

CONCEPTUAL STORMWATER MANAGEMENT PLAN

**Proposed Photovoltaic Power Plant Development
St. Clair - Sombra Solar Farm
Lambton County, Ontario**

Prepared for:



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TABLE OF CONTENTS

	Page
1.0 INTRODUCTION.....	1-5
1.1 PROJECT DESCRIPTION	1-7
1.2 EXISTING SITE GEOLOGY CONDITIONS	1-7
1.3 STORMWATER MANAGEMENT PLAN OVERVIEW	1-10
2.0 HYDROLOGIC MODELLING	2-1
2.1 MODEL SELECTION	2-1
2.2 DESIGN STORMS	2-1
2.3 HYDROLOGIC MODELLING RESULTS.....	2-2
2.4 STORMWATER MANAGEMENT PLAN.....	2-2
3.0 MAINTENANCE AND MONITORING PROGRAM	3-1
3.1 MAINTENANCE	3-1
3.2 MONITORING	3-1
4.0 EROSION AND SEDIMENT CONTROL	4-1
5.0 SUMMARY	5-1
6.0 REFERENCES.....	6-1

APPENDICES

- Appendix A Hydrology Modeling Input and Output
- Appendix B Reference Documents



LIST OF TABLES

Table 1-1: Catchment Condition Comparison	1-10
Table 2-1: Total Rainfall Depth	2-1
Table 2-2: Computed Peak Flows from Areas 101	2-2

LIST OF FIGURES

Figure 1-1: Site Location, Regional Context	1-5
Figure 1-2: Site Location, Local Context	1-6
Figure 1-3: Post Development Site Layout	1-8
Figure 1-4: St. Clair Region Conservation Authority Regulation Areas	1-9
Figure 1-5: St. Clair - Sombra Site Pre-development Catchment Area.....	Map Sleeve
Figure 1-6: St. Clair - Sombra Site Post development Catchment Area.....	Map Sleeve



APPROVALS

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April 30, 2010

Date

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April 30, 2010

Date

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April 30, 2010

Date



SECTION 1
INTRODUCTION

1.0 INTRODUCTION

This report summarizes the development of a conceptual Stormwater Management Plan for a proposed photovoltaic power plant development to be located in the Township of St. Clair, Ontario (see Figure 1-1). St. Clair - Sombra Solar Farm site (“Site”) is approximately 84 ha in total area located on the east side of Baseline Road, and is bound to the north by Bentpath Line and to the south by the Smith Line. The Site consists of a field planted with soybeans (northern portion) and winter wheat (southern portion). Woodlot areas are located along the northeast portion of the site. Residential structures are located along Bentpath Line and Smith Line (see Figure 1-2).

The site lies within the jurisdiction of the St. Clair Region Conservation Authority, in the St. Clair River Tributary watershed.

This report has been prepared for First Solar Development (Canada) Inc. (“First Solar”).



Figure 1-1: Site Location, Regional Context
(Source: Background image from Google Maps)



Figure 1-2: Site Location, Local Context
(Source: Background image from Google Maps)

1.1 Project Description

The proposed St. Clair – Sombra Solar Farm will collect the energy from the sun using thin film photovoltaic modules and convert it to electrical energy for distribution to the local electricity distribution system. The proposed solar farm will be capable of producing 20 MW of electricity and will be developed on a parcel of land located east of Sombra Village in Township of St. Clair (south of Bentpath Line, east of Baseline Road). The solar farm is designated as a “class 3” solar facility as defined by Section 4 of O. Reg. 359/09 regarding Renewable Energy Approvals. A class 3 solar facility is a renewable energy facility with a name plate power capacity greater than 10kW situated at any location other than being mounted on the roof or wall of a building. (First Solar, 2009)



The construction of the St. Clair – Sombra Solar Farm will be on existing ground to the extent possible. After construction, the site will be seeded and plantings will be encouraged under the solar panels. It is the intent of First Solar to keep the terrain as natural as possible.

Figure 1-3 illustrates the development proposal for St. Clair - Sombra Solar Farm.

1.2 Existing Site Geology Conditions (Substantially from AMEC, 2008)

The proposed development St. Clair - Sombra site is flat-lying agricultural properties consisting of several separate parcels of land that have been assembled by First Solar for the purposes of the development of solar farms. Drainage ditches are present along the roads that bound the site.

Agricultural soils mapping indicates that the near surface soils at the site are “Brookston Clay” and “Clyde Clay.” St. Clair Sombra site lies within the subregion called the Chatham Flats, which, at its northern end, consists of stratified clays. Geotechnical Investigation shows the major deposits of soils within the sites are silty clay with trace sand and gravel. At St. Clair Sombra site, however, the consistency decreases more dramatically below the crust to firm then soft with increasing depth.

The groundwater levels were monitored during and at completion of drilling and are recorded. Based on the record of the seven (7) boreholes on-site, all of the boreholes were dry and open upon completion of drilling.



Figure 1-3: Post Development Site Layout

The following information is relevant for this site:

- No wetlands are identified on the proposed development site (St. Clair River Tributaries Watershed Report Card, 2008)
- No Environmentally Significant Areas are identified on the proposed development site (St. Clair River Tributaries Watershed Report Card, 2008)
- Soils at the site generally described as silty and clay (St. Clair River Tributaries Watershed Report Card, 2008)
- The Regulated Area Limits, provided by the St. Clair Region Conservation Authority (SCRCA) as shown in Figure 1-4, indicates that part of the site is located inside of the Regulated Area. However, based on the confirmation letter of SCRCA on June 26, 2009, *“the subjects lands are not impacted by “Development, interference with Wetlands and Alterations to Shorelines and Watercourses” Regulations (O.R. 171/06) implements by the Authority pursuant to Section 28 of the Conservation Authorities Act.”* (see Appendix B)

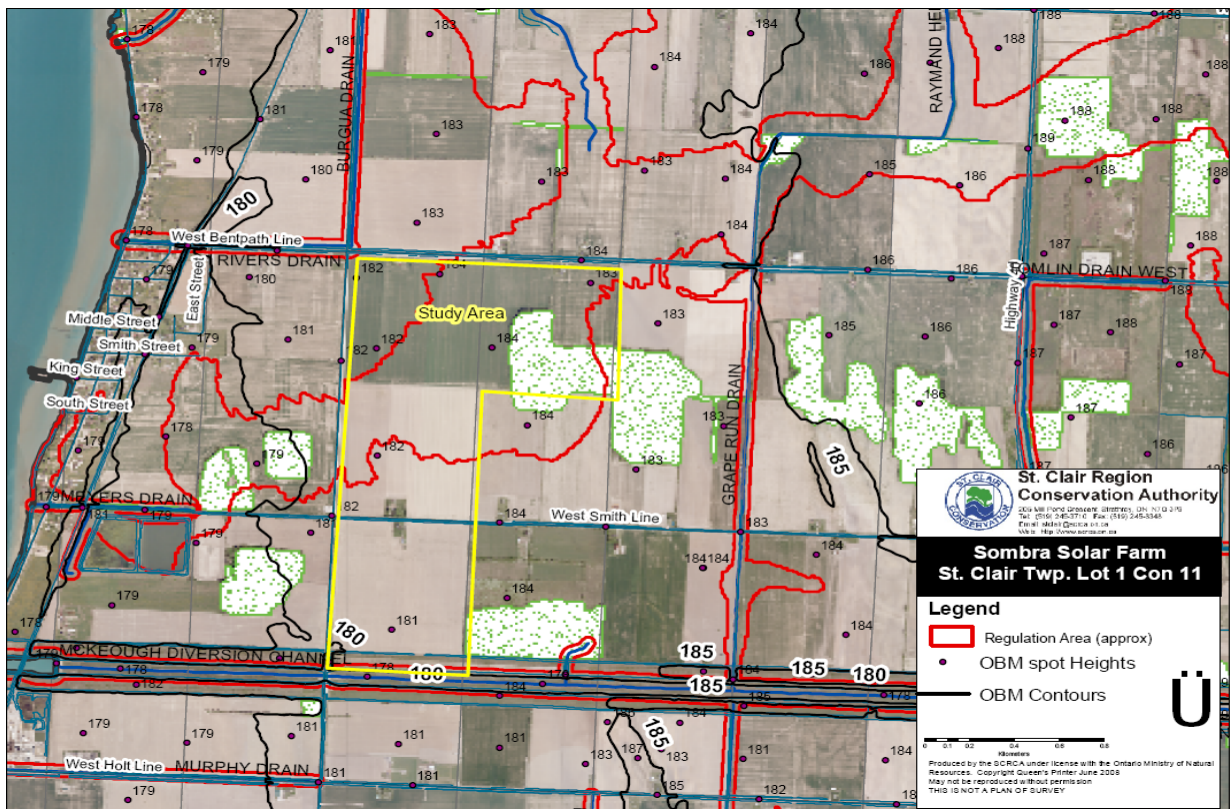


Figure 1-4: St. Clair Region Conservation Authority Regulation Areas
 (Source: St. Clair Region Conservation Authority)



1.3 Stormwater Management Plan Overview

The primary objective of a Stormwater Management (SWM) Plan is to control stormwater runoff from development. The plan is designed to improve the stormwater quality (i.e., sediment removal) and control runoff directly discharging from the site.

Some considerations regarding stormwater management planning for this site include:

- the construction of the St. Clair - Sombra site will be on existing ground (i.e., existing topography will be maintained) to the extent possible, particularly in areas designated for solar arrays/panels
- after construction, the site will be seeded and plantings will be encouraged under the solar panels

As such, although the solar panels are an impervious surface, the underlying soils and topography will not have changed from pre-development conditions. Rain water flowing off the solar panels will fall to a pervious surface, runoff will travel an un-changed path therefore maintaining the opportunity to infiltrate in a manner equaling pre-development. Therefore, areas to be covered by solar arrays are not considered to change between pre-development and post-development.

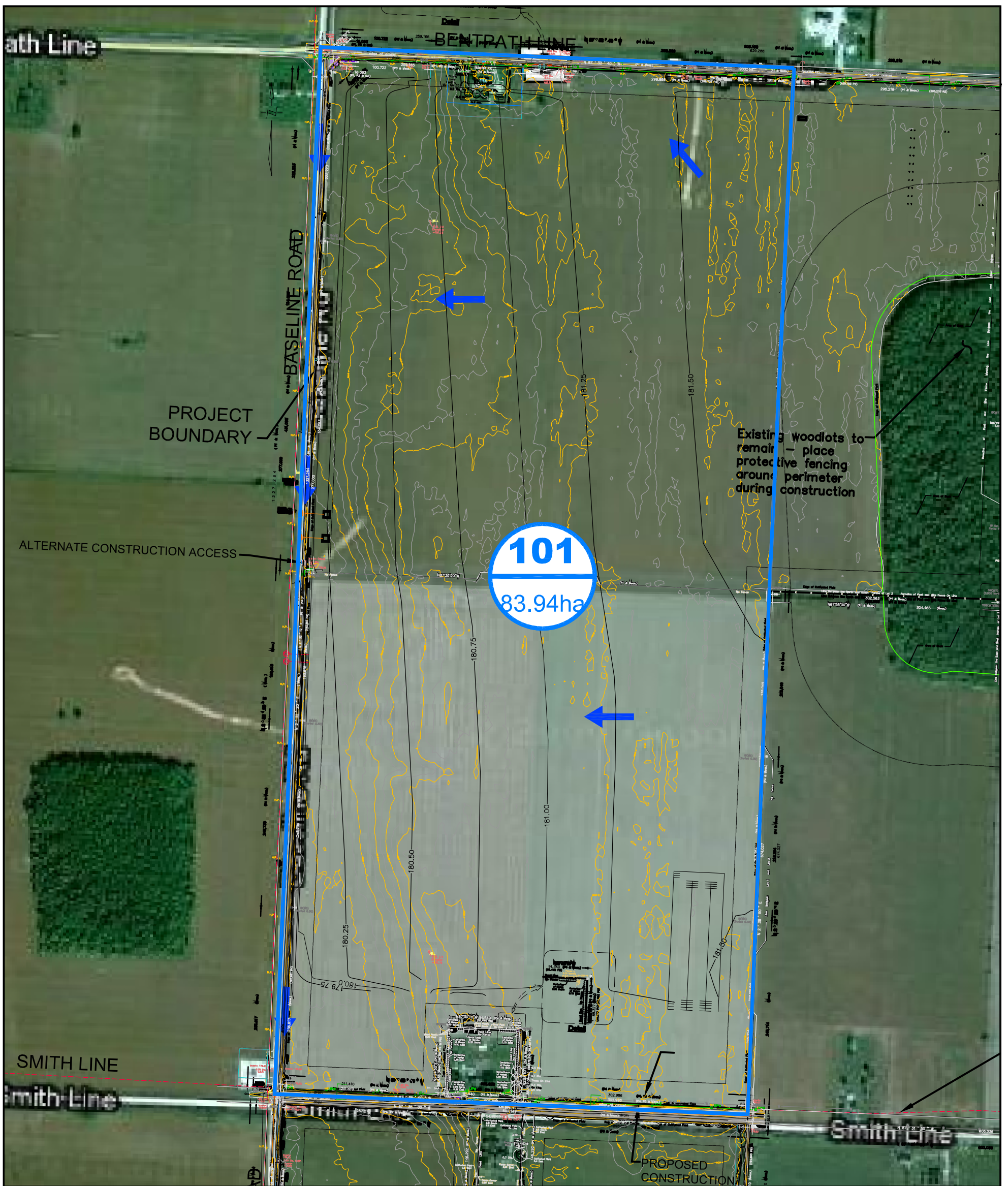
- only minimal hard surfaces (access roads) will be constructed for this development

The drainage boundaries from Figure 1-3 were transcribed onto the OBM drawing as illustrated in Figure 1-5. Based on the updated topographic information provided by First Solar, the surface runoff from Catchment 101 drains overland to the Baseline Road ditch on the west of the site and eventually into W. Darcy McKeough Floodway on the south of the site. The total drainage area is approximately 84 hectares.

As noted previously, overall site grades for the post-development condition will not vary significantly from the existing grades. Therefore, the drainage area of the proposed development site will be the same as the existing condition (see Figure 1-6). Based on the proposed access road layout, a comparison of the catchment condition between pre-development and post development is outlined in Table 1-1.

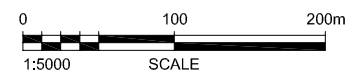
Table 1-1: Catchment Condition Comparison

Site Location	Development Condition	Catchment Area IDs	Catchment Area (ha)	% Impervious Area
St. Clair - Sombra	Pre-development	101	83.94	0
	Post development	201	83.94	5.8



LEGEND

- FLOW DIRECTION
- CATCHMENT AREA ID
AREA
- CATCHMENT AREA BOUNDARY

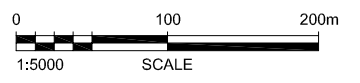




	CLIENT FIRST SOLAR DEVELOPMENT (CANADA) INC	DWN BY: KC CHK'D BY: PN	ST CLAIR SOMBRA SOLAR FARM DEVELOPMENT CONCEPTUAL STORMWATER MANAGEMENT	REV. NO.: A DATE: APRIL 2010
	AMEC Earth & Environmental 160 Traders Boulevard East Mississauga, Ontario, Canada L4Z 3K7		DATUM: PROJECTION: SCALE: AS SHOWN	TITLE PRE DEVELOPMENT CATCHMENT AREA



LEGEND

-  FLOW DIRECTION
-  CATCHMENT AREA ID
-  CATCHMENT AREA BOUNDARY
- AREA



	CLIENT	FIRST SOLAR DEVELOPMENT (CANADA) INC	DWN BY:	KC	ST CLAIR SOMBRA SOLAR FARM DEVELOPMENT	REV. NO.:	A
			CHK'D BY:	PN	CONCEPTUAL STORMWATER MANAGEMENT	DATE:	APRIL 2010
AMEC Earth & Environmental 160 Traders Boulevard East Mississauga, Ontario, Canada L4Z 3K7			DATUM:		TITLE	PROJECT NO.:	
			PROJECTION:		POST DEVELOPMENT CATCHMENT AREA	FIGURE No.	1-6
			SCALE:	AS SHOWN			

As indicated in Table 1-1, post development site imperviousness conditions do not change significantly from pre-development. The impervious areas represent hard surfaces introduced to the site through construction of gravel access roads.

Given the minor increases in imperviousness and the flat surface under post-development condition, it is anticipated that the new development will not adversely affect downstream flood risk, negating the requirement for quantity control. Therefore, the primary theme of the conceptual stormwater management plan is the control for stormwater runoff quality from the site.

SECTION 2
HYDROLOGIC MODELLING

2.0 HYDROLOGIC MODELLING

Single event hydrologic modelling has been used to obtain quantitative estimates of stormwater runoff rates and volumes for pre-development and post-development conditions for the Site.

2.1 Model Selection

The surface runoff has been calculated using the computer model Visual OTTHYMO v2.0. OTTHYMO is a successful hydrologic management model that has been used for: Watershed Studies, Sub-watershed Studies, Master Drainage Plans, Functional Stormwater Management Plans, Site Plans, and Stormwater Management Pond Design. Visual OTTHYMO v2.0 (VO2) is the second version of the INTERHYMO – OTTHYMO hydrologic model simulation software package designed for Microsoft Windows OS. VO2 has been accepted by the MOE, the Ministry of Natural Resources, the Ministry of Transportation, the Ministry of Municipal Affairs, the Association of Conservation Authorities of Ontario, and most municipal governments, as a valid hydrologic simulation model.

2.2 Design Storms

Precipitation data from the Atmospheric Environment Services' IDF90 publication for the Sarnia Airport (Ontario) weather station were used to develop the design storms used in this assessment. Design storms with return periods of 2, 5, 10, 25, 50, and 100-years were developed to determine design hydrographs to enable evaluation of the flow capacity/conveyance requirements for the grass swales and culverts. The Soil Conservation Service (SCS) Type II storm distribution was selected for the design storms due to its applicability in rural and urban settings and to maintain consistency with other hydrologic calculations, such as the effective rainfall and overland routing calculations. A time increment of 5 minutes was selected for all design storms. A 24-hour duration was selected since this provides a more conservative estimate of volume storage and flow capacity requirements. Table 2-1 is the summary of total rainfall depth for the SCS 24-hour 2, 5, 10, 25, 50, and 100 year storm events.

Table 2-1: Total Rainfall Depth

Return Period	Depth (mm)
2 year	52.5
5 year	67.6
10 year	77.6
25 year	90.2
50 year	99.6
100 year	108.9

The MNR Flood Plain Management in Ontario, Technical Guidelines indicate the site is located within Regulatory Flood Zone 1. As such, The Hurricane Hazel design storm was used as the

Regional (extreme) design rainfall event for this site. The Regional design rainfall event has a total depth of 211mm.

2.3 Hydrologic Modelling Results

Modeling notes:

- Based on the geotechnical report (AMEC, 2008), the native soil at the site generally consists of silty clay till material, which are classified as Hydrologic Soil Groups CD. A base CN number of 85 is used to describe pervious areas for modeling purposes.
- For post development modeling, the rainfall on the solar panel will fall onto pervious ground and travel overland to the existing drainage ditch around the site. As a result, the stormwater runoff from the solar panel arrays is considered to be clean.

The computed peak flows discharging the site are summarized in Table 2-2.

Table 2-2: Computed Peak Flows from Areas 101

Rainfall Event	Pre-development (m ³ /s)	Post development (m ³ /s)	Change (%)
2 year	2.12	2.18	2.8
5 year	3.26	3.37	3.4
10 year	4.07	4.19	3.0
25 year	5.11	5.26	2.9
50 year	5.90	6.08	3.1
100 year	6.69	6.90	3.1
Regional	11.60	11.75	1.3

As indicated in the Table above, in comparison to the pre-development condition, the overall post-development peak flows do not change significantly. Therefore, no negative impact to downstream flood risk is anticipated as a result of this proposed development. As such, stormwater ‘quantity’ control features are not considered necessary for this SWM Plan.

2.4 Stormwater Management Plan

As noted previously, ‘quantity’ control is not considered necessary for this SWM Plan. Therefore, the focus of the SWM Plan becomes stormwater ‘quality’ control.

Grassed filter strips are a low-cost Best Management Practice (BMP) designed to improve the quality of stormwater runoff by using biological and chemical processes in soils and vegetation to filter out constituents. They function by slowing runoff velocities and filtering out sediment and

other pollutants, and providing some infiltration into underlying soils. Filter strips were originally used as an agricultural treatment practice, and have more recently evolved into an urban practice.

As noted previously, after construction, the site, for areas under and within approximately 30m of the array blocks, will be seeded with 'pasture' grass varieties. The preferred grass species will be those that reach a moderately short height (under 18") at maturity. These plantings will essentially act as grassed filter strips for the site. This will be true for the new access roads as well. A review of Figure 1-3 indicates that the closest access road to an existing Drain is approximately 30m. The proposed plantings over a 10m flow length will provide effective stormwater runoff quality control given the minimal contributing impervious area.

SECTION 3

MAINTENANCE AND MONITORING PROGRAM

3.0 MAINTENANCE AND MONITORING PROGRAM

The stormwater management works will be owned, maintained and monitored by the owner in accordance with any specified requirements of the St. Clair Region Conservation Authority.

3.1 Maintenance

Proper maintenance is required for maximum filter-strip effectiveness. The maintenance requirements for the grass filter strips within this development will be based on information provided in MOE (2003). The following minimal maintenance items are recommended:

- Inspect the filter strip frequently, especially after intense rainfall events and runoff events of long duration. Small breaks in the sod and small erosion channels quickly become large problems.
- Minimize the development of erosion channels within the filter. Even small channels may allow much of the runoff from the field to bypass the filter. These areas should be repaired and reseeded immediately to help ensure proper flow of runoff through the filter.
- Reseed or inter-seed bare areas of the filter. Since it may be difficult to re-establish vegetation in an established filter strip, the use of mulch or sod can help to reduce some problems.
- Mow and remove hay as required to maintain moderate vegetation height.
- Soil test periodically and apply soil amendments according to test results and recommendations.
- Control trees, brush, noxious weeds, and Canada thistle in the filter using either mechanical means or herbicides.

3.2 Monitoring

Monitoring will consist of visual inspections of the vegetated areas adjacent to drainage ditches. The monitoring program will include regular inspections of the erosion and sediment control features described in the following section.

SECTION 4
EROSION AND SEDIMENT CONTROL

4.0 EROSION AND SEDIMENT CONTROL

Erosion and sedimentation are naturally occurring processes that involve particle detachment, sediment transport and deposition of soil particles. Construction activities commonly alter the landscapes where they are located, exacerbating these natural processes.

The transport of sediment overland and deposition into surrounding natural areas, including watercourses (fish habitat), woodlots and wetlands as well as adjacent private lands, needs to be prevented. The erosion and sediment control measures described in this section are focused on the features of the Stormwater Management Plan only. The erosion and sediment control plan for the entire site, completed by others, should be compliant with the MOE design manual (2003).

To minimize the potential operation and environmental impacts, the grass filter areas should be inspected frequently to identify any erosion areas and make timely repairs to the grade. The build-up sediments should be removed when it has accumulated to 25% of the original capacity.

SECTION 5

SUMMARY

5.0 SUMMARY

This report summarizes the development of a conceptual stormwater management plan for the development site based on current site layout plans. This plan demonstrates that the post-development conditions for this proposed solar farm development satisfy the requirements for stormwater management established by the SCRCA and MOE (2003).

It has been confirmed that the development site does not lie within the Regulatory Flood Plain.

Hydrological modelling completed for this assessment indicates no significant changes between pre-development condition and post-development stormwater runoff peak flow conditions. Therefore, quantity control of stormwater runoff is not a component of this SWM Plan. Further, no impacts to downstream flood conditions are anticipated.

As no significant changes between pre-development condition and post-development stormwater runoff peak flow conditions are anticipated, the recommended conceptual stormwater management plan focuses on stormwater runoff quality control. Pasture grass varieties, which will substantially cover the Site after construction, will provide water quality control through filtering (in a similar manner to grassed filter strips) for stormwater runoff from the Site.

A preliminary Stormwater Management facility maintenance and monitoring strategy, based on the conceptual stormwater management plan, has also been provided.

A preliminary Stormwater Management facilities erosion and sedimentation control strategy, based on the conceptual stormwater management plan, has also been provided.

SECTION 6
REFERENCES

6.0 REFERENCES

- AMEC, 2008 **Final Report, Geotechnical Investigation, Optisolar Inc. St. Clair Solar Power Project, St. Clair Township, Ontario, AMEC Earth & Environmental, November 2008.**
- First Solar, 2009 **Project Description Report, Twp. Of St. Clair – St. Clair - Sombra Solar Farm, First Solar Development (Canada), Inc., November 24, 2009.**
- MOE, 2003 **Stormwater Management Planning and Design Manual, Ministry of the Environment, 2003.**
- MTO, 2008 Ontario Ministry of Transportation, **Highway Drainage Design Standards, January 2008.**
- MTO, 1984 Ontario Ministry of Transportation, **Drainage Manual, 1984.**
- MTO, 1980 Ontario Ministry of Transportation and Communications, **Directive B-100**
- OMNR, 1988 **Flood Plain Management in Ontario Technical Guidelines, Ontario Ministry of Natural Resources, 1988**
- Sarnia, 2001 **Official Plan of the City of Sarnia, City of Sarnia, 2001.**
- SCRCA, 2008 **St. Clair River Tributaries Watershed Report Card, St. Clair Region Conservation Authority, 2008**

APPENDIX A

HYDROLOGY MODELING INPUT AND OUTPUT

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V  V  I  SSSSS  U  U  A  L
V  V  I  SS      U  U  A  A  L
V  V  I  SS      U  U  AAAAA  L
V  V  I  SS      U  U  A  A  L
VV   I  SSSSS  UUUUU  A  A  LLLLL

OOO  TTTT  TTTT  H  H  Y  Y  M  M  OOO  TM
O  O  T  T  H  H  Y  Y  MM  MM  O  O
O  O  T  T  H  H  Y  Y  M  M  O  O
OOO  T  T  H  H  Y  Y  M  M  OOO

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***** D E T A I L E D O U T P U T *****

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 Summary filename: P:\W&W\Projects\SW0409~1\STA8EF~1.CLA\STDBEF~1.CLA\VO2\Pre-development.sum

DATE: 12/22/2009

TIME: 12:04:53 PM

USER:

COMMENTS: _____

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** SIMULATION NUMBER: 1 **
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| | | \St. Clair\St. Clair3\VO2\Scs24h.mst
| Ptotal= 52.50 mm | | Comments: SCS 24 HR MASS CURVE
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Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min
New Storm time step = 5.00 min

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TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.08	.24	6.08	.88	12.08	45.36	18.08	.95
.17	.47	6.17	.91	12.17	26.46	18.17	.94
.25	.71	6.25	.95	12.25	7.56	18.25	.94
.33	.71	6.33	.95	12.33	7.56	18.33	.94
.42	.71	6.42	.95	12.42	7.56	18.42	.95
.50	.71	6.50	.95	12.50	7.56	18.50	.95
.58	.71	6.58	.95	12.58	6.34	18.58	.95
.67	.71	6.67	.95	12.67	5.11	18.67	.94
.75	.71	6.75	.95	12.75	3.88	18.75	.94
.83	.71	6.83	.94	12.83	3.88	18.83	.94
.92	.71	6.92	.94	12.92	3.89	18.92	.95
1.00	.71	7.00	.94	13.00	3.89	19.00	.95
1.08	.71	7.08	1.01	13.08	3.54	19.08	.95
1.17	.71	7.17	1.09	13.17	3.18	19.17	.94
1.25	.71	7.25	1.16	13.25	2.83	19.25	.94
1.33	.71	7.33	1.16	13.33	2.83	19.33	.94
1.42	.71	7.42	1.15	13.42	2.84	19.42	.95
1.50	.71	7.50	1.15	13.50	2.84	19.50	.95
1.58	.71	7.58	1.15	13.58	2.63	19.58	.95
1.67	.71	7.67	1.16	13.67	2.41	19.67	.94
1.75	.71	7.75	1.16	13.75	2.20	19.75	.94
1.83	.71	7.83	1.16	13.83	2.20	19.83	.94
1.92	.71	7.92	1.15	13.92	2.20	19.92	.95
2.00	.71	8.00	1.15	14.00	2.21	20.00	.95
2.08	.66	8.08	1.22	14.08	2.00	20.08	.84
2.17	.60	8.17	1.29	14.17	1.79	20.17	.73
2.25	.55	8.25	1.36	14.25	1.57	20.25	.63
2.33	.55	8.33	1.37	14.33	1.57	20.33	.63
2.42	.55	8.42	1.37	14.42	1.57	20.42	.63
2.50	.55	8.50	1.37	14.50	1.57	20.50	.63
2.58	.55	8.58	1.40	14.58	1.57	20.58	.63
2.67	.55	8.67	1.44	14.67	1.57	20.67	.63
2.75	.55	8.75	1.47	14.75	1.57	20.75	.63
2.83	.55	8.83	1.47	14.83	1.58	20.83	.63
2.92	.55	8.92	1.47	14.92	1.58	20.92	.63
3.00	.55	9.00	1.47	15.00	1.58	21.00	.63

3.08	.55	9.08	1.54	15.08	1.58	21.08	.63
3.17	.55	9.17	1.61	15.17	1.58	21.17	.63
3.25	.55	9.25	1.68	15.25	1.57	21.25	.63
3.33	.55	9.33	1.68	15.33	1.57	21.33	.63
3.42	.55	9.42	1.68	15.42	1.57	21.42	.63
3.50	.55	9.50	1.68	15.50	1.57	21.50	.63
3.58	.55	9.58	1.75	15.58	1.57	21.58	.63
3.67	.55	9.67	1.82	15.67	1.57	21.67	.63
3.75	.55	9.75	1.89	15.75	1.57	21.75	.63
3.83	.55	9.83	1.89	15.83	1.57	21.83	.63
3.92	.55	9.92	1.89	15.92	1.57	21.92	.63
4.00	.55	10.00	1.89	16.00	1.57	22.00	.63
4.08	.65	10.08	2.06	16.08	1.36	22.08	.63
4.17	.74	10.17	2.24	16.17	1.16	22.17	.63
4.25	.84	10.25	2.41	16.25	.95	22.25	.63
4.33	.84	10.33	2.41	16.33	.95	22.33	.63
4.42	.84	10.42	2.41	16.42	.94	22.42	.63
4.50	.84	10.50	2.41	16.50	.94	22.50	.63
4.58	.84	10.58	2.69	16.58	.94	22.58	.63
4.67	.84	10.67	2.98	16.67	.94	22.67	.63
4.75	.84	10.75	3.26	16.75	.94	22.75	.63
4.83	.84	10.83	3.26	16.83	.94	22.83	.63
4.92	.84	10.92	3.25	16.92	.95	22.92	.63
5.00	.84	11.00	3.25	17.00	.95	23.00	.63
5.08	.84	11.08	3.85	17.08	.95	23.08	.63
5.17	.84	11.17	4.44	17.17	.94	23.17	.63
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5.42	.84	11.42	5.04	17.42	.95	23.42	.63
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5.75	.84	11.75	15.54	17.75	.94	23.75	.63
5.83	.84	11.83	31.78	17.83	.94	23.83	.63
5.92	.84	11.92	48.02	17.92	.95	23.92	.63
6.00	.84	12.00	64.26	18.00	.95	24.00	.63

| CALIB |
| NASHYD (0102) | Area (ha)= 26.90 Curve Number (CN)= 85.0
| ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= .82

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	.24	6.083	.88	12.083	45.36	18.08	.95
.167	.47	6.167	.91	12.167	26.46	18.17	.94
.250	.71	6.250	.95	12.250	7.56	18.25	.94
.333	.71	6.333	.95	12.333	7.56	18.33	.94
.417	.71	6.417	.95	12.417	7.56	18.42	.95
.500	.71	6.500	.95	12.500	7.56	18.50	.95
.583	.71	6.583	.95	12.583	6.34	18.58	.95
.667	.71	6.667	.95	12.667	5.11	18.67	.94
.750	.71	6.750	.95	12.750	3.89	18.75	.94
.833	.71	6.833	.94	12.833	3.88	18.83	.94
.917	.71	6.917	.94	12.917	3.89	18.92	.95
1.000	.71	7.000	.94	13.000	3.89	19.00	.95
1.083	.71	7.083	1.02	13.083	3.54	19.08	.95
1.167	.71	7.167	1.09	13.167	3.19	19.17	.94
1.250	.71	7.250	1.16	13.250	2.84	19.25	.94
1.333	.71	7.333	1.16	13.333	2.83	19.33	.94
1.417	.71	7.417	1.15	13.417	2.84	19.42	.95
1.500	.71	7.500	1.15	13.500	2.84	19.50	.95
1.583	.71	7.583	1.15	13.583	2.63	19.58	.95
1.667	.71	7.667	1.16	13.667	2.42	19.67	.94
1.750	.71	7.750	1.16	13.750	2.21	19.75	.94
1.833	.71	7.833	1.16	13.833	2.20	19.83	.94
1.917	.71	7.917	1.15	13.917	2.20	19.92	.95
2.000	.71	8.000	1.15	14.000	2.21	20.00	.95
2.083	.66	8.083	1.23	14.083	2.00	20.08	.84
2.167	.60	8.167	1.30	14.167	1.79	20.17	.73
2.250	.55	8.250	1.37	14.250	1.58	20.25	.63
2.333	.55	8.333	1.37	14.333	1.57	20.33	.63
2.417	.55	8.417	1.37	14.417	1.57	20.42	.63
2.500	.55	8.500	1.37	14.500	1.57	20.50	.63
2.583	.55	8.583	1.40	14.583	1.57	20.58	.63
2.667	.55	8.667	1.44	14.667	1.57	20.67	.63
2.750	.55	8.750	1.47	14.750	1.57	20.75	.63
2.833	.55	8.833	1.47	14.833	1.58	20.83	.63
2.917	.55	8.917	1.47	14.917	1.58	20.92	.63
3.000	.55	9.000	1.47	15.000	1.58	21.00	.63
3.083	.55	9.083	1.54	15.083	1.58	21.08	.63
3.167	.55	9.167	1.61	15.167	1.58	21.17	.63

3.250	.55	9.250	1.68	15.250	1.57	21.25	.63
3.333	.55	9.333	1.68	15.333	1.57	21.33	.63
3.417	.55	9.417	1.68	15.417	1.57	21.42	.63
3.500	.55	9.500	1.68	15.500	1.57	21.50	.63
3.583	.55	9.583	1.75	15.583	1.57	21.58	.63
3.667	.55	9.667	1.82	15.667	1.57	21.67	.63
3.750	.55	9.750	1.89	15.750	1.57	21.75	.63
3.833	.55	9.833	1.89	15.833	1.57	21.83	.63
3.917	.55	9.917	1.89	15.917	1.57	21.92	.63
4.000	.55	10.000	1.89	16.000	1.57	22.00	.63
4.083	.65	10.083	2.06	16.083	1.37	22.08	.63
4.167	.74	10.167	2.24	16.167	1.16	22.17	.63
4.250	.84	10.250	2.41	16.250	.95	22.25	.63
4.333	.84	10.333	2.41	16.333	.95	22.33	.63
4.417	.84	10.417	2.41	16.417	.94	22.42	.63
4.500	.84	10.500	2.41	16.500	.94	22.50	.63
4.583	.84	10.583	2.69	16.583	.94	22.58	.63
4.667	.84	10.667	2.97	16.667	.94	22.67	.63
4.750	.84	10.750	3.25	16.750	.94	22.75	.63
4.833	.84	10.833	3.26	16.833	.94	22.83	.63
4.917	.84	10.917	3.25	16.917	.95	22.92	.63
5.000	.84	11.000	3.25	17.000	.95	23.00	.63
5.083	.84	11.083	3.85	17.083	.95	23.08	.63
5.167	.84	11.167	4.44	17.167	.94	23.17	.63
5.250	.84	11.250	5.04	17.250	.94	23.25	.63
5.333	.84	11.333	5.04	17.333	.94	23.33	.63
5.417	.84	11.417	5.04	17.417	.95	23.42	.63
5.500	.84	11.500	5.04	17.500	.95	23.50	.63
5.583	.84	11.583	8.54	17.583	.95	23.58	.63
5.667	.84	11.667	12.04	17.667	.94	23.67	.63
5.750	.84	11.750	15.54	17.750	.94	23.75	.63
5.833	.84	11.833	31.78	17.833	.94	23.83	.63
5.917	.84	11.917	48.02	17.917	.95	23.92	.63
6.000	.84	12.000	64.26	18.000	.95	24.00	.00

Unit Hyd Qpeak (cms)= 1.253

PEAK FLOW (cms)= .585 (i)
 TIME TO PEAK (hrs)= 12.833
 RUNOFF VOLUME (mm)= 23.067
 TOTAL RAINFALL (mm)= 52.395
 RUNOFF COEFFICIENT = .440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0101)	Area (ha)=	83.94	Curve Number (CN)=	85.0
ID= 1 DT= 5.0 min	Ia (mm)=	6.70	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.02		

Unit Hyd Qpeak (cms)= 3.143

PEAK FLOW (cms)= 1.549 (i)
 TIME TO PEAK (hrs)= 13.083
 RUNOFF VOLUME (mm)= 23.067
 TOTAL RAINFALL (mm)= 52.395
 RUNOFF COEFFICIENT = .440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0103)	Area (ha)=	13.45	Curve Number (CN)=	85.0
ID= 1 DT= 5.0 min	Ia (mm)=	6.70	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	.45		

Unit Hyd Qpeak (cms)= 1.142

PEAK FLOW (cms)= .452 (i)
 TIME TO PEAK (hrs)= 12.417
 RUNOFF VOLUME (mm)= 23.066
 TOTAL RAINFALL (mm)= 52.395
 RUNOFF COEFFICIENT = .440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0301)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0102):	26.90	.585	12.83	23.07
+ ID2= 2 (0101):	83.94	1.549	13.08	23.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0302)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0301):	110.84	2.115	13.00	23.07
+ ID2= 2 (0103):	13.45	.452	12.42	23.07
=====				
ID = 3 (0302):	124.29	2.394	12.92	23.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 ** SIMULATION NUMBER: 2 **

MASS STORM	Filename: P:\W&W\Projects\SW04090362 - First Solar
	\St. Clair\St. Clair3\VO2\Scs24h.mst
Ptotal= 67.60 mm	Comments: SCS 24 HR MASS CURVE

Duration of storm = 24.00 hrs
 Mass curve time step = 15.00 min
 New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.08	.30	6.08	1.13	12.08	58.41	18.08	1.22
.17	.61	6.17	1.17	12.17	34.07	18.17	1.22
.25	.91	6.25	1.22	12.25	9.73	18.25	1.22
.33	.91	6.33	1.22	12.33	9.73	18.33	1.22
.42	.91	6.42	1.22	12.42	9.73	18.42	1.22
.50	.91	6.50	1.22	12.50	9.73	18.50	1.22
.58	.91	6.58	1.22	12.58	8.16	18.58	1.22
.67	.91	6.67	1.22	12.67	6.58	18.67	1.22
.75	.91	6.75	1.22	12.75	5.00	18.75	1.22
.83	.91	6.83	1.22	12.83	5.00	18.83	1.22
.92	.91	6.92	1.22	12.92	5.00	18.92	1.22
1.00	.91	7.00	1.22	13.00	5.00	19.00	1.22
1.08	.91	7.08	1.31	13.08	4.55	19.08	1.22
1.17	.91	7.17	1.40	13.17	4.10	19.17	1.22
1.25	.91	7.25	1.49	13.25	3.65	19.25	1.22
1.33	.91	7.33	1.49	13.33	3.65	19.33	1.22
1.42	.91	7.42	1.49	13.42	3.65	19.42	1.22
1.50	.91	7.50	1.49	13.50	3.65	19.50	1.22
1.58	.91	7.58	1.49	13.58	3.38	19.58	1.22
1.67	.91	7.67	1.49	13.67	3.11	19.67	1.22
1.75	.91	7.75	1.49	13.75	2.84	19.75	1.22
1.83	.91	7.83	1.49	13.83	2.84	19.83	1.22
1.92	.91	7.92	1.49	13.92	2.84	19.92	1.22
2.00	.91	8.00	1.49	14.00	2.84	20.00	1.22
2.08	.84	8.08	1.58	14.08	2.57	20.08	1.08
2.17	.78	8.17	1.67	14.17	2.30	20.17	.95
2.25	.71	8.25	1.76	14.25	2.03	20.25	.81
2.33	.71	8.33	1.76	14.33	2.03	20.33	.81
2.42	.71	8.42	1.76	14.42	2.03	20.42	.81
2.50	.71	8.50	1.76	14.50	2.03	20.50	.81
2.58	.71	8.58	1.80	14.58	2.03	20.58	.81
2.67	.71	8.67	1.85	14.67	2.03	20.67	.81
2.75	.71	8.75	1.89	14.75	2.03	20.75	.81
2.83	.71	8.83	1.89	14.83	2.03	20.83	.81
2.92	.71	8.92	1.89	14.92	2.03	20.92	.81
3.00	.71	9.00	1.89	15.00	2.03	21.00	.81
3.08	.71	9.08	1.98	15.08	2.03	21.08	.81
3.17	.71	9.17	2.07	15.17	2.03	21.17	.81
3.25	.71	9.25	2.16	15.25	2.03	21.25	.81
3.33	.71	9.33	2.16	15.33	2.03	21.33	.81
3.42	.71	9.42	2.16	15.42	2.03	21.42	.81
3.50	.71	9.50	2.16	15.50	2.03	21.50	.81
3.58	.71	9.58	2.25	15.58	2.03	21.58	.81
3.67	.71	9.67	2.34	15.67	2.03	21.67	.81
3.75	.71	9.75	2.43	15.75	2.03	21.75	.81
3.83	.71	9.83	2.43	15.83	2.03	21.83	.81
3.92	.71	9.92	2.43	15.92	2.03	21.92	.81
4.00	.71	10.00	2.43	16.00	2.03	22.00	.81
4.08	.83	10.08	2.66	16.08	1.76	22.08	.81
4.17	.96	10.17	2.88	16.17	1.49	22.17	.81
4.25	1.08	10.25	3.11	16.25	1.22	22.25	.81
4.33	1.08	10.33	3.11	16.33	1.22	22.33	.81
4.42	1.08	10.42	3.11	16.42	1.22	22.42	.81
4.50	1.08	10.50	3.11	16.50	1.22	22.50	.81

4.58	1.08	10.58	3.47	16.58	1.22	22.58	.81
4.67	1.08	10.67	3.83	16.67	1.22	22.67	.81
4.75	1.08	10.75	4.19	16.75	1.22	22.75	.81
4.83	1.08	10.83	4.19	16.83	1.22	22.83	.81
4.92	1.08	10.92	4.19	16.92	1.22	22.92	.81
5.00	1.08	11.00	4.19	17.00	1.22	23.00	.81
5.08	1.08	11.08	4.96	17.08	1.22	23.08	.81
5.17	1.08	11.17	5.72	17.17	1.22	23.17	.81
5.25	1.08	11.25	6.49	17.25	1.22	23.25	.81
5.33	1.08	11.33	6.49	17.33	1.22	23.33	.81
5.42	1.08	11.42	6.49	17.42	1.22	23.42	.81
5.50	1.08	11.50	6.49	17.50	1.22	23.50	.81
5.58	1.08	11.58	11.00	17.58	1.22	23.58	.81
5.67	1.08	11.67	15.50	17.67	1.22	23.67	.81
5.75	1.08	11.75	20.01	17.75	1.22	23.75	.81
5.83	1.08	11.83	40.92	17.83	1.22	23.83	.81
5.92	1.08	11.92	61.83	17.92	1.22	23.92	.81
6.00	1.08	12.00	82.74	18.00	1.22	24.00	.81

| CALIB |
| NASHYD (0102) | Area (ha)= 26.90 Curve Number (CN)= 85.0
| ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= .82

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	.30	6.083	1.13	12.083	58.41	18.08	1.22
.167	.61	6.167	1.17	12.167	34.07	18.17	1.22
.250	.91	6.250	1.22	12.250	9.74	18.25	1.22
.333	.91	6.333	1.22	12.333	9.73	18.33	1.22
.417	.91	6.417	1.22	12.417	9.73	18.42	1.22
.500	.91	6.500	1.22	12.500	9.73	18.50	1.22
.583	.91	6.583	1.22	12.583	8.16	18.58	1.22
.667	.91	6.667	1.22	12.667	6.58	18.67	1.22
.750	.91	6.750	1.22	12.750	5.00	18.75	1.22
.833	.91	6.833	1.22	12.833	5.00	18.83	1.22
.917	.91	6.917	1.22	12.917	5.00	18.92	1.22
1.000	.91	7.000	1.22	13.000	5.00	19.00	1.22
1.083	.91	7.083	1.31	13.083	4.55	19.08	1.22
1.167	.91	7.167	1.40	13.167	4.10	19.17	1.22
1.250	.91	7.250	1.49	13.250	3.65	19.25	1.22
1.333	.91	7.333	1.49	13.333	3.65	19.33	1.22
1.417	.91	7.417	1.49	13.417	3.65	19.42	1.22
1.500	.91	7.500	1.49	13.500	3.65	19.50	1.22
1.583	.91	7.583	1.49	13.583	3.38	19.58	1.22
1.667	.91	7.667	1.49	13.667	3.11	19.67	1.22
1.750	.91	7.750	1.49	13.750	2.84	19.75	1.22
1.833	.91	7.833	1.49	13.833	2.84	19.83	1.22
1.917	.91	7.917	1.49	13.917	2.84	19.92	1.22
2.000	.91	8.000	1.49	14.000	2.84	20.00	1.22
2.083	.84	8.083	1.58	14.083	2.57	20.08	1.08
2.167	.78	8.167	1.67	14.167	2.30	20.17	.95
2.250	.71	8.250	1.76	14.250	2.03	20.25	.81
2.333	.71	8.333	1.76	14.333	2.03	20.33	.81
2.417	.71	8.417	1.76	14.417	2.03	20.42	.81
2.500	.71	8.500	1.76	14.500	2.03	20.50	.81
2.583	.71	8.583	1.80	14.583	2.03	20.58	.81
2.667	.71	8.667	1.85	14.667	2.03	20.67	.81
2.750	.71	8.750	1.89	14.750	2.03	20.75	.81
2.833	.71	8.833	1.89	14.833	2.03	20.83	.81
2.917	.71	8.917	1.89	14.917	2.03	20.92	.81
3.000	.71	9.000	1.89	15.000	2.03	21.00	.81
3.083	.71	9.083	1.98	15.083	2.03	21.08	.81
3.167	.71	9.167	2.07	15.167	2.03	21.17	.81
3.250	.71	9.250	2.16	15.250	2.03	21.25	.81
3.333	.71	9.333	2.16	15.333	2.03	21.33	.81
3.417	.71	9.417	2.16	15.417	2.03	21.42	.81
3.500	.71	9.500	2.16	15.500	2.03	21.50	.81
3.583	.71	9.583	2.25	15.583	2.03	21.58	.81
3.667	.71	9.667	2.34	15.667	2.03	21.67	.81
3.750	.71	9.750	2.43	15.750	2.03	21.75	.81
3.833	.71	9.833	2.43	15.833	2.03	21.83	.81
3.917	.71	9.917	2.43	15.917	2.03	21.92	.81
4.000	.71	10.000	2.43	16.000	2.03	22.00	.81
4.083	.83	10.083	2.66	16.083	1.76	22.08	.81
4.167	.96	10.167	2.88	16.167	1.49	22.17	.81
4.250	1.08	10.250	3.11	16.250	1.22	22.25	.81
4.333	1.08	10.333	3.11	16.333	1.22	22.33	.81
4.417	1.08	10.417	3.11	16.417	1.22	22.42	.81
4.500	1.08	10.500	3.11	16.500	1.22	22.50	.81
4.583	1.08	10.583	3.47	16.583	1.22	22.58	.81
4.667	1.08	10.667	3.83	16.667	1.22	22.67	.81

4.750	1.08	10.750	4.19	16.750	1.22	22.75	.81
4.833	1.08	10.833	4.19	16.833	1.22	22.83	.81
4.917	1.08	10.917	4.19	16.917	1.22	22.92	.81
5.000	1.08	11.000	4.19	17.000	1.22	23.00	.81
5.083	1.08	11.083	4.96	17.083	1.22	23.08	.81
5.167	1.08	11.167	5.72	17.167	1.22	23.17	.81
5.250	1.08	11.250	6.49	17.250	1.22	23.25	.81
5.333	1.08	11.333	6.49	17.333	1.22	23.33	.81
5.417	1.08	11.417	6.49	17.417	1.22	23.42	.81
5.500	1.08	11.500	6.49	17.500	1.22	23.50	.81
5.583	1.08	11.583	11.00	17.583	1.22	23.58	.81
5.667	1.08	11.667	15.50	17.667	1.22	23.67	.81
5.750	1.08	11.750	20.01	17.750	1.22	23.75	.81
5.833	1.08	11.833	40.92	17.833	1.22	23.83	.81
5.917	1.08	11.917	61.83	17.917	1.22	23.92	.81
6.000	1.08	12.000	82.74	18.000	1.22	24.00	.00

Unit Hyd Qpeak (cms) = 1.253

PEAK FLOW (cms) = .902 (i)
 TIME TO PEAK (hrs) = 12.833
 RUNOFF VOLUME (mm) = 34.969
 TOTAL RAINFALL (mm) = 67.465
 RUNOFF COEFFICIENT = .518

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0101)	Area (ha)	= 83.94	Curve Number (CN)	= 85.0
ID= 1 DT= 5.0 min	Ia (mm)	= 6.70	# of Linear Res. (N)	= 3.00
	U.H. Tp (hrs)	= 1.02		

Unit Hyd Qpeak (cms) = 3.143

PEAK FLOW (cms) = 2.388 (i)
 TIME TO PEAK (hrs) = 13.083
 RUNOFF VOLUME (mm) = 34.969
 TOTAL RAINFALL (mm) = 67.465
 RUNOFF COEFFICIENT = .518

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0103)	Area (ha)	= 13.45	Curve Number (CN)	= 85.0
ID= 1 DT= 5.0 min	Ia (mm)	= 6.70	# of Linear Res. (N)	= 3.00
	U.H. Tp (hrs)	= .45		

Unit Hyd Qpeak (cms) = 1.142

PEAK FLOW (cms) = .697 (i)
 TIME TO PEAK (hrs) = 12.417
 RUNOFF VOLUME (mm) = 34.967
 TOTAL RAINFALL (mm) = 67.465
 RUNOFF COEFFICIENT = .518

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0301)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0102):	26.90	.902	12.83	34.97
+ ID2= 2 (0101):	83.94	2.388	13.08	34.97
=====				
ID = 3 (0301):	110.84	3.263	13.00	34.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0302)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0301):	110.84	3.263	13.00	34.97
+ ID2= 2 (0103):	13.45	.697	12.42	34.97
=====				
ID = 3 (0302):	124.29	3.692	12.92	34.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 ** SIMULATION NUMBER: 3 **

 | MASS STORM |
 | |
Ptotal= 77.60 mm

Filename: P:\W&W\Projects\SW04090362 - First Solar
 \St. Clair\St. Clair3\VO2\Scs24h.mst
 Comments: SCS 24 HR MASS CURVE

Duration of storm = 24.00 hrs
 Mass curve time step = 15.00 min
 New Storm time step = 5.00 min

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.08	.35	6.08	1.29	12.08	67.05	18.08	1.40
.17	.70	6.17	1.35	12.17	39.11	18.17	1.40
.25	1.05	6.25	1.40	12.25	11.17	18.25	1.40
.33	1.05	6.33	1.40	12.33	11.17	18.33	1.40
.42	1.05	6.42	1.40	12.42	11.17	18.42	1.40
.50	1.05	6.50	1.40	12.50	11.17	18.50	1.40
.58	1.05	6.58	1.40	12.58	9.36	18.58	1.40
.67	1.05	6.67	1.40	12.67	7.55	18.67	1.40
.75	1.05	6.75	1.40	12.75	5.74	18.75	1.40
.83	1.05	6.83	1.40	12.83	5.74	18.83	1.40
.92	1.05	6.92	1.40	12.92	5.74	18.92	1.40
1.00	1.05	7.00	1.40	13.00	5.74	19.00	1.40
1.08	1.05	7.08	1.50	13.08	5.23	19.08	1.40
1.17	1.05	7.17	1.60	13.17	4.71	19.17	1.40
1.25	1.05	7.25	1.71	13.25	4.19	19.25	1.40
1.33	1.05	7.33	1.71	13.33	4.19	19.33	1.40
1.42	1.05	7.42	1.71	13.42	4.19	19.42	1.40
1.50	1.05	7.50	1.71	13.50	4.19	19.50	1.40
1.58	1.05	7.58	1.71	13.58	3.88	19.58	1.40
1.67	1.05	7.67	1.71	13.67	3.57	19.67	1.40
1.75	1.05	7.75	1.71	13.75	3.26	19.75	1.40
1.83	1.05	7.83	1.71	13.83	3.26	19.83	1.40
1.92	1.05	7.92	1.71	13.92	3.26	19.92	1.40
2.00	1.05	8.00	1.71	14.00	3.26	20.00	1.40
2.08	.97	8.08	1.81	14.08	2.95	20.08	1.24
2.17	.89	8.17	1.91	14.17	2.64	20.17	1.09
2.25	.82	8.25	2.02	14.25	2.33	20.25	.93
2.33	.82	8.33	2.02	14.33	2.33	20.33	.93
2.42	.81	8.42	2.02	14.42	2.33	20.42	.93
2.50	.81	8.50	2.02	14.50	2.33	20.50	.93
2.58	.81	8.58	2.07	14.58	2.33	20.58	.93
2.67	.82	8.67	2.12	14.67	2.33	20.67	.93
2.75	.82	8.75	2.17	14.75	2.33	20.75	.93
2.83	.82	8.83	2.17	14.83	2.33	20.83	.93
2.92	.81	8.92	2.17	14.92	2.33	20.92	.93
3.00	.81	9.00	2.17	15.00	2.33	21.00	.93
3.08	.81	9.08	2.28	15.08	2.33	21.08	.93
3.17	.82	9.17	2.38	15.17	2.33	21.17	.93
3.25	.82	9.25	2.48	15.25	2.33	21.25	.93
3.33	.82	9.33	2.48	15.33	2.33	21.33	.93
3.42	.81	9.42	2.48	15.42	2.33	21.42	.93
3.50	.81	9.50	2.48	15.50	2.33	21.50	.93
3.58	.81	9.58	2.59	15.58	2.33	21.58	.93
3.67	.82	9.67	2.69	15.67	2.33	21.67	.93
3.75	.82	9.75	2.79	15.75	2.33	21.75	.93
3.83	.82	9.83	2.79	15.83	2.33	21.83	.93
3.92	.81	9.92	2.79	15.92	2.33	21.92	.93
4.00	.81	10.00	2.79	16.00	2.33	22.00	.93
4.08	.96	10.08	3.05	16.08	2.02	22.08	.93
4.17	1.10	10.17	3.31	16.17	1.71	22.17	.93
4.25	1.24	10.25	3.57	16.25	1.40	22.25	.93
4.33	1.24	10.33	3.57	16.33	1.40	22.33	.93
4.42	1.24	10.42	3.57	16.42	1.40	22.42	.93
4.50	1.24	10.50	3.57	16.50	1.40	22.50	.93
4.58	1.24	10.58	3.98	16.58	1.40	22.58	.93
4.67	1.24	10.67	4.40	16.67	1.40	22.67	.93
4.75	1.24	10.75	4.81	16.75	1.40	22.75	.93
4.83	1.24	10.83	4.81	16.83	1.40	22.83	.93
4.92	1.24	10.92	4.81	16.92	1.40	22.92	.93
5.00	1.24	11.00	4.81	17.00	1.40	23.00	.93
5.08	1.24	11.08	5.69	17.08	1.40	23.08	.93
5.17	1.24	11.17	6.57	17.17	1.40	23.17	.93
5.25	1.24	11.25	7.45	17.25	1.40	23.25	.93
5.33	1.24	11.33	7.45	17.33	1.40	23.33	.93
5.42	1.24	11.42	7.45	17.42	1.40	23.42	.93
5.50	1.24	11.50	7.45	17.50	1.40	23.50	.93
5.58	1.24	11.58	12.62	17.58	1.40	23.58	.93
5.67	1.24	11.67	17.80	17.67	1.40	23.67	.93
5.75	1.24	11.75	22.97	17.75	1.40	23.75	.93
5.83	1.24	11.83	46.97	17.83	1.40	23.83	.93
5.92	1.24	11.92	70.98	17.92	1.40	23.92	.93
6.00	1.24	12.00	94.98	18.00	1.40	24.00	.93

 | CALIB |
 | NASHYD (0102) | Area (ha)= 26.90 Curve Number (CN)= 85.0
 | ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

 U.H. Tp(hrs)= .82

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	.35	6.083	1.29	12.083	67.05	18.08	1.40
.167	.70	6.167	1.35	12.167	39.11	18.17	1.40
.250	1.05	6.250	1.40	12.250	11.18	18.25	1.40
.333	1.05	6.333	1.40	12.333	11.17	18.33	1.40
.417	1.05	6.417	1.40	12.417	11.17	18.42	1.40
.500	1.05	6.500	1.40	12.500	11.17	18.50	1.40
.583	1.05	6.583	1.40	12.583	9.36	18.58	1.40
.667	1.05	6.667	1.40	12.667	7.55	18.67	1.40
.750	1.05	6.750	1.40	12.750	5.74	18.75	1.40
.833	1.05	6.833	1.40	12.833	5.74	18.83	1.40
.917	1.05	6.917	1.40	12.917	5.74	18.92	1.40
1.000	1.05	7.000	1.40	13.000	5.74	19.00	1.40
1.083	1.05	7.083	1.50	13.083	5.23	19.08	1.40
1.167	1.05	7.167	1.60	13.167	4.71	19.17	1.40
1.250	1.05	7.250	1.71	13.250	4.19	19.25	1.40
1.333	1.05	7.333	1.71	13.333	4.19	19.33	1.40
1.417	1.05	7.417	1.71	13.417	4.19	19.42	1.40
1.500	1.05	7.500	1.71	13.500	4.19	19.50	1.40
1.583	1.05	7.583	1.71	13.583	3.88	19.58	1.40
1.667	1.05	7.667	1.71	13.667	3.57	19.67	1.40
1.750	1.05	7.750	1.71	13.750	3.26	19.75	1.40
1.833	1.05	7.833	1.71	13.833	3.26	19.83	1.40
1.917	1.05	7.917	1.71	13.917	3.26	19.92	1.40
2.000	1.05	8.000	1.71	14.000	3.26	20.00	1.40
2.083	.97	8.083	1.81	14.083	2.95	20.08	1.24
2.167	.89	8.167	1.91	14.167	2.64	20.17	1.09
2.250	.82	8.250	2.02	14.250	2.33	20.25	.93
2.333	.82	8.333	2.02	14.333	2.33	20.33	.93
2.417	.81	8.417	2.02	14.417	2.33	20.42	.93
2.500	.81	8.500	2.02	14.500	2.33	20.50	.93
2.583	.81	8.583	2.07	14.583	2.33	20.58	.93
2.667	.82	8.667	2.12	14.667	2.33	20.67	.93
2.750	.82	8.750	2.17	14.750	2.33	20.75	.93
2.833	.82	8.833	2.17	14.833	2.33	20.83	.93
2.917	.81	8.917	2.17	14.917	2.33	20.92	.93
3.000	.81	9.000	2.17	15.000	2.33	21.00	.93
3.083	.81	9.083	2.28	15.083	2.33	21.08	.93
3.167	.82	9.167	2.38	15.167	2.33	21.17	.93
3.250	.82	9.250	2.48	15.250	2.33	21.25	.93
3.333	.82	9.333	2.48	15.333	2.33	21.33	.93
3.417	.81	9.417	2.48	15.417	2.33	21.42	.93
3.500	.81	9.500	2.48	15.500	2.33	21.50	.93
3.583	.81	9.583	2.59	15.583	2.33	21.58	.93
3.667	.82	9.667	2.69	15.667	2.33	21.67	.93
3.750	.82	9.750	2.79	15.750	2.33	21.75	.93
3.833	.82	9.833	2.79	15.833	2.33	21.83	.93
3.917	.81	9.917	2.79	15.917	2.33	21.92	.93
4.000	.81	10.000	2.79	16.000	2.33	22.00	.93
4.083	.96	10.083	3.05	16.083	2.02	22.08	.93
4.167	1.10	10.167	3.31	16.167	1.71	22.17	.93
4.250	1.24	10.250	3.57	16.250	1.40	22.25	.93
4.333	1.24	10.333	3.57	16.333	1.40	22.33	.93
4.417	1.24	10.417	3.57	16.417	1.40	22.42	.93
4.500	1.24	10.500	3.57	16.500	1.40	22.50	.93
4.583	1.24	10.583	3.98	16.583	1.40	22.58	.93
4.667	1.24	10.667	4.40	16.667	1.40	22.67	.93
4.750	1.24	10.750	4.81	16.750	1.40	22.75	.93
4.833	1.24	10.833	4.81	16.833	1.40	22.83	.93
4.917	1.24	10.917	4.81	16.917	1.40	22.92	.93
5.000	1.24	11.000	4.81	17.000	1.40	23.00	.93
5.083	1.24	11.083	5.69	17.083	1.40	23.08	.93
5.167	1.24	11.167	6.57	17.167	1.40	23.17	.93
5.250	1.24	11.250	7.45	17.250	1.40	23.25	.93
5.333	1.24	11.333	7.45	17.333	1.40	23.33	.93
5.417	1.24	11.417	7.45	17.417	1.40	23.42	.93
5.500	1.24	11.500	7.45	17.500	1.40	23.50	.93
5.583	1.24	11.583	12.62	17.583	1.40	23.58	.93
5.667	1.24	11.667	17.80	17.667	1.40	23.67	.93
5.750	1.24	11.750	22.97	17.750	1.40	23.75	.93
5.833	1.24	11.833	46.97	17.833	1.40	23.83	.93
5.917	1.24	11.917	70.98	17.917	1.40	23.92	.93
6.000	1.24	12.000	94.98	18.000	1.40	24.00	.00

Unit Hyd Qpeak (cms)= 1.253

PEAK FLOW (cms) = 1.124 (i)
 TIME TO PEAK (hrs) = 12.833
 RUNOFF VOLUME (mm) = 43.306
 TOTAL RAINFALL (mm) = 77.445
 RUNOFF COEFFICIENT = .559

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | NASHYD (0101) | Area (ha) = 83.94 Curve Number (CN) = 85.0
 | ID= 1 DT= 5.0 min | Ia (mm) = 6.70 # of Linear Res.(N) = 3.00

 U.H. Tp(hrs) = 1.02

Unit Hyd Qpeak (cms) = 3.143

PEAK FLOW (cms) = 2.975 (i)
 TIME TO PEAK (hrs) = 13.083
 RUNOFF VOLUME (mm) = 43.306
 TOTAL RAINFALL (mm) = 77.445
 RUNOFF COEFFICIENT = .559

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | NASHYD (0103) | Area (ha) = 13.45 Curve Number (CN) = 85.0
 | ID= 1 DT= 5.0 min | Ia (mm) = 6.70 # of Linear Res.(N) = 3.00

 U.H. Tp(hrs) = .45

Unit Hyd Qpeak (cms) = 1.142

PEAK FLOW (cms) = .867 (i)
 TIME TO PEAK (hrs) = 12.417
 RUNOFF VOLUME (mm) = 43.303
 TOTAL RAINFALL (mm) = 77.445
 RUNOFF COEFFICIENT = .559

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | ADD HYD (0301) |
 | 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
 | | (ha) (cms) (hrs) (mm)
 ID1= 1 (0102): 26.90 1.124 12.83 43.31
 + ID2= 2 (0101): 83.94 2.975 13.08 43.31
 =====
 ID = 3 (0301): 110.84 4.065 13.00 43.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 | ADD HYD (0302) |
 | 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
 | | (ha) (cms) (hrs) (mm)
 ID1= 1 (0301): 110.84 4.065 13.00 43.31
 + ID2= 2 (0103): 13.45 .867 12.42 43.30
 =====
 ID = 3 (0302): 124.29 4.602 12.83 43.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 ** SIMULATION NUMBER: 4 **

 | MASS STORM | Filename: P:\W&W\Projects\SW04090362 - First Solar
 | | \St. Clair\St. Clair3\VO2\Scs24h.mst
 | Ptotal= 90.20 mm | Comments: SCS 24 HR MASS CURVE

 Duration of storm = 24.00 hrs
 Mass curve time step = 15.00 min
 New Storm time step = 5.00 min

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.08	.41	6.08	1.50	12.08	77.93	18.08	1.62
.17	.81	6.17	1.56	12.17	45.46	18.17	1.62

.25	1.22	6.25	1.62	12.25	12.99	18.25	1.62
.33	1.22	6.33	1.62	12.33	12.99	18.33	1.62
.42	1.22	6.42	1.62	12.42	12.99	18.42	1.62
.50	1.22	6.50	1.62	12.50	12.99	18.50	1.62
.58	1.22	6.58	1.62	12.58	10.88	18.58	1.62
.67	1.22	6.67	1.62	12.67	8.78	18.67	1.62
.75	1.22	6.75	1.62	12.75	6.67	18.75	1.62
.83	1.22	6.83	1.62	12.83	6.67	18.83	1.62
.92	1.22	6.92	1.62	12.92	6.67	18.92	1.62
1.00	1.22	7.00	1.62	13.00	6.67	19.00	1.62
1.08	1.22	7.08	1.74	13.08	6.07	19.08	1.62
1.17	1.22	7.17	1.86	13.17	5.47	19.17	1.62
1.25	1.22	7.25	1.98	13.25	4.87	19.25	1.62
1.33	1.22	7.33	1.98	13.33	4.87	19.33	1.62
1.42	1.22	7.42	1.98	13.42	4.87	19.42	1.62
1.50	1.22	7.50	1.98	13.50	4.87	19.50	1.62
1.58	1.22	7.58	1.98	13.58	4.51	19.58	1.62
1.67	1.22	7.67	1.98	13.67	4.15	19.67	1.62
1.75	1.22	7.75	1.98	13.75	3.79	19.75	1.62
1.83	1.22	7.83	1.98	13.83	3.79	19.83	1.62
1.92	1.22	7.92	1.98	13.92	3.79	19.92	1.62
2.00	1.22	8.00	1.98	14.00	3.79	20.00	1.62
2.08	1.13	8.08	2.10	14.08	3.43	20.08	1.44
2.17	1.04	8.17	2.22	14.17	3.07	20.17	1.26
2.25	.95	8.25	2.35	14.25	2.71	20.25	1.08
2.33	.95	8.33	2.35	14.33	2.71	20.33	1.08
2.42	.95	8.42	2.35	14.42	2.71	20.42	1.08
2.50	.95	8.50	2.35	14.50	2.71	20.50	1.08
2.58	.95	8.58	2.41	14.58	2.71	20.58	1.08
2.67	.95	8.67	2.47	14.67	2.71	20.67	1.08
2.75	.95	8.75	2.53	14.75	2.71	20.75	1.08
2.83	.95	8.83	2.53	14.83	2.71	20.83	1.08
2.92	.95	8.92	2.53	14.92	2.71	20.92	1.08
3.00	.95	9.00	2.53	15.00	2.71	21.00	1.08
3.08	.95	9.08	2.65	15.08	2.71	21.08	1.08
3.17	.95	9.17	2.77	15.17	2.71	21.17	1.08
3.25	.95	9.25	2.89	15.25	2.71	21.25	1.08
3.33	.95	9.33	2.89	15.33	2.71	21.33	1.08
3.42	.95	9.42	2.89	15.42	2.71	21.42	1.08
3.50	.95	9.50	2.89	15.50	2.71	21.50	1.08
3.58	.95	9.58	3.01	15.58	2.71	21.58	1.08
3.67	.95	9.67	3.13	15.67	2.71	21.67	1.08
3.75	.95	9.75	3.25	15.75	2.71	21.75	1.08
3.83	.95	9.83	3.25	15.83	2.71	21.83	1.08
3.92	.95	9.92	3.25	15.92	2.71	21.92	1.08
4.00	.95	10.00	3.25	16.00	2.71	22.00	1.08
4.08	1.11	10.08	3.55	16.08	2.35	22.08	1.08
4.17	1.28	10.17	3.85	16.17	1.98	22.17	1.08
4.25	1.44	10.25	4.15	16.25	1.62	22.25	1.08
4.33	1.44	10.33	4.15	16.33	1.62	22.33	1.08
4.42	1.44	10.42	4.15	16.42	1.62	22.42	1.08
4.50	1.44	10.50	4.15	16.50	1.62	22.50	1.08
4.58	1.44	10.58	4.63	16.58	1.62	22.58	1.08
4.67	1.44	10.67	5.11	16.67	1.62	22.67	1.08
4.75	1.44	10.75	5.59	16.75	1.62	22.75	1.08
4.83	1.44	10.83	5.59	16.83	1.62	22.83	1.08
4.92	1.44	10.92	5.59	16.92	1.62	22.92	1.08
5.00	1.44	11.00	5.59	17.00	1.62	23.00	1.08
5.08	1.44	11.08	6.61	17.08	1.62	23.08	1.08
5.17	1.44	11.17	7.64	17.17	1.62	23.17	1.08
5.25	1.44	11.25	8.66	17.25	1.62	23.25	1.08
5.33	1.44	11.33	8.66	17.33	1.62	23.33	1.08
5.42	1.44	11.42	8.66	17.42	1.62	23.42	1.08
5.50	1.44	11.50	8.66	17.50	1.62	23.50	1.08
5.58	1.44	11.58	14.67	17.58	1.62	23.58	1.08
5.67	1.44	11.67	20.69	17.67	1.62	23.67	1.08
5.75	1.44	11.75	26.70	17.75	1.62	23.75	1.08
5.83	1.44	11.83	54.60	17.83	1.62	23.83	1.08
5.92	1.44	11.92	82.50	17.92	1.62	23.92	1.08
6.00	1.44	12.00	110.40	18.00	1.62	24.00	1.08

| CALIB |
| NASHYD (0102) | Area (ha)= 26.90 Curve Number (CN)= 85.0
| ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= .82

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	.41	6.083	1.50	12.083	77.94	18.08	1.62
.167	.81	6.167	1.56	12.167	45.47	18.17	1.62
.250	1.22	6.250	1.62	12.250	12.99	18.25	1.62
.333	1.22	6.333	1.62	12.333	12.99	18.33	1.62

.417	1.22	6.417	1.62	12.417	12.99	18.42	1.62
.500	1.22	6.500	1.62	12.500	12.99	18.50	1.62
.583	1.22	6.583	1.62	12.583	10.88	18.58	1.62
.667	1.22	6.667	1.62	12.667	8.78	18.67	1.62
.750	1.22	6.750	1.62	12.750	6.68	18.75	1.62
.833	1.22	6.833	1.62	12.833	6.67	18.83	1.62
.917	1.22	6.917	1.62	12.917	6.67	18.92	1.62
1.000	1.22	7.000	1.62	13.000	6.67	19.00	1.62
1.083	1.22	7.083	1.74	13.083	6.07	19.08	1.62
1.167	1.22	7.167	1.86	13.167	5.47	19.17	1.62
1.250	1.22	7.250	1.98	13.250	4.87	19.25	1.62
1.333	1.22	7.333	1.98	13.333	4.87	19.33	1.62
1.417	1.22	7.417	1.98	13.417	4.87	19.42	1.62
1.500	1.22	7.500	1.98	13.500	4.87	19.50	1.62
1.583	1.22	7.583	1.98	13.583	4.51	19.58	1.62
1.667	1.22	7.667	1.98	13.667	4.15	19.67	1.62
1.750	1.22	7.750	1.98	13.750	3.79	19.75	1.62
1.833	1.22	7.833	1.98	13.833	3.79	19.83	1.62
1.917	1.22	7.917	1.98	13.917	3.79	19.92	1.62
2.000	1.22	8.000	1.98	14.000	3.79	20.00	1.62
2.083	1.13	8.083	2.10	14.083	3.43	20.08	1.44
2.167	1.04	8.167	2.22	14.167	3.07	20.17	1.26
2.250	.95	8.250	2.35	14.250	2.71	20.25	1.08
2.333	.95	8.333	2.35	14.333	2.71	20.33	1.08
2.417	.95	8.417	2.35	14.417	2.71	20.42	1.08
2.500	.95	8.500	2.35	14.500	2.71	20.50	1.08
2.583	.95	8.583	2.41	14.583	2.71	20.58	1.08
2.667	.95	8.667	2.47	14.667	2.71	20.67	1.08
2.750	.95	8.750	2.53	14.750	2.71	20.75	1.08
2.833	.95	8.833	2.53	14.833	2.71	20.83	1.08
2.917	.95	8.917	2.53	14.917	2.71	20.92	1.08
3.000	.95	9.000	2.53	15.000	2.71	21.00	1.08
3.083	.95	9.083	2.65	15.083	2.71	21.08	1.08
3.167	.95	9.167	2.77	15.167	2.71	21.17	1.08
3.250	.95	9.250	2.89	15.250	2.71	21.25	1.08
3.333	.95	9.333	2.89	15.333	2.71	21.33	1.08
3.417	.95	9.417	2.89	15.417	2.71	21.42	1.08
3.500	.95	9.500	2.89	15.500	2.71	21.50	1.08
3.583	.95	9.583	3.01	15.583	2.71	21.58	1.08
3.667	.95	9.667	3.13	15.667	2.71	21.67	1.08
3.750	.95	9.750	3.25	15.750	2.71	21.75	1.08
3.833	.95	9.833	3.25	15.833	2.71	21.83	1.08
3.917	.95	9.917	3.25	15.917	2.71	21.92	1.08
4.000	.95	10.000	3.25	16.000	2.71	22.00	1.08
4.083	1.11	10.083	3.55	16.083	2.35	22.08	1.08
4.167	1.28	10.167	3.85	16.167	1.98	22.17	1.08
4.250	1.44	10.250	4.15	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.15	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.15	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.15	16.500	1.62	22.50	1.08
4.583	1.44	10.583	4.63	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.11	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.59	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.59	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.59	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.59	17.000	1.62	23.00	1.08
5.083	1.44	11.083	6.61	17.083	1.62	23.08	1.08
5.167	1.44	11.167	7.64	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.66	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.66	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.66	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.66	17.500	1.62	23.50	1.08
5.583	1.44	11.583	14.67	17.583	1.62	23.58	1.08
5.667	1.44	11.667	20.69	17.667	1.62	23.67	1.08
5.750	1.44	11.750	26.70	17.750	1.62	23.75	1.08
5.833	1.44	11.833	54.60	17.833	1.62	23.83	1.08
5.917	1.44	11.917	82.50	17.917	1.62	23.92	1.08
6.000	1.44	12.000	110.40	18.000	1.62	24.00	.00

Unit Hyd Qpeak (cms)= 1.253

PEAK FLOW (cms)= 1.411 (i)
 TIME TO PEAK (hrs)= 12.833
 RUNOFF VOLUME (mm)= 54.175
 TOTAL RAINFALL (mm)= 90.020
 RUNOFF COEFFICIENT = .602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | NASHYD (0101) | Area (ha)= 83.94 Curve Number (CN)= 85.0
 | ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

 U.H. Tp(hrs)= 1.02

Unit Hyd Qpeak (cms)= 3.143

PEAK FLOW (cms)= 3.735 (i)
 TIME TO PEAK (hrs)= 13.083
 RUNOFF VOLUME (mm)= 54.175
 TOTAL RAINFALL (mm)= 90.020
 RUNOFF COEFFICIENT = .602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0103)	Area (ha)	= 13.45	Curve Number (CN) = 85.0
ID= 1 DT= 5.0 min	Ia (mm)	= 6.70	# of Linear Res. (N) = 3.00
	U.H. Tp (hrs)	= .45	

Unit Hyd Qpeak (cms)= 1.142

PEAK FLOW (cms)= 1.087 (i)
 TIME TO PEAK (hrs)= 12.417
 RUNOFF VOLUME (mm)= 54.171
 TOTAL RAINFALL (mm)= 90.020
 RUNOFF COEFFICIENT = .602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0301)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0102):	26.90	1.411	12.83	54.17
+ ID2= 2 (0101):	83.94	3.735	13.08	54.18
=====				
ID = 3 (0301):	110.84	5.105	13.00	54.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0302)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0301):	110.84	5.105	13.00	54.17
+ ID2= 2 (0103):	13.45	1.087	12.42	54.17
=====				
ID = 3 (0302):	124.29	5.785	12.83	54.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 ** SIMULATION NUMBER: 5 **

MASS STORM	Filename: P:\W&W\Projects\SW04090362 - First Solar
	\St. Clair\St. Clair3\VO2\Scs24h.mst
Ptotal= 99.60 mm	Comments: SCS 24 HR MASS CURVE

Duration of storm = 24.00 hrs
 Mass curve time step = 15.00 min
 New Storm time step = 5.00 min

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.08	.45	6.08	1.66	12.08	86.05	18.08	1.79
.17	.90	6.17	1.73	12.17	50.20	18.17	1.79
.25	1.35	6.25	1.79	12.25	14.34	18.25	1.79
.33	1.35	6.33	1.79	12.33	14.34	18.33	1.79
.42	1.34	6.42	1.79	12.42	14.34	18.42	1.79
.50	1.34	6.50	1.79	12.50	14.34	18.50	1.79
.58	1.34	6.58	1.79	12.58	12.02	18.58	1.79
.67	1.35	6.67	1.79	12.67	9.69	18.67	1.79
.75	1.35	6.75	1.79	12.75	7.37	18.75	1.79
.83	1.35	6.83	1.79	12.83	7.37	18.83	1.79
.92	1.34	6.92	1.79	12.92	7.37	18.92	1.79
1.00	1.34	7.00	1.79	13.00	7.37	19.00	1.79
1.08	1.34	7.08	1.93	13.08	6.71	19.08	1.79
1.17	1.35	7.17	2.06	13.17	6.04	19.17	1.79
1.25	1.35	7.25	2.19	13.25	5.38	19.25	1.79
1.33	1.35	7.33	2.19	13.33	5.38	19.33	1.79
1.42	1.34	7.42	2.19	13.42	5.38	19.42	1.79
1.50	1.34	7.50	2.19	13.50	5.38	19.50	1.79
1.58	1.34	7.58	2.19	13.58	4.98	19.58	1.79
1.67	1.35	7.67	2.19	13.67	4.58	19.67	1.79

1.75	1.35	7.75	2.19	13.75	4.18	19.75	1.79
1.83	1.35	7.83	2.19	13.83	4.18	19.83	1.79
1.92	1.34	7.92	2.19	13.92	4.18	19.92	1.79
2.00	1.34	8.00	2.19	14.00	4.18	20.00	1.79
2.08	1.24	8.08	2.32	14.08	3.78	20.08	1.59
2.17	1.15	8.17	2.46	14.17	3.39	20.17	1.39
2.25	1.05	8.25	2.59	14.25	2.99	20.25	1.20
2.33	1.05	8.33	2.59	14.33	2.99	20.33	1.20
2.42	1.05	8.42	2.59	14.42	2.99	20.42	1.20
2.50	1.04	8.50	2.59	14.50	2.99	20.50	1.20
2.58	1.05	8.58	2.66	14.58	2.99	20.58	1.20
2.67	1.05	8.67	2.72	14.67	2.99	20.67	1.20
2.75	1.05	8.75	2.79	14.75	2.99	20.75	1.20
2.83	1.05	8.83	2.79	14.83	2.99	20.83	1.20
2.92	1.05	8.92	2.79	14.92	2.99	20.92	1.20
3.00	1.04	9.00	2.79	15.00	2.99	21.00	1.20
3.08	1.05	9.08	2.92	15.08	2.99	21.08	1.20
3.17	1.05	9.17	3.05	15.17	2.99	21.17	1.20
3.25	1.05	9.25	3.19	15.25	2.99	21.25	1.20
3.33	1.05	9.33	3.19	15.33	2.99	21.33	1.20
3.42	1.05	9.42	3.19	15.42	2.99	21.42	1.20
3.50	1.04	9.50	3.19	15.50	2.99	21.50	1.20
3.58	1.05	9.58	3.32	15.58	2.99	21.58	1.20
3.67	1.05	9.67	3.45	15.67	2.99	21.67	1.20
3.75	1.05	9.75	3.59	15.75	2.99	21.75	1.20
3.83	1.05	9.83	3.59	15.83	2.99	21.83	1.20
3.92	1.05	9.92	3.59	15.92	2.99	21.92	1.20
4.00	1.04	10.00	3.59	16.00	2.99	22.00	1.20
4.08	1.23	10.08	3.92	16.08	2.59	22.08	1.20
4.17	1.41	10.17	4.25	16.17	2.19	22.17	1.20
4.25	1.59	10.25	4.58	16.25	1.79	22.25	1.20
4.33	1.59	10.33	4.58	16.33	1.79	22.33	1.20
4.42	1.59	10.42	4.58	16.42	1.79	22.42	1.20
4.50	1.59	10.50	4.58	16.50	1.79	22.50	1.20
4.58	1.59	10.58	5.11	16.58	1.79	22.58	1.20
4.67	1.59	10.67	5.64	16.67	1.79	22.67	1.20
4.75	1.59	10.75	6.18	16.75	1.79	22.75	1.20
4.83	1.59	10.83	6.18	16.83	1.79	22.83	1.20
4.92	1.59	10.92	6.18	16.92	1.79	22.92	1.20
5.00	1.59	11.00	6.18	17.00	1.79	23.00	1.20
5.08	1.59	11.08	7.30	17.08	1.79	23.08	1.20
5.17	1.59	11.17	8.43	17.17	1.79	23.17	1.20
5.25	1.59	11.25	9.56	17.25	1.79	23.25	1.20
5.33	1.59	11.33	9.56	17.33	1.79	23.33	1.20
5.42	1.59	11.42	9.56	17.42	1.79	23.42	1.20
5.50	1.59	11.50	9.56	17.50	1.79	23.50	1.20
5.58	1.59	11.58	16.20	17.58	1.79	23.58	1.20
5.67	1.59	11.67	22.84	17.67	1.79	23.67	1.20
5.75	1.59	11.75	29.48	17.75	1.79	23.75	1.20
5.83	1.59	11.83	60.29	17.83	1.79	23.83	1.20
5.92	1.59	11.92	91.10	17.92	1.79	23.92	1.20
6.00	1.59	12.00	121.91	18.00	1.79	24.00	1.20

| CALIB |
| NASHYD (0102) | Area (ha)= 26.90 Curve Number (CN)= 85.0
| ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= .82

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	.45	6.083	1.66	12.083	86.06	18.08	1.79
.167	.90	6.167	1.73	12.167	50.20	18.17	1.79
.250	1.35	6.250	1.79	12.250	14.35	18.25	1.79
.333	1.35	6.333	1.79	12.333	14.34	18.33	1.79
.417	1.34	6.417	1.79	12.417	14.34	18.42	1.79
.500	1.34	6.500	1.79	12.500	14.34	18.50	1.79
.583	1.34	6.583	1.79	12.583	12.02	18.58	1.79
.667	1.35	6.667	1.79	12.667	9.69	18.67	1.79
.750	1.35	6.750	1.79	12.750	7.37	18.75	1.79
.833	1.35	6.833	1.79	12.833	7.37	18.83	1.79
.917	1.34	6.917	1.79	12.917	7.37	18.92	1.79
1.000	1.34	7.000	1.79	13.000	7.37	19.00	1.79
1.083	1.34	7.083	1.93	13.083	6.71	19.08	1.79
1.167	1.35	7.167	2.06	13.167	6.04	19.17	1.79
1.250	1.35	7.250	2.19	13.250	5.38	19.25	1.79
1.333	1.35	7.333	2.19	13.333	5.38	19.33	1.79
1.417	1.34	7.417	2.19	13.417	5.38	19.42	1.79
1.500	1.34	7.500	2.19	13.500	5.38	19.50	1.79
1.583	1.34	7.583	2.19	13.583	4.98	19.58	1.79
1.667	1.35	7.667	2.19	13.667	4.58	19.67	1.79
1.750	1.35	7.750	2.19	13.750	4.18	19.75	1.79
1.833	1.35	7.833	2.19	13.833	4.18	19.83	1.79

1.917	1.34	7.917	2.19	13.917	4.18	19.92	1.79
2.000	1.34	8.000	2.19	14.000	4.18	20.00	1.79
2.083	1.24	8.083	2.32	14.083	3.78	20.08	1.59
2.167	1.15	8.167	2.46	14.167	3.39	20.17	1.39
2.250	1.05	8.250	2.59	14.250	2.99	20.25	1.20
2.333	1.05	8.333	2.59	14.333	2.99	20.33	1.20
2.417	1.05	8.417	2.59	14.417	2.99	20.42	1.20
2.500	1.04	8.500	2.59	14.500	2.99	20.50	1.20
2.583	1.05	8.583	2.66	14.583	2.99	20.58	1.20
2.667	1.05	8.667	2.72	14.667	2.99	20.67	1.20
2.750	1.05	8.750	2.79	14.750	2.99	20.75	1.20
2.833	1.05	8.833	2.79	14.833	2.99	20.83	1.20
2.917	1.05	8.917	2.79	14.917	2.99	20.92	1.20
3.000	1.04	9.000	2.79	15.000	2.99	21.00	1.20
3.083	1.05	9.083	2.92	15.083	2.99	21.08	1.20
3.167	1.05	9.167	3.05	15.167	2.99	21.17	1.20
3.250	1.05	9.250	3.19	15.250	2.99	21.25	1.20
3.333	1.05	9.333	3.19	15.333	2.99	21.33	1.20
3.417	1.05	9.417	3.19	15.417	2.99	21.42	1.20
3.500	1.04	9.500	3.19	15.500	2.99	21.50	1.20
3.583	1.05	9.583	3.32	15.583	2.99	21.58	1.20
3.667	1.05	9.667	3.45	15.667	2.99	21.67	1.20
3.750	1.05	9.750	3.59	15.750	2.99	21.75	1.20
3.833	1.05	9.833	3.59	15.833	2.99	21.83	1.20
3.917	1.05	9.917	3.59	15.917	2.99	21.92	1.20
4.000	1.04	10.000	3.59	16.000	2.99	22.00	1.20
4.083	1.23	10.083	3.92	16.083	2.59	22.08	1.20
4.167	1.41	10.167	4.25	16.167	2.19	22.17	1.20
4.250	1.59	10.250	4.58	16.250	1.79	22.25	1.20
4.333	1.59	10.333	4.58	16.333	1.79	22.33	1.20
4.417	1.59	10.417	4.58	16.417	1.79	22.42	1.20
4.500	1.59	10.500	4.58	16.500	1.79	22.50	1.20
4.583	1.59	10.583	5.11	16.583	1.79	22.58	1.20
4.667	1.59	10.667	5.64	16.667	1.79	22.67	1.20
4.750	1.59	10.750	6.18	16.750	1.79	22.75	1.20
4.833	1.59	10.833	6.18	16.833	1.79	22.83	1.20
4.917	1.59	10.917	6.18	16.917	1.79	22.92	1.20
5.000	1.59	11.000	6.18	17.000	1.79	23.00	1.20
5.083	1.59	11.083	7.30	17.083	1.79	23.08	1.20
5.167	1.59	11.167	8.43	17.167	1.79	23.17	1.20
5.250	1.59	11.250	9.56	17.250	1.79	23.25	1.20
5.333	1.59	11.333	9.56	17.333	1.79	23.33	1.20
5.417	1.59	11.417	9.56	17.417	1.79	23.42	1.20
5.500	1.59	11.500	9.56	17.500	1.79	23.50	1.20
5.583	1.59	11.583	16.20	17.583	1.79	23.58	1.20
5.667	1.59	11.667	22.84	17.667	1.79	23.67	1.20
5.750	1.59	11.750	29.48	17.750	1.79	23.75	1.20
5.833	1.59	11.833	60.29	17.833	1.79	23.83	1.20
5.917	1.59	11.917	91.10	17.917	1.79	23.92	1.20
6.000	1.59	12.000	121.91	18.000	1.79	24.00	.00

Unit Hyd Qpeak (cms)= 1.253

PEAK FLOW (cms)= 1.630 (i)
 TIME TO PEAK (hrs)= 12.833
 RUNOFF VOLUME (mm)= 62.486
 TOTAL RAINFALL (mm)= 99.401
 RUNOFF COEFFICIENT = .629

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | NASHYD (0101) | Area (ha)= 83.94 Curve Number (CN)= 85.0
 | ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

 U.H. Tp(hrs)= 1.02

Unit Hyd Qpeak (cms)= 3.143

PEAK FLOW (cms)= 4.314 (i)
 TIME TO PEAK (hrs)= 13.083
 RUNOFF VOLUME (mm)= 62.487
 TOTAL RAINFALL (mm)= 99.401
 RUNOFF COEFFICIENT = .629

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | NASHYD (0103) | Area (ha)= 13.45 Curve Number (CN)= 85.0
 | ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

 U.H. Tp(hrs)= .45

Unit Hyd Qpeak (cms)= 1.142

PEAK FLOW (cms)= 1.255 (i)

TIME TO PEAK (hrs) = 12.417
 RUNOFF VOLUME (mm) = 62.482
 TOTAL RAINFALL (mm) = 99.401
 RUNOFF COEFFICIENT = .629

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0301)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0102):	26.90	1.630	12.83	62.49
+ ID2= 2 (0101):	83.94	4.314	13.08	62.49
ID = 3 (0301):	110.84	5.896	13.00	62.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0302)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0301):	110.84	5.896	13.00	62.49
+ ID2= 2 (0103):	13.45	1.255	12.42	62.48
ID = 3 (0302):	124.29	6.686	12.83	62.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 ** SIMULATION NUMBER: 6 **

MASS STORM	Filename: P:\W&W\Projects\SW04090362 - First Solar
	\St. Clair\St. Clair3\VO2\Scs24h.mst
Ptotal=108.90 mm	Comments: SCS 24 HR MASS CURVE

Duration of storm = 24.00 hrs
 Mass curve time step = 15.00 min
 New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.08	.49	6.08	1.82	12.08	94.09	18.08	1.96
.17	.98	6.17	1.89	12.17	54.89	18.17	1.96
.25	1.47	6.25	1.96	12.25	15.68	18.25	1.96
.33	1.47	6.33	1.96	12.33	15.68	18.33	1.96
.42	1.47	6.42	1.96	12.42	15.68	18.42	1.96
.50	1.47	6.50	1.96	12.50	15.68	18.50	1.96
.58	1.47	6.58	1.96	12.58	13.14	18.58	1.96
.67	1.47	6.67	1.96	12.67	10.60	18.67	1.96
.75	1.47	6.75	1.96	12.75	8.06	18.75	1.96
.83	1.47	6.83	1.96	12.83	8.06	18.83	1.96
.92	1.47	6.92	1.96	12.92	8.06	18.92	1.96
1.00	1.47	7.00	1.96	13.00	8.06	19.00	1.96
1.08	1.47	7.08	2.11	13.08	7.33	19.08	1.96
1.17	1.47	7.17	2.25	13.17	6.61	19.17	1.96
1.25	1.47	7.25	2.40	13.25	5.88	19.25	1.96
1.33	1.47	7.33	2.40	13.33	5.88	19.33	1.96
1.42	1.47	7.42	2.40	13.42	5.88	19.42	1.96
1.50	1.47	7.50	2.40	13.50	5.88	19.50	1.96
1.58	1.47	7.58	2.40	13.58	5.45	19.58	1.96
1.67	1.47	7.67	2.40	13.67	5.01	19.67	1.96
1.75	1.47	7.75	2.40	13.75	4.57	19.75	1.96
1.83	1.47	7.83	2.40	13.83	4.57	19.83	1.96
1.92	1.47	7.92	2.40	13.92	4.57	19.92	1.96
2.00	1.47	8.00	2.40	14.00	4.57	20.00	1.96
2.08	1.36	8.08	2.54	14.08	4.14	20.08	1.74
2.17	1.25	8.17	2.69	14.17	3.70	20.17	1.52
2.25	1.15	8.25	2.83	14.25	3.27	20.25	1.31
2.33	1.14	8.33	2.83	14.33	3.27	20.33	1.31
2.42	1.14	8.42	2.83	14.42	3.27	20.42	1.31
2.50	1.14	8.50	2.83	14.50	3.27	20.50	1.31
2.58	1.14	8.58	2.90	14.58	3.27	20.58	1.31
2.67	1.14	8.67	2.98	14.67	3.27	20.67	1.31
2.75	1.15	8.75	3.05	14.75	3.27	20.75	1.31
2.83	1.14	8.83	3.05	14.83	3.27	20.83	1.31
2.92	1.14	8.92	3.05	14.92	3.27	20.92	1.31
3.00	1.14	9.00	3.05	15.00	3.27	21.00	1.31
3.08	1.14	9.08	3.19	15.08	3.27	21.08	1.31
3.17	1.14	9.17	3.34	15.17	3.27	21.17	1.31

3.25	1.15	9.25	3.48	15.25	3.27	21.25	1.31
3.33	1.14	9.33	3.48	15.33	3.27	21.33	1.31
3.42	1.14	9.42	3.48	15.42	3.27	21.42	1.31
3.50	1.14	9.50	3.48	15.50	3.27	21.50	1.31
3.58	1.14	9.58	3.63	15.58	3.27	21.58	1.31
3.67	1.14	9.67	3.78	15.67	3.27	21.67	1.31
3.75	1.15	9.75	3.92	15.75	3.27	21.75	1.31
3.83	1.14	9.83	3.92	15.83	3.27	21.83	1.31
3.92	1.14	9.92	3.92	15.92	3.27	21.92	1.31
4.00	1.14	10.00	3.92	16.00	3.27	22.00	1.31
4.08	1.34	10.08	4.28	16.08	2.83	22.08	1.31
4.17	1.54	10.17	4.65	16.17	2.40	22.17	1.31
4.25	1.74	10.25	5.01	16.25	1.96	22.25	1.31
4.33	1.74	10.33	5.01	16.33	1.96	22.33	1.31
4.42	1.74	10.42	5.01	16.42	1.96	22.42	1.31
4.50	1.74	10.50	5.01	16.50	1.96	22.50	1.31
4.58	1.74	10.58	5.59	16.58	1.96	22.58	1.31
4.67	1.74	10.67	6.17	16.67	1.96	22.67	1.31
4.75	1.74	10.75	6.75	16.75	1.96	22.75	1.31
4.83	1.74	10.83	6.75	16.83	1.96	22.83	1.31
4.92	1.74	10.92	6.75	16.92	1.96	22.92	1.31
5.00	1.74	11.00	6.75	17.00	1.96	23.00	1.31
5.08	1.74	11.08	7.99	17.08	1.96	23.08	1.31
5.17	1.74	11.17	9.22	17.17	1.96	23.17	1.31
5.25	1.74	11.25	10.45	17.25	1.96	23.25	1.31
5.33	1.74	11.33	10.45	17.33	1.96	23.33	1.31
5.42	1.74	11.42	10.45	17.42	1.96	23.42	1.31
5.50	1.74	11.50	10.45	17.50	1.96	23.50	1.31
5.58	1.74	11.58	17.71	17.58	1.96	23.58	1.31
5.67	1.74	11.67	24.97	17.67	1.96	23.67	1.31
5.75	1.74	11.75	32.23	17.75	1.96	23.75	1.31
5.83	1.74	11.83	65.92	17.83	1.96	23.83	1.31
5.92	1.74	11.92	99.61	17.92	1.96	23.92	1.31
6.00	1.74	12.00	133.29	18.00	1.96	24.00	1.31

| CALIB |
| NASHYD (0102) | Area (ha)= 26.90 Curve Number (CN)= 85.0
| ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00
|-----
U.H. Tp(hrs)= .82

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	.49	6.083	1.82	12.083	94.09	18.08	1.96
.167	.98	6.167	1.89	12.167	54.89	18.17	1.96
.250	1.47	6.250	1.96	12.250	15.69	18.25	1.96
.333	1.47	6.333	1.96	12.333	15.68	18.33	1.96
.417	1.47	6.417	1.96	12.417	15.68	18.42	1.96
.500	1.47	6.500	1.96	12.500	15.68	18.50	1.96
.583	1.47	6.583	1.96	12.583	13.14	18.58	1.96
.667	1.47	6.667	1.96	12.667	10.60	18.67	1.96
.750	1.47	6.750	1.96	12.750	8.06	18.75	1.96
.833	1.47	6.833	1.96	12.833	8.06	18.83	1.96
.917	1.47	6.917	1.96	12.917	8.06	18.92	1.96
1.000	1.47	7.000	1.96	13.000	8.06	19.00	1.96
1.083	1.47	7.083	2.11	13.083	7.33	19.08	1.96
1.167	1.47	7.167	2.25	13.167	6.61	19.17	1.96
1.250	1.47	7.250	2.40	13.250	5.88	19.25	1.96
1.333	1.47	7.333	2.40	13.333	5.88	19.33	1.96
1.417	1.47	7.417	2.40	13.417	5.88	19.42	1.96
1.500	1.47	7.500	2.40	13.500	5.88	19.50	1.96
1.583	1.47	7.583	2.40	13.583	5.45	19.58	1.96
1.667	1.47	7.667	2.40	13.667	5.01	19.67	1.96
1.750	1.47	7.750	2.40	13.750	4.57	19.75	1.96
1.833	1.47	7.833	2.40	13.833	4.57	19.83	1.96
1.917	1.47	7.917	2.40	13.917	4.57	19.92	1.96
2.000	1.47	8.000	2.40	14.000	4.57	20.00	1.96
2.083	1.36	8.083	2.54	14.083	4.14	20.08	1.74
2.167	1.25	8.167	2.69	14.167	3.70	20.17	1.52
2.250	1.15	8.250	2.83	14.250	3.27	20.25	1.31
2.333	1.14	8.333	2.83	14.333	3.27	20.33	1.31
2.417	1.14	8.417	2.83	14.417	3.27	20.42	1.31
2.500	1.14	8.500	2.83	14.500	3.27	20.50	1.31
2.583	1.14	8.583	2.90	14.583	3.27	20.58	1.31
2.667	1.14	8.667	2.98	14.667	3.27	20.67	1.31
2.750	1.15	8.750	3.05	14.750	3.27	20.75	1.31
2.833	1.14	8.833	3.05	14.833	3.27	20.83	1.31
2.917	1.14	8.917	3.05	14.917	3.27	20.92	1.31
3.000	1.14	9.000	3.05	15.000	3.27	21.00	1.31
3.083	1.14	9.083	3.19	15.083	3.27	21.08	1.31
3.167	1.14	9.167	3.34	15.167	3.27	21.17	1.31
3.250	1.15	9.250	3.48	15.250	3.27	21.25	1.31
3.333	1.14	9.333	3.48	15.333	3.27	21.33	1.31

3.417	1.14	9.417	3.48	15.417	3.27	21.42	1.31
3.500	1.14	9.500	3.48	15.500	3.27	21.50	1.31
3.583	1.14	9.583	3.63	15.583	3.27	21.58	1.31
3.667	1.14	9.667	3.78	15.667	3.27	21.67	1.31
3.750	1.15	9.750	3.92	15.750	3.27	21.75	1.31
3.833	1.14	9.833	3.92	15.833	3.27	21.83	1.31
3.917	1.14	9.917	3.92	15.917	3.27	21.92	1.31
4.000	1.14	10.000	3.92	16.000	3.27	22.00	1.31
4.083	1.34	10.083	4.28	16.083	2.83	22.08	1.31
4.167	1.54	10.167	4.65	16.167	2.40	22.17	1.31
4.250	1.74	10.250	5.01	16.250	1.96	22.25	1.31
4.333	1.74	10.333	5.01	16.333	1.96	22.33	1.31
4.417	1.74	10.417	5.01	16.417	1.96	22.42	1.31
4.500	1.74	10.500	5.01	16.500	1.96	22.50	1.31
4.583	1.74	10.583	5.59	16.583	1.96	22.58	1.31
4.667	1.74	10.667	6.17	16.667	1.96	22.67	1.31
4.750	1.74	10.750	6.75	16.750	1.96	22.75	1.31
4.833	1.74	10.833	6.75	16.833	1.96	22.83	1.31
4.917	1.74	10.917	6.75	16.917	1.96	22.92	1.31
5.000	1.74	11.000	6.75	17.000	1.96	23.00	1.31
5.083	1.74	11.083	7.99	17.083	1.96	23.08	1.31
5.167	1.74	11.167	9.22	17.167	1.96	23.17	1.31
5.250	1.74	11.250	10.45	17.250	1.96	23.25	1.31
5.333	1.74	11.333	10.45	17.333	1.96	23.33	1.31
5.417	1.74	11.417	10.45	17.417	1.96	23.42	1.31
5.500	1.74	11.500	10.45	17.500	1.96	23.50	1.31
5.583	1.74	11.583	17.71	17.583	1.96	23.58	1.31
5.667	1.74	11.667	24.97	17.667	1.96	23.67	1.31
5.750	1.74	11.750	32.23	17.750	1.96	23.75	1.31
5.833	1.74	11.833	65.92	17.833	1.96	23.83	1.31
5.917	1.74	11.917	99.60	17.917	1.96	23.92	1.31
6.000	1.74	12.000	133.29	18.000	1.96	24.00	.00

Unit Hyd Qpeak (cms)= 1.253

PEAK FLOW (cms)= 1.848 (i)
 TIME TO PEAK (hrs)= 12.833
 RUNOFF VOLUME (mm)= 70.844
 TOTAL RAINFALL (mm)= 108.682
 RUNOFF COEFFICIENT = .652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0101)	Area (ha)=	83.94	Curve Number (CN)=	85.0
ID= 1 DT= 5.0 min	Ia (mm)=	6.70	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.02		

Unit Hyd Qpeak (cms)= 3.143

PEAK FLOW (cms)= 4.893 (i)
 TIME TO PEAK (hrs)= 13.000
 RUNOFF VOLUME (mm)= 70.844
 TOTAL RAINFALL (mm)= 108.682
 RUNOFF COEFFICIENT = .652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0103)	Area (ha)=	13.45	Curve Number (CN)=	85.0
ID= 1 DT= 5.0 min	Ia (mm)=	6.70	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	.45		

Unit Hyd Qpeak (cms)= 1.142

PEAK FLOW (cms)= 1.423 (i)
 TIME TO PEAK (hrs)= 12.417
 RUNOFF VOLUME (mm)= 70.839
 TOTAL RAINFALL (mm)= 108.682
 RUNOFF COEFFICIENT = .652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0301)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0102):	26.90	1.848	12.83	70.84
+ ID2= 2 (0101):	83.94	4.893	13.00	70.84
=====				
ID = 3 (0301):	110.84	6.689	13.00	70.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD	(0302)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1	(0301):	110.84	6.689	13.00	70.84
+ ID2= 2	(0103):	13.45	1.423	12.42	70.84
=====					
ID = 3	(0302):	124.29	7.588	12.83	70.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

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V V I SSSSS U U A L
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

OOO TTTT TTTT H H Y Y M M OOO TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
OOO T T H H Y M M OOO

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files\Visual OTTHYMO 2.2.4\voindat
 Output filename: P:\W&W\Projects\SW0409~1\STA8EF~1.CLA\STDBEF~1.CLA\VO2\Pre-development - Regional.out
 Summary filename: P:\W&W\Projects\SW0409~1\STA8EF~1.CLA\STDBEF~1.CLA\VO2\Pre-development - Regional.sum

DATE: 12/22/2009

TIME: 12:06:05 PM

USER:

COMMENTS: _____

 ** SIMULATION NUMBER: 7 **

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| MASS STORM | | Filename: P:\W&W\Projects\SW04090362 - First Solar
| | | \St. Clair\St. Clair3\VO2\Hazell2.mst
| Ptotal=211.00 mm | | Comments: Hurricane Hazel (last 12 h)
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Duration of storm = 12.00 hrs
 Mass curve time step = 60.00 min
 New Storm time step = 10.00 min

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	1.06	3.17	7.39	6.17	14.42	9.17	19.34
.33	2.11	3.33	8.44	6.33	16.18	9.33	26.02
.50	3.16	3.50	9.50	6.50	17.93	9.50	32.71
.67	4.22	3.67	10.55	6.67	19.69	9.67	39.39
.83	5.28	3.83	11.61	6.83	21.45	9.83	46.07
1.00	6.33	4.00	12.66	7.00	23.21	10.00	52.75
1.17	5.98	4.17	13.36	7.17	21.45	10.17	50.29
1.33	5.63	4.33	14.07	7.33	19.69	10.33	47.83
1.50	5.28	4.50	14.77	7.50	17.94	10.50	45.36
1.67	4.92	4.67	15.47	7.67	16.18	10.67	42.90
1.83	4.57	4.83	16.18	7.83	14.42	10.83	40.44
2.00	4.22	5.00	16.88	8.00	12.66	11.00	37.98
2.17	4.57	5.17	16.18	8.17	12.66	11.17	33.76
2.33	4.92	5.33	15.47	8.33	12.66	11.33	29.54
2.50	5.28	5.50	14.77	8.50	12.66	11.50	25.32
2.67	5.63	5.67	14.07	8.67	12.66	11.67	21.10
2.83	5.98	5.83	13.36	8.83	12.66	11.83	16.88
3.00	6.33	6.00	12.66	9.00	12.66	12.00	12.66

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| CALIB | |
| NASHYD (0102) | | Area (ha)= 26.90 Curve Number (CN)= 93.5
| ID= 1 DT= 5.0 min | | Ia (mm)= 3.50 # of Linear Res.(N)= 3.00
| | | U.H. Tp(hrs)= .82
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	1.06	3.083	7.38	6.083	14.42	9.08	19.34
.167	1.06	3.167	7.39	6.167	14.42	9.17	19.34
.250	2.11	3.250	8.44	6.250	16.18	9.25	26.02
.333	2.11	3.333	8.44	6.333	16.18	9.33	26.02

.417	3.17	3.417	9.49	6.417	17.93	9.42	32.71
.500	3.17	3.500	9.50	6.500	17.94	9.50	32.71
.583	4.22	3.583	10.55	6.583	19.69	9.58	39.39
.667	4.22	3.667	10.55	6.667	19.69	9.67	39.39
.750	5.27	3.750	11.60	6.750	21.45	9.75	46.07
.833	5.28	3.833	11.61	6.833	21.45	9.83	46.07
.917	6.33	3.917	12.66	6.917	23.21	9.92	52.75
1.000	6.33	4.000	12.66	7.000	23.21	10.00	52.75
1.083	5.98	4.083	13.36	7.083	21.45	10.08	50.29
1.167	5.98	4.167	13.36	7.167	21.45	10.17	50.29
1.250	5.63	4.250	14.07	7.250	19.69	10.25	47.83
1.333	5.63	4.333	14.07	7.333	19.69	10.33	47.83
1.417	5.28	4.417	14.77	7.417	17.94	10.42	45.37
1.500	5.27	4.500	14.77	7.500	17.93	10.50	45.36
1.583	4.92	4.583	15.47	7.583	16.18	10.58	42.90
1.667	4.92	4.667	15.47	7.667	16.18	10.67	42.90
1.750	4.57	4.750	16.18	7.750	14.42	10.75	40.44
1.833	4.57	4.833	16.18	7.833	14.42	10.83	40.44
1.917	4.22	4.917	16.88	7.917	12.66	10.92	37.98
2.000	4.22	5.000	16.88	8.000	12.66	11.00	37.98
2.083	4.57	5.083	16.18	8.083	12.66	11.08	33.76
2.167	4.57	5.167	16.18	8.167	12.66	11.17	33.76
2.250	4.92	5.250	15.47	8.250	12.66	11.25	29.54
2.333	4.92	5.333	15.47	8.333	12.66	11.33	29.54
2.417	5.27	5.417	14.77	8.417	12.66	11.42	25.32
2.500	5.28	5.500	14.77	8.500	12.66	11.50	25.32
2.583	5.63	5.583	14.07	8.583	12.66	11.58	21.10
2.667	5.63	5.667	14.07	8.667	12.66	11.67	21.10
2.750	5.98	5.750	13.36	8.750	12.66	11.75	16.88
2.833	5.98	5.833	13.36	8.833	12.66	11.83	16.88
2.917	6.33	5.917	12.66	8.917	12.66	11.92	12.66
3.000	6.33	6.000	12.66	9.000	12.66	12.00	12.66

Unit Hyd Qpeak (cms)= 1.253

PEAK FLOW (cms)= 2.961 (i)
 TIME TO PEAK (hrs)= 11.250
 RUNOFF VOLUME (mm)= 185.984
 TOTAL RAINFALL (mm)= 205.725
 RUNOFF COEFFICIENT = .904

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0101)	Area (ha)=	83.94	Curve Number (CN)=	93.5
ID= 1 DT= 5.0 min	Ia (mm)=	3.50	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.02		

Unit Hyd Qpeak (cms)= 3.143

PEAK FLOW (cms)= 8.675 (i)
 TIME TO PEAK (hrs)= 11.500
 RUNOFF VOLUME (mm)= 185.985
 TOTAL RAINFALL (mm)= 205.725
 RUNOFF COEFFICIENT = .904

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0103)	Area (ha)=	13.45	Curve Number (CN)=	93.5
ID= 1 DT= 5.0 min	Ia (mm)=	3.50	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	.45		

Unit Hyd Qpeak (cms)= 1.142

PEAK FLOW (cms)= 1.672 (i)
 TIME TO PEAK (hrs)= 10.750
 RUNOFF VOLUME (mm)= 185.971
 TOTAL RAINFALL (mm)= 205.725
 RUNOFF COEFFICIENT = .904

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0301)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0102):	26.90	2.961	11.25	185.98
+ ID2= 2 (0101):	83.94	8.675	11.50	185.98
=====				
ID = 3 (0301):	110.84	11.597	11.42	185.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD	(0302)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1	(0301):	110.84	11.597	11.42	185.98
+ ID2= 2	(0103):	13.45	1.672	10.75	185.97
=====					
ID = 3	(0302):	124.29	13.033	11.33	185.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

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V V I SSSSS U U A L
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

OOO TTTT TTTT H H Y Y M M OOO TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
OOO T T H H Y M M OOO

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files\Visual OTTHYMO 2.2.4\voindat
 Output filename: P:\W&W\Projects\SW0409~1\STA8EF~1.CLA\STDBEF~1.CLA\VO2\Post development.out
 Summary filename: P:\W&W\Projects\SW0409~1\STA8EF~1.CLA\STDBEF~1.CLA\VO2\Post development.sum

DATE: 4/26/2010 TIME: 1:53:06 PM

USER:

COMMENTS: _____

 ** SIMULATION NUMBER: 1 **

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| MASS STORM | | Filename: P:\W&W\Projects\SW04090362 - First Solar
| | | \St. Clair\St. Clair3\VO2\Scs24h.mst
| Ptotal= 52.50 mm | | Comments: SCS 24 HR MASS CURVE
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Duration of storm = 24.00 hrs
 Mass curve time step = 15.00 min
 New Storm time step = 5.00 min

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.08	.24	6.08	.88	12.08	45.36	18.08	.95
.17	.47	6.17	.91	12.17	26.46	18.17	.94
.25	.71	6.25	.95	12.25	7.56	18.25	.94
.33	.71	6.33	.95	12.33	7.56	18.33	.94
.42	.71	6.42	.95	12.42	7.56	18.42	.95
.50	.71	6.50	.95	12.50	7.56	18.50	.95
.58	.71	6.58	.95	12.58	6.34	18.58	.95
.67	.71	6.67	.95	12.67	5.11	18.67	.94
.75	.71	6.75	.95	12.75	3.88	18.75	.94
.83	.71	6.83	.94	12.83	3.88	18.83	.94
.92	.71	6.92	.94	12.92	3.89	18.92	.95
1.00	.71	7.00	.94	13.00	3.89	19.00	.95
1.08	.71	7.08	1.01	13.08	3.54	19.08	.95
1.17	.71	7.17	1.09	13.17	3.18	19.17	.94
1.25	.71	7.25	1.16	13.25	2.83	19.25	.94
1.33	.71	7.33	1.16	13.33	2.83	19.33	.94
1.42	.71	7.42	1.15	13.42	2.84	19.42	.95
1.50	.71	7.50	1.15	13.50	2.84	19.50	.95
1.58	.71	7.58	1.15	13.58	2.63	19.58	.95
1.67	.71	7.67	1.16	13.67	2.41	19.67	.94
1.75	.71	7.75	1.16	13.75	2.20	19.75	.94
1.83	.71	7.83	1.16	13.83	2.20	19.83	.94
1.92	.71	7.92	1.15	13.92	2.20	19.92	.95
2.00	.71	8.00	1.15	14.00	2.21	20.00	.95
2.08	.66	8.08	1.22	14.08	2.00	20.08	.84
2.17	.60	8.17	1.29	14.17	1.79	20.17	.73
2.25	.55	8.25	1.36	14.25	1.57	20.25	.63
2.33	.55	8.33	1.37	14.33	1.57	20.33	.63
2.42	.55	8.42	1.37	14.42	1.57	20.42	.63
2.50	.55	8.50	1.37	14.50	1.57	20.50	.63
2.58	.55	8.58	1.40	14.58	1.57	20.58	.63
2.67	.55	8.67	1.44	14.67	1.57	20.67	.63
2.75	.55	8.75	1.47	14.75	1.57	20.75	.63
2.83	.55	8.83	1.47	14.83	1.58	20.83	.63
2.92	.55	8.92	1.47	14.92	1.58	20.92	.63
3.00	.55	9.00	1.47	15.00	1.58	21.00	.63

3.08	.55	9.08	1.54	15.08	1.58	21.08	.63
3.17	.55	9.17	1.61	15.17	1.58	21.17	.63
3.25	.55	9.25	1.68	15.25	1.57	21.25	.63
3.33	.55	9.33	1.68	15.33	1.57	21.33	.63
3.42	.55	9.42	1.68	15.42	1.57	21.42	.63
3.50	.55	9.50	1.68	15.50	1.57	21.50	.63
3.58	.55	9.58	1.75	15.58	1.57	21.58	.63
3.67	.55	9.67	1.82	15.67	1.57	21.67	.63
3.75	.55	9.75	1.89	15.75	1.57	21.75	.63
3.83	.55	9.83	1.89	15.83	1.57	21.83	.63
3.92	.55	9.92	1.89	15.92	1.57	21.92	.63
4.00	.55	10.00	1.89	16.00	1.57	22.00	.63
4.08	.65	10.08	2.06	16.08	1.36	22.08	.63
4.17	.74	10.17	2.24	16.17	1.16	22.17	.63
4.25	.84	10.25	2.41	16.25	.95	22.25	.63
4.33	.84	10.33	2.41	16.33	.95	22.33	.63
4.42	.84	10.42	2.41	16.42	.94	22.42	.63
4.50	.84	10.50	2.41	16.50	.94	22.50	.63
4.58	.84	10.58	2.69	16.58	.94	22.58	.63
4.67	.84	10.67	2.98	16.67	.94	22.67	.63
4.75	.84	10.75	3.26	16.75	.94	22.75	.63
4.83	.84	10.83	3.26	16.83	.94	22.83	.63
4.92	.84	10.92	3.25	16.92	.95	22.92	.63
5.00	.84	11.00	3.25	17.00	.95	23.00	.63
5.08	.84	11.08	3.85	17.08	.95	23.08	.63
5.17	.84	11.17	4.44	17.17	.94	23.17	.63
5.25	.84	11.25	5.04	17.25	.94	23.25	.63
5.33	.84	11.33	5.04	17.33	.94	23.33	.63
5.42	.84	11.42	5.04	17.42	.95	23.42	.63
5.50	.84	11.50	5.04	17.50	.95	23.50	.63
5.58	.84	11.58	8.54	17.58	.95	23.58	.63
5.67	.84	11.67	12.04	17.67	.94	23.67	.63
5.75	.84	11.75	15.54	17.75	.94	23.75	.63
5.83	.84	11.83	31.78	17.83	.94	23.83	.63
5.92	.84	11.92	48.02	17.92	.95	23.92	.63
6.00	.84	12.00	64.26	18.00	.95	24.00	.63

| CALIB |
| NASHYD (0202) | Area (ha)= 26.90 Curve Number (CN)= 85.0
| ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= .82

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	.24	6.083	.88	12.083	45.36	18.08	.95
.167	.47	6.167	.91	12.167	26.46	18.17	.94
.250	.71	6.250	.95	12.250	7.56	18.25	.94
.333	.71	6.333	.95	12.333	7.56	18.33	.94
.417	.71	6.417	.95	12.417	7.56	18.42	.95
.500	.71	6.500	.95	12.500	7.56	18.50	.95
.583	.71	6.583	.95	12.583	6.34	18.58	.95
.667	.71	6.667	.95	12.667	5.11	18.67	.94
.750	.71	6.750	.95	12.750	3.89	18.75	.94
.833	.71	6.833	.94	12.833	3.88	18.83	.94
.917	.71	6.917	.94	12.917	3.89	18.92	.95
1.000	.71	7.000	.94	13.000	3.89	19.00	.95
1.083	.71	7.083	1.02	13.083	3.54	19.08	.95
1.167	.71	7.167	1.09	13.167	3.19	19.17	.94
1.250	.71	7.250	1.16	13.250	2.84	19.25	.94
1.333	.71	7.333	1.16	13.333	2.83	19.33	.94
1.417	.71	7.417	1.15	13.417	2.84	19.42	.95
1.500	.71	7.500	1.15	13.500	2.84	19.50	.95
1.583	.71	7.583	1.15	13.583	2.63	19.58	.95
1.667	.71	7.667	1.16	13.667	2.42	19.67	.94
1.750	.71	7.750	1.16	13.750	2.21	19.75	.94
1.833	.71	7.833	1.16	13.833	2.20	19.83	.94
1.917	.71	7.917	1.15	13.917	2.20	19.92	.95
2.000	.71	8.000	1.15	14.000	2.21	20.00	.95
2.083	.66	8.083	1.23	14.083	2.00	20.08	.84
2.167	.60	8.167	1.30	14.167	1.79	20.17	.73
2.250	.55	8.250	1.37	14.250	1.58	20.25	.63
2.333	.55	8.333	1.37	14.333	1.57	20.33	.63
2.417	.55	8.417	1.37	14.417	1.57	20.42	.63
2.500	.55	8.500	1.37	14.500	1.57	20.50	.63
2.583	.55	8.583	1.40	14.583	1.57	20.58	.63
2.667	.55	8.667	1.44	14.667	1.57	20.67	.63
2.750	.55	8.750	1.47	14.750	1.57	20.75	.63
2.833	.55	8.833	1.47	14.833	1.58	20.83	.63
2.917	.55	8.917	1.47	14.917	1.58	20.92	.63
3.000	.55	9.000	1.47	15.000	1.58	21.00	.63
3.083	.55	9.083	1.54	15.083	1.58	21.08	.63
3.167	.55	9.167	1.61	15.167	1.58	21.17	.63

3.250	.55	9.250	1.68	15.250	1.57	21.25	.63
3.333	.55	9.333	1.68	15.333	1.57	21.33	.63
3.417	.55	9.417	1.68	15.417	1.57	21.42	.63
3.500	.55	9.500	1.68	15.500	1.57	21.50	.63
3.583	.55	9.583	1.75	15.583	1.57	21.58	.63
3.667	.55	9.667	1.82	15.667	1.57	21.67	.63
3.750	.55	9.750	1.89	15.750	1.57	21.75	.63
3.833	.55	9.833	1.89	15.833	1.57	21.83	.63
3.917	.55	9.917	1.89	15.917	1.57	21.92	.63
4.000	.55	10.000	1.89	16.000	1.57	22.00	.63
4.083	.65	10.083	2.06	16.083	1.37	22.08	.63
4.167	.74	10.167	2.24	16.167	1.16	22.17	.63
4.250	.84	10.250	2.41	16.250	.95	22.25	.63
4.333	.84	10.333	2.41	16.333	.95	22.33	.63
4.417	.84	10.417	2.41	16.417	.94	22.42	.63
4.500	.84	10.500	2.41	16.500	.94	22.50	.63
4.583	.84	10.583	2.69	16.583	.94	22.58	.63
4.667	.84	10.667	2.97	16.667	.94	22.67	.63
4.750	.84	10.750	3.25	16.750	.94	22.75	.63
4.833	.84	10.833	3.26	16.833	.94	22.83	.63
4.917	.84	10.917	3.25	16.917	.95	22.92	.63
5.000	.84	11.000	3.25	17.000	.95	23.00	.63
5.083	.84	11.083	3.85	17.083	.95	23.08	.63
5.167	.84	11.167	4.44	17.167	.94	23.17	.63
5.250	.84	11.250	5.04	17.250	.94	23.25	.63
5.333	.84	11.333	5.04	17.333	.94	23.33	.63
5.417	.84	11.417	5.04	17.417	.95	23.42	.63
5.500	.84	11.500	5.04	17.500	.95	23.50	.63
5.583	.84	11.583	8.54	17.583	.95	23.58	.63
5.667	.84	11.667	12.04	17.667	.94	23.67	.63
5.750	.84	11.750	15.54	17.750	.94	23.75	.63
5.833	.84	11.833	31.78	17.833	.94	23.83	.63
5.917	.84	11.917	48.02	17.917	.95	23.92	.63
6.000	.84	12.000	64.26	18.000	.95	24.00	.00

Unit Hyd Qpeak (cms)= 1.253

PEAK FLOW (cms)= .585 (i)
 TIME TO PEAK (hrs)= 12.833
 RUNOFF VOLUME (mm)= 23.067
 TOTAL RAINFALL (mm)= 52.395
 RUNOFF COEFFICIENT = .440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0201)	Area (ha)=	83.94	Curve Number (CN)=	85.0
ID= 1 DT= 5.0 min	Ia (mm)=	6.70	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	.97		

Unit Hyd Qpeak (cms)= 3.305

PEAK FLOW (cms)= 1.608 (i)
 TIME TO PEAK (hrs)= 13.083
 RUNOFF VOLUME (mm)= 23.067
 TOTAL RAINFALL (mm)= 52.395
 RUNOFF COEFFICIENT = .440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0203)	Area (ha)=	13.45	Curve Number (CN)=	85.0
ID= 1 DT= 5.0 min	Ia (mm)=	6.70	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	.45		

Unit Hyd Qpeak (cms)= 1.142

PEAK FLOW (cms)= .452 (i)
 TIME TO PEAK (hrs)= 12.417
 RUNOFF VOLUME (mm)= 23.066
 TOTAL RAINFALL (mm)= 52.395
 RUNOFF COEFFICIENT = .440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0301)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):	26.90	.585	12.83	23.07
+ ID2= 2 (0201):	83.94	1.608	13.08	23.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0302)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0301):	110.84	2.184	13.00	23.07
+ ID2= 2 (0203):	13.45	.452	12.42	23.07
=====				
ID = 3 (0302):	124.29	2.472	12.92	23.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 ** SIMULATION NUMBER: 2 **

MASS STORM	Filename: P:\W&W\Projects\SW04090362 - First Solar
	\St. Clair\St. Clair3\VO2\Scs24h.mst
Ptotal= 67.60 mm	Comments: SCS 24 HR MASS CURVE

Duration of storm = 24.00 hrs
 Mass curve time step = 15.00 min
 New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.08	.30	6.08	1.13	12.08	58.41	18.08	1.22
.17	.61	6.17	1.17	12.17	34.07	18.17	1.22
.25	.91	6.25	1.22	12.25	9.73	18.25	1.22
.33	.91	6.33	1.22	12.33	9.73	18.33	1.22
.42	.91	6.42	1.22	12.42	9.73	18.42	1.22
.50	.91	6.50	1.22	12.50	9.73	18.50	1.22
.58	.91	6.58	1.22	12.58	8.16	18.58	1.22
.67	.91	6.67	1.22	12.67	6.58	18.67	1.22
.75	.91	6.75	1.22	12.75	5.00	18.75	1.22
.83	.91	6.83	1.22	12.83	5.00	18.83	1.22
.92	.91	6.92	1.22	12.92	5.00	18.92	1.22
1.00	.91	7.00	1.22	13.00	5.00	19.00	1.22
1.08	.91	7.08	1.31	13.08	4.55	19.08	1.22
1.17	.91	7.17	1.40	13.17	4.10	19.17	1.22
1.25	.91	7.25	1.49	13.25	3.65	19.25	1.22
1.33	.91	7.33	1.49	13.33	3.65	19.33	1.22
1.42	.91	7.42	1.49	13.42	3.65	19.42	1.22
1.50	.91	7.50	1.49	13.50	3.65	19.50	1.22
1.58	.91	7.58	1.49	13.58	3.38	19.58	1.22
1.67	.91	7.67	1.49	13.67	3.11	19.67	1.22
1.75	.91	7.75	1.49	13.75	2.84	19.75	1.22
1.83	.91	7.83	1.49	13.83	2.84	19.83	1.22
1.92	.91	7.92	1.49	13.92	2.84	19.92	1.22
2.00	.91	8.00	1.49	14.00	2.84	20.00	1.22
2.08	.84	8.08	1.58	14.08	2.57	20.08	1.08
2.17	.78	8.17	1.67	14.17	2.30	20.17	.95
2.25	.71	8.25	1.76	14.25	2.03	20.25	.81
2.33	.71	8.33	1.76	14.33	2.03	20.33	.81
2.42	.71	8.42	1.76	14.42	2.03	20.42	.81
2.50	.71	8.50	1.76	14.50	2.03	20.50	.81
2.58	.71	8.58	1.80	14.58	2.03	20.58	.81
2.67	.71	8.67	1.85	14.67	2.03	20.67	.81
2.75	.71	8.75	1.89	14.75	2.03	20.75	.81
2.83	.71	8.83	1.89	14.83	2.03	20.83	.81
2.92	.71	8.92	1.89	14.92	2.03	20.92	.81
3.00	.71	9.00	1.89	15.00	2.03	21.00	.81
3.08	.71	9.08	1.98	15.08	2.03	21.08	.81
3.17	.71	9.17	2.07	15.17	2.03	21.17	.81
3.25	.71	9.25	2.16	15.25	2.03	21.25	.81
3.33	.71	9.33	2.16	15.33	2.03	21.33	.81
3.42	.71	9.42	2.16	15.42	2.03	21.42	.81
3.50	.71	9.50	2.16	15.50	2.03	21.50	.81
3.58	.71	9.58	2.25	15.58	2.03	21.58	.81
3.67	.71	9.67	2.34	15.67	2.03	21.67	.81
3.75	.71	9.75	2.43	15.75	2.03	21.75	.81
3.83	.71	9.83	2.43	15.83	2.03	21.83	.81
3.92	.71	9.92	2.43	15.92	2.03	21.92	.81
4.00	.71	10.00	2.43	16.00	2.03	22.00	.81
4.08	.83	10.08	2.66	16.08	1.76	22.08	.81
4.17	.96	10.17	2.88	16.17	1.49	22.17	.81
4.25	1.08	10.25	3.11	16.25	1.22	22.25	.81
4.33	1.08	10.33	3.11	16.33	1.22	22.33	.81
4.42	1.08	10.42	3.11	16.42	1.22	22.42	.81
4.50	1.08	10.50	3.11	16.50	1.22	22.50	.81

4.58	1.08	10.58	3.47	16.58	1.22	22.58	.81
4.67	1.08	10.67	3.83	16.67	1.22	22.67	.81
4.75	1.08	10.75	4.19	16.75	1.22	22.75	.81
4.83	1.08	10.83	4.19	16.83	1.22	22.83	.81
4.92	1.08	10.92	4.19	16.92	1.22	22.92	.81
5.00	1.08	11.00	4.19	17.00	1.22	23.00	.81
5.08	1.08	11.08	4.96	17.08	1.22	23.08	.81
5.17	1.08	11.17	5.72	17.17	1.22	23.17	.81
5.25	1.08	11.25	6.49	17.25	1.22	23.25	.81
5.33	1.08	11.33	6.49	17.33	1.22	23.33	.81
5.42	1.08	11.42	6.49	17.42	1.22	23.42	.81
5.50	1.08	11.50	6.49	17.50	1.22	23.50	.81
5.58	1.08	11.58	11.00	17.58	1.22	23.58	.81
5.67	1.08	11.67	15.50	17.67	1.22	23.67	.81
5.75	1.08	11.75	20.01	17.75	1.22	23.75	.81
5.83	1.08	11.83	40.92	17.83	1.22	23.83	.81
5.92	1.08	11.92	61.83	17.92	1.22	23.92	.81
6.00	1.08	12.00	82.74	18.00	1.22	24.00	.81

| CALIB |
| NASHYD (0202) | Area (ha)= 26.90 Curve Number (CN)= 85.0
| ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00
|-----
U.H. Tp(hrs)= .82

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	.30	6.083	1.13	12.083	58.41	18.08	1.22
.167	.61	6.167	1.17	12.167	34.07	18.17	1.22
.250	.91	6.250	1.22	12.250	9.74	18.25	1.22
.333	.91	6.333	1.22	12.333	9.73	18.33	1.22
.417	.91	6.417	1.22	12.417	9.73	18.42	1.22
.500	.91	6.500	1.22	12.500	9.73	18.50	1.22
.583	.91	6.583	1.22	12.583	8.16	18.58	1.22
.667	.91	6.667	1.22	12.667	6.58	18.67	1.22
.750	.91	6.750	1.22	12.750	5.00	18.75	1.22
.833	.91	6.833	1.22	12.833	5.00	18.83	1.22
.917	.91	6.917	1.22	12.917	5.00	18.92	1.22
1.000	.91	7.000	1.22	13.000	5.00	19.00	1.22
1.083	.91	7.083	1.31	13.083	4.55	19.08	1.22
1.167	.91	7.167	1.40	13.167	4.10	19.17	1.22
1.250	.91	7.250	1.49	13.250	3.65	19.25	1.22
1.333	.91	7.333	1.49	13.333	3.65	19.33	1.22
1.417	.91	7.417	1.49	13.417	3.65	19.42	1.22
1.500	.91	7.500	1.49	13.500	3.65	19.50	1.22
1.583	.91	7.583	1.49	13.583	3.38	19.58	1.22
1.667	.91	7.667	1.49	13.667	3.11	19.67	1.22
1.750	.91	7.750	1.49	13.750	2.84	19.75	1.22
1.833	.91	7.833	1.49	13.833	2.84	19.83	1.22
1.917	.91	7.917	1.49	13.917	2.84	19.92	1.22
2.000	.91	8.000	1.49	14.000	2.84	20.00	1.22
2.083	.84	8.083	1.58	14.083	2.57	20.08	1.08
2.167	.78	8.167	1.67	14.167	2.30	20.17	.95
2.250	.71	8.250	1.76	14.250	2.03	20.25	.81
2.333	.71	8.333	1.76	14.333	2.03	20.33	.81
2.417	.71	8.417	1.76	14.417	2.03	20.42	.81
2.500	.71	8.500	1.76	14.500	2.03	20.50	.81
2.583	.71	8.583	1.80	14.583	2.03	20.58	.81
2.667	.71	8.667	1.85	14.667	2.03	20.67	.81
2.750	.71	8.750	1.89	14.750	2.03	20.75	.81
2.833	.71	8.833	1.89	14.833	2.03	20.83	.81
2.917	.71	8.917	1.89	14.917	2.03	20.92	.81
3.000	.71	9.000	1.89	15.000	2.03	21.00	.81
3.083	.71	9.083	1.98	15.083	2.03	21.08	.81
3.167	.71	9.167	2.07	15.167	2.03	21.17	.81
3.250	.71	9.250	2.16	15.250	2.03	21.25	.81
3.333	.71	9.333	2.16	15.333	2.03	21.33	.81
3.417	.71	9.417	2.16	15.417	2.03	21.42	.81
3.500	.71	9.500	2.16	15.500	2.03	21.50	.81
3.583	.71	9.583	2.25	15.583	2.03	21.58	.81
3.667	.71	9.667	2.34	15.667	2.03	21.67	.81
3.750	.71	9.750	2.43	15.750	2.03	21.75	.81
3.833	.71	9.833	2.43	15.833	2.03	21.83	.81
3.917	.71	9.917	2.43	15.917	2.03	21.92	.81
4.000	.71	10.000	2.43	16.000	2.03	22.00	.81
4.083	.83	10.083	2.66	16.083	1.76	22.08	.81
4.167	.96	10.167	2.88	16.167	1.49	22.17	.81
4.250	1.08	10.250	3.11	16.250	1.22	22.25	.81
4.333	1.08	10.333	3.11	16.333	1.22	22.33	.81
4.417	1.08	10.417	3.11	16.417	1.22	22.42	.81
4.500	1.08	10.500	3.11	16.500	1.22	22.50	.81
4.583	1.08	10.583	3.47	16.583	1.22	22.58	.81
4.667	1.08	10.667	3.83	16.667	1.22	22.67	.81

4.750	1.08	10.750	4.19	16.750	1.22	22.75	.81
4.833	1.08	10.833	4.19	16.833	1.22	22.83	.81
4.917	1.08	10.917	4.19	16.917	1.22	22.92	.81
5.000	1.08	11.000	4.19	17.000	1.22	23.00	.81
5.083	1.08	11.083	4.96	17.083	1.22	23.08	.81
5.167	1.08	11.167	5.72	17.167	1.22	23.17	.81
5.250	1.08	11.250	6.49	17.250	1.22	23.25	.81
5.333	1.08	11.333	6.49	17.333	1.22	23.33	.81
5.417	1.08	11.417	6.49	17.417	1.22	23.42	.81
5.500	1.08	11.500	6.49	17.500	1.22	23.50	.81
5.583	1.08	11.583	11.00	17.583	1.22	23.58	.81
5.667	1.08	11.667	15.50	17.667	1.22	23.67	.81
5.750	1.08	11.750	20.01	17.750	1.22	23.75	.81
5.833	1.08	11.833	40.92	17.833	1.22	23.83	.81
5.917	1.08	11.917	61.83	17.917	1.22	23.92	.81
6.000	1.08	12.000	82.74	18.000	1.22	24.00	.00

Unit Hyd Qpeak (cms) = 1.253

PEAK FLOW (cms) = .902 (i)
 TIME TO PEAK (hrs) = 12.833
 RUNOFF VOLUME (mm) = 34.969
 TOTAL RAINFALL (mm) = 67.465
 RUNOFF COEFFICIENT = .518

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0201)	Area (ha)	= 83.94	Curve Number (CN)	= 85.0
ID= 1 DT= 5.0 min	Ia (mm)	= 6.70	# of Linear Res. (N)	= 3.00
	U.H. Tp (hrs)	= .97		

Unit Hyd Qpeak (cms) = 3.305

PEAK FLOW (cms) = 2.481 (i)
 TIME TO PEAK (hrs) = 13.000
 RUNOFF VOLUME (mm) = 34.969
 TOTAL RAINFALL (mm) = 67.465
 RUNOFF COEFFICIENT = .518

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0203)	Area (ha)	= 13.45	Curve Number (CN)	= 85.0
ID= 1 DT= 5.0 min	Ia (mm)	= 6.70	# of Linear Res. (N)	= 3.00
	U.H. Tp (hrs)	= .45		

Unit Hyd Qpeak (cms) = 1.142

PEAK FLOW (cms) = .697 (i)
 TIME TO PEAK (hrs) = 12.417
 RUNOFF VOLUME (mm) = 34.967
 TOTAL RAINFALL (mm) = 67.465
 RUNOFF COEFFICIENT = .518

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0301)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):	26.90	.902	12.83	34.97
+ ID2= 2 (0201):	83.94	2.481	13.00	34.97
ID = 3 (0301):	110.84	3.365	13.00	34.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0302)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0301):	110.84	3.365	13.00	34.97
+ ID2= 2 (0203):	13.45	.697	12.42	34.97
ID = 3 (0302):	124.29	3.819	12.83	34.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 ** SIMULATION NUMBER: 3 **

 | MASS STORM |
 | |
Ptotal= 77.60 mm

Filename: P:\W&W\Projects\SW04090362 - First Solar
 \St. Clair\St. Clair3\VO2\Scs24h.mst
 Comments: SCS 24 HR MASS CURVE

Duration of storm = 24.00 hrs
 Mass curve time step = 15.00 min
 New Storm time step = 5.00 min

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.08	.35	6.08	1.29	12.08	67.05	18.08	1.40
.17	.70	6.17	1.35	12.17	39.11	18.17	1.40
.25	1.05	6.25	1.40	12.25	11.17	18.25	1.40
.33	1.05	6.33	1.40	12.33	11.17	18.33	1.40
.42	1.05	6.42	1.40	12.42	11.17	18.42	1.40
.50	1.05	6.50	1.40	12.50	11.17	18.50	1.40
.58	1.05	6.58	1.40	12.58	9.36	18.58	1.40
.67	1.05	6.67	1.40	12.67	7.55	18.67	1.40
.75	1.05	6.75	1.40	12.75	5.74	18.75	1.40
.83	1.05	6.83	1.40	12.83	5.74	18.83	1.40
.92	1.05	6.92	1.40	12.92	5.74	18.92	1.40
1.00	1.05	7.00	1.40	13.00	5.74	19.00	1.40
1.08	1.05	7.08	1.50	13.08	5.23	19.08	1.40
1.17	1.05	7.17	1.60	13.17	4.71	19.17	1.40
1.25	1.05	7.25	1.71	13.25	4.19	19.25	1.40
1.33	1.05	7.33	1.71	13.33	4.19	19.33	1.40
1.42	1.05	7.42	1.71	13.42	4.19	19.42	1.40
1.50	1.05	7.50	1.71	13.50	4.19	19.50	1.40
1.58	1.05	7.58	1.71	13.58	3.88	19.58	1.40
1.67	1.05	7.67	1.71	13.67	3.57	19.67	1.40
1.75	1.05	7.75	1.71	13.75	3.26	19.75	1.40
1.83	1.05	7.83	1.71	13.83	3.26	19.83	1.40
1.92	1.05	7.92	1.71	13.92	3.26	19.92	1.40
2.00	1.05	8.00	1.71	14.00	3.26	20.00	1.40
2.08	.97	8.08	1.81	14.08	2.95	20.08	1.24
2.17	.89	8.17	1.91	14.17	2.64	20.17	1.09
2.25	.82	8.25	2.02	14.25	2.33	20.25	.93
2.33	.82	8.33	2.02	14.33	2.33	20.33	.93
2.42	.81	8.42	2.02	14.42	2.33	20.42	.93
2.50	.81	8.50	2.02	14.50	2.33	20.50	.93
2.58	.81	8.58	2.07	14.58	2.33	20.58	.93
2.67	.82	8.67	2.12	14.67	2.33	20.67	.93
2.75	.82	8.75	2.17	14.75	2.33	20.75	.93
2.83	.82	8.83	2.17	14.83	2.33	20.83	.93
2.92	.81	8.92	2.17	14.92	2.33	20.92	.93
3.00	.81	9.00	2.17	15.00	2.33	21.00	.93
3.08	.81	9.08	2.28	15.08	2.33	21.08	.93
3.17	.82	9.17	2.38	15.17	2.33	21.17	.93
3.25	.82	9.25	2.48	15.25	2.33	21.25	.93
3.33	.82	9.33	2.48	15.33	2.33	21.33	.93
3.42	.81	9.42	2.48	15.42	2.33	21.42	.93
3.50	.81	9.50	2.48	15.50	2.33	21.50	.93
3.58	.81	9.58	2.59	15.58	2.33	21.58	.93
3.67	.82	9.67	2.69	15.67	2.33	21.67	.93
3.75	.82	9.75	2.79	15.75	2.33	21.75	.93
3.83	.82	9.83	2.79	15.83	2.33	21.83	.93
3.92	.81	9.92	2.79	15.92	2.33	21.92	.93
4.00	.81	10.00	2.79	16.00	2.33	22.00	.93
4.08	.96	10.08	3.05	16.08	2.02	22.08	.93
4.17	1.10	10.17	3.31	16.17	1.71	22.17	.93
4.25	1.24	10.25	3.57	16.25	1.40	22.25	.93
4.33	1.24	10.33	3.57	16.33	1.40	22.33	.93
4.42	1.24	10.42	3.57	16.42	1.40	22.42	.93
4.50	1.24	10.50	3.57	16.50	1.40	22.50	.93
4.58	1.24	10.58	3.98	16.58	1.40	22.58	.93
4.67	1.24	10.67	4.40	16.67	1.40	22.67	.93
4.75	1.24	10.75	4.81	16.75	1.40	22.75	.93
4.83	1.24	10.83	4.81	16.83	1.40	22.83	.93
4.92	1.24	10.92	4.81	16.92	1.40	22.92	.93
5.00	1.24	11.00	4.81	17.00	1.40	23.00	.93
5.08	1.24	11.08	5.69	17.08	1.40	23.08	.93
5.17	1.24	11.17	6.57	17.17	1.40	23.17	.93
5.25	1.24	11.25	7.45	17.25	1.40	23.25	.93
5.33	1.24	11.33	7.45	17.33	1.40	23.33	.93
5.42	1.24	11.42	7.45	17.42	1.40	23.42	.93
5.50	1.24	11.50	7.45	17.50	1.40	23.50	.93
5.58	1.24	11.58	12.62	17.58	1.40	23.58	.93
5.67	1.24	11.67	17.80	17.67	1.40	23.67	.93
5.75	1.24	11.75	22.97	17.75	1.40	23.75	.93
5.83	1.24	11.83	46.97	17.83	1.40	23.83	.93
5.92	1.24	11.92	70.98	17.92	1.40	23.92	.93
6.00	1.24	12.00	94.98	18.00	1.40	24.00	.93

 | CALIB |
 | NASHYD (0202) | Area (ha)= 26.90 Curve Number (CN)= 85.0
 | ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

 U.H. Tp(hrs)= .82

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	.35	6.083	1.29	12.083	67.05	18.08	1.40
.167	.70	6.167	1.35	12.167	39.11	18.17	1.40
.250	1.05	6.250	1.40	12.250	11.18	18.25	1.40
.333	1.05	6.333	1.40	12.333	11.17	18.33	1.40
.417	1.05	6.417	1.40	12.417	11.17	18.42	1.40
.500	1.05	6.500	1.40	12.500	11.17	18.50	1.40
.583	1.05	6.583	1.40	12.583	9.36	18.58	1.40
.667	1.05	6.667	1.40	12.667	7.55	18.67	1.40
.750	1.05	6.750	1.40	12.750	5.74	18.75	1.40
.833	1.05	6.833	1.40	12.833	5.74	18.83	1.40
.917	1.05	6.917	1.40	12.917	5.74	18.92	1.40
1.000	1.05	7.000	1.40	13.000	5.74	19.00	1.40
1.083	1.05	7.083	1.50	13.083	5.23	19.08	1.40
1.167	1.05	7.167	1.60	13.167	4.71	19.17	1.40
1.250	1.05	7.250	1.71	13.250	4.19	19.25	1.40
1.333	1.05	7.333	1.71	13.333	4.19	19.33	1.40
1.417	1.05	7.417	1.71	13.417	4.19	19.42	1.40
1.500	1.05	7.500	1.71	13.500	4.19	19.50	1.40
1.583	1.05	7.583	1.71	13.583	3.88	19.58	1.40
1.667	1.05	7.667	1.71	13.667	3.57	19.67	1.40
1.750	1.05	7.750	1.71	13.750	3.26	19.75	1.40
1.833	1.05	7.833	1.71	13.833	3.26	19.83	1.40
1.917	1.05	7.917	1.71	13.917	3.26	19.92	1.40
2.000	1.05	8.000	1.71	14.000	3.26	20.00	1.40
2.083	.97	8.083	1.81	14.083	2.95	20.08	1.24
2.167	.89	8.167	1.91	14.167	2.64	20.17	1.09
2.250	.82	8.250	2.02	14.250	2.33	20.25	.93
2.333	.82	8.333	2.02	14.333	2.33	20.33	.93
2.417	.81	8.417	2.02	14.417	2.33	20.42	.93
2.500	.81	8.500	2.02	14.500	2.33	20.50	.93
2.583	.81	8.583	2.07	14.583	2.33	20.58	.93
2.667	.82	8.667	2.12	14.667	2.33	20.67	.93
2.750	.82	8.750	2.17	14.750	2.33	20.75	.93
2.833	.82	8.833	2.17	14.833	2.33	20.83	.93
2.917	.81	8.917	2.17	14.917	2.33	20.92	.93
3.000	.81	9.000	2.17	15.000	2.33	21.00	.93
3.083	.81	9.083	2.28	15.083	2.33	21.08	.93
3.167	.82	9.167	2.38	15.167	2.33	21.17	.93
3.250	.82	9.250	2.48	15.250	2.33	21.25	.93
3.333	.82	9.333	2.48	15.333	2.33	21.33	.93
3.417	.81	9.417	2.48	15.417	2.33	21.42	.93
3.500	.81	9.500	2.48	15.500	2.33	21.50	.93
3.583	.81	9.583	2.59	15.583	2.33	21.58	.93
3.667	.82	9.667	2.69	15.667	2.33	21.67	.93
3.750	.82	9.750	2.79	15.750	2.33	21.75	.93
3.833	.82	9.833	2.79	15.833	2.33	21.83	.93
3.917	.81	9.917	2.79	15.917	2.33	21.92	.93
4.000	.81	10.000	2.79	16.000	2.33	22.00	.93
4.083	.96	10.083	3.05	16.083	2.02	22.08	.93
4.167	1.10	10.167	3.31	16.167	1.71	22.17	.93
4.250	1.24	10.250	3.57	16.250	1.40	22.25	.93
4.333	1.24	10.333	3.57	16.333	1.40	22.33	.93
4.417	1.24	10.417	3.57	16.417	1.40	22.42	.93
4.500	1.24	10.500	3.57	16.500	1.40	22.50	.93
4.583	1.24	10.583	3.98	16.583	1.40	22.58	.93
4.667	1.24	10.667	4.40	16.667	1.40	22.67	.93
4.750	1.24	10.750	4.81	16.750	1.40	22.75	.93
4.833	1.24	10.833	4.81	16.833	1.40	22.83	.93
4.917	1.24	10.917	4.81	16.917	1.40	22.92	.93
5.000	1.24	11.000	4.81	17.000	1.40	23.00	.93
5.083	1.24	11.083	5.69	17.083	1.40	23.08	.93
5.167	1.24	11.167	6.57	17.167	1.40	23.17	.93
5.250	1.24	11.250	7.45	17.250	1.40	23.25	.93
5.333	1.24	11.333	7.45	17.333	1.40	23.33	.93
5.417	1.24	11.417	7.45	17.417	1.40	23.42	.93
5.500	1.24	11.500	7.45	17.500	1.40	23.50	.93
5.583	1.24	11.583	12.62	17.583	1.40	23.58	.93
5.667	1.24	11.667	17.80	17.667	1.40	23.67	.93
5.750	1.24	11.750	22.97	17.750	1.40	23.75	.93
5.833	1.24	11.833	46.97	17.833	1.40	23.83	.93
5.917	1.24	11.917	70.98	17.917	1.40	23.92	.93
6.000	1.24	12.000	94.98	18.000	1.40	24.00	.00

Unit Hyd Qpeak (cms)= 1.253

PEAK FLOW (cms) = 1.124 (i)
 TIME TO PEAK (hrs) = 12.833
 RUNOFF VOLUME (mm) = 43.306
 TOTAL RAINFALL (mm) = 77.445
 RUNOFF COEFFICIENT = .559

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | NASHYD (0201) | Area (ha) = 83.94 Curve Number (CN) = 85.0
 | ID= 1 DT= 5.0 min | Ia (mm) = 6.70 # of Linear Res.(N) = 3.00
 |-----| U.H. Tp(hrs) = .97

Unit Hyd Qpeak (cms) = 3.305

PEAK FLOW (cms) = 3.090 (i)
 TIME TO PEAK (hrs) = 13.000
 RUNOFF VOLUME (mm) = 43.306
 TOTAL RAINFALL (mm) = 77.445
 RUNOFF COEFFICIENT = .559

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | NASHYD (0203) | Area (ha) = 13.45 Curve Number (CN) = 85.0
 | ID= 1 DT= 5.0 min | Ia (mm) = 6.70 # of Linear Res.(N) = 3.00
 |-----| U.H. Tp(hrs) = .45

Unit Hyd Qpeak (cms) = 1.142

PEAK FLOW (cms) = .867 (i)
 TIME TO PEAK (hrs) = 12.417
 RUNOFF VOLUME (mm) = 43.303
 TOTAL RAINFALL (mm) = 77.445
 RUNOFF COEFFICIENT = .559

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | ADD HYD (0301) |
 | 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
 |-----| (ha) (cms) (hrs) (mm)
 ID1= 1 (0202): 26.90 1.124 12.83 43.31
 + ID2= 2 (0201): 83.94 3.090 13.00 43.31
 =====
 ID = 3 (0301): 110.84 4.189 12.92 43.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 | ADD HYD (0302) |
 | 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
 |-----| (ha) (cms) (hrs) (mm)
 ID1= 1 (0301): 110.84 4.189 12.92 43.31
 + ID2= 2 (0203): 13.45 .867 12.42 43.30
 =====
 ID = 3 (0302): 124.29 4.759 12.83 43.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 ** SIMULATION NUMBER: 4 **

 | MASS STORM | Filename: P:\W&W\Projects\SW04090362 - First Solar
 | | \St. Clair\St. Clair3\VO2\Scs24h.mst
 | Ptotal= 90.20 mm | Comments: SCS 24 HR MASS CURVE
 |-----|

Duration of storm = 24.00 hrs
 Mass curve time step = 15.00 min
 New Storm time step = 5.00 min

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.08	.41	6.08	1.50	12.08	77.93	18.08	1.62
.17	.81	6.17	1.56	12.17	45.46	18.17	1.62

.25	1.22	6.25	1.62	12.25	12.99	18.25	1.62
.33	1.22	6.33	1.62	12.33	12.99	18.33	1.62
.42	1.22	6.42	1.62	12.42	12.99	18.42	1.62
.50	1.22	6.50	1.62	12.50	12.99	18.50	1.62
.58	1.22	6.58	1.62	12.58	10.88	18.58	1.62
.67	1.22	6.67	1.62	12.67	8.78	18.67	1.62
.75	1.22	6.75	1.62	12.75	6.67	18.75	1.62
.83	1.22	6.83	1.62	12.83	6.67	18.83	1.62
.92	1.22	6.92	1.62	12.92	6.67	18.92	1.62
1.00	1.22	7.00	1.62	13.00	6.67	19.00	1.62
1.08	1.22	7.08	1.74	13.08	6.07	19.08	1.62
1.17	1.22	7.17	1.86	13.17	5.47	19.17	1.62
1.25	1.22	7.25	1.98	13.25	4.87	19.25	1.62
1.33	1.22	7.33	1.98	13.33	4.87	19.33	1.62
1.42	1.22	7.42	1.98	13.42	4.87	19.42	1.62
1.50	1.22	7.50	1.98	13.50	4.87	19.50	1.62
1.58	1.22	7.58	1.98	13.58	4.51	19.58	1.62
1.67	1.22	7.67	1.98	13.67	4.15	19.67	1.62
1.75	1.22	7.75	1.98	13.75	3.79	19.75	1.62
1.83	1.22	7.83	1.98	13.83	3.79	19.83	1.62
1.92	1.22	7.92	1.98	13.92	3.79	19.92	1.62
2.00	1.22	8.00	1.98	14.00	3.79	20.00	1.62
2.08	1.13	8.08	2.10	14.08	3.43	20.08	1.44
2.17	1.04	8.17	2.22	14.17	3.07	20.17	1.26
2.25	.95	8.25	2.35	14.25	2.71	20.25	1.08
2.33	.95	8.33	2.35	14.33	2.71	20.33	1.08
2.42	.95	8.42	2.35	14.42	2.71	20.42	1.08
2.50	.95	8.50	2.35	14.50	2.71	20.50	1.08
2.58	.95	8.58	2.41	14.58	2.71	20.58	1.08
2.67	.95	8.67	2.47	14.67	2.71	20.67	1.08
2.75	.95	8.75	2.53	14.75	2.71	20.75	1.08
2.83	.95	8.83	2.53	14.83	2.71	20.83	1.08
2.92	.95	8.92	2.53	14.92	2.71	20.92	1.08
3.00	.95	9.00	2.53	15.00	2.71	21.00	1.08
3.08	.95	9.08	2.65	15.08	2.71	21.08	1.08
3.17	.95	9.17	2.77	15.17	2.71	21.17	1.08
3.25	.95	9.25	2.89	15.25	2.71	21.25	1.08
3.33	.95	9.33	2.89	15.33	2.71	21.33	1.08
3.42	.95	9.42	2.89	15.42	2.71	21.42	1.08
3.50	.95	9.50	2.89	15.50	2.71	21.50	1.08
3.58	.95	9.58	3.01	15.58	2.71	21.58	1.08
3.67	.95	9.67	3.13	15.67	2.71	21.67	1.08
3.75	.95	9.75	3.25	15.75	2.71	21.75	1.08
3.83	.95	9.83	3.25	15.83	2.71	21.83	1.08
3.92	.95	9.92	3.25	15.92	2.71	21.92	1.08
4.00	.95	10.00	3.25	16.00	2.71	22.00	1.08
4.08	1.11	10.08	3.55	16.08	2.35	22.08	1.08
4.17	1.28	10.17	3.85	16.17	1.98	22.17	1.08
4.25	1.44	10.25	4.15	16.25	1.62	22.25	1.08
4.33	1.44	10.33	4.15	16.33	1.62	22.33	1.08
4.42	1.44	10.42	4.15	16.42	1.62	22.42	1.08
4.50	1.44	10.50	4.15	16.50	1.62	22.50	1.08
4.58	1.44	10.58	4.63	16.58	1.62	22.58	1.08
4.67	1.44	10.67	5.11	16.67	1.62	22.67	1.08
4.75	1.44	10.75	5.59	16.75	1.62	22.75	1.08
4.83	1.44	10.83	5.59	16.83	1.62	22.83	1.08
4.92	1.44	10.92	5.59	16.92	1.62	22.92	1.08
5.00	1.44	11.00	5.59	17.00	1.62	23.00	1.08
5.08	1.44	11.08	6.61	17.08	1.62	23.08	1.08
5.17	1.44	11.17	7.64	17.17	1.62	23.17	1.08
5.25	1.44	11.25	8.66	17.25	1.62	23.25	1.08
5.33	1.44	11.33	8.66	17.33	1.62	23.33	1.08
5.42	1.44	11.42	8.66	17.42	1.62	23.42	1.08
5.50	1.44	11.50	8.66	17.50	1.62	23.50	1.08
5.58	1.44	11.58	14.67	17.58	1.62	23.58	1.08
5.67	1.44	11.67	20.69	17.67	1.62	23.67	1.08
5.75	1.44	11.75	26.70	17.75	1.62	23.75	1.08
5.83	1.44	11.83	54.60	17.83	1.62	23.83	1.08
5.92	1.44	11.92	82.50	17.92	1.62	23.92	1.08
6.00	1.44	12.00	110.40	18.00	1.62	24.00	1.08

| CALIB |
| NASHYD (0202) | Area (ha)= 26.90 Curve Number (CN)= 85.0
| ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= .82

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	.41	6.083	1.50	12.083	77.94	18.08	1.62
.167	.81	6.167	1.56	12.167	45.47	18.17	1.62
.250	1.22	6.250	1.62	12.250	12.99	18.25	1.62
.333	1.22	6.333	1.62	12.333	12.99	18.33	1.62

.417	1.22	6.417	1.62	12.417	12.99	18.42	1.62
.500	1.22	6.500	1.62	12.500	12.99	18.50	1.62
.583	1.22	6.583	1.62	12.583	10.88	18.58	1.62
.667	1.22	6.667	1.62	12.667	8.78	18.67	1.62
.750	1.22	6.750	1.62	12.750	6.68	18.75	1.62
.833	1.22	6.833	1.62	12.833	6.67	18.83	1.62
.917	1.22	6.917	1.62	12.917	6.67	18.92	1.62
1.000	1.22	7.000	1.62	13.000	6.67	19.00	1.62
1.083	1.22	7.083	1.74	13.083	6.07	19.08	1.62
1.167	1.22	7.167	1.86	13.167	5.47	19.17	1.62
1.250	1.22	7.250	1.98	13.250	4.87	19.25	1.62
1.333	1.22	7.333	1.98	13.333	4.87	19.33	1.62
1.417	1.22	7.417	1.98	13.417	4.87	19.42	1.62
1.500	1.22	7.500	1.98	13.500	4.87	19.50	1.62
1.583	1.22	7.583	1.98	13.583	4.51	19.58	1.62
1.667	1.22	7.667	1.98	13.667	4.15	19.67	1.62
1.750	1.22	7.750	1.98	13.750	3.79	19.75	1.62
1.833	1.22	7.833	1.98	13.833	3.79	19.83	1.62
1.917	1.22	7.917	1.98	13.917	3.79	19.92	1.62
2.000	1.22	8.000	1.98	14.000	3.79	20.00	1.62
2.083	1.13	8.083	2.10	14.083	3.43	20.08	1.44
2.167	1.04	8.167	2.22	14.167	3.07	20.17	1.26
2.250	.95	8.250	2.35	14.250	2.71	20.25	1.08
2.333	.95	8.333	2.35	14.333	2.71	20.33	1.08
2.417	.95	8.417	2.35	14.417	2.71	20.42	1.08
2.500	.95	8.500	2.35	14.500	2.71	20.50	1.08
2.583	.95	8.583	2.41	14.583	2.71	20.58	1.08
2.667	.95	8.667	2.47	14.667	2.71	20.67	1.08
2.750	.95	8.750	2.53	14.750	2.71	20.75	1.08
2.833	.95	8.833	2.53	14.833	2.71	20.83	1.08
2.917	.95	8.917	2.53	14.917	2.71	20.92	1.08
3.000	.95	9.000	2.53	15.000	2.71	21.00	1.08
3.083	.95	9.083	2.65	15.083	2.71	21.08	1.08
3.167	.95	9.167	2.77	15.167	2.71	21.17	1.08
3.250	.95	9.250	2.89	15.250	2.71	21.25	1.08
3.333	.95	9.333	2.89	15.333	2.71	21.33	1.08
3.417	.95	9.417	2.89	15.417	2.71	21.42	1.08
3.500	.95	9.500	2.89	15.500	2.71	21.50	1.08
3.583	.95	9.583	3.01	15.583	2.71	21.58	1.08
3.667	.95	9.667	3.13	15.667	2.71	21.67	1.08
3.750	.95	9.750	3.25	15.750	2.71	21.75	1.08
3.833	.95	9.833	3.25	15.833	2.71	21.83	1.08
3.917	.95	9.917	3.25	15.917	2.71	21.92	1.08
4.000	.95	10.000	3.25	16.000	2.71	22.00	1.08
4.083	1.11	10.083	3.55	16.083	2.35	22.08	1.08
4.167	1.28	10.167	3.85	16.167	1.98	22.17	1.08
4.250	1.44	10.250	4.15	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.15	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.15	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.15	16.500	1.62	22.50	1.08
4.583	1.44	10.583	4.63	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.11	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.59	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.59	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.59	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.59	17.000	1.62	23.00	1.08
5.083	1.44	11.083	6.61	17.083	1.62	23.08	1.08
5.167	1.44	11.167	7.64	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.66	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.66	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.66	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.66	17.500	1.62	23.50	1.08
5.583	1.44	11.583	14.67	17.583	1.62	23.58	1.08
5.667	1.44	11.667	20.69	17.667	1.62	23.67	1.08
5.750	1.44	11.750	26.70	17.750	1.62	23.75	1.08
5.833	1.44	11.833	54.60	17.833	1.62	23.83	1.08
5.917	1.44	11.917	82.50	17.917	1.62	23.92	1.08
6.000	1.44	12.000	110.40	18.000	1.62	24.00	.00

Unit Hyd Qpeak (cms)= 1.253

PEAK FLOW (cms)= 1.411 (i)
 TIME TO PEAK (hrs)= 12.833
 RUNOFF VOLUME (mm)= 54.175
 TOTAL RAINFALL (mm)= 90.020
 RUNOFF COEFFICIENT = .602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | NASHYD (0201) | Area (ha)= 83.94 Curve Number (CN)= 85.0
 | ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

 U.H. Tp(hrs)= .97

Unit Hyd Qpeak (cms)= 3.305

PEAK FLOW (cms)= 3882 (i)
 TIME TO PEAK (hrs)= 13.000
 RUNOFF VOLUME (mm)= 54.175
 TOTAL RAINFALL (mm)= 90.020
 RUNOFF COEFFICIENT = .602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0203)		Area (ha)=	13.45	Curve Number (CN)= 85.0
ID= 1 DT= 5.0 min		Ia (mm)=	6.70	# of Linear Res.(N)= 3.00
		U.H. Tp(hrs)=	.45	

Unit Hyd Qpeak (cms)= 1.142

PEAK FLOW (cms)= 1.087 (i)
 TIME TO PEAK (hrs)= 12.417
 RUNOFF VOLUME (mm)= 54.171
 TOTAL RAINFALL (mm)= 90.020
 RUNOFF COEFFICIENT = .602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0301)						
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.	
		(ha)	(cms)	(hrs)	(mm)	
		ID1= 1 (0202):	26.90	1.411	12.83	54.17
		+ ID2= 2 (0201):	83.94	3.882	13.00	54.17
		=====				
		ID = 3 (0301):	110.84	5.264	12.92	54.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0302)						
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.	
		(ha)	(cms)	(hrs)	(mm)	
		ID1= 1 (0301):	110.84	5.264	12.92	54.17
		+ ID2= 2 (0203):	13.45	1.087	12.42	54.17
		=====				
		ID = 3 (0302):	124.29	5.979	12.83	54.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 ** SIMULATION NUMBER: 5 **

MASS STORM		Filename: P:\W&W\Projects\SW04090362 - First Solar
Ptotal= 99.60 mm		\St. Clair\St. Clair3\VO2\Scs24h.mst
		Comments: SCS 24 HR MASS CURVE

Duration of storm = 24.00 hrs
 Mass curve time step = 15.00 min
 New Storm time step = 5.00 min

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.08	.45	6.08	1.66	12.08	86.05	18.08	1.79
.17	.90	6.17	1.73	12.17	50.20	18.17	1.79
.25	1.35	6.25	1.79	12.25	14.34	18.25	1.79
.33	1.35	6.33	1.79	12.33	14.34	18.33	1.79
.42	1.34	6.42	1.79	12.42	14.34	18.42	1.79
.50	1.34	6.50	1.79	12.50	14.34	18.50	1.79
.58	1.34	6.58	1.79	12.58	12.02	18.58	1.79
.67	1.35	6.67	1.79	12.67	9.69	18.67	1.79
.75	1.35	6.75	1.79	12.75	7.37	18.75	1.79
.83	1.35	6.83	1.79	12.83	7.37	18.83	1.79
.92	1.34	6.92	1.79	12.92	7.37	18.92	1.79
1.00	1.34	7.00	1.79	13.00	7.37	19.00	1.79
1.08	1.34	7.08	1.93	13.08	6.71	19.08	1.79
1.17	1.35	7.17	2.06	13.17	6.04	19.17	1.79
1.25	1.35	7.25	2.19	13.25	5.38	19.25	1.79
1.33	1.35	7.33	2.19	13.33	5.38	19.33	1.79
1.42	1.34	7.42	2.19	13.42	5.38	19.42	1.79
1.50	1.34	7.50	2.19	13.50	5.38	19.50	1.79
1.58	1.34	7.58	2.19	13.58	4.98	19.58	1.79
1.67	1.35	7.67	2.19	13.67	4.58	19.67	1.79

1.75	1.35	7.75	2.19	13.75	4.18	19.75	1.79
1.83	1.35	7.83	2.19	13.83	4.18	19.83	1.79
1.92	1.34	7.92	2.19	13.92	4.18	19.92	1.79
2.00	1.34	8.00	2.19	14.00	4.18	20.00	1.79
2.08	1.24	8.08	2.32	14.08	3.78	20.08	1.59
2.17	1.15	8.17	2.46	14.17	3.39	20.17	1.39
2.25	1.05	8.25	2.59	14.25	2.99	20.25	1.20
2.33	1.05	8.33	2.59	14.33	2.99	20.33	1.20
2.42	1.05	8.42	2.59	14.42	2.99	20.42	1.20
2.50	1.04	8.50	2.59	14.50	2.99	20.50	1.20
2.58	1.05	8.58	2.66	14.58	2.99	20.58	1.20
2.67	1.05	8.67	2.72	14.67	2.99	20.67	1.20
2.75	1.05	8.75	2.79	14.75	2.99	20.75	1.20
2.83	1.05	8.83	2.79	14.83	2.99	20.83	1.20
2.92	1.05	8.92	2.79	14.92	2.99	20.92	1.20
3.00	1.04	9.00	2.79	15.00	2.99	21.00	1.20
3.08	1.05	9.08	2.92	15.08	2.99	21.08	1.20
3.17	1.05	9.17	3.05	15.17	2.99	21.17	1.20
3.25	1.05	9.25	3.19	15.25	2.99	21.25	1.20
3.33	1.05	9.33	3.19	15.33	2.99	21.33	1.20
3.42	1.05	9.42	3.19	15.42	2.99	21.42	1.20
3.50	1.04	9.50	3.19	15.50	2.99	21.50	1.20
3.58	1.05	9.58	3.32	15.58	2.99	21.58	1.20
3.67	1.05	9.67	3.45	15.67	2.99	21.67	1.20
3.75	1.05	9.75	3.59	15.75	2.99	21.75	1.20
3.83	1.05	9.83	3.59	15.83	2.99	21.83	1.20
3.92	1.05	9.92	3.59	15.92	2.99	21.92	1.20
4.00	1.04	10.00	3.59	16.00	2.99	22.00	1.20
4.08	1.23	10.08	3.92	16.08	2.59	22.08	1.20
4.17	1.41	10.17	4.25	16.17	2.19	22.17	1.20
4.25	1.59	10.25	4.58	16.25	1.79	22.25	1.20
4.33	1.59	10.33	4.58	16.33	1.79	22.33	1.20
4.42	1.59	10.42	4.58	16.42	1.79	22.42	1.20
4.50	1.59	10.50	4.58	16.50	1.79	22.50	1.20
4.58	1.59	10.58	5.11	16.58	1.79	22.58	1.20
4.67	1.59	10.67	5.64	16.67	1.79	22.67	1.20
4.75	1.59	10.75	6.18	16.75	1.79	22.75	1.20
4.83	1.59	10.83	6.18	16.83	1.79	22.83	1.20
4.92	1.59	10.92	6.18	16.92	1.79	22.92	1.20
5.00	1.59	11.00	6.18	17.00	1.79	23.00	1.20
5.08	1.59	11.08	7.30	17.08	1.79	23.08	1.20
5.17	1.59	11.17	8.43	17.17	1.79	23.17	1.20
5.25	1.59	11.25	9.56	17.25	1.79	23.25	1.20
5.33	1.59	11.33	9.56	17.33	1.79	23.33	1.20
5.42	1.59	11.42	9.56	17.42	1.79	23.42	1.20
5.50	1.59	11.50	9.56	17.50	1.79	23.50	1.20
5.58	1.59	11.58	16.20	17.58	1.79	23.58	1.20
5.67	1.59	11.67	22.84	17.67	1.79	23.67	1.20
5.75	1.59	11.75	29.48	17.75	1.79	23.75	1.20
5.83	1.59	11.83	60.29	17.83	1.79	23.83	1.20
5.92	1.59	11.92	91.10	17.92	1.79	23.92	1.20
6.00	1.59	12.00	121.91	18.00	1.79	24.00	1.20

| CALIB |
| NASHYD (0202) | Area (ha)= 26.90 Curve Number (CN)= 85.0
| ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= .82

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	.45	6.083	1.66	12.083	86.06	18.08	1.79
.167	.90	6.167	1.73	12.167	50.20	18.17	1.79
.250	1.35	6.250	1.79	12.250	14.35	18.25	1.79
.333	1.35	6.333	1.79	12.333	14.34	18.33	1.79
.417	1.34	6.417	1.79	12.417	14.34	18.42	1.79
.500	1.34	6.500	1.79	12.500	14.34	18.50	1.79
.583	1.34	6.583	1.79	12.583	12.02	18.58	1.79
.667	1.35	6.667	1.79	12.667	9.69	18.67	1.79
.750	1.35	6.750	1.79	12.750	7.37	18.75	1.79
.833	1.35	6.833	1.79	12.833	7.37	18.83	1.79
.917	1.34	6.917	1.79	12.917	7.37	18.92	1.79
1.000	1.34	7.000	1.79	13.000	7.37	19.00	1.79
1.083	1.34	7.083	1.93	13.083	6.71	19.08	1.79
1.167	1.35	7.167	2.06	13.167	6.04	19.17	1.79
1.250	1.35	7.250	2.19	13.250	5.38	19.25	1.79
1.333	1.35	7.333	2.19	13.333	5.38	19.33	1.79
1.417	1.34	7.417	2.19	13.417	5.38	19.42	1.79
1.500	1.34	7.500	2.19	13.500	5.38	19.50	1.79
1.583	1.34	7.583	2.19	13.583	4.98	19.58	1.79
1.667	1.35	7.667	2.19	13.667	4.58	19.67	1.79
1.750	1.35	7.750	2.19	13.750	4.18	19.75	1.79
1.833	1.35	7.833	2.19	13.833	4.18	19.83	1.79

1.917	1.34	7.917	2.19	13.917	4.18	19.92	1.79
2.000	1.34	8.000	2.19	14.000	4.18	20.00	1.79
2.083	1.24	8.083	2.32	14.083	3.78	20.08	1.59
2.167	1.15	8.167	2.46	14.167	3.39	20.17	1.39
2.250	1.05	8.250	2.59	14.250	2.99	20.25	1.20
2.333	1.05	8.333	2.59	14.333	2.99	20.33	1.20
2.417	1.05	8.417	2.59	14.417	2.99	20.42	1.20
2.500	1.04	8.500	2.59	14.500	2.99	20.50	1.20
2.583	1.05	8.583	2.66	14.583	2.99	20.58	1.20
2.667	1.05	8.667	2.72	14.667	2.99	20.67	1.20
2.750	1.05	8.750	2.79	14.750	2.99	20.75	1.20
2.833	1.05	8.833	2.79	14.833	2.99	20.83	1.20
2.917	1.05	8.917	2.79	14.917	2.99	20.92	1.20
3.000	1.04	9.000	2.79	15.000	2.99	21.00	1.20
3.083	1.05	9.083	2.92	15.083	2.99	21.08	1.20
3.167	1.05	9.167	3.05	15.167	2.99	21.17	1.20
3.250	1.05	9.250	3.19	15.250	2.99	21.25	1.20
3.333	1.05	9.333	3.19	15.333	2.99	21.33	1.20
3.417	1.05	9.417	3.19	15.417	2.99	21.42	1.20
3.500	1.04	9.500	3.19	15.500	2.99	21.50	1.20
3.583	1.05	9.583	3.32	15.583	2.99	21.58	1.20
3.667	1.05	9.667	3.45	15.667	2.99	21.67	1.20
3.750	1.05	9.750	3.59	15.750	2.99	21.75	1.20
3.833	1.05	9.833	3.59	15.833	2.99	21.83	1.20
3.917	1.05	9.917	3.59	15.917	2.99	21.92	1.20
4.000	1.04	10.000	3.59	16.000	2.99	22.00	1.20
4.083	1.23	10.083	3.92	16.083	2.59	22.08	1.20
4.167	1.41	10.167	4.25	16.167	2.19	22.17	1.20
4.250	1.59	10.250	4.58	16.250	1.79	22.25	1.20
4.333	1.59	10.333	4.58	16.333	1.79	22.33	1.20
4.417	1.59	10.417	4.58	16.417	1.79	22.42	1.20
4.500	1.59	10.500	4.58	16.500	1.79	22.50	1.20
4.583	1.59	10.583	5.11	16.583	1.79	22.58	1.20
4.667	1.59	10.667	5.64	16.667	1.79	22.67	1.20
4.750	1.59	10.750	6.18	16.750	1.79	22.75	1.20
4.833	1.59	10.833	6.18	16.833	1.79	22.83	1.20
4.917	1.59	10.917	6.18	16.917	1.79	22.92	1.20
5.000	1.59	11.000	6.18	17.000	1.79	23.00	1.20
5.083	1.59	11.083	7.30	17.083	1.79	23.08	1.20
5.167	1.59	11.167	8.43	17.167	1.79	23.17	1.20
5.250	1.59	11.250	9.56	17.250	1.79	23.25	1.20
5.333	1.59	11.333	9.56	17.333	1.79	23.33	1.20
5.417	1.59	11.417	9.56	17.417	1.79	23.42	1.20
5.500	1.59	11.500	9.56	17.500	1.79	23.50	1.20
5.583	1.59	11.583	16.20	17.583	1.79	23.58	1.20
5.667	1.59	11.667	22.84	17.667	1.79	23.67	1.20
5.750	1.59	11.750	29.48	17.750	1.79	23.75	1.20
5.833	1.59	11.833	60.29	17.833	1.79	23.83	1.20
5.917	1.59	11.917	91.10	17.917	1.79	23.92	1.20
6.000	1.59	12.000	121.91	18.000	1.79	24.00	.00

Unit Hyd Qpeak (cms)= 1.253

PEAK FLOW (cms)= 1.630 (i)
 TIME TO PEAK (hrs)= 12.833
 RUNOFF VOLUME (mm)= 62.486
 TOTAL RAINFALL (mm)= 99.401
 RUNOFF COEFFICIENT = .629

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | NASHYD (0201) | Area (ha)= 83.94 Curve Number (CN)= 85.0
 | ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

 U.H. Tp(hrs)= .97

Unit Hyd Qpeak (cms)= 3.305

PEAK FLOW (cms)= 4.484 (i)
 TIME TO PEAK (hrs)= 13.000
 RUNOFF VOLUME (mm)= 62.487
 TOTAL RAINFALL (mm)= 99.401
 RUNOFF COEFFICIENT = .629

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | CALIB |
 | NASHYD (0203) | Area (ha)= 13.45 Curve Number (CN)= 85.0
 | ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00

 U.H. Tp(hrs)= .45

Unit Hyd Qpeak (cms)= 1.142

PEAK FLOW (cms)= 1.255 (i)

TIME TO PEAK (hrs) = 12.417
 RUNOFF VOLUME (mm) = 62.482
 TOTAL RAINFALL (mm) = 99.401
 RUNOFF COEFFICIENT = .629

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0301)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0202):	26.90	1.630	12.83	62.49
+ ID2= 2 (0201):	83.94	4.484	13.00	62.49
ID = 3 (0301):	110.84	6.083	12.92	62.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0302)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0301):	110.84	6.083	12.92	62.49
+ ID2= 2 (0203):	13.45	1.255	12.42	62.48
ID = 3 (0302):	124.29	6.908	12.83	62.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

 ** SIMULATION NUMBER: 6 **

MASS STORM	Filename: P:\W&W\Projects\SW04090362 - First Solar
	\St. Clair\St. Clair3\VO2\Scs24h.mst
Ptotal=108.90 mm	Comments: SCS 24 HR MASS CURVE

Duration of storm = 24.00 hrs
 Mass curve time step = 15.00 min
 New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.08	.49	6.08	1.82	12.08	94.09	18.08	1.96
.17	.98	6.17	1.89	12.17	54.89	18.17	1.96
.25	1.47	6.25	1.96	12.25	15.68	18.25	1.96
.33	1.47	6.33	1.96	12.33	15.68	18.33	1.96
.42	1.47	6.42	1.96	12.42	15.68	18.42	1.96
.50	1.47	6.50	1.96	12.50	15.68	18.50	1.96
.58	1.47	6.58	1.96	12.58	13.14	18.58	1.96
.67	1.47	6.67	1.96	12.67	10.60	18.67	1.96
.75	1.47	6.75	1.96	12.75	8.06	18.75	1.96
.83	1.47	6.83	1.96	12.83	8.06	18.83	1.96
.92	1.47	6.92	1.96	12.92	8.06	18.92	1.96
1.00	1.47	7.00	1.96	13.00	8.06	19.00	1.96
1.08	1.47	7.08	2.11	13.08	7.33	19.08	1.96
1.17	1.47	7.17	2.25	13.17	6.61	19.17	1.96
1.25	1.47	7.25	2.40	13.25	5.88	19.25	1.96
1.33	1.47	7.33	2.40	13.33	5.88	19.33	1.96
1.42	1.47	7.42	2.40	13.42	5.88	19.42	1.96
1.50	1.47	7.50	2.40	13.50	5.88	19.50	1.96
1.58	1.47	7.58	2.40	13.58	5.45	19.58	1.96
1.67	1.47	7.67	2.40	13.67	5.01	19.67	1.96
1.75	1.47	7.75	2.40	13.75	4.57	19.75	1.96
1.83	1.47	7.83	2.40	13.83	4.57	19.83	1.96
1.92	1.47	7.92	2.40	13.92	4.57	19.92	1.96
2.00	1.47	8.00	2.40	14.00	4.57	20.00	1.96
2.08	1.36	8.08	2.54	14.08	4.14	20.08	1.74
2.17	1.25	8.17	2.69	14.17	3.70	20.17	1.52
2.25	1.15	8.25	2.83	14.25	3.27	20.25	1.31
2.33	1.14	8.33	2.83	14.33	3.27	20.33	1.31
2.42	1.14	8.42	2.83	14.42	3.27	20.42	1.31
2.50	1.14	8.50	2.83	14.50	3.27	20.50	1.31
2.58	1.14	8.58	2.90	14.58	3.27	20.58	1.31
2.67	1.14	8.67	2.98	14.67	3.27	20.67	1.31
2.75	1.15	8.75	3.05	14.75	3.27	20.75	1.31
2.83	1.14	8.83	3.05	14.83	3.27	20.83	1.31
2.92	1.14	8.92	3.05	14.92	3.27	20.92	1.31
3.00	1.14	9.00	3.05	15.00	3.27	21.00	1.31
3.08	1.14	9.08	3.19	15.08	3.27	21.08	1.31
3.17	1.14	9.17	3.34	15.17	3.27	21.17	1.31

3.25	1.15	9.25	3.48	15.25	3.27	21.25	1.31
3.33	1.14	9.33	3.48	15.33	3.27	21.33	1.31
3.42	1.14	9.42	3.48	15.42	3.27	21.42	1.31
3.50	1.14	9.50	3.48	15.50	3.27	21.50	1.31
3.58	1.14	9.58	3.63	15.58	3.27	21.58	1.31
3.67	1.14	9.67	3.78	15.67	3.27	21.67	1.31
3.75	1.15	9.75	3.92	15.75	3.27	21.75	1.31
3.83	1.14	9.83	3.92	15.83	3.27	21.83	1.31
3.92	1.14	9.92	3.92	15.92	3.27	21.92	1.31
4.00	1.14	10.00	3.92	16.00	3.27	22.00	1.31
4.08	1.34	10.08	4.28	16.08	2.83	22.08	1.31
4.17	1.54	10.17	4.65	16.17	2.40	22.17	1.31
4.25	1.74	10.25	5.01	16.25	1.96	22.25	1.31
4.33	1.74	10.33	5.01	16.33	1.96	22.33	1.31
4.42	1.74	10.42	5.01	16.42	1.96	22.42	1.31
4.50	1.74	10.50	5.01	16.50	1.96	22.50	1.31
4.58	1.74	10.58	5.59	16.58	1.96	22.58	1.31
4.67	1.74	10.67	6.17	16.67	1.96	22.67	1.31
4.75	1.74	10.75	6.75	16.75	1.96	22.75	1.31
4.83	1.74	10.83	6.75	16.83	1.96	22.83	1.31
4.92	1.74	10.92	6.75	16.92	1.96	22.92	1.31
5.00	1.74	11.00	6.75	17.00	1.96	23.00	1.31
5.08	1.74	11.08	7.99	17.08	1.96	23.08	1.31
5.17	1.74	11.17	9.22	17.17	1.96	23.17	1.31
5.25	1.74	11.25	10.45	17.25	1.96	23.25	1.31
5.33	1.74	11.33	10.45	17.33	1.96	23.33	1.31
5.42	1.74	11.42	10.45	17.42	1.96	23.42	1.31
5.50	1.74	11.50	10.45	17.50	1.96	23.50	1.31
5.58	1.74	11.58	17.71	17.58	1.96	23.58	1.31
5.67	1.74	11.67	24.97	17.67	1.96	23.67	1.31
5.75	1.74	11.75	32.23	17.75	1.96	23.75	1.31
5.83	1.74	11.83	65.92	17.83	1.96	23.83	1.31
5.92	1.74	11.92	99.61	17.92	1.96	23.92	1.31
6.00	1.74	12.00	133.29	18.00	1.96	24.00	1.31

| CALIB |
| NASHYD (0202) | Area (ha)= 26.90 Curve Number (CN)= 85.0
| ID= 1 DT= 5.0 min | Ia (mm)= 6.70 # of Linear Res.(N)= 3.00
|-----
U.H. Tp(hrs)= .82

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	.49	6.083	1.82	12.083	94.09	18.08	1.96
.167	.98	6.167	1.89	12.167	54.89	18.17	1.96
.250	1.47	6.250	1.96	12.250	15.69	18.25	1.96
.333	1.47	6.333	1.96	12.333	15.68	18.33	1.96
.417	1.47	6.417	1.96	12.417	15.68	18.42	1.96
.500	1.47	6.500	1.96	12.500	15.68	18.50	1.96
.583	1.47	6.583	1.96	12.583	13.14	18.58	1.96
.667	1.47	6.667	1.96	12.667	10.60	18.67	1.96
.750	1.47	6.750	1.96	12.750	8.06	18.75	1.96
.833	1.47	6.833	1.96	12.833	8.06	18.83	1.96
.917	1.47	6.917	1.96	12.917	8.06	18.92	1.96
1.000	1.47	7.000	1.96	13.000	8.06	19.00	1.96
1.083	1.47	7.083	2.11	13.083	7.33	19.08	1.96
1.167	1.47	7.167	2.25	13.167	6.61	19.17	1.96
1.250	1.47	7.250	2.40	13.250	5.88	19.25	1.96
1.333	1.47	7.333	2.40	13.333	5.88	19.33	1.96
1.417	1.47	7.417	2.40	13.417	5.88	19.42	1.96
1.500	1.47	7.500	2.40	13.500	5.88	19.50	1.96
1.583	1.47	7.583	2.40	13.583	5.45	19.58	1.96
1.667	1.47	7.667	2.40	13.667	5.01	19.67	1.96
1.750	1.47	7.750	2.40	13.750	4.57	19.75	1.96
1.833	1.47	7.833	2.40	13.833	4.57	19.83	1.96
1.917	1.47	7.917	2.40	13.917	4.57	19.92	1.96
2.000	1.47	8.000	2.40	14.000	4.57	20.00	1.96
2.083	1.36	8.083	2.54	14.083	4.14	20.08	1.74
2.167	1.25	8.167	2.69	14.167	3.70	20.17	1.52
2.250	1.15	8.250	2.83	14.250	3.27	20.25	1.31
2.333	1.14	8.333	2.83	14.333	3.27	20.33	1.31
2.417	1.14	8.417	2.83	14.417	3.27	20.42	1.31
2.500	1.14	8.500	2.83	14.500	3.27	20.50	1.31
2.583	1.14	8.583	2.90	14.583	3.27	20.58	1.31
2.667	1.14	8.667	2.98	14.667	3.27	20.67	1.31
2.750	1.15	8.750	3.05	14.750	3.27	20.75	1.31
2.833	1.14	8.833	3.05	14.833	3.27	20.83	1.31
2.917	1.14	8.917	3.05	14.917	3.27	20.92	1.31
3.000	1.14	9.000	3.05	15.000	3.27	21.00	1.31
3.083	1.14	9.083	3.19	15.083	3.27	21.08	1.31
3.167	1.14	9.167	3.34	15.167	3.27	21.17	1.31
3.250	1.15	9.250	3.48	15.250	3.27	21.25	1.31
3.333	1.14	9.333	3.48	15.333	3.27	21.33	1.31

3.417	1.14	9.417	3.48	15.417	3.27	21.42	1.31
3.500	1.14	9.500	3.48	15.500	3.27	21.50	1.31
3.583	1.14	9.583	3.63	15.583	3.27	21.58	1.31
3.667	1.14	9.667	3.78	15.667	3.27	21.67	1.31
3.750	1.15	9.750	3.92	15.750	3.27	21.75	1.31
3.833	1.14	9.833	3.92	15.833	3.27	21.83	1.31
3.917	1.14	9.917	3.92	15.917	3.27	21.92	1.31
4.000	1.14	10.000	3.92	16.000	3.27	22.00	1.31
4.083	1.34	10.083	4.28	16.083	2.83	22.08	1.31
4.167	1.54	10.167	4.65	16.167	2.40	22.17	1.31
4.250	1.74	10.250	5.01	16.250	1.96	22.25	1.31
4.333	1.74	10.333	5.01	16.333	1.96	22.33	1.31
4.417	1.74	10.417	5.01	16.417	1.96	22.42	1.31
4.500	1.74	10.500	5.01	16.500	1.96	22.50	1.31
4.583	1.74	10.583	5.59	16.583	1.96	22.58	1.31
4.667	1.74	10.667	6.17	16.667	1.96	22.67	1.31
4.750	1.74	10.750	6.75	16.750	1.96	22.75	1.31
4.833	1.74	10.833	6.75	16.833	1.96	22.83	1.31
4.917	1.74	10.917	6.75	16.917	1.96	22.92	1.31
5.000	1.74	11.000	6.75	17.000	1.96	23.00	1.31
5.083	1.74	11.083	7.99	17.083	1.96	23.08	1.31
5.167	1.74	11.167	9.22	17.167	1.96	23.17	1.31
5.250	1.74	11.250	10.45	17.250	1.96	23.25	1.31
5.333	1.74	11.333	10.45	17.333	1.96	23.33	1.31
5.417	1.74	11.417	10.45	17.417	1.96	23.42	1.31
5.500	1.74	11.500	10.45	17.500	1.96	23.50	1.31
5.583	1.74	11.583	17.71	17.583	1.96	23.58	1.31
5.667	1.74	11.667	24.97	17.667	1.96	23.67	1.31
5.750	1.74	11.750	32.23	17.750	1.96	23.75	1.31
5.833	1.74	11.833	65.92	17.833	1.96	23.83	1.31
5.917	1.74	11.917	99.60	17.917	1.96	23.92	1.31
6.000	1.74	12.000	133.29	18.000	1.96	24.00	.00

Unit Hyd Qpeak (cms)= 1.253

PEAK FLOW (cms)= 1.848 (i)
 TIME TO PEAK (hrs)= 12.833
 RUNOFF VOLUME (mm)= 70.844
 TOTAL RAINFALL (mm)= 108.682
 RUNOFF COEFFICIENT = .652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0201)	Area (ha)=	83.94	Curve Number (CN)=	85.0
ID= 1 DT= 5.0 min	Ia (mm)=	6.70	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	.97		

Unit Hyd Qpeak (cms)= 3.305

PEAK FLOW (cms)= 5.087 (i)
 TIME TO PEAK (hrs)= 13.000
 RUNOFF VOLUME (mm)= 70.844
 TOTAL RAINFALL (mm)= 108.682
 RUNOFF COEFFICIENT = .652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0203)	Area (ha)=	13.45	Curve Number (CN)=	85.0
ID= 1 DT= 5.0 min	Ia (mm)=	6.70	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	.45		

Unit Hyd Qpeak (cms)= 1.142

PEAK FLOW (cms)= 1.423 (i)
 TIME TO PEAK (hrs)= 12.417
 RUNOFF VOLUME (mm)= 70.839
 TOTAL RAINFALL (mm)= 108.682
 RUNOFF COEFFICIENT = .652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0301)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):	26.90	1.848	12.83	70.84
+ ID2= 2 (0201):	83.94	5.087	13.00	70.84
=====	=====	=====	=====	=====
ID = 3 (0301):	110.84	6.903	12.92	70.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0302)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0301):	110.84	6.903	12.92	70.84
+ ID2= 2 (0203):	13.45	1.423	12.42	70.84
=====				
ID = 3 (0302):	124.29	7.838	12.83	70.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

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V V I SSSSS U U A L
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

OOO TTTT TTTT H H Y Y M M OOO TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
OOO T T H H Y M M OOO

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files\Visual OTTHYMO 2.2.4\voindat
 Output filename: P:\W&W\Projects\SW0409~1\STA8EF~1.CLA\STDBEF~1.CLA\VO2\Post-development - Regional.out
 Summary filename: P:\W&W\Projects\SW0409~1\STA8EF~1.CLA\STDBEF~1.CLA\VO2\Post-development - Regional.sum

DATE: 4/26/2010 TIME: 1:53:55 PM

USER:

COMMENTS: _____

 ** SIMULATION NUMBER: 7 **

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| MASS STORM | | Filename: P:\W&W\Projects\SW04090362 - First Solar
| | | \St. Clair\St. Clair3\VO2\Hazell2.mst
| Ptotal=211.00 mm | | Comments: Hurricane Hazel (last 12 h)
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Duration of storm = 12.00 hrs
 Mass curve time step = 60.00 min
 New Storm time step = 10.00 min

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.17	1.06	3.17	7.39	6.17	14.42	9.17	19.34
.33	2.11	3.33	8.44	6.33	16.18	9.33	26.02
.50	3.16	3.50	9.50	6.50	17.93	9.50	32.71
.67	4.22	3.67	10.55	6.67	19.69	9.67	39.39
.83	5.28	3.83	11.61	6.83	21.45	9.83	46.07
1.00	6.33	4.00	12.66	7.00	23.21	10.00	52.75
1.17	5.98	4.17	13.36	7.17	21.45	10.17	50.29
1.33	5.63	4.33	14.07	7.33	19.69	10.33	47.83
1.50	5.28	4.50	14.77	7.50	17.94	10.50	45.36
1.67	4.92	4.67	15.47	7.67	16.18	10.67	42.90
1.83	4.57	4.83	16.18	7.83	14.42	10.83	40.44
2.00	4.22	5.00	16.88	8.00	12.66	11.00	37.98
2.17	4.57	5.17	16.18	8.17	12.66	11.17	33.76
2.33	4.92	5.33	15.47	8.33	12.66	11.33	29.54
2.50	5.28	5.50	14.77	8.50	12.66	11.50	25.32
2.67	5.63	5.67	14.07	8.67	12.66	11.67	21.10
2.83	5.98	5.83	13.36	8.83	12.66	11.83	16.88
3.00	6.33	6.00	12.66	9.00	12.66	12.00	12.66

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| CALIB | |
| NASHYD (0202) | | Area (ha)= 26.90 Curve Number (CN)= 93.5
| ID= 1 DT= 5.0 min | | Ia (mm)= 3.50 # of Linear Res.(N)= 3.00
| | | U.H. Tp(hrs)= .82
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
.083	1.06	3.083	7.38	6.083	14.42	9.08	19.34
.167	1.06	3.167	7.39	6.167	14.42	9.17	19.34
.250	2.11	3.250	8.44	6.250	16.18	9.25	26.02
.333	2.11	3.333	8.44	6.333	16.18	9.33	26.02

.417	3.17	3.417	9.49	6.417	17.93	9.42	32.71
.500	3.17	3.500	9.50	6.500	17.94	9.50	32.71
.583	4.22	3.583	10.55	6.583	19.69	9.58	39.39
.667	4.22	3.667	10.55	6.667	19.69	9.67	39.39
.750	5.27	3.750	11.60	6.750	21.45	9.75	46.07
.833	5.28	3.833	11.61	6.833	21.45	9.83	46.07
.917	6.33	3.917	12.66	6.917	23.21	9.92	52.75
1.000	6.33	4.000	12.66	7.000	23.21	10.00	52.75
1.083	5.98	4.083	13.36	7.083	21.45	10.08	50.29
1.167	5.98	4.167	13.36	7.167	21.45	10.17	50.29
1.250	5.63	4.250	14.07	7.250	19.69	10.25	47.83
1.333	5.63	4.333	14.07	7.333	19.69	10.33	47.83
1.417	5.28	4.417	14.77	7.417	17.94	10.42	45.37
1.500	5.27	4.500	14.77	7.500	17.93	10.50	45.36
1.583	4.92	4.583	15.47	7.583	16.18	10.58	42.90
1.667	4.92	4.667	15.47	7.667	16.18	10.67	42.90
1.750	4.57	4.750	16.18	7.750	14.42	10.75	40.44
1.833	4.57	4.833	16.18	7.833	14.42	10.83	40.44
1.917	4.22	4.917	16.88	7.917	12.66	10.92	37.98
2.000	4.22	5.000	16.88	8.000	12.66	11.00	37.98
2.083	4.57	5.083	16.18	8.083	12.66	11.08	33.76
2.167	4.57	5.167	16.18	8.167	12.66	11.17	33.76
2.250	4.92	5.250	15.47	8.250	12.66	11.25	29.54
2.333	4.92	5.333	15.47	8.333	12.66	11.33	29.54
2.417	5.27	5.417	14.77	8.417	12.66	11.42	25.32
2.500	5.28	5.500	14.77	8.500	12.66	11.50	25.32
2.583	5.63	5.583	14.07	8.583	12.66	11.58	21.10
2.667	5.63	5.667	14.07	8.667	12.66	11.67	21.10
2.750	5.98	5.750	13.36	8.750	12.66	11.75	16.88
2.833	5.98	5.833	13.36	8.833	12.66	11.83	16.88
2.917	6.33	5.917	12.66	8.917	12.66	11.92	12.66
3.000	6.33	6.000	12.66	9.000	12.66	12.00	12.66

Unit Hyd Qpeak (cms)= 1.253

PEAK FLOW (cms)= 2.961 (i)
 TIME TO PEAK (hrs)= 11.250
 RUNOFF VOLUME (mm)= 185.984
 TOTAL RAINFALL (mm)= 205.725
 RUNOFF COEFFICIENT = .904

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0201)	Area (ha)=	83.94	Curve Number (CN)=	93.5
ID= 1 DT= 5.0 min	Ia (mm)=	3.50	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	.97		

Unit Hyd Qpeak (cms)= 3.305

PEAK FLOW (cms)= 8.808 (i)
 TIME TO PEAK (hrs)= 11.500
 RUNOFF VOLUME (mm)= 185.985
 TOTAL RAINFALL (mm)= 205.725
 RUNOFF COEFFICIENT = .904

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0203)	Area (ha)=	13.45	Curve Number (CN)=	93.5
ID= 1 DT= 5.0 min	Ia (mm)=	3.50	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	.45		

Unit Hyd Qpeak (cms)= 1.142

PEAK FLOW (cms)= 1.672 (i)
 TIME TO PEAK (hrs)= 10.750
 RUNOFF VOLUME (mm)= 185.971
 TOTAL RAINFALL (mm)= 205.725
 RUNOFF COEFFICIENT = .904

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0301)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):	26.90	2.961	11.25	185.98
+ ID2= 2 (0201):	83.94	8.808	11.50	185.98
=====				
ID = 3 (0301):	110.84	11.752	11.42	185.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0302)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0301):	110.84	11.752	11.42	185.98
+ ID2= 2 (0203):	13.45	1.672	10.75	185.97
=====				
ID = 3 (0302):	124.29	13.209	11.33	185.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

APPENDIX B

REFERENCE DOCUMENTS



St. Clair Region Conservation Authority

205 Mill Pond Cr., Strathroy, ON, N7G 3P9
(519) 245-3710 (519) 245-3348 FAX
E-Mail stclair@scrca.on.ca
Website www.scrca.on.ca

RECEIVED
June 24 2009

June 26, 2009

Member Municipalities

- Township of Adelaide-Metcalfe
- Township of Brooke-Alvinston
- Municipality of Chatham-Kent
- Township of Dawn-Euphemia
- Township of Enniskillen
- Municipality of Lambton Shores
- Township of Middlesex Centre
- Village of Newbury
- Village of Oil Springs
- Town of Petrolia
- Town of Plympton-Wyoming
- Village of Point Edward
- City of Sarnia
- Municipality of Southwest Middlesex
- Township of St. Clair
- Township of Strathroy-Caradoc
- Township of Warwick

Lakeshore Group
250 Wellington Street West
Suite 130
Toronto, Ontario
M5V 3P6

Attention: Rick Pennycooke, M.C.I.P., R.P.P., President

**Re: Property Inquiry
Proposed Solar Farm Development
Lot 1 & Part Lot 2, Concession 11
Geographic Township of Sombra**

Staff of the St. Clair Region Conservation Authority (SCRCA) have reviewed the subject lands with regard to the matter outlined within your correspondence of June 16, 2009.

We understand that your client (First Solar Development (Canada) Inc) is proposing to develop a solar farm on the subject property. From the information provided, we understand the proposal includes the construction of a solar farm and associated infrastructure that would cover a majority of Lot 1, Concession 11, Sombra.

We can confirm that the subject lands are not impacted by "Development, Interference with Wetlands and Alterations to Shorelines and Watercourses" Regulations (O.R. 171/06) implemented by the Authority pursuant to Section 28 of the *Conservation Authorities Act*. As such, permission of the Authority is not required to complete the proposed development on the subject lands.

If you have any questions with regard to the above, do not hesitate to contact the undersigned.

Yours truly,

Jeff Lawrence
Environmental Planner/Regulations Officer

member of



Conservation
ONTARIO
Natural Champions

Encl.

"working together for a better environment"

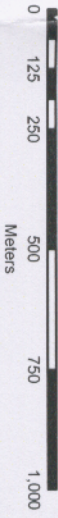


**St. Clair Region
Conservation Authority**
 205 Mill Pond Crescent, Stratroy, ON N7G 3P9
 Tel: (519) 245-3710 Fax: (519) 245-3348
 Email: stclair@scra.on.ca
 Web: <http://www.scra.on.ca>

Proposed Site Plan

Legend

— Subject Property (approx)



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