Basin No. 3 (Big Sky Subdivision)	Calculated By:	**MEB**	Date:	**March 5, 2013**
Basin Area Summary	Checked By:	**JEM**	Date:	**May 6, 2013**

Big Sky Subdivision Pre Development Condition:
From Permit Number: 42-069-101701-1

Area Breakdown:

Open Space	9.88 ac
Wood-Grass Combo (Offsite 1)	0.90 ac
Total	10.78 ac

Limits of Big Sky Subdivision located within Hancock Road ROW:

Station to	Station	Length (ft)	Right of Way Width (ft)	Area (ac)	Remarks
234+60.00	238+55.15	395.15	120	1.14	Big Sky Subdivision Completely located within ROW
238+55.15	240+60.00	204.85	133 to 81	0.50	Big Sky Subdivision partially located within ROW
Total Area Removed from Big Sky Subdivision for Hancock Road Project =				1.65	

Revised Pre-Development Total Area Breakdown:

Open Space	8.30 ac
Wood-Grass Combo (Offsite 1)	0.83 ac
Total	9.13 ac

Big Sky Subdivision Post Development Condition:
From Permit Number: 42-069-101701-1

Area Breakdown:

Open Space	6.91 ac
Impervious	2.97 ac
Wood-Grass Combo (Offsite 1)	0.90 ac
Total	10.78 ac

Limits of Big Sky Subdivision located within Hancock Road ROW:

Station to	Station	Length (ft)	Right of Way Width (ft)	Area (ac)	Remarks
234+60.00	238+55.15	395.15	120	1.14	Big Sky Subdivision Completely located within ROW
238+55.15	240+60.00	204.85	133 to 81	0.50	Big Sky Subdivision partially located within ROW
Total Area Removed from Big Sky Subdivision for Hancock Road Project =				1.65	

Impervious Area to be Removed within Big Sky Subdivision as part of the Hancock Road Project:

Big Sky Subdivision Impervious Area =	2.97 ac
Removal of Bison Trail:	0.21 ac
Total Impervious Area =	2.76 ac

Revised Post Development Total Area Breakdown:

Open Space	5.54 ac
Impervious	2.76 ac
Wood-Grass Combo (Offsite 1)	0.83 ac
Total	9.13 ac

Basin No. 3 (Big Sky Subdivision)	Calculated By:	MEB	Date:	March 5, 2013
Pre-Developed CN and SCS Runoff Volume Calculation	Checked By:	JEM	Date:	May 6, 2013

Pre Condition

BASIN DESIGNATION   Ponds 1, 2, and 3 interconnected
TYPE EVALUATION   Pre-Developed, 25yr/96hr storm
BASIN SIZE   **9.13** Acres
RAINFALL DEPTH   **11** Inches

SOIL LAND USE DESCRIPTION NAME	SOIL GROUP	CN	AREA	PRODUCT
Open Space, good condition	A	39	8.30	323.8
Woods-Grass Combo, good condition	A	32	0.83	26.57
		TOTAL	9.13	350.4

WEIGHTED, CN = $\dfrac{\text{PRODUCT}}{\text{AREA OR \%}}$ =   **38.4**

SOIL STORAGE, S = $\dfrac{1000}{\text{CN}} - 10$ =   **16.07**   INCHES

RUNOFF, R = $\dfrac{(P-0.2S)^2}{(P+0.8S)}$ =   **2.54**   INCHES

RUNOFF VOLUME, V = $\dfrac{R}{12}$ x AREA   =   **1.93**   ACRE-FT

Pre Developed Volume =   **1.93**   ACRE-FT
Pre Developed Volume =   **84300**   CUBIC FEET

Basin No. 3 (Big Sky Subdivision)		**Calculated By:**	**MEB**	**Date:**	**March 5, 2013**
Post-Developed CN and SCS Runoff Volume Calculation		**Checked By:**	**JEM**	**Date:**	**May 6, 2013**

Proposed Condition

BASIN DESIGNATION   Ponds 1, 2, and 3 interconnected
TYPE EVALUATION   Post-Developed, 25yr/96hr storm
BASIN SIZE   <u>9.13</u> Acres
RAINFALL DEPTH   <u>11</u> Inches

SOIL LAND USE DESCRIPTION NAME	SOIL GROUP	CN	AREA	PRODUCT
Open Space, good condition (30%)	A	39	5.54	216.17
Impervious (70%)		98	2.76	270.48
Woods-Grass Combo, good condition	A	32	0.83	26.571
		TOTAL	**9.13**	**513.23**

WEIGHTED, CN = $\dfrac{PRODUCT}{AREA\ OR\ \%}$ =   <u>56.2</u>

SOIL STORAGE, S = $\dfrac{1000}{CN} - 10$ =   <u>7.80</u>   INCHES

RUNOFF, R = $\dfrac{(P-0.2S)^2}{(P+0.8S)}$ =   <u>5.17</u>   INCHES

RUNOFF VOLUME, V = $\dfrac{R}{12}$ x AREA   =   <u>3.94</u>   ACRE-FT

Post Developed Volume =   <u>3.94</u>   ACRE-FT
Post Developed Volume =   <u>171400</u>   CUBIC FEET

Basin No. 3 (Big Sky Subdivision)	Calculated By: **MEB** Date:	**May 9, 2013**
Treatment Volume Calculation	Checked By: JEM Date:	**May 6, 2013**

SJRWMD Treatment Volume Requirement

Water Quality Volume for a Dry Retention System is based upon the greater of (1) 1.0 inch of runoff over the basin area or (2) 1.25 inches of runoff over the impervious area plus an additional 0.5 inches over the entire basin area.

Vt(1) = One inch of runoff from the basin area
Vt(1) =   ((9.13 ac.) * 1.0 in.)/12
Vt(1) =   0.76   acre-ft

Vt(2) = 1.5 inches of runoff over the impervious area + 0.5 inches over the entire basin
Vt(2) =   ((2.76 ac. * 1.25 in.)+(0.5 in. *9.13 ac.))/12
Vt(2) =   0.67   acre-ft

Therefore   **0.76**   Acre-ft for the required treatment volume

Is Basin part of an OFW (yes or no)?   **no**   Add an additional 50%

TOTAL BASIN REQUIRED TREATMENT VOLUME =   0.76   acre-ft

Basin No. 3 (Big Sky Subdivision)	Calculated By:	MEB	Date:	May 9, 2013
Pond Stage-Storage Relationship	Checked By:	JEM	Date:	May 9, 2013

STAGE vs. STORAGE CALCULATIONS
Ponds 1, 2, and 3 interconnected

Stage (ft NGVD 1929)	Surface Area (sf)	Surface Area (Ac)	Average Area (Ac)	Incremental Depth (ft.)	Incremental Volume (Ac-Ft)	Total Volume (Ac-Ft)
124.00	3,978	0.091	0.000	0.000	0.000	0.000
125.00	6,138	0.141	0.116	1.000	0.116	0.116
126.00	7,911	0.182	0.161	1.000	0.161	0.277
127.00	9,693	0.223	0.202	1.000	0.202	0.479
128.00	11,308	0.260	0.241	1.000	0.241	0.721
129.00	16,252	0.373	0.316	1.000	0.316	1.037
130.00	21,196	0.487	0.430	1.000	0.430	1.467
131.00	26,247	0.603	0.545	1.000	0.545	2.011

Required Water Quality Volume =	0.76	ac-ft
Required Treatment Stage =	128.11	ft
Provided Treatment Stage =	128.15	ft
Provided Treatment Volume =	0.77	ac-ft
Total Required Retention Volume =	2.00	ac-ft
Total Retention Stage =	130.89	ft