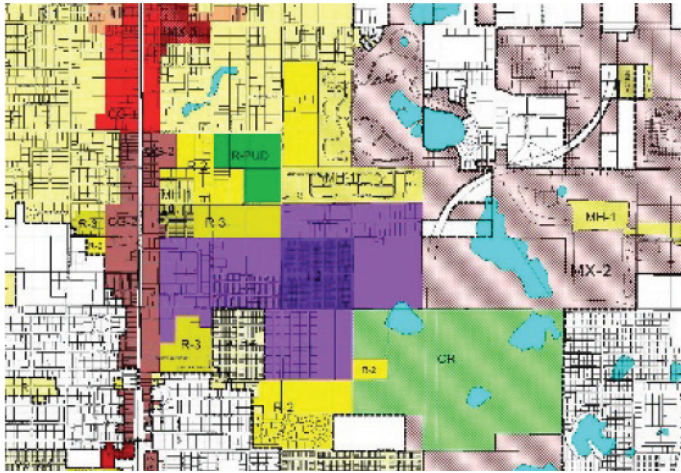
## **1 Comprehensive Plan/Land Use/Zoning Issues**

Future Land Use and Zoning designations can, at times, be deceiving. Usually, if the property's zoning matches the intended use, the project can proceed straight to the site plan approval process. However, there are times when the zoning and future land use are not consistent and a change in use could trigger a change in future land use to match the existing zoning. These situations are rare, but need to be checked, particularly if the zoning is Planned Development (PD). However, the zoning is always the first designation to check. When checking the zoning, it is critical to check the allowed uses within the District. These are very specific and are typically detailed in the Zoning Code.

Future Land Use is designated in the Comprehensive Plan (Comp Plan) and is more broadbased than the zoning designations. Most

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*In the history of our consulting practice, we have identified the top five issues that either get overlooked or are misunderstood during the real estate contract phase, creating unwanted and costly surprises during the development.*



Comp Plans also define which zonings are allowed in each land use designation. If the zoning allows the use that is intended, and the zoning is allowed in the existing land use, everything is set for engineering and site plan submittal.

Of course, like the English language, there are always exceptions and variations. Land Use Overlays and Special Districts may exist which can modify the allowed uses, or the approval process. If a property lies in one of these areas, special attention will need to be given to the specific code for these areas. Some items that may be included in these special areas consist of increased open space requirements, increased conservation requirements, an increase in allowed density, minimum density or FAR, street definitions, architectural and material requirements, mixed use requirements, and jobs to housing goals or requirements, just to name a few.

The Planned Development Zoning was mentioned earlier and can be an excellent tool to provide flexibility in the development process. The PD Zoning is basically creating a special zoning for the property in question to allow variances from the regular zoning designations. Each jurisdiction creates their own PD requirements and some have more flexibility than others. Recently, some municipalities eliminated or put moratoriums on PD zoning because they thought it gave too much flexibility to developers. If a property is zoned PD, it will be necessary to fully review the existing PD to determine what entitlements are in place, and remain in place for future development. If the existing entitlements are not adequate, the PD will need to be modified. Modifying a PD can be a simple process or a very complex process depending on the magnitude of the modifications and the political tone of the municipality and surrounding community.

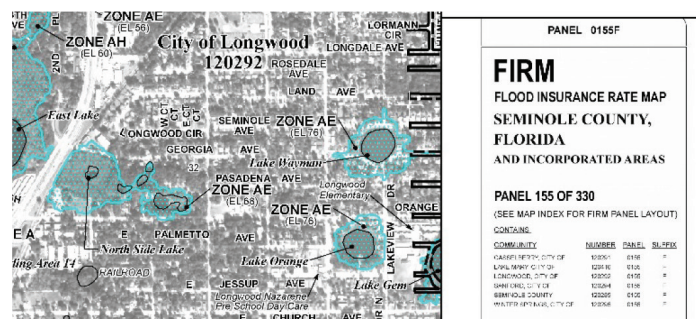
Bottom line on Land Use and Zoning, don't take the existing designations at face value. Research the issues, flush out any potential hurdles and map out a process to suit the future needs of the project. Assess potential opposition before proceeding with Comp Plan amendments and zoning changes and evaluate the risks. Zoning Commissioners and Elected Officials can sometimes assist with this assessment.

## 2 Floodplain Impacts

When the term floodplain is used, it typically refers to the 100 year floodplain which is the area that has been estimated to flood during a 24-hour storm event that statistically occurs every 100 years. The important thing to know is that not all floodplains are established in the same manner and therefore are not equal and cannot be treated the same.

The first place to search are the 100 year floodplain maps published by the Federal Emergency Management Administration (FEMA). These can be found online at FEMA's Flood Map Service Center at <https://msc.fema.gov/portal>. Each site will be given a designation related to its assumed location relative to the floodplain. The typical designations are:

- X (not located in a floodplain)
- A (located in an assumed floodplain without a calculated elevation)
- AE (located in a floodplain with a calculated elevation established by a previous basin study)



If the property is located in Zone AE, it is important to understand that the area depicted on the flood map is most likely an approximation based on aerial photography or old surveys. Therefore, proper due diligence should include a topographic survey to accurately locate the contour line corresponding to the published elevation. This may vary significantly from the FEMA flood map. If this reduced the flood plan, a map revision (CLOMR or LOMR) can be submitted to FEMA to have the maps changed for insurance purposes. This document

will most likely also need to be reviewed by the local permitting agency having jurisdiction over development. Most municipalities have 100 year floodplain impact requirements in their local codes or comprehensive development plans.

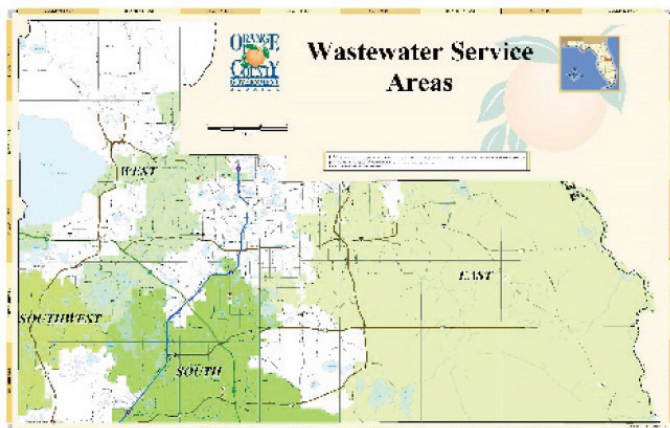
If the property is located in Zone A, the scenario gets a bit more complicated. The first search should be to determine if any other agency or property owner in the area has performed a basin study, or if FEMA is in the process of performing such a study. If a study exists, and has been signed and sealed by a professional engineer and approved by the local jurisdiction, a flood map revision can be submitted. This will be more complex, and may receive more scrutiny from FEMA than a revision for a property located in Zone AE. If a basin study does not exist, there is a possibility the local agency will require a study to be performed as part of the approval process. This can be a large and costly endeavor depending on the size of the basin and the level of development that has been constructed.

Another issue to consider is that some agencies have established flood plains that are more strict than the FEMA maps. In order to implement these revised elevations a public hearing process should be, but is not always, initiated. In these cases, the above guidelines can be followed based on the revised elevations, or legal counsel may be recommended. Finally, if the development eventually requires filling in the floodplain, compensating storage and environmental issues will need to be addressed during permitting.

### 3 Utilities

The discussion of utilities mostly revolves around potable water and sanitary sewer, but other utilities should be evaluated depending on the type of development being proposed (i.e. electrical power, cable TV, telephone, gas, internet connectivity and/or reclaimed water for irrigation).

Water and sewer capacity can be significant issues



creating costly system upgrade requirements that, in many cases, are passed along to the developer. Usually within an urban service area the capacities for zoned

developments exist, but this needs to be checked during the due diligence process because it is not guaranteed. If the property lies in the service area of a private utility company, the determination and eventual negotiations can be more complex.

The best case scenario is that capacity exists and the development will be subject to standard connection fees. However, even if plant capacity exists but the lines have not been constructed to the property, line extension costs can be passed along to the developer. There are different mechanisms for calculating costs and potential reimbursement agreements and each utility owner will need to be contacted to determine the available options. There is also the possibility for a group of property owners to jointly construct these extensions to the benefit of the entire group. Historically, some developers of large development projects located far from existing utility systems have created private utilities or smaller package plants to meet their own needs until service reaches the

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## Expanding Our Reach

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site. In some very rural areas, well systems and septic tanks may be an option, but environmental permitting issues are making this difficult for all but very small or low density developments.

### 4 Soil Conditions

Soils on potential development sites are obviously very important and need to be considered during the due diligence process, particularly on raw or undeveloped land. Most counties are covered by a USGS Soil Survey Map that gives a broad brush overview of the area and



typical soil parameters found in the vicinity. This data should, at a minimum, be followed up with a site visit by a geotechnical engineer to confirm the information reported in the survey. Most geotechnical engineers in a given location will also have a solid understanding of the area and any potential conditions that could create an adverse impact on the development. Some conditions that could be problematic in Central Florida include the following:

**a. Material with a High Organic Content (Muck):**

This type of material is unsuitable for standard construction without some sort of treatment or mitigation. In some cases, this material is right at the surface and visually obvious. In other cases, it is located in a layer below the ground and can only be located through geotechnical testing (soil borings). Potential treatment options include removal, surcharging and soil strengthening. This can be a complex problem and needs to be evaluated by the civil, structural and geotechnical engineers on the project.

**b. High Ground Water Table:** This situation creates a number of issues including difficulty meeting

stormwater permitting requirements, particularly with the pollutant loading analysis becoming more prominent and expanding in application by agencies. Historically, wet retention or detention ponds have been used on sites with high groundwater tables. Under the pollutant loading criteria analysis, wet ponds have been shown to be less effective at removing pollutants and therefore it is difficult to meet the new standards with a wet pond alone. Therefore, additional measures may need to be implemented, or the entire site may need to be raised to allow for the use of dry detention ponds.

**c. Loose Sandy Soils:** While sandy soils are usually a positive indicator for the development of a site, soils that are very loose can create some design challenges and additional costs. In some cases the soils may need to be stabilized prior to construction, particularly under buildings, but in some cases under parking lots as well. In addition, some finely graded sands (A.K.A. ball bearing sands) can be highly scourable and erode very easily if proper channelization techniques are not implemented. This can lead to higher construction costs, but will offset the potential for significant future maintenance issues if implemented.

**d. Contaminated Soils:** This situation is typically associated with re-development sites in urban areas but can also come into play in rural areas, particularly agricultural lands where cattle dipping was a common practice. The only way to determine if the potential for this condition exists is through a Phase I environmental audit. Many properties within the urban corridors already have Phase I audits, but a current audit is always recommended. It is important to remember that contamination from other sites can impact any property and the liability becomes that of the property owner that contains the contamination. A change of use on a property in the area upstream of the groundwater flow can cause concern. If the potential for contamination is identified during a Phase I audit, it is strongly recommended that a Phase II audit be performed. The Phase II will actually take soil and groundwater samples to test for the presence of contamination. If contamination is present, this becomes a major concern that could range from the requirement of complete clean-up to careful handling during construction. Either way it will represent a significant cost to any development and potential liability to the eventual owners. Environmental scientists and legal advisors should be consulted if contamination is identified.



## **5 Environmental (Natural Systems) Concerns**

Environmental issues occur on any site and sometimes are not initially obvious. For instance, most sites that are slated for re-development do not appear to have natural systems issues, however, an active eagle's nest adjacent to the property can limit construction activities during certain times of the year thus impacting the project schedule. In addition, in some cases, previously manmade ponds or ditches have been claimed as jurisdictional wetlands by some agencies which require mitigation and permitting or modifications. Therefore, a threatened and endangered species study and wetland evaluation study is recommended during any due diligence process, if one does not already exist.

Even high and dry sandy soil sites can be habitat for species such as gopher tortoises and sand skinks, both of which are protected or endangered species at varying jurisdictional levels. While mitigation or relocation methods are typically available to allow for development, these can accrue significant costs that need to be considered in any pro forma analysis.

In summary, while there are many issues that can ultimately impact the cost, layout and success of any site development, the above five issues are items that recur on a regular basis and seem to catch some potential developers by surprise, or at a minimum, are overlooked during due diligence. While it is understood that minimizing costs during due diligence is important, the impacts of missing one of the above items until after closing, or the final price is set can be disastrous. A strong team of experts can assist in the evaluation of these items

and determine which ones need cursory reviews versus more detailed evaluation. Development can be a risky business for a myriad of reasons. The risk associated with the above items can typically be classified and managed if identified early. In the long run, evaluating these issues during due diligence will be an effort that will save money and likely improve sleep.

### **About the Author:**

Rick Baldocchi is the Corporate Vice President of AVCON Inc., an engineering and planning consulting firm specializing in transportation, aviation and land development. Mr. Baldocchi was one of the initial employees when AVCON started in 1988, and the firm currently has over 80 employees located in offices in Florida and North Carolina.

Rick has a Bachelor of Science degree in Civil Engineering from California Polytechnic State University, A Master's of Science Degree in Structural Engineering from University of California, Berkeley, and a Master's of Business Administration from Rollins College.

He has served as a City Councilman and the Vice Mayor of the City of Maitland and as Chairman of the Planning & Zoning Commissioners in Orange County. Some of his recent projects have The Maitland Town Center and the Cassellberry City Center, both mixed use projects with site related issues similar to those identified in this article.