

WEST PHASE 2 - Existing Conditions
Pollutant Loading Analysis - Lake Apopka Criteria

Existing Subbasins	Land Use	Soil Type	Total P Loading ¹		Basin Acreage	Inflow Mass Loading	Treatment System	Inches of Retention Over Basin Area	Pollutant Removal Efficiency ^{2,3,4}	Outflow Mass Loading
			(kg/ac-yr)		(acres)	(kg/yr)		(inches)	(%)	(kg/yr)
FAMRC Lot 2 N & S	CROP	HSG D	0.531	X	7.78	= 4.13				4.13
FAMRC Lot 3	CROP	HSG D	0.531	X	20.15	= 10.70				10.70
FAMRC - Bill Beck Blvd	CROP	HSG D	0.531	X	6.73	= 3.57				3.57
Tract F	CROP	HSG D	0.531	X	16.58	= 8.80				8.80
East Pond	CROP	HSG D	0.531	X	12.84	= 6.82				6.82
Freedom Life Church	COMM	HSG A	0.899	X	4.79	= 4.31	Wet Detention (OFW)	N/A	64.5	1.53
Fortune Extension	HWY 50%	HSG A	0.71	X	7.59	= 5.39	Wet Detention (OFW)	N/A	64.5	1.91
Racetrac	COMM	HSG A	0.899	X	2.58	= 2.32	Wet Detention (OFW)	N/A	64.5	0.82
Offsite Commercial	OPEN	HSG D	0.051	X	12.80	= 0.65	Wet Detention (OFW)	N/A	64.5	0.23
Judge B	OPEN	HSG D	0.051	X	3.62	= 0.18	Wet Detention (OFW)	N/A	64.5	0.07
Judge C	OPEN	HSG D	0.051	X	14.41	= 0.73	Wet Detention (OFW)	N/A	64.5	0.26
Judge D	OPEN	HSG D	0.051	X	11.63	= 0.59	Wet Detention (OFW)	N/A	64.5	0.21
Magic Landings - Basin 1	SFR 40%	HSG A	0.25	X	33.84	= 8.46	Wet Detention (OFW)	N/A	64.5	3.00
Magic Landings - Wetland	OPEN	HSG D	0.051	X	10.53	= 0.54				0.54
Magic Landings - Commercial	COMM	HSG D	0.964	X	7.98	= 7.69				7.69
Mullinax Ford	COMM	HSG A	0.899	X	9.91	= 8.91	Wet Detention (OFW)	N/A	64.5	3.16
Rodeo Warehouses	COMM	HSG A	0.899	X	5.64	= 5.07	Wet Detention (OFW)	N/A	64.5	1.80
ATR	COMM	HSG D	0.964	X	3.81	= 3.67				3.67
Onsite East	CROP	HSG D	0.531	X	48.75	= 25.89				25.89
Onsite East (Ponds 2 & 3)			0.000	X	15.69	= 0.00	Wet Detention (OFW)	N/A	64.5	0.00
Fortune Rd	HWY 75%	HSG A	1.053	X	4.31	= 4.54	Wet Detention (OFW)	N/A	64.5	1.61
Heritage Townhomes	HDR	HSG A	1.082	X	13.20	= 14.28	Wet Detention (OFW)	N/A	64.5	5.07
Heritage Commons	OPEN	HSG A	0.004	X	5.08	= 0.02	Wet Detention (OFW)	N/A	64.5	0.01
FDOT North & South	HWY 75%	HSG A	1.053	X	40.04	= 42.16	Wet Detention (OFW)	N/A	64.5	14.97
Offsite NW & NE	LDR	HSG D	0.284	X	21.00	= 5.96	Wet Detention (OFW)	N/A	64.5	2.12
OHP Central	COMM	HSG A	0.899	X	54.68	= 49.16	Wet Detention (OFW)	N/A	64.5	17.45
OHP West N	OPEN	HSG A	0.004	X	11.23	= 0.04	Wet Detention (OFW)	N/A	64.5	0.02
OHP West S	OPEN	HSG A	0.004	X	3.79	= 0.02	Wet Detention (OFW)	N/A	64.5	0.01
OHP West S (Pond)			0.000	X	11.41	= 0.00	Wet Detention (OFW)	N/A	64.5	0.00
OHP North	LDR	HSG D	0.284	X	17.27	= 4.90	Wet Detention (OFW)	N/A	64.5	1.74
Cattlemen	COMM	HSG A	0.899	X	2.20	= 1.98	Wet Detention (OFW)	N/A	64.5	0.70
Judge A	OPEN	HSG D	0.051	X	29.02	= 1.48	Wet Detention (OFW)	N/A	64.5	0.53
Bible Baptist Church	COMM	HSG D	0.964	X	10.00	= 9.64	Wet Detention (OFW)	N/A	64.5	3.42
Valencia Village	OPEN	HSG D	0.051	X	18.89	= 0.96				0.96
Regions	COMM	HSG D	0.964	X	14.38	= 13.86				13.86
Five Star Tractor	COMM	HSG D	0.964	X	7.99	= 7.70	Wet Detention (OFW)	N/A	64.5	2.73
West Pond	CROP	HSG D	0.531	X	158.48	= 84.15				84.15
West Pond (Pond 1)			0.000	X	13.68	= 0.00	Wet Detention (OFW)	N/A	64.5	0.00
Onsite West	CROP	HSG D	0.531	X	171.68	= 91.16				91.16
Onsite West (Pond 100)			0.000	X	6.21	= 0.00	Wet Detention (OFW)	N/A	64.5	0.00
Neptune 100	SFR 40%	HSG D	0.536	X	57.69	= 30.92				30.92
Offsite SW	SFR 40%	HSG D	0.536	X	23.62	= 12.66				12.66
Total Area = 953.50 ac & 484.047 (kg/yr) Loading										Total Outflow 368.909

From the "Evaluation of Current Stormwater Design Criteria within the State of Florida" dated June 2007
Wet Detention Ponds Removal Efficiency = $-0.13+6.372 \cdot \ln(Td)+0.213 \cdot (\ln(Td))^2$

Wet Detention (STD) Removal = 61.5 % removal
Wet Detention (OFW) Removal = 64.5 % removal

¹ Value obtained from Table 11.7-3 from Applicant's Handbook: Management and Storage of Surface Waters by SJRWMD (Dec. 3, 2006)

² Theoretical %removal for wet detention pond obtained from Figure 2.4 of Apopka Report based on PPV residence times calculated on Tables Q4b2 (proposed) and Q4b3 (existing).

³ Theoretical %removal for dry detention pond for TP is 40% per "Final Report of Evaluation of Current Stormwater Design Criteria Within the State of Florida by ERD, Inc., 2007"

⁴ Theoretical %removal for dry retention pond for TP is 90% for 0.5" runoff retention per "Final Report of Evaluation of Current Stormwater Design Criteria Within the State of Florida by ERD, Inc., 2007"

⁵ The Magic Landings - Commercial area (7.98 ac.) includes the Tract E (0.77 ac.), Commercial (4.88 ac.), and Burger King (2.33 ac.) areas.

WEST PHASE 2 - Proposed Conditions
Pollutant Loading Analysis - Lake Apopka Criteria

Existing Subbasins	Land Use	Soil Type	Total P Loading ¹	Basin Acreage	Inflow Mass Loading	Treatment System	Inches of Retention Over Basin Area	Pollutant Removal Efficiency ^{2,3,4}	Outflow Mass Loading
			(kg/ac-yr)	(acres)	(kg/yr)		(inches)	(%)	(kg/yr)
FAMRC Lot 2 N & S	OPEN	HSG D	0.051	X 7.78	= 0.40	Wet Detention (OFW)	N/A	72.5	0.11
FAMRC Lot 3	COMM	HSG D	0.964	X 20.15	= 19.42	Wet Detention (OFW)	N/A	72.5	5.34
FAMRC - Bill Beck Blvd	HWY 75%	HSG D	1.133	X 6.73	= 7.63	Wet Detention (OFW)	N/A	72.5	2.10
Tract F	OPEN	HSG D	0.051	X 16.58	= 0.85	Wet Detention (OFW)	N/A	72.5	0.23
East Pond	OPEN	HSG D	0.051	X 5.91	= 0.30	Wet Detention (OFW)	N/A	72.5	0.08
East Pond (Pond)			0.000	X 6.93	= 0.00	Wet Detention (OFW)	N/A	79.9	0.00
Freedom Life Church	COMM	HSG A	0.899	X 4.79	= 4.31	Wet Detention (OFW)	N/A	79.9	0.87
Fortune Extension	HWY 50%	HSG A	0.71	X 7.59	= 5.39	Wet Detention (OFW)	N/A	79.9	1.08
Racetrac	COMM	HSG A	0.899	X 2.58	= 2.32	Wet Detention (OFW)	N/A	79.9	0.47
Offsite Commercial	COMM	HSG D	0.964	X 12.80	= 12.34	Wet Detention (OFW)	N/A	79.9	2.48
Judge B	COMM	HSG D	0.964	X 3.62	= 3.49	Wet Detention (OFW)	N/A	79.9	0.70
Judge C	COMM	HSG D	0.964	X 14.41	= 13.89	Wet Detention (OFW)	N/A	79.9	2.79
Judge D	COMM	HSG D	0.964	X 11.63	= 11.21	Wet Detention (OFW)	N/A	79.9	2.25
Magic Landings - Basin 1	SFR 40%	HSG A	0.25	X 33.84	= 8.46	Wet Detention (OFW)	N/A	79.9	1.70
Magic Landings - Wetland	OPEN	HSG D	0.051	X 10.53	= 0.54	Wet Detention (OFW)	N/A	79.9	0.11
Magic Landings - Commercial	COMM	HSG D	0.964	X 7.98	= 7.69	Wet Detention (OFW)	N/A	79.9	1.55
Mullinax Ford	COMM	HSG A	0.899	X 9.91	= 8.91	Wet Detention (OFW)	N/A	79.9	1.79
Rodeo Warehouses	COMM	HSG A	0.899	X 5.64	= 5.07	Wet Detention (OFW)	N/A	79.9	1.02
ATR	COMM	HSG D	0.964	X 3.81	= 3.67	Wet Detention (OFW)	N/A	79.9	0.74
Onsite East	OPEN	HSG D	0.051	X 64.44	= 3.29	Wet Detention (OFW)	N/A	79.9	0.66
Fortune Rd	HWY 75%	HSG A	1.053	X 4.31	= 4.54	Wet Detention (OFW)	N/A	79.9	0.91
Heritage Townhomes	HDR	HSG A	1.082	X 13.20	= 14.28	Wet Detention (OFW)	N/A	79.9	2.87
Heritage Commons	COMM	HSG A	0.899	X 5.08	= 4.57	Wet Detention (OFW)	N/A	79.9	0.92
FDOT North & South	HWY 75%	HSG A	1.053	X 40.04	= 42.16	Wet Detention (OFW)	N/A	79.9	8.47
Offsite NW & NE	LDR	HSG D	0.284	X 21.00	= 5.96	Wet Detention (OFW)	N/A	79.9	1.20
OHP Central	COMM	HSG A	0.899	X 54.68	= 49.16	Wet Detention (OFW)	N/A	79.9	9.87
OHP West N	OPEN	HSG A	0.004	X 11.23	= 0.04	Wet Detention (OFW)	N/A	79.9	0.01
OHP West S	OPEN	HSG A	0.004	X 15.20	= 0.06	Wet Detention (OFW)	N/A	79.9	0.01
OHP North	LDR	HSG D	0.284	X 17.27	= 4.90	Wet Detention (OFW)	N/A	79.9	0.99
Cattlemen	COMM	HSG A	0.899	X 2.20	= 1.98	Wet Detention (OFW)	N/A	79.9	0.40
Judge A	COMM	HSG D	0.964	X 29.02	= 27.98	Wet Detention (OFW)	N/A	79.9	5.62
Bible Baptist Church	COMM	HSG D	0.964	X 10.00	= 9.64	Wet Detention (OFW)	N/A	79.9	1.94
Valencia Village	OPEN	HSG D	0.051	X 18.89	= 0.96	Wet Detention (OFW)	N/A	79.9	0.19
Regions	COMM	HSG D	0.964	X 14.38	= 13.86	Wet Detention (OFW)	N/A	79.9	2.78
Five Star Tractor	COMM	HSG D	0.964	X 7.99	= 7.70	Wet Detention (OFW)	N/A	79.9	1.55
West Pond	OPEN	HSG D	0.051	X 39.77	= 2.03	Wet Detention (OFW)	N/A	79.9	0.41
West Pond (Pond)			0.000	X 132.39	= 0.00	Wet Detention (OFW)	N/A	79.9	0.00
Onsite West	OPEN	HSG D	0.051	X 177.89	= 9.07	Wet Detention (OFW)	N/A	79.9	1.82
Neptune 100	SFR 40%	HSG D	0.536	X 57.69	= 30.92	Wet Detention (OFW)	N/A	79.9	6.21
Offsite SW	SFR 40%	HSG D	0.536	X 23.62	= 12.66	Wet Detention (OFW)	N/A	79.9	2.54
Total Area = 953.50 ac & 361.653 (kg/yr) Loading									Total Outflow 74.773

From the "Evaluation of Current Stormwater Design Criteria within the State of Florida" dated June 2007
Wet Detention Ponds Removal Efficiency = $40.13 + 6.372 \cdot \ln(Td) + 0.213 \cdot (\ln(Td))^2$

East Pond Residence Time in days = 83.4 days **72.5 % removal**
West Pond Residence Time in days = 201.0 days **79.9 % removal**

¹ Value obtained from Table 11.7-3 from Applicant's Handbook: Management and Storage of Surface Waters by SJRWMD (Dec. 3, 2006)

² Theoretical %removal for wet detention pond obtained from Figure 2.4 of Apopka Report based on PPV residence times calculated on Tables Q4b2 (proposed) and Q4b3 (existing).

³ Theoretical %removal for dry detention pond for TP is 40% per "Final Report of Evaluation of Current Stormwater Design Criteria Within the State of Florida by ERD, Inc., 2007"

⁴ Theoretical %removal for dry retention pond for TP is 90% for 0.5" runoff retention per "Final Report of Evaluation of Current Stormwater Design Criteria Within the State of Florida by ERD, Inc., 2007"

⁵ The Magic Landings - Commercial area (7.98 ac.) includes the Tract E (0.77 ac.), Commercial (4.88 ac.), and Burger King (2.33 ac.) areas.