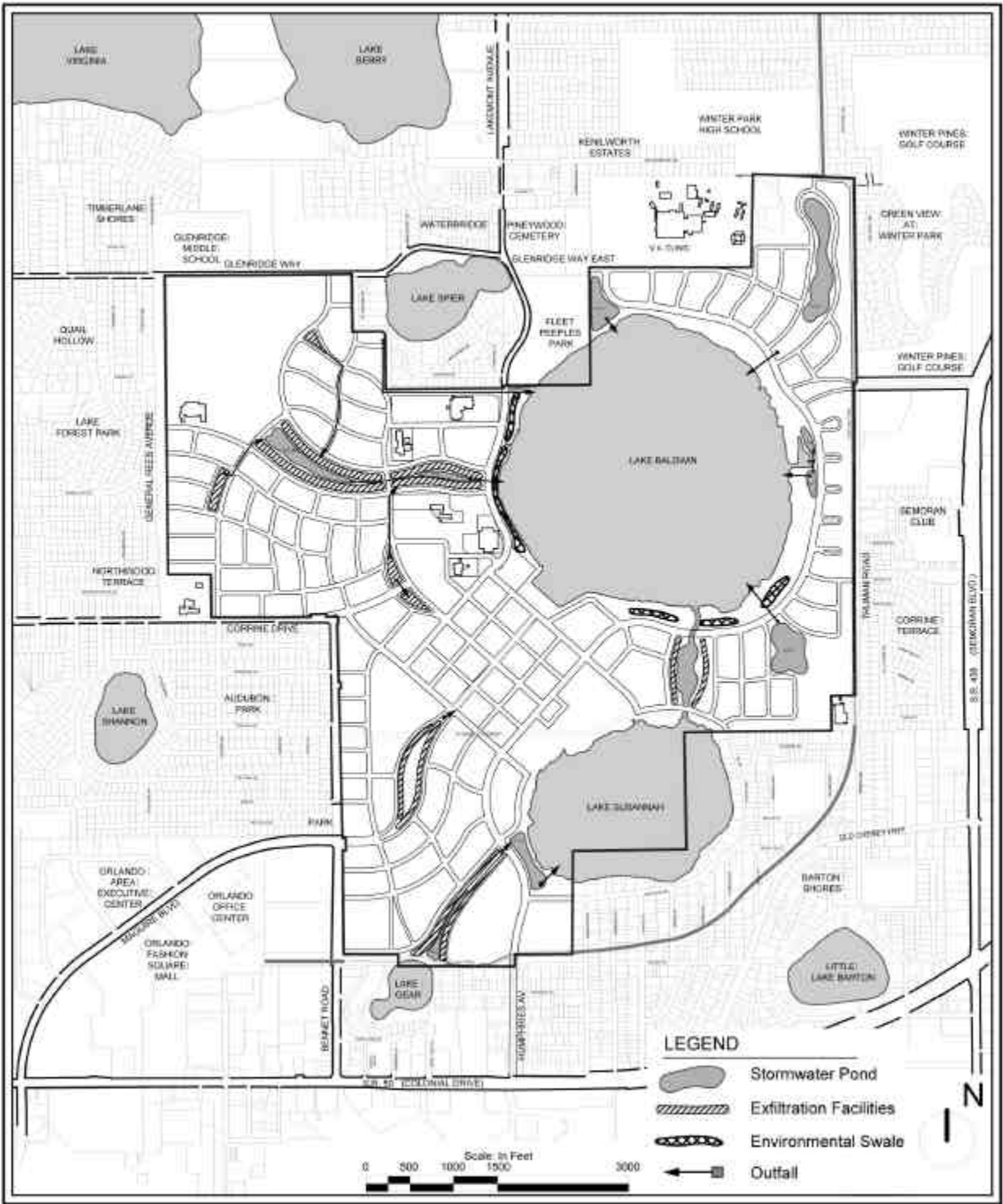


ORLANDO NAVAL TRAINING CENTER
ORLANDO, FLORIDA

INFRASTRUCTURE & STORMWATER

STORMWATER MASTER PLAN
UTILITIES



Stormwater System

INFRASTRUCTURE & STORMWATER

11.1 Stormwater Master Plan

Specific regulatory and desirable stormwater quality and quantity goals are to be achieved with the proposed stormwater plan:

All runoff water discharged directly into Lake Baldwin will be improved over the existing runoff from the present land use. Final discharge from the existing control structure which currently regulates Lake Baldwin represents all of the runoff from the project and will be designed to meet the requirements of Chapter 40C-42 FAC.

Stormwater discharges from the project into the Corrine Canal will be managed and regulated to be less than that which is existing today according to SJRWMD rules (presumably a 25-year, 24-hour storm event.). The peak staging for a 100-year rainfall event shall also be limited to that which exists today and is a matter of FEMA record. There should be, in fact, a reduced flood level as a corollary result of the retention that will now be provided for water quality measures.

The above goals will be met with a combination of on-site retention and detention systems as well as structurally optimizing the regulation of Lake Baldwin. Where soil and groundwater conditions are favorable (mostly on the west and south of Lake Baldwin) exfiltration trenches will be utilized as off-line dry retention. This method will be implemented wherever the depth to the seasonal high groundwater table is at least 5 ft based on finished grade. The design capacity of these trenches will be for a volume of the greater of 1/2" of runoff or the runoff generated by 1" of rainfall from the contributing drainage areas. On the remaining site area (north and east of Lake Baldwin) soils and groundwater conditions currently indicate wet-

detention systems are more appropriate. The capacity of these systems will be set as the volume equal to 1" of total runoff from the contributing drainage areas. These will be on-line systems, which overflow to Lake Baldwin.

Lake Baldwin is presently controlled with a weir outfall into the Corrine Canal. It is proposed to modify this structure to accomplish further water quality in the lake prior to discharge offsite. As Lake Baldwin has a relatively deep bottom (>20') it presently functions well as a wet detention facility under present criteria. This treatment opportunity can be enhanced with additional staging and a slow regulated drawdown at the outfall.

Lake Susannah is presently routed by canal to and around Lake Baldwin, also to the Corrine Canal outlet. It is proposed to bring the Susannah outfall directly into Lake Baldwin thereby providing the opportunity to enhance water quality for this existing drainage area, which would not otherwise be possible. All developed drainage from the NTC project area into Lake Susannah will meet State stormwater requirements. Although the outfall is being rerouted into Baldwin, the existing stage difference will maintain a similar drop between the two lakes and therefore a replication of existing control levels and peak stages.

In order to assure that the proposed water quality facilities will meet the stated goals, it will be desirable and likely a regulatory requirement to perform water quality modeling of the design. This may be done initially with a continuous runoff model such as EPA SWMM using the hydrographic and hydraulic modeling which will be established for the peak design. The model space may include both the on-site retention areas within the development and Lake Baldwin

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11.2 Utilities

11.2.1 Electric

The redeveloped NTC project will incorporate a new electric distribution and telecommunications duct bank system that will be installed as part of the infrastructure development program. The electric system will be designed and constructed in accordance with Orlando Utilities Commission and other utility provider's standard specifications. This system will be placed within the roadway framework developed in the master plan. It is intended to design these duct bank facilities to incorporate all required underground utilities including telecommunications, cable TV, fiber optic services, data link services, and other utilities to minimize or eliminate the long term conflict usually experienced with below grade utility infrastructure. OUC requires all power duct bank facilities to have separate manholes due to safety and joint use access issues. Connections to existing facilities will occur around the boundary of the proposed PD.

11.2.2 Sanitary Sewer

The proposed PD will incorporate a new network of underground sanitary sewer collection and transmission systems meeting the requirements of current City of Orlando and Florida Department of Environmental Protection specifications. Pipe sizes are expected to range from 8" to 16" and include both polyvinyl chloride (PVC) and ductile iron pipe (DIP) materials designed for sanitary sewer service. The gravity collection mains will be located within street rights-of-way and connect to a number of on-site sanitary sewer lift stations strategically located throughout the property. This will enable maintenance of the existing

common discharge

point as requested by the City of Orlando Wastewater Bureau.

11.2.3 Potable Water

Potable water for the project will ultimately be provided by the Orlando Utilities Commission. Orlando Utilities Commission has conceptually designed a proposed water plant site expansion consisting of ozone treatment systems that will be utilized to produce potable water for the PD as well as be connected to the existing Orlando Utilities Commission water distribution plant and pipe grid system. This interconnection will provide additional reliability levels to the existing property in that the system will become a portion of the much larger and strategically operated Orlando Utilities Commission potable water network system.

In addition to the proposed plant site, Orlando Utilities Commission is proposing construction of four new potable water wells on and around the NTC property. Two of these wells are scheduled to be located on the proposed water treatment plant site and discussions are currently underway to site the additional two well locations required by the utility.

A new water distribution system meeting current American Waterworks Association, Orlando Utilities Commission and Florida Department of Environmental Protection standards will be constructed as part of the redevelopment project. Main lines will be located within street rights-of-way with offsite

INFRASTRUCTURE & STORMWATER

connections occurring at strategic points along the property boundary.

11.2.4 Natural Gas

The proposed PD plan will be serviced by TECO/People's Gas System for natural gas distribution needs. New technologies utilizing plastic materials have been developed and adopted by many of the gas distribution companies throughout the country. As a result, it is expected that the PD master plan will incorporate state-of-the-art plastic materials for distribution of natural gas systems throughout the property. In summary, TECO/People's Gas System will be working with developers to provide natural gas services required for the residential, commercial, and office uses within the proposed redevelopment project.

Non-exclusive utility easements may also be provided within front yard set backs of detached housing parcels, adjacent and contiguous to proposed rights-of-way. Also in areas of attached housing, utility easements may be provided through parcels provided they are placed in mutually agreeable locations.

11.2.5 Utility Meters

Utility meters must be accessible. Meters should be screened from view and placed on side or rear building elevations. Access to utility meters should be provided from alleys. In residential areas without alleys, meters must be placed on side building elevations (within the front 30%).

11.2.6 Utility Easements

To the greatest extent possible, utility corridors should be placed under the street pavement within the street ROW to reduce conflicts with parkway and front yard plantings. In addition localized utility corridors will be placed in alleys as much as possible to eliminate transformer and connection boxes from being located along Boulevard, Village Center, and Residential Street frontages.

