CORAL MOUNTAIN RESORT

DRAFT EIR

SCH# 2021020310

TECHNICAL APPENDICES

Master Hydrology Report
Appendix J.3

June 2021

MASTER PLAN HYDROLOGY REPORT

For Property Located In
A Portion of Sections 27 & 28, Township 6 South, Range 7 East, SBM
La Quinta, California

CORAL MOUNTAIN RESORT
Specific Plan

January, 2021

Prepared for:

CM Wave Development, L.L.C.

2440 Junction Place, Suite 200
Boulder, CO 80301

JN: 2553

MSA CONSULTING, INC.
> PLANNING > CIVIL ENGINEERING > LAND SURVEYING
34200 Bob Hope Drive, Rancho Mirage, CA 92270
760.320.9811 **msaconsultinginc.com**

MASTER PLAN HYDROLOGY REPORT

For Property Located In
A Portion of Sections 27 & 28, Township 6 South, Range 7 East, SBM
La Quinta, California

CORAL MOUNTAIN RESORT
Specific Plan

January, 2021

Prepared for:

CM Wave Development, L.L.C.

2440 Junction Place, Suite 200
Boulder, CO 80301

JN: 2553

MSA CONSULTING, INC.
> PLANNING > CIVIL ENGINEERING > LAND SURVEYING
34200 Bob Hope Drive, Rancho Mirage, CA 92270
760.320.9811 **msaconsultinginc.com**

TABLE OF CONTENTS

PROJECT DESCRIPTION & LOCATION 1
EXISTING SITE CONDITIONS 1
Flood Rate Map *1*
Existing Topography *1*
PROPOSED FLOOD CONTROL REQUIREMENTS 1
HYDROLOGY ANALYSIS DESIGN CRITERIA 1
Hydrologic Soil Group *1*
Antecedent Moisture Condition *2*
Land Use Classifications and Runoff Index Numbers *2*
Precipitation Frequency Estimates *2*
Site Infiltration *2*
Proposed Land Use Summaries *3*
SUMMARY of SYNTHETIC UNIT (SHORTCUT METHOD) ANALYSES 3
Drainage Area 'A' *3*
Drainage Area 'B' *3*
Drainage Areas 'C' & 'F' *3*
Drainage Area 'D' *3*
Drainage Area 'E' *3*
Drainage Area 'G' *3*
Drainage Area 'H' *4*
Drainage Area 'I' *4*
Drainage Area 'Off-Site North' *4*
Drainage Area 'Off-Site South' *4*
PRELIMINARY WQMP ANALYSES 4
RESULTS AND CONCLUSIONS 4

LIST OF APPENDICES

A. RIVERSIDE COUNTY TLMA VICINITY MAP
B. NFIP FLOOD INSURANCE RATE MAP
C. USDA NCSS HYDROLOGIC SOILS MAP
D. NOAA ATLAS 14 & RCFCD REFERENCE PLATES
E. LAND USE WORKSHEETS
F. RCFCD SYNTHETIC UNIT HYDROGRAPH WORKSHEETS
G. RIVERSIDE COUNTY WHITEWATER RIVER REGION WQMP WORKSHEETS
H. HYDROLOGY EXHIBITS

PROJECT DESCRIPTION & LOCATION

The project is proposed to consist of residential structures, a multi-story hotel complex, a wave lagoon and various outdoor amenities. The project site comprises approximately 377 acres with an additional 75 acres of offsite tributary area. The subject property is located on the southwest corner of Avenue 58 and Madison Street in the City of La Quinta and is situated in a portion of Sections 27 & 28, Township 6 South, Range 7 East, SBM. Existing dikes 2 & 4 along with the Coral Mountains border the property to the west and south. A vicinity map obtained from the Riverside TLMA website is included as Appendix A.

EXISTING SITE CONDITIONS

Flood Rate Map

The proposed area is covered by FIRM Panel Number 06065C2900G, effective date of August 28, 2008, which indicates the subject property lies within Zone X (Shaded), defined *as "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. Insurance purchase is not required in these areas.*" Refer to the attached NFIP Flood Insurance Rate Map in Appendix B.

Existing Topography

The property is generally vacant and undeveloped with CVWD irrigation mains, numerous dirt road and hiking trails. Various desert vegetation is found throughout the site.
The site is bounded to the east by Madison Street, to the north by 58th Avenue, existing levees and the Coral Mountains to the west and south, and 60th Avenue to the south. Groundwater was encountered at a depth of 47 feet for two of the borings. Site drainage appears to be controlled via sheet flow and surface infiltration generally from west to east.

PROPOSED FLOOD CONTROL REQUIREMENTS

The purpose of this report is to provide master plan basin analyses for the subject property. The drainage requirements for this project fall under the jurisdiction of the City of La Quinta. Storm flows are conveyed through the site via street flow to localized low points. All proposed pad elevations are set a minimum of 1-foot above the high-side street elevation.

HYDROLOGY ANALYSIS DESIGN CRITERIA

Storm runoff volumes for the 100-year event were obtained utilizing the Synthetic Unit Hydrograph as described in the *RCFC&WCD Hydrology Manual*. The hydrologic data used for the calculations are as follows:

Hydrologic Soil Group

The existing soil is categorized primarily as hydrologic soil groups "A" and "B" for the majority of the subject property with soil group "D" being assigned to the Coral Mountain rock out-cropping as shown per the attached National Cooperative Soil Survey exhibits in Appendix C. For the purposes of this report, Soil Group 'B' was assigned to the analyses with the exception of the rock out-cropping.

Soil Group 'B' is defined by RCFCD as – "soils having moderate infiltration rates when thoroughly wetted and consisting chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission".

Soil Group 'D' is defined by RCFCD as – "soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high-water table, soils that have a claypan or clay layer at or near the surface and soils that are shallow over nearly impervious material".

Antecedent Moisture Condition

AMC II – Moderate runoff potential, an intermediate condition. Per RCFC & WCD Hydrology Manual (Dated: April 1978): "For the purposes of design hydrology using District methods, AMC II should normally be assumed for both the 10-year and 100-year frequency storm".

Land Use Classifications and Runoff Index Numbers

Runoff Index Numbers were obtained from RCFCD Plates E6.1, E6.2 and E6.3 are summarized below:

Commercial or Residential Landscaping (Soil Group B)	56
Rock Out-cropping (Soil Group D)	93
Existing Open Brush – Poor	76

Percent of Impervious Cover (RCFCD Plate E-6.3):

Rock Out-cropping	5%
Existing Open Brush – Poor Condition	5%
Impervious Areas (Buildings, Pavement, Hardscape)	100%
Water Features	100%
Commercial Areas	90%
SFR – Low Density	30%
SFR – Medium Density	40%
SFR – High Density	50%
Open Space (Landscaping & Retention Basins)	10%

Low Loss Rates:	85%

Precipitation Frequency Estimates

Precipitation depths were obtained from NOAA Atlas 14:

2 Year - 1 Hour Precipitation:	0.358	inches
10 Year – 1 Hour Precipitation:	0.711	inches
10 Year –3 Hour Precipitation:	1.06	inches
10 Year – 6 Hour Precipitation:	1.36	inches
10 Year – 24 Hour Precipitation:	2.23	inches
100 Year – 1 Hour Precipitation:	1.44	inches
100 Year – 3 Hour Precipitation:	2.14	inches
100 Year - 6 Hour Precipitation	2.76	inches
100 Year – 24 Hour Precipitation	4.41	inches

Slope of Intensity Duration Curve:	0.52

See Appendix D for the NOAA Atlas 14 Point Precipitation Frequency Estimates and respective RCFCD Plates.

Site Infiltration

No percolation tests have been performed at the current time, therefore, for the purposes of this report a design percolation rate of 1 in/hr was used in the basin sizing calculations. Prior to the final design submittal, percolation tests will be performed, and should the 1 inch/hour rate not be achieved, Maxwell drywells will be proposed to de-water the basins within the required time period as specified by Riverside County BMP requirements.

Proposed Land Use Summaries

Land uses for each of the drainage areas were analyzed based on the preliminary site plan. In addition, a reconciliation was performed to verify the hydrologic boundary corresponds to the existing property boundary accounting for any differences. Land use worksheets are included in Appendix E.

SUMMARY of SYNTHETIC UNIT (SHORTCUT METHOD) ANALYSES

The proposed retention basins for the associated drainage areas were sized to retain the 100-year controlling storm event flood volumes and were analyzed utilizing the RCFCD Synthetic Unit (Shortcut Method). Per the manual, for areas of less than 100 – 200 acres, and lag times less than 7 – 8 minutes, the shortcut method is applicable. This method assumes that in a small watershed, response time to effective rainfall is very short. Therefore, runoff rates for a given period of time can be assumed to be directly proportional to effective rain. This method yields only approximate results (on the conservative side) and should be used only for watersheds meeting the criteria noted above.

It should be noted that the peak flow for the 1-hour storm is not necessarily representative for peak flow. Per RCFCD, peak discharges from the 3-hour storm should normally compare well with rational peaks.

The synthetic unit worksheets are included in Appendix F and are summarized on sheets 1 and 2 of the hydrology exhibits in Appendix H.

Drainage Area 'A'

This area is located on the westerly portion of the project and consists primarily of Dike Number 2, the Coral Mountains, a portion of Dike Number 4, the south-westerly portion of Planning Area IX and Planning Area X. Storm runoff (approximately 18.4 acre-feet) from this drainage sub-area is directed to the wave lagoon which provides over 69 acre-feet of retention. Shallow basins are proposed to retain 10-year storm flows from drainage areas 'A1' & 'A3'. During the final design process, once a more detailed land plan is provided, first flush storm flows from drainage area 'A2' will be captured and conveyed to an underground storage area prior to being discharged into the lagoon.

Drainage Area 'B'

Storm runoff of 4.2 acre-feet from this drainage area will be retained within the proposed lake, which provides storage of approximately 6.7 acre-feet.

Drainage Areas 'C' & 'F'

Storm runoff from these drainage areas will be conveyed to and retained in a retention basin located in Drainage Area 'F'. Drainage Area 'F' is a future low density planning area. The total flood volume is 4.8 acre-feet with 5.1 acre-feet of storage provided.

Drainage Area 'D'

Storm runoff of approximately 3.1 acre-feet for this drainage area will be conveyed to and retained in the proposed lake located within the "Farm". The lake provides approximately 3.8 acre-feet of storage.

Drainage Area 'E'

Storm runoff of approximately 5.7 acre-feet for this drainage area will be conveyed to and retained in a large basin located in along the southerly portion of Planning Area VIII (Area 5). The basin provides storage of roughly 27.9 acre-feet. This basin will also provide a discharge location for the lagoon.

Drainage Area 'G'

This area is a future low-density residential development. Flood volume of 3.2 acre feet will be retained in a retention basin providing 3.4 acre-feet of storage.

Drainage Area 'H'

This area is a future commercial development. Flood volume of 1.1 acre-feet will be contained in two retention basins providing 1.4 acre-feet of storage.

Drainage Area 'I'

This area is a future low-density residential development. Once developed it is anticipated approximately 4.7 acre-feet of retention will be required, which will be contained in a retention basin providing 5.4 acre-feet of storage.

Drainage Area 'Off-Site North'

This area consists of the south half of Avenue 58 and the northerly west half of Madison Street. The storm flows are captured by an existing catch basin and discharged into an existing basin which will remain when Drainage Area 'I' is developed. The existing basin provides 2.9 acre-feet of storage to contain the 1.3 acre-feet of flood volume.

Drainage Area 'Off-Site South'

This area consists of the north half of Avenue 60 and the southerly west half of Madison Street. The storm flows are captured by an existing catch basin and discharged into an existing basin which will remain when Drainage Area 'E' is developed. The existing basin provides 5.0 acre-feet of storage to contain the 0.9 acre-feet of flood volume.

PRELIMINARY WQMP ANALYSES

Preliminary design volume and flow for BMP measures were based on Worksheets 1 and 2 from the Riverside County – Whitewater River Region Water Quality Management Plan. Impervious area for the drainage sub-areas are derived from the preliminary land use worksheets. A summary of the BMP results is presented on sheet 1 of the Hydrology Exhibits in Appendix H with the worksheets being included as Appendix G.

RESULTS AND CONCLUSIONS

As the above narrative and appendices confirm, the proposed retention basins are sufficiently sized to contain the flood volume from the controlling 100-year storm. During the final design process, a more detailed hydrologic report will be submitted to the City for review and approval.

Appendix A

Riverside County TLMA Vicinity Map

THE WAVE

MSA Job No. 2553

Legend

- Blueline Streams
- Survey
- City Areas
- World Street Map

RCIT

0 1,505 3,009 Feet

IMPORTANT Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

REPORT PRINTED ON... 9/18/2019 9:08:13 AM

© Riverside County GIS

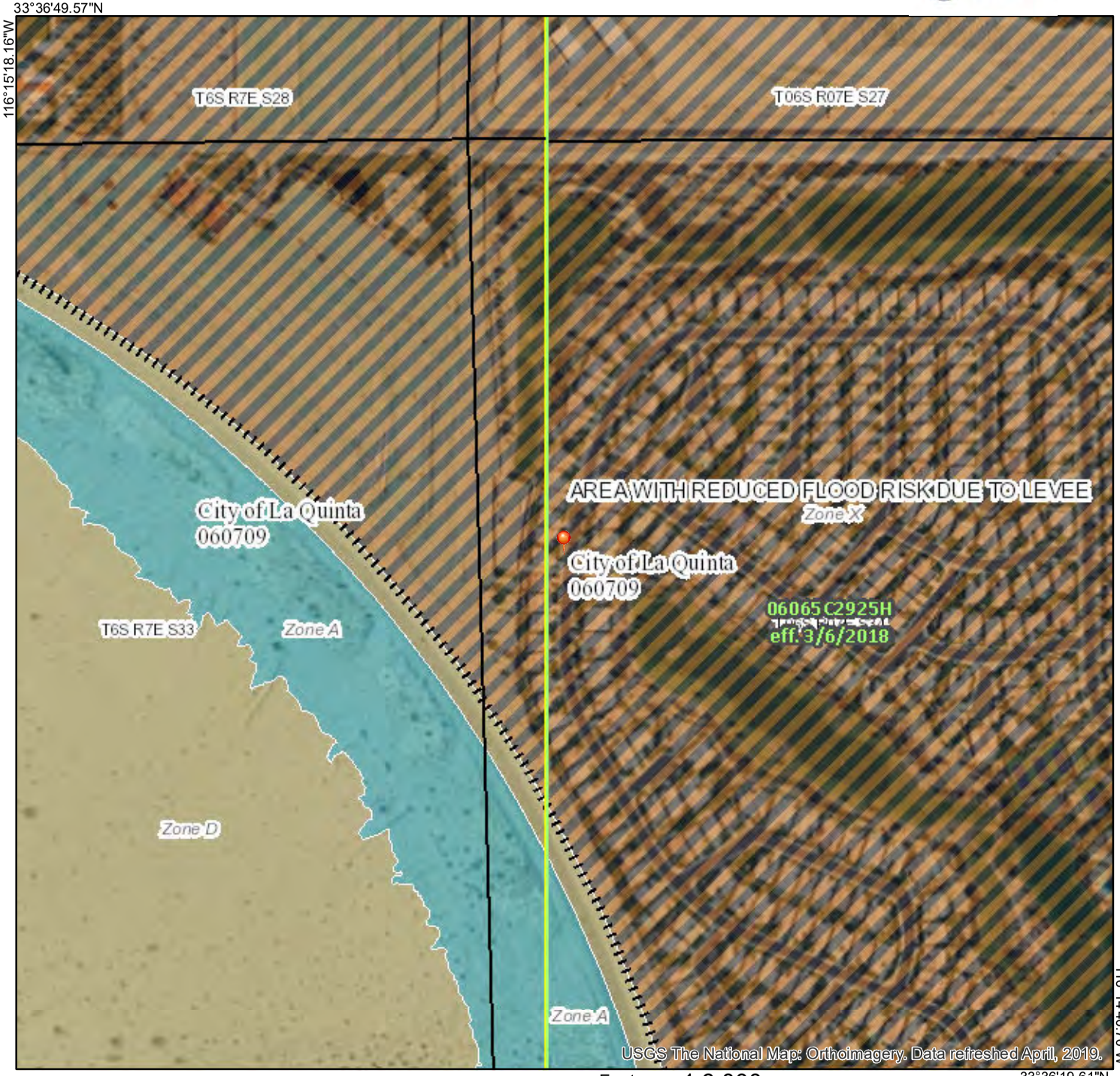
Notes

Latitude: 33.6202
Longitude: -116.2562

Appendix B
NFIP Flood Insurance Rate Map

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 — Cross Sections with 1% Annual Chance
- 17.5 — Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/18/2019 at 12:24:12 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/18/2019 at 12:29:49 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

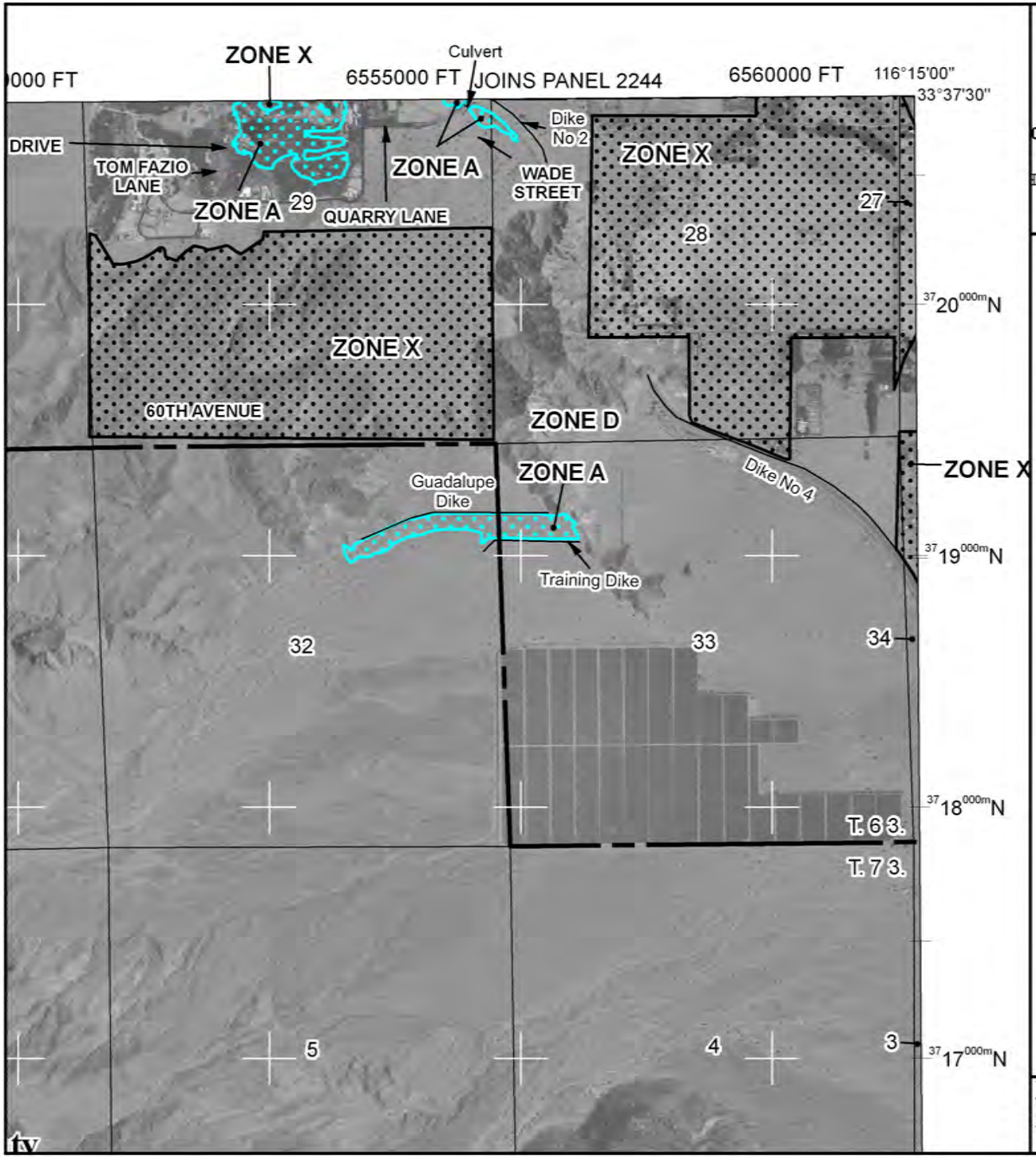
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/18/2019 at 12:32:40 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



MAP SCALE 1" = 2000'

000 0 2000 4000 FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2900G

FIRM

FLOOD INSURANCE RATE MAP

RIVERSIDE COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 2900 OF 3805

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LA QUINTA, CITY OF	060709	2900	G
RIVERSIDE COUNTY	060245	2900	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06065C2900G

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

DEFINITIONS OF FEMA FLOOD ZONE DESIGNATIONS

Moderate to Low Risk Areas

In communities that participate in the NFIP, flood insurance is available to all property owners and renters in these zones:

ZONE	DESCRIPTION
X (Shaded)	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. Insurance purchase is not required in these zones.
X	Areas determined to be outside the 0.2% annual chance floodplain.

High Risk Areas

In communities that participate in the NFIP, mandatory flood insurance purchase requirements apply to all of these zones:

ZONE	DESCRIPTION
A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. In most instances, base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
AH	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
AO	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones. For areas of alluvial fan flooding, velocities are also determined.
AR	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.
A99	Areas with a 1% annual chance of flooding that will be protected by a Federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.

High Risk – Coastal Areas

In communities that participate in the NFIP, mandatory flood insurance purchase requirements apply to all of these zones:

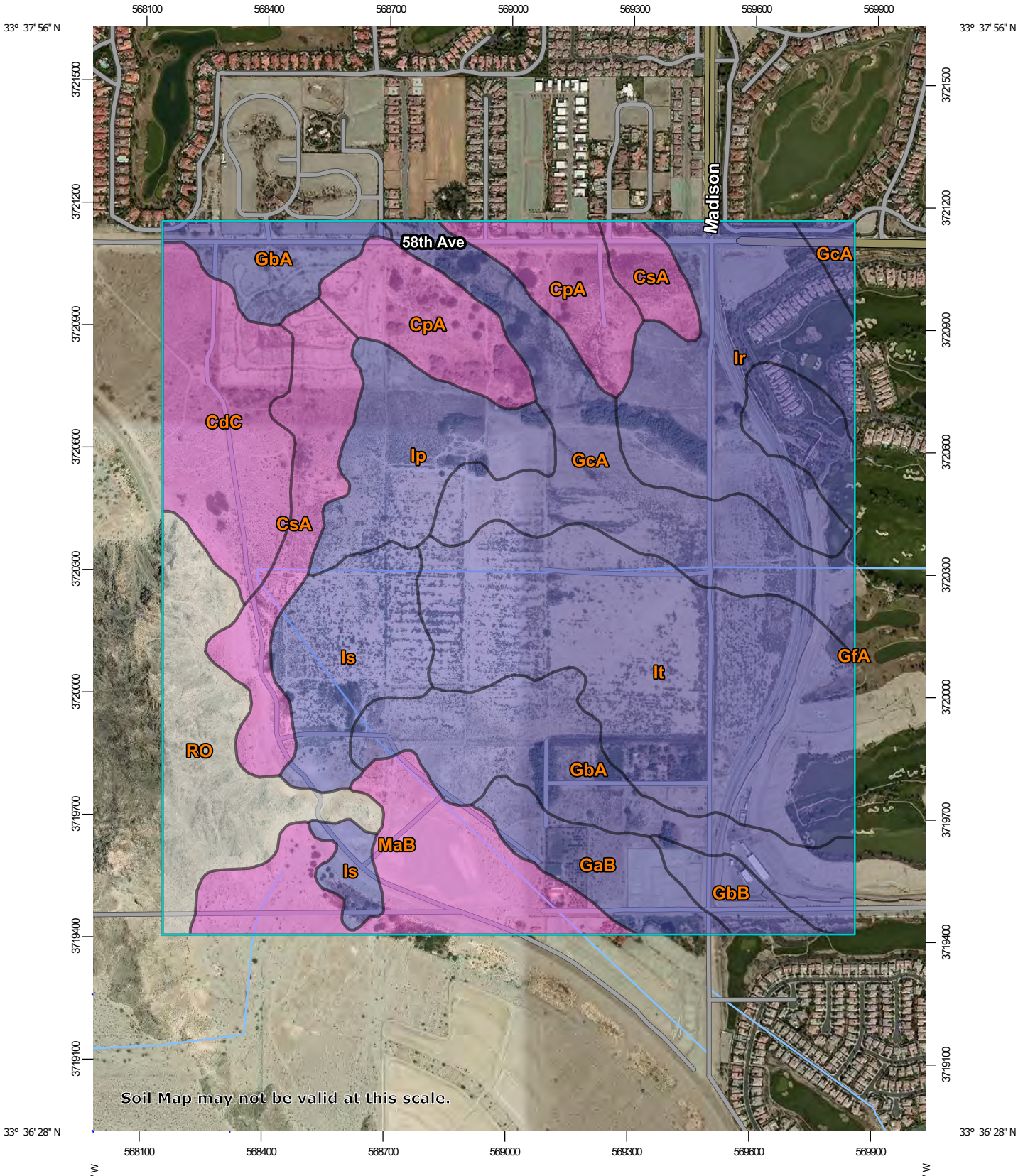
ZONE	DESCRIPTION
V	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.
VE	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.

Undetermined Risk Areas

ZONE	DESCRIPTION
D	Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk.

Appendix C
USDA NCSS Hydrologic Soils Map

Hydrologic Soil Group—Riverside County, Coachella Valley Area, California
(THE WAVE)



Map Scale: 1:13,200 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 150 300 600 900

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Riverside County, Coachella Valley Area, California
Survey Area Data: Version 10, Sep 13, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Oct 14, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CdC	Carsitas gravelly sand, 0 to 9 percent slopes	A	50.9	6.9%
CpA	Coachella fine sand, 0 to 2 percent slopes	A	50.2	6.8%
CsA	Coachella fine sandy loam, 0 to 2 percent slopes	A	46.2	6.3%
GaB	Gilman loamy fine sand, 0 to 5 percent slopes	B	23.4	3.2%
GbA	Gilman fine sandy loam, 0 to 2 percent slopes	B	78.0	10.6%
GbB	Gilman fine sandy loam, 2 to 5 percent slopes	B	10.7	1.5%
GcA	Gilman fine sandy loam, wet, 0 to 2 percent slopes	B	89.1	12.1%
GfA	Gilman silt loam, wet, 0 to 2 percent slopes	B	0.0	0.0%
Ip	Indio fine sandy loam	B	40.7	5.5%
Ir	Indio fine sandy loam, wet	B	70.9	9.6%
Is	Indio very fine sandy loam	B	46.3	6.3%
It	Indio very fine sandy loam, wet	B	127.7	17.3%
MaB	Myoma fine sand, 0 to 5 percent slopes	A	55.0	7.4%
RO	Rock outcrop		49.8	6.7%
Totals for Area of Interest			**739.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix D
NOAA Atlas 14
RCFCD Reference Plates

NOAA Atlas 14, Volume 6, Version 2
Location name: La Quinta, California, USA*
Latitude: 33.6202°, Longitude: -116.2562°
Elevation: -31.22 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.066** (0.056-0.080)	**0.103** (0.086-0.124)	**0.156** (0.130-0.189)	**0.203** (0.168-0.249)	**0.277** (0.221-0.350)	**0.340** (0.265-0.440)	**0.412** (0.313-0.547)	**0.494** (0.365-0.675)	**0.622** (0.440-0.887)	**0.737** (0.504-1.09)
10-min	**0.095** (0.080-0.115)	**0.147** (0.123-0.178)	**0.223** (0.186-0.271)	**0.292** (0.241-0.357)	**0.397** (0.316-0.502)	**0.488** (0.380-0.631)	**0.590** (0.449-0.783)	**0.708** (0.524-0.967)	**0.891** (0.631-1.27)	**1.06** (0.722-1.56)
15-min	**0.115** (0.096-0.139)	**0.178** (0.148-0.215)	**0.270** (0.225-0.327)	**0.353** (0.291-0.432)	**0.480** (0.382-0.607)	**0.590** (0.460-0.763)	**0.714** (0.543-0.947)	**0.856** (0.633-1.17)	**1.08** (0.763-1.54)	**1.28** (0.873-1.89)
30-min	**0.165** (0.138-0.200)	**0.255** (0.213-0.309)	**0.387** (0.322-0.470)	**0.506** (0.418-0.619)	**0.688** (0.549-0.872)	**0.846** (0.660-1.10)	**1.02** (0.780-1.36)	**1.23** (0.909-1.68)	**1.55** (1.10-2.21)	**1.83** (1.25-2.71)
60-min	**0.232** (0.194-0.280)	**0.358** (0.299-0.433)	**0.543** (0.452-0.660)	**0.711** (0.586-0.870)	**0.966** (0.771-1.22)	**1.19** (0.927-1.54)	**1.44** (1.10-1.91)	**1.73** (1.28-2.36)	**2.17** (1.54-3.10)	**2.57** (1.76-3.80)
2-hr	**0.322** (0.269-0.389)	**0.473** (0.395-0.572)	**0.698** (0.581-0.848)	**0.906** (0.747-1.11)	**1.23** (0.979-1.56)	**1.51** (1.18-1.95)	**1.83** (1.39-2.43)	**2.20** (1.63-3.01)	**2.77** (1.96-3.95)	**3.28** (2.24-4.85)
3-hr	**0.388** (0.324-0.468)	**0.559** (0.467-0.676)	**0.818** (0.681-0.993)	**1.06** (0.873-1.30)	**1.43** (1.14-1.82)	**1.76** (1.38-2.28)	**2.14** (1.63-2.84)	**2.58** (1.91-3.53)	**3.26** (2.31-4.65)	**3.87** (2.65-5.72)
6-hr	**0.508** (0.425-0.614)	**0.726** (0.606-0.879)	**1.06** (0.880-1.28)	**1.36** (1.13-1.67)	**1.84** (1.47-2.34)	**2.27** (1.77-2.94)	**2.76** (2.10-3.66)	**3.32** (2.46-4.54)	**4.21** (2.98-6.00)	**5.00** (3.42-7.38)
12-hr	**0.610** (0.509-0.737)	**0.893** (0.745-1.08)	**1.32** (1.10-1.60)	**1.70** (1.41-2.08)	**2.30** (1.83-2.91)	**2.82** (2.20-3.65)	**3.42** (2.60-4.53)	**4.10** (3.03-5.60)	**5.14** (3.64-7.33)	**6.07** (4.15-8.96)
24-hr	**0.759** (0.671-0.875)	**1.15** (1.01-1.33)	**1.72** (1.51-1.99)	**2.23** (1.95-2.60)	**3.00** (2.54-3.62)	**3.67** (3.05-4.51)	**4.41** (3.58-5.55)	**5.25** (4.15-6.79)	**6.53** (4.95-8.77)	**7.63** (5.60-10.6)
2-day	**0.871** (0.771-1.00)	**1.34** (1.18-1.54)	**2.01** (1.77-2.33)	**2.61** (2.28-3.05)	**3.51** (2.97-4.22)	**4.27** (3.54-5.24)	**5.11** (4.14-6.42)	**6.04** (4.77-7.81)	**7.44** (5.65-10.0)	**8.63** (6.34-12.0)
3-day	**0.936** (0.828-1.08)	**1.44** (1.28-1.67)	**2.18** (1.92-2.52)	**2.83** (2.47-3.30)	**3.79** (3.21-4.57)	**4.61** (3.83-5.66)	**5.50** (4.46-6.92)	**6.50** (5.13-8.40)	**7.98** (6.06-10.7)	**9.24** (6.79-12.9)
4-day	**0.994** (0.880-1.15)	**1.54** (1.36-1.77)	**2.31** (2.04-2.68)	**3.00** (2.63-3.50)	**4.02** (3.41-4.85)	**4.88** (4.06-6.00)	**5.83** (4.73-7.33)	**6.88** (5.43-8.89)	**8.43** (6.40-11.3)	**9.76** (7.16-13.6)
7-day	**1.06** (0.935-1.22)	**1.63** (1.44-1.88)	**2.45** (2.16-2.83)	**3.17** (2.77-3.70)	**4.24** (3.59-5.11)	**5.14** (4.26-6.31)	**6.12** (4.96-7.69)	**7.20** (5.69-9.30)	**8.81** (6.68-11.8)	**10.2** (7.46-14.1)
10-day	**1.09** (0.961-1.25)	**1.67** (1.48-1.93)	**2.52** (2.22-2.91)	**3.26** (2.85-3.80)	**4.36** (3.69-5.25)	**5.28** (4.38-6.48)	**6.28** (5.09-7.90)	**7.38** (5.83-9.54)	**9.01** (6.84-12.1)	**10.4** (7.62-14.4)
20-day	**1.17** (1.03-1.35)	**1.82** (1.61-2.10)	**2.75** (2.42-3.18)	**3.57** (3.12-4.17)	**4.78** (4.05-5.76)	**5.79** (4.81-7.12)	**6.89** (5.59-8.66)	**8.09** (6.39-10.4)	**9.83** (7.46-13.2)	**11.3** (8.29-15.7)
30-day	**1.24** (1.10-1.43)	**1.96** (1.73-2.26)	**2.99** (2.63-3.46)	**3.90** (3.41-4.55)	**5.24** (4.44-6.31)	**6.35** (5.27-7.81)	**7.55** (6.12-9.50)	**8.86** (6.99-11.4)	**10.7** (8.16-14.5)	**12.3** (9.04-17.1)
45-day	**1.34** (1.19-1.55)	**2.15** (1.90-2.49)	**3.32** (2.93-3.85)	**4.35** (3.81-5.08)	**5.88** (4.98-7.08)	**7.14** (5.93-8.77)	**8.49** (6.89-10.7)	**9.96** (7.87-12.9)	**12.1** (9.16-16.2)	**13.8** (10.1-19.2)
60-day	**1.42** (1.26-1.64)	**2.31** (2.04-2.67)	**3.60** (3.17-4.17)	**4.73** (4.14-5.52)	**6.40** (5.42-7.71)	**7.78** (6.46-9.56)	**9.27** (7.52-11.7)	**10.9** (8.58-14.0)	**13.2** (9.98-17.7)	**15.0** (11.0-20.9)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

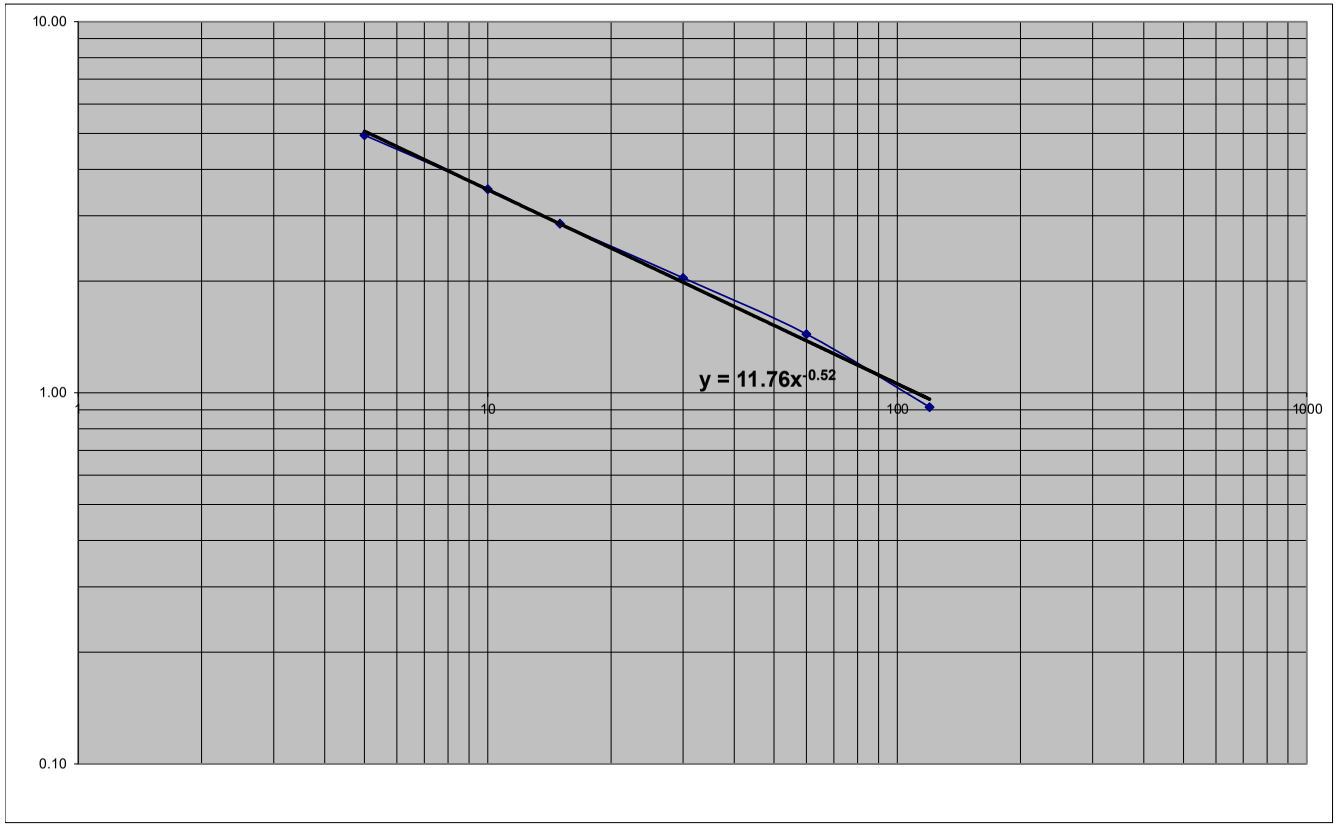
PF graphical

NOAA ATLAS 14 INTENSITY - DURATION WORKSHEET

PROJECT NAME	THE WAVE
PROJECT NUMBER	2553
STORM EVENT	100 yr
DATE:	September 18, 2019

DATA FROM NOAA ATLAS 14

MINUTES	RAINFALL INTENSITY (in/hr)	RAINFALL DEPTH (in)
5	4.94	0.41
10	3.54	0.59
15	2.86	0.71
30	2.04	1.02
60	1.44	1.44
120	0.92	1.83



INTENSITY VALUES FROM GRAPH

CONSTANT FROM GRAPH	11.76
EXPONENT FROM GRAPH	-0.52

MINUTES	RAINFALL INTENSITY (in/hr)	RAINFALL DEPTH (in)
5	5.09	0.42
10	3.55	0.59
15	2.88	0.72
20	2.48	0.83
25	2.21	0.92
30	2.01	1.00
35	1.85	1.08
40	1.73	1.15
45	1.62	1.22
50	1.54	1.28
55	1.46	1.34
60	1.40	1.40
65	1.34	1.45
70	1.29	1.51
75	1.25	1.56
80	1.20	1.61
85	1.17	1.65
90	1.13	1.70
95	1.10	1.74
100	1.07	1.79
105	1.05	1.83
110	1.02	1.87
115	1.00	1.91
120	0.98	1.95

RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparrel, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparrel, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	72	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	28	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		76	85	90	92

RCFC & WCD
HYDROLOGY MANUAL

RUNOFF INDEX NUMBERS FOR PERVIOUS AREAS

PLATE E-6.1 (1 of 2)

RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
AGRICULTURAL COVERS (cont.) -					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Deciduous (Apples, apricots, pears, walnuts, etc.)		See Note 4			
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small Grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87
Vineyard		See Note 4			

Notes:

1. All runoff index (RI) numbers are for Antecedent Moisture Condition (AMC) II.

2. Quality of cover definitions:
   Poor-Heavily grazed or regularly burned areas. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.
   Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.
   Good-Heavy or dense cover with more than 75 percent of the ground surface protected.

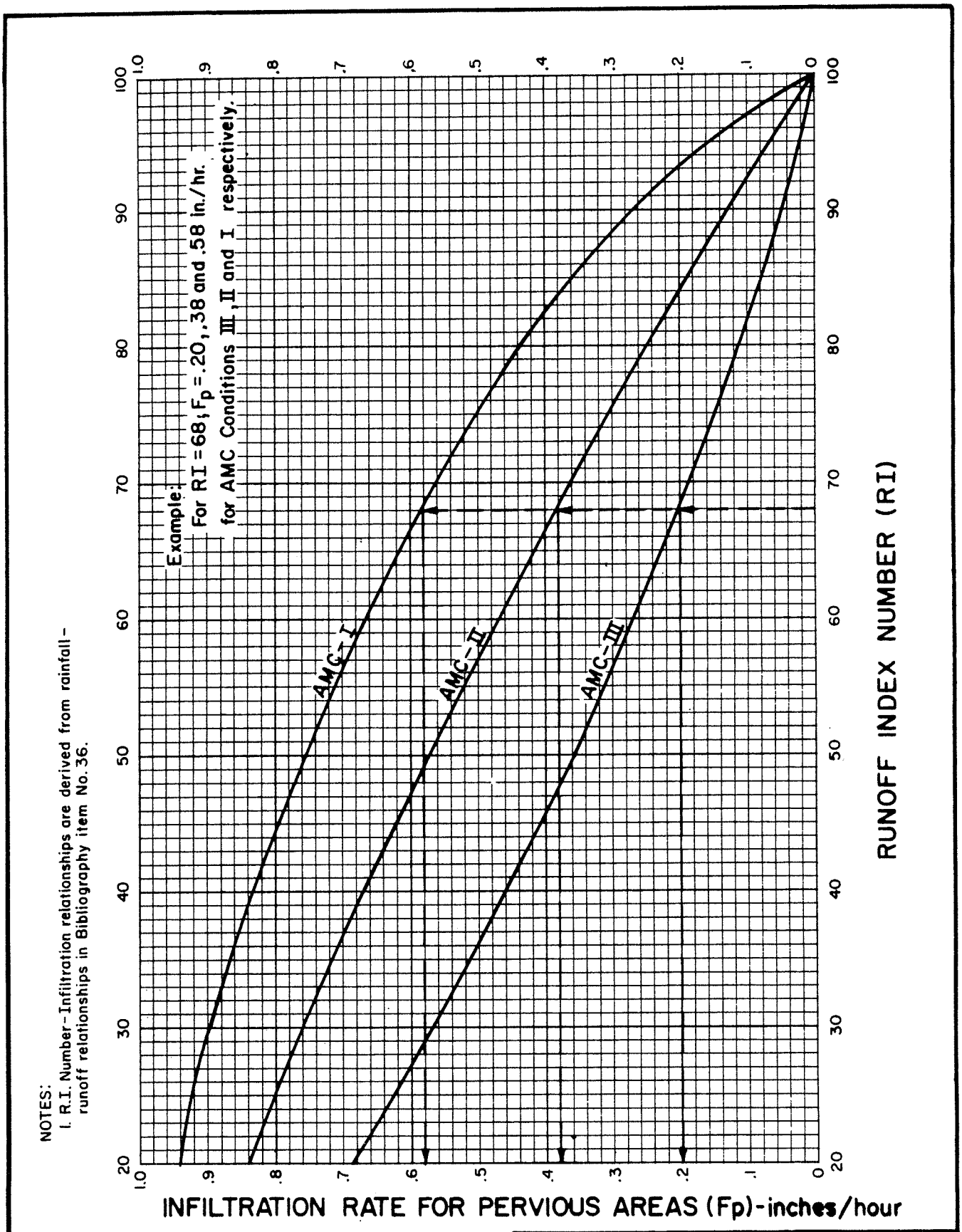
3. See Plate C-2 for a detailed description of cover types.

4. Use runoff index numbers based on ground cover type. See discussion under "Cover Type Descriptions" on Plate C-2.

5. Reference Bibliography item 17.

RCFC & WCD
HYDROLOGY MANUAL

RUNOFF INDEX NUMBERS FOR PERVIOUS AREAS



NOTES:
1. R.I. Number-Infiltration relationships are derived from rainfall-runoff relationships in Bibliography item No. 36.

RCFC & WCD

HYDROLOGY MANUAL

INFILTRATION RATE FOR PERVIOUS AREAS VERSUS RUNOFF INDEX NUMBERS

PLATE E-6.2

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent(2)
Natural or Agriculture	0 - 10	0
Single Family Residential: (3)		
40,000 S. F. (1 Acre) Lots	10 - 25	20
20,000 S. F. (½ Acre) Lots	30 - 45	40
7,200 - 10,000 S. F. Lots	45 - 55	50
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 -100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.

2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area should always be made, and a review of aerial photos, where available may assist in estimating the percentage of impervious cover in developed areas.

3. For typical horse ranch subdivisions increase impervious area 5 percent over the values recommended in the table above.

RCFC & WCD
HYDROLOGY MANUAL

IMPERVIOUS COVER FOR DEVELOPED AREAS

PLATE E-6.3

Appendix E
Preliminary Land Use Worksheets

TTM 37815 - CORAL MOUNTAIN
MSA JOB #2553
PROPOSED LAND USE AREAS - SYNTHETIC UNIT
January 27, 2021

HYDROLOGIC SOIL GROUP B

DRAINAGE AREA	PROPOSED LAND USE									
	ROCK OUTCROPPING RI=93 (acres)	EXIST OPEN BRUSH RI=76 (acres)	STREETS WALKS RI=56 (acres)	WATER FEATURE RI=56 (acres)	COMMERCIAL AREA RI=56 (acres)	PROPOSED RESIDENTIAL - LD RI=56 (acres)	PROPOSED RESIDENTIAL - MD RI=56 (acres)	PROPOSED RESIDENTIAL - HD RI=56 (acres)	PROPOSED OPEN SPACE RI=56 (acres)	TOTAL (acres)
DA-A	35.652	35.233	2.082	18.699	5.752	0.000	0.000	8.141	57.186	162.745
DA-B	0.000	0.000	2.581	6.423	1.483	20.347	0.000	0.000	10.752	41.586
DA-C	0.000	0.000	1.455	0.000	0.000	0.000	4.092	2.159	2.485	10.191
DA-D	0.000	0.000	2.588	2.323	4.803	0.000	0.000	7.637	11.052	28.403
DA-E	0.000	0.000	1.707	0.000	0.000	48.170	0.000	4.271	7.654	61.802
SUBTOTAL	**35.652**	**35.233**	**10.413**	**27.445**	**12.038**	**68.517**	**4.092**	**22.208**	**89.129**	**304.727**
FUTURE BNDY - F	0.000	0.000	0.353	0.000	0.000	42.760	0.000	0.000	1.698	44.811
FUTURE BNDY - G	0.000	0.000	0.316	0.000	0.000	33.880	0.000	0.000	1.546	35.742
FUTURE BNDY - H	0.000	0.000	0.000	0.000	7.118	0.000	0.000	0.000	0.000	7.118
FUTURE BNDY - I	0.000	0.000	0.470	0.000	0.000	47.890	0.000	0.000	3.269	51.629
TOTAL ON-SITE	**35.652**	**35.233**	**11.552**	**27.445**	**19.156**	**193.047**	**4.092**	**22.208**	**95.642**	**444.027**
OFF-SITE NORTH	0.000	0.000	5.754	0.000	0.000	0.000	0.000	0.000	5.950	11.704
OFF-SITE SOUTH	0.000	0.000	4.014	0.000	0.000	0.000	0.000	0.000	1.687	5.701
TOTAL OFF-SITE	**0.000**	**0.000**	**9.768**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**7.637**	**17.405**
TOTAL HYDROLOGIC AREA	**35.652**	**35.233**	**21.320**	**27.445**	**19.156**	**193.047**	**4.092**	**22.208**	**103.279**	**461.432**

AREA RECONCILIATION

MEASURED AREAS:		
ROCK OUTCROPPING	35.652	
EXIST OPEN BRUSH	35.233	
STREETS/WALKS	21.320	
WATER FEATURE	27.445	
COMMERCIAL	19.156	
LOTS - LOW DENSITY	193.047	
LOTS - MED DENSITY	4.092	
LOTS - HIGH DENSITY	22.208	
OPEN SPACE	103.279	
TOTAL HYDROLOGIC AREA		**461.432**
SURVEY BOUNDARY	384.389	
ADD:	77.080	
SUBTRACT:	0.037	
TOTAL AREA:		**461.432**

TTM 37815 - CORAL MOUNTAIN
MSA JOB #2553
PROPOSED LAND USE AREAS - SYNTHETIC UNIT
January 27, 2021

HYDROLOGIC SOIL GROUP B

DRAINAGE AREA	PROPOSED LAND USE									
	ROCK OUTCROPPING RI=93 (acres)	EXIST OPEN BRUSH RI=76 (acres)	STREETS WALKS RI=56 (acres)	WATER FEATURE RI=56 (acres)	COMMERCIAL AREA RI=56 (acres)	PROPOSED RESIDENTIAL - LD RI=56 (acres)	PROPOSED RESIDENTIAL - MD RI=56 (acres)	PROPOSED RESIDENTIAL - HD RI=56 (acres)	PROPOSED OPEN SPACE RI=56 (acres)	TOTAL (acres)
DA-A1	34.384	30.363	0.000	0.000	0.000	0.000	0.000	0.000	23.665	88.412
DA-A2	0.000	0.000	2.071	0.000	5.752	0.000	0.000	8.141	1.350	17.314
DA-A3	1.268	4.870	0.011	0.000	0.000	0.000	0.000	0.000	18.819	24.968
DA-A4	0.000	0.000	0.000	18.699	0.000	0.000	0.000	0.000	13.352	32.051
TOTAL - DA-A	**35.652**	**35.233**	**2.082**	**18.699**	**5.752**	**0.000**	**0.000**	**8.141**	**57.186**	**162.745**

TTM 37815 - CORAL MOUNTAIN
MSA JOB #2553
WQMP LAND USE - IMPERVIOUS AREAS
January 27, 2021

HYDROLOGIC SOIL GROUP A

DRAINAGE AREA	LAND USE										
	ROCK OUT-CROPPING Ai=5% (acres)	EXISTING OPEN BRUCH Ai=5% (acres)	STREETS WALKS Ai=100% (acres)	WATER FEATURES Ai=100% (acres)	COMMERCIAL Ai=90% (acres)	RESIDENTIAL LOW DENSITY Ai=30% (acres)	RESIDENTIAL MEDIUM DENSITY Ai=40% (acres)	RESIDENTIAL HIGH DENSITY Ai=50% (acres)	OPEN SPACE Ai=10% (acres)	TOTAL (acres)	IMPERVIOUS AREA (acres)
DA-A	35.652	35.233	2.082	18.699	5.752	0.000	0.000	8.141	57.186	162.745	39.291
DA-B	0.000	0.000	2.581	6.423	1.483	20.347	0.000	0.000	10.752	41.586	17.518
DA-C	0.000	0.000	1.455	0.000	0.000	0.000	4.092	2.159	2.485	10.191	4.420
DA-D	0.000	0.000	2.588	2.323	4.803	0.000	0.000	7.637	11.052	28.403	14.157
DA-E	0.000	0.000	1.707	0.000	0.000	48.170	0.000	4.271	7.654	61.802	19.059
SUBTOTAL	**35.652**	**35.233**	**10.413**	**27.445**	**12.038**	**68.517**	**4.092**	**22.208**	**89.129**	**304.727**	94.445
DA-F	0.000	0.000	0.353	0.000	0.000	42.760	0.000	0.000	1.698	44.811	13.351
DA-G	0.000	0.000	0.316	0.000	0.000	33.880	0.000	0.000	1.546	35.742	10.635
DA-H	0.000	0.000	0.000	0.000	7.118	0.000	0.000	0.000	0.000	7.118	6.406
DA-I	0.000	0.000	0.470	0.000	0.000	47.890	0.000	0.000	3.269	51.629	15.164
TOTAL ON-SITE	**35.652**	**35.233**	**11.552**	**27.445**	**19.156**	**193.047**	**4.092**	**22.208**	**95.642**	**444.027**	140.001
OFF-SITE NORTH	0.000	0.000	5.754	0.000	0.000	0.000	0.000	0.000	5.950	11.704	6.349
OFFSITE - SOUTH	0.000	0.000	4.014	0.000	0.000	0.000	0.000	0.000	1.687	5.701	4.183
TOTAL OFF-SITE	**0.000**	**0.000**	**9.768**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**7.637**	**17.405**	10.532
TOTAL HYDROLOGIC AREA	**35.652**	**35.233**	**21.320**	**27.445**	**19.156**	**193.047**	**4.092**	**22.208**	**103.279**	**461.432**	150.532

Appendix F

RCFCD Synthetic Unit Hydrograph Worksheets

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	10 YEAR BASIN
AREA DESIGNATION	DA-A1
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
11	D	EXISTING BARREN	34.384	X	93	0.09	0.05
12	B	EXISTING OPEN BRUSH - POOR	30.363	X	76	0.29	0.05
2	B	PAVING/HARDSCAPE	0.000	D	56	0.51	1.00
3	B	WATER FEATURE	0.000	D	56	0.51	1.00
1	B	COMMERCIAL	0.000	D	56	0.51	0.90
6	B	SF - HIGH DENSITY	0.000	D	56	0.51	0.50
9	B	LANDSCAPING	23.665	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,180 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	590 ft
ELEVATION OF HEADWATER	960.0 ft
ELEVATION OF CONCENTRATION POINT	461.0 ft
AVERAGE MANNINGS 'N' VALUE	0.03
STORM FREQUENCY (YEAR)	10
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	0.71 in
3-HOUR	1.06 in
6-HOUR	1.36 in
24-HOUR	2.23 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
459.0 ft	65,765 sf
460.0 ft	77,310 sf
461.0 ft	89,480 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	10 YEAR BASIN
[2] AREA DESIGNATION	DA-A1
[3] AREA - ACRES	88.412
[4] L-FEET	1180
[5] L-MILES	0.223
[6] La-FEET	590.00
[7] La-MILES	0.112
[8] ELEVATION OF HEADWATER	960
[9] ELEVATION OF CONCENTRATION POINT	461
[10] H-FEET	499
[11] S-FEET/MILE	2232.8
[12] S^0.5	47.25
[13] L*LCA/S^0.5	0.001
[14] AVERAGE MANNINGS 'N'	0.03
[15] LAG TIME-HOURS	0.04
[16] LAG TIME-MINUTES	2.5
[17] 100% OF LAG-MINUTES	2.5
[18] 200% OF LAG-MINUTES	4.9

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	10
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	0.71 in
3-HOUR	1.06 in
6-HOUR	1.36 in
24-HOUR	2.23 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	228,186	340,193	436,474	**715,689**
SOIL LOSSES	(cu-ft)	81,121	209,809	309,926	**625,214**
EFFECTIVE RAIN	(in)	0.46	0.41	0.39	0.28
FLOOD VOLUME	(cu-ft)	**147,065**	130,384	126,548	90,475
	(acre-ft)	**3.38**	2.99	2.91	2.08
REQUIRED STORAGE	(cu-ft)	**140,938**	113,286	95,565	19,645
	(acre-ft)	**3.24**	2.60	2.19	0.45
FACTOR OF SAFETY		1.10	1.37	1.62	7.88
STORAGE PROVIDED	(cu-ft)	154,781			
	(acre-ft)	3.55			
PEAK FLOW	(cfs)	n/a	70.45	58.94	7.64
MAXIMUM WSEL	(ft)	**460.83**	460.50	460.29	459.27
DEPTH	(ft)	**1.83**	1.50	1.29	0.27
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	1.0	0.9	1.0	1.0

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
D	EXISTING BARREN	93	0.09	5%	0.09	34.384	0.389	0.0334	UNDEVELOPED	0.9000	0.3500
B	EXISTING OPEN BRUSH - POOR	76	0.29	5%	0.28	30.363	0.343	0.0951	UNDEVELOPED	0.9000	0.3091
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.000	0.000	0.0000	DEVELOPED	0.1000	0.0000
B	WATER FEATURE	56	0.51	100%	0.05	0.000	0.000	0.0000	DEVELOPED	0.1000	0.0000
B	COMMERCIAL	56	0.51	90%	0.10	0.000	0.000	0.0000	DEVELOPED	0.1800	0.0000
B	SF - HIGH DENSITY	56	0.51	50%	0.28	0.000	0.000	0.0000	DEVELOPED	0.5000	0.0000
B	LANDSCAPING	56	0.51	10%	0.46	23.665	0.268	0.1242	DEVELOPED	0.8200	0.2195
					SUM	88.412	SUM	0.2528			0.8786

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.126381397

C= 0.00234

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00234 (24-(T/60))^1.55 + 0.13 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.2528**

LOW LOSS RATE = **0.8786**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT:	CORAL MOUNTAIN
Job No.:	2553
BY:	DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.46
UNIT TIME-PERCENT OF LAG	203.6
TOTAL ADJUSTED STORM RAIN-INCHES	0.71
CONSTANT LOSS RATE-in/hr	0.25
LOW LOSS RATE - PERCENT	87.86%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.31	0.25	0.27	0.05	4.85	1,455	1,455	66,000	458	458	996	0.02	459.01
2	10	0.17	4.2	0.36	0.25	0.31	0.11	9.41	2,824	3,820	66,382	461	461	3,359	0.08	459.05
3	15	0.25	4.4	0.38	0.25	0.33	0.12	10.93	3,280	6,639	66,838	464	464	6,175	0.14	459.09
4	20	0.33	4.6	0.39	0.25	0.34	0.14	12.45	3,736	9,911	67,366	468	468	9,444	0.22	459.13
5	25	0.42	5.0	0.43	0.25	0.37	0.17	15.50	4,649	14,093	68,042	473	473	13,620	0.31	459.19
6	30	0.50	5.6	0.48	0.25	0.42	0.23	20.06	6,018	19,639	68,938	479	479	19,160	0.44	459.27
7	35	0.58	6.4	0.55	0.25	0.48	0.29	26.15	7,844	27,004	70,128	487	487	26,517	0.61	459.37
8	40	0.67	8.1	0.69	0.25	0.61	0.44	39.08	11,723	38,240	71,943	500	500	37,740	0.87	459.53
9	45	0.75	13.1	1.12	0.25	0.98	0.86	77.11	23,132	60,873	75,600	525	525	60,348	1.39	459.84
10	50	0.83	34.5	2.94	0.25	2.59	2.69	**239.88**	**71,964**	132,312	86,198	599	599	131,713	3.02	460.72
11	55	0.92	6.7	0.57	0.25	0.50	0.32	28.43	8,528	140,241	87,356	607	607	139,635	3.21	460.82
12	60	1.00	3.8	0.32	0.25	0.28	0.07	6.37	1,911	141,546	87,547	608	608	**140,938**	**3.24**	**460.83**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	0.71 in
RAINFALL VOLUME	228,186 cu-ft
SOIL LOSSES	81,121 cu-ft
EFFECTIVE RAIN	0.46 in
FLOOD VOLUME	3.38 acft
FLOOD VOLUME	147,065 cu-ft
REQUIRED STORAGE	3.24
REQUIRED STORAGE	140,938 cu-ft
MAX WSEL	460.83 ft
PEAK FLOW RATE	239.88 cfs
TOTAL BASIN LOSSES	6,127 cu-ft
AVERAGE PERCOLATION RATE	102.12 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	88.41
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.46
UNIT TIME-PERCENT OF LAG	203.6
TOTAL ADJUSTED STORM RAIN (in)	1.06
CONSTANT LOSS RATE (in/hr)	0.25
LOW LOSS RATE - PERCENT	87.86%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate in/hr		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent (Plate E-5.9)	Rain in/hr	Max	Low	Rain in/hr	Hydrograph Flow cfs	In cu-ft	Volume cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	WSEL ft
1	5	0.08	1.3	0.17	0.25	0.15	0.02	1.79	537	537	65,852	457	457	80	0.00	459.00
2	10	0.17	1.3	0.17	0.25	0.15	0.02	1.79	537	617	65,865	457	457	159	0.00	459.00
3	15	0.25	1.1	0.14	0.25	0.12	0.02	1.51	454	614	65,864	457	457	156	0.00	459.00
4	20	0.33	1.5	0.19	0.25	0.17	0.02	2.07	620	776	65,890	458	458	318	0.01	459.00
5	25	0.42	1.5	0.19	0.25	0.17	0.02	2.07	620	938	65,916	458	458	480	0.01	459.01
6	30	0.50	1.8	0.23	0.25	0.20	0.03	2.48	743	1,223	65,963	458	458	765	0.02	459.01
7	35	0.58	1.5	0.19	0.25	0.17	0.02	2.07	620	1,385	65,989	458	458	927	0.02	459.01
8	40	0.67	1.8	0.23	0.25	0.20	0.03	2.48	743	1,670	66,035	459	459	1,212	0.03	459.02
9	45	0.75	1.8	0.23	0.25	0.20	0.03	2.48	743	1,955	66,081	459	459	1,496	0.03	459.02
10	50	0.83	1.5	0.19	0.25	0.17	0.02	2.07	620	2,116	66,107	459	459	1,657	0.04	459.02
11	55	0.92	1.6	0.20	0.25	0.18	0.02	2.20	661	2,317	66,139	459	459	1,858	0.04	459.03
12	60	1.00	1.8	0.23	0.25	0.20	0.03	2.48	743	2,602	66,185	460	460	2,142	0.05	459.03
13	65	1.08	2.2	0.28	0.25	0.25	0.03	2.41	724	2,866	66,228	460	460	2,406	0.06	459.03
14	70	1.17	2.2	0.28	0.25	0.25	0.03	2.41	724	3,130	66,271	460	460	2,670	0.06	459.04
15	75	1.25	2.2	0.28	0.25	0.25	0.03	2.41	724	3,394	66,313	461	461	2,934	0.07	459.04
16	80	1.33	2.0	0.25	0.25	0.22	0.00	0.15	44	2,978	66,246	460	460	2,518	0.06	459.04
17	85	1.42	2.6	0.33	0.25	0.29	0.08	6.95	2,085	4,603	66,509	462	462	4,141	0.10	459.06
18	90	1.50	2.7	0.34	0.25	0.30	0.09	8.08	2,425	6,566	66,826	464	464	6,102	0.14	459.09
19	95	1.58	2.4	0.31	0.25	0.27	0.05	4.68	1,405	7,506	66,978	465	465	7,041	0.16	459.10
20	100	1.67	2.7	0.34	0.25	0.30	0.09	8.08	2,425	9,466	67,294	467	467	8,999	0.21	459.13
21	105	1.75	3.3	0.42	0.25	0.37	0.17	14.89	4,466	13,465	67,940	472	472	12,994	0.30	459.18
22	110	1.83	3.1	0.39	0.25	0.35	0.14	12.62	3,786	16,779	68,476	476	476	16,304	0.37	459.23
23	115	1.92	2.9	0.37	0.25	0.32	0.12	10.35	3,106	19,409	68,901	478	478	18,931	0.43	459.26
24	120	2.00	3.0	0.38	0.25	0.34	0.13	11.49	3,446	22,377	69,380	482	482	21,895	0.50	459.31
25	125	2.08	3.1	0.39	0.25	0.35	0.14	12.62	3,786	25,681	69,914	486	486	25,195	0.58	459.35

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	88.41
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.46
UNIT TIME-PERCENT OF LAG	203.6
TOTAL ADJUSTED STORM RAIN (in)	1.06
CONSTANT LOSS RATE (in/hr)	0.25
LOW LOSS RATE - PERCENT	87.86%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
26	130	2.17	4.2	0.53	0.25	0.47	0.28	25.09	7,528	32,723	71,052	493	493	32,230	0.74	459.45
27	135	2.25	5.0	0.64	0.25	0.56	0.38	34.17	10,250	42,479	72,628	504	504	41,975	0.96	459.59
28	140	2.33	3.5	0.45	0.25	0.39	0.19	17.16	5,147	47,122	73,378	510	510	46,612	1.07	459.65
29	145	2.42	6.8	0.86	0.25	0.76	0.61	54.58	16,373	62,985	75,941	527	527	62,458	1.43	459.87
30	150	2.50	7.3	0.93	0.25	0.82	0.68	60.25	18,074	80,532	78,635	546	546	79,986	1.84	460.10
31	155	2.58	8.2	1.04	0.25	0.92	0.79	**70.45**	**21,136**	101,122	81,642	567	567	100,555	2.31	460.35
32	160	2.67	5.9	0.75	0.25	0.66	0.50	44.37	13,311	113,866	83,504	580	580	**113,286**	**2.60**	**460.50**
33	165	2.75	2.0	0.25	0.25	0.22	0.00	0.15	44	113,330	83,426	579	579	112,751	2.59	460.50
34	170	2.83	1.8	0.23	0.25	0.20	0.03	2.48	743	113,494	83,450	580	580	112,914	2.59	460.50
35	175	2.92	1.8	0.23	0.25	0.20	0.03	2.48	743	113,658	83,474	580	580	113,078	2.60	460.50
36	180	3.00	0.6	0.08	0.25	0.07	0.01	0.83	248	113,326	83,425	579	579	112,747	2.59	460.50

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	1.06 in
RAINFALL VOLUME	340,193 cu-ft
SOIL LOSSES	209,809 cu-ft
EFFECTIVE RAIN	0.41 in
FLOOD VOLUME	2.99 acft
FLOOD VOLUME	130,384 cu-ft
REQUIRED STORAGE	2.60 acft
REQUIRED STORAGE	113,286 cu-ft
MAX WSEL	460.50 ft
PEAK FLOW RATE	70.45 cfs
TOTAL BASIN LOSSES	17,637 cu-ft
AVERAGE PERCOLATION RATE	97.98 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.46
UNIT TIME-PERCENT OF LAG	203.6
TOTAL ADJUSTED STORM RAIN (in)	1.36
CONSTANT LOSS RATE (in/hr)	0.25
LOW LOSS RATE - PERCENT	87.86%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.08	0.25	0.07	0.01	0.88	265	265	65,808	457	265	0	0.00	459.00
2	10	0.17	0.6	0.10	0.25	0.09	0.01	1.06	318	318	65,816	457	318	0	0.00	459.00
3	15	0.25	0.6	0.10	0.25	0.09	0.01	1.06	318	318	65,816	457	318	0	0.00	459.00
4	20	0.33	0.6	0.10	0.25	0.09	0.01	1.06	318	318	65,816	457	318	0	0.00	459.00
5	25	0.42	0.6	0.10	0.25	0.09	0.01	1.06	318	318	65,816	457	318	0	0.00	459.00
6	30	0.50	0.7	0.11	0.25	0.10	0.01	1.24	371	371	65,825	457	371	0	0.00	459.00
7	35	0.58	0.7	0.11	0.25	0.10	0.01	1.24	371	371	65,825	457	371	0	0.00	459.00
8	40	0.67	0.7	0.11	0.25	0.10	0.01	1.24	371	371	65,825	457	371	0	0.00	459.00
9	45	0.75	0.7	0.11	0.25	0.10	0.01	1.24	371	371	65,825	457	371	0	0.00	459.00
10	50	0.83	0.7	0.11	0.25	0.10	0.01	1.24	371	371	65,825	457	371	0	0.00	459.00
11	55	0.92	0.7	0.11	0.25	0.10	0.01	1.24	371	371	65,825	457	371	0	0.00	459.00
12	60	1.00	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
13	65	1.08	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
14	70	1.17	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
15	75	1.25	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
16	80	1.33	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
17	85	1.42	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
18	90	1.50	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
19	95	1.58	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
20	100	1.67	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
21	105	1.75	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
22	110	1.83	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
23	115	1.92	0.8	0.13	0.25	0.11	0.02	1.41	424	424	65,833	457	424	0	0.00	459.00
24	120	2.00	0.9	0.15	0.25	0.13	0.02	1.59	477	477	65,842	457	457	20	0.00	459.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.46
UNIT TIME-PERCENT OF LAG	203.6
TOTAL ADJUSTED STORM RAIN (in)	1.36
CONSTANT LOSS RATE (in/hr)	0.25
LOW LOSS RATE - PERCENT	87.86%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm Rain	Loss Rate		Effective Rain	Flood Hydrograph	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
	Minutes	Hours	Percent	in/hr	in/hr			Flow			Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
25	125	2.08	0.8	0.13	0.25	0.11	0.02	1.41	424	444	65,837	457	444	0	0.00	459.00
26	130	2.17	0.9	0.15	0.25	0.13	0.02	1.59	477	477	65,842	457	457	20	0.00	459.00
27	135	2.25	0.9	0.15	0.25	0.13	0.02	1.59	477	497	65,845	457	457	39	0.00	459.00
28	140	2.33	0.9	0.15	0.25	0.13	0.02	1.59	477	516	65,848	457	457	59	0.00	459.00
29	145	2.42	0.9	0.15	0.25	0.13	0.02	1.59	477	536	65,852	457	457	79	0.00	459.00
30	150	2.50	0.9	0.15	0.25	0.13	0.02	1.59	477	556	65,855	457	457	98	0.00	459.00
31	155	2.58	0.9	0.15	0.25	0.13	0.02	1.59	477	575	65,858	457	457	118	0.00	459.00
32	160	2.67	0.9	0.15	0.25	0.13	0.02	1.59	477	595	65,861	457	457	137	0.00	459.00
33	165	2.75	1.0	0.16	0.25	0.14	0.02	1.77	530	667	65,873	457	457	210	0.00	459.00
34	170	2.83	1.0	0.16	0.25	0.14	0.02	1.77	530	740	65,885	458	458	282	0.01	459.00
35	175	2.92	1.0	0.16	0.25	0.14	0.02	1.77	530	812	65,896	458	458	355	0.01	459.00
36	180	3.00	1.0	0.16	0.25	0.14	0.02	1.77	530	885	65,908	458	458	427	0.01	459.01
37	185	3.08	1.0	0.16	0.25	0.14	0.02	1.77	530	957	65,920	458	458	499	0.01	459.01
38	190	3.17	1.1	0.18	0.25	0.16	0.02	1.94	583	1,082	65,940	458	458	624	0.01	459.01
39	195	3.25	1.1	0.18	0.25	0.16	0.02	1.94	583	1,207	65,960	458	458	749	0.02	459.01
40	200	3.33	1.1	0.18	0.25	0.16	0.02	1.94	583	1,332	65,980	458	458	874	0.02	459.01
41	205	3.42	1.2	0.20	0.25	0.17	0.02	2.12	636	1,510	66,009	458	458	1,051	0.02	459.01
42	210	3.50	1.3	0.21	0.25	0.19	0.03	2.30	689	1,740	66,046	459	459	1,282	0.03	459.02
43	215	3.58	1.4	0.23	0.25	0.20	0.03	2.47	742	2,023	66,092	459	459	1,564	0.04	459.02
44	220	3.67	1.4	0.23	0.25	0.20	0.03	2.47	742	2,306	66,138	459	459	1,847	0.04	459.03
45	225	3.75	1.5	0.24	0.25	0.22	0.03	2.65	795	2,642	66,192	460	460	2,182	0.05	459.03
46	230	3.83	1.5	0.24	0.25	0.22	0.03	2.65	795	2,977	66,246	460	460	2,517	0.06	459.04
47	235	3.92	1.6	0.26	0.25	0.23	0.01	0.75	224	2,741	66,208	460	460	2,281	0.05	459.03
48	240	4.00	1.6	0.26	0.25	0.23	0.01	0.75	224	2,504	66,170	460	460	2,045	0.05	459.03
49	245	4.08	1.7	0.28	0.25	0.24	0.02	2.20	660	2,705	66,202	460	460	2,245	0.05	459.03
50	250	4.17	1.8	0.29	0.25	0.26	0.04	3.65	1,096	3,342	66,305	460	460	2,881	0.07	459.04

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.46
UNIT TIME-PERCENT OF LAG	203.6
TOTAL ADJUSTED STORM RAIN (in)	1.36
CONSTANT LOSS RATE (in/hr)	0.25
LOW LOSS RATE - PERCENT	87.86%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.31	0.25	0.27	0.06	5.11	1,533	4,414	66,478	462	462	3,952	0.09	459.06
52	260	4.33	2.0	0.33	0.25	0.29	0.07	6.56	1,969	5,922	66,722	463	463	5,459	0.13	459.08
53	265	4.42	2.1	0.34	0.25	0.30	0.09	8.02	2,406	7,864	67,036	466	466	7,399	0.17	459.10
54	270	4.50	2.1	0.34	0.25	0.30	0.09	8.02	2,406	9,805	67,349	468	468	9,337	0.21	459.13
55	275	4.58	2.2	0.36	0.25	0.32	0.11	9.47	2,842	12,179	67,733	470	470	11,709	0.27	459.16
56	280	4.67	2.3	0.38	0.25	0.33	0.12	10.93	3,279	14,988	68,186	474	474	14,514	0.33	459.20
57	285	4.75	2.4	0.39	0.25	0.34	0.14	12.38	3,715	18,230	68,710	477	477	17,753	0.41	459.25
58	290	4.83	2.4	0.39	0.25	0.34	0.14	12.38	3,715	21,468	69,233	481	481	20,987	0.48	459.29
59	295	4.92	2.5	0.41	0.25	0.36	0.16	13.84	4,152	25,139	69,826	485	485	24,654	0.57	459.35
60	300	5.00	2.6	0.42	0.25	0.37	0.17	15.29	4,588	29,242	70,489	490	490	28,753	0.66	459.40
61	305	5.08	3.1	0.51	0.25	0.44	0.25	22.57	6,771	35,523	71,504	497	497	35,027	0.80	459.49
62	310	5.17	3.6	0.59	0.25	0.52	0.33	29.84	8,953	43,980	72,870	506	506	43,474	1.00	459.61
63	315	5.25	3.9	0.64	0.25	0.56	0.38	34.21	10,262	53,736	74,447	517	517	53,219	1.22	459.74
64	320	5.33	4.2	0.69	0.25	0.60	0.43	38.57	11,572	64,791	76,233	529	529	64,262	1.48	459.90
65	325	5.42	4.7	0.77	0.25	0.67	0.51	45.85	13,754	78,016	78,268	544	544	77,472	1.78	460.07
66	330	5.50	5.6	0.91	0.25	0.80	0.66	**58.94**	**17,682**	95,155	80,771	561	561	94,594	2.17	460.28
67	335	5.58	1.9	0.31	0.25	0.27	0.06	5.11	1,533	96,127	80,913	562	562	**95,565**	**2.19**	**460.29**
68	340	5.67	0.9	0.15	0.25	0.13	0.02	1.59	477	96,042	80,900	562	562	95,480	2.19	460.29
69	345	5.75	0.6	0.10	0.25	0.09	0.01	1.06	318	95,798	80,865	562	562	95,236	2.19	460.29
70	350	5.83	0.5	0.08	0.25	0.07	0.01	0.88	265	95,501	80,822	561	561	94,940	2.18	460.28
71	355	5.92	0.3	0.05	0.25	0.04	0.01	0.53	159	95,099	80,763	561	561	94,538	2.17	460.28
72	360	6.00	0.2	0.03	0.25	0.03	0.00	0.35	106	94,644	80,696	560	560	94,084	2.16	460.27

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	1.36 in
RAINFALL VOLUME	436,474 cu-ft
SOIL LOSSES	309,926 cu-ft
EFFECTIVE RAIN	0.39 in
FLOOD VOLUME	2.91 acft
FLOOD VOLUME	126,548 cu-ft
REQUIRED STORAGE	2.19 acft
REQUIRED STORAGE	95,565 cu-ft
MAX WSEL	460.29 ft
PEAK FLOW RATE	58.94 cfs
TOTAL BASIN LOSSES	32,464 cu-ft
AVERAGE PERCOLATION RATE	90.18 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	2.46	C	0.00234	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	611%	Low Loss Rate (percent)	87.86%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	2.23			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.018	0.446	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
2	30	0.50	0.3	0.027	0.441	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
3	45	0.75	0.3	0.027	0.436	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
4	60	1.00	0.4	0.036	0.431	0.031	0.00	0.39	348	348	65,821	1,371	348	0	0.00	459.00
5	75	1.25	0.3	0.027	0.426	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
6	90	1.50	0.3	0.027	0.421	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
7	105	1.75	0.3	0.027	0.416	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
8	120	2.00	0.4	0.036	0.411	0.031	0.00	0.39	348	348	65,821	1,371	348	0	0.00	459.00
9	135	2.25	0.4	0.036	0.406	0.031	0.00	0.39	348	348	65,821	1,371	348	0	0.00	459.00
10	150	2.50	0.4	0.036	0.401	0.031	0.00	0.39	348	348	65,821	1,371	348	0	0.00	459.00
11	165	2.75	0.5	0.045	0.396	0.039	0.01	0.48	434	434	65,835	1,372	434	0	0.00	459.00
12	180	3.00	0.5	0.045	0.391	0.039	0.01	0.48	434	434	65,835	1,372	434	0	0.00	459.00
13	195	3.25	0.5	0.045	0.386	0.039	0.01	0.48	434	434	65,835	1,372	434	0	0.00	459.00
14	210	3.50	0.5	0.045	0.381	0.039	0.01	0.48	434	434	65,835	1,372	434	0	0.00	459.00
15	225	3.75	0.5	0.045	0.377	0.039	0.01	0.48	434	434	65,835	1,372	434	0	0.00	459.00
16	240	4.00	0.6	0.054	0.372	0.047	0.01	0.58	521	521	65,849	1,372	521	0	0.00	459.00
17	255	4.25	0.6	0.054	0.367	0.047	0.01	0.58	521	521	65,849	1,372	521	0	0.00	459.00
18	270	4.50	0.7	0.062	0.363	0.055	0.01	0.68	608	608	65,863	1,372	608	0	0.00	459.00
19	285	4.75	0.7	0.062	0.358	0.055	0.01	0.68	608	608	65,863	1,372	608	0	0.00	459.00
20	300	5.00	0.8	0.071	0.353	0.063	0.01	0.77	695	695	65,877	1,372	695	0	0.00	459.00
21	315	5.25	0.6	0.054	0.349	0.047	0.01	0.58	521	521	65,849	1,372	521	0	0.00	459.00
22	330	5.50	0.7	0.062	0.344	0.055	0.01	0.68	608	608	65,863	1,372	608	0	0.00	459.00
23	345	5.75	0.8	0.071	0.340	0.063	0.01	0.77	695	695	65,877	1,372	695	0	0.00	459.00
24	360	6.00	0.8	0.071	0.335	0.063	0.01	0.77	695	695	65,877	1,372	695	0	0.00	459.00
25	375	6.25	0.9	0.080	0.331	0.071	0.01	0.87	782	782	65,891	1,373	782	0	0.00	459.00
26	390	6.50	0.9	0.080	0.326	0.071	0.01	0.87	782	782	65,891	1,373	782	0	0.00	459.00
27	405	6.75	1.0	0.089	0.322	0.078	0.01	0.97	869	869	65,905	1,373	869	0	0.00	459.00
28	420	7.00	1.0	0.089	0.318	0.078	0.01	0.97	869	869	65,905	1,373	869	0	0.00	459.00
29	435	7.25	1.0	0.089	0.313	0.078	0.01	0.97	869	869	65,905	1,373	869	0	0.00	459.00
30	450	7.50	1.1	0.098	0.309	0.086	0.01	1.06	956	956	65,919	1,373	956	0	0.00	459.00
31	465	7.75	1.2	0.107	0.305	0.094	0.01	1.16	1,043	1,043	65,933	1,374	1,043	0	0.00	459.00
32	480	8.00	1.3	0.116	0.301	0.102	0.01	1.26	1,130	1,130	65,948	1,374	1,130	0	0.00	459.00
33	495	8.25	1.5	0.134	0.296	0.118	0.02	1.45	1,303	1,303	65,976	1,374	1,303	0	0.00	459.00
34	510	8.50	1.5	0.134	0.292	0.118	0.02	1.45	1,303	1,303	65,976	1,374	1,303	0	0.00	459.00
35	525	8.75	1.6	0.143	0.288	0.125	0.02	1.54	1,390	1,390	65,990	1,375	1,375	16	0.00	459.00
36	540	9.00	1.7	0.152	0.284	0.133	0.02	1.64	1,477	1,493	66,006	1,375	1,375	118	0.00	459.00
37	555	9.25	1.9	0.169	0.280	0.149	0.02	1.83	1,651	1,769	66,051	1,376	1,376	393	0.01	459.01
38	570	9.50	2.0	0.178	0.276	0.157	0.02	1.93	1,738	2,130	66,109	1,377	1,377	753	0.02	459.01
39	585	9.75	2.1	0.187	0.272	0.165	0.02	2.03	1,825	2,578	66,181	1,379	1,379	1,199	0.03	459.02
40	600	10.00	2.2	0.196	0.268	0.172	0.02	2.12	1,912	3,111	66,268	1,381	1,381	1,730	0.04	459.02
41	615	10.25	1.5	0.134	0.264	0.118	0.02	1.45	1,303	3,034	66,255	1,380	1,380	1,653	0.04	459.02
42	630	10.50	1.5	0.134	0.261	0.118	0.02	1.45	1,303	2,957	66,243	1,380	1,380	1,577	0.04	459.02
43	645	10.75	2.0	0.178	0.257	0.157	0.02	1.93	1,738	3,315	66,301	1,381	1,381	1,933	0.04	459.03

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	2.46	C	0.00234	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	611%	Low Loss Rate (percent)	87.86%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	2.23			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.178	0.253	0.157	0.02	1.93	1,738	3,671	66,358	1,382	1,382	2,289	0.05	459.03
45	675	11.25	1.9	0.169	0.249	0.149	0.02	1.83	1,651	3,940	66,402	1,383	1,383	2,556	0.06	459.04
46	690	11.50	1.9	0.169	0.246	0.149	0.02	1.83	1,651	4,207	66,445	1,384	1,384	2,823	0.06	459.04
47	705	11.75	1.7	0.152	0.242	0.133	0.02	1.64	1,477	4,300	66,460	1,385	1,385	2,916	0.07	459.04
48	720	12.00	1.8	0.161	0.238	0.141	0.02	1.74	1,564	4,480	66,489	1,385	1,385	3,095	0.07	459.04
49	735	12.25	2.5	0.223	0.235	0.196	0.03	2.41	2,172	5,267	66,616	1,388	1,388	3,879	0.09	459.05
50	750	12.50	2.6	0.232	0.231	0.204	0.00	0.06	54	3,933	66,400	1,383	1,383	2,550	0.06	459.04
51	765	12.75	2.8	0.250	0.228	0.219	0.02	1.96	1,764	4,313	66,462	1,385	1,385	2,929	0.07	459.04
52	780	13.00	2.9	0.259	0.224	0.227	0.03	3.06	2,755	5,684	66,683	1,389	1,389	4,295	0.10	459.06
53	795	13.25	3.4	0.303	0.221	0.266	0.08	7.34	6,606	10,900	67,526	1,407	1,407	9,493	0.22	459.13
54	810	13.50	3.4	0.303	0.218	0.266	0.09	**7.64**	**6,874**	16,368	68,409	1,425	1,425	14,942	0.34	459.21
55	825	13.75	2.3	0.205	0.214	0.180	0.02	2.22	1,999	16,941	68,502	1,427	1,427	15,514	0.36	459.22
56	840	14.00	2.3	0.205	0.211	0.180	0.02	2.22	1,999	17,512	68,594	1,429	1,429	16,083	0.37	459.23
57	855	14.25	2.7	0.241	0.208	0.212	0.03	2.94	2,649	18,733	68,791	1,433	1,433	17,300	0.40	459.24
58	870	14.50	2.6	0.232	0.205	0.204	0.03	2.43	2,188	19,488	68,913	1,436	1,436	18,052	0.41	459.25
59	885	14.75	2.6	0.232	0.202	0.204	0.03	2.71	2,439	20,492	69,076	1,439	1,439	19,053	0.44	459.27
60	900	15.00	2.5	0.223	0.198	0.196	0.02	2.19	1,971	21,024	69,162	1,441	1,441	19,583	0.45	459.27
61	915	15.25	2.4	0.214	0.195	0.188	0.02	1.67	1,499	21,082	69,171	1,441	1,441	19,641	0.45	459.27
62	930	15.50	2.3	0.205	0.192	0.180	0.01	1.14	1,023	20,664	69,103	1,440	1,440	19,224	0.44	459.27
63	945	15.75	1.9	0.169	0.189	0.149	0.02	1.83	1,651	20,875	69,138	1,440	1,440	19,435	0.45	459.27
64	960	16.00	1.9	0.169	0.187	0.149	0.02	1.83	1,651	21,086	69,172	1,441	1,441	**19,645**	**0.45**	**459.27**
65	975	16.25	0.4	0.036	0.184	0.031	0.00	0.39	348	19,992	68,995	1,437	1,437	18,555	0.43	459.26
66	990	16.50	0.4	0.036	0.181	0.031	0.00	0.39	348	18,902	68,819	1,434	1,434	17,469	0.40	459.24
67	1005	16.75	0.3	0.027	0.178	0.024	0.00	0.29	261	17,729	68,629	1,430	1,430	16,300	0.37	459.23
68	1020	17.00	0.3	0.027	0.175	0.024	0.00	0.29	261	16,560	68,440	1,426	1,426	15,134	0.35	459.21
69	1035	17.25	0.5	0.045	0.173	0.039	0.01	0.48	434	15,569	68,280	1,423	1,423	14,146	0.32	459.20
70	1050	17.50	0.5	0.045	0.170	0.039	0.01	0.48	434	14,581	68,121	1,419	1,419	13,162	0.30	459.18
71	1065	17.75	0.5	0.045	0.168	0.039	0.01	0.48	434	13,596	67,962	1,416	1,416	12,180	0.28	459.17
72	1080	18.00	0.4	0.036	0.165	0.031	0.00	0.39	348	12,528	67,789	1,412	1,412	11,116	0.26	459.16
73	1095	18.25	0.4	0.036	0.163	0.031	0.00	0.39	348	11,463	67,617	1,409	1,409	10,055	0.23	459.14
74	1110	18.50	0.4	0.036	0.160	0.031	0.00	0.39	348	10,402	67,446	1,405	1,405	8,997	0.21	459.13
75	1125	18.75	0.3	0.027	0.158	0.024	0.00	0.29	261	9,258	67,261	1,401	1,401	7,856	0.18	459.11
76	1140	19.00	0.2	0.018	0.156	0.016	0.00	0.19	174	8,030	67,062	1,397	1,397	6,633	0.15	459.09
77	1155	19.25	0.3	0.027	0.154	0.024	0.00	0.29	261	6,894	66,879	1,393	1,393	5,500	0.13	459.08
78	1170	19.50	0.4	0.036	0.152	0.031	0.00	0.39	348	5,848	66,710	1,390	1,390	4,458	0.10	459.06
79	1185	19.75	0.3	0.027	0.149	0.024	0.00	0.29	261	4,719	66,527	1,386	1,386	3,333	0.08	459.05
80	1200	20.00	0.2	0.018	0.147	0.016	0.00	0.19	174	3,507	66,332	1,382	1,382	2,125	0.05	459.03
81	1215	20.25	0.3	0.027	0.145	0.024	0.00	0.29	261	2,386	66,150	1,378	1,378	1,007	0.02	459.01
82	1230	20.50	0.3	0.027	0.144	0.024	0.00	0.29	261	1,268	65,970	1,374	1,268	0	0.00	459.00
83	1245	20.75	0.3	0.027	0.142	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
84	1260	21.00	0.2	0.018	0.140	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
85	1275	21.25	0.3	0.027	0.138	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
86	1290	21.50	0.2	0.018	0.137	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	88.41	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	2.46	C	0.00234	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	611%	Low Loss Rate (percent)	87.86%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	2.23			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.027	0.135	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
88	1320	22.00	0.2	0.018	0.134	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
89	1335	22.25	0.3	0.027	0.133	0.024	0.00	0.29	261	261	65,807	1,371	261	0	0.00	459.00
90	1350	22.50	0.2	0.018	0.131	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
91	1365	22.75	0.2	0.018	0.130	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
92	1380	23.00	0.2	0.018	0.129	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
93	1395	23.25	0.2	0.018	0.128	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
94	1410	23.50	0.2	0.018	0.128	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
95	1425	23.75	0.2	0.018	0.127	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00
96	1440	24.00	0.2	0.018	0.126	0.016	0.00	0.19	174	174	65,793	1,371	174	0	0.00	459.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.23 in
RAINFALL VOLUME	715,689 cu-ft
SOIL LOSSES	625,214 cu-ft
EFFECTIVE RAIN	0.28 in
FLOOD VOLUME	2.08 acft
FLOOD VOLUME	90,475 cu-ft
REQUIRED STORAGE	0.45 acft
REQUIRED STORAGE	19,645 cu-ft
MAX WSEL	459.27 ft
PEAK FLOW RATE	7.64 cfs
TOTAL BASIN LOSSES	90,475 cu-ft
AVERAGE PERCOLATION RATE	62.83 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: 10 YEAR BASIN

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
459	0	0		65,765	0	0	0.00
460	1	1	11,545	77,310	71,460	71,460	1.64
461	1	2	12,170	89,480	83,321	154,781	3.55

WHERE:

$$V = \frac{1}{3}\left(E_1 - E_2\right)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE:	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	REQUIRED 10 YEAR STORAGE
AREA DESIGNATION	DA-A2
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	2.071	D	56	0.51	1.00
1	B	COMMERCIAL	5.752	D	56	0.51	0.90
6	B	SF - HIGH DENSITY	8.141	D	56	0.51	0.50
9	B	LANDSCAPING	1.350	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,260 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	630 ft
ELEVATION OF HEADWATER	465.3 ft
ELEVATION OF CONCENTRATION POINT	458.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	10
LOW LOSS RATE (For Storms Greater Than 10 Years)	85%
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	0.71 in
3-HOUR	1.06 in
6-HOUR	1.36 in
24-HOUR	2.23 in

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	REQUIRED 10 YEAR STORAGE
[2] AREA DESIGNATION	DA-A2
[3] AREA - ACRES	17.314
[4] L-FEET	1260
[5] L-MILES	0.239
[6] La-FEET	630.00
[7] La-MILES	0.119
[8] ELEVATION OF HEADWATER	465.3
[9] ELEVATION OF CONCENTRATION POINT	458
[10] H-FEET	7.3
[11] S-FEET/MILE	30.6
[12] S^0.5	5.53
[13] L*LCA/S^0.5	0.005
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.06
[16] LAG TIME-MINUTES	3.9
[17] 100% OF LAG-MINUTES	3.9
[18] 200% OF LAG-MINUTES	7.8

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	10
NOAA ATLAS	**14**
[3] DURATION:	Point Rain
1-HOUR	0.71 in
3-HOUR	1.06 in
6-HOUR	1.36 in
24-HOUR	2.23 in

STORM EVENT SUMMARY

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
TOTAL RAINFALL	(in)	0.71	1.06	1.36	2.23
RAINFALL VOLUME	(cuft)	44,624	66,621	85,476	140,156
SOIL LOSSES	(cuft)	12,970	32,123	39,734	73,692
EFFECTIVE RAIN	(in)	0.50	0.55	0.73	1.06
FLOOD VOLUME	(cu-ft)	31,653	34,498	45,742	66,464
	(acre-ft)	0.73	0.79	1.05	1.53
PEAK FLOW	(cfs)	N/A	14.61	12.35	2.19

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322 (in/hr)	MIN AVERAGE ADJUSTED INFILTRATION RATE (in/hr)
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	2.071	0.120	0.0061	DEVELOPED	0.1000	0.0120
B	COMMERCIAL	56	0.51	90%	0.10	5.752	0.332	0.0322	DEVELOPED	0.1800	0.0598
B	SF - HIGH DENSITY	56	0.51	50%	0.28	8.141	0.470	0.1319	DEVELOPED	0.5000	0.2351
B	LANDSCAPING	56	0.51	10%	0.46	1.350	0.078	0.0362	DEVELOPED	0.8200	0.0639
					SUM	17.314	SUM	0.2064			0.3708

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.10318457

C= 0.00191

Ft=C(24-(T/60))^1.55 = 0.00191 (24-(T/60))^1.55 + **0.10** in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.2064** in/hr

LOW LOSS RATE = **0.3708** in/hr

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 1-HOUR STORM	PROJECT:	CORAL MOUNTAIN	
		Job No.:	2553	DATE
		BY:	DLS	3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	17.31
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.89
UNIT TIME-PERCENT OF LAG	128.6
TOTAL ADJUSTED STORM RAIN-INCHES	0.71
CONSTANT LOSS RATE-in/hr	0.21
LOW LOSS RATE - PERCENT	37%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
1	5	0.08	3.6	0.31	0.21	0.11	0.10	1.75
2	10	0.17	4.2	0.36	0.21	0.13	0.15	2.64
3	15	0.25	4.4	0.37	0.21	0.14	0.17	2.94
4	20	0.33	4.6	0.39	0.21	0.15	0.19	3.24
5	25	0.42	5.0	0.43	0.21	0.16	0.22	3.83
6	30	0.50	5.6	0.48	0.21	0.18	0.27	4.73
7	35	0.58	6.4	0.55	0.21	0.20	0.34	5.92
8	40	0.67	8.1	0.69	0.21	0.26	0.48	8.45
9	45	0.75	13.1	1.12	0.21	0.41	0.91	15.88
10	50	0.83	34.5	2.94	0.21	1.09	2.73	**47.71**
11	55	0.92	6.7	0.57	0.21	0.21	0.36	6.36
12	60	1.00	3.8	0.32	0.21	0.12	0.12	2.05

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	0.71
RAINFALL VOLUME (cuft)	44,624
SOIL LOSSES (cuft)	12,970
EFFECTIVE RAIN (in)	0.50
FLOOD VOLUME (acft)	0.73
FLOOD VOLUME (cuft)	31,653
PEAK FLOW RATE (cfs)	47.71

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 3-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	17.31	
UNIT TIME-MINUTES	5	
LAG TIME - MINUTES	3.89	
UNIT TIME-PERCENT OF LAG	128.6	
TOTAL ADJUSTED STORM RAIN-INCHES	1.06	
CONSTANT LOSS RATE-in/hr		0.21
LOW LOSS RATE - PERCENT		37%

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
1	5	0.08	1.3	0.17	0.21	0.06	0.10	1.82
2	10	0.17	1.3	0.17	0.21	0.06	0.10	1.82
3	15	0.25	1.1	0.14	0.21	0.05	0.09	1.54
4	20	0.33	1.5	0.19	0.21	0.07	0.12	2.10
5	25	0.42	1.5	0.19	0.21	0.07	0.12	2.10
6	30	0.50	1.8	0.23	0.21	0.08	0.02	0.39
7	35	0.58	1.5	0.19	0.21	0.07	0.12	2.10
8	40	0.67	1.8	0.23	0.21	0.08	0.02	0.39
9	45	0.75	1.8	0.23	0.21	0.08	0.02	0.39
10	50	0.83	1.5	0.19	0.21	0.07	0.12	2.10
11	55	0.92	1.6	0.20	0.21	0.08	0.13	2.24
12	60	1.00	1.8	0.23	0.21	0.08	0.02	0.39
13	65	1.08	2.2	0.28	0.21	0.10	0.07	1.28
14	70	1.17	2.2	0.28	0.21	0.10	0.07	1.28
15	75	1.25	2.2	0.28	0.21	0.10	0.07	1.28
16	80	1.33	2.0	0.25	0.21	0.09	0.05	0.84
17	85	1.42	2.6	0.33	0.21	0.12	0.12	2.17
18	90	1.50	2.7	0.34	0.21	0.13	0.14	2.39
19	95	1.58	2.4	0.31	0.21	0.11	0.10	1.73
20	100	1.67	2.7	0.34	0.21	0.13	0.14	2.39
21	105	1.75	3.3	0.42	0.21	0.16	0.21	3.73
22	110	1.83	3.1	0.39	0.21	0.15	0.19	3.28
23	115	1.92	2.9	0.37	0.21	0.14	0.16	2.84
24	120	2.00	3.0	0.38	0.21	0.14	0.18	3.06
25	125	2.08	3.1	0.39	0.21	0.15	0.19	3.28
26	130	2.17	4.2	0.53	0.21	0.20	0.33	5.72
27	135	2.25	5.0	0.64	0.21	0.24	0.43	7.50
28	140	2.33	3.5	0.45	0.21	0.17	0.24	4.17
29	145	2.42	6.8	0.86	0.21	0.32	0.66	11.50
30	150	2.50	7.3	0.93	0.21	0.34	0.72	12.61
31	155	2.58	8.2	1.04	0.21	0.39	0.84	**14.61**
32	160	2.67	5.9	0.75	0.21	0.28	0.54	9.50
33	165	2.75	2.0	0.25	0.21	0.09	0.05	0.84
34	170	2.83	1.8	0.23	0.21	0.08	0.02	0.39
35	175	2.92	1.8	0.23	0.21	0.08	0.02	0.39
36	180	3.00	0.6	0.08	0.21	0.03	0.05	0.84

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	1.06
RAINFALL VOLUME (cuft)	66,621
SOIL LOSSES (cuft)	32,123
EFFECTIVE RAIN (in)	0.55
FLOOD VOLUME (acft)	0.79
FLOOD VOLUME (cuft)	34,498
PEAK FLOW RATE (cfs)	14.61

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 6-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	17.31
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.89
UNIT TIME-PERCENT OF LAG	128.6
TOTAL ADJUSTED STORM RAIN-INCHES	1.36
CONSTANT LOSS RATE-in/hr	0.206
LOW LOSS RATE - PERCENT	37%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
1	5	0.08	0.5	0.082	0.21	0.03	0.05	0.90
2	10	0.17	0.6	0.098	0.21	0.04	0.06	1.08
3	15	0.25	0.6	0.098	0.21	0.04	0.06	1.08
4	20	0.33	0.6	0.098	0.21	0.04	0.06	1.08
5	25	0.42	0.6	0.098	0.21	0.04	0.06	1.08
6	30	0.50	0.7	0.114	0.21	0.04	0.07	1.25
7	35	0.58	0.7	0.114	0.21	0.04	0.07	1.25
8	40	0.67	0.7	0.114	0.21	0.04	0.07	1.25
9	45	0.75	0.7	0.114	0.21	0.04	0.07	1.25
10	50	0.83	0.7	0.114	0.21	0.04	0.07	1.25
11	55	0.92	0.7	0.114	0.21	0.04	0.07	1.25
12	60	1.00	0.8	0.131	0.21	0.05	0.08	1.43
13	65	1.08	0.8	0.131	0.21	0.05	0.08	1.43
14	70	1.17	0.8	0.131	0.21	0.05	0.08	1.43
15	75	1.25	0.8	0.131	0.21	0.05	0.08	1.43
16	80	1.33	0.8	0.131	0.21	0.05	0.08	1.43
17	85	1.42	0.8	0.131	0.21	0.05	0.08	1.43
18	90	1.50	0.8	0.131	0.21	0.05	0.08	1.43
19	95	1.58	0.8	0.131	0.21	0.05	0.08	1.43
20	100	1.67	0.8	0.131	0.21	0.05	0.08	1.43
21	105	1.75	0.8	0.131	0.21	0.05	0.08	1.43
22	110	1.83	0.8	0.131	0.21	0.05	0.08	1.43
23	115	1.92	0.8	0.131	0.21	0.05	0.08	1.43
24	120	2.00	0.9	0.147	0.21	0.05	0.09	1.61
25	125	2.08	0.8	0.131	0.21	0.05	0.08	1.43
26	130	2.17	0.9	0.147	0.21	0.05	0.09	1.61
27	135	2.25	0.9	0.147	0.21	0.05	0.09	1.61
28	140	2.33	0.9	0.147	0.21	0.05	0.09	1.61
29	145	2.42	0.9	0.147	0.21	0.05	0.09	1.61
30	150	2.50	0.9	0.147	0.21	0.05	0.09	1.61
31	155	2.58	0.9	0.147	0.21	0.05	0.09	1.61
32	160	2.67	0.9	0.147	0.21	0.05	0.09	1.61
33	165	2.75	1.0	0.163	0.21	0.06	0.10	1.79
34	170	2.83	1.0	0.163	0.21	0.06	0.10	1.79
35	175	2.92	1.0	0.163	0.21	0.06	0.10	1.79
36	180	3.00	1.0	0.163	0.21	0.06	0.10	1.79
37	185	3.08	1.0	0.163	0.21	0.06	0.10	1.79
38	190	3.17	1.1	0.180	0.21	0.07	0.11	1.97
39	195	3.25	1.1	0.180	0.21	0.07	0.11	1.97
40	200	3.33	1.1	0.180	0.21	0.07	0.11	1.97
41	205	3.42	1.2	0.196	0.21	0.07	0.12	2.15
42	210	3.50	1.3	0.212	0.21	0.08	0.01	0.10
43	215	3.58	1.4	0.228	0.21	0.08	0.02	0.39
44	220	3.67	1.4	0.228	0.21	0.08	0.02	0.39
45	225	3.75	1.5	0.245	0.21	0.09	0.04	0.67
46	230	3.83	1.5	0.245	0.21	0.09	0.04	0.67
47	235	3.92	1.6	0.261	0.21	0.10	0.05	0.96
48	240	4.00	1.6	0.261	0.21	0.10	0.05	0.96
49	245	4.08	1.7	0.277	0.21	0.10	0.07	1.24
50	250	4.17	1.8	0.294	0.21	0.11	0.09	1.53
51	255	4.25	1.9	0.310	0.21	0.11	0.10	1.81
52	260	4.33	2.0	0.326	0.21	0.12	0.12	2.10
53	265	4.42	2.1	0.343	0.21	0.13	0.14	2.38
54	270	4.50	2.1	0.343	0.21	0.13	0.14	2.38

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 6-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	17.31
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.89
UNIT TIME-PERCENT OF LAG	128.6
TOTAL ADJUSTED STORM RAIN-INCHES	1.36
CONSTANT LOSS RATE-in/hr	0.206
LOW LOSS RATE - PERCENT	37%

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow
	Minutes	Hours	(Plate E-5.9)		Max	Low	in/hr	cfs
55	275	4.58	2.2	0.359	0.21	0.13	0.15	2.67
56	280	4.67	2.3	0.375	0.21	0.14	0.17	2.95
57	285	4.75	2.4	0.392	0.21	0.15	0.19	3.24
58	290	4.83	2.4	0.392	0.21	0.15	0.19	3.24
59	295	4.92	2.5	0.408	0.21	0.15	0.20	3.52
60	300	5.00	2.6	0.424	0.21	0.16	0.22	3.81
61	305	5.08	3.1	0.506	0.21	0.19	0.30	5.23
62	310	5.17	3.6	0.588	0.21	0.22	0.38	6.65
63	315	5.25	3.9	0.636	0.21	0.24	0.43	7.51
64	320	5.33	4.2	0.685	0.21	0.25	0.48	8.36
65	325	5.42	4.7	0.767	0.21	0.28	0.56	9.79
66	330	5.50	5.6	0.914	0.21	0.34	0.71	**12.35**
67	335	5.58	1.9	0.310	0.21	0.11	0.10	1.81
68	340	5.67	0.9	0.147	0.21	0.05	0.09	1.61
69	345	5.75	0.6	0.098	0.21	0.04	0.06	1.08
70	350	5.83	0.5	0.082	0.21	0.03	0.05	0.90
71	355	5.92	0.3	0.049	0.21	0.02	0.03	0.54
72	360	6.00	0.2	0.033	0.21	0.01	0.02	0.36

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	1.36
RAINFALL VOLUME (cuft)	85,476
SOIL LOSSES (cuft)	39,734
EFFECTIVE RAIN (in)	0.73
FLOOD VOLUME (acft)	1.05
FLOOD VOLUME (cuft)	45,742
PEAK FLOW RATE (cfs)	12.35

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 24-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE: BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	17.314	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.2064
LAG TIME - MINUTES	3.89	MINIMUM LOSS RATE (for var. loss) - in/hr	0.103
UNIT TIME-PERCENT OF LAG	385.7	LOW LOSS RATE - DECIMAL	0.37
TOTAL ADJUSTED STORM RAIN-INCHES	2.23	C	0.00191

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs
	Minutes	Hours	(Plate E-5.9)		Max	Low		
1	15	0.25	0.2	0.018	0.364	0.007	0.011	0.20
2	30	0.50	0.3	0.027	0.360	0.010	0.017	0.29
3	45	0.75	0.3	0.027	0.356	0.010	0.017	0.29
4	60	1.00	0.4	0.036	0.352	0.013	0.022	0.39
5	75	1.25	0.3	0.027	0.348	0.010	0.017	0.29
6	90	1.50	0.3	0.027	0.344	0.010	0.017	0.29
7	105	1.75	0.3	0.027	0.339	0.010	0.017	0.29
8	120	2.00	0.4	0.036	0.335	0.013	0.022	0.39
9	135	2.25	0.4	0.036	0.331	0.013	0.022	0.39
10	150	2.50	0.4	0.036	0.327	0.013	0.022	0.39
11	165	2.75	0.5	0.045	0.323	0.017	0.028	0.49
12	180	3.00	0.5	0.045	0.319	0.017	0.028	0.49
13	195	3.25	0.5	0.045	0.315	0.017	0.028	0.49
14	210	3.50	0.5	0.045	0.311	0.017	0.028	0.49
15	225	3.75	0.5	0.045	0.308	0.017	0.028	0.49
16	240	4.00	0.6	0.054	0.304	0.020	0.034	0.59
17	255	4.25	0.6	0.054	0.300	0.020	0.034	0.59
18	270	4.50	0.7	0.062	0.296	0.023	0.039	0.69
19	285	4.75	0.7	0.062	0.292	0.023	0.039	0.69
20	300	5.00	0.8	0.071	0.288	0.026	0.045	0.78
21	315	5.25	0.6	0.054	0.285	0.020	0.034	0.59
22	330	5.50	0.7	0.062	0.281	0.023	0.039	0.69
23	345	5.75	0.8	0.071	0.277	0.026	0.045	0.78
24	360	6.00	0.8	0.071	0.274	0.026	0.045	0.78
25	375	6.25	0.9	0.080	0.270	0.030	0.051	0.88
26	390	6.50	0.9	0.080	0.266	0.030	0.051	0.88
27	405	6.75	1.0	0.089	0.263	0.033	0.056	0.98
28	420	7.00	1.0	0.089	0.259	0.033	0.056	0.98
29	435	7.25	1.0	0.089	0.256	0.033	0.056	0.98
30	450	7.50	1.1	0.098	0.252	0.036	0.062	1.08
31	465	7.75	1.2	0.107	0.249	0.040	0.067	1.18
32	480	8.00	1.3	0.116	0.245	0.043	0.073	1.27
33	495	8.25	1.5	0.134	0.242	0.050	0.084	1.47
34	510	8.50	1.5	0.134	0.239	0.050	0.084	1.47
35	525	8.75	1.6	0.143	0.235	0.053	0.090	1.57
36	540	9.00	1.7	0.152	0.232	0.056	0.095	1.67
37	555	9.25	1.9	0.169	0.229	0.063	0.107	1.86
38	570	9.50	2.0	0.178	0.225	0.066	0.112	1.96
39	585	9.75	2.1	0.187	0.222	0.069	0.118	2.06
40	600	10.00	2.2	0.196	0.219	0.073	0.123	2.16
41	615	10.25	1.5	0.134	0.216	0.050	0.084	1.47
42	630	10.50	1.5	0.134	0.213	0.050	0.084	1.47
43	645	10.75	2.0	0.178	0.210	0.066	0.112	1.96
44	660	11.00	2.0	0.178	0.207	0.066	0.112	1.96
45	675	11.25	1.9	0.169	0.203	0.063	0.107	1.86
46	690	11.50	1.9	0.169	0.200	0.063	0.107	1.86
47	705	11.75	1.7	0.152	0.198	0.056	0.095	1.67
48	720	12.00	1.8	0.161	0.195	0.060	0.101	1.76
49	735	12.25	2.5	0.223	0.192	0.083	0.031	0.55
50	750	12.50	2.6	0.232	0.189	0.086	0.043	0.75
51	765	12.75	2.8	0.250	0.186	0.093	0.064	1.11
52	780	13.00	2.9	0.259	0.183	0.096	0.076	1.32
53	795	13.25	3.4	0.303	0.180	0.112	0.123	2.15
54	810	13.50	3.4	0.303	0.178	0.112	0.126	**2.19**
55	825	13.75	2.3	0.205	0.175	0.076	0.030	0.53
56	840	14.00	2.3	0.205	0.172	0.076	0.033	0.57
57	855	14.25	2.7	0.241	0.170	0.089	0.071	1.24
58	870	14.50	2.6	0.232	0.167	0.086	0.065	1.13
59	885	14.75	2.6	0.232	0.165	0.086	0.067	1.18
60	900	15.00	2.5	0.223	0.162	0.083	0.061	1.06
61	915	15.25	2.4	0.214	0.160	0.079	0.055	0.95
62	930	15.50	2.3	0.205	0.157	0.076	0.048	0.84
63	945	15.75	1.9	0.169	0.155	0.063	0.015	0.26

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD SHORTCUT METHOD 24-HOUR STORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 DATE: BY: DLS 3/30/20

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

DRAINAGE AREA-ACRES	17.314	CONSTANT LOSS RATE-in/hr	n/a
UNIT TIME-MINUTES	15	VARIABLE LOSS RATE (AVG) in/hr	0.2064
LAG TIME - MINUTES	3.89	MINIMUM LOSS RATE (for var. loss) - in/hr	0.103
UNIT TIME-PERCENT OF LAG	385.7	LOW LOSS RATE - DECIMAL	0.37
TOTAL ADJUSTED STORM RAIN-INCHES	2.23	C	0.00191

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs
64	960	16.00	1.9	0.169	0.152	0.063	0.017	0.30
65	975	16.25	0.4	0.036	0.150	0.013	0.022	0.39
66	990	16.50	0.4	0.036	0.148	0.013	0.022	0.39
67	1005	16.75	0.3	0.027	0.145	0.010	0.017	0.29
68	1020	17.00	0.3	0.027	0.143	0.010	0.017	0.29
69	1035	17.25	0.5	0.045	0.141	0.017	0.028	0.49
70	1050	17.50	0.5	0.045	0.139	0.017	0.028	0.49
71	1065	17.75	0.5	0.045	0.137	0.017	0.028	0.49
72	1080	18.00	0.4	0.036	0.135	0.013	0.022	0.39
73	1095	18.25	0.4	0.036	0.133	0.013	0.022	0.39
74	1110	18.50	0.4	0.036	0.131	0.013	0.022	0.39
75	1125	18.75	0.3	0.027	0.129	0.010	0.017	0.29
76	1140	19.00	0.2	0.018	0.127	0.007	0.011	0.20
77	1155	19.25	0.3	0.027	0.125	0.010	0.017	0.29
78	1170	19.50	0.4	0.036	0.124	0.013	0.022	0.39
79	1185	19.75	0.3	0.027	0.122	0.010	0.017	0.29
80	1200	20.00	0.2	0.018	0.120	0.007	0.011	0.20
81	1215	20.25	0.3	0.027	0.119	0.010	0.017	0.29
82	1230	20.50	0.3	0.027	0.117	0.010	0.017	0.29
83	1245	20.75	0.3	0.027	0.116	0.010	0.017	0.29
84	1260	21.00	0.2	0.018	0.114	0.007	0.011	0.20
85	1275	21.25	0.3	0.027	0.113	0.010	0.017	0.29
86	1290	21.50	0.2	0.018	0.112	0.007	0.011	0.20
87	1305	21.75	0.3	0.027	0.110	0.010	0.017	0.29
88	1320	22.00	0.2	0.018	0.109	0.007	0.011	0.20
89	1335	22.25	0.3	0.027	0.108	0.010	0.017	0.29
90	1350	22.50	0.2	0.018	0.107	0.007	0.011	0.20
91	1365	22.75	0.2	0.018	0.106	0.007	0.011	0.20
92	1380	23.00	0.2	0.018	0.105	0.007	0.011	0.20
93	1395	23.25	0.2	0.018	0.105	0.007	0.011	0.20
94	1410	23.50	0.2	0.018	0.104	0.007	0.011	0.20
95	1425	23.75	0.2	0.018	0.104	0.007	0.011	0.20
96	1440	24.00	0.2	0.018	0.103	0.007	0.011	0.20

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL (in)	2.23
RAINFALL VOLUME (cuft)	140,156
SOIL LOSSES (cuft)	73,692
EFFECTIVE RAIN (in)	1.06
FLOOD VOLUME (acft)	1.53
FLOOD VOLUME (cuft)	66,464
PEAK FLOW (cfs)	2.19

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	March 30, 2020
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	10 YEAR BASIN
AREA DESIGNATION	DA-A3
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
11	D	EXISTING BARREN	1.268	X	93	0.09	0.05
12	B	EXISTING OPEN BRUSH - POOR	4.870	X	76	0.29	0.05
2	B	PAVING/HARDSCAPE	0.011	D	56	0.51	1.00
3	B	WATER FEATURE	0.000	D	56	0.51	1.00
1	B	COMMERCIAL	0.000	D	56	0.51	0.90
6	B	SF - HIGH DENSITY	0.000	D	56	0.51	0.50
9	B	LANDSCAPING	18.819	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,050 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	525 ft
ELEVATION OF HEADWATER	520.0 ft
ELEVATION OF CONCENTRATION POINT	472.0 ft
AVERAGE MANNINGS 'N' VALUE	0.03
STORM FREQUENCY (YEAR)	10
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	0.71 in
3-HOUR	1.06 in
6-HOUR	1.36 in
24-HOUR	2.23 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
468.0 ft	10,730 sf
469.0 ft	17,060 sf
470.0 ft	24,025 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

PHYSICAL DATA

[1] CONCENTRATION POINT	10 YEAR BASIN
[2] AREA DESIGNATION	DA-A3
[3] AREA - ACRES	24.968
[4] L-FEET	1050
[5] L-MILES	0.199
[6] La-FEET	525.00
[7] La-MILES	0.099
[8] ELEVATION OF HEADWATER	520
[9] ELEVATION OF CONCENTRATION POINT	472
[10] H-FEET	48
[11] S-FEET/MILE	241.4
[12] S^0.5	15.54
[13] L*LCA/S^0.5	0.001
[14] AVERAGE MANNINGS 'N'	0.03
[15] LAG TIME-HOURS	0.06
[16] LAG TIME-MINUTES	3.4
[17] 100% OF LAG-MINUTES	3.4
[18] 200% OF LAG-MINUTES	6.9

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	10
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	0.71 in
3-HOUR	1.06 in
6-HOUR	1.36 in
24-HOUR	2.23 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	64,441	96,072	123,263	**202,114**
SOIL LOSSES	(cu-ft)	32,724	69,661	96,384	**169,645**
EFFECTIVE RAIN	(in)	0.35	0.29	0.30	0.36
FLOOD VOLUME	(cu-ft)	31,717	26,411	26,879	**32,470**
	(acre-ft)	0.73	0.61	0.62	**0.75**
REQUIRED STORAGE	(cu-ft)	**30,493**	23,026	20,546	14,184
	(acre-ft)	**0.70**	0.53	0.47	0.33
FACTOR OF SAFETY		1.12	1.49	1.67	2.41
STORAGE PROVIDED	(cu-ft)	34,217			
	(acre-ft)	0.79			
PEAK FLOW	(cfs)	n/a	15.98	12.73	1.23
MAXIMUM WSEL	(ft)	**469.82**	469.45	469.33	469.02
DEPTH	(ft)	**1.82**	1.45	1.33	1.02
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	1.1	1.0	1.0	1.3

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 3/30/20

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
D	EXISTING BARREN	93	0.09	5%	0.09	1.268	0.051	0.0044	UNDEVELOPED	0.9000	0.0457
B	EXISTING OPEN BRUSH - POOR	76	0.29	5%	0.28	4.870	0.195	0.0540	UNDEVELOPED	0.9000	0.1755
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.011	0.000	0.0000	DEVELOPED	0.1000	0.0000
B	WATER FEATURE	56	0.51	100%	0.05	0.000	0.000	0.0000	DEVELOPED	0.1000	0.0000
B	COMMERCIAL	56	0.51	90%	0.10	0.000	0.000	0.0000	DEVELOPED	0.1800	0.0000
B	SF - HIGH DENSITY	56	0.51	50%	0.28	0.000	0.000	0.0000	DEVELOPED	0.5000	0.0000
B	LANDSCAPING	56	0.51	10%	0.46	18.819	0.754	0.3498	DEVELOPED	0.8200	0.6181
					SUM	24.968	SUM	0.4082			0.8393

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.204105054

C= 0.00378

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00378 (24-(T/60))^1.55 + 0.20 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.4082**

LOW LOSS RATE = **0.8393**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.43
UNIT TIME-PERCENT OF LAG	145.8
TOTAL ADJUSTED STORM RAIN-INCHES	0.71
CONSTANT LOSS RATE-in/hr	0.41
LOW LOSS RATE - PERCENT	83.93%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.31	0.41	0.26	0.05	1.24	373	373	10,901	76	76	297	0.01	468.02
2	10	0.17	4.2	0.36	0.41	0.30	0.06	1.45	435	732	11,066	77	77	655	0.02	468.05
3	15	0.25	4.4	0.38	0.41	0.32	0.06	1.52	456	1,110	11,240	78	78	1,032	0.02	468.07
4	20	0.33	4.6	0.39	0.41	0.33	0.06	1.59	476	1,509	11,423	79	79	1,429	0.03	468.10
5	25	0.42	5.0	0.43	0.41	0.36	0.02	0.46	139	1,568	11,451	80	80	1,489	0.03	468.11
6	30	0.50	5.6	0.48	0.41	0.40	0.07	1.75	526	2,014	11,656	81	81	1,933	0.04	468.14
7	35	0.58	6.4	0.55	0.41	0.46	0.14	3.47	1,041	2,974	12,097	84	84	2,890	0.07	468.21
8	40	0.67	8.1	0.69	0.41	0.58	0.28	7.12	2,137	5,027	13,040	91	91	4,936	0.11	468.36
9	45	0.75	13.1	1.12	0.41	0.94	0.71	17.86	5,359	10,295	15,461	107	107	10,188	0.23	468.74
10	50	0.83	34.5	2.94	0.41	2.47	2.54	**63.83**	**19,149**	29,337	22,362	155	155	29,181	0.67	469.75
11	55	0.92	6.7	0.57	0.41	0.48	0.16	4.11	1,234	30,416	22,730	158	158	30,258	0.69	469.81
12	60	1.00	3.8	0.32	0.41	0.27	0.05	1.31	393	30,651	22,810	158	158	**30,493**	**0.70**	**469.82**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	0.71 in
RAINFALL VOLUME	64,441 cu-ft
SOIL LOSSES	32,724 cu-ft
EFFECTIVE RAIN	0.35 in
FLOOD VOLUME	0.73 acft
FLOOD VOLUME	31,717 cu-ft
REQUIRED STORAGE	0.70
REQUIRED STORAGE	30,493 cu-ft
MAX WSEL	469.82 ft
PEAK FLOW RATE	63.83 cfs
TOTAL BASIN LOSSES	1,224 cu-ft
AVERAGE PERCOLATION RATE	20.40 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	24.97
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.43
UNIT TIME-PERCENT OF LAG	145.8
TOTAL ADJUSTED STORM RAIN (in)	1.06
CONSTANT LOSS RATE (in/hr)	0.41
LOW LOSS RATE - PERCENT	83.93%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate in/hr		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain in/hr	Max	Low	Rain	Hydrograph Flow	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
			(Plate E-5.9)				in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	5	0.08	1.3	0.17	0.41	0.14	0.03	0.67	201	201	10,822	75	75	125	0.00	468.01
2	10	0.17	1.3	0.17	0.41	0.14	0.03	0.67	201	326	10,880	76	76	251	0.01	468.02
3	15	0.25	1.1	0.14	0.41	0.12	0.02	0.57	170	420	10,923	76	76	344	0.01	468.03
4	20	0.33	1.5	0.19	0.41	0.16	0.03	0.77	232	576	10,995	76	76	500	0.01	468.04
5	25	0.42	1.5	0.19	0.41	0.16	0.03	0.77	232	731	11,066	77	77	654	0.02	468.05
6	30	0.50	1.8	0.23	0.41	0.19	0.04	0.93	278	932	11,158	77	77	855	0.02	468.06
7	35	0.58	1.5	0.19	0.41	0.16	0.03	0.77	232	1,086	11,229	78	78	1,008	0.02	468.07
8	40	0.67	1.8	0.23	0.41	0.19	0.04	0.93	278	1,286	11,321	79	79	1,207	0.03	468.09
9	45	0.75	1.8	0.23	0.41	0.19	0.04	0.93	278	1,485	11,413	79	79	1,406	0.03	468.10
10	50	0.83	1.5	0.19	0.41	0.16	0.03	0.77	232	1,637	11,483	80	80	1,558	0.04	468.11
11	55	0.92	1.6	0.20	0.41	0.17	0.03	0.82	247	1,805	11,559	80	80	1,724	0.04	468.13
12	60	1.00	1.8	0.23	0.41	0.19	0.04	0.93	278	2,002	11,650	81	81	1,921	0.04	468.14
13	65	1.08	2.2	0.28	0.41	0.23	0.04	1.13	340	2,261	11,769	82	82	2,179	0.05	468.16
14	70	1.17	2.2	0.28	0.41	0.23	0.04	1.13	340	2,519	11,888	83	83	2,436	0.06	468.18
15	75	1.25	2.2	0.28	0.41	0.23	0.04	1.13	340	2,776	12,006	83	83	2,692	0.06	468.20
16	80	1.33	2.0	0.25	0.41	0.21	0.04	1.03	309	3,001	12,109	84	84	2,917	0.07	468.21
17	85	1.42	2.6	0.33	0.41	0.28	0.05	1.34	401	3,318	12,255	85	85	3,233	0.07	468.23
18	90	1.50	2.7	0.34	0.41	0.29	0.06	1.39	417	3,650	12,407	86	86	3,564	0.08	468.26
19	95	1.58	2.4	0.31	0.41	0.26	0.05	1.23	370	3,934	12,538	87	87	3,847	0.09	468.28
20	100	1.67	2.7	0.34	0.41	0.29	0.06	1.39	417	4,264	12,690	88	88	4,176	0.10	468.30
21	105	1.75	3.3	0.42	0.41	0.35	0.01	0.29	87	4,263	12,689	88	88	4,175	0.10	468.30
22	110	1.83	3.1	0.39	0.41	0.33	0.06	1.59	478	4,653	12,869	89	89	4,564	0.10	468.33
23	115	1.92	2.9	0.37	0.41	0.31	0.06	1.49	448	5,011	13,033	91	91	4,921	0.11	468.36
24	120	2.00	3.0	0.38	0.41	0.32	0.06	1.54	463	5,384	13,204	92	92	5,292	0.12	468.38
25	125	2.08	3.1	0.39	0.41	0.33	0.06	1.59	478	5,771	13,382	93	93	5,678	0.13	468.41

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	24.97
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.43
UNIT TIME-PERCENT OF LAG	145.8
TOTAL ADJUSTED STORM RAIN (in)	1.06
CONSTANT LOSS RATE (in/hr)	0.41
LOW LOSS RATE - PERCENT	83.93%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
26	130	2.17	4.2	0.53	0.41	0.45	0.13	3.17	952	6,630	13,777	96	96	6,534	0.15	468.47
27	135	2.25	5.0	0.64	0.41	0.53	0.23	5.73	1,720	8,254	14,524	101	101	8,153	0.19	468.59
28	140	2.33	3.5	0.45	0.41	0.37	0.04	0.93	279	8,433	14,606	101	101	8,331	0.19	468.60
29	145	2.42	6.8	0.86	0.41	0.73	0.46	11.50	3,450	11,781	16,144	112	112	11,669	0.27	468.85
30	150	2.50	7.3	0.93	0.41	0.78	0.52	13.10	3,930	15,599	17,682	123	123	15,476	0.36	469.08
31	155	2.58	8.2	1.04	0.41	0.88	0.63	**15.98**	**4,795**	20,271	19,274	134	134	20,137	0.46	469.31
32	160	2.67	5.9	0.75	0.41	0.63	0.34	8.62	2,585	22,722	20,109	140	140	22,583	0.52	469.43
33	165	2.75	2.0	0.25	0.41	0.21	0.04	1.03	309	22,892	20,167	140	140	22,751	0.52	469.44
34	170	2.83	1.8	0.23	0.41	0.19	0.04	0.93	278	23,029	20,213	140	140	22,889	0.53	469.45
35	175	2.92	1.8	0.23	0.41	0.19	0.04	0.93	278	23,167	20,260	141	141	**23,026**	**0.53**	**469.45**
36	180	3.00	0.6	0.08	0.41	0.06	0.01	0.31	93	23,119	20,244	141	141	22,978	0.53	469.45

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	1.06 in
RAINFALL VOLUME	96,072 cu-ft
SOIL LOSSES	69,661 cu-ft
EFFECTIVE RAIN	0.29 in
FLOOD VOLUME	0.61 acft
FLOOD VOLUME	26,411 cu-ft
REQUIRED STORAGE	0.53 acft
REQUIRED STORAGE	23,026 cu-ft
MAX WSEL	469.45 ft
PEAK FLOW RATE	15.98 cfs
TOTAL BASIN LOSSES	3,433 cu-ft
AVERAGE PERCOLATION RATE	19.07 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.43
UNIT TIME-PERCENT OF LAG	145.8
TOTAL ADJUSTED STORM RAIN (in)	1.36
CONSTANT LOSS RATE (in/hr)	0.41
LOW LOSS RATE - PERCENT	83.93%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.08	0.41	0.07	0.01	0.33	99	99	10,776	75	75	24	0.00	468.00
2	10	0.17	0.6	0.10	0.41	0.08	0.02	0.40	119	143	10,796	75	75	68	0.00	468.00
3	15	0.25	0.6	0.10	0.41	0.08	0.02	0.40	119	187	10,816	75	75	112	0.00	468.01
4	20	0.33	0.6	0.10	0.41	0.08	0.02	0.40	119	231	10,836	75	75	155	0.00	468.01
5	25	0.42	0.6	0.10	0.41	0.08	0.02	0.40	119	274	10,856	75	75	199	0.00	468.01
6	30	0.50	0.7	0.11	0.41	0.10	0.02	0.46	139	337	10,885	76	76	262	0.01	468.02
7	35	0.58	0.7	0.11	0.41	0.10	0.02	0.46	139	400	10,914	76	76	325	0.01	468.02
8	40	0.67	0.7	0.11	0.41	0.10	0.02	0.46	139	463	10,943	76	76	387	0.01	468.03
9	45	0.75	0.7	0.11	0.41	0.10	0.02	0.46	139	526	10,972	76	76	450	0.01	468.03
10	50	0.83	0.7	0.11	0.41	0.10	0.02	0.46	139	588	11,000	76	76	512	0.01	468.04
11	55	0.92	0.7	0.11	0.41	0.10	0.02	0.46	139	650	11,029	77	77	574	0.01	468.04
12	60	1.00	0.8	0.13	0.41	0.11	0.02	0.53	158	732	11,067	77	77	655	0.02	468.05
13	65	1.08	0.8	0.13	0.41	0.11	0.02	0.53	158	814	11,104	77	77	737	0.02	468.05
14	70	1.17	0.8	0.13	0.41	0.11	0.02	0.53	158	895	11,141	77	77	818	0.02	468.06
15	75	1.25	0.8	0.13	0.41	0.11	0.02	0.53	158	976	11,179	78	78	899	0.02	468.07
16	80	1.33	0.8	0.13	0.41	0.11	0.02	0.53	158	1,057	11,216	78	78	979	0.02	468.07
17	85	1.42	0.8	0.13	0.41	0.11	0.02	0.53	158	1,138	11,253	78	78	1,059	0.02	468.08
18	90	1.50	0.8	0.13	0.41	0.11	0.02	0.53	158	1,218	11,290	78	78	1,139	0.03	468.08
19	95	1.58	0.8	0.13	0.41	0.11	0.02	0.53	158	1,298	11,326	79	79	1,219	0.03	468.09
20	100	1.67	0.8	0.13	0.41	0.11	0.02	0.53	158	1,378	11,363	79	79	1,299	0.03	468.09
21	105	1.75	0.8	0.13	0.41	0.11	0.02	0.53	158	1,457	11,400	79	79	1,378	0.03	468.10
22	110	1.83	0.8	0.13	0.41	0.11	0.02	0.53	158	1,536	11,436	79	79	1,457	0.03	468.11
23	115	1.92	0.8	0.13	0.41	0.11	0.02	0.53	158	1,615	11,472	80	80	1,536	0.04	468.11
24	120	2.00	0.9	0.15	0.41	0.12	0.02	0.59	178	1,714	11,518	80	80	1,634	0.04	468.12

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.43
UNIT TIME-PERCENT OF LAG	145.8
TOTAL ADJUSTED STORM RAIN (in)	1.36
CONSTANT LOSS RATE (in/hr)	0.41
LOW LOSS RATE - PERCENT	83.93%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm Rain	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
	Minutes	Hours	Percent	in/hr	Max	Low	in/hr	cfs	cu-ft	cu-ft	Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
25	125	2.08	0.8	0.13	0.41	0.11	0.02	0.53	158	1,792	11,554	80	80	1,712	0.04	468.12
26	130	2.17	0.9	0.15	0.41	0.12	0.02	0.59	178	1,890	11,599	81	81	1,810	0.04	468.13
27	135	2.25	0.9	0.15	0.41	0.12	0.02	0.59	178	1,988	11,644	81	81	1,907	0.04	468.14
28	140	2.33	0.9	0.15	0.41	0.12	0.02	0.59	178	2,085	11,688	81	81	2,004	0.05	468.15
29	145	2.42	0.9	0.15	0.41	0.12	0.02	0.59	178	2,182	11,733	81	81	2,101	0.05	468.15
30	150	2.50	0.9	0.15	0.41	0.12	0.02	0.59	178	2,279	11,777	82	82	2,197	0.05	468.16
31	155	2.58	0.9	0.15	0.41	0.12	0.02	0.59	178	2,376	11,822	82	82	2,293	0.05	468.17
32	160	2.67	0.9	0.15	0.41	0.12	0.02	0.59	178	2,472	11,866	82	82	2,389	0.05	468.17
33	165	2.75	1.0	0.16	0.41	0.14	0.03	0.66	198	2,587	11,919	83	83	2,505	0.06	468.18
34	170	2.83	1.0	0.16	0.41	0.14	0.03	0.66	198	2,703	11,972	83	83	2,619	0.06	468.19
35	175	2.92	1.0	0.16	0.41	0.14	0.03	0.66	198	2,817	12,025	84	84	2,734	0.06	468.20
36	180	3.00	1.0	0.16	0.41	0.14	0.03	0.66	198	2,932	12,077	84	84	2,848	0.07	468.21
37	185	3.08	1.0	0.16	0.41	0.14	0.03	0.66	198	3,046	12,130	84	84	2,962	0.07	468.22
38	190	3.17	1.1	0.18	0.41	0.15	0.03	0.73	218	3,180	12,191	85	85	3,095	0.07	468.22
39	195	3.25	1.1	0.18	0.41	0.15	0.03	0.73	218	3,313	12,253	85	85	3,228	0.07	468.23
40	200	3.33	1.1	0.18	0.41	0.15	0.03	0.73	218	3,446	12,314	86	86	3,360	0.08	468.24
41	205	3.42	1.2	0.20	0.41	0.16	0.03	0.79	238	3,598	12,383	86	86	3,512	0.08	468.25
42	210	3.50	1.3	0.21	0.41	0.18	0.03	0.86	257	3,769	12,462	87	87	3,683	0.08	468.27
43	215	3.58	1.4	0.23	0.41	0.19	0.04	0.92	277	3,960	12,550	87	87	3,873	0.09	468.28
44	220	3.67	1.4	0.23	0.41	0.19	0.04	0.92	277	4,150	12,637	88	88	4,062	0.09	468.29
45	225	3.75	1.5	0.24	0.41	0.21	0.04	0.99	297	4,359	12,733	88	88	4,271	0.10	468.31
46	230	3.83	1.5	0.24	0.41	0.21	0.04	0.99	297	4,568	12,829	89	89	4,479	0.10	468.33
47	235	3.92	1.6	0.26	0.41	0.22	0.04	1.06	317	4,796	12,934	90	90	4,706	0.11	468.34
48	240	4.00	1.6	0.26	0.41	0.22	0.04	1.06	317	5,023	13,038	91	91	4,932	0.11	468.36
49	245	4.08	1.7	0.28	0.41	0.23	0.04	1.12	337	5,269	13,151	91	91	5,177	0.12	468.38
50	250	4.17	1.8	0.29	0.41	0.25	0.05	1.19	356	5,534	13,273	92	92	5,442	0.12	468.40

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.43
UNIT TIME-PERCENT OF LAG	145.8
TOTAL ADJUSTED STORM RAIN (in)	1.36
CONSTANT LOSS RATE (in/hr)	0.41
LOW LOSS RATE - PERCENT	83.93%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.31	0.41	0.26	0.05	1.25	376	5,818	13,404	93	93	5,725	0.13	468.42
52	260	4.33	2.0	0.33	0.41	0.27	0.05	1.32	396	6,121	13,543	94	94	6,027	0.14	468.44
53	265	4.42	2.1	0.34	0.41	0.29	0.06	1.39	416	6,443	13,691	95	95	6,347	0.15	468.46
54	270	4.50	2.1	0.34	0.41	0.29	0.06	1.39	416	6,763	13,838	96	96	6,667	0.15	468.48
55	275	4.58	2.2	0.36	0.41	0.30	0.06	1.45	436	7,103	13,994	97	97	7,006	0.16	468.51
56	280	4.67	2.3	0.38	0.41	0.32	0.06	1.52	455	7,461	14,159	98	98	7,363	0.17	468.53
57	285	4.75	2.4	0.39	0.41	0.33	0.06	1.58	475	7,838	14,332	100	100	7,739	0.18	468.56
58	290	4.83	2.4	0.39	0.41	0.33	0.06	1.58	475	8,214	14,505	101	101	8,113	0.19	468.59
59	295	4.92	2.5	0.41	0.41	0.34	0.07	1.65	495	8,608	14,686	102	102	8,506	0.20	468.62
60	300	5.00	2.6	0.42	0.41	0.36	0.02	0.41	122	8,628	14,695	102	102	8,526	0.20	468.62
61	305	5.08	3.1	0.51	0.41	0.42	0.10	2.46	738	9,264	14,987	104	104	9,160	0.21	468.67
62	310	5.17	3.6	0.59	0.41	0.49	0.18	4.51	1,354	10,514	15,562	108	108	10,406	0.24	468.76
63	315	5.25	3.9	0.64	0.41	0.53	0.23	5.75	1,724	12,130	16,305	113	113	12,017	0.28	468.87
64	320	5.33	4.2	0.69	0.41	0.58	0.28	6.98	2,094	14,111	17,175	119	119	13,991	0.32	469.01
65	325	5.42	4.7	0.77	0.41	0.64	0.36	9.03	2,710	16,702	18,058	125	125	16,576	0.38	469.14
66	330	5.50	5.6	0.91	0.41	0.77	0.51	**12.73**	**3,820**	20,396	19,316	134	134	20,262	0.47	469.32
67	335	5.58	1.9	0.31	0.41	0.26	0.05	1.25	376	20,638	19,399	135	135	20,503	0.47	469.33
68	340	5.67	0.9	0.15	0.41	0.12	0.02	0.59	178	20,681	19,414	135	135	**20,546**	**0.47**	**469.33**
69	345	5.75	0.6	0.10	0.41	0.08	0.02	0.40	119	20,665	19,408	135	135	20,531	0.47	469.33
70	350	5.83	0.5	0.08	0.41	0.07	0.01	0.33	99	20,630	19,396	135	135	20,495	0.47	469.33
71	355	5.92	0.3	0.05	0.41	0.04	0.01	0.20	59	20,554	19,370	135	135	20,420	0.47	469.33
72	360	6.00	0.2	0.03	0.41	0.03	0.01	0.13	40	20,459	19,338	134	134	20,325	0.47	469.32

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	1.36 in
RAINFALL VOLUME	123,263 cu-ft
SOIL LOSSES	96,384 cu-ft
EFFECTIVE RAIN	0.30 in
FLOOD VOLUME	0.62 acft
FLOOD VOLUME	26,879 cu-ft
REQUIRED STORAGE	0.47 acft
REQUIRED STORAGE	20,546 cu-ft
MAX WSEL	469.33 ft
PEAK FLOW RATE	12.73 cfs
TOTAL BASIN LOSSES	6,554 cu-ft
AVERAGE PERCOLATION RATE	18.20 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.20		
LAG TIME - MINUTES	3.43	C	0.00378	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	437%	Low Loss Rate (percent)	83.93%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	2.23			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.018	0.721	0.015	0.00	0.07	65	65	10,760	224	65	0	0.00	468.00
2	30	0.50	0.3	0.027	0.712	0.022	0.00	0.11	97	97	10,775	224	97	0	0.00	468.00
3	45	0.75	0.3	0.027	0.704	0.022	0.00	0.11	97	97	10,775	224	97	0	0.00	468.00
4	60	1.00	0.4	0.036	0.696	0.030	0.01	0.14	130	130	10,790	225	130	0	0.00	468.00
5	75	1.25	0.3	0.027	0.688	0.022	0.00	0.11	97	97	10,775	224	97	0	0.00	468.00
6	90	1.50	0.3	0.027	0.680	0.022	0.00	0.11	97	97	10,775	224	97	0	0.00	468.00
7	105	1.75	0.3	0.027	0.671	0.022	0.00	0.11	97	97	10,775	224	97	0	0.00	468.00
8	120	2.00	0.4	0.036	0.663	0.030	0.01	0.14	130	130	10,790	225	130	0	0.00	468.00
9	135	2.25	0.4	0.036	0.655	0.030	0.01	0.14	130	130	10,790	225	130	0	0.00	468.00
10	150	2.50	0.4	0.036	0.647	0.030	0.01	0.14	130	130	10,790	225	130	0	0.00	468.00
11	165	2.75	0.5	0.045	0.639	0.037	0.01	0.18	162	162	10,805	225	162	0	0.00	468.00
12	180	3.00	0.5	0.045	0.632	0.037	0.01	0.18	162	162	10,805	225	162	0	0.00	468.00
13	195	3.25	0.5	0.045	0.624	0.037	0.01	0.18	162	162	10,805	225	162	0	0.00	468.00
14	210	3.50	0.5	0.045	0.616	0.037	0.01	0.18	162	162	10,805	225	162	0	0.00	468.00
15	225	3.75	0.5	0.045	0.608	0.037	0.01	0.18	162	162	10,805	225	162	0	0.00	468.00
16	240	4.00	0.6	0.054	0.601	0.045	0.01	0.22	195	195	10,820	225	195	0	0.00	468.00
17	255	4.25	0.6	0.054	0.593	0.045	0.01	0.22	195	195	10,820	225	195	0	0.00	468.00
18	270	4.50	0.7	0.062	0.585	0.052	0.01	0.25	227	227	10,834	226	226	2	0.00	468.00
19	285	4.75	0.7	0.062	0.578	0.052	0.01	0.25	227	229	10,835	226	226	3	0.00	468.00
20	300	5.00	0.8	0.071	0.570	0.060	0.01	0.29	260	263	10,851	226	226	37	0.00	468.00
21	315	5.25	0.6	0.054	0.563	0.045	0.01	0.22	195	232	10,836	226	226	6	0.00	468.00
22	330	5.50	0.7	0.062	0.556	0.052	0.01	0.25	227	233	10,837	226	226	7	0.00	468.00
23	345	5.75	0.8	0.071	0.548	0.060	0.01	0.29	260	267	10,853	226	226	41	0.00	468.00
24	360	6.00	0.8	0.071	0.541	0.060	0.01	0.29	260	301	10,868	226	226	74	0.00	468.01
25	375	6.25	0.9	0.080	0.534	0.067	0.01	0.32	292	367	10,898	227	227	140	0.00	468.01
26	390	6.50	0.9	0.080	0.527	0.067	0.01	0.32	292	432	10,928	228	228	204	0.00	468.01
27	405	6.75	1.0	0.089	0.520	0.075	0.01	0.36	325	529	10,973	229	229	300	0.01	468.02
28	420	7.00	1.0	0.089	0.513	0.075	0.01	0.36	325	625	11,017	230	230	395	0.01	468.03
29	435	7.25	1.0	0.089	0.506	0.075	0.01	0.36	325	720	11,061	230	230	490	0.01	468.04
30	450	7.50	1.1	0.098	0.499	0.082	0.02	0.40	357	847	11,119	232	232	615	0.01	468.04
31	465	7.75	1.2	0.107	0.492	0.090	0.02	0.43	390	1,005	11,192	233	233	772	0.02	468.06
32	480	8.00	1.3	0.116	0.485	0.097	0.02	0.47	422	1,194	11,279	235	235	959	0.02	468.07
33	495	8.25	1.5	0.134	0.479	0.112	0.02	0.54	487	1,446	11,394	237	237	1,208	0.03	468.09
34	510	8.50	1.5	0.134	0.472	0.112	0.02	0.54	487	1,695	11,509	240	240	1,456	0.03	468.11
35	525	8.75	1.6	0.143	0.465	0.120	0.02	0.58	520	1,975	11,638	242	242	1,733	0.04	468.13
36	540	9.00	1.7	0.152	0.459	0.127	0.02	0.61	552	2,285	11,780	245	245	2,039	0.05	468.15
37	555	9.25	1.9	0.169	0.452	0.142	0.03	0.69	617	2,656	11,951	249	249	2,407	0.06	468.17
38	570	9.50	2.0	0.178	0.446	0.150	0.03	0.72	649	3,057	12,135	253	253	2,804	0.06	468.20
39	585	9.75	2.1	0.187	0.439	0.157	0.03	0.76	682	3,486	12,332	257	257	3,229	0.07	468.23
40	600	10.00	2.2	0.196	0.433	0.165	0.03	0.79	714	3,943	12,542	261	261	3,682	0.08	468.27
41	615	10.25	1.5	0.134	0.427	0.112	0.02	0.54	487	4,169	12,646	263	263	3,905	0.09	468.28
42	630	10.50	1.5	0.134	0.421	0.112	0.02	0.54	487	4,392	12,749	266	266	4,127	0.09	468.30
43	645	10.75	2.0	0.178	0.415	0.150	0.03	0.72	649	4,776	12,925	269	269	4,507	0.10	468.33

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97	VARIABLE LOSS RATE (AVG) IN/HR	
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.20
LAG TIME - MINUTES	3.43	C	0.00378
UNIT TIME-PERCENT OF LAG	437%	Low Loss Rate (percent)	83.93%
TOTAL ADJUSTED STORM RAIN (in)	2.23		

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.178	0.409	0.150	0.03	0.72	649	5,156	13,100	273	273	4,883	0.11	468.35
45	675	11.25	1.9	0.169	0.403	0.142	0.03	0.69	617	5,500	13,258	276	276	5,224	0.12	468.38
46	690	11.50	1.9	0.169	0.397	0.142	0.03	0.69	617	5,841	13,415	279	279	5,562	0.13	468.40
47	705	11.75	1.7	0.152	0.391	0.127	0.02	0.61	552	6,114	13,540	282	282	5,832	0.13	468.42
48	720	12.00	1.8	0.161	0.385	0.135	0.03	0.65	584	6,416	13,679	285	285	6,131	0.14	468.45
49	735	12.25	2.5	0.223	0.379	0.187	0.04	0.90	812	6,943	13,921	290	290	6,653	0.15	468.48
50	750	12.50	2.6	0.232	0.373	0.195	0.04	0.94	844	7,497	14,176	295	295	7,202	0.17	468.52
51	765	12.75	2.8	0.250	0.368	0.210	0.04	1.01	909	8,111	14,458	301	301	7,810	0.18	468.57
52	780	13.00	2.9	0.259	0.362	0.217	0.04	1.05	942	8,751	14,752	307	307	8,444	0.19	468.61
53	795	13.25	3.4	0.303	0.357	0.255	0.05	**1.23**	**1,104**	9,548	15,118	315	315	9,233	0.21	468.67
54	810	13.50	3.4	0.303	0.351	0.255	0.05	**1.23**	**1,104**	10,337	15,481	323	323	10,014	0.23	468.73
55	825	13.75	2.3	0.205	0.346	0.172	0.03	0.83	747	10,761	15,676	327	327	10,435	0.24	468.76
56	840	14.00	2.3	0.205	0.341	0.172	0.03	0.83	747	11,181	15,869	331	331	10,851	0.25	468.79
57	855	14.25	2.7	0.241	0.336	0.202	0.04	0.97	877	11,728	16,120	336	336	11,392	0.26	468.83
58	870	14.50	2.6	0.232	0.331	0.195	0.04	0.94	844	12,236	16,353	341	341	11,895	0.27	468.86
59	885	14.75	2.6	0.232	0.325	0.195	0.04	0.94	844	12,739	16,585	346	346	12,394	0.28	468.90
60	900	15.00	2.5	0.223	0.320	0.187	0.04	0.90	812	13,206	16,799	350	350	12,856	0.30	468.93
61	915	15.25	2.4	0.214	0.316	0.180	0.03	0.87	779	13,635	16,996	354	354	13,281	0.30	468.96
62	930	15.50	2.3	0.205	0.311	0.172	0.03	0.83	747	14,028	17,147	357	357	13,670	0.31	468.99
63	945	15.75	1.9	0.169	0.306	0.142	0.03	0.69	617	14,287	17,235	359	359	13,928	0.32	469.01
64	960	16.00	1.9	0.169	0.301	0.142	0.03	0.69	617	14,545	17,323	361	361	**14,184**	**0.33**	**469.02**
65	975	16.25	0.4	0.036	0.297	0.030	0.01	0.14	130	14,314	17,244	359	359	13,955	0.32	469.01
66	990	16.50	0.4	0.036	0.292	0.030	0.01	0.14	130	14,085	17,166	358	358	13,727	0.32	469.00
67	1005	16.75	0.3	0.027	0.288	0.022	0.00	0.11	97	13,825	17,077	356	356	13,469	0.31	468.98
68	1020	17.00	0.3	0.027	0.283	0.022	0.00	0.11	97	13,566	16,965	353	353	13,213	0.30	468.96
69	1035	17.25	0.5	0.045	0.279	0.037	0.01	0.18	162	13,375	16,877	352	352	13,024	0.30	468.95
70	1050	17.50	0.5	0.045	0.275	0.037	0.01	0.18	162	13,186	16,790	350	350	12,836	0.29	468.93
71	1065	17.75	0.5	0.045	0.271	0.037	0.01	0.18	162	12,998	16,704	348	348	12,650	0.29	468.92
72	1080	18.00	0.4	0.036	0.267	0.030	0.01	0.14	130	12,780	16,604	346	346	12,434	0.29	468.90
73	1095	18.25	0.4	0.036	0.263	0.030	0.01	0.14	130	12,564	16,504	344	344	12,220	0.28	468.89
74	1110	18.50	0.4	0.036	0.259	0.030	0.01	0.14	130	12,350	16,406	342	342	12,009	0.28	468.87
75	1125	18.75	0.3	0.027	0.255	0.022	0.00	0.11	97	12,106	16,294	339	339	11,766	0.27	468.85
76	1140	19.00	0.2	0.018	0.252	0.015	0.00	0.07	65	11,831	16,168	337	337	11,495	0.26	468.83
77	1155	19.25	0.3	0.027	0.248	0.022	0.00	0.11	97	11,592	16,058	335	335	11,257	0.26	468.82
78	1170	19.50	0.4	0.036	0.245	0.030	0.01	0.14	130	11,387	15,963	333	333	11,055	0.25	468.80
79	1185	19.75	0.3	0.027	0.241	0.022	0.00	0.11	97	11,152	15,855	330	330	10,822	0.25	468.79
80	1200	20.00	0.2	0.018	0.238	0.015	0.00	0.07	65	10,887	15,733	328	328	10,559	0.24	468.77
81	1215	20.25	0.3	0.027	0.235	0.022	0.00	0.11	97	10,656	15,628	326	326	10,331	0.24	468.75
82	1230	20.50	0.3	0.027	0.232	0.022	0.00	0.11	97	10,428	15,523	323	323	10,105	0.23	468.73
83	1245	20.75	0.3	0.027	0.229	0.022	0.00	0.11	97	10,202	15,419	321	321	9,881	0.23	468.72
84	1260	21.00	0.2	0.018	0.226	0.015	0.00	0.07	65	9,946	15,301	319	319	9,627	0.22	468.70
85	1275	21.25	0.3	0.027	0.224	0.022	0.00	0.11	97	9,725	15,199	317	317	9,408	0.22	468.68
86	1290	21.50	0.2	0.018	0.221	0.015	0.00	0.07	65	9,473	15,084	314	314	9,159	0.21	468.66

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 3/30/20

DRAINAGE AREA-ACRES	24.97	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.20		
LAG TIME - MINUTES	3.43	C	0.00378	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	437%	Low Loss Rate (percent)	83.93%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	2.23			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.027	0.219	0.022	0.00	0.11	97	9,256	14,984	312	312	8,944	0.21	468.65
88	1320	22.00	0.2	0.018	0.216	0.015	0.00	0.07	65	9,009	14,870	310	310	8,699	0.20	468.63
89	1335	22.25	0.3	0.027	0.214	0.022	0.00	0.11	97	8,796	14,773	308	308	8,489	0.19	468.62
90	1350	22.50	0.2	0.018	0.212	0.015	0.00	0.07	65	8,554	14,661	305	305	8,248	0.19	468.60
91	1365	22.75	0.2	0.018	0.210	0.015	0.00	0.07	65	8,313	14,551	303	303	8,010	0.18	468.58
92	1380	23.00	0.2	0.018	0.209	0.015	0.00	0.07	65	8,075	14,441	301	301	7,774	0.18	468.56
93	1395	23.25	0.2	0.018	0.207	0.015	0.00	0.07	65	7,839	14,333	299	299	7,540	0.17	468.55
94	1410	23.50	0.2	0.018	0.206	0.015	0.00	0.07	65	7,605	14,225	296	296	7,309	0.17	468.53
95	1425	23.75	0.2	0.018	0.205	0.015	0.00	0.07	65	7,374	14,119	294	294	7,080	0.16	468.51
96	1440	24.00	0.2	0.018	0.204	0.015	0.00	0.07	65	7,145	14,014	292	292	6,853	0.16	468.50

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.23 in
RAINFALL VOLUME	202,114 cu-ft
SOIL LOSSES	169,645 cu-ft
EFFECTIVE RAIN	0.36 in
FLOOD VOLUME	0.75 acft
FLOOD VOLUME	32,470 cu-ft
REQUIRED STORAGE	0.33 acft
REQUIRED STORAGE	14,184 cu-ft
MAX WSEL	469.02 ft
PEAK FLOW RATE	1.23 cfs
TOTAL BASIN LOSSES	25,617 cu-ft
AVERAGE PERCOLATION RATE	17.79 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: 10 YEAR BASIN

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
468	0	0		10,730	0	0	0.00
469	1	1	6,330	17,060	13,773	13,773	0.32
470	1	2	6,965	24,025	20,443	34,217	0.79

WHERE:

$$V = \frac{1}{3}\left(E_1 - E_2\right)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	January 26, 2021
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	WAVE LAGOON
AREA DESIGNATION	DA-A
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
11	D	EXISTING BARREN	35.652	X	93	0.09	0.05
12	B	EXISTING OPEN BRUSH - POOR	35.233	X	76	0.29	0.05
2	B	PAVING/HARDSCAPE	2.082	D	56	0.51	1.00
3	B	WATER FEATURE	18.699	D	56	0.51	1.00
1	B	COMMERCIAL	5.752	D	56	0.51	0.90
6	B	SF - HIGH DENSITY	8.141	D	56	0.51	0.50
9	B	LANDSCAPING	57.186	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,180 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	590 ft
ELEVATION OF HEADWATER	960.0 ft
ELEVATION OF CONCENTRATION POINT	456.0 ft
AVERAGE MANNINGS 'N' VALUE	0.03
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
451.0 ft	707,505 sf
455.0 ft	810,350 sf

PERCOLATION RATE (in/hr)	0.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

PHYSICAL DATA

[1] CONCENTRATION POINT	WAVE LAGOON
[2] AREA DESIGNATION	DA-A
[3] AREA - ACRES	162.745
[4] L-FEET	1180
[5] L-MILES	0.223
[6] La-FEET	590.00
[7] La-MILES	0.112
[8] ELEVATION OF HEADWATER	960
[9] ELEVATION OF CONCENTRATION POINT	456
[10] H-FEET	504
[11] S-FEET/MILE	2255.2
[12] S^0.5	47.49
[13] L*LCA/S^0.5	0.001
[14] AVERAGE MANNINGS 'N'	0.03
[15] LAG TIME-HOURS	0.04
[16] LAG TIME-MINUTES	2.5
[17] 100% OF LAG-MINUTES	2.5
[18] 200% OF LAG-MINUTES	4.9

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	850,704	1,264,241	1,630,516	**2,605,281**
SOIL LOSSES	(cu-ft)	157,045	464,495	840,545	**1,801,551**
EFFECTIVE RAIN	(in)	1.17	1.35	1.34	1.36
FLOOD VOLUME	(cu-ft)	693,659	799,746	789,971	**803,730**
	(acre-ft)	15.92	18.36	18.14	**18.45**
REQUIRED STORAGE	(cu-ft)	693,659	799,746	789,971	**803,730**
	(acre-ft)	15.92	18.36	18.14	**18.45**
FACTOR OF SAFETY		4.37	3.79	3.84	3.77
STORAGE PROVIDED	(cu-ft)	3,033,385			
	(acre-ft)	69.64			
PEAK FLOW	(cfs)	n/a	301.94	260.74	60.87
MAXIMUM WSEL	(ft)	451.91	452.05	452.04	**452.06**
DEPTH	(ft)	0.91	1.05	1.04	**1.06**
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)				

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	1/26/21

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
D	EXISTING BARREN	93	0.09	5%	0.09	35.652	0.219	0.0188	UNDEVELOPED	0.9000	0.1972
B	EXISTING OPEN BRUSH - POOR	76	0.29	5%	0.28	35.233	0.216	0.0600	UNDEVELOPED	0.9000	0.1948
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	2.082	0.013	0.0007	DEVELOPED	0.1000	0.0013
B	WATER FEATURE	56	0.51	100%	0.05	18.699	0.115	0.0059	DEVELOPED	0.1000	0.0115
B	COMMERCIAL	56	0.51	90%	0.10	5.752	0.035	0.0034	DEVELOPED	0.1800	0.0064
B	SF - HIGH DENSITY	56	0.51	50%	0.28	8.141	0.050	0.0140	DEVELOPED	0.5000	0.0250
B	LANDSCAPING	56	0.51	10%	0.46	57.186	0.351	0.1631	DEVELOPED	0.8200	0.2881
					SUM	162.745	SUM	0.2658			0.7243

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.132916039

C= 0.00246

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00246 (24-(T/60))^1.55 + 0.13 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.2658**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	162.75
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.45
UNIT TIME-PERCENT OF LAG	204.0
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.27
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.27	0.53	0.36	58.46	17,538	17,538	708,100	0	0	17,538	0.40	451.02
2	10	0.17	4.2	0.73	0.27	0.62	0.46	75.48	22,643	40,181	708,867	0	0	40,181	0.92	451.05
3	15	0.25	4.4	0.76	0.27	0.65	0.49	81.15	24,344	64,525	709,693	0	0	64,525	1.48	451.09
4	20	0.33	4.6	0.79	0.27	0.68	0.53	86.82	26,045	90,570	710,576	0	0	90,570	2.08	451.12
5	25	0.42	5.0	0.86	0.27	0.73	0.60	98.16	29,448	120,018	711,574	0	0	120,018	2.76	451.16
6	30	0.50	5.6	0.97	0.27	0.82	0.70	115.17	34,552	154,571	712,746	0	0	154,571	3.55	451.20
7	35	0.58	6.4	1.11	0.27	0.94	0.84	137.86	41,358	195,929	714,148	0	0	195,929	4.50	451.26
8	40	0.67	8.1	1.40	0.27	1.19	1.13	186.07	55,820	251,748	716,040	0	0	251,748	5.78	451.33
9	45	0.75	13.1	2.26	0.27	1.92	2.00	327.85	98,355	350,104	719,375	0	0	350,104	8.04	451.46
10	50	0.83	34.5	5.96	0.27	5.07	5.70	**934.69**	**280,406**	630,509	728,882	0	0	630,509	14.47	451.83
11	55	0.92	6.7	1.16	0.27	0.98	0.89	146.37	43,910	674,420	730,371	0	0	674,420	15.48	451.89
12	60	1.00	3.8	0.66	0.27	0.56	0.39	64.13	19,240	693,659	731,023	0	0	**693,659**	**15.92**	**451.91**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	850,704 cu-ft
SOIL LOSSES	157,045 cu-ft
EFFECTIVE RAIN	1.17 in
FLOOD VOLUME	15.92 acft
FLOOD VOLUME	693,659 cu-ft
REQUIRED STORAGE	15.92
REQUIRED STORAGE	693,659 cu-ft
MAX WSEL	451.91 ft
PEAK FLOW RATE	934.69 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	162.75
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.45
UNIT TIME-PERCENT OF LAG	204.0
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.27
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.27	0.28	0.07	11.16	3,348	3,348	707,619	0	0	3,348	0.08	451.00
2	10	0.17	1.3	0.33	0.27	0.28	0.07	11.16	3,348	6,696	707,732	0	0	6,696	0.15	451.01
3	15	0.25	1.1	0.28	0.27	0.24	0.02	2.73	820	7,516	707,760	0	0	7,516	0.17	451.01
4	20	0.33	1.5	0.39	0.27	0.33	0.12	19.59	5,877	13,392	707,959	0	0	13,392	0.31	451.02
5	25	0.42	1.5	0.39	0.27	0.33	0.12	19.59	5,877	19,269	708,158	0	0	19,269	0.44	451.03
6	30	0.50	1.8	0.46	0.27	0.39	0.20	32.23	9,669	28,938	708,486	0	0	28,938	0.66	451.04
7	35	0.58	1.5	0.39	0.27	0.33	0.12	19.59	5,877	34,815	708,685	0	0	34,815	0.80	451.05
8	40	0.67	1.8	0.46	0.27	0.39	0.20	32.23	9,669	44,484	709,013	0	0	44,484	1.02	451.06
9	45	0.75	1.8	0.46	0.27	0.39	0.20	32.23	9,669	54,153	709,341	0	0	54,153	1.24	451.07
10	50	0.83	1.5	0.39	0.27	0.33	0.12	19.59	5,877	60,030	709,540	0	0	60,030	1.38	451.08
11	55	0.92	1.6	0.41	0.27	0.35	0.15	23.80	7,141	67,171	709,782	0	0	67,171	1.54	451.09
12	60	1.00	1.8	0.46	0.27	0.39	0.20	32.23	9,669	76,840	710,110	0	0	76,840	1.76	451.10
13	65	1.08	2.2	0.56	0.27	0.48	0.30	49.09	14,726	91,566	710,609	0	0	91,566	2.10	451.12
14	70	1.17	2.2	0.56	0.27	0.48	0.30	49.09	14,726	106,292	711,109	0	0	106,292	2.44	451.14
15	75	1.25	2.2	0.56	0.27	0.48	0.30	49.09	14,726	121,018	711,608	0	0	121,018	2.78	451.16
16	80	1.33	2.0	0.51	0.27	0.44	0.25	40.66	12,198	133,216	712,022	0	0	133,216	3.06	451.18
17	85	1.42	2.6	0.67	0.27	0.57	0.40	65.94	19,783	152,999	712,692	0	0	152,999	3.51	451.20
18	90	1.50	2.7	0.69	0.27	0.59	0.43	70.16	21,047	174,047	713,406	0	0	174,047	4.00	451.23
19	95	1.58	2.4	0.62	0.27	0.52	0.35	57.52	17,255	191,302	713,991	0	0	191,302	4.39	451.25
20	100	1.67	2.7	0.69	0.27	0.59	0.43	70.16	21,047	212,349	714,705	0	0	212,349	4.87	451.28
21	105	1.75	3.3	0.85	0.27	0.72	0.58	95.44	28,633	240,982	715,675	0	0	240,982	5.53	451.32
22	110	1.83	3.1	0.80	0.27	0.68	0.53	87.01	26,104	267,086	716,560	0	0	267,086	6.13	451.35
23	115	1.92	2.9	0.74	0.27	0.63	0.48	78.59	23,576	290,662	717,360	0	0	290,662	6.67	451.38
24	120	2.00	3.0	0.77	0.27	0.65	0.50	82.80	24,840	315,502	718,202	0	0	315,502	7.24	451.42
25	125	2.08	3.1	0.80	0.27	0.68	0.53	87.01	26,104	341,607	719,087	0	0	341,607	7.84	451.45

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	162.75
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.45
UNIT TIME-PERCENT OF LAG	204.0
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.27
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
26	130	2.17	4.2	1.08	0.27	0.92	0.81	133.37	40,011	381,618	720,444	0	0	381,618	8.76	451.50
27	135	2.25	5.0	1.28	0.27	1.09	1.02	167.08	50,125	431,743	722,143	0	0	431,743	9.91	451.57
28	140	2.33	3.5	0.90	0.27	0.76	0.63	103.87	31,161	462,904	723,199	0	0	462,904	10.63	451.61
29	145	2.42	6.8	1.75	0.27	1.48	1.48	242.94	72,881	535,785	725,670	0	0	535,785	12.30	451.71
30	150	2.50	7.3	1.87	0.27	1.59	1.61	264.01	79,203	614,988	728,356	0	0	614,988	14.12	451.81
31	155	2.58	8.2	2.11	0.27	1.79	1.84	**301.94**	**90,581**	705,569	731,427	0	0	705,569	16.20	451.93
32	160	2.67	5.9	1.52	0.27	1.29	1.25	205.01	61,503	767,072	733,512	0	0	767,072	17.61	452.01
33	165	2.75	2.0	0.51	0.27	0.44	0.25	40.66	12,198	779,270	733,926	0	0	779,270	17.89	452.03
34	170	2.83	1.8	0.46	0.27	0.39	0.20	32.23	9,669	788,939	734,253	0	0	788,939	18.11	452.04
35	175	2.92	1.8	0.46	0.27	0.39	0.20	32.23	9,669	798,608	734,581	0	0	798,608	18.33	452.05
36	180	3.00	0.6	0.15	0.27	0.13	0.02	3.79	1,138	799,746	734,620	0	0	**799,746**	**18.36**	**452.05**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	1,264,241 cu-ft
SOIL LOSSES	464,495 cu-ft
EFFECTIVE RAIN	1.35 in
FLOOD VOLUME	18.36 acft
FLOOD VOLUME	799,746 cu-ft
REQUIRED STORAGE	18.36 acft
REQUIRED STORAGE	799,746 cu-ft
MAX WSEL	452.05 ft
PEAK FLOW RATE	301.94 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	162.75
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.45
UNIT TIME-PERCENT OF LAG	204.0
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.27
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.27	0.14	0.02	4.08	1,223	1,223	707,546	0	0	1,223	0.03	451.00
2	10	0.17	0.6	0.20	0.27	0.17	0.03	4.89	1,467	2,690	707,596	0	0	2,690	0.06	451.00
3	15	0.25	0.6	0.20	0.27	0.17	0.03	4.89	1,467	4,158	707,646	0	0	4,158	0.10	451.01
4	20	0.33	0.6	0.20	0.27	0.17	0.03	4.89	1,467	5,625	707,696	0	0	5,625	0.13	451.01
5	25	0.42	0.6	0.20	0.27	0.17	0.03	4.89	1,467	7,093	707,745	0	0	7,093	0.16	451.01
6	30	0.50	0.7	0.23	0.27	0.20	0.03	5.71	1,712	8,805	707,804	0	0	8,805	0.20	451.01
7	35	0.58	0.7	0.23	0.27	0.20	0.03	5.71	1,712	10,517	707,862	0	0	10,517	0.24	451.01
8	40	0.67	0.7	0.23	0.27	0.20	0.03	5.71	1,712	12,229	707,920	0	0	12,229	0.28	451.02
9	45	0.75	0.7	0.23	0.27	0.20	0.03	5.71	1,712	13,941	707,978	0	0	13,941	0.32	451.02
10	50	0.83	0.7	0.23	0.27	0.20	0.03	5.71	1,712	15,653	708,036	0	0	15,653	0.36	451.02
11	55	0.92	0.7	0.23	0.27	0.20	0.03	5.71	1,712	17,365	708,094	0	0	17,365	0.40	451.02
12	60	1.00	0.8	0.26	0.27	0.23	0.04	6.52	1,957	19,322	708,160	0	0	19,322	0.44	451.03
13	65	1.08	0.8	0.26	0.27	0.23	0.04	6.52	1,957	21,278	708,226	0	0	21,278	0.49	451.03
14	70	1.17	0.8	0.26	0.27	0.23	0.04	6.52	1,957	23,235	708,293	0	0	23,235	0.53	451.03
15	75	1.25	0.8	0.26	0.27	0.23	0.04	6.52	1,957	25,191	708,359	0	0	25,191	0.58	451.03
16	80	1.33	0.8	0.26	0.27	0.23	0.04	6.52	1,957	27,148	708,425	0	0	27,148	0.62	451.04
17	85	1.42	0.8	0.26	0.27	0.23	0.04	6.52	1,957	29,105	708,492	0	0	29,105	0.67	451.04
18	90	1.50	0.8	0.26	0.27	0.23	0.04	6.52	1,957	31,061	708,558	0	0	31,061	0.71	451.04
19	95	1.58	0.8	0.26	0.27	0.23	0.04	6.52	1,957	33,018	708,624	0	0	33,018	0.76	451.04
20	100	1.67	0.8	0.26	0.27	0.23	0.04	6.52	1,957	34,975	708,691	0	0	34,975	0.80	451.05
21	105	1.75	0.8	0.26	0.27	0.23	0.04	6.52	1,957	36,931	708,757	0	0	36,931	0.85	451.05
22	110	1.83	0.8	0.26	0.27	0.23	0.04	6.52	1,957	38,888	708,823	0	0	38,888	0.89	451.05
23	115	1.92	0.8	0.26	0.27	0.23	0.04	6.52	1,957	40,844	708,890	0	0	40,844	0.94	451.05
24	120	2.00	0.9	0.30	0.27	0.25	0.03	5.29	1,588	42,432	708,944	0	0	42,432	0.97	451.06

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	162.75
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.45
UNIT TIME-PERCENT OF LAG	204.0
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.27
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
25	125	2.08	0.8	0.26	0.27	0.23	0.04	6.52	1,957	44,389	709,010	0	0	44,389	1.02	451.06
26	130	2.17	0.9	0.30	0.27	0.25	0.03	5.29	1,588	45,976	709,064	0	0	45,976	1.06	451.06
27	135	2.25	0.9	0.30	0.27	0.25	0.03	5.29	1,588	47,564	709,118	0	0	47,564	1.09	451.06
28	140	2.33	0.9	0.30	0.27	0.25	0.03	5.29	1,588	49,151	709,171	0	0	49,151	1.13	451.06
29	145	2.42	0.9	0.30	0.27	0.25	0.03	5.29	1,588	50,739	709,225	0	0	50,739	1.16	451.07
30	150	2.50	0.9	0.30	0.27	0.25	0.03	5.29	1,588	52,327	709,279	0	0	52,327	1.20	451.07
31	155	2.58	0.9	0.30	0.27	0.25	0.03	5.29	1,588	53,914	709,333	0	0	53,914	1.24	451.07
32	160	2.67	0.9	0.30	0.27	0.25	0.03	5.29	1,588	55,502	709,387	0	0	55,502	1.27	451.07
33	165	2.75	1.0	0.33	0.27	0.28	0.07	10.73	3,218	58,720	709,496	0	0	58,720	1.35	451.08
34	170	2.83	1.0	0.33	0.27	0.28	0.07	10.73	3,218	61,938	709,605	0	0	61,938	1.42	451.08
35	175	2.92	1.0	0.33	0.27	0.28	0.07	10.73	3,218	65,156	709,714	0	0	65,156	1.50	451.09
36	180	3.00	1.0	0.33	0.27	0.28	0.07	10.73	3,218	68,374	709,823	0	0	68,374	1.57	451.09
37	185	3.08	1.0	0.33	0.27	0.28	0.07	10.73	3,218	71,592	709,932	0	0	71,592	1.64	451.09
38	190	3.17	1.1	0.36	0.27	0.31	0.10	16.16	4,849	76,441	710,097	0	0	76,441	1.75	451.10
39	195	3.25	1.1	0.36	0.27	0.31	0.10	16.16	4,849	81,289	710,261	0	0	81,289	1.87	451.11
40	200	3.33	1.1	0.36	0.27	0.31	0.10	16.16	4,849	86,138	710,425	0	0	86,138	1.98	451.11
41	205	3.42	1.2	0.40	0.27	0.34	0.13	21.60	6,479	92,617	710,645	0	0	92,617	2.13	451.12
42	210	3.50	1.3	0.43	0.27	0.37	0.16	27.03	8,110	100,727	710,920	0	0	100,727	2.31	451.13
43	215	3.58	1.4	0.46	0.27	0.39	0.20	32.47	9,740	110,467	711,250	0	0	110,467	2.54	451.15
44	220	3.67	1.4	0.46	0.27	0.39	0.20	32.47	9,740	120,207	711,581	0	0	120,207	2.76	451.16
45	225	3.75	1.5	0.50	0.27	0.42	0.23	37.90	11,371	131,578	711,966	0	0	131,578	3.02	451.17
46	230	3.83	1.5	0.50	0.27	0.42	0.23	37.90	11,371	142,949	712,352	0	0	142,949	3.28	451.19
47	235	3.92	1.6	0.53	0.27	0.45	0.26	43.34	13,001	155,950	712,792	0	0	155,950	3.58	451.21
48	240	4.00	1.6	0.53	0.27	0.45	0.26	43.34	13,001	168,951	713,233	0	0	168,951	3.88	451.22
49	245	4.08	1.7	0.56	0.27	0.48	0.30	48.77	14,632	183,583	713,729	0	0	183,583	4.21	451.24
50	250	4.17	1.8	0.60	0.27	0.51	0.33	54.21	16,262	199,845	714,281	0	0	199,845	4.59	451.26

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	162.75
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.45
UNIT TIME-PERCENT OF LAG	204.0
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.27
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.27	0.53	0.36	59.64	17,893	217,738	714,887	0	0	217,738	5.00	451.29
52	260	4.33	2.0	0.66	0.27	0.56	0.40	65.08	19,523	237,261	715,549	0	0	237,261	5.45	451.31
53	265	4.42	2.1	0.70	0.27	0.59	0.43	70.51	21,154	258,415	716,266	0	0	258,415	5.93	451.34
54	270	4.50	2.1	0.70	0.27	0.59	0.43	70.51	21,154	279,568	716,984	0	0	279,568	6.42	451.37
55	275	4.58	2.2	0.73	0.27	0.62	0.46	75.95	22,784	302,353	717,756	0	0	302,353	6.94	451.40
56	280	4.67	2.3	0.76	0.27	0.65	0.50	81.38	24,415	326,767	718,584	0	0	326,767	7.50	451.43
57	285	4.75	2.4	0.79	0.27	0.68	0.53	86.82	26,045	352,813	719,467	0	0	352,813	8.10	451.47
58	290	4.83	2.4	0.79	0.27	0.68	0.53	86.82	26,045	378,858	720,350	0	0	378,858	8.70	451.50
59	295	4.92	2.5	0.83	0.27	0.70	0.56	92.25	27,676	406,534	721,288	0	0	406,534	9.33	451.54
60	300	5.00	2.6	0.86	0.27	0.73	0.60	97.69	29,306	435,840	722,282	0	0	435,840	10.01	451.57
61	305	5.08	3.1	1.03	0.27	0.87	0.76	124.86	37,459	473,299	723,552	0	0	473,299	10.87	451.62
62	310	5.17	3.6	1.19	0.27	1.01	0.93	152.04	45,612	518,911	725,098	0	0	518,911	11.91	451.68
63	315	5.25	3.9	1.29	0.27	1.10	1.03	168.34	50,503	569,414	726,811	0	0	569,414	13.07	451.75
64	320	5.33	4.2	1.39	0.27	1.18	1.13	184.65	55,395	624,808	728,689	0	0	624,808	14.34	451.82
65	325	5.42	4.7	1.56	0.27	1.32	1.29	211.82	63,547	688,356	730,843	0	0	688,356	15.80	451.91
66	330	5.50	5.6	1.85	0.27	1.58	1.59	**260.74**	**78,222**	766,577	733,495	0	0	766,577	17.60	452.01
67	335	5.58	1.9	0.63	0.27	0.53	0.36	59.64	17,893	784,470	734,102	0	0	784,470	18.01	452.03
68	340	5.67	0.9	0.30	0.27	0.25	0.03	5.29	1,588	786,058	734,156	0	0	786,058	18.05	452.04
69	345	5.75	0.6	0.20	0.27	0.17	0.03	4.89	1,467	787,525	734,206	0	0	787,525	18.08	452.04
70	350	5.83	0.5	0.17	0.27	0.14	0.02	4.08	1,223	788,748	734,247	0	0	788,748	18.11	452.04
71	355	5.92	0.3	0.10	0.27	0.08	0.01	2.45	734	789,482	734,272	0	0	789,482	18.12	452.04
72	360	6.00	0.2	0.07	0.27	0.06	0.01	1.63	489	789,971	734,288	0	0	**789,971**	**18.14**	**452.04**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	1,630,516 cu-ft
SOIL LOSSES	840,545 cu-ft
EFFECTIVE RAIN	1.34 in
FLOOD VOLUME	18.14 acft
FLOOD VOLUME	789,971 cu-ft
REQUIRED STORAGE	18.14 acft
REQUIRED STORAGE	789,971 cu-ft
MAX WSEL	452.04 ft
PEAK FLOW RATE	260.74 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	162.75	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	2.45	C	0.00246	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	612%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.469	0.030	0.01	0.87	782	782	707,531	0	0	782	0.02	451.00
2	30	0.50	0.3	0.053	0.464	0.045	0.01	1.30	1,172	1,954	707,571	0	0	1,954	0.04	451.00
3	45	0.75	0.3	0.053	0.459	0.045	0.01	1.30	1,172	3,126	707,611	0	0	3,126	0.07	451.00
4	60	1.00	0.4	0.071	0.453	0.060	0.01	1.74	1,563	4,690	707,664	0	0	4,690	0.11	451.01
5	75	1.25	0.3	0.053	0.448	0.045	0.01	1.30	1,172	5,862	707,704	0	0	5,862	0.13	451.01
6	90	1.50	0.3	0.053	0.443	0.045	0.01	1.30	1,172	7,034	707,743	0	0	7,034	0.16	451.01
7	105	1.75	0.3	0.053	0.437	0.045	0.01	1.30	1,172	8,207	707,783	0	0	8,207	0.19	451.01
8	120	2.00	0.4	0.071	0.432	0.060	0.01	1.74	1,563	9,770	707,836	0	0	9,770	0.22	451.01
9	135	2.25	0.4	0.071	0.427	0.060	0.01	1.74	1,563	11,333	707,889	0	0	11,333	0.26	451.01
10	150	2.50	0.4	0.071	0.422	0.060	0.01	1.74	1,563	12,896	707,942	0	0	12,896	0.30	451.02
11	165	2.75	0.5	0.088	0.416	0.075	0.01	2.17	1,954	14,850	708,008	0	0	14,850	0.34	451.02
12	180	3.00	0.5	0.088	0.411	0.075	0.01	2.17	1,954	16,804	708,075	0	0	16,804	0.39	451.02
13	195	3.25	0.5	0.088	0.406	0.075	0.01	2.17	1,954	18,758	708,141	0	0	18,758	0.43	451.02
14	210	3.50	0.5	0.088	0.401	0.075	0.01	2.17	1,954	20,712	708,207	0	0	20,712	0.48	451.03
15	225	3.75	0.5	0.088	0.396	0.075	0.01	2.17	1,954	22,666	708,273	0	0	22,666	0.52	451.03
16	240	4.00	0.6	0.106	0.391	0.090	0.02	2.61	2,345	25,011	708,353	0	0	25,011	0.57	451.03
17	255	4.25	0.6	0.106	0.386	0.090	0.02	2.61	2,345	27,355	708,432	0	0	27,355	0.63	451.04
18	270	4.50	0.7	0.123	0.381	0.105	0.02	3.04	2,736	30,091	708,525	0	0	30,091	0.69	451.04
19	285	4.75	0.7	0.123	0.376	0.105	0.02	3.04	2,736	32,827	708,618	0	0	32,827	0.75	451.04
20	300	5.00	0.8	0.141	0.372	0.120	0.02	3.47	3,126	35,953	708,724	0	0	35,953	0.83	451.05
21	315	5.25	0.6	0.106	0.367	0.090	0.02	2.61	2,345	38,298	708,803	0	0	38,298	0.88	451.05
22	330	5.50	0.7	0.123	0.362	0.105	0.02	3.04	2,736	41,033	708,896	0	0	41,033	0.94	451.05
23	345	5.75	0.8	0.141	0.357	0.120	0.02	3.47	3,126	44,160	709,002	0	0	44,160	1.01	451.06
24	360	6.00	0.8	0.141	0.352	0.120	0.02	3.47	3,126	47,286	709,108	0	0	47,286	1.09	451.06
25	375	6.25	0.9	0.159	0.348	0.135	0.02	3.91	3,517	50,803	709,227	0	0	50,803	1.17	451.07
26	390	6.50	0.9	0.159	0.343	0.135	0.02	3.91	3,517	54,320	709,347	0	0	54,320	1.25	451.07
27	405	6.75	1.0	0.176	0.339	0.150	0.03	4.34	3,908	58,228	709,479	0	0	58,228	1.34	451.08
28	420	7.00	1.0	0.176	0.334	0.150	0.03	4.34	3,908	62,136	709,612	0	0	62,136	1.43	451.08
29	435	7.25	1.0	0.176	0.329	0.150	0.03	4.34	3,908	66,044	709,744	0	0	66,044	1.52	451.09
30	450	7.50	1.1	0.194	0.325	0.165	0.03	4.78	4,299	70,343	709,890	0	0	70,343	1.61	451.09
31	465	7.75	1.2	0.212	0.320	0.180	0.03	5.21	4,690	75,032	710,049	0	0	75,032	1.72	451.10
32	480	8.00	1.3	0.229	0.316	0.195	0.03	5.64	5,080	80,112	710,221	0	0	80,112	1.84	451.11
33	495	8.25	1.5	0.265	0.312	0.225	0.04	6.51	5,862	85,974	710,420	0	0	85,974	1.97	451.11
34	510	8.50	1.5	0.265	0.307	0.225	0.04	6.51	5,862	91,836	710,619	0	0	91,836	2.11	451.12
35	525	8.75	1.6	0.282	0.303	0.240	0.04	6.95	6,253	98,089	710,831	0	0	98,089	2.25	451.13
36	540	9.00	1.7	0.300	0.299	0.255	0.00	0.18	165	98,254	710,836	0	0	98,254	2.26	451.13
37	555	9.25	1.9	0.335	0.295	0.285	0.04	6.67	6,000	104,254	711,040	0	0	104,254	2.39	451.14
38	570	9.50	2.0	0.353	0.290	0.300	0.06	10.25	9,224	113,478	711,352	0	0	113,478	2.61	451.15
39	585	9.75	2.1	0.370	0.286	0.315	0.08	13.83	12,443	125,920	711,774	0	0	125,920	2.89	451.17
40	600	10.00	2.2	0.388	0.282	0.330	0.11	17.39	15,655	141,576	712,305	0	0	141,576	3.25	451.19
41	615	10.25	1.5	0.265	0.278	0.225	0.04	6.51	5,862	147,438	712,504	0	0	147,438	3.38	451.19
42	630	10.50	1.5	0.265	0.274	0.225	0.04	6.51	5,862	153,299	712,703	0	0	153,299	3.52	451.20
43	645	10.75	2.0	0.353	0.270	0.300	0.08	13.59	12,231	165,530	713,117	0	0	165,530	3.80	451.22

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	162.75	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	2.45	C	0.00246	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	612%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.353	0.266	0.300	0.09	14.24	12,815	178,345	713,552	0	0	178,345	4.09	451.24
45	675	11.25	1.9	0.335	0.262	0.285	0.07	11.99	10,787	189,132	713,917	0	0	189,132	4.34	451.25
46	690	11.50	1.9	0.335	0.258	0.285	0.08	12.62	11,358	200,490	714,302	0	0	200,490	4.60	451.26
47	705	11.75	1.7	0.300	0.254	0.255	0.05	7.46	6,712	207,202	714,530	0	0	207,202	4.76	451.27
48	720	12.00	1.8	0.318	0.251	0.270	0.07	10.97	9,877	217,079	714,865	0	0	217,079	4.98	451.29
49	735	12.25	2.5	0.441	0.247	0.375	0.19	31.85	28,666	245,745	715,837	0	0	245,745	5.64	451.32
50	750	12.50	2.6	0.459	0.243	0.390	0.22	35.35	31,818	277,562	716,916	0	0	277,562	6.37	451.37
51	765	12.75	2.8	0.494	0.240	0.420	0.25	41.74	37,568	315,130	718,189	0	0	315,130	7.23	451.42
52	780	13.00	2.9	0.512	0.236	0.435	0.28	45.23	40,706	355,837	719,569	0	0	355,837	8.17	451.47
53	795	13.25	3.4	0.600	0.232	0.510	0.37	60.29	54,260	410,096	721,409	0	0	410,096	9.41	451.54
54	810	13.50	3.4	0.600	0.229	0.510	0.37	**60.87**	**54,780**	464,876	723,266	0	0	464,876	10.67	451.61
55	825	13.75	2.3	0.406	0.225	0.345	0.18	29.59	26,635	491,511	724,169	0	0	491,511	11.28	451.65
56	840	14.00	2.3	0.406	0.222	0.345	0.18	30.16	27,142	518,652	725,090	0	0	518,652	11.91	451.68
57	855	14.25	2.7	0.476	0.219	0.405	0.26	42.29	38,063	556,715	726,380	0	0	556,715	12.78	451.73
58	870	14.50	2.6	0.459	0.215	0.390	0.24	39.94	35,950	592,665	727,599	0	0	592,665	13.61	451.78
59	885	14.75	2.6	0.459	0.212	0.390	0.25	40.48	36,436	629,101	728,834	0	0	629,101	14.44	451.83
60	900	15.00	2.5	0.441	0.209	0.375	0.23	38.12	34,310	663,411	729,998	0	0	663,411	15.23	451.87
61	915	15.25	2.4	0.423	0.206	0.360	0.22	35.75	32,176	695,587	731,088	0	0	695,587	15.97	451.92
62	930	15.50	2.3	0.406	0.202	0.345	0.20	33.37	30,035	725,622	732,107	0	0	725,622	16.66	451.96
63	945	15.75	1.9	0.335	0.199	0.285	0.14	22.30	20,071	745,693	732,787	0	0	745,693	17.12	451.98
64	960	16.00	1.9	0.335	0.196	0.285	0.14	22.80	20,521	766,214	733,483	0	0	766,214	17.59	452.01
65	975	16.25	0.4	0.071	0.193	0.060	0.01	1.74	1,563	767,777	733,536	0	0	767,777	17.63	452.01
66	990	16.50	0.4	0.071	0.190	0.060	0.01	1.74	1,563	769,340	733,589	0	0	769,340	17.66	452.01
67	1005	16.75	0.3	0.053	0.187	0.045	0.01	1.30	1,172	770,512	733,629	0	0	770,512	17.69	452.02
68	1020	17.00	0.3	0.053	0.185	0.045	0.01	1.30	1,172	771,685	733,668	0	0	771,685	17.72	452.02
69	1035	17.25	0.5	0.088	0.182	0.075	0.01	2.17	1,954	773,639	733,735	0	0	773,639	17.76	452.02
70	1050	17.50	0.5	0.088	0.179	0.075	0.01	2.17	1,954	775,593	733,801	0	0	775,593	17.81	452.02
71	1065	17.75	0.5	0.088	0.176	0.075	0.01	2.17	1,954	777,547	733,867	0	0	777,547	17.85	452.03
72	1080	18.00	0.4	0.071	0.174	0.060	0.01	1.74	1,563	779,110	733,920	0	0	779,110	17.89	452.03
73	1095	18.25	0.4	0.071	0.171	0.060	0.01	1.74	1,563	780,673	733,973	0	0	780,673	17.92	452.03
74	1110	18.50	0.4	0.071	0.169	0.060	0.01	1.74	1,563	782,236	734,026	0	0	782,236	17.96	452.03
75	1125	18.75	0.3	0.053	0.166	0.045	0.01	1.30	1,172	783,409	734,066	0	0	783,409	17.98	452.03
76	1140	19.00	0.2	0.035	0.164	0.030	0.01	0.87	782	784,190	734,092	0	0	784,190	18.00	452.03
77	1155	19.25	0.3	0.053	0.162	0.045	0.01	1.30	1,172	785,363	734,132	0	0	785,363	18.03	452.04
78	1170	19.50	0.4	0.071	0.159	0.060	0.01	1.74	1,563	786,926	734,185	0	0	786,926	18.07	452.04
79	1185	19.75	0.3	0.053	0.157	0.045	0.01	1.30	1,172	788,098	734,225	0	0	788,098	18.09	452.04
80	1200	20.00	0.2	0.035	0.155	0.030	0.01	0.87	782	788,880	734,251	0	0	788,880	18.11	452.04
81	1215	20.25	0.3	0.053	0.153	0.045	0.01	1.30	1,172	790,052	734,291	0	0	790,052	18.14	452.04
82	1230	20.50	0.3	0.053	0.151	0.045	0.01	1.30	1,172	791,224	734,331	0	0	791,224	18.16	452.04
83	1245	20.75	0.3	0.053	0.149	0.045	0.01	1.30	1,172	792,397	734,371	0	0	792,397	18.19	452.04
84	1260	21.00	0.2	0.035	0.147	0.030	0.01	0.87	782	793,178	734,397	0	0	793,178	18.21	452.05
85	1275	21.25	0.3	0.053	0.146	0.045	0.01	1.30	1,172	794,351	734,437	0	0	794,351	18.24	452.05
86	1290	21.50	0.2	0.035	0.144	0.030	0.01	0.87	782	795,132	734,463	0	0	795,132	18.25	452.05

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	162.75	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	2.45	C	0.00246	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	612%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.142	0.045	0.01	1.30	1,172	796,305	734,503	0	0	796,305	18.28	452.05
88	1320	22.00	0.2	0.035	0.141	0.030	0.01	0.87	782	797,086	734,530	0	0	797,086	18.30	452.05
89	1335	22.25	0.3	0.053	0.139	0.045	0.01	1.30	1,172	798,259	734,569	0	0	798,259	18.33	452.05
90	1350	22.50	0.2	0.035	0.138	0.030	0.01	0.87	782	799,040	734,596	0	0	799,040	18.34	452.05
91	1365	22.75	0.2	0.035	0.137	0.030	0.01	0.87	782	799,822	734,622	0	0	799,822	18.36	452.05
92	1380	23.00	0.2	0.035	0.136	0.030	0.01	0.87	782	800,603	734,649	0	0	800,603	18.38	452.06
93	1395	23.25	0.2	0.035	0.135	0.030	0.01	0.87	782	801,385	734,675	0	0	801,385	18.40	452.06
94	1410	23.50	0.2	0.035	0.134	0.030	0.01	0.87	782	802,167	734,702	0	0	802,167	18.42	452.06
95	1425	23.75	0.2	0.035	0.133	0.030	0.01	0.87	782	802,948	734,728	0	0	802,948	18.43	452.06
96	1440	24.00	0.2	0.035	0.133	0.030	0.01	0.87	782	803,730	734,755	0	0	**803,730**	**18.45**	**452.06**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	2,605,281 cu-ft
SOIL LOSSES	1,801,551 cu-ft
EFFECTIVE RAIN	1.36 in
FLOOD VOLUME	18.45 acft
FLOOD VOLUME	803,730 cu-ft
REQUIRED STORAGE	18.45 acft
REQUIRED STORAGE	803,730 cu-ft
MAX WSEL	452.06 ft
PEAK FLOW RATE	60.87 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: WAVE LAGOON

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
451	0	0		707,505	0	0	0.00
455	4	4	102,845	810,350	3,033,385	3,033,385	69.64

WHERE:

$$V = \frac{1}{3}\left(E_1 - E_2\right)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	January 26, 2021
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN B
AREA DESIGNATION	DA-B
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
1	B	COMMERCIAL	1.483	D	56	0.51	0.90
2	B	PAVING/HARDSCAPE	2.574	D	56	0.51	1.00
3	B	WATER FEATURE	6.423	D	56	0.51	1.00
4	B	SF - LOW DENSITY	20.347	D	56	0.51	0.30
5	B	SF - MEDIUM DENSITY	0.000	D	56	0.51	0.40
6	B	SF - HIGH DENSITY	0.000	D	56	0.51	0.50
9	B	LANDSCAPING	10.759	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	2,000 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	1,000 ft
ELEVATION OF HEADWATER	485.0 ft
ELEVATION OF CONCENTRATION POINT	460.2 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
458.0 ft	279,800 sf
459.0 ft	304,405 sf

PERCOLATION RATE (in/hr)	0.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN B
[2] AREA DESIGNATION	DA-B
[3] AREA - ACRES	41.586
[4] L-FEET	2000
[5] L-MILES	0.379
[6] La-FEET	1000.00
[7] La-MILES	0.189
[8] ELEVATION OF HEADWATER	485
[9] ELEVATION OF CONCENTRATION POINT	460.2
[10] H-FEET	24.8
[11] S-FEET/MILE	65.5
[12] S^0.5	8.09
[13] L*LCA/S^0.5	0.009
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.08
[16] LAG TIME-MINUTES	4.8
[17] 100% OF LAG-MINUTES	4.8
[18] 200% OF LAG-MINUTES	9.6

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	217,379	323,050	416,643	**665,724**
SOIL LOSSES	(cu-ft)	47,811	140,132	235,776	**499,505**
EFFECTIVE RAIN	(in)	1.12	1.21	1.20	1.10
FLOOD VOLUME	(cu-ft)	169,568	**182,917**	180,867	166,219
	(acre-ft)	3.89	**4.20**	4.15	3.82
REQUIRED STORAGE	(cu-ft)	169,568	**182,917**	180,867	166,219
	(acre-ft)	3.89	**4.20**	4.15	3.82
FACTOR OF SAFETY		1.72	1.60	1.61	1.76
STORAGE PROVIDED	(cu-ft)	292,016			
	(acre-ft)	6.70			
PEAK FLOW	(cfs)	n/a	75.02	64.49	13.72
MAXIMUM WSEL	(ft)	458.58	**458.63**	458.62	458.57
DEPTH	(ft)	0.58	**0.63**	0.62	0.57
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)				

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	COMMERCIAL	56	0.51	90%	0.10	1.483	0.036	0.0035	DEVELOPED	0.1800	0.0064
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	2.574	0.062	0.0032	DEVELOPED	0.1000	0.0062
B	WATER FEATURE	56	0.51	100%	0.05	6.423	0.154	0.0079	DEVELOPED	0.1000	0.0154
B	SF - LOW DENSITY	56	0.51	30%	0.37	20.347	0.489	0.1822	DEVELOPED	0.6600	0.3229
B	SF - MEDIUM DENSITY	56	0.51	40%	0.33	0.000	0.000	0.0000	DEVELOPED	0.5800	0.0000
B	SF - HIGH DENSITY	56	0.51	50%	0.28	0.000	0.000	0.0000	DEVELOPED	0.5000	0.0000
B	LANDSCAPING	56	0.51	10%	0.46	10.759	0.259	0.1201	DEVELOPED	0.8200	0.2121
					SUM	41.586	SUM	0.3167			0.5631

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.158358458

C= 0.00293

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00293 (24-(T/60))^1.55 + 0.16 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.3167**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	41.59
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	4.78
UNIT TIME-PERCENT OF LAG	104.6
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.32
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.32	0.53	0.31	12.80	3,841	3,841	280,124	0	0	3,841	0.09	458.01
2	10	0.17	4.2	0.73	0.32	0.62	0.41	17.15	5,146	8,987	280,557	0	0	8,987	0.21	458.03
3	15	0.25	4.4	0.76	0.32	0.65	0.44	18.60	5,580	14,568	281,027	0	0	14,568	0.33	458.05
4	20	0.33	4.6	0.79	0.32	0.68	0.48	20.05	6,015	20,583	281,534	0	0	20,583	0.47	458.07
5	25	0.42	5.0	0.86	0.32	0.73	0.55	22.95	6,885	27,467	282,114	0	0	27,467	0.63	458.09
6	30	0.50	5.6	0.97	0.32	0.82	0.65	27.30	8,189	35,656	282,804	0	0	35,656	0.82	458.12
7	35	0.58	6.4	1.11	0.32	0.94	0.79	33.09	9,928	45,584	283,641	0	0	45,584	1.05	458.16
8	40	0.67	8.1	1.40	0.32	1.19	1.08	45.41	13,623	59,208	284,789	0	0	59,208	1.36	458.20
9	45	0.75	13.1	2.26	0.32	1.92	1.95	81.64	24,492	83,700	286,853	0	0	83,700	1.92	458.29
10	50	0.83	34.5	5.96	0.32	5.07	5.64	**236.71**	**71,012**	154,712	292,836	0	0	154,712	3.55	458.53
11	55	0.92	6.7	1.16	0.32	0.98	0.84	35.27	10,580	165,292	293,727	0	0	165,292	3.79	458.57
12	60	1.00	3.8	0.66	0.32	0.56	0.34	14.25	4,276	169,568	294,088	0	0	**169,568**	**3.89**	**458.58**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	217,379 cu-ft
SOIL LOSSES	47,811 cu-ft
EFFECTIVE RAIN	1.12 in
FLOOD VOLUME	3.89 acft
FLOOD VOLUME	169,568 cu-ft
REQUIRED STORAGE	3.89
REQUIRED STORAGE	169,568 cu-ft
MAX WSEL	458.58 ft
PEAK FLOW RATE	236.71 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD
SHORTCUT METHOD
3-HOUR STORM
UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	41.59
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	4.78
UNIT TIME-PERCENT OF LAG	104.6
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.32
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.32	0.28	0.02	0.72	215	215	279,818	0	0	215	0.00	458.00
2	10	0.17	1.3	0.33	0.32	0.28	0.02	0.72	215	431	279,836	0	0	431	0.01	458.00
3	15	0.25	1.1	0.28	0.32	0.24	0.04	1.78	533	964	279,881	0	0	964	0.02	458.00
4	20	0.33	1.5	0.39	0.32	0.33	0.07	2.87	862	1,825	279,954	0	0	1,825	0.04	458.01
5	25	0.42	1.5	0.39	0.32	0.33	0.07	2.87	862	2,687	280,026	0	0	2,687	0.06	458.01
6	30	0.50	1.8	0.46	0.32	0.39	0.15	6.10	1,831	4,518	280,181	0	0	4,518	0.10	458.02
7	35	0.58	1.5	0.39	0.32	0.33	0.07	2.87	862	5,379	280,253	0	0	5,379	0.12	458.02
8	40	0.67	1.8	0.46	0.32	0.39	0.15	6.10	1,831	7,210	280,407	0	0	7,210	0.17	458.02
9	45	0.75	1.8	0.46	0.32	0.39	0.15	6.10	1,831	9,040	280,562	0	0	9,040	0.21	458.03
10	50	0.83	1.5	0.39	0.32	0.33	0.07	2.87	862	9,902	280,634	0	0	9,902	0.23	458.03
11	55	0.92	1.6	0.41	0.32	0.35	0.09	3.95	1,185	11,086	280,734	0	0	11,086	0.25	458.04
12	60	1.00	1.8	0.46	0.32	0.39	0.15	6.10	1,831	12,917	280,888	0	0	12,917	0.30	458.04
13	65	1.08	2.2	0.56	0.32	0.48	0.25	10.41	3,123	16,040	281,152	0	0	16,040	0.37	458.05
14	70	1.17	2.2	0.56	0.32	0.48	0.25	10.41	3,123	19,163	281,415	0	0	19,163	0.44	458.07
15	75	1.25	2.2	0.56	0.32	0.48	0.25	10.41	3,123	22,286	281,678	0	0	22,286	0.51	458.08
16	80	1.33	2.0	0.51	0.32	0.44	0.20	8.26	2,477	24,762	281,886	0	0	24,762	0.57	458.08
17	85	1.42	2.6	0.67	0.32	0.57	0.35	14.72	4,415	29,177	282,258	0	0	29,177	0.67	458.10
18	90	1.50	2.7	0.69	0.32	0.59	0.38	15.79	4,738	33,915	282,658	0	0	33,915	0.78	458.12
19	95	1.58	2.4	0.62	0.32	0.52	0.30	12.56	3,769	37,684	282,975	0	0	37,684	0.87	458.13
20	100	1.67	2.7	0.69	0.32	0.59	0.38	15.79	4,738	42,423	283,374	0	0	42,423	0.97	458.15
21	105	1.75	3.3	0.85	0.32	0.72	0.53	22.25	6,676	49,099	283,937	0	0	49,099	1.13	458.17
22	110	1.83	3.1	0.80	0.32	0.68	0.48	20.10	6,030	55,129	284,445	0	0	55,129	1.27	458.19
23	115	1.92	2.9	0.74	0.32	0.63	0.43	17.95	5,384	60,513	284,899	0	0	60,513	1.39	458.21
24	120	2.00	3.0	0.77	0.32	0.65	0.45	19.02	5,707	66,221	285,380	0	0	66,221	1.52	458.23
25	125	2.08	3.1	0.80	0.32	0.68	0.48	20.10	6,030	72,251	285,888	0	0	72,251	1.66	458.25

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	41.59
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	4.78
UNIT TIME-PERCENT OF LAG	104.6
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.32
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
26	130	2.17	4.2	1.08	0.32	0.92	0.76	31.95	9,584	81,835	286,695	0	0	81,835	1.88	458.28
27	135	2.25	5.0	1.28	0.32	1.09	0.97	40.56	12,168	94,003	287,721	0	0	94,003	2.16	458.32
28	140	2.33	3.5	0.90	0.32	0.76	0.58	24.41	7,322	101,326	288,338	0	0	101,326	2.33	458.35
29	145	2.42	6.8	1.75	0.32	1.48	1.43	59.94	17,983	119,309	289,853	0	0	119,309	2.74	458.41
30	150	2.50	7.3	1.87	0.32	1.59	1.56	65.33	19,598	138,907	291,504	0	0	138,907	3.19	458.48
31	155	2.58	8.2	2.11	0.32	1.79	1.79	**75.02**	**22,506**	161,413	293,400	0	0	161,413	3.71	458.55
32	160	2.67	5.9	1.52	0.32	1.29	1.20	50.25	15,076	176,489	294,671	0	0	176,489	4.05	458.60
33	165	2.75	2.0	0.51	0.32	0.44	0.20	8.26	2,477	178,965	294,879	0	0	178,965	4.11	458.61
34	170	2.83	1.8	0.46	0.32	0.39	0.15	6.10	1,831	180,796	295,034	0	0	180,796	4.15	458.62
35	175	2.92	1.8	0.46	0.32	0.39	0.15	6.10	1,831	182,627	295,188	0	0	182,627	4.19	458.63
36	180	3.00	0.6	0.15	0.32	0.13	0.02	0.97	291	182,917	295,212	0	0	**182,917**	**4.20**	**458.63**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	323,050 cu-ft
SOIL LOSSES	140,132 cu-ft
EFFECTIVE RAIN	1.21 in
FLOOD VOLUME	4.20 acft
FLOOD VOLUME	182,917 cu-ft
REQUIRED STORAGE	4.20 acft
REQUIRED STORAGE	182,917 cu-ft
MAX WSEL	458.63 ft
PEAK FLOW RATE	75.02 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	41.59
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	4.78
UNIT TIME-PERCENT OF LAG	104.6
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.32
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.32	0.14	0.02	1.04	312	312	279,826	0	0	312	0.01	458.00
2	10	0.17	0.6	0.20	0.32	0.17	0.03	1.25	375	687	279,858	0	0	687	0.02	458.00
3	15	0.25	0.6	0.20	0.32	0.17	0.03	1.25	375	1,062	279,890	0	0	1,062	0.02	458.00
4	20	0.33	0.6	0.20	0.32	0.17	0.03	1.25	375	1,437	279,921	0	0	1,437	0.03	458.00
5	25	0.42	0.6	0.20	0.32	0.17	0.03	1.25	375	1,812	279,953	0	0	1,812	0.04	458.01
6	30	0.50	0.7	0.23	0.32	0.20	0.03	1.46	437	2,250	279,990	0	0	2,250	0.05	458.01
7	35	0.58	0.7	0.23	0.32	0.20	0.03	1.46	437	2,687	280,026	0	0	2,687	0.06	458.01
8	40	0.67	0.7	0.23	0.32	0.20	0.03	1.46	437	3,125	280,063	0	0	3,125	0.07	458.01
9	45	0.75	0.7	0.23	0.32	0.20	0.03	1.46	437	3,562	280,100	0	0	3,562	0.08	458.01
10	50	0.83	0.7	0.23	0.32	0.20	0.03	1.46	437	4,000	280,137	0	0	4,000	0.09	458.01
11	55	0.92	0.7	0.23	0.32	0.20	0.03	1.46	437	4,437	280,174	0	0	4,437	0.10	458.02
12	60	1.00	0.8	0.26	0.32	0.23	0.04	1.67	500	4,937	280,216	0	0	4,937	0.11	458.02
13	65	1.08	0.8	0.26	0.32	0.23	0.04	1.67	500	5,437	280,258	0	0	5,437	0.12	458.02
14	70	1.17	0.8	0.26	0.32	0.23	0.04	1.67	500	5,937	280,300	0	0	5,937	0.14	458.02
15	75	1.25	0.8	0.26	0.32	0.23	0.04	1.67	500	6,437	280,342	0	0	6,437	0.15	458.02
16	80	1.33	0.8	0.26	0.32	0.23	0.04	1.67	500	6,937	280,385	0	0	6,937	0.16	458.02
17	85	1.42	0.8	0.26	0.32	0.23	0.04	1.67	500	7,437	280,427	0	0	7,437	0.17	458.03
18	90	1.50	0.8	0.26	0.32	0.23	0.04	1.67	500	7,937	280,469	0	0	7,937	0.18	458.03
19	95	1.58	0.8	0.26	0.32	0.23	0.04	1.67	500	8,437	280,511	0	0	8,437	0.19	458.03
20	100	1.67	0.8	0.26	0.32	0.23	0.04	1.67	500	8,937	280,553	0	0	8,937	0.21	458.03
21	105	1.75	0.8	0.26	0.32	0.23	0.04	1.67	500	9,437	280,595	0	0	9,437	0.22	458.03
22	110	1.83	0.8	0.26	0.32	0.23	0.04	1.67	500	9,937	280,637	0	0	9,937	0.23	458.03
23	115	1.92	0.8	0.26	0.32	0.23	0.04	1.67	500	10,437	280,679	0	0	10,437	0.24	458.04
24	120	2.00	0.9	0.30	0.32	0.25	0.04	1.87	562	10,999	280,727	0	0	10,999	0.25	458.04

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	41.59
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	4.78
UNIT TIME-PERCENT OF LAG	104.6
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.32
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
25	125	2.08	0.8	0.26	0.32	0.23	0.04	1.67	500	11,499	280,769	0	0	11,499	0.26	458.04
26	130	2.17	0.9	0.30	0.32	0.25	0.04	1.87	562	12,062	280,816	0	0	12,062	0.28	458.04
27	135	2.25	0.9	0.30	0.32	0.25	0.04	1.87	562	12,624	280,864	0	0	12,624	0.29	458.04
28	140	2.33	0.9	0.30	0.32	0.25	0.04	1.87	562	13,187	280,911	0	0	13,187	0.30	458.05
29	145	2.42	0.9	0.30	0.32	0.25	0.04	1.87	562	13,749	280,958	0	0	13,749	0.32	458.05
30	150	2.50	0.9	0.30	0.32	0.25	0.04	1.87	562	14,312	281,006	0	0	14,312	0.33	458.05
31	155	2.58	0.9	0.30	0.32	0.25	0.04	1.87	562	14,874	281,053	0	0	14,874	0.34	458.05
32	160	2.67	0.9	0.30	0.32	0.25	0.04	1.87	562	15,437	281,101	0	0	15,437	0.35	458.05
33	165	2.75	1.0	0.33	0.32	0.28	0.01	0.61	182	15,619	281,116	0	0	15,619	0.36	458.05
34	170	2.83	1.0	0.33	0.32	0.28	0.01	0.61	182	15,801	281,131	0	0	15,801	0.36	458.05
35	175	2.92	1.0	0.33	0.32	0.28	0.01	0.61	182	15,983	281,147	0	0	15,983	0.37	458.05
36	180	3.00	1.0	0.33	0.32	0.28	0.01	0.61	182	16,165	281,162	0	0	16,165	0.37	458.06
37	185	3.08	1.0	0.33	0.32	0.28	0.01	0.61	182	16,348	281,177	0	0	16,348	0.38	458.06
38	190	3.17	1.1	0.36	0.32	0.31	0.05	2.00	599	16,946	281,228	0	0	16,946	0.39	458.06
39	195	3.25	1.1	0.36	0.32	0.31	0.05	2.00	599	17,545	281,278	0	0	17,545	0.40	458.06
40	200	3.33	1.1	0.36	0.32	0.31	0.05	2.00	599	18,144	281,329	0	0	18,144	0.42	458.06
41	205	3.42	1.2	0.40	0.32	0.34	0.08	3.38	1,015	19,160	281,414	0	0	19,160	0.44	458.07
42	210	3.50	1.3	0.43	0.32	0.37	0.11	4.77	1,432	20,592	281,535	0	0	20,592	0.47	458.07
43	215	3.58	1.4	0.46	0.32	0.39	0.15	6.16	1,849	22,441	281,691	0	0	22,441	0.52	458.08
44	220	3.67	1.4	0.46	0.32	0.39	0.15	6.16	1,849	24,289	281,847	0	0	24,289	0.56	458.08
45	225	3.75	1.5	0.50	0.32	0.42	0.18	7.55	2,265	26,555	282,037	0	0	26,555	0.61	458.09
46	230	3.83	1.5	0.50	0.32	0.42	0.18	7.55	2,265	28,820	282,228	0	0	28,820	0.66	458.10
47	235	3.92	1.6	0.53	0.32	0.45	0.21	8.94	2,682	31,502	282,454	0	0	31,502	0.72	458.11
48	240	4.00	1.6	0.53	0.32	0.45	0.21	8.94	2,682	34,184	282,680	0	0	34,184	0.78	458.12
49	245	4.08	1.7	0.56	0.32	0.48	0.25	10.33	3,099	37,283	282,941	0	0	37,283	0.86	458.13
50	250	4.17	1.8	0.60	0.32	0.51	0.28	11.72	3,515	40,798	283,238	0	0	40,798	0.94	458.14

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	41.59
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	4.78
UNIT TIME-PERCENT OF LAG	104.6
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.32
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.32	0.53	0.31	13.11	3,932	44,730	283,569	0	0	44,730	1.03	458.15
52	260	4.33	2.0	0.66	0.32	0.56	0.35	14.50	4,349	49,079	283,935	0	0	49,079	1.13	458.17
53	265	4.42	2.1	0.70	0.32	0.59	0.38	15.88	4,765	53,844	284,337	0	0	53,844	1.24	458.18
54	270	4.50	2.1	0.70	0.32	0.59	0.38	15.88	4,765	58,609	284,738	0	0	58,609	1.35	458.20
55	275	4.58	2.2	0.73	0.32	0.62	0.41	17.27	5,182	63,791	285,175	0	0	63,791	1.46	458.22
56	280	4.67	2.3	0.76	0.32	0.65	0.45	18.66	5,599	69,390	285,647	0	0	69,390	1.59	458.24
57	285	4.75	2.4	0.79	0.32	0.68	0.48	20.05	6,015	75,405	286,154	0	0	75,405	1.73	458.26
58	290	4.83	2.4	0.79	0.32	0.68	0.48	20.05	6,015	81,420	286,660	0	0	81,420	1.87	458.28
59	295	4.92	2.5	0.83	0.32	0.70	0.51	21.44	6,432	87,852	287,202	0	0	87,852	2.02	458.30
60	300	5.00	2.6	0.86	0.32	0.73	0.54	22.83	6,848	94,701	287,779	0	0	94,701	2.17	458.32
61	305	5.08	3.1	1.03	0.32	0.87	0.71	29.77	8,932	103,632	288,532	0	0	103,632	2.38	458.35
62	310	5.17	3.6	1.19	0.32	1.01	0.88	36.72	11,015	114,647	289,460	0	0	114,647	2.63	458.39
63	315	5.25	3.9	1.29	0.32	1.10	0.97	40.88	12,265	126,912	290,493	0	0	126,912	2.91	458.43
64	320	5.33	4.2	1.39	0.32	1.18	1.07	45.05	13,515	140,427	291,632	0	0	140,427	3.22	458.48
65	325	5.42	4.7	1.56	0.32	1.32	1.24	51.99	15,598	156,025	292,947	0	0	156,025	3.58	458.53
66	330	5.50	5.6	1.85	0.32	1.58	1.54	**64.49**	**19,348**	175,373	294,577	0	0	175,373	4.03	458.60
67	335	5.58	1.9	0.63	0.32	0.53	0.31	13.11	3,932	179,305	294,908	0	0	179,305	4.12	458.61
68	340	5.67	0.9	0.30	0.32	0.25	0.04	1.87	562	179,867	294,955	0	0	179,867	4.13	458.62
69	345	5.75	0.6	0.20	0.32	0.17	0.03	1.25	375	180,242	294,987	0	0	180,242	4.14	458.62
70	350	5.83	0.5	0.17	0.32	0.14	0.02	1.04	312	180,555	295,013	0	0	180,555	4.14	458.62
71	355	5.92	0.3	0.10	0.32	0.08	0.01	0.62	187	180,742	295,029	0	0	180,742	4.15	458.62
72	360	6.00	0.2	0.07	0.32	0.06	0.01	0.42	125	180,867	295,040	0	0	**180,867**	**4.15**	**458.62**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	416,643 cu-ft
SOIL LOSSES	235,776 cu-ft
EFFECTIVE RAIN	1.20 in
FLOOD VOLUME	4.15 acft
FLOOD VOLUME	180,867 cu-ft
REQUIRED STORAGE	4.15 acft
REQUIRED STORAGE	180,867 cu-ft
MAX WSEL	458.62 ft
PEAK FLOW RATE	64.49 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	41.59	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.16		
LAG TIME - MINUTES	4.78	C	0.00293	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	314%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.559	0.030	0.01	0.22	200	200	279,817	0	0	200	0.00	458.00
2	30	0.50	0.3	0.053	0.553	0.045	0.01	0.33	300	499	279,842	0	0	499	0.01	458.00
3	45	0.75	0.3	0.053	0.546	0.045	0.01	0.33	300	799	279,867	0	0	799	0.02	458.00
4	60	1.00	0.4	0.071	0.540	0.060	0.01	0.44	399	1,198	279,901	0	0	1,198	0.03	458.00
5	75	1.25	0.3	0.053	0.534	0.045	0.01	0.33	300	1,498	279,926	0	0	1,498	0.03	458.01
6	90	1.50	0.3	0.053	0.527	0.045	0.01	0.33	300	1,797	279,951	0	0	1,797	0.04	458.01
7	105	1.75	0.3	0.053	0.521	0.045	0.01	0.33	300	2,097	279,977	0	0	2,097	0.05	458.01
8	120	2.00	0.4	0.071	0.515	0.060	0.01	0.44	399	2,496	280,010	0	0	2,496	0.06	458.01
9	135	2.25	0.4	0.071	0.508	0.060	0.01	0.44	399	2,896	280,044	0	0	2,896	0.07	458.01
10	150	2.50	0.4	0.071	0.502	0.060	0.01	0.44	399	3,295	280,078	0	0	3,295	0.08	458.01
11	165	2.75	0.5	0.088	0.496	0.075	0.01	0.55	499	3,795	280,120	0	0	3,795	0.09	458.01
12	180	3.00	0.5	0.088	0.490	0.075	0.01	0.55	499	4,294	280,162	0	0	4,294	0.10	458.01
13	195	3.25	0.5	0.088	0.484	0.075	0.01	0.55	499	4,793	280,204	0	0	4,793	0.11	458.02
14	210	3.50	0.5	0.088	0.478	0.075	0.01	0.55	499	5,293	280,246	0	0	5,293	0.12	458.02
15	225	3.75	0.5	0.088	0.472	0.075	0.01	0.55	499	5,792	280,288	0	0	5,792	0.13	458.02
16	240	4.00	0.6	0.106	0.466	0.090	0.02	0.67	599	6,391	280,338	0	0	6,391	0.15	458.02
17	255	4.25	0.6	0.106	0.460	0.090	0.02	0.67	599	6,990	280,389	0	0	6,990	0.16	458.02
18	270	4.50	0.7	0.123	0.454	0.105	0.02	0.78	699	7,689	280,448	0	0	7,689	0.18	458.03
19	285	4.75	0.7	0.123	0.448	0.105	0.02	0.78	699	8,388	280,507	0	0	8,388	0.19	458.03
20	300	5.00	0.8	0.141	0.443	0.120	0.02	0.89	799	9,187	280,574	0	0	9,187	0.21	458.03
21	315	5.25	0.6	0.106	0.437	0.090	0.02	0.67	599	9,786	280,625	0	0	9,786	0.22	458.03
22	330	5.50	0.7	0.123	0.431	0.105	0.02	0.78	699	10,485	280,683	0	0	10,485	0.24	458.04
23	345	5.75	0.8	0.141	0.426	0.120	0.02	0.89	799	11,284	280,751	0	0	11,284	0.26	458.04
24	360	6.00	0.8	0.141	0.420	0.120	0.02	0.89	799	12,083	280,818	0	0	12,083	0.28	458.04
25	375	6.25	0.9	0.159	0.414	0.135	0.02	1.00	899	12,982	280,894	0	0	12,982	0.30	458.04
26	390	6.50	0.9	0.159	0.409	0.135	0.02	1.00	899	13,880	280,970	0	0	13,880	0.32	458.05
27	405	6.75	1.0	0.176	0.403	0.150	0.03	1.11	999	14,879	281,054	0	0	14,879	0.34	458.05
28	420	7.00	1.0	0.176	0.398	0.150	0.03	1.11	999	15,878	281,138	0	0	15,878	0.36	458.05
29	435	7.25	1.0	0.176	0.392	0.150	0.03	1.11	999	16,876	281,222	0	0	16,876	0.39	458.06
30	450	7.50	1.1	0.194	0.387	0.165	0.03	1.22	1,098	17,975	281,315	0	0	17,975	0.41	458.06
31	465	7.75	1.2	0.212	0.382	0.180	0.03	1.33	1,198	19,173	281,415	0	0	19,173	0.44	458.07
32	480	8.00	1.3	0.229	0.377	0.195	0.03	1.44	1,298	20,471	281,525	0	0	20,471	0.47	458.07
33	495	8.25	1.5	0.265	0.371	0.225	0.04	1.66	1,498	21,969	281,651	0	0	21,969	0.50	458.08
34	510	8.50	1.5	0.265	0.366	0.225	0.04	1.66	1,498	23,467	281,777	0	0	23,467	0.54	458.08
35	525	8.75	1.6	0.282	0.361	0.240	0.04	1.78	1,598	25,064	281,912	0	0	25,064	0.58	458.09
36	540	9.00	1.7	0.300	0.356	0.255	0.04	1.89	1,698	26,762	282,055	0	0	26,762	0.61	458.09
37	555	9.25	1.9	0.335	0.351	0.285	0.05	2.11	1,897	28,659	282,215	0	0	28,659	0.66	458.10
38	570	9.50	2.0	0.353	0.346	0.300	0.01	0.29	260	28,919	282,237	0	0	28,919	0.66	458.10
39	585	9.75	2.1	0.370	0.341	0.315	0.03	1.24	1,112	30,031	282,330	0	0	30,031	0.69	458.10
40	600	10.00	2.2	0.388	0.336	0.330	0.05	2.18	1,963	31,994	282,496	0	0	31,994	0.73	458.11
41	615	10.25	1.5	0.265	0.331	0.225	0.04	1.66	1,498	33,492	282,622	0	0	33,492	0.77	458.11
42	630	10.50	1.5	0.265	0.326	0.225	0.04	1.66	1,498	34,989	282,748	0	0	34,989	0.80	458.12
43	645	10.75	2.0	0.353	0.322	0.300	0.03	1.31	1,175	36,164	282,847	0	0	36,164	0.83	458.12

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	41.59	VARIABLE LOSS RATE (AVG) IN/HR	
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.16
LAG TIME - MINUTES	4.78	C	0.00293
UNIT TIME-PERCENT OF LAG	314%	Low Loss Rate (percent)	85.00%
TOTAL ADJUSTED STORM RAIN (in)	4.41		

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.353	0.317	0.300	0.04	1.50	1,353	37,517	282,961	0	0	37,517	0.86	458.13
45	675	11.25	1.9	0.335	0.312	0.285	0.02	0.96	863	38,380	283,034	0	0	38,380	0.88	458.13
46	690	11.50	1.9	0.335	0.308	0.285	0.03	1.15	1,037	39,416	283,121	0	0	39,416	0.90	458.13
47	705	11.75	1.7	0.300	0.303	0.255	0.04	1.89	1,698	41,114	283,264	0	0	41,114	0.94	458.14
48	720	12.00	1.8	0.318	0.299	0.270	0.02	0.79	713	41,827	283,324	0	0	41,827	0.96	458.14
49	735	12.25	2.5	0.441	0.294	0.375	0.15	6.16	5,541	47,368	283,791	0	0	47,368	1.09	458.16
50	750	12.50	2.6	0.459	0.290	0.390	0.17	7.08	6,373	53,742	284,328	0	0	53,742	1.23	458.18
51	765	12.75	2.8	0.494	0.285	0.420	0.21	8.74	7,869	61,611	284,991	0	0	61,611	1.41	458.21
52	780	13.00	2.9	0.512	0.281	0.435	0.23	9.66	8,697	70,308	285,724	0	0	70,308	1.61	458.24
53	795	13.25	3.4	0.600	0.277	0.510	0.32	13.54	12,186	82,494	286,751	0	0	82,494	1.89	458.28
54	810	13.50	3.4	0.600	0.273	0.510	0.33	**13.72**	**12,345**	94,839	287,791	0	0	94,839	2.18	458.32
55	825	13.75	2.3	0.406	0.269	0.345	0.14	5.75	5,178	100,017	288,227	0	0	100,017	2.30	458.34
56	840	14.00	2.3	0.406	0.264	0.345	0.14	5.92	5,332	105,349	288,677	0	0	105,349	2.42	458.36
57	855	14.25	2.7	0.476	0.260	0.405	0.22	9.05	8,147	113,496	289,363	0	0	113,496	2.61	458.39
58	870	14.50	2.6	0.459	0.256	0.390	0.20	8.48	7,632	121,128	290,006	0	0	121,128	2.78	458.41
59	885	14.75	2.6	0.459	0.253	0.390	0.21	8.64	7,779	128,907	290,662	0	0	128,907	2.96	458.44
60	900	15.00	2.5	0.441	0.249	0.375	0.19	8.07	7,259	136,166	291,273	0	0	136,166	3.13	458.47
61	915	15.25	2.4	0.423	0.245	0.360	0.18	7.49	6,737	142,904	291,841	0	0	142,904	3.28	458.49
62	930	15.50	2.3	0.406	0.241	0.345	0.16	6.90	6,213	149,117	292,364	0	0	149,117	3.42	458.51
63	945	15.75	1.9	0.335	0.237	0.285	0.10	4.10	3,689	152,806	292,675	0	0	152,806	3.51	458.52
64	960	16.00	1.9	0.335	0.234	0.285	0.10	4.25	3,826	156,632	292,998	0	0	156,632	3.60	458.54
65	975	16.25	0.4	0.071	0.230	0.060	0.01	0.44	399	157,032	293,031	0	0	157,032	3.60	458.54
66	990	16.50	0.4	0.071	0.227	0.060	0.01	0.44	399	157,431	293,065	0	0	157,431	3.61	458.54
67	1005	16.75	0.3	0.053	0.223	0.045	0.01	0.33	300	157,731	293,090	0	0	157,731	3.62	458.54
68	1020	17.00	0.3	0.053	0.220	0.045	0.01	0.33	300	158,030	293,115	0	0	158,030	3.63	458.54
69	1035	17.25	0.5	0.088	0.217	0.075	0.01	0.55	499	158,530	293,158	0	0	158,530	3.64	458.54
70	1050	17.50	0.5	0.088	0.213	0.075	0.01	0.55	499	159,029	293,200	0	0	159,029	3.65	458.54
71	1065	17.75	0.5	0.088	0.210	0.075	0.01	0.55	499	159,528	293,242	0	0	159,528	3.66	458.55
72	1080	18.00	0.4	0.071	0.207	0.060	0.01	0.44	399	159,928	293,275	0	0	159,928	3.67	458.55
73	1095	18.25	0.4	0.071	0.204	0.060	0.01	0.44	399	160,327	293,309	0	0	160,327	3.68	458.55
74	1110	18.50	0.4	0.071	0.201	0.060	0.01	0.44	399	160,726	293,343	0	0	160,726	3.69	458.55
75	1125	18.75	0.3	0.053	0.198	0.045	0.01	0.33	300	161,026	293,368	0	0	161,026	3.70	458.55
76	1140	19.00	0.2	0.035	0.195	0.030	0.01	0.22	200	161,226	293,385	0	0	161,226	3.70	458.55
77	1155	19.25	0.3	0.053	0.193	0.045	0.01	0.33	300	161,525	293,410	0	0	161,525	3.71	458.55
78	1170	19.50	0.4	0.071	0.190	0.060	0.01	0.44	399	161,925	293,444	0	0	161,925	3.72	458.55
79	1185	19.75	0.3	0.053	0.187	0.045	0.01	0.33	300	162,224	293,469	0	0	162,224	3.72	458.56
80	1200	20.00	0.2	0.035	0.185	0.030	0.01	0.22	200	162,424	293,486	0	0	162,424	3.73	458.56
81	1215	20.25	0.3	0.053	0.182	0.045	0.01	0.33	300	162,724	293,511	0	0	162,724	3.74	458.56
82	1230	20.50	0.3	0.053	0.180	0.045	0.01	0.33	300	163,023	293,536	0	0	163,023	3.74	458.56
83	1245	20.75	0.3	0.053	0.178	0.045	0.01	0.33	300	163,323	293,561	0	0	163,323	3.75	458.56
84	1260	21.00	0.2	0.035	0.176	0.030	0.01	0.22	200	163,523	293,578	0	0	163,523	3.75	458.56
85	1275	21.25	0.3	0.053	0.173	0.045	0.01	0.33	300	163,822	293,603	0	0	163,822	3.76	458.56
86	1290	21.50	0.2	0.035	0.171	0.030	0.01	0.22	200	164,022	293,620	0	0	164,022	3.77	458.56

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	41.59	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.16		
LAG TIME - MINUTES	4.78	C	0.00293	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	314%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.170	0.045	0.01	0.33	300	164,321	293,646	0	0	164,321	3.77	458.56
88	1320	22.00	0.2	0.035	0.168	0.030	0.01	0.22	200	164,521	293,662	0	0	164,521	3.78	458.56
89	1335	22.25	0.3	0.053	0.166	0.045	0.01	0.33	300	164,821	293,688	0	0	164,821	3.78	458.56
90	1350	22.50	0.2	0.035	0.165	0.030	0.01	0.22	200	165,020	293,704	0	0	165,020	3.79	458.57
91	1365	22.75	0.2	0.035	0.163	0.030	0.01	0.22	200	165,220	293,721	0	0	165,220	3.79	458.57
92	1380	23.00	0.2	0.035	0.162	0.030	0.01	0.22	200	165,420	293,738	0	0	165,420	3.80	458.57
93	1395	23.25	0.2	0.035	0.161	0.030	0.01	0.22	200	165,620	293,755	0	0	165,620	3.80	458.57
94	1410	23.50	0.2	0.035	0.160	0.030	0.01	0.22	200	165,819	293,772	0	0	165,819	3.81	458.57
95	1425	23.75	0.2	0.035	0.159	0.030	0.01	0.22	200	166,019	293,789	0	0	166,019	3.81	458.57
96	1440	24.00	0.2	0.035	0.158	0.030	0.01	0.22	200	166,219	293,805	0	0	**166,219**	**3.82**	**458.57**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	665,724 cu-ft
SOIL LOSSES	499,505 cu-ft
EFFECTIVE RAIN	1.10 in
FLOOD VOLUME	3.82 acft
FLOOD VOLUME	166,219 cu-ft
REQUIRED STORAGE	3.82 acft
REQUIRED STORAGE	166,219 cu-ft
MAX WSEL	458.57 ft
PEAK FLOW RATE	13.72 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN B

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
458	0	0		279,800	0	0	0.00
459	1	1	24,605	304,405	292,016	292,016	6.70

WHERE:

$$V = \frac{1}{3}\left(E_1 - E_2\right)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	January 26, 2021
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN F
AREA DESIGNATION	DA-C & DA-F
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	1.455	D	56	0.51	1.00
5	B	SF - MEDIUM DENSITY	4.092	D	56	0.51	0.40
6	B	SF - HIGH DENSITY	2.159	D	56	0.51	0.50
9	B	LANDSCAPING	2.485	D	56	0.51	0.10
2	B	PAVING/HARDSCAPE	0.353	D	56	0.51	1.00
4	B	SF - LOW DENSITY	42.760	D	56	0.51	0.30
9	B	LANDSCAPING	1.698	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,350 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	675 ft
ELEVATION OF HEADWATER	464.0 ft
ELEVATION OF CONCENTRATION POINT	455.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
451.0 ft	65,060 sf
452.0 ft	71,195 sf
453.0 ft	77,490 sf
454.0 ft	83,940 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN F
[2] AREA DESIGNATION	DA-C & DA-F
[3] AREA - ACRES	55.002
[4] L-FEET	1350
[5] L-MILES	0.256
[6] La-FEET	675.00
[7] La-MILES	0.128
[8] ELEVATION OF HEADWATER	464
[9] ELEVATION OF CONCENTRATION POINT	455
[10] H-FEET	9
[11] S-FEET/MILE	35.2
[12] S^0.5	5.93
[13] L*LCA/S^0.5	0.006
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.07
[16] LAG TIME-MINUTES	4.0
[17] 100% OF LAG-MINUTES	4.0
[18] 200% OF LAG-MINUTES	8.0

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	287,508	427,268	551,056	**880,492**
SOIL LOSSES	(cu-ft)	72,217	208,194	331,366	**683,384**
EFFECTIVE RAIN	(in)	1.08	1.10	1.10	0.99
FLOOD VOLUME	(cu-ft)	215,291	219,074	**219,690**	197,108
	(acre-ft)	4.94	5.03	**5.04**	4.52
REQUIRED STORAGE	(cu-ft)	**209,295**	201,651	186,456	112,227
	(acre-ft)	**4.80**	4.63	4.28	2.58
FACTOR OF SAFETY		1.07	1.11	1.20	1.99
STORAGE PROVIDED	(cu-ft)	223,118			
	(acre-ft)	5.12			
PEAK FLOW	(cfs)	n/a	96.73	82.80	15.99
MAXIMUM WSEL	(ft)	**453.83**	453.73	453.55	452.59
DEPTH	(ft)	**2.83**	2.73	2.55	1.59
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	1.5	1.6	1.6	1.6

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	1.455	0.026	0.0013	DEVELOPED	0.1000	0.0026
B	SF - MEDIUM DENSITY	56	0.51	40%	0.33	4.092	0.074	0.0243	DEVELOPED	0.5800	0.0432
B	SF - HIGH DENSITY	56	0.51	50%	0.28	2.159	0.039	0.0110	DEVELOPED	0.5000	0.0196
B	LANDSCAPING	56	0.51	10%	0.46	2.485	0.045	0.0210	DEVELOPED	0.8200	0.0370
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.353	0.006	0.0003	DEVELOPED	0.1000	0.0006
B	SF - LOW DENSITY	56	0.51	30%	0.37	42.760	0.777	0.2894	DEVELOPED	0.6600	0.5131
B	LANDSCAPING	56	0.51	10%	0.46	1.698	0.031	0.0143	DEVELOPED	0.8200	0.0253
					SUM	55.002	SUM	0.3617			0.6415

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.180850829

C= 0.00335

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00335 (24-(T/60))^1.55 + 0.18 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.3617**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	55.00
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.36
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.36	0.53	0.26	14.44	4,332	4,332	65,450	455	455	3,878	0.09	451.06
2	10	0.17	4.2	0.73	0.36	0.62	0.36	20.19	6,057	9,935	65,955	458	458	9,477	0.22	451.14
3	15	0.25	4.4	0.76	0.36	0.65	0.40	22.11	6,632	16,109	66,511	462	462	15,647	0.36	451.23
4	20	0.33	4.6	0.79	0.36	0.68	0.43	24.02	7,207	22,855	67,119	466	466	22,389	0.51	451.33
5	25	0.42	5.0	0.86	0.36	0.73	0.50	27.86	8,357	30,746	67,830	471	471	30,275	0.70	451.44
6	30	0.50	5.6	0.97	0.36	0.82	0.61	33.61	10,082	40,357	68,695	477	477	39,880	0.92	451.59
7	35	0.58	6.4	1.11	0.36	0.94	0.74	41.27	12,382	52,263	69,768	484	484	51,778	1.19	451.76
8	40	0.67	8.1	1.40	0.36	1.19	1.04	57.57	17,270	69,048	71,275	495	495	68,553	1.57	452.01
9	45	0.75	13.1	2.26	0.36	1.92	1.90	105.48	31,645	100,199	73,913	513	513	99,685	2.29	452.42
10	50	0.83	34.5	5.96	0.36	5.07	5.60	**310.57**	**93,172**	192,857	81,521	566	566	192,291	4.41	453.62
11	55	0.92	6.7	1.16	0.36	0.98	0.80	44.15	13,245	205,536	82,535	573	573	204,963	4.71	453.78
12	60	1.00	3.8	0.66	0.36	0.56	0.29	16.36	4,907	209,870	82,881	576	576	**209,295**	**4.80**	**453.83**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	287,508 cu-ft
SOIL LOSSES	72,217 cu-ft
EFFECTIVE RAIN	1.08 in
FLOOD VOLUME	4.94 acft
FLOOD VOLUME	215,291 cu-ft
REQUIRED STORAGE	4.80
REQUIRED STORAGE	209,295 cu-ft
MAX WSEL	453.83 ft
PEAK FLOW RATE	310.57 cfs
TOTAL BASIN LOSSES	5,996 cu-ft
AVERAGE PERCOLATION RATE	99.94 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	55.00
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.36
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation	Maximum	Percolation			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	Area sf	Percolation cu-ft	Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.36	0.28	0.05	2.78	833	833	65,135	452	452	381	0.01	451.01
2	10	0.17	1.3	0.33	0.36	0.28	0.05	2.78	833	1,214	65,169	453	453	761	0.02	451.01
3	15	0.25	1.1	0.28	0.36	0.24	0.04	2.35	705	1,466	65,192	453	453	1,014	0.02	451.01
4	20	0.33	1.5	0.39	0.36	0.33	0.02	1.30	391	1,405	65,187	453	453	952	0.02	451.01
5	25	0.42	1.5	0.39	0.36	0.33	0.02	1.30	391	1,343	65,181	453	453	890	0.02	451.01
6	30	0.50	1.8	0.46	0.36	0.39	0.10	5.58	1,673	2,563	65,291	453	453	2,110	0.05	451.03
7	35	0.58	1.5	0.39	0.36	0.33	0.02	1.30	391	2,501	65,285	453	453	2,047	0.05	451.03
8	40	0.67	1.8	0.46	0.36	0.39	0.10	5.58	1,673	3,720	65,395	454	454	3,266	0.07	451.05
9	45	0.75	1.8	0.46	0.36	0.39	0.10	5.58	1,673	4,939	65,505	455	455	4,484	0.10	451.07
10	50	0.83	1.5	0.39	0.36	0.33	0.02	1.30	391	4,875	65,499	455	455	4,420	0.10	451.06
11	55	0.92	1.6	0.41	0.36	0.35	0.05	2.73	818	5,238	65,532	455	455	4,783	0.11	451.07
12	60	1.00	1.8	0.46	0.36	0.39	0.10	5.58	1,673	6,456	65,642	456	456	6,000	0.14	451.09
13	65	1.08	2.2	0.56	0.36	0.48	0.20	11.27	3,382	9,382	65,905	458	458	8,924	0.20	451.13
14	70	1.17	2.2	0.56	0.36	0.48	0.20	11.27	3,382	12,306	66,169	460	460	11,847	0.27	451.17
15	75	1.25	2.2	0.56	0.36	0.48	0.20	11.27	3,382	15,228	66,432	461	461	14,767	0.34	451.22
16	80	1.33	2.0	0.51	0.36	0.44	0.15	8.42	2,527	17,294	66,618	463	463	16,832	0.39	451.25
17	85	1.42	2.6	0.67	0.36	0.57	0.31	16.97	5,091	21,923	67,035	466	466	21,457	0.49	451.32
18	90	1.50	2.7	0.69	0.36	0.59	0.33	18.39	5,518	26,975	67,490	469	469	26,507	0.61	451.39
19	95	1.58	2.4	0.62	0.36	0.52	0.25	14.12	4,236	30,743	67,829	471	471	30,272	0.69	451.44
20	100	1.67	2.7	0.69	0.36	0.59	0.33	18.39	5,518	35,790	68,284	474	474	35,316	0.81	451.52
21	105	1.75	3.3	0.85	0.36	0.72	0.49	26.94	8,082	43,398	68,969	479	479	42,919	0.99	451.63
22	110	1.83	3.1	0.80	0.36	0.68	0.43	24.09	7,227	50,146	69,577	483	483	49,663	1.14	451.73
23	115	1.92	2.9	0.74	0.36	0.63	0.38	21.24	6,373	56,036	70,108	487	487	55,549	1.28	451.82
24	120	2.00	3.0	0.77	0.36	0.65	0.41	22.67	6,800	62,349	70,677	491	491	61,858	1.42	451.91
25	125	2.08	3.1	0.80	0.36	0.68	0.43	24.09	7,227	69,085	71,278	495	495	68,590	1.57	452.01

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	55.00
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.36
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
26	130	2.17	4.2	1.08	0.36	0.92	0.72	39.76	11,927	80,517	72,246	502	502	80,016	1.84	452.16
27	135	2.25	5.0	1.28	0.36	1.09	0.92	51.15	15,345	95,361	73,504	510	510	94,851	2.18	452.36
28	140	2.33	3.5	0.90	0.36	0.76	0.54	29.79	8,936	103,787	74,217	515	515	103,272	2.37	452.47
29	145	2.42	6.8	1.75	0.36	1.48	1.38	76.79	23,036	126,308	76,125	529	529	125,779	2.89	452.78
30	150	2.50	7.3	1.87	0.36	1.59	1.51	83.91	25,173	150,952	78,172	543	543	150,409	3.45	453.10
31	155	2.58	8.2	2.11	0.36	1.79	1.74	**96.73**	**29,018**	179,427	80,448	559	559	178,868	4.11	453.45
32	160	2.67	5.9	1.52	0.36	1.29	1.15	63.97	19,191	198,059	81,937	569	569	197,490	4.53	453.68
33	165	2.75	2.0	0.51	0.36	0.44	0.15	8.42	2,527	200,017	82,093	570	570	199,447	4.58	453.71
34	170	2.83	1.8	0.46	0.36	0.39	0.10	5.58	1,673	201,120	82,182	571	571	200,549	4.60	453.72
35	175	2.92	1.8	0.46	0.36	0.39	0.10	5.58	1,673	202,222	82,270	571	571	**201,651**	**4.63**	**453.73**
36	180	3.00	0.6	0.15	0.36	0.13	0.02	1.28	385	202,035	82,255	571	571	201,464	4.62	453.73

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	427,268 cu-ft
SOIL LOSSES	208,194 cu-ft
EFFECTIVE RAIN	1.10 in
FLOOD VOLUME	5.03 acft
FLOOD VOLUME	219,074 cu-ft
REQUIRED STORAGE	4.63 acft
REQUIRED STORAGE	201,651 cu-ft
MAX WSEL	453.73 ft
PEAK FLOW RATE	96.73 cfs
TOTAL BASIN LOSSES	17,610 cu-ft
AVERAGE PERCOLATION RATE	97.83 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	55.00
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.36
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.36	0.14	0.02	1.38	413	413	65,097	452	413	0	0.00	451.00
2	10	0.17	0.6	0.20	0.36	0.17	0.03	1.65	496	496	65,105	452	452	44	0.00	451.00
3	15	0.25	0.6	0.20	0.36	0.17	0.03	1.65	496	540	65,109	452	452	88	0.00	451.00
4	20	0.33	0.6	0.20	0.36	0.17	0.03	1.65	496	584	65,113	452	452	131	0.00	451.00
5	25	0.42	0.6	0.20	0.36	0.17	0.03	1.65	496	627	65,117	452	452	175	0.00	451.00
6	30	0.50	0.7	0.23	0.36	0.20	0.03	1.93	579	754	65,128	452	452	302	0.01	451.00
7	35	0.58	0.7	0.23	0.36	0.20	0.03	1.93	579	880	65,139	452	452	428	0.01	451.01
8	40	0.67	0.7	0.23	0.36	0.20	0.03	1.93	579	1,006	65,151	452	452	554	0.01	451.01
9	45	0.75	0.7	0.23	0.36	0.20	0.03	1.93	579	1,133	65,162	453	453	680	0.02	451.01
10	50	0.83	0.7	0.23	0.36	0.20	0.03	1.93	579	1,259	65,173	453	453	806	0.02	451.01
11	55	0.92	0.7	0.23	0.36	0.20	0.03	1.93	579	1,385	65,185	453	453	932	0.02	451.01
12	60	1.00	0.8	0.26	0.36	0.23	0.04	2.20	661	1,593	65,204	453	453	1,140	0.03	451.02
13	65	1.08	0.8	0.26	0.36	0.23	0.04	2.20	661	1,802	65,222	453	453	1,349	0.03	451.02
14	70	1.17	0.8	0.26	0.36	0.23	0.04	2.20	661	2,010	65,241	453	453	1,557	0.04	451.02
15	75	1.25	0.8	0.26	0.36	0.23	0.04	2.20	661	2,218	65,260	453	453	1,765	0.04	451.03
16	80	1.33	0.8	0.26	0.36	0.23	0.04	2.20	661	2,426	65,279	453	453	1,973	0.05	451.03
17	85	1.42	0.8	0.26	0.36	0.23	0.04	2.20	661	2,634	65,297	453	453	2,181	0.05	451.03
18	90	1.50	0.8	0.26	0.36	0.23	0.04	2.20	661	2,842	65,316	454	454	2,389	0.05	451.04
19	95	1.58	0.8	0.26	0.36	0.23	0.04	2.20	661	3,050	65,335	454	454	2,596	0.06	451.04
20	100	1.67	0.8	0.26	0.36	0.23	0.04	2.20	661	3,257	65,353	454	454	2,803	0.06	451.04
21	105	1.75	0.8	0.26	0.36	0.23	0.04	2.20	661	3,465	65,372	454	454	3,011	0.07	451.04
22	110	1.83	0.8	0.26	0.36	0.23	0.04	2.20	661	3,672	65,391	454	454	3,218	0.07	451.05
23	115	1.92	0.8	0.26	0.36	0.23	0.04	2.20	661	3,879	65,409	454	454	3,425	0.08	451.05
24	120	2.00	0.9	0.30	0.36	0.25	0.04	2.48	744	4,169	65,436	454	454	3,714	0.09	451.05

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	55.00
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.36
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
25	125	2.08	0.8	0.26	0.36	0.23	0.04	2.20	661	4,376	65,454	455	455	3,921	0.09	451.06
26	130	2.17	0.9	0.30	0.36	0.25	0.04	2.48	744	4,665	65,480	455	455	4,210	0.10	451.06
27	135	2.25	0.9	0.30	0.36	0.25	0.04	2.48	744	4,954	65,506	455	455	4,499	0.10	451.07
28	140	2.33	0.9	0.30	0.36	0.25	0.04	2.48	744	5,243	65,532	455	455	4,788	0.11	451.07
29	145	2.42	0.9	0.30	0.36	0.25	0.04	2.48	744	5,532	65,558	455	455	5,077	0.12	451.07
30	150	2.50	0.9	0.30	0.36	0.25	0.04	2.48	744	5,821	65,584	455	455	5,365	0.12	451.08
31	155	2.58	0.9	0.30	0.36	0.25	0.04	2.48	744	6,109	65,610	456	456	5,654	0.13	451.08
32	160	2.67	0.9	0.30	0.36	0.25	0.04	2.48	744	6,398	65,636	456	456	5,942	0.14	451.09
33	165	2.75	1.0	0.33	0.36	0.28	0.05	2.76	827	6,768	65,670	456	456	6,312	0.14	451.09
34	170	2.83	1.0	0.33	0.36	0.28	0.05	2.76	827	7,139	65,703	456	456	6,683	0.15	451.10
35	175	2.92	1.0	0.33	0.36	0.28	0.05	2.76	827	7,509	65,736	457	457	7,053	0.16	451.10
36	180	3.00	1.0	0.33	0.36	0.28	0.05	2.76	827	7,879	65,770	457	457	7,423	0.17	451.11
37	185	3.08	1.0	0.33	0.36	0.28	0.05	2.76	827	8,249	65,803	457	457	7,792	0.18	451.11
38	190	3.17	1.1	0.36	0.36	0.31	0.00	0.15	44	7,836	65,766	457	457	7,379	0.17	451.11
39	195	3.25	1.1	0.36	0.36	0.31	0.00	0.15	44	7,423	65,729	456	456	6,966	0.16	451.10
40	200	3.33	1.1	0.36	0.36	0.31	0.00	0.15	44	7,010	65,691	456	456	6,554	0.15	451.10
41	205	3.42	1.2	0.40	0.36	0.34	0.04	1.98	595	7,148	65,704	456	456	6,692	0.15	451.10
42	210	3.50	1.3	0.43	0.36	0.37	0.07	3.82	1,146	7,838	65,766	457	457	7,381	0.17	451.11
43	215	3.58	1.4	0.46	0.36	0.39	0.10	5.66	1,697	9,078	65,878	457	457	8,620	0.20	451.13
44	220	3.67	1.4	0.46	0.36	0.39	0.10	5.66	1,697	10,317	65,989	458	458	9,859	0.23	451.14
45	225	3.75	1.5	0.50	0.36	0.42	0.14	7.49	2,248	12,106	66,151	459	459	11,647	0.27	451.17
46	230	3.83	1.5	0.50	0.36	0.42	0.14	7.49	2,248	13,895	66,312	460	460	13,434	0.31	451.20
47	235	3.92	1.6	0.53	0.36	0.45	0.17	9.33	2,799	16,233	66,522	462	462	15,771	0.36	451.23
48	240	4.00	1.6	0.53	0.36	0.45	0.17	9.33	2,799	18,570	66,733	463	463	18,107	0.42	451.27
49	245	4.08	1.7	0.56	0.36	0.48	0.20	11.17	3,350	21,457	66,993	465	465	20,991	0.48	451.31
50	250	4.17	1.8	0.60	0.36	0.51	0.23	13.00	3,901	24,892	67,302	467	467	24,425	0.56	451.36

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	55.00
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.36
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.36	0.53	0.27	14.84	4,452	28,877	67,661	470	470	28,407	0.65	451.42
52	260	4.33	2.0	0.66	0.36	0.56	0.30	16.68	5,003	33,410	68,070	473	473	32,937	0.76	451.48
53	265	4.42	2.1	0.70	0.36	0.59	0.33	18.51	5,554	38,492	68,527	476	476	38,016	0.87	451.56
54	270	4.50	2.1	0.70	0.36	0.59	0.33	18.51	5,554	43,570	68,985	479	479	43,091	0.99	451.63
55	275	4.58	2.2	0.73	0.36	0.62	0.37	20.35	6,105	49,196	69,492	483	483	48,713	1.12	451.72
56	280	4.67	2.3	0.76	0.36	0.65	0.40	22.19	6,656	55,370	70,048	486	486	54,883	1.26	451.81
57	285	4.75	2.4	0.79	0.36	0.68	0.43	24.02	7,207	62,090	70,653	491	491	61,600	1.41	451.90
58	290	4.83	2.4	0.79	0.36	0.68	0.43	24.02	7,207	68,807	71,255	495	495	68,312	1.57	452.00
59	295	4.92	2.5	0.83	0.36	0.70	0.47	25.86	7,758	76,071	71,870	499	499	75,571	1.73	452.10
60	300	5.00	2.6	0.86	0.36	0.73	0.50	27.70	8,309	83,881	72,531	504	504	83,377	1.91	452.21
61	305	5.08	3.1	1.03	0.36	0.87	0.67	36.88	11,065	94,442	73,426	510	510	93,932	2.16	452.35
62	310	5.17	3.6	1.19	0.36	1.01	0.83	46.07	13,820	107,752	74,553	518	518	107,234	2.46	452.53
63	315	5.25	3.9	1.29	0.36	1.10	0.93	51.58	15,473	122,707	75,820	527	527	122,181	2.80	452.73
64	320	5.33	4.2	1.39	0.36	1.18	1.03	57.09	17,126	139,307	77,226	536	536	138,771	3.19	452.95
65	325	5.42	4.7	1.56	0.36	1.32	1.19	66.27	19,882	158,652	78,787	547	547	158,105	3.63	453.19
66	330	5.50	5.6	1.85	0.36	1.58	1.49	**82.80**	**24,841**	182,946	80,729	561	561	182,386	4.19	453.50
67	335	5.58	1.9	0.63	0.36	0.53	0.27	14.84	4,452	186,838	81,040	563	563	186,275	4.28	453.54
68	340	5.67	0.9	0.30	0.36	0.25	0.04	2.48	744	187,019	81,055	563	563	**186,456**	**4.28**	**453.55**
69	345	5.75	0.6	0.20	0.36	0.17	0.03	1.65	496	186,952	81,049	563	563	186,389	4.28	453.54
70	350	5.83	0.5	0.17	0.36	0.14	0.02	1.38	413	186,802	81,037	563	563	186,240	4.28	453.54
71	355	5.92	0.3	0.10	0.36	0.08	0.01	0.83	248	186,488	81,012	563	563	185,925	4.27	453.54
72	360	6.00	0.2	0.07	0.36	0.06	0.01	0.55	165	186,090	80,980	562	562	185,528	4.26	453.53

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	551,056 cu-ft
SOIL LOSSES	331,366 cu-ft
EFFECTIVE RAIN	1.10 in
FLOOD VOLUME	5.04 acft
FLOOD VOLUME	219,690 cu-ft
REQUIRED STORAGE	4.28 acft
REQUIRED STORAGE	186,456 cu-ft
MAX WSEL	453.55 ft
PEAK FLOW RATE	82.80 cfs
TOTAL BASIN LOSSES	34,162 cu-ft
AVERAGE PERCOLATION RATE	94.90 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	55.00	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.18		
LAG TIME - MINUTES	3.99	C	0.00335	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.639	0.030	0.01	0.29	264	264	65,084	1,356	264	0	0.00	451.00
2	30	0.50	0.3	0.053	0.631	0.045	0.01	0.44	396	396	65,096	1,356	396	0	0.00	451.00
3	45	0.75	0.3	0.053	0.624	0.045	0.01	0.44	396	396	65,096	1,356	396	0	0.00	451.00
4	60	1.00	0.4	0.071	0.617	0.060	0.01	0.59	528	528	65,108	1,356	528	0	0.00	451.00
5	75	1.25	0.3	0.053	0.609	0.045	0.01	0.44	396	396	65,096	1,356	396	0	0.00	451.00
6	90	1.50	0.3	0.053	0.602	0.045	0.01	0.44	396	396	65,096	1,356	396	0	0.00	451.00
7	105	1.75	0.3	0.053	0.595	0.045	0.01	0.44	396	396	65,096	1,356	396	0	0.00	451.00
8	120	2.00	0.4	0.071	0.588	0.060	0.01	0.59	528	528	65,108	1,356	528	0	0.00	451.00
9	135	2.25	0.4	0.071	0.581	0.060	0.01	0.59	528	528	65,108	1,356	528	0	0.00	451.00
10	150	2.50	0.4	0.071	0.574	0.060	0.01	0.59	528	528	65,108	1,356	528	0	0.00	451.00
11	165	2.75	0.5	0.088	0.567	0.075	0.01	0.73	660	660	65,119	1,357	660	0	0.00	451.00
12	180	3.00	0.5	0.088	0.560	0.075	0.01	0.73	660	660	65,119	1,357	660	0	0.00	451.00
13	195	3.25	0.5	0.088	0.553	0.075	0.01	0.73	660	660	65,119	1,357	660	0	0.00	451.00
14	210	3.50	0.5	0.088	0.546	0.075	0.01	0.73	660	660	65,119	1,357	660	0	0.00	451.00
15	225	3.75	0.5	0.088	0.539	0.075	0.01	0.73	660	660	65,119	1,357	660	0	0.00	451.00
16	240	4.00	0.6	0.106	0.532	0.090	0.02	0.88	792	792	65,131	1,357	792	0	0.00	451.00
17	255	4.25	0.6	0.106	0.525	0.090	0.02	0.88	792	792	65,131	1,357	792	0	0.00	451.00
18	270	4.50	0.7	0.123	0.519	0.105	0.02	1.03	925	925	65,143	1,357	925	0	0.00	451.00
19	285	4.75	0.7	0.123	0.512	0.105	0.02	1.03	925	925	65,143	1,357	925	0	0.00	451.00
20	300	5.00	0.8	0.141	0.505	0.120	0.02	1.17	1,057	1,057	65,155	1,357	1,057	0	0.00	451.00
21	315	5.25	0.6	0.106	0.499	0.090	0.02	0.88	792	792	65,131	1,357	792	0	0.00	451.00
22	330	5.50	0.7	0.123	0.492	0.105	0.02	1.03	925	925	65,143	1,357	925	0	0.00	451.00
23	345	5.75	0.8	0.141	0.486	0.120	0.02	1.17	1,057	1,057	65,155	1,357	1,057	0	0.00	451.00
24	360	6.00	0.8	0.141	0.480	0.120	0.02	1.17	1,057	1,057	65,155	1,357	1,057	0	0.00	451.00
25	375	6.25	0.9	0.159	0.473	0.135	0.02	1.32	1,189	1,189	65,167	1,358	1,189	0	0.00	451.00
26	390	6.50	0.9	0.159	0.467	0.135	0.02	1.32	1,189	1,189	65,167	1,358	1,189	0	0.00	451.00
27	405	6.75	1.0	0.176	0.461	0.150	0.03	1.47	1,321	1,321	65,179	1,358	1,321	0	0.00	451.00
28	420	7.00	1.0	0.176	0.454	0.150	0.03	1.47	1,321	1,321	65,179	1,358	1,321	0	0.00	451.00
29	435	7.25	1.0	0.176	0.448	0.150	0.03	1.47	1,321	1,321	65,179	1,358	1,321	0	0.00	451.00
30	450	7.50	1.1	0.194	0.442	0.165	0.03	1.61	1,453	1,453	65,191	1,358	1,358	95	0.00	451.00
31	465	7.75	1.2	0.212	0.436	0.180	0.03	1.76	1,585	1,680	65,211	1,359	1,359	321	0.01	451.00
32	480	8.00	1.3	0.229	0.430	0.195	0.03	1.91	1,717	2,038	65,244	1,359	1,359	679	0.02	451.01
33	495	8.25	1.5	0.265	0.424	0.225	0.04	2.20	1,981	2,660	65,300	1,360	1,360	1,299	0.03	451.02
34	510	8.50	1.5	0.265	0.418	0.225	0.04	2.20	1,981	3,281	65,356	1,362	1,362	1,919	0.04	451.03
35	525	8.75	1.6	0.282	0.412	0.240	0.04	2.35	2,113	4,032	65,423	1,363	1,363	2,669	0.06	451.04
36	540	9.00	1.7	0.300	0.407	0.255	0.04	2.49	2,245	4,914	65,503	1,365	1,365	3,550	0.08	451.05
37	555	9.25	1.9	0.335	0.401	0.285	0.05	2.79	2,509	6,059	65,606	1,367	1,367	4,692	0.11	451.07
38	570	9.50	2.0	0.353	0.395	0.300	0.05	2.93	2,641	7,334	65,721	1,369	1,369	5,965	0.14	451.09
39	585	9.75	2.1	0.370	0.389	0.315	0.06	3.08	2,774	8,738	65,847	1,372	1,372	7,366	0.17	451.11
40	600	10.00	2.2	0.388	0.384	0.330	0.00	0.24	213	7,580	65,743	1,370	1,370	6,210	0.14	451.09
41	615	10.25	1.5	0.265	0.378	0.225	0.04	2.20	1,981	8,191	65,798	1,371	1,371	6,820	0.16	451.10
42	630	10.50	1.5	0.265	0.373	0.225	0.04	2.20	1,981	8,801	65,853	1,372	1,372	7,429	0.17	451.11
43	645	10.75	2.0	0.353	0.367	0.300	0.05	2.93	2,641	10,071	65,967	1,374	1,374	8,697	0.20	451.13

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	55.00	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.18		
LAG TIME - MINUTES	3.99	C	0.00335	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.353	0.362	0.300	0.05	2.93	2,641	11,338	66,081	1,377	1,377	9,961	0.23	451.15
45	675	11.25	1.9	0.335	0.357	0.285	0.05	2.79	2,509	12,471	66,183	1,379	1,379	11,092	0.25	451.16
46	690	11.50	1.9	0.335	0.351	0.285	0.05	2.79	2,509	13,601	66,285	1,381	1,381	12,220	0.28	451.18
47	705	11.75	1.7	0.300	0.346	0.255	0.04	2.49	2,245	14,466	66,363	1,383	1,383	13,083	0.30	451.19
48	720	12.00	1.8	0.318	0.341	0.270	0.05	2.64	2,377	15,460	66,453	1,384	1,384	14,076	0.32	451.21
49	735	12.25	2.5	0.441	0.336	0.375	0.11	5.83	5,244	19,319	66,800	1,392	1,392	17,928	0.41	451.26
50	750	12.50	2.6	0.459	0.331	0.390	0.13	7.08	6,375	24,303	67,249	1,401	1,401	22,902	0.53	451.34
51	765	12.75	2.8	0.494	0.326	0.420	0.17	9.32	8,384	31,286	67,878	1,414	1,414	29,872	0.69	451.44
52	780	13.00	2.9	0.512	0.321	0.435	0.19	10.57	9,510	39,382	68,608	1,429	1,429	37,953	0.87	451.56
53	795	13.25	3.4	0.600	0.316	0.510	0.28	15.73	14,155	52,108	69,754	1,453	1,453	50,654	1.16	451.74
54	810	13.50	3.4	0.600	0.311	0.510	0.29	**15.99**	**14,394**	65,048	70,920	1,477	1,477	63,571	1.46	451.93
55	825	13.75	2.3	0.406	0.307	0.345	0.10	5.49	4,945	68,515	71,230	1,484	1,484	67,032	1.54	451.98
56	840	14.00	2.3	0.406	0.302	0.345	0.10	5.75	5,178	72,209	71,543	1,490	1,490	70,719	1.62	452.04
57	855	14.25	2.7	0.476	0.297	0.405	0.18	9.92	8,929	79,648	72,173	1,504	1,504	78,144	1.79	452.14
58	870	14.50	2.6	0.459	0.293	0.390	0.17	9.20	8,276	86,420	72,746	1,516	1,516	84,904	1.95	452.23
59	885	14.75	2.6	0.459	0.288	0.390	0.17	9.44	8,499	93,403	73,338	1,528	1,528	91,876	2.11	452.32
60	900	15.00	2.5	0.441	0.284	0.375	0.16	8.71	7,839	99,714	73,872	1,539	1,539	98,175	2.25	452.40
61	915	15.25	2.4	0.423	0.280	0.360	0.14	7.97	7,175	105,350	74,350	1,549	1,549	103,801	2.38	452.48
62	930	15.50	2.3	0.406	0.275	0.345	0.13	7.23	6,508	110,309	74,770	1,558	1,558	108,752	2.50	452.55
63	945	15.75	1.9	0.335	0.271	0.285	0.06	3.55	3,196	111,948	74,909	1,561	1,561	110,388	2.53	452.57
64	960	16.00	1.9	0.335	0.267	0.285	0.07	3.78	3,403	113,791	75,065	1,564	1,564	**112,227**	**2.58**	**452.59**
65	975	16.25	0.4	0.071	0.263	0.060	0.01	0.59	528	112,755	74,977	1,562	1,562	111,193	2.55	452.58
66	990	16.50	0.4	0.071	0.259	0.060	0.01	0.59	528	111,721	74,889	1,560	1,560	110,161	2.53	452.57
67	1005	16.75	0.3	0.053	0.255	0.045	0.01	0.44	396	110,557	74,791	1,558	1,558	108,999	2.50	452.55
68	1020	17.00	0.3	0.053	0.251	0.045	0.01	0.44	396	109,396	74,692	1,556	1,556	107,839	2.48	452.53
69	1035	17.25	0.5	0.088	0.247	0.075	0.01	0.73	660	108,500	74,617	1,555	1,555	106,945	2.46	452.52
70	1050	17.50	0.5	0.088	0.244	0.075	0.01	0.73	660	107,606	74,541	1,553	1,553	106,053	2.43	452.51
71	1065	17.75	0.5	0.088	0.240	0.075	0.01	0.73	660	106,713	74,465	1,551	1,551	105,162	2.41	452.50
72	1080	18.00	0.4	0.071	0.236	0.060	0.01	0.59	528	105,690	74,379	1,550	1,550	104,141	2.39	452.48
73	1095	18.25	0.4	0.071	0.233	0.060	0.01	0.59	528	104,669	74,292	1,548	1,548	103,121	2.37	452.47
74	1110	18.50	0.4	0.071	0.230	0.060	0.01	0.59	528	103,649	74,206	1,546	1,546	102,103	2.34	452.46
75	1125	18.75	0.3	0.053	0.226	0.045	0.01	0.44	396	102,500	74,108	1,544	1,544	100,956	2.32	452.44
76	1140	19.00	0.2	0.035	0.223	0.030	0.01	0.29	264	101,220	74,000	1,542	1,542	99,678	2.29	452.42
77	1155	19.25	0.3	0.053	0.220	0.045	0.01	0.44	396	100,074	73,903	1,540	1,540	98,535	2.26	452.41
78	1170	19.50	0.4	0.071	0.217	0.060	0.01	0.59	528	99,063	73,817	1,538	1,538	97,525	2.24	452.40
79	1185	19.75	0.3	0.053	0.214	0.045	0.01	0.44	396	97,921	73,721	1,536	1,536	96,386	2.21	452.38
80	1200	20.00	0.2	0.035	0.211	0.030	0.01	0.29	264	96,650	73,613	1,534	1,534	95,116	2.18	452.36
81	1215	20.25	0.3	0.053	0.208	0.045	0.01	0.44	396	95,512	73,516	1,532	1,532	93,981	2.16	452.35
82	1230	20.50	0.3	0.053	0.206	0.045	0.01	0.44	396	94,377	73,420	1,530	1,530	92,847	2.13	452.33
83	1245	20.75	0.3	0.053	0.203	0.045	0.01	0.44	396	93,244	73,324	1,528	1,528	91,716	2.11	452.32
84	1260	21.00	0.2	0.035	0.200	0.030	0.01	0.29	264	91,980	73,217	1,525	1,525	90,455	2.08	452.30
85	1275	21.25	0.3	0.053	0.198	0.045	0.01	0.44	396	90,851	73,122	1,523	1,523	89,328	2.05	452.29
86	1290	21.50	0.2	0.035	0.196	0.030	0.01	0.29	264	89,592	73,015	1,521	1,521	88,071	2.02	452.27

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	55.00	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.18		
LAG TIME - MINUTES	3.99	C	0.00335	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.194	0.045	0.01	0.44	396	88,467	72,920	1,519	1,519	86,948	2.00	452.25
88	1320	22.00	0.2	0.035	0.192	0.030	0.01	0.29	264	87,212	72,813	1,517	1,517	85,695	1.97	452.24
89	1335	22.25	0.3	0.053	0.190	0.045	0.01	0.44	396	86,091	72,718	1,515	1,515	84,576	1.94	452.22
90	1350	22.50	0.2	0.035	0.188	0.030	0.01	0.29	264	84,840	72,613	1,513	1,513	83,328	1.91	452.20
91	1365	22.75	0.2	0.035	0.186	0.030	0.01	0.29	264	83,592	72,507	1,511	1,511	82,081	1.88	452.19
92	1380	23.00	0.2	0.035	0.185	0.030	0.01	0.29	264	82,345	72,401	1,508	1,508	80,837	1.86	452.17
93	1395	23.25	0.2	0.035	0.184	0.030	0.01	0.29	264	81,101	72,296	1,506	1,506	79,595	1.83	452.15
94	1410	23.50	0.2	0.035	0.182	0.030	0.01	0.29	264	79,859	72,191	1,504	1,504	78,355	1.80	452.14
95	1425	23.75	0.2	0.035	0.182	0.030	0.01	0.29	264	78,619	72,086	1,502	1,502	77,117	1.77	452.12
96	1440	24.00	0.2	0.035	0.181	0.030	0.01	0.29	264	77,382	71,981	1,500	1,500	75,882	1.74	452.10

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	880,492 cu-ft
SOIL LOSSES	683,384 cu-ft
EFFECTIVE RAIN	0.99 in
FLOOD VOLUME	4.52 acft
FLOOD VOLUME	197,108 cu-ft
REQUIRED STORAGE	2.58 acft
REQUIRED STORAGE	112,227 cu-ft
MAX WSEL	452.59 ft
PEAK FLOW RATE	15.99 cfs
TOTAL BASIN LOSSES	121,226 cu-ft
AVERAGE PERCOLATION RATE	84.18 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN F

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
451	0	0		65,060	0	0	0.00
452	1	1	6,135	71,195	68,104	68,104	1.56
453	1	2	6,295	77,490	74,320	142,425	3.27
454	1	3	6,450	83,940	80,694	223,118	5.12

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	January 26, 2021
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN D
AREA DESIGNATION	DA-D
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	2.588	D	56	0.51	1.00
3	B	WATER FEATURE	2.323	D	56	0.51	1.00
1	B	COMMERCIAL	4.803	D	56	0.51	0.90
6	B	SF - HIGH DENSITY	7.637	D	56	0.51	0.50
9	B	LANDSCAPING	11.052	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	780 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	390 ft
ELEVATION OF HEADWATER	459.5 ft
ELEVATION OF CONCENTRATION POINT	453.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
451.0 ft	101,190 sf
452.0 ft	112,495 sf
452.5 ft	135,570 sf

PERCOLATION RATE (in/hr)	0.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN D
[2] AREA DESIGNATION	DA-D
[3] AREA - ACRES	28.403
[4] L-FEET	780
[5] L-MILES	0.148
[6] La-FEET	390.00
[7] La-MILES	0.074
[8] ELEVATION OF HEADWATER	459.5
[9] ELEVATION OF CONCENTRATION POINT	453
[10] H-FEET	6.5
[11] S-FEET/MILE	44.0
[12] S^0.5	6.63
[13] L*LCA/S^0.5	0.002
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.04
[16] LAG TIME-MINUTES	2.5
[17] 100% OF LAG-MINUTES	2.5
[18] 200% OF LAG-MINUTES	5.0

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	148,469	220,641	284,565	**454,686**
SOIL LOSSES	(cu-ft)	28,994	85,691	152,510	**322,600**
EFFECTIVE RAIN	(in)	1.16	1.31	1.28	1.28
FLOOD VOLUME	(cu-ft)	119,475	**134,950**	132,055	132,086
	(acre-ft)	2.74	**3.10**	3.03	3.03
REQUIRED STORAGE	(cu-ft)	119,475	**134,950**	132,055	132,086
	(acre-ft)	2.74	**3.10**	3.03	3.03
FACTOR OF SAFETY		1.41	1.25	1.28	1.28
STORAGE PROVIDED	(cu-ft)	168,719			
	(acre-ft)	3.87			
PEAK FLOW	(cfs)	n/a	52.25	45.06	10.24
MAXIMUM WSEL	(ft)	452.10	**452.23**	452.20	452.20
DEPTH	(ft)	1.10	**1.23**	1.20	1.20
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)				

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	1/26/21

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	2.588	0.091	0.0046	DEVELOPED	0.1000	0.0091
B	WATER FEATURE	56	0.51	100%	0.05	2.323	0.082	0.0042	DEVELOPED	0.1000	0.0082
B	COMMERCIAL	56	0.51	90%	0.10	4.803	0.169	0.0164	DEVELOPED	0.1800	0.0304
B	SF - HIGH DENSITY	56	0.51	50%	0.28	7.637	0.269	0.0754	DEVELOPED	0.5000	0.1344
B	LANDSCAPING	56	0.51	10%	0.46	11.052	0.389	0.1806	DEVELOPED	0.8200	0.3191
					SUM	28.403	SUM	0.2812			0.5012

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.140606334

C= 0.00260

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00260 (24-(T/60))^1.55 + 0.14 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.2812**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	28.40
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.52
UNIT TIME-PERCENT OF LAG	198.4
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.28
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.28	0.53	0.34	9.76	2,929	2,929	101,500	0	0	2,929	0.07	451.03
2	10	0.17	4.2	0.73	0.28	0.62	0.44	12.73	3,820	6,748	101,904	0	0	6,748	0.15	451.06
3	15	0.25	4.4	0.76	0.28	0.65	0.48	13.72	4,116	10,865	102,340	0	0	10,865	0.25	451.10
4	20	0.33	4.6	0.79	0.28	0.68	0.51	14.71	4,413	15,278	102,807	0	0	15,278	0.35	451.14
5	25	0.42	5.0	0.86	0.28	0.73	0.58	16.69	5,007	20,285	103,337	0	0	20,285	0.47	451.19
6	30	0.50	5.6	0.97	0.28	0.82	0.69	19.66	5,898	26,183	103,962	0	0	26,183	0.60	451.25
7	35	0.58	6.4	1.11	0.28	0.94	0.82	23.62	7,086	33,269	104,712	0	0	33,269	0.76	451.31
8	40	0.67	8.1	1.40	0.28	1.19	1.12	32.03	9,610	42,879	105,729	0	0	42,879	0.98	451.40
9	45	0.75	13.1	2.26	0.28	1.92	1.98	56.78	17,033	59,912	107,532	0	0	59,912	1.38	451.56
10	50	0.83	34.5	5.96	0.28	5.07	5.68	**162.69**	**48,806**	108,718	113,212	0	0	108,718	2.50	452.02
11	55	0.92	6.7	1.16	0.28	0.98	0.88	25.10	7,531	116,249	116,019	0	0	116,249	2.67	452.08
12	60	1.00	3.8	0.66	0.28	0.56	0.38	10.75	3,226	119,475	117,221	0	0	**119,475**	**2.74**	**452.10**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	148,469 cu-ft
SOIL LOSSES	28,994 cu-ft
EFFECTIVE RAIN	1.16 in
FLOOD VOLUME	2.74 acft
FLOOD VOLUME	119,475 cu-ft
REQUIRED STORAGE	2.74
REQUIRED STORAGE	119,475 cu-ft
MAX WSEL	452.10 ft
PEAK FLOW RATE	162.69 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	28.40
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.52
UNIT TIME-PERCENT OF LAG	198.4
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.28
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation	Maximum	Percolation			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	Area sf	Percolation cu-ft	Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.28	0.28	0.05	1.51	452	452	101,238	0	0	452	0.01	451.00
2	10	0.17	1.3	0.33	0.28	0.28	0.05	1.51	452	904	101,286	0	0	904	0.02	451.01
3	15	0.25	1.1	0.28	0.28	0.24	0.00	0.04	11	915	101,287	0	0	915	0.02	451.01
4	20	0.33	1.5	0.39	0.28	0.33	0.10	2.98	893	1,809	101,381	0	0	1,809	0.04	451.02
5	25	0.42	1.5	0.39	0.28	0.33	0.10	2.98	893	2,702	101,476	0	0	2,702	0.06	451.03
6	30	0.50	1.8	0.46	0.28	0.39	0.18	5.18	1,555	4,258	101,641	0	0	4,258	0.10	451.04
7	35	0.58	1.5	0.39	0.28	0.33	0.10	2.98	893	5,151	101,735	0	0	5,151	0.12	451.05
8	40	0.67	1.8	0.46	0.28	0.39	0.18	5.18	1,555	6,706	101,900	0	0	6,706	0.15	451.06
9	45	0.75	1.8	0.46	0.28	0.39	0.18	5.18	1,555	8,262	102,065	0	0	8,262	0.19	451.08
10	50	0.83	1.5	0.39	0.28	0.33	0.10	2.98	893	9,155	102,159	0	0	9,155	0.21	451.09
11	55	0.92	1.6	0.41	0.28	0.35	0.13	3.71	1,114	10,269	102,277	0	0	10,269	0.24	451.10
12	60	1.00	1.8	0.46	0.28	0.39	0.18	5.18	1,555	11,825	102,442	0	0	11,825	0.27	451.11
13	65	1.08	2.2	0.56	0.28	0.48	0.28	8.13	2,438	14,263	102,700	0	0	14,263	0.33	451.13
14	70	1.17	2.2	0.56	0.28	0.48	0.28	8.13	2,438	16,701	102,958	0	0	16,701	0.38	451.16
15	75	1.25	2.2	0.56	0.28	0.48	0.28	8.13	2,438	19,138	103,216	0	0	19,138	0.44	451.18
16	80	1.33	2.0	0.51	0.28	0.44	0.23	6.66	1,997	21,135	103,427	0	0	21,135	0.49	451.20
17	85	1.42	2.6	0.67	0.28	0.57	0.39	11.07	3,321	24,456	103,779	0	0	24,456	0.56	451.23
18	90	1.50	2.7	0.69	0.28	0.59	0.41	11.80	3,541	27,997	104,154	0	0	27,997	0.64	451.26
19	95	1.58	2.4	0.62	0.28	0.52	0.34	9.60	2,879	30,876	104,459	0	0	30,876	0.71	451.29
20	100	1.67	2.7	0.69	0.28	0.59	0.41	11.80	3,541	34,417	104,833	0	0	34,417	0.79	451.32
21	105	1.75	3.3	0.85	0.28	0.72	0.57	16.22	4,865	39,282	105,348	0	0	39,282	0.90	451.37
22	110	1.83	3.1	0.80	0.28	0.68	0.51	14.75	4,424	43,706	105,817	0	0	43,706	1.00	451.41
23	115	1.92	2.9	0.74	0.28	0.63	0.46	13.27	3,982	47,688	106,238	0	0	47,688	1.09	451.45
24	120	2.00	3.0	0.77	0.28	0.65	0.49	14.01	4,203	51,891	106,683	0	0	51,891	1.19	451.49
25	125	2.08	3.1	0.80	0.28	0.68	0.51	14.75	4,424	56,315	107,151	0	0	56,315	1.29	451.53

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	28.40
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.52
UNIT TIME-PERCENT OF LAG	198.4
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.28
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
26	130	2.17	4.2	1.08	0.28	0.92	0.80	22.84	6,851	63,166	107,877	0	0	63,166	1.45	451.59
27	135	2.25	5.0	1.28	0.28	1.09	1.00	28.72	8,616	71,782	108,789	0	0	71,782	1.65	451.67
28	140	2.33	3.5	0.90	0.28	0.76	0.62	17.69	5,306	77,088	109,350	0	0	77,088	1.77	451.72
29	145	2.42	6.8	1.75	0.28	1.48	1.47	41.96	12,587	89,675	110,683	0	0	89,675	2.06	451.84
30	150	2.50	7.3	1.87	0.28	1.59	1.59	45.64	13,691	103,366	112,132	0	0	103,366	2.37	451.97
31	155	2.58	8.2	2.11	0.28	1.79	1.82	**52.25**	**15,676**	119,042	117,060	0	0	119,042	2.73	452.10
32	160	2.67	5.9	1.52	0.28	1.29	1.23	35.34	10,602	129,644	121,010	0	0	129,644	2.98	452.18
33	165	2.75	2.0	0.51	0.28	0.44	0.23	6.66	1,997	131,641	121,754	0	0	131,641	3.02	452.20
34	170	2.83	1.8	0.46	0.28	0.39	0.18	5.18	1,555	133,196	122,333	0	0	133,196	3.06	452.21
35	175	2.92	1.8	0.46	0.28	0.39	0.18	5.18	1,555	134,752	122,913	0	0	134,752	3.09	452.23
36	180	3.00	0.6	0.15	0.28	0.13	0.02	0.66	199	134,950	122,987	0	0	**134,950**	**3.10**	**452.23**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	220,641 cu-ft
SOIL LOSSES	85,691 cu-ft
EFFECTIVE RAIN	1.31 in
FLOOD VOLUME	3.10 acft
FLOOD VOLUME	134,950 cu-ft
REQUIRED STORAGE	3.10 acft
REQUIRED STORAGE	134,950 cu-ft
MAX WSEL	452.23 ft
PEAK FLOW RATE	52.25 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	28.40
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.52
UNIT TIME-PERCENT OF LAG	198.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.28
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.28	0.14	0.02	0.71	213	213	101,213	0	0	213	0.00	451.00
2	10	0.17	0.6	0.20	0.28	0.17	0.03	0.85	256	470	101,240	0	0	470	0.01	451.00
3	15	0.25	0.6	0.20	0.28	0.17	0.03	0.85	256	726	101,267	0	0	726	0.02	451.01
4	20	0.33	0.6	0.20	0.28	0.17	0.03	0.85	256	982	101,294	0	0	982	0.02	451.01
5	25	0.42	0.6	0.20	0.28	0.17	0.03	0.85	256	1,238	101,321	0	0	1,238	0.03	451.01
6	30	0.50	0.7	0.23	0.28	0.20	0.03	1.00	299	1,537	101,353	0	0	1,537	0.04	451.01
7	35	0.58	0.7	0.23	0.28	0.20	0.03	1.00	299	1,835	101,384	0	0	1,835	0.04	451.02
8	40	0.67	0.7	0.23	0.28	0.20	0.03	1.00	299	2,134	101,416	0	0	2,134	0.05	451.02
9	45	0.75	0.7	0.23	0.28	0.20	0.03	1.00	299	2,433	101,448	0	0	2,433	0.06	451.02
10	50	0.83	0.7	0.23	0.28	0.20	0.03	1.00	299	2,732	101,479	0	0	2,732	0.06	451.03
11	55	0.92	0.7	0.23	0.28	0.20	0.03	1.00	299	3,031	101,511	0	0	3,031	0.07	451.03
12	60	1.00	0.8	0.26	0.28	0.23	0.04	1.14	341	3,372	101,547	0	0	3,372	0.08	451.03
13	65	1.08	0.8	0.26	0.28	0.23	0.04	1.14	341	3,714	101,583	0	0	3,714	0.09	451.03
14	70	1.17	0.8	0.26	0.28	0.23	0.04	1.14	341	4,055	101,619	0	0	4,055	0.09	451.04
15	75	1.25	0.8	0.26	0.28	0.23	0.04	1.14	341	4,397	101,655	0	0	4,397	0.10	451.04
16	80	1.33	0.8	0.26	0.28	0.23	0.04	1.14	341	4,738	101,692	0	0	4,738	0.11	451.04
17	85	1.42	0.8	0.26	0.28	0.23	0.04	1.14	341	5,079	101,728	0	0	5,079	0.12	451.05
18	90	1.50	0.8	0.26	0.28	0.23	0.04	1.14	341	5,421	101,764	0	0	5,421	0.12	451.05
19	95	1.58	0.8	0.26	0.28	0.23	0.04	1.14	341	5,762	101,800	0	0	5,762	0.13	451.05
20	100	1.67	0.8	0.26	0.28	0.23	0.04	1.14	341	6,104	101,836	0	0	6,104	0.14	451.06
21	105	1.75	0.8	0.26	0.28	0.23	0.04	1.14	341	6,445	101,872	0	0	6,445	0.15	451.06
22	110	1.83	0.8	0.26	0.28	0.23	0.04	1.14	341	6,787	101,908	0	0	6,787	0.16	451.06
23	115	1.92	0.8	0.26	0.28	0.23	0.04	1.14	341	7,128	101,945	0	0	7,128	0.16	451.07
24	120	2.00	0.9	0.30	0.28	0.25	0.02	0.48	145	7,273	101,960	0	0	7,273	0.17	451.07

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	28.40
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.52
UNIT TIME-PERCENT OF LAG	198.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.28
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
25	125	2.08	0.8	0.26	0.28	0.23	0.04	1.14	341	7,615	101,996	0	0	7,615	0.17	451.07
26	130	2.17	0.9	0.30	0.28	0.25	0.02	0.48	145	7,760	102,011	0	0	7,760	0.18	451.07
27	135	2.25	0.9	0.30	0.28	0.25	0.02	0.48	145	7,905	102,027	0	0	7,905	0.18	451.07
28	140	2.33	0.9	0.30	0.28	0.25	0.02	0.48	145	8,050	102,042	0	0	8,050	0.18	451.08
29	145	2.42	0.9	0.30	0.28	0.25	0.02	0.48	145	8,194	102,057	0	0	8,194	0.19	451.08
30	150	2.50	0.9	0.30	0.28	0.25	0.02	0.48	145	8,339	102,073	0	0	8,339	0.19	451.08
31	155	2.58	0.9	0.30	0.28	0.25	0.02	0.48	145	8,484	102,088	0	0	8,484	0.19	451.08
32	160	2.67	0.9	0.30	0.28	0.25	0.02	0.48	145	8,629	102,103	0	0	8,629	0.20	451.08
33	165	2.75	1.0	0.33	0.28	0.28	0.05	1.43	429	9,059	102,149	0	0	9,059	0.21	451.08
34	170	2.83	1.0	0.33	0.28	0.28	0.05	1.43	429	9,488	102,194	0	0	9,488	0.22	451.09
35	175	2.92	1.0	0.33	0.28	0.28	0.05	1.43	429	9,918	102,240	0	0	9,918	0.23	451.09
36	180	3.00	1.0	0.33	0.28	0.28	0.05	1.43	429	10,347	102,285	0	0	10,347	0.24	451.10
37	185	3.08	1.0	0.33	0.28	0.28	0.05	1.43	429	10,777	102,331	0	0	10,777	0.25	451.10
38	190	3.17	1.1	0.36	0.28	0.31	0.08	2.38	714	11,491	102,406	0	0	11,491	0.26	451.11
39	195	3.25	1.1	0.36	0.28	0.31	0.08	2.38	714	12,205	102,482	0	0	12,205	0.28	451.11
40	200	3.33	1.1	0.36	0.28	0.31	0.08	2.38	714	12,919	102,558	0	0	12,919	0.30	451.12
41	205	3.42	1.2	0.40	0.28	0.34	0.12	3.33	999	13,917	102,663	0	0	13,917	0.32	451.13
42	210	3.50	1.3	0.43	0.28	0.37	0.15	4.28	1,283	15,201	102,799	0	0	15,201	0.35	451.14
43	215	3.58	1.4	0.46	0.28	0.39	0.18	5.23	1,568	16,768	102,965	0	0	16,768	0.38	451.16
44	220	3.67	1.4	0.46	0.28	0.39	0.18	5.23	1,568	18,336	103,131	0	0	18,336	0.42	451.17
45	225	3.75	1.5	0.50	0.28	0.42	0.22	6.17	1,852	20,188	103,327	0	0	20,188	0.46	451.19
46	230	3.83	1.5	0.50	0.28	0.42	0.22	6.17	1,852	22,041	103,523	0	0	22,041	0.51	451.21
47	235	3.92	1.6	0.53	0.28	0.45	0.25	7.12	2,137	24,178	103,749	0	0	24,178	0.56	451.23
48	240	4.00	1.6	0.53	0.28	0.45	0.25	7.12	2,137	26,315	103,976	0	0	26,315	0.60	451.25
49	245	4.08	1.7	0.56	0.28	0.48	0.28	8.07	2,421	28,736	104,232	0	0	28,736	0.66	451.27
50	250	4.17	1.8	0.60	0.28	0.51	0.31	9.02	2,706	31,442	104,518	0	0	31,442	0.72	451.29

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	28.40
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	2.52
UNIT TIME-PERCENT OF LAG	198.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.28
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.28	0.53	0.35	9.97	2,991	34,433	104,835	0	0	34,433	0.79	451.32
52	260	4.33	2.0	0.66	0.28	0.56	0.38	10.92	3,275	37,708	105,182	0	0	37,708	0.87	451.35
53	265	4.42	2.1	0.70	0.28	0.59	0.41	11.87	3,560	41,267	105,559	0	0	41,267	0.95	451.39
54	270	4.50	2.1	0.70	0.28	0.59	0.41	11.87	3,560	44,827	105,935	0	0	44,827	1.03	451.42
55	275	4.58	2.2	0.73	0.28	0.62	0.45	12.81	3,844	48,671	106,342	0	0	48,671	1.12	451.46
56	280	4.67	2.3	0.76	0.28	0.65	0.48	13.76	4,129	52,800	106,779	0	0	52,800	1.21	451.49
57	285	4.75	2.4	0.79	0.28	0.68	0.51	14.71	4,413	57,214	107,247	0	0	57,214	1.31	451.54
58	290	4.83	2.4	0.79	0.28	0.68	0.51	14.71	4,413	61,627	107,714	0	0	61,627	1.41	451.58
59	295	4.92	2.5	0.83	0.28	0.70	0.55	15.66	4,698	66,325	108,211	0	0	66,325	1.52	451.62
60	300	5.00	2.6	0.86	0.28	0.73	0.58	16.61	4,983	71,307	108,739	0	0	71,307	1.64	451.67
61	305	5.08	3.1	1.03	0.28	0.87	0.75	21.35	6,405	77,713	109,417	0	0	77,713	1.78	451.73
62	310	5.17	3.6	1.19	0.28	1.01	0.91	26.09	7,828	85,541	110,245	0	0	85,541	1.96	451.80
63	315	5.25	3.9	1.29	0.28	1.10	1.01	28.94	8,682	94,223	111,164	0	0	94,223	2.16	451.88
64	320	5.33	4.2	1.39	0.28	1.18	1.11	31.79	9,536	103,758	112,174	0	0	103,758	2.38	451.97
65	325	5.42	4.7	1.56	0.28	1.32	1.28	36.53	10,958	114,717	115,448	0	0	114,717	2.63	452.06
66	330	5.50	5.6	1.85	0.28	1.58	1.57	**45.06**	**13,519**	128,236	120,485	0	0	128,236	2.94	452.17
67	335	5.58	1.9	0.63	0.28	0.53	0.35	9.97	2,991	131,227	121,600	0	0	131,227	3.01	452.20
68	340	5.67	0.9	0.30	0.28	0.25	0.02	0.48	145	131,372	121,654	0	0	131,372	3.02	452.20
69	345	5.75	0.6	0.20	0.28	0.17	0.03	0.85	256	131,628	121,749	0	0	131,628	3.02	452.20
70	350	5.83	0.5	0.17	0.28	0.14	0.02	0.71	213	131,841	121,829	0	0	131,841	3.03	452.20
71	355	5.92	0.3	0.10	0.28	0.08	0.01	0.43	128	131,969	121,876	0	0	131,969	3.03	452.20
72	360	6.00	0.2	0.07	0.28	0.06	0.01	0.28	85	132,055	121,908	0	0	**132,055**	**3.03**	**452.20**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	284,565 cu-ft
SOIL LOSSES	152,510 cu-ft
EFFECTIVE RAIN	1.28 in
FLOOD VOLUME	3.03 acft
FLOOD VOLUME	132,055 cu-ft
REQUIRED STORAGE	3.03 acft
REQUIRED STORAGE	132,055 cu-ft
MAX WSEL	452.20 ft
PEAK FLOW RATE	45.06 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	28.40	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.14		
LAG TIME - MINUTES	2.52	C	0.00260	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	595%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses Percolation Area	Maximum Percolation	Percolation Out	Total In Basin		Basin WSEL
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.497	0.030	0.01	0.15	136	136	101,204	0	0	136	0.00	451.00
2	30	0.50	0.3	0.053	0.491	0.045	0.01	0.23	205	341	101,226	0	0	341	0.01	451.00
3	45	0.75	0.3	0.053	0.485	0.045	0.01	0.23	205	546	101,248	0	0	546	0.01	451.01
4	60	1.00	0.4	0.071	0.479	0.060	0.01	0.30	273	818	101,277	0	0	818	0.02	451.01
5	75	1.25	0.3	0.053	0.474	0.045	0.01	0.23	205	1,023	101,298	0	0	1,023	0.02	451.01
6	90	1.50	0.3	0.053	0.468	0.045	0.01	0.23	205	1,228	101,320	0	0	1,228	0.03	451.01
7	105	1.75	0.3	0.053	0.463	0.045	0.01	0.23	205	1,432	101,342	0	0	1,432	0.03	451.01
8	120	2.00	0.4	0.071	0.457	0.060	0.01	0.30	273	1,705	101,370	0	0	1,705	0.04	451.02
9	135	2.25	0.4	0.071	0.451	0.060	0.01	0.30	273	1,978	101,399	0	0	1,978	0.05	451.02
10	150	2.50	0.4	0.071	0.446	0.060	0.01	0.30	273	2,251	101,428	0	0	2,251	0.05	451.02
11	165	2.75	0.5	0.088	0.440	0.075	0.01	0.38	341	2,592	101,464	0	0	2,592	0.06	451.02
12	180	3.00	0.5	0.088	0.435	0.075	0.01	0.38	341	2,933	101,500	0	0	2,933	0.07	451.03
13	195	3.25	0.5	0.088	0.430	0.075	0.01	0.38	341	3,274	101,537	0	0	3,274	0.08	451.03
14	210	3.50	0.5	0.088	0.424	0.075	0.01	0.38	341	3,615	101,573	0	0	3,615	0.08	451.03
15	225	3.75	0.5	0.088	0.419	0.075	0.01	0.38	341	3,956	101,609	0	0	3,956	0.09	451.04
16	240	4.00	0.6	0.106	0.414	0.090	0.02	0.45	409	4,365	101,652	0	0	4,365	0.10	451.04
17	255	4.25	0.6	0.106	0.409	0.090	0.02	0.45	409	4,774	101,695	0	0	4,774	0.11	451.04
18	270	4.50	0.7	0.123	0.403	0.105	0.02	0.53	477	5,252	101,746	0	0	5,252	0.12	451.05
19	285	4.75	0.7	0.123	0.398	0.105	0.02	0.53	477	5,729	101,796	0	0	5,729	0.13	451.05
20	300	5.00	0.8	0.141	0.393	0.120	0.02	0.61	546	6,275	101,854	0	0	6,275	0.14	451.06
21	315	5.25	0.6	0.106	0.388	0.090	0.02	0.45	409	6,684	101,898	0	0	6,684	0.15	451.06
22	330	5.50	0.7	0.123	0.383	0.105	0.02	0.53	477	7,161	101,948	0	0	7,161	0.16	451.07
23	345	5.75	0.8	0.141	0.378	0.120	0.02	0.61	546	7,707	102,006	0	0	7,707	0.18	451.07
24	360	6.00	0.8	0.141	0.373	0.120	0.02	0.61	546	8,253	102,064	0	0	8,253	0.19	451.08
25	375	6.25	0.9	0.159	0.368	0.135	0.02	0.68	614	8,866	102,129	0	0	8,866	0.20	451.08
26	390	6.50	0.9	0.159	0.363	0.135	0.02	0.68	614	9,480	102,194	0	0	9,480	0.22	451.09
27	405	6.75	1.0	0.176	0.358	0.150	0.03	0.76	682	10,162	102,266	0	0	10,162	0.23	451.10
28	420	7.00	1.0	0.176	0.353	0.150	0.03	0.76	682	10,844	102,338	0	0	10,844	0.25	451.10
29	435	7.25	1.0	0.176	0.348	0.150	0.03	0.76	682	11,526	102,410	0	0	11,526	0.26	451.11
30	450	7.50	1.1	0.194	0.344	0.165	0.03	0.83	750	12,277	102,490	0	0	12,277	0.28	451.11
31	465	7.75	1.2	0.212	0.339	0.180	0.03	0.91	818	13,095	102,576	0	0	13,095	0.30	451.12
32	480	8.00	1.3	0.229	0.334	0.195	0.03	0.99	887	13,982	102,670	0	0	13,982	0.32	451.13
33	495	8.25	1.5	0.265	0.330	0.225	0.04	1.14	1,023	15,005	102,778	0	0	15,005	0.34	451.14
34	510	8.50	1.5	0.265	0.325	0.225	0.04	1.14	1,023	16,028	102,887	0	0	16,028	0.37	451.15
35	525	8.75	1.6	0.282	0.321	0.240	0.04	1.21	1,091	17,119	103,002	0	0	17,119	0.39	451.16
36	540	9.00	1.7	0.300	0.316	0.255	0.04	1.29	1,159	18,278	103,125	0	0	18,278	0.42	451.17
37	555	9.25	1.9	0.335	0.312	0.285	0.02	0.68	608	18,886	103,189	0	0	18,886	0.43	451.18
38	570	9.50	2.0	0.353	0.307	0.300	0.05	1.31	1,177	20,063	103,314	0	0	20,063	0.46	451.19
39	585	9.75	2.1	0.370	0.303	0.315	0.07	1.94	1,745	21,808	103,499	0	0	21,808	0.50	451.20
40	600	10.00	2.2	0.388	0.298	0.330	0.09	2.57	2,312	24,119	103,743	0	0	24,119	0.55	451.23
41	615	10.25	1.5	0.265	0.294	0.225	0.04	1.14	1,023	25,142	103,852	0	0	25,142	0.58	451.24
42	630	10.50	1.5	0.265	0.290	0.225	0.04	1.14	1,023	26,165	103,960	0	0	26,165	0.60	451.25
43	645	10.75	2.0	0.353	0.286	0.300	0.07	1.92	1,732	27,897	104,143	0	0	27,897	0.64	451.26

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	28.40	VARIABLE LOSS RATE (AVG) IN/HR	
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.14
LAG TIME - MINUTES	2.52	C	0.00260
UNIT TIME-PERCENT OF LAG	595%	Low Loss Rate (percent)	85.00%
TOTAL ADJUSTED STORM RAIN (in)	4.41		

Basin Percolation Rate	0.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.353	0.281	0.300	0.07	2.04	1,840	29,737	104,338	0	0	29,737	0.68	451.28
45	675	11.25	1.9	0.335	0.277	0.285	0.06	1.66	1,492	31,229	104,496	0	0	31,229	0.72	451.29
46	690	11.50	1.9	0.335	0.273	0.285	0.06	1.77	1,597	32,826	104,665	0	0	32,826	0.75	451.31
47	705	11.75	1.7	0.300	0.269	0.255	0.03	0.88	792	33,618	104,749	0	0	33,618	0.77	451.31
48	720	12.00	1.8	0.318	0.265	0.270	0.05	1.50	1,350	34,968	104,892	0	0	34,968	0.80	451.33
49	735	12.25	2.5	0.441	0.261	0.375	0.18	5.15	4,635	39,603	105,382	0	0	39,603	0.91	451.37
50	750	12.50	2.6	0.459	0.257	0.390	0.20	5.77	5,190	44,793	105,932	0	0	44,793	1.03	451.42
51	765	12.75	2.8	0.494	0.253	0.420	0.24	6.89	6,199	50,992	106,588	0	0	50,992	1.17	451.48
52	780	13.00	2.9	0.512	0.250	0.435	0.26	7.50	6,752	57,744	107,303	0	0	57,744	1.33	451.54
53	795	13.25	3.4	0.600	0.246	0.510	0.35	10.14	9,123	66,868	108,269	0	0	66,868	1.54	451.63
54	810	13.50	3.4	0.600	0.242	0.510	0.36	**10.24**	**9,219**	76,087	109,244	0	0	76,087	1.75	451.71
55	825	13.75	2.3	0.406	0.238	0.345	0.17	4.79	4,312	80,399	109,701	0	0	80,399	1.85	451.75
56	840	14.00	2.3	0.406	0.235	0.345	0.17	4.90	4,406	84,805	110,167	0	0	84,805	1.95	451.79
57	855	14.25	2.7	0.476	0.231	0.405	0.25	7.02	6,317	91,122	110,836	0	0	91,122	2.09	451.85
58	870	14.50	2.6	0.459	0.228	0.390	0.23	6.61	5,953	97,075	111,466	0	0	97,075	2.23	451.91
59	885	14.75	2.6	0.459	0.224	0.390	0.23	6.71	6,043	103,118	112,106	0	0	103,118	2.37	451.97
60	900	15.00	2.5	0.441	0.221	0.375	0.22	6.31	5,677	108,794	113,241	0	0	108,794	2.50	452.02
61	915	15.25	2.4	0.423	0.217	0.360	0.21	5.90	5,309	114,103	115,219	0	0	114,103	2.62	452.06
62	930	15.50	2.3	0.406	0.214	0.345	0.19	5.49	4,940	119,044	117,060	0	0	119,044	2.73	452.10
63	945	15.75	1.9	0.335	0.211	0.285	0.12	3.56	3,206	122,249	118,254	0	0	122,249	2.81	452.12
64	960	16.00	1.9	0.335	0.208	0.285	0.13	3.65	3,289	125,538	119,480	0	0	125,538	2.88	452.15
65	975	16.25	0.4	0.071	0.204	0.060	0.01	0.30	273	125,811	119,582	0	0	125,811	2.89	452.15
66	990	16.50	0.4	0.071	0.201	0.060	0.01	0.30	273	126,084	119,683	0	0	126,084	2.89	452.16
67	1005	16.75	0.3	0.053	0.198	0.045	0.01	0.23	205	126,288	119,759	0	0	126,288	2.90	452.16
68	1020	17.00	0.3	0.053	0.195	0.045	0.01	0.23	205	126,493	119,836	0	0	126,493	2.90	452.16
69	1035	17.25	0.5	0.088	0.192	0.075	0.01	0.38	341	126,834	119,963	0	0	126,834	2.91	452.16
70	1050	17.50	0.5	0.088	0.189	0.075	0.01	0.38	341	127,175	120,090	0	0	127,175	2.92	452.16
71	1065	17.75	0.5	0.088	0.187	0.075	0.01	0.38	341	127,516	120,217	0	0	127,516	2.93	452.17
72	1080	18.00	0.4	0.071	0.184	0.060	0.01	0.30	273	127,789	120,319	0	0	127,789	2.93	452.17
73	1095	18.25	0.4	0.071	0.181	0.060	0.01	0.30	273	128,062	120,420	0	0	128,062	2.94	452.17
74	1110	18.50	0.4	0.071	0.178	0.060	0.01	0.30	273	128,334	120,522	0	0	128,334	2.95	452.17
75	1125	18.75	0.3	0.053	0.176	0.045	0.01	0.23	205	128,539	120,598	0	0	128,539	2.95	452.18
76	1140	19.00	0.2	0.035	0.173	0.030	0.01	0.15	136	128,675	120,649	0	0	128,675	2.95	452.18
77	1155	19.25	0.3	0.053	0.171	0.045	0.01	0.23	205	128,880	120,725	0	0	128,880	2.96	452.18
78	1170	19.50	0.4	0.071	0.169	0.060	0.01	0.30	273	129,153	120,827	0	0	129,153	2.96	452.18
79	1185	19.75	0.3	0.053	0.166	0.045	0.01	0.23	205	129,357	120,903	0	0	129,357	2.97	452.18
80	1200	20.00	0.2	0.035	0.164	0.030	0.01	0.15	136	129,494	120,954	0	0	129,494	2.97	452.18
81	1215	20.25	0.3	0.053	0.162	0.045	0.01	0.23	205	129,698	121,030	0	0	129,698	2.98	452.18
82	1230	20.50	0.3	0.053	0.160	0.045	0.01	0.23	205	129,903	121,106	0	0	129,903	2.98	452.19
83	1245	20.75	0.3	0.053	0.158	0.045	0.01	0.23	205	130,108	121,183	0	0	130,108	2.99	452.19
84	1260	21.00	0.2	0.035	0.156	0.030	0.01	0.15	136	130,244	121,233	0	0	130,244	2.99	452.19
85	1275	21.25	0.3	0.053	0.154	0.045	0.01	0.23	205	130,449	121,310	0	0	130,449	2.99	452.19
86	1290	21.50	0.2	0.035	0.152	0.030	0.01	0.15	136	130,585	121,361	0	0	130,585	3.00	452.19

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	28.40	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	0.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.14		
LAG TIME - MINUTES	2.52	C	0.00260	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	595%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.151	0.045	0.01	0.23	205	130,790	121,437	0	0	130,790	3.00	452.19
88	1320	22.00	0.2	0.035	0.149	0.030	0.01	0.15	136	130,926	121,488	0	0	130,926	3.01	452.19
89	1335	22.25	0.3	0.053	0.148	0.045	0.01	0.23	205	131,131	121,564	0	0	131,131	3.01	452.20
90	1350	22.50	0.2	0.035	0.146	0.030	0.01	0.15	136	131,267	121,615	0	0	131,267	3.01	452.20
91	1365	22.75	0.2	0.035	0.145	0.030	0.01	0.15	136	131,403	121,665	0	0	131,403	3.02	452.20
92	1380	23.00	0.2	0.035	0.144	0.030	0.01	0.15	136	131,540	121,716	0	0	131,540	3.02	452.20
93	1395	23.25	0.2	0.035	0.143	0.030	0.01	0.15	136	131,676	121,767	0	0	131,676	3.02	452.20
94	1410	23.50	0.2	0.035	0.142	0.030	0.01	0.15	136	131,813	121,818	0	0	131,813	3.03	452.20
95	1425	23.75	0.2	0.035	0.141	0.030	0.01	0.15	136	131,949	121,869	0	0	131,949	3.03	452.20
96	1440	24.00	0.2	0.035	0.141	0.030	0.01	0.15	136	132,086	121,920	0	0	**132,086**	**3.03**	**452.20**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	454,686 cu-ft
SOIL LOSSES	322,600 cu-ft
EFFECTIVE RAIN	1.28 in
FLOOD VOLUME	3.03 acft
FLOOD VOLUME	132,086 cu-ft
REQUIRED STORAGE	3.03 acft
REQUIRED STORAGE	132,086 cu-ft
MAX WSEL	452.20 ft
PEAK FLOW RATE	10.24 cfs
TOTAL BASIN LOSSES	0 cu-ft
AVERAGE PERCOLATION RATE	0.00 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN D

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
451	0	0		101,190	0	0	0.00
452	1	1	11,305	112,495	106,793	106,793	2.45
452.5	0.5	1.5	23,075	135,570	61,927	168,719	3.87

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	January 26, 2021
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN E
AREA DESIGNATION	DA-E
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	1.707	D	56	0.51	1.00
4	B	SF - LOW DENSITY	48.170	D	56	0.51	0.30
6	B	SF - HIGH DENSITY	4.271	D	56	0.51	0.50
9	B	LANDSCAPING	7.654	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,560 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	780 ft
ELEVATION OF HEADWATER	490.0 ft
ELEVATION OF CONCENTRATION POINT	455.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
442.0 ft	224,555 sf
443.0 ft	231,980 sf
444.0 ft	239,460 sf
445.0 ft	247,000 sf
446.0 ft	254,595 sf
447.0 ft	262,250 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN E
[2] AREA DESIGNATION	DA-E
[3] AREA - ACRES	61.802
[4] L-FEET	1560
[5] L-MILES	0.295
[6] La-FEET	780.00
[7] La-MILES	0.148
[8] ELEVATION OF HEADWATER	490
[9] ELEVATION OF CONCENTRATION POINT	455
[10] H-FEET	35
[11] S-FEET/MILE	118.5
[12] S^0.5	10.88
[13] L*LCA/S^0.5	0.004
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.06
[16] LAG TIME-MINUTES	3.5
[17] 100% OF LAG-MINUTES	3.5
[18] 200% OF LAG-MINUTES	7.1

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	323,053	480,092	619,184	**989,349**
SOIL LOSSES	(cu-ft)	82,659	237,971	372,822	**769,875**
EFFECTIVE RAIN	(in)	1.07	1.08	1.10	0.98
FLOOD VOLUME	(cu-ft)	240,394	242,121	**246,363**	219,473
	(acre-ft)	5.52	5.56	**5.66**	5.04
REQUIRED STORAGE	(cu-ft)	**221,456**	193,888	172,408	59,359
	(acre-ft)	**5.08**	4.45	3.96	1.36
FACTOR OF SAFETY		5.49	6.27	7.06	20.49
STORAGE PROVIDED	(cu-ft)	1,216,389			
	(acre-ft)	27.92			
PEAK FLOW	(cfs)	n/a	108.26	92.62	17.61
MAXIMUM WSEL	(ft)	**442.97**	442.85	442.76	442.26
DEPTH	(ft)	**0.97**	0.85	0.76	0.26
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	0.5	0.6	0.8	1.0

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	1/26/21

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	1.707	0.028	0.0014	DEVELOPED	0.1000	0.0028
B	SF - LOW DENSITY	56	0.51	30%	0.37	48.170	0.779	0.2902	DEVELOPED	0.6600	0.5144
B	SF - HIGH DENSITY	56	0.51	50%	0.28	4.271	0.069	0.0194	DEVELOPED	0.5000	0.0346
B	LANDSCAPING	56	0.51	10%	0.46	7.654	0.124	0.0575	DEVELOPED	0.8200	0.1016
					SUM	61.802	SUM	0.3685			0.6533

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.184225307

C= 0.00341

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00341 (24-(T/60))^1.55 + 0.18 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.3685**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	61.80
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.54
UNIT TIME-PERCENT OF LAG	141.4
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.37	0.53	0.25	15.81	4,742	4,742	224,709	1,560	1,560	3,181	0.07	442.01
2	10	0.17	4.2	0.73	0.37	0.62	0.36	22.27	6,680	9,861	224,876	1,562	1,562	8,299	0.19	442.04
3	15	0.25	4.4	0.76	0.37	0.65	0.39	24.42	7,326	15,626	225,063	1,563	1,563	14,063	0.32	442.06
4	20	0.33	4.6	0.79	0.37	0.68	0.43	26.57	7,972	22,035	225,272	1,564	1,564	20,470	0.47	442.09
5	25	0.42	5.0	0.86	0.37	0.73	0.50	30.88	9,264	29,735	225,522	1,566	1,566	28,169	0.65	442.12
6	30	0.50	5.6	0.97	0.37	0.82	0.60	37.34	11,203	39,371	225,836	1,568	1,568	37,803	0.87	442.17
7	35	0.58	6.4	1.11	0.37	0.94	0.74	45.96	13,787	51,590	226,233	1,571	1,571	50,019	1.15	442.22
8	40	0.67	8.1	1.40	0.37	1.19	1.03	64.26	19,279	69,298	226,809	1,575	1,575	67,723	1.55	442.30
9	45	0.75	13.1	2.26	0.37	1.92	1.90	118.11	35,432	103,155	227,911	1,583	1,583	101,572	2.33	442.44
10	50	0.83	34.5	5.96	0.37	5.07	5.59	**348.55**	**104,565**	206,137	231,260	1,606	1,606	204,531	4.70	442.90
11	55	0.92	6.7	1.16	0.37	0.98	0.79	49.19	14,756	219,287	231,688	1,609	1,609	217,678	5.00	442.95
12	60	1.00	3.8	0.66	0.37	0.56	0.29	17.96	5,388	223,066	231,811	1,610	1,610	**221,456**	**5.08**	**442.97**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	323,053 cu-ft
SOIL LOSSES	82,659 cu-ft
EFFECTIVE RAIN	1.07 in
FLOOD VOLUME	5.52 acft
FLOOD VOLUME	240,394 cu-ft
REQUIRED STORAGE	5.08
REQUIRED STORAGE	221,456 cu-ft
MAX WSEL	442.97 ft
PEAK FLOW RATE	348.55 cfs
TOTAL BASIN LOSSES	18,937 cu-ft
AVERAGE PERCOLATION RATE	315.62 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	61.80
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.54
UNIT TIME-PERCENT OF LAG	141.4
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.37	0.28	0.05	3.12	936	936	224,585	1,560	936	0	0.00	442.00
2	10	0.17	1.3	0.33	0.37	0.28	0.05	3.12	936	936	224,585	1,560	936	0	0.00	442.00
3	15	0.25	1.1	0.28	0.37	0.24	0.04	2.64	792	792	224,581	1,560	792	0	0.00	442.00
4	20	0.33	1.5	0.39	0.37	0.33	0.02	1.04	313	313	224,565	1,559	313	0	0.00	442.00
5	25	0.42	1.5	0.39	0.37	0.33	0.02	1.04	313	313	224,565	1,559	313	0	0.00	442.00
6	30	0.50	1.8	0.46	0.37	0.39	0.09	5.84	1,753	1,753	224,612	1,560	1,560	194	0.00	442.00
7	35	0.58	1.5	0.39	0.37	0.33	0.02	1.04	313	507	224,571	1,560	507	0	0.00	442.00
8	40	0.67	1.8	0.46	0.37	0.39	0.09	5.84	1,753	1,753	224,612	1,560	1,560	194	0.00	442.00
9	45	0.75	1.8	0.46	0.37	0.39	0.09	5.84	1,753	1,947	224,618	1,560	1,560	387	0.01	442.00
10	50	0.83	1.5	0.39	0.37	0.33	0.02	1.04	313	700	224,578	1,560	700	0	0.00	442.00
11	55	0.92	1.6	0.41	0.37	0.35	0.04	2.64	793	793	224,581	1,560	793	0	0.00	442.00
12	60	1.00	1.8	0.46	0.37	0.39	0.09	5.84	1,753	1,753	224,612	1,560	1,560	194	0.00	442.00
13	65	1.08	2.2	0.56	0.37	0.48	0.20	12.25	3,674	3,867	224,681	1,560	1,560	2,307	0.05	442.01
14	70	1.17	2.2	0.56	0.37	0.48	0.20	12.25	3,674	5,981	224,750	1,561	1,561	4,420	0.10	442.02
15	75	1.25	2.2	0.56	0.37	0.48	0.20	12.25	3,674	8,094	224,818	1,561	1,561	6,533	0.15	442.03
16	80	1.33	2.0	0.51	0.37	0.44	0.15	9.05	2,714	9,246	224,856	1,561	1,561	7,685	0.18	442.03
17	85	1.42	2.6	0.67	0.37	0.57	0.30	18.65	5,594	13,279	224,987	1,562	1,562	11,716	0.27	442.05
18	90	1.50	2.7	0.69	0.37	0.59	0.32	20.25	6,074	17,791	225,134	1,563	1,563	16,227	0.37	442.07
19	95	1.58	2.4	0.62	0.37	0.52	0.25	15.45	4,634	20,861	225,234	1,564	1,564	19,297	0.44	442.08
20	100	1.67	2.7	0.69	0.37	0.59	0.32	20.25	6,074	25,371	225,380	1,565	1,565	23,806	0.55	442.10
21	105	1.75	3.3	0.85	0.37	0.72	0.48	29.85	8,955	32,761	225,621	1,567	1,567	31,194	0.72	442.14
22	110	1.83	3.1	0.80	0.37	0.68	0.43	26.65	7,995	39,189	225,830	1,568	1,568	37,621	0.86	442.16
23	115	1.92	2.9	0.74	0.37	0.63	0.38	23.45	7,034	44,655	226,008	1,569	1,569	43,085	0.99	442.19
24	120	2.00	3.0	0.77	0.37	0.65	0.40	25.05	7,515	50,600	226,201	1,571	1,571	49,029	1.13	442.21
25	125	2.08	3.1	0.80	0.37	0.68	0.43	26.65	7,995	57,024	226,410	1,572	1,572	55,451	1.27	442.24

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	61.80
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.54
UNIT TIME-PERCENT OF LAG	141.4
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
26	130	2.17	4.2	1.08	0.37	0.92	0.71	44.25	13,276	68,727	226,791	1,575	1,575	67,152	1.54	442.29
27	135	2.25	5.0	1.28	0.37	1.09	0.92	57.05	17,116	84,269	227,296	1,578	1,578	82,690	1.90	442.36
28	140	2.33	3.5	0.90	0.37	0.76	0.53	33.05	9,915	92,605	227,567	1,580	1,580	91,025	2.09	442.40
29	145	2.42	6.8	1.75	0.37	1.48	1.38	85.86	25,758	116,783	228,354	1,586	1,586	115,197	2.64	442.50
30	150	2.50	7.3	1.87	0.37	1.59	1.51	93.86	28,158	143,355	229,218	1,592	1,592	141,764	3.25	442.62
31	155	2.58	8.2	2.11	0.37	1.79	1.74	**108.26**	**32,479**	174,243	230,223	1,599	1,599	172,644	3.96	442.76
32	160	2.67	5.9	1.52	0.37	1.29	1.15	71.46	21,437	194,081	230,868	1,603	1,603	192,478	4.42	442.84
33	165	2.75	2.0	0.51	0.37	0.44	0.15	9.05	2,714	195,192	230,904	1,604	1,604	193,588	4.44	442.85
34	170	2.83	1.8	0.46	0.37	0.39	0.09	5.84	1,753	195,342	230,909	1,604	1,604	193,738	4.45	442.85
35	175	2.92	1.8	0.46	0.37	0.39	0.09	5.84	1,753	195,491	230,914	1,604	1,604	**193,888**	**4.45**	**442.85**
36	180	3.00	0.6	0.15	0.37	0.13	0.02	1.44	432	194,320	230,876	1,603	1,603	192,717	4.42	442.84

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	480,092 cu-ft
SOIL LOSSES	237,971 cu-ft
EFFECTIVE RAIN	1.08 in
FLOOD VOLUME	5.56 acft
FLOOD VOLUME	242,121 cu-ft
REQUIRED STORAGE	4.45 acft
REQUIRED STORAGE	193,888 cu-ft
MAX WSEL	442.85 ft
PEAK FLOW RATE	108.26 cfs
TOTAL BASIN LOSSES	49,404 cu-ft
AVERAGE PERCOLATION RATE	274.47 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	61.80
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.54
UNIT TIME-PERCENT OF LAG	141.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.37	0.14	0.02	1.55	464	464	224,570	1,560	464	0	0.00	442.00
2	10	0.17	0.6	0.20	0.37	0.17	0.03	1.86	557	557	224,573	1,560	557	0	0.00	442.00
3	15	0.25	0.6	0.20	0.37	0.17	0.03	1.86	557	557	224,573	1,560	557	0	0.00	442.00
4	20	0.33	0.6	0.20	0.37	0.17	0.03	1.86	557	557	224,573	1,560	557	0	0.00	442.00
5	25	0.42	0.6	0.20	0.37	0.17	0.03	1.86	557	557	224,573	1,560	557	0	0.00	442.00
6	30	0.50	0.7	0.23	0.37	0.20	0.03	2.17	650	650	224,576	1,560	650	0	0.00	442.00
7	35	0.58	0.7	0.23	0.37	0.20	0.03	2.17	650	650	224,576	1,560	650	0	0.00	442.00
8	40	0.67	0.7	0.23	0.37	0.20	0.03	2.17	650	650	224,576	1,560	650	0	0.00	442.00
9	45	0.75	0.7	0.23	0.37	0.20	0.03	2.17	650	650	224,576	1,560	650	0	0.00	442.00
10	50	0.83	0.7	0.23	0.37	0.20	0.03	2.17	650	650	224,576	1,560	650	0	0.00	442.00
11	55	0.92	0.7	0.23	0.37	0.20	0.03	2.17	650	650	224,576	1,560	650	0	0.00	442.00
12	60	1.00	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
13	65	1.08	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
14	70	1.17	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
15	75	1.25	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
16	80	1.33	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
17	85	1.42	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
18	90	1.50	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
19	95	1.58	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
20	100	1.67	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
21	105	1.75	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
22	110	1.83	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
23	115	1.92	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
24	120	2.00	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	61.80
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.54
UNIT TIME-PERCENT OF LAG	141.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses			Total In Basin		Basin WSEL ft
	Minutes	Hours	(Plate E-5.9)		Max	Low					Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	
25	125	2.08	0.8	0.26	0.37	0.23	0.04	2.48	743	743	224,579	1,560	743	0	0.00	442.00
26	130	2.17	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
27	135	2.25	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
28	140	2.33	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
29	145	2.42	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
30	150	2.50	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
31	155	2.58	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
32	160	2.67	0.9	0.30	0.37	0.25	0.04	2.79	836	836	224,582	1,560	836	0	0.00	442.00
33	165	2.75	1.0	0.33	0.37	0.28	0.05	3.10	929	929	224,585	1,560	929	0	0.00	442.00
34	170	2.83	1.0	0.33	0.37	0.28	0.05	3.10	929	929	224,585	1,560	929	0	0.00	442.00
35	175	2.92	1.0	0.33	0.37	0.28	0.05	3.10	929	929	224,585	1,560	929	0	0.00	442.00
36	180	3.00	1.0	0.33	0.37	0.28	0.05	3.10	929	929	224,585	1,560	929	0	0.00	442.00
37	185	3.08	1.0	0.33	0.37	0.28	0.05	3.10	929	929	224,585	1,560	929	0	0.00	442.00
38	190	3.17	1.1	0.36	0.37	0.31	0.05	3.41	1,022	1,022	224,588	1,560	1,022	0	0.00	442.00
39	195	3.25	1.1	0.36	0.37	0.31	0.05	3.41	1,022	1,022	224,588	1,560	1,022	0	0.00	442.00
40	200	3.33	1.1	0.36	0.37	0.31	0.05	3.41	1,022	1,022	224,588	1,560	1,022	0	0.00	442.00
41	205	3.42	1.2	0.40	0.37	0.34	0.03	1.81	542	542	224,573	1,560	542	0	0.00	442.00
42	210	3.50	1.3	0.43	0.37	0.37	0.06	3.87	1,161	1,161	224,593	1,560	1,161	0	0.00	442.00
43	215	3.58	1.4	0.46	0.37	0.39	0.10	5.93	1,780	1,780	224,613	1,560	1,560	221	0.01	442.00
44	220	3.67	1.4	0.46	0.37	0.39	0.10	5.93	1,780	2,001	224,620	1,560	1,560	441	0.01	442.00
45	225	3.75	1.5	0.50	0.37	0.42	0.13	8.00	2,400	2,841	224,647	1,560	1,560	1,280	0.03	442.01
46	230	3.83	1.5	0.50	0.37	0.42	0.13	8.00	2,400	3,680	224,675	1,560	1,560	2,120	0.05	442.01
47	235	3.92	1.6	0.53	0.37	0.45	0.16	10.06	3,019	5,138	224,722	1,561	1,561	3,578	0.08	442.02
48	240	4.00	1.6	0.53	0.37	0.45	0.16	10.06	3,019	6,597	224,770	1,561	1,561	5,036	0.12	442.02
49	245	4.08	1.7	0.56	0.37	0.48	0.19	12.13	3,638	8,674	224,837	1,561	1,561	7,112	0.16	442.03
50	250	4.17	1.8	0.60	0.37	0.51	0.23	14.19	4,257	11,369	224,925	1,562	1,562	9,807	0.23	442.04

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	61.80
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.54
UNIT TIME-PERCENT OF LAG	141.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.37	0.53	0.26	16.25	4,876	14,684	225,033	1,563	1,563	13,121	0.30	442.06
52	260	4.33	2.0	0.66	0.37	0.56	0.29	18.32	5,495	18,616	225,161	1,564	1,564	17,053	0.39	442.07
53	265	4.42	2.1	0.70	0.37	0.59	0.33	20.38	6,115	23,167	225,309	1,565	1,565	21,603	0.50	442.09
54	270	4.50	2.1	0.70	0.37	0.59	0.33	20.38	6,115	27,717	225,457	1,566	1,566	26,152	0.60	442.11
55	275	4.58	2.2	0.73	0.37	0.62	0.36	22.45	6,734	32,885	225,625	1,567	1,567	31,318	0.72	442.14
56	280	4.67	2.3	0.76	0.37	0.65	0.39	24.51	7,353	38,671	225,813	1,568	1,568	37,103	0.85	442.16
57	285	4.75	2.4	0.79	0.37	0.68	0.43	26.57	7,972	45,076	226,021	1,570	1,570	43,506	1.00	442.19
58	290	4.83	2.4	0.79	0.37	0.68	0.43	26.57	7,972	51,478	226,230	1,571	1,571	49,907	1.15	442.22
59	295	4.92	2.5	0.83	0.37	0.70	0.46	28.64	8,591	58,498	226,458	1,573	1,573	56,926	1.31	442.25
60	300	5.00	2.6	0.86	0.37	0.73	0.49	30.70	9,211	66,136	226,706	1,574	1,574	64,562	1.48	442.28
61	305	5.08	3.1	1.03	0.37	0.87	0.66	41.02	12,306	76,868	227,055	1,577	1,577	75,292	1.73	442.33
62	310	5.17	3.6	1.19	0.37	1.01	0.82	51.34	15,402	90,694	227,505	1,580	1,580	89,114	2.05	442.39
63	315	5.25	3.9	1.29	0.37	1.10	0.92	57.53	17,260	106,374	228,015	1,583	1,583	104,791	2.41	442.46
64	320	5.33	4.2	1.39	0.37	1.18	1.02	63.72	19,117	123,908	228,586	1,587	1,587	122,321	2.81	442.54
65	325	5.42	4.7	1.56	0.37	1.32	1.19	74.04	22,213	144,534	229,257	1,592	1,592	142,942	3.28	442.63
66	330	5.50	5.6	1.85	0.37	1.58	1.49	**92.62**	**27,786**	170,728	230,109	1,598	1,598	169,130	3.88	442.74
67	335	5.58	1.9	0.63	0.37	0.53	0.26	16.25	4,876	174,006	230,215	1,599	1,599	**172,408**	**3.96**	**442.76**
68	340	5.67	0.9	0.30	0.37	0.25	0.04	2.79	836	173,244	230,190	1,599	1,599	171,645	3.94	442.75
69	345	5.75	0.6	0.20	0.37	0.17	0.03	1.86	557	172,202	230,157	1,598	1,598	170,604	3.92	442.75
70	350	5.83	0.5	0.17	0.37	0.14	0.02	1.55	464	171,068	230,120	1,598	1,598	169,470	3.89	442.74
71	355	5.92	0.3	0.10	0.37	0.08	0.01	0.93	279	169,749	230,077	1,598	1,598	168,151	3.86	442.74
72	360	6.00	0.2	0.07	0.37	0.06	0.01	0.62	186	168,337	230,031	1,597	1,597	166,740	3.83	442.73

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	619,184 cu-ft
SOIL LOSSES	372,822 cu-ft
EFFECTIVE RAIN	1.10 in
FLOOD VOLUME	5.66 acft
FLOOD VOLUME	246,363 cu-ft
REQUIRED STORAGE	3.96 acft
REQUIRED STORAGE	172,408 cu-ft
MAX WSEL	442.76 ft
PEAK FLOW RATE	92.62 cfs
TOTAL BASIN LOSSES	79,623 cu-ft
AVERAGE PERCOLATION RATE	221.18 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	61.80	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.18		
LAG TIME - MINUTES	3.54	C	0.00341	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	424%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.651	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
2	30	0.50	0.3	0.053	0.643	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
3	45	0.75	0.3	0.053	0.636	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
4	60	1.00	0.4	0.071	0.628	0.060	0.01	0.66	594	594	224,574	4,679	594	0	0.00	442.00
5	75	1.25	0.3	0.053	0.621	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
6	90	1.50	0.3	0.053	0.613	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
7	105	1.75	0.3	0.053	0.606	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
8	120	2.00	0.4	0.071	0.599	0.060	0.01	0.66	594	594	224,574	4,679	594	0	0.00	442.00
9	135	2.25	0.4	0.071	0.591	0.060	0.01	0.66	594	594	224,574	4,679	594	0	0.00	442.00
10	150	2.50	0.4	0.071	0.584	0.060	0.01	0.66	594	594	224,574	4,679	594	0	0.00	442.00
11	165	2.75	0.5	0.088	0.577	0.075	0.01	0.82	742	742	224,579	4,679	742	0	0.00	442.00
12	180	3.00	0.5	0.088	0.570	0.075	0.01	0.82	742	742	224,579	4,679	742	0	0.00	442.00
13	195	3.25	0.5	0.088	0.563	0.075	0.01	0.82	742	742	224,579	4,679	742	0	0.00	442.00
14	210	3.50	0.5	0.088	0.556	0.075	0.01	0.82	742	742	224,579	4,679	742	0	0.00	442.00
15	225	3.75	0.5	0.088	0.549	0.075	0.01	0.82	742	742	224,579	4,679	742	0	0.00	442.00
16	240	4.00	0.6	0.106	0.542	0.090	0.02	0.99	890	890	224,584	4,679	890	0	0.00	442.00
17	255	4.25	0.6	0.106	0.535	0.090	0.02	0.99	890	890	224,584	4,679	890	0	0.00	442.00
18	270	4.50	0.7	0.123	0.528	0.105	0.02	1.15	1,039	1,039	224,589	4,679	1,039	0	0.00	442.00
19	285	4.75	0.7	0.123	0.522	0.105	0.02	1.15	1,039	1,039	224,589	4,679	1,039	0	0.00	442.00
20	300	5.00	0.8	0.141	0.515	0.120	0.02	1.32	1,187	1,187	224,594	4,679	1,187	0	0.00	442.00
21	315	5.25	0.6	0.106	0.508	0.090	0.02	0.99	890	890	224,584	4,679	890	0	0.00	442.00
22	330	5.50	0.7	0.123	0.502	0.105	0.02	1.15	1,039	1,039	224,589	4,679	1,039	0	0.00	442.00
23	345	5.75	0.8	0.141	0.495	0.120	0.02	1.32	1,187	1,187	224,594	4,679	1,187	0	0.00	442.00
24	360	6.00	0.8	0.141	0.489	0.120	0.02	1.32	1,187	1,187	224,594	4,679	1,187	0	0.00	442.00
25	375	6.25	0.9	0.159	0.482	0.135	0.02	1.48	1,336	1,336	224,598	4,679	1,336	0	0.00	442.00
26	390	6.50	0.9	0.159	0.476	0.135	0.02	1.48	1,336	1,336	224,598	4,679	1,336	0	0.00	442.00
27	405	6.75	1.0	0.176	0.469	0.150	0.03	1.65	1,484	1,484	224,603	4,679	1,484	0	0.00	442.00
28	420	7.00	1.0	0.176	0.463	0.150	0.03	1.65	1,484	1,484	224,603	4,679	1,484	0	0.00	442.00
29	435	7.25	1.0	0.176	0.457	0.150	0.03	1.65	1,484	1,484	224,603	4,679	1,484	0	0.00	442.00
30	450	7.50	1.1	0.194	0.450	0.165	0.03	1.81	1,632	1,632	224,608	4,679	1,632	0	0.00	442.00
31	465	7.75	1.2	0.212	0.444	0.180	0.03	1.98	1,781	1,781	224,613	4,679	1,781	0	0.00	442.00
32	480	8.00	1.3	0.229	0.438	0.195	0.03	2.14	1,929	1,929	224,618	4,680	1,929	0	0.00	442.00
33	495	8.25	1.5	0.265	0.432	0.225	0.04	2.47	2,226	2,226	224,627	4,680	2,226	0	0.00	442.00
34	510	8.50	1.5	0.265	0.426	0.225	0.04	2.47	2,226	2,226	224,627	4,680	2,226	0	0.00	442.00
35	525	8.75	1.6	0.282	0.420	0.240	0.04	2.64	2,374	2,374	224,632	4,680	2,374	0	0.00	442.00
36	540	9.00	1.7	0.300	0.414	0.255	0.04	2.80	2,523	2,523	224,637	4,680	2,523	0	0.00	442.00
37	555	9.25	1.9	0.335	0.408	0.285	0.05	3.13	2,820	2,820	224,647	4,680	2,820	0	0.00	442.00
38	570	9.50	2.0	0.353	0.402	0.300	0.05	3.30	2,968	2,968	224,652	4,680	2,968	0	0.00	442.00
39	585	9.75	2.1	0.370	0.397	0.315	0.06	3.46	3,116	3,116	224,656	4,680	3,116	0	0.00	442.00
40	600	10.00	2.2	0.388	0.391	0.330	0.06	3.63	3,265	3,265	224,661	4,680	3,265	0	0.00	442.00
41	615	10.25	1.5	0.265	0.385	0.225	0.04	2.47	2,226	2,226	224,627	4,680	2,226	0	0.00	442.00
42	630	10.50	1.5	0.265	0.380	0.225	0.04	2.47	2,226	2,226	224,627	4,680	2,226	0	0.00	442.00
43	645	10.75	2.0	0.353	0.374	0.300	0.05	3.30	2,968	2,968	224,652	4,680	2,968	0	0.00	442.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	61.80	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.18		
LAG TIME - MINUTES	3.54	C	0.00341	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	424%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.353	0.369	0.300	0.05	3.30	2,968	2,968	224,652	4,680	2,968	0	0.00	442.00
45	675	11.25	1.9	0.335	0.363	0.285	0.05	3.13	2,820	2,820	224,647	4,680	2,820	0	0.00	442.00
46	690	11.50	1.9	0.335	0.358	0.285	0.05	3.13	2,820	2,820	224,647	4,680	2,820	0	0.00	442.00
47	705	11.75	1.7	0.300	0.353	0.255	0.04	2.80	2,523	2,523	224,637	4,680	2,523	0	0.00	442.00
48	720	12.00	1.8	0.318	0.347	0.270	0.05	2.97	2,671	2,671	224,642	4,680	2,671	0	0.00	442.00
49	735	12.25	2.5	0.441	0.342	0.375	0.10	6.16	5,540	5,540	224,735	4,682	4,682	858	0.02	442.00
50	750	12.50	2.6	0.459	0.337	0.390	0.12	7.57	6,817	7,675	224,805	4,683	4,683	2,992	0.07	442.01
51	765	12.75	2.8	0.494	0.332	0.420	0.16	10.09	9,080	12,072	224,948	4,686	4,686	7,385	0.17	442.03
52	780	13.00	2.9	0.512	0.327	0.435	0.18	11.50	10,350	17,735	225,132	4,690	4,690	13,045	0.30	442.06
53	795	13.25	3.4	0.600	0.322	0.510	0.28	17.30	15,574	28,619	225,486	4,698	4,698	23,921	0.55	442.10
54	810	13.50	3.4	0.600	0.317	0.510	0.28	**17.61**	**15,848**	39,769	225,849	4,705	4,705	35,064	0.80	442.15
55	825	13.75	2.3	0.406	0.312	0.345	0.09	5.82	5,235	40,299	225,866	4,706	4,706	35,593	0.82	442.16
56	840	14.00	2.3	0.406	0.308	0.345	0.10	6.11	5,502	41,095	225,892	4,706	4,706	36,389	0.84	442.16
57	855	14.25	2.7	0.476	0.303	0.405	0.17	10.80	9,722	46,111	226,055	4,709	4,709	41,401	0.95	442.18
58	870	14.50	2.6	0.459	0.298	0.390	0.16	9.99	8,992	50,393	226,194	4,712	4,712	45,681	1.05	442.20
59	885	14.75	2.6	0.459	0.294	0.390	0.16	10.28	9,248	54,929	226,342	4,715	4,715	50,214	1.15	442.22
60	900	15.00	2.5	0.441	0.289	0.375	0.15	9.46	8,511	58,724	226,465	4,718	4,718	54,006	1.24	442.24
61	915	15.25	2.4	0.423	0.285	0.360	0.14	8.63	7,770	61,776	226,565	4,720	4,720	57,056	1.31	442.25
62	930	15.50	2.3	0.406	0.280	0.345	0.13	7.81	7,025	64,080	226,639	4,722	4,722	**59,359**	**1.36**	**442.26**
63	945	15.75	1.9	0.335	0.276	0.285	0.06	3.68	3,308	62,666	226,593	4,721	4,721	57,946	1.33	442.25
64	960	16.00	1.9	0.335	0.272	0.285	0.06	3.94	3,544	61,490	226,555	4,720	4,720	56,770	1.30	442.25
65	975	16.25	0.4	0.071	0.268	0.060	0.01	0.66	594	57,364	226,421	4,717	4,717	52,647	1.21	442.23
66	990	16.50	0.4	0.071	0.264	0.060	0.01	0.66	594	53,240	226,287	4,714	4,714	48,526	1.11	442.21
67	1005	16.75	0.3	0.053	0.260	0.045	0.01	0.49	445	48,971	226,148	4,711	4,711	44,260	1.02	442.19
68	1020	17.00	0.3	0.053	0.256	0.045	0.01	0.49	445	44,705	226,009	4,709	4,709	39,997	0.92	442.18
69	1035	17.25	0.5	0.088	0.252	0.075	0.01	0.82	742	40,739	225,880	4,706	4,706	36,033	0.83	442.16
70	1050	17.50	0.5	0.088	0.248	0.075	0.01	0.82	742	36,775	225,751	4,703	4,703	32,072	0.74	442.14
71	1065	17.75	0.5	0.088	0.244	0.075	0.01	0.82	742	32,814	225,622	4,700	4,700	28,113	0.65	442.12
72	1080	18.00	0.4	0.071	0.241	0.060	0.01	0.66	594	28,707	225,489	4,698	4,698	24,009	0.55	442.11
73	1095	18.25	0.4	0.071	0.237	0.060	0.01	0.66	594	24,603	225,355	4,695	4,695	19,908	0.46	442.09
74	1110	18.50	0.4	0.071	0.234	0.060	0.01	0.66	594	20,501	225,222	4,692	4,692	15,809	0.36	442.07
75	1125	18.75	0.3	0.053	0.230	0.045	0.01	0.49	445	16,254	225,084	4,689	4,689	11,565	0.27	442.05
76	1140	19.00	0.2	0.035	0.227	0.030	0.01	0.33	297	11,862	224,941	4,686	4,686	7,176	0.16	442.03
77	1155	19.25	0.3	0.053	0.224	0.045	0.01	0.49	445	7,621	224,803	4,683	4,683	2,938	0.07	442.01
78	1170	19.50	0.4	0.071	0.221	0.060	0.01	0.66	594	3,531	224,670	4,681	3,531	0	0.00	442.00
79	1185	19.75	0.3	0.053	0.218	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
80	1200	20.00	0.2	0.035	0.215	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
81	1215	20.25	0.3	0.053	0.212	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
82	1230	20.50	0.3	0.053	0.209	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
83	1245	20.75	0.3	0.053	0.207	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
84	1260	21.00	0.2	0.035	0.204	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
85	1275	21.25	0.3	0.053	0.202	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
86	1290	21.50	0.2	0.035	0.199	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	61.80	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.18		
LAG TIME - MINUTES	3.54	C	0.00341	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	424%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.197	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
88	1320	22.00	0.2	0.035	0.195	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
89	1335	22.25	0.3	0.053	0.193	0.045	0.01	0.49	445	445	224,569	4,679	445	0	0.00	442.00
90	1350	22.50	0.2	0.035	0.191	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
91	1365	22.75	0.2	0.035	0.190	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
92	1380	23.00	0.2	0.035	0.188	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
93	1395	23.25	0.2	0.035	0.187	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
94	1410	23.50	0.2	0.035	0.186	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
95	1425	23.75	0.2	0.035	0.185	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00
96	1440	24.00	0.2	0.035	0.184	0.030	0.01	0.33	297	297	224,565	4,678	297	0	0.00	442.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	989,349 cu-ft
SOIL LOSSES	769,875 cu-ft
EFFECTIVE RAIN	0.98 in
FLOOD VOLUME	5.04 acft
FLOOD VOLUME	219,473 cu-ft
REQUIRED STORAGE	1.36 acft
REQUIRED STORAGE	59,359 cu-ft
MAX WSEL	442.26 ft
PEAK FLOW RATE	17.61 cfs
TOTAL BASIN LOSSES	219,473 cu-ft
AVERAGE PERCOLATION RATE	152.41 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN E

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
442	0	0		224,555	0	0	0.00
443	1	1	7,425	231,980	228,257	228,257	5.24
444	1	2	7,480	239,460	235,710	463,968	10.65
445	1	3	7,540	247,000	243,220	707,188	16.23
446	1	4	7,595	254,595	250,788	957,976	21.99
447	1	5	7,655	262,250	258,413	1,216,389	27.92

WHERE:

$$V = \frac{1}{3}\left(E_1 - E_2\right)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	January 26, 2021
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN G
AREA DESIGNATION	DA-G
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	0.316	D	56	0.51	1.00
4	B	SF - LOW DENSITY	33.880	D	56	0.51	0.30
9	B	LANDSCAPING	1.546	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,350 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	675 ft
ELEVATION OF HEADWATER	464.0 ft
ELEVATION OF CONCENTRATION POINT	455.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
450.0 ft	29,375 sf
451.0 ft	32,950 sf
452.0 ft	36,680 sf
453.0 ft	40,540 sf
454.0 ft	44,615 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN G
[2] AREA DESIGNATION	DA-G
[3] AREA - ACRES	35.742
[4] L-FEET	1350
[5] L-MILES	0.256
[6] La-FEET	675.00
[7] La-MILES	0.128
[8] ELEVATION OF HEADWATER	464
[9] ELEVATION OF CONCENTRATION POINT	455
[10] H-FEET	9
[11] S-FEET/MILE	35.2
[12] S^0.5	5.93
[13] L*LCA/S^0.5	0.006
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.07
[16] LAG TIME-MINUTES	4.0
[17] 100% OF LAG-MINUTES	4.0
[18] 200% OF LAG-MINUTES	8.0

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	186,831	277,652	358,093	**572,171**
SOIL LOSSES	(cu-ft)	48,450	139,349	217,068	**447,389**
EFFECTIVE RAIN	(in)	1.07	1.07	1.09	0.96
FLOOD VOLUME	(cu-ft)	138,381	138,303	**141,025**	124,782
	(acre-ft)	3.18	3.17	**3.24**	2.86
REQUIRED STORAGE	(cu-ft)	**135,473**	129,934	125,173	79,376
	(acre-ft)	**3.11**	2.98	2.87	1.82
FACTOR OF SAFETY		1.09	1.13	1.18	1.85
STORAGE PROVIDED	(cu-ft)	147,099			
	(acre-ft)	3.38			
PEAK FLOW	(cfs)	n/a	62.43	53.39	10.03
MAXIMUM WSEL	(ft)	**453.73**	453.60	453.48	452.35
DEPTH	(ft)	**3.73**	3.60	3.48	2.35
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	2.0	2.1	2.2	2.0

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	1/26/21

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.316	0.009	0.0005	DEVELOPED	0.1000	0.0009
B	SF - LOW DENSITY	56	0.51	30%	0.37	33.880	0.948	0.3529	DEVELOPED	0.6600	0.6256
B	LANDSCAPING	56	0.51	10%	0.46	1.546	0.043	0.0201	DEVELOPED	0.8200	0.0355
					SUM	35.742	SUM	0.3734			0.6620

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.18671505

C= 0.00346

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00346 (24-(T/60))^1.55 + 0.19 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.3734**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	35.74
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.37	0.53	0.25	8.96	2,688	2,688	29,684	206	206	2,482	0.06	450.08
2	10	0.17	4.2	0.73	0.37	0.62	0.35	12.70	3,809	6,292	30,097	209	209	6,083	0.14	450.20
3	15	0.25	4.4	0.76	0.37	0.65	0.39	13.94	4,183	10,266	30,553	212	212	10,054	0.23	450.32
4	20	0.33	4.6	0.79	0.37	0.68	0.42	15.19	4,557	14,610	31,052	216	216	14,395	0.33	450.46
5	25	0.42	5.0	0.86	0.37	0.73	0.49	17.68	5,304	19,699	31,636	220	220	19,479	0.45	450.63
6	30	0.50	5.6	0.97	0.37	0.82	0.59	21.42	6,425	25,904	32,348	225	225	25,679	0.59	450.82
7	35	0.58	6.4	1.11	0.37	0.94	0.73	26.40	7,920	33,599	33,213	231	231	33,368	0.77	451.06
8	40	0.67	8.1	1.40	0.37	1.19	1.03	36.99	11,096	44,464	34,378	239	239	44,225	1.02	451.38
9	45	0.75	13.1	2.26	0.37	1.92	1.89	68.12	20,437	64,663	36,543	254	254	64,409	1.48	451.96
10	50	0.83	34.5	5.96	0.37	5.07	5.59	**201.40**	**60,419**	124,828	42,483	295	295	124,533	2.86	453.47
11	55	0.92	6.7	1.16	0.37	0.98	0.78	28.27	8,480	133,013	43,266	300	300	132,713	3.05	453.66
12	60	1.00	3.8	0.66	0.37	0.56	0.28	10.21	3,062	135,775	43,531	302	302	**135,473**	**3.11**	**453.73**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	186,831 cu-ft
SOIL LOSSES	48,450 cu-ft
EFFECTIVE RAIN	1.07 in
FLOOD VOLUME	3.18 acft
FLOOD VOLUME	138,381 cu-ft
REQUIRED STORAGE	3.11
REQUIRED STORAGE	135,473 cu-ft
MAX WSEL	453.73 ft
PEAK FLOW RATE	201.40 cfs
TOTAL BASIN LOSSES	2,908 cu-ft
AVERAGE PERCOLATION RATE	48.47 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	35.74
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation	Maximum	Percolation			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	Area sf	Percolation cu-ft	Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.37	0.28	0.05	1.80	541	541	29,437	204	204	337	0.01	450.01
2	10	0.17	1.3	0.33	0.37	0.28	0.05	1.80	541	878	29,476	205	205	674	0.02	450.02
3	15	0.25	1.1	0.28	0.37	0.24	0.04	1.53	458	1,132	29,505	205	205	927	0.02	450.03
4	20	0.33	1.5	0.39	0.37	0.33	0.01	0.42	127	1,054	29,496	205	205	849	0.02	450.03
5	25	0.42	1.5	0.39	0.37	0.33	0.01	0.42	127	977	29,487	205	205	772	0.02	450.02
6	30	0.50	1.8	0.46	0.37	0.39	0.09	3.20	960	1,732	29,574	205	205	1,527	0.04	450.05
7	35	0.58	1.5	0.39	0.37	0.33	0.01	0.42	127	1,654	29,565	205	205	1,449	0.03	450.05
8	40	0.67	1.8	0.46	0.37	0.39	0.09	3.20	960	2,409	29,651	206	206	2,203	0.05	450.07
9	45	0.75	1.8	0.46	0.37	0.39	0.09	3.20	960	3,163	29,738	207	207	2,957	0.07	450.09
10	50	0.83	1.5	0.39	0.37	0.33	0.01	0.42	127	3,084	29,729	206	206	2,877	0.07	450.09
11	55	0.92	1.6	0.41	0.37	0.35	0.04	1.35	405	3,282	29,752	207	207	3,076	0.07	450.10
12	60	1.00	1.8	0.46	0.37	0.39	0.09	3.20	960	4,036	29,838	207	207	3,829	0.09	450.12
13	65	1.08	2.2	0.56	0.37	0.48	0.19	6.90	2,071	5,900	30,052	209	209	5,691	0.13	450.18
14	70	1.17	2.2	0.56	0.37	0.48	0.19	6.90	2,071	7,762	30,266	210	210	7,552	0.17	450.24
15	75	1.25	2.2	0.56	0.37	0.48	0.19	6.90	2,071	9,622	30,479	212	212	9,411	0.22	450.30
16	80	1.33	2.0	0.51	0.37	0.44	0.14	5.05	1,516	10,926	30,629	213	213	10,713	0.25	450.34
17	85	1.42	2.6	0.67	0.37	0.57	0.29	10.60	3,181	13,895	30,970	215	215	13,680	0.31	450.44
18	90	1.50	2.7	0.69	0.37	0.59	0.32	11.53	3,459	17,139	31,342	218	218	16,921	0.39	450.54
19	95	1.58	2.4	0.62	0.37	0.52	0.24	8.75	2,626	19,547	31,619	220	220	19,328	0.44	450.62
20	100	1.67	2.7	0.69	0.37	0.59	0.32	11.53	3,459	22,787	31,991	222	222	22,565	0.52	450.72
21	105	1.75	3.3	0.85	0.37	0.72	0.47	17.08	5,125	27,690	32,553	226	226	27,464	0.63	450.88
22	110	1.83	3.1	0.80	0.37	0.68	0.42	15.23	4,570	32,033	33,045	229	229	31,804	0.73	451.02
23	115	1.92	2.9	0.74	0.37	0.63	0.37	13.38	4,014	35,818	33,451	232	232	35,586	0.82	451.13
24	120	2.00	3.0	0.77	0.37	0.65	0.40	14.31	4,292	39,878	33,886	235	235	39,643	0.91	451.24
25	125	2.08	3.1	0.80	0.37	0.68	0.42	15.23	4,570	44,212	34,351	239	239	43,974	1.01	451.37

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	35.74
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
26	130	2.17	4.2	1.08	0.37	0.92	0.71	25.41	7,624	51,598	35,142	244	244	51,354	1.18	451.58
27	135	2.25	5.0	1.28	0.37	1.09	0.91	32.82	9,845	61,199	36,171	251	251	60,948	1.40	451.86
28	140	2.33	3.5	0.90	0.37	0.76	0.53	18.93	5,680	66,628	36,748	255	255	66,373	1.52	452.01
29	145	2.42	6.8	1.75	0.37	1.48	1.37	49.48	14,843	81,215	38,207	265	265	80,950	1.86	452.39
30	150	2.50	7.3	1.87	0.37	1.59	1.50	54.10	16,231	97,181	39,804	276	276	96,905	2.22	452.80
31	155	2.58	8.2	2.11	0.37	1.79	1.73	**62.43**	**18,730**	115,635	41,602	289	289	115,346	2.65	453.25
32	160	2.67	5.9	1.52	0.37	1.29	1.14	41.15	12,344	127,690	42,757	297	297	127,393	2.92	453.54
33	165	2.75	2.0	0.51	0.37	0.44	0.14	5.05	1,516	128,908	42,873	298	298	128,611	2.95	453.57
34	170	2.83	1.8	0.46	0.37	0.39	0.09	3.20	960	129,571	42,937	298	298	129,273	2.97	453.58
35	175	2.92	1.8	0.46	0.37	0.39	0.09	3.20	960	130,233	43,000	299	299	**129,934**	**2.98**	**453.60**
36	180	3.00	0.6	0.15	0.37	0.13	0.02	0.83	250	130,184	42,996	299	299	129,886	2.98	453.60

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	277,652 cu-ft
SOIL LOSSES	139,349 cu-ft
EFFECTIVE RAIN	1.07 in
FLOOD VOLUME	3.17 acft
FLOOD VOLUME	138,303 cu-ft
REQUIRED STORAGE	2.98 acft
REQUIRED STORAGE	129,934 cu-ft
MAX WSEL	453.60 ft
PEAK FLOW RATE	62.43 cfs
TOTAL BASIN LOSSES	8,418 cu-ft
AVERAGE PERCOLATION RATE	46.76 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	35.74
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.37	0.14	0.02	0.90	269	269	29,406	204	204	64	0.00	450.00
2	10	0.17	0.6	0.20	0.37	0.17	0.03	1.07	322	387	29,419	204	204	182	0.00	450.01
3	15	0.25	0.6	0.20	0.37	0.17	0.03	1.07	322	505	29,433	204	204	300	0.01	450.01
4	20	0.33	0.6	0.20	0.37	0.17	0.03	1.07	322	623	29,446	204	204	418	0.01	450.01
5	25	0.42	0.6	0.20	0.37	0.17	0.03	1.07	322	740	29,460	205	205	536	0.01	450.02
6	30	0.50	0.7	0.23	0.37	0.20	0.03	1.25	376	912	29,480	205	205	707	0.02	450.02
7	35	0.58	0.7	0.23	0.37	0.20	0.03	1.25	376	1,083	29,499	205	205	878	0.02	450.03
8	40	0.67	0.7	0.23	0.37	0.20	0.03	1.25	376	1,254	29,519	205	205	1,049	0.02	450.03
9	45	0.75	0.7	0.23	0.37	0.20	0.03	1.25	376	1,425	29,539	205	205	1,220	0.03	450.04
10	50	0.83	0.7	0.23	0.37	0.20	0.03	1.25	376	1,596	29,558	205	205	1,391	0.03	450.04
11	55	0.92	0.7	0.23	0.37	0.20	0.03	1.25	376	1,767	29,578	205	205	1,561	0.04	450.05
12	60	1.00	0.8	0.26	0.37	0.23	0.04	1.43	430	1,991	29,604	206	206	1,785	0.04	450.06
13	65	1.08	0.8	0.26	0.37	0.23	0.04	1.43	430	2,215	29,629	206	206	2,009	0.05	450.06
14	70	1.17	0.8	0.26	0.37	0.23	0.04	1.43	430	2,439	29,655	206	206	2,233	0.05	450.07
15	75	1.25	0.8	0.26	0.37	0.23	0.04	1.43	430	2,663	29,681	206	206	2,457	0.06	450.08
16	80	1.33	0.8	0.26	0.37	0.23	0.04	1.43	430	2,887	29,706	206	206	2,680	0.06	450.09
17	85	1.42	0.8	0.26	0.37	0.23	0.04	1.43	430	3,110	29,732	206	206	2,903	0.07	450.09
18	90	1.50	0.8	0.26	0.37	0.23	0.04	1.43	430	3,333	29,758	207	207	3,127	0.07	450.10
19	95	1.58	0.8	0.26	0.37	0.23	0.04	1.43	430	3,556	29,783	207	207	3,349	0.08	450.11
20	100	1.67	0.8	0.26	0.37	0.23	0.04	1.43	430	3,779	29,809	207	207	3,572	0.08	450.11
21	105	1.75	0.8	0.26	0.37	0.23	0.04	1.43	430	4,002	29,834	207	207	3,795	0.09	450.12
22	110	1.83	0.8	0.26	0.37	0.23	0.04	1.43	430	4,224	29,860	207	207	4,017	0.09	450.13
23	115	1.92	0.8	0.26	0.37	0.23	0.04	1.43	430	4,447	29,885	208	208	4,239	0.10	450.14
24	120	2.00	0.9	0.30	0.37	0.25	0.04	1.61	483	4,723	29,917	208	208	4,515	0.10	450.14

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	35.74
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses			Total In Basin		Basin WSEL ft
	Minutes	Hours	(Plate E-5.9)		Max	Low					Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	
25	125	2.08	0.8	0.26	0.37	0.23	0.04	1.43	430	4,945	29,943	208	208	4,737	0.11	450.15
26	130	2.17	0.9	0.30	0.37	0.25	0.04	1.61	483	5,220	29,974	208	208	5,012	0.12	450.16
27	135	2.25	0.9	0.30	0.37	0.25	0.04	1.61	483	5,495	30,006	208	208	5,287	0.12	450.17
28	140	2.33	0.9	0.30	0.37	0.25	0.04	1.61	483	5,770	30,037	209	209	5,562	0.13	450.18
29	145	2.42	0.9	0.30	0.37	0.25	0.04	1.61	483	6,045	30,069	209	209	5,836	0.13	450.19
30	150	2.50	0.9	0.30	0.37	0.25	0.04	1.61	483	6,320	30,100	209	209	6,111	0.14	450.20
31	155	2.58	0.9	0.30	0.37	0.25	0.04	1.61	483	6,594	30,132	209	209	6,385	0.15	450.21
32	160	2.67	0.9	0.30	0.37	0.25	0.04	1.61	483	6,868	30,163	209	209	6,659	0.15	450.21
33	165	2.75	1.0	0.33	0.37	0.28	0.05	1.79	537	7,196	30,201	210	210	6,986	0.16	450.22
34	170	2.83	1.0	0.33	0.37	0.28	0.05	1.79	537	7,523	30,239	210	210	7,313	0.17	450.23
35	175	2.92	1.0	0.33	0.37	0.28	0.05	1.79	537	7,851	30,276	210	210	7,640	0.18	450.25
36	180	3.00	1.0	0.33	0.37	0.28	0.05	1.79	537	8,178	30,314	211	211	7,967	0.18	450.26
37	185	3.08	1.0	0.33	0.37	0.28	0.05	1.79	537	8,504	30,351	211	211	8,293	0.19	450.27
38	190	3.17	1.1	0.36	0.37	0.31	0.05	1.97	591	8,884	30,395	211	211	8,673	0.20	450.28
39	195	3.25	1.1	0.36	0.37	0.31	0.05	1.97	591	9,264	30,438	211	211	9,053	0.21	450.29
40	200	3.33	1.1	0.36	0.37	0.31	0.05	1.97	591	9,643	30,482	212	212	9,432	0.22	450.30
41	205	3.42	1.2	0.40	0.37	0.34	0.02	0.87	260	9,691	30,487	212	212	9,480	0.22	450.30
42	210	3.50	1.3	0.43	0.37	0.37	0.06	2.06	618	10,097	30,534	212	212	9,885	0.23	450.32
43	215	3.58	1.4	0.46	0.37	0.39	0.09	3.25	976	10,861	30,622	213	213	10,648	0.24	450.34
44	220	3.67	1.4	0.46	0.37	0.39	0.09	3.25	976	11,624	30,709	213	213	11,411	0.26	450.37
45	225	3.75	1.5	0.50	0.37	0.42	0.12	4.45	1,334	12,745	30,838	214	214	12,531	0.29	450.40
46	230	3.83	1.5	0.50	0.37	0.42	0.12	4.45	1,334	13,865	30,966	215	215	13,650	0.31	450.44
47	235	3.92	1.6	0.53	0.37	0.45	0.16	5.64	1,692	15,341	31,136	216	216	15,125	0.35	450.49
48	240	4.00	1.6	0.53	0.37	0.45	0.16	5.64	1,692	16,817	31,305	217	217	16,600	0.38	450.53
49	245	4.08	1.7	0.56	0.37	0.48	0.19	6.83	2,050	18,650	31,516	219	219	18,431	0.42	450.59
50	250	4.17	1.8	0.60	0.37	0.51	0.22	8.03	2,408	20,839	31,767	221	221	20,619	0.47	450.66

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	35.74
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.37
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.37	0.53	0.26	9.22	2,766	23,385	32,059	223	223	23,162	0.53	450.74
52	260	4.33	2.0	0.66	0.37	0.56	0.29	10.41	3,124	26,287	32,392	225	225	26,062	0.60	450.84
53	265	4.42	2.1	0.70	0.37	0.59	0.32	11.61	3,482	29,544	32,766	228	228	29,317	0.67	450.94
54	270	4.50	2.1	0.70	0.37	0.59	0.32	11.61	3,482	32,799	33,127	230	230	32,569	0.75	451.04
55	275	4.58	2.2	0.73	0.37	0.62	0.36	12.80	3,841	36,409	33,514	233	233	36,177	0.83	451.14
56	280	4.67	2.3	0.76	0.37	0.65	0.39	14.00	4,199	40,375	33,939	236	236	40,140	0.92	451.26
57	285	4.75	2.4	0.79	0.37	0.68	0.42	15.19	4,557	44,696	34,403	239	239	44,457	1.02	451.38
58	290	4.83	2.4	0.79	0.37	0.68	0.42	15.19	4,557	49,014	34,865	242	242	48,772	1.12	451.51
59	295	4.92	2.5	0.83	0.37	0.70	0.45	16.38	4,915	53,687	35,366	246	246	53,441	1.23	451.64
60	300	5.00	2.6	0.86	0.37	0.73	0.49	17.58	5,273	58,714	35,905	249	249	58,465	1.34	451.79
61	305	5.08	3.1	1.03	0.37	0.87	0.65	23.54	7,063	65,528	36,635	254	254	65,274	1.50	451.98
62	310	5.17	3.6	1.19	0.37	1.01	0.82	29.51	8,854	74,128	37,499	260	260	73,867	1.70	452.21
63	315	5.25	3.9	1.29	0.37	1.10	0.92	33.09	9,928	83,795	38,465	267	267	83,528	1.92	452.46
64	320	5.33	4.2	1.39	0.37	1.18	1.02	36.67	11,002	94,531	39,539	275	275	94,256	2.16	452.73
65	325	5.42	4.7	1.56	0.37	1.32	1.18	42.64	12,793	107,049	40,780	283	283	106,766	2.45	453.05
66	330	5.50	5.6	1.85	0.37	1.58	1.48	**53.39**	**16,016**	122,781	42,287	294	294	122,488	2.81	453.42
67	335	5.58	1.9	0.63	0.37	0.53	0.26	9.22	2,766	125,254	42,523	295	295	124,959	2.87	453.48
68	340	5.67	0.9	0.30	0.37	0.25	0.04	1.61	483	125,442	42,541	295	295	125,147	2.87	453.48
69	345	5.75	0.6	0.20	0.37	0.17	0.03	1.07	322	125,469	42,544	295	295	**125,173**	**2.87**	**453.48**
70	350	5.83	0.5	0.17	0.37	0.14	0.02	0.90	269	125,442	42,541	295	295	125,147	2.87	453.48
71	355	5.92	0.3	0.10	0.37	0.08	0.01	0.54	161	125,308	42,529	295	295	125,012	2.87	453.48
72	360	6.00	0.2	0.07	0.37	0.06	0.01	0.36	107	125,120	42,511	295	295	124,825	2.87	453.48

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	358,093 cu-ft
SOIL LOSSES	217,068 cu-ft
EFFECTIVE RAIN	1.09 in
FLOOD VOLUME	3.24 acft
FLOOD VOLUME	141,025 cu-ft
REQUIRED STORAGE	2.87 acft
REQUIRED STORAGE	125,173 cu-ft
MAX WSEL	453.48 ft
PEAK FLOW RATE	53.39 cfs
TOTAL BASIN LOSSES	16,201 cu-ft
AVERAGE PERCOLATION RATE	45.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	35.74	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.19		
LAG TIME - MINUTES	3.99	C	0.00346	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.659	0.030	0.01	0.19	172	172	29,395	612	172	0	0.00	450.00
2	30	0.50	0.3	0.053	0.652	0.045	0.01	0.29	257	257	29,405	613	257	0	0.00	450.00
3	45	0.75	0.3	0.053	0.644	0.045	0.01	0.29	257	257	29,405	613	257	0	0.00	450.00
4	60	1.00	0.4	0.071	0.637	0.060	0.01	0.38	343	343	29,414	613	343	0	0.00	450.00
5	75	1.25	0.3	0.053	0.629	0.045	0.01	0.29	257	257	29,405	613	257	0	0.00	450.00
6	90	1.50	0.3	0.053	0.622	0.045	0.01	0.29	257	257	29,405	613	257	0	0.00	450.00
7	105	1.75	0.3	0.053	0.614	0.045	0.01	0.29	257	257	29,405	613	257	0	0.00	450.00
8	120	2.00	0.4	0.071	0.607	0.060	0.01	0.38	343	343	29,414	613	343	0	0.00	450.00
9	135	2.25	0.4	0.071	0.599	0.060	0.01	0.38	343	343	29,414	613	343	0	0.00	450.00
10	150	2.50	0.4	0.071	0.592	0.060	0.01	0.38	343	343	29,414	613	343	0	0.00	450.00
11	165	2.75	0.5	0.088	0.585	0.075	0.01	0.48	429	429	29,424	613	429	0	0.00	450.00
12	180	3.00	0.5	0.088	0.578	0.075	0.01	0.48	429	429	29,424	613	429	0	0.00	450.00
13	195	3.25	0.5	0.088	0.571	0.075	0.01	0.48	429	429	29,424	613	429	0	0.00	450.00
14	210	3.50	0.5	0.088	0.564	0.075	0.01	0.48	429	429	29,424	613	429	0	0.00	450.00
15	225	3.75	0.5	0.088	0.556	0.075	0.01	0.48	429	429	29,424	613	429	0	0.00	450.00
16	240	4.00	0.6	0.106	0.549	0.090	0.02	0.57	515	515	29,434	613	515	0	0.00	450.00
17	255	4.25	0.6	0.106	0.542	0.090	0.02	0.57	515	515	29,434	613	515	0	0.00	450.00
18	270	4.50	0.7	0.123	0.536	0.105	0.02	0.67	601	601	29,444	613	601	0	0.00	450.00
19	285	4.75	0.7	0.123	0.529	0.105	0.02	0.67	601	601	29,444	613	601	0	0.00	450.00
20	300	5.00	0.8	0.141	0.522	0.120	0.02	0.76	687	687	29,454	614	614	73	0.00	450.00
21	315	5.25	0.6	0.106	0.515	0.090	0.02	0.57	515	588	29,442	613	588	0	0.00	450.00
22	330	5.50	0.7	0.123	0.508	0.105	0.02	0.67	601	601	29,444	613	601	0	0.00	450.00
23	345	5.75	0.8	0.141	0.502	0.120	0.02	0.76	687	687	29,454	614	614	73	0.00	450.00
24	360	6.00	0.8	0.141	0.495	0.120	0.02	0.76	687	760	29,462	614	614	146	0.00	450.00
25	375	6.25	0.9	0.159	0.489	0.135	0.02	0.86	772	918	29,480	614	614	304	0.01	450.01
26	390	6.50	0.9	0.159	0.482	0.135	0.02	0.86	772	1,076	29,499	615	615	462	0.01	450.01
27	405	6.75	1.0	0.176	0.476	0.150	0.03	0.95	858	1,320	29,527	615	615	705	0.02	450.02
28	420	7.00	1.0	0.176	0.469	0.150	0.03	0.95	858	1,563	29,554	616	616	948	0.02	450.03
29	435	7.25	1.0	0.176	0.463	0.150	0.03	0.95	858	1,806	29,582	616	616	1,190	0.03	450.04
30	450	7.50	1.1	0.194	0.456	0.165	0.03	1.05	944	2,134	29,620	617	617	1,517	0.03	450.05
31	465	7.75	1.2	0.212	0.450	0.180	0.03	1.14	1,030	2,546	29,667	618	618	1,928	0.04	450.06
32	480	8.00	1.3	0.229	0.444	0.195	0.03	1.24	1,116	3,044	29,724	619	619	2,425	0.06	450.08
33	495	8.25	1.5	0.265	0.438	0.225	0.04	1.43	1,287	3,712	29,801	621	621	3,091	0.07	450.10
34	510	8.50	1.5	0.265	0.432	0.225	0.04	1.43	1,287	4,379	29,878	622	622	3,756	0.09	450.12
35	525	8.75	1.6	0.282	0.426	0.240	0.04	1.53	1,373	5,130	29,964	624	624	4,505	0.10	450.14
36	540	9.00	1.7	0.300	0.420	0.255	0.04	1.62	1,459	5,964	30,060	626	626	5,338	0.12	450.17
37	555	9.25	1.9	0.335	0.414	0.285	0.05	1.81	1,631	6,969	30,175	629	629	6,340	0.15	450.20
38	570	9.50	2.0	0.353	0.408	0.300	0.05	1.91	1,717	8,057	30,300	631	631	7,425	0.17	450.24
39	585	9.75	2.1	0.370	0.402	0.315	0.06	2.00	1,802	9,228	30,434	634	634	8,594	0.20	450.28
40	600	10.00	2.2	0.388	0.396	0.330	0.06	2.10	1,888	10,482	30,578	637	637	9,845	0.23	450.32
41	615	10.25	1.5	0.265	0.391	0.225	0.04	1.43	1,287	11,132	30,653	639	639	10,494	0.24	450.34
42	630	10.50	1.5	0.265	0.385	0.225	0.04	1.43	1,287	11,781	30,727	640	640	11,141	0.26	450.36
43	645	10.75	2.0	0.353	0.379	0.300	0.05	1.91	1,717	12,857	30,851	643	643	12,215	0.28	450.39

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	35.74	VARIABLE LOSS RATE (AVG) IN/HR	
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.19
LAG TIME - MINUTES	3.99	C	0.00346
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%
TOTAL ADJUSTED STORM RAIN (in)	4.41		

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.353	0.374	0.300	0.05	1.91	1,717	13,931	30,974	645	645	13,286	0.30	450.43
45	675	11.25	1.9	0.335	0.368	0.285	0.05	1.81	1,631	14,917	31,087	648	648	14,269	0.33	450.46
46	690	11.50	1.9	0.335	0.363	0.285	0.05	1.81	1,631	15,900	31,200	650	650	15,250	0.35	450.49
47	705	11.75	1.7	0.300	0.357	0.255	0.04	1.62	1,459	16,709	31,293	652	652	16,057	0.37	450.52
48	720	12.00	1.8	0.318	0.352	0.270	0.05	1.72	1,545	17,602	31,395	654	654	16,947	0.39	450.54
49	735	12.25	2.5	0.441	0.347	0.375	0.09	3.39	3,054	20,002	31,671	660	660	19,342	0.44	450.62
50	750	12.50	2.6	0.459	0.342	0.390	0.12	4.22	3,795	23,136	32,031	667	667	22,469	0.52	450.72
51	765	12.75	2.8	0.494	0.337	0.420	0.16	5.67	5,106	27,575	32,540	678	678	26,897	0.62	450.86
52	780	13.00	2.9	0.512	0.331	0.435	0.18	6.49	5,842	32,739	33,121	690	690	32,049	0.74	451.03
53	795	13.25	3.4	0.600	0.326	0.510	0.27	9.85	8,866	40,915	33,997	708	708	40,206	0.92	451.26
54	810	13.50	3.4	0.600	0.321	0.510	0.28	**10.03**	**9,026**	49,233	34,889	727	727	48,506	1.11	451.50
55	825	13.75	2.3	0.406	0.317	0.345	0.09	3.21	2,891	51,396	35,121	732	732	50,665	1.16	451.56
56	840	14.00	2.3	0.406	0.312	0.345	0.09	3.39	3,047	53,712	35,369	737	737	52,975	1.22	451.63
57	855	14.25	2.7	0.476	0.307	0.405	0.17	6.10	5,490	58,465	35,878	747	747	57,717	1.32	451.76
58	870	14.50	2.6	0.459	0.302	0.390	0.16	5.63	5,070	62,787	36,342	757	757	62,030	1.42	451.89
59	885	14.75	2.6	0.459	0.298	0.390	0.16	5.80	5,220	67,249	36,811	767	767	66,482	1.53	452.01
60	900	15.00	2.5	0.441	0.293	0.375	0.15	5.33	4,795	71,278	37,213	775	775	70,502	1.62	452.12
61	915	15.25	2.4	0.423	0.289	0.360	0.13	4.85	4,369	74,871	37,573	783	783	74,088	1.70	452.21
62	930	15.50	2.3	0.406	0.284	0.345	0.12	4.38	3,940	78,028	37,889	789	789	77,238	1.77	452.29
63	945	15.75	1.9	0.335	0.280	0.285	0.06	1.99	1,792	79,030	37,989	791	791	78,239	1.80	452.32
64	960	16.00	1.9	0.335	0.276	0.285	0.06	2.15	1,931	80,169	38,103	794	794	**79,376**	**1.82**	**452.35**
65	975	16.25	0.4	0.071	0.271	0.060	0.01	0.38	343	79,719	38,058	793	793	78,926	1.81	452.34
66	990	16.50	0.4	0.071	0.267	0.060	0.01	0.38	343	79,269	38,013	792	792	78,477	1.80	452.32
67	1005	16.75	0.3	0.053	0.263	0.045	0.01	0.29	257	78,735	37,959	791	791	77,944	1.79	452.31
68	1020	17.00	0.3	0.053	0.259	0.045	0.01	0.29	257	78,202	37,906	790	790	77,412	1.78	452.30
69	1035	17.25	0.5	0.088	0.255	0.075	0.01	0.48	429	77,841	37,870	789	789	77,052	1.77	452.29
70	1050	17.50	0.5	0.088	0.252	0.075	0.01	0.48	429	77,481	37,834	788	788	76,693	1.76	452.28
71	1065	17.75	0.5	0.088	0.248	0.075	0.01	0.48	429	77,122	37,798	787	787	76,335	1.75	452.27
72	1080	18.00	0.4	0.071	0.244	0.060	0.01	0.38	343	76,678	37,754	787	787	75,891	1.74	452.26
73	1095	18.25	0.4	0.071	0.241	0.060	0.01	0.38	343	76,235	37,709	786	786	75,449	1.73	452.25
74	1110	18.50	0.4	0.071	0.237	0.060	0.01	0.38	343	75,792	37,665	785	785	75,008	1.72	452.23
75	1125	18.75	0.3	0.053	0.234	0.045	0.01	0.29	257	75,265	37,612	784	784	74,482	1.71	452.22
76	1140	19.00	0.2	0.035	0.230	0.030	0.01	0.19	172	74,653	37,551	782	782	73,871	1.70	452.21
77	1155	19.25	0.3	0.053	0.227	0.045	0.01	0.29	257	74,128	37,499	781	781	73,347	1.68	452.19
78	1170	19.50	0.4	0.071	0.224	0.060	0.01	0.38	343	73,691	37,455	780	780	72,910	1.67	452.18
79	1185	19.75	0.3	0.053	0.221	0.045	0.01	0.29	257	73,168	37,403	779	779	72,388	1.66	452.17
80	1200	20.00	0.2	0.035	0.218	0.030	0.01	0.19	172	72,560	37,342	778	778	71,782	1.65	452.15
81	1215	20.25	0.3	0.053	0.215	0.045	0.01	0.29	257	72,040	37,290	777	777	71,263	1.64	452.14
82	1230	20.50	0.3	0.053	0.212	0.045	0.01	0.29	257	71,520	37,238	776	776	70,744	1.62	452.12
83	1245	20.75	0.3	0.053	0.209	0.045	0.01	0.29	257	71,002	37,186	775	775	70,227	1.61	452.11
84	1260	21.00	0.2	0.035	0.207	0.030	0.01	0.19	172	70,399	37,126	773	773	69,625	1.60	452.10
85	1275	21.25	0.3	0.053	0.204	0.045	0.01	0.29	257	69,883	37,074	772	772	69,111	1.59	452.08
86	1290	21.50	0.2	0.035	0.202	0.030	0.01	0.19	172	69,282	37,014	771	771	68,511	1.57	452.07

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	35.74	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.19		
LAG TIME - MINUTES	3.99	C	0.00346	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.200	0.045	0.01	0.29	257	68,769	36,963	770	770	67,998	1.56	452.05
88	1320	22.00	0.2	0.035	0.198	0.030	0.01	0.19	172	68,170	36,903	769	769	67,401	1.55	452.04
89	1335	22.25	0.3	0.053	0.196	0.045	0.01	0.29	257	67,659	36,852	768	768	66,891	1.54	452.02
90	1350	22.50	0.2	0.035	0.194	0.030	0.01	0.19	172	67,063	36,792	766	766	66,296	1.52	452.01
91	1365	22.75	0.2	0.035	0.192	0.030	0.01	0.19	172	66,468	36,732	765	765	65,703	1.51	451.99
92	1380	23.00	0.2	0.035	0.191	0.030	0.01	0.19	172	65,874	36,673	764	764	65,110	1.49	451.98
93	1395	23.25	0.2	0.035	0.190	0.030	0.01	0.19	172	65,282	36,609	763	763	64,519	1.48	451.96
94	1410	23.50	0.2	0.035	0.188	0.030	0.01	0.19	172	64,691	36,546	761	761	63,929	1.47	451.94
95	1425	23.75	0.2	0.035	0.187	0.030	0.01	0.19	172	64,101	36,482	760	760	63,341	1.45	451.93
96	1440	24.00	0.2	0.035	0.187	0.030	0.01	0.19	172	63,513	36,419	759	759	62,754	1.44	451.91

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	572,171 cu-ft
SOIL LOSSES	447,389 cu-ft
EFFECTIVE RAIN	0.96 in
FLOOD VOLUME	2.86 acft
FLOOD VOLUME	124,782 cu-ft
REQUIRED STORAGE	1.82 acft
REQUIRED STORAGE	79,376 cu-ft
MAX WSEL	452.35 ft
PEAK FLOW RATE	10.03 cfs
TOTAL BASIN LOSSES	62,028 cu-ft
AVERAGE PERCOLATION RATE	43.08 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN G

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
450	0	0		29,375	0	0	0.00
451	1	1	3,575	32,950	31,145	31,145	0.71
452	1	2	3,730	36,680	34,798	65,944	1.51
453	1	3	3,860	40,540	38,594	104,538	2.40
454	1	4	4,075	44,615	42,561	147,099	3.38

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	January 26, 2021
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN H
AREA DESIGNATION	DA-H
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
1	B	COMMERCIAL	7.118	D	56	0.51	0.90

LENGTH OF WATERCOURSE (L)	1,350 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	675 ft
ELEVATION OF HEADWATER	464.0 ft
ELEVATION OF CONCENTRATION POINT	455.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
448.0 ft	13,135 sf
449.0 ft	19,390 sf
450.0 ft	21,415 sf
451.0 ft	26,025 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN H
[2] AREA DESIGNATION	DA-H
[3] AREA - ACRES	7.118
[4] L-FEET	1350
[5] L-MILES	0.256
[6] La-FEET	675.00
[7] La-MILES	0.128
[8] ELEVATION OF HEADWATER	464
[9] ELEVATION OF CONCENTRATION POINT	455
[10] H-FEET	9
[11] S-FEET/MILE	35.2
[12] S^0.5	5.93
[13] L*LCA/S^0.5	0.006
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.07
[16] LAG TIME-MINUTES	4.0
[17] 100% OF LAG-MINUTES	4.0
[18] 200% OF LAG-MINUTES	8.0

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	37,207	55,294	71,314	**113,948**
SOIL LOSSES	(cu-ft)	2,504	7,511	14,935	**46,429**
EFFECTIVE RAIN	(in)	1.34	1.85	2.18	2.61
FLOOD VOLUME	(cu-ft)	34,704	47,783	56,379	**67,518**
	(acre-ft)	0.80	1.10	1.29	**1.55**
REQUIRED STORAGE	(cu-ft)	33,264	43,319	47,929	**49,089**
	(acre-ft)	0.76	0.99	1.10	**1.13**
FACTOR OF SAFETY		1.81	1.39	1.26	1.23
STORAGE PROVIDED	(cu-ft)	60,238			
	(acre-ft)	1.38			
PEAK FLOW	(cfs)	n/a	14.42	12.62	3.71
MAXIMUM WSEL	(ft)	449.84	450.29	450.48	**450.53**
DEPTH	(ft)	1.84	2.29	2.48	**2.53**
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	1.0	1.3	1.6	2.1

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	COMMERCIAL	56	0.51	90%	0.10	7.118	1.000	0.0969	DEVELOPED	0.1800	0.1800
					SUM	7.118	SUM	0.0969			0.1800

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.04845

C= 0.00090

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00090 $(24-(T/60))^{1.55}$ + 0.05 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.0969**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	7.12
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.10
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.10	0.53	0.53	3.77	1,131	1,131	13,573	94	94	1,037	0.02	448.06
2	10	0.17	4.2	0.73	0.10	0.62	0.63	4.51	1,354	2,391	14,060	98	98	2,293	0.05	448.14
3	15	0.25	4.4	0.76	0.10	0.65	0.66	4.76	1,428	3,721	14,575	101	101	3,620	0.08	448.22
4	20	0.33	4.6	0.79	0.10	0.68	0.70	5.01	1,503	5,123	15,118	105	105	5,018	0.12	448.31
5	25	0.42	5.0	0.86	0.10	0.73	0.77	5.51	1,652	6,670	15,716	109	109	6,561	0.15	448.41
6	30	0.50	5.6	0.97	0.10	0.82	0.87	6.25	1,875	8,436	16,400	114	114	8,322	0.19	448.51
7	35	0.58	6.4	1.11	0.10	0.94	1.01	7.24	2,173	10,494	17,197	119	119	10,375	0.24	448.64
8	40	0.67	8.1	1.40	0.10	1.19	1.30	9.35	2,805	13,180	18,236	127	127	13,054	0.30	448.81
9	45	0.75	13.1	2.26	0.10	1.92	2.17	15.55	4,666	17,719	19,545	136	136	17,583	0.40	449.07
10	50	0.83	34.5	5.96	0.10	5.07	5.86	**42.09**	**12,628**	30,211	20,785	144	144	30,067	0.69	449.68
11	55	0.92	6.7	1.16	0.10	0.98	1.06	7.61	2,284	32,351	20,998	146	146	32,205	0.74	449.79
12	60	1.00	3.8	0.66	0.10	0.56	0.56	4.02	1,205	33,411	21,103	147	147	**33,264**	**0.76**	**449.84**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	37,207 cu-ft
SOIL LOSSES	2,504 cu-ft
EFFECTIVE RAIN	1.34 in
FLOOD VOLUME	0.80 acft
FLOOD VOLUME	34,704 cu-ft
REQUIRED STORAGE	0.76
REQUIRED STORAGE	33,264 cu-ft
MAX WSEL	449.84 ft
PEAK FLOW RATE	42.09 cfs
TOTAL BASIN LOSSES	1,440 cu-ft
AVERAGE PERCOLATION RATE	23.99 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	7.12
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.10
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation	Maximum	Percolation			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	Area sf	Percolation cu-ft	Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.10	0.28	0.24	1.70	510	510	13,332	93	93	418	0.01	448.03
2	10	0.17	1.3	0.33	0.10	0.28	0.24	1.70	510	928	13,494	94	94	834	0.02	448.05
3	15	0.25	1.1	0.28	0.10	0.24	0.19	1.33	400	1,234	13,612	95	95	1,139	0.03	448.07
4	20	0.33	1.5	0.39	0.10	0.33	0.29	2.07	621	1,760	13,816	96	96	1,664	0.04	448.10
5	25	0.42	1.5	0.39	0.10	0.33	0.29	2.07	621	2,285	14,019	97	97	2,187	0.05	448.14
6	30	0.50	1.8	0.46	0.10	0.39	0.37	2.62	787	2,974	14,286	99	99	2,875	0.07	448.18
7	35	0.58	1.5	0.39	0.10	0.33	0.29	2.07	621	3,496	14,488	101	101	3,395	0.08	448.21
8	40	0.67	1.8	0.46	0.10	0.39	0.37	2.62	787	4,182	14,753	102	102	4,079	0.09	448.25
9	45	0.75	1.8	0.46	0.10	0.39	0.37	2.62	787	4,866	15,018	104	104	4,762	0.11	448.29
10	50	0.83	1.5	0.39	0.10	0.33	0.29	2.07	621	5,382	15,218	106	106	5,277	0.12	448.33
11	55	0.92	1.6	0.41	0.10	0.35	0.31	2.25	676	5,953	15,439	107	107	5,845	0.13	448.36
12	60	1.00	1.8	0.46	0.10	0.39	0.37	2.62	787	6,632	15,702	109	109	6,523	0.15	448.40
13	65	1.08	2.2	0.56	0.10	0.48	0.47	3.36	1,008	7,531	16,050	111	111	7,419	0.17	448.46
14	70	1.17	2.2	0.56	0.10	0.48	0.47	3.36	1,008	8,427	16,397	114	114	8,313	0.19	448.51
15	75	1.25	2.2	0.56	0.10	0.48	0.47	3.36	1,008	9,321	16,743	116	116	9,205	0.21	448.57
16	80	1.33	2.0	0.51	0.10	0.44	0.42	2.99	897	10,102	17,045	118	118	9,984	0.23	448.62
17	85	1.42	2.6	0.67	0.10	0.57	0.57	4.10	1,229	11,213	17,475	121	121	11,091	0.25	448.69
18	90	1.50	2.7	0.69	0.10	0.59	0.60	4.28	1,284	12,376	17,925	124	124	12,251	0.28	448.76
19	95	1.58	2.4	0.62	0.10	0.52	0.52	3.73	1,118	13,370	18,310	127	127	13,243	0.30	448.82
20	100	1.67	2.7	0.69	0.10	0.59	0.60	4.28	1,284	14,527	18,757	130	130	14,397	0.33	448.89
21	105	1.75	3.3	0.85	0.10	0.72	0.75	5.39	1,616	16,013	19,332	134	134	15,878	0.36	448.98
22	110	1.83	3.1	0.80	0.10	0.68	0.70	5.02	1,505	17,384	19,511	135	135	17,248	0.40	449.05
23	115	1.92	2.9	0.74	0.10	0.63	0.65	4.65	1,395	18,643	19,636	136	136	18,507	0.42	449.12
24	120	2.00	3.0	0.77	0.10	0.65	0.67	4.83	1,450	19,957	19,767	137	137	19,820	0.45	449.18
25	125	2.08	3.1	0.80	0.10	0.68	0.70	5.02	1,505	21,325	19,903	138	138	21,187	0.49	449.25

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	7.12
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.10
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
26	130	2.17	4.2	1.08	0.10	0.92	0.98	7.05	2,114	23,301	20,099	140	140	23,161	0.53	449.34
27	135	2.25	5.0	1.28	0.10	1.09	1.19	8.52	2,556	25,717	20,339	141	141	25,576	0.59	449.46
28	140	2.33	3.5	0.90	0.10	0.76	0.80	5.76	1,727	27,303	20,496	142	142	27,160	0.62	449.54
29	145	2.42	6.8	1.75	0.10	1.48	1.65	11.84	3,551	30,712	20,835	145	145	30,567	0.70	449.71
30	150	2.50	7.3	1.87	0.10	1.59	1.78	12.76	3,828	34,395	21,200	147	147	34,248	0.79	449.89
31	155	2.58	8.2	2.11	0.10	1.79	2.01	**14.42**	**4,325**	38,573	21,808	151	151	38,422	0.88	450.08
32	160	2.67	5.9	1.52	0.10	1.29	1.42	10.18	3,054	41,475	22,373	155	155	41,320	0.95	450.20
33	165	2.75	2.0	0.51	0.10	0.44	0.42	2.99	897	42,217	22,517	156	156	42,061	0.97	450.23
34	170	2.83	1.8	0.46	0.10	0.39	0.37	2.62	787	42,848	22,640	157	157	42,690	0.98	450.26
35	175	2.92	1.8	0.46	0.10	0.39	0.37	2.62	787	43,477	22,762	158	158	**43,319**	**0.99**	**450.29**
36	180	3.00	0.6	0.15	0.10	0.13	0.06	0.41	123	43,442	22,756	158	158	43,284	0.99	450.28

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	55,294 cu-ft
SOIL LOSSES	7,511 cu-ft
EFFECTIVE RAIN	1.85 in
FLOOD VOLUME	1.10 acft
FLOOD VOLUME	47,783 cu-ft
REQUIRED STORAGE	0.99 acft
REQUIRED STORAGE	43,319 cu-ft
MAX WSEL	450.29 ft
PEAK FLOW RATE	14.42 cfs
TOTAL BASIN LOSSES	4,499 cu-ft
AVERAGE PERCOLATION RATE	24.99 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	7.12
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.10
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.10	0.14	0.07	0.49	148	148	13,192	92	92	56	0.00	448.00
2	10	0.17	0.6	0.20	0.10	0.17	0.10	0.73	219	276	13,242	92	92	184	0.00	448.01
3	15	0.25	0.6	0.20	0.10	0.17	0.10	0.73	219	403	13,291	92	92	311	0.01	448.02
4	20	0.33	0.6	0.20	0.10	0.17	0.10	0.73	219	530	13,340	93	93	437	0.01	448.03
5	25	0.42	0.6	0.20	0.10	0.17	0.10	0.73	219	656	13,389	93	93	563	0.01	448.03
6	30	0.50	0.7	0.23	0.10	0.20	0.13	0.97	291	854	13,466	94	94	760	0.02	448.05
7	35	0.58	0.7	0.23	0.10	0.20	0.13	0.97	291	1,051	13,542	94	94	957	0.02	448.06
8	40	0.67	0.7	0.23	0.10	0.20	0.13	0.97	291	1,248	13,618	95	95	1,153	0.03	448.07
9	45	0.75	0.7	0.23	0.10	0.20	0.13	0.97	291	1,443	13,694	95	95	1,348	0.03	448.08
10	50	0.83	0.7	0.23	0.10	0.20	0.13	0.97	291	1,639	13,769	96	96	1,543	0.04	448.10
11	55	0.92	0.7	0.23	0.10	0.20	0.13	0.97	291	1,834	13,845	96	96	1,738	0.04	448.11
12	60	1.00	0.8	0.26	0.10	0.23	0.17	1.21	362	2,100	13,948	97	97	2,003	0.05	448.12
13	65	1.08	0.8	0.26	0.10	0.23	0.17	1.21	362	2,365	14,050	98	98	2,267	0.05	448.14
14	70	1.17	0.8	0.26	0.10	0.23	0.17	1.21	362	2,629	14,152	98	98	2,531	0.06	448.16
15	75	1.25	0.8	0.26	0.10	0.23	0.17	1.21	362	2,892	14,254	99	99	2,794	0.06	448.17
16	80	1.33	0.8	0.26	0.10	0.23	0.17	1.21	362	3,155	14,356	100	100	3,056	0.07	448.19
17	85	1.42	0.8	0.26	0.10	0.23	0.17	1.21	362	3,418	14,458	100	100	3,317	0.08	448.21
18	90	1.50	0.8	0.26	0.10	0.23	0.17	1.21	362	3,679	14,559	101	101	3,578	0.08	448.22
19	95	1.58	0.8	0.26	0.10	0.23	0.17	1.21	362	3,940	14,660	102	102	3,838	0.09	448.24
20	100	1.67	0.8	0.26	0.10	0.23	0.17	1.21	362	4,200	14,760	103	103	4,097	0.09	448.25
21	105	1.75	0.8	0.26	0.10	0.23	0.17	1.21	362	4,459	14,861	103	103	4,356	0.10	448.27
22	110	1.83	0.8	0.26	0.10	0.23	0.17	1.21	362	4,718	14,961	104	104	4,614	0.11	448.29
23	115	1.92	0.8	0.26	0.10	0.23	0.17	1.21	362	4,976	15,061	105	105	4,871	0.11	448.30
24	120	2.00	0.9	0.30	0.10	0.25	0.20	1.44	433	5,304	15,188	105	105	5,199	0.12	448.32

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	7.12
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.10
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation	Maximum	Percolation			WSEL
				in/hr	Max	Low		Flow			Area	Percolation	Out			
			(Plate E-5.9)				in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
25	125	2.08	0.8	0.26	0.10	0.23	0.17	1.21	362	5,561	15,287	106	106	5,455	0.13	448.34
26	130	2.17	0.9	0.30	0.10	0.25	0.20	1.44	433	5,888	15,414	107	107	5,781	0.13	448.36
27	135	2.25	0.9	0.30	0.10	0.25	0.20	1.44	433	6,214	15,540	108	108	6,106	0.14	448.38
28	140	2.33	0.9	0.30	0.10	0.25	0.20	1.44	433	6,539	15,666	109	109	6,430	0.15	448.40
29	145	2.42	0.9	0.30	0.10	0.25	0.20	1.44	433	6,864	15,791	110	110	6,754	0.16	448.42
30	150	2.50	0.9	0.30	0.10	0.25	0.20	1.44	433	7,187	15,917	111	111	7,077	0.16	448.44
31	155	2.58	0.9	0.30	0.10	0.25	0.20	1.44	433	7,510	16,042	111	111	7,398	0.17	448.46
32	160	2.67	0.9	0.30	0.10	0.25	0.20	1.44	433	7,832	16,166	112	112	7,719	0.18	448.48
33	165	2.75	1.0	0.33	0.10	0.28	0.23	1.68	504	8,224	16,318	113	113	8,111	0.19	448.50
34	170	2.83	1.0	0.33	0.10	0.28	0.23	1.68	504	8,615	16,469	114	114	8,501	0.20	448.53
35	175	2.92	1.0	0.33	0.10	0.28	0.23	1.68	504	9,005	16,620	115	115	8,890	0.20	448.55
36	180	3.00	1.0	0.33	0.10	0.28	0.23	1.68	504	9,394	16,771	116	116	9,278	0.21	448.57
37	185	3.08	1.0	0.33	0.10	0.28	0.23	1.68	504	9,782	16,921	118	118	9,665	0.22	448.60
38	190	3.17	1.1	0.36	0.10	0.31	0.27	1.92	576	10,241	17,098	119	119	10,122	0.23	448.63
39	195	3.25	1.1	0.36	0.10	0.31	0.27	1.92	576	10,698	17,275	120	120	10,578	0.24	448.65
40	200	3.33	1.1	0.36	0.10	0.31	0.27	1.92	576	11,153	17,452	121	121	11,032	0.25	448.68
41	205	3.42	1.2	0.40	0.10	0.34	0.30	2.16	647	11,679	17,655	123	123	11,557	0.27	448.72
42	210	3.50	1.3	0.43	0.10	0.37	0.33	2.39	718	12,275	17,886	124	124	12,151	0.28	448.75
43	215	3.58	1.4	0.46	0.10	0.39	0.37	2.63	790	12,941	18,144	126	126	12,815	0.29	448.79
44	220	3.67	1.4	0.46	0.10	0.39	0.37	2.63	790	13,605	18,400	128	128	13,477	0.31	448.83
45	225	3.75	1.5	0.50	0.10	0.42	0.40	2.87	861	14,338	18,684	130	130	14,208	0.33	448.88
46	230	3.83	1.5	0.50	0.10	0.42	0.40	2.87	861	15,069	18,967	132	132	14,937	0.34	448.92
47	235	3.92	1.6	0.53	0.10	0.45	0.43	3.11	932	15,870	19,277	134	134	15,736	0.36	448.97
48	240	4.00	1.6	0.53	0.10	0.45	0.43	3.11	932	16,668	19,440	135	135	16,533	0.38	449.02
49	245	4.08	1.7	0.56	0.10	0.48	0.47	3.35	1,004	17,537	19,527	136	136	17,401	0.40	449.06
50	250	4.17	1.8	0.60	0.10	0.51	0.50	3.58	1,075	18,476	19,620	136	136	18,340	0.42	449.11

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	7.12
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.10
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.10	0.53	0.53	3.82	1,146	19,486	19,720	137	137	19,350	0.44	449.16
52	260	4.33	2.0	0.66	0.10	0.56	0.57	4.06	1,218	20,567	19,827	138	138	20,429	0.47	449.21
53	265	4.42	2.1	0.70	0.10	0.59	0.60	4.30	1,289	21,718	19,942	138	138	21,580	0.50	449.27
54	270	4.50	2.1	0.70	0.10	0.59	0.60	4.30	1,289	22,869	20,056	139	139	22,730	0.52	449.32
55	275	4.58	2.2	0.73	0.10	0.62	0.63	4.53	1,360	24,090	20,177	140	140	23,950	0.55	449.38
56	280	4.67	2.3	0.76	0.10	0.65	0.66	4.77	1,432	25,381	20,305	141	141	25,240	0.58	449.45
57	285	4.75	2.4	0.79	0.10	0.68	0.70	5.01	1,503	26,743	20,441	142	142	26,601	0.61	449.51
58	290	4.83	2.4	0.79	0.10	0.68	0.70	5.01	1,503	28,104	20,576	143	143	27,961	0.64	449.58
59	295	4.92	2.5	0.83	0.10	0.70	0.73	5.25	1,574	29,535	20,718	144	144	29,392	0.67	449.65
60	300	5.00	2.6	0.86	0.10	0.73	0.76	5.49	1,646	31,037	20,867	145	145	30,892	0.71	449.72
61	305	5.08	3.1	1.03	0.10	0.87	0.93	6.67	2,002	32,894	21,051	146	146	32,748	0.75	449.81
62	310	5.17	3.6	1.19	0.10	1.01	1.10	7.86	2,359	35,107	21,271	148	148	34,959	0.80	449.92
63	315	5.25	3.9	1.29	0.10	1.10	1.19	8.58	2,573	37,532	21,605	150	150	37,382	0.86	450.03
64	320	5.33	4.2	1.39	0.10	1.18	1.29	9.29	2,787	40,168	22,118	154	154	40,015	0.92	450.15
65	325	5.42	4.7	1.56	0.10	1.32	1.46	10.48	3,143	43,158	22,700	158	158	43,000	0.99	450.27
66	330	5.50	5.6	1.85	0.10	1.58	1.76	**12.62**	**3,785**	46,785	23,406	163	163	46,622	1.07	450.43
67	335	5.58	1.9	0.63	0.10	0.53	0.53	3.82	1,146	47,769	23,598	164	164	47,605	1.09	450.47
68	340	5.67	0.9	0.30	0.10	0.25	0.20	1.44	433	48,038	23,650	164	164	47,874	1.10	450.48
69	345	5.75	0.6	0.20	0.10	0.17	0.10	0.73	219	48,093	23,661	164	164	**47,929**	**1.10**	**450.48**
70	350	5.83	0.5	0.17	0.10	0.14	0.07	0.49	148	48,077	23,658	164	164	47,912	1.10	450.48
71	355	5.92	0.3	0.10	0.10	0.08	0.00	0.02	5	47,918	23,627	164	164	47,754	1.10	450.47
72	360	6.00	0.2	0.07	0.10	0.06	0.01	0.07	21	47,775	23,599	164	164	47,611	1.09	450.47

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	71,314 cu-ft
SOIL LOSSES	14,935 cu-ft
EFFECTIVE RAIN	2.18 in
FLOOD VOLUME	1.29 acft
FLOOD VOLUME	56,379 cu-ft
REQUIRED STORAGE	1.10 acft
REQUIRED STORAGE	47,929 cu-ft
MAX WSEL	450.48 ft
PEAK FLOW RATE	12.62 cfs
TOTAL BASIN LOSSES	8,768 cu-ft
AVERAGE PERCOLATION RATE	24.36 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	7.12	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.05		
LAG TIME - MINUTES	3.99	C	0.00090	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.171	0.030	0.01	0.04	34	34	13,148	274	34	0	0.00	448.00
2	30	0.50	0.3	0.053	0.169	0.045	0.01	0.06	51	51	13,155	274	51	0	0.00	448.00
3	45	0.75	0.3	0.053	0.167	0.045	0.01	0.06	51	51	13,155	274	51	0	0.00	448.00
4	60	1.00	0.4	0.071	0.165	0.060	0.01	0.08	68	68	13,161	274	68	0	0.00	448.00
5	75	1.25	0.3	0.053	0.163	0.045	0.01	0.06	51	51	13,155	274	51	0	0.00	448.00
6	90	1.50	0.3	0.053	0.161	0.045	0.01	0.06	51	51	13,155	274	51	0	0.00	448.00
7	105	1.75	0.3	0.053	0.159	0.045	0.01	0.06	51	51	13,155	274	51	0	0.00	448.00
8	120	2.00	0.4	0.071	0.157	0.060	0.01	0.08	68	68	13,161	274	68	0	0.00	448.00
9	135	2.25	0.4	0.071	0.156	0.060	0.01	0.08	68	68	13,161	274	68	0	0.00	448.00
10	150	2.50	0.4	0.071	0.154	0.060	0.01	0.08	68	68	13,161	274	68	0	0.00	448.00
11	165	2.75	0.5	0.088	0.152	0.075	0.01	0.09	85	85	13,168	274	85	0	0.00	448.00
12	180	3.00	0.5	0.088	0.150	0.075	0.01	0.09	85	85	13,168	274	85	0	0.00	448.00
13	195	3.25	0.5	0.088	0.148	0.075	0.01	0.09	85	85	13,168	274	85	0	0.00	448.00
14	210	3.50	0.5	0.088	0.146	0.075	0.01	0.09	85	85	13,168	274	85	0	0.00	448.00
15	225	3.75	0.5	0.088	0.144	0.075	0.01	0.09	85	85	13,168	274	85	0	0.00	448.00
16	240	4.00	0.6	0.106	0.143	0.090	0.02	0.11	103	103	13,175	274	103	0	0.00	448.00
17	255	4.25	0.6	0.106	0.141	0.090	0.02	0.11	103	103	13,175	274	103	0	0.00	448.00
18	270	4.50	0.7	0.123	0.139	0.105	0.02	0.13	120	120	13,181	275	120	0	0.00	448.00
19	285	4.75	0.7	0.123	0.137	0.105	0.02	0.13	120	120	13,181	275	120	0	0.00	448.00
20	300	5.00	0.8	0.141	0.135	0.120	0.01	0.04	37	37	13,149	274	37	0	0.00	448.00
21	315	5.25	0.6	0.106	0.134	0.090	0.02	0.11	103	103	13,175	274	103	0	0.00	448.00
22	330	5.50	0.7	0.123	0.132	0.105	0.02	0.13	120	120	13,181	275	120	0	0.00	448.00
23	345	5.75	0.8	0.141	0.130	0.120	0.01	0.08	71	71	13,162	274	71	0	0.00	448.00
24	360	6.00	0.8	0.141	0.128	0.120	0.01	0.09	82	82	13,167	274	82	0	0.00	448.00
25	375	6.25	0.9	0.159	0.127	0.135	0.03	0.23	207	207	13,215	275	207	0	0.00	448.00
26	390	6.50	0.9	0.159	0.125	0.135	0.03	0.24	218	218	13,219	275	218	0	0.00	448.00
27	405	6.75	1.0	0.176	0.123	0.150	0.05	0.38	342	342	13,268	276	276	66	0.00	448.00
28	420	7.00	1.0	0.176	0.122	0.150	0.05	0.39	353	419	13,297	277	277	142	0.00	448.01
29	435	7.25	1.0	0.176	0.120	0.150	0.06	0.40	364	506	13,331	278	278	228	0.01	448.01
30	450	7.50	1.1	0.194	0.118	0.165	0.08	0.54	488	716	13,412	279	279	437	0.01	448.03
31	465	7.75	1.2	0.212	0.117	0.180	0.09	0.68	613	1,050	13,541	282	282	768	0.02	448.05
32	480	8.00	1.3	0.229	0.115	0.195	0.11	0.82	737	1,505	13,717	286	286	1,219	0.03	448.08
33	495	8.25	1.5	0.265	0.114	0.225	0.15	1.08	975	2,194	13,984	291	291	1,903	0.04	448.12
34	510	8.50	1.5	0.265	0.112	0.225	0.15	1.10	986	2,888	14,253	297	297	2,591	0.06	448.16
35	525	8.75	1.6	0.282	0.110	0.240	0.17	1.23	1,110	3,701	14,567	303	303	3,398	0.08	448.21
36	540	9.00	1.7	0.300	0.109	0.255	0.19	1.37	1,234	4,631	14,927	311	311	4,320	0.10	448.27
37	555	9.25	1.9	0.335	0.107	0.285	0.23	1.63	1,471	5,792	15,377	320	320	5,471	0.13	448.34
38	570	9.50	2.0	0.353	0.106	0.300	0.25	1.77	1,595	7,067	15,870	331	331	6,736	0.15	448.42
39	585	9.75	2.1	0.370	0.104	0.315	0.27	1.91	1,719	8,455	16,407	342	342	8,113	0.19	448.50
40	600	10.00	2.2	0.388	0.103	0.330	0.29	2.05	1,843	9,956	16,988	354	354	9,602	0.22	448.59
41	615	10.25	1.5	0.265	0.101	0.225	0.16	1.17	1,055	10,657	17,259	360	360	10,297	0.24	448.64
42	630	10.50	1.5	0.265	0.100	0.225	0.16	1.18	1,064	11,361	17,532	365	365	10,996	0.25	448.68
43	645	10.75	2.0	0.353	0.098	0.300	0.25	1.83	1,643	12,639	18,027	376	376	12,264	0.28	448.76

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	7.12	VARIABLE LOSS RATE (AVG) IN/HR	
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.05
LAG TIME - MINUTES	3.99	C	0.00090
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%
TOTAL ADJUSTED STORM RAIN (in)	4.41		

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.353	0.097	0.300	0.26	1.84	1,653	13,916	18,521	386	386	13,530	0.31	448.84
45	675	11.25	1.9	0.335	0.096	0.285	0.24	1.72	1,548	15,078	18,971	395	395	14,683	0.34	448.91
46	690	11.50	1.9	0.335	0.094	0.285	0.24	1.73	1,557	16,240	19,398	404	404	15,836	0.36	448.98
47	705	11.75	1.7	0.300	0.093	0.255	0.21	1.49	1,338	17,174	19,491	406	406	16,768	0.38	449.03
48	720	12.00	1.8	0.318	0.091	0.270	0.23	1.62	1,461	18,228	19,595	408	408	17,820	0.41	449.08
49	735	12.25	2.5	0.441	0.090	0.375	0.35	2.52	2,267	20,088	19,780	412	412	19,675	0.45	449.17
50	750	12.50	2.6	0.459	0.089	0.390	0.37	2.66	2,390	22,065	19,976	416	416	21,649	0.50	449.27
51	765	12.75	2.8	0.494	0.087	0.420	0.41	2.92	2,626	24,276	20,196	421	421	23,855	0.55	449.38
52	780	13.00	2.9	0.512	0.086	0.435	0.43	3.05	2,749	26,604	20,427	426	426	26,178	0.60	449.49
53	795	13.25	3.4	0.600	0.085	0.510	0.52	3.70	3,327	29,505	20,715	432	432	29,074	0.67	449.63
54	810	13.50	3.4	0.600	0.083	0.510	0.52	**3.71**	**3,335**	32,409	21,003	438	438	31,972	0.73	449.78
55	825	13.75	2.3	0.406	0.082	0.345	0.32	2.32	2,090	34,062	21,167	441	441	33,621	0.77	449.86
56	840	14.00	2.3	0.406	0.081	0.345	0.32	2.33	2,098	35,719	21,332	444	444	35,274	0.81	449.94
57	855	14.25	2.7	0.476	0.080	0.405	0.40	2.85	2,562	37,836	21,664	451	451	37,385	0.86	450.04
58	870	14.50	2.6	0.459	0.078	0.390	0.38	2.73	2,456	39,841	22,055	459	459	39,381	0.90	450.12
59	885	14.75	2.6	0.459	0.077	0.390	0.38	2.74	2,464	41,845	22,445	468	468	41,377	0.95	450.20
60	900	15.00	2.5	0.441	0.076	0.375	0.36	2.62	2,357	43,735	22,813	475	475	43,260	0.99	450.28
61	915	15.25	2.4	0.423	0.075	0.360	0.35	2.50	2,251	45,510	23,158	482	482	45,028	1.03	450.36
62	930	15.50	2.3	0.406	0.074	0.345	0.33	2.38	2,144	47,172	23,482	489	489	46,683	1.07	450.43
63	945	15.75	1.9	0.335	0.073	0.285	0.26	1.88	1,696	48,379	23,717	494	494	47,885	1.10	450.48
64	960	16.00	1.9	0.335	0.072	0.285	0.26	1.89	1,703	49,588	23,952	499	499	**49,089**	**1.13**	**450.53**
65	975	16.25	0.4	0.071	0.070	0.060	0.00	0.00	1	49,090	23,855	497	497	48,593	1.12	450.51
66	990	16.50	0.4	0.071	0.069	0.060	0.00	0.01	8	48,600	23,760	495	495	48,105	1.10	450.49
67	1005	16.75	0.3	0.053	0.068	0.045	0.01	0.06	51	48,157	23,673	493	493	47,663	1.09	450.47
68	1020	17.00	0.3	0.053	0.067	0.045	0.01	0.06	51	47,715	23,587	491	491	47,223	1.08	450.45
69	1035	17.25	0.5	0.088	0.066	0.075	0.02	0.16	142	47,365	23,519	490	490	46,875	1.08	450.44
70	1050	17.50	0.5	0.088	0.065	0.075	0.02	0.16	148	47,023	23,453	489	489	46,535	1.07	450.42
71	1065	17.75	0.5	0.088	0.064	0.075	0.02	0.17	154	46,689	23,388	487	487	46,202	1.06	450.41
72	1080	18.00	0.4	0.071	0.063	0.060	0.01	0.05	47	46,248	23,302	485	485	45,763	1.05	450.39
73	1095	18.25	0.4	0.071	0.062	0.060	0.01	0.06	53	45,816	23,218	484	484	45,332	1.04	450.37
74	1110	18.50	0.4	0.071	0.061	0.060	0.01	0.07	59	45,390	23,135	482	482	44,908	1.03	450.35
75	1125	18.75	0.3	0.053	0.061	0.045	0.01	0.06	51	44,960	23,051	480	480	44,479	1.02	450.33
76	1140	19.00	0.2	0.035	0.060	0.030	0.01	0.04	34	44,514	22,964	478	478	44,035	1.01	450.32
77	1155	19.25	0.3	0.053	0.059	0.045	0.01	0.06	51	44,087	22,881	477	477	43,610	1.00	450.30
78	1170	19.50	0.4	0.071	0.058	0.060	0.01	0.09	81	43,690	22,804	475	475	43,215	0.99	450.28
79	1185	19.75	0.3	0.053	0.057	0.045	0.01	0.06	51	43,267	22,721	473	473	42,793	0.98	450.26
80	1200	20.00	0.2	0.035	0.057	0.030	0.01	0.04	34	42,827	22,636	472	472	42,356	0.97	450.24
81	1215	20.25	0.3	0.053	0.056	0.045	0.01	0.06	51	42,407	22,554	470	470	41,937	0.96	450.23
82	1230	20.50	0.3	0.053	0.055	0.045	0.01	0.06	51	41,989	22,473	468	468	41,520	0.95	450.21
83	1245	20.75	0.3	0.053	0.054	0.045	0.01	0.06	51	41,572	22,391	466	466	41,105	0.94	450.19
84	1260	21.00	0.2	0.035	0.054	0.030	0.01	0.04	34	41,139	22,307	465	465	40,675	0.93	450.17
85	1275	21.25	0.3	0.053	0.053	0.045	0.01	0.06	51	40,726	22,227	463	463	40,263	0.92	450.16
86	1290	21.50	0.2	0.035	0.052	0.030	0.01	0.04	34	40,297	22,143	461	461	39,836	0.91	450.14

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	7.12	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.05		
LAG TIME - MINUTES	3.99	C	0.00090	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.052	0.045	0.00	0.01	7	39,842	22,055	459	459	39,383	0.90	450.12
88	1320	22.00	0.2	0.035	0.051	0.030	0.01	0.04	34	39,417	21,972	458	458	38,959	0.89	450.10
89	1335	22.25	0.3	0.053	0.051	0.045	0.00	0.02	14	38,973	21,886	456	456	38,517	0.88	450.08
90	1350	22.50	0.2	0.035	0.050	0.030	0.01	0.04	34	38,551	21,803	454	454	38,097	0.87	450.07
91	1365	22.75	0.2	0.035	0.050	0.030	0.01	0.04	34	38,131	21,722	453	453	37,679	0.86	450.05
92	1380	23.00	0.2	0.035	0.050	0.030	0.01	0.04	34	37,713	21,640	451	451	37,262	0.86	450.03
93	1395	23.25	0.2	0.035	0.049	0.030	0.01	0.04	34	37,296	21,559	449	449	36,847	0.85	450.01
94	1410	23.50	0.2	0.035	0.049	0.030	0.01	0.04	34	36,881	21,478	447	447	36,434	0.84	449.99
95	1425	23.75	0.2	0.035	0.049	0.030	0.01	0.04	34	36,468	21,406	446	446	36,022	0.83	449.97
96	1440	24.00	0.2	0.035	0.048	0.030	0.01	0.04	34	36,056	21,365	445	445	35,611	0.82	449.95

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	113,948 cu-ft
SOIL LOSSES	46,429 cu-ft
EFFECTIVE RAIN	2.61 in
FLOOD VOLUME	1.55 acft
FLOOD VOLUME	67,518 cu-ft
REQUIRED STORAGE	1.13 acft
REQUIRED STORAGE	49,089 cu-ft
MAX WSEL	450.53 ft
PEAK FLOW RATE	3.71 cfs
TOTAL BASIN LOSSES	31,908 cu-ft
AVERAGE PERCOLATION RATE	22.16 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN H

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
448	0	0		13,135	0	0	0.00
449	1	1	6,255	19,390	16,161	16,161	0.37
450	1	2	2,025	21,415	20,394	36,555	0.84
451	1	3	4,610	26,025	23,683	60,238	1.38

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	January 26, 2021
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	BASIN I
AREA DESIGNATION	DA-I
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	0.470	D	56	0.51	1.00
4	B	SF - LOW DENSITY	47.890	D	56	0.51	0.30
9	B	LANDSCAPING	3.269	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	1,350 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	675 ft
ELEVATION OF HEADWATER	464.0 ft
ELEVATION OF CONCENTRATION POINT	455.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
438.0 ft	49,700 sf
439.0 ft	54,375 sf
440.0 ft	59,209 sf
441.0 ft	64,195 sf
442.0 ft	69,345 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

PHYSICAL DATA

[1] CONCENTRATION POINT	BASIN I
[2] AREA DESIGNATION	DA-I
[3] AREA - ACRES	51.629
[4] L-FEET	1350
[5] L-MILES	0.256
[6] La-FEET	675.00
[7] La-MILES	0.128
[8] ELEVATION OF HEADWATER	464
[9] ELEVATION OF CONCENTRATION POINT	455
[10] H-FEET	9
[11] S-FEET/MILE	35.2
[12] S^0.5	5.93
[13] L*LCA/S^0.5	0.006
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.07
[16] LAG TIME-MINUTES	4.0
[17] 100% OF LAG-MINUTES	4.0
[18] 200% OF LAG-MINUTES	8.0

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	269,876	401,066	517,263	**826,496**
SOIL LOSSES	(cu-ft)	70,315	202,167	314,294	**647,343**
EFFECTIVE RAIN	(in)	1.06	1.06	1.08	0.96
FLOOD VOLUME	(cu-ft)	199,561	198,899	**202,969**	179,153
	(acre-ft)	4.58	4.57	**4.66**	4.11
REQUIRED STORAGE	(cu-ft)	**194,891**	185,355	177,030	108,262
	(acre-ft)	**4.47**	4.26	4.06	2.49
FACTOR OF SAFETY		1.22	1.28	1.34	2.19
STORAGE PROVIDED	(cu-ft)	237,233			
	(acre-ft)	5.45			
PEAK FLOW	(cfs)	n/a	90.09	77.02	14.41
MAXIMUM WSEL	(ft)	**441.37**	441.22	441.10	439.99
DEPTH	(ft)	**3.37**	3.22	3.10	1.99
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	1.8	1.8	1.9	1.8

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	1/26/21

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	0.470	0.009	0.0005	DEVELOPED	0.1000	0.0009
B	SF - LOW DENSITY	56	0.51	30%	0.37	47.890	0.928	0.3453	DEVELOPED	0.6600	0.6122
B	LANDSCAPING	56	0.51	10%	0.46	3.269	0.063	0.0294	DEVELOPED	0.8200	0.0519
					SUM	51.629		SUM	0.3752		0.6650

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.187593793

C= 0.00347

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00347 (24-(T/60))^1.55 + 0.19 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.3752**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	51.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.38
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.38	0.53	0.25	12.85	3,856	3,856	50,047	348	348	3,508	0.08	438.07
2	10	0.17	4.2	0.73	0.38	0.62	0.35	18.25	5,475	8,984	50,507	351	351	8,633	0.20	438.17
3	15	0.25	4.4	0.76	0.38	0.65	0.39	20.05	6,015	14,648	51,016	354	354	14,293	0.33	438.27
4	20	0.33	4.6	0.79	0.38	0.68	0.42	21.85	6,555	20,848	51,574	358	358	20,490	0.47	438.39
5	25	0.42	5.0	0.86	0.38	0.73	0.49	25.45	7,634	28,124	52,228	363	363	27,762	0.64	438.53
6	30	0.50	5.6	0.97	0.38	0.82	0.59	30.84	9,253	37,015	53,027	368	368	36,647	0.84	438.70
7	35	0.58	6.4	1.11	0.38	0.94	0.73	38.04	11,412	48,059	54,019	375	375	47,684	1.09	438.92
8	40	0.67	8.1	1.40	0.38	1.19	1.02	53.33	16,000	63,684	55,368	385	385	63,300	1.45	439.20
9	45	0.75	13.1	2.26	0.38	1.92	1.89	98.31	29,494	92,794	57,847	402	402	92,392	2.12	439.71
10	50	0.83	34.5	5.96	0.38	5.07	5.59	**290.83**	**87,248**	179,640	64,902	451	451	179,189	4.11	441.13
11	55	0.92	6.7	1.16	0.38	0.98	0.78	40.74	12,222	191,411	65,810	457	457	190,954	4.38	441.31
12	60	1.00	3.8	0.66	0.38	0.56	0.28	14.65	4,396	195,350	66,114	459	459	**194,891**	**4.47**	**441.37**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	269,876 cu-ft
SOIL LOSSES	70,315 cu-ft
EFFECTIVE RAIN	1.06 in
FLOOD VOLUME	4.58 acft
FLOOD VOLUME	199,561 cu-ft
REQUIRED STORAGE	4.47
REQUIRED STORAGE	194,891 cu-ft
MAX WSEL	441.37 ft
PEAK FLOW RATE	290.83 cfs
TOTAL BASIN LOSSES	4,670 cu-ft
AVERAGE PERCOLATION RATE	77.83 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	51.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.38
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation	Maximum	Percolation			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	Area sf	Percolation cu-ft	Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.38	0.28	0.05	2.61	782	782	49,770	346	346	436	0.01	438.01
2	10	0.17	1.3	0.33	0.38	0.28	0.05	2.61	782	1,219	49,810	346	346	873	0.02	438.02
3	15	0.25	1.1	0.28	0.38	0.24	0.04	2.21	662	1,534	49,838	346	346	1,188	0.03	438.02
4	20	0.33	1.5	0.39	0.38	0.33	0.01	0.52	156	1,345	49,821	346	346	999	0.02	438.02
5	25	0.42	1.5	0.39	0.38	0.33	0.01	0.52	156	1,155	49,804	346	346	809	0.02	438.02
6	30	0.50	1.8	0.46	0.38	0.39	0.09	4.53	1,360	2,169	49,895	346	346	1,822	0.04	438.04
7	35	0.58	1.5	0.39	0.38	0.33	0.01	0.52	156	1,979	49,878	346	346	1,632	0.04	438.03
8	40	0.67	1.8	0.46	0.38	0.39	0.09	4.53	1,360	2,992	49,969	347	347	2,645	0.06	438.05
9	45	0.75	1.8	0.46	0.38	0.39	0.09	4.53	1,360	4,004	50,060	348	348	3,657	0.08	438.07
10	50	0.83	1.5	0.39	0.38	0.33	0.01	0.52	156	3,813	50,043	348	348	3,466	0.08	438.07
11	55	0.92	1.6	0.41	0.38	0.35	0.04	1.86	557	4,023	50,062	348	348	3,675	0.08	438.07
12	60	1.00	1.8	0.46	0.38	0.39	0.09	4.53	1,360	5,035	50,152	348	348	4,687	0.11	438.09
13	65	1.08	2.2	0.56	0.38	0.48	0.19	9.88	2,964	7,651	50,388	350	350	7,301	0.17	438.14
14	70	1.17	2.2	0.56	0.38	0.48	0.19	9.88	2,964	10,264	50,622	352	352	9,913	0.23	438.19
15	75	1.25	2.2	0.56	0.38	0.48	0.19	9.88	2,964	12,877	50,857	353	353	12,524	0.29	438.24
16	80	1.33	2.0	0.51	0.38	0.44	0.14	7.21	2,162	14,685	51,020	354	354	14,331	0.33	438.28
17	85	1.42	2.6	0.67	0.38	0.57	0.29	15.23	4,568	18,899	51,398	357	357	18,542	0.43	438.36
18	90	1.50	2.7	0.69	0.38	0.59	0.32	16.56	4,969	23,511	51,813	360	360	23,151	0.53	438.45
19	95	1.58	2.4	0.62	0.38	0.52	0.24	12.55	3,766	26,917	52,119	362	362	26,556	0.61	438.51
20	100	1.67	2.7	0.69	0.38	0.59	0.32	16.56	4,969	31,525	52,533	365	365	31,160	0.72	438.60
21	105	1.75	3.3	0.85	0.38	0.72	0.47	24.59	7,376	38,535	53,163	369	369	38,166	0.88	438.73
22	110	1.83	3.1	0.80	0.38	0.68	0.42	21.91	6,573	44,740	53,721	373	373	44,367	1.02	438.85
23	115	1.92	2.9	0.74	0.38	0.63	0.37	19.24	5,771	50,138	54,206	376	376	49,761	1.14	438.96
24	120	2.00	3.0	0.77	0.38	0.65	0.40	20.57	6,172	55,934	54,708	380	380	55,554	1.28	439.06
25	125	2.08	3.1	0.80	0.38	0.68	0.42	21.91	6,573	62,127	55,236	384	384	61,744	1.42	439.17

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	51.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.38
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
26	130	2.17	4.2	1.08	0.38	0.92	0.70	36.62	10,985	72,729	56,138	390	390	72,339	1.66	439.36
27	135	2.25	5.0	1.28	0.38	1.09	0.91	47.31	14,194	86,533	57,314	398	398	86,135	1.98	439.60
28	140	2.33	3.5	0.90	0.38	0.76	0.52	27.26	8,178	94,312	57,976	403	403	93,910	2.16	439.74
29	145	2.42	6.8	1.75	0.38	1.48	1.37	71.38	21,413	115,323	59,737	415	415	114,908	2.64	440.10
30	150	2.50	7.3	1.87	0.38	1.59	1.50	78.06	23,418	138,326	61,596	428	428	137,898	3.17	440.47
31	155	2.58	8.2	2.11	0.38	1.79	1.73	**90.09**	**27,028**	164,926	63,746	443	443	164,483	3.78	440.90
32	160	2.67	5.9	1.52	0.38	1.29	1.14	59.34	17,803	182,287	65,106	452	452	181,835	4.17	441.17
33	165	2.75	2.0	0.51	0.38	0.44	0.14	7.21	2,162	183,996	65,238	453	453	183,543	4.21	441.20
34	170	2.83	1.8	0.46	0.38	0.39	0.09	4.53	1,360	184,903	65,308	454	454	184,449	4.23	441.21
35	175	2.92	1.8	0.46	0.38	0.39	0.09	4.53	1,360	185,809	65,378	454	454	**185,355**	**4.26**	**441.22**
36	180	3.00	0.6	0.15	0.38	0.13	0.02	1.20	361	185,716	65,370	454	454	185,262	4.25	441.22

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	401,066 cu-ft
SOIL LOSSES	202,167 cu-ft
EFFECTIVE RAIN	1.06 in
FLOOD VOLUME	4.57 acft
FLOOD VOLUME	198,899 cu-ft
REQUIRED STORAGE	4.26 acft
REQUIRED STORAGE	185,355 cu-ft
MAX WSEL	441.22 ft
PEAK FLOW RATE	90.09 cfs
TOTAL BASIN LOSSES	13,637 cu-ft
AVERAGE PERCOLATION RATE	75.76 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	51.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.38
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.38	0.14	0.02	1.29	388	388	49,735	345	345	43	0.00	438.00
2	10	0.17	0.6	0.20	0.38	0.17	0.03	1.55	466	508	49,746	345	345	163	0.00	438.00
3	15	0.25	0.6	0.20	0.38	0.17	0.03	1.55	466	628	49,756	346	346	283	0.01	438.01
4	20	0.33	0.6	0.20	0.38	0.17	0.03	1.55	466	748	49,767	346	346	403	0.01	438.01
5	25	0.42	0.6	0.20	0.38	0.17	0.03	1.55	466	868	49,778	346	346	522	0.01	438.01
6	30	0.50	0.7	0.23	0.38	0.20	0.03	1.81	543	1,066	49,796	346	346	720	0.02	438.01
7	35	0.58	0.7	0.23	0.38	0.20	0.03	1.81	543	1,263	49,813	346	346	917	0.02	438.02
8	40	0.67	0.7	0.23	0.38	0.20	0.03	1.81	543	1,460	49,831	346	346	1,114	0.03	438.02
9	45	0.75	0.7	0.23	0.38	0.20	0.03	1.81	543	1,657	49,849	346	346	1,311	0.03	438.03
10	50	0.83	0.7	0.23	0.38	0.20	0.03	1.81	543	1,854	49,867	346	346	1,508	0.03	438.03
11	55	0.92	0.7	0.23	0.38	0.20	0.03	1.81	543	2,051	49,884	346	346	1,705	0.04	438.03
12	60	1.00	0.8	0.26	0.38	0.23	0.04	2.07	621	2,325	49,909	347	347	1,979	0.05	438.04
13	65	1.08	0.8	0.26	0.38	0.23	0.04	2.07	621	2,599	49,934	347	347	2,253	0.05	438.04
14	70	1.17	0.8	0.26	0.38	0.23	0.04	2.07	621	2,873	49,958	347	347	2,526	0.06	438.05
15	75	1.25	0.8	0.26	0.38	0.23	0.04	2.07	621	3,147	49,983	347	347	2,800	0.06	438.05
16	80	1.33	0.8	0.26	0.38	0.23	0.04	2.07	621	3,421	50,007	347	347	3,073	0.07	438.06
17	85	1.42	0.8	0.26	0.38	0.23	0.04	2.07	621	3,694	50,032	347	347	3,347	0.08	438.06
18	90	1.50	0.8	0.26	0.38	0.23	0.04	2.07	621	3,967	50,057	348	348	3,620	0.08	438.07
19	95	1.58	0.8	0.26	0.38	0.23	0.04	2.07	621	4,241	50,081	348	348	3,893	0.09	438.07
20	100	1.67	0.8	0.26	0.38	0.23	0.04	2.07	621	4,513	50,106	348	348	4,165	0.10	438.08
21	105	1.75	0.8	0.26	0.38	0.23	0.04	2.07	621	4,786	50,130	348	348	4,438	0.10	438.09
22	110	1.83	0.8	0.26	0.38	0.23	0.04	2.07	621	5,059	50,155	348	348	4,711	0.11	438.09
23	115	1.92	0.8	0.26	0.38	0.23	0.04	2.07	621	5,331	50,179	348	348	4,983	0.11	438.10
24	120	2.00	0.9	0.30	0.38	0.25	0.04	2.33	698	5,681	50,211	349	349	5,332	0.12	438.10

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	51.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.38
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
25	125	2.08	0.8	0.26	0.38	0.23	0.04	2.07	621	5,953	50,235	349	349	5,604	0.13	438.11
26	130	2.17	0.9	0.30	0.38	0.25	0.04	2.33	698	6,303	50,266	349	349	5,953	0.14	438.11
27	135	2.25	0.9	0.30	0.38	0.25	0.04	2.33	698	6,652	50,298	349	349	6,302	0.14	438.12
28	140	2.33	0.9	0.30	0.38	0.25	0.04	2.33	698	7,001	50,329	350	350	6,651	0.15	438.13
29	145	2.42	0.9	0.30	0.38	0.25	0.04	2.33	698	7,350	50,361	350	350	7,000	0.16	438.13
30	150	2.50	0.9	0.30	0.38	0.25	0.04	2.33	698	7,698	50,392	350	350	7,348	0.17	438.14
31	155	2.58	0.9	0.30	0.38	0.25	0.04	2.33	698	8,047	50,423	350	350	7,696	0.18	438.15
32	160	2.67	0.9	0.30	0.38	0.25	0.04	2.33	698	8,395	50,454	350	350	8,044	0.18	438.15
33	165	2.75	1.0	0.33	0.38	0.28	0.05	2.59	776	8,820	50,493	351	351	8,470	0.19	438.16
34	170	2.83	1.0	0.33	0.38	0.28	0.05	2.59	776	9,245	50,531	351	351	8,895	0.20	438.17
35	175	2.92	1.0	0.33	0.38	0.28	0.05	2.59	776	9,670	50,569	351	351	9,319	0.21	438.18
36	180	3.00	1.0	0.33	0.38	0.28	0.05	2.59	776	10,095	50,607	351	351	9,744	0.22	438.19
37	185	3.08	1.0	0.33	0.38	0.28	0.05	2.59	776	10,520	50,645	352	352	10,168	0.23	438.20
38	190	3.17	1.1	0.36	0.38	0.31	0.05	2.84	853	11,021	50,690	352	352	10,669	0.24	438.21
39	195	3.25	1.1	0.36	0.38	0.31	0.05	2.84	853	11,523	50,736	352	352	11,171	0.26	438.21
40	200	3.33	1.1	0.36	0.38	0.31	0.05	2.84	853	12,024	50,781	353	353	11,671	0.27	438.22
41	205	3.42	1.2	0.40	0.38	0.34	0.02	1.16	348	12,019	50,780	353	353	11,666	0.27	438.22
42	210	3.50	1.3	0.43	0.38	0.37	0.06	2.88	865	12,531	50,826	353	353	12,178	0.28	438.23
43	215	3.58	1.4	0.46	0.38	0.39	0.09	4.61	1,382	13,560	50,919	354	354	13,207	0.30	438.25
44	220	3.67	1.4	0.46	0.38	0.39	0.09	4.61	1,382	14,589	51,011	354	354	14,234	0.33	438.27
45	225	3.75	1.5	0.50	0.38	0.42	0.12	6.33	1,899	16,134	51,150	355	355	15,778	0.36	438.30
46	230	3.83	1.5	0.50	0.38	0.42	0.12	6.33	1,899	17,678	51,289	356	356	17,322	0.40	438.33
47	235	3.92	1.6	0.53	0.38	0.45	0.15	8.06	2,417	19,738	51,474	357	357	19,381	0.44	438.37
48	240	4.00	1.6	0.53	0.38	0.45	0.15	8.06	2,417	21,797	51,659	359	359	21,439	0.49	438.41
49	245	4.08	1.7	0.56	0.38	0.48	0.19	9.78	2,934	24,372	51,890	360	360	24,012	0.55	438.46
50	250	4.17	1.8	0.60	0.38	0.51	0.22	11.50	3,451	27,463	52,168	362	362	27,101	0.62	438.52

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	51.63
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	3.99
UNIT TIME-PERCENT OF LAG	125.3
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.38
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.38	0.53	0.25	13.23	3,968	31,069	52,492	365	365	30,705	0.70	438.59
52	260	4.33	2.0	0.66	0.38	0.56	0.29	14.95	4,486	35,190	52,863	367	367	34,823	0.80	438.67
53	265	4.42	2.1	0.70	0.38	0.59	0.32	16.68	5,003	39,826	53,279	370	370	39,456	0.91	438.76
54	270	4.50	2.1	0.70	0.38	0.59	0.32	16.68	5,003	44,459	53,696	373	373	44,086	1.01	438.85
55	275	4.58	2.2	0.73	0.38	0.62	0.35	18.40	5,520	49,606	54,158	376	376	49,230	1.13	438.95
56	280	4.67	2.3	0.76	0.38	0.65	0.39	20.12	6,037	55,268	54,652	380	380	54,888	1.26	439.05
57	285	4.75	2.4	0.79	0.38	0.68	0.42	21.85	6,555	61,443	55,177	383	383	61,060	1.40	439.16
58	290	4.83	2.4	0.79	0.38	0.68	0.42	21.85	6,555	67,614	55,703	387	387	67,228	1.54	439.27
59	295	4.92	2.5	0.83	0.38	0.70	0.45	23.57	7,072	74,300	56,272	391	391	73,909	1.70	439.39
60	300	5.00	2.6	0.86	0.38	0.73	0.49	25.30	7,589	81,498	56,885	395	395	81,103	1.86	439.51
61	305	5.08	3.1	1.03	0.38	0.87	0.65	33.92	10,176	91,278	57,718	401	401	90,878	2.09	439.68
62	310	5.17	3.6	1.19	0.38	1.01	0.82	42.54	12,762	103,639	58,770	408	408	103,231	2.37	439.90
63	315	5.25	3.9	1.29	0.38	1.10	0.92	47.71	14,314	117,545	59,916	416	416	117,129	2.69	440.14
64	320	5.33	4.2	1.39	0.38	1.18	1.02	52.88	15,865	132,994	61,165	425	425	132,570	3.04	440.39
65	325	5.42	4.7	1.56	0.38	1.32	1.18	61.51	18,452	151,021	62,622	435	435	150,586	3.46	440.68
66	330	5.50	5.6	1.85	0.38	1.58	1.48	**77.02**	**23,107**	173,693	64,443	448	448	173,246	3.98	441.04
67	335	5.58	1.9	0.63	0.38	0.53	0.25	13.23	3,968	177,214	64,715	449	449	176,765	4.06	441.09
68	340	5.67	0.9	0.30	0.38	0.25	0.04	2.33	698	177,463	64,734	450	450	177,014	4.06	441.10
69	345	5.75	0.6	0.20	0.38	0.17	0.03	1.55	466	177,479	64,735	450	450	**177,030**	**4.06**	**441.10**
70	350	5.83	0.5	0.17	0.38	0.14	0.02	1.29	388	177,418	64,730	450	450	176,968	4.06	441.10
71	355	5.92	0.3	0.10	0.38	0.08	0.01	0.78	233	177,201	64,714	449	449	176,751	4.06	441.09
72	360	6.00	0.2	0.07	0.38	0.06	0.01	0.52	155	176,907	64,691	449	449	176,457	4.05	441.09

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	517,263 cu-ft
SOIL LOSSES	314,294 cu-ft
EFFECTIVE RAIN	1.08 in
FLOOD VOLUME	4.66 acft
FLOOD VOLUME	202,969 cu-ft
REQUIRED STORAGE	4.06 acft
REQUIRED STORAGE	177,030 cu-ft
MAX WSEL	441.10 ft
PEAK FLOW RATE	77.02 cfs
TOTAL BASIN LOSSES	26,512 cu-ft
AVERAGE PERCOLATION RATE	73.64 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	51.63	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.19		
LAG TIME - MINUTES	3.99	C	0.00347	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.663	0.030	0.01	0.28	248	248	49,722	1,036	248	0	0.00	438.00
2	30	0.50	0.3	0.053	0.655	0.045	0.01	0.41	372	372	49,733	1,036	372	0	0.00	438.00
3	45	0.75	0.3	0.053	0.647	0.045	0.01	0.41	372	372	49,733	1,036	372	0	0.00	438.00
4	60	1.00	0.4	0.071	0.640	0.060	0.01	0.55	496	496	49,745	1,036	496	0	0.00	438.00
5	75	1.25	0.3	0.053	0.632	0.045	0.01	0.41	372	372	49,733	1,036	372	0	0.00	438.00
6	90	1.50	0.3	0.053	0.625	0.045	0.01	0.41	372	372	49,733	1,036	372	0	0.00	438.00
7	105	1.75	0.3	0.053	0.617	0.045	0.01	0.41	372	372	49,733	1,036	372	0	0.00	438.00
8	120	2.00	0.4	0.071	0.610	0.060	0.01	0.55	496	496	49,745	1,036	496	0	0.00	438.00
9	135	2.25	0.4	0.071	0.602	0.060	0.01	0.55	496	496	49,745	1,036	496	0	0.00	438.00
10	150	2.50	0.4	0.071	0.595	0.060	0.01	0.55	496	496	49,745	1,036	496	0	0.00	438.00
11	165	2.75	0.5	0.088	0.588	0.075	0.01	0.69	620	620	49,756	1,037	620	0	0.00	438.00
12	180	3.00	0.5	0.088	0.580	0.075	0.01	0.69	620	620	49,756	1,037	620	0	0.00	438.00
13	195	3.25	0.5	0.088	0.573	0.075	0.01	0.69	620	620	49,756	1,037	620	0	0.00	438.00
14	210	3.50	0.5	0.088	0.566	0.075	0.01	0.69	620	620	49,756	1,037	620	0	0.00	438.00
15	225	3.75	0.5	0.088	0.559	0.075	0.01	0.69	620	620	49,756	1,037	620	0	0.00	438.00
16	240	4.00	0.6	0.106	0.552	0.090	0.02	0.83	744	744	49,767	1,037	744	0	0.00	438.00
17	255	4.25	0.6	0.106	0.545	0.090	0.02	0.83	744	744	49,767	1,037	744	0	0.00	438.00
18	270	4.50	0.7	0.123	0.538	0.105	0.02	0.96	868	868	49,778	1,037	868	0	0.00	438.00
19	285	4.75	0.7	0.123	0.531	0.105	0.02	0.96	868	868	49,778	1,037	868	0	0.00	438.00
20	300	5.00	0.8	0.141	0.524	0.120	0.02	1.10	992	992	49,789	1,037	992	0	0.00	438.00
21	315	5.25	0.6	0.106	0.518	0.090	0.02	0.83	744	744	49,767	1,037	744	0	0.00	438.00
22	330	5.50	0.7	0.123	0.511	0.105	0.02	0.96	868	868	49,778	1,037	868	0	0.00	438.00
23	345	5.75	0.8	0.141	0.504	0.120	0.02	1.10	992	992	49,789	1,037	992	0	0.00	438.00
24	360	6.00	0.8	0.141	0.497	0.120	0.02	1.10	992	992	49,789	1,037	992	0	0.00	438.00
25	375	6.25	0.9	0.159	0.491	0.135	0.02	1.24	1,116	1,116	49,800	1,038	1,038	78	0.00	438.00
26	390	6.50	0.9	0.159	0.484	0.135	0.02	1.24	1,116	1,194	49,807	1,038	1,038	156	0.00	438.00
27	405	6.75	1.0	0.176	0.478	0.150	0.03	1.38	1,240	1,396	49,825	1,038	1,038	358	0.01	438.01
28	420	7.00	1.0	0.176	0.471	0.150	0.03	1.38	1,240	1,598	49,844	1,038	1,038	559	0.01	438.01
29	435	7.25	1.0	0.176	0.465	0.150	0.03	1.38	1,240	1,799	49,862	1,039	1,039	760	0.02	438.01
30	450	7.50	1.1	0.194	0.459	0.165	0.03	1.52	1,364	2,124	49,891	1,039	1,039	1,085	0.02	438.02
31	465	7.75	1.2	0.212	0.452	0.180	0.03	1.65	1,488	2,572	49,931	1,040	1,040	1,532	0.04	438.03
32	480	8.00	1.3	0.229	0.446	0.195	0.03	1.79	1,612	3,144	49,983	1,041	1,041	2,103	0.05	438.04
33	495	8.25	1.5	0.265	0.440	0.225	0.04	2.07	1,860	3,962	50,056	1,043	1,043	2,919	0.07	438.06
34	510	8.50	1.5	0.265	0.434	0.225	0.04	2.07	1,860	4,779	50,129	1,044	1,044	3,735	0.09	438.07
35	525	8.75	1.6	0.282	0.428	0.240	0.04	2.20	1,984	5,718	50,214	1,046	1,046	4,672	0.11	438.09
36	540	9.00	1.7	0.300	0.422	0.255	0.04	2.34	2,108	6,780	50,309	1,048	1,048	5,731	0.13	438.11
37	555	9.25	1.9	0.335	0.416	0.285	0.05	2.62	2,356	8,087	50,427	1,051	1,051	7,036	0.16	438.14
38	570	9.50	2.0	0.353	0.410	0.300	0.05	2.75	2,479	9,516	50,555	1,053	1,053	8,463	0.19	438.16
39	585	9.75	2.1	0.370	0.404	0.315	0.06	2.89	2,603	11,066	50,695	1,056	1,056	10,010	0.23	438.19
40	600	10.00	2.2	0.388	0.398	0.330	0.06	3.03	2,727	12,737	50,845	1,059	1,059	11,678	0.27	438.22
41	615	10.25	1.5	0.265	0.392	0.225	0.04	2.07	1,860	13,538	50,917	1,061	1,061	12,477	0.29	438.24
42	630	10.50	1.5	0.265	0.387	0.225	0.04	2.07	1,860	14,337	50,988	1,062	1,062	13,274	0.30	438.26
43	645	10.75	2.0	0.353	0.381	0.300	0.05	2.75	2,479	15,754	51,116	1,065	1,065	14,689	0.34	438.28

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	51.63	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.19		
LAG TIME - MINUTES	3.99	C	0.00347	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.353	0.375	0.300	0.05	2.75	2,479	17,168	51,243	1,068	1,068	16,101	0.37	438.31
45	675	11.25	1.9	0.335	0.370	0.285	0.05	2.62	2,356	18,456	51,359	1,070	1,070	17,386	0.40	438.33
46	690	11.50	1.9	0.335	0.364	0.285	0.05	2.62	2,356	19,742	51,474	1,072	1,072	18,670	0.43	438.36
47	705	11.75	1.7	0.300	0.359	0.255	0.04	2.34	2,108	20,777	51,567	1,074	1,074	19,703	0.45	438.38
48	720	12.00	1.8	0.318	0.354	0.270	0.05	2.48	2,232	21,934	51,671	1,076	1,076	20,858	0.48	438.40
49	735	12.25	2.5	0.441	0.348	0.375	0.09	4.82	4,335	25,193	51,964	1,083	1,083	24,110	0.55	438.46
50	750	12.50	2.6	0.459	0.343	0.390	0.12	6.01	5,406	29,517	52,353	1,091	1,091	28,426	0.65	438.55
51	765	12.75	2.8	0.494	0.338	0.420	0.16	8.11	7,301	35,727	52,911	1,102	1,102	34,624	0.79	438.67
52	780	13.00	2.9	0.512	0.333	0.435	0.18	9.30	8,366	42,990	53,564	1,116	1,116	41,874	0.96	438.80
53	795	13.25	3.4	0.600	0.328	0.510	0.27	14.15	12,734	54,609	54,595	1,137	1,137	53,471	1.23	439.03
54	810	13.50	3.4	0.600	0.323	0.510	0.28	**14.41**	**12,967**	66,439	55,603	1,158	1,158	65,280	1.50	439.23
55	825	13.75	2.3	0.406	0.318	0.345	0.09	4.56	4,106	69,386	55,854	1,164	1,164	68,222	1.57	439.29
56	840	14.00	2.3	0.406	0.313	0.345	0.09	4.81	4,333	72,555	56,123	1,169	1,169	71,386	1.64	439.34
57	855	14.25	2.7	0.476	0.308	0.405	0.17	8.74	7,862	79,248	56,693	1,181	1,181	78,067	1.79	439.46
58	870	14.50	2.6	0.459	0.304	0.390	0.15	8.06	7,256	85,323	57,211	1,192	1,192	84,131	1.93	439.57
59	885	14.75	2.6	0.459	0.299	0.390	0.16	8.30	7,474	91,605	57,745	1,203	1,203	90,402	2.08	439.68
60	900	15.00	2.5	0.441	0.295	0.375	0.15	7.62	6,862	97,264	58,227	1,213	1,213	96,051	2.21	439.78
61	915	15.25	2.4	0.423	0.290	0.360	0.13	6.94	6,247	102,298	58,656	1,222	1,222	101,076	2.32	439.86
62	930	15.50	2.3	0.406	0.286	0.345	0.12	6.25	5,628	106,704	59,031	1,230	1,230	105,474	2.42	439.94
63	945	15.75	1.9	0.335	0.281	0.285	0.05	2.81	2,527	108,001	59,141	1,232	1,232	106,769	2.45	439.96
64	960	16.00	1.9	0.335	0.277	0.285	0.06	3.03	2,728	109,497	59,266	1,235	1,235	**108,262**	**2.49**	**439.99**
65	975	16.25	0.4	0.071	0.273	0.060	0.01	0.55	496	108,758	59,206	1,233	1,233	107,524	2.47	439.98
66	990	16.50	0.4	0.071	0.269	0.060	0.01	0.55	496	108,020	59,143	1,232	1,232	106,788	2.45	439.96
67	1005	16.75	0.3	0.053	0.264	0.045	0.01	0.41	372	107,160	59,070	1,231	1,231	105,930	2.43	439.95
68	1020	17.00	0.3	0.053	0.260	0.045	0.01	0.41	372	106,301	58,997	1,229	1,229	105,072	2.41	439.93
69	1035	17.25	0.5	0.088	0.257	0.075	0.01	0.69	620	105,692	58,945	1,228	1,228	104,464	2.40	439.92
70	1050	17.50	0.5	0.088	0.253	0.075	0.01	0.69	620	105,084	58,893	1,227	1,227	103,857	2.38	439.91
71	1065	17.75	0.5	0.088	0.249	0.075	0.01	0.69	620	104,477	58,841	1,226	1,226	103,251	2.37	439.90
72	1080	18.00	0.4	0.071	0.245	0.060	0.01	0.55	496	103,747	58,779	1,225	1,225	102,522	2.35	439.89
73	1095	18.25	0.4	0.071	0.242	0.060	0.01	0.55	496	103,018	58,717	1,223	1,223	101,795	2.34	439.88
74	1110	18.50	0.4	0.071	0.238	0.060	0.01	0.55	496	102,291	58,655	1,222	1,222	101,069	2.32	439.86
75	1125	18.75	0.3	0.053	0.235	0.045	0.01	0.41	372	101,441	58,583	1,220	1,220	100,220	2.30	439.85
76	1140	19.00	0.2	0.035	0.231	0.030	0.01	0.28	248	100,468	58,500	1,219	1,219	99,250	2.28	439.83
77	1155	19.25	0.3	0.053	0.228	0.045	0.01	0.41	372	99,622	58,428	1,217	1,217	98,404	2.26	439.82
78	1170	19.50	0.4	0.071	0.225	0.060	0.01	0.55	496	98,900	58,367	1,216	1,216	97,684	2.24	439.80
79	1185	19.75	0.3	0.053	0.222	0.045	0.01	0.41	372	98,056	58,295	1,214	1,214	96,842	2.22	439.79
80	1200	20.00	0.2	0.035	0.219	0.030	0.01	0.28	248	97,090	58,212	1,213	1,213	95,877	2.20	439.77
81	1215	20.25	0.3	0.053	0.216	0.045	0.01	0.41	372	96,249	58,141	1,211	1,211	95,038	2.18	439.76
82	1230	20.50	0.3	0.053	0.213	0.045	0.01	0.41	372	95,409	58,069	1,210	1,210	94,200	2.16	439.74
83	1245	20.75	0.3	0.053	0.210	0.045	0.01	0.41	372	94,572	57,998	1,208	1,208	93,363	2.14	439.73
84	1260	21.00	0.2	0.035	0.208	0.030	0.01	0.28	248	93,611	57,916	1,207	1,207	92,405	2.12	439.71
85	1275	21.25	0.3	0.053	0.205	0.045	0.01	0.41	372	92,777	57,845	1,205	1,205	91,572	2.10	439.70
86	1290	21.50	0.2	0.035	0.203	0.030	0.01	0.28	248	91,819	57,764	1,203	1,203	90,616	2.08	439.68

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	51.63	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.19		
LAG TIME - MINUTES	3.99	C	0.00347	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	376%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.201	0.045	0.01	0.41	372	90,988	57,693	1,202	1,202	89,786	2.06	439.67
88	1320	22.00	0.2	0.035	0.199	0.030	0.01	0.28	248	90,034	57,612	1,200	1,200	88,834	2.04	439.65
89	1335	22.25	0.3	0.053	0.197	0.045	0.01	0.41	372	89,206	57,541	1,199	1,199	88,007	2.02	439.63
90	1350	22.50	0.2	0.035	0.195	0.030	0.01	0.28	248	88,255	57,460	1,197	1,197	87,058	2.00	439.62
91	1365	22.75	0.2	0.035	0.193	0.030	0.01	0.28	248	87,306	57,379	1,195	1,195	86,110	1.98	439.60
92	1380	23.00	0.2	0.035	0.192	0.030	0.01	0.28	248	86,358	57,299	1,194	1,194	85,165	1.96	439.58
93	1395	23.25	0.2	0.035	0.190	0.030	0.01	0.28	248	85,412	57,218	1,192	1,192	84,220	1.93	439.57
94	1410	23.50	0.2	0.035	0.189	0.030	0.01	0.28	248	84,468	57,138	1,190	1,190	83,278	1.91	439.55
95	1425	23.75	0.2	0.035	0.188	0.030	0.01	0.28	248	83,526	57,058	1,189	1,189	82,337	1.89	439.53
96	1440	24.00	0.2	0.035	0.188	0.030	0.01	0.28	248	82,585	56,977	1,187	1,187	81,398	1.87	439.52

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	826,496 cu-ft
SOIL LOSSES	647,343 cu-ft
EFFECTIVE RAIN	0.96 in
FLOOD VOLUME	4.11 acft
FLOOD VOLUME	179,153 cu-ft
REQUIRED STORAGE	2.49 acft
REQUIRED STORAGE	108,262 cu-ft
MAX WSEL	439.99 ft
PEAK FLOW RATE	14.41 cfs
TOTAL BASIN LOSSES	97,755 cu-ft
AVERAGE PERCOLATION RATE	67.89 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: BASIN I

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
438	0	0		49,700	0	0	0.00
439	1	1	4,675	54,375	52,020	52,020	1.19
440	1	2	4,834	59,209	56,775	108,795	2.50
441	1	3	4,986	64,195	61,685	170,480	3.91
442	1	4	5,150	69,345	66,753	237,233	5.45

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	January 26, 2021
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	EXISTING BASIN
AREA DESIGNATION	OFF-SITE NORTH
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	5.754	D	56	0.51	1.00
9	B	LANDSCAPING	5.950	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	3,950 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	1,975 ft
ELEVATION OF HEADWATER	462.3 ft
ELEVATION OF CONCENTRATION POINT	442.0 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
438.0 ft	21,900 sf
439.0 ft	27,300 sf
440.0 ft	31,405 sf
441.0 ft	36,785 sf
442.0 ft	41,185 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

PHYSICAL DATA

[1] CONCENTRATION POINT	EXISTING BASIN
[2] AREA DESIGNATION	OFF-SITE NORTH
[3] AREA - ACRES	11.704
[4] L-FEET	3950
[5] L-MILES	0.748
[6] La-FEET	1975.00
[7] La-MILES	0.374
[8] ELEVATION OF HEADWATER	462.3
[9] ELEVATION OF CONCENTRATION POINT	442
[10] H-FEET	20.3
[11] S-FEET/MILE	27.1
[12] S^0.5	5.21
[13] L*LCA/S^0.5	0.054
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.16
[16] LAG TIME-MINUTES	9.5
[17] 100% OF LAG-MINUTES	9.5
[18] 200% OF LAG-MINUTES	19.0

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	61,179	90,919	117,260	**187,362**
SOIL LOSSES	(cu-ft)	11,089	32,807	61,345	**128,299**
EFFECTIVE RAIN	(in)	1.18	1.37	1.32	1.39
FLOOD VOLUME	(cu-ft)	50,090	58,112	55,916	**59,063**
	(acre-ft)	1.15	1.33	1.28	**1.36**
REQUIRED STORAGE	(cu-ft)	47,956	**51,905**	47,036	34,787
	(acre-ft)	1.10	**1.19**	1.08	0.80
FACTOR OF SAFETY		2.65	2.44	2.70	3.65
STORAGE PROVIDED	(cu-ft)	126,903			
	(acre-ft)	2.91			
PEAK FLOW	(cfs)	n/a	21.77	18.81	4.43
MAXIMUM WSEL	(ft)	439.80	**439.93**	439.77	439.35
DEPTH	(ft)	1.80	**1.93**	1.77	1.35
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	1.0	1.1	1.5	1.5

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	1/26/21

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	5.754	0.492	0.0251	DEVELOPED	0.1000	0.0492
B	LANDSCAPING	56	0.51	10%	0.46	5.950	0.508	0.2359	DEVELOPED	0.8200	0.4169
					SUM	11.704	SUM	0.2610			0.4660

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.130504486

C= 0.00242

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00242 (24-(T/60))^1.55 + 0.13 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.2610**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	11.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	9.48
UNIT TIME-PERCENT OF LAG	52.7
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.26
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.26	0.53	0.36	4.26	1,278	1,278	22,181	154	154	1,124	0.03	438.05
2	10	0.17	4.2	0.73	0.26	0.62	0.46	5.48	1,645	2,770	22,509	156	156	2,613	0.06	438.11
3	15	0.25	4.4	0.76	0.26	0.65	0.50	5.89	1,768	4,381	22,864	159	159	4,222	0.10	438.17
4	20	0.33	4.6	0.79	0.26	0.68	0.53	6.30	1,890	6,113	23,245	161	161	5,951	0.14	438.24
5	25	0.42	5.0	0.86	0.26	0.73	0.60	7.12	2,135	8,086	23,679	164	164	7,922	0.18	438.32
6	30	0.50	5.6	0.97	0.26	0.82	0.71	8.34	2,502	10,424	24,193	168	168	10,256	0.24	438.42
7	35	0.58	6.4	1.11	0.26	0.94	0.84	9.97	2,991	13,247	24,814	172	172	13,075	0.30	438.53
8	40	0.67	8.1	1.40	0.26	1.19	1.14	13.44	4,031	17,106	25,663	178	178	16,928	0.39	438.69
9	45	0.75	13.1	2.26	0.26	1.92	2.00	23.63	7,090	24,018	27,183	189	189	23,830	0.55	438.97
10	50	0.83	34.5	5.96	0.26	5.07	5.70	**67.28**	**20,183**	44,012	30,024	208	208	43,804	1.01	439.66
11	55	0.92	6.7	1.16	0.26	0.98	0.90	10.58	3,175	46,979	30,439	211	211	46,767	1.07	439.76
12	60	1.00	3.8	0.66	0.26	0.56	0.40	4.67	1,401	48,168	30,606	213	213	**47,956**	**1.10**	**439.80**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	61,179 cu-ft
SOIL LOSSES	11,089 cu-ft
EFFECTIVE RAIN	1.18 in
FLOOD VOLUME	1.15 acft
FLOOD VOLUME	50,090 cu-ft
REQUIRED STORAGE	1.10
REQUIRED STORAGE	47,956 cu-ft
MAX WSEL	439.80 ft
PEAK FLOW RATE	67.28 cfs
TOTAL BASIN LOSSES	2,135 cu-ft
AVERAGE PERCOLATION RATE	35.58 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	11.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	9.48
UNIT TIME-PERCENT OF LAG	52.7
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.26
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation	Maximum	Percolation			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	Area sf	Percolation cu-ft	Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.26	0.28	0.07	0.86	258	258	21,957	152	152	105	0.00	438.00
2	10	0.17	1.3	0.33	0.26	0.28	0.07	0.86	258	363	21,980	153	153	211	0.00	438.01
3	15	0.25	1.1	0.28	0.26	0.24	0.02	0.25	76	287	21,963	153	153	134	0.00	438.01
4	20	0.33	1.5	0.39	0.26	0.33	0.12	1.47	440	574	22,026	153	153	421	0.01	438.02
5	25	0.42	1.5	0.39	0.26	0.33	0.12	1.47	440	861	22,089	153	153	707	0.02	438.03
6	30	0.50	1.8	0.46	0.26	0.39	0.20	2.37	712	1,420	22,212	154	154	1,265	0.03	438.05
7	35	0.58	1.5	0.39	0.26	0.33	0.12	1.47	440	1,705	22,275	155	155	1,550	0.04	438.06
8	40	0.67	1.8	0.46	0.26	0.39	0.20	2.37	712	2,263	22,398	156	156	2,107	0.05	438.09
9	45	0.75	1.8	0.46	0.26	0.39	0.20	2.37	712	2,820	22,520	156	156	2,663	0.06	438.11
10	50	0.83	1.5	0.39	0.26	0.33	0.12	1.47	440	3,103	22,583	157	157	2,946	0.07	438.12
11	55	0.92	1.6	0.41	0.26	0.35	0.15	1.77	531	3,477	22,665	157	157	3,319	0.08	438.14
12	60	1.00	1.8	0.46	0.26	0.39	0.20	2.37	712	4,032	22,787	158	158	3,874	0.09	438.16
13	65	1.08	2.2	0.56	0.26	0.48	0.30	3.59	1,076	4,950	22,989	160	160	4,790	0.11	438.20
14	70	1.17	2.2	0.56	0.26	0.48	0.30	3.59	1,076	5,866	23,190	161	161	5,705	0.13	438.23
15	75	1.25	2.2	0.56	0.26	0.48	0.30	3.59	1,076	6,781	23,392	162	162	6,619	0.15	438.27
16	80	1.33	2.0	0.51	0.26	0.44	0.25	2.98	894	7,513	23,553	164	164	7,350	0.17	438.30
17	85	1.42	2.6	0.67	0.26	0.57	0.41	4.80	1,440	8,789	23,833	166	166	8,624	0.20	438.35
18	90	1.50	2.7	0.69	0.26	0.59	0.43	5.10	1,531	10,155	24,134	168	168	9,987	0.23	438.41
19	95	1.58	2.4	0.62	0.26	0.52	0.36	4.19	1,258	11,245	24,373	169	169	11,076	0.25	438.45
20	100	1.67	2.7	0.69	0.26	0.59	0.43	5.10	1,531	12,606	24,673	171	171	12,435	0.29	438.51
21	105	1.75	3.3	0.85	0.26	0.72	0.59	6.92	2,076	14,511	25,092	174	174	14,337	0.33	438.58
22	110	1.83	3.1	0.80	0.26	0.68	0.54	6.31	1,894	16,232	25,470	177	177	16,055	0.37	438.65
23	115	1.92	2.9	0.74	0.26	0.63	0.48	5.71	1,713	17,767	25,808	179	179	17,588	0.40	438.72
24	120	2.00	3.0	0.77	0.26	0.65	0.51	6.01	1,803	19,391	26,165	182	182	19,210	0.44	438.78
25	125	2.08	3.1	0.80	0.26	0.68	0.54	6.31	1,894	21,104	26,542	184	184	20,920	0.48	438.85

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	11.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	9.48
UNIT TIME-PERCENT OF LAG	52.7
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.26
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
26	130	2.17	4.2	1.08	0.26	0.92	0.82	9.65	2,895	23,814	27,138	188	188	23,626	0.54	438.96
27	135	2.25	5.0	1.28	0.26	1.09	1.02	12.07	3,622	27,248	27,678	192	192	27,056	0.62	439.09
28	140	2.33	3.5	0.90	0.26	0.76	0.64	7.53	2,258	29,314	27,967	194	194	29,119	0.67	439.16
29	145	2.42	6.8	1.75	0.26	1.48	1.49	17.53	5,258	34,378	28,676	199	199	34,179	0.78	439.33
30	150	2.50	7.3	1.87	0.26	1.59	1.61	19.04	5,713	39,892	29,447	204	204	39,687	0.91	439.52
31	155	2.58	8.2	2.11	0.26	1.79	1.84	**21.77**	**6,531**	46,219	30,333	211	211	46,008	1.06	439.73
32	160	2.67	5.9	1.52	0.26	1.29	1.25	14.80	4,440	50,448	30,925	215	215	50,233	1.15	439.88
33	165	2.75	2.0	0.51	0.26	0.44	0.25	2.98	894	51,128	31,020	215	215	50,912	1.17	439.90
34	170	2.83	1.8	0.46	0.26	0.39	0.20	2.37	712	51,625	31,089	216	216	51,409	1.18	439.92
35	175	2.92	1.8	0.46	0.26	0.39	0.20	2.37	712	52,121	31,159	216	216	**51,905**	**1.19**	**439.93**
36	180	3.00	0.6	0.15	0.26	0.13	0.02	0.27	82	51,987	31,140	216	216	51,770	1.19	439.93

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	90,919 cu-ft
SOIL LOSSES	32,807 cu-ft
EFFECTIVE RAIN	1.37 in
FLOOD VOLUME	1.33 acft
FLOOD VOLUME	58,112 cu-ft
REQUIRED STORAGE	1.19 acft
REQUIRED STORAGE	51,905 cu-ft
MAX WSEL	439.93 ft
PEAK FLOW RATE	21.77 cfs
TOTAL BASIN LOSSES	6,342 cu-ft
AVERAGE PERCOLATION RATE	35.23 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	11.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	9.48
UNIT TIME-PERCENT OF LAG	52.7
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.26
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.26	0.14	0.02	0.29	88	88	21,919	152	88	0	0.00	438.00
2	10	0.17	0.6	0.20	0.26	0.17	0.03	0.35	106	106	21,923	152	106	0	0.00	438.00
3	15	0.25	0.6	0.20	0.26	0.17	0.03	0.35	106	106	21,923	152	106	0	0.00	438.00
4	20	0.33	0.6	0.20	0.26	0.17	0.03	0.35	106	106	21,923	152	106	0	0.00	438.00
5	25	0.42	0.6	0.20	0.26	0.17	0.03	0.35	106	106	21,923	152	106	0	0.00	438.00
6	30	0.50	0.7	0.23	0.26	0.20	0.03	0.41	123	123	21,927	152	123	0	0.00	438.00
7	35	0.58	0.7	0.23	0.26	0.20	0.03	0.41	123	123	21,927	152	123	0	0.00	438.00
8	40	0.67	0.7	0.23	0.26	0.20	0.03	0.41	123	123	21,927	152	123	0	0.00	438.00
9	45	0.75	0.7	0.23	0.26	0.20	0.03	0.41	123	123	21,927	152	123	0	0.00	438.00
10	50	0.83	0.7	0.23	0.26	0.20	0.03	0.41	123	123	21,927	152	123	0	0.00	438.00
11	55	0.92	0.7	0.23	0.26	0.20	0.03	0.41	123	123	21,927	152	123	0	0.00	438.00
12	60	1.00	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
13	65	1.08	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
14	70	1.17	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
15	75	1.25	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
16	80	1.33	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
17	85	1.42	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
18	90	1.50	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
19	95	1.58	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
20	100	1.67	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
21	105	1.75	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
22	110	1.83	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
23	115	1.92	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
24	120	2.00	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	11.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	9.48
UNIT TIME-PERCENT OF LAG	52.7
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.26
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses			Total In Basin		Basin WSEL ft
	Minutes	Hours	(Plate E-5.9)		Max	Low					Percolation Area sf	Maximum Percolation cu-ft	Percolation Out cu-ft	cu-ft	ac-ft	
25	125	2.08	0.8	0.26	0.26	0.23	0.00	0.05	14	14	21,903	152	14	0	0.00	438.00
26	130	2.17	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
27	135	2.25	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
28	140	2.33	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
29	145	2.42	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
30	150	2.50	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
31	155	2.58	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
32	160	2.67	0.9	0.30	0.26	0.25	0.04	0.44	131	131	21,929	152	131	0	0.00	438.00
33	165	2.75	1.0	0.33	0.26	0.28	0.07	0.83	249	249	21,955	152	152	96	0.00	438.00
34	170	2.83	1.0	0.33	0.26	0.28	0.07	0.83	249	345	21,976	153	153	192	0.00	438.01
35	175	2.92	1.0	0.33	0.26	0.28	0.07	0.83	249	440	21,997	153	153	288	0.01	438.01
36	180	3.00	1.0	0.33	0.26	0.28	0.07	0.83	249	536	22,018	153	153	383	0.01	438.02
37	185	3.08	1.0	0.33	0.26	0.28	0.07	0.83	249	632	22,039	153	153	479	0.01	438.02
38	190	3.17	1.1	0.36	0.26	0.31	0.10	1.22	366	845	22,086	153	153	691	0.02	438.03
39	195	3.25	1.1	0.36	0.26	0.31	0.10	1.22	366	1,057	22,132	154	154	903	0.02	438.04
40	200	3.33	1.1	0.36	0.26	0.31	0.10	1.22	366	1,269	22,179	154	154	1,115	0.03	438.05
41	205	3.42	1.2	0.40	0.26	0.34	0.14	1.61	483	1,598	22,251	155	155	1,443	0.03	438.06
42	210	3.50	1.3	0.43	0.26	0.37	0.17	2.00	600	2,044	22,350	155	155	1,889	0.04	438.08
43	215	3.58	1.4	0.46	0.26	0.39	0.20	2.39	718	2,606	22,473	156	156	2,450	0.06	438.10
44	220	3.67	1.4	0.46	0.26	0.39	0.20	2.39	718	3,168	22,597	157	157	3,011	0.07	438.12
45	225	3.75	1.5	0.50	0.26	0.42	0.24	2.78	835	3,846	22,746	158	158	3,688	0.08	438.15
46	230	3.83	1.5	0.50	0.26	0.42	0.24	2.78	835	4,522	22,895	159	159	4,363	0.10	438.18
47	235	3.92	1.6	0.53	0.26	0.45	0.27	3.17	952	5,315	23,069	160	160	5,155	0.12	438.21
48	240	4.00	1.6	0.53	0.26	0.45	0.27	3.17	952	6,107	23,243	161	161	5,946	0.14	438.24
49	245	4.08	1.7	0.56	0.26	0.48	0.30	3.56	1,069	7,015	23,443	163	163	6,852	0.16	438.28
50	250	4.17	1.8	0.60	0.26	0.51	0.34	3.96	1,187	8,039	23,668	164	164	7,875	0.18	438.32

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	11.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	9.48
UNIT TIME-PERCENT OF LAG	52.7
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.26
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.26	0.53	0.37	4.35	1,304	9,179	23,919	166	166	9,012	0.21	438.37
52	260	4.33	2.0	0.66	0.26	0.56	0.40	4.74	1,421	10,434	24,195	168	168	10,266	0.24	438.42
53	265	4.42	2.1	0.70	0.26	0.59	0.43	5.13	1,538	11,804	24,496	170	170	11,634	0.27	438.47
54	270	4.50	2.1	0.70	0.26	0.59	0.43	5.13	1,538	13,172	24,797	172	172	13,000	0.30	438.53
55	275	4.58	2.2	0.73	0.26	0.62	0.47	5.52	1,656	14,656	25,124	174	174	14,481	0.33	438.59
56	280	4.67	2.3	0.76	0.26	0.65	0.50	5.91	1,773	16,254	25,475	177	177	16,077	0.37	438.65
57	285	4.75	2.4	0.79	0.26	0.68	0.53	6.30	1,890	17,967	25,852	180	180	17,788	0.41	438.72
58	290	4.83	2.4	0.79	0.26	0.68	0.53	6.30	1,890	19,678	26,228	182	182	19,496	0.45	438.79
59	295	4.92	2.5	0.83	0.26	0.70	0.57	6.69	2,007	21,503	26,630	185	185	21,318	0.49	438.87
60	300	5.00	2.6	0.86	0.26	0.73	0.60	7.08	2,125	23,443	27,056	188	188	23,255	0.53	438.95
61	305	5.08	3.1	1.03	0.26	0.87	0.77	9.04	2,711	25,966	27,498	191	191	25,775	0.59	439.04
62	310	5.17	3.6	1.19	0.26	1.01	0.93	10.99	3,297	29,072	27,933	194	194	28,878	0.66	439.15
63	315	5.25	3.9	1.29	0.26	1.10	1.03	12.16	3,649	32,527	28,417	197	197	32,330	0.74	439.27
64	320	5.33	4.2	1.39	0.26	1.18	1.13	13.34	4,001	36,331	28,949	201	201	36,130	0.83	439.39
65	325	5.42	4.7	1.56	0.26	1.32	1.30	15.29	4,587	40,717	29,563	205	205	40,512	0.93	439.54
66	330	5.50	5.6	1.85	0.26	1.58	1.59	**18.81**	**5,642**	46,154	30,324	211	211	45,944	1.05	439.73
67	335	5.58	1.9	0.63	0.26	0.53	0.37	4.35	1,304	47,247	30,477	212	212	**47,036**	**1.08**	**439.77**
68	340	5.67	0.9	0.30	0.26	0.25	0.04	0.44	131	47,167	30,466	212	212	46,956	1.08	439.76
69	345	5.75	0.6	0.20	0.26	0.17	0.03	0.35	106	47,061	30,451	211	211	46,850	1.08	439.76
70	350	5.83	0.5	0.17	0.26	0.14	0.02	0.29	88	46,938	30,433	211	211	46,726	1.07	439.76
71	355	5.92	0.3	0.10	0.26	0.08	0.01	0.18	53	46,779	30,411	211	211	46,568	1.07	439.75
72	360	6.00	0.2	0.07	0.26	0.06	0.01	0.12	35	46,603	30,387	211	211	46,392	1.07	439.74

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	117,260 cu-ft
SOIL LOSSES	61,345 cu-ft
EFFECTIVE RAIN	1.32 in
FLOOD VOLUME	1.28 acft
FLOOD VOLUME	55,916 cu-ft
REQUIRED STORAGE	1.08 acft
REQUIRED STORAGE	47,036 cu-ft
MAX WSEL	439.77 ft
PEAK FLOW RATE	18.81 cfs
TOTAL BASIN LOSSES	9,524 cu-ft
AVERAGE PERCOLATION RATE	26.45 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	11.70	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	9.48	C	0.00242	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	158%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.461	0.030	0.01	0.06	56	56	21,912	457	56	0	0.00	438.00
2	30	0.50	0.3	0.053	0.456	0.045	0.01	0.09	84	84	21,919	457	84	0	0.00	438.00
3	45	0.75	0.3	0.053	0.450	0.045	0.01	0.09	84	84	21,919	457	84	0	0.00	438.00
4	60	1.00	0.4	0.071	0.445	0.060	0.01	0.12	112	112	21,925	457	112	0	0.00	438.00
5	75	1.25	0.3	0.053	0.440	0.045	0.01	0.09	84	84	21,919	457	84	0	0.00	438.00
6	90	1.50	0.3	0.053	0.434	0.045	0.01	0.09	84	84	21,919	457	84	0	0.00	438.00
7	105	1.75	0.3	0.053	0.429	0.045	0.01	0.09	84	84	21,919	457	84	0	0.00	438.00
8	120	2.00	0.4	0.071	0.424	0.060	0.01	0.12	112	112	21,925	457	112	0	0.00	438.00
9	135	2.25	0.4	0.071	0.419	0.060	0.01	0.12	112	112	21,925	457	112	0	0.00	438.00
10	150	2.50	0.4	0.071	0.414	0.060	0.01	0.12	112	112	21,925	457	112	0	0.00	438.00
11	165	2.75	0.5	0.088	0.409	0.075	0.01	0.16	141	141	21,931	457	141	0	0.00	438.00
12	180	3.00	0.5	0.088	0.404	0.075	0.01	0.16	141	141	21,931	457	141	0	0.00	438.00
13	195	3.25	0.5	0.088	0.399	0.075	0.01	0.16	141	141	21,931	457	141	0	0.00	438.00
14	210	3.50	0.5	0.088	0.394	0.075	0.01	0.16	141	141	21,931	457	141	0	0.00	438.00
15	225	3.75	0.5	0.088	0.389	0.075	0.01	0.16	141	141	21,931	457	141	0	0.00	438.00
16	240	4.00	0.6	0.106	0.384	0.090	0.02	0.19	169	169	21,937	457	169	0	0.00	438.00
17	255	4.25	0.6	0.106	0.379	0.090	0.02	0.19	169	169	21,937	457	169	0	0.00	438.00
18	270	4.50	0.7	0.123	0.374	0.105	0.02	0.22	197	197	21,943	457	197	0	0.00	438.00
19	285	4.75	0.7	0.123	0.370	0.105	0.02	0.22	197	197	21,943	457	197	0	0.00	438.00
20	300	5.00	0.8	0.141	0.365	0.120	0.02	0.25	225	225	21,949	457	225	0	0.00	438.00
21	315	5.25	0.6	0.106	0.360	0.090	0.02	0.19	169	169	21,937	457	169	0	0.00	438.00
22	330	5.50	0.7	0.123	0.355	0.105	0.02	0.22	197	197	21,943	457	197	0	0.00	438.00
23	345	5.75	0.8	0.141	0.351	0.120	0.02	0.25	225	225	21,949	457	225	0	0.00	438.00
24	360	6.00	0.8	0.141	0.346	0.120	0.02	0.25	225	225	21,949	457	225	0	0.00	438.00
25	375	6.25	0.9	0.159	0.341	0.135	0.02	0.28	253	253	21,956	457	253	0	0.00	438.00
26	390	6.50	0.9	0.159	0.337	0.135	0.02	0.28	253	253	21,956	457	253	0	0.00	438.00
27	405	6.75	1.0	0.176	0.332	0.150	0.03	0.31	281	281	21,962	458	281	0	0.00	438.00
28	420	7.00	1.0	0.176	0.328	0.150	0.03	0.31	281	281	21,962	458	281	0	0.00	438.00
29	435	7.25	1.0	0.176	0.323	0.150	0.03	0.31	281	281	21,962	458	281	0	0.00	438.00
30	450	7.50	1.1	0.194	0.319	0.165	0.03	0.34	309	309	21,968	458	309	0	0.00	438.00
31	465	7.75	1.2	0.212	0.315	0.180	0.03	0.37	337	337	21,974	458	337	0	0.00	438.00
32	480	8.00	1.3	0.229	0.310	0.195	0.03	0.41	365	365	21,980	458	365	0	0.00	438.00
33	495	8.25	1.5	0.265	0.306	0.225	0.04	0.47	422	422	21,993	458	422	0	0.00	438.00
34	510	8.50	1.5	0.265	0.302	0.225	0.04	0.47	422	422	21,993	458	422	0	0.00	438.00
35	525	8.75	1.6	0.282	0.298	0.240	0.04	0.50	450	450	21,999	458	450	0	0.00	438.00
36	540	9.00	1.7	0.300	0.293	0.255	0.01	0.08	69	69	21,915	457	69	0	0.00	438.00
37	555	9.25	1.9	0.335	0.289	0.285	0.05	0.54	488	488	22,007	458	458	30	0.00	438.00
38	570	9.50	2.0	0.353	0.285	0.300	0.07	0.80	719	749	22,065	460	460	289	0.01	438.01
39	585	9.75	2.1	0.370	0.281	0.315	0.09	1.06	950	1,239	22,173	462	462	777	0.02	438.03
40	600	10.00	2.2	0.388	0.277	0.330	0.11	1.31	1,180	1,958	22,331	465	465	1,492	0.03	438.06
41	615	10.25	1.5	0.265	0.273	0.225	0.04	0.47	422	1,914	22,321	465	465	1,449	0.03	438.06
42	630	10.50	1.5	0.265	0.269	0.225	0.04	0.47	422	1,871	22,311	465	465	1,406	0.03	438.06
43	645	10.75	2.0	0.353	0.265	0.300	0.09	1.04	932	2,337	22,414	467	467	1,870	0.04	438.08

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	11.70	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	9.48	C	0.00242	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	158%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.353	0.261	0.300	0.09	1.08	973	2,843	22,525	469	469	2,374	0.05	438.10
45	675	11.25	1.9	0.335	0.257	0.285	0.08	0.92	826	3,200	22,604	471	471	2,729	0.06	438.11
46	690	11.50	1.9	0.335	0.254	0.285	0.08	0.96	867	3,596	22,691	473	473	3,123	0.07	438.13
47	705	11.75	1.7	0.300	0.250	0.255	0.05	0.59	532	3,655	22,704	473	473	3,182	0.07	438.13
48	720	12.00	1.8	0.318	0.246	0.270	0.07	0.84	759	3,941	22,767	474	474	3,466	0.08	438.14
49	735	12.25	2.5	0.441	0.242	0.375	0.20	2.34	2,109	5,575	23,126	482	482	5,094	0.12	438.21
50	750	12.50	2.6	0.459	0.239	0.390	0.22	2.59	2,335	7,429	23,534	490	490	6,938	0.16	438.28
51	765	12.75	2.8	0.494	0.235	0.420	0.26	3.05	2,748	9,686	24,031	501	501	9,186	0.21	438.37
52	780	13.00	2.9	0.512	0.232	0.435	0.28	3.30	2,973	12,159	24,574	512	512	11,647	0.27	438.47
53	795	13.25	3.4	0.600	0.228	0.510	0.37	4.39	3,947	15,593	25,330	528	528	15,066	0.35	438.61
54	810	13.50	3.4	0.600	0.225	0.510	0.38	**4.43**	**3,984**	19,049	26,090	544	544	18,506	0.42	438.75
55	825	13.75	2.3	0.406	0.221	0.345	0.18	2.18	1,959	20,465	26,401	550	550	19,915	0.46	438.81
56	840	14.00	2.3	0.406	0.218	0.345	0.19	2.22	1,995	21,909	26,719	557	557	21,353	0.49	438.87
57	855	14.25	2.7	0.476	0.215	0.405	0.26	3.09	2,779	24,132	27,208	567	567	23,565	0.54	438.96
58	870	14.50	2.6	0.459	0.211	0.390	0.25	2.92	2,627	26,192	27,530	574	574	25,619	0.59	439.04
59	885	14.75	2.6	0.459	0.208	0.390	0.25	2.96	2,661	28,280	27,822	580	580	27,700	0.64	439.11
60	900	15.00	2.5	0.441	0.205	0.375	0.24	2.79	2,508	30,208	28,092	585	585	29,623	0.68	439.17
61	915	15.25	2.4	0.423	0.202	0.360	0.22	2.62	2,354	31,976	28,339	590	590	31,386	0.72	439.23
62	930	15.50	2.3	0.406	0.199	0.345	0.21	2.44	2,199	33,585	28,565	595	595	32,990	0.76	439.29
63	945	15.75	1.9	0.335	0.196	0.285	0.14	1.65	1,482	34,472	28,689	598	598	33,874	0.78	439.32
64	960	16.00	1.9	0.335	0.193	0.285	0.14	1.68	1,514	35,388	28,817	600	600	**34,787**	**0.80**	**439.35**
65	975	16.25	0.4	0.071	0.190	0.060	0.01	0.12	112	34,900	28,749	599	599	34,301	0.79	439.33
66	990	16.50	0.4	0.071	0.187	0.060	0.01	0.12	112	34,413	28,680	598	598	33,816	0.78	439.32
67	1005	16.75	0.3	0.053	0.184	0.045	0.01	0.09	84	33,900	28,609	596	596	33,304	0.76	439.30
68	1020	17.00	0.3	0.053	0.181	0.045	0.01	0.09	84	33,388	28,537	595	595	32,794	0.75	439.28
69	1035	17.25	0.5	0.088	0.178	0.075	0.01	0.16	141	32,934	28,473	593	593	32,341	0.74	439.27
70	1050	17.50	0.5	0.088	0.176	0.075	0.01	0.16	141	32,482	28,410	592	592	31,890	0.73	439.25
71	1065	17.75	0.5	0.088	0.173	0.075	0.01	0.16	141	32,030	28,347	591	591	31,440	0.72	439.23
72	1080	18.00	0.4	0.071	0.171	0.060	0.01	0.12	112	31,552	28,280	589	589	30,963	0.71	439.22
73	1095	18.25	0.4	0.071	0.168	0.060	0.01	0.12	112	31,075	28,213	588	588	30,487	0.70	439.20
74	1110	18.50	0.4	0.071	0.166	0.060	0.01	0.12	112	30,600	28,147	586	586	30,014	0.69	439.19
75	1125	18.75	0.3	0.053	0.163	0.045	0.01	0.09	84	30,098	28,076	585	585	29,513	0.68	439.17
76	1140	19.00	0.2	0.035	0.161	0.030	0.01	0.06	56	29,569	28,002	583	583	28,986	0.67	439.15
77	1155	19.25	0.3	0.053	0.159	0.045	0.01	0.09	84	29,070	27,933	582	582	28,488	0.65	439.13
78	1170	19.50	0.4	0.071	0.156	0.060	0.01	0.12	112	28,601	27,867	581	581	28,020	0.64	439.12
79	1185	19.75	0.3	0.053	0.154	0.045	0.01	0.09	84	28,104	27,797	579	579	27,525	0.63	439.10
80	1200	20.00	0.2	0.035	0.152	0.030	0.01	0.06	56	27,581	27,724	578	578	27,004	0.62	439.08
81	1215	20.25	0.3	0.053	0.150	0.045	0.01	0.09	84	27,088	27,655	576	576	26,512	0.61	439.07
82	1230	20.50	0.3	0.053	0.148	0.045	0.01	0.09	84	26,596	27,586	575	575	26,022	0.60	439.05
83	1245	20.75	0.3	0.053	0.146	0.045	0.01	0.09	84	26,106	27,518	573	573	25,533	0.59	439.03
84	1260	21.00	0.2	0.035	0.145	0.030	0.01	0.06	56	25,589	27,445	572	572	25,017	0.57	439.02
85	1275	21.25	0.3	0.053	0.143	0.045	0.01	0.09	84	25,101	27,377	570	570	24,531	0.56	439.00
86	1290	21.50	0.2	0.035	0.141	0.030	0.01	0.06	56	24,587	27,305	569	569	24,018	0.55	438.98

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	11.70	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.13		
LAG TIME - MINUTES	9.48	C	0.00242	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	158%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.140	0.045	0.01	0.09	84	24,103	27,201	567	567	23,536	0.54	438.96
88	1320	22.00	0.2	0.035	0.138	0.030	0.01	0.06	56	23,592	27,089	564	564	23,028	0.53	438.94
89	1335	22.25	0.3	0.053	0.137	0.045	0.01	0.09	84	23,112	26,984	562	562	22,550	0.52	438.92
90	1350	22.50	0.2	0.035	0.136	0.030	0.01	0.06	56	22,606	26,872	560	560	22,046	0.51	438.90
91	1365	22.75	0.2	0.035	0.134	0.030	0.01	0.06	56	22,103	26,762	558	558	21,545	0.49	438.88
92	1380	23.00	0.2	0.035	0.133	0.030	0.01	0.06	56	21,601	26,651	555	555	21,046	0.48	438.86
93	1395	23.25	0.2	0.035	0.132	0.030	0.01	0.06	56	21,102	26,542	553	553	20,549	0.47	438.84
94	1410	23.50	0.2	0.035	0.132	0.030	0.01	0.06	56	20,605	26,432	551	551	20,055	0.46	438.82
95	1425	23.75	0.2	0.035	0.131	0.030	0.01	0.06	56	20,111	26,324	548	548	19,563	0.45	438.80
96	1440	24.00	0.2	0.035	0.131	0.030	0.01	0.06	56	19,619	26,215	546	546	19,073	0.44	438.78

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	187,362 cu-ft
SOIL LOSSES	128,299 cu-ft
EFFECTIVE RAIN	1.39 in
FLOOD VOLUME	1.36 acft
FLOOD VOLUME	59,063 cu-ft
REQUIRED STORAGE	0.80 acft
REQUIRED STORAGE	34,787 cu-ft
MAX WSEL	439.35 ft
PEAK FLOW RATE	4.43 cfs
TOTAL BASIN LOSSES	39,990 cu-ft
AVERAGE PERCOLATION RATE	27.77 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: EXISTING BASIN

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	TOTAL (acre-ft)
438	0	0		21,900	0	0	0.00
439	1	1	5,400	27,300	24,550	24,550	0.56
440	1	2	4,105	31,405	29,329	53,879	1.24
441	1	3	5,380	36,785	34,060	87,939	2.02
442	1	4	4,400	41,185	38,964	126,903	2.91

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

RCFCD SYNTHETIC UNIT HYDROGRAPH - SHORTCUT METHOD

DATA INPUT SHEET

DATE	January 26, 2021
WORKSHEET PREPARED BY:	DLS
PROJECT NAME	CORAL MOUNTAIN
PROJECT NUMBER	2553
CONCENTRATION POINT DESIGNATION	EXISTING BASIN
AREA DESIGNATION	OFF-SITE SOUTH
AMC NUMBER	2

Low Loss Conditions: X=Existing; D=Developed; BS=Retention

AREA DESIG	SOIL GROUP	TRIBUTARY AREAS	ACRES	LOW LOSS CONDITION	RI NUMBER	AMC II INFILTRATION RATE	IMPERVIOUS PERCENT
2	B	PAVING/HARDSCAPE	4.014	D	56	0.51	1.00
9	B	LANDSCAPING	1.687	D	56	0.51	0.10

LENGTH OF WATERCOURSE (L)	4,250 ft
LENGTH TO POINT OPPOSITE CENTROID (Lca)	2,125 ft
ELEVATION OF HEADWATER	490.9 ft
ELEVATION OF CONCENTRATION POINT	440.7 ft
AVERAGE MANNINGS 'N' VALUE	0.02
STORM FREQUENCY (YEAR)	100
LOW LOSS RATE (Storm Events > 10 Years)	**85%**
POINT RAIN FROM NOAA ATLAS	**14**
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

BASIN CHARACTERISTICS:

ELEVATION	AREA
436.0 ft	30,335 sf
437.0 ft	37,775 sf
438.0 ft	42,190 sf
439.0 ft	45,895 sf
440.0 ft	49,625 sf
441.0 ft	54,215 sf

PERCOLATION RATE (in/hr)	1.0 in/hr
DRYWELL DATA	
NUMBER USED	
PERCOLATION RATE	
LOWEST FLOWLINE ELEVATION	
LOWEST PAD ELEVATION	

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM	PROJECT: CORAL MOUNTAIN Job No.: 2553 BY: DLS DATE: 1/26/21

PHYSICAL DATA

[1] CONCENTRATION POINT	EXISTING BASIN
[2] AREA DESIGNATION	OFF-SITE SOUTH
[3] AREA - ACRES	5.701
[4] L-FEET	4250
[5] L-MILES	0.805
[6] La-FEET	2125.00
[7] La-MILES	0.402
[8] ELEVATION OF HEADWATER	490.9
[9] ELEVATION OF CONCENTRATION POINT	440.7
[10] H-FEET	50.2
[11] S-FEET/MILE	62.4
[12] S^0.5	7.90
[13] L*LCA/S^0.5	0.041
[14] AVERAGE MANNINGS 'N'	0.02
[15] LAG TIME-HOURS	0.14
[16] LAG TIME-MINUTES	8.6
[17] 100% OF LAG-MINUTES	8.6
[18] 200% OF LAG-MINUTES	17.1

RAINFALL DATA

[1] AMC	II
[2] FREQUENCY-YEARS	100
FROM NOAA ATLAS	**14**
[3] STORM DURATION:	Point Rain
1-HOUR	1.44 in
3-HOUR	2.14 in
6-HOUR	2.76 in
24-HOUR	4.41 in

STORM EVENT SUMMARY

STORM DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
RAINFALL VOLUME	(cu-ft)	29,800	44,287	57,117	**91,264**
SOIL LOSSES	(cu-ft)	3,585	10,683	21,044	**50,595**
EFFECTIVE RAIN	(in)	1.27	1.62	1.74	1.97
FLOOD VOLUME	(cu-ft)	26,215	33,604	36,073	**40,668**
	(acre-ft)	0.60	0.77	0.83	**0.93**
REQUIRED STORAGE	(cu-ft)	23,515	**25,738**	23,414	16,515
	(acre-ft)	0.54	**0.59**	0.54	0.38
FACTOR OF SAFETY		9.25	8.46	9.29	13.18
STORAGE PROVIDED	(cu-ft)	217,630			
	(acre-ft)	5.00			
PEAK FLOW	(cfs)	n/a	11.11	9.67	2.59
MAXIMUM WSEL	(ft)	436.69	**436.76**	436.69	436.49
DEPTH	(ft)	0.69	**0.76**	0.69	0.49
LOWEST FLOWLINE ELEVATION					
DIFFERENCE	(ft)				
LOWEST PAD ELEVATION					
DIFFERENCE	(ft)				
ESTIMATED TIME TO DEWATER BASIN Based on Total Flood Volume & Average Percolation Rate	(days)	0.4	0.5	0.7	1.0

NOTE: PEAK FLOW FOR THE 1-HOUR STORM IS NOT REPRESENTATIVE. PER RCFCD PEAK DISCHARGES FROM THE 3-HOUR STORM SHOULD NORMALLY COMPARE WELL WITH RATIONAL PEAKS.

RCFC & WCD HYDROLOGY MANUAL	SYNTHETIC UNIT HYDROGRAPH METHOD BASIC DATA CALCULATION FORM AMC II	PROJECT:	CORAL MOUNTAIN		
		Job No.:	2553		
		BY:	DLS	DATE:	1/26/21

AVERAGE ADJUSTED LOSS RATE

SOIL GROUP [Plate C-1]	LAND USE	RI NUMBER [Plate E-6.1]	PERVIOUS AREA INFILTRATION RATE (in/hr) [Plate E-6.2]	DECIMAL PERCENT OF AREA IMPERVIOUS [Plate E-6.3]	ADJUSTED INFILTRATION RATE (in/hr)	AREA	AREA WEIGHTED AVERAGE	MAX AVERAGE ADJUSTED INFILTRATION RATE (in/hr)	LOW LOSS CONDITION	LOW LOSS RATE PER RCFC/2322	MIN AVERAGE ADJUSTED INFILTRATION RATE
B	PAVING/HARDSCAPE	56	0.51	100%	0.05	4.014	0.704	0.0359	DEVELOPED	0.1000	0.0704
B	LANDSCAPING	56	0.51	10%	0.46	1.687	0.296	0.1373	DEVELOPED	0.8200	0.2426
					SUM	5.701		SUM	0.1732		0.3131

VARIABLE LOSS RATE CURVE (24-HOUR STORM ONLY)

Fm= 0.08662083

C= 0.00160

$F_t = C(24-(T/60))^{1.55} + F_m$ = 0.00160 (24-(T/60))^1.55 + 0.09 in/hr

CONSTANT LOSS RATE (3 & 6 HOUR STORMS) = **0.1732**

LOW LOSS RATE = **0.8500**

Where:

T=Time in minutes. To get an average value for each unit time period, Use T=1/2 the unit time for the first time period, T=1 1/2 unit time for the second period, etc.

NOTE: Low loss rates established per RCFC/2322 (Dated: May-30-95)
For 10 Year Storms or Less
Undeveloped Condition: Low Loss = 90%
Developed Condition: Low Loss = 0.9 - (0.8 * %impervious)
Basin Site: Low Loss = 10%
For 100 Year Storm - Low Loss should be between 80% & 90% of the Rainfall Rate

RCFC & WCD
HYDROLOGY
MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

1-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	5.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	8.56
UNIT TIME-PERCENT OF LAG	58.4
TOTAL ADJUSTED STORM RAIN-INCHES	1.44
CONSTANT LOSS RATE-in/hr	0.17
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	3.6	0.62	0.17	0.53	0.45	2.58	774	774	30,504	212	212	562	0.01	436.02
2	10	0.17	4.2	0.73	0.17	0.62	0.55	3.18	953	1,515	30,667	213	213	1,302	0.03	436.04
3	15	0.25	4.4	0.76	0.17	0.65	0.59	3.37	1,012	2,315	30,842	214	214	2,100	0.05	436.06
4	20	0.33	4.6	0.79	0.17	0.68	0.62	3.57	1,072	3,172	31,029	215	215	2,957	0.07	436.09
5	25	0.42	5.0	0.86	0.17	0.73	0.69	3.97	1,191	4,148	31,243	217	217	3,931	0.09	436.12
6	30	0.50	5.6	0.97	0.17	0.82	0.79	4.57	1,370	5,301	31,495	219	219	5,083	0.12	436.15
7	35	0.58	6.4	1.11	0.17	0.94	0.93	5.36	1,608	6,691	31,800	221	221	6,470	0.15	436.19
8	40	0.67	8.1	1.40	0.17	1.19	1.23	7.05	2,115	8,585	32,214	224	224	8,362	0.19	436.25
9	45	0.75	13.1	2.26	0.17	1.92	2.09	12.02	3,605	11,967	32,955	229	229	11,738	0.27	436.35
10	50	0.83	34.5	5.96	0.17	5.07	5.79	**33.27**	**9,982**	21,720	35,090	244	244	21,476	0.49	436.63
11	55	0.92	6.7	1.16	0.17	0.98	0.98	5.66	1,698	23,174	35,408	246	246	22,928	0.53	436.67
12	60	1.00	3.8	0.66	0.17	0.56	0.48	2.78	834	23,762	35,537	247	247	**23,515**	**0.54**	**436.69**

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY	
TOTAL RAINFALL	1.44 in
RAINFALL VOLUME	29,800 cu-ft
SOIL LOSSES	3,585 cu-ft
EFFECTIVE RAIN	1.27 in
FLOOD VOLUME	0.60 acft
FLOOD VOLUME	26,215 cu-ft
REQUIRED STORAGE	0.54
REQUIRED STORAGE	23,515 cu-ft
MAX WSEL	436.69 ft
PEAK FLOW RATE	33.27 cfs
TOTAL BASIN LOSSES	2,700 cu-ft
AVERAGE PERCOLATION RATE	45.00 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	5.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	8.56
UNIT TIME-PERCENT OF LAG	58.4
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.17
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation	Maximum	Percolation			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	Area sf	Percolation cu-ft	Out cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
1	5	0.08	1.3	0.33	0.17	0.28	0.16	0.92	277	277	30,396	211	211	66	0.00	436.00
2	10	0.17	1.3	0.33	0.17	0.28	0.16	0.92	277	343	30,410	211	211	132	0.00	436.00
3	15	0.25	1.1	0.28	0.17	0.24	0.11	0.63	188	320	30,405	211	211	109	0.00	436.00
4	20	0.33	1.5	0.39	0.17	0.33	0.21	1.22	366	474	30,439	211	211	263	0.01	436.01
5	25	0.42	1.5	0.39	0.17	0.33	0.21	1.22	366	629	30,473	212	212	417	0.01	436.01
6	30	0.50	1.8	0.46	0.17	0.39	0.29	1.66	498	915	30,535	212	212	703	0.02	436.02
7	35	0.58	1.5	0.39	0.17	0.33	0.21	1.22	366	1,069	30,569	212	212	857	0.02	436.03
8	40	0.67	1.8	0.46	0.17	0.39	0.29	1.66	498	1,355	30,632	213	213	1,142	0.03	436.03
9	45	0.75	1.8	0.46	0.17	0.39	0.29	1.66	498	1,641	30,694	213	213	1,427	0.03	436.04
10	50	0.83	1.5	0.39	0.17	0.33	0.21	1.22	366	1,793	30,728	213	213	1,580	0.04	436.05
11	55	0.92	1.6	0.41	0.17	0.35	0.24	1.37	410	1,989	30,771	214	214	1,776	0.04	436.05
12	60	1.00	1.8	0.46	0.17	0.39	0.29	1.66	498	2,274	30,833	214	214	2,060	0.05	436.06
13	65	1.08	2.2	0.56	0.17	0.48	0.39	2.25	676	2,736	30,934	215	215	2,521	0.06	436.07
14	70	1.17	2.2	0.56	0.17	0.48	0.39	2.25	676	3,196	31,035	216	216	2,981	0.07	436.09
15	75	1.25	2.2	0.56	0.17	0.48	0.39	2.25	676	3,656	31,135	216	216	3,440	0.08	436.10
16	80	1.33	2.0	0.51	0.17	0.44	0.34	1.96	587	4,027	31,217	217	217	3,810	0.09	436.11
17	85	1.42	2.6	0.67	0.17	0.57	0.49	2.84	853	4,663	31,356	218	218	4,445	0.10	436.13
18	90	1.50	2.7	0.69	0.17	0.59	0.52	2.99	897	5,342	31,504	219	219	5,123	0.12	436.15
19	95	1.58	2.4	0.62	0.17	0.52	0.44	2.55	764	5,888	31,624	220	220	5,668	0.13	436.17
20	100	1.67	2.7	0.69	0.17	0.59	0.52	2.99	897	6,565	31,772	221	221	6,344	0.15	436.19
21	105	1.75	3.3	0.85	0.17	0.72	0.67	3.88	1,163	7,507	31,978	222	222	7,285	0.17	436.21
22	110	1.83	3.1	0.80	0.17	0.68	0.62	3.58	1,074	8,359	32,165	223	223	8,136	0.19	436.24
23	115	1.92	2.9	0.74	0.17	0.63	0.57	3.29	986	9,121	32,332	225	225	8,897	0.20	436.26
24	120	2.00	3.0	0.77	0.17	0.65	0.60	3.43	1,030	9,927	32,508	226	226	9,701	0.22	436.29
25	125	2.08	3.1	0.80	0.17	0.68	0.62	3.58	1,074	10,775	32,694	227	227	10,548	0.24	436.31

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

3-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE

DRAINAGE AREA-ACRES	5.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	8.56
UNIT TIME-PERCENT OF LAG	58.4
TOTAL ADJUSTED STORM RAIN (in)	2.14
CONSTANT LOSS RATE (in/hr)	0.17
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time		Pattern	Storm	Loss Rate		Effective	Flood	Volume	Basin	Basin Losses			Total In Basin		Basin
	Minutes	Hours	Percent	Rain	in/hr		Rain	Hydrograph	In	Volume	Percolation Area	Maximum Percolation	Percolation Out			WSEL
				in/hr	Max	Low	in/hr	Flow cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
			(Plate E-5.9)													
26	130	2.17	4.2	1.08	0.17	0.92	0.91	5.20	1,561	12,109	32,986	229	229	11,880	0.27	436.35
27	135	2.25	5.0	1.28	0.17	1.09	1.11	6.39	1,916	13,796	33,355	232	232	13,564	0.31	436.40
28	140	2.33	3.5	0.90	0.17	0.76	0.73	4.17	1,251	14,815	33,578	233	233	14,582	0.33	436.43
29	145	2.42	6.8	1.75	0.17	1.48	1.57	9.04	2,713	17,295	34,121	237	237	17,058	0.39	436.50
30	150	2.50	7.3	1.87	0.17	1.59	1.70	9.78	2,934	19,992	34,711	241	241	19,751	0.45	436.58
31	155	2.58	8.2	2.11	0.17	1.79	1.93	**11.11**	**3,333**	23,084	35,388	246	246	22,838	0.52	436.67
32	160	2.67	5.9	1.52	0.17	1.29	1.34	7.71	2,314	25,152	35,841	249	249	24,903	0.57	436.73
33	165	2.75	2.0	0.51	0.17	0.44	0.34	1.96	587	25,490	35,915	249	249	25,241	0.58	436.74
34	170	2.83	1.8	0.46	0.17	0.39	0.29	1.66	498	25,739	35,969	250	250	25,489	0.59	436.75
35	175	2.92	1.8	0.46	0.17	0.39	0.29	1.66	498	25,988	36,024	250	250	**25,738**	**0.59**	**436.76**
36	180	3.00	0.6	0.15	0.17	0.13	0.02	0.13	40	25,777	35,978	250	250	25,528	0.59	436.75

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAIN	2.14 in
RAINFALL VOLUME	44,287 cu-ft
SOIL LOSSES	10,683 cu-ft
EFFECTIVE RAIN	1.62 in
FLOOD VOLUME	0.77 acft
FLOOD VOLUME	33,604 cu-ft
REQUIRED STORAGE	0.59 acft
REQUIRED STORAGE	25,738 cu-ft
MAX WSEL	436.76 ft
PEAK FLOW RATE	11.11 cfs
TOTAL BASIN LOSSES	8,076 cu-ft
AVERAGE PERCOLATION RATE	44.87 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	5.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	8.56
UNIT TIME-PERCENT OF LAG	58.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.17
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
1	5	0.08	0.5	0.17	0.17	0.14	0.02	0.14	43	43	30,344	211	43	0	0.00	436.00
2	10	0.17	0.6	0.20	0.17	0.17	0.03	0.15	44	44	30,345	211	44	0	0.00	436.00
3	15	0.25	0.6	0.20	0.17	0.17	0.03	0.15	44	44	30,345	211	44	0	0.00	436.00
4	20	0.33	0.6	0.20	0.17	0.17	0.03	0.15	44	44	30,345	211	44	0	0.00	436.00
5	25	0.42	0.6	0.20	0.17	0.17	0.03	0.15	44	44	30,345	211	44	0	0.00	436.00
6	30	0.50	0.7	0.23	0.17	0.20	0.06	0.34	101	101	30,357	211	101	0	0.00	436.00
7	35	0.58	0.7	0.23	0.17	0.20	0.06	0.34	101	101	30,357	211	101	0	0.00	436.00
8	40	0.67	0.7	0.23	0.17	0.20	0.06	0.34	101	101	30,357	211	101	0	0.00	436.00
9	45	0.75	0.7	0.23	0.17	0.20	0.06	0.34	101	101	30,357	211	101	0	0.00	436.00
10	50	0.83	0.7	0.23	0.17	0.20	0.06	0.34	101	101	30,357	211	101	0	0.00	436.00
11	55	0.92	0.7	0.23	0.17	0.20	0.06	0.34	101	101	30,357	211	101	0	0.00	436.00
12	60	1.00	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
13	65	1.08	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
14	70	1.17	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
15	75	1.25	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
16	80	1.33	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
17	85	1.42	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
18	90	1.50	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
19	95	1.58	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
20	100	1.67	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
21	105	1.75	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
22	110	1.83	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
23	115	1.92	0.8	0.26	0.17	0.23	0.09	0.53	158	158	30,370	211	158	0	0.00	436.00
24	120	2.00	0.9	0.30	0.17	0.25	0.12	0.72	215	215	30,382	211	211	4	0.00	436.00

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	5.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	8.56
UNIT TIME-PERCENT OF LAG	58.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.17
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
25	125	2.08	0.8	0.26	0.17	0.23	0.09	0.53	158	162	30,371	211	162	0	0.00	436.00
26	130	2.17	0.9	0.30	0.17	0.25	0.12	0.72	215	215	30,382	211	211	4	0.00	436.00
27	135	2.25	0.9	0.30	0.17	0.25	0.12	0.72	215	220	30,383	211	211	9	0.00	436.00
28	140	2.33	0.9	0.30	0.17	0.25	0.12	0.72	215	224	30,384	211	211	13	0.00	436.00
29	145	2.42	0.9	0.30	0.17	0.25	0.12	0.72	215	228	30,385	211	211	17	0.00	436.00
30	150	2.50	0.9	0.30	0.17	0.25	0.12	0.72	215	232	30,386	211	211	21	0.00	436.00
31	155	2.58	0.9	0.30	0.17	0.25	0.12	0.72	215	237	30,387	211	211	26	0.00	436.00
32	160	2.67	0.9	0.30	0.17	0.25	0.12	0.72	215	241	30,388	211	211	30	0.00	436.00
33	165	2.75	1.0	0.33	0.17	0.28	0.16	0.91	272	302	30,401	211	211	91	0.00	436.00
34	170	2.83	1.0	0.33	0.17	0.28	0.16	0.91	272	364	30,415	211	211	152	0.00	436.00
35	175	2.92	1.0	0.33	0.17	0.28	0.16	0.91	272	425	30,428	211	211	214	0.00	436.01
36	180	3.00	1.0	0.33	0.17	0.28	0.16	0.91	272	486	30,441	211	211	275	0.01	436.01
37	185	3.08	1.0	0.33	0.17	0.28	0.16	0.91	272	547	30,455	211	211	336	0.01	436.01
38	190	3.17	1.1	0.36	0.17	0.31	0.19	1.10	330	665	30,481	212	212	453	0.01	436.01
39	195	3.25	1.1	0.36	0.17	0.31	0.19	1.10	330	783	30,506	212	212	571	0.01	436.02
40	200	3.33	1.1	0.36	0.17	0.31	0.19	1.10	330	901	30,532	212	212	689	0.02	436.02
41	205	3.42	1.2	0.40	0.17	0.34	0.22	1.29	387	1,075	30,570	212	212	863	0.02	436.03
42	210	3.50	1.3	0.43	0.17	0.37	0.26	1.48	444	1,307	30,621	213	213	1,094	0.03	436.03
43	215	3.58	1.4	0.46	0.17	0.39	0.29	1.67	501	1,595	30,684	213	213	1,382	0.03	436.04
44	220	3.67	1.4	0.46	0.17	0.39	0.29	1.67	501	1,883	30,747	214	214	1,669	0.04	436.05
45	225	3.75	1.5	0.50	0.17	0.42	0.32	1.86	558	2,227	30,823	214	214	2,013	0.05	436.06
46	230	3.83	1.5	0.50	0.17	0.42	0.32	1.86	558	2,571	30,898	215	215	2,357	0.05	436.07
47	235	3.92	1.6	0.53	0.17	0.45	0.36	2.05	615	2,972	30,986	215	215	2,756	0.06	436.08
48	240	4.00	1.6	0.53	0.17	0.45	0.36	2.05	615	3,372	31,073	216	216	3,156	0.07	436.09
49	245	4.08	1.7	0.56	0.17	0.48	0.39	2.24	672	3,828	31,173	216	216	3,612	0.08	436.11
50	250	4.17	1.8	0.60	0.17	0.51	0.42	2.43	729	4,341	31,285	217	217	4,124	0.09	436.12

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

6-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	5.70
UNIT TIME-MINUTES	5
LAG TIME - MINUTES	8.56
UNIT TIME-PERCENT OF LAG	58.4
TOTAL ADJUSTED STORM RAIN (in)	2.76
CONSTANT LOSS RATE (in/hr)	0.17
LOW LOSS RATE - PERCENT	85.00%

Basin Percolation Rate	1.0 in/hr	
Maxwell Drywells		
Number	0	
Drywell Percolation Rate	0.00 cfs	0.00 cfm

Unit Time Period	Time Minutes	Time Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
51	255	4.25	1.9	0.63	0.17	0.53	0.46	2.62	786	4,910	31,410	218	218	4,692	0.11	436.14
52	260	4.33	2.0	0.66	0.17	0.56	0.49	2.81	844	5,536	31,547	219	219	5,316	0.12	436.16
53	265	4.42	2.1	0.70	0.17	0.59	0.52	3.00	901	6,217	31,696	220	220	5,997	0.14	436.18
54	270	4.50	2.1	0.70	0.17	0.59	0.52	3.00	901	6,898	31,845	221	221	6,677	0.15	436.20
55	275	4.58	2.2	0.73	0.17	0.62	0.56	3.19	958	7,634	32,006	222	222	7,412	0.17	436.22
56	280	4.67	2.3	0.76	0.17	0.65	0.59	3.38	1,015	8,427	32,180	223	223	8,204	0.19	436.24
57	285	4.75	2.4	0.79	0.17	0.68	0.62	3.57	1,072	9,276	32,366	225	225	9,051	0.21	436.27
58	290	4.83	2.4	0.79	0.17	0.68	0.62	3.57	1,072	10,123	32,551	226	226	9,897	0.23	436.29
59	295	4.92	2.5	0.83	0.17	0.70	0.65	3.76	1,129	11,026	32,749	227	227	10,799	0.25	436.32
60	300	5.00	2.6	0.86	0.17	0.73	0.69	3.95	1,186	11,985	32,959	229	229	11,756	0.27	436.35
61	305	5.08	3.1	1.03	0.17	0.87	0.85	4.91	1,472	13,228	33,231	231	231	12,997	0.30	436.38
62	310	5.17	3.6	1.19	0.17	1.01	1.02	5.86	1,757	14,755	33,565	233	233	14,522	0.33	436.43
63	315	5.25	3.9	1.29	0.17	1.10	1.12	6.43	1,929	16,450	33,936	236	236	16,215	0.37	436.48
64	320	5.33	4.2	1.39	0.17	1.18	1.22	7.00	2,100	18,315	34,344	239	239	18,076	0.41	436.53
65	325	5.42	4.7	1.56	0.17	1.32	1.38	7.95	2,386	20,462	34,814	242	242	20,220	0.46	436.59
66	330	5.50	5.6	1.85	0.17	1.58	1.68	**9.67**	**2,900**	23,120	35,396	246	246	22,874	0.53	436.67
67	335	5.58	1.9	0.63	0.17	0.53	0.46	2.62	786	23,661	35,515	247	247	**23,414**	**0.54**	**436.69**
68	340	5.67	0.9	0.30	0.17	0.25	0.12	0.72	215	23,629	35,508	247	247	23,383	0.54	436.69
69	345	5.75	0.6	0.20	0.17	0.17	0.03	0.15	44	23,427	35,463	246	246	23,181	0.53	436.68
70	350	5.83	0.5	0.17	0.17	0.14	0.02	0.14	43	23,223	35,419	246	246	22,977	0.53	436.68
71	355	5.92	0.3	0.10	0.17	0.08	0.01	0.09	26	23,003	35,371	246	246	22,758	0.52	436.67
72	360	6.00	0.2	0.07	0.17	0.06	0.01	0.06	17	22,775	35,321	245	245	22,529	0.52	436.66

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	2.76 in
RAINFALL VOLUME	57,117 cu-ft
SOIL LOSSES	21,044 cu-ft
EFFECTIVE RAIN	1.74 in
FLOOD VOLUME	0.83 acft
FLOOD VOLUME	36,073 cu-ft
REQUIRED STORAGE	0.54 acft
REQUIRED STORAGE	23,414 cu-ft
MAX WSEL	436.69 ft
PEAK FLOW RATE	9.67 cfs
TOTAL BASIN LOSSES	13,544 cu-ft
AVERAGE PERCOLATION RATE	37.62 cf/min

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	5.70	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.09		
LAG TIME - MINUTES	8.56	C	0.00160	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	175%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
1	15	0.25	0.2	0.035	0.306	0.030	0.01	0.03	27	27	30,341	632	27	0	0.00	436.00
2	30	0.50	0.3	0.053	0.302	0.045	0.01	0.05	41	41	30,344	632	41	0	0.00	436.00
3	45	0.75	0.3	0.053	0.299	0.045	0.01	0.05	41	41	30,344	632	41	0	0.00	436.00
4	60	1.00	0.4	0.071	0.295	0.060	0.01	0.06	55	55	30,347	632	55	0	0.00	436.00
5	75	1.25	0.3	0.053	0.292	0.045	0.01	0.05	41	41	30,344	632	41	0	0.00	436.00
6	90	1.50	0.3	0.053	0.288	0.045	0.01	0.05	41	41	30,344	632	41	0	0.00	436.00
7	105	1.75	0.3	0.053	0.285	0.045	0.01	0.05	41	41	30,344	632	41	0	0.00	436.00
8	120	2.00	0.4	0.071	0.282	0.060	0.01	0.06	55	55	30,347	632	55	0	0.00	436.00
9	135	2.25	0.4	0.071	0.278	0.060	0.01	0.06	55	55	30,347	632	55	0	0.00	436.00
10	150	2.50	0.4	0.071	0.275	0.060	0.01	0.06	55	55	30,347	632	55	0	0.00	436.00
11	165	2.75	0.5	0.088	0.271	0.075	0.01	0.08	68	68	30,350	632	68	0	0.00	436.00
12	180	3.00	0.5	0.088	0.268	0.075	0.01	0.08	68	68	30,350	632	68	0	0.00	436.00
13	195	3.25	0.5	0.088	0.265	0.075	0.01	0.08	68	68	30,350	632	68	0	0.00	436.00
14	210	3.50	0.5	0.088	0.261	0.075	0.01	0.08	68	68	30,350	632	68	0	0.00	436.00
15	225	3.75	0.5	0.088	0.258	0.075	0.01	0.08	68	68	30,350	632	68	0	0.00	436.00
16	240	4.00	0.6	0.106	0.255	0.090	0.02	0.09	82	82	30,353	632	82	0	0.00	436.00
17	255	4.25	0.6	0.106	0.252	0.090	0.02	0.09	82	82	30,353	632	82	0	0.00	436.00
18	270	4.50	0.7	0.123	0.248	0.105	0.02	0.11	96	96	30,356	632	96	0	0.00	436.00
19	285	4.75	0.7	0.123	0.245	0.105	0.02	0.11	96	96	30,356	632	96	0	0.00	436.00
20	300	5.00	0.8	0.141	0.242	0.120	0.02	0.12	110	110	30,359	632	110	0	0.00	436.00
21	315	5.25	0.6	0.106	0.239	0.090	0.02	0.09	82	82	30,353	632	82	0	0.00	436.00
22	330	5.50	0.7	0.123	0.236	0.105	0.02	0.11	96	96	30,356	632	96	0	0.00	436.00
23	345	5.75	0.8	0.141	0.233	0.120	0.02	0.12	110	110	30,359	632	110	0	0.00	436.00
24	360	6.00	0.8	0.141	0.230	0.120	0.02	0.12	110	110	30,359	632	110	0	0.00	436.00
25	375	6.25	0.9	0.159	0.227	0.135	0.02	0.14	123	123	30,362	633	123	0	0.00	436.00
26	390	6.50	0.9	0.159	0.224	0.135	0.02	0.14	123	123	30,362	633	123	0	0.00	436.00
27	405	6.75	1.0	0.176	0.221	0.150	0.03	0.15	137	137	30,365	633	137	0	0.00	436.00
28	420	7.00	1.0	0.176	0.218	0.150	0.03	0.15	137	137	30,365	633	137	0	0.00	436.00
29	435	7.25	1.0	0.176	0.215	0.150	0.03	0.15	137	137	30,365	633	137	0	0.00	436.00
30	450	7.50	1.1	0.194	0.212	0.165	0.03	0.17	151	151	30,368	633	151	0	0.00	436.00
31	465	7.75	1.2	0.212	0.209	0.180	0.00	0.02	15	15	30,338	632	15	0	0.00	436.00
32	480	8.00	1.3	0.229	0.206	0.195	0.02	0.13	121	121	30,361	633	121	0	0.00	436.00
33	495	8.25	1.5	0.265	0.203	0.225	0.06	0.35	318	318	30,405	633	318	0	0.00	436.00
34	510	8.50	1.5	0.265	0.200	0.225	0.06	0.37	333	333	30,408	633	333	0	0.00	436.00
35	525	8.75	1.6	0.282	0.197	0.240	0.08	0.49	438	438	30,431	634	438	0	0.00	436.00
36	540	9.00	1.7	0.300	0.195	0.255	0.11	0.60	544	544	30,454	634	544	0	0.00	436.00
37	555	9.25	1.9	0.335	0.192	0.285	0.14	0.82	741	741	30,497	635	635	106	0.00	436.00
38	570	9.50	2.0	0.353	0.189	0.300	0.16	0.94	846	952	30,543	636	636	316	0.01	436.01
39	585	9.75	2.1	0.370	0.187	0.315	0.18	1.06	952	1,267	30,612	638	638	629	0.01	436.02
40	600	10.00	2.2	0.388	0.184	0.330	0.20	1.17	1,057	1,686	30,704	640	640	1,046	0.02	436.03
41	615	10.25	1.5	0.265	0.181	0.225	0.08	0.48	432	1,478	30,659	639	639	839	0.02	436.02
42	630	10.50	1.5	0.265	0.179	0.225	0.09	0.49	445	1,285	30,616	638	638	647	0.01	436.02
43	645	10.75	2.0	0.353	0.176	0.300	0.18	1.02	915	1,562	30,677	639	639	923	0.02	436.03

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	5.70	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.09		
LAG TIME - MINUTES	8.56	C	0.00160	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	175%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent (Plate E-5.9)	Storm Rain in/hr	Loss Rate in/hr Max	Loss Rate in/hr Low	Effective Rain in/hr	Flood Hydrograph Flow cfs	Volume In cu-ft	Basin Volume cu-ft	Basin Losses Percolation Area sf	Basin Losses Maximum Percolation cu-ft	Basin Losses Percolation Out cu-ft	Total In Basin cu-ft	Total In Basin ac-ft	Basin WSEL ft
44	660	11.00	2.0	0.353	0.173	0.300	0.18	1.03	928	1,851	30,740	640	640	1,210	0.03	436.04
45	675	11.25	1.9	0.335	0.171	0.285	0.16	0.94	850	2,061	30,786	641	641	1,419	0.03	436.04
46	690	11.50	1.9	0.335	0.168	0.285	0.17	0.96	863	2,283	30,835	642	642	1,640	0.04	436.05
47	705	11.75	1.7	0.300	0.166	0.255	0.13	0.77	694	2,334	30,846	643	643	1,691	0.04	436.05
48	720	12.00	1.8	0.318	0.163	0.270	0.15	0.89	798	2,489	30,880	643	643	1,845	0.04	436.05
49	735	12.25	2.5	0.441	0.161	0.375	0.28	1.61	1,449	3,295	31,056	647	647	2,648	0.06	436.08
50	750	12.50	2.6	0.459	0.158	0.390	0.30	1.73	1,553	4,200	31,255	651	651	3,549	0.08	436.10
51	765	12.75	2.8	0.494	0.156	0.420	0.34	1.94	1,748	5,297	31,495	656	656	4,641	0.11	436.14
52	780	13.00	2.9	0.512	0.154	0.435	0.36	2.06	1,851	6,492	31,756	662	662	5,830	0.13	436.17
53	795	13.25	3.4	0.600	0.151	0.510	0.45	2.58	2,319	8,150	32,119	669	669	7,481	0.17	436.22
54	810	13.50	3.4	0.600	0.149	0.510	0.45	**2.59**	**2,331**	9,812	32,483	677	677	9,135	0.21	436.27
55	825	13.75	2.3	0.406	0.147	0.345	0.26	1.49	1,339	10,475	32,628	680	680	9,795	0.22	436.29
56	840	14.00	2.3	0.406	0.145	0.345	0.26	1.50	1,351	11,145	32,775	683	683	10,463	0.24	436.31
57	855	14.25	2.7	0.476	0.142	0.405	0.33	1.92	1,727	12,190	33,003	688	688	11,502	0.26	436.34
58	870	14.50	2.6	0.459	0.140	0.390	0.32	1.83	1,647	13,149	33,214	692	692	12,458	0.29	436.37
59	885	14.75	2.6	0.459	0.138	0.390	0.32	1.84	1,658	14,116	33,425	696	696	13,419	0.31	436.39
60	900	15.00	2.5	0.441	0.136	0.375	0.30	1.75	1,578	14,997	33,618	700	700	14,297	0.33	436.42
61	915	15.25	2.4	0.423	0.134	0.360	0.29	1.66	1,497	15,794	33,793	704	704	15,090	0.35	436.44
62	930	15.50	2.3	0.406	0.132	0.345	0.27	1.57	1,417	16,507	33,949	707	707	15,800	0.36	436.46
63	945	15.75	1.9	0.335	0.130	0.285	0.21	1.18	1,062	16,862	34,026	709	709	16,153	0.37	436.48
64	960	16.00	1.9	0.335	0.128	0.285	0.21	1.19	1,072	17,226	34,106	711	711	**16,515**	**0.38**	**436.49**
65	975	16.25	0.4	0.071	0.126	0.060	0.01	0.06	55	16,570	33,962	708	708	15,862	0.36	436.47
66	990	16.50	0.4	0.071	0.124	0.060	0.01	0.06	55	15,917	33,819	705	705	15,213	0.35	436.45
67	1005	16.75	0.3	0.053	0.122	0.045	0.01	0.05	41	15,254	33,674	702	702	14,552	0.33	436.43
68	1020	17.00	0.3	0.053	0.120	0.045	0.01	0.05	41	14,593	33,530	699	699	13,895	0.32	436.41
69	1035	17.25	0.5	0.088	0.118	0.075	0.01	0.08	68	13,963	33,392	696	696	13,267	0.30	436.39
70	1050	17.50	0.5	0.088	0.117	0.075	0.01	0.08	68	13,336	33,254	693	693	12,643	0.29	436.37
71	1065	17.75	0.5	0.088	0.115	0.075	0.01	0.08	68	12,712	33,118	690	690	12,022	0.28	436.35
72	1080	18.00	0.4	0.071	0.113	0.060	0.01	0.06	55	12,076	32,979	687	687	11,389	0.26	436.34
73	1095	18.25	0.4	0.071	0.112	0.060	0.01	0.06	55	11,444	32,840	684	684	10,760	0.25	436.32
74	1110	18.50	0.4	0.071	0.110	0.060	0.01	0.06	55	10,815	32,702	681	681	10,133	0.23	436.30
75	1125	18.75	0.3	0.053	0.108	0.045	0.01	0.05	41	10,174	32,562	678	678	9,496	0.22	436.28
76	1140	19.00	0.2	0.035	0.107	0.030	0.01	0.03	27	9,523	32,420	675	675	8,848	0.20	436.26
77	1155	19.25	0.3	0.053	0.105	0.045	0.01	0.05	41	8,889	32,281	673	673	8,217	0.19	436.24
78	1170	19.50	0.4	0.071	0.104	0.060	0.01	0.06	55	8,271	32,146	670	670	7,602	0.17	436.22
79	1185	19.75	0.3	0.053	0.102	0.045	0.01	0.05	41	7,643	32,008	667	667	6,976	0.16	436.21
80	1200	20.00	0.2	0.035	0.101	0.030	0.01	0.03	27	7,003	31,868	664	664	6,339	0.15	436.19
81	1215	20.25	0.3	0.053	0.100	0.045	0.01	0.05	41	6,380	31,732	661	661	5,719	0.13	436.17
82	1230	20.50	0.3	0.053	0.098	0.045	0.01	0.05	41	5,760	31,596	658	658	5,102	0.12	436.15
83	1245	20.75	0.3	0.053	0.097	0.045	0.01	0.05	41	5,143	31,461	655	655	4,488	0.10	436.13
84	1260	21.00	0.2	0.035	0.096	0.030	0.01	0.03	27	4,515	31,323	653	653	3,863	0.09	436.11
85	1275	21.25	0.3	0.053	0.095	0.045	0.01	0.05	41	3,904	31,190	650	650	3,254	0.07	436.10
86	1290	21.50	0.2	0.035	0.094	0.030	0.01	0.03	27	3,281	31,053	647	647	2,634	0.06	436.08

RCFC & WCD
HYDROLOGY MANUAL

SYNTHETIC UNIT HYDROGRAPH METHOD

SHORTCUT METHOD

24-HOUR STORM

UNIT HYDROGRAPH and EFFECTIVE RAIN CALCULATION FORM

PROJECT: CORAL MOUNTAIN
Job No.: 2553
BY: DLS DATE 1/26/21

DRAINAGE AREA-ACRES	5.70	VARIABLE LOSS RATE (AVG) IN/HR		Basin Percolation Rate	1.0 in/hr
UNIT TIME-MINUTES	15	Fm = Minimum value on loss curve (in/hr)	0.09		
LAG TIME - MINUTES	8.56	C	0.00160	Maxwell Drywells	
UNIT TIME-PERCENT OF LAG	175%	Low Loss Rate (percent)	85.00%	Number	0
TOTAL ADJUSTED STORM RAIN (in)	4.41			Drywell Percolation Rate	0.00 cfs 0.00 cfm

Unit Time Period	Time Minutes	Hours	Pattern Percent	Storm Rain in/hr	Loss Rate in/hr		Effective Rain	Flood Hydrograph Flow	Volume In	Basin Volume	Basin Losses			Total In Basin		Basin WSEL
											Percolation Area	Maximum Percolation	Percolation Out			
			(Plate E-5.9)		Max	Low	in/hr	cfs	cu-ft	cu-ft	sf	cu-ft	cu-ft	cu-ft	ac-ft	ft
87	1305	21.75	0.3	0.053	0.093	0.045	0.01	0.05	41	2,675	30,921	644	644	2,031	0.05	436.06
88	1320	22.00	0.2	0.035	0.092	0.030	0.01	0.03	27	2,059	30,786	641	641	1,417	0.03	436.04
89	1335	22.25	0.3	0.053	0.091	0.045	0.01	0.05	41	1,458	30,654	639	639	820	0.02	436.02
90	1350	22.50	0.2	0.035	0.090	0.030	0.01	0.03	27	847	30,520	636	636	211	0.00	436.01
91	1365	22.75	0.2	0.035	0.089	0.030	0.01	0.03	27	239	30,387	633	239	0	0.00	436.00
92	1380	23.00	0.2	0.035	0.089	0.030	0.01	0.03	27	27	30,341	632	27	0	0.00	436.00
93	1395	23.25	0.2	0.035	0.088	0.030	0.01	0.03	27	27	30,341	632	27	0	0.00	436.00
94	1410	23.50	0.2	0.035	0.087	0.030	0.01	0.03	27	27	30,341	632	27	0	0.00	436.00
95	1425	23.75	0.2	0.035	0.087	0.030	0.01	0.03	27	27	30,341	632	27	0	0.00	436.00
96	1440	24.00	0.2	0.035	0.087	0.030	0.01	0.03	27	27	30,341	632	27	0	0.00	436.00

EFFECTIVE RAIN & FLOOD VOLUMES SUMMARY

TOTAL RAINFALL	4.41 in
RAINFALL VOLUME	91,264 cu-ft
SOIL LOSSES	50,595 cu-ft
EFFECTIVE RAIN	1.97 in
FLOOD VOLUME	0.93 acft
FLOOD VOLUME	40,668 cu-ft
REQUIRED STORAGE	0.38 acft
REQUIRED STORAGE	16,515 cu-ft
MAX WSEL	436.49 ft
PEAK FLOW RATE	2.59 cfs
TOTAL BASIN LOSSES	40,668 cu-ft
AVERAGE PERCOLATION RATE	28.24 cf/min

BASIN VOLUME WORKSHEET

PROECT CORAL MOUNTAIN
JOB No. 2553
BASIN DESIGNATION: EXISTING BASIN

BASIN CHARACTERISTICS

CONTOUR ELEVATION	DEPTH		AREA		VOLUME		
	INCR (ft)	TOTAL (ft)	INCR (sf)	TOTAL (sf)	INCR (cuft)	TOTAL (cuft)	(acre-ft)
436	0	0		30,335	0	0	0.00
437	1	1	7,440	37,775	33,987	33,987	0.78
438	1	2	4,415	42,190	39,962	73,949	1.70
439	1	3	3,705	45,895	44,030	117,979	2.71
440	1	4	3,730	49,625	47,748	165,727	3.80
441	1	5	4,590	54,215	51,903	217,630	5.00

WHERE:

$$V = \frac{1}{3}(E_1 - E_2)\left(A_1 + A_2 + \sqrt{A_1 A_2}\right)$$

Appendix G

Riverside County Whitewater River Region WQMP Worksheets

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	January 26, 2021
Designed By	DLS	County/City Case No.	
Company Project Number/Name	CORAL MOUNTAIN - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREA 'A'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 162.745 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 39.291 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.24

Calculate the Composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.19

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.08 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12(in/ft)}$$

V_{BMP} = 45,719 ft^3

BMP Design Flow Rate, Q_{BMP}

$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 6.30 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	January 26, 2021
Designed By	DLS	County/City Case No.	
Company Project Number/Name	CORAL MOUNTAIN - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREA 'B'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 41.586 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 17.518 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.42

Calculate the Composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.29

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.12 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12(in/ft)}$$

V_{BMP} = 17,618 ft^3

BMP Design Flow Rate, Q_{BMP}

$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 2.43 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	January 26, 2021
Designed By	DLS	County/City Case No.	
Company Project Number/Name	CORAL MOUNTAIN - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREAS 'C' & 'F'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 55.002 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 17.771 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.32

Calculate the Composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.24

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.10 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12(in/ft)}$$

V_{BMP} = 18,975 ft^3

BMP Design Flow Rate, Q_{BMP}

$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 2.61 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	January 26, 2021
Designed By	DLS	County/City Case No.	
Company Project Number/Name	CORAL MOUNTAIN - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREA 'D'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 28.403 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 14.157 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.50

Calculate the Composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.34

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.14 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12(in/ft)}$$

V_{BMP} = 13,950 ft^3

BMP Design Flow Rate, Q_{BMP}

$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 1.92 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	January 26, 2021
Designed By	DLS	County/City Case No.	
Company Project Number/Name	CORAL MOUNTAIN - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREA 'E'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 61.802 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 19.059 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.31

Calculate the Composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.23

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.09 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12(in/ft)}$$

V_{BMP} = 20,610 ft^3

BMP Design Flow Rate, Q_{BMP}

$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 2.84 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	January 26, 2021
Designed By	DLS	County/City Case No.	
Company Project Number/Name	CORAL MOUNTAIN - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREAS 'G'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 35.742 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 10.635 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.30

Calculate the Composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.22

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.09 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12(in/ft)}$$

V_{BMP} = 11,617 ft^3

BMP Design Flow Rate, Q_{BMP}

$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 1.60 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	January 26, 2021
Designed By	DLS	County/City Case No.	
Company Project Number/Name	CORAL MOUNTAIN - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREAS 'H'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 7.118 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 6.406 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.90

Calculate the Composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.73

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.29 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12(in/ft)}$$

V_{BMP} = 7,547 ft^3

BMP Design Flow Rate, Q_{BMP}

$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 1.04 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} & Design Flow Rate, Q_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	MSA Consulting, Inc	Date	January 26, 2021
Designed By	DLS	County/City Case No.	
Company Project Number/Name	CORAL MOUNTAIN - MSA JOB #2553		
Drainage Area Number/Name	DRAINAGE AREAS 'I'		

Enter the Area Tributary to this Feature (A_{TRIB}) — A_{TRIB} = 51.629 acres

Determine the Impervious Area Ratio

Determine the Impervious Area Within A_{TRIB} (A_{IMP}) — A_{IMP} = 15.164 acres

Calculate the Impervious Area Ratio (I_F)

$I_F = A_{IMP}/A_{TRIB}$ — I_F = 0.29

Calculate the Composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ — C_{BMP} = 0.22

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ — V_U = 0.09 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12(in/ft)}$$

V_{BMP} = 16,626 ft^3

BMP Design Flow Rate, Q_{BMP}

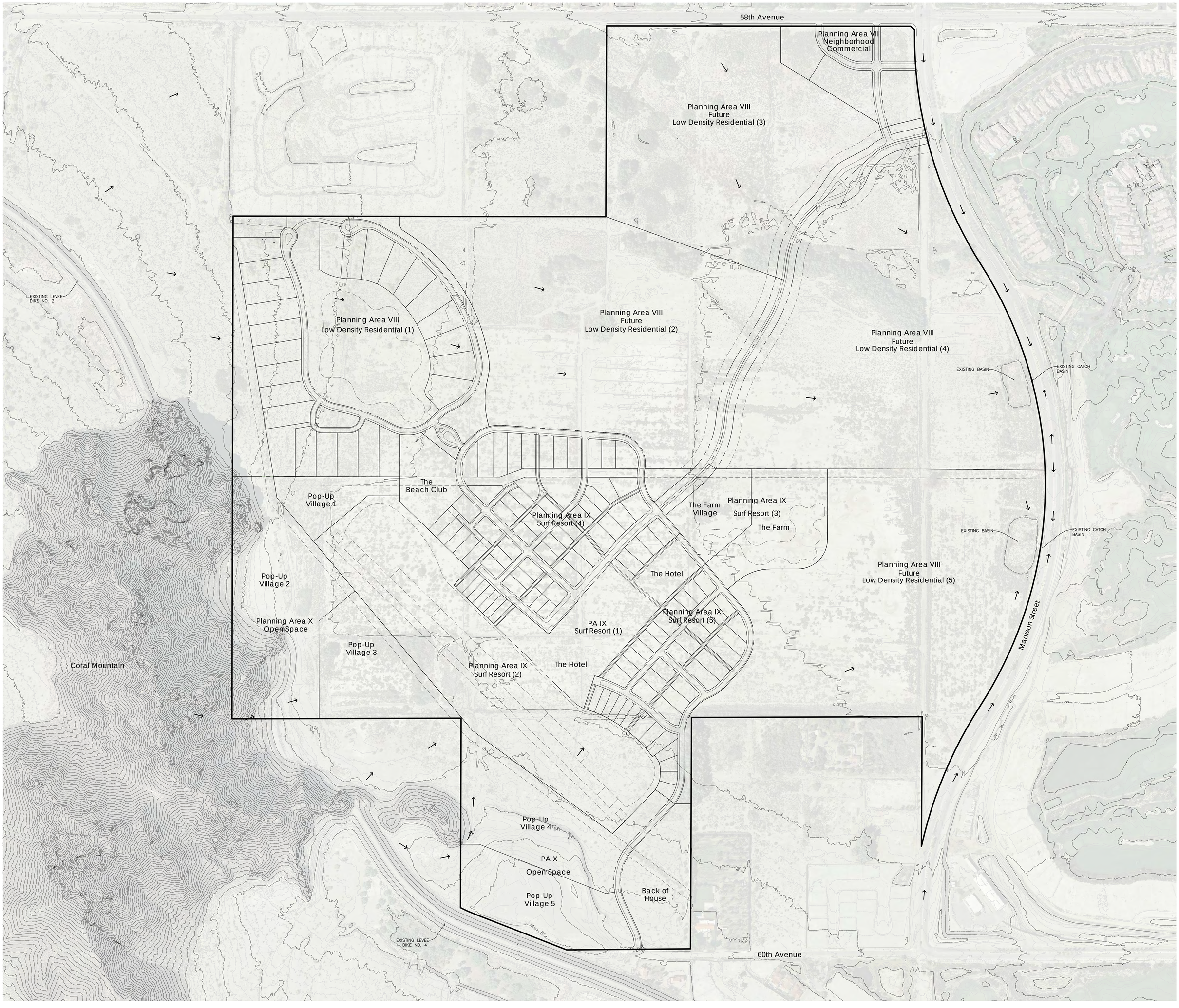
$Q_{BMP} = C_{BMP} \times I \times A_{TRIB}$ — Q_{BMP} = 2.29 ft^3/s

I = Design Rainfall Intensity, 0.2 in/hr

Notes:

Appendix H

Existing Topography Exhibit
Synthetic Unit Hydrograph Exhibits



NORTH

0' 200' 400' 600' 800'

SCALE 1"=200'

MSA CONSULTING, INC.

> PLANNING > CIVIL ENGINEERING > LAND SURVEYING

34200 Bob Hope Drive, Rancho Mirage, CA 92270

760.320.9811 **msaconsultinginc.com**

OCTOBER 2019

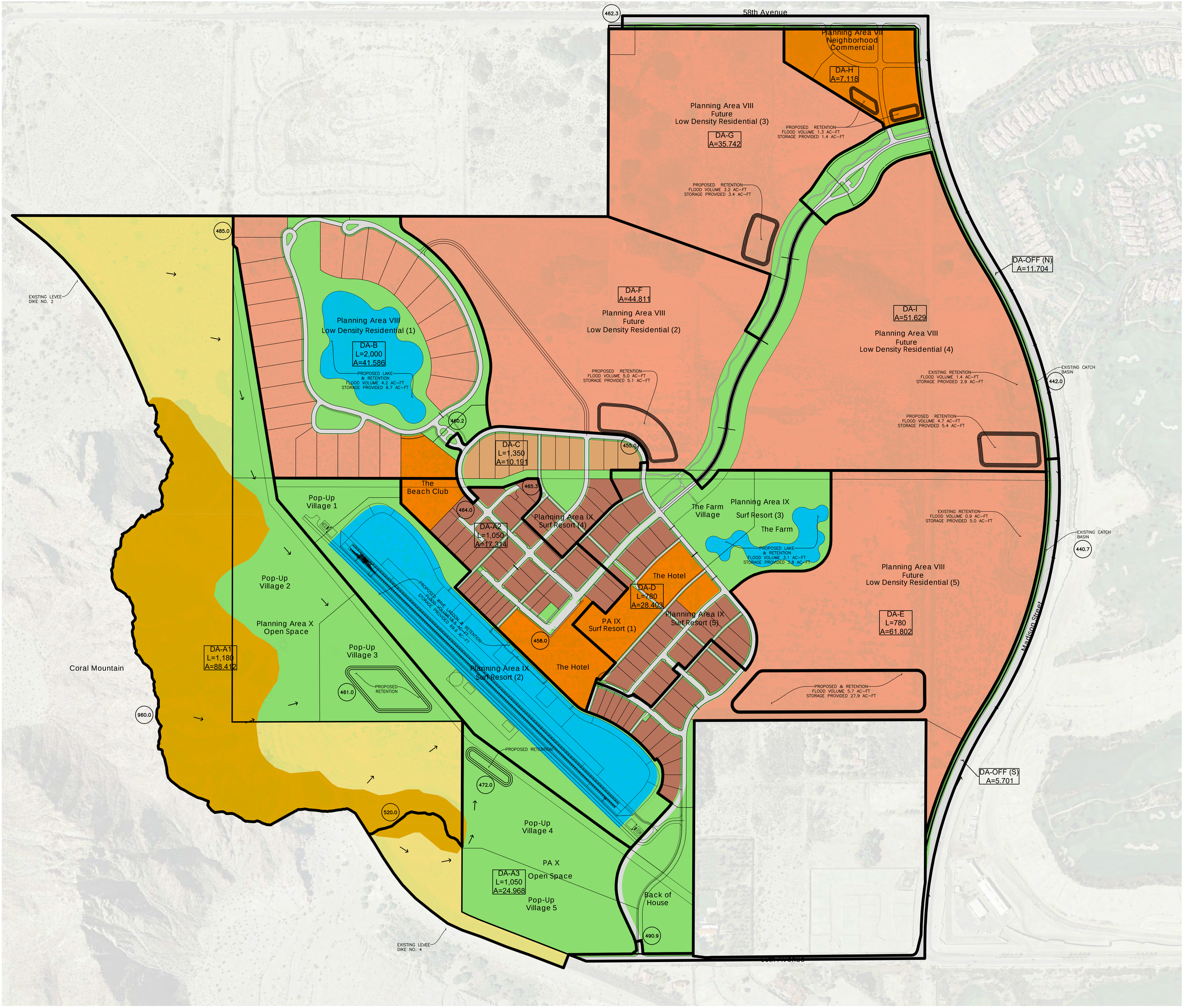
CITY OF LA QUINTA

TTM 37815 - C.M. WAVE DEVELOPMENT

EXISTING TOPOGRAPHIC EXHIBIT

DESIGN BY	DLS
DRAWN BY	DLS
CHECK BY	MSR

SHEET 1 OF 1 SHEETS



LAND USE LEGEND

ROCK OUTCROPPING	
EXISTING OPEN BRUSH – POOR	
IMPERVIOUS (PAVING/HARDSCAPE)	
IMPERVIOUS (WATER FEATURE)	
COMMERCIAL	
SINGLE FAMILY RESIDENTIAL – LOW DENSITY	
SINGLE FAMILY RESIDENTIAL – MEDIUM DENSITY	
SINGLE FAMILY RESIDENTIAL – HIGH DENSITY	
OPEN SPACE (LANDSCAPE/RETENTION)	

HYDROLOGIC AREA RECONCILIATION

ROCK OUT-OUTCROPPING	35.652	AC	
EXISTING OPEN BRUSH – POOR	35.233	AC	
IMPERVIOUS (STREETS/WALKS)	11.552	AC	
IMPERVIOUS (WATER FEATURE)	27.445	AC	
SFR – LOW DENSITY	193.047	AC	
SFR – MEDIUM DENSITY	4.092	AC	
SFR – HIGH DENSITY	22.208	AC	
OPEN SPACE (LANDSCAPE)	95.642	AC	
TOTAL ON-SITE HYDROLOGIC AREA	444.027	AC	
OFF-SITE			
IMPERVIOUS (STREETS/WALKS)	9.768	AC	
OPEN SPACE (LANDSCAPE)	5.701	AC	
TOTAL OFF-SITE HYDROLOGIC AREA	17.405	AC	
TOTAL HYDROLOGIC AREA	461.432	AC	
SURVEY BOUNDARY	384.389	AC	
AREA ADD:	77.080	AC	OFF-SITE TRIBUTARY
AREA SUBTRACT:	0.037	AC	
TOTAL AREA – RECONCILED	461.432	AC	

PRELIMINARY WQMP SUMMARY

DRAINAGE AREA	TOTAL AREA (acres)	IMPERVIOUS AREA (acres)	DESIGN VOLUME (cu-ft)	DESIGN FLOW (cfs)	STORAGE PROVIDED (cu-ft)
DA-A	162.745	39.291	45,719	6.30	3,033,385
DA-B	41.586	17.518	17,618	2.43	292,016
DA-C & F	55.002	17.771	18,975	2.61	223,118
DA-D	28.403	14.157	13,950	1.92	168,719
DA-E	61.802	19.059	20,610	2.84	1,216,389
DA-G	35.742	10.635	11,617	1.60	147,099
DA-H	7.118	6.406	7,547	1.04	60,238
DA-I	51.629	15.164	16,626	2.29	237,233

LEGEND

DRAINAGE DIRECTION

TRIBUTARY DRAINAGE AREA BOUNDARY

XX
L-XX
A-XX

DRAINAGE SUB-AREA ID
FLOW TRAVEL LENGTH (FT)
AREA (AC)

NORTH

0' 200' 400' 600' 800'

SCALE 1"=200'

JANUARY 2021

MSA CONSULTING, INC.
> PLANNING > CIVIL ENGINEERING > LAND SURVEYING
34200 Bob Hope Drive, Rancho Mirage, CA 92270
760.320.9811 msaconsultinginc.com

CITY OF LA QUINTA
TTM 37815 - CORAL MOUNTAIN
RCFCD SYNTHETIC UNIT HYDROGRAPH METHOD (SHORTCUT METHOD)
DEVELOPED CONDITION HYDROLOGY EXHIBIT

DESIGN BY	DLS
DRAWN BY	DLS
CHECK BY	MSR
SHEET	1 OF 2 SHEETS

DRAINAGE AREA 'A1'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
ROCK OUT-CROPPING	34.384	93	0.09	5.0
EXISTING OPEN BRUSH	30.363	76	0.29	5.0
OPEN SPACE	23.665	56	0.51	10.0
TOTAL	88.412			

STORM EVENT SUMMARY – 10 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	0.46	0.41	0.39	0.28
FLOOD VOLUME	(cu-ft) (acre-ft)	**147,065** **3.38**	130,384 2.99	126,548 2.91	90,475 2.08
STORAGE PROVIDED	(cu-ft) (acre-ft)	154,781 3.55			
PEAK FLOW	(cfs)	N/A	70.45	58.94	7.64
MAXIMUM WSEL DEPTH	(ft) (ft)	**460.83** **1.83**	460.50 1.50	460.29 1.29	459.27 0.27

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
459	0.0	65,765	0.00	0.00
460	1.0	77,310	71,460	1.64
461	2.0	89,480	154,781	3.55

DRAINAGE AREA 'A2'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	2.071	56	0.51	100.0
COMMERCIAL	5.752	56	0.51	90.0
RESIDENTIAL – HIGH DENSITY	8.141	56	0.51	50.0
OPEN SPACE	1.350	56	0.51	10.0
TOTAL	17.314			

STORM EVENT SUMMARY – 10 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	0.50	0.55	0.73	1.06
FLOOD VOLUME	(cu-ft) (acre-ft)	31,653 0.73	34,498 0.79	45,742 1.05	**66,464** **1.53**
PEAK FLOW	(cfs)	N/A	14.61	12.35	2.19

DRAINAGE AREA 'A3'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
ROCK OUT-CROPPING	1.268	93	0.09	5.0
EXISTING OPEN BRUSH	4.879	76	0.29	5.0
STREETS/WALKS	0.011	56	0.51	100.0
OPEN SPACE	18.819	56	0.51	10.0
TOTAL	24.968			

STORM EVENT SUMMARY – 10 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	0.73	0.29	0.30	0.36
FLOOD VOLUME	(cu-ft) (acre-ft)	30,473 0.70	26,411 0.61	26,879 0.62	**32,470** **0.75**
STORAGE PROVIDED	(cu-ft) (acre-ft)	34,217 0.79			
PEAK FLOW	(cfs)	N/A	15.98	12.73	1.23
MAXIMUM WSEL DEPTH	(ft) (ft)	**469.82** **1.82**	469.45 1.45	469.33 1.33	469.02 1.02

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
468	0.0	10,730	0.00	0.00
469	1.0	17,060	13,773	0.32
470	2.0	24,025	34,217	0.79

DRAINAGE AREA 'A'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
ROCK OUT-CROPPING	35.652	93	0.09	5.0
EXISTING OPEN BRUSH	35.233	76	0.29	5.0
STREETS/WALKS	2.082	56	0.51	100.0
WATER FEATURE	18.699	56	0.51	100.0
COMMERCIAL	5.752	56	0.51	90.0
RESIDENTIAL – HIGH DENSITY	8.141	56	0.51	50.0
OPEN SPACE	57.186	56	0.51	10.0
TOTAL	162.745			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.17	1.35	1.34	1.36
FLOOD VOLUME	(cu-ft) (acre-ft)	693,659 15.92	799,746 18.36	789,971 18.14	**803,730** **18.45**
STORAGE PROVIDED	(cu-ft) (acre-ft)	3,178,217 72.96			
PEAK FLOW	(cfs)	N/A	301.94	260.74	60.87
MAXIMUM WSEL DEPTH	(ft) (ft)	452.09 1.09	452.26 1.26	452.24 1.24	**452.26** **1.26**

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
451	0.0	548,486	0.00	0.00
456	1.0	726,985	3,178,217	72.96

DRAINAGE AREA 'B'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	2.581	56	0.51	100.0
WATER FEATURE	6.423	56	0.51	100.0
COMMERCIAL	1.483	56	0.51	90.0
RESIDENTIAL – LOW DENSITY	20.347	56	0.51	30.0
OPEN SPACE	10.759	56	0.51	10.0
TOTAL	41.586			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.12	1.21	1.20	1.10
FLOOD VOLUME	(cu-ft) (acre-ft)	169,568 3.89	**182,917** **4.20**	180,867 4.15	166,219 3.82
STORAGE PROVIDED	(cu-ft) (acre-ft)	292,016 6.70			
PEAK FLOW	(cfs)	N/A	75.02	64.49	13.72
MAXIMUM WSEL DEPTH	(ft) (ft)	458.58 0.58	**458.63** **0.63**	458.62 0.62	458.57 0.57

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
458	0.0	279,800	0.00	0.00
459	1.0	304,405	292,016	6.70

DRAINAGE AREA 'C'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	1.455	56	0.51	100.0
RESIDENTIAL – MEDIUM DENSITY	4.092	56	0.51	40.0
RESIDENTIAL – HIGH DENSITY	2.159	56	0.51	50.0
OPEN SPACE	2.485	56	0.51	10.0
TOTAL	10.191			

DRAINAGE AREA 'F'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	0.353	56	0.51	100.0
RESIDENTIAL – LOW DENSITY	42.760	56	0.51	30.0
OPEN SPACE	1.698	56	0.51	10.0
TOTAL	44.811			

DRAINAGE AREAS 'C' & 'F'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	1.808	56	0.51	100.0
RESIDENTIAL – MEDIUM DENSITY	4.092	56	0.51	40.0
RESIDENTIAL – HIGH DENSITY	2.159	56	0.51	50.0
RESIDENTIAL – LOW DENSITY	42.760	56	0.51	30.0
OPEN SPACE	4.183	56	0.51	10.0
TOTAL	55.002			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.08	1.10	1.10	0.99
FLOOD VOLUME	(cu-ft) (acre-ft)	215,291 4.94	219,074 5.03	**219,690** **5.04**	197,108 4.52
STORAGE PROVIDED	(cu-ft) (acre-ft)	223,118 5.12			
PEAK FLOW	(cfs)	N/A	96.73	82.80	15.99
MAXIMUM WSEL DEPTH	(ft) (ft)	**453.83** **2.83**	453.73 2.73	453.55 2.55	452.59 1.59

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
451	0.0	65,060	0.00	0.00
452	1.0	71,195	68,104	1.56
453	2.0	77,490	142,425	3.27
454	3.0	83,940	223,118	5.12

DRAINAGE AREA 'D'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	2.588	56	0.51	100.0
WATER FEATURE	2.323	56	0.51	100.0
COMMERCIAL	4.803	56	0.51	90.0
RESIDENTIAL – HIGH DENSITY	7.637	56	0.51	50.0
OPEN SPACE	11.052	56	0.51	10.0
TOTAL	28.403			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.16	1.31	1.28	1.28
FLOOD VOLUME	(cu-ft) (acre-ft)	119,475 2.74	**134,950** **3.10**	132,055 3.03	132,086 3.03
STORAGE PROVIDED	(cu-ft) (acre-ft)	168,719 3.87			
PEAK FLOW	(cfs)	N/A	52.25	45.06	3.03
MAXIMUM WSEL DEPTH	(ft) (ft)	452.10 1.10	**452.23** **1.23**	452.20 1.20	452.20 1.20

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
451	0.0	101,190	0.00	0.00
452	1.0	112,495	106,793	2.45
452.5	1.5	135,570	168,719	3.87

DRAINAGE AREA 'E'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	1.707	56	0.51	100.0
RESIDENTIAL – LOW DENSITY	48.170	56	0.51	30.0
RESIDENTIAL – HIGH DENSITY	4.271	56	0.51	50.0
OPEN SPACE	7.654	56	0.51	10.0
TOTAL	61.802			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.07	1.08	1.10	0.98
FLOOD VOLUME	(cu-ft) (acre-ft)	240,394 5.52	242,121 5.56	**246,363** **5.66**	219,473 5.04
STORAGE PROVIDED	(cu-ft) (acre-ft)	1,216,389 27.92			
PEAK FLOW	(cfs)	N/A	108.26	92.62	17.61
MAXIMUM WSEL DEPTH	(ft) (ft)	**442.97** **0.97**	442.85 0.85	442.76 0.76	442.26 0.26

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
442	0.0	224,555	0.00	0.00
443	1.0	231,980	228,257	5.24
444	2.0	239,460	463,968	10.65
445	3.0	247,000	707,188	16.23
446	4.0	254,595	957,976	21.99
447	5.0	262,250	1,216,389	27.92

DRAINAGE AREA 'G'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	0.316	56	0.51	100.0
RESIDENTIAL – LOW DENSITY	33.880	56	0.51	30.0
OPEN SPACE	1.546	56	0.51	10.0
TOTAL	35.742			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.07	1.07	1.09	0.96
FLOOD VOLUME	(cu-ft) (acre-ft)	138,381 3.18	138,303 3.17	**141,025** **3.24**	124,782 2.86
STORAGE PROVIDED	(cu-ft) (acre-ft)	147,099 3.38			
PEAK FLOW	(cfs)	N/A	62.43	53.39	10.03
MAXIMUM WSEL DEPTH	(ft) (ft)	**453.73** **3.73**	453.60 3.60	453.48 3.48	452.35 2.35

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
450	0.0	29,375	0.00	0.00
451	1.0	32,950	31,145	0.71
452	2.0	36,680	65,944	1.51
453	3.0	40,540	104,538	2.40
454	4.0	44,615	147,099	3.38

DRAINAGE AREA 'H'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
COMMERCIAL	7.118	56	0.51	90.0
TOTAL	7.118			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.34	1.85	2.18	2.61
FLOOD VOLUME	(cu-ft) (acre-ft)	34,704 0.80	47,783 1.10	**56,379** **1.29**	67,518 1.55
STORAGE PROVIDED	(cu-ft) (acre-ft)	60,238 1.38			
PEAK FLOW	(cfs)	N/A	14.42	12.62	3.71
MAXIMUM WSEL DEPTH	(ft) (ft)	**449.84** **1.84**	450.29 2.29	450.48 2.48	450.53 2.53

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
448	0.0	13,135	0.00	0.00
449	1.0	19,390	16,161	0.37
450	2.0	21,415	36,555	0.84
451	3.0	26,025	60,238	1.38

DRAINAGE AREA 'I'

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	0.470	56	0.51	100.0
RESIDENTIAL – LOW DENSITY	47.890	56	0.51	30.0
OPEN SPACE	3.269	56	0.51	10.0
TOTAL	51.629			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.06	1.06	1.08	0.96
FLOOD VOLUME	(cu-ft) (acre-ft)	199,561 4.58	198,899 4.57	**202,969** **4.66**	179,153 4.11
STORAGE PROVIDED	(cu-ft) (acre-ft)	237,233 5.45			
PEAK FLOW	(cfs)	N/A	90.09	77.02	14.41
MAXIMUM WSEL DEPTH	(ft) (ft)	**441.37** **3.37**	441.22 3.22	441.10 3.10	439.99 1.99

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
438	0.0	49,700	0.00	0.00
439	1.0	54,375	52,020	1.19
440	2.0	59,209	108,795	2.50
441	3.0	64,195	170,480	3.91
442	4.0	69,345	237,233	5.45

DRAINAGE AREA OFF-SITE NORTH

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	5.754	56	0.51	100.0
OPEN SPACE	5.950	56	0.51	10.0
TOTAL	11.704			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.18	1.37	1.32	1.39
FLOOD VOLUME	(cu-ft) (acre-ft)	50,090 1.15	58,112 1.33	55,916 1.28	**59,063** **1.36**
STORAGE PROVIDED	(cu-ft) (acre-ft)	126,903 2.91			
PEAK FLOW	(cfs)	N/A	21.77	18.81	4.43
MAXIMUM WSEL DEPTH	(ft) (ft)	439.80 1.80	**439.93** **1.93**	439.77 1.77	439.35 1.35

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
438	0.0	21,900	0.00	0.00
439	1.0	27,300	24,550	0.56
440	2.0	31,405	53,879	1.24
441	3.0	36,785	87,939	2.02
442	4.0	41,185	126,903	2.91

DRAINAGE AREA OFF-SITE SOUTH

PROPOSED LAND USE SUMMARY

LAND USE	OFF-SITE AREA (acres)	RI NUMBER	AMC II INFILTRATION RATE (in/hr)	IMPERVIOUS DECIMAL PERCENT
STREETS/WALKS	4.014	56	0.51	100.0
OPEN SPACE	1.687	56	0.51	10.0
TOTAL	5.701			

STORM EVENT SUMMARY – 100 YEAR EVENT

DURATION		1-HOUR	3-HOUR	6-HOUR	24-HOUR
EFFECTIVE RAIN	(in)	1.27	1.62	1.74	1.97
FLOOD VOLUME	(cu-ft) (acre-ft)	26,215 0.60	33,604 0.77	36,073 0.83	**40,668** **0.93**
STORAGE PROVIDED	(cu-ft) (acre-ft)	217,630 5.00			
PEAK FLOW	(cfs)	N/A	11.11	9.67	2.59
MAXIMUM WSEL DEPTH	(ft) (ft)	436.69 0.69	**436.76** **0.76**	436.69 0.69	436.49 0.49

BASIN VOLUME SUMMARY

CONTOUR ELEVATION (ft)	BASIN DEPTH (ft)	CONTOUR AREA (sf)	TOTAL VOLUME (cu-ft)	TOTAL VOLUME (acre-ft)
436	0.0	30,335	0.00	0.00
437	1.0	37,775	33,987	0.78
438	2.0	42,190	73,949	1.70
439	3.0	45,895	117,979	2.71
440	4.0	49,625	165,727	3.80
441	5.0	54,215	217,630	5.00

JANUARY 2021

MSA CONSULTING, INC.
> PLANNING > CIVIL ENGINEERING > LAND SURVEYING
34200 Bob Hope Drive, Rancho Mirage, CA 92270
760.320.9811 msaconsultinginc.com

CITY OF LA QUINTA
TTM 37815 - CORAL MOUNTAIN
PROPOSED LAND USE, FLOOD VOLUME AND BASIN VOLUME SUMMARIES

DESIGN BY	SHEET
DLS	2
DRAWN BY	OF
DLS	2
CHECK BY	SHEETS
MSR	