STORMWATER POLLUTION PREVENTION PLAN AND MONITORING IMPLEMENTATION PLAN

Chiquita Canyon Landfill

29201 Henry Mayo Drive
Castaic, CA 91384
WDID: 4 19I022488
SIC Code: 4953

Prepared by:

Montrose Environmental
1631 E. St. Andrew Pl,
Santa Ana, CA 92705

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

____

Mark Gingrich Division Vice President
Legally Responsible Person
(Signed on-site)

Revision Date: April 19, 2026

FIGURES

APPENDICES

ABBREVIATIONS

AST	aboveground storage tank
BMP	best management practice
CFR	Code of Federal Regulations
CNG	Compressed Natural Gas
CRT	cathode ray tube
CRV	California Redemption Value
e-waste	electronic waste
ERA	Exceedance Response Actions
facility	The facility
LNG	Liquefied natural gas
MIP	Monitoring Implementation Plan
NAL	Numeric Action Level
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NSWD	Non-Stormwater Discharge
O&G	oil and grease
OWS	oil water separator
pH	A logarithmic scale for expressing the acidity or alkalinity of a solution, where 1 is very acidic (may be as low as -5) and 10 is very alkaline (may go higher)
PPT	Pollution Prevention Team
QISP	Qualified Industrial Stormwater Practitioner
QSE	Qualifying Storm Event
LRP	Legally Responsible Person
RWQCB	Regional Water Quality Control Board
SIC	Standard Industrial Classification
SMARTS	Stormwater Multiple Application and Report Tracking System
SPCC	Spill Prevention, Control and Countermeasures Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
Transfer Building	Administrative and Transfer Building
TMDL	total maximum daily loads
TSS	total suspended solids
EPA	United States Environmental Protection Agency
WDR	Waste Discharge Requirements

Record of SWPPP Revisions:

Revision Number	Prepared by	Description of Revision	Date of Revision
1	SWT Engineering	New Issue	August 2023
2	SWT Engineering	Updated to include additional BMPs to manage leachate	February 2024
3	SWT Engineering	Updated sections 3.3, 6.2, 6.5 to clarify basin discharge and flocculant dosing practices.	March 2024
4	SWT Engineering	Updated to include section 6.7 permanent mitigation controls and section 7.5.2 enhanced discharge monitoring. Updated section 6.6 to include additional leachate control BMPs, design information for the South Basin, and removed discharge pumping.	April 2024
5	SWT Engineering	Revised sections 3.3 and 6.6 to clarify basin discharge and flocculant dosing practices. Updated section 6.6 to adjust temporary leachate BMP controls. Updated Section 6.2 to clarify treatment BMPs. Updated sections 4.2.4 and 4.2.5 to clarify landfill gas/condensate/leachate collection disposal. Revised Table 4-1 to update leachate volume.	May 2024
6	SWT Engineering	Revised sections 6.6 and 6.7 to consolidate and reword temporary BMPs, address reaction area slope inspections, and installation of geomembrane cover. Updated Figure 5 to include updated acres of geomembrane cover and Figure 2 to include reaction area. Updated Monthly Inspection Form to include section 6.6.	July 2024

7	SWT Engineering	Revised sections 2.1.2, 3.2, 3.3, 4, 5.5, 6.2, 6.4, 6.5, 7.1, 7.3. 8.2.2, and 8.2.3 to incorporate updated operating hours, clarification to sample location, suspension of flocculant usage per LARWQCB, and BMPs included in recent Level 2 ERA report. Updated Table 4-1 to reflect current industrial materials. Update also includes minor edits to language/formatting throughout. Updated Figure 2 to reflect current conditions. Added Figures 3 and 4 to show further drainage and sample locations. Updated monthly inspection forms in Appendix C.	December 2024
8	SWT Engineering	Revised sections 3.2, 3.3, 4, 6.5, and 6.7 to detail changes in landfill operations, use of flocculant, and controlled discharge practices. Added App. J Passive Treatment Plan.	February 2025
9	SWT Engineering	Revised sections 3.2, 4.0, 4.1, 4.2, 5.1, 5.8, 6.2, 6.4, 6.7, and 8.0 to detail changes in landfill operations. Revised sections 4 and 6.4.1 to reflect limited beneficial reuse of green waste on slopes for erosion control.	September 2025
10	Montrose Environmental Solutions	Revised sections 3.3, 4, 1, 4,4, 4.5, 4.7, 5.1, 6.5, 6.7, 7.5.2, and 8.2 to include changes to practices or materials on site, stormwater containment, and level status for pollutants, and additions reflecting new requirements under the Amended Investigative Order. Update also includes minor additions to incorporate IGP required text and formatting. Updated the site figures to reflect current topography and updated basin information.	April 2026

1. INTRODUCTION

The contents of this SWPPP are consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Industrial Discharges (General Permit, Appendix D) NPDES No. CAS000001 Order No. 2014-0057-DWQ adopted by the State Water Resources Control Board (SWRCB) which went into effect on April 1, 2015, and was amended in 2018. The purpose of the SWPPP is to protect surface water quality by reducing the amount of pollutants in stormwater runoff.

This SWPPP is a public domain document and is required to be certified and submitted online to the SWRCB through the Stormwater Multiple Application and Report Tracking System (SMARTS). A copy of the Notice of Intent for the discharger is included in Appendix E.

The SWPPP has three major objectives:

- To identify and evaluate sources of pollutants associated with industrial activities that may affect the quality of stormwater discharges and authorized non-stormwater discharges (NSWDs) from the Facility.
- To identify and describe minimum and site-specific advanced best management practices (BMPs) implemented to reduce or prevent pollutants in stormwater discharges associated with industrial activities and in authorized NSWDs in a manner that reflects best industry practice, considering technological availability and economic practicability and achievability.
- To identify and describe conditions or circumstances that may require future revisions to the SWPPP.

1.1 SWPPP ORGANIZATION

The SWPPP is organized into the following sections:

Section 1 (current section) reviews the purpose of the SWPPP at the given Facility and provides a general introduction to the plan.

Section 2 provides information regarding the Responsible Person (RP) and the alternate RP, the Facility Pollution Prevention Team (PPT), and the associated responsibilities for implementing the SWPPP.

Section 3 contains Facility information regarding the location (both regionally and local), description of industrial activities, and stormwater drainage, discharge, and sampling locations.

Sections 4, 5, and 6 provide a pollutant source assessment of the Facility and associated BMPs.

Section 7 contains the Monitoring Implementation Plan (MIP).

Section 8 contains a discussion of Numeric Action Levels (NALs) and consequences for exceedances.

Section 9 contains information regarding record keeping.

Section 10 contains references.

1.2 SWPPP REVISIONS

Preparation of this SWPPP does not guarantee compliance with the General Permit. It is the responsibility of the Facility to implement the BMPs, MIP, and recommendations in this document and revise the SWPPP when conditions warrant and as necessary. When significant revisions to the SWPPP are warranted, the Facility must certify and submit the revised SWPPP to SMARTS within 30 days. As stated in the Fact Sheet to the General Permit:

> *While it is not easy to draw a line generally between revisions that are significant and those that are not significant, Dischargers are not required to certify and submit via SMARTS any SWPPP revisions that are comprised of only typographical fixes or minor clarifications.*

SWPPP revisions are required:

i. If they are necessary to improve SWPPP consistency with any applicable municipal, state, and federal requirements that pertain to the requirements in the IGP;

ii. If visual observation records indicate corrective actions are necessary that are not already incorporated into the SWPPP;

iii. If there are any physical or operational changes at the facility and/or changes to the existing BMPs;

iv. If the Discharger is directed to revise the SWPPP by the SWRCB or Regional Water Quality Control Board (RWQCB); and

v. If a Discharger is requesting a suspension of monitoring activities, due to suspension of industrial activities for ten (10) or more consecutive calendar days at a remote and/or unstaffed site.

Less-than-significant revisions are required to be certified and submitted to SMARTS within three months of making the change. A record of the SWPPP revisions has been listed in Section 1.2 of this SWPPP.

2. STORMWATER PLANNING AND ORGANIZATION

This section of the SWPPP identifies specific positions or individuals that make up the Chiquita Canyon Landfill Pollution Prevention Team (PPT) who are responsible for implementing the SWPPP and General Permit requirements.

2.1 POLLUTION PREVENTION TEAM

A stormwater PPT (Table 2-1) has been assembled to assist the District Manager in carrying out the contents of the SWPPP. The Facility PPT is further described in the following sections.

2.1.1 District Manager Responsibilities

The District Manager is responsible for stormwater pollution prevention at this Facility and for the following:

- Oversight of SWPPP development
- Oversight of Implementation and revision of the SWPPP
- Oversight of Implementation of monitoring program activities required in the General Permit, Section B, and described in the MIP within this SWPPP
- Reviewing the Annual Comprehensive Facility Compliance Evaluation
- Reviewing and certifying submittals and Annual Report(s)
- Allocating adequate resources to SWPPP implementation
- Seeking adequate capital investment budget for BMP implementation consistent with technological availability and economic practicability and achievability as necessary.

2.1.2 PPT Composition and Responsibilities

The PPT is comprised of several key individuals as shown in Table 2-1. Each member is listed in the table as his/her job title and responsibilities. The PPT is responsible for:

- Implementing the SWPPP
- Implementing monitoring program activities described in the MIP in this SWPPP
- Operations, maintenance, and responding to emergency situations
- Reviewing the overall operation and effectiveness of BMPs
- Arranging for training of team members and other personnel as necessary in General Permit requirements
- Conducting good housekeeping and preventative maintenance observations of the Facility

- Identifying and directing corrective action for any spills, leaks or other potential sources of pollutants
- Completing the Annual Comprehensive Facility Compliance Evaluation
- Completing submittals and Annual Report
- Reviewing the SWPPP annually and revising the SWPPP as necessary.

The District Manager assigns an alternate team member based on training, qualifications, and availability in the event of a temporary absence of a member of the PPT. The PPT also includes a Qualified Industrial Stormwater Practitioner (QISP) who has completed a SWRCB-sponsored or approved training course or a self-guided course for licensed professionals.

Table 2-1: Pollution Prevention Team

Position	Duties and Activities
District Manager	SWPPP certification, training, implementation, logistics
Assistant District Manager	SWPPP implementation, logistics
Compliance Manager	SWPPP implementation, logistics
Maintenance/Operations Manager	Implementing BMPs
Region Environmental Manager	SWPPP development
Consultant (QISP)	SWPPP development, reporting, conducting the annual evaluation

3. FACILITY ASSESSMENT

The following sections describe the Facility, regional setting, and site drainage.

3.1 REGIONAL SETTING, LOCATION, AND EXTENT

Chiquita Canyon Landfill is located at 29201 Henry Mayo Drive, Castaic, California, 91384 (34° 25' 34" N, 118° 38' 47"W) in the County of Los Angeles (site). The site consists of five parcels (Assessor's Parcel Numbers 3271-002-019, 3271-002-034, 3271-002-011, 3271-005-027, and 3271-002-013, respectively) totaling approximately 639 acres and is located north of Henry Mayo Drive, or California Highway 126 (CA-126). A map of the site vicinity is provided as Figure 1.

3.2 FACILITY DESCRIPTION

The Facility is a Class III landfill operated in accordance with Waste Discharge Requirements (WDRs) Order No. R4-2018-0172 issued by the Los Angeles Regional Water Quality Control Board (LARWQCB) on December 13, 2018 and WDR Order No. R4-2011-0052 issued by the LARWQCB on March 11, 2011. The latter was adopted for disposal and onsite use of contaminated soils. The combined WDRs include requirements and provisions for disposal of non-hazardous municipal solid waste, contaminated soils, construction and demolition debris, green waste, and landfill leachate collection, landfill gas collection and destruction, vehicle parking, vehicle and equipment maintenance, vehicle and equipment fueling, equipment storage, equipment and truck cleaning, and administrative activities. The Facility is approximately 639 acres of which approximately 400 acres are permitted for waste disposal.

The total area of industrial activities and materials exposed to stormwater at the site is approximately 400 acres. This is measured by calculating the impervious areas exposed to industrial activities on site and excludes the buildings/canopies (roofed areas) and the areas with no exposure to industrial activities such as the Office and certain Employee Parking locations.

The Facility includes three disposal areas designated as Primary Canyon, Canyon B, and Main Canyon. The Facility has significantly reduced its active operations. Effective January 1, 2025, the Facility is closed for the acceptance of waste and has ceased active waste disposal operations aside from a small working face for internally generated waste.

A leased landfill gas to energy generation area operated by a third-party is located at the Facility. The energy generation area is not operated by the Facility, and is therefore not included in this SWPPP.

The landfill can be only accessed by Henry Mayo Drive. The surrounding areas are generally vacant land with the exception of the United States (U.S.) Postal Facility to the east and Henry Mayo Drive which lies adjacent to the Facility generally to the south. The primary surrounding activity is vehicle traffic on Henry Mayo Drive.

The landfill is a disposal Facility as defined in the California Code of Regulations (CCR) Title 27, Section 20260. The Facility is best categorized under SIC Codes 4953 (Landfills and Land Application).

The Facility is permitted to operate from 3 am to 7 pm, and is open from 5 am to 5 pm. Administrative hours occur when the office is open from 8 am to 5 pm Monday through Friday. The hours of staff who implement the industrial SWPPP and SWPPP specifications, including monitoring, observation, and sampling, are the same as the administrative hours (Monday through Friday from 8:00 am to 5:00 pm (except for holidays)). These administrative hours will be considered the operational hours for the intent of this SWPPP.

Figure 1 shows the site vicinity and nearby water bodies. Figures 2 through 4 provides Facility information including, physical features, Facility boundary, structures and impervious areas (paved), drainage areas, stormwater collection and conveyance systems, points of stormwater discharge, and locations of structural control measures that affect industrial stormwater discharges. Figure 5 provides more detail for the maintenance area. Figure 6 is a flowchart to aid in determining whether the stormwater should be sampled for purposes of the WDR(s), IGP, or both. The figures also include information for readily identifying potential sources that may pose threats to stormwater quality.

Facility Name:	Chiquita Canyon Landfill
Address:	29201 Henry Mayo Dr Castaic, CA 91314
Site Contact:	Kevin Green (Telephone: 253-847-7555)
Facility SIC Code(s):	4953 (Landfills and Land Applications)
WDID #:	4 19I022488

3.3 SURFACE WATER DRAINAGE

Industrial activities are present at approximately 400 acres of the Facility. Approximately 2 percent of the area of industrial activities is impervious, covered by paved roadways or buildings; the remainder of the Facility is unpaved. Stormwater is conveyed by surface runoff and concrete channels, and in some sections by a network of underground and above ground pipes. There are two detention basins, which act as sedimentation basins, and a few smaller temporary detention basins that collect stormwater on site. There are no other on-site bodies of water. There are two drainage areas at the Facility, both with exposure to industrial activities.

Drainage Area 1 includes the northern portion of the Facility as presented on Figures 2 and 4. Drainage Area 1 includes the closed waste disposal area ("Primary Canyon"), Canyon B, soil stockpile and borrow areas, and a limited portion of the Main Canyon landfill. Stormwater from this section flows to a sedimentation basin named the east detention basin located at the eastern boundary of the site. The permanent east detention basin is approximately 14 acre-feet.

There are three additional temporary sub-basins adjacent to the east detention basin. These include Sub-basin 1 located around the culvert at the site's eastern boundary and downstream of the Sub-basin 2.

The majority of the permanent east detention basin has also been designated as Sub-basin 2. As noted above, the east detention basin is a permanent sedimentation basin on site.

Sub-basin 3 is a temporary basin directly upstream of the east detention basin or Sub-basin 2.

Sub-basin 4 is the third temporary sub-basin located near the bottom of the Cell 7 area depicted on Figure 2, upstream of Sub-basin 3.

These temporary sub-basins serve the purpose of retaining additional stormwater runoff volumes and reducing the rate of runoff flow. Should stormwater discharge occur, stormwater will leave the site's eastern boundary via an overflow spillway from the east detention basin near the U.S. Postal Facility and flow through a pipe under the U.S. Postal Facility into Castaic Creek, which eventually flows into the Santa Clara River. However, the pipe has been temporarily blocked with a steel plate and soil cover and discharge would occur by overtopping the concrete berm. Drainage Area 1 encompasses approximately 38 percent of the Facility.

Drainage Area 2 includes the southern portion of the Facility as identified on Figures 2 and 3 and includes the active and inactive waste disposal areas, maintenance facilities, storage, and administrative buildings, flare station, energy plant, condensate and leachate collection sumps, condensate and leachate tank storage areas, scale house and scales, diesel fueling area, soil stockpile and borrow areas, and equipment and employee parking lots. Stormwater from this area leaves the Facility's southern boundary under Henry Mayo Drive (Highway 126) and flows to the Santa Clara River. There is a two-stage sedimentation basin in Drainage Area 2 named the south detention basin and a smaller sedimentation basin (named as Lower Basin) across the paved landfill entrance to the east of the south detention basin. The entrance roadway is graded such that majority of the surface water in Drainage Area 2 flows to the south detention basin, with some stormwater accumulating in the Lower Basin. Water in the Lower Basin eventually evaporates without discharge from the site. Stormwater in Drainage Area 2 and the south detention basin is typically treated with flocculant to enhance settling, as described in section 6.5. The south detention basin discharges to the south outfall ("Sampling Point South") by gravity once the basin has reached capacity set by the height of two standpipes and a concrete spillway. To the north of the landfill there are two smaller basins (named Upper Basin 1 and Upper Basin 2 as marked on Figure 2) located east of the Reaction Area 9A that receive surface flow from the surrounding areas. Once filled, the runoff in these two basins is typically pumped into the adjacent drainage channels that flow to the south or east detention basin if determined to be "non-contaminated stormwater". Drainage Area 2 encompasses approximately 62 percent of the Facility. Design calculations for the south detention basin are included in Appendix I (Cell 8B Drainage Report).

Controlled discharges of accumulated stormwater are performed from sedimentation basins within both drainage areas at the Facility on an as-needed basis, as described in Section 6.5.

Surface water flow patterns, detention basins, site drainage areas, and the site stormwater discharge points are shown on Figures 2 through 4.

There are two industrial stormwater discharge locations. The stormwater discharge locations at the Facility are described as follows and are shown in Figures 2 through 4.

- EAST: Located at the concrete spillway of the east detention basin.

- SOUTH: Located at the outfall of the south detention basin west of the Facility entrance along Henry Mayo Drive.

3.4 RECEIVING WATERS

Drainage to the east flows into Castaic Creek, which flows into the Santa Clara River. Castaic Creek is not an impaired water body. Stormwater from the Facility ultimately discharges into the Santa Clara River, which is located south of the Facility and south of Henry Mayo Drive. The Santa Clara River, Reach 5 (Blue Cut gaging station to West Pier Highway 99 Bridge) is listed on the 303(d) List as an impaired water body for chloride, coliform bacteria, and iron. Iron is already being sampled as a sector required parameter (See Section 7.4.1.1). Nine miles of Reach 5 along the Santa Clara River were assessed for impairments, including the portion of the River the Facility discharges. Impairment status was retrieved at the State Board website listing the Final California 2014 and 2016 Integrated Report (303 (d) List/ 305 (b) Report) https://www.waterboards.ca.gov/water_issues/programs/tmdl/2014_16state_ir_reports/01035.shtml#67035. The Santa Clara River, Reach 5 impairment report is also provided in Appendix F.

Additionally, the IGP was Amended in 2018, which included a list of TMDLs applicable to industrial stormwater discharges. This includes the Santa Clara River Bacteria TMDL, which lists E. coli as a parameter for Reaches 3, 4, 5, 6, and 7 of the Santa Clara River. Since E.coli is a subgroup of coliform, which is currently being sampled for, E.coli is included as a parameter to the site's MIP.

Consistent with the WDR amendments for contaminated soils and related wastes (R4-2011-0052), the Facility has developed a parameter list. These additional parameters are described in a separate work plan for the site and the results for the additional monitoring will be reported separately with the corresponding quarterly or semiannual monitoring reports, pursuant to the monitoring and reporting program in the site-specific WDRs. Therefore, these results will not be included in the stormwater annual monitoring report submitted to SMARTS.

4. POTENTIAL POLLUTANT SOURCES

The potential sources of pollutants at the facility include industrial materials handled through industrial processes. Additional potential sources include:

- Dust and Particulate Generating Activities
- Significant Spills and Leaks
- Non-Stormwater Discharges; and
- Erodible surfaces

Industrial materials used on-site that could be potential stormwater pollutants are listed in Table 4-1. The table provides a description of the industrial activity, associated industrial materials, maximum quantities, storage containers, material handling locations, associated pollutants, and potential stormwater exposure. Industrial activities, potential sources, and potential pollutants are described in Table 4-2. Also provided in Table 4-2 are the BMPs that are implemented to address pollutant sources. BMP detail sheets prepared by CASQA are included as Appendix G.

The locations of industrial materials (i.e., storage or parking areas) that could potentially be exposed to stormwater at the Facility are shown on Figures 2 through 4. The following sections of the SWPPP further describe the Facility specific industrial materials and industrial processes conducted onsite.

Table 4-1: List of Industrial Materials

Product or Material	Maximum Quantity	Handling Frequency[1]	Storage Method	Storage and Handling Location	Receiving Location	Shipping Location	Spill and Leak Prevention Measures	Likelihood of Contact with Stormwater[1]
Fuel	8,000 gallons	Daily	8,000-gallon above ground storage tank	Maintenance Area	Storage Location	Storage Location	Double-walled; secondary containment	Possible
Used Oil	750 gallons	Daily	750-gallon above ground storage tank	Maintenance Area	Storage Location	Storage Location	Double-walled; secondary containment	Unlikely
Transmission Oil	500 gallons	Daily	500-gallon above ground storage tank	Maintenance Area	Storage Location	Storage Location	Single-walled; Secondary containment, cover	Unlikely
Engine/Hydraulic Oil	500 gallons	Daily	500-gallon above ground storage tank	Maintenance Area	Storage Location	Storage Location	Single-walled; secondary containment; cover	Unlikely
Drive Train Fluid	300 gallons	Daily	300-gallon above ground storage tank	Maintenance Area	Storage Location	Storage Location	Single-walled; Secondary containment, cover	Unlikely
Used Antifreeze	200 gallons	Daily	200-gallon above ground storage tank	Maintenance Area	Storage Location	Storage Location	Tank is an overpack; secondary containment, cover	Unlikely
Grease	55 gallons	Daily	55-gallon drum mounted on mobile refueler	Varies	Storage Location	Storage Location	Secondary containment; spill kits	Unlikely
Used Oil	500 gallons	Daily	Mounted on mobile refueler	Varies	Storage Location	Storage Location	Double-walled; spill kits	Possible
50W Oil	200 gallons	Daily	Mounted on mobile refueler	Varies	Storage Location	Storage Location	Secondary containment; spill kits	Unlikely
30W Oil	100 gallons	Daily	Mounted on mobile refueler	Varies	Storage Location	Storage Location	Secondary containment; spill kits	Unlikely

Table 4-1: List of Industrial Materials, continued

Product or Material	Maximum Quantity	Handling Frequency[1]	Storage Method	Storage and Handling Location	Receiving Location	Shipping Location	Spill and Leak Prevention Measures	Likelihood of Contact with Stormwater[1]
Engine / Hydraulic Oil	200 gallons	Daily	Mounted on mobile refueler	Varies	Storage Location	Storage Location	Secondary containment, Cover; spill kits	Unlikely
Diesel	1,750 gallons	Daily	Mounted on mobile refueler	Varies	Storage location	Storage location	Secondary containment, spill kits	Unlikely
Coolant	440 gallons	Daily	55-gallon drums	Maintenance Area	Storage Location	Storage Location	Secondary containment, Cover; spill kits	Unlikely
Grease	220 gallons	Daily	55-gallon drums	Maintenance Area	Storage Location	Storage Location	Secondary containment, Cover; spill kits	Unlikely
Hydraulic / Transmission Fluid	110 gallons	Daily	55-gallon drums	Maintenance Area	Storage Location	Storage Location	Secondary containment, cover; spill kits	Unlikely
Gear Oil	55 gallons	Daily	55-gallon drum	Maintenance Area	Storage Location	Storage Location	Secondary containment, Cover; spill kits	Unlikely
Used Oil Filters	220 gallons	Daily	55-gallon drums	Maintenance Area	Storage Location	Storage Location	Secondary containment, Cover; spill kits	Unlikely
Automatic Transmission Fluid	110 gallons	Daily	55-gallon drums	Maintenance Area	Storage Location	Storage Location	Secondary containment, Cover; spill kits	Unlikely
Diesel Exhaust Fluid	600 gallons	Daily	300-gallon totes	Maintenance Area	Storage Location	Storage Location	Secondary containment, Cover; spill kits	Unlikely

Table 4-1: List of Industrial Materials, continued

Product or Material	Maximum Quantity	Handling Frequency[1]	Storage Method	Storage and Handling Location	Receiving Location	Shipping Location	Spill and Leak Prevention Measures	Likelihood of Contact with Stormwater[1]
Landfill Gas Condensate	3 x 6,500 gallons	Daily	Above ground tanks	Gas Flare Area	Storage Location	Storage Location	Double-walled; Secondary containment; Refer to preventive measures listed in Table 4-2	Unlikely
	5,000 gallons	Daily	Above ground storage tank	East Toe of Canyon B	Storage Location	Storage Location	Double-walled; Secondary containment; Refer to preventive measures listed in Table 4-2	Unlikely
	10,000 gallons	Daily	Above ground storage tank	Toe of Primary Canyon	Storage Location	Storage Location	Double-walled; Secondary containment; Refer to preventive measures listed in Table 4-2	Unlikely
Temporary Leachate/ Condensate Storage FRAC Tanks	5,000,000 gallons	Daily	Above ground storage tank	Phase 8A, 8B and Canyon D	Storage Location	Storage Location	Secondary containment	Unlikely
Landfill Leachate	140,000 gallons	Daily	Above ground storage tank, Sump	Toe of Main Canyon, Canyon B Sump, Tank Farms #7, #10, #13	Storage Location	Storage Location	Double-walled; Secondary containment; Refer to preventive measures listed in Table 4-2	Unlikely
Water-based Detergent/Degreaser	125 gallons	Daily	25-gallon drums	Wash Pad and Maintenance Area	Storage Location	Storage Location	Cover; spill kits	Unlikely

Product or Material	Maximum Quantity	Handling Frequency[1]	Storage Method	Storage and Handling Location	Receiving Location	Shipping Location	Spill and Leak Prevention Measures	Likelihood of Contact with Stormwater[1]
Contaminated Soils	0 tons	N/A	Landfill Deck	Outside	Active Landfill Face	N/A	N/A	Likely
Municipal Solid Waste	0 tons	N/A	Landfill Deck	Outside	Active Landfill Face	N/A	N/A	Likely
Internally Generated Waste	As needed	Daily	Landfill Deck	Outside	Active Landfill Face	N/A	N/A	Likely
Spent Activated Carbon	17,600 pounds	Daily	Bags	Primary Canyon	Storage Location	Storage Location	N/A	Unlikely
Diesel	1,000 gallons	Daily	Generator	Flare Station	Storage Location	Storage Location	Double-walled	Unlikely
Sodium Hydroxide 50%	1,650 gallons	Daily	Poly Totes	Primary Canyon	Storage Location	Storage Location	Secondary containment; Spill Kits	Possible
Sodium Hypochlorite 12.5%	990 gallons	Daily	Poly Totes	Primary Canyon	Storage Location	Storage Location	Secondary containment; Spill Kits	Possible
Green Waste	40 tons	N/A	Landfill Deck	Outside	Active Landfill Face	N/A	N/A	Likely

Notes:
[1] During hours of operation.
[2] Likelihood determined based on storage method: unlikely - stored inside, unlikely - permanent cover, possible - temporary cover, likely - uncovered.

Table 4-2: BMP Summary

Activity or Area	Source	Potential Pollutant	BMPs	BMP Equipment and Tools	Maintenance Frequency
All Operations	Equipment and Materials	TSS, O&G	Place absorbent pads under equipment stored or parked overnight that exhibit signs of leaking	Absorbent pads	Weekly or as needed
			Remove or store under cover and on pallets abandoned or broken equipment or materials no longer considered for future use that have the potential to expose stormwater to pollutants*	N/A	Weekly or as needed
			Implement proper spill prevention control measures daily	Spill kits	N/A
			Inspect heavy equipment daily for evidence of leaks and promptly (as soon as reasonably possible and in no case later than in advance of forecasted rainfall events) cleanup spills, drips, or leaks*	Absorbent or absorbent pads and spill kits	Weekly or as needed
			Use dry cleanup methods, apply absorbent pads to leaks or spills, then properly dispose	Absorbent pads and spill kits	As needed
			Train employees on proper cleanup and spill response	N/A	Annually
			Practice good housekeeping procedures during all operations	N/A	N/A
			Avoid storage of material outside for extended periods or during rain events*. See Section 5.8 for BMP exceptions.	N/A	N/A
			Cover outdoor materials 24 hours ahead of likely storm events forecast at 50 percent or greater probability*. See Section 5.8 for BMP exceptions.	Covers/Tarps	N/A

Table 4-2: BMP Summary, continued

Activity or Area	Source	Potential Pollutant	BMPs	BMP Equipment and Tools	Maintenance Frequency
Landfilling	Municipal solid waste, contaminated soils, and related wastes	TSS, O&G, pH, iron	Minimize exposed disposal area working face during precipitation. See Section 5.8 for BMP exceptions.	Cover	N/A
			Minimize the exposure of contaminated soils and other beneficial reuse materials during precipitation events. See Section 5.8 for BMP exceptions.	Cover	N/A
Household Hazardous Waste	HHW	Iron, O&G, TSS, pH	Provide overhead cover for temporary waste storage area	N/A	As needed
			Store materials in appropriately segregated and sealed containers in an area separated from traffic and on secondary containment	N/A	N/A
			Inspect storage containers for leaks	N/A	N/A
			Have certified licensed transporters remove waste and take to licensed recycling/disposal Facility as required	N/A	N/A
Landfill Gas Collection	Landfill gas condensate	pH, Iron	Limit quantity and duration of condensate storage	N/A	N/A
			Provide double-walled tanks with secondary containment for storage	Tanks, compliant with regulatory requirements	N/A
	Equipment operation and maintenance		Properly store maintenance supplies	N/A	N/A

Table 4-2: BMP Summary, continued

Activity or Area	Source	Potential Pollutant	BMPs	BMP Equipment and Tools	Maintenance Frequency
Leachate collection and storage	Landfill leachate seeps and storage	pH, Iron	Limit quantity and duration of leachate storage	N/A	N/A
			Single-walled tanks with secondary containment for storage. Temporary leachate/condensate storage tanks with secondary containment or over-lined areas.	Secondary containment	Routine inspection of secondary containment area
			Check dams are placed in the stormwater channels to capture potential seeps that may reach the sedimentation basins.	Dirt check dams	As needed, prior to forecasted rain event
Household Hazardous Waste	Maintenance	O&G	Provide covered areas and properly store maintenance supplies	Covers, secondary containment	As needed
	Parking	O&G	Educate employees on proper deployment of spill absorbent pads	N/A	Annually
	Washing	TSS, O&G	Prohibit hosing off driveways, parking lots, and other paved areas unless contained and disposed through treatment and filtration system	N/A	N/A
Material and product transport, general traffic	Materials blowing off vehicles	TSS	Use dry cleanup methods, vacuum sweep as needed and the day before rain events the entire paved Facility. Pick up litter and debris	Vacuum sweeper	As needed, prior to rain event
Fueling	Spills and leaks	O&G	Use spill and overflow protection	Tanks	N/A
			Minimize run-on from stormwater into fueling area	N/A	N/A
			Use dry cleanup methods	Spill response equipment	As needed
			Implement proper spill prevention controls	N/A	N/A
			Train employees on proper fueling cleanup, and spill response	N/A	Annually

Table 4-2: BMP Summary

Activity or Area	Source	Potential Pollutant	BMPs	BMP Equipment and Tools	Maintenance Frequency
Erosion and sediment	Eroded materials	TSS, iron	Install temporary drainage ditches during cell development	Heavy equipment	As needed
			Install and maintain a stormwater conveyance system to divert runoff around material storage areas and convey runoff through pipes and non-erodible features to the extent practicable	Pipes and heavy equipment	As needed
			Construct and maintain sediment and detention basins	Heavy equipment	As Needed
			Install energy dissipating devices to slow the velocity of stormwater drainage and prevent sediment movement	Gravel bags, wattles, check dams	As Needed
			Vacuum sweep paved driveway areas as needed and prior to rain events to reduce trackable materials and dust	Vacuum sweeper	At least weekly and prior to rain events
			Install and maintain silt fencing along western slope, primary canyon stockpile, and temporary leachate storage area	Silt fencing	Annually
			Apply jute/hydroseed strategically on select exposed slopes	Jute, hydroseed, water truck	As needed
			Install scrim plastic over soil operations placed over new cell liner	10-mil or 12-mil plastic liner	One time installation
			Place sandbag checks along access roads to establish a ditch line	5-year sandbags	Annual/ As needed
			Installed 30-mil geomembrane liner layer over 45 acres of landfill	30-mil geomembrane	One time installation
			Installed compacted rock surfacing over roadways and storage locations	Rock	As needed
			Strategically apply anionic polyacrylamide flocculant upstream of and within sedimentation basins	Flocculant logs/powder, water pump	As needed
			Controlled discharge of accumulated stormwater from sedimentation basins	Water pump, water truck	As needed

Notes:
O&G – Total oil and grease; TSS – Total suspended solids; N/A – Not applicable

4.1 MATERIAL HANDLING AND STORAGE AREAS

Industrial activities at the Facility consist of disposing of small quantities of internally generated waste, vehicle and equipment maintenance, and landfill leachate and condensate gas collection and disposal. Potential sources of pollutants from materials handling operations include leaks or drips of petroleum products from trucks/equipment operated onsite and identified materials handled or stored onsite (Table 4-1). A Hazardous Material Business Plan (HMBP) exists for this Facility and is updated annually.

Facility-specific industrial processes and industrial materials are further described in the subsections below.

4.1.1 Material Storage and Handling

Materials storage and handling at the Facility is detailed in Table 4-1 and summarized in the following sections.

4.1.1.1 Internally Generated Waste

Internally generated wastes are placed into the active landfill face. Cover is placed over the refuse fill as specified under California Code of Regulation, Title 14 (Title 14). Title 14 requires approved daily cover or alternative daily cover to be placed on the working face and 1 foot of approved intermediate or alternative immediate cover to be placed on the top and side slopes of each advancing lift. Cover materials are graded to direct precipitation away from the landfill areas to mitigate the ponding of surface water over wastes, and to mitigate erosion caused by precipitation. Once the active cells have reached final capacity, alternative daily cover may be placed on intermediate slopes.

4.1.1.2 Vehicle and Equipment Fuel

Diesel fuel is stored on-site near the maintenance area and to fuel a generator. The fuel is stored in an 8,000-gallon, double-walled above ground storage tank. Some equipment is fueled at the tank; however, generally a fuel truck is filled at the tank and dispatched around the site to refuel the heavy equipment operating on the landfill. The 1000-gallon fuel tank for the generator is located at the flare station.

4.1.1.3 Maintenance Area

Materials stored in the maintenance area include used and unused motor oil, miscellaneous lubricants, hydraulic fluids, drive train fluid, and used and unused antifreeze. The materials are handled during operating hours and are stored in appropriate containers with spill or leak protection as detailed in Table 4-1. The location of the Maintenance Area is shown on Figure 2, and a detailed map of the Maintenance Area is provided in Figure 3.

4.1.2 Materials Shipping

Used oil is stored onsite in appropriate ASTs. A certified contractor periodically pumps the used oil out and transports it off-site for disposal. Facility personnel monitor pumping and shipping procedures for spills and leaks. Used oil filters, media from the oil/water separator, and other materials with absorbed petroleum products or related fluids are collected by a licensed hauler for proper disposal.

4.2 INDUSTRIAL PROCESSES

Figures 2 through 4 show the areas of industrial activities. The primary industrial activities at the Facility consist of disposal of small quantities of internally generated waste, the leachate collection and removal system, landfill gas flare and condensate, vehicle maintenance and washing, and vehicle and equipment fueling. Other site activities that are considered to have significant potential pollutant sources are the vehicle maintenance, storage, and fueling areas. The landfill also includes a landfill gas collection system and leachate collection system. The most likely sources of stormwater pollutants are industrial processes that result in the exposure of dust and particles, oil and grease, metals, and organics to stormwater. Potential pollutant sources are discussed further by area and process in the following sections.

4.2.1 Solid Waste Disposal and the Beneficial Use of Waste Materials

The solid waste disposed at the working face and any waste materials used beneficially on site are considered potential sources of pollutants that may enter the stormwater discharge at the landfill since solid waste and beneficially used waste materials and/or their constituents may be carried by precipitation run-off flowing across disposal areas. These constituents may enter the stormwater conveyance systems and contribute to stormwater pollution:

- Solid waste and beneficially used waste materials during unloading operations.
- Leaks of residual liquids from containers.
- Leaking of oil and fluids from collection trucks during unloading operations.

In addition, the disturbance of soil associated with these activities may also generate pollutants that may be carried by stormwater run-off. Sources of disturbed soil will include the borrow pit, stockpiles of cover soil, daily or intermediate cover placed on cells or erosion from haul roads.

4.2.2 Maintenance Area

Routine maintenance and storage of vehicles and equipment occur in the maintenance area. The waste products generated at the maintenance area are periodically removed by a licensed waste oil handler. The equipment wash pad is located within the maintenance area.

The maintenance area is considered a potential pollutant source since spills of fuel, oil, and lubricants may be conveyed by run-off water to stormwater conveyance systems.

4.2.3 Landfill Gas and Condensate Collection and Disposal

To comply with the South Coast Air Quality Management District's (SCAQMD) and EPA requirements, a landfill gas (LFG) collection and destruction system has been installed at the CCL. The LFG system consists of an inter-connected system of horizontal and vertical gas extraction wells. The gas extraction wells are connected by an aboveground HDPE pipe network, which transports the gas to a flare station facility located on the north edge of the Primary Canyon landfill.

Gas condensate accumulated in the gas extraction header lines is collected and stored in a series of above ground double-walled storage tanks. It may then be stored in a Frac Tank with secondary containment prior to offsite disposal.

The landfill gas condensate storage areas can be a potential source of pollutants that may enter the stormwater discharge at the site. Run-off water may potentially carry LFG condensate that has been spilled during transfer and storage operations. The condensate constituents may be conveyed to the stormwater conveyance systems at the site.

4.2.4 Landfill Leachate and Collection Disposal

The disposal areas located in Canyon B and the Main Canyon have been equipped with leachate collection and removal systems (LCRS) to collect and convey landfill leachate to collection sumps, from which the leachate can be removed. The leachate collection sumps and storage tanks are regularly inspected and monitored. Leachate recovered from the LCRS at the landfill is treated (when applicable) and is transported off-site for disposal. The leachate storage areas can be potential pollutant sources that may enter the stormwater discharge at the site. Run-off water may potentially carry leachate that has been spilled during transfer and storage operations. The leachate constituents may be conveyed to the stormwater conveyance systems at the site. Leachate collected (from the reaction area) as part of the temporary system is being stored on site for treatment and disposal offsite.

Temporary leachate/condensate storage frac tanks are located within the footprint of the landfill on Cell 8A, Cell 8B, and Canyon B. Containment berms are around the tank farm. Stormwater collected in the area is pumped out and disposed of as leachate.

4.3 DUST AND PARTICULATE GENERATING ACTIVITIES

Vehicles delivering industrial materials to the site may track in dust and particulates. Heavy equipment operating onsite also has the potential to generate dust and particulates. Compacted gravel or soil comprise approximately 90 percent of the road surfaces at the site and are wetted (e.g., sprayed with water) as needed.

4.4 SIGNIFICANT SPILLS AND LEAKS

The NPDES General Permit requires a list of industrial materials that have spilled or leaked in significant quantities and had the potential to be discharged from the facility's stormwater conveyance system within the last five years.

The Facility maintains records of relevant spills and leaks in accordance with Condition 27(e) of the Stipulated Order for Abatement in Case No. 6177-4 as well as similar reports required under the Waste Discharge Requirements at the following link:

https://chiquitacanyon.com/odor-mitigation/stipulated-order-for-abatement/#stipulated-order-condition-27e-leachate-leak-spill-reports.

There is a potential risk for spills or leaks to occur within the Facility where industrial materials are handled or stored. Spills or leaks are addressed promptly in the manner discussed in Section 5.3 and the Facility's SPCC Plan. A description of spills and the response taken is documented in the Annual Report. As part of routine inspections, the PPT inspects the Facility for leaks and spills. Appendix A includes a form for describing significant spills and leaks and recording response procedures.

4.5 NON-STORMWATER DISCHARGES

NSWDs consist of discharges which do not originate from precipitation events. The General Permit provides allowances for specified NSWDs provided they:

- Do not cause erosion;
- Do not carry other pollutants;
- Are not prohibited by the local MS4; and
- Do not require a separate NPDES Permit from the Los Angeles Regional Water Quality Control Board (LARWQCB).

NSWDs into storm drainage systems or waterways, which are not authorized under the General Permit and listed in the SWPPP, or authorized under a separate NPDES permit, are prohibited.

Potential NSWDs that are authorized at this facility include the following:

- Fire hydrants or fire prevention response system flushing
- Irrigation drainage/landscape water
- Air conditioner condensate

These authorized NSWDs will be managed with the stormwater and non-stormwater BMPs described in Section 5 of this SWPPP. These BMPs are implemented to:

- Reduce or prevent the contact of authorized NSWDs with materials or equipment that are potential sources of pollutants;
- Reduce, to the extent practicable, the flow or volume of authorized NSWDs;

- Ensure that authorized NSWDs do not contain quantities of pollutants that cause or contribute to an exceedance of a water quality standards; and

- Reduce or prevent discharges of pollutants in authorized NSWDs in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

Monthly visual observations are conducted according to the General Permit (Section XI.A.1) for NSWDs and sources to ensure adequate BMP implementation and effectiveness. Monthly visual observations include observations for evidence of unauthorized NSWDs. Secondary containment, spill kits, and spill response procedures are in place to ensure that no unauthorized NSWDs will reach any stormwater discharge locations.

Water trucks are frequently used for wetting soil surfaces at the Facility in order to reduce fugitive dust. The spray water is only applied in amounts that evaporate or are absorbed into the soil and does not discharge. Water trucks are only utilized during the dry season or extended periods of dry weather during the wet season. In the event that this water discharges, it is considered an unauthorized NSWD.

Based on historical inspections and observations, no unauthorized NSWDs have been observed to have discharged at the Facility.

4.6 ERODIBLE SURFACES

The Facility is primarily unpaved. Erosion of non-vegetated areas can cause sediment mobilization and increase sediment loading in stormwater discharges. Additional sources of disturbed soil include stockpiles of cover soil, daily or intermediate cover placed on cells, or erosion from haul roads. Most drainage pathways at the Facility discharge to detention basins, which act as sedimentation basins. Erosion control BMPs implemented at the Facility are discussed in Sections 5.5 and 6.4.

4.7 MATERIALS INVENTORY

A list of industrial materials handled and stored at the Facility is presented in Table 4-1. Table 4-1 lists locations where industrial materials are received, stored, shipped, and handled. Also included are the storage method, typical handling frequency, and the likelihood of exposure to stormwater.

4.8 POLLUTANT SOURCE ASSESSMENT

A potential pollutant source assessment was performed to identify industrial activities with the potential to contribute pollutants to stormwater discharge, evaluate BMPs implemented or to be implemented, and to reduce the overall potential for pollution.

Industrial activities and potential pollutant sources are identified in Section 4.2 and BMPs are identified in Sections 5 and 6. The following information is summarized in Tables 4-1 and 4-2.

- Areas of Facility with likely sources of pollutants.
- Pollutants likely to be present in industrial stormwater discharges and authorized NSWDs.
- Approximate quantity, physical characteristics, and locations of each industrial material handled, produced, stored, recycled, or disposed.
- Degree to which the pollutants associated with those materials may be exposed to and mobilized by contact with stormwater.
- Direct and indirect pathways by which pollutants may be exposed to stormwater or authorized NSWDs.

Sampling, visual observation, and inspection records were reviewed as part of the annual SWPPP assessment; however, historic records are not included as part of this SWPPP. The effectiveness of existing BMPs and implementing, to the extent possible, minimum BMPs to reduce or prevent pollutants in industrial stormwater discharges and authorized NSWDs was examined during a review of historical data.

Drainage to the east flows into Castaic Creek which flows into the Santa Clara River. Castaic Creek is not an impaired water body. The Facility ultimately discharges into Reach 5 of the Santa Clara River, which is located south of the Facility and Henry Mayo Drive. The Regional Water Board assessment included nine miles of Reach 5 of the Santa Clara River, including the portion of the River where the Facility discharges. Based on this assessment, chloride, coliform bacteria, and iron are the additional parameters required to be included in the MIP (Section 7) to indicate the presence of pollutants in industrial stormwater discharges. It should be noted that Iron is already being sampled as a sector required parameter (see Section 7.4.1.1). Additionally, the IGP was Amended in 2018, which included a list of TMDLs applicable to industrial stormwater discharges. This includes the Santa Clara River Bacteria TMDL, which lists E. coli as a parameter for Reaches 3, 4, 5, 6, and 7 of the Santa Clara River. Since E.coli is a subgroup of coliform, which is currently being sampled for, E.coli is included as a parameter to the site's MIP.

Consistent with the WDR amendments for contaminated soils and related wastes (R4-2011-0052), the Facility has developed a parameter list. These additional parameters are described in a separate work plan for the site and the results for the additional monitoring will be reported separately with the corresponding quarterly or semiannual monitoring reports, pursuant to the monitoring and reporting program in the site-specific WDRs. Therefore, these results will not be included in the stormwater annual monitoring report submitted to SMARTS.

5. MINIMUM BEST MANAGEMENT PRACTICES

Minimum BMPs generally consist of processes, prohibitions, procedures, and schedule of activities that reduce the potential for exposure of stormwater and authorized NSWDs. The minimum BMPs described in this section are required by the General Permit.

5.1 GOOD HOUSEKEEPING

The Facility implements the good housekeeping BMPs described below to reduce the impact of potential pollutants. The minimum BMPs described in the General Permit are italicized, with the facility-specific implementation following:

i. *Observe all outdoor areas associated with industrial activities including stormwater discharge locations, drainage areas, conveyance systems, waste handling/disposal areas, and perimeter areas impacted by off-facility materials or stormwater run-on to determine housekeeping needs. Any identified debris, waste, spills, tracked materials, or leaked materials shall be cleaned and disposed of properly.*

   The Facility observes parking lots, driveways, and storage areas and regularly removes trash and debris on a regular basis.

ii. *Minimize or prevent material tracking.*

   Facility personnel keep litter and debris picked up so that it is not tracked off-site. Track out pads and rumble strips are installed along the access road to minimize track out.

iii. *Minimize dust generated from industrial materials or activities.*

   The Facility utilizes a water spray truck to minimize dust generation.

iv. *Ensure that all facility areas impacted by rinse/wash waters are cleaned as soon as possible.*

   Vehicles and equipment are cleaned in a designated concrete wash area with 100% containment. Wash water is collected and sent offsite for disposal, as needed.

v. *Cover all stored industrial materials that can be readily mobilized by contact with stormwater.*

   Industrial materials that can be readily mobilized by contact with stormwater are covered to the extent practicable. See Section 5.8 for exceptions regarding the active landfill face.

vi. *Contain all stored non-solid industrial materials (e.g., particulates, powders, shredded paper, etc.) that can be transported or dispersed via wind or contact with stormwater.*

All non-solid industrial materials at the Facility are either stored in the maintenance area building, scale house or office.

vii. *Prevent disposal of any rinse/wash waters or industrial materials into the stormwater system.*

Rinse/wash water is recycled at the Facility, remaining on site.

viii. *Minimize stormwater discharges from non-industrial areas (e.g., stormwater flows from employee parking area) that contact industrial areas of the facility.*

Where practicable, the site drainage pattern is such that stormwater discharges from non-industrial areas such as the landscaped area do not contact the industrial areas of the Facility.

ix. *Minimize authorized NSWDs from non-industrials areas (e.g., potable water, irrigation water, fire hydrant testing, etc.) that contact industrial areas of the facility.*

The site drainage pattern is such that NSWDs from non-industrial areas such as the parking lot and driveway do not contact the industrial areas of the Facility.

5.2 PREVENTATIVE MAINTENANCE

The Facility implements the preventative maintenance BMPs described below to reduce the impact of potential pollutants. The Minimum BMPs as described in the General Permit are italicized, with the facility-specific implementation following:

i. *Identify equipment and systems used outdoors that may spill or leak potential stormwater pollutants.*

The Facility has identified equipment and systems used outdoors that may spill or leak potential stormwater pollutants, including forklifts, trucks, and other heavy equipment.

i. *Observe the identified equipment and systems to detect leaks, or identify conditions that may result in the development of leaks.*

Facility personnel perform visual inspections for evidence of leaks or identify conditions that may result in the development of leaks; inspections are recorded on monitoring forms. Equipment is repaired or replaced as needed.

ii. *Establish an appropriate schedule for maintenance of identified equipment and systems.*

Maintenance is conducted on equipment and systems in accordance with the site's policy. Maintenance schedules are set by management and can change based on equipment needs.

iii. Establish procedure for prompt maintenance and repair of equipment, and maintenance of systems when conditions exist that may result in the development of spills of leaks.

5.3 SPILL AND LEAK PREVENTION AND RESPONSE

The Facility implements the spill and leak prevention and response BMPs described below. The minimum BMPs as described in the General Permit are italicized, with the facility-specific implementation following.

i) Establish procedure and/or controls to minimize spills and leaks.

The Facility properly labels and uses lids to seal cans and drums storing liquids. Liquids are typically not dispensed from containers or drums. The Facility uses oil absorbent pads or other protective devices for liquid transfer operations to catch incidental spillage and drips from any dispensing attachments.

ii) Develop and implement spill and leak response procedures to prevent industrial materials from discharging through the stormwater conveyance system. Spilled or leaked industrial material shall be cleaned and disposed of properly.

The Facility maintains spill cleanup kits near material storage areas. Spilled or leaked industrial materials are cleaned up promptly and disposed of properly.

iii) Identify and describe all necessary and appropriate spill and leak response equipment, location(s) of spill and leak response equipment, and spill or leak response equipment maintenance procedures.

Spill kits and other spill and leak response equipment and locations are identified on Figure 3. Each spill kit is inspected monthly to confirm its contents are adequate to respond to a spill. At a minimum the following spill-cleanup equipment must be maintained on-site and dedicated to spill cleanup:

- Absorbent pads and/or absorbent material capable of absorbing 15 gallons of fuel
- Absorbent boom, a minimum of 10 feet in length with a 12-gallon absorbent capacity
- A 55-gallon drum or 5-gallon buckets with lids
- Non-metallic shovel

iv) Identify and train appropriate spill and leak response personnel.

Employee training is discussed in Section 5.6.

5.4 MATERIAL HANDLING AND WASTE MANAGEMENT

The Facility implements the material handling and waste management BMPs described below to reduce the impact of potential pollutants. The Minimum BMPs as described in the General Permit are italicized, with the facility-specific implementation following:

i. *Prevent or minimize handling of industrial materials or wastes that can be readily mobilized by contact with stormwater during a storm event.*

   Material handling is discussed in Section 4.1. Canvas or polyethylene tarps are used for covering exposed equipment parts and supplies, or inert materials when rain is anticipated. Exceptions are described in Section 5.8.

ii. *Contain all stored non-solid industrial materials or wastes that can be transported or dispersed via wind erosion or contact with stormwater during handling.*

   All stored non-solid industrial materials or wastes that can be transported or dispersed via wind erosion or contact with stormwater are contained during handling.

iii. *Cover industrial waste disposal containers and industrial materials storage containers that contain industrial materials when not in use.*

   Industrial waste disposal containers and industrial material storage containers that contain industrial materials are appropriately covered when not in use.

iv. *Cover outdoor materials 48 hours ahead of likely storm events forecasted at 50 percent or greater probability.*

   Canvas or polyethylene tarps are used for covering exposed equipment parts and supplies, or recyclables prior and during a rain event that the National Oceanic and Atmospheric Administration (NOAA) website identifies as having a 50 percent or greater probability of precipitation, as feasible.

v. *Divert run-on and stormwater generated from within the facility away from all stockpiled materials.*

   Facility drainage is shown in Figure 2. Stormwater is directed away from stockpiled materials.

vi. *Clean all spills of industrial materials/wastes that occur during handling in accordance with the spill response procedures.*

   Spill response procedures at the Facility are discussed in Section 5.3 and Appendix A.

vii. *Observe and clean as appropriate, any other material/waste handling equipment or containers that can be contaminated by contact with industrial materials or wastes.*

   Equipment at the Facility is properly maintained as discussed in Section 5.2.

5.5 EROSION AND SEDIMENT CONTROL

The Facility implements the erosion and sediment control BMPs described below, as applicable. The minimum BMPs as described in the General Permit are italicized, with the facility-specific implementation following.

i. *Implement effective wind erosion controls.*

Accessible surfaces of the site are wetted or vegetated as practical to reduce dust dispersal, and as discussed in Sections 4 (Table 4-2) and 6.4.

ii. *Provide effective stabilization for erodible areas prior to forecasted storm events.*

Erodible areas are stabilized as discussed in Sections 4 (Table 4-2) and 6.4.

iii. *Maintain effective perimeter controls and stabilize all site entrances and exits to sufficiently control discharges of erodible materials from discharging or being tracked off the site.*

The Facility maintains rumble strips at transitions from unimproved roadways to paved roadways and other areas as needed. The entrance to the Facility is paved.

iv. *Divert run-on and stormwater generated from within the facility away from all erodible materials.*

Facility drainage patterns are shown on Figures 2 through 4. Stormwater is diverted away from erodible materials.

v. *If sediment basins are implemented, ensure compliance with design storm standards described in section X.H.6 of the General Permit.*

The Facility employs detention basins which act as sedimentation basins, as described in Section 3.3. If new detention or sedimentation basins are constructed, they will be in compliance with design storm standards laid out in the General Permit.

5.6 EMPLOYEE TRAINING PROGRAM

The implementation of an employee awareness program shall be executed to inform personnel of the goals and components of the SWPPP, and to address spill response procedures, good housekeeping, maintenance requirements, and material management practices. The following general employee awareness practices will be followed:

- Presentations on employee stormwater awareness will be given at safety meetings.
- Training meetings for those employees directly involved in stormwater compliance will be given on the use of the SWPPP and its components.
- If an employee misses training, a training make-up session will be conducted within 30 days of returning to the job.
- Equipment operators are trained on the proper use of fuel dispensers and tank “topping off” is not allowed.

Chiquita Canyon Landfill must document that an employee awareness program has been established. A log of the dates on which specific employees receive training shall be kept with the Employee Information Training Sheet and Employee Training Log included with the stormwater compliance documents for the site.

Facility employees that have direct responsibilities in areas of the Facility that have the potential to impact stormwater receive awareness SWPPP training annually and within 30 days of hire for new employees.

The following information should be covered in the employee awareness program.

1) Goals of SWPPP

The SWPPP's purpose is to suggest stormwater control methods that may reduce pollutant transport from the site to surrounding surface water bodies. Chiquita Canyon Landfill should use the SWPPP to guide daily operations and evaluate future design and construction.

2) Components of SWPPP

Facility employees impacting stormwater pollution prevention or part of the PPT must be made aware of the SWPPP's four components:

- Introduction
- Facility Assessment
- Stormwater BMPs
- Sampling and Monitoring Plan.

The PPT must be familiar with all four sections of the SWPPP and review it annually. If the plan is modified (during the annual review or at another time), key personnel must be notified of the changes before they are implemented.

All PPT and employee training is documented, and the records are stored with the SWPPP. Records of employee training are kept for at least 5 years.

5.7 QUALITY ASSURANCE AND RECORD KEEPING

The Facility implements the quality-assurance and record-keeping BMPs described below to reduce the impact of potential pollutants. The Minimum BMPs as described in the General Permit are italicized, with the facility-specific implementation following.

i. *Develop and implement management procedures to ensure that appropriate staff implement all elements of the SWPPP, including the Monitoring Implementation Plan (MIP).*

   The PPT is responsible for ensuring that all elements of the SWPPP, including the MIP and BMPs, are implemented. The district manager directs the PPT to track and complete all required permit conditions. This is achieved by monthly Facility compliance team meetings.

ii. *Develop a method of tracking and recording the implementation of BMPs identified in the SWPPP.*

BMP implementation is tracked and recorded as discussed in Section 9 of this SWPPP.

iii. *Maintain the BMP implementation records, training records, and records related to any spills and clean-up related response activities for a minimum of five (5) years.*

All records required by the General Permit and SWPPP are maintained for a minimum of 5 years. Quality assurance activities are documented and entered into the SWPPP records. Records are maintained as discussed in Section 9 of this SWPPP.

5.8 MINIMUM BEST MANAGEMENT PRACTICE EXCEPTIONS

The following minimum BMPs are not fully implemented because they have been determined to either not reflect a best industry practice, are not economically practicable, or are not economically achievable.

- *"Cover all stored industrial materials that can be readily mobilized by contact with stormwater."*

Industrial materials that can be readily mobilized by contact with stormwater are covered to the extent practicable. The active landfill face is not covered during Facility operations due to the need to frequently access, move, or otherwise handle the waste on a daily basis. In accordance with standard industry operational procedures, the active face is covered at the end of each business day with soil or approved alternative daily cover to prevent vectors, odors, infiltration of rainwater, and to control windblown litter.

6. ADVANCED BMPS

Advanced BMPs reduce or prevent discharges of pollutants in stormwater discharge in a manner that reflects best industry practice, considering technological availability and economic practicability and availability. Advanced BMPs, including temporary BMPS, are implemented at the Facility as necessary.

6.1 EXPOSURE MINIMIZATION AND BEST MANAGEMENT PRACTICES

The Facility stores petroleum products, oil filters, batteries, and other hazardous and universal waste materials in covered locations. This overhead coverage reduces or prevents the potential for stormwater pollutants associated with these activities from contacting or entering stormwater. These potential pollutants include TSS, pH, O&G, and iron.

6.2 STORMWATER CONTAINMENT AND DISCHARGE REDUCTION BEST MANAGEMENT PRACTICES

Two unlined detention basins (east detention basin and south detention basin) are located at the Facility. The detention basins receive stormwater runoff from all areas of the Facility. Stormwater runoff does not exit the Facility boundaries without first flowing through a detention basin. The detention basins allow for suspended solids to settle, which reduces the amount of pollutants in stormwater leaving the facility. Regular removal of accumulated sediment from the basins increases the effectiveness of these basins. Potential pollutants that are mitigated by the detention basins include TSS, metals (particulates or adsorbed to particulates), and other pollutants that are bound or absorbed to particulates.

As described in Section 3.3, stormwater in the south detention basin is typically treated with flocculant prior to discharge to minimize potential sediment discharge.

6.3 TREATMENT CONTROL BMPS

Treatment control BMPs include one or more mechanical, chemical, biological, physical, or any other treatment process technology and is sized to meet the treatment control design storm standard. There are no new specific treatment control BMPs that meet the treatment control design criteria being implemented at this time at the Facility, including the south detention basin.

6.4 OTHER ADVANCED BEST MANAGEMENT PRACTICES

The Facility uses secondary containment in the maintenance and storage areas to reduce the potential for stored liquids to contact stormwater. The secondary containment reduces or prevents the potential for O&G impact to stormwater. Secondary containment capacities are detailed in the SPCC.

Curbing is located along the paved portions of the roadways to contain and direct stormwater runoff to the south detention basin.

Activities that generate erosion and sediment migration vary during the operational phases of a landfill and generally decline as the landfill progresses toward the closure phase.

Revegetation/soil stabilization generally commences prior to the wet season to address areas impacted by soil disturbing activities. Earthguard is applied as needed to the erosion-prone side slopes of the upper detention basin. The detention and detention basins discussed above have been constructed to reduce sediment in stormwater discharges.

Naturally occurring vegetation throughout the Facility filters sediment from stormwater before discharge. Vegetation can also provide a slight pH buffering effect. The stormwater drainage systems in place have been designed to divert stormwater away from operational areas and through vegetated areas where practicable.

Specific advanced BMP descriptions that are implemented, to the extent practicable, at the Facility are detailed in the following sections.

6.4.1 Erosion Control

Erosion control, also referred to as soil stabilization, consists of source control measures that are designed to prevent soil particles from detaching and becoming transported in stormwater runoff. Erosion control BMPs protect the soil surface by covering and/or binding soil particles. The Facility will incorporate erosion control measures that are effective and result in the reduction of sediment related pollutants in stormwater discharges and authorized non-stormwater discharges. The Facility will implement the following practices for effective temporary and longer-term erosion control during soil disturbing activities:

- Preserve existing vegetation where practicable and when feasible.
- Implement temporary erosion control measures with focused implementation prior to the wet season.
- Stabilize non-active areas prior to the wet season.
- Control erosion in concentrated flow paths by applying erosion control products and maintaining swales as required.
- Apply hydroseed for vegetation development, jute, or other longer-term erosion control to areas deemed available for longer-term controls (e.g. areas no longer planned for soil disturbance).

Sufficient erosion control materials will be maintained on-site to allow implementation in conformance with the SWPPP. This includes implementation of BMPs in active areas and non-active areas before the onset of rain.

BMPs that should be considered for implementation to prevent erosion following soil disturbing areas were identified:

Scheduling

- Operating activities will be scheduled with the incorporation of both soil stabilization and sediment control measure BMPs to reduce the discharge of pollutants. The schedule will limit exposure of disturbed soil to wind, rain, and stormwater run-on and run-off where practicable.

Preservation of Existing Vegetation

- Existing vegetation will be maintained to the extent practicable.

Hydroseeding

- Hydroseeding or other longer-term erosion control will be applied in areas deemed available for longer-term controls to protect disturbed soil areas from soil erosion. The hydroseeding materials will be applied after final grading operations. The application of hydroseeding materials will be performed in accordance with manufacturer's specifications.

Geotextile and Mats

- Geotextile or erosion control matting (ECM) should be installed in v-ditches, as needed; the application of erosion control matting will be performed in accordance with manufacturer's specifications. ECMs should not include any synthetic component because of this material's potential adverse impact to Wildlife.

Slope Protection

- Slope drains consist of a pipe used to intercept and direct surface runoff into a stabilized watercourse, trapping device, or stabilized area. Slope drains are used with earth dikes and drainage ditches to intercept and direct surface flow away from slope areas to protect recently cut or fill slopes.
- Compost Blankets can be applied to protect disturbed soil areas from soil erosion, and can be used as an alternative to hydroseeding, particularly on steeper slopes.
- Scrim plastic cover can be installed over soil operations related to new cell construction.

Soil Binders

- Soil binding consists of application and maintenance of a soil stabilizer to exposed soil surfaces. Soil binders are materials applied to the soil surface to temporarily prevent water and wind induced erosion of exposed soils on construction sites. Example of soil binders that are recommended are:
- Gorilla-Snot is a biodegradable liquid copolymer used to stabilize and solidify any soil or aggregate as well as provide erosion control and dust suppression.
- Other suitable, comparable products.

Additional erosion control BMPs are discussed in Sections 4 (Table 4-2) and 5.5.

6.5 SEDIMENT CONTROL

Sediment controls are structural measures that are intended to complement and enhance the selected erosion control measures and reduce sediment discharges from actively disturbed soil areas. Sediment controls are designed to intercept and settle out or filter soil particles that have been detached and transported by the force of water. The Facility implements sediment control measures that are effective and result in the reduction of sediment related pollutants in stormwater discharges and authorized non-stormwater discharges.

Sufficient quantities of temporary sediment control materials are maintained on-site to allow implementation of temporary sediment controls in the event of predicted rain and for rapid response. This includes implementation requirements of BMPs in active areas and non-active areas that require deployment before the onset of rain. BMPs that should be considered for implementation to prevent sediment migration from disturbed soil area were identified:

Fiber Rolls (or straw wattles)

- Fiber rolls or straw wattles can be installed surrounding the entire outside perimeter of the disturbed soil area as well as surrounding stockpiles. Fiber rolls should be placed along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope lengths and spread runoff as sheet flow Fiber rolls, should not include any synthetic component because of this material's potential adverse impact to Wildlife.

Gravel Bag Berm

- Gravel bag berms can be installed along the down gradient perimeter of disturbed soil areas to prevent run-off if there is a sufficient structural base for support and stabilization of the gravel bags. Gravel bags can also be used alongside access roads to reduce flow velocities and settle out particles.

Sand Bag Checks

- Sandbag checks are installed along access roads to establish a ditch line.

Silt Fencing

- Silt fencing is installed along the western slope, primary canyon stockpile, and temporary leachate storage area.

Sweeping

- Paved areas will be vacuum swept prior to an anticipated storm event, or as needed to control excessive dirt and dust. The sweeping will include increased focus in areas where noticeable tracking of materials occurs.

Flocculant

- Anionic polyacrylamide flocculant is used at the Facility in strategic locations to enhance the settling of solids that are suspended in site stormwater runoff. Flocculant is primarily applied upstream of the south detention basin using flocculant logs and is also supplementally dosed at the sedimentation basin using flocculant logs or powdered flocculant. Flocculant is applied in accordance with the Passive Treatment Plan (PTP) included as Appendix J (prepared by Applied Polymer Systems for the Facility).

Controlled Discharge

- Accumulated stormwater from the sedimentation basins at the Facility is discharged off-site as needed and in a controlled manner utilizing mechanical pumping to decant stormwater from the sedimentation basins to the discharge points. The sedimentation basins are decanted to the maximum extent possible between precipitation events to allow for additional storage capacity in the event of future precipitation events. Controlled discharges allow for enhanced settling of suspended sediment in stormwater. This practice is implemented when possible but is not always feasible due to the size and frequency of precipitation events. During periods of dry weather, accumulated stormwater is also used in a water spray truck to minimize dust generation, as described in Section 5.1.

6.6 TEMPORARY BMPS FOR LEACHATE SEEP CONTROL

The Facility has implemented the following temporary best management practices to manage leachate seep control:

- Perform regular inspections of Reaction Area slopes, including visual observations on the soil cover and integrity of the geomembrane cover (inspected and reported pursuant to Milestone #2B of the June 6, 2024, LEA Compliance Order).

- Immediately contain any seeps by placing soil berms or dams, including in the concrete stormwater channel, or by diverting it back to the landfill's leachate collection system. Collect with vacuum truck, as needed pursuant to Condition 24 of the Modified Stipulated Order for Abatement ("SOFA").

- Immediately contact Site Management to report seep location.

- Monitor seeps periodically for any breach or other issues (monitored and reported pursuant to Conditions 27(b) and (c) of the SOFA).

- Reroute leachate and transport leachate in a sealed tanker truck to minimize its exposure to open air pursuant to Condition 24 of the SOFA.

- Pressure wash any impacted concrete ditches/channels and collect wash liquid by vacuum truck.

6.7 PERMANENT MITIGATION CONTROLS

The Facility has completed installation of 54 acres of a 30 mil High Density Polyethylene (HDPE) geomembrane cover over portions of the reaction area to counter methane surface exceedances, fugitive gas (LFG) emissions in the shorter-term, and surface exposure of leachate coming in potential contact with stormwater. Additionally, installation of the 60 mil HDPE with EVOH is underway.

7. STORMWATER SAMPLING AND MONITORING IMPLEMENTATION PLAN (MIP)

The MIP in this section describes a facility-specific monitoring program to provide indicator-monitoring information for assessing the levels of pollutants in stormwater discharges, the effectiveness of BMPs to prevent or reduce pollutants, and the need for corrective action. The objectives of the MIP are to:

- Assess whether BMPs addressing pollutants in industrial stormwater discharges and authorized NSWDs are effective for compliance with the effluent and receiving water limitations of the General Permit.
- Measure the presence of pollutants in industrial stormwater discharges and authorized NSWDs relative to their respective Numeric Action Levels (NALs) and determine whether an ERA process is required.
- Assess whether the suite of BMPs implemented at the facility is effective in reducing or preventing pollutants in industrial stormwater discharges and authorized NSWDs.

The MIP includes a description of the following:

- Discharge locations.
- Visual monitoring procedures.
- Sampling requirements and sample handling procedures.
- A list of analytical methods and related detection limits.
- Visual and sample event observation response procedures.
- PPT member assignments.

7.1 DISCHARGE LOCATIONS

There is a total of two (2) industrial stormwater discharge locations. The stormwater discharge locations at the Facility are described as follows and are shown on Figure 2.

- EAST: Located at the concrete spillway of the east detention basin.
- SOUTH: Located at the outfall of the south detention basin, west of the Facility entrance along Henry Mayo Drive.

7.2 VISUAL OBSERVATIONS

The General Permit requires two basic types of visual observations designed to identify sources of pollutants.

- Monthly Visual Observations: Conducted on a day with no precipitation during daylight hours to observe authorized and unauthorized NSWDs, potential pollutant sources, and BMP effectiveness and maintenance.
- Sampling Event Visual Observations: Conducted at the same time that sampling occurs to observe the quality of discharges and sources of observed pollutants.

7.2.1 Monthly Visual Observations

A member of the PPT visually observes at least monthly each drainage area. The scope of the visual observation includes the following elements.

The presence or indications of prior, current, or potential unauthorized NSWDs and their sources

- Authorized NSWD.
- Implemented BMPs.
- Potential pollutant sources including industrial activity areas, outdoor equipment, and other potential industrial pollutant sources.
- Each area of industrial activity.

The inspections are conducted during daylight hours, during scheduled Facility operating hours, on days without precipitation. Inspectors are to document the presence or indication of any NSWD. The Facility's authorized NSWDs (if any) and associated BMPs are also observed. During the winter months, monthly visual inspections are conducted as the weather permits. The inspector will document conditions where snow covers observation points. In the spring, snowmelt runoff may make it difficult for the inspector to identify NSWDs.

Visual observations are documented on the applicable form located in Appendix C.

7.2.2 Sampling Event Visual Observations

A member of the PPT is to be assigned to perform visual stormwater observations during the sample collection. A back-up member of the team is to be assigned when the primary PPT member is absent or unavailable. Visual observations are to be documented on the applicable form in Appendix C.

A member of the PPT also visually observes stormwater discharge at the time of sampling. Sampling is required four times per reporting year: twice during the first half of the reporting year (July 1 through December 31) and twice during the second half of the reporting year (January 1 through June 30). Sampling and corresponding visual observations are only required of stormwater discharges that meet the sampling criteria in Section 7.3. Observations are not required when dangerous weather conditions exist (i.e., flooding, high winds, or electrical storms), discharge occurs outside scheduled Facility operating hours, or events not sampled are explained in the Annual Report. Observations are also not required for drainage areas that have no exposure to industrial activities and materials.

The inspections include visual observations of stormwater runoff to evaluate the presence of floating or suspended materials, O&G discoloration, turbidity, or other signs of pollutant impact to stormwater runoff. Observations are also made to assess the proper performance of stormwater collection and diversion structures (e.g., surface drains). The SWPPP shall be revised, as necessary, if visual observations indicate that the SWPPP is inaccurate or additional BMPs are needed to control or prevent pollutants in stormwater discharges.

A member of the PPT is assigned to perform visual stormwater observations during the sample collection. A back-up member of the team shall be assigned when the primary PPT member is absent or unavailable. Visual observations are documented on the applicable form located in Appendix C.

7.2.3 Visual Observation Records and Response Procedures

Records of the observations include the name of the observer, date, time, locations observed, observations, and response action(s) taken.

In the event that a visual observation indicates a condition that may inadequately reduce or prevent pollutants in industrial stormwater, corrective action will be taken.

The SWPPP shall be revised, as necessary, if visual observations indicate that the document is inaccurate or additional or revised BMPs are needed to address the observations or to reduce or prevent pollutants in industrial stormwater discharges.

Appendix C includes templates for required visual observations.

7.3 SAMPLING AND ANALYSIS

The General Permit requires collection of stormwater discharges for laboratory analysis from a Qualifying Storm Event (QSE). The General Permit describes a QSE as when stormwater discharge occurs from at least one drainage area when the discharge is preceded by at least 48 hours with no discharges from any of the drainage areas. Samples are collected from two QSEs occurring within the first half of the reporting year (July 1 through December 31) and two QSEs occurring within the second half of the reporting year (January 1 through June 30).

Additionally, according to WDR Order No. R4-2011-0052, a QSE is one that: (1) has produced a minimum of ¼-inch of rainfall as measured by an onsite rainfall measurement device, and (2) was preceded by two consecutive days of dry weather, where combined rainfall is less than 1/8-inch as measured by an onsite rainfall measurement device. Sampling procedures in accordance to WDR Order No. R4-2011-0052 are detailed in the “Waste Acceptance Plan, Chiquita Canyon Landfill” prepared by EnviroSolve Corporation dated April 29, 2011.

Samples are collected from each drainage area at discharge locations with two exceptions: (1) when the Facility qualifies for Representative Sampling Reduction, and (2) when stormwater is stored or contained. Following the criteria for Representative Sample Reduction, the Facility's number of sampling locations may be reduced if discharge locations are substantially similar, the reduction is justified in the MIP, and the Discharger certifies it in the Stormwater Multiple Application and Report Tracking System (SMARTS). When stormwater is stored or contained, sampling occurs at the time the stored water is released. A PPT member or designee is to collect stormwater samples under the following conditions:

- When discharge is preceded by at least 48 hours with no discharges from any of the drainage areas
- Within 4 hours of the start of discharge or at the start of Facility operations if the QSE occurs within the previous 12-hour period
- During regularly scheduled Facility administrative hours
- During daylight hours
- When weather and site conditions are safe.

There are two stormwater discharge locations, as discussed in Section 7.1.

7.4 PARAMETERS FOR ANALYSIS, METHODS, DETECTION LIMITS, AND NUMERIC ACTION LEVELS

The minimum parameters for sampling and analysis include pH, TSS, and O&G.

Pursuant to requirements of the General Permit, individual samples of stormwater from this site are field tested with a calibrated portable instrument for pH. Collected samples are analyzed at the laboratory or in the field for the parameters listed in Table 7-1, at the end of Section 7.4.1, using the associated method, holding time, and Numeric Action Level values. It should be noted that the laboratory analyses will be performed according to sufficiently sensitive test methods per the 2018 IGP Amendment.

7.4.1 Sector Required Analysis

Based on the standard industrial classification (SIC) codes for specific industrial activities conducted at the Facility, the following sector-required analyses are specified in the General Permit monitoring program. Table 7-1 displays an overview of the sampling parameters.

7.4.1.1 SIC Code 4953

- Iron by USEPA 200.7

Table 7-1: Test Parameters, Methods, Holding Time and NALs

Parameter	Analytical Method	Holding Time(1)	Preservation	Numeric Action Level (NAL)	
				Annual Average	Instantaneous
pH (units)	pH meter	15 minutes	None	NA	Less than 6.0 Greater than 9.0
Total Suspended Solids (mg/L)	SM2540-D	7 days	None	100	400
Oil & Grease (mg/L)	EPA1664A	28 days	HCl	15	25
Iron (mg/L)	USEPA 200.7	6 months	HNO_3	1.0	NA

7.4.2 303(d) Impairment Required Analysis

Stormwater from the Facility ultimately discharges into the Santa Clara River, which is located south of the Facility and south of Henry Mayo Drive. The Santa Clara River, Reach 5 (Blue Cut gaging station to West Pier Highway 99 Bridge) is included in the 303(d) List as an impaired water body for chloride, coliform bacteria, and iron. Previously conducted WDR sampling at the site indicated presence of chloride and coliform bacteria, therefore these parameters will be sampled. Iron is already being sampled as a sector required parameter (see Section 7.4.1.1). The following impairments were delisted from the 303(d) List, but are being addressed by USEPA approved TMDLs: ammonia and nitrate and nitrite as nitrogen. Nine miles of Reach 5 along the Santa Clara River were assessed for impairments, including the portion of the River the Facility discharges. Impairment status was retrieved at the State Board website listing the Final California 2014 and 2016 Integrated Report (303 (d) List/ 305 (b) Report). The Santa Clara River, Reach 5 impairment report is provided in Appendix F, and additional test parameters are listed in Table 7-3.

Table 7-2: 303(D) Impairment Test Parameters, Holding Time and NALs

Parameter	Analytical Method	Holding Time(1)	Preservation	Numeric Action Level (NAL)	
				Annual Average	Instantaneous
Chloride	EPA 300.0	28 days	None	NA	NA
Coliform Bacteria, Total	EPA 9221 B, C, or E	6 hours	None	NA	NA

Notes:
NA – Not available
(1) From *Industrial Stormwater Monitoring and Sampling Guide* United States Environmental Protection Agency, March 2009. Industrial General Permit TMDLs

In 2018, the State Water Board reopened and amended the IGP Order 2014-0057-DWQ to incorporate TMDL-specific requirements. The 2018 IGP Amendment includes new requirements implementing TMDLs, as identified in Attachment E of the IGP. A Discharger with NOI coverage under the IGP who discharges, either directly to or indirectly through a municipal separate storm sewer system (MS4), to impaired water bodies identified with a U.S. EPA-approved TMDL with a waste load allocation (WLA) assigned must comply with the TMDL-specific IGP requirements.

The Santa Clara River Bacteria TMDL lists E. coli as a parameter for Reaches 3, 4, 5, 6, and 7 of the Santa Clara River. Since E. coli is a subgroup of coliform, which is currently being sampled for, E. coli is included as a parameter to the site's MIP.

Table 7-3: IGP TMDLs Parameters, Methods, Holding Time and TNALs

Parameter	Analytical Method	Holding Time	Preservation	TMDL Numeric Action Level (NAL)	
				Annual Average	Instantaneous
E. coli	SM 9221F	8 hours	None	NA	235/100 mL

7.5 WDR R4-2011-0052 FOR CONTAMINATED SOILS

Pursuant to the WDRs for contaminated soils and related wastes (R4-2011-0052), additional parameters are outlined in a separate work plan. It should be noted that the results for the additional monitoring will be reported separately with the corresponding quarterly or semiannual monitoring reports, pursuant to the monitoring and reporting program in the site-specific WDRs and will not be included in the stormwater annual monitoring report submitted to SMARTS.

A flow chart identifying when WDR and IGP parameters are to be sampled is provided on Figure 5.

7.5.1 40 CFR Subchapter N Applicability and Requirements

The Facility is regulated under Part 445 – Landfills Point Source Category, Subpart B – RCRA Subtitle D Non-Hazardous Waste Landfill, which contains Federal stormwater effluent limitation guidelines. The applicability of these requirements only relates to discharges of "contaminated stormwater," which is defined as a subcategory of "wastewater" from "landfill units" where waste comes into direct contact with stormwater.

Landfill unit means an area of land or an excavation in which wastes are placed for permanent disposal, that is not a land application or land treatment unit, surface impoundment, underground injection well, waste pile, salt dome formation, a salt bed formation, an underground mine or a cave as these terms are defined in 40 CFR 257.2, 258.2 and 264.10.

Landfill wastewater means all wastewater associated with, or produced by, landfilling activities except for sanitary wastewater, non-contaminated stormwater, contaminated ground water, and wastewater from recovery pumping wells. Landfill wastewater includes, but is not limited to, leachate, gas collection condensate, drained free liquids, laboratory derived wastewater, contaminated stormwater, and contact wash water from washing truck, equipment, and railcar exteriors and surface areas which have come in direct contact with solid waste at the landfill Facility. (Emphasis added.)

Contaminated stormwater means stormwater which comes in direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater as defined above. Some specific areas of a landfill that may produce contaminated stormwater include (but are not limited to): the open face of an active landfill with exposed waste (no cover added); the areas around wastewater treatment operations; trucks, equipment or machinery that has been in direct contact with the waste; and waste dumping areas.

Non-contaminated stormwater means stormwater which does not come in direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater that is defined above. Non-contaminated stormwater includes stormwater which flows off the cap, cover, intermediate cover, daily cover, and/or final cover of the landfill. (Emphasis added.)

Because portions of the Facility are closed or have intermediate cover soils, stormwater that flows over the intermediate soils or final cover is not considered to be industrial stormwater and is, instead, considered "non-contaminated stormwater." In the unlikely event that the closed landfill portions or the active landfill area would discharge "contaminated stormwater" as defined above, then these discharges would be subject to federal stormwater effluent limitation guidelines, and in addition to the requirements in Section 7.1.5 above, and the Facility would be required to complete the following:

- Collect and analyze samples for any pollutant specified in the appropriate category of 40 CFR Subchapter N.

Pollutants specified in Part 445 – Landfills Point Source Category, Subpart B – RCRA Subtitle D Non-Hazardous Waste Landfill and the federal stormwater effluent limitation guidelines per Table 7-4:

Collected samples shall be analyzed at the laboratory (or in the field for pH) for the parameters listed above using the analysis method, detection limit, and detection limit/reporting units in compliance with the permit.

Table 7-4: Sub Chapter N Parameters, Methods, Holding Time and Maximum Daily Effluent Limits for Non-Hazardous Landfills

Parameter	Analytical Method	Holding Time	Preservation	Maximum Daily Effluent Limitations
Biological Oxygen Demand	SM 5210B	48 hours	None	140 mg/L
*Total Suspended Solids	SM 2540-D	7 days	None	88 mg/L
Ammonia (as N)	SM 4500-NH3C	28 days	H_2SO_4	10 mg/L
α-Terpineol	USEPA 8270	7 days	HCl	0.033 mg/L
Benzoic Acid	USEPA 625	7 days	None	0.12 mg/L
p-Cresol	USEPA 625	7 days	None	0.025 mg/L
Phenol	USEPA 625	7 days	None	0.026 mg/L
Zinc	USEPA 200.7/200.8	180 days	HNO_3	0.20 mg/L
*pH	USEPA 9040	ASAP	None	Within the range 6 to 9

Note:
*Included in IGP General Permit.

7.5.2 Enhanced Discharge Monitoring

Pursuant to the RWQCB Investigative Order NO. R4-2024-0010-A01 (as amended on February 11, 2026) (the "Amended Order")[1], the Facility is required to sample and submit the analysis of any and all discharges into and out of both detention basins on site. The Amended Order includes an expanded list of analytes for sampling, including parameters identified in the

[1] The Amended Order was appealed on March 13, 2026 and some of its requirements are under further discussion with the LARWQCB. The site samples and submits analysis of discharges into and out of both detention basins per the Amended Order.

effluent limitation guidelines in Subchapter N, Subpart B – RCRA Subtitle D Non-Hazardous Waste Landfills (identified in Section 7.5.1), Monitoring parameters (Mpars), TMDL related requirements in Attachment E (identified in Section 7.3), and a full scan of Appendix II constituents, in 40CFR, part 258. All analytes for detention basin, groundwater, surface water, and all other sampling required by LARWQCB orders are subject to new Reporting Limit requirements set out in Appendix 1. Sufficient sample volume must be collected to re-run analyses undiluted if diluted analysis are non-detect, until a detection without J flag is obtained or the Reporting Limit is met. All results must be submitted to the LAWRQCB within 30 days of the first day of the storm event that produces a discharge per Item 1(g).[2]

The following required Mpar parameters specified in Table T-2 of the M&RP are as follows:

Table 7-5: Mpar parameters

Parameter	Analytical Method
VOCs 8260B	USEPA 625.1
1,4-Dioxane	USEPA 8270 SIM
Bicarbonate as CaCO3	SM2320B
Alkalinity, total	SM2320B
**Ammonia, nitrogen	SMWW20:4500-NORG
Chemical oxygen demand (COD)	SM5220D
Chloride	USEPA 8260B
Nitrate-N	USEPA 300.0
Sodium	USEPA 200.7
Sulfate	USEPA 300.0
Potassium, total	USEPA 200.7
Total Dissolved Solids (TDS)	SM 2540C
Total Organic Carbon (TOC)	SM 5310B
Bromide	USEPA 300.0
Fluoride	USEPA 300.0
Sulfide	USEPA 300.0

[2] This deadline was clarified by the LAWRQCB via email on Feb. 13, 2026 in light of conflicting language in the Amended Order.

Parameter	Analytical Method
Calcium	USEPA 200.7
*Iron	USEPA 200.7
Magnesium	USEPA 200.7
Carbon	--

Note:
*Included in IGP General Permit.
**Included in Sub Chapter N.

Pollutants specified in Appendix II are as follows:

Parameter	Analytical Method
Volatile Organics	8260 Appendix II
Semivolatile Organics	8270 Appendix II
Pesticides and PCBs	8081-8082
Organophosphorus Pesticides	8141A
Chlorinated Herbicides	8151A
Metals, Total	USEPA 200.8
Total Cyanide	USEPA 335.4
Total Phenols, Sulfides	USEPA 420.1
Dioxins and Furans	8290 2378TCDD

The laboratory analyses shall be performed by an Environmental Laboratory Accreditation Program (ELAP) certified laboratory according to sufficiently sensitive test procedures and conducted according to test procedures under 40 CFR, Part 136, including the observation of holding times, unless other test procedures have been specified by the LARWQCB or are required under 40CFR Chapter 1 Subchapter N.

7.6 SAMPLE COLLECTION AND HANDLING PROCEDURES

Samples are collected in bottles that are either unpreserved (TSS and chloride) or preserved (metals and O&G). If the sample analytical method requires an unpreserved bottle, the bottle may be placed directly in the flow of water to collect the sample. If a preserved bottle is required, the sample must be collected in an unpreserved bottle then transferred to the bottle containing the preservative in order to avoid washing the preservative out of the bottle. Guidance on sample collection, analytical methods, sample preservation, and sample handling is obtained from the Stormwater Sample Collection and Handling Instructions attached to the General Permit and from the analytical laboratory.

The following procedure is followed to, first, determine when to sample and, second, ensure sample integrity:

- Obtain appropriate sample bottles from the laboratory to have them on hand before the first storm event.
- Track weather forecasts to determine the expected arrival date and time of the storm event and quantity of rainfall.
- Review weather data to determine if the requisite 48 hours of no discharge from any drainage area has elapsed before the anticipated storm event.
- After rain has begun falling, check if the storm event is creating discharge and it is safe to collect stormwater samples.
- If stormwater discharge is occurring, collect samples within the first 4 hours of the start of the discharge or at the start of Facility operations if the QSE started within the previous 12 hours.
- Record visual observations of required items using the sampling form provided in Appendix C.
- Properly label the samples and complete the chain of custody for submittal to the analytical laboratory. Samples collected pursuant to the WDR amendment for contaminated soils and related wastes will be submitted under a separate chain of custody form to generate a separate report from the laboratory.
- Place the samples in a cooler chilled with ice or frozen ice packs and submit the samples to the lab, accompanied by the completed chain of custody on the same day the samples were collected.
- Alternatively, have the samples, accompanied by the completed chain of custody, picked up by a courier prior to the close of business on the same day that they are collected.

7.6.1 Field Calibration Procedures

For pH, monitoring will be conducted using a calibrated portable instrument for pH. The sampler shall ensure that all field measurements are conducted in accordance with the manufacturer's instructions that accompany the instrument. It is recommended that an equipment calibration be performed 24 hours before an announced rain event that the National Oceanic and Atmospheric Association website identified as having a 50percent or greater probability of precipitation.

7.7 MONITORING METHODS AND EXCEPTIONS

The stormwater discharges observed and collected must be representative of the stormwater discharge in each drainage area of the Facility. If discharges are impacted by run-on from an adjacent Facility, an alternate visual monitoring and sample collection location shall be identified. If visual observation and sample collection locations are difficult to inspect and sample, an alternate location representative of the Facility's stormwater discharges may be identified.

Sample collection or inspections are not required during dangerous weather conditions (i.e., flooding, high winds, or electrical storms) or outside scheduled operating hours. Documentation of dangerous conditions preventing sampling or inspections shall be entered into the site record.

7.8 ANNUAL COMPREHENSIVE FACILITY COMPLIANCE EVALUATION (ANNUAL EVALUATION)

The Consultant for the site performs one comprehensive site evaluation during each report period (July 1 – June 30). The evaluation is conducted a minimum of eight months and a maximum of sixteen months from the previous Annual Evaluation. At a minimum, the Annual Evaluation consists of:

- A review of all sampling, visual observations, and inspection records conducted during the previous reporting year
- An inspection of all areas of industrial activity and associated potential pollutant sources for evidence of, or the potential for, pollutants entering the stormwater conveyance system
- An inspection of all drainage areas previously identified as having no exposure to industrial activities and materials in accordance with the definitions in Section XVII of the General Permit
- An inspection of equipment needed to implement the BMPs
- An inspection of any BMPs
- A review and effectiveness assessment of all BMPs for each area of industrial activity and associated potential pollutant sources to determine if the BMPs are properly designed, implemented, and are effective in reducing and preventing pollutants in industrial stormwater discharges and authorized NSWDs

- An assessment of any other factors needed to comply with the requirements in Section XVI.B of the General Permit.

The Facility implements SWPPP revisions resulting from the Annual Evaluation within 90 days of the evaluation.

8. NUMERIC ACTION LEVEL/TMDL NAL AND EXCEEDANCE REPORTING

Facility personnel compare stormwater monitoring results at the Facility to the two types of NALs (annual and instantaneous) provided in Table 7-1 and 7-2. TMDL-Specific Requirements (TNALs) are provided in Table 7-3.

8.1.1 Annual Numeric Action Level Exceedance

The average (mean) concentration for each parameter included in Table 7-1 shall be determined using the monitoring results for the entire Facility over the reporting year, with the exception of pH for which there is only an instantaneous NAL. The Facility shall compare the average concentration for each parameter to the corresponding annual NAL in Table 7-1. An annual NAL exceedance occurs when the average of all the analytical results for a single parameter exceeds the annual NAL value.

8.1.2 Instantaneous Maximum Numeric Action Level Exceedance

The Facility shall compare analytical results from each distinct stormwater sample to the corresponding instantaneous maximum NAL in Table 7-1. An instantaneous maximum NAL/TNAL (as applicable) exceedance occurs when the sample results of two sampling events within a reporting year for a single parameter exceed the instantaneous maximum NAL. Instantaneous maximum NALs exist for TSS, O&G, and pH. Applicable TMDL requirements are applied as instantaneous values as defined in Section XII.A.2 of the IGP. An instantaneous maximum TNAL exists for E. Coli at this facility.

8.2 EXCEEDANCE RESPONSE ACTIONS

Exceedance response actions are actions required of the Facility, pursuant to the General Permit, when an annual or instantaneous maximum NAL is exceeded.

8.2.1 Baseline Status

At the beginning of Notice of Intent (NOI) Coverage, the Facility has baseline status for all parameters.

8.2.2 Level 1 Status

Baseline status changes to Level 1 status for any given parameter if monitoring results indicate an NAL exceedance for that same parameter. Level 1 status commences on July 1 following the reporting year during which the exceedance(s) occurred. Information about the Level 1 ERA Evaluation, Level 1 ERA Report, and NAL/TNAL exceedances prior to implementation of Level 1 status BMPs is included in the General Permit.

8.2.3 Level 2 Status

Level 1 status for any given parameter changes to Level 2 status if sampling results indicate an NAL/TNAL exceedance for that same parameter while the Facility is in Level 1. Level 2 status will commence on July 1 following the reporting year during which the NAL/TNAL exceedance occurred. Information about the Level 2 ERA Action Plan and the Level 2 ERA Technical Report is included in the General Permit.

9. MONITORING RECORDS AND REPORTING REQUIREMENTS

Records of all monitoring and training required by the IGP are to be kept with this SWPPP and reports shall be submitted as required in the General Permit. Records and reporting requirements for the WDR-required monitoring are provided in the Facility's WDRs. According to the WDR amendments for contaminated soils and related wastes, the Facility reports WDR-required monitoring pursuant to the facility-specific WDRs and the standard provisions and reporting requirements for Waste Discharge Requirements for Industrial Facilities Regulated by Title 27 (latest version). The remainder of this section regards IGP-required monitoring.

9.1 RECORD KEEPING

All monitoring is properly documented on the appropriate forms in this SWPPP (Appendix C) and maintained in Appendix H for a minimum of 5 years. Minimum records maintained are as follows:

- SWPPP
- Monthly Visual Observations – Non-Stormwater Discharges and BMP implementation
- Sampling Event Visual Observations – Stormwater Discharges
- BMP log
- Annual Visual Observations – Annual Evaluation
- Annual Evaluation Summary Report
- Personnel Training
- Significant Spills and Leaks
- Documentation of Dangerous Weather Preventing Inspection or Sampling

9.2 REPORTING REQUIREMENTS

The General Permit requires an annual report to be submitted to the Regional Water Quality Control Board on an annual basis on the SMARTs website by July 15. The Annual Report, to be completed on the SMARTS website, includes:

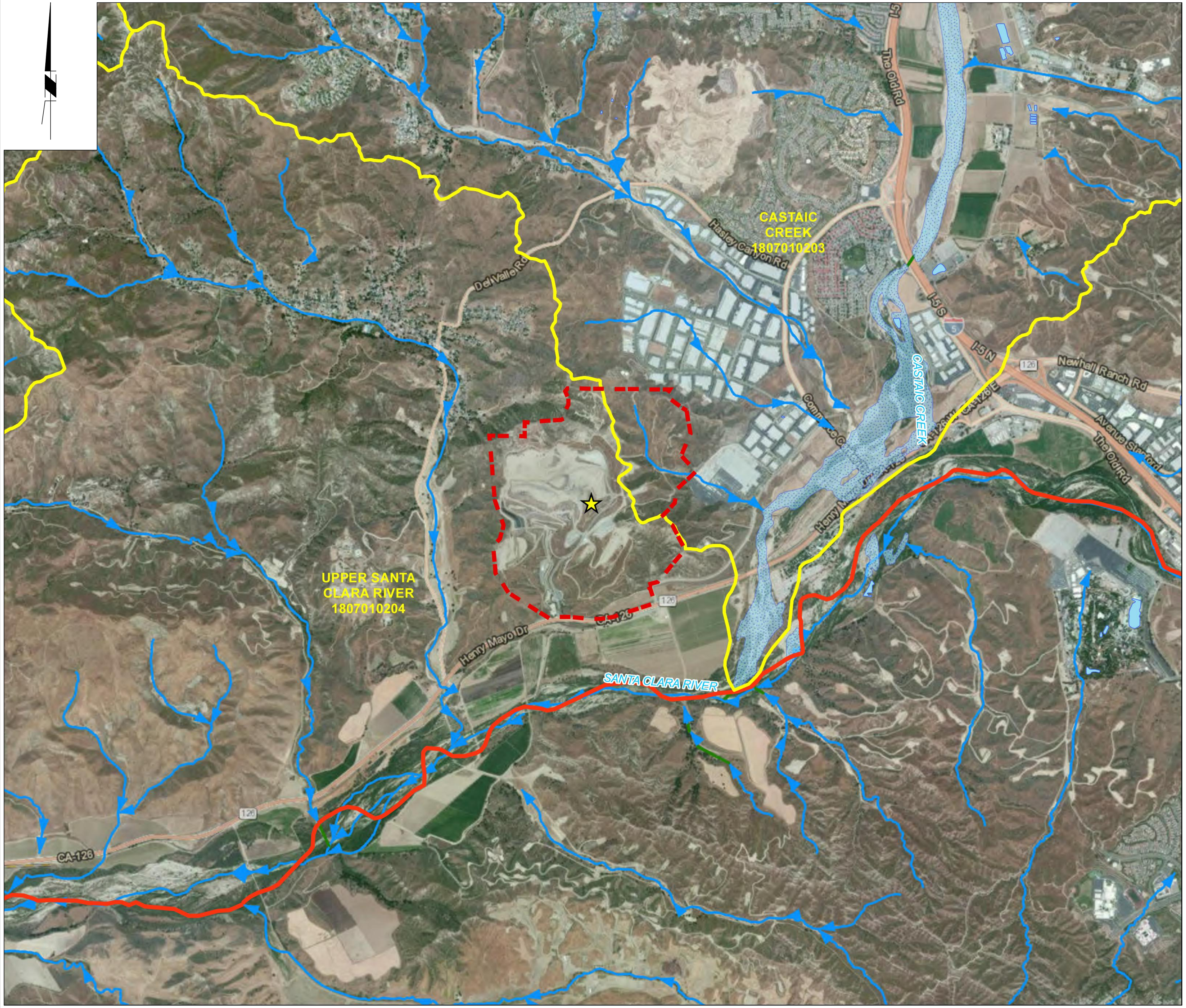
- A Compliance Checklist that indicates whether a Discharger complies with, and has addressed all applicable requirements of the General Permit
- An explanation for any non-compliance of requirements within the reporting year, as indicated in the Compliance Checklist
- An identification, including page numbers and/or sections, of all revisions made to the SWPPP within the reporting year
- The date(s) of the Annual Evaluation

Consistent with the WDR amendments for contaminated soils and related wastes (R4-2011-0052), the results for the additional monitoring will be reported with the corresponding quarterly or semiannual monitoring reports, pursuant to the monitoring and reporting program in the site-specific WDRs and will not be included in the stormwater annual monitoring report submitted to SMARTS.

10. REFERENCES

- EnviroSolve Corporation. 2011. Waste Acceptance Plan, Chiquita Canyon Landfill, 29201 Henry Mayo Drive, Castaic, CA 91384. April 29, 2011.
- Spill Prevention Control and Countermeasure Plan, prepared by Golder Associates Inc. (current version)
- Hazardous Materials Business Plan (current version)

FIGURES



LEGEND

- SITE LOCATION
- CONNECTOR
- STREAM OR RIVER
- APPROXIMATE SITE BOUNDARY
- WATERSHED BOUNDARY (HU10)
- LAKE/POND
- WASH

1500 750 0 1500 3000 4500

SCALE: 1"=1500'

NOTES

1. HYDROGRAPHY DATA EXTRACTED FROM USGS FILE DOWNLOAD. DATE OF DATA: JAN. 8, 2014.

2. 303D IMPAIRED DATA OBTAINED FROM US EPA EDG CLIP N SHIP WEBSITE (HTTPS://EDG.EPA.GOV/CLIPNSHIP/). DATE OF DATA: MAY 1, 2015.

REFERENCE

AERIAL IMAGERY OBTAINED FROM ESRI BASEMAP WEB SERVICE TITLED WORLD_IMAGERY. DATE OF IMAGERY: JUNE 3, 2010.

PROJECT
CHIQUITA CANYON LANDFILL SWPPP
CASTAIC, CA

PREPARED BY:
SWT Civil & Environmental Engineering
800-C ROCHESTER AVE.
ONTARIO, CALIFORNIA. 91761

SOURCE: GOLDER ASSOCIATES. REGIONAL SETTING AND SITE VICINITY. 2015

FIGURE 1

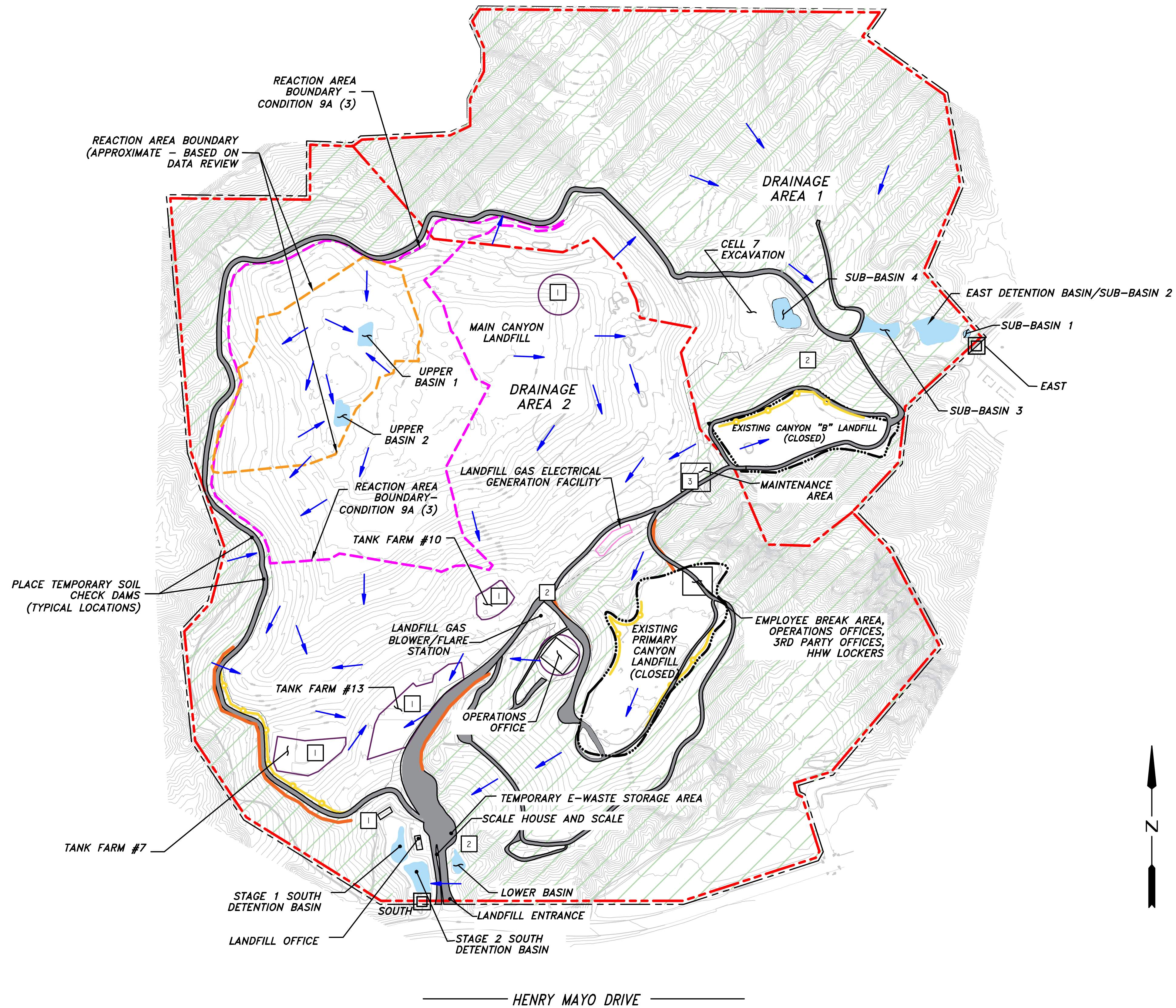
WASTE CONNECTIONS

CHIQUITA CANYON SWPPP 2024

VICINITY AND LOCATION MAP

DECEMBER 2024

Z:\PROJECTS\WASTE CONNECTIONS\CHIQUITA CANYON 4050\SWPPPS\SWPPP 2024\ACAD\FIGURE\FIG01-VICINITY AND LOCATION MAP



LEGEND:

- APPROXIMATE FACILITY BOUNDARY
- APPROXIMATE LIMIT OF CLOSED LANDFILL
- APPROXIMATE LIMIT OF AREA LEASED TO THIRD PARTY
- GENERAL DRAINAGE FLOW DIRECTION
- SAMPLING LOCATION
- DRAINAGE AREA BOUNDARY
- REACTION AREA BOUNDARY - CONDITION 9A
- REACTION AREA BOUNDARY (APPROXIMATE) - BASED ON DATA REVIEW
- SILT FENCE
- SANDBAG CHECK DAMS
- PAVED AREA WITH CURBING (SEE NOTE 2)
- NON-INDUSTRIAL AREAS
- 1 LANDFILL LEACHATE ASTS
- 2 LANDFILL GAS CONDENSATE ASTS
- 3 DIESEL FUEL TANK

NOTES:

1. TOPOGRAPHY ACQUIRED FROM TETRA TECH MARCH 2026
2. RUMBLE STRIPS ARE LOCATED GENERALLY AT END OF UNIMPROVED ROADWAYS, OFFICE AREA, AND OTHER AREAS, AS NECESSARY.
3. DATA DRIVEN REACTION BOUNDARY UPDATED MONTHLY; RETRIEVED FEBRUARY 2025.

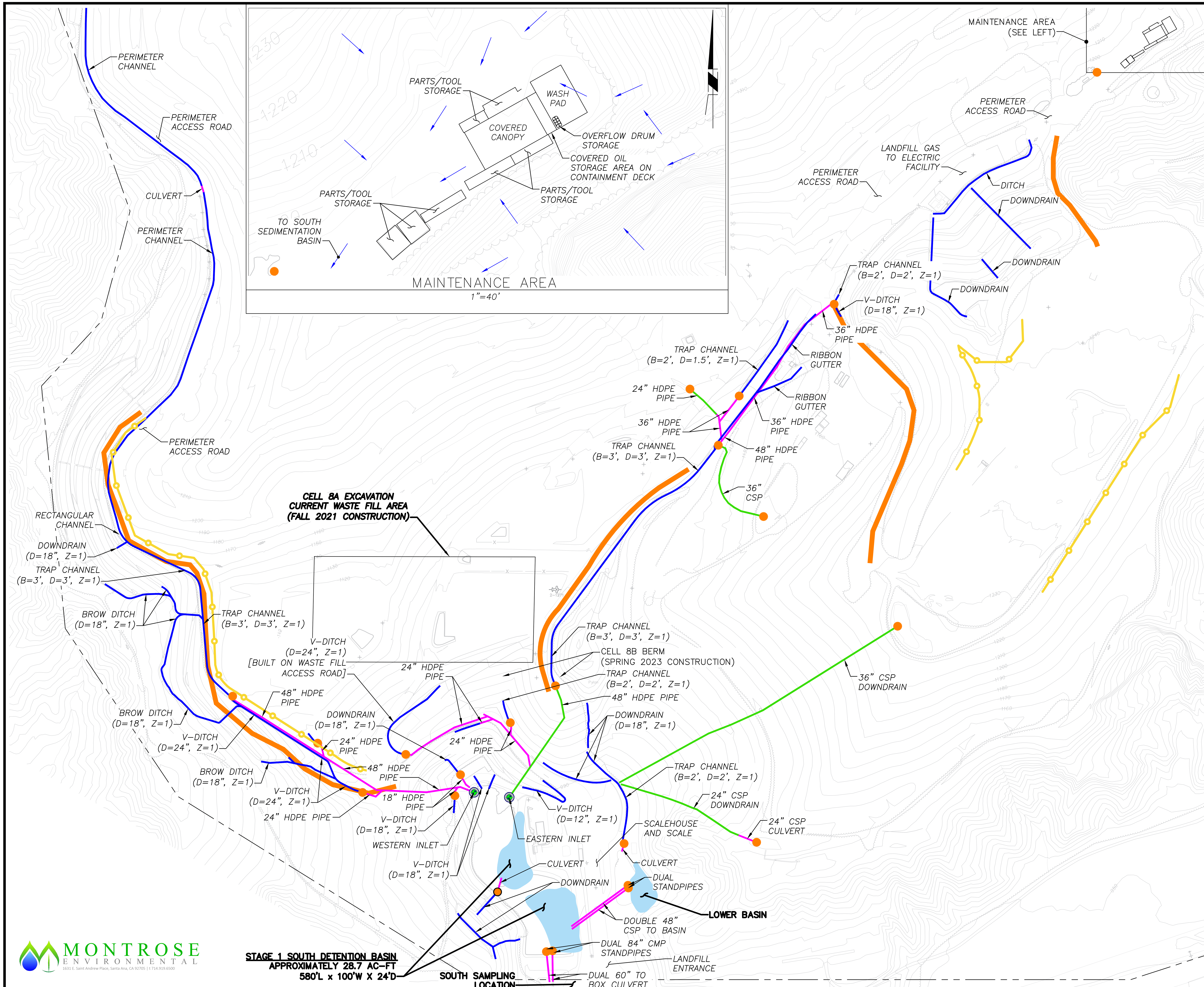
MONTROSE ENVIRONMENTAL
1631 E. Saint Andrew Place, Santa Ana, CA 92705 | t 714.919.6500

0 800' 1,600'
APPROX. SCALE: 1" =800'

FIGURE 2
SWPPP SITE MAP
CHIQUITA CANYON LANDFILL
29201 Henry Mayo Drive
Castaic, CA 93184

PROJECT NO.: 063265		
DATE: 04/17/2026		
DRAWN: LC	CHECKED: SB	APPRVD: MP

S:\CHIQUITA CANYON LF\FIGURES\CAD\FIGURE 1 CHIQUITA CANYON LF SWPPP AND SPCC.DWG 4/17/202620:25:17



SCALE: 1"=150'

150 75 0 150 300 450

LEGEND

- PROPERTY BOUNDARY
- GRADE CONTOUR
- DRAINAGE CHANNELS
- DRAINAGE PIPES – ABOVE GROUND
- DRAINAGE PIPES – BELOW GROUND
- DRAINAGE INLET
- FLOW DIRECTION
- SILT FENCE
- SANDBAG CHECK DAMS
- SAMPLING INLET

TOPOGRAPHY ACQUIRED FROM TETRA TECH MARCH 2026

SOURCE: CHIQUITA CANYON LANDFILL CELL 8B DRAINAGE REPORT (TETRA TECH, MARCH 2023)

FIGURE 3

MONTROSE ENVIRONMENTAL

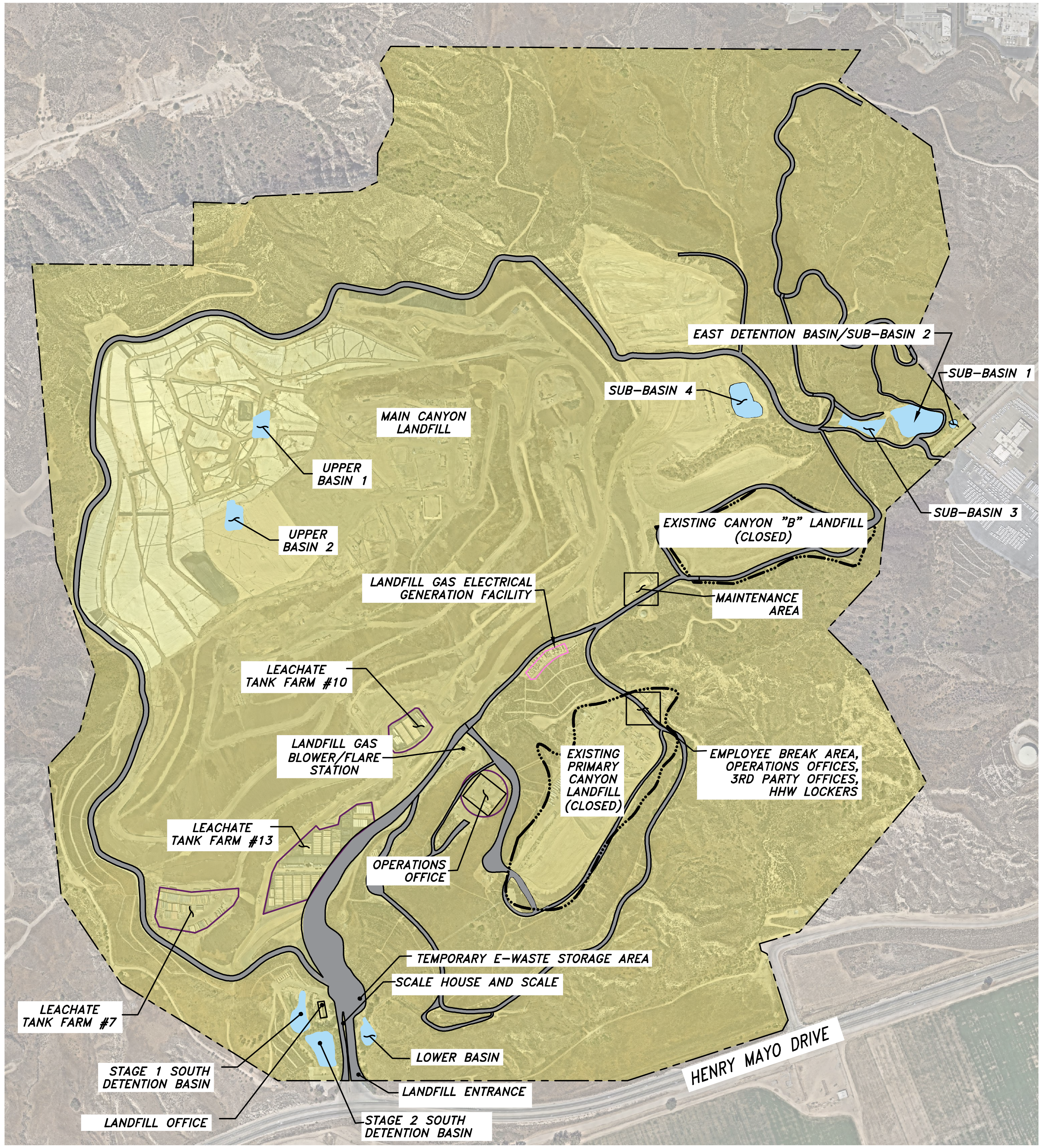
WASTE CONNECTIONS

CHIQUITA CANYON SWPPP 2026
SOUTH DETENTION BASIN MAP
CHIQUITA CANYON LANDFILL
29201 HENRY MAYO DRIVE
CASTAIC, CA 93184

FEBRUARY 2024

S:\CHIQUITA CANYON LF\FIGURES\CAD\FIG03-SOUTH SED.BASIN MAP

S:\CHIQUITA CANYON LF\FIGURES\CAD\FIG04–EAST SED.BASIN MAP



LEGEND:

- APPROXIMATE FACILITY BOUNDARY
- APPROXIMATE LIMIT OF CLOSED LANDFILL
- APPROXIMATE LIMIT OF AREA LEASED TO THIRD PARTY
- PERVIOUS AREAS
- IMPERVIOUS AREAS

N

MONTROSE ENVIRONMENTAL
1631 E. Saint Andrew Place, Santa Ana, CA 92705 | t 714.919.6500

0 800' 1,600'
APPROX. SCALE: 1" =800'

FIGURE 5
IMPERVIOUS AREAS SITE MAP
CHIQUITA CANYON LANDFILL
29201 Henry Mayo Drive
Castaic, CA 93184

PROJECT NO.: 063265
DATE: 04/17/2026
DRAWN: LC | CHECKED: SB | APPRVD: MP

APPENDIX A

SPILL RESPONSE PLAN, SPILL GUIDE, AND SPILL LOG

List of Significant Spills and Leaks

Facility: ____________________
Completed by: ____________________
Title: ____________________
Date: ____________________

List all spills and leaks of toxic or hazardouse pollutants that were significant after the date of three years prior to the effective date of this Permit. Significant spills and leaks should include but are not limited to, release of oil or hazardous substances in excess of reportable quantities. Although not required, we suggest you list spills and leaks of non-hazardous materials.

Date (month/day/year)	Location (as indicated on site map)	Description				Response Procedure		Preventive Measure Taken
		Type of Material	Quantity	Source, if known	Reason for spill/leak	Amount of Material Recovered	Material no longer exposed to Stormwater? (yes/no)	

SPILL RESPONSE PLAN

Introduction

The following describes the spill response plan to follow in the event of a spill. Spill responders must also refer to the Material Safety Data Sheet (MSDS) for the spilled material and the oil Spill Prevention, Control, and Countermeasures (SPCC) Plan, if applicable. Discharge of spilled materials to groundwater, surface water, or soil is prohibited by state and federal laws. It is imperative that actions be taken to respond to a spill once it has occurred.

Prompt response to a spill is the best means of minimizing impact to the environment and in particular, preventing a discharge reaching the waters of the United States. In the event of a spill, the site supervisor will assume the role of spill coordinator until he/she can notify the Environmental Manager. If the spill coordinator is unable to notify either the Environmental Manager or Safety Manager or any of the back-up spill coordinators, then he/she will assume the responsibility of implementing the emergency spill response procedures provided that he/she has been trained on the means of protecting the health and safety of spill response personnel and on the implementation of this spill response plan.

The spill coordinator will assess the hazard, secure spill response and personal protective equipment, and contain and eliminate the spill source as outlined below. Information regarding spill response equipment and personal protective equipment is available in the facility SPCC and MSDS for materials stored.

Assess Hazard

Upon notification of a spill, the spill coordinator will determine the hazard potential of the spill. The spill coordinator will determine the following factors:

- The substance spilled and its hazard potential;
- The amount of the spill and the extent of spreading; and,
- The source of the leakage/ spill.

Where appropriate, the spill coordinator will consult with the Environmental Manager or Safety Manager to determine the potential hazard to employees and to the surrounding public from the substance spilled, if a reportable spill occurs (see Notification and Reporting Section).

If a spill is determined to be of such a magnitude that it cannot be safely and effectively controlled by facility personnel, then the coordinator will promptly notify outside emergency response agencies (e.g., the local office of emergency services) to implement control and clean-up.

Secure Spill Response and Personal Protective Equipment

Upon determining the hazard potential for the planned response action, the spill coordinator will direct those who will respond to the spill to obtain the appropriate response equipment and personal protective equipment (PPE). Employees will not be issued spill response equipment or PPE without having been trained on its proper use and limitations.

Contain and Eliminate Spill Source

Upon obtaining the proper spill response equipment and PPE, the spill responder(s) will first attempt to contain the spill so as to prevent its entry into a drain inlet (DI), a ditch or conveyance that eventually discharges to the waters of the United States. Examples of equipment and media that can be used to contain spills include dikes and berms, sand and oil absorbent materials such as kitty litter, straw bales, and absorbent pillows and booms.

At the same time as containment is being performed or as soon as possible after containment, the spill responder(s) will attempt to seal or otherwise stop the source of the spill. Common methods of eliminating a spill source include closing valves, using a leak stopping compound for pin hole leaks, using drum overpacks, deactivating pumps, and diverting flow to another pathway, as long as this pathway does not allow the spill to enter waters of the United States or adjoining shorelines.

In the event that contractor assistance is required for clean up, the spill coordinator or designee will arrange for timely clean up with an outside contractor.

Waste Disposal

Wastes resulting from a minor spill response will be containerized in impervious bags, drums, buckets, or other appropriate container. The waste will be removed from the site by a licensed waste hauler in a timely manner. Wastes resulting from a major spill response will be characterized and disposed of properly.

Notification and Reporting

In the event of a spill, a senior on-site person will notify the Environmental Manager or designee, and the Environmental Manager or designee will complete the written Spill Notification Form. This form details the time, material, and quantity of oil released. Some spills may also require that local, state, or federal agencies be notified immediately or within 60 days. Spill notification requirements are included in the SPCC for this facility, if applicable, and in the attached publication from the Governor's Office of Emergency Services, *California Hazardous Materials Spill/ Release Notification Guide*, October 2013.

Spill Notification Form

<table>
<tr><td colspan="3">Part A: Basic Spill Data</td></tr>
<tr><td>Type of Spilled Substance:</td><td colspan="2">Notification Person:</td></tr>
<tr><td>Quantity Released:</td><td colspan="2">Spill Date and Time:</td></tr>
<tr><td rowspan="2">Location of Spill:
Weather conditions:</td><td colspan="2">Discovery Date and Time:</td></tr>
<tr><td colspan="2">Spill Duration:</td></tr>
<tr><td>Facility Name & Location:</td><td colspan="2">Release to: [ ]air [ ] water [ ] ocean
[ ] well [ ] soil [ ] sewer
[ ] containment
[ ]other______________________________</td></tr>
<tr><td>Owner / Company Name:</td><td colspan="2">Telephone:
Facility:</td></tr>
<tr><td colspan="3">Nature of spill and environmental or health effects:
[ ]Injuries [ ] Fatalities</td></tr>
<tr><td colspan="3">Part B: Notification Checklist</td></tr>
<tr><td>Spill Type</td><td>Notification Date and Time</td><td>Name of Person that Received Call</td></tr>
<tr><td colspan="3">Spill reported to local and state agencies:</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td colspan="3">Spill reaches groundwater or surface water:</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>National Response Center 800-424-8802</td><td></td><td></td></tr>
</table>

Send a copy of this form to the Environmental Manager.

California Hazardous Materials Spill / Release Notification Guidance

To Report all significant releases or threatened releases of hazardous materials:

First Call:

9-1-1

(or local emergency response agency)

Then Call:

Cal OES State Warning Center

(800) 852 - 7550 or (916) 845 - 8911

October 2013

Edmund G. Brown Jr., Governor
Mark S. Ghilarducci, Director
Revised by: Trevor Anderson, Bill Potter & Jon Kolman
Layout by: Jon Kolman

October 2013

This guidance summarizes pertinent emergency notification requirements. For precise legal requirements, review specific laws and regulations. This guidance applies to all significant releases of hazardous materials. Refer to the Safe Drinking Water Act of 1986, better known as Proposition 65, and §9030 of the California Labor Code for additional reporting requirements.

SPILL OR RELEASE NOTIFICATION

Q: What are the emergency notification requirements in case of a spill or release of hazardous materials?

A: All significant releases or threatened releases of a hazardous material, including oil and radioactive materials, require emergency notification to government agencies. The law specifies:

- who must notify;
- what information is needed;
- which government agencies must be notified;
- when agencies must be notified;
- release quantity or basis for the report.

WHO MUST NOTIFY

Q: Who is obligated to notify?

A: Requirements for immediate notification of all significant spills or threatened releases cover:

- Owners
- Operators
- Licensees
- Persons in Charge
- Employers

Notification is required regarding significant releases from:

- Facilities
- Vehicles
- Vessels
- Pipelines
- Railroads

State law: Handlers, any employees, authorized representatives, agent or designees of handlers shall, upon discovery, immediately report any release or threatened release of hazardous materials (Health and Safety Code §25507).

Federal law: Notification to the National Response Center is required for all releases that equal or exceed federal reporting quantities:

- (EPCRA) Owners and Operators to report, and
- (CERCLA) Person in Charge to report

WHEN TO NOTIFY

Q: When must emergency notification be made?
A: All significant spills or threatened releases of hazardous materials, including oil and radioactive materials, **must be immediately** reported. Notification shall be made by telephone.

Also, written Follow-Up Reports (Section 304) are required within **7 days** if the release equals or exceeds the Federal Reportable Quantities. (see web site for more information)

WHAT INFORMATION

Q: What information is required?
A: State notification requirements for a spill or threatened release include (as a minimum):

- Identity of caller
- Exact location, date and time of spill, release or threatened release
- Location of threatened or involved waterway or stormdrains
- Substance, quantity involved, and isotope if necessary
- Chemical name (if known, it should be reported if the chemical is extremely hazardous)
- Description of what happened

Federal notification required additional information for spills (CERCLA chemicals) that exceed federal reporting requirements, which includes:

- Medium or media impacted by the release
- Time and duration of the release
- Proper precautions to take
- Known or anticipated health risks
- Name and phone number for more information

WHICH AGENCIES

Q: Who must be notified?

A: Notification must be given to the following agencies:

- **The Local Emergency Response Agency**
  9-1-1 or the local Fire Department
- **The Certified Unified Program Agency (CUPA) / Administering Agency (AA) / Participation Agency (PA), if different from local fire.**

Note: The CUPA/AA/PA may designate a call to the 9-1-1 emergency number as meeting the requirement to call the CUPA/AA/PA.

Phone:________________________________

enter local number

And

- **The California Governor's Office of Emergency Services, California State Warning Center:**

Phone (800) 852-7550 or (916) 845-8911

And, if appropriate:

- **The California Highway Patrol:**

Phone: 9-1-1

(The California Highway Patrol must be notified for spills occuring on highways in the State of California. (CVC 23112.5))

In Addition, as necessary, one or more of the following:

National Response Center

If the spill equals or exceeds CERCLA Federal Reportable Quantities, Phone: (800) 424-8802

United States Coast Guard

Waterway Spill / Release

Sectors:
S.F. (Alameda): (415) 399-3547
L.A./Long Beach: (310) 521-3805
San Diego: (619) 278-7033

California Occupational Safety and Health Administration (Cal/OSHA)

For serious injuries or harmful exposures to workers, contact the local Cal/OSHA District Office

California Department of Health Services, Radiological Health Branch

All radiological incidents, contact the California State Warning Center

Department of Toxic Substances Control (DTSC) Hazardous waste tank system releases, and secondary containment containment releases, contact the appropri- ate DTSC Regional Office

Department of Conservation

Division of Oil, Gas, and Geothermal Resources (DOG GR) Release of Oil and Gas at a Drilling and Production Facility, contact the appropriate DOGGR Office

Public Utilities

Natural Gas Pipeline Releases, contact the Public Utilities Commission (PUC)

Department of Fish and Wildlife, Office of Spill Prevention and Response (DFW)

Waterway Spill/Release, contact the appropriate DFW Office or the California State Warning Center

Regional Water Quality Control Board (RWQCB)

Waterway Spill/Release, contact the appropriate RWQCB Office

Notification must also be made to the California Governor's Office of Emergency Services, California State Warning Center for the following:

- Discharges or threatened discharges of oil in marine waters
- Any spill or other release of one barrel (42 gallons) or more of petroleum products at a tank facility
- Discharges of any hazardous substances or sewage, into or on any waters of the state
- Discharges that may threaten or impact water quality
- Any found or lost radioactive materials
- Discharges of oil or petroleum products, into or on any waters of the state
- Hazardous Liquid Pipeline releases and every rupture, explosion or fire involving a pipeline

WRITTEN REPORTS

Q: When are written reports required?

A: Different laws have different time requirements and criteria for submitting written reports. After a spill or release of hazardous materials, including oil and radioactive materials, immediate verbal emergency notification should be followed up as soon as possible with a Written Follow-Up Report, if required, to the following agencies:

1) California Governor's Office of Emergency Services Section 304 Follow Up Report.

2) The responsible regulating agency such as:

- California Department of Health Services, Radiological Health Branch, Radiological Incident Reporting.
- Department of Toxic Substances Control, Facility Incident or Tank System Release Report.
- Cal/OSHA, serious injury or harmful exposure to workers.

3) U.S. DOT and DOE, transportation-related incidents.

PENALTIES

Federal and state laws provide for administrative penalties of up to $25,000 per day for each violation of emergency notification requirements. Criminal penalties may also apply.

STATUTES

Q: What statutory provisions require emergency notification?

A: Many statutes require emergency notification of a hazardous chemical release, including:

- Health and Safety Code §25270.8, 25507
- Vehicle Code §23112.5
- Public Utilities Code §7673 (General Orders #22-B, 161)
- Government Code §51018, 8670.25.5 (a)
- Water Code §13271, 13272
- California Labor Code §6409.1 (b)
- Title 42, U.S. Code §9603, 11004

Q: What are the statutory provisions for written Follow-Up Reports (Section 304)?

A: Written reports are required by several statutes, including:

- Health and Safety Code §25503 (c) (9)
- California Labor Code §6409.1 (a)
- Water Code §13260, 13267
- Title 42, U.S. Code §11004
- Government Code §51018

REGULATIONS

In addition to statutes, several agencies have notification or reporting regulations:

- Title 8, CCR, §342
- Title 13, CCR, §1166
- Title 14, CCR, §1722 (h)
- Title 17, CCR, §30295
- Title 19, CCR, §2703, 2705
- Title 22, CCR, §66265.56 (j), 66265.196 (e)
- Title 23, CCR, §2230, 2250, 2251, 2260
- Title 40, CFR, §263 esp. Section §263.30
- Title 49, CFR, §171.16

WEBSITES

State Regulations
http://www.oal.ca.gov

State Statutes
http://leginfo.legislature.ca.gov

Federal Regulations
http://www.gpo.gov/fdsys/

Federal Reportable Quantities
http://www.epa.gov/superfund/policy/release/rq/index.htm

See California Labor Code §9030 and the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) for other reporting requirements.

DEFINITIONS

Q: What is a "Hazardous Material"?
A: "Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or threatened hazard to human health and safety or to the environment, if released into the workplace or the environment...." (Health and Safety Code, §25501 (p))

Q: What is a release?
A: "Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, unless permitted or authorized by a regulatory agency".
(Health and Safety Code, §25501 (s) and CERCLA §101 (22))

Q: What is a threatened release?
A: A threatened release is a condition creating a substantial probability of harm that requires immediate action to prevent, reduce, or mitigate damages to persons, property, or the environment. (Health and Safety Code §25501 (v))

DEFINITIONS...cont

Q: What hazardous material release requires notification?
A: All significant spills, releases, or threatened releases of hazardous materials **must be immediately** reported.

In addition, all releases that result in injuries, or workers harmfully exposed, **must be immediately** reported to Cal/OSHA (CA Labor Code §6409.1 (b)). Notification covers significant releases or threatened releases relating to all of the following:

"Hazardous Materials"
As defined by §25501 (p), California Health and Safety Code

"Hazardous Substances"
As listed in 40 CFR §302.4; Clean Water Act §307, §311; CERCLA §102; RCRA §3001; Clean Air Act §112; Toxic Substance Control Act §7, and as defined by California Health and Safety Code §25501 (q).

"Extremely Hazardous Substances"
As required by Chapter 6.95 Health and Safety Code, EPCRA §302

"Radioactive Materials"
As required by Title 17 §30100

Illegal releases of hazardous waste

Employee exposures resulting in injuries
As required by California Labor Code §6409.1 (b)

"Sewage"
As required by Title 23 CCR §2250 (a) (Reportable quantity is 1,000 gallons or more for municipal and private utility waste water treatment plants).

SEWAGE RELEASES

State Law requires that an unauthorized discharge of sewage into or onto state waters must be reported to the Cal OES Warning Center. The Reportable Quantity for sewage spills is 1000 gallons or more, as established in regulation (Title 23, CCR, §2250 (a)).

Please note that the Regional Water Quality Control Boards and Local Health Departments may have additional reporting requirements - Please contact these offices to determine what requirements may pertain to you.

PETROLEUM (OIL) DISCHARGES

If a release of oil in any way causes harm or threatens to cause harm to public health and safety, the environment, or property, immediate notification must be made to the Cal OES Warning Center.

State Law requires that **ANY** discharge or threatened discharge of oil into **STATE WATERS** must be reported to Cal OES. (California Government Code (GC) §8670.25.5; California Water Code (WC) §13272, California State Oil Spill Contingency Plan).

If the release of oil is on **LAND** and is not discharged or threatening to discharge into State Waters; and (a) does not cause harm or threaten to cause harm to the public health and safety, the environment, or property; **AND** (b) is **under** 42 gallons, then no notification to the Cal OES Warning Center is required.

INCIDENT/RELEASE ASSESSMENT FORM

Handlers of hazardous materials are required to report releases. The following is a tool to be used for assessing if a release is potentially reportable as required by Chapter 6.95 of the California Health and Safety Code. This assessment tool does not replace good judgement, Chapter 6.95, or other state or federal release reporting requirements. ***If in doubt, report the release. If an emergency, call 9-1-1.***

Questions for Incident Assessment	Yes	No
1. Was anyone killed or injured, or did they require medical care or admitted to a hospital for observation?	☐	☐
2. Did anyone, other than employees in the immediate area of the release, evacuate?	☐	☐
3. Did the release cause off-site damage to public or private property?	☐	☐
4. Is the release greater than or equal to a reportable quantity (RQ)?	☐	☐
5. Was there an uncontrolled or unpermitted release to the air?	☐	☐
6. Did an uncontrolled or unpermitted release escape secondary containment, or extend into any sewers, storm water conveyance systems, utility vaults and conduits, wetlands, waterways, public roads, or off-site?	☐	☐
7. Will control, containment, decontamination, and/or clean up require the assistance of federal, state, county, or municipal response elements?	☐	☐
8. Did the release or threatened release involve an unknown material or contain an unknown hazardous constituent?	☐	☐
9. Is the incident a threatened release? (a condition creating a substantial probability of harm that requires immediate action to prevent, reduce, or mitigate damages to persons, property, or the environment.)	☐	☐
10. Is there an increased potential for secondary effects including fire, explosion, line rupture, equipment failure, or other outcomes that may endanger or cause exposure to employees, the general public, or the environment?	☐	☐

If the answer is **YES** to *any* of the above questions - report the release to the California Governor's Office of Emergency Services Warning Center at (800) 852-7550 or (916) 845-8911, and to your local CUPA. Note: Other state and federal agencies may require notification depending on the circumstances.

If in doubt, report the release!

<u>EMERGENCY NOTIFICATION SUMMARY</u>

Telephone Calls are Required For All Significant Releases of Hazardous Materials.

At a <u>MINIMUM,</u> the Spiller should call:
9-1-1 or the Local Emergency Response Agency
(e.g. Fire Department)
<u>AND</u>
Local CUPA/AA/PA
<u>AND</u>
The California Governor's Office of Emergency Services, California State Warning Center
(800) 852-7550 or (916) 845-8911

In addition to 9-1-1 and Cal OES, the following apply under varying circumstances:

Spill Type/Location/Injuries	**Who to Call**
Releases that equal or exceed Federal Reportable Quantities (CERCLA)	Call the National Response Center (NRC)
All releases on-highway	Call California Highway Patrol (CHP)
All hazardous waste tank releases	Call Department of Toxic Substances Control Regional Office
All serious worker injuries or harmful exposures	Call Cal/OSHA District Office
All oil spills at drilling and production fixed facilities	Call Department of Conservation, Division of Oil, Gas, and Geothermal Resources
All spills with a potential to impact water quality	Call Cal OES
All potential or actual railroad releases (California definition of hazardous materials	Call the Local Emergency Response Agency and the Public Utilities Commission (PUC)
All Hazardous Liquid Pipelines	Call local fire department (Hazardous Liquid Pipeline Safety is State Fire Marshal jurisdiction)
All Natural Gas Pipelines	Call Public Utilities Commission (PUC)
All incidents involving Radioactive Material	Call California Department of Public Health (CDPH), Radiological Preparedness Branch

IMPORTANT PHONE NUMBERS

Space has been provided below to allow you to enter important phone numbers for easy reference.

Agency Name	Phone Number
California State Warning Center (Cal OES)	(800) 852-7550 or (916) 845-8911
National Response Center	(800) 424-8802
United States Coast Guard S.F (Alameda) Sector L.A/Long Beach Sector San Diego Sector	 (415) 399-3547 (310) 521-3805 (619) 278-7033
Certified Unified Program Agency (CUPA) (Local #)	
California Occupational Safety and Health Administration (Cal/OSHA) (Local #)	
Department of Toxic Substances and Control (DTSC) (Local #)	
California Department of Health Services, Radiological Health Branch (Local #)	
Department of Conservation	
California Public Utilities Commission (PUC)	(800) 649-7570
Department of Fish and Wildlife, Office of Spill Prevention and Response (OSPR) (Local #)	
Regional Water Quality Control Board (RWQCB) (Local #)	

ACRONYMS

AA - Administering Agency
Cal EPA - California Environmental Protection Agency
Cal OES - California Governor's Office of Emergency Services
Cal/OSHA - California Occupational Safety and Health Administration
CCR - California Code of Regulations
CDPH - California Department of Public Health
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act (aka Superfund)
CFR - Code of Federal Regulations
CHP - California Highway Patrol
CUPA - Certified Unified Program Agency
DFW - Department of Fish and Wildlife (formerly Department of Fish and Game)
DOGGR - California Division of Oil, Gas, and Geothermal Resources
DTSC - Department of Toxic Substances Control
U.S. EPA - U.S. Environmental Protection Agency
EPCRA - Emergency Planning and Community Right-to-Know Act (SARA Title III)
GC - California Government Code
HSC - Health and Safety Code
LEPC - Local Emergency Planning Committee
NRC - National Response Center
OEHHA - Office of Environmental Health Hazard Assessment
OSFM - Office of the State Fire Marshal
OSPR - Office of Spill Prevention and Response
PA - Participating Agency
PUC - Public Utilities Commission
RCRA - Resource Conservation and Recovery Act
SERC - State Emergency Response Commission
USCG - Unitied States Coast Guard
U.S. DOT - U.S. Department of Transportation
WC - California Water Code

CONTRIBUTORS

This guidance was developed with input from the following agencies:

California Governor's Office of Emergency Services (Cal OES)
Office of the State Fire Marshal (OSFM)
California Highway Patrol (CHP)
California Environmental Protection Agency (Cal EPA)

- Department of Toxic Substances Control (DTSC)
- State Water Resources Control Board (SWRCB)
- Air Resources Board (ARB)
- Department of Pesticide Regulation (DPR)
- Department of Resources, Recycling, and Recovery (Cal Recycle)
- Office of Environmental Health Hazard Assessment (OEHHA)

Department of Fish and Wildlife (DFW)

- Office of Spill Prevention and Response (OSPR)

Department of Food and Agriculture (DFA)
Department of Public Health (CDPH)
Department of Industrial Relations

- California Occupational Safety and Health Administration (Cal/OSHA)

Department of Transportation (CalTrans)
U.S. Environmental Protection Agency, (U.S. EPA) Region IX
Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR)
Department of Water Resources (DWR)
San Diego County Department of Environmental Health
State Lands Commission (SLC)

ADDITIONAL NOTES:

ADDITIONAL NOTES:

For questions concerning the
federal Emergency Planning and
Community Rig ht-to-Know Act
Call EPCRA Title III Hotline:
(800) 424 - 9346

California Governor's Office of Emergency Services
Fire and Rescue Division
Hazardous Materials Section
3650 Schriever Ave
Mather, California 95655

APPENDIX B

EMPLOYEE TRAINING MATERIALS

EMPLOYEE INFORMATION TRAINING SHEET

The goal of the Stormwater Pollution Prevention Plan is to reduce the potential for stormwater pollution resulting from site activities using common sense approaches. The following summarizes spill prevention and response procedures, good housekeeping practices, and general stormwater management guidelines that should be implemented at all times.

Minimum BMPs

Required by the general permit.

- Good housekeeping practices
  - Observe outdoor areas and remove trash and debris; keep paved areas free of sediment, debris, and oil and grease (sweeping)
  - Inspect and clean stormwater conveyance structures (i.e., catch basins, vaults, etc.)
  - Contain wash waters and dispose of properly
  - Cover (or store indoors) industrial materials that can be mobilized by stormwater
  - Prevent waste oils, solvents, fuels, or hazardous chemicals from spilling on the ground or pavement
  - Promptly cleanup any spills
- Preventative maintenance
  - Identify pollutant sources
  - Inspect and maintain equipment (i.e., trucks, tractors, and forklifts) to prevent leakage of oil, grease and fuels
- Spill and leak prevention and response
  - Label and seal cans and drums storing liquids
  - Use drip pans during transfer operations
  - Locate and maintain spill kits near material storage areas
  - Store bulk petroleum products, solvents, hazardous liquids and other materials in properly designed storage tanks or containers placed within secondary containment structures
  - Store or dispose of motor oils and hydraulic oils in specified drums and containers; never pour them onto the ground or into the storm water or sewer system
  - In case of spill follow SPCC: notify the Site Manager, clean up using absorbent material; use absorbent boom or pads/ mats
- Material handling and waste management
  - Do not handle potential stormwater pollutants such as petroleum products outside during a storm event
  - Cover containers containing industrial wastes and industrial materials when not in use. Examples include waste tires and scrap metal
  - Store and handle paints, oils, and cleaning solvents only inside covered areas
  - Clean and maintain material handling equipment or containers
- Erosion and sediment control

- Inspect and maintain erosion control measures before storm event
- Includes wind erosion

Stormwater Management Guidelines

Be on the lookout for opportunities to make operational changes that could reduce stormwater pollution. Some ideas to consider:

- **Alter the Activity.** Substitute processing, storage, and maintenance activities that will not contaminate stormwater for those activities that may contaminate stormwater. This includes substituting non-hazardous chemicals for hazardous chemicals and changing activities to minimize contact of contaminants with stormwater.
- **Enclose and Cover the Activity.** Enclose and cover activities inside a building or structure to prevent the contact of processing, storage, and maintenance activities with stormwater.
- **Segregate the Activity.** Keep those activities which are likely to contaminate stormwater separated from those activities which will not contaminate stormwater.

Be sure to pass on your ideas to your supervisor.

Monitoring Program

- Monthly BMP Inspections
- Monthly Visual Observations- Dry day inspections
- Sampling Event Observations
- Sampling protocols
  - pH meter usage and calibration
  - sampling kits
  - COCs prefilled
  - Sample Log (pH)
- Annual Evaluation – Annual Comprehensive Facility Compliance Evaluation

Compliance Schedule

- Perform monthly NSWD observations (Monthly Visual Observations form)
- Conduct Sampling Event Observations
- Implement/ maintain BMPs as necessary
- Collect stormwater samples as described in Monitoring and Implementation Plan in SWPPP
- Upload analytical results within 30 days of receiving the data to SMARTS
- Review data for BMP effectiveness. If additional BMPs need to be implemented, revise the SWPPP accordingly and upload to SMARTS
- Perform an Annual Evaluation as described in SWPPP
- Complete and submit the Annual Report via SMARTS by July 15
- Conduct employee training annually.

Facility:______________________________ **Date:**________________ **Time:**________________

Meeting Conducted By:____________________________ **Title:**_________________________

<u>Meeting Minutes</u>

____

____

____

____

____

____

____

____

<u>Handouts and Training Program Aids (videos, powerpoint, etc.)</u>

1. ____
2. ____
3. ____

Annual Stormwater Training Attendance Log

Use this log to document employee participation in stormwater pollution prevention training exercises. Record the employee name and date of training. Employees should sign this log upon completion.

Employee Name (Print)	Date of Training	Signature

APPENDIX C

STORMWATER MONITORING AND REPORTING FORMS

CHIQUITA CANYON LANDFILL
Monthly Dry SWPPP and SPCC Plan Visual Observation Form

Instructions: The purpose of this checklist is to inspect industrial activities that may impact stormwater quality and oil storage containers and equipment at the Facility. Completion of this monthly inspection checklist is intended to meet Industrial Stormwater Discharge Permit and SPCC Plan inspection requirements. **Inspections must be conducted during daylight hours of scheduled Facility operating hours and on days without precipitation.** If a deficiency is noted, which could result in pollution of stormwater or any release of "oil" to the environment, you must provide a brief explanation of the problem found, and notify the Site Manager. Document on this form the corrective actions implemented to correct the issue. After completion of the inspection, put a copy of this checklist on file with the SWPPP and SPCC Plan in the administration building, for a period of five years.

Have a copy of the SWPPP and SPCC site maps with you during the inspection to ensure they are current and accurate. Use them as an aide in recording the location of any issues you identify during the inspection.

Inspector Name:	Inspector Title:	Weather Conditions:
Date:	Time:	

Location	Inspection Items	Yes / No/ NA	Observations / Required Maintenance	Date Completed
East Sampling	Unauthorized nonstormwater discharges			
	Authorized nonstormwater discharges			
South Sampling	Unauthorized nonstormwater discharges			
	Authorized nonstormwater discharges			
All Operations	Is equipment serviced outside of maintenance area or on the active face minimized during wet weather?			
	Are the paved areas of the Facility vacuum swept (as needed)?			
	Are loose absorbents deployed over spills cleaned up after each use and disposed of properly?			
Erosion and Sediment	Is stormwater properly diverted around active fill area and soil stockpile?			
	Is the stormwater conveyance system properly maintained and diverting runoff from material storage areas?			
	Are sediment and retention basins properly maintained?			
	Are slope protection measures applied?			
	Are energy dissipating devices properly installed at the necessary locations to slow the velocity of stormwater and prevent erosion?			

Location	Inspection Items	Yes / No/ NA	Observations / Required Maintenance	Date Completed
Recycling Storage	Are outdoor recyclable materials covered 48 hours ahead of likely storm events forecast at 50 percent or greater probability at the facility?			
Trash Disposal	Do all garbage containers in use have a lid closed or tarp placed?			
E-waste Storage Area	Is all E-waste under cover?			
	Are materials stored in appropriately segregated and covered containers in an area that is away from traffic flow?			
Household Hazardous Waste Collection	Are all Household Hazardous Waste materials under cover?			
	Are materials stored in appropriately segregated and covered containers in an area away from traffic flow and on secondary containment?			
	Do any storage containers display evidence of leakage?			
Leachate & Condensate Collection, Storage, & Conveyance	Are tanks provided with secondary containment or located on a lined area?			
	Are there any visible spills or leaks?			
Temporary Leachate & Condensate Collection, Storage, & Conveyance	Are tanks provided with secondary containment?			
	Is secondary containment area free of debris?			
	Are there any visible spills or leaks?			
Spill Response Kits	Are any spill kits missing or relocated from the maintenance shop?			
	Are any spill kits missing supplies or in poor condition at the maintenance shop (e.g. lids broken, full of water, mildew, or staining)?			
Tracking Industrial Vehicle Entry/ Exit Points	Any off-site tracking of sediment or dirt?			

Location	Inspection Items	Yes / No/ NA	Observations / Required Maintenance	Date Completed
Geomembrane Cover and North and West perimeter Road	Is stormwater properly diverted around reaction area?			
	Are there any visible signs of leachate seep(s), and if so, did you immediately inform your supervisor and contain the seep?			
	Are soil dams/berms and other best management practices in place or available to prevent any leachate from reaching the south detention basin?			
	Are there any visible signs of residual leachate seeps in the concrete channel which should be pressure washed and cleaned?			
	Are there any visible signs of damage to the geomembrane cover (tears, punctures, etc.), and if so, did you immediately inform your supervisor?			

Corrective Action and SWPPP/SPCC Plan Modification Descriptions (provide a brief explanation):

____

____

____

____

Inspector Certification: This section must be completed by the person who conducted the inspection.

"I certify that this report is true, accurate, and complete, to the best of my knowledge and belief"

Signature:____

Date:_____________________________________

Authorized Representative Certification: This section must be completed by an authorized representative of the Facility (e.g., District Manager or Site Manager).

"I certify that I have reviewed this report and that it is true, accurate, and complete, to the best of my knowledge and belief"

Signature:____

Date:_____________________________________

<table>
<tr><td colspan="7">General Tank Inspection Items:</td></tr>
<tr><td>BULK FUEL AND OIL TANKS</td><td colspan="2"><u>1. Tank & Containment</u>
Is the containment structure free of: water, debris, holes, cracks, fire hazards, liner degradation, corrosion, leakage, or paint failure?
Is there water in the primary tank.?
Are containment drain valves operable and in the closed position? (exercise valves)
Are there visible signs of leakage on the tank, interstice, or from the tank into the containment or surrounding soil?
Does the exterior of the tank show signs of coating failure, distortions, buckling, denting, or bulging?
Are pathways and entry to and from the tank clear and are gates/doors operable?</td><td colspan="2"><u>2. Supports/Foundation</u>
Do container supports and foundations show signs of damage, corrosion, paint failure, or significant settlement?
Does water drain away from container/tank?
Are grounding straps secure and in good condition?
Do ladders or platform structures show signs of severe corrosion or damage?
Does the ground around the container show signs of oil leaks?
Does the concrete pad or ring wall show signs of cracking or spalling?</td><td colspan="2"><u>3. Connections & Tank Equipment</u>
Exercise valves, as appropriate, checking for proper operation; including shear valve (follow manufacturer's instructions).
Are vent components unobstructed?
Are valves free of leaks, corrosion and damage? Tank drain valves must be kept locked.
Are spill containment boxes on fill pipes free of debris, water, and residue? Are spill containment boxes installed properly on tank?
Are drain valves on spill containment boxes closed?
Is liquid level equipment showing signs of physical damage, and is the device easily readable and functioning properly?
Are all piping connections free of leaks, corrosion, and damage?</td></tr>
<tr><td><u>CONTAINER ID & NAME</u></td><td>OK</td><td>Observations</td><td>OK</td><td>Observations</td><td>OK</td><td>Observations</td></tr>
<tr><td>AST 8: 8,000 gal Diesel Fuel</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>AST 1: 750 gal Used Oil</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>AST 2: 500 gal Transmission Oil</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>AST 3: 500 gal Engine/Hydraulic Oil</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>AST 4: 300 gal Drive Train Fluid</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>AST 5: 200 gal Used Antifreeze</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Drums within bermed containment area north of equipment area north of equipment maintenance building</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

General Tank Inspection Items:						
BULK FUEL AND OIL TANKS	**1. Tank & Containment** Is the containment structure free of: water, debris, holes, cracks, fire hazards, liner degradation, corrosion, leakage, or paint failure? Is there water in the primary tank.? Are containment drain valves operable and in the closed position? (exercise valves) Are there visible signs of leakage on the tank, interstice, or from the tank into the containment or surrounding soil? Does the exterior of the tank show signs of coating failure, distortions, buckling, denting, or bulging? Are pathways and entry to and from the tank clear and are gates/doors operable?		**2. Supports/Foundation** Do container supports and foundations show signs of damage, corrosion, paint failure, or significant settlement? Does water drain away from container/tank? Are grounding straps secure and in good condition? Do ladders or platform structures show signs of severe corrosion or damage? Does the ground around the container show signs of oil leaks? Does the concrete pad or ring wall show signs of cracking or spalling?		**3. Connections & Tank Equipment** Exercise valves, as appropriate, checking for proper operation; including shear valve (follow manufacturer's instructions). Are vent components unobstructed? Are valves free of leaks, corrosion and damage? Tank drain valves must be kept locked. Are spill containment boxes on fill pipes free of debris, water, and residue? Are spill containment boxes installed properly on tank? Are drain valves on spill containment boxes closed? Is liquid level equipment showing signs of physical damage, and is the device easily readable and functioning properly? Are all piping connections free of leaks, corrosion, and damage?	
CONTAINER ID & NAME	OK	Observations	OK	Observations	OK	Observations
MS-1: 100 gal Gasoline-Flatbed truck						
MR-1: 1,750 gal Diesel						
MR-3: 200 gal Engine/Hydraulic Oil						
MR-4: 100 gal 30W Oil						
MR-5: 100 gal 50W Oil						
MR-6: 500 gal Used Oil						

Sampling Event Observation Form			
Date and Time of Inspection:		Report Date:	
Chiquita Canyon Landfill			
Weather			
Previous Weather Conditions (last 48 hours):		Weather:	
Precipitation Total:			
Estimate storm beginning: ________________ (date and time)	Estimate storm duration: ________ (hours)	Estimate time since last storm: ________ (days or hours)	Rain gauge reading: _______ (inches)
Sampling Event Observations			
Observations: If yes identify location and observe drainage area to identify probable cause			
Odors Yes ☐ No ☐			
Floating solids, not including organics Yes ☐ No ☐			
Visible Oil Sheen Yes ☐ No ☐			
Discoloration (i.e. any color or cloudiness that is not clear) Yes ☐ No ☐			

Exception Documentation (explanation required if inspection could not be conducted).	
Inspector Information	
Inspector Name:	Inspector Title:
Signature:	Date:

Sampling Log		
Chiquita Canyon Landfill	Date:	Time Start:
Sampler Name:		

Field Meter Calibration
pH Meter ID No./Description: Calibration Date/Time:

Field pH Measurements		
Discharge Location Identifier	pH	Time
South		
East		

Samples Collected		
Discharge Location Identifier	Constituent	Time
South		
East		

Additional Sampling Notes:
Time End:

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No:

Page: 1 of 3

Turn Around Time (rush by advanced notice only)

Standard:		5 Day:		3 Day:	
2 Day:		1 Day:	X	Custom TAT:	

Enthalpy Analytical - Orange

931 W. Barkley Avenue, Orange, CA 92868

Phone 714-771-6900

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp:

(lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Chiquita Canyon, LLC	Name:	Stormwater Outlet
Report To:	Matt Breuer	Number:	
Email:	matthew.breuer@wasteconnections	P.O. #:	
Address:	29201 Henry Mayo Drive	Address:	29201 Henry Mayo Drive
	Castaic, CA 91384		Castaic, CA 91384
Phone:	682-559-3880	Global ID:	
Fax:		Sampled By:	

Test Instructions / Comments

200.8 - Ag, As, B, Ba, Be, Cd, Co, Cr, Cu, Ni, Mn, Pb, Sb, Se, Sn, Tl, V, Zn 200.7 - Fe, Ca, K, Mg, Na

Additional email recipients:
matt.breuer@wasteconnections.com
stormwater@wasteconnections.com
sbagchi@montrose-env.com

Direct invoices to:
Maribel Bolanos
(661) 257-3665

#	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	200.7/200.8 Metals (see comments)	245.1 Mercury	4500-CN-E Cyanide	8081 Pesticides / 8082 PCBs	8141 Organophosphorous Pesticides	8151 Herbicides	8260 VOCs	8260 Acrolein/Acrylonitrile	8270C	8290 2,3,7,8-TCDD
1	South			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X	X
2	East			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X	X
3																
4																
5																
6																
7																
8																
9																
10																

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:				
1 Received By:				
2 Relinquished By:				
2 Received By:				
3 Relinquished By:				
3 Received By:				

ENTHALPY ANALYTICAL	Chain of Custody Record				Turn Around Time (rush by advanced notice only)					
	Lab No:				Standard:		5 Day:		3 Day:	
	Page:	2	of	3	2 Day:		1 Day:	X	Custom TAT:	

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Sample Receipt Temp:

(lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Chiquita Canyon, LLC	Name:	Stormwater Outlet
Report To:	Matt Breuer	Number:	
Email:	matthew.breuer@wasteconnections	P.O. #:	
Address:	29201 Henry Mayo Drive	Address:	29201 Henry Mayo Drive
	Castaic, CA 91384		Castaic, CA 91384
Phone:	682-559-3880	Global ID:	
Fax:		Sampled By:	

Test Instructions / Comments

Additional email recipients:
matt.breuer@wasteconnections.com
stormwater@wasteconnections.com
sbagchi@montrose-env.com
Direct invoices to:
Maribel Bolanos
(661) 257-3665

Analysis Request

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	SM4500-S2-D Total Sulfide	420.1 Total Phenolics	1664A Oil and Grease	9221B Tota Coliform	9221F E. Coli	300.0 Cl, Br, Fl, NO3, NO2, SO4	2540D TSS	5310B TOC	8270 SIM 1,4-Dioxane	SM2320B Alkalinity
1	South			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X	X
2	East			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X	X
3																
4																
5																
6																
7																
8																
9																
10																

	Signature	Print Name	Company / Title	Date / Time
[1] Relinquished By:				
[1] Received By:				
[2] Relinquished By:				

[2] Received By:				
[3] Relinquished By:				
[3] Received By:				

ENTHALPY ANALYTICAL	Chain of Custody Record				Turn Around Time (rush by advanced notice only)					
	Lab No:				Standard:		5 Day:		3 Day:	
	Page:	3	of	3	2 Day:		1 Day:	X	Custom TAT:	

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931 W. Barkley Avenue, Orange, CA 92868
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Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp:
(lab use only)

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Company:	Chiquita Canyon, LLC	Name:	Stormwater Outlet
Report To:	Matt Breuer	Number:	
Email:	matthew.breuer@wasteconnections	P.O. #:	
Address:	29201 Henry Mayo Drive	Address:	29201 Henry Mayo Drive
	Castaic, CA 91384		Castaic, CA 91384
Phone:	682-559-3880	Global ID:	
Fax:		Sampled By:	

Test Instructions / Comments

625.1 - Benzoic Acid, Pyridine, Phenol, 2-methylphenol, 3,4-methylphenol, Cresol, Naphthalene, alpha-terpineol

Additional email recipients:
matt.breuer@wasteconnections.com
stormwater@wasteconnections.com
sbagchi@montrose-env.com
Direct invoices to:
Maribel Bolanos
(661) 257-3665

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	SM5220D Chemical Oxygen Demand	SM2510B Specific Conductance	RSK-175 Carbon Dioxide	2540E TDS	SM2130B Turbidity	350.1 Ammonia	625.1 - See Comments	625.1 Alpha-Terpineol	SM5210B BOD		Test Instructions / Comments
1	South			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X		
2	East			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X		
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

	Signature	Print Name	Company / Title	Date / Time
[1] Relinquished By:				
[1] Received By:				
[2] Relinquished By:				
[2] Received By:				
[3] Relinquished By:				
[3] Received By:				

ENTHALPY ANALYTICAL

Chain of Custody Record		**Turn Around Time (rush by advanced notice only)**
Lab No:		Standard:	5 Day:	3 Day:
Page: 1 of 3		2 Day:	1 Day: X	Custom TAT:

Standard:		5 Day:		3 Day:	
2 Day:		1 Day:	X	Custom TAT:	

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Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

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Address:	29201 Henry Mayo Drive	Address:	29201 Henry Mayo Drive
	Castaic, CA 91384		Castaic, CA 91384
Phone:	682-559-3880	Global ID:	
Fax:		Sampled By:	

Analysis Request

Test Instructions / Comments

200.8 - Ag, As, B, Ba, Be, Cd, Co, Cr, Cu, Ni, Mn, Pb, Sb, Se, Sn, Tl, V, Zn 200.7 - Fe, Ca, K, Mg, Na

Additional email recipients:
matt.breuer@wasteconnections.com
stormwater@wasteconnections.com
sbagchi@montrose-env.com

Direct invoices to:
Maribel Bolanos
(661) 257-3665

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	200.7/200.8 Metals (see comments)	245.1 Mercury	4500-CN-E Cyanide	8081 Pesticides / 8082 PCBs	8141 Organophosphorous Pesticides	8151 Herbicides	8260 VOCs	8260 Acrolein/Acrylonitrile	8270C	8290 2,3,7,8-TCDD	Test Instructions / Comments
1	South Basin - Eastern Inlet			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X	X	
2	South Basin - Western Inlet			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X	X	
3	East Basin - Inlet			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X	X	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:				
1 Received By:				
2 Relinquished By:				
2 Received By:				
3 Relinquished By:				
3 Received By:				

ENTHALPY ANALYTICAL

Chain of Custody Record			
Lab No:			
Page:	2	of	3

Turn Around Time (rush by advanced notice only)					
Standard:		5 Day:		3 Day:	
2 Day:		1 Day:	X	Custom TAT:	

Enthalpy Analytical - Orange

931 W. Barkley Avenue, Orange, CA 92868

Phone 714-771-6900

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp:

(lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Chiquita Canyon, LLC	Name:	Stormwater Outlet
Report To:	Matt Breuer	Number:	
Email:	matthew.breuer@wasteconnections	P.O. #:	
Address:	29201 Henry Mayo Drive	Address:	29201 Henry Mayo Drive
	Castaic, CA 91384		Castaic, CA 91384
Phone:	682-559-3880	Global ID:	
Fax:		Sampled By:	

Test Instructions / Comments

Additional email recipients:
matt.breuer@wasteconnections.com
stormwater@wasteconnections.com
sbagchi@montrose-env.com
Direct invoices to:
Maribel Bolanos
(661) 257-3665

#	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	SM4500-S2-D Total Sulfide	420.1 Total Phenolics	1664A Oil and Grease	9221B Tota Coliform	9221F E. Coli	300.0 Cl, Br, Fl, NO3, NO2, SO4	2540D TSS	5310B TOC	8270 SIM 1,4-Dioxane	SM2320B Alkalinity
1	South Basin - Eastern Inlet			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X	X
2	South Basin - Western Inlet			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X	X
3	East Basin - Inlet			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X	X
4																
5																
6																
7																
8																
9																
10																

	Signature	Print Name	Company / Title	Date / Time
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[3] Relinquished By:				
[3] Received By:				

ENTHALPY ANALYTICAL

Enthalpy Analytical - Orange
931 W. Barkley Avenue, Orange, CA 92868
Phone 714-771-6900

Chain of Custody Record

Lab No:			
Page:	3	of	3

Turn Around Time (rush by advanced notice only)

Standard:		5 Day:		3 Day:	
2 Day:		1 Day:	X	Custom TAT:	

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp:

(lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	Chiquita Canyon, LLC	Name:	Stormwater Outlet
Report To:	Matt Breuer	Number:	
Email:	matthew.breuer@wasteconnections	P.O. #:	
Address:	29201 Henry Mayo Drive	Address:	29201 Henry Mayo Drive
	Castaic, CA 91384		Castaic, CA 91384
Phone:	682-559-3880	Global ID:	
Fax:		Sampled By:	

Test Instructions / Comments

625.1 - Benzoic Acid, Pyridine, Phenol, 2-methylphenol, 3,4-methylphenol, Cresol, Naphthalene, alpha-terpineol

Additional email recipients:
matt.breuer@wasteconnections.com
stormwater@wasteconnections.com
sbagchi@montrose-env.com
Direct invoices to:
Maribel Bolanos
(661) 257-3665

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	SM5220D Chemical Oxygen Demand	SM2510B Specific Conductance	RSK-175 Carbon Dioxide	2540E TDS	SM2130B Turbidity	350.1 Ammonia	625.1 - See Comments	625.1 Alpha-Terpineol	SM5210B BOD		Test Instructions / Comments
1	South Basin - Eastern Inlet			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X		
2	South Basin - Western Inlet			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X		
3	East Basin - Inlet			W	31	1,2,4,6	X	X	X	X	X	X	X	X	X		
4																	
5																	
6																	
7																	
8																	
9																	
10																	

	Signature	Print Name	Company / Title	Date / Time
1 Relinquished By:				
1 Received By:				
2 Relinquished By:				
2 Received By:				
3 Relinquished By:				
3 Received By:				

APPENDIX D

SWRCB WQO No. 2014-0057 DWQ, NPDES General Permit No. CAS000001, WDRs for Discharges of Stormwater Associated with Industrial Activities

Electronically Available Here:

https://www.waterboards.ca.gov/water_issues/programs/stormwater/igp_20140057dwq.html#amend_2014_0057

APPENDIX E

PERMIT REGISTRATION DOCUMENTATION (INCLUSIVE OF PERMIT REGISTRATION DOCUMENT, the NOTICE OF INTENT, CERTIFICATION, AND COPY OF ANNUAL FEE RECEIPT)

CALIFORNIA
Water Boards

State Water Resources Control Board

NOTICE OF INTENT

GENERAL PERMIT TO DISCHARGE STORM WATER
ASSOCIATED WITH INDUSTRIAL ACTIVITY (WQ ORDER No. 2014-0057-DWQ)
(Excluding Construction Activities)

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

WDID: 4 19I022488 Status: Active

Operator Information

Type: Private Business

Name: Chiquita Canyon Landfill
Address: 29201 Henry Mayo Dr
Address 2:
City/State/Zip: Castaic CA 91384
Federal Tax ID:

Contact Name: Mike Dean
Title:
Phone Number: 661-257-3655
Email Address: steveca@wcnx.org

Facility Information

Level:

Contact Name: Mike Dean
Title:
Site Name: Chiquita Canyon Landfill
Address: 29201 Henry Mayo Dr
City/State/Zip: Castaic CA 91384
Site Phone #: 661-257-3655
County: Los Angeles
Email Address: steveca@wcnx.org
Latitude: 34.4237 Longitude: -118.6498
Site Size: 592 Acres
Industrial Area Exposed to Storm Water: 639 Acres
Percent of Site Impervious (Including Rooftops): 5 %

SIC Code Information

1. 4953 Refuse Systems
2.
3.

Additional Information

Receiving Water: Santa Clarita River Flow: Indirectly
Storm Drain System:
Compliance Group:

RWQCB Jurisdiction: Region 4 - Los Angeles
Phone: 213-576-6600 Email: r4_stormwater@waterboards.ca.gov

Certification

Name: Steve Cassulo Date: January 26, 2015
Title: ADM

December 12, 2017

Mike Dean
Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384

Facility Info: Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
SIC Code(s): 4953

Waste Discharge Identification Number: 4 19I022488

Date Processed: January 21, 2010

RECEIPT OF YOUR NOTICE OF INTENT (NOI)

The State Water Resources Control Board (State Water Board) received and processed the NOI to comply with the terms of the General Permit for Storm Water Discharges Associated with Industrial Activity Order 2014-0057-DWQ.

Waste Discharger Identification (WDID) number 4 19I022488 is assigned to the facility referenced above.

Accordingly, you are required to comply with all applicable permit requirements.

Notice of Termination (NOT) is required to be submitted to the State Water Board should the owner or operator of the facility change or upon closure of the facility. Until an NOT is submitted you will continue and are responsible to pay the annual fee invoiced each January.

If you have any further questions, please contact your local Regional Water Board at 213-576-6600.

Please visit the storm water web page at www.waterboards.ca.gov/water_issues/programs/stormwater/industrial.shtml for storm water related information.

Sincerely,
Storm Water Program
Division of Water Quality

APPENDIX F

FINAL CALIFORNIA 2014 AND 2016 INTEGRATED REPORT (303(d) LIST/305(b)) REPORT FOR SANTA CLARA RIVER

Electronically Available Here:

waterboards.ca.gov/water_issues/programs/tmdl/2014_16state_ir_reports/01035.shtml#67035

APPENDIX G

CALIFORNIA STORMWATER QUALITY INDUSTRIAL ASSOCIATION (CASQA) BMP HANDBOOK FACT SHEETS

ELECTRONICALLY AVAILABLE (ON-SITE)

APPENDIX H

PROGRAM COMPLIANCE DOCUMENTATION

(BOUND SEPARATELY)

APPENDIX I

CELL 8B DRAINAGE REPORT

FOR THE SOUTH DETENTION BASIN

CELL 8B DRAINAGE REPORT

CHIQUITA CANYON LANDFILL

2022-0123
March 2023

PREPARED FOR

Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, California 91384

PREPARED BY

TETRA TECH

Tetra Tech
21700 Copley Drive, Suite 200
Diamond Bar, California 91765
Phone: (909) 860-7777
Tetratech.com

REGISTERED PROFESSIONAL ENGINEER
CALEB H. MOORE
C66580
CIVIL
STATE OF CALIFORNIA

Caleb H. Moore, P.E.

CHIQUITA CANYON LANDFILL
CELL 8B DRAINAGE REPORT

TABLE OF CONTENTS

FIGURES

ATTACHMENTS

1.0 INTRODUCTION

The Chiquita Canyon Landfill (CCL) is an existing landfill located in the northwestern portion of Los Angeles County. It is approximately three (3) miles west of the intersection of Interstate 5 (I5) and State Route 126 (SR126). The existing site entrance is at the southernly property boundary, adjacent to SR126. See Figure 1 for Location Map.

The existing permitted landfill is comprised of two closed areas, Canyon B and Primary Canyon landfill areas, and an active operating area, Main Canyon landfill area, see Figure 2. Cell 8, located at the south end of the Main Canyon landfill area and west of the closed Primary Canyon landfill area (see Figure 3). Cell 8 is proposed to be constructed in two phases, Cell 8A and 8B. The Cell 8A Drainage Report, dated January 2022, prepared by Tetra Tech was approved by Los Angeles County Public Works (LACPW) and Cell 8A has been constructed. Cell 8B construction is planned to start in the spring of 2023. It was agreed upon in the Cell 8A design submittal that Cell 6 would be used as the pre-development condition for all of Cell 8. The Cell 8 grading and drainage improvements is designed to meet the Los Angeles County drainage requirements. This report summarizes the drainage analysis for the proposed Chiquita Canyon Landfill (CCL) Cell 8B grading, which encompasses both Cell 8A and 8B.

1.1 PRE-DEVELOPMENT DRAINAGE CONDITION

The CCL property consists of approximately 639 acres and there are three main drainage areas that discharge at three different locations, see Figure 2. Drainage area A is approximately 349 acres, within drainage area A there is the Main Canyon which is the current active landfill area (labeled as drainage area A1), Primary Canyon which is a closed cell (labeled as drainage area A2) and non-landfill area which include perimeter access road, graded and material slopes (labeled as drainage area A3). All drainage within drainage area A flows to the existing sedimentation basin in the south west corner of the site and discharges under SR126 through an existing Caltrans rectangular culvert and ultimately into the Santa Clara River. There are two other main drainage areas, drainage area B (approximately 208 acres) which discharges in the north easterly portion of the site and drainage area C (approximately 82 acres) which discharges in the south easterly portion of the site, these areas are defined on Figure 2, additionally there are small portions of the property where drainage sheet flows offsite into other watersheds. Flows within drainage areas B, C and the offsite portions were not calculated as they are not affected by the development of Cell 8B.

The existing sedimentation basin is considered the compliance point to assure that an increase in discharge is not occurring as part of the Cell 8B development project, therefore all areas contributing to the sedimentation basin have been considered in this analysis. In the pre-development condition, the flow into the existing sediment basin is the sum of drainage areas A1 through A3 and totals approximately 507 cubic feet per second (CFS), after the water is routed through the permitted basin outlet structure the peak flow is approximately 360 CFS. The peak flows calculated in the hydrology analysis were proportioned over the three subareas based on the size of the subarea and listed on the Drainage Area Map (see Figure 2), see Section 2 for the detailed hydrology analysis and Figure 4 for the pre-development hydrology map. The Drainage Area Maps (Figures 2 and 3) were not used in the analysis. These maps were prepared at the request of LACPW.

The pre-development drainage area includes the development of the area tributary to the sedimentation basin through Cell 6 liner expansion and is part of an overall development footprint that will expand the total drainage area as part of the approved permits for the site. The actual undeveloped site condition (prior to any development) does not include a basin or landfill cells, however, for this analysis we have proposed for expediency of the review process to treat the Cell 6 site condition as the pre-developed condition.

1.2 POST-DEVELOPMENT DRAINAGE CONDITION

The Cell 8 (Cells 8A and 8B) development project will add approximately 36 acres of additional drainage area to area A outlined within the pre-development area. Additionally, the entrance improvements along the southerly portion of the landfill being completed near the same time as the Cell 8B project, will add approximately one (1) acre that originally drained into drainage area C, to drainage area A. A total of 37 acres is added to the analysis of total drainage area contributing flow to the basin (see Figure 3). All other acreage for the landfill site will decrease or remain unchanged and therefore is not considered in this analysis. Therefore, for the post-development condition drainage area A is approximately 386 acres, within drainage area A there is the Main Canyon which is the current active landfill area (labeled as drainage area A1), Primary Canyon which is a closed cell (labeled as drainage area A2), non-landfill area which include perimeter access road, graded and material slopes (labeled as drainage area A3), and the proposed Cell 8B (labeled as drainage area A4). The first phase of this development, Cell 8A, was previously approved earlier this year and therefore the hydrology and hydraulics that have not been modified by this expansion will not be addressed in this report except where at the point of compliance at the discharge of the basin. During the Cell 8A design the flows from Cell 8B were considered so that additional modifications to the basin would not be required as part of Cell 8B development, although the analysis of the flows from Cell 8B were considered they were not a part of the Cell 8A drainage report, this report documents that analysis.

In the post-development drainage area, the flow into the existing sediment basin is the sum of drainage areas A1 through A4 and totals approximately 555 CFS, after the water is routed through the modified basin outlet structure the peak flow is approximately 353 CFS. The peak flows calculated in the hydrology analysis were proportioned over the four subareas based on the size of the subarea and listed on the Drainage Area Map (see Figure 3), see Section 2 for the detailed hydrology analysis and Figure 5 for the post-development hydrology map. The Drainage Area Maps (Figures 2 and 3) were not used in the analysis. These maps were prepared at the request of LACPW.

1.3 HYDROLOGIC AND HYDRAULIC REFERENCES AND RESOURCES

The following information and computer programs were used for the drainage analysis:

- Hydrology Manual (HM) published by the Los Angeles County Public Works (LACPW), January 2006.
- Sedimentation Manual (SM) 2nd Edition, published by LACPW, March 2006.
- Low Impact Development Standards Manual, published by LACPW, February 2014.
- Watershed Modeling System (WMS), Version 11.0 computer software, developed by Aquaveo LLC.
- HydroCalc Calculator developed by LACPW.
- FlowMaster, Version 8i, published by Bentley Systems, Inc., Watertown, Connecticut, November 2009.
- Water Surface Pressure Gradient for Windows (WSPGW), Version 14.08, developed by CivilDesign Corporation.
- Chiquita Canyon Landfill Drainage Analysis (CCLDA), prepared by Golder Associates, June 30, 2015.

2.0 HYDROLOGIC ANALYSIS

2.1 DESIGN CRITERIA

The design criteria used in determining storm runoff and sediment production was based on procedures and design data prescribed in the Hydrology Manual (HM), Sedimentation Manual (SM) and the Low Impact Development Standards Manual (LIDSM). The HM requires evaluating runoff from the 50-year, 24-hour storm event under clear and burned conditions and the Low Impact Development (LID) ordinance requires to retain the Storm Water Quality Design Volume (SWQDv). The SWQDv is equal to the total runoff volume generated from the 85th Percentile, 24-hour storm event.

The design criteria used in the analysis area as follows:

- Design Storm
  - 50-year, 24-hour event: 5.8 inches (HM, Appendix B, Figure 1-H1.43, Val Verde Isohyetal Map)
  - 85th Percentile, 24-hour event: 1.1 inches (LIDSM, Los Angeles County 85th Percentile Isoheytal Map)
- Soil Type
  - 097: Santa Clara River (SCR-5) for adjacent and undeveloped areas (HM, Appendix C and Figure 1-H1.43)

- Sediment Production
  - 50-year, 24-hour event: Capital Flood Hydrology (HM, Section 2)
  - DPA-5: Val Verde Hydrologic Map (SM, Appendix A, Figure 1-H1.43)
  - Peak Bulking Factor: Santa Clara Basin, Curve DPA-5 (SM, Appendix B, Figure B-5)
  - Debris Production Rate: Santa Clara Basin, Curve DPA-5 (SM, Appendix B, Figure B-2)
- Fire Factor
  - FF=0.34 (HM, Table 6.3.3)

2.2 METHODOLOGY

The method used for determining the storm runoff peak flows and runoff volumes are based on the Modified Rational Method (MODRAT), developed by LACPW. The Modified Rational Method is based on the Rational Method but instead of calculating the peak flow it calculates flows versus time, allowing the values to be plotted resulting in a hydrograph and associated flow volume for the entire storm event.

LACPW has developed a hydrologic program, HydroCalc Calculator, which completes the full MODRAT calculation for single subareas. Because HydroCalc does not have routing capabilities, it is limited to watersheds up to 40 acres. When routing is required, HydroCalc calculator can still be used as a subarea time of concentration (Tc) calculator. Subarea Tc is then incorporated into another LACPW approved hydrologic modeling program with routing capabilities.

Watershed Modeling System (WMS) software, which is approved by LACPW, was used for hydrologic modeling using the MODRAT. The 50-year, 24-hour design storm event was modeled for both pre-development and post-development conditions, using drainage areas, time of concentrations, soil types, percent impervious, storm event rainfall depth, water routing information, and a fire factor that accounts for the increased runoff from burned land.

In addition to the 50-year burned peak flow, the LACPW's HM also requires calculating the 50-year bulked flow resulting from burned land that considers the transport of sediment and debris. Bulking and Debris Production calculations were performed in accordance with the SM. To determine bulked peak flow, SM Equation 3.4.3 for partially developed watersheds was used. This equation uses total undeveloped and developed areas to determine a bulking factor (see Attachment 2 for SM references). For the CCL, undisturbed areas were considered undeveloped areas and areas within the landfill footprint or disturbed areas were considered developed. Attachment 1 presents the peak flow and debris production summary tables for the Cell 8B pre- and post-development condition. The following sections describe the input and output data from the hydrologic software.

2.2.1 RUNOFF COEFFICIENT

The Modified Rational Method uses the runoff coefficient to help determine the flow and volume of runoff in a watershed. Variables affecting the runoff coefficient are percent imperviousness, soil type, and rainfall intensity.

The percent imperviousness is based on the ratio of impervious area to area within the designated drainage area. For the drainage areas on the landfill, five percent imperviousness was assumed to account for concrete-lined channels, downdrains, and other drainage features. The impervious cover considered in the analysis includes existing or proposed paving, and major concrete-lined channels. Retaining walls and other structures with a relatively small footprint were not considered. The percent imperviousness is included in the model outputs included in Attachment 3.

The soil type used for this analysis is the Santa Clara River (SCR-5) No. 97, which is listed in the design criteria. The soil type used for burned watershed modeling was soil type No. 297, which is the corresponding burned soil type for the above SCR-5 (No. 97) soil type. See Attachment 2 for HM references. It should be noted that the soil types assumed for the final cover of the landfill will closely resemble soil type 20 (Yolo Sandy Loam) due to the prescribed engineering properties for the landfill final cover and therefore will need to be an onsite processed material or imported soil. Los Angeles County Public Works has requested that soil type 97 be used to match the soil maps for the area. These soils will not be present in landfill areas noted in the undeveloped or developed conditions. The resultant calculations have shown an incremental increase of calculated runoff for both the undeveloped and developed condition that is more conservative analysis, however, we have demonstrated that the additional runoff flows will not negatively impact the sedimentation basin or offsite outlet structures, therefore we will not object to the required use of soil type 97 in the analysis.

2.2.2 TIME OF CONCENTRATION

The time of concentration (Tc) is the time for runoff to travel from the most hydraulically distant point in a drainage area to a drainage collection outlet point. The LACPW relies on a regression equation derived from hundreds of studies using the kinematic wave theory to determine time of concentration. HydroCalc Calculator, developed by LACPW, was used to determine time of concentrations for this drainage analysis. The input variables required for the calculator include basin acreage, flow path length, flow path slope, rainfall depth, percent impervious, soil type, design storm frequency, and fire factor. The time of concentration results can be found in the HydroCalc Calculator output files in Attachment 3.

2.2.3 RAINFALL INTENSITY

Rainfall intensity is based on the depth of rain during a specified length of time, allowing rain to be measured in inches for a specific design storm. It is derived from a dimensionless rainfall mass curve based on the probability that 80 percent of the 24-hour rainfall amount occurs and 80 percent of the 24-hour period has elapsed. The MODRAT computer program utilizes a default mass curve that is based on this assumption.

For the CCL site, the 50-year, 24-hour rainfall amount of 5.8 inches was obtained from the Val Verde Isohyetal Map from the HM, Appendix B, Figure 1-H1.43. The 85th Percentile rainfall amount of 1.1 inches was obtained from the Los Angeles County 85th Percentile Isohyetal Map, referenced in the LIDSM. All rainfall data is included in Attachment 2.

2.2.4 DRAINAGE AREAS

The watershed was divided into subareas related to a collection point or drainage structure, such as a downdrain inlet or commencement of a proposed channel or pipe culvert. Subareas are alphanumerically identified along a certain flow path. See Figure 4 and 5 for subarea designations.

2.3 LOW IMPACT DEVELOPMENT ANALYSIS

Per CUP condition item number 52, the CCL Cell 8B grading design must comply with the Los Angeles County LID Ordinance. To meet LID requirements, the sedimentation basin must retain the Storm Water Quality Design Volume (SWQDv) generated from the 85th percentile, 24-hour storm event. The SWQDv was calculated with the same input assumptions and areas as the developed 50-Year 24-hour storm event, except substituting rainfall data for the 85th percentile storm. The rainfall depth for the storm is 1.1 inches and was gathered from the LACPW 85th Percentile Isohyetal Map, referenced in the LIDSM. See attachment 2 for the LACPW 85th Percentile Isohyetal Map.

HydroCalc Calculator was used to calculate runoff volume for each individual subarea. Hydrograph routing is not supported by the HydroCalc program, therefore the summation of runoff volume for each induvial subarea, resulting in the total runoff volume for the watershed, was used as the SWQDv. To confirm that the sedimentation basin has the storage capacity to retain the SWQDv, the basin must retain the SWQDv in addition to the debris produced by the watershed (see Attachment 1 for debris production calculations). The total storage capacity required to comply with the LID ordinance resulted in 8.39 acre-feet. The dead storage capacity in the proposed modified basin is 8.49 ac-ft which meets the volume requirements for the 85th Percentile precipitation runoff as prescribed in CUP Condition 52. See Attachment 5 for low impact development analysis including the 85th Percentile runoff volume calculations.

2.4 PRE-DEVELOPMENT HYDROLOGY

In the pre-development condition, surface flows are managed through an existing drainage system consisting of diversion berms, benches, concrete ditches, pipe culverts and downdrains. The existing sedimentation basin is located at the southwesterly corner of the site and is used as the discharge point for the watershed. Stormwater runoff passes through the existing basin, outlets through a box culvert under SR126 to the Santa Clara stormwater drainage system.

The pre-development (Cell 6) condition was modeled and analyzed to verify capacity of major existing drainage structures and compared to the potential incremental impact of the Cell 8B post-development condition on the sedimentation basin and the immediate downstream offsite drainage structures. The drainage analysis for the pre-development condition was based on the aerial topography performed on January 13, 2020 by Continental Mapping Consultants, Inc along with the permitted basin plans prepared by Golder Associates (2002) (see Figure 4 for Cell 8B Pre-Development Hydrology Map).

2.5 POST-DEVELOPMENT HYDROLOGY

The watershed for the post-development condition drains southerly towards the existing sedimentation basin and discharges through the existing outlet structure in the same manner as the pre-development condition. The stormwater drainage analysis for the post-development condition was based on the proposed Cell 8 grading design, in conjunction with the aerial topography performed on January 13, 2020 by Continental Mapping Consultants, Inc., with supplemental survey in the basin area from January 12, 2021, performed by Blue Ridge Services, Inc. and April 7, 2021 performed by Tetra Tech. Conceptual interim and final waste fill and excavation plans were considered to analyze the configuration with the largest tributary area. Any discrepancy between the fill/excavation/grading shown in this drainage study and interim or final waste fill/excavation/grading plans shall be resolved if deemed necessary by LACPW. Such resolution might require revision of this hydrology study.

The purpose of this hydrology study is to demonstrate that all proposed Cell 8B drainage improvements are sized appropriately and to verify conveyance capacity of the existing sedimentation basin and outfall under SR126. See Figure 5 for Cell 8B Post-Development Hydrology Map.

2.6 HYDROLOGIC ANALYSIS RESULTS

The 50-year, 24-hour burned and bulked peak flows for the pre- and post-drainage conditions were determined by the MODRAT method in accordance with the LACPW HM using WMS. The burned and bulked peak flow for the pre- and post-development condition resulted in 506.88 CFS and 555.30 CFS, respectively. See Attachment 1 for peak flow summary tables and Attachment 3 for MODRAT analysis output files.

3.0 HYDRAULIC ANALYSIS

Stormwater control for the proposed Cell 8B grading has been designed to route stormwater through a dendritic system of bench channels, down drains, concrete lined channels, and pipe culverts to the existing sedimentation basin located on the southernly area of the site. FlowMaster hydraulic calculator was used for the sizing of all drainage structures and WSPGW was used to perform a basin outflow analysis. All stormwater facilities were analyzed using the 50-year, 24-hour burned and bulked peak flows, see Attachment 6 for the hydraulics summary table and Attachment 7 for the FlowMaster and WSPGW output files.

3.1 STORMWATER ROUTING

Proposed perimeter drainage structures for Cell 8B, convey stormwater around the waste cell in a southerly direction. Perimeter drainage on the east side of Cell 8B drainage includes a 36-inch to a 42-inch HDPE pipe that transitions to a

3-foot bottom, 3-foot-deep trapezoidal channel, that transitions to a 48-inch HDPE culvert, and ultimately outlets into the existing sedimentation basin. Cell 8B drainage improvements along the southwesterly end of the Primary Canyon includes the realignment of a 36-inch corrugated metal pipe (CMP) downdrain, joining a proposed 2-foot bottom, 2-foot deep trapezoidal channel, that transitions to a proposed 36-inch CMP, that joins an existing 48-inch CMP and ultimate outlets into the existing sedimentation basin. Perimeter drainage on the west side of Cell 8 will remain the same and is currently being constructed in accordance with the approved Cell 8A grading and drainage plans. All pertinent drainage structures will be sized or verified for capacity and appropriate freeboard. See Attachment 6 and 7 for hydraulics summary and calculations.

The outlet structures for the sedimentation basin consist of two 84-inch riser pipes with drain slots in the sides which discharge to the two 60-inch horizontal outlet pipes. The two 60-inch outflow pipes discharge into an off-site 12-foot wide by 9-foot high box culvert underneath SR126 (see photograph below) and ultimately to the Santa Clara stormwater drainage system.

Photograph: Existing Sedimentation Basin Outflow Structures, April 8, 2021.

The Cell 8B grading was designed to promote runoff and minimize erosion. All stormwater facilities were analyzed for the 50-year, 24-hour burned and bulked peak flow and hydraulic calculations were performed at various drainage collection points shown on Figure 5, indicative of the most conservative scenario.

3.2 SEDIMENTATION BASIN ANALYSIS

The sedimentation basin was analyzed at the discharge point using the MODRAT. A reservoir routing analysis for the basin was performed for the 50-year, 24-hour burned and bulked flow condition. A 4-day precipitation factor was applied to the reservoir routing. To simulate the 50-year, 24-hour burned and bulked flow routing through the basin, dead storage was added to the basin equal to the debris produced from the corresponding watershed. This volume was calculated using SM Equation 3.3.3 for partially developed watersheds. This equation uses the total undisturbed and disturbed areas to determine a storm debris production rate that is then used to calculate the volume of sediment produced from the watershed, which is similar to calculating debris flow rates as discussed in Section 2.2. These calculations are presented in more detail in Attachment 1.

3.2.1 PRE-DEVELOPMENT BASIN CAPACITY

Based on comments received from LACPW, Tetra Tech is not analyzing the existing basin configuration based on current topography. LACPW has requested that the pre-developed site condition that is analyzed be in substantial conformance with the 2002 basin plans. Tetra Tech has calculated the storage capacity from the CCLDA prepared by Golder Associates. As mentioned in Section 3.1.4 of the CCLDA, the basin volume was gathered from as-built drawings of Sedimentation Basin No.1. Golder's basin plans depict the base of the basin at elevation 958 feet, the weir overflow at elevation 973 feet, and the top of the basin (concrete dam elevation) at 975 feet (see Attachment 4 for storage calculations). In the pre-development condition, there is 3.75 acre-feet of dead storage for debris and sediments. The calculated pre-developed peak basin outflow is 359.92 CFS, with a peak water surface elevation of 968.64 feet (see schematic figure in Attachment 4).

For the pre-development condition, the elevation discharge relationship of the basin was calculated using the orifice and weir equations, with outfall data obtained from the as-built drawings of the sedimentation basin. Although the riser pipe orifices and overtopping weir are the initial restricting factors to outlet flow, the capacity of the 60-inch outlet pipe inlet becomes the constraining element when the water surface in the basin reaches an elevation three (3) feet above the top of the riser pipe (see sedimentation basin modeling analysis results in Attachment 4).

3.2.2 POST-DEVELOPMENT BASIN CAPACITY

Basin storage calculations for the post-development condition were performed using the aerial drone topography performed by Blue Ridge Services Inc. (January 21, 2021), supplemental field survey performed by Tetra Tech Inc. (April 7, 2021), and proposed basin remedial grading. Vertical survey control for the post-development basin outflow analysis was established in the drone topography by Blue Ridge Services. Tetra Tech field survey findings showed the top of the basin (concrete dam elevation) at elevation 974.5 feet and the spillway elevation at 971.5 feet. The proposed configuration allows for 3.17 acre-feet of dead storage for debris storage requirements. To mitigate a higher peak flow downstream of the basin due to the development of Cell 8B based on a comparison of the pre-developed (Cell 6) condition and Cell 8B design, modifications to the drain slots in the two 84-inch riser outflow pipes were proposed to reduce the peak outflow. The drain slots were increased in size and additional slots were added, see the schematic in Attachment 4. Basin remedial grading and basin outflow modifications are completed during the Cell 8A grading and drainage improvements under a separate permit (see sheet C-109 of the Cell 8A grading plan set for the proposed modifications to the standpipes). The modified outfall system resulted in a peak outflow of 352.83 CFS at a water surface elevation of 968.14 feet. Since the spillway elevation of the basin is at elevation 971.5 feet, the basin provides a freeboard of 3.36 feet, 1.36 feet more than the required two (2) feet of freeboard. See Sheet C-204 of the Cell 8A grading plan set for the basin plan and profile and Attachment 4 of this report for basin outflow calculations, illustrations, and routing analysis for the post-development condition.

By modifying the existing drain slots to increase the flow intake at a lower elevation on the two 84-inch riser pipes, this will reduce the peak outflow below the calculated pre-developed (Cell 6) outflow. A new storage discharge curve was generated and utilized in the post-development WMS unit hydrograph model to calculate the peak outflows from the sedimentation basin, and the basin volume required for the respective storm event (see Attachment 4 for the sedimentation basin modeling analysis results).

4.0 CONCLUSION

4.1 PEAK DISCHARGE SUMMARY

The 50-year, 24-hour burned and bulked peak outflow generated in the Cell 8B pre- and post-development conditions are 359.92 CFS and 352.83 CFS respectively, resulting in a peak flow reduction of 7.09 CFS. Consequently, the water elevation at the outlet of the 12-foot wide by 9-foot high concrete box culvert below SR126, decreased from 1.32 feet (pre-developed, Cell 6) to 1.31 feet (post-development). See Attachments 6 and 7 for the hydraulic summary table and WSPG calculations.

The sedimentation basin with the remedial grading and standpipe modifications proposed in the Cell 8A grading and drainage improvements (see Cell 8A grading plans), provides the requisite storage volume to contain the stormwater flow and debris from a 50-year, 24-hour burned and bulked storm event with a 4-day precipitation factor, as well as retain the SWQDv and debris described in Section 2.3. As detailed in Section 3.2, the sedimentation volume can be accommodated in the sedimentation basin at a level below the basin outlet elevation and the water surface in the basins stays below the freeboard elevation.

It is concluded that the proposed CCL Cell 8B grading drainage system, which includes a combination of proposed and existing drainage structures, has adequate capacity to accommodate the 50-year, 24-hour burned and bulked peak flow and to retain the SWQDv to meet the Los Angeles County drainage and LID requirements.

4.2 DIVERSION SUMMARY

As described in Section 1.1, the CCL property is divided into three main drainage areas that discharge at three different locations, in the predeveloped condition (prior to any landfill development) Drainage Area A is approximately 416 acres, based on topography from aerial photographs taken in 1947, see Figure 7. The CCLDA by Golder Associates identifies the Drainage Area A as being 305 acres in the existing permitted condition for the final grading prior to the expansion, however at that time, based on a cursory review of the topography the main canyon drainage area (~349 acres) was similar to the existing condition of the Cell 8B pre-developed condition. The CCLDA was provided to LACPW as the basis for the appropriate performance for the existing basin to mitigate the peak flows for the site in the final proposed configuration which shows a final drainage area for Drainage Area A being 364 acres. It is our understanding that the CCLDA was not reviewed and approved by LACPW. The pre-developed condition for the Cell 8B project is 349 acres and the proposed post-developed Drainage Area A will now be 386 acres which includes a portion of the Drainage Area C. As stated in the previous section, there will not be an increase of peak discharge off the site from the development of Cell 8B.

As demonstrated in the CCLDA, in this report, and will again be demonstrated in future development reports the easterly and westerly basins will provide adequate storage to mitigate for peak discharge flows and the required retention for treatment of the 85th percentile precipitation runoff.

APPENDIX J

PASSIVE TREATMENT PLAN

APPLIED POLYMER SYSTEMS, INC.

Product Details and Design for Floc Log® & Silt Stop® Use in Passive Treatment

PREPARED FOR:

Matt Breuer
Waste Connections
Matt.breuer@wasteconnections.com

PROJECT:

Chiquita Canyon Landfill,

PREPARATION DATE: November 2024

Contents

Acronyms Defined:

aPAM – anionic Polyacrylamide

BMP – best management practice(s)

NTU – nephelometric turbidity units (turbidity)

PAM - Polyacrylamide

PEBMP – polymer enhanced best management practice(s)

PTP – Passive Treatment Plan

Section 1. Manufacturer and Product Details

1.1 Introduction

The information supplied in this document is to aid in preparation of a Passive Treatment Plan. The provided data and documents are prepared and provided specifically for Applied Polymer System's 706b Floc Log®, 706b Floc Log Mat, and 712 Silt Stop® products.

1.2 Manufacturer Details

Company Name: Applied Polymer Systems, Inc.
Address: 519 Industrial Drive, Woodstock, GA 30189
Phone: 678-494-5998
Fax: 678-494-5298
Email: info@apsfloc.com
Website: www.apsfloc.com

Applied Polymer Systems Representative(s):

Kyla J. Wood, PhD, Chief Science Officer, 404-353-3546, kyla@apsfloc.com, 225 Bishop Woods Rd, Marquette, MI 49855

Brian M. Free, QSD, CPESC, CPSWQ, CPAg, Director of Business Development, bfree@apsfloc.com, 336-458-6211

1.3 Product Details

General Requirements for Passive Treatment Chemicals

All Applied Polymer Systems Floc Log®, Silt Stop®, and Silt Clear® products meet or exceed the criteria for Passive Treatment Chemicals listed in Section B.1 of Attachment G of the 2022 Construction General Permit. See Table 1 and 2 for product specific information regarding the requirements. These requirements ensure polymer safety and quality.

Table 1. Floc Log® General Chemical Characteristics

Floc Log® Type	**703d**	**703d#3**	**706b**	**707a**	**730b**
Charge	Anionic	Anionic	Anionic	Anionic	Anionic
[a] Free of nonylphenol and nonylphenol ethoxylates	Yes	Yes	Yes	Yes	Yes
[b] Drinking grade (less than 0.05% residual acrylamide monomer)	Yes	Yes	Yes	Yes	Yes
Charge Density	10-55%	10-55%	10-55%	10-55%	10-55%
Molecular Weight	6-25 mg/ mole	6-25 mg/ mole	6-25 mg/ mole	6-25 mg/ mole	6-25 mg/ mole

[a]APS 700 Series Floc Logs® are semi-hydrated, solid logs produced primarily from blends of granular anionic polyacrylamide. No liquid emulsions or surfactants of any kind are used in Floc Logs® or during Floc Log® production.
[b] All APS 700 Series Floc Logs are produced from food grade granular polyacrylamide that are NSF Standard 60 Certified. Applied Polymer systems, its base granular polymers (Silt Stop), and certifications are searchable on the NSF website at https://www.nsf.org/certified-products-systems.

Table 2. Granular Silt Stop® and Silt Clear® General Chemical Characteristics

Granular Product	702	705	707	710	712	730	740	745	Silt Clear®
Charge	Anionic	Anionic	Anionic	Anionic	Anionic	Anionic	Anionic	Anionic	Anionic
[a] Free of nonylphenol and nonylphenol ethoxylates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
[b] Drinking grade (less than 0.05% residual acrylamide monomer)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Charge Density	10-55%	10-55%	10-55%	10-55%	10-55%	10-55%	10-55%	10-55%	10-55%
Molecular Weight	6-25 mg/ mole	6-25 mg/ mole	6-25 mg/ mole	6-25 mg/ mole	6-25 mg/ mole	6-25 mg/ mole	6-25 mg/ mole	6-25 mg/ mole	6-25 mg/ mole

[a]APS 700 Series Silt Stop® and Silt Clear® are granular and powder products produced primarily from blends of granular anionic polyacrylamide. No liquid emulsions or surfactants of any kind are used in Silt Stop®/ Silt Clear® or during production.
[b] All APS 700 Series Silt Stop and Silt Clear powder/ granular products are food grade and NSF Standard 60 Certified. Applied Polymer systems, its products, and certifications are searchable on the NSF website at https://www.nsf.org/certified-products-systems.

Toxicity and Formulation Specific Information

706b Floc Log:

Each product has unique acute and chronic toxicity data that were measured by a third party, certified laboratory in accordance with methods outlined by US EPA for toxicity testing of freshwater aquatic organisms (methods EPA-821-R-02-012 & EPA-821-R-02-013). Table 3 presents a summary of acute and chronic toxicological data for the **706b Floc Log** that was most effective for this project's soil and water based on performance testing. Full toxicological reports can be obtained upon request to the manufacturer, Applied Polymer Systems, Inc.

712 Silt Stop powder:

Each product has unique acute and chronic toxicity data that were measured by a third party, certified laboratory in accordance with methods outlined by US EPA for toxicity testing of freshwater aquatic organisms (methods EPA-821-R-02-012 & EPA-821-R-02-013). Table 4 presents a summary of acute and chronic toxicological data for the **712 Silt Stop®** powder that was most effective for this project's soil and water based on performance testing. Full toxicological reports can be obtained upon request to the manufacturer, Applied Polymer Systems, Inc.

<u>Toxicological Summary for the 706b Floc Log®</u>

Test 1: 96-hr. Fathead Minnow Larval Survival and Growth Test, Non-renewal Toxicity Test
Method: U.S. EPA-821-R-02-012

Test 2: 7-Day Fathead Minnow Larval Survival and Growth Test
Method: U.S. EPA-821-R-02-013

Test 3: 48-hr. Water Flea Acute Survival Static, Non-renewal Toxicity Test
Method: U.S. EPA-821-R-02-012

Test 4: Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms
Method: U.S. EPA-821-R-02-013

Table 3. Toxicological Summary for the 706b Floc Log

Test #	Type	Organism	NOEC (mg/)	LOEC (mg/L)	IC25 (mg/L)	EC50 (mg/L)
1	Acute Survival	*P. promelas*	1200	2500	NA	2928
2	Chronic Survival	*P. promelas*	52.5	NA	77.8	155
2	Chronic Growth	*P. promelas*	52.5	NA	50.1	150
3	Acute Survival	*C. dubia*	420	NA	NA	673
4	Chronic Survival	*C. dubia*	52.7	NA	78.7	NA
4	Chronic Reproduction	*C. dubia*	52.5	NA	66.8	NA

Toxicological Summary for 712 Silt Stop®

Test 1: 96-hr. Fathead Minnow Larval Survival and Growth Test, Non-renewal Toxicity Test
Method: U.S. EPA-821-R-02-012

Test 2: 7-Day Fathead Minnow Larval Survival and Growth Test
Method: U.S. EPA-821-R-02-013

Test 3: 48-hr. Water Flea Acute Survival Static, Non-renewal Toxicity Test
Method: U.S. EPA-821-R-02-012

Test 4: Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms
Method: U.S. EPA-821-R-02-013

Table 4. Toxicological Summary for 712 Silt Stop

Test #	Type	Organism	NOEC (mg/)	LOEC (mg/L)	IC25 (mg/L)	EC50 (mg/L)
1	Acute Survival	*P. promelas*	6,720	>6720	>6720	>6720
2	Chronic Survival	*P. promelas*	NA	NA	6,698	NA
2	Chronic Growth	*P. promelas*	NA	NA	NA	NA
3	Acute Survival	*C. dubia*	840	NA	NA	1,617
4	Chronic Survival	*C. dubia*	52.5	NA	122.5	NA
4	Chronic Growth	*C. dubia*	52.5	NA	59.3	NA

Section 2. Performance Testing and Product Selection

2.1 Introduction

All products used for erosion and sediment control and water treatment must be matched to each site's unique soil, sediment, and/or water. Using a generic or untested product formulation may result in nonreactivity between the polymer and soil particles in the water resulting in poor or no performance and possibly the movement of unreacted, dissolved polymer off site.

The following test was performed by Applied Polymer Systems, Inc. at our Woodstock, GA facility. Results are not interchangeable with any other products, formulations, or manufactures.

2.2 Sample Analysis (Performance Testing) Results

Summary of Results

The **APS 706b Floc Log** was effective in flocculating suspended sediment particles in the samples from Chiquita Canyon Landfill, resulting in clarification and a significant reduction in turbidity. The **712 Silt Stop** powder effectively reacted with the soil samples from the site. The 712 Silt Stop can be used for water clarification as well as stabilization of exposed soils where necessary.

Sample	Location (284)	Description	APS Application	Special Instructions
10/28/2024	**Analysis by: VLI**	**Sample Type/ Location**		**Reaction Time / NTU Value**
	Chiquita Canyon 29201 Henry Maya Dr Castaic, CA 91384 425-414-2903 matt.breuer@wasteconnecti	**Chiquita Canyon Landfill** **Soil Sample** pH: ~7 NTUi: 620 Hardness: 25 mg $CaCO_3$/	**Floc Log Type** 706b **Stabilization** 712	40 sec / NTUf: 8.88

Note: For detailed instructions and application rates, please refer to the Polymer Enhanced Best Management (PEBMP) Application Guide which is located on the bottom right hand corner of our website at www.SiltStop.com.

Floc Logs are designed to work in flowing water conditions. **Mixing / reaction times will be very important when using the Floc Log listed above. Mixing must be continuous for the time stated to obtain the best results.** A mixing ditch, pipe or flume system may be used with either a pump or gravity flow to meet this requirement. All the turbid water must continuously come in contact with the Floc Logs in the treatment ditch. Particulate formed may be captured by filtering through or across a series of jute matting after the mixing and reaction has been completed (see pages 42 - 51). **The dosage rate should be 50 GPM flow / Floc Log placed in a series or row and as close to the source of turbidity as possible.**

Stabilization of the soil at the source may be obtained by spreading the site-specific Silt Stop powder onto the soil surface then covering the soil with open-weave jute, coconut matting, mulch, or straw. This will perform as a stabilizer for reducing soil and clay movement into the runoff water, as a tackifier to hold the soil/organic matrix in place, as well as providing surface area for attachment of flocculated sediment. For detailed application rates and instructions, please see the Soil Stabilization section beginning on page 5 of the PEBMP.

Figure 1. Sample report provides effective formulation (706b Floc Log and 712 Silt Stop), pre- and post- turbidity, & reaction time needed to complete floc formation (~40-45 seconds).

Section 3. Application Rates and Estimated Chemical Quantities

3.1 Introduction

Passive treatment application rates, dosing, and methods used in treatment zones shall be determined based on the manufacturer's guidance to provide adequate sediment control without having an excess amount in runoff.

The smallest amount of product that produces the desired water clarity, quality, and/ or turbidity should be used. Application rates in Tables 5 are an estimate and may need adjusting on site.

We suggest applying 50% or less of the suggested Floc Log application rate initially, and then adding or removing Floc Logs until desired results are achieved.

Estimated and calculated flocculant concentrations should remain at 25 mg/L or less (~50% of the NOEC [no observed effects concentration] from toxicological studies). The estimated concentrations in Table 5 are meant to be conservative. 706b Floc Logs and 712 Silt Stop powders are effective in removing suspended sediment at a concentration significantly lower than the most sensitive toxicological thresholds. In addition, once the dissolved polymer is bound to sediment and the sediment is settled or captured, the polymer is no longer present in discharge water, further increasing the aquatic safety margin.

Table 5. Suggested Flow Rate Based Application Rates and Estimated Concentrations (Chemical Quantity) in Treated Water

Flow Rate (cfs) 85th percentile, 50 yr event	**Suggested Floc Log(s)**	**Suggested Floc Mat(s)**	**Suggested * Silt Stop**	**Estimated Maximum Concentration (mg/L)**	**Expected Floc Log Lifespan**
~14-40 (6,283-17,951 gpm)	~60-100 (~480-800 lbs)	10 (200 lbs)	~20 lbs	~7-19 mg/L	~5-10 million gal

* Silt Stop Powder is re-applied every 1-3 rain events (~ every 0.5 inches of rain)

If smaller, lower flow channels are used to cumulatively create the estimated flow rates above, the following table should be used to estimate total Floc Log number in each smaller channel.

Flow Rate (gpm)	**Suggested Floc Log(s)®**
100	4
200	4
300	4-6
400	6-8
500	7-10
600	8-12
700	10-14

800	11-16
900	13-18
1000	14-20
1200	16-22
1400	18-24
1600	20-28
1800	22-30
2000	24-32
2400	26-32
2800	28-32
3200	30-32

3.2 Formula and Assumptions

Estimated dosage is based on product lifespan, amount (mass of product used), and volume of water treated. They are APS product specific. The values are conservative, and actual concentrations are expected to be less, but must be confirmed by re-calcuating the concentrations (Section 7). Channels are assumed to be approximately 10 feet wide. Calculations and/or additional information is available upon request from the manufacturer, Applied Polymer Systems, Inc.

3.3 Chemical Concentrations in Variable Flow Rates

Floc Log concentration and lifespan (i.e. time to complete dissolution) is based on the total volume of water required to dissolve the floc logs. Rain events will vary in flow rate and water volume. With smaller rain events and less water, the lifespan of the Floc Logs will increase. The actual concentration of the Floc Logs in the water will remain relatively constant, but how long it takes the Floc Logs to dissolve may vary based on the flow rates (and water volumes) produced by various size rain events.

Section 4. Field Confirmation, Chemical Recalculation, & Reapplication Rates

Due to the high margin of safety of anionic PAM products, residual testing is not required. In addition, residual testing of anionic PAM in field waters is historically inaccurate and difficult as organic materials in field water can cause interference. If desired, field concentrations can be confirmed based on the following information.

706b Floc Logs and 712 Silt Stop lifespan (time to complete dissolution) may vary by site depending on temperature, water chemistry, and channel/ flow variations. APS aPAM products should be applied at the suggested rates estimated in Section 3 of this document and based on manufacturer product specific guidelines. Once applied on site, the following information should be monitored to estimate site specific chemical quantities and re-application rates:

1. Approximate product life span (days until complete dissolution and product replacement)

2. Approximate amount of product used (number of Floc Logs, pounds of Silt Stop)
3. Approximate water volume (used to calculate total volume during application period)

Once specific site information is determined, accurate chemical quantities and reapplication rates will be re-calculated by Applied Polymer Systems and/or trained individual to ensure applications rates remain within an environmentally protective concentration when compared to provided toxicological data for the 706b Floc Log and 712 Silt Stop products.

Section 5. Application Methods (Site Specific Design)

Floc Log® and Silt Stop® products should be applied in accordance with Applied Polymer Systems guidelines to ensure adequate formulation, application rate, mixing, and reaction time are achieved for successful use. Floc Log® and Silt Stop® flyers are included in the Appendix. Preliminary discussion for site specific design for the Chiquita Canyon Landfill project includes expected gravity flows of up to 14-40 cfs (~6,200-18,000 gpm). Passive treatment zones at the site are open channels that lead to detention basins. Passive treatment systems for this site will consist primarily of open channel treatment with downstream particle capture. Important components will be channel BMPs implemented to maximize mixing and reaction time with high flow rates, and particle capture within the channel and sedimentation basins. Silt Stop® powder may also be applied directly to the sedimentation basins via direct powder application or metered pump dosing within the suggested total application rate described in Section 3.1. If flocculant is applied directly to the sedimentation basins, it is recommended to enhance mixing by use of a pump.

Dosage Notice: Flow rates and associated Floc Log, Floc Log Mat, and Silt Stop application rates are based on the 85th percentile of a 50-year, 24-hour event, which equates to approximately a 1.1-inch, 24 hour event. Do not exceed the suggested application rates in Table 5 without consulting the manufacturer or passive treatment specialist.

In high flow estimates (i.e. >2,000 gpm) we suggest starting with 50% or less of the suggested product amount and then increasing up to the maximum suggested as needed. Application rates may be decreased if lower doses are still effective for the specific site.

If floc or gel is visible outside of passive treatment zone, or water discharging from passive treatment zone is noticeably (feels) slimy or viscous, 1) application rate is too high and should be decreased, and or 2) floc capture is inadequate and needs to be adjusted.

Site maps are included with the facility's stormwater pollution prevention plan (SWPPP) as Figures 2-4. The SWPPP site maps detail stormwater conveyances and sedimentation basins, which comprise the passive treatment zone. System 1 includes an approximately 100 foot open channel that flows to a closed pipe then in to a velocity dissipation and sedimentation basin.

Open Channel Passive Treatment Design

1. ***Open Channel Passive Treatment System (High flows, >2,000 gpm):*** Floc Logs and Floc Log Mats should be installed in each channel based on expected flow rates and suggested application rates in Section 3. Assuming channel is ~10 feet wide.
    a. ***Basic Channel Requirements***
        i. Must be lined (no bare soil)
        ii. Must be long enough to promote 45+ seconds of mixing and reaction to fully form floc before reaching detention or velocity dissipation basins
        iii. Jute or other fibrous matting installed in Passive Treatment Dosing Zone and Floc Capture Zone (coir, excelsior)
        iv. Fiber rolls should be installed in the passive treatment dosing zone as well at end of the channel in the floc capture zone to collect floc
        v. Flow velocity in channel is ~5 feet per second or less for optimal passive treatment performance and water depth is 1 foot or less. Channel width may need to be adjusted if velocity and water depth are too high to promote effective flocculation.

Figure 14. Passive treatment open channel examples

2. ***Passive Treatment Zone <u>Suggested</u> Set-Up***
    a. ***Passive Treatment Dosing Zone* (Figure 15)**
        i. Dosing zone installed in upper ½ to 1/3 of channel
        ii. Dosing zone should be a minimum of 10-20 feet long (depending on flow rate and channel size).
        iii. Ideally will contain check strucures
        iv. Install Floc Logs and Floc Log Mats directly below (down flow) of each fiber roll
        v. Floc Logs spaced ~1.5-2 feet apart across channel and down channel
        vi. Floc Log Mats installed directly below Floc Logs
        vii. Apply Silt Stop granular to fiber rolls and jute matting below fiber rolls
        viii. Avoid installing flocculants directly up-flow of fiber rolls where water pools
        ix. Apply suggested application rate in Table 5. Floc Log and Mats reapplied when dissolved (visually observe), Silt Stop reapplied after ~0.5 inches of rain
        x. All flocculants should be in the flow of water, water that circumvents or does not contact the flocculants (Floc Logs, Floc Log Mats, and Silt Stop) will not work effectively or provide treatment
        xi. Applying at least one fiber roll downstream of Dosing Zone will help collected floc and prevent it from entering the rock lined Mixing Zone
    b. ***Mixing Zone* (Figure 15)**
        i. Area between dosing zone and floc capture zone
        ii. ~20-50 feet long (may be longer depending on available length and dependent on flow rate and channel size).
        iii. Floc may start to settle and build up in this area depending on flow rate and how quickly floc forms (keep in mind for maintenance considerations)
    c. ***Floc Capture Zone* (Figure 15)**
        i. Installed at end of channel (before discharge to pipe or basin), after Dosing and Mixing Zones
        ii. Ideally this zone will be 20-50 feet long depending on flow rate and channel size
        iii. Ideally zone will be lined with jute matting and contain fiber rolls or wattles
        iv. Floc capture zone may be a basin or trap rather than increased channel length

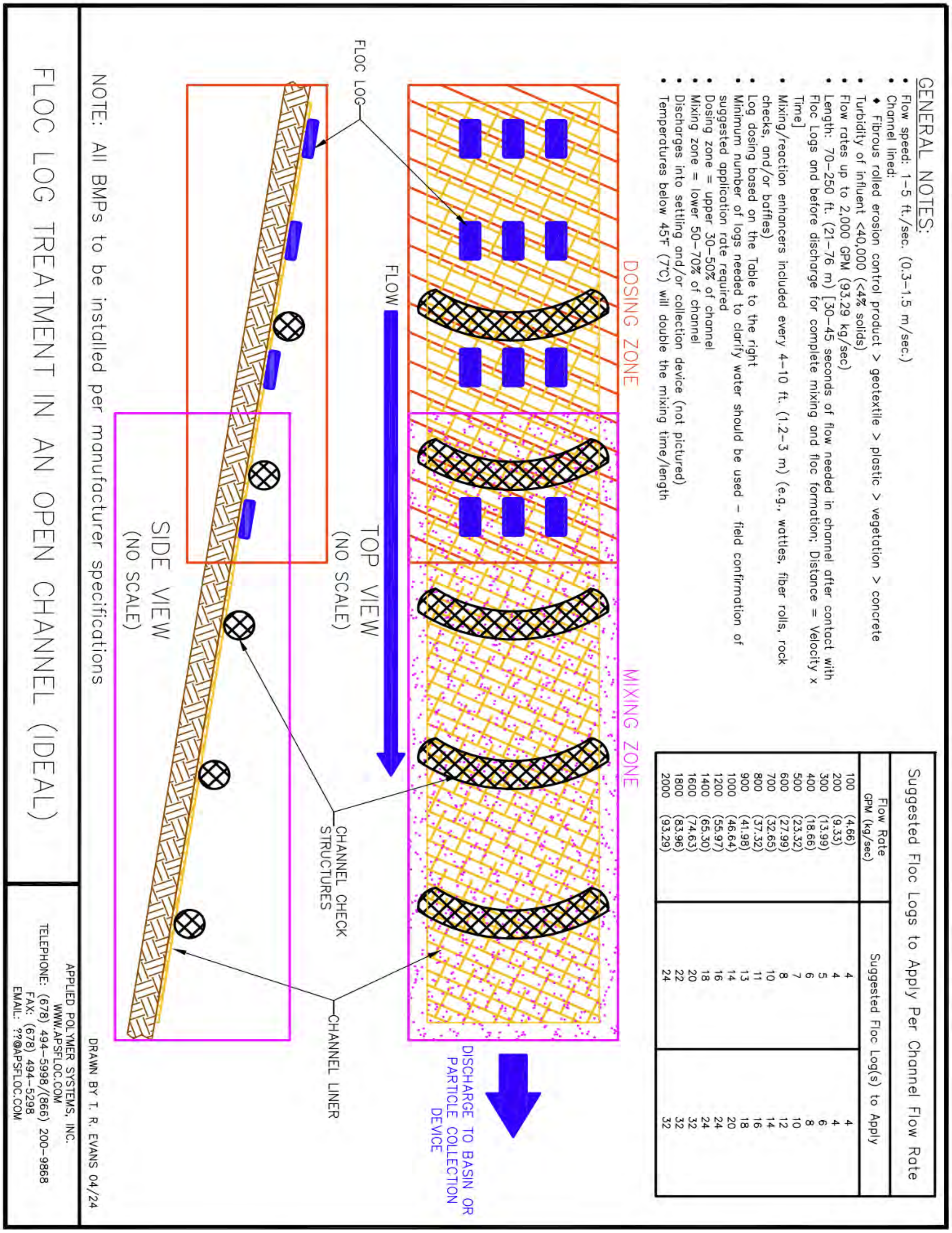


Figure 15 a. Ideal Open Channel Pasive Treatment Design EXAMPLE. Check structures, matting type (as long as rough and fibrous), and rock fill may be changed with other BMPS that promote mixng, flocculation, and particle capture.

Figure 15 b, c, d. Open Channel Pasive Treatment Design examples. Check structures, matting type (as long as rough and fibrous), and rock fill may be changed with other BMPS that promote mixing, flocculation, and particle capture.

3. ***Detention Basins*:** Detention basins should be stabilized and ideally not a contributing source to turbidity in basin. Any turbidity introduced after the flocculant treatment areas will mask the treated water.
4. ***Detention Basin Outfalls***
    a. *Outfalls as floc capture:* If needed, install jute mattings and coir, jute, or wood wattles where possible to collect any remaining floc.
    b. *Outfall as passive treatment zones:* If basin is turbid, outfalls may be used as treatment zones. Install jute matting, Floc Log Mats & Floc Logs, and check structures (wattles) to collect flocculated particles. If using outfalls as a passive treatment zone, must comply with buffer zone requirements and ensure that floc is fully captured after the passive treatment zone.

Note: Once Floc Logs® and Silt Stop® powders are applied, new sediment entering the system should be minimized. New sediment entering the treatment area will reduce the effectiveness of treatment.

Section 6. Storage, Spill Prevention and Response

8.1 Passive Treatment Chemical Storage

Product SDSs should be maintained on site in accordance with the corresponding SWPPP. Please select the appropriate product from the drop-down menu to include the SDS in this document. The 706b Floc Log® and 712 Silt Stop® powder are included in the Appendix.

Floc Logs®

APS 700 Series Floc Logs® are individually wrapped in wax lined paper with 4 logs per box. A pallet consists of 36 boxes (144 Floc Logs®) stacked and plastic wrapped on a pallet. Floc Logs® should be stored in a dry location out of direct sunlight.

Silt Stop® & Silt Clear®

Granular/ Powders (700 Series Silt Stop® and Silt Clear®) are packaged in wax lined, 50 pound bags or 2.5 gallon plastic totes. Silt Stop® and Silt Clear® granular and powder products should be stored in a dry location out of direct sunlight.

8.2 Spill Prevention

Floc Log®, Silt Stop®, and Silt Clear® products should be contained in an area where bags and totes will be safe from puncture and rupture by equipment or other objects. The storage area should be away from receiving water bodies where if a spill occurs, concentrated material will not enter a water body unabated.

8.3 Spill Response

Do not use water to clean up spilled Silt Stop® or Silt Clear®. Spilled granular or powder Silt Stop® and Silt Clear® materials should be cleaned up immediately. Material should be cleaned up dry if possible, by scooping, sweeping, or shoveling. Vacuuming should be performed with caution as this may result in airborne dust. aPAM dust may irritate eyes.

All aPAM based Floc Log® and Silt Stop® materials are non-hazardous and unused or spilled material may be disposed of with general construction waste. Floc Logs® may be picked up and moved to a new location away from rain and direct sunlight.

Special consideration and attention should be given to spills near discharge areas or near receiving water. Concentrated Silt Stop® or Silt Clear® should not be allowed to leave the site or enter waters of the state.

Section 7. Maintenance and Removal Procedures

6.1 Introduction

Section D.2.a of Attachment G of the 2022 Construction General Permit requires "design details and drawings for maintenance and removal procedures for the products applied on-site" (CACGP 2022) be included in the prepared Passive Treatment Plan.

6.2 Maintenance Procedures

Floc Log® Maintenance

Floc Log® Dissolution & Replacement

Floc Logs® are designed to dissolve in flowing water after ~1.5-2 million gallons of water. Floc Logs® that fully dissolve, exposing the internal jute/ coconut skeleton, need to be replaced. Frequency of replacement can depend on a variety of site factors including flow and channel characteristics such as velocity, temperature, continuous or intermittent flow, closed pipe or open channel, etc. Complete dissolution of Floc Logs® material may occur in <1 week to upwards of 1 month. In open channels it is expected that Floc Logs® will take an average of 2-3 weeks to fully dissolve. Visual inspection of the Floc Logs® and visual and or turbidimetric analysis of the treated water is used to determine the need for reapplication.

Sediment Coated Floc Logs®

During use, Floc Logs® may become coated with sediment (blinding). If Floc Logs® are fully coated, they will no longer dissolve, making them ineffective. Sediment coated Floc Logs® should be scraped, brushed, or cleaned off to re-expose aPAM material to flowing water.

If Floc Logs® are continually and rapidly becoming coated with sediment, additional sediment controls should be incorporated upstream of Floc Logs®. Floc Logs® should also always be installed in lined channels and never placed directly on bare soil.

Floc Log® Placement

Floc Logs® must be placed in flowing water for dissolution and effective use. Floc Logs® should be periodically inspected to ensure that they have not been moved outside of channelized flows and that they are not installed on bare soil.

Dried Floc Logs®

Floc Logs® are primarily hydrated, granular aPAM formed into a log configuration. If Floc Logs® are used in intermittent flow conditions and exposed to air and sunlight, the surface of the logs may dry. Dried Floc Logs® must rehydrate to continue dissolving and effectively treat turbid water. Rehydration may take upwards of 15-20 minutes.

Incorporating 712 Silt Stop® in the passive treatment zone in addition to the Floc Logs® can provide treatment during periods of rehydration to ensure all water is treated, including the first flush of water from a rain event during Floc Log® rehydration. Dried Floc Logs® may also be rewetted via hose or soaking prior to forecasted rain events so the rehydration period will not be needed.

Silt Stop® Maintenance

aPAM based granular and powder products such as Silt Stop® and Silt Clear® will form a gel coating when applied to matting, check dams, etc. This gel will fully dissolve. Maintenance for Silt Stop® and Silt Clear® is to reapply as needed during treatment (typically reapplication occurs after ever 0.5 inches of rain).

6.3 Removal Procedures

Floc Log®

Floc Logs® contain an internal, biodegradable coconut skeleton with an attached jute rope (also biodegradable). The remaining internal Floc Log® skeleton and rope should be disposed of once the surrounding polymer gel material is fully dissolved. If deployed Floc Logs are not fully dissolved at a time when passive treatment is no longer required, or the project or project phase has completed, the partially dissolved Floc Logs® may be: 1) moved to an alternate passive treatment location if the formulations match, 2) dried, wrapped in wax paper, and saved for subsequent application; or 3) disposed of.

Silt Stop®

Granular/ powder based aPAM products (Silt Stop® and Silt Clear®) dissolve more rapidly than Floc Log® and solid aPAM products due to greater particle surface area. Once Silt Stop® has been deployed it is typically left in place until dissolved. Silt Stop® and Silt Clear® are not expected to remain in significant amounts of time (2-4 rain events or near daily application if pumping or every 0.5 inches of rain). If Silt Stop®/ Silt Clear® applied to wattles, rock checks, matting or other sediment and erosion control BMPs remains at project completion and is no longer needed, it may be left in place with other BMPs (as long as a buffer remains between its location and discharge areas), or it can be disposed of.

6.4 General PAM Disposal Information

Anionic polyacrylamide is a non-hazardous substance that requires no special disposal considerations (i.e., PAM can be disposed of in a landfill). Check with your local regulations and permit requirements to determine where to dispose of unused, non-hazardous construction materials. Unused, unopened material has a shelf life of 1-2 years, material should be stored out of direct sunlight and away from water to use on subsequent project(s).

Section 8. Performance Monitoring

9.1 Additional Passive Treatment System Monitoring

Turbidity will be the ultimate indicator of passive treatment performance. Visual observation of discharge water clarity (from the passive treatment zone), as well as visual floc formation and capture in the passive treatment zone are also indicators or a functioning passive treatment system.

Additional monitoring can aid in system performance and safety and is listed below. Monitoring should be conducted pre- and post- qualifying rain events to ensure the system is intact and to determine if any adjustments or system maintenance are required.

Before and after each precipitation event, observe the passive treatment zone from the start of the dosing area through the particle capture zone and:

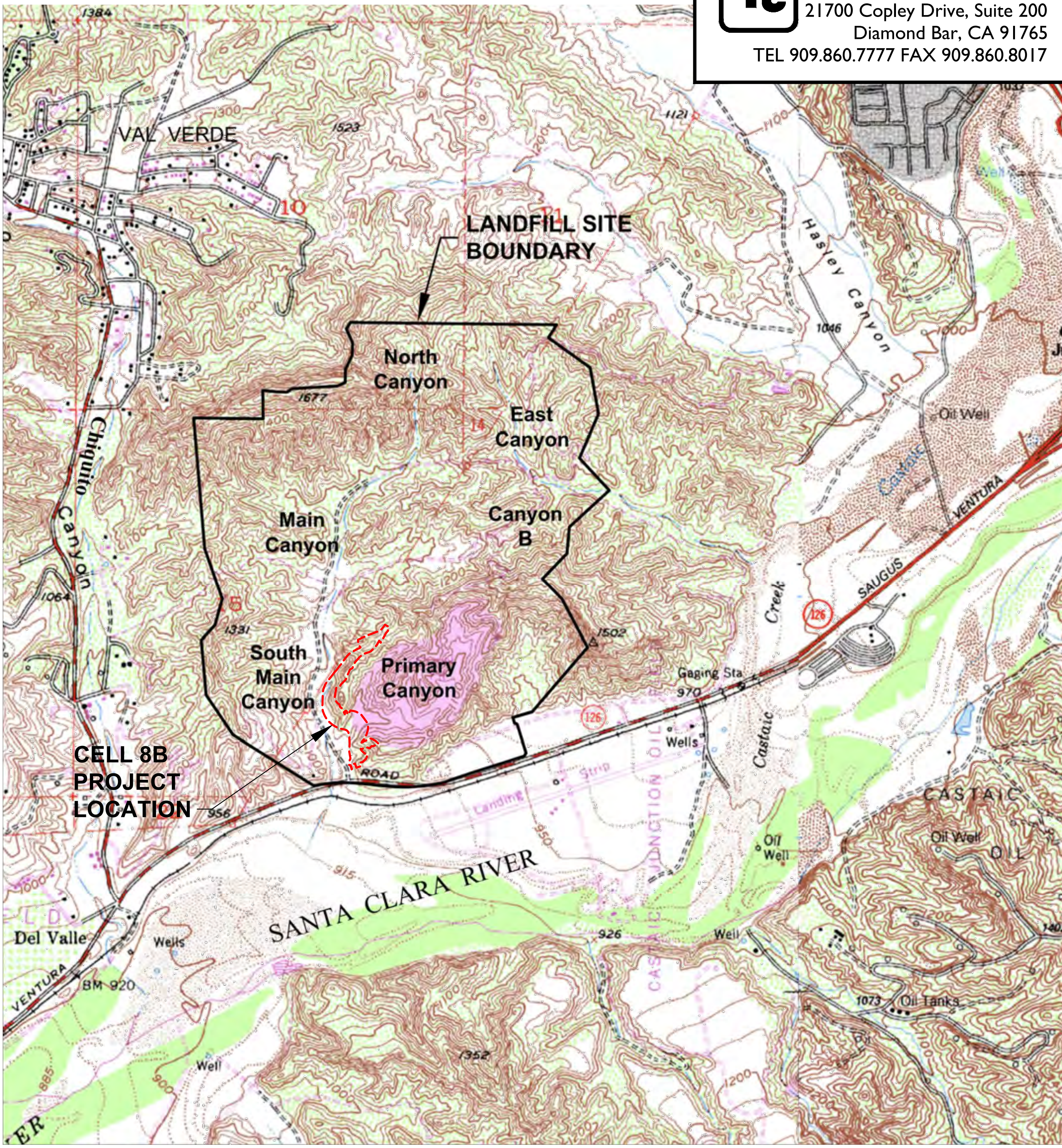
1. Ensure passive treatment products are securely installed in the correct locations (in the flow of water, with additional planned BMPs, etc.).
2. Ensure non-chemical BMPs in the treatment zone (jute matting, fiber rolls, check structures, etc.) are intact, properly installed, etc.
3. Ensure non-chemical BMPs are not fully saturated with flocculated particles (if fully saturated, clean off or replace)
4. Ensure Floc Logs and Floc Mats are not buried or fully coated in sediment (if fully coated will need to be cleaned off to dissolve properly)
5. Visually inspect if flocculated particles are observed beyond the particle capture zone or at basin outflows (if observed, additional particle capture should be planned and deployed)
6. Ensure that significant sediment is not building up in the treatment zone and that no additional sources of sediment are circumventing the treatment zone

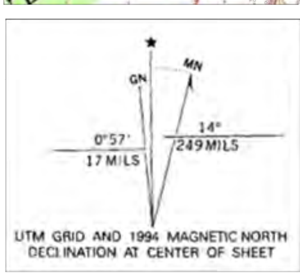
Monitoring for Chemical Quantity (Concentration) Calculation and Confirmation:

1. Record volume of water of each precipitation event for each passive treatment system
2. Record qualitative Floc Log size after each event (i.e. 75% of original size, 50% of original size, 25% of original size, etc.).
3. Record when passive treatment products are fully dissolved or almost dissolved and time of replacement

FIGURES

TETRA TECH
21700 Copley Drive, Suite 200
Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017





LOCATION MAP

PREPARED FOR

Chiquita Canyon Landfill

VALENCIA, CALIFORNIA

U.S.G.S 7.5 MINUTE

VAL VERDE, CA
34118-D6-TF-024
1991

NEWHALL, CA
1995
NIMA 2252 I NE - SERIES V895

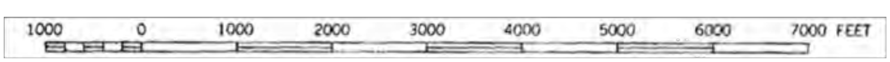
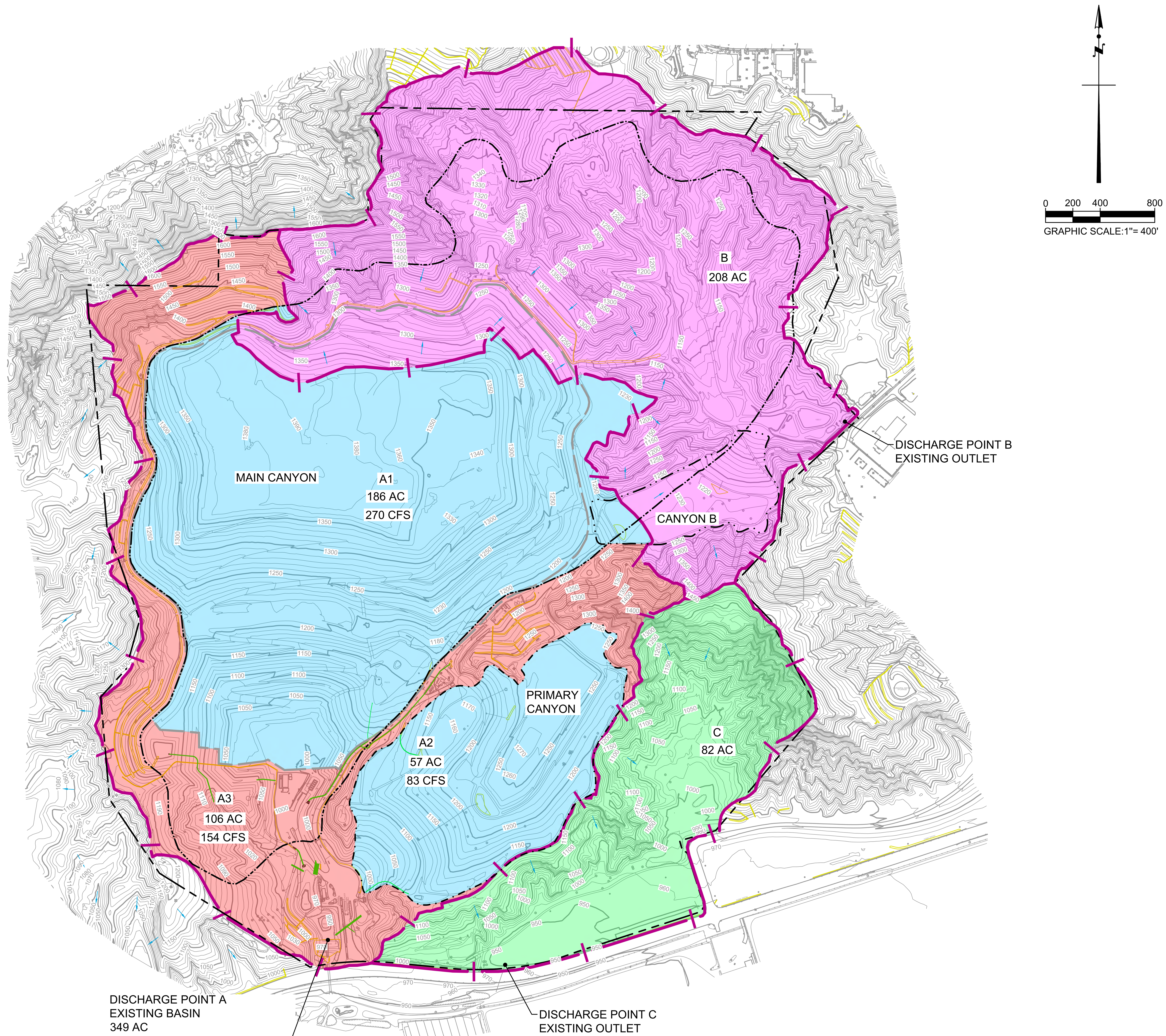
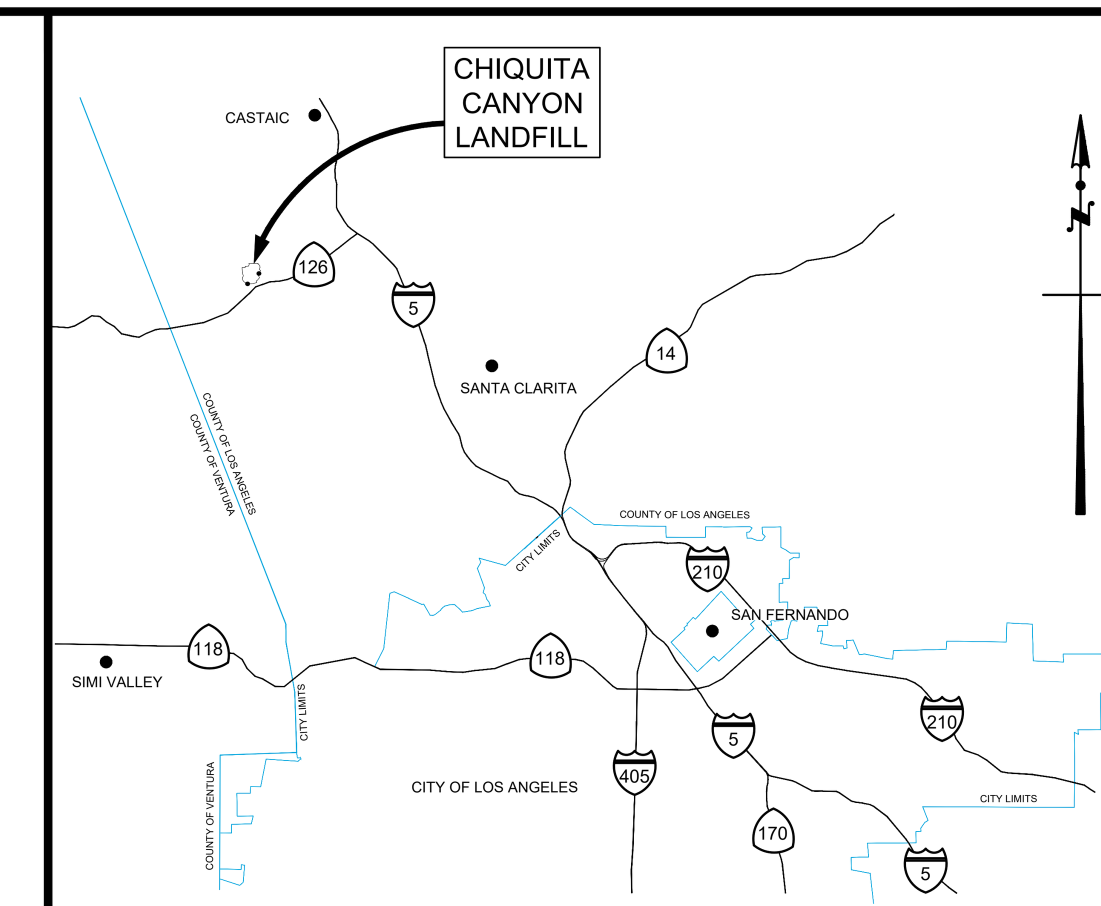


FIGURE 1

P:\WASTE CONNECTIONS\CHIQUITA\CELL 8\CAD\SHEETFILES\CELL 8B GRADING PERMIT\FIGURES\C-800 LOCATION MAP.DWG 6/7/2022 10:54 PM





LOCATION MAP
NTS

LEGEND

- APPROXIMATE LIMIT OF PROPERTY LINE
- UNPAVED ROAD / BENCH
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- WATERSHED LIMIT
- EXISTING LIMIT OF LINER
- EXISTING STORM DRAIN PIPE
- EXISTING DRAINAGE CHANNEL/STRUCTURE
- MAIN CANYON LANDFILL / PERMITTED REFUSE LIMIT
- CANYON "B" LANDFILL
- PRIMARY CANYON LANDFILL
- LANDFILL AREA DRAINING TO DISCHARGE POINT A
- NON LANDFILL AREA DRAINING TO DISCHARGE POINT A
- APPROXIMATE AREA DRAINING TO DISCHARGE POINT B
- APPROXIMATE AREA DRAINING TO DISCHARGE POINT C
- DIRECTION OF DRAINAGE
- A — DRAINAGE AREA ID

NOTES:
1. NOT WITHIN COUNTY ADOPTED FLOODWAY.
2. NOT WITHIN FEMA FLOOD ZONE A.
3. ALL FLOW RATES SHOWN ON MAP ARE 50-YEAR BURNED AND BULKED.
4. THE PEAK FLOWS CALCULATED IN THE HYDROLOGY ANALYSIS WERE PROPORTIONED OVER THE THREE SUBAREAS BASED ON THE SIZE OF THE SUBAREA, SEE SECTION 2 FOR THE DETAILED HYDROLOGY ANALYSIS AND FIGURE 4 FOR THE PRE-DEVELOPMENT HYDROLOGY MAP. THE DRAINAGE AREA MAPS (FIGURE 2 AND 3) WERE NOT USED IN THE ANALYSIS. THESE MAPS WERE PREPARED AT THE REQUEST OF LAPWD.

REGISTERED PROFESSIONAL ENGINEER CALEB H. MOORE 66580 CIVIL STATE OF CALIFORNIA

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CHIQUITA CANYON LANDFILL

PRE-DEVELOPMENT CONDITION DRAINAGE AREA MAP

DESIGNED BY : P.V.	FILE : C-808 Cell 8B Pre Development Drainage Area Map.dwg		
DRAWN BY : P.V.	DATE : 02-2021	SCALE: AS SHOWN	
CHECKED BY : C.H.M.	DATE : 02-2021	FIGURE 2	
APPROVED BY : C.H.M.	DATE : 02-2021		

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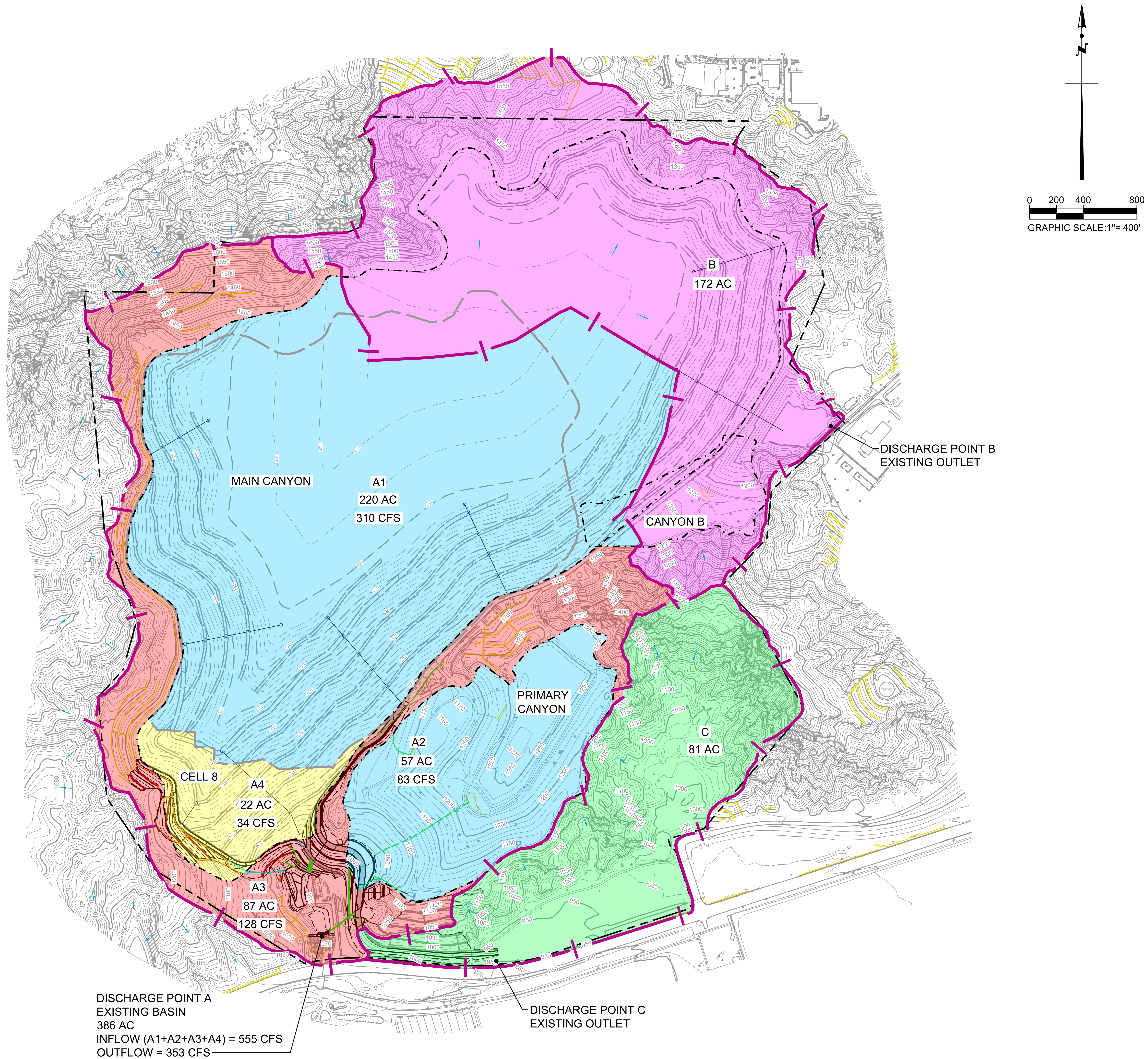

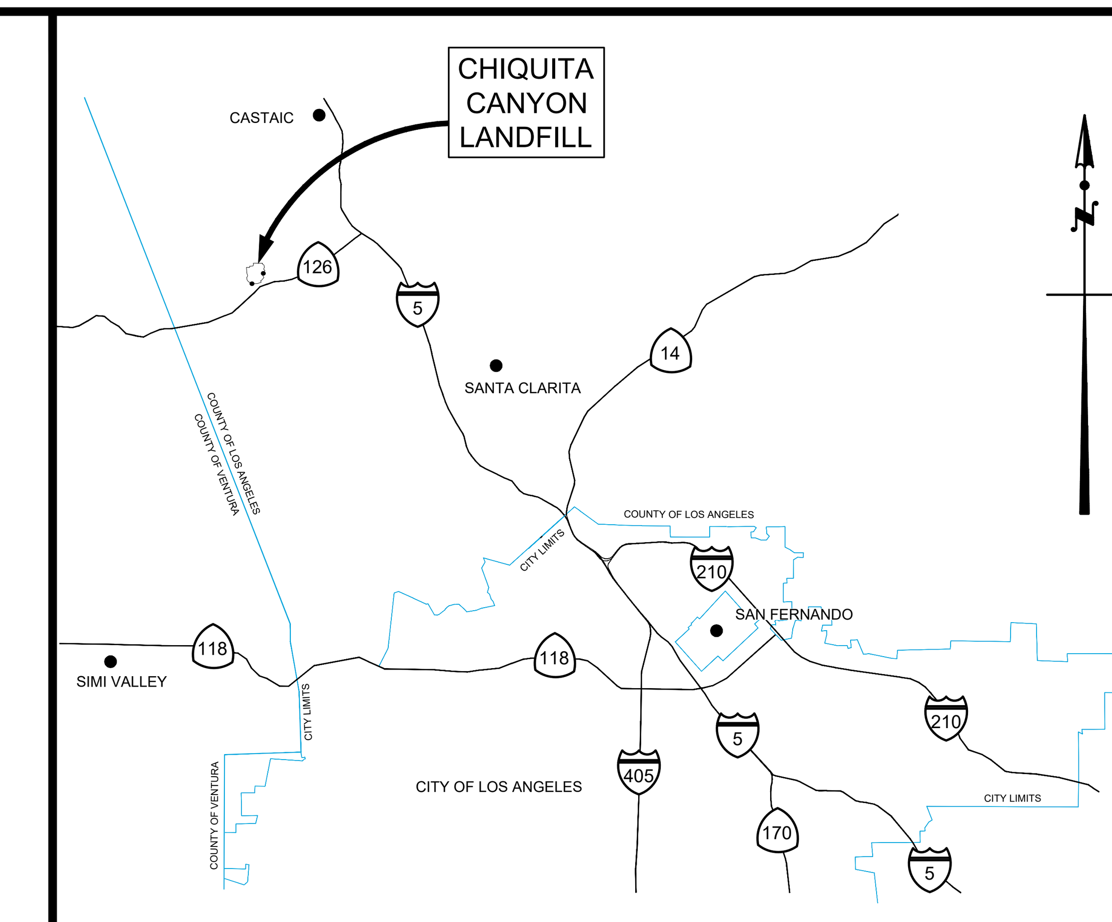

LOCATION MAP
NTS

LEGEND

- APPROXIMATE LIMIT OF PROPERTY LINE
- UNPAVED ROAD / BENCH
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- WASTE FILL MAJOR CONTOUR
- WASTE FILL MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING LIMIT OF LINER
- WATERSHED LIMIT
- PROPOSED TERRACE CHANNEL
- PROPOSED DRAINAGE CHANNEL/STRUCTURE
- PROPOSED STORM DRAIN PIPE
- EXISTING STORM DRAIN PIPE
- EXISTING DRAINAGE CHANNEL/STRUCTURE
- MAIN CANYON LANDFILL / PERMITTED LIMIT OF REFUSE
- CANYON "B" LANDFILL
- PRIMARY CANYON LANDFILL
- CELL 8 LANDFILL AREA DRAINING TO DISCHARGE POINT A
- LANDFILL AREA DRAINING TO DISCHARGE POINT A
- NON LANDFILL AREA DRAINING TO DISCHARGE POINT A
- APPROXIMATE AREA DRAINING TO DISCHARGE POINT B
- APPROXIMATE AREA DRAINING TO DISCHARGE POINT C
- DIRECTION OF DRAINAGE
- A DRAINAGE AREA ID

NOTES:

1. NOT WITHIN COUNTY ADOPTED FLOODWAY.
2. NOT WITHIN FEMA FLOOD ZONE A.
3. ALL FLOW RATES SHOWN ON MAP ARE 50-YEAR BURNED AND BULKED.
4. THE PEAK FLOWS CALCULATED IN THE HYDROLOGY ANALYSIS WERE PROPORTIONED OVER THE FOUR SUBAREAS BASED ON THE SIZE OF THE SUBAREA, SEE SECTION 2 FOR THE DETAILED HYDROLOGY ANALYSIS AND FIGURE 5 FOR THE POST-DEVELOPMENT HYDROLOGY MAP. THE DRAINAGE AREA MAPS (FIGURES 2 AND 3) WERE NOT USED IN THE ANALYSIS. THESE MAPS WERE PREPARED AT THE REQUEST OF LAPWD.

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CHIQUITA CANYON LANDFILL

POST-DEVELOPMENT CONDITION DRAINAGE AREA MAP

DESIGNED BY :	P.V.	FILE : C-807 Cell 8B Post Development Drainage Area Map.dwg			
DRAWN BY :	P.V.	DATE :	02-2021	SCALE:	AS SHOWN
CHECKED BY :	C.H.M.	DATE :	02-2021	FIGURE 3	
APPROVED BY :	C.H.M.	DATE :	02-2021		

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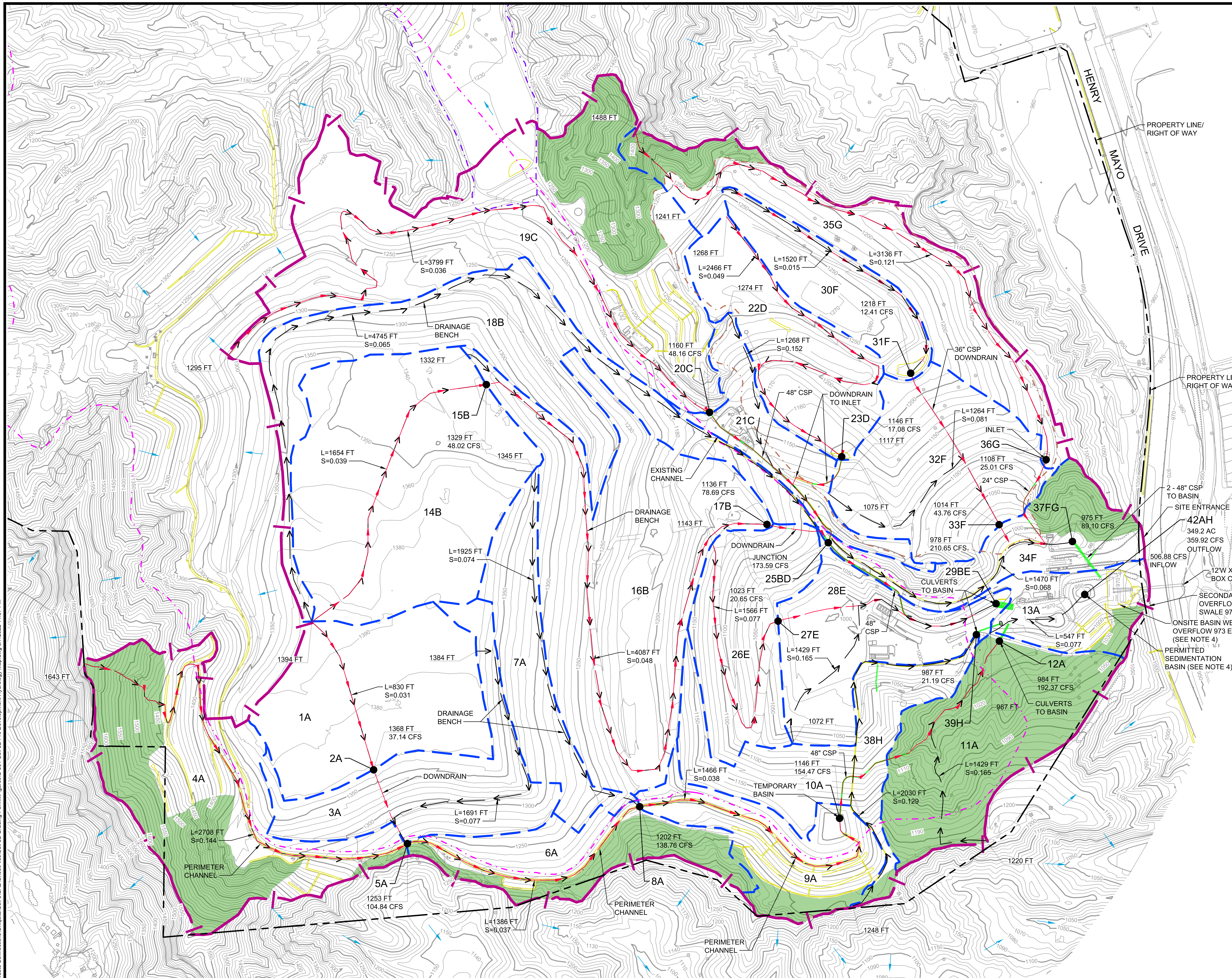

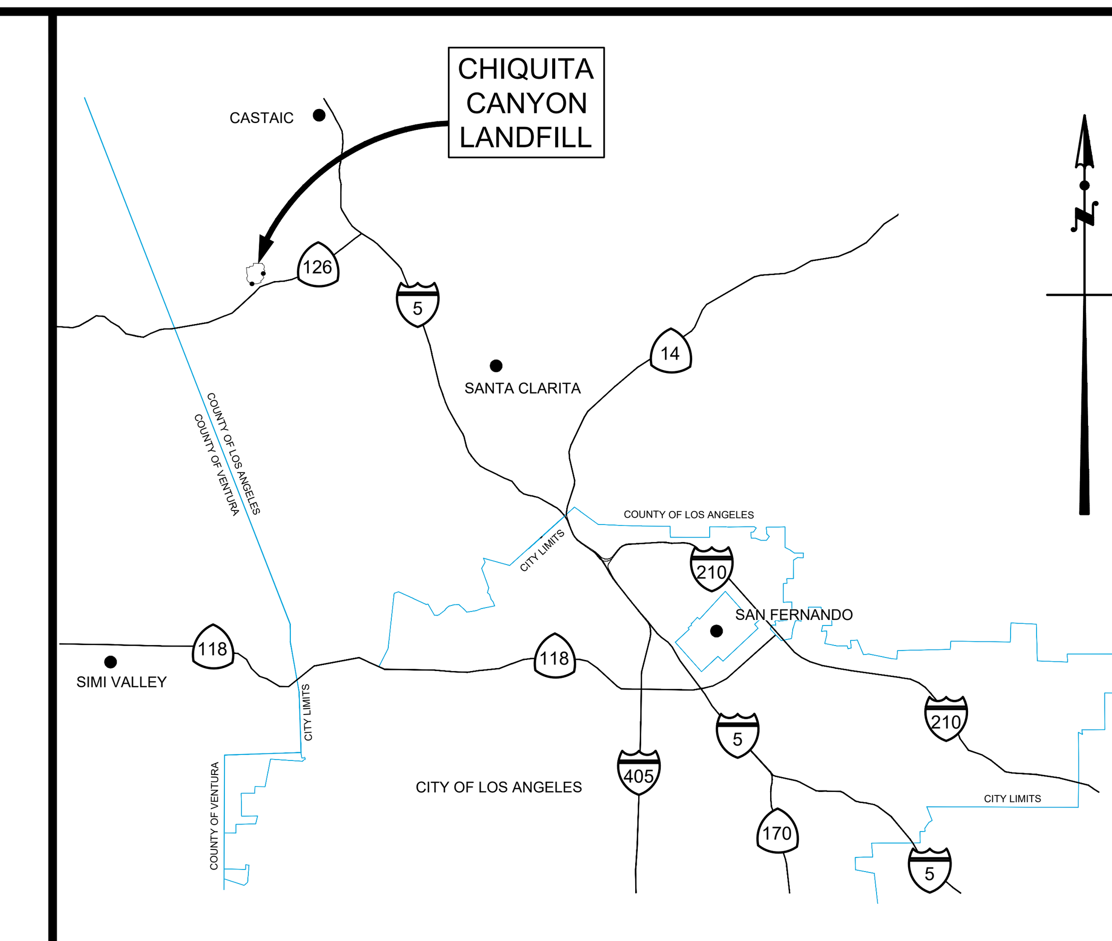

LOCATION MAP
NTS

0 125 250 500
GRAPHIC SCALE:1"= 250'

LEGEND

- APPROXIMATE LIMIT OF PROPERTY LINE
- UNPAVED ROAD / BENCH
- WATERSHED LIMIT
- DRAINAGE SUBAREAS
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- REACH FLOW PATH
- TIME OF CONCENTRATION (T_C) FLOW PATH
- EXISTING STORM DRAIN PIPE
- EXISTING DRAINAGE CHANNEL/STRUCTURE
- MAIN CANYON LANDFILL
- CANYON "B" LANDFILL
- PRIMARY CANYON LANDFILL
- ASSUMED UNDEVELOPED AREAS
- DIRECTION OF DRAINAGE
- 1A SUBAREA ID
- 1A COLLECTION POINT ID

NOTES:
1. NOT WITHIN COUNTY ADOPTED FLOODWAY.
2. NOT WITHIN FEMA FLOOD ZONE A.
3. ALL FLOW RATES SHOWN ON MAP ARE 50-YEAR BURNED AND BULKED.
4. BASIN TOPOGRAPHY AND STORAGE CAPACITY WAS OBTAINED FROM THE CHIQUITA CANYON LANDFILL DRAINAGE ANALYSIS PREPARED BY GOLDER ASSOCIATES, JUNE 30, 2015.

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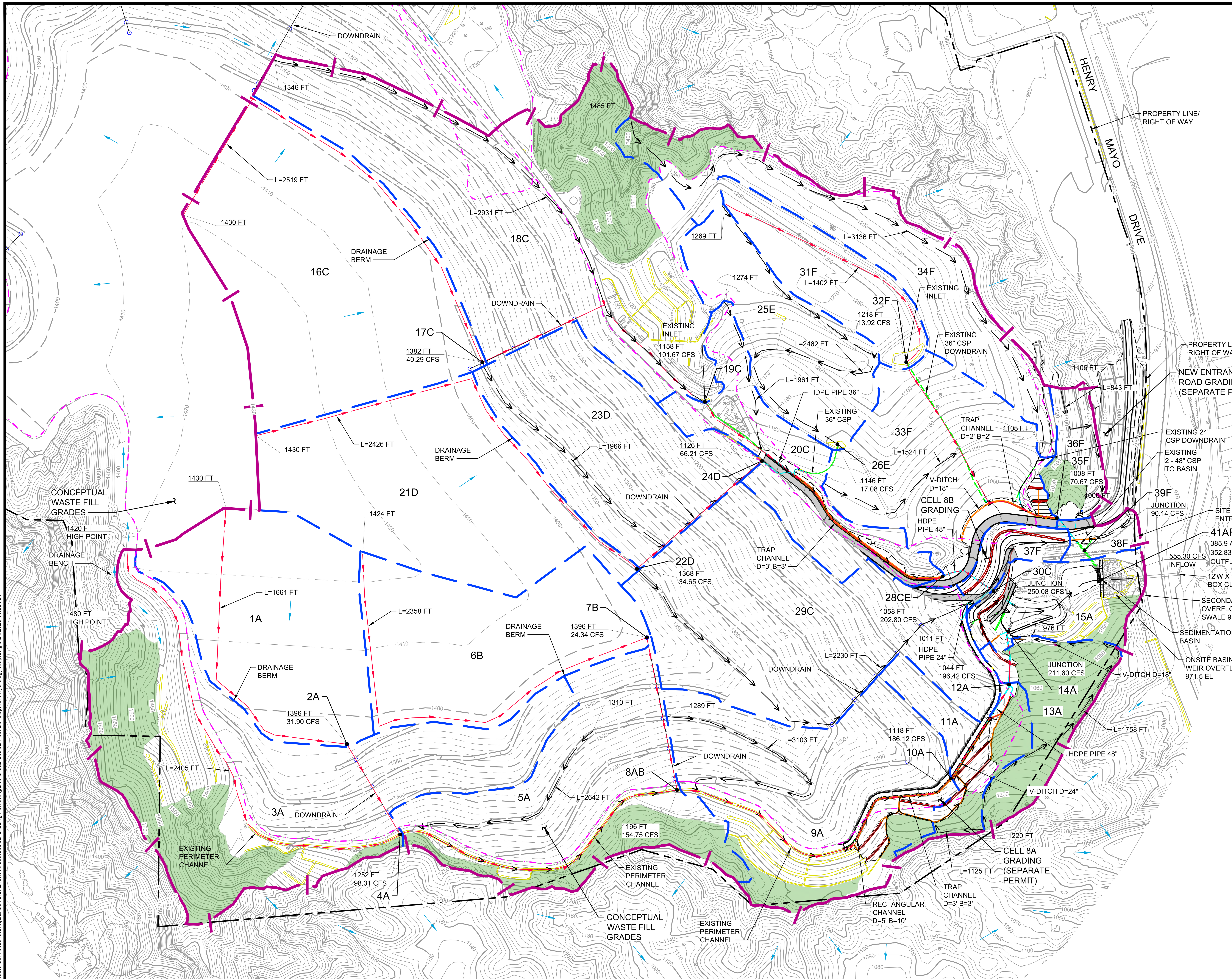
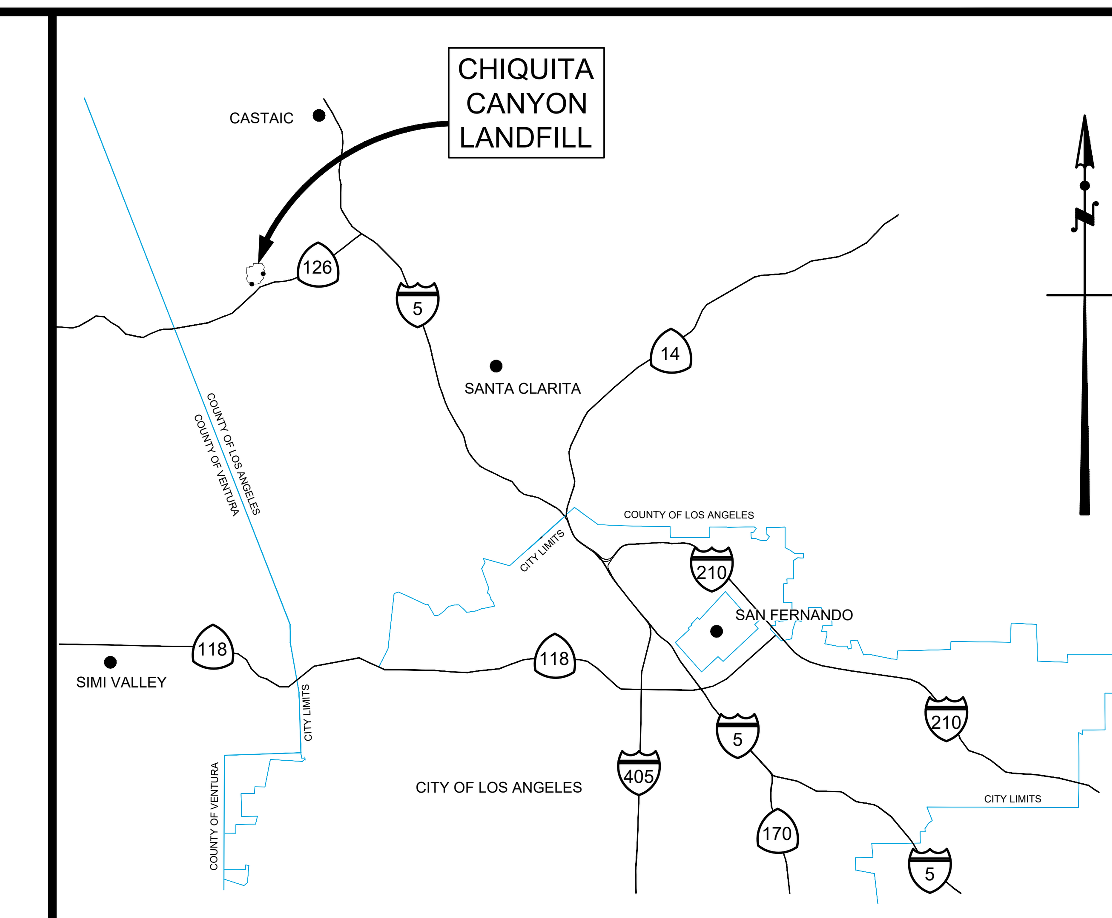
CHIQUITA CANYON LANDFILL

PRE-DEVELOPMENT HYDROLOGY MAP

DESIGNED BY :	P.V.	FILE : C-801 Cell 8B Pre Development Hydrology Map.dwg			
DRAWN BY :	P.V.	DATE :	02-2021	SCALE:	AS SHOWN
CHECKED BY :	C.H.M.	DATE :	02-2021	FIGURE 4	
APPROVED BY :	C.H.M.	DATE :	02-2021		





LOCATION MAP

NTS

N

0 125 250 500

GRAPHIC SCALE:1"= 250'

LEGEND

- APPROXIMATE LIMIT OF PROPERTY LINE
- LIMIT OF GRADING / DAYLIGHT
- UNPAVED ROAD / BENCH
- EXISTING UNPAVED ROAD / BENCH
- WATERSHED LIMIT
- DRAINAGE SUBAREAS
- 10 PROPOSED MAJOR CONTOUR
- 9 PROPOSED MINOR CONTOUR
- 10 CONSTRUCTED MAJOR CONTOUR
- 9 CONSTRUCTED MINOR CONTOUR
- 10 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- REACH FLOW PATH
- SUBAREA T_C FLOW PATH
- PROPOSED TERRACE CHANNEL
- PROPOSED DRAINAGE CHANNEL/STRUCTURE
- PROPOSED STORM DRAIN PIPE
- EXISTING STORM DRAIN PIPE
- EXISTING DRAINAGE CHANNEL/STRUCTURE
- MAIN CANYON LANDFILL
- CANYON "B" LANDFILL
- PRIMARY CANYON LANDFILL
- PAVED ROAD
- ASSUMED UNDEVELOPED AREAS
- DIRECTION OF DRAINAGE
- 1A SUBAREA ID
- 1A COLLECTION POINT ID

NOTES:
1. NOT WITHIN COUNTY ADOPTED FLOODWAY.
2. NOT WITHIN FEMA FLOOD ZONE A.
3. ALL FLOW RATES SHOWN ON MAP ARE 50-YEAR BURNED AND BULKED.

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CHIQUITA CANYON LANDFILL

POST-DEVELOPMENT HYDROLOGY MAP

DESIGNED BY :	P.V.	FILE : C-802 Cell 8B Post Development Hydrology Map.dwg			
DRAWN BY :	P.V.	DATE :	03-2023	SCALE:	AS SHOWN
CHECKED BY :	C.H.M.	DATE :	03-2023	FIGURE 5	
APPROVED BY :	C.H.M.	DATE :	03-2023		

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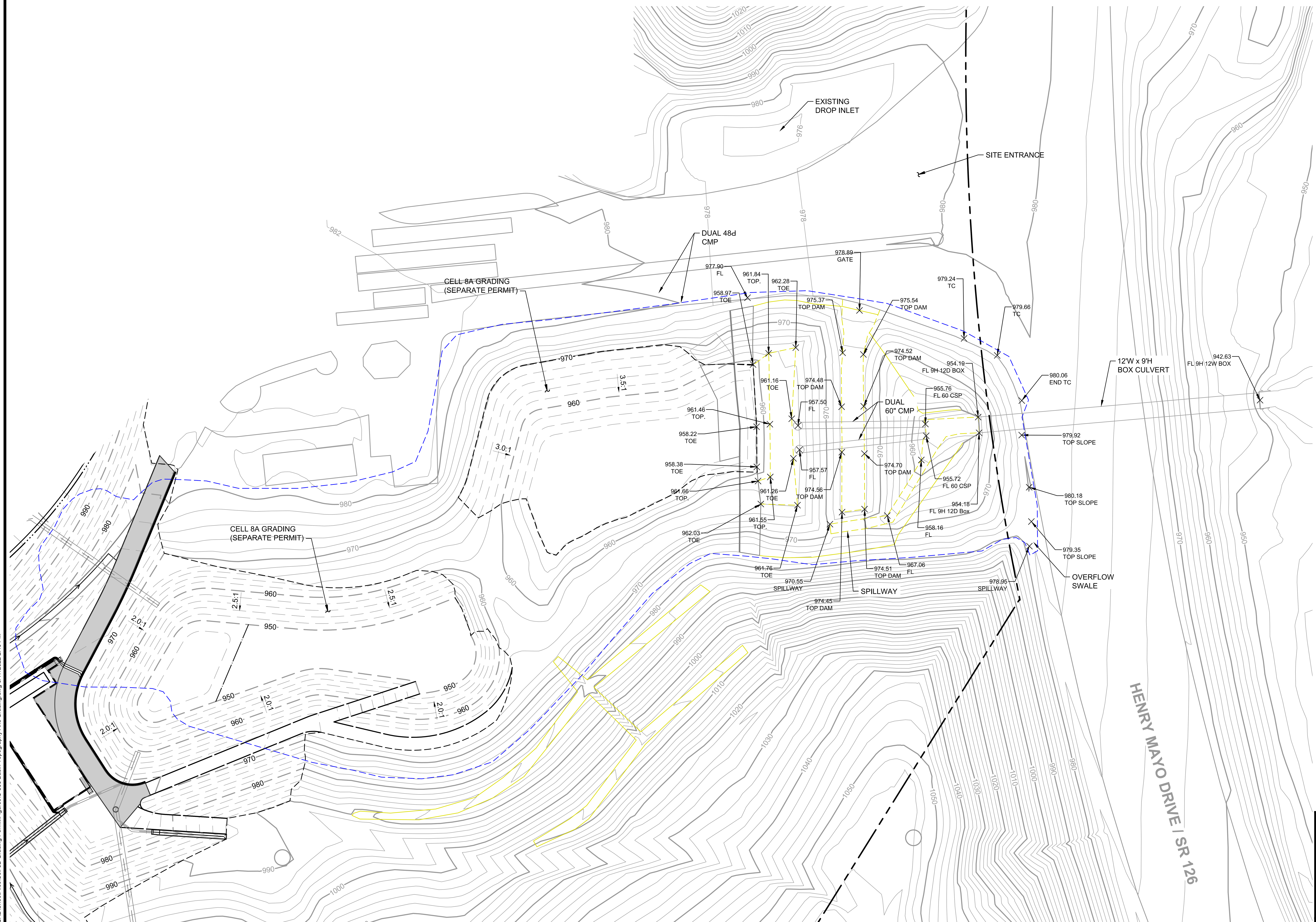
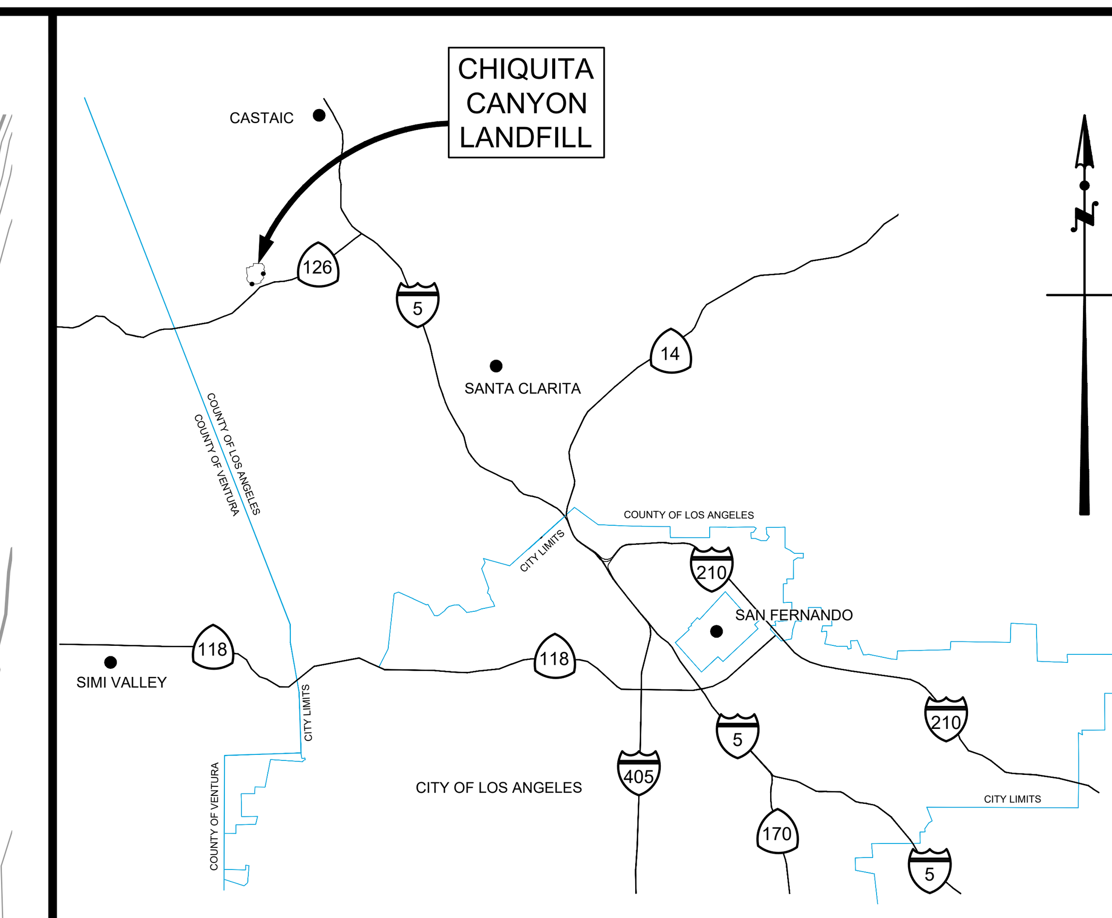
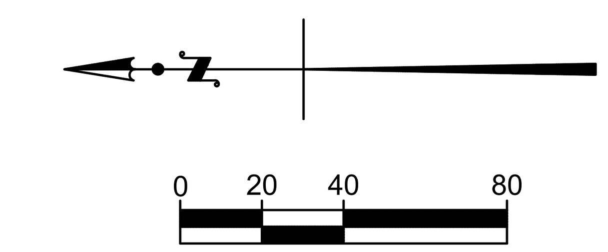


DATE OF TOPOGRAPHIES: JANUARY 13, 2020 PREPARED BY CONTINENTAL MAPPING CONSULTANTS INC., BASIN AREA: JANUARY 12, 2021 PREPARED BY BLUE RIDGE SERVICES INC. & APRIL 7, 2021 PERFORMED BY TETRA TECH INC.



LOCATION MAP
NTS



GRAPHIC SCALE:1"= 40'

LEGEND

APPROXIMATE LIMIT OF PROPERTY LINE
LIMIT OF GRADING / DAYLIGHT
UNPAVED ROAD / BENCH
EXISTING UNPAVED ROAD / BENCH
10 PROPOSED MAJOR CONTOUR
9 PROPOSED MINOR CONTOUR
10 CONSTRUCTED MAJOR CONTOUR
9 CONSTRUCTED MINOR CONTOUR
10 EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
RIDGE LINE
LIMIT OF 2021 TOPOGRAPHY
PROPOSED TERRACE CHANNEL
PROPOSED DRAINAGE CHANNEL/STRUCTURE
PROPOSED STORM DRAIN PIPE
EXISTING STORM DRAIN PIPE
EXISTING DRAINAGE CHANNEL/STRUCTURE
PAVED ROAD
ELEV DESC FIELD SURVEY POINT

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CHIQUITA CANYON LANDFILL

SUPPLEMENTAL SEDIMENTATION BASIN TOPOGRAPHY AND GRADING

DESIGNED BY :	P.V.	FILE : C-803 Basin Topography And Grading.dwg			
DRAWN BY :	P.V.	DATE :	09-2021	SCALE:	AS SHOWN
CHECKED BY :	C.H.M.	DATE :	09-2021	FIGURE 6	
APPROVED BY :	C.H.M.	DATE :	09-2021		

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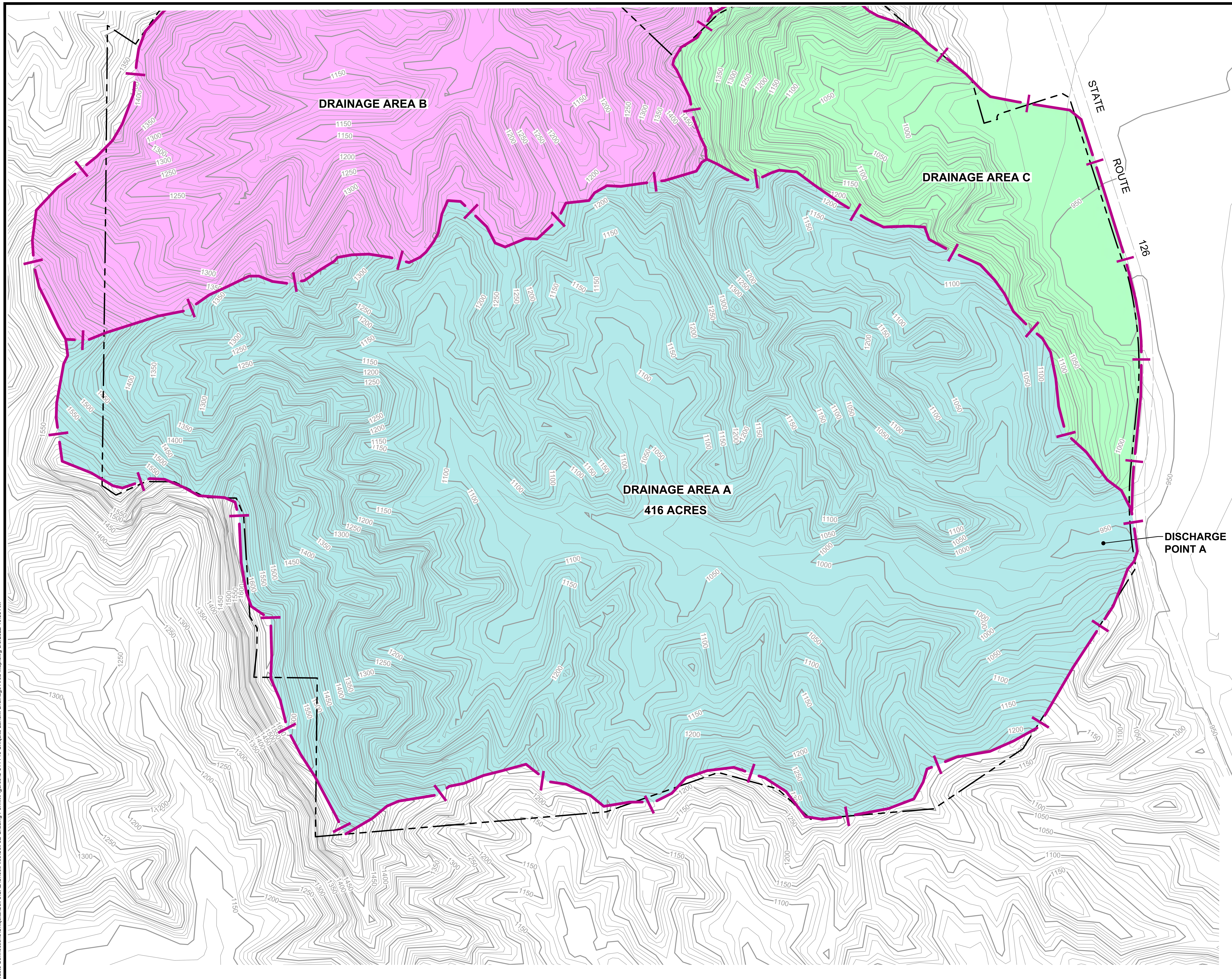

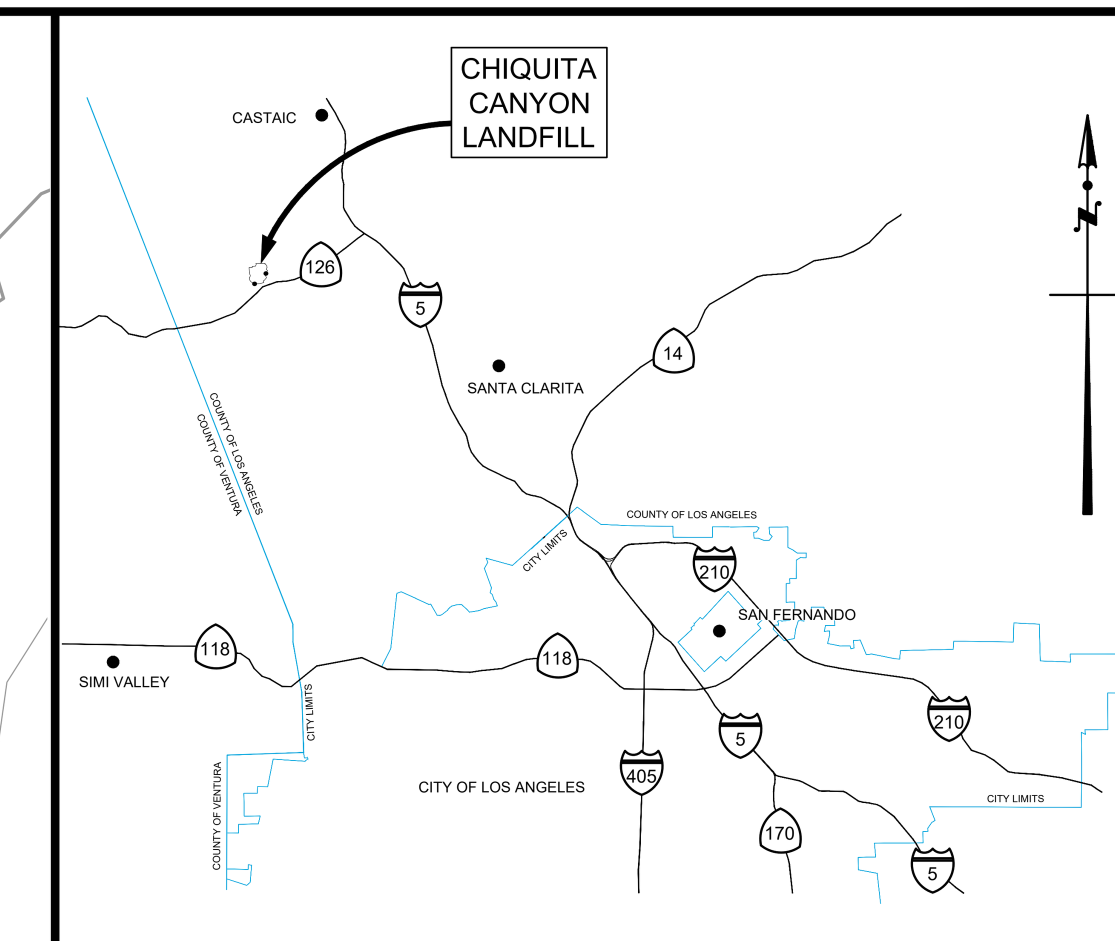

LOCATION MAP

NTS

0 150 300 600

GRAPHIC SCALE:1"= 300'

LEGEND

- APPROXIMATE LIMIT OF PROPERTY LINE
- WATERSHED LIMIT
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- APPROXIMATE AREA DRAINING TO DISCHARGE POINT A

NOTES:
1. NOT WITHIN COUNTY ADOPTED FLOODWAY.
2. NOT WITHIN FEMA FLOOD ZONE A.
3. EXISTING CONTOURS GENERATED FROM USGS VAL VERDE QUADRANGLE DIGITAL ELEVATION MODEL (DEM). USGS TOPOGRAPHY FROM AERIAL PHOTOGRAPHS TAKEN IN 1947.

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CHIQUITA CANYON LANDFILL

PRE LANDFILL DRAINAGE AREA MAP

DESIGNED BY :	P.V.	FILE : C-811 Pre Chiquita Landfill Drainage Area Map.dwg	
DRAWN BY :	P.V.	DATE : 11-2021	SCALE: AS SHOWN
CHECKED BY :	C.H.M.	DATE : 11-2021	FIGURE 7
APPROVED BY :	C.H.M.	DATE : 11-2021	

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ATTACHMENT 1

PEAK FLOW AND DEBRIS PRODUCTION SUMMARY TABLES

CHIQUITA CANYON LANDFILL
CELL 8B PRE-DEVELOPMENT HYDROLOGY
50-YEAR, 24 HOUR PEAK FLOW

Calculated By: PV
Checked By: CHM
Date: 09-07-2021

SUB AREA ID	AREA ac	FLOW PATH ft	FLOW PATH SLOPE TOP EL	BOT EL	ft/ft	IMP %	SOIL TYPE	T_C min	CLEAR PEAK FLOW cfs	FIRE FACT.	BURNED PEAK FLOW cfs
1A	18.7	830	1394	1368	0.031	0.05	97	9	35.40	0.34	37.14
3A	13.6	1,691	1384	1253	0.077	0.05	97	13	20.86	0.34	22.01
4A	24.2	2,708	1643	1253	0.144	0.04	97	15	34.12	0.34	36.11
6A	10.3	1,386	1253	1202	0.037	0.04	97	13	15.75	0.34	16.63
7A	9.9	1,925	1345	1202	0.074	0.05	97	14	14.56	0.34	15.39
9A	10.2	1,466	1202	1146	0.038	0.04	97	13	15.60	0.34	16.47
11A	17.1	1,429	1220	984	0.165	0.01	97	10	30.24	0.34	31.85
13A	6.7	547	987	945	0.077	0.27	97	6	16.61	0	16.61
14B	30.9	1,654	1394	1329	0.039	0.05	97	14	45.46	0.34	48.02
16B	33.5	4,087	1332	1136	0.048	0.05	97	26	34.04	0.34	36.34
18B	22.5	4,745	1394	1086	0.065	0.05	97	27	22.35	0.34	23.88
19C	41.1	3,799	1295	1160	0.036	0.02	97	26	41.22	0.34	44.13
21C	7.1	1,268	1274	1081	0.152	0.17	97	9	13.86	0	13.86
22D	12.7	2,466	1268	1146	0.049	0.05	97	18	16.1	0.34	17.08
26E	12.2	1,566	1143	1023	0.077	0.05	97	12	19.59	0.34	20.65
28E	12.6	1,597	1072	978	0.059	0.18	97	12	21.02	0	21.02
30F	8.6	1,520	1241	1218	0.015	0.05	97	16	11.73	0.34	12.41
32F	16.9	1,264	1116	1014	0.081	0.05	97	10	30.21	0.34	31.74
34F	10.0	1,470	1075	975	0.068	0.30	97	11	18.11	0	18.11
35G	17.4	3,136	1488	1108	0.121	0.05	97	18	22.06	0.34	23.41
38H	13.0	2,030	1248	987	0.129	0.02	97	13	19.76	0.34	20.89

Note: A fire factor was only applied to subareas with 15% or less imperviousness.

CALCULATIONS

CHIQUITA CANYON LANDFILL
CELL 8B PRE-DEVELOPMENT HYDROLOGY
CUMULATIVE PEAK FLOWS AND BULKING

Calculated By: PV
Checked By: CHM
Date: 09-07-2021

COLLECTION POINT ID	Q= cfs	A= ac	A= mi^2	A_U= ac	A_U= mi^2	A_D= mi^2	BF_A=	BF_{AU}=	Q_B= cfs
2A	37.14	18.7	0.029	0	0.000	0.029	0	0	37.14
5A	95.00	56.5	0.088	12.58	0.020	0.069	1.47	1.47	104.84
8A	125.49	76.7	0.120	17.55	0.027	0.092	1.45	1.47	138.76
10A	140.19	86.9	0.136	19.22	0.030	0.106	1.45	1.47	154.47
12A	166.26	104.0	0.163	36.06	0.056	0.106	1.43	1.47	192.37
15B	48.02	30.9	0.048	0	0.000	0.048	0	0	48.02
17B	78.69	64.4	0.101	0	0.000	0.101	0	0	78.69
20C	44.13	41.1	0.064	8.08	0.013	0.052	1.47	1.47	48.16
23D	17.08	12.7	0.020	0	0.000	0.020	0	0	17.08
25BD	169.31	147.8	0.231	8.08	0.013	0.218	1.41	1.47	173.59
27E	20.65	12.2	0.019	0	0.000	0.019	0	0	20.65
29BE	206.19	172.6	0.270	8.08	0.013	0.257	1.40	1.47	210.65
31F	12.41	8.6	0.013	0	0.000	0.013	0	0	12.41
33F	43.76	25.5	0.040	0	0.000	0.040	0	0	43.76
36G	23.41	17.4	0.027	2.55	0.004	0.023	1.47	1.47	25.01
37FG	84.96	52.9	0.083	5.54	0.009	0.074	1.47	1.47	89.10
39H	20.89	13.0	0.020	0.40	0.001	0.020	1.47	1.47	21.19
42AH	475.60	349.2	0.546	50.85	0.079	0.466	1.37	1.47	506.88

Note: Bulking was only applied to ID points collecting runoff from debris producing subareas.

$$Q_B = BF_{(A)} \times \left(\frac{Q_{(A)} \quad A_u}{A}\right)\left(\frac{A_u}{A}\right) + BF_{(A_u)} \times \left(\frac{Q_{(A)} \quad A_u}{A}\right)\left(\frac{A_d}{A}\right) + \left(\frac{Q_{(A)} \quad A_d}{A}\right)$$

Q = Clear or burned discharge in cfs
Q_B = Bulked or burned and bulked discharge in cfs
$BF_{i(Ai)}$ = Bulking factor based on area A_i
A_i = Drainage area in mi^2
A_u = Total undeveloped area in mi^2
A_d = Total developed area in mi^2

CHIQUITA CANYON LANDFILL
CELL 8B PRE-DEVELOPMENT HYDROLOGY
DEBRIS PRODUCTION CALCULATION

Calculated By: PV
Checked By: CHM
Date: 09-07-2021

A= ac	A= mi^2	A_U= ac	A_U= mi^2	A_D= mi^2	$DPR_{(A)}$= yd^3/mi^2	$DPR_{(AU)}$= yd^3/mi^2	DP= yd^3	DP= ac-ft
349.2	0.546	50.85	0.079	0.466	42,000	82,000	6,052	3.75

$$DP = DPR_{(A)} \times A_u \left(\frac{A_u}{A}\right) + DPR_{(A_u)} \times A_u \left(\frac{A_d}{A}\right)$$

$$A_d = \sum \left(A_{d_1} + A_{d_2} + A_{d_3} + \ldots + A_{d_n} \right)$$
$$A_u = A - A_d$$

DP = Debris production in yd^3

$DPR_{(A)}$ = Debris production rate based on the total drainage area, A, in yd^3/mi^2

$DPR_{(Au)}$ = Debris production rate based on the total undeveloped drainage area, A_u, in yd^3/mi^2

A = Total drainage area including developments in mi^2

A_u = Total undeveloped area in mi^2

A_d = Total developed area (existing only) in mi^2

TETRA TECH BAS

CHIQUITA CANYON LANDFILL
CELL 8B POST-DEVELOPMENT HYDROLOGY
50-YEAR, 24 HOUR PEAK FLOW

Calculated By: PV
Checked By: CHM
Date: 12-16-2022

SUB AREA ID	AREA ac	FLOW PATH ft	FLOW PATH SLOPE TOP EL	BOT EL	ft/ft	IMP %	SOIL TYPE	T_C min	CLEAR PEAK FLOW cfs	FIRE FACT.	BURNED PEAK FLOW cfs
1A	22.1	1,661	1430	1396	0.020	5	97	16	30.13	0.34	31.90
3A	40.4	2,405	1420	1252	0.070	5	97	16	55.06	0.34	58.31
5A	23.4	2,642	1310	1196	0.043	5	97	19	28.72	0.34	30.50
6B	20.9	2,358	1424	1396	0.012	5	97	23	22.85	0.34	24.34
9A	25.5	3,103	1289	1118	0.055	5	97	21	29.46	0.34	31.33
11A	6.4	1,125	1220	1044	0.156	5	97	8	12.90	0.34	13.52
13A	7.3	1,758	1220	976	0.139	5	97	12	11.72	0.34	12.35
15A	7.6	1,136	999	956	0.038	26	97	11	13.62	0.00	13.62
16C	34.6	2,519	1419	1382	0.015	5	97	23	37.82	0.34	40.29
18C	43.6	2,931	1346	1160	0.063	5	97	19	53.51	0.34	56.82
20C	11.6	1,961	1274	1058	0.110	15	97	13	18.35	0.34	19.22
21D	27.4	2,426	1430	1368	0.026	5	97	20	32.60	0.34	34.65
23D	19.7	1,966	1382	1126	0.130	5	97	13	30.22	0.34	31.89
25E	12.7	2,462	1269	1146	0.050	5	97	18	16.10	0.34	17.08
29C	29.9	2,230	1368	1011	0.160	5	97	13	45.87	0.34	48.39
31F	8.6	1,402	1269	1218	0.036	5	97	13	13.19	0.34	13.92
33F	18.8	1,524	1116	1008	0.071	5	97	12	30.19	0.34	31.82
34F	17.4	3,136	1485	1108	0.120	5	97	18	22.06	0.34	23.41
36F	3.7	843	1106	1000	0.126	36	97	7	8.60	0.00	8.60
37F	2.6	712	1015	982	0.046	37	97	7	6.06	0.00	6.06
38F	1.7	278	1000	976	0.086	50	97	5	4.86	0.00	4.86

Notes:
1. A fire factor was only applied to subareas with 15% or less imperviousness.

TETRA TECH BAS

CHIQUITA CANYON LANDFILL
CELL 8B POST-DEVELOPMENT HYDROLOGY
CUMULATIVE PEAK FLOWS AND BULKING

Calculated By: PV
Checked By: CHM
Date: 12-19-2022

COLLECTION POINT OR SUBAREA ID	Q= cfs	A= ac	A= mi^2	A_U= ac	A_U= mi^2	A_D= mi^2	BF_A=	BF_{AU}=	Q_B= cfs
2A	31.90	22.1	0.035	0	0.000	0.035	1.47	1.47	31.90
4A	90.15	62.5	0.098	12.17	0.019	0.079	1.47	1.47	98.31
7B	24.34	20.9	0.033	0	0.000	0.033	1.47	1.47	24.34
8AB	144.12	106.8	0.167	17.14	0.027	0.140	1.43	1.47	154.75
10A	174.30	132.3	0.207	19.60	0.031	0.176	1.42	1.47	186.12
12A	183.34	138.7	0.217	21.64	0.034	0.183	1.42	1.47	196.42
14A	194.48	146.0	0.228	28.30	0.044	0.184	1.41	1.47	211.60
17C	40.29	34.6	0.054	0	0.000	0.054	1.47	1.47	40.29
19C	97.01	78.2	0.122	8.08	0.013	0.110	1.45	1.47	101.66
22D	34.65	27.4	0.043	0	0.000	0.043	1.47	1.47	34.65
24D	66.21	47.1	0.074	0	0.000	0.074	1.47	1.47	66.21
26E	17.08	12.7	0.020	0	0.000	0.020	1.47	1.47	17.08
28CE	197.86	149.6	0.234	8.08	0.013	0.221	1.41	1.47	202.80
30C	244.98	179.5	0.280	8.08	0.013	0.268	1.40	1.47	250.08
32F	13.92	8.6	0.013	0	0.000	0.013	1.47	1.47	13.92
35F	68.85	44.8	0.070	2.55	0.004	0.066	1.47	1.47	70.67
39F	87.39	52.8	0.083	3.57	0.006	0.077	1.47	1.47	90.14
41AC	529.69	385.9	0.603	41.01	0.064	0.539	1.37	1.47	555.30

Notes:

1. Bulking was only applied to point or subarea IDs collecting runoff from debris producing areas.

$$Q_B = BF_{(A)} \times \left(\frac{Q_{(A)} \quad A_u}{A}\right)\left(\frac{A_u}{A}\right) + BF_{(A_u)} \times \left(\frac{Q_{(A)} \quad A_u}{A}\right)\left(\frac{A_d}{A}\right) + \left(\frac{Q_{(A)} \quad A_d}{A}\right)$$

Q = Clear or burned discharge in cfs

Q_B = Bulked or burned and bulked discharge in cfs

$BF_{i(Ai)}$ = Bulking factor based on area A_i

A_i = Drainage area in mi^2

A_u = Total undeveloped area in mi^2

A_d = Total developed area in mi^2

TETRA TECH BAS

CHIQUITA CANYON LANDFILL
CELL 8B POST-DEVELOPMENT HYDROLOGY
DEBRIS PRODUCTION CALCULATION

Calculated By: PV
Checked By: CHM
Date: 12-19-2022

A= ac	A= mi^2	A_U= ac	A_U= mi^2	A_D= mi^2	$DPR_{(A)}$= yd^3/mi^2	$DPR_{(AU)}$= yd^3/mi^2	DP= yd^3	DP= ac-ft
385.9	0.603	41.01	0.064	0.539	41,000	82,000	4,976	3.08

$$DP = DPR_{(A)} \times A_u \left(\frac{A_u}{A}\right) + DPR_{(A_u)} \times A_u \left(\frac{A_d}{A}\right)$$

$$A_d = \Sigma \left(A_{d_1} + A_{d_2} + A_{d_3} + \ldots + A_{d_n} \right)$$
$$A_u = A - A_d$$

DP = Debris production in yd^3

$DPR_{(A)}$ = Debris production rate based on the total drainage area, A, in yd^3/mi^2

$DPR_{(Au)}$ = Debris production rate based on the total undeveloped drainage area, A_u, in yd^3/mi^2

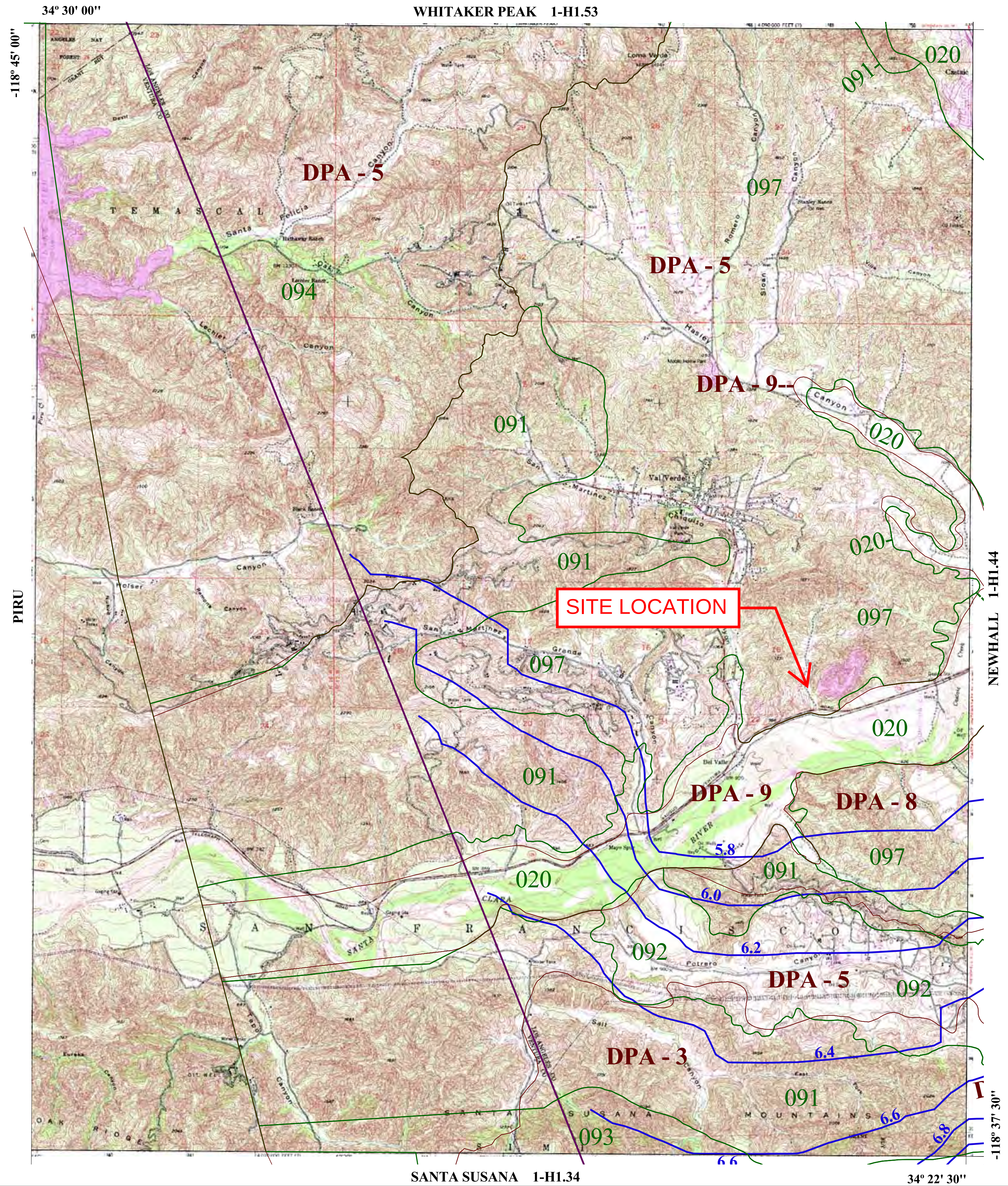
A = Total drainage area including developments in mi^2

A_u = Total undeveloped area in mi^2

A_d = Total developed area (existing only) in mi^2

ATTACHMENT 2

HYDROLOGY AND SEDIMENTATION MANUAL REFERENCES



016	SOIL CLASSIFICATION AREA	
7.2	INCHES OF RAINFALL	
DPA - 6	DEBRIS POTENTIAL AREA	

N W E S

1 0 1 2 Miles

25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878

10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

VAL VERDE
50-YEAR 24-HOUR ISOHYET

1-H1.43

$C_D = (0.9 * IMP) + (1.0 - IMP) * C_U$

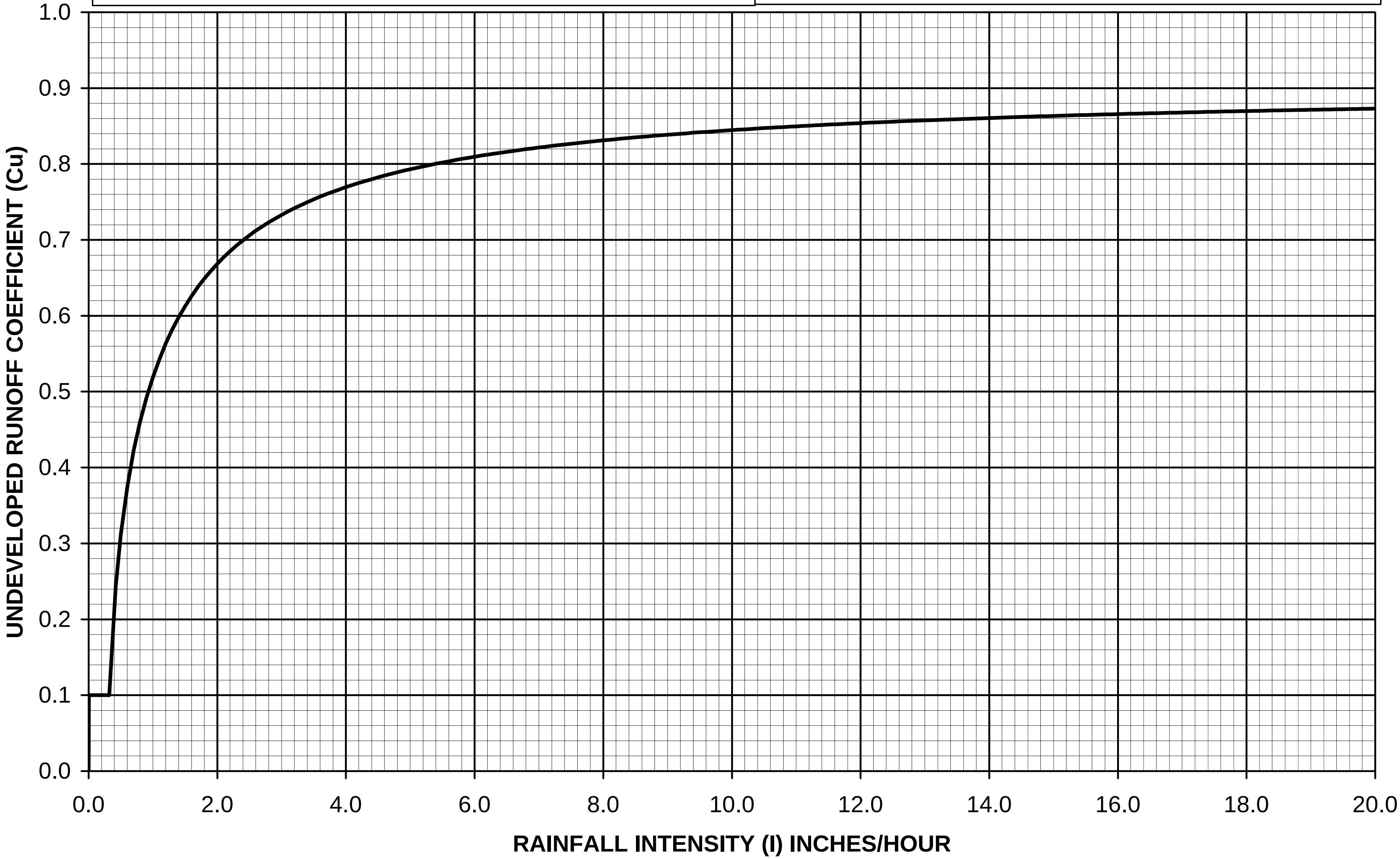
Where: C_D = Developed Runoff Coefficient

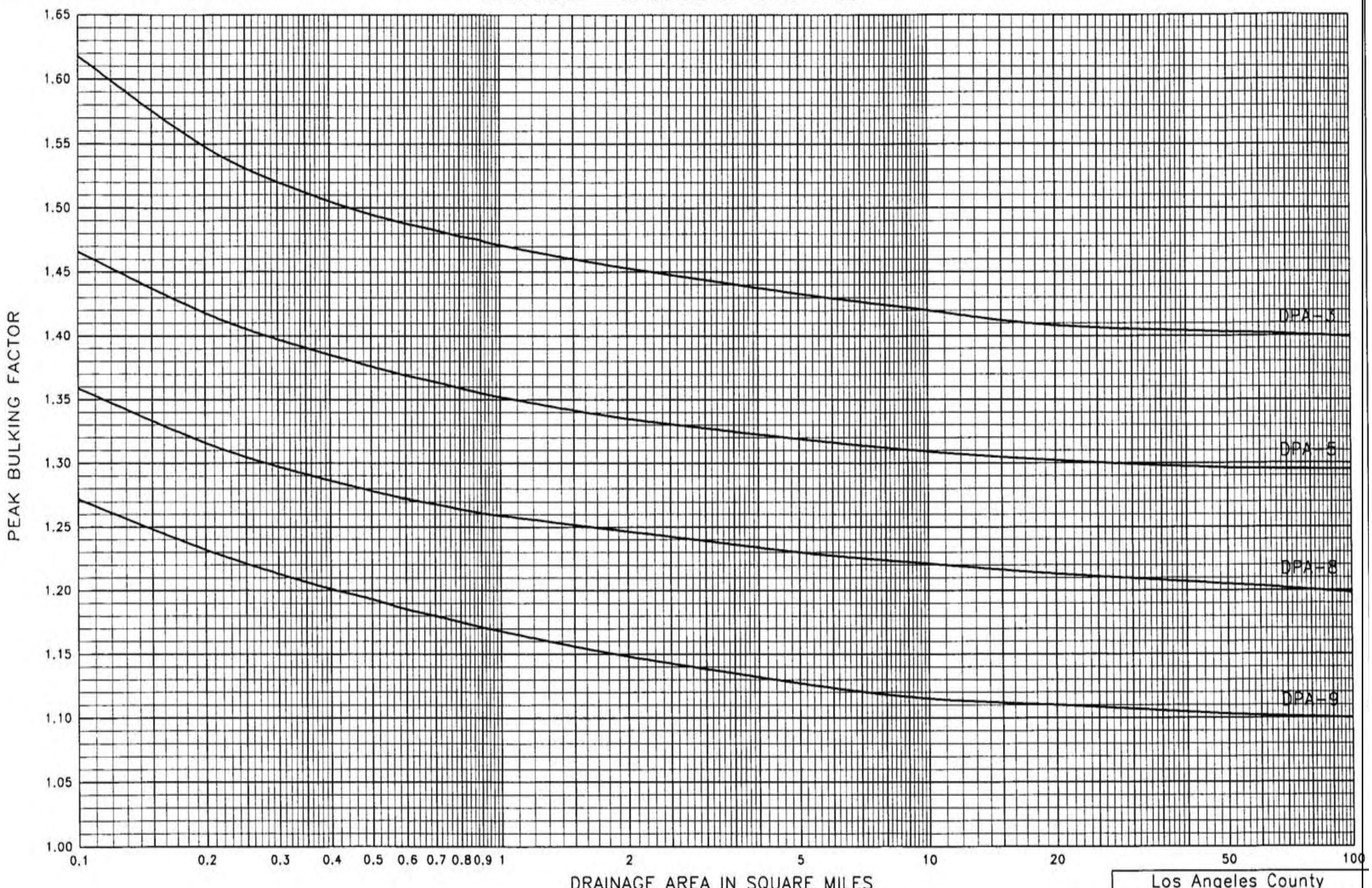
IMP = Proportion Impervious

C_U = Undeveloped runoff coefficient

Los Angeles County Department of Public Works

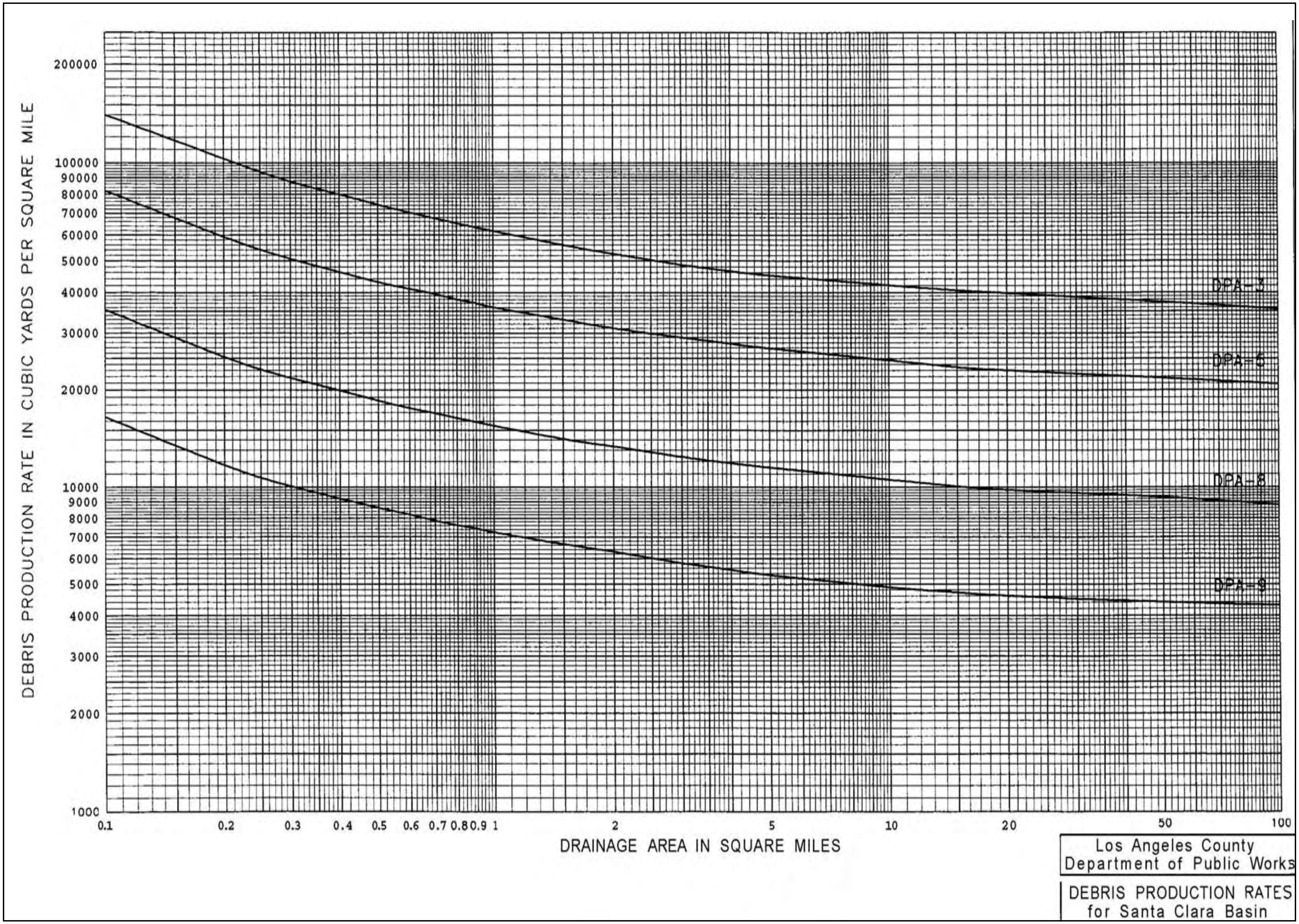
RUNOFF COEFFICIENT CURVE
SOIL TYPE NO. 097



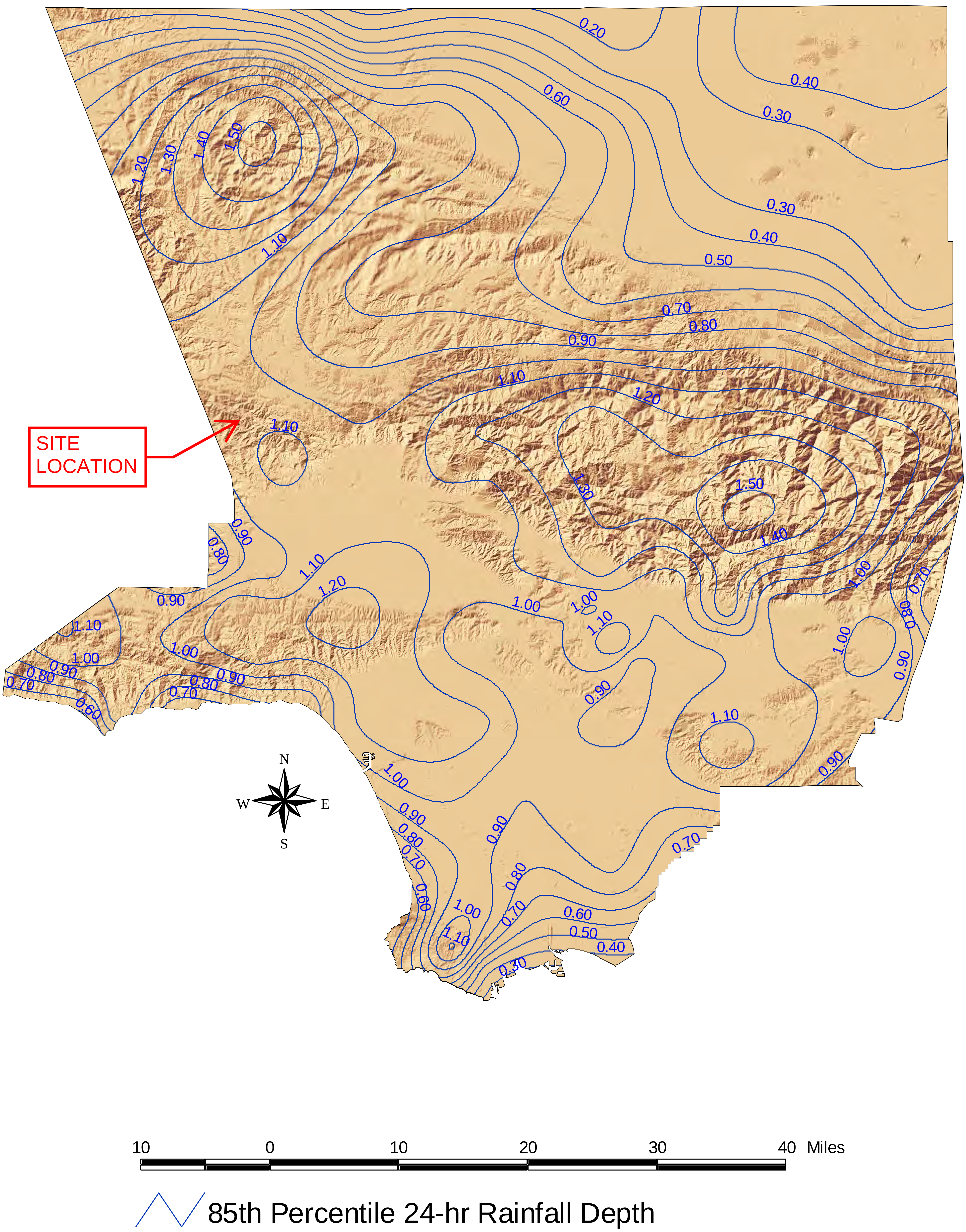


Los Angeles County
Department of Public Works

PEAK BULKING FACTORS
for Santa Clara Basin


DEBRIS PRODUCTION RATE IN CUBIC YARDS PER SQUARE MILE
200000
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
DPA-3
DPA-6
DPA-8
DPA-9
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
2
5
10
20
50
100
DRAINAGE AREA IN SQUARE MILES
Los Angeles County
Department of Public Works
DEBRIS PRODUCTION RATES
for Santa Clara Basin

85th Percentile 24-hr Rainfall Isohyetal Map



ATTACHMENT 3

MODRAT ANALYSIS

PRE-DEVELOPMENT CONDITION

MODRAT ANALYSIS

HYDROCALC MODELING OUTPUT

Peak Flow Hydrologic Analysis

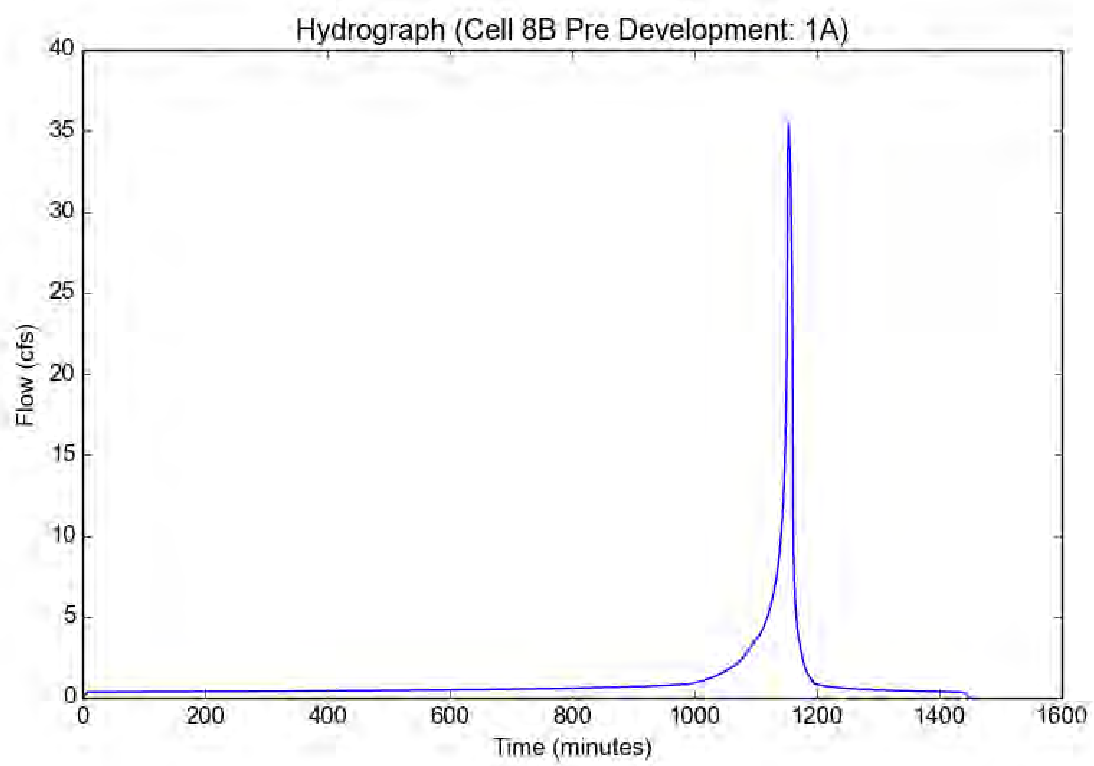
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	1A
Area (ac)	18.7
Flow Path Length (ft)	830.0
Flow Path Slope (vft/hft)	0.031
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.6251
Undeveloped Runoff Coefficient (Cu)	0.712
Developed Runoff Coefficient (Cd)	0.7214
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	35.4117
Burned Peak Flow Rate (cfs)	37.209
24-Hr Clear Runoff Volume (ac-ft)	2.1317
24-Hr Clear Runoff Volume (cu-ft)	92856.2507



Peak Flow Hydrologic Analysis

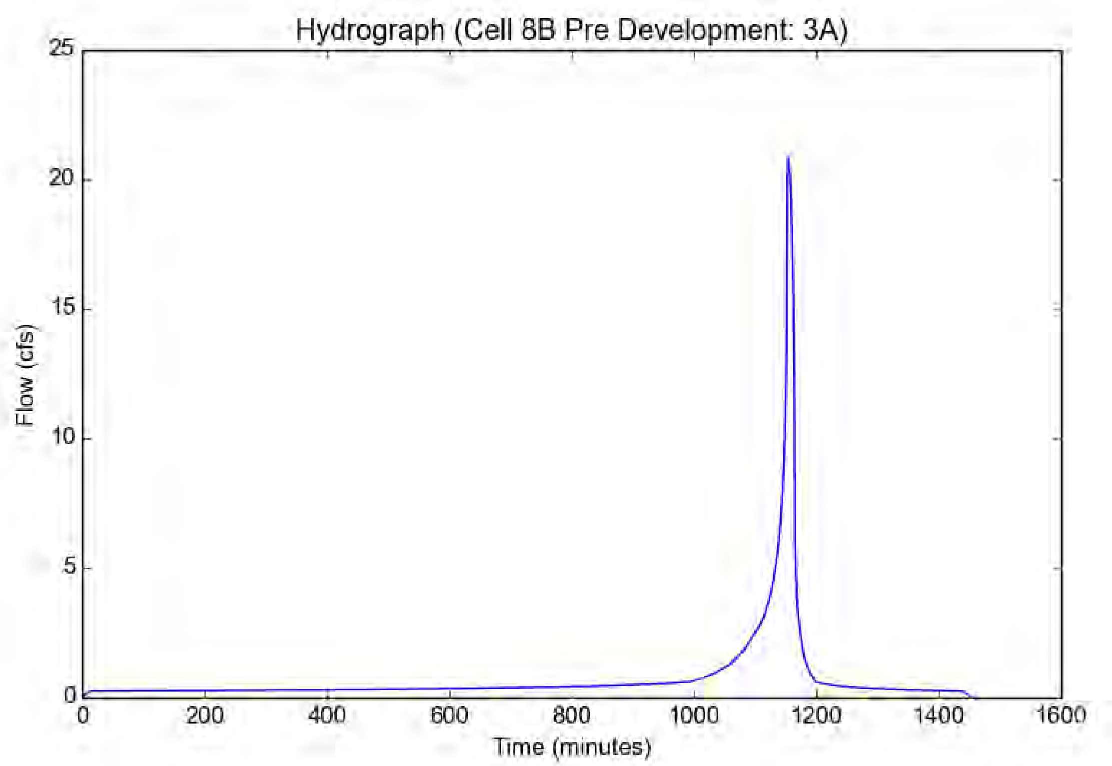
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	3A
Area (ac)	13.59
Flow Path Length (ft)	1691.0
Flow Path Slope (vft/hft)	0.077
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.2085
Undeveloped Runoff Coefficient (Cu)	0.6842
Developed Runoff Coefficient (Cd)	0.695
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	20.8581
Burned Peak Flow Rate (cfs)	22.0271
24-Hr Clear Runoff Volume (ac-ft)	1.5461
24-Hr Clear Runoff Volume (cu-ft)	67350.211



Peak Flow Hydrologic Analysis

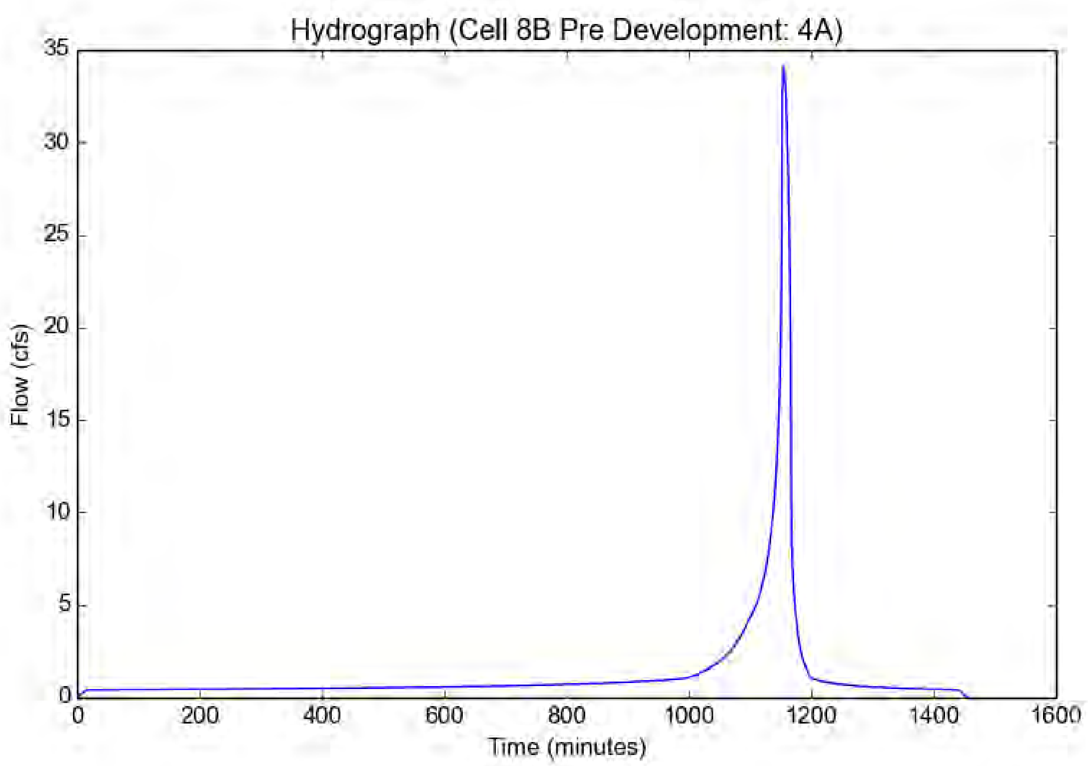
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	4A
Area (ac)	24.19
Flow Path Length (ft)	2708.0
Flow Path Slope (vft/hft)	0.144
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.04
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.0648
Undeveloped Runoff Coefficient (Cu)	0.6734
Developed Runoff Coefficient (Cd)	0.6825
Time of Concentration (min)	15.0
Clear Peak Flow Rate (cfs)	34.0882
Burned Peak Flow Rate (cfs)	36.0902
24-Hr Clear Runoff Volume (ac-ft)	2.6689
24-Hr Clear Runoff Volume (cu-ft)	116256.2299



Peak Flow Hydrologic Analysis

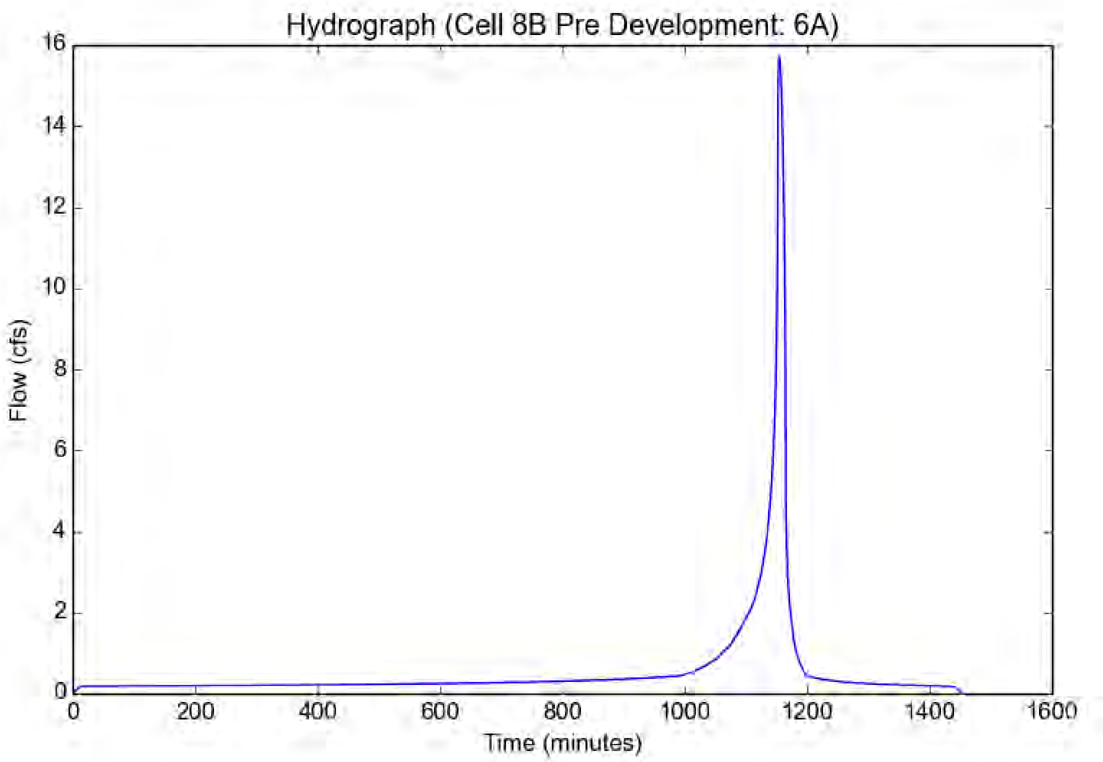
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	6A
Area (ac)	10.28
Flow Path Length (ft)	1386.0
Flow Path Slope (vft/hft)	0.037
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.04
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.2085
Undeveloped Runoff Coefficient (Cu)	0.6842
Developed Runoff Coefficient (Cd)	0.6928
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	15.7289
Burned Peak Flow Rate (cfs)	16.6194
24-Hr Clear Runoff Volume (ac-ft)	1.1352
24-Hr Clear Runoff Volume (cu-ft)	49449.0768



Peak Flow Hydrologic Analysis

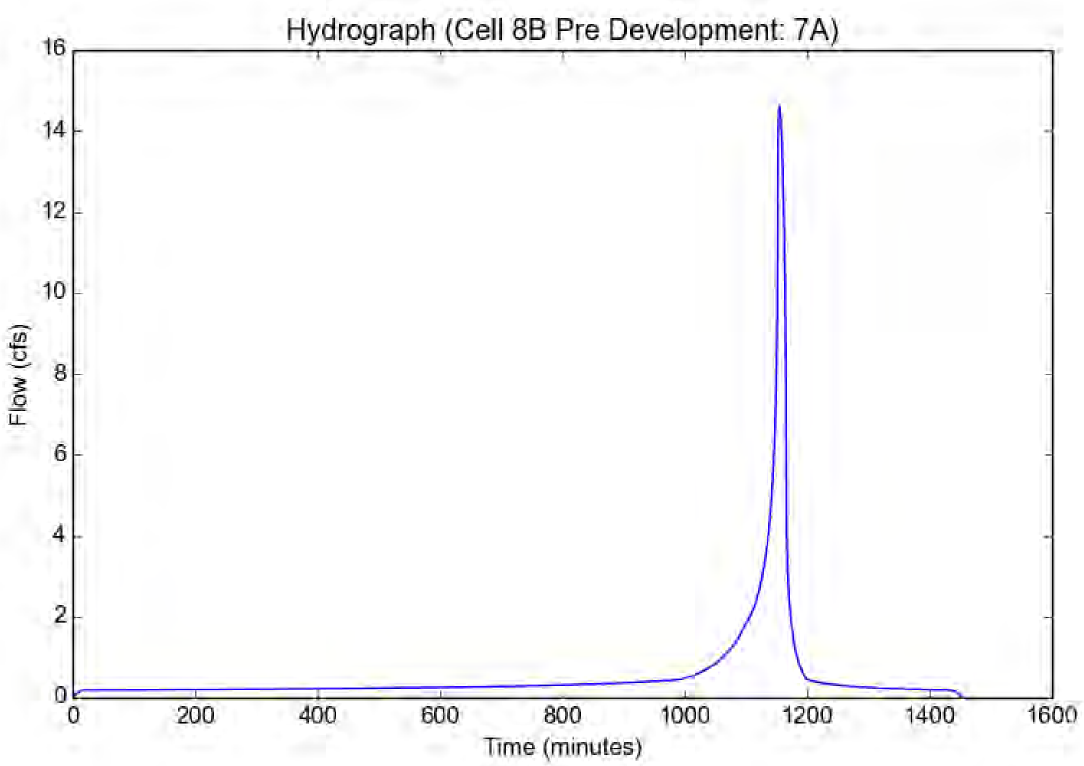
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	7A
Area (ac)	9.94
Flow Path Length (ft)	1925.0
Flow Path Slope (vft/hft)	0.074
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.1329
Undeveloped Runoff Coefficient (Cu)	0.6785
Developed Runoff Coefficient (Cd)	0.6896
Time of Concentration (min)	14.0
Clear Peak Flow Rate (cfs)	14.6197
Burned Peak Flow Rate (cfs)	15.4551
24-Hr Clear Runoff Volume (ac-ft)	1.1304
24-Hr Clear Runoff Volume (cu-ft)	49240.5453



Peak Flow Hydrologic Analysis

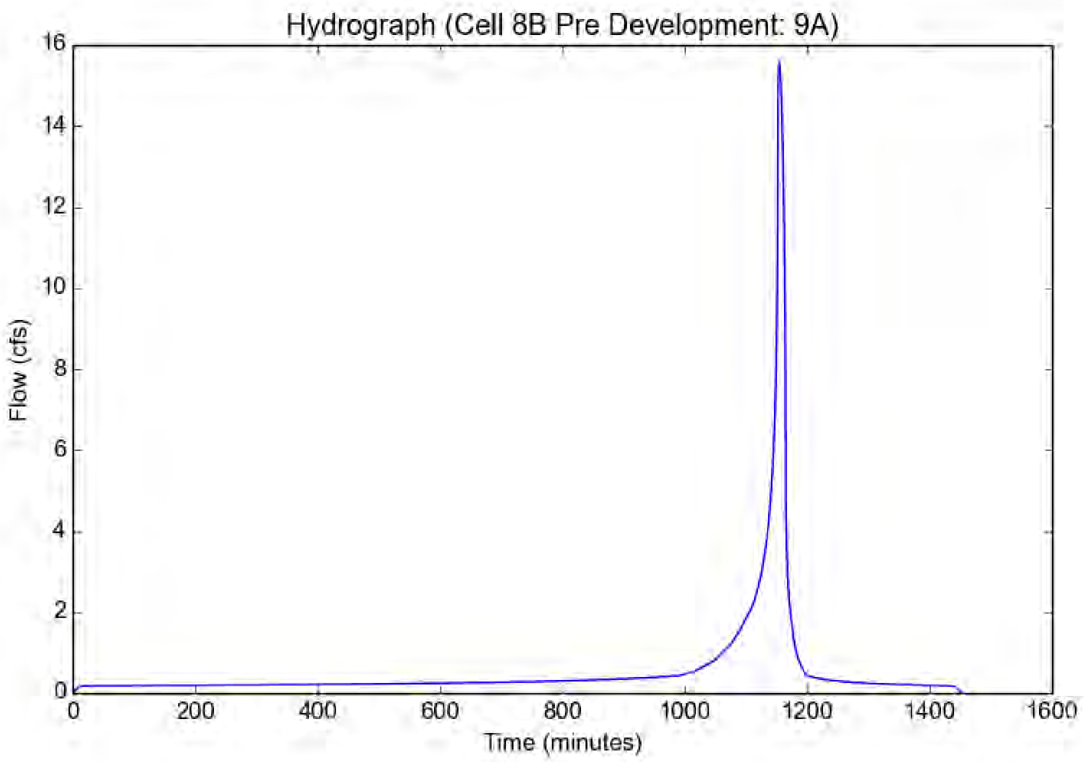
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	9A
Area (ac)	10.17
Flow Path Length (ft)	1466.0
Flow Path Slope (vft/hft)	0.038
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.04
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.2085
Undeveloped Runoff Coefficient (Cu)	0.6842
Developed Runoff Coefficient (Cd)	0.6928
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	15.5606
Burned Peak Flow Rate (cfs)	16.4416
24-Hr Clear Runoff Volume (ac-ft)	1.123
24-Hr Clear Runoff Volume (cu-ft)	48919.9524



Peak Flow Hydrologic Analysis

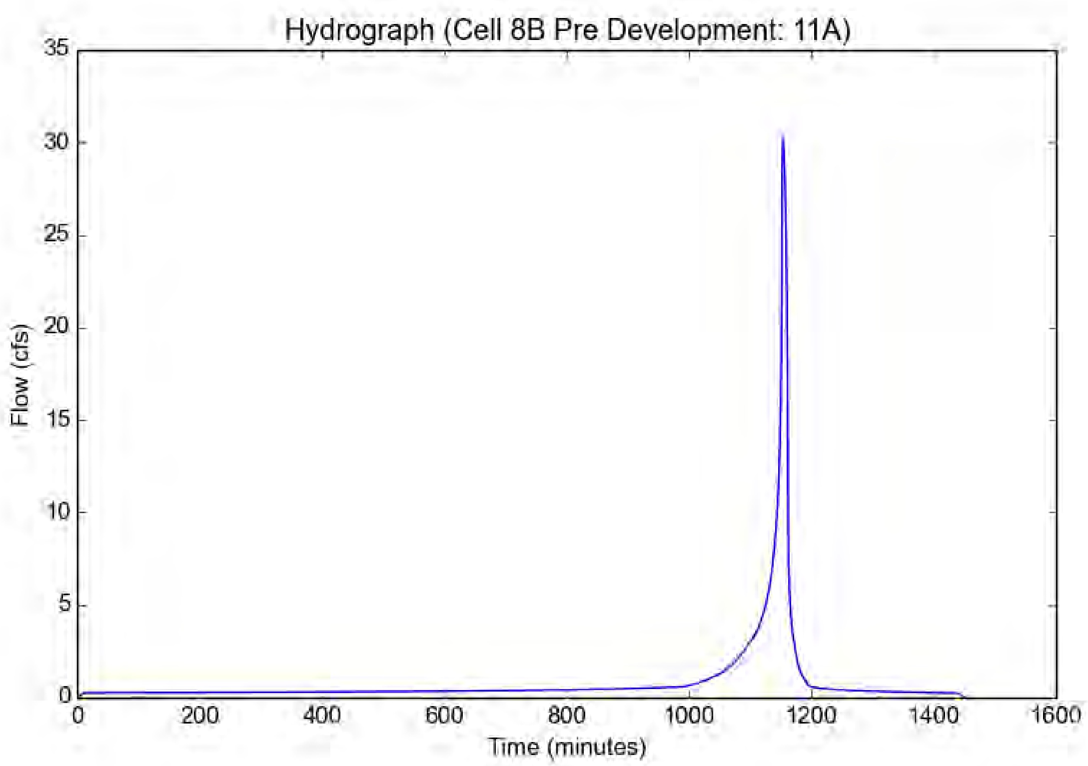
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	11A
Area (ac)	17.09
Flow Path Length (ft)	1429.0
Flow Path Slope (vft/hft)	0.165
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.4983
Undeveloped Runoff Coefficient (Cu)	0.7059
Developed Runoff Coefficient (Cd)	0.7078
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	30.2216
Burned Peak Flow Rate (cfs)	31.8476
24-Hr Clear Runoff Volume (ac-ft)	1.7189
24-Hr Clear Runoff Volume (cu-ft)	74876.5563



Peak Flow Hydrologic Analysis

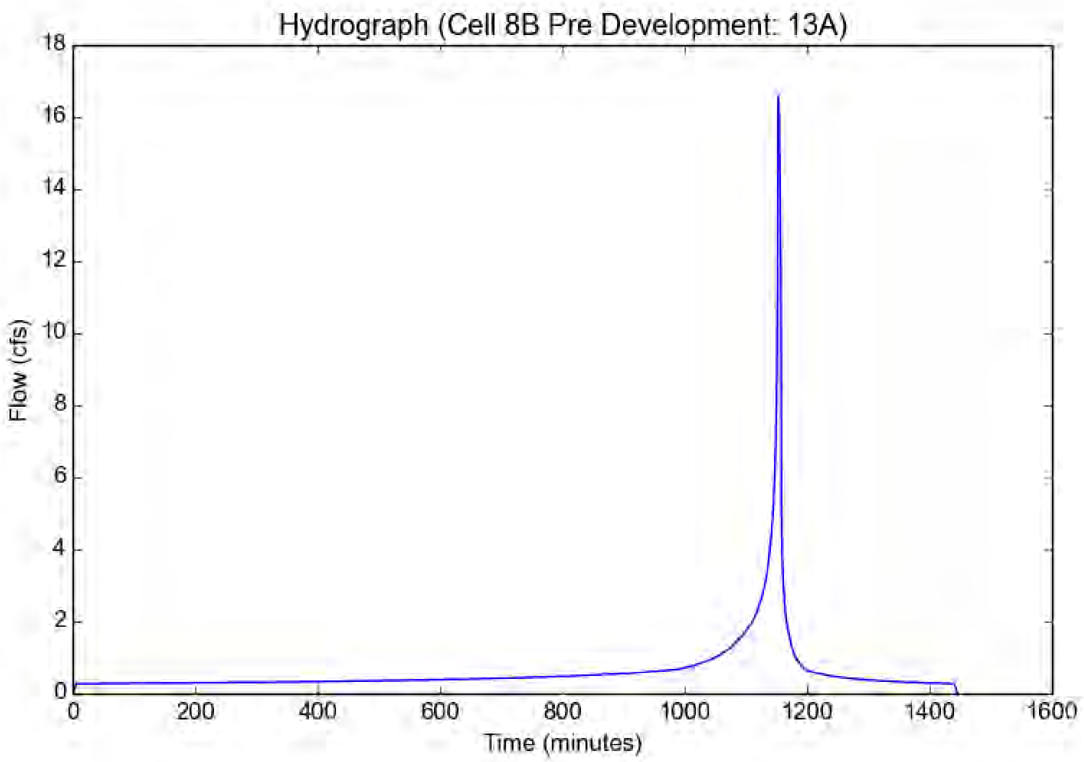
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	13A
Area (ac)	6.67
Flow Path Length (ft)	547.0
Flow Path Slope (vft/hft)	0.077
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.27
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	3.1763
Undeveloped Runoff Coefficient (Cu)	0.7381
Developed Runoff Coefficient (Cd)	0.7818
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	16.5636
Burned Peak Flow Rate (cfs)	17.1895
24-Hr Clear Runoff Volume (ac-ft)	1.2513
24-Hr Clear Runoff Volume (cu-ft)	54505.6421



Peak Flow Hydrologic Analysis

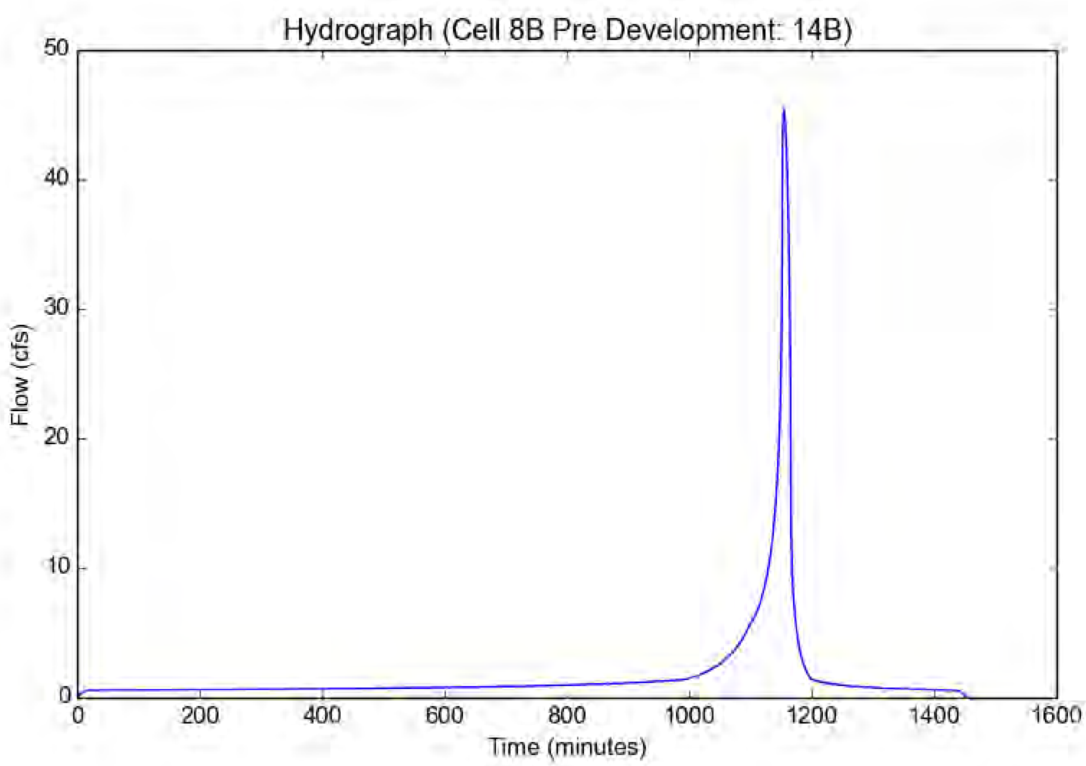
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	14B
Area (ac)	30.86
Flow Path Length (ft)	1654.0
Flow Path Slope (vft/hft)	0.039
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.1329
Undeveloped Runoff Coefficient (Cu)	0.6785
Developed Runoff Coefficient (Cd)	0.6896
Time of Concentration (min)	14.0
Clear Peak Flow Rate (cfs)	45.3888
Burned Peak Flow Rate (cfs)	47.9823
24-Hr Clear Runoff Volume (ac-ft)	3.5095
24-Hr Clear Runoff Volume (cu-ft)	152873.5643



Peak Flow Hydrologic Analysis

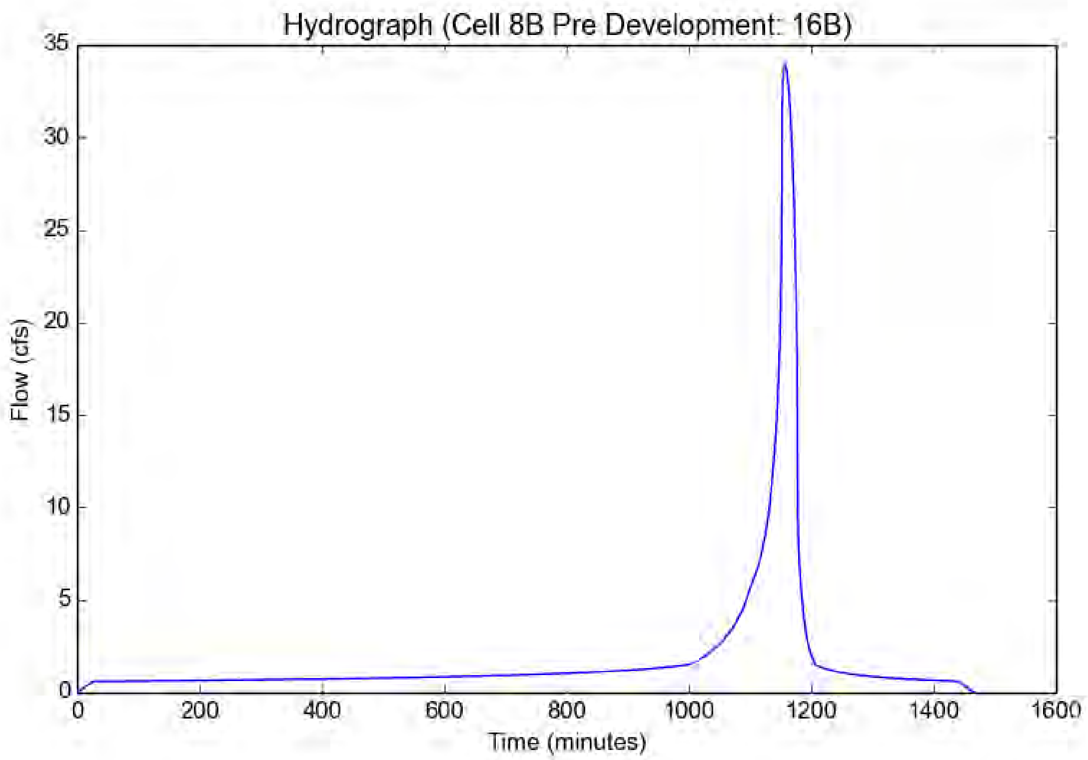
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	16B
Area (ac)	33.45
Flow Path Length (ft)	4087.0
Flow Path Slope (vft/hft)	0.048
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.5944
Undeveloped Runoff Coefficient (Cu)	0.6233
Developed Runoff Coefficient (Cd)	0.6372
Time of Concentration (min)	26.0
Clear Peak Flow Rate (cfs)	33.9832
Burned Peak Flow Rate (cfs)	36.3153
24-Hr Clear Runoff Volume (ac-ft)	3.7828
24-Hr Clear Runoff Volume (cu-ft)	164779.4119



Peak Flow Hydrologic Analysis

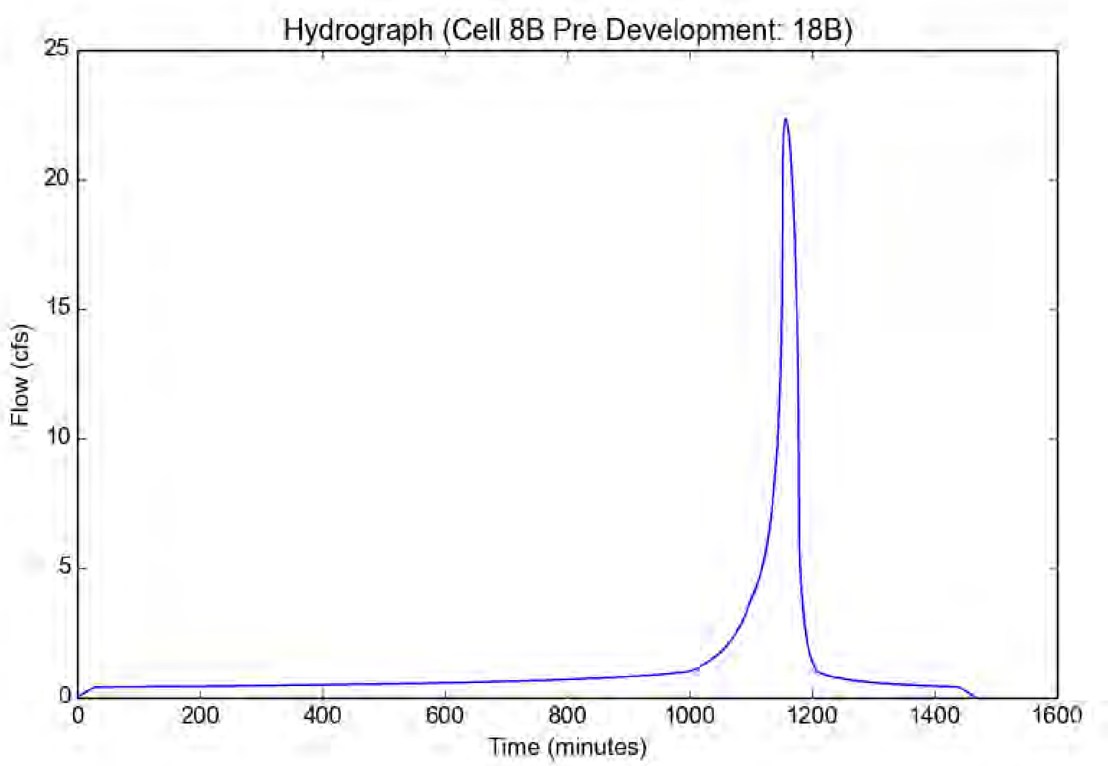
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	18B
Area (ac)	22.48
Flow Path Length (ft)	4745.0
Flow Path Slope (vft/hft)	0.065
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.5664
Undeveloped Runoff Coefficient (Cu)	0.6202
Developed Runoff Coefficient (Cd)	0.6342
Time of Concentration (min)	27.0
Clear Peak Flow Rate (cfs)	22.3323
Burned Peak Flow Rate (cfs)	23.8795
24-Hr Clear Runoff Volume (ac-ft)	2.5412
24-Hr Clear Runoff Volume (cu-ft)	110696.6008



Peak Flow Hydrologic Analysis

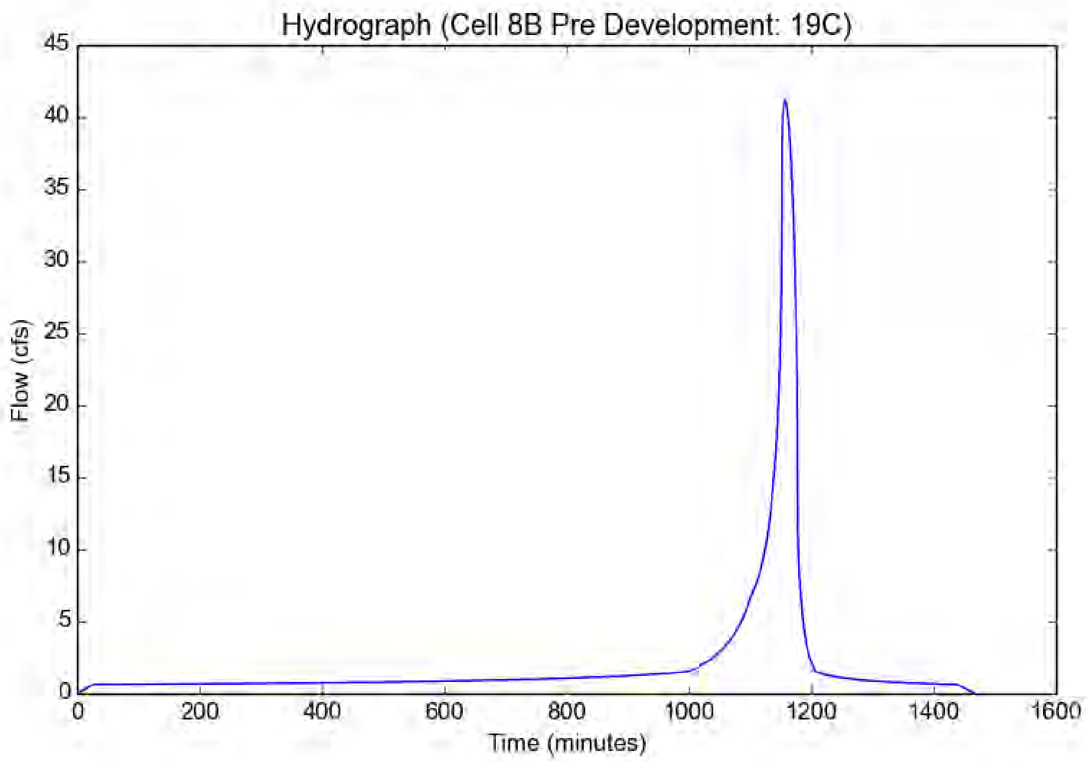
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	19C
Area (ac)	41.07
Flow Path Length (ft)	3799.0
Flow Path Slope (vft/hft)	0.036
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.02
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.5944
Undeveloped Runoff Coefficient (Cu)	0.6233
Developed Runoff Coefficient (Cd)	0.6289
Time of Concentration (min)	26.0
Clear Peak Flow Rate (cfs)	41.1811
Burned Peak Flow Rate (cfs)	44.11
24-Hr Clear Runoff Volume (ac-ft)	4.2317
24-Hr Clear Runoff Volume (cu-ft)	184333.1062



Peak Flow Hydrologic Analysis

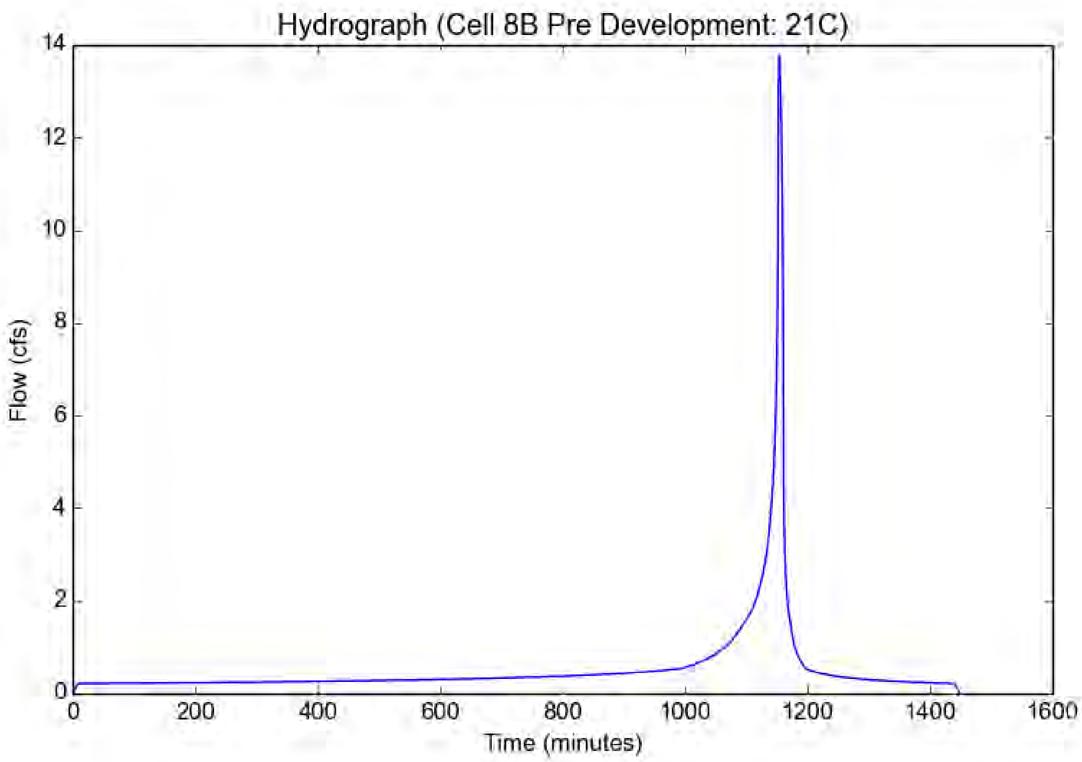
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	21C
Area (ac)	7.06
Flow Path Length (ft)	1268.0
Flow Path Slope (vft/hft)	0.152
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.17
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.6251
Undeveloped Runoff Coefficient (Cu)	0.712
Developed Runoff Coefficient (Cd)	0.7439
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	13.7875
Burned Peak Flow Rate (cfs)	14.4112
24-Hr Clear Runoff Volume (ac-ft)	1.0879
24-Hr Clear Runoff Volume (cu-ft)	47387.2363



Peak Flow Hydrologic Analysis

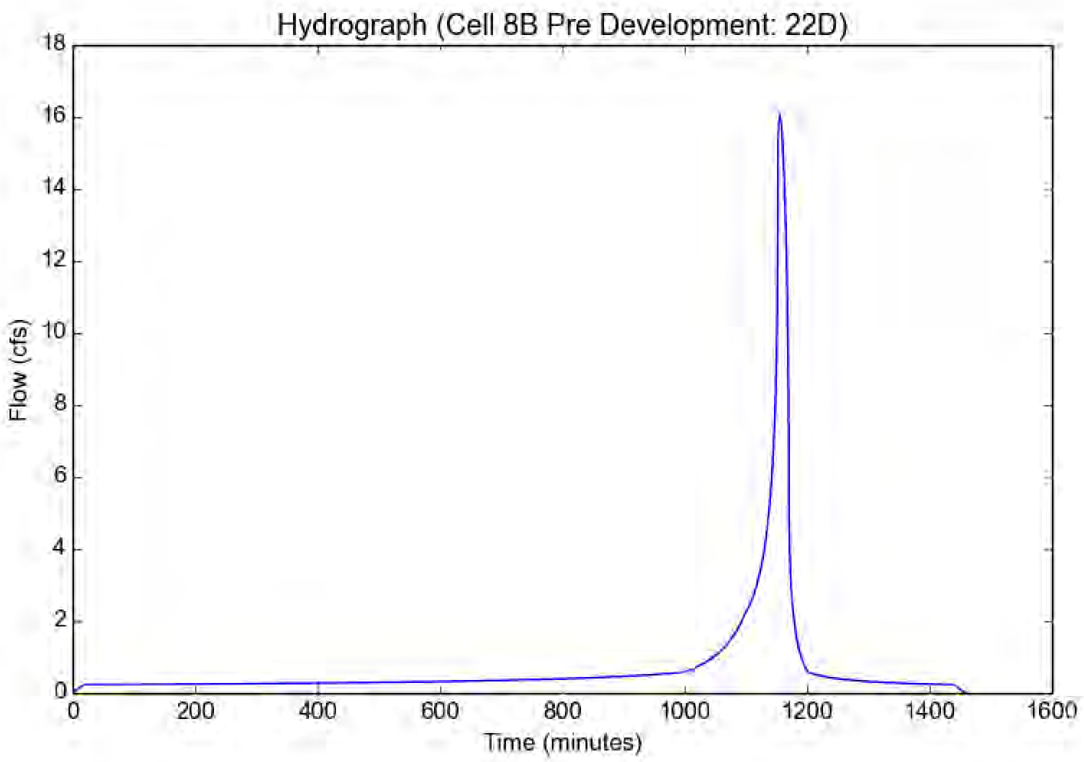
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	22D
Area (ac)	12.66
Flow Path Length (ft)	2466.0
Flow Path Slope (vft/hft)	0.049
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.8953
Undeveloped Runoff Coefficient (Cu)	0.6569
Developed Runoff Coefficient (Cd)	0.669
Time of Concentration (min)	18.0
Clear Peak Flow Rate (cfs)	16.0527
Burned Peak Flow Rate (cfs)	17.0402
24-Hr Clear Runoff Volume (ac-ft)	1.4366
24-Hr Clear Runoff Volume (cu-ft)	62579.4002



Peak Flow Hydrologic Analysis

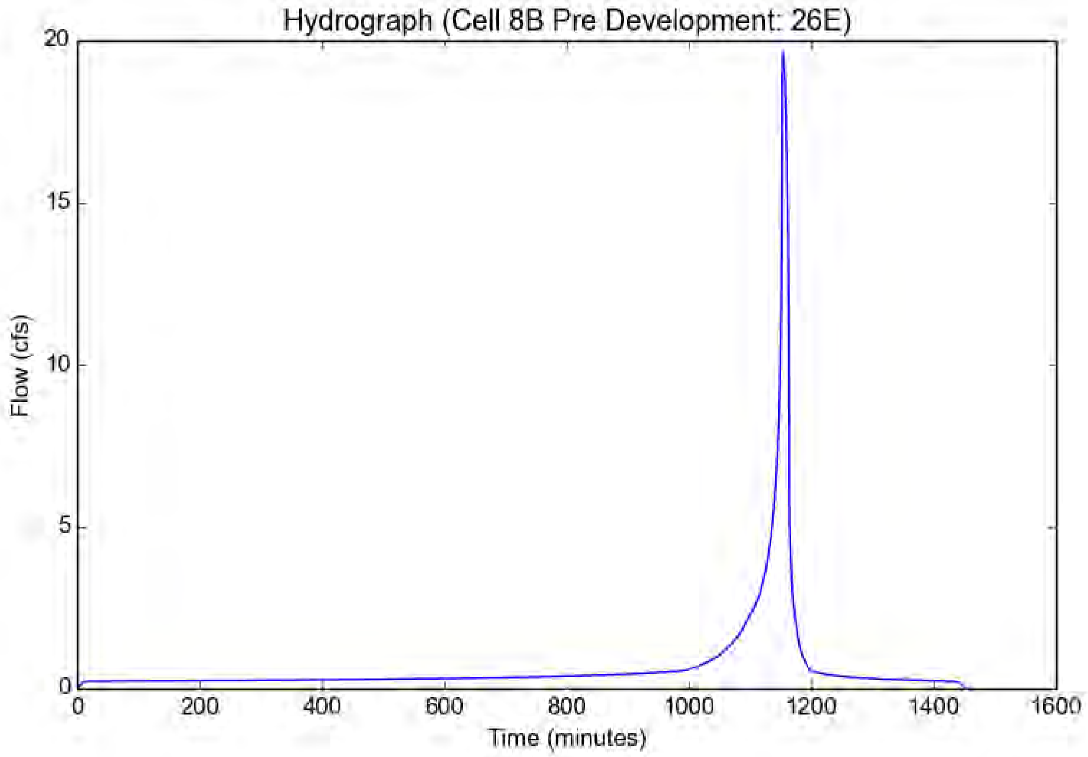
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	26E
Area (ac)	12.21
Flow Path Length (ft)	1566.0
Flow Path Slope (vft/hft)	0.077
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.2931
Undeveloped Runoff Coefficient (Cu)	0.6905
Developed Runoff Coefficient (Cd)	0.701
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	19.6272
Burned Peak Flow Rate (cfs)	20.7031
24-Hr Clear Runoff Volume (ac-ft)	1.3898
24-Hr Clear Runoff Volume (cu-ft)	60538.2581



Peak Flow Hydrologic Analysis

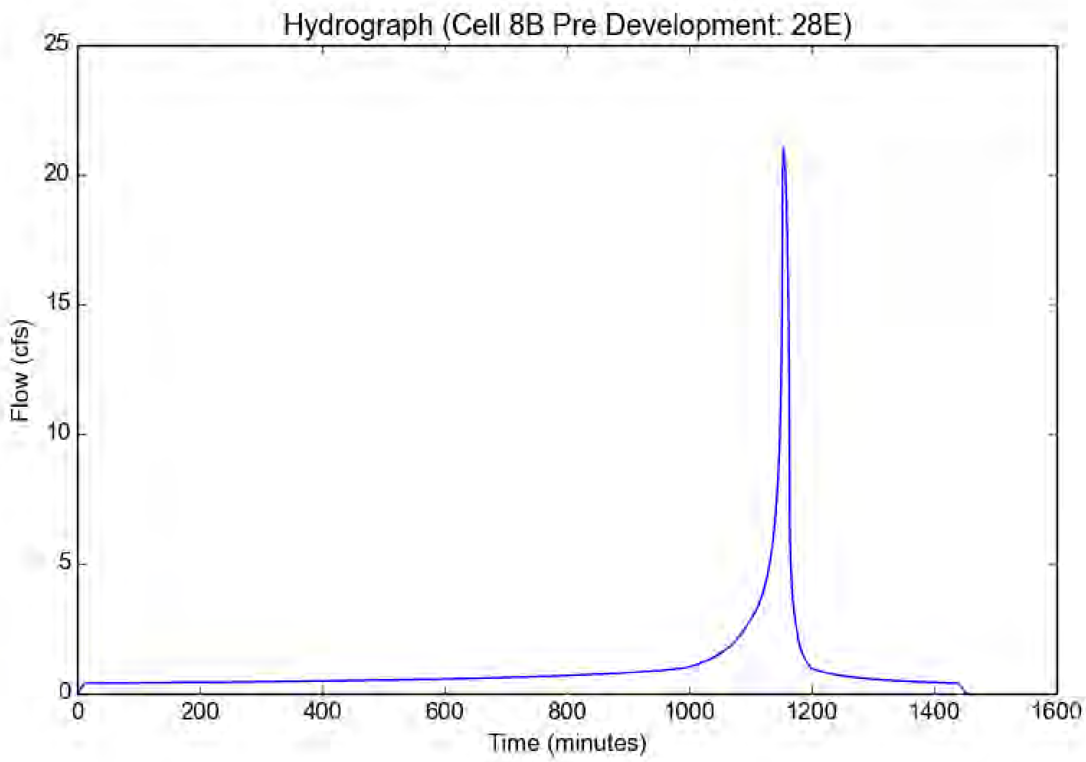
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	28E
Area (ac)	12.59
Flow Path Length (ft)	1597.0
Flow Path Slope (vft/hft)	0.059
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.18
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.2931
Undeveloped Runoff Coefficient (Cu)	0.6905
Developed Runoff Coefficient (Cd)	0.7282
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	21.0243
Burned Peak Flow Rate (cfs)	22.0326
24-Hr Clear Runoff Volume (ac-ft)	1.9802
24-Hr Clear Runoff Volume (cu-ft)	86256.036



Peak Flow Hydrologic Analysis

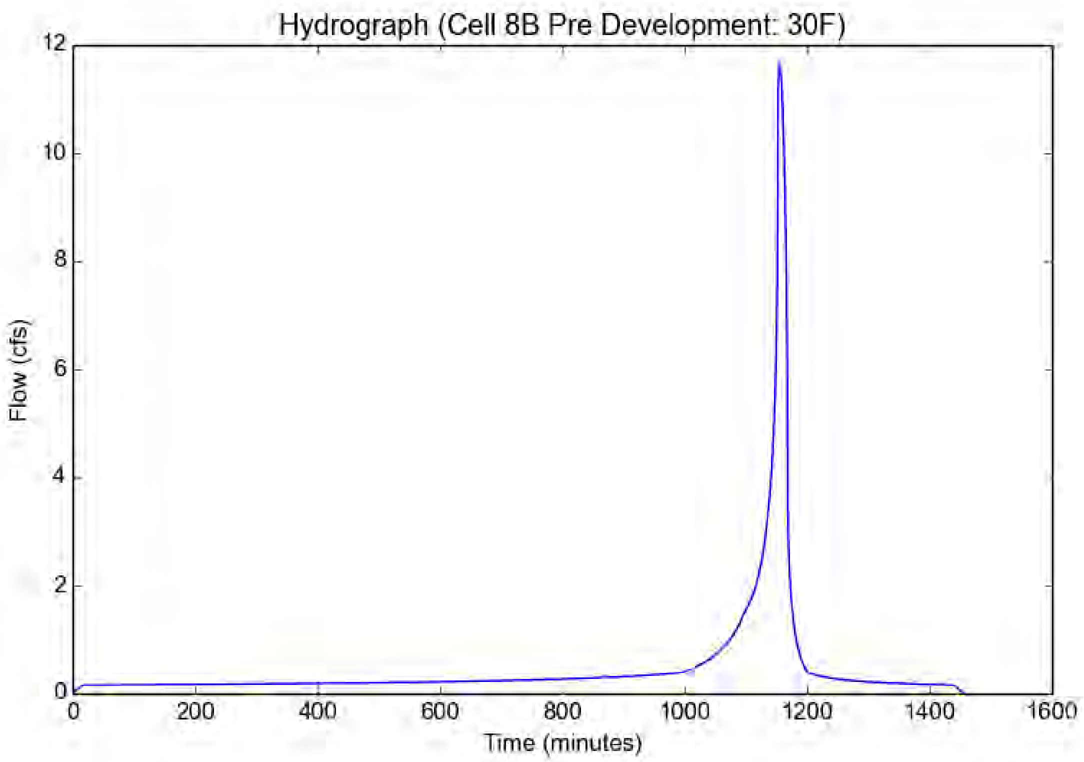
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	30F
Area (ac)	8.56
Flow Path Length (ft)	1520.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.0031
Undeveloped Runoff Coefficient (Cu)	0.6688
Developed Runoff Coefficient (Cd)	0.6803
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	11.6658
Burned Peak Flow Rate (cfs)	12.354
24-Hr Clear Runoff Volume (ac-ft)	0.9726
24-Hr Clear Runoff Volume (cu-ft)	42364.8627



Peak Flow Hydrologic Analysis

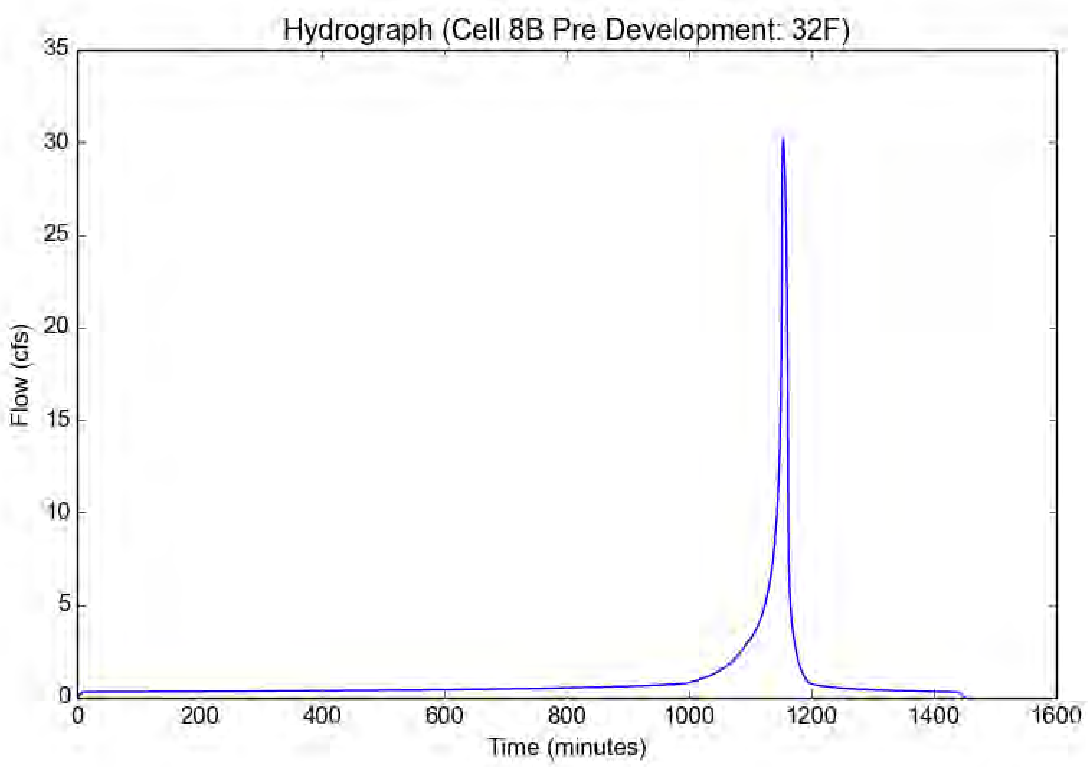
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	32F
Area (ac)	16.89
Flow Path Length (ft)	1264.0
Flow Path Slope (vft/hft)	0.081
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.4983
Undeveloped Runoff Coefficient (Cu)	0.7059
Developed Runoff Coefficient (Cd)	0.7156
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	30.1956
Burned Peak Flow Rate (cfs)	31.7598
24-Hr Clear Runoff Volume (ac-ft)	1.9246
24-Hr Clear Runoff Volume (cu-ft)	83834.5163



Peak Flow Hydrologic Analysis

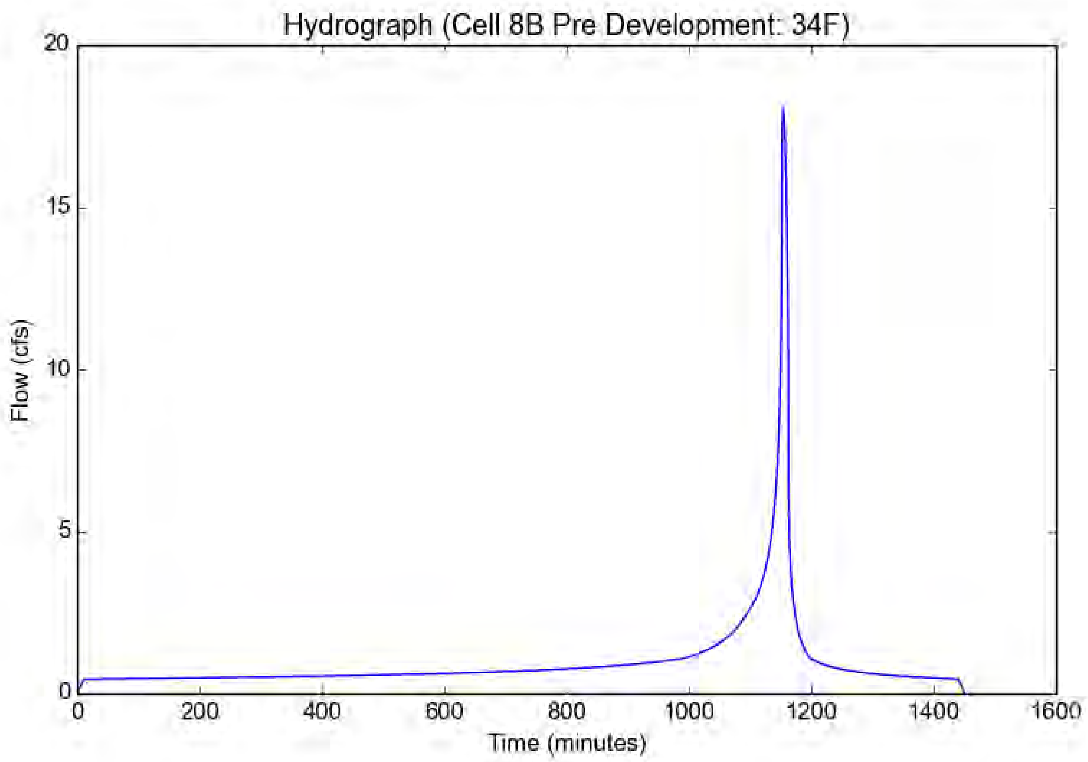
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	34F
Area (ac)	9.98
Flow Path Length (ft)	1470.0
Flow Path Slope (vft/hft)	0.068
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.3
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.3889
Undeveloped Runoff Coefficient (Cu)	0.6977
Developed Runoff Coefficient (Cd)	0.7584
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	18.0805
Burned Peak Flow Rate (cfs)	18.8258
24-Hr Clear Runoff Volume (ac-ft)	1.9704
24-Hr Clear Runoff Volume (cu-ft)	85832.628



Peak Flow Hydrologic Analysis

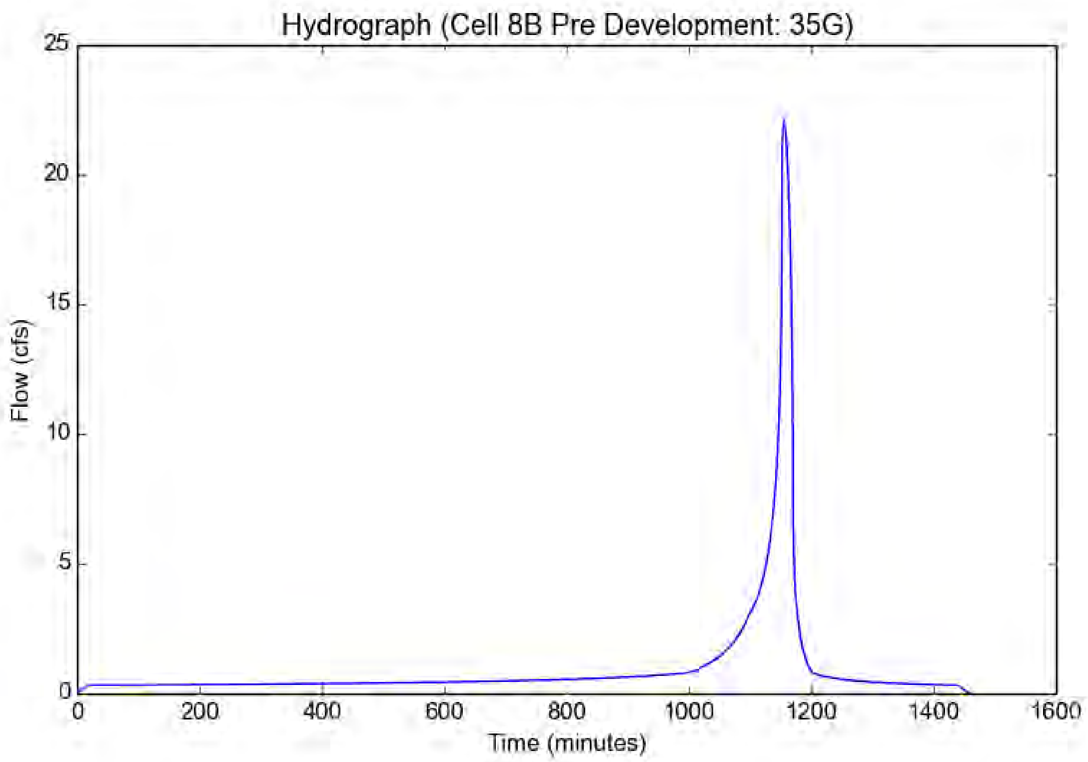
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Pre Development
Subarea ID	35G
Area (ac)	17.42
Flow Path Length (ft)	3136.0
Flow Path Slope (vft/hft)	0.121
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.8953
Undeveloped Runoff Coefficient (Cu)	0.6569
Developed Runoff Coefficient (Cd)	0.669
Time of Concentration (min)	18.0
Clear Peak Flow Rate (cfs)	22.0883
Burned Peak Flow Rate (cfs)	23.4471
24-Hr Clear Runoff Volume (ac-ft)	1.9768
24-Hr Clear Runoff Volume (cu-ft)	86108.4638



Peak Flow Hydrologic Analysis

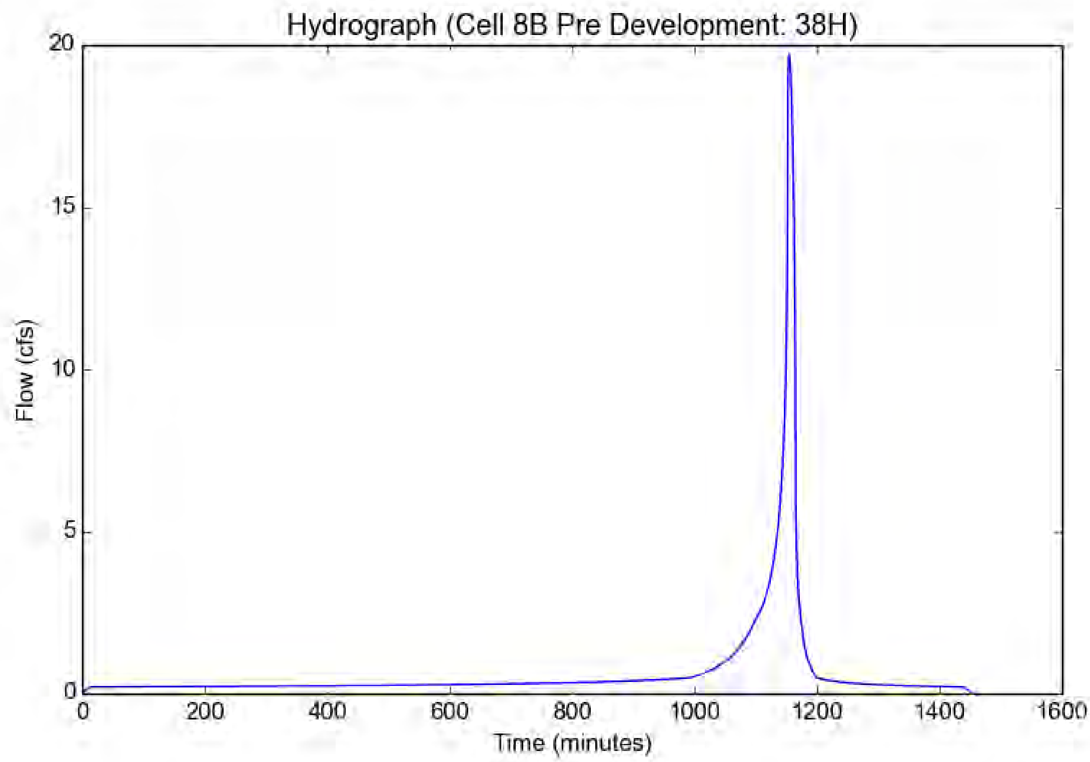
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Pre Development/HydroCalc/Cell 8A Pre Development
Version: HydroCalc 1.0.3

Input Parameters

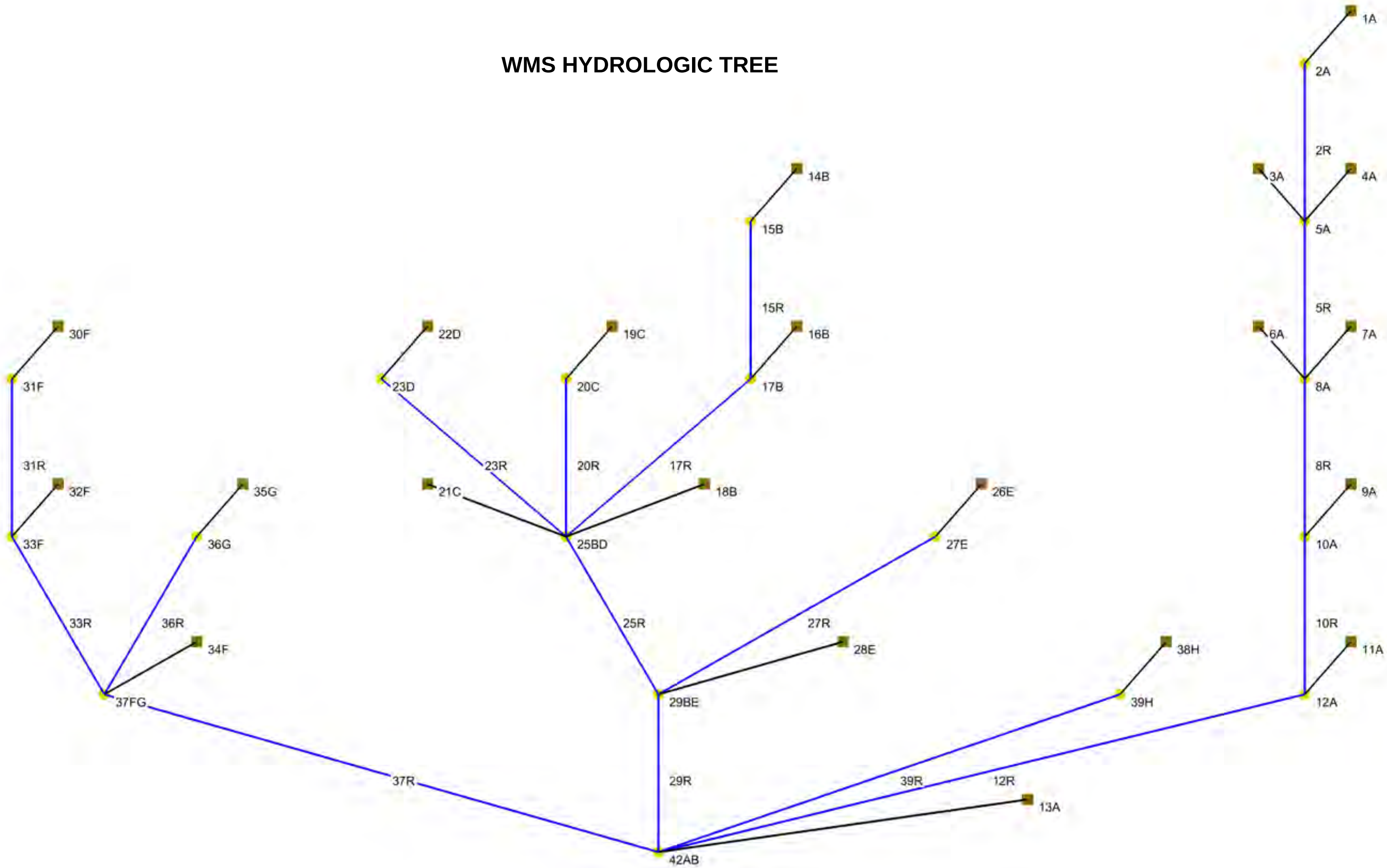
Project Name	Cell 8B Pre Development
Subarea ID	38H
Area (ac)	12.97
Flow Path Length (ft)	2030.0
Flow Path Slope (vft/hft)	0.129
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.02
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.2085
Undeveloped Runoff Coefficient (Cu)	0.6842
Developed Runoff Coefficient (Cd)	0.6885
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	19.721
Burned Peak Flow Rate (cfs)	20.8604
24-Hr Clear Runoff Volume (ac-ft)	1.3455
24-Hr Clear Runoff Volume (cu-ft)	58610.5686



WMS HYDROLOGIC TREE



PRE-DEVELOPMENT CONDITION

MODRAT ANALYSIS

CLEAR PEAK FLOW WMS MODELING OUTPUT

File name: Cell8B_4thDay_Pre_Clear_Inflow.lac Run date: Fri May 07 12:41:59 2021

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 4 Storm Frequency 50

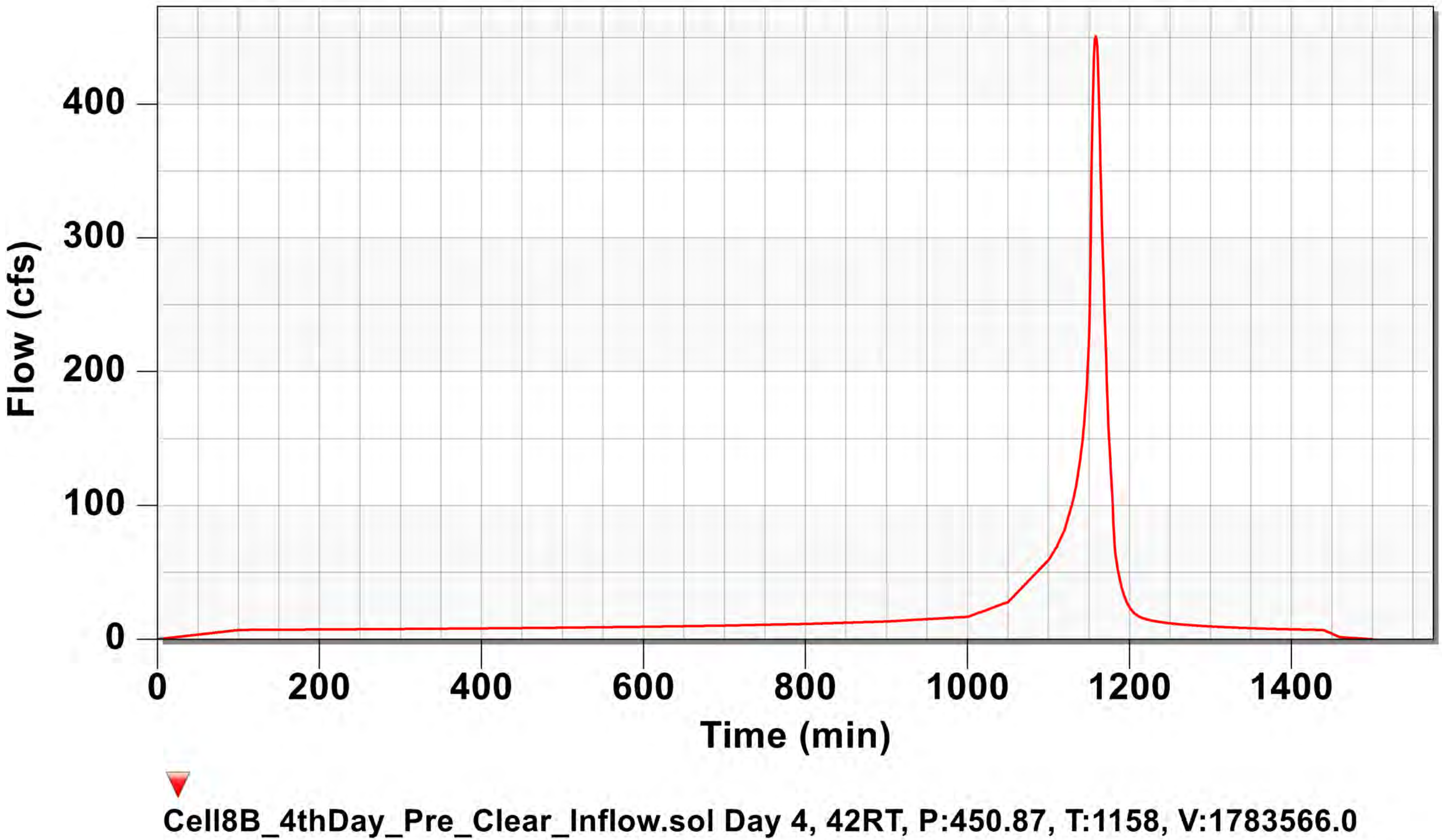
LOCATION		SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1	1A	18.7	35.40	18.7	35.40	2.129	0	0	0.00000	0.00	0.00	0	97	9	5.80	0.05
1	2A	0.0	0.00	18.7	35.40	2.129	6	417	0.27600	1.00	1.00	0	97	0	5.80	0.00
1	3A	13.6	20.86	32.3	56.11	3.675	0	0	0.00000	0.00	0.00	0	97	13	5.80	0.05
1	4A	24.2	34.12	56.5	90.12	6.341	0	0	0.00000	0.00	0.00	0	97	15	5.80	0.04
1	5A	0.0	0.00	56.5	90.12	6.340	6	1392	0.03660	2.00	1.00	0	97	0	5.80	0.00
1	6A	10.3	15.75	66.8	104.59	7.476	0	0	0.00000	0.00	0.00	0	97	13	5.80	0.04
1	7A	9.9	14.56	76.7	119.01	8.600	0	0	0.00000	0.00	0.00	0	97	14	5.80	0.05
1	8A	0.0	0.00	76.7	119.01	8.600	6	1466	0.03920	3.00	1.00	0	97	0	5.80	0.00
1	9A	10.2	15.60	86.9	132.90	9.725	0	0	0.00000	0.00	0.00	0	97	13	5.80	0.04
1	10A	0.0	0.00	86.9	132.90	9.724	4	1329	0.12190	4.00	0.00	0	97	0	5.80	0.00
1	11A	17.1	30.24	104.0	157.51	11.443	0	0	0.00000	0.00	0.00	0	97	10	5.80	0.01
1	12A	0.0	0.00	104.0	157.51	11.443	4	100	0.05000	5.00	0.00	0	97	0	5.80	0.00
1	13A	6.7	16.61	110.7	163.37	12.699	0	0	0.00000	0.00	0.00	0	97	6	5.80	0.27
1	14B	30.9	45.46	30.9	45.46	3.509	0	0	0.00000	0.00	0.00	0	97	14	5.80	0.05
1	15B	0.0	0.00	30.9	45.46	3.509	6	3937	0.04900	2.00	1.00	0	97	0	5.80	0.00
1	16B	33.5	34.04	64.4	73.57	7.287	0	0	0.00000	0.00	0.00	0	97	26	5.80	0.05
1	17B	0.0	0.00	64.4	73.57	7.285	4	349	0.18910	3.00	0.00	0	97	0	5.80	0.00
1	18B	22.5	22.35	86.9	95.15	9.821	0	0	0.00000	0.00	0.00	0	97	27	5.80	0.05
1	19C	41.1	41.22	41.1	41.22	4.224	0	0	0.00000	0.00	0.00	0	97	26	5.80	0.02
1	20C	0.0	0.00	41.1	41.22	4.223	4	924	0.09120	4.00	0.00	0	97	0	5.80	0.00
1	21C	7.1	13.86	48.2	54.10	5.316	0	0	0.00000	0.00	0.00	0	97	9	5.80	0.17
1	22D	12.7	16.10	12.7	16.10	1.438	0	0	0.00000	0.00	0.00	0	97	18	5.80	0.05
1	23D	0.0	0.00	12.7	16.10	1.438	4	738	0.10030	2.00	0.00	0	97	0	5.80	0.00
1	24BC	48.2	54.10	135.1	143.03	15.137	0	0	0.00000	0.00	0.00	0	97	0	5.80	0.00
1	25BD	12.7	16.08	147.8	158.67	16.575	4	1060	0.08870	4.00	0.00	0	97	0	5.80	0.00
1	26E	12.2	19.59	12.2	19.59	1.387	0	0	0.00000	0.00	0.00	0	97	12	5.80	0.05
1	27E	0.0	0.00	12.2	19.59	1.387	6	1185	0.03800	3.00	1.00	0	97	0	5.80	0.00
1	28E	12.6	21.02	24.8	37.65	3.366	0	0	0.00000	0.00	0.00	0	97	12	5.80	0.18
1	29BE	24.8	37.65	172.6	194.56	19.940	4	100	0.05000	5.00	0.00	0	97	0	5.80	0.00
1	30F	8.6	11.73	8.6	11.73	0.975	0	0	0.00000	0.00	0.00	0	97	16	5.80	0.05
1	31F	0.0	0.00	8.6	11.73	0.975	4	891	0.22900	3.00	0.00	0	97	0	5.80	0.00
1	32F	16.9	30.21	25.5	41.56	2.898	0	0	0.00000	0.00	0.00	0	97	10	5.80	0.05
1	33F	0.0	0.00	25.5	41.56	2.898	6	444	0.08780	3.00	1.00	0	97	0	5.80	0.00
1	34F	10.0	18.11	35.5	59.49	4.869	0	0	0.00000	0.00	0.00	0	97	11	5.80	0.30
1	35G	17.4	22.06	17.4	22.06	1.971	0	0	0.00000	0.00	0.00	0	97	18	5.80	0.05
1	36G	0.0	0.00	17.4	22.06	1.970	4	630	0.21110	2.00	0.00	0	97	0	5.80	0.00
1	37FG	17.4	22.05	52.9	81.42	6.840	4	250	0.05000	5.00	0.00	0	97	0	5.80	0.00

1	38H	13.0	19.76	13.0	19.76	1.347	0	0	0.00000	0.00	0.00	0	97	13	5.80	0.02
1	39H	0.0	0.00	13.0	19.76	1.347	4	100	0.05000	4.00	0.00	0	97	0	5.80	0.00
1	40AB	172.6	194.46	283.3	355.10	32.639	0	0	0.00000	0.00	0.00	0	97	0	5.80	0.00
1	41AF	52.9	81.21	336.2	431.98	39.479	0	0	0.00000	0.00	0.00	0	97	0	5.80	0.00
1	42AH	13.0	19.75	349.2	450.87	40.825	0	0	0.00000	0.00	0.00	0	97	0	5.80	0.00

Normal End of MODRAT

Flow vs. Time

PEAK: 450.87 cfs TIME OF PEAK: 1158 min VOLUME: 1783566.00 ft^3



PRE-DEVELOPMENT CONDITION

MODRAT ANALYSIS

BURNED PEAK FLOW WMS MODELING OUTPUT

File name: Cell8B_4thDay_Pre_Burned_Inflow.lac   Run date: Fri May 07 12:43:22 2021

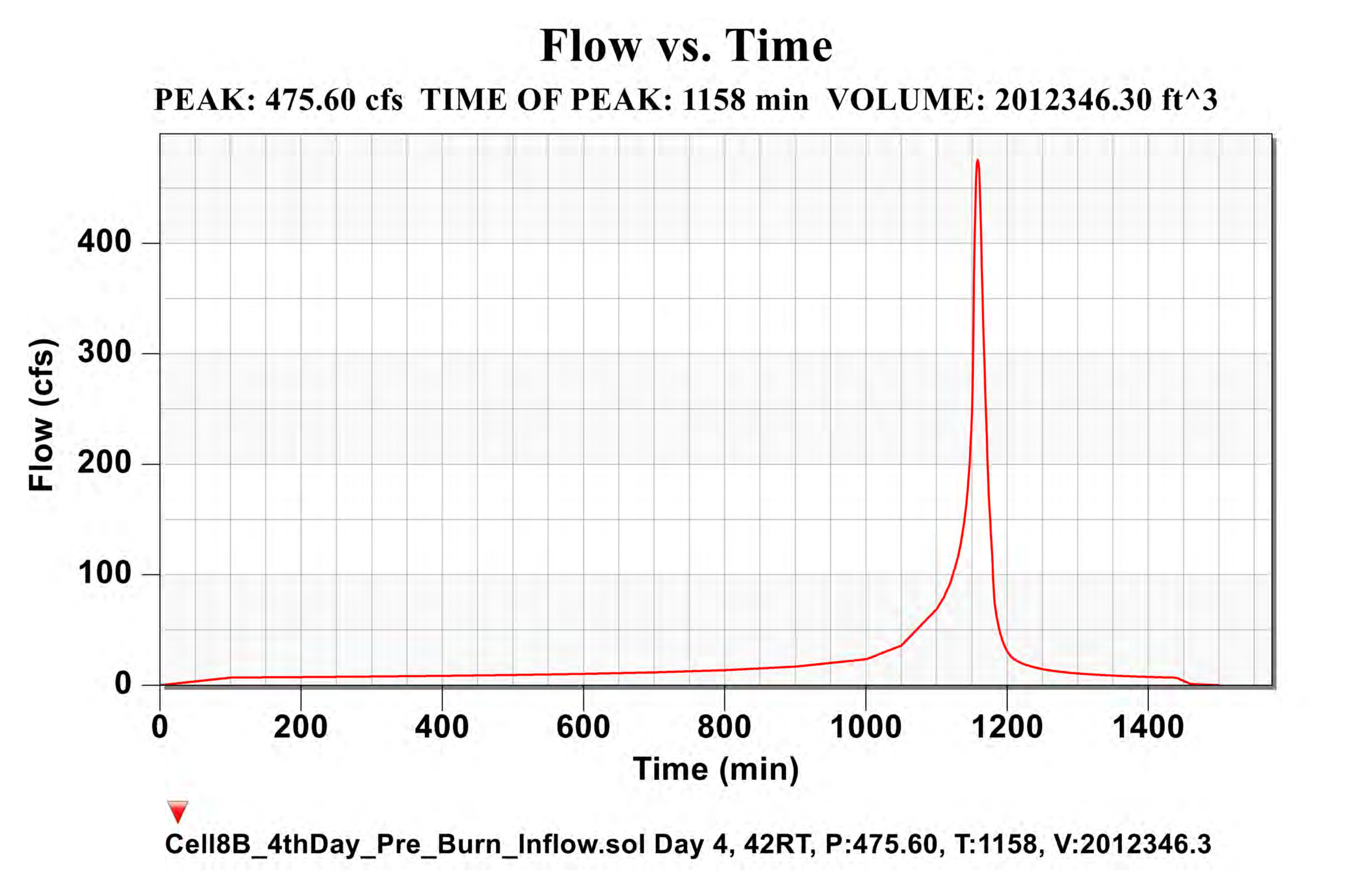
Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 4   Storm Frequency 50

LOCATION		SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1	1A	18.7	37.14	18.7	37.14	2.436	0	0	0.00000	0.00	0.00	0	297	9	5.80	0.05
1	2A	0.0	0.00	18.7	37.14	2.436	6	417	0.27600	1.00	1.00	0	297	0	5.80	0.00
1	3A	13.6	22.01	32.3	59.00	4.206	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	4A	24.2	36.11	56.5	95.00	7.274	0	0	0.00000	0.00	0.00	0	297	15	5.80	0.04
1	5A	0.0	0.00	56.5	95.00	7.274	6	1392	0.03660	2.00	1.00	0	297	0	5.80	0.00
1	6A	10.3	16.63	66.8	110.29	8.581	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.04
1	7A	9.9	15.39	76.7	125.49	9.868	0	0	0.00000	0.00	0.00	0	297	14	5.80	0.05
1	8A	0.0	0.00	76.7	125.49	9.867	6	1466	0.03920	3.00	1.00	0	297	0	5.80	0.00
1	9A	10.2	16.47	86.9	140.19	11.162	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.04
1	10A	0.0	0.00	86.9	140.19	11.161	4	1329	0.12190	4.00	0.00	0	297	0	5.80	0.00
1	11A	17.1	31.85	104.0	166.26	13.172	0	0	0.00000	0.00	0.00	0	297	10	5.80	0.01
1	12A	0.0	0.00	104.0	166.26	13.173	4	100	0.05000	5.00	0.00	0	297	0	5.80	0.00
1	13A	6.7	16.61	110.7	172.27	14.428	0	0	0.00000	0.00	0.00	0	97	6	5.80	0.27
1	14B	30.9	48.02	30.9	48.02	4.018	0	0	0.00000	0.00	0.00	0	297	14	5.80	0.05
1	15B	0.0	0.00	30.9	48.02	4.017	6	3937	0.04900	2.00	1.00	0	297	0	5.80	0.00
1	16B	33.5	36.34	64.4	78.69	8.348	0	0	0.00000	0.00	0.00	0	297	26	5.80	0.05
1	17B	0.0	0.00	64.4	78.69	8.347	4	349	0.18910	3.00	0.00	0	297	0	5.80	0.00
1	18B	22.5	23.88	86.9	101.79	11.255	0	0	0.00000	0.00	0.00	0	297	27	5.80	0.05
1	19C	41.1	44.13	41.1	44.13	4.925	0	0	0.00000	0.00	0.00	0	297	26	5.80	0.02
1	20C	0.0	0.00	41.1	44.13	4.924	4	924	0.09120	4.00	0.00	0	297	0	5.80	0.00
1	21C	7.1	13.86	48.2	56.99	6.016	0	0	0.00000	0.00	0.00	0	97	9	5.80	0.17
1	22D	12.7	17.08	12.7	17.08	1.648	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	23D	0.0	0.00	12.7	17.08	1.647	4	738	0.10030	2.00	0.00	0	297	0	5.80	0.00
1	24BC	48.2	56.99	135.1	152.71	17.272	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	25BD	12.7	17.06	147.8	169.31	18.918	4	1060	0.08870	4.00	0.00	0	297	0	5.80	0.00
1	26E	12.2	20.65	12.2	20.65	1.588	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1	27E	0.0	0.00	12.2	20.65	1.588	6	1185	0.03800	3.00	1.00	0	297	0	5.80	0.00
1	28E	12.6	21.02	24.8	38.77	3.566	0	0	0.00000	0.00	0.00	0	97	12	5.80	0.18
1	29BE	24.8	38.77	172.6	206.19	22.485	4	100	0.05000	5.00	0.00	0	97	0	5.80	0.00
1	30F	8.6	12.41	8.6	12.41	1.117	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1	31F	0.0	0.00	8.6	12.41	1.116	4	891	0.22900	3.00	0.00	0	297	0	5.80	0.00
1	32F	16.9	31.74	25.5	43.76	3.318	0	0	0.00000	0.00	0.00	0	297	10	5.80	0.05
1	33F	0.0	0.00	25.5	43.76	3.318	6	444	0.08780	3.00	1.00	0	297	0	5.80	0.00
1	34F	10.0	18.11	35.5	61.68	5.289	0	0	0.00000	0.00	0.00	0	97	11	5.80	0.30
1	35G	17.4	23.41	17.4	23.41	2.258	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	36G	0.0	0.00	17.4	23.41	2.257	4	630	0.21110	2.00	0.00	0	297	0	5.80	0.00
1	37FG	17.4	23.39	52.9	84.96	7.546	4	250	0.05000	5.00	0.00	0	297	0	5.80	0.00

1	38H	13.0	20.89	13.0	20.89	1.568	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.02
1	39H	0.0	0.00	13.0	20.89	1.567	4	100	0.05000	4.00	0.00	0	297	0	5.80	0.00
1	40AB	172.6	206.06	283.3	375.34	36.913	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	41AF	52.9	84.76	336.2	455.60	44.459	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	42AH	13.0	20.89	349.2	475.60	46.027	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00

Normal End of MODRAT


Flow vs. Time
PEAK: 475.60 cfs TIME OF PEAK: 1158 min VOLUME: 2012346.30 ft^3
Flow (cfs)
400
300
200
100
0
0
200
400
600
800
1000
1200
1400
Time (min)
Cell8B_4thDay_Pre_Burn_Inflow.sol Day 4, 42RT, P:475.60, T:1158, V:2012346.3

POST-DEVELOPMENT CONDITION

MODRAT ANALYSIS

HYDROCALC MODELING OUTPUT

Peak Flow Hydrologic Analysis

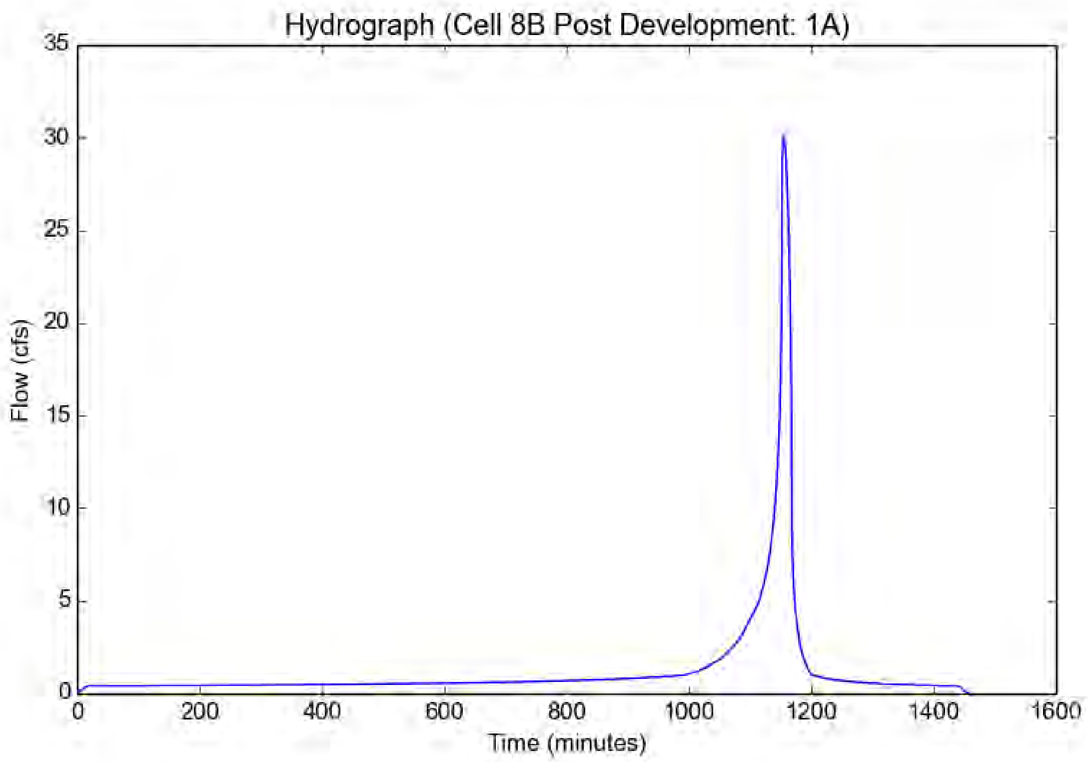
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	1A
Area (ac)	22.1
Flow Path Length (ft)	1661.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.0031
Undeveloped Runoff Coefficient (Cu)	0.6688
Developed Runoff Coefficient (Cd)	0.6803
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	30.1184
Burned Peak Flow Rate (cfs)	31.8953
24-Hr Clear Runoff Volume (ac-ft)	2.5109
24-Hr Clear Runoff Volume (cu-ft)	109376.573



Peak Flow Hydrologic Analysis

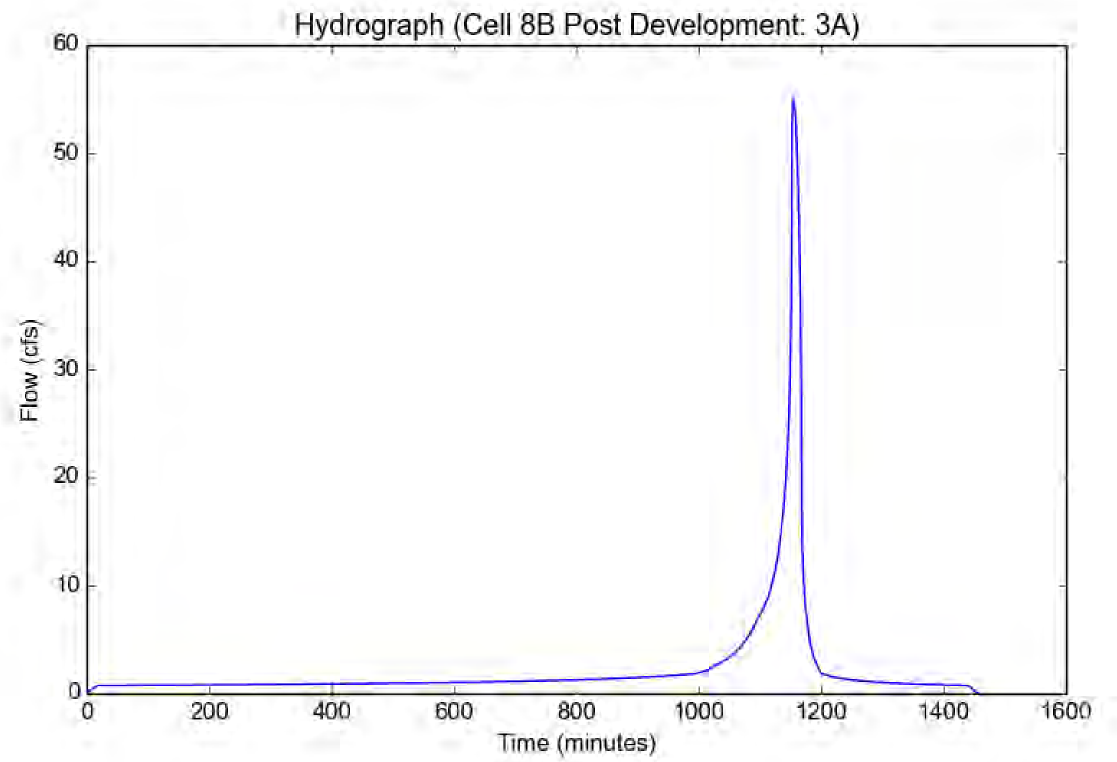
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	3A
Area (ac)	40.4
Flow Path Length (ft)	2405.0
Flow Path Slope (vft/hft)	0.07
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.0031
Undeveloped Runoff Coefficient (Cu)	0.6688
Developed Runoff Coefficient (Cd)	0.6803
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	55.0582
Burned Peak Flow Rate (cfs)	58.3064
24-Hr Clear Runoff Volume (ac-ft)	4.5901
24-Hr Clear Runoff Volume (cu-ft)	199946.3144



Peak Flow Hydrologic Analysis

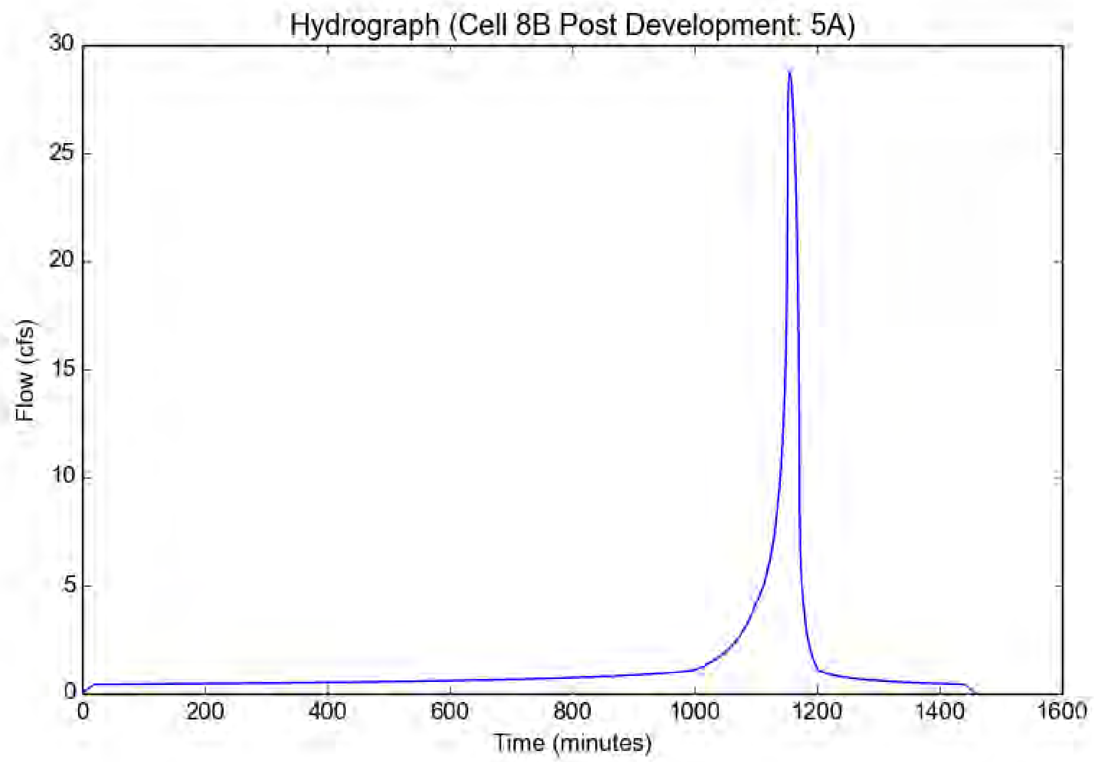
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	5A
Area (ac)	23.4
Flow Path Length (ft)	2642.0
Flow Path Slope (vft/hft)	0.043
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.8477
Undeveloped Runoff Coefficient (Cu)	0.6516
Developed Runoff Coefficient (Cd)	0.664
Time of Concentration (min)	19.0
Clear Peak Flow Rate (cfs)	28.7087
Burned Peak Flow Rate (cfs)	30.5071
24-Hr Clear Runoff Volume (ac-ft)	2.654
24-Hr Clear Runoff Volume (cu-ft)	115606.2849



Peak Flow Hydrologic Analysis

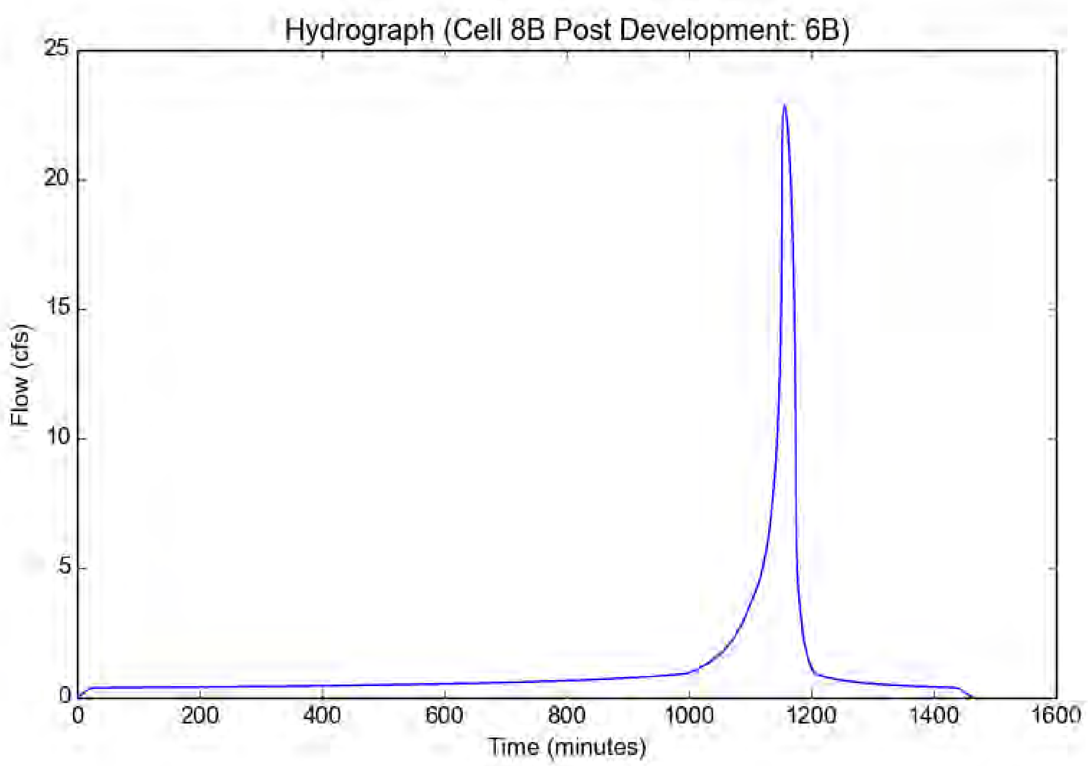
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	6B
Area (ac)	20.9
Flow Path Length (ft)	2358.0
Flow Path Slope (vft/hft)	0.012
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.689
Undeveloped Runoff Coefficient (Cu)	0.6339
Developed Runoff Coefficient (Cd)	0.6472
Time of Concentration (min)	23.0
Clear Peak Flow Rate (cfs)	22.8461
Burned Peak Flow Rate (cfs)	24.3631
24-Hr Clear Runoff Volume (ac-ft)	2.3662
24-Hr Clear Runoff Volume (cu-ft)	103072.5329



Peak Flow Hydrologic Analysis

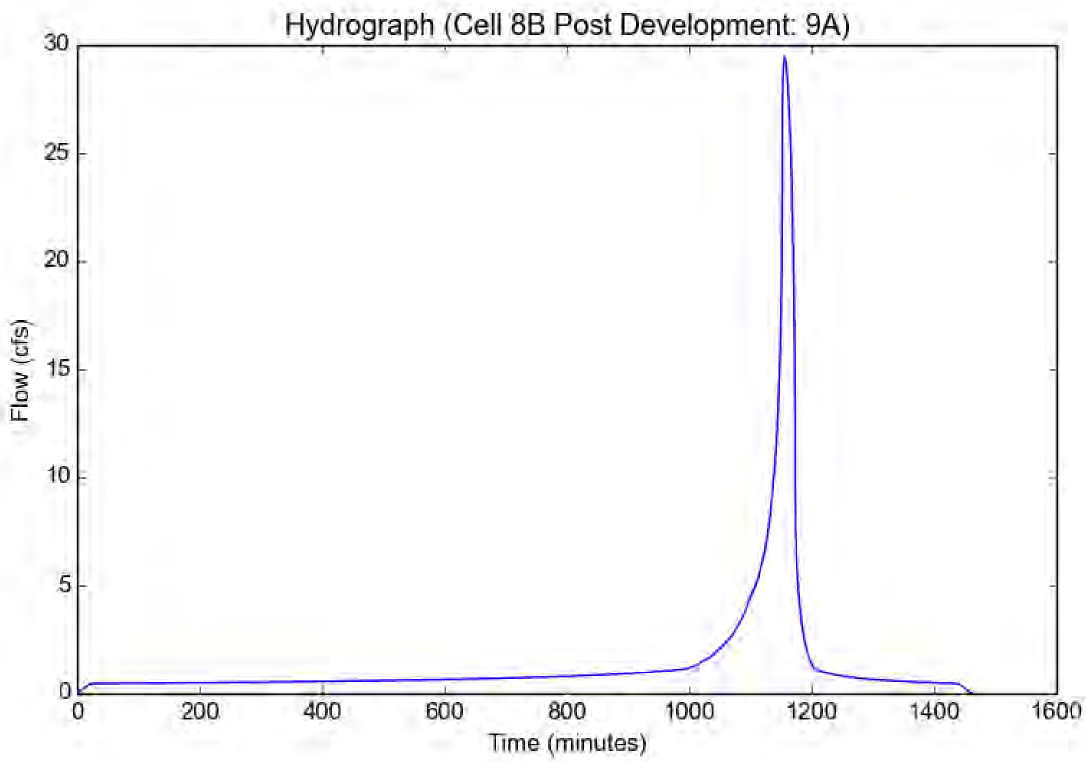
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	9A
Area (ac)	25.5
Flow Path Length (ft)	3103.0
Flow Path Slope (vft/hft)	0.055
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.7628
Undeveloped Runoff Coefficient (Cu)	0.6421
Developed Runoff Coefficient (Cd)	0.655
Time of Concentration (min)	21.0
Clear Peak Flow Rate (cfs)	29.4434
Burned Peak Flow Rate (cfs)	31.347
24-Hr Clear Runoff Volume (ac-ft)	2.8894
24-Hr Clear Runoff Volume (cu-ft)	125861.8307



Peak Flow Hydrologic Analysis

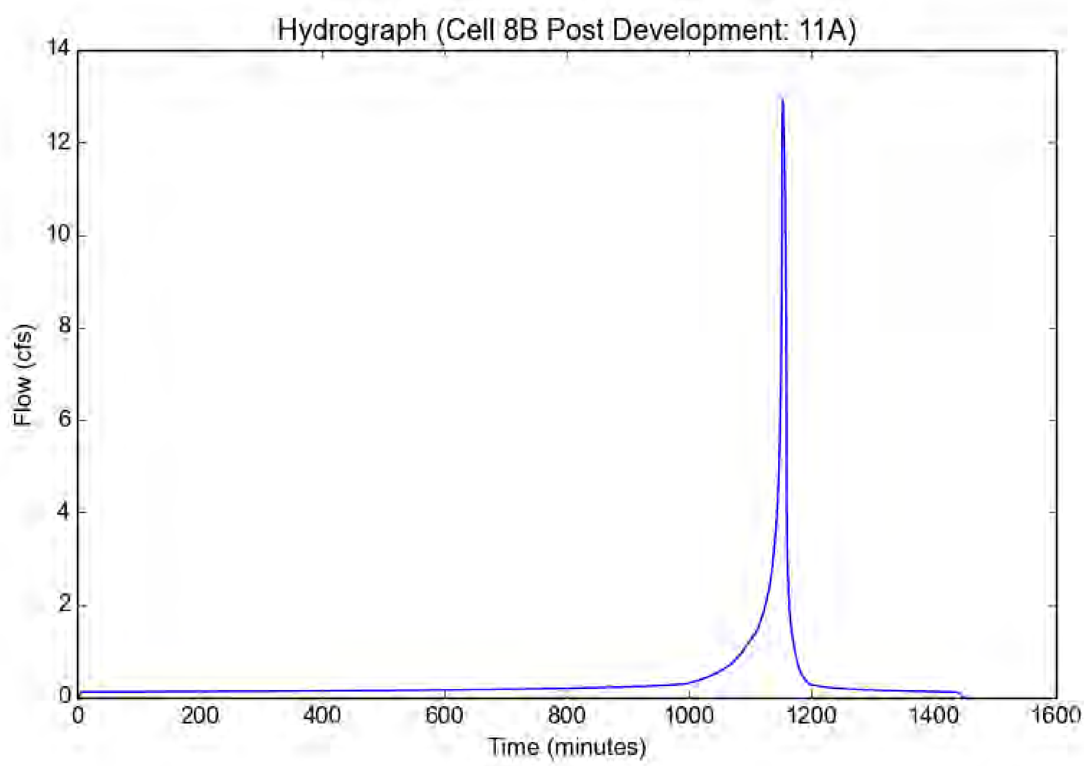
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	11A
Area (ac)	6.4
Flow Path Length (ft)	1125.0
Flow Path Slope (vft/hft)	0.156
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.7746
Undeveloped Runoff Coefficient (Cu)	0.7191
Developed Runoff Coefficient (Cd)	0.7281
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	12.929
Burned Peak Flow Rate (cfs)	13.5691
24-Hr Clear Runoff Volume (ac-ft)	0.7298
24-Hr Clear Runoff Volume (cu-ft)	31789.4597



Peak Flow Hydrologic Analysis

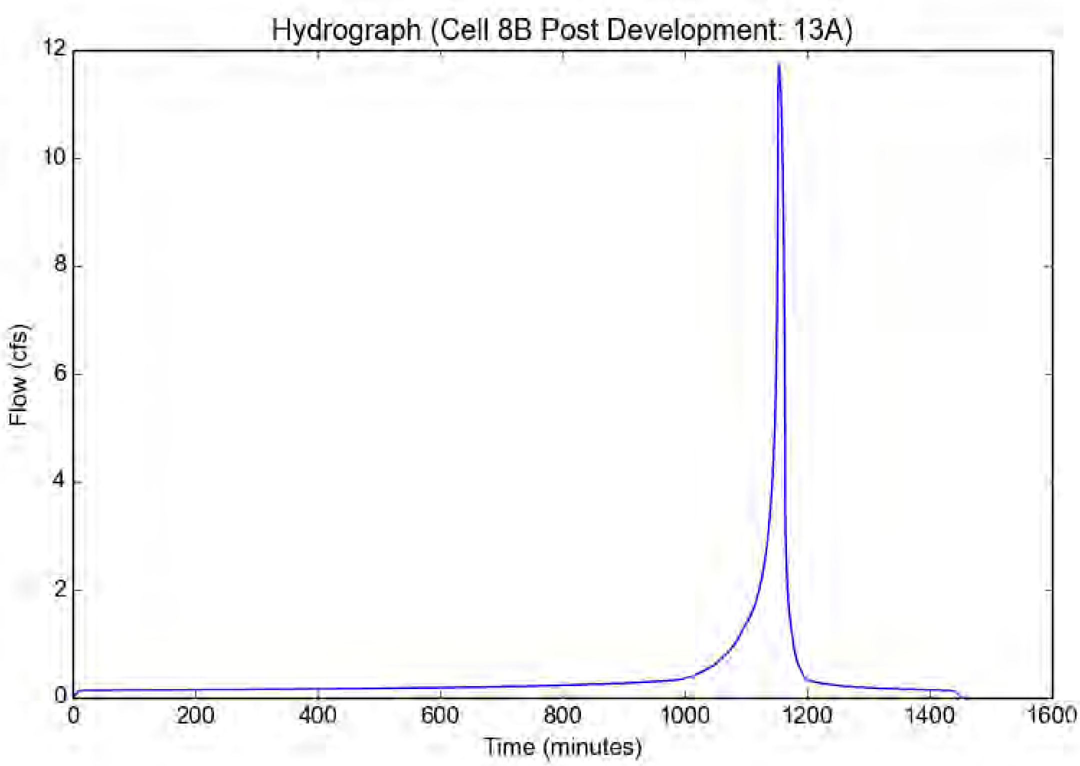
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	13A
Area (ac)	7.3
Flow Path Length (ft)	1758.0
Flow Path Slope (vft/hft)	0.139
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.2931
Undeveloped Runoff Coefficient (Cu)	0.6905
Developed Runoff Coefficient (Cd)	0.701
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	11.7345
Burned Peak Flow Rate (cfs)	12.3778
24-Hr Clear Runoff Volume (ac-ft)	0.8309
24-Hr Clear Runoff Volume (cu-ft)	36194.0446



Peak Flow Hydrologic Analysis

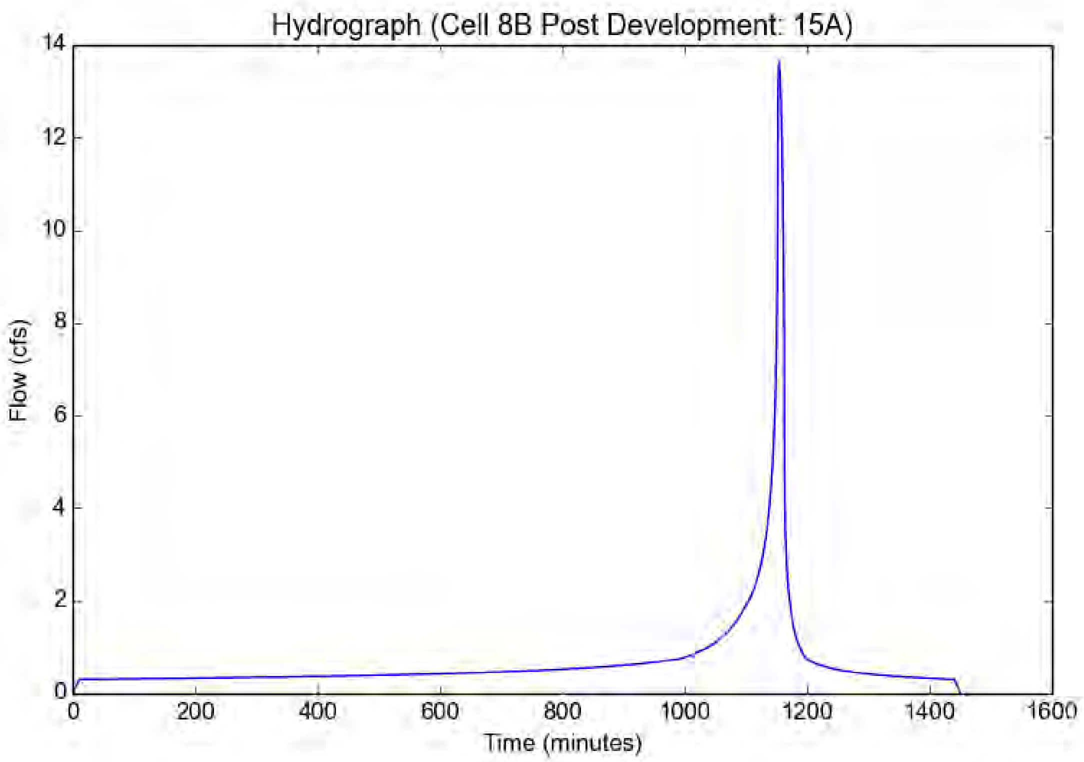
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	15A
Area (ac)	7.6
Flow Path Length (ft)	1136.0
Flow Path Slope (vft/hft)	0.038
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.26
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.3889
Undeveloped Runoff Coefficient (Cu)	0.6977
Developed Runoff Coefficient (Cd)	0.7503
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	13.6218
Burned Peak Flow Rate (cfs)	13.6218
24-Hr Clear Runoff Volume (ac-ft)	1.3989
24-Hr Clear Runoff Volume (cu-ft)	60937.4733



Peak Flow Hydrologic Analysis

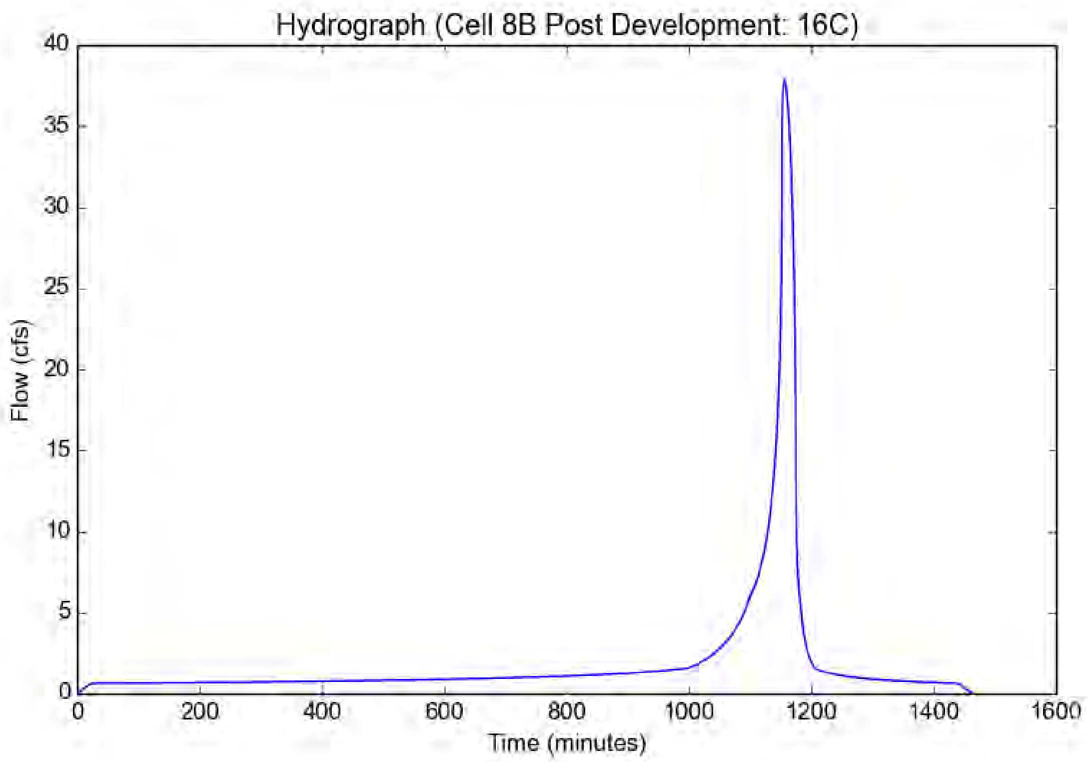
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	16C
Area (ac)	34.6
Flow Path Length (ft)	2519.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.689
Undeveloped Runoff Coefficient (Cu)	0.6339
Developed Runoff Coefficient (Cd)	0.6472
Time of Concentration (min)	23.0
Clear Peak Flow Rate (cfs)	37.8218
Burned Peak Flow Rate (cfs)	40.3332
24-Hr Clear Runoff Volume (ac-ft)	3.9173
24-Hr Clear Runoff Volume (cu-ft)	170636.8248



Peak Flow Hydrologic Analysis

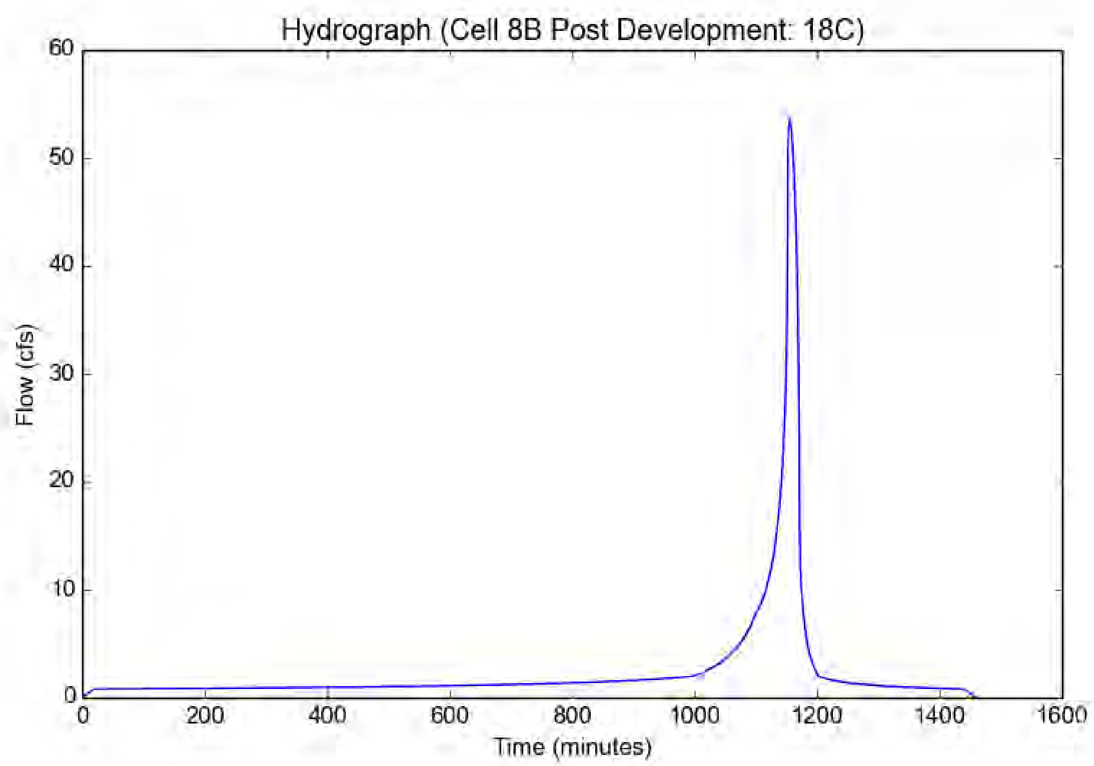
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	18C
Area (ac)	43.6
Flow Path Length (ft)	2931.0
Flow Path Slope (vft/hft)	0.063
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.8477
Undeveloped Runoff Coefficient (Cu)	0.6516
Developed Runoff Coefficient (Cd)	0.664
Time of Concentration (min)	19.0
Clear Peak Flow Rate (cfs)	53.4914
Burned Peak Flow Rate (cfs)	56.8423
24-Hr Clear Runoff Volume (ac-ft)	4.945
24-Hr Clear Runoff Volume (cu-ft)	215403.1634



Peak Flow Hydrologic Analysis

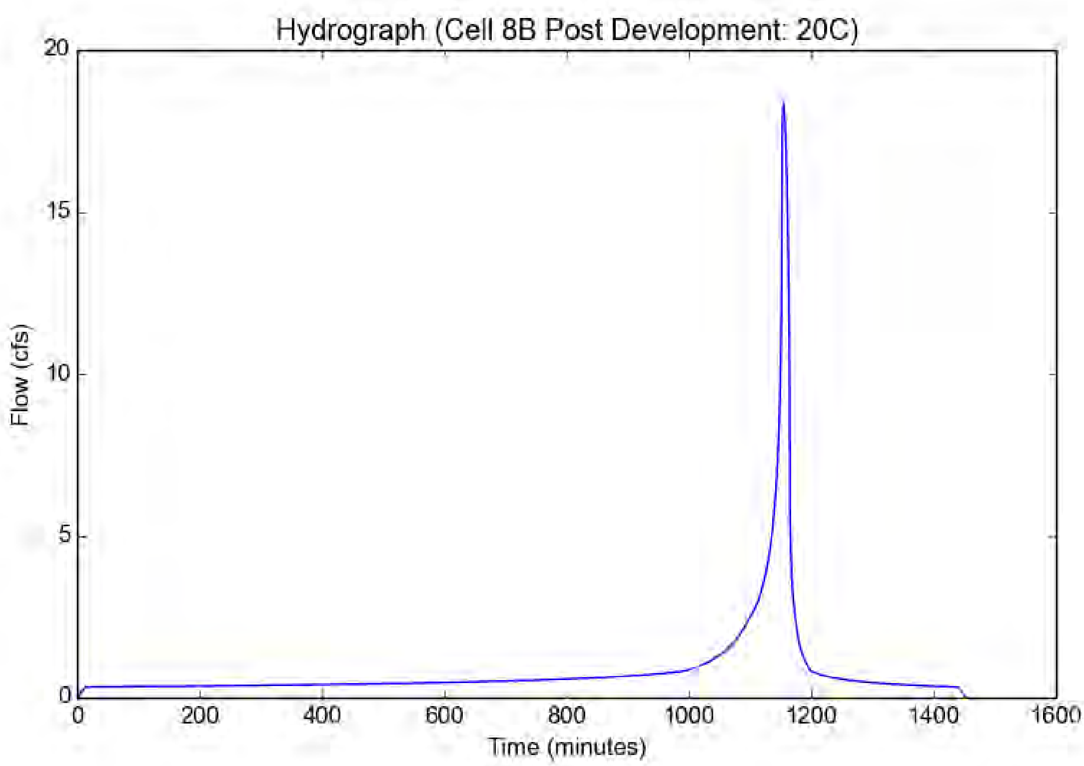
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	20C
Area (ac)	11.6
Flow Path Length (ft)	1961.0
Flow Path Slope (vft/hft)	0.11
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.15
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.2085
Undeveloped Runoff Coefficient (Cu)	0.6842
Developed Runoff Coefficient (Cd)	0.7165
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	18.3567
Burned Peak Flow Rate (cfs)	19.284
24-Hr Clear Runoff Volume (ac-ft)	1.7076
24-Hr Clear Runoff Volume (cu-ft)	74382.7363



Peak Flow Hydrologic Analysis

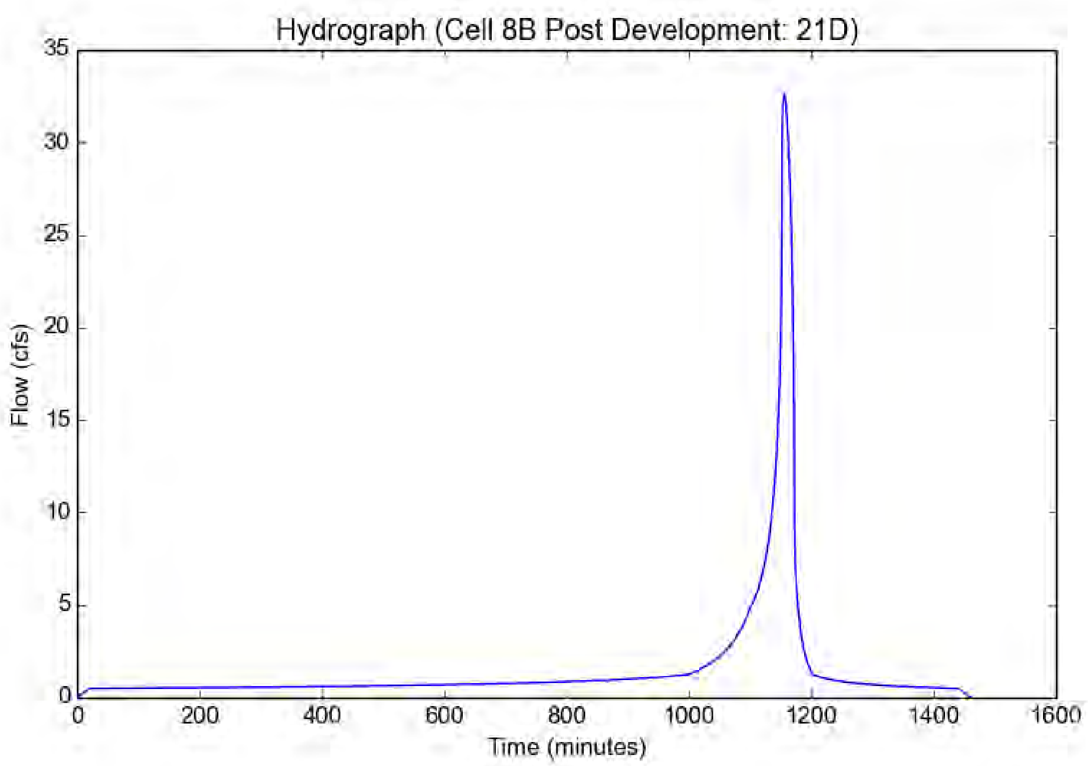
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	21D
Area (ac)	27.4
Flow Path Length (ft)	2426.0
Flow Path Slope (vft/hft)	0.026
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.8037
Undeveloped Runoff Coefficient (Cu)	0.6467
Developed Runoff Coefficient (Cd)	0.6593
Time of Concentration (min)	20.0
Clear Peak Flow Rate (cfs)	32.5851
Burned Peak Flow Rate (cfs)	34.6603
24-Hr Clear Runoff Volume (ac-ft)	3.1061
24-Hr Clear Runoff Volume (cu-ft)	135301.6873



Peak Flow Hydrologic Analysis

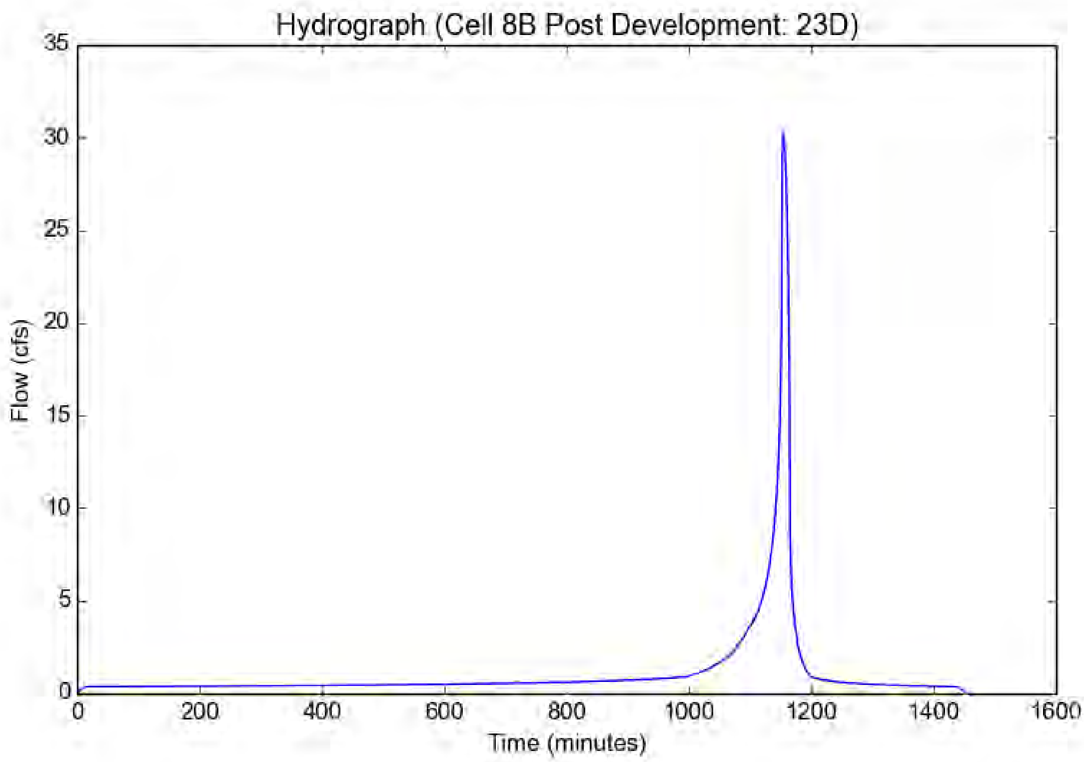
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	23D
Area (ac)	19.7
Flow Path Length (ft)	1966.0
Flow Path Slope (vft/hft)	0.13
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.2085
Undeveloped Runoff Coefficient (Cu)	0.6842
Developed Runoff Coefficient (Cd)	0.695
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	30.2358
Burned Peak Flow Rate (cfs)	31.9304
24-Hr Clear Runoff Volume (ac-ft)	2.2413
24-Hr Clear Runoff Volume (cu-ft)	97630.5488



Peak Flow Hydrologic Analysis

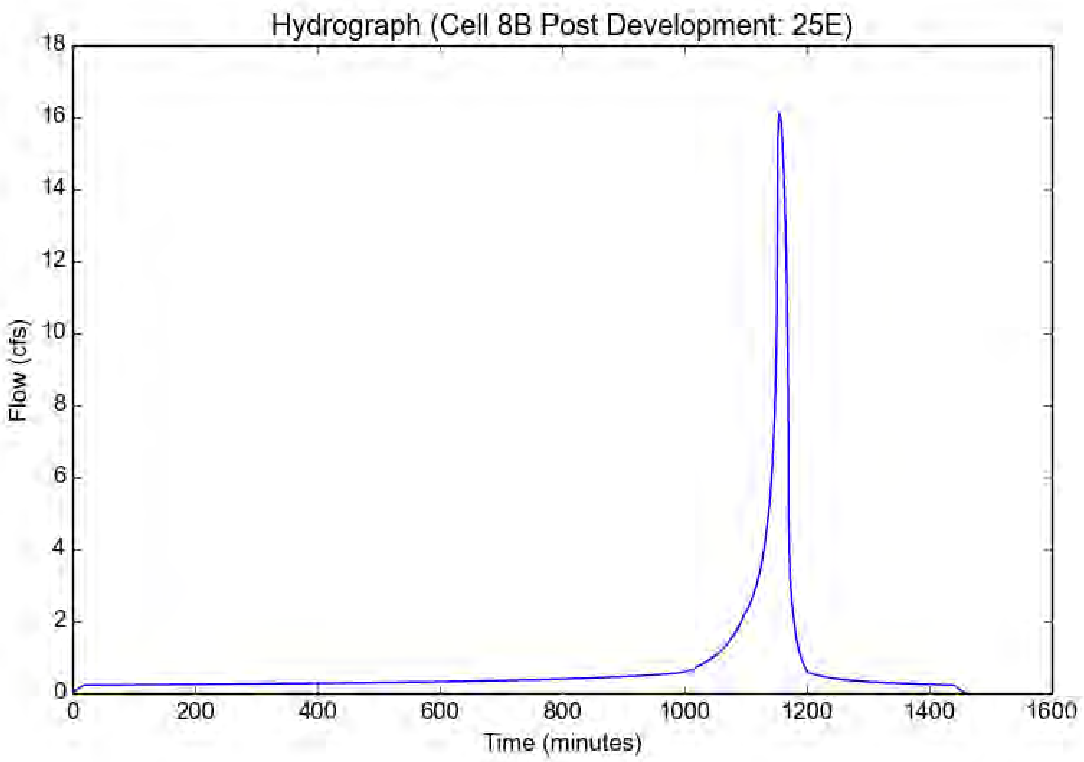
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	25E
Area (ac)	12.7
Flow Path Length (ft)	2462.0
Flow Path Slope (vft/hft)	0.05
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.8953
Undeveloped Runoff Coefficient (Cu)	0.6569
Developed Runoff Coefficient (Cd)	0.669
Time of Concentration (min)	18.0
Clear Peak Flow Rate (cfs)	16.1034
Burned Peak Flow Rate (cfs)	17.0941
24-Hr Clear Runoff Volume (ac-ft)	1.4412
24-Hr Clear Runoff Volume (cu-ft)	62777.1235



Peak Flow Hydrologic Analysis

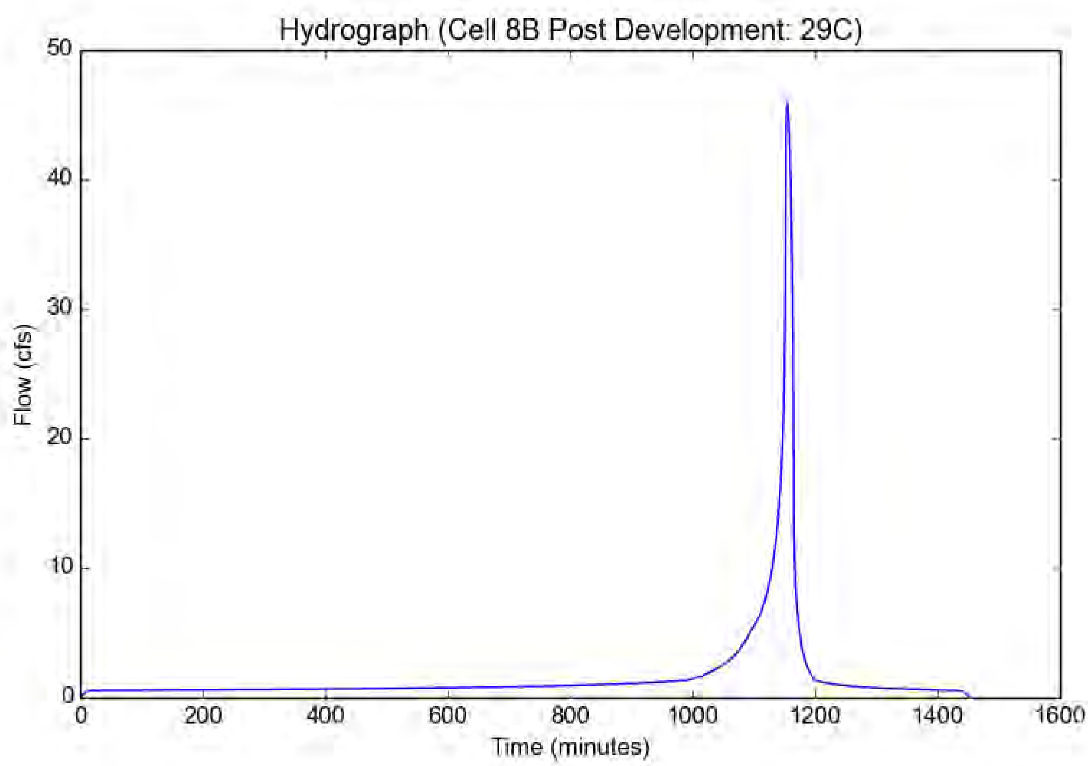
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	29C
Area (ac)	29.9
Flow Path Length (ft)	2230.0
Flow Path Slope (vft/hft)	0.16
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.2085
Undeveloped Runoff Coefficient (Cu)	0.6842
Developed Runoff Coefficient (Cd)	0.695
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	45.8909
Burned Peak Flow Rate (cfs)	48.4629
24-Hr Clear Runoff Volume (ac-ft)	3.4018
24-Hr Clear Runoff Volume (cu-ft)	148180.376



Peak Flow Hydrologic Analysis

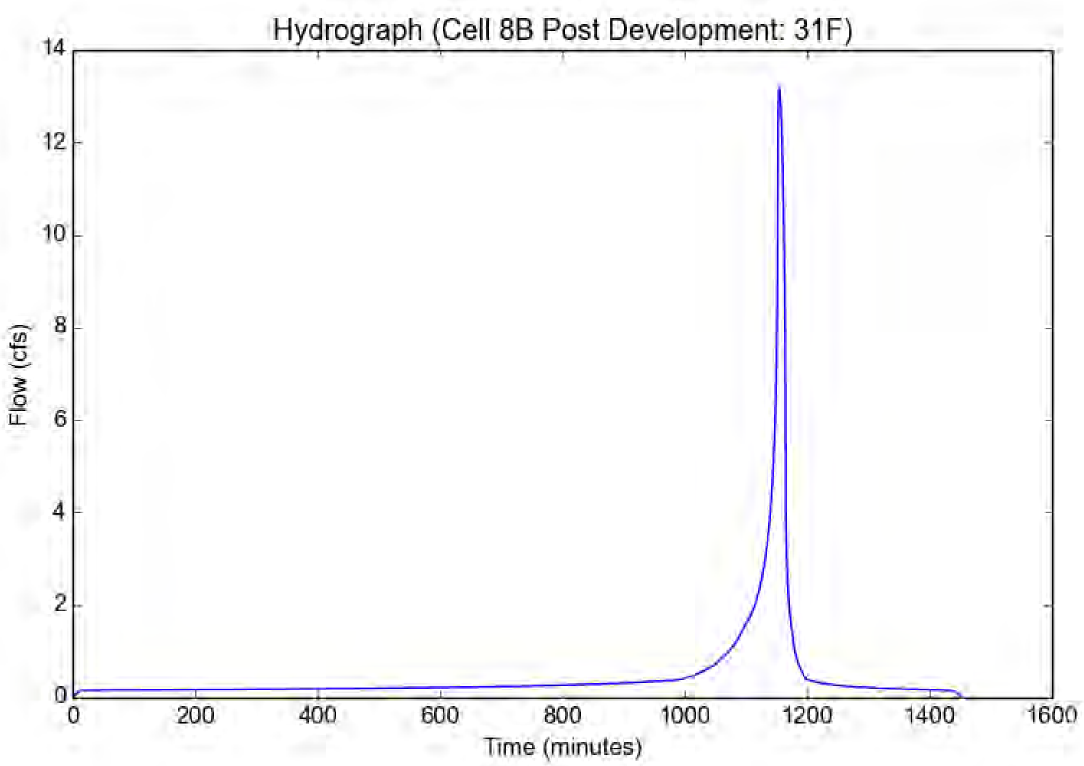
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	31F
Area (ac)	8.6
Flow Path Length (ft)	1402.0
Flow Path Slope (vft/hft)	0.036
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.2085
Undeveloped Runoff Coefficient (Cu)	0.6842
Developed Runoff Coefficient (Cd)	0.695
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	13.1994
Burned Peak Flow Rate (cfs)	13.9392
24-Hr Clear Runoff Volume (ac-ft)	0.9784
24-Hr Clear Runoff Volume (cu-ft)	42620.4426



Peak Flow Hydrologic Analysis

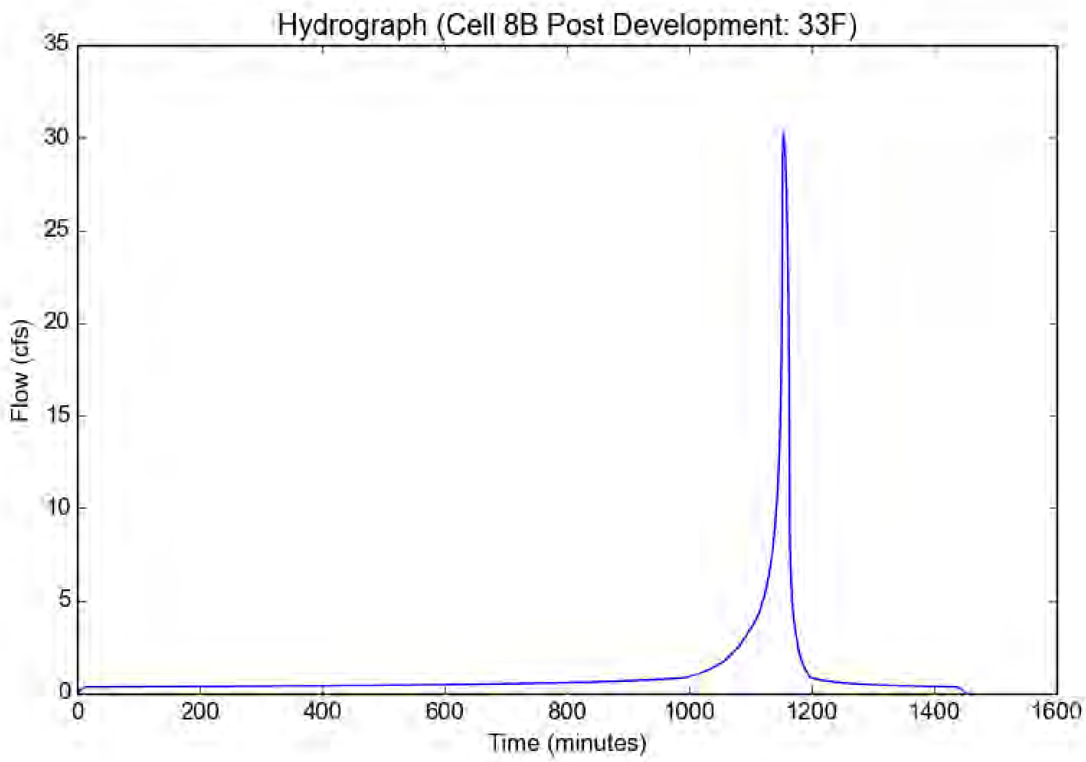
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	33F
Area (ac)	18.8
Flow Path Length (ft)	1524.0
Flow Path Slope (vft/hft)	0.071
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.2931
Undeveloped Runoff Coefficient (Cu)	0.6905
Developed Runoff Coefficient (Cd)	0.701
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	30.2205
Burned Peak Flow Rate (cfs)	31.877
24-Hr Clear Runoff Volume (ac-ft)	2.1399
24-Hr Clear Runoff Volume (cu-ft)	93212.06



Peak Flow Hydrologic Analysis

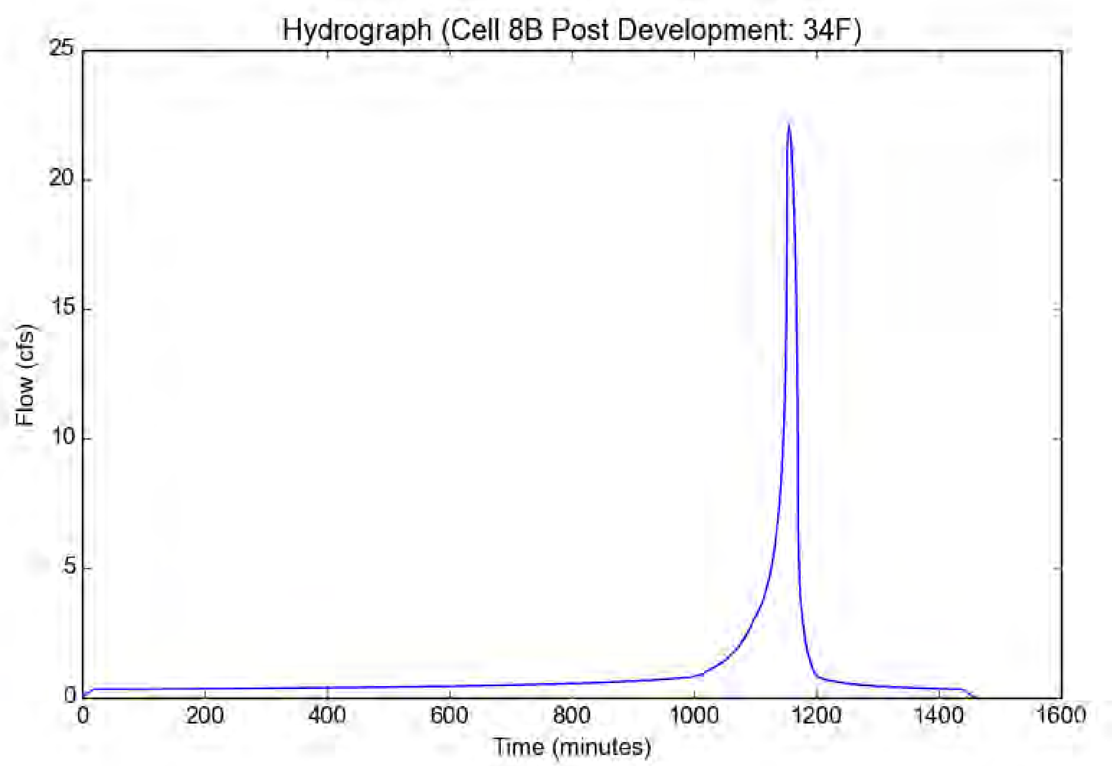
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	34F
Area (ac)	17.4
Flow Path Length (ft)	3136.0
Flow Path Slope (vft/hft)	0.12
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0.34
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	1.8953
Undeveloped Runoff Coefficient (Cu)	0.6569
Developed Runoff Coefficient (Cd)	0.669
Time of Concentration (min)	18.0
Clear Peak Flow Rate (cfs)	22.063
Burned Peak Flow Rate (cfs)	23.4202
24-Hr Clear Runoff Volume (ac-ft)	1.9745
24-Hr Clear Runoff Volume (cu-ft)	86009.6022



Peak Flow Hydrologic Analysis

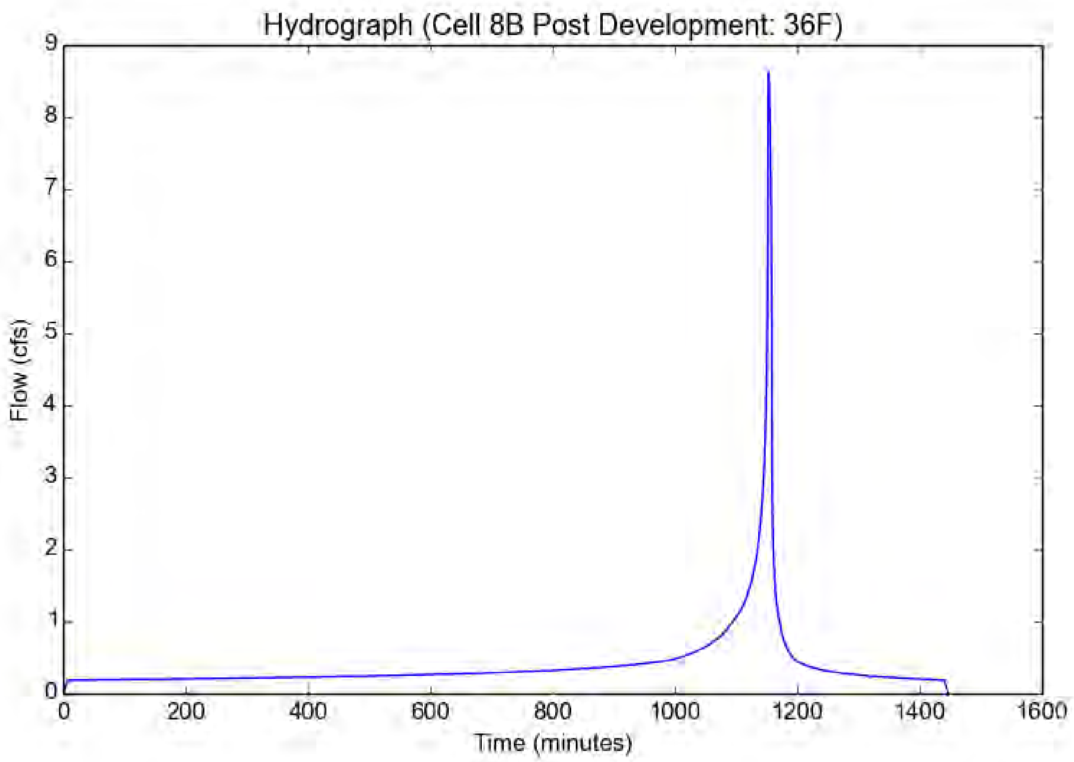
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	36F
Area (ac)	3.7
Flow Path Length (ft)	843.0
Flow Path Slope (vft/hft)	0.126
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.36
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.9543
Undeveloped Runoff Coefficient (Cu)	0.7276
Developed Runoff Coefficient (Cd)	0.7897
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	8.6316
Burned Peak Flow Rate (cfs)	8.6316
24-Hr Clear Runoff Volume (ac-ft)	0.8052
24-Hr Clear Runoff Volume (cu-ft)	35074.2626



Peak Flow Hydrologic Analysis

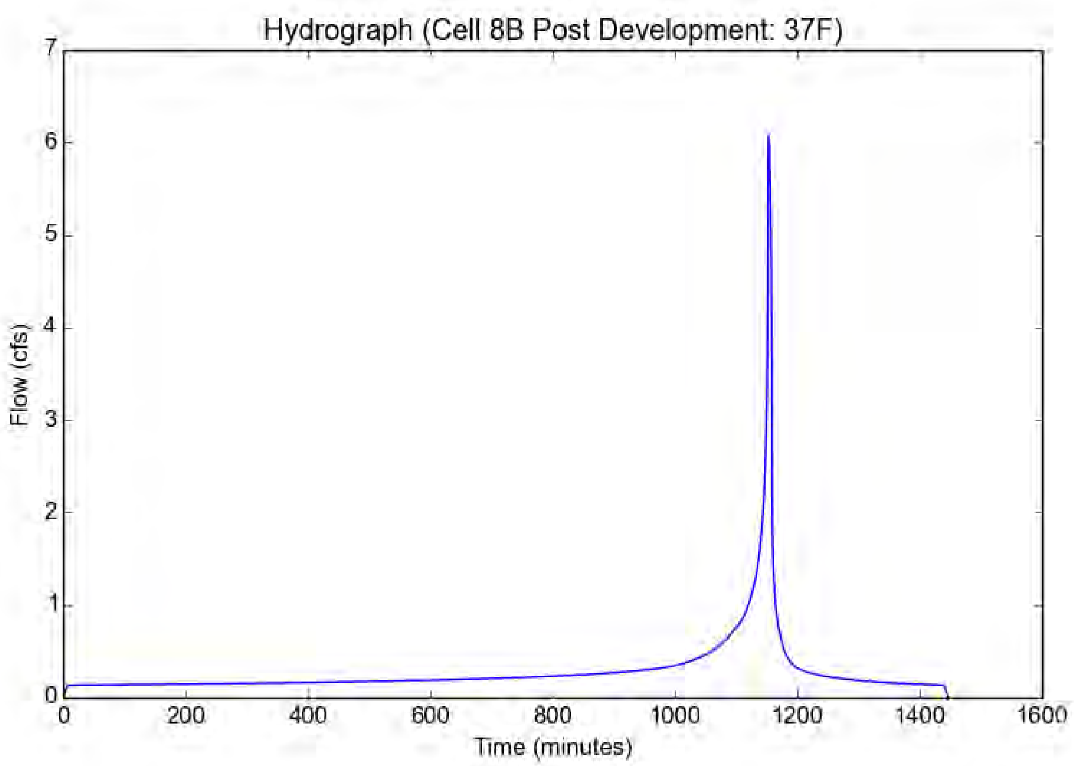
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	37F
Area (ac)	2.6
Flow Path Length (ft)	712.0
Flow Path Slope (vft/hft)	0.046
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.37
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	2.9543
Undeveloped Runoff Coefficient (Cu)	0.7276
Developed Runoff Coefficient (Cd)	0.7914
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	6.0787
Burned Peak Flow Rate (cfs)	6.0787
24-Hr Clear Runoff Volume (ac-ft)	0.5745
24-Hr Clear Runoff Volume (cu-ft)	25025.0987



Peak Flow Hydrologic Analysis

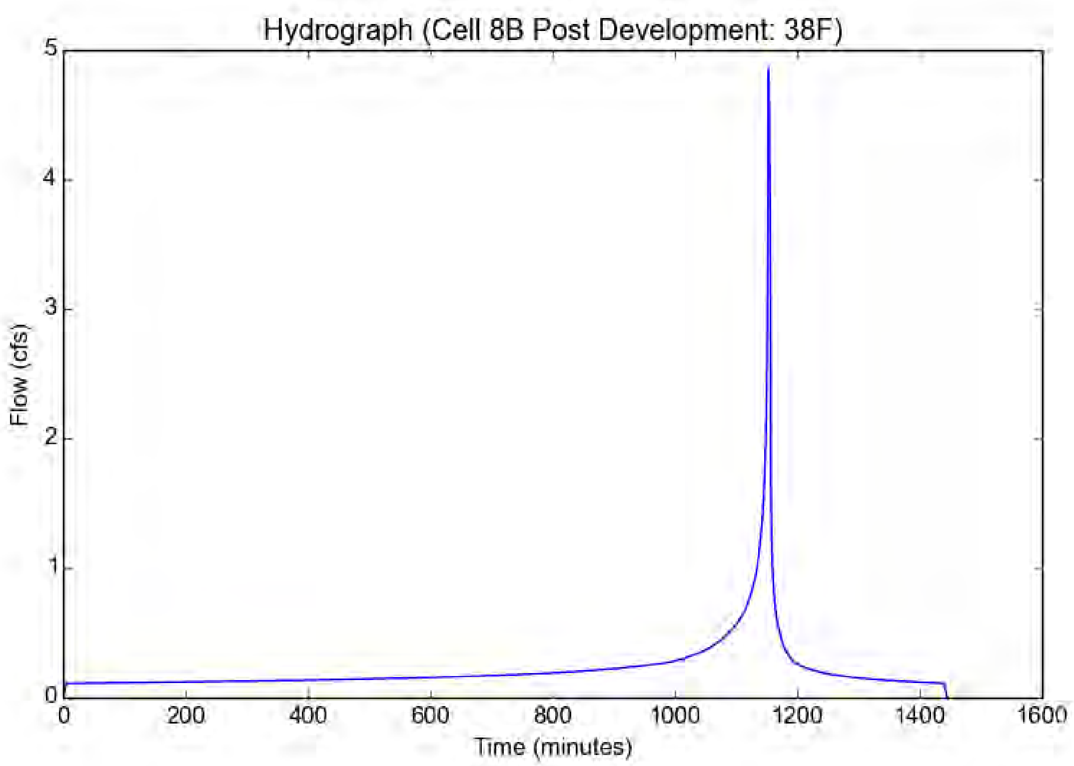
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/Cell 8B Post Developme
Version: HydroCalc 1.0.3

Input Parameters

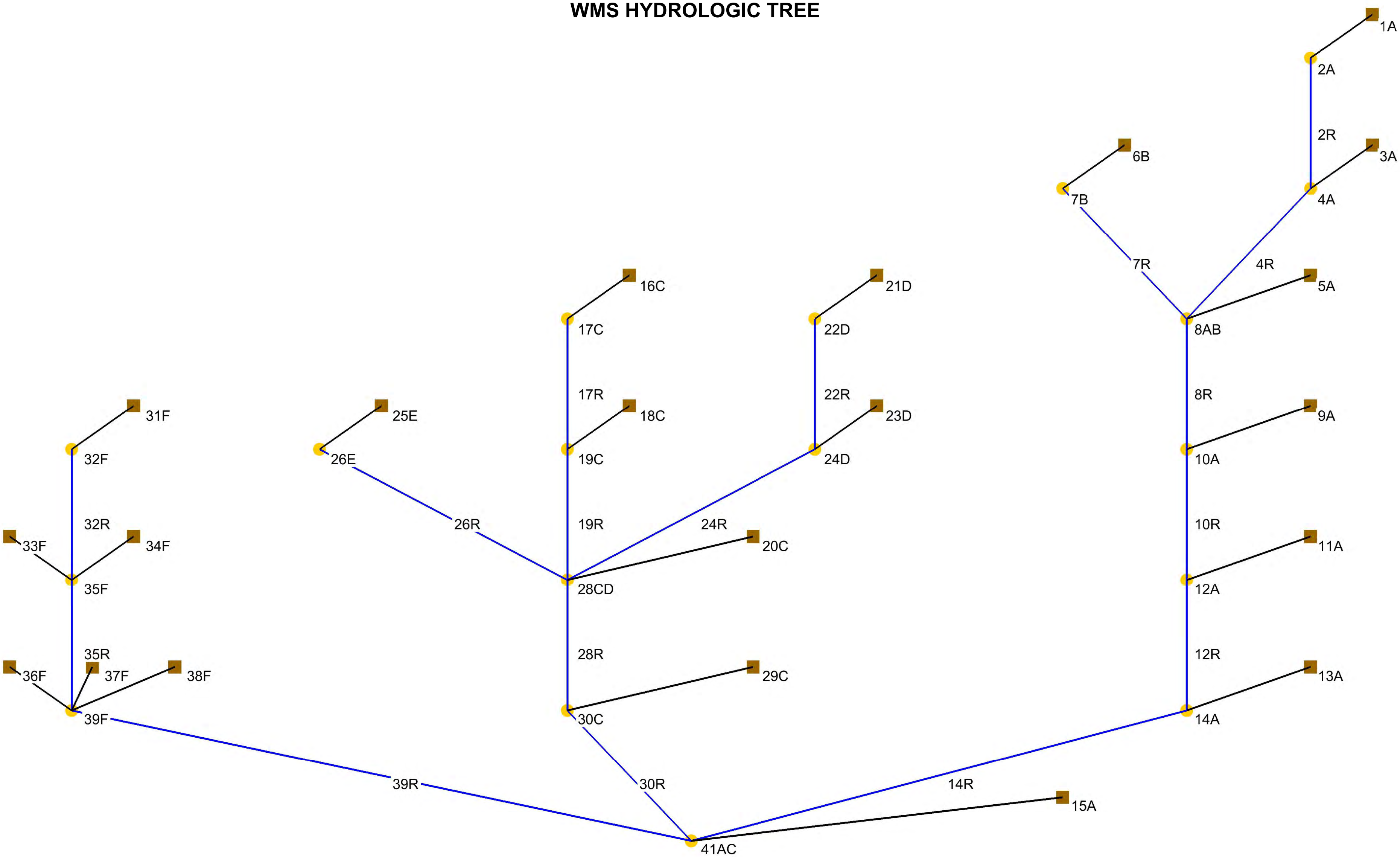
Project Name	Cell 8B Post Development
Subarea ID	38F
Area (ac)	1.7
Flow Path Length (ft)	278.0
Flow Path Slope (vft/hft)	0.086
50-yr Rainfall Depth (in)	5.8
Percent Impervious	0.5
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.8
Peak Intensity (in/hr)	3.4604
Undeveloped Runoff Coefficient (Cu)	0.7516
Developed Runoff Coefficient (Cd)	0.8258
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	4.858
Burned Peak Flow Rate (cfs)	4.858
24-Hr Clear Runoff Volume (ac-ft)	0.4496
24-Hr Clear Runoff Volume (cu-ft)	19583.225



WMS HYDROLOGIC TREE



POST-DEVELOPMENT CONDITION

MODRAT ANALYSIS

CLEAR PEAK FLOW WMS MODELING OUTPUT

File name: Cell8B_4thDay_Post_Inflow_Clear.lac Run date: Tue Dec 20 09:43:51 2022

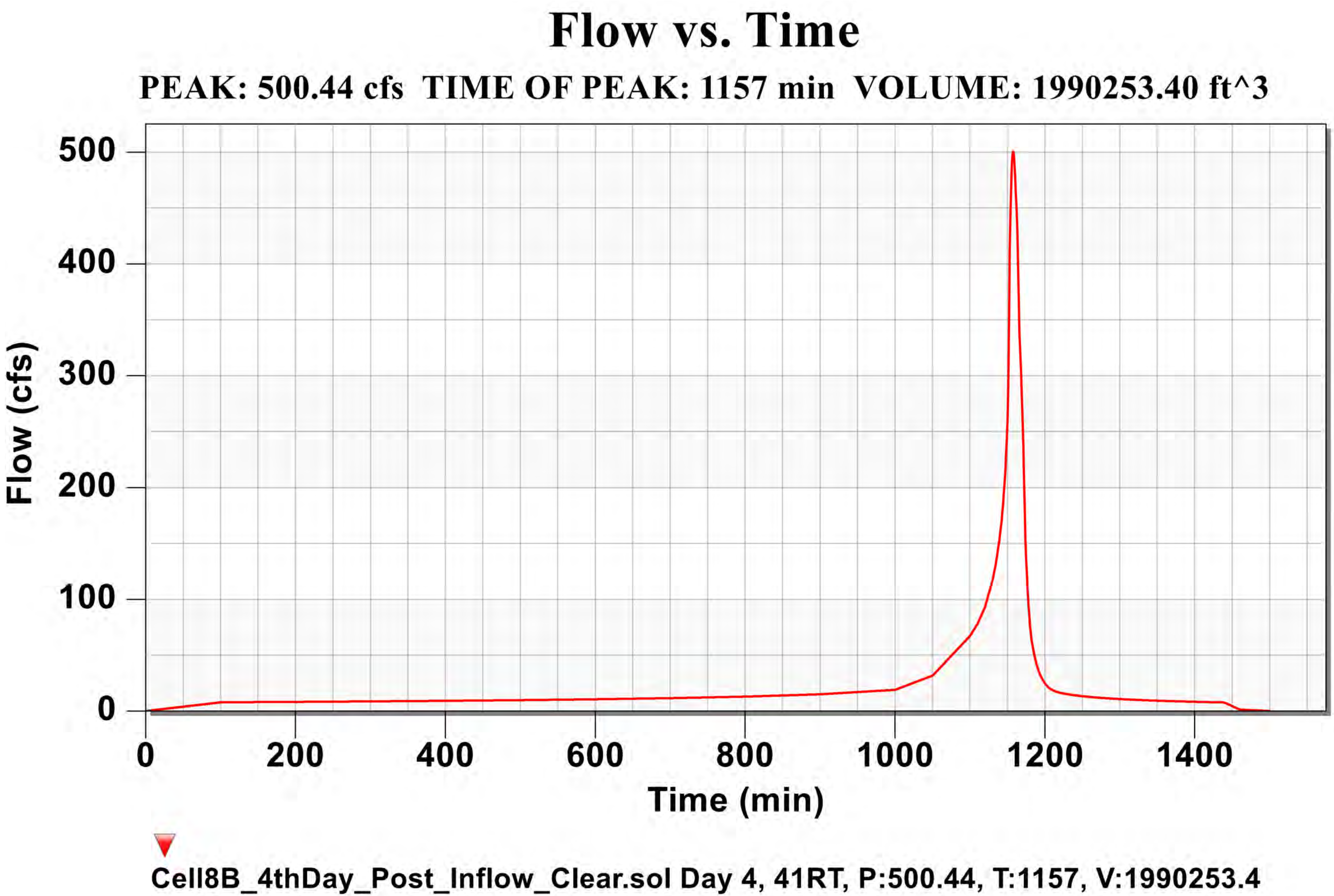
Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 4 Storm Frequency 50

LOCATION		SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1	1A	22.1	30.13	22.1	30.13	2.507	0	0	0.00000	0.00	0.00	0	97	16	5.80	0.05
1	2A	0.0	0.00	22.1	30.13	2.507	4	532	0.33000	3.00	0.00	0	97	0	5.80	0.00
1	3A	40.4	55.09	62.5	85.16	7.089	0	0	0.00000	0.00	0.00	0	97	16	5.80	0.05
1	4A	0.0	0.00	62.5	85.16	7.091	6	1618	0.03500	3.00	1.00	0	97	0	5.80	0.00
1	5A	23.4	28.72	85.9	113.04	9.739	0	0	0.00000	0.00	0.00	0	97	19	5.80	0.05
1	6B	20.9	22.85	20.9	22.85	2.360	0	0	0.00000	0.00	0.00	0	97	23	5.80	0.05
1	7B	0.0	0.00	20.9	22.85	2.360	4	789	0.25000	3.00	0.00	0	97	0	5.80	0.00
1	8AB	20.9	22.84	106.8	135.87	12.100	6	1659	0.04700	3.00	1.00	0	97	0	5.80	0.00
1	9A	25.5	29.46	132.3	164.17	14.982	0	0	0.00000	0.00	0.00	0	97	21	5.80	0.05
1	10A	0.0	0.00	132.3	164.17	14.982	4	561	0.15000	4.00	0.00	0	97	0	5.80	0.00
1	11A	6.4	12.90	138.7	172.64	15.712	0	0	0.00000	0.00	0.00	0	97	8	5.80	0.05
1	12A	0.0	0.00	138.7	172.64	15.712	4	244	0.29000	4.00	0.00	0	97	0	5.80	0.00
1	13A	7.3	11.72	146.0	183.16	16.542	0	0	0.00000	0.00	0.00	0	97	12	5.80	0.05
1	14A	0.0	0.00	146.0	183.16	16.542	4	51	0.06600	4.00	0.00	0	97	0	5.80	0.00
1	15A	7.6	13.62	153.6	195.13	17.938	0	0	0.00000	0.00	0.00	0	97	11	5.80	0.26
1	16C	34.6	37.82	34.6	37.82	3.908	0	0	0.00000	0.00	0.00	0	97	23	5.80	0.05
1	17C	0.0	0.00	34.6	37.82	3.907	4	686	0.29000	3.00	0.00	0	97	0	5.80	0.00
1	18C	43.6	53.51	78.2	91.23	8.842	0	0	0.00000	0.00	0.00	0	97	19	5.80	0.05
1	19C	0.0	0.00	78.2	91.23	8.842	6	1558	0.06400	3.00	0.00	0	97	0	5.80	0.00
1	20C	11.6	18.35	89.8	108.45	10.547	0	0	0.00000	0.00	0.00	0	97	13	5.80	0.15
1	21D	27.4	32.60	27.4	32.60	3.099	0	0	0.00000	0.00	0.00	0	97	20	5.80	0.05
1	22D	0.0	0.00	27.4	32.60	3.099	4	839	0.29000	3.00	0.00	0	97	0	5.80	0.00
1	23D	19.7	30.22	47.1	62.51	5.337	0	0	0.00000	0.00	0.00	0	97	13	5.80	0.05
1	24D	0.0	0.00	47.1	62.51	5.337	4	155	0.09700	2.50	0.00	0	97	0	5.80	0.00
1	25E	12.7	16.10	12.7	16.10	1.438	0	0	0.00000	0.00	0.00	0	97	18	5.80	0.05
1	26E	0.0	0.00	12.7	16.10	1.438	4	240	0.13000	2.00	0.00	0	97	0	5.80	0.00
1	27CD	47.1	62.49	136.9	170.49	15.884	0	0	0.00000	0.00	0.00	0	97	0	5.80	0.00
1	28CE	12.7	16.09	149.6	186.55	17.322	4	297	0.23000	4.00	0.00	0	97	0	5.80	0.00
1	29C	29.9	45.87	179.5	231.20	20.719	0	0	0.00000	0.00	0.00	0	97	13	5.80	0.05
1	30C	0.0	0.00	179.5	231.20	20.719	4	116	0.26000	4.00	0.00	0	97	0	5.80	0.00
1	31F	8.6	13.19	8.6	13.19	0.977	0	0	0.00000	0.00	0.00	0	97	13	5.80	0.05
1	32F	0.0	0.00	8.6	13.19	0.976	4	1198	0.18000	3.00	0.00	0	97	0	5.80	0.00
1	33F	18.8	30.19	27.4	43.08	3.113	0	0	0.00000	0.00	0.00	0	97	12	5.80	0.05
1	34F	17.4	22.06	44.8	65.13	5.084	0	0	0.00000	0.00	0.00	0	97	18	5.80	0.05
1	35F	0.0	0.00	44.8	65.13	5.084	4	159	0.25000	3.00	0.00	0	97	0	5.80	0.00
1	36F	3.7	8.60	48.5	73.41	5.888	0	0	0.00000	0.00	0.00	0	97	7	5.80	0.36

1	37F	2.6	6.06	51.1	79.28	6.462	0	0	0.00000	0.00	0.00		0	97	7	5.80	0.37
1	38F	1.7	4.86	52.8	83.67	6.911	0	0	0.00000	0.00	0.00		0	97	5	5.80	0.50
1	39F	0.0	0.00	52.8	83.67	6.911	4	162	0.02000	4.00	0.00		0	97	0	5.80	0.00
1	40AC	179.5	231.18	333.1	424.12	38.658	0	0	0.00000	0.00	0.00		0	97	0	5.80	0.00
1	41AF	52.8	83.53	385.9	500.45	45.569	4	1	0.03000	5.00	0.00		0	97	0	5.80	0.00

Normal End of MODRAT



Flow vs. Time
PEAK: 500.44 cfs TIME OF PEAK: 1157 min VOLUME: 1990253.40 ft^3
Flow (cfs)
500
400
300
200
100
0
0
200
400
600
800
1000
1200
1400
Time (min)
Cell8B_4thDay_Post_Inflow_Clear.sol Day 4, 41RT, P:500.44, T:1157, V:1990253.4

POST-DEVELOPMENT CONDITION

MODRAT ANALYSIS

BURNED PEAK FLOW WMS MODELING OUTPUT

File name: Cell8B_4thDay_Post_Inflow_Burn.lac Run date: Mon Dec 19 10:17:44 2022

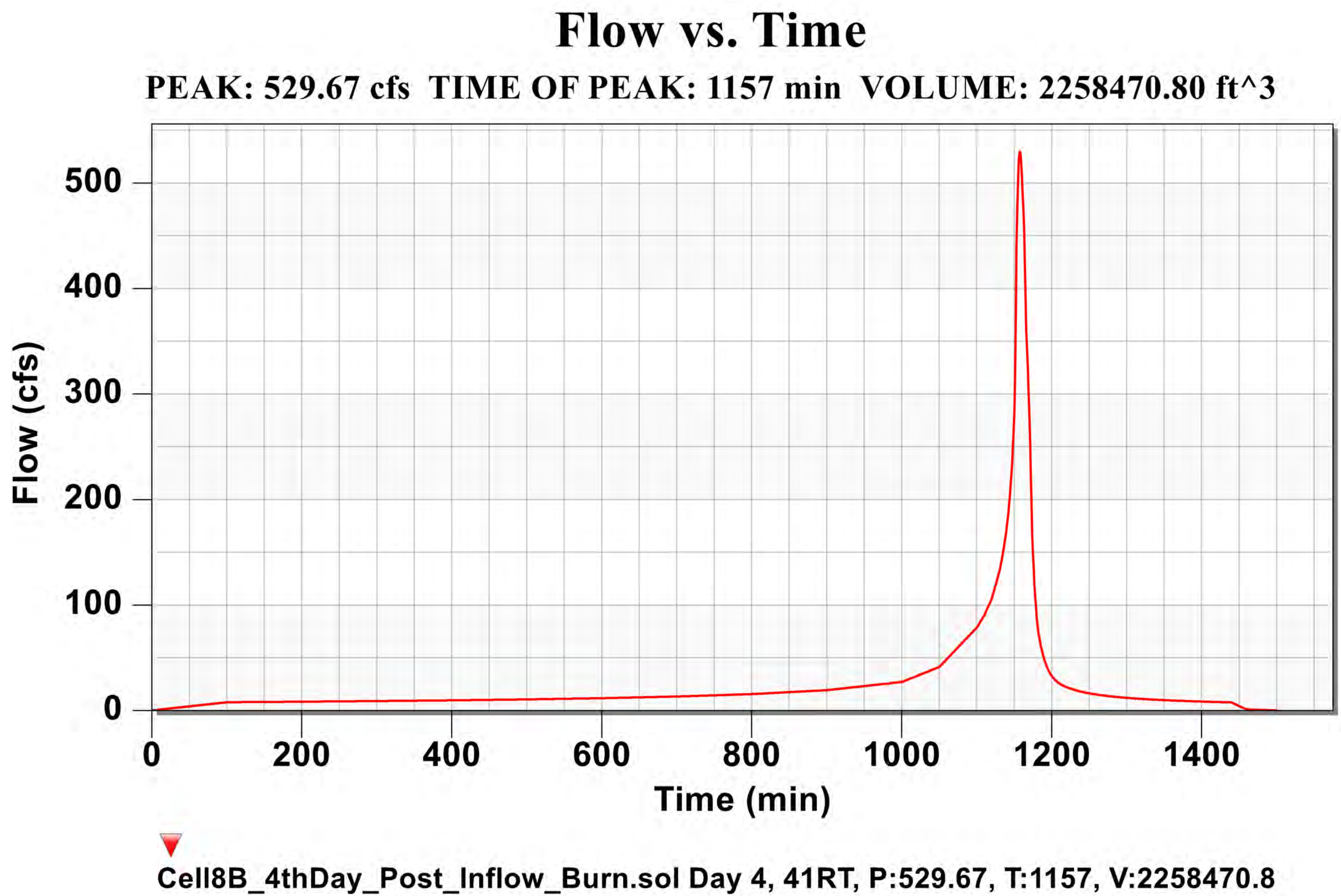
Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 4 Storm Frequency 50

LOCATION		SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1	1A	22.1	31.90	22.1	31.90	2.871	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1	2A	0.0	0.00	22.1	31.90	2.871	4	532	0.33000	3.00	0.00	0	297	0	5.80	0.00
1	3A	40.4	58.31	62.5	90.15	8.119	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1	4A	0.0	0.00	62.5	90.15	8.121	6	1618	0.03500	3.00	1.00	0	297	0	5.80	0.00
1	5A	23.4	30.50	85.9	119.80	11.156	0	0	0.00000	0.00	0.00	0	297	19	5.80	0.05
1	6B	20.9	24.34	20.9	24.34	2.705	0	0	0.00000	0.00	0.00	0	297	23	5.80	0.05
1	7B	0.0	0.00	20.9	24.34	2.705	4	789	0.25000	3.00	0.00	0	297	0	5.80	0.00
1	8AB	20.9	24.33	106.8	144.12	13.861	6	1659	0.04700	3.00	1.00	0	297	0	5.80	0.00
1	9A	25.5	31.33	132.3	174.30	17.164	0	0	0.00000	0.00	0.00	0	297	21	5.80	0.05
1	10A	0.0	0.00	132.3	174.30	17.165	4	561	0.15000	4.00	0.00	0	297	0	5.80	0.00
1	11A	6.4	13.52	138.7	183.34	17.999	0	0	0.00000	0.00	0.00	0	297	8	5.80	0.05
1	12A	0.0	0.00	138.7	183.34	17.999	4	244	0.29000	4.00	0.00	0	297	0	5.80	0.00
1	13A	7.3	12.35	146.0	194.48	18.949	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1	14A	0.0	0.00	146.0	194.48	18.949	4	51	0.06600	4.00	0.00	0	297	0	5.80	0.00
1	15A	7.6	13.62	153.6	206.45	20.346	0	0	0.00000	0.00	0.00	0	97	11	5.80	0.26
1	16C	34.6	40.29	34.6	40.29	4.479	0	0	0.00000	0.00	0.00	0	297	23	5.80	0.05
1	17C	0.0	0.00	34.6	40.29	4.479	4	686	0.29000	3.00	0.00	0	297	0	5.80	0.00
1	18C	43.6	56.82	78.2	97.01	10.133	0	0	0.00000	0.00	0.00	0	297	19	5.80	0.05
1	19C	0.0	0.00	78.2	97.01	10.132	6	1558	0.06400	3.00	0.00	0	297	0	5.80	0.00
1	20C	11.6	19.22	89.8	115.08	12.008	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.15
1	21D	27.4	34.65	27.4	34.65	3.551	0	0	0.00000	0.00	0.00	0	297	20	5.80	0.05
1	22D	0.0	0.00	27.4	34.65	3.551	4	839	0.29000	3.00	0.00	0	297	0	5.80	0.00
1	23D	19.7	31.89	47.1	66.21	6.114	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	24D	0.0	0.00	47.1	66.21	6.114	4	155	0.09700	2.50	0.00	0	297	0	5.80	0.00
1	25E	12.7	17.08	12.7	17.08	1.648	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	26E	0.0	0.00	12.7	17.08	1.647	4	240	0.13000	2.00	0.00	0	297	0	5.80	0.00
1	27CD	47.1	66.20	136.9	180.83	18.122	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	28CE	12.7	17.07	149.6	197.86	19.769	4	297	0.23000	4.00	0.00	0	297	0	5.80	0.00
1	29C	29.9	48.39	179.5	244.98	23.658	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	30C	0.0	0.00	179.5	244.98	23.658	4	116	0.26000	4.00	0.00	0	297	0	5.80	0.00
1	31F	8.6	13.92	8.6	13.92	1.119	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	32F	0.0	0.00	8.6	13.92	1.118	4	1198	0.18000	3.00	0.00	0	297	0	5.80	0.00
1	33F	18.8	31.82	27.4	45.46	3.564	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1	34F	17.4	23.41	44.8	68.85	5.822	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	35F	0.0	0.00	44.8	68.85	5.821	4	159	0.25000	3.00	0.00	0	297	0	5.80	0.00
1	36F	3.7	8.60	48.5	77.13	6.626	0	0	0.00000	0.00	0.00	0	97	7	5.80	0.36

1	37F	2.6	6.06	51.1	82.99	7.200	0	0	0.00000	0.00	0.00	0	97	7	5.80	0.37
1	38F	1.7	4.86	52.8	87.39	7.649	0	0	0.00000	0.00	0.00	0	97	5	5.80	0.50
1	39F	0.0	0.00	52.8	87.39	7.649	4	162	0.02000	4.00	0.00	0	97	0	5.80	0.00
1	40AC	179.5	244.97	333.1	449.47	44.004	0	0	0.00000	0.00	0.00	0	97	0	5.80	0.00
1	41AF	52.8	87.25	385.9	529.69	51.653	4	1	0.03000	5.00	0.00	0	97	0	5.80	0.00

Normal End of MODRAT


Flow vs. Time
PEAK: 529.67 cfs TIME OF PEAK: 1157 min VOLUME: 2258470.80 ft^3
Flow (cfs)
500
400
300
200
100
0
0
200
400
600
800
1000
1200
1400
Time (min)
Cell8B_4thDay_Post_Inflow_Burn.sol Day 4, 41RT, P:529.67, T:1157, V:2258470.8

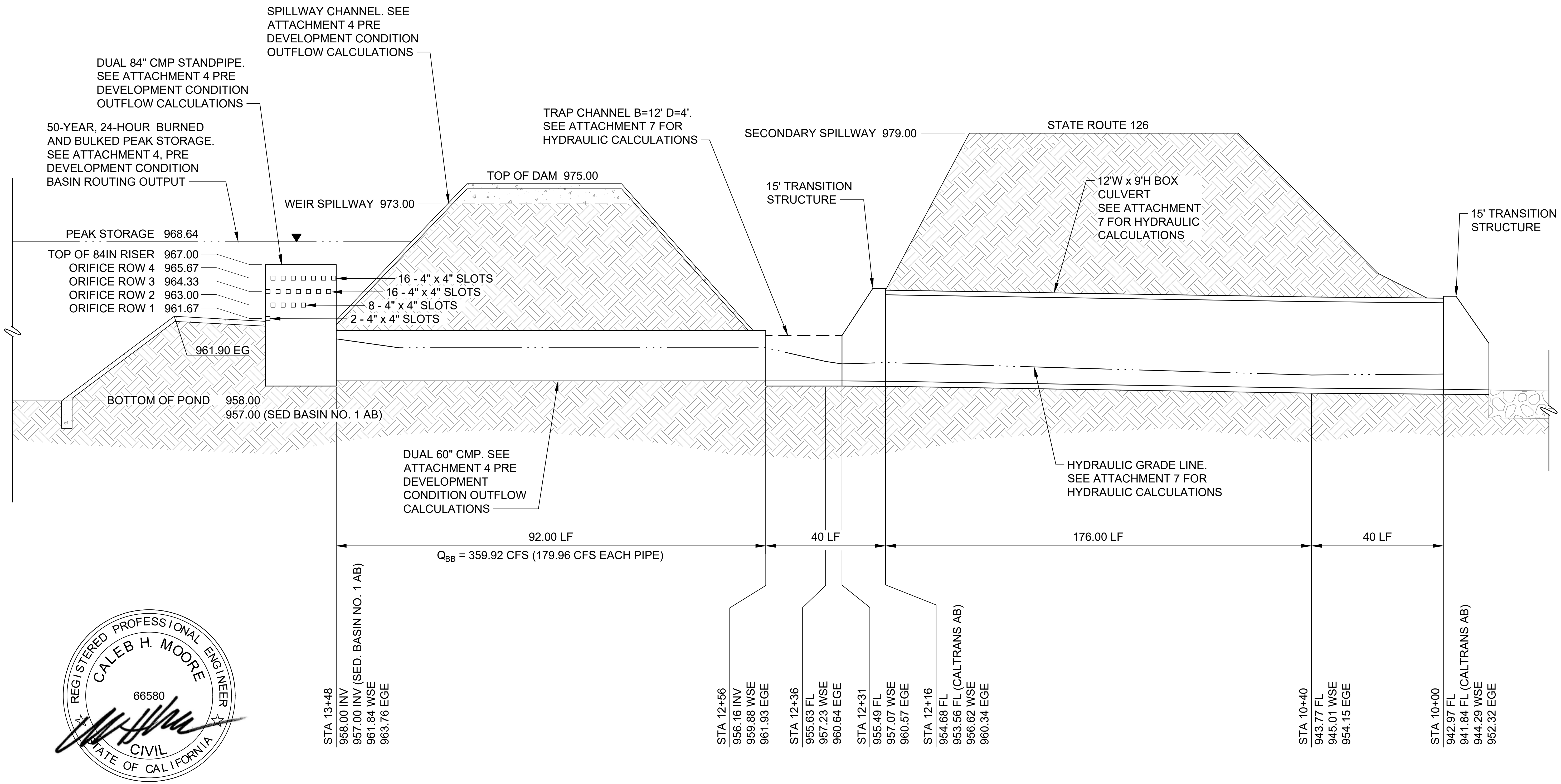
ATTACHMENT 4

SEDIMENTATION BASIN ANALYSIS

PRE-DEVELOPMENT CONDITION

SEDIMENTATION BASIN ANALYSIS

BASIN STORAGE CAPACITY AND OUTFLOW CALCULATIONS



BASIN OUTFLOW ELEVATION VIEW

NTS

ABBREVIATIONS:

AB	AS-BUILT
CFS	CUBIC FEET PER SECOND
EG	EXISTING GRADE
EGE	ENERGY GRADE ELEVATION
FL	FLOW LINE
INV	INVERT
NTS	NOT TO SCALE
WSE	WATER SURFACE ELEVATION

NOTE:

THE VERTICAL DATUM FOR THE PRE-DEVELOPMENT SEDIMENTATION BASIN AND OUTFLOW SYSTEM IS BASED ON THE HYDROLOGY STUDY TITLED, *CHIQUITA CANYON LANDFILL DRAINAGE ANALYSIS (CCLDA)*, PREPARED BY GOLDER ASSOCIATES INC. SEE SECTION 3.2 OF REPORT SUMMARY FOR A MORE DETAILED DESCRIPTION.

CHIQUITA CANYON LANDFILL

PRE-DEVELOPMENT SEDIMENTATION BASIN OUTFLOW SCHEMATIC

TETRA TECH
21700 Copley Drive, Suite 200
Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

P:\Waste Connections\Chiquita\Cell 8\CAD\SheetFiles\Grading Permit\Figures\C-805 Sedimentation Basin Outflow Schematic

TETRA TECH BAS

Chiquita Canyon Landfill
Cell 8B Pre-Development
Basin Outflow
Calculations

Job Number : 2020-0031
Calculated By: PV
Checked By: JMH
Date: 10 Sept, 2021

DESIGN CALCULATION REQUIRED

Determine the stage peak outflow (Q) from the existing twin standpipes in the westerly basin at the Chiquita Canyon

CALCULATIONS

Determine peak Q for each orifice row using the calculation per FHWA HEC 22 - Urban Drainage Design Manual, Chapter 8 - Detention and Retention Facility, September 2009. (Publication No. FHWA-NHI-10-009)

Equation: $Q = CA\ (2gh)^{1/2}$

where, Q = discharge in cfs;
A = cross-sectional area of conduit in ft^2;
g = gravitational constant (32.2 ft/sec^2);
h = head, in ft, above centerline of orifice opening;
C = orifice coefficient (0.65).

See Existing Sedimentation Basin Outflow Schematic (attachement 4)

Orifice Row	Variable	Units \ Elev.	962	964	966	968	970	972	974	975
1	h = Elev. - 961.667	ft	0.33	2.33	4.33	6.33	8.33	10.33	12.33	13.33
	A (2 x 4" sqaure)	ft^2	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
	Q_1	**cfs**	**0.67**	**1.77**	**2.41**	**2.92**	**3.35**	**3.73**	**4.07**	**4.23**
2	h = Elev. - 963	ft	0.00	1.00	3.00	5.00	7.00	9.00	11.00	12.00
	A (8 x 4" sqaure)	ft^2	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
	Q_2	**cfs**	**0.00**	**4.64**	**8.03**	**10.37**	**12.27**	**13.91**	**15.38**	**16.06**
3	h = Elev. - 964.333	ft	0.00	0.00	1.67	3.67	5.67	7.67	9.67	10.67
	A (8 x 4" sqaure)	ft^2	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
	Q_3	**cfs**	**0.00**	**0.00**	**5.99**	**8.88**	**11.04**	**12.84**	**14.42**	**15.14**
4	h = Elev. - 965.667	ft	0.00	0.00	0.33	2.33	4.33	6.33	8.33	9.33
	A (16 x 4" sqaure)	ft^2	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
	Q_4	**cfs**	**0.00**	**0.00**	**5.35**	**14.16**	**19.30**	**23.34**	**26.77**	**28.33**
	Q_5 = Sum of Q_1 to Q_4	**cfs**	**0.67**	**6.41**	**21.78**	**36.33**	**45.95**	**53.81**	**60.63**	**63.77**

Determine peak Q of the standpipe and outflow culverts as a weir and orifice. The lower of the peak Q's shall be used in the summary

The capacity of a weir can be estimated using the following equations (Brater and King, 1976):

1. Horizontal crested weirs

For horizontal crested weirs (both broad-crested and sharp-crested)

$$Q = C L H^{3/2} \quad (1303)$$

Where
Q = Flow (cubic feet per second)
C = weir coefficient
= 3.3 for a sharp-crested weir
= 2.65 for a broad-crested weir
L = Effective horizontal length of weir in f
H = Head (feet)

C= 3.30 Sharp Crested Weir

	Variable	Units \ Elev.	962	964	966	968	970	972	974	975
Standpipe Weir	h = Elev. - 967	ft	0.00	0.00	0.00	1.00	3.00	5.00	7.00	8.00
	L	ft	21.47	21.47	21.47	21.47	21.47	21.47	21.47	21.47
	Q_6	**cfs**	0.00	0.00	0.00	70.85	368.15	792.14	1312.18	1603.18
Total Riser Pipe Flow	**$Q_7 = Q_5 + Q_6$**	**cfs**	**0.67**	**6.41**	**21.78**	**107.18**	**414.11**	**845.95**	**1372.81**	**1666.94**
	Q_8 (2 pipes)= $2xQ_7$	**cfs**	**1.34**	**12.81**	**43.56**	**214.36**	**828.21**	**1691.90**	**2745.63**	**3333.89**
Culvert - Orifice	h = Elev. - 960.5	ft	1.50	3.50	5.50	7.50	9.50	11.50	13.50	14.50
	A	ft^2	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63
	Q_9	**cfs**	**125.44**	**191.61**	**240.20**	**280.49**	**315.68**	**347.32**	**376.32**	**390.01**
	Q_{10} (2 pipes)= $2xQ_9$	**cfs**	**250.88**	**383.22**	**480.39**	**560.98**	**631.36**	**694.65**	**752.63**	**780.01**

Job Number : 2020-0031
Calculated By: PV
Checked By: JMH
Date: 10 Sept, 2021

TETRA TECH BAS

Chiquita Canyon Landfill
Cell 8B Pre-Development
Basin Outflow
Calculations

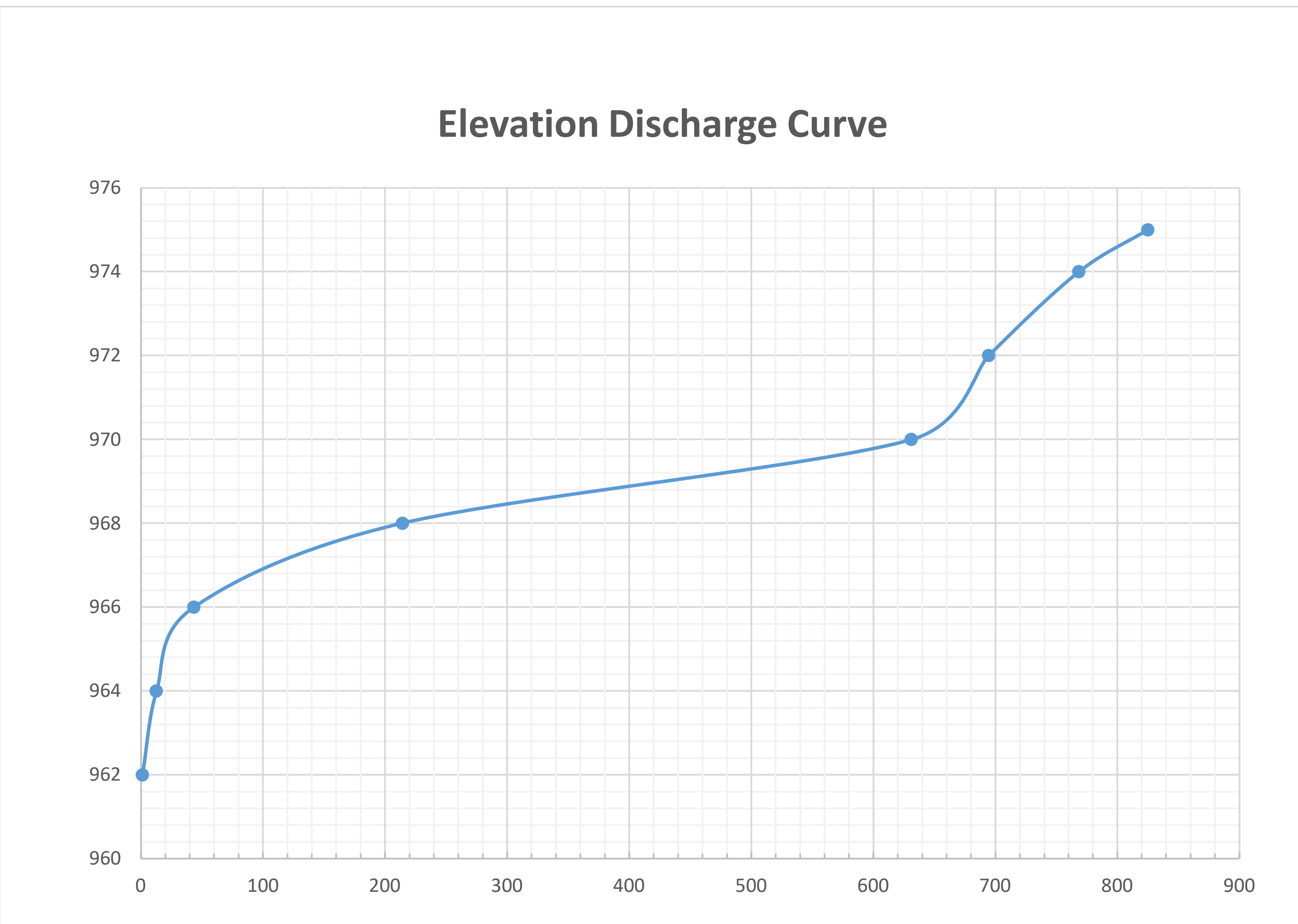
Use Mannings to Determine Peak Q for Riser - See Flowmaster Calculations on Page 2 of 2 for Assumed Input Values

	Variable	Units \ Elev.	962	964	966	968	970	972	974	975
Culvert - Mannings	Q_{11}	cfs	195.00	247.85	323.55	384.63	437.26	484.21	526.99	547.12
	Q_{12}(2 pipes)=2xQ_{11}	cfs	390.00	495.70	647.10	769.26	874.52	968.42	1053.98	1094.24

C= 2.65 Broad-crested Weir

	Variable	Units \ Elev.	962	964	966	968	970	972	974	975
Spillway Weir	h = Elev. - 973	ft	0.00	0.00	0.00	0.00	0.00	0.00	1.00	2.00
	L	ft	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
	Q_{13}	cfs	0.00	0.00	0.00	0.00	0.00	0.00	15.90	44.97

	Elev.	962	964	966	968	970	972	974	975
Discharge Curve	Equation	Q_8	Q_8	Q_8	Q_8	$Q_{10}+Q_{13}$	$Q_{10}+Q_{13}$	$Q_{10}+Q_{13}$	$Q_{10}+Q_{13}$
	Q_{total} (cfs)	1.34	12.81	43.56	214.36	631.36	694.65	768.53	824.98



Cicular Pipe (Cell 8B Out Flow Pre Condition.fm8) Report

Label	Solve For	Friction Method	Roughness Coefficient	Channel Slope (%)	Normal Depth (ft)	Diameter (ft)	Discharge (ft³/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Top Width (ft)	Critical Depth (ft)	Velocity (ft/s)	Flow Type
Culvert - EL 962	Discharge	Manning Formula	0.024	2.00000	4.00	5.00	195.00	16.84	11.07	1.52	4.00	3.99	11.58	SubCritical

Pressure Pipe (Cell 8B Out Flow Pre Condition.fm8) Report

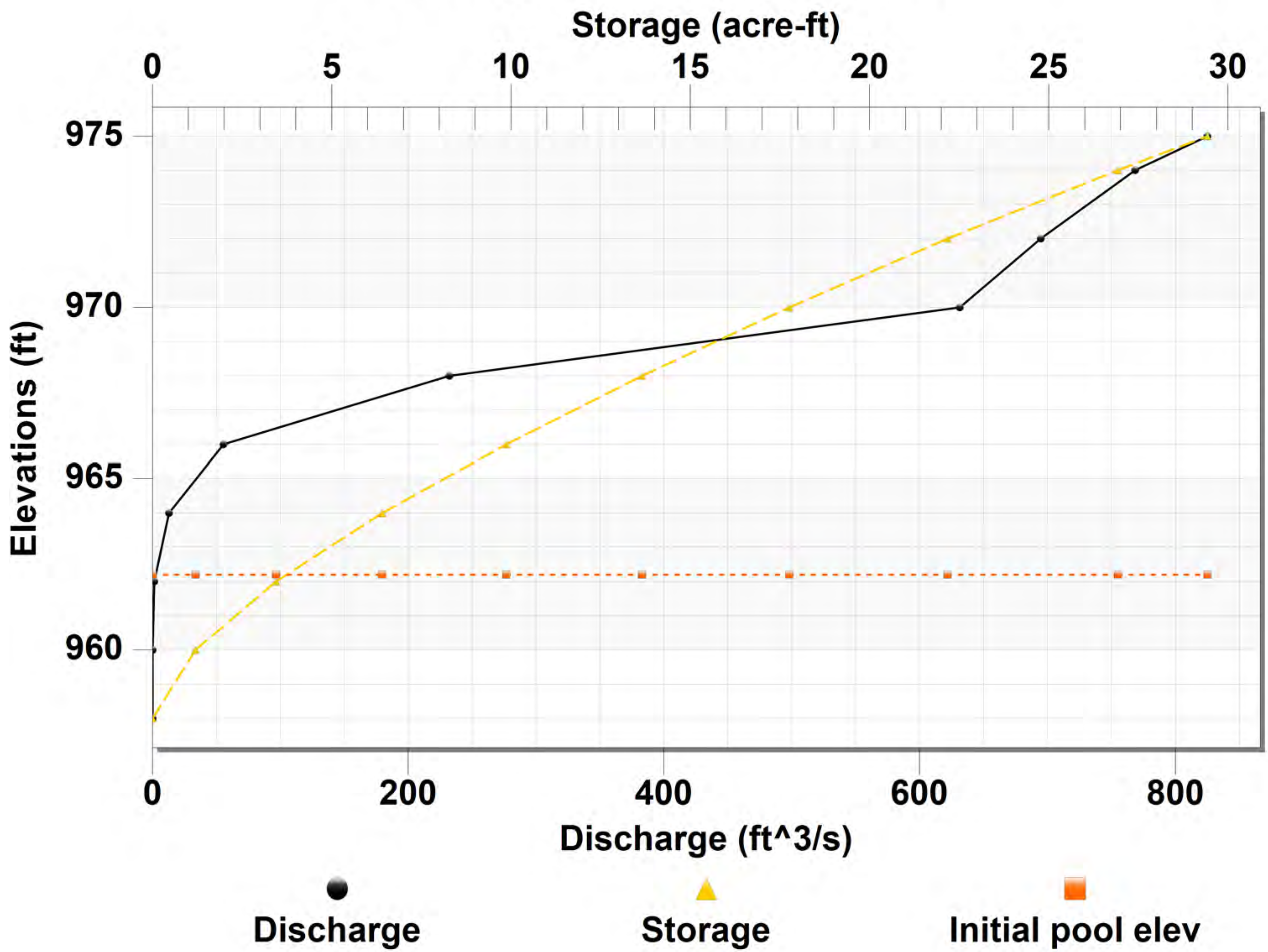
Label	Solve For	Friction Method	Pressure at 1 (feet H2O)	Pressure at 2 (feet H2O)	Elevation at 1 (ft)	Elevation at 2 (ft)	Length (ft)	Roughness Coefficient	Diameter (ft)	Discharge (ft³/s)	Energy Grade at 1 (ft)	Energy Grade at 2 (ft)	Hydraulic Grade at 1 (ft)	Hydraulic Grade at 2 (ft)	Velocity (ft/s)
Culvert - EL 964	Discharge	Manning Formula	1.00	0.00	958.00	956.16	92.00	0.024	5.00	247.85	961.48	958.64	959.00	956.16	12.62
Culvert - EL 966	Discharge	Manning Formula	3.00	0.00	958.00	956.16	92.00	0.024	5.00	323.55	965.22	960.38	961.00	956.16	16.48
Culvert - EL 968	Discharge	Manning Formula	5.00	0.00	958.00	956.16	92.00	0.024	5.00	384.63	968.96	962.12	963.00	956.16	19.59
Culvert - EL 970	Discharge	Manning Formula	7.00	0.00	958.00	956.16	92.00	0.024	5.00	437.26	972.71	963.87	965.00	956.16	22.27
Culvert - EL 972	Discharge	Manning Formula	9.00	0.00	958.00	956.16	92.00	0.024	5.00	484.21	976.45	965.61	967.00	956.16	24.66
Culvert - EL 974	Discharge	Manning Formula	11.00	0.00	958.00	956.16	92.00	0.024	5.00	526.99	980.19	967.35	969.00	956.16	26.84
Culvert - EL 975	Discharge	Manning Formula	12.00	0.00	958.00	956.16	92.00	0.024	5.00	547.12	982.07	968.23	970.00	956.16	27.86

RESERVOIR 42AH 10 0 962.2000

COMPOSITE ELEVATION	COMPOSITE STORAGE	COMPOSITE DISCHARGE
958.000000	0.000000	0.000000
960.000000	1.200000	0.000000
962.000000	3.450000	1.340000
964.000000	6.410000	12.810000
966.000000	9.870000	55.540000
968.000000	13.660000	232.120000
970.000000	17.760000	631.360000
972.000000	22.180000	694.650000
974.000000	26.930000	768.530000
975.000000	29.420000	824.980000

END RESERVOIR 42AH

Storage Discharge Curves



PRE-DEVELOPMENT CONDITION

SEDIMENTATION BASIN ANALYSIS

WMS BASIN ROUTING OUTPUT

File name: Cell8B_4day_Pre_Burned.lac   Run date: Fri Aug 20 15:21:06 2021

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 1   Storm Frequency 50

LOCATION		SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1	1A	18.7	0.92	18.7	0.92	0.096	0	0	0.00000	0.00	0.00	0	297	9	5.80	0.05
1	2A	0.0	0.00	18.7	0.92	0.027	6	417	0.27600	1.00	1.00	0	297	0	5.80	0.00
1	3A	13.6	0.52	32.3	1.43	0.097	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	4A	24.2	0.80	56.5	2.23	0.211	0	0	0.00000	0.00	0.00	0	297	15	5.80	0.04
1	5A	0.0	0.00	56.5	2.23	0.115	6	1392	0.03660	2.00	1.00	0	297	0	5.80	0.00
1	6A	10.3	0.37	66.8	2.32	0.164	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.04
1	7A	9.9	0.36	76.7	2.64	0.214	0	0	0.00000	0.00	0.00	0	297	14	5.80	0.05
1	8A	0.0	0.00	76.7	2.64	0.162	6	1466	0.03920	3.00	1.00	0	297	0	5.80	0.00
1	9A	10.2	0.37	86.9	2.68	0.210	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.04
1	10A	0.0	0.00	86.9	2.68	0.185	4	1329	0.12190	4.00	0.00	0	297	0	5.80	0.00
1	11A	17.1	0.65	104.0	2.69	0.246	0	0	0.00000	0.00	0.00	0	297	10	5.80	0.01
1	12A	0.0	0.00	104.0	2.69	0.215	4	100	0.05000	5.00	0.00	0	297	0	5.80	0.00
1	13A	6.7	0.67	110.7	2.80	0.317	0	0	0.00000	0.00	0.00	0	97	6	5.80	0.27
1	14B	30.9	1.12	30.9	1.12	0.158	0	0	0.00000	0.00	0.00	0	297	14	5.80	0.05
1	15B	0.0	0.00	30.9	1.12	0.066	6	3937	0.04900	2.00	1.00	0	297	0	5.80	0.00
1	16B	33.5	0.80	64.4	1.50	0.236	0	0	0.00000	0.00	0.00	0	297	26	5.80	0.05
1	17B	0.0	0.00	64.4	1.50	0.141	4	349	0.18910	3.00	0.00	0	297	0	5.80	0.00
1	18B	22.5	0.52	86.9	1.98	0.255	0	0	0.00000	0.00	0.00	0	297	27	5.80	0.05
1	19C	41.1	0.83	41.1	0.83	0.159	0	0	0.00000	0.00	0.00	0	297	26	5.80	0.02
1	20C	0.0	0.00	41.1	0.83	0.069	4	924	0.09120	4.00	0.00	0	297	0	5.80	0.00
1	21C	7.1	0.44	48.2	1.21	0.149	0	0	0.00000	0.00	0.00	0	97	9	5.80	0.17
1	22D	12.7	0.39	12.7	0.39	0.065	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	23D	0.0	0.00	12.7	0.39	0.013	4	738	0.10030	2.00	0.00	0	297	0	5.80	0.00
1	24BC	48.2	1.21	135.1	2.93	0.404	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	25BD	12.7	0.38	147.8	3.31	0.318	4	1060	0.08870	4.00	0.00	0	297	0	5.80	0.00
1	26E	12.2	0.49	12.2	0.49	0.063	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1	27E	0.0	0.00	12.2	0.49	0.013	6	1185	0.03800	3.00	1.00	0	297	0	5.80	0.00
1	28E	12.6	0.70	24.8	1.01	0.160	0	0	0.00000	0.00	0.00	0	97	12	5.80	0.18
1	29BE	24.8	1.01	172.6	4.28	0.399	4	100	0.05000	5.00	0.00	0	97	0	5.80	0.00
1	30F	8.6	0.28	8.6	0.28	0.044	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1	31F	0.0	0.00	8.6	0.28	0.007	4	891	0.22900	3.00	0.00	0	297	0	5.80	0.00
1	32F	16.9	0.77	25.5	1.04	0.094	0	0	0.00000	0.00	0.00	0	297	10	5.80	0.05
1	33F	0.0	0.00	25.5	1.04	0.030	6	444	0.08780	3.00	1.00	0	297	0	5.80	0.00
1	34F	10.0	0.81	35.5	1.83	0.193	0	0	0.00000	0.00	0.00	0	97	11	5.80	0.30
1	35G	17.4	0.53	17.4	0.53	0.089	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	36G	0.0	0.00	17.4	0.53	0.023	4	630	0.21110	2.00	0.00	0	297	0	5.80	0.00
1	37FG	17.4	0.53	52.9	2.33	0.117	4	250	0.05000	5.00	0.00	0	297	0	5.80	0.00

1	38H	13.0	0.43	13.0	0.43	0.051	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.02
1	39H	0.0	0.00	13.0	0.43	0.010	4	100	0.05000	4.00	0.00	0	297	0	5.80	0.00
1	40AB	172.6	4.28	283.3	6.81	0.716	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	41AF	52.9	2.31	336.2	8.96	0.833	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	42AH	13.0	0.43	349.2	2.49	2.089	4	92	0.02000	7.00	0.00	0	297	0	5.80	0.00

File name: Cell8B_4day_Pre_Burned.lac Run date: Fri Aug 20 15:21:08 2021

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 2 Storm Frequency 50

LOCATION		SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1	1A	18.7	11.71	18.7	11.71	0.617	0	0	0.00000	0.00	0.00	0	297	9	5.80	0.05
1	2A	0.0	0.00	18.7	11.71	0.616	6	417	0.27600	1.00	1.00	0	297	0	5.80	0.00
1	3A	13.6	6.67	32.3	18.33	1.062	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	4A	24.2	10.72	56.5	29.01	1.818	0	0	0.00000	0.00	0.00	0	297	15	5.80	0.04
1	5A	0.0	0.00	56.5	29.01	1.817	6	1392	0.03660	2.00	1.00	0	297	0	5.80	0.00
1	6A	10.3	5.02	66.8	32.89	2.140	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.04
1	7A	9.9	4.62	76.7	37.31	2.464	0	0	0.00000	0.00	0.00	0	297	14	5.80	0.05
1	8A	0.0	0.00	76.7	37.31	2.464	6	1466	0.03920	3.00	1.00	0	297	0	5.80	0.00
1	9A	10.2	4.97	86.9	40.67	2.783	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.04
1	10A	0.0	0.00	86.9	40.67	2.782	4	1329	0.12190	4.00	0.00	0	297	0	5.80	0.00
1	11A	17.1	9.83	104.0	46.39	3.245	0	0	0.00000	0.00	0.00	0	297	10	5.80	0.01
1	12A	0.0	0.00	104.0	46.39	3.245	4	100	0.05000	5.00	0.00	0	297	0	5.80	0.00
1	13A	6.7	5.60	110.7	47.11	3.683	0	0	0.00000	0.00	0.00	0	97	6	5.80	0.27
1	14B	30.9	14.43	30.9	14.43	1.012	0	0	0.00000	0.00	0.00	0	297	14	5.80	0.05
1	15B	0.0	0.00	30.9	14.43	1.013	6	3937	0.04900	2.00	1.00	0	297	0	5.80	0.00
1	16B	33.5	9.97	64.4	20.55	2.088	0	0	0.00000	0.00	0.00	0	297	26	5.80	0.05
1	17B	0.0	0.00	64.4	20.55	2.088	4	349	0.18910	3.00	0.00	0	297	0	5.80	0.00
1	18B	22.5	6.50	86.9	26.53	2.809	0	0	0.00000	0.00	0.00	0	297	27	5.80	0.05
1	19C	41.1	11.87	41.1	11.87	1.138	0	0	0.00000	0.00	0.00	0	297	26	5.80	0.02
1	20C	0.0	0.00	41.1	11.87	1.137	4	924	0.09120	4.00	0.00	0	297	0	5.80	0.00
1	21C	7.1	4.41	48.2	15.83	1.497	0	0	0.00000	0.00	0.00	0	97	9	5.80	0.17
1	22D	12.7	5.02	12.7	5.02	0.414	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	23D	0.0	0.00	12.7	5.02	0.340	4	738	0.10030	2.00	0.00	0	297	0	5.80	0.00
1	24BC	48.2	15.83	135.1	38.70	4.306	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	25BD	12.7	5.01	147.8	43.57	4.644	4	1060	0.08870	4.00	0.00	0	297	0	5.80	0.00
1	26E	12.2	6.32	12.2	6.32	0.401	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1	27E	0.0	0.00	12.2	6.32	0.322	6	1185	0.03800	3.00	1.00	0	297	0	5.80	0.00
1	28E	12.6	6.54	24.8	10.98	0.977	0	0	0.00000	0.00	0.00	0	97	12	5.80	0.18
1	29BE	24.8	10.98	172.6	53.94	5.621	4	100	0.05000	5.00	0.00	0	97	0	5.80	0.00
1	30F	8.6	3.67	8.6	3.67	0.281	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1	31F	0.0	0.00	8.6	3.67	0.188	4	891	0.22900	3.00	0.00	0	297	0	5.80	0.00
1	32F	16.9	9.93	25.5	13.43	0.745	0	0	0.00000	0.00	0.00	0	297	10	5.80	0.05

1	33F	0.0	0.00	25.5	13.43	0.728	6	444	0.08780	3.00	1.00	0	297	0	5.80	0.00
1	34F	10.0	5.96	35.5	19.25	1.424	0	0	0.00000	0.00	0.00	0	97	11	5.80	0.30
1	35G	17.4	6.87	17.4	6.87	0.567	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	36G	0.0	0.00	17.4	6.87	0.560	4	630	0.21110	2.00	0.00	0	297	0	5.80	0.00
1	37FG	17.4	6.86	52.9	26.07	1.984	4	250	0.05000	5.00	0.00	0	297	0	5.80	0.00
1	38H	13.0	6.25	13.0	6.25	0.369	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.02
1	39H	0.0	0.00	13.0	6.25	0.281	4	100	0.05000	4.00	0.00	0	297	0	5.80	0.00
1	40AB	172.6	53.93	283.3	100.85	9.304	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	41AF	52.9	26.04	336.2	124.17	11.288	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	42AH	13.0	6.25	349.2	32.84	9.834	4	92	0.02000	7.00	0.00	0	297	0	5.80	0.00

File name: Cell8B_4day_Pre_Burned.lac Run date: Fri Aug 20 15:21:10 2021

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 3 Storm Frequency 50

LOCATION		SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1	1A	18.7	9.72	18.7	9.72	0.510	0	0	0.00000	0.00	0.00	0	297	9	5.80	0.05
1	2A	0.0	0.00	18.7	9.72	0.478	6	417	0.27600	1.00	1.00	0	297	0	5.80	0.00
1	3A	13.6	5.52	32.3	15.19	0.846	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	4A	24.2	8.78	56.5	23.93	1.468	0	0	0.00000	0.00	0.00	0	297	15	5.80	0.04
1	5A	0.0	0.00	56.5	23.93	1.466	6	1392	0.03660	2.00	1.00	0	297	0	5.80	0.00
1	6A	10.3	4.15	66.8	26.97	1.732	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.04
1	7A	9.9	3.82	76.7	30.59	2.000	0	0	0.00000	0.00	0.00	0	297	14	5.80	0.05
1	8A	0.0	0.00	76.7	30.59	1.999	6	1466	0.03920	3.00	1.00	0	297	0	5.80	0.00
1	9A	10.2	4.11	86.9	33.18	2.262	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.04
1	10A	0.0	0.00	86.9	33.18	2.261	4	1329	0.12190	4.00	0.00	0	297	0	5.80	0.00
1	11A	17.1	8.06	104.0	37.34	2.638	0	0	0.00000	0.00	0.00	0	297	10	5.80	0.01
1	12A	0.0	0.00	104.0	37.34	2.637	4	100	0.05000	5.00	0.00	0	297	0	5.80	0.00
1	13A	6.7	4.74	110.7	37.93	3.017	0	0	0.00000	0.00	0.00	0	97	6	5.80	0.27
1	14B	30.9	11.93	30.9	11.93	0.836	0	0	0.00000	0.00	0.00	0	297	14	5.80	0.05
1	15B	0.0	0.00	30.9	11.93	0.834	6	3937	0.04900	2.00	1.00	0	297	0	5.80	0.00
1	16B	33.5	8.02	64.4	16.33	1.719	0	0	0.00000	0.00	0.00	0	297	26	5.80	0.05
1	17B	0.0	0.00	64.4	16.33	1.718	4	349	0.18910	3.00	0.00	0	297	0	5.80	0.00
1	18B	22.5	5.24	86.9	21.07	2.310	0	0	0.00000	0.00	0.00	0	297	27	5.80	0.05
1	19C	41.1	9.50	41.1	9.50	0.924	0	0	0.00000	0.00	0.00	0	297	26	5.80	0.02
1	20C	0.0	0.00	41.1	9.50	0.922	4	924	0.09120	4.00	0.00	0	297	0	5.80	0.00
1	21C	7.1	3.67	48.2	12.72	1.232	0	0	0.00000	0.00	0.00	0	97	9	5.80	0.17
1	22D	12.7	4.03	12.7	4.03	0.340	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	23D	0.0	0.00	12.7	4.03	0.253	4	738	0.10030	2.00	0.00	0	297	0	5.80	0.00
1	24BC	48.2	12.72	135.1	30.43	3.542	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	25BD	12.7	4.02	147.8	34.13	3.792	4	1060	0.08870	4.00	0.00	0	297	0	5.80	0.00
1	26E	12.2	5.22	12.2	5.22	0.331	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1	27E	0.0	0.00	12.2	5.22	0.242	6	1185	0.03800	3.00	1.00	0	297	0	5.80	0.00

1	28E	12.6	5.43	24.8	8.79	0.806	0	0	0.00000	0.00	0.00	0	97	12	5.80	0.18
1	29BE	24.8	8.79	172.6	42.40	4.598	4	100	0.05000	5.00	0.00	0	97	0	5.80	0.00
1	30F	8.6	2.99	8.6	2.99	0.231	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1	31F	0.0	0.00	8.6	2.99	0.140	4	891	0.22900	3.00	0.00	0	297	0	5.80	0.00
1	32F	16.9	8.18	25.5	11.02	0.600	0	0	0.00000	0.00	0.00	0	297	10	5.80	0.05
1	33F	0.0	0.00	25.5	11.02	0.545	6	444	0.08780	3.00	1.00	0	297	0	5.80	0.00
1	34F	10.0	5.00	35.5	15.85	1.148	0	0	0.00000	0.00	0.00	0	97	11	5.80	0.30
1	35G	17.4	5.52	17.4	5.52	0.466	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	36G	0.0	0.00	17.4	5.52	0.417	4	630	0.21110	2.00	0.00	0	297	0	5.80	0.00
1	37FG	17.4	5.51	52.9	21.36	1.565	4	250	0.05000	5.00	0.00	0	297	0	5.80	0.00
1	38H	13.0	5.16	13.0	5.16	0.302	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.02
1	39H	0.0	0.00	13.0	5.16	0.210	4	100	0.05000	4.00	0.00	0	297	0	5.80	0.00
1	40AB	172.6	42.39	283.3	80.32	7.615	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	41AF	52.9	21.35	336.2	98.84	9.179	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	42AH	13.0	5.15	349.2	22.55	11.803	4	92	0.02000	7.00	0.00	0	297	0	5.80	0.00

File name: Cell8B_4day_Pre_Burned.lac Run date: Fri Aug 20 15:21:12 2021

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 4 Storm Frequency 50

LOCATION		SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1	1A	18.7	37.14	18.7	37.14	2.436	0	0	0.00000	0.00	0.00	0	297	9	5.80	0.05
1	2A	0.0	0.00	18.7	37.14	2.436	6	417	0.27600	1.00	1.00	0	297	0	5.80	0.00
1	3A	13.6	22.01	32.3	59.00	4.206	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	4A	24.2	36.11	56.5	95.00	7.274	0	0	0.00000	0.00	0.00	0	297	15	5.80	0.04
1	5A	0.0	0.00	56.5	95.00	7.274	6	1392	0.03660	2.00	1.00	0	297	0	5.80	0.00
1	6A	10.3	16.63	66.8	110.29	8.581	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.04
1	7A	9.9	15.39	76.7	125.49	9.868	0	0	0.00000	0.00	0.00	0	297	14	5.80	0.05
1	8A	0.0	0.00	76.7	125.49	9.867	6	1466	0.03920	3.00	1.00	0	297	0	5.80	0.00
1	9A	10.2	16.47	86.9	140.19	11.162	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.04
1	10A	0.0	0.00	86.9	140.19	11.161	4	1329	0.12190	4.00	0.00	0	297	0	5.80	0.00
1	11A	17.1	31.85	104.0	166.26	13.172	0	0	0.00000	0.00	0.00	0	297	10	5.80	0.01
1	12A	0.0	0.00	104.0	166.26	13.173	4	100	0.05000	5.00	0.00	0	297	0	5.80	0.00
1	13A	6.7	16.61	110.7	172.27	14.428	0	0	0.00000	0.00	0.00	0	97	6	5.80	0.27
1	14B	30.9	48.02	30.9	48.02	4.018	0	0	0.00000	0.00	0.00	0	297	14	5.80	0.05
1	15B	0.0	0.00	30.9	48.02	4.017	6	3937	0.04900	2.00	1.00	0	297	0	5.80	0.00
1	16B	33.5	36.34	64.4	78.69	8.348	0	0	0.00000	0.00	0.00	0	297	26	5.80	0.05
1	17B	0.0	0.00	64.4	78.69	8.347	4	349	0.18910	3.00	0.00	0	297	0	5.80	0.00
1	18B	22.5	23.88	86.9	101.79	11.255	0	0	0.00000	0.00	0.00	0	297	27	5.80	0.05
1	19C	41.1	44.13	41.1	44.13	4.925	0	0	0.00000	0.00	0.00	0	297	26	5.80	0.02
1	20C	0.0	0.00	41.1	44.13	4.924	4	924	0.09120	4.00	0.00	0	297	0	5.80	0.00
1	21C	7.1	13.86	48.2	56.99	6.016	0	0	0.00000	0.00	0.00	0	97	9	5.80	0.17
1	22D	12.7	17.08	12.7	17.08	1.648	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05

1	23D	0.0	0.00	12.7	17.08	1.647	4	738	0.10030	2.00	0.00	0	297	0	5.80	0.00
1	24BC	48.2	56.99	135.1	152.71	17.272	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	25BD	12.7	17.06	147.8	169.31	18.918	4	1060	0.08870	4.00	0.00	0	297	0	5.80	0.00
1	26E	12.2	20.65	12.2	20.65	1.588	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1	27E	0.0	0.00	12.2	20.65	1.588	6	1185	0.03800	3.00	1.00	0	297	0	5.80	0.00
1	28E	12.6	21.02	24.8	38.77	3.566	0	0	0.00000	0.00	0.00	0	97	12	5.80	0.18
1	29BE	24.8	38.77	172.6	206.19	22.485	4	100	0.05000	5.00	0.00	0	97	0	5.80	0.00
1	30F	8.6	12.41	8.6	12.41	1.117	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1	31F	0.0	0.00	8.6	12.41	1.116	4	891	0.22900	3.00	0.00	0	297	0	5.80	0.00
1	32F	16.9	31.74	25.5	43.76	3.318	0	0	0.00000	0.00	0.00	0	297	10	5.80	0.05
1	33F	0.0	0.00	25.5	43.76	3.318	6	444	0.08780	3.00	1.00	0	297	0	5.80	0.00
1	34F	10.0	18.11	35.5	61.68	5.289	0	0	0.00000	0.00	0.00	0	97	11	5.80	0.30
1	35G	17.4	23.41	17.4	23.41	2.258	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	36G	0.0	0.00	17.4	23.41	2.257	4	630	0.21110	2.00	0.00	0	297	0	5.80	0.00
1	37FG	17.4	23.39	52.9	84.96	7.546	4	250	0.05000	5.00	0.00	0	297	0	5.80	0.00
1	38H	13.0	20.89	13.0	20.89	1.568	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.02
1	39H	0.0	0.00	13.0	20.89	1.567	4	100	0.05000	4.00	0.00	0	297	0	5.80	0.00
1	40AB	172.6	206.06	283.3	375.34	36.913	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	41AF	52.9	84.76	336.2	455.60	44.459	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	42AH	13.0	20.89	349.2	359.92	45.348	4	92	0.02000	7.00	0.00	0	297	0	5.80	0.00

Normal End of MODRAT

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**        LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS          **
**             MODIFIED RATIONAL METHOD HYDROLOGY                **
**                 RESERVOIR ROUTING OUTPUT                      **

**********************  RESERVOIR ROUTING  STORM DAY 1  ********************

RESERVOIR ROUTING at 42AH  STORM DAY 1  STORM FREQ. 50
INITIAL WATER SURFACE ELEVATION: 962.20
RESERVOIR COMPOSITE ELEVATION-STORAGE-DISCHARGE DATA at 42AH
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ELEVATION (ft.)	STORAGE (a.f.)	OUTFLOW (cfs)
958.00	0.00	0.00
960.00	1.20	0.00
962.00	3.45	1.34
964.00	6.41	12.81
966.00	9.87	55.54
968.00	13.66	232.12
970.00	17.76	631.36
972.00	22.18	694.65
974.00	26.93	768.53
975.00	29.42	824.98

RESERVOIR ROUTING TABLE at 42AH

TIME	INFLOW (cfs)	OUTFLOW (cfs)	W.S.ELEV (ft.)	STORAGE (a.f.)
0	0.00	2.49	962.20	3.75
100	0.03	1.47	962.02	3.48
200	0.03	1.25	961.87	3.31
300	0.03	1.16	961.73	3.14
400	0.03	1.07	961.60	3.00
500	0.04	0.99	961.47	2.86
600	0.04	0.91	961.36	2.73
700	0.04	0.84	961.26	2.62
800	0.05	0.78	961.17	2.51
900	0.24	0.72	961.08	2.42
1000	0.94	0.70	961.05	2.38
1050	1.16	0.72	961.07	2.41
1100	1.60	0.74	961.11	2.45
1110	2.02	0.75	961.12	2.46
1120	2.26	0.76	961.14	2.48
1130	2.68	0.78	961.16	2.51
1131	2.79	0.78	961.16	2.51
1132	2.86	0.78	961.17	2.51
1133	2.93	0.78	961.17	2.51
1134	2.99	0.78	961.17	2.52
1135	3.14	0.79	961.17	2.52
1136	3.21	0.79	961.18	2.52
1137	3.28	0.79	961.18	2.53
1138	3.36	0.79	961.18	2.53
1139	3.43	0.79	961.19	2.53
1140	3.52	0.80	961.19	2.54
1141	3.61	0.80	961.19	2.54
1142	3.71	0.80	961.20	2.55
1143	3.83	0.80	961.20	2.55
1144	3.98	0.81	961.20	2.55
1145	4.15	0.81	961.21	2.56
1146	4.32	0.81	961.21	2.56
1147	4.50	0.81	961.22	2.57
1148	4.70	0.82	961.22	2.57
1149	4.94	0.82	961.23	2.58
1150	5.23	0.82	961.23	2.58

1151	5.62	0.83	961.24	2.59
1152	6.44	0.83	961.24	2.60
1153	7.27	0.84	961.25	2.61
1154	7.95	0.84	961.26	2.62
1155	8.61	0.85	961.27	2.63
1156	9.09	0.86	961.28	2.64
1157	9.34	0.86	961.29	2.65
1158	9.34	0.87	961.30	2.66
1159	9.34	0.88	961.31	2.67
1160	9.33	0.88	961.32	2.68
1161	9.25	0.89	961.33	2.69
1162	9.03	0.90	961.34	2.71
1163	8.67	0.90	961.35	2.72
1164	8.27	0.91	961.36	2.73
1165	7.96	0.92	961.37	2.74
1166	7.84	0.92	961.38	2.75
1167	7.65	0.93	961.38	2.76
1168	7.47	0.93	961.39	2.77
1169	7.24	0.94	961.40	2.77
1170	6.95	0.94	961.41	2.78
1171	6.62	0.95	961.41	2.79
1172	6.26	0.95	961.42	2.80
1173	5.87	0.96	961.43	2.81
1174	5.52	0.96	961.43	2.81
1175	5.15	0.96	961.44	2.82
1176	4.75	0.97	961.44	2.82
1177	4.37	0.97	961.45	2.83
1178	3.99	0.97	961.45	2.83
1179	3.67	0.97	961.46	2.84
1180	3.39	0.98	961.46	2.84
1181	3.11	0.98	961.46	2.84
1182	2.84	0.98	961.46	2.85
1183	2.57	0.98	961.47	2.85
1184	2.34	0.98	961.47	2.85
1185	2.14	0.98	961.47	2.85
1186	1.98	0.99	961.47	2.85
1187	1.84	0.99	961.47	2.86
1188	1.73	0.99	961.47	2.86
1189	1.64	0.99	961.47	2.86
1190	1.56	0.99	961.47	2.86
1191	1.50	0.99	961.47	2.86
1192	1.44	0.99	961.48	2.86
1193	1.39	0.99	961.48	2.86
1194	1.34	0.99	961.48	2.86
1195	1.30	0.99	961.48	2.86
1196	1.27	0.99	961.48	2.86
1197	1.24	0.99	961.48	2.86
1198	1.20	0.99	961.48	2.86
1199	1.18	0.99	961.48	2.86
1200	1.15	0.99	961.48	2.86
1201	1.13	0.99	961.48	2.86
1202	1.10	0.99	961.48	2.86
1203	1.08	0.99	961.48	2.86
1204	1.06	0.99	961.48	2.86
1205	1.04	0.99	961.48	2.86
1206	1.03	0.99	961.48	2.86
1207	0.92	0.99	961.48	2.86
1208	0.89	0.99	961.48	2.86
1209	0.88	0.99	961.48	2.86
1210	0.84	0.99	961.48	2.86
1211	0.79	0.99	961.48	2.86

1212	0.74	0.99	961.48	2.86
1213	0.69	0.99	961.48	2.86
1214	0.64	0.99	961.48	2.86
1215	0.59	0.99	961.48	2.86
1216	0.53	0.99	961.48	2.86
1217	0.49	0.99	961.48	2.86
1218	0.47	0.99	961.47	2.86
1219	0.47	0.99	961.47	2.86
1220	0.45	0.99	961.47	2.86
1221	0.36	0.99	961.47	2.86
1222	0.25	0.99	961.47	2.86
1223	0.24	0.99	961.47	2.85
1224	0.24	0.99	961.47	2.85
1225	0.24	0.98	961.47	2.85
1226	0.23	0.98	961.47	2.85
1227	0.23	0.98	961.47	2.85
1228	0.23	0.98	961.47	2.85
1229	0.23	0.98	961.47	2.85
1230	0.17	0.98	961.46	2.85
1231	0.05	0.98	961.46	2.85
1232	0.05	0.98	961.46	2.85
1233	0.05	0.98	961.46	2.84
1234	0.05	0.98	961.46	2.84
1235	0.05	0.98	961.46	2.84
1236	0.05	0.98	961.46	2.84
1237	0.05	0.98	961.46	2.84
1238	0.05	0.98	961.46	2.84
1239	0.05	0.97	961.45	2.84
1240	0.05	0.97	961.45	2.84
1241	0.05	0.97	961.45	2.83
1242	0.05	0.97	961.45	2.83
1243	0.05	0.97	961.45	2.83
1244	0.05	0.97	961.45	2.83
1245	0.05	0.97	961.45	2.83
1246	0.05	0.97	961.45	2.83
1247	0.05	0.97	961.45	2.83
1248	0.05	0.97	961.44	2.82
1249	0.05	0.97	961.44	2.82
1250	0.05	0.97	961.44	2.82
1251	0.05	0.97	961.44	2.82
1252	0.05	0.96	961.44	2.82
1253	0.04	0.96	961.44	2.82
1254	0.04	0.96	961.44	2.82
1255	0.04	0.96	961.44	2.82
1256	0.04	0.96	961.44	2.81
1257	0.04	0.96	961.43	2.81
1258	0.04	0.96	961.43	2.81
1259	0.04	0.96	961.43	2.81
1260	0.04	0.96	961.43	2.81
1261	0.04	0.96	961.43	2.81
1262	0.04	0.96	961.43	2.81
1263	0.04	0.96	961.43	2.81
1264	0.04	0.96	961.43	2.80
1265	0.04	0.95	961.43	2.80
1266	0.04	0.95	961.42	2.80
1267	0.04	0.95	961.42	2.80
1268	0.04	0.95	961.42	2.80
1269	0.04	0.95	961.42	2.80
1270	0.04	0.95	961.42	2.80
1271	0.04	0.95	961.42	2.80
1272	0.04	0.95	961.42	2.79

1273	0.04	0.95	961.42	2.79
1274	0.04	0.95	961.42	2.79
1275	0.04	0.95	961.41	2.79
1276	0.04	0.95	961.41	2.79
1277	0.04	0.95	961.41	2.79
1278	0.04	0.95	961.41	2.79
1279	0.04	0.94	961.41	2.79
1280	0.04	0.94	961.41	2.78
1281	0.04	0.94	961.41	2.78
1282	0.04	0.94	961.41	2.78
1283	0.04	0.94	961.41	2.78
1284	0.04	0.94	961.40	2.78
1285	0.04	0.94	961.40	2.78
1286	0.04	0.94	961.40	2.78
1287	0.04	0.94	961.40	2.78
1288	0.04	0.94	961.40	2.77
1289	0.04	0.94	961.40	2.77
1290	0.04	0.94	961.40	2.77
1291	0.04	0.94	961.40	2.77
1292	0.04	0.93	961.40	2.77
1293	0.04	0.93	961.39	2.77
1294	0.04	0.93	961.39	2.77
1295	0.04	0.93	961.39	2.77
1296	0.04	0.93	961.39	2.76
1297	0.04	0.93	961.39	2.76
1298	0.04	0.93	961.39	2.76
1299	0.04	0.93	961.39	2.76
1300	0.04	0.93	961.39	2.76
1310	0.04	0.92	961.38	2.75
1320	0.04	0.91	961.36	2.74
1330	0.03	0.91	961.35	2.72
1340	0.03	0.90	961.34	2.71
1350	0.03	0.89	961.33	2.70
1360	0.03	0.89	961.32	2.69
1370	0.03	0.88	961.31	2.68
1380	0.03	0.87	961.30	2.66
1390	0.03	0.87	961.29	2.65
1400	0.03	0.86	961.28	2.64
1420	0.03	0.84	961.26	2.62
1440	0.03	0.83	961.24	2.60

********************** RESERVOIR ROUTING STORM DAY 2 ********************

RESERVOIR ROUTING at 42AH STORM DAY 2 STORM FREQ. 50
INITIAL WATER SURFACE ELEVATION: 961.24

RESERVOIR ROUTING TABLE at 42AH

TIME	INFLOW (cfs)	OUTFLOW (cfs)	W.S.ELEV (ft.)	STORAGE (a.f.)
0	0.00	0.83	961.24	2.60
100	1.90	0.88	961.31	2.68
200	2.11	0.97	961.45	2.83
300	2.24	1.07	961.59	2.99
400	2.39	1.17	961.74	3.16
500	2.59	1.27	961.90	3.33
600	3.04	1.64	962.05	3.53
700	3.38	2.29	962.17	3.70
800	3.99	2.89	962.27	3.85
900	4.91	3.54	962.38	4.02
1000	6.52	4.43	962.54	4.25

1050	8.12	5.09	962.65	4.42
1100	11.70	6.17	962.84	4.70
1110	13.06	6.49	962.90	4.78
1120	14.94	6.88	962.97	4.88
1130	17.81	7.37	963.05	5.01
1131	18.18	7.42	963.06	5.02
1132	18.58	7.48	963.07	5.03
1133	19.01	7.54	963.08	5.05
1134	19.48	7.60	963.09	5.07
1135	20.04	7.67	963.10	5.08
1136	20.68	7.74	963.12	5.10
1137	21.40	7.81	963.13	5.12
1138	22.20	7.88	963.14	5.14
1139	23.10	7.96	963.15	5.16
1140	24.12	8.04	963.17	5.18
1141	25.30	8.13	963.18	5.20
1142	26.72	8.23	963.20	5.23
1143	28.36	8.33	963.22	5.25
1144	30.22	8.44	963.24	5.28
1145	32.42	8.56	963.26	5.31
1146	34.99	8.70	963.28	5.35
1147	38.04	8.85	963.31	5.39
1148	41.76	9.01	963.34	5.43
1149	46.15	9.20	963.37	5.48
1150	51.52	9.41	963.41	5.53
1151	59.02	9.65	963.45	5.59
1152	74.54	9.96	963.50	5.67
1153	90.56	10.34	963.57	5.77
1154	103.05	10.80	963.65	5.89
1155	112.19	11.32	963.74	6.02
1156	118.42	11.87	963.84	6.17
1157	123.68	12.45	963.94	6.32
1158	126.45	13.58	964.04	6.47
1159	128.80	15.50	964.13	6.63
1160	129.66	17.42	964.22	6.78
1161	127.96	19.30	964.30	6.94
1162	122.17	21.08	964.39	7.08
1163	114.61	22.72	964.46	7.21
1164	107.03	24.21	964.53	7.33
1165	99.99	25.55	964.60	7.44
1166	94.12	26.75	964.65	7.54
1167	88.27	27.84	964.70	7.63
1168	82.46	28.81	964.75	7.71
1169	76.35	29.66	964.79	7.77
1170	70.61	30.40	964.82	7.83
1171	64.69	31.03	964.85	7.89
1172	58.94	31.55	964.88	7.93
1173	53.55	31.97	964.90	7.96
1174	48.88	32.29	964.91	7.99
1175	44.76	32.54	964.92	8.01
1176	40.63	32.71	964.93	8.02
1177	36.56	32.81	964.94	8.03
1178	32.70	32.84	964.94	8.03
1179	28.72	32.80	964.94	8.03
1180	24.65	32.70	964.93	8.02
1181	21.02	32.53	964.92	8.01
1182	18.31	32.32	964.91	7.99
1183	16.61	32.06	964.90	7.97
1184	15.46	31.79	964.89	7.95
1185	14.57	31.51	964.88	7.92
1186	13.74	31.22	964.86	7.90

1187	13.05	30.92	964.85	7.88
1188	12.42	30.61	964.83	7.85
1189	11.88	30.30	964.82	7.83
1190	11.38	29.99	964.80	7.80
1191	10.95	29.67	964.79	7.78
1192	10.57	29.35	964.77	7.75
1193	10.23	29.03	964.76	7.72
1194	9.93	28.71	964.74	7.70
1195	9.63	28.39	964.73	7.67
1196	9.35	28.07	964.71	7.65
1197	9.09	27.75	964.70	7.62
1198	8.84	27.44	964.68	7.59
1199	8.60	27.12	964.67	7.57
1200	8.38	26.81	964.66	7.54
1201	8.17	26.49	964.64	7.52
1202	7.97	26.18	964.63	7.49
1203	7.78	25.87	964.61	7.47
1204	7.61	25.57	964.60	7.44
1205	7.44	25.26	964.58	7.42
1206	7.29	24.96	964.57	7.39
1207	7.14	24.66	964.55	7.37
1208	7.00	24.37	964.54	7.35
1209	6.87	24.07	964.53	7.32
1210	6.74	23.78	964.51	7.30
1211	6.63	23.49	964.50	7.27
1212	6.51	23.21	964.49	7.25
1213	6.41	22.92	964.47	7.23
1214	6.32	22.64	964.46	7.21
1215	6.22	22.37	964.45	7.18
1216	6.13	22.10	964.43	7.16
1217	6.04	21.83	964.42	7.14
1218	5.95	21.56	964.41	7.12
1219	5.87	21.29	964.40	7.10
1220	5.79	21.03	964.38	7.08
1221	5.72	20.78	964.37	7.06
1222	5.64	20.52	964.36	7.03
1223	5.57	20.27	964.35	7.01
1224	5.51	20.02	964.34	6.99
1225	5.45	19.78	964.33	6.97
1226	5.39	19.53	964.31	6.95
1227	5.32	19.29	964.30	6.94
1228	5.27	19.06	964.29	6.92
1229	5.21	18.83	964.28	6.90
1230	5.15	18.60	964.27	6.88
1231	5.10	18.37	964.26	6.86
1232	5.05	18.14	964.25	6.84
1233	5.01	17.92	964.24	6.82
1234	4.97	17.70	964.23	6.81
1235	4.93	17.49	964.22	6.79
1236	4.89	17.28	964.21	6.77
1237	4.85	17.07	964.20	6.75
1238	4.81	16.86	964.19	6.74
1239	4.77	16.66	964.18	6.72
1240	4.73	16.46	964.17	6.71
1241	4.69	16.26	964.16	6.69
1242	4.64	16.06	964.15	6.67
1243	4.57	15.87	964.14	6.66
1244	4.49	15.68	964.13	6.64
1245	4.44	15.49	964.13	6.63
1246	4.40	15.30	964.12	6.61
1247	4.36	15.12	964.11	6.60

1248	4.33	14.94	964.10	6.58
1249	4.30	14.76	964.09	6.57
1250	4.26	14.58	964.08	6.55
1251	4.23	14.41	964.07	6.54
1252	4.20	14.23	964.07	6.53
1253	4.17	14.07	964.06	6.51
1254	4.14	13.90	964.05	6.50
1255	4.11	13.73	964.04	6.48
1256	4.09	13.57	964.04	6.47
1257	4.06	13.41	964.03	6.46
1258	4.03	13.25	964.02	6.45
1259	4.00	13.10	964.01	6.43
1260	3.98	12.94	964.01	6.42
1261	3.95	12.80	964.00	6.41
1262	3.93	12.76	963.99	6.40
1263	3.90	12.71	963.98	6.38
1264	3.88	12.66	963.97	6.37
1265	3.86	12.62	963.97	6.36
1266	3.83	12.57	963.96	6.35
1267	3.81	12.52	963.95	6.34
1268	3.79	12.48	963.94	6.32
1269	3.77	12.43	963.93	6.31
1270	3.65	12.38	963.93	6.30
1271	3.63	12.34	963.92	6.29
1272	3.60	12.29	963.91	6.28
1273	3.58	12.24	963.90	6.26
1274	3.57	12.20	963.89	6.25
1275	3.55	12.15	963.89	6.24
1276	3.53	12.11	963.88	6.23
1277	3.51	12.06	963.87	6.22
1278	3.49	12.02	963.86	6.20
1279	3.47	11.97	963.85	6.19
1280	3.45	11.92	963.85	6.18
1281	3.44	11.88	963.84	6.17
1282	3.42	11.83	963.83	6.16
1283	3.40	11.79	963.82	6.15
1284	3.38	11.74	963.81	6.14
1285	3.37	11.70	963.81	6.12
1286	3.35	11.66	963.80	6.11
1287	3.34	11.61	963.79	6.10
1288	3.32	11.57	963.78	6.09
1289	3.30	11.52	963.78	6.08
1290	3.29	11.48	963.77	6.07
1291	3.27	11.44	963.76	6.06
1292	3.26	11.39	963.75	6.04
1293	3.24	11.35	963.75	6.03
1294	3.23	11.31	963.74	6.02
1295	3.21	11.26	963.73	6.01
1296	3.20	11.22	963.72	6.00
1297	3.19	11.18	963.72	5.99
1298	3.17	11.13	963.71	5.98
1299	3.16	11.09	963.70	5.97
1300	3.15	11.05	963.69	5.96
1310	2.93	10.64	963.62	5.85
1320	2.81	10.23	963.55	5.74
1330	2.61	9.84	963.48	5.64
1340	2.53	9.46	963.42	5.55
1350	2.45	9.10	963.35	5.45
1360	2.38	8.75	963.29	5.36
1370	2.32	8.42	963.23	5.28
1380	2.26	8.10	963.18	5.19

1390	2.20	7.80	963.13	5.12
1400	2.15	7.50	963.07	5.04
1420	1.97	6.96	962.98	4.90
1440	1.78	6.44	962.89	4.77

********************** RESERVOIR ROUTING STORM DAY 3 ********************

RESERVOIR ROUTING at 42AH STORM DAY 3 STORM FREQ. 50
INITIAL WATER SURFACE ELEVATION: 962.89

RESERVOIR ROUTING TABLE at 42AH

TIME	INFLOW (cfs)	OUTFLOW (cfs)	W.S.ELEV (ft.)	STORAGE (a.f.)
0	0.00	6.44	962.89	4.77
100	1.46	4.27	962.51	4.21
200	1.53	3.12	962.31	3.91
300	1.73	2.52	962.21	3.76
400	2.05	2.27	962.16	3.69
500	2.21	2.21	962.15	3.68
600	2.42	2.26	962.16	3.69
700	2.79	2.39	962.18	3.72
800	3.30	2.68	962.23	3.80
900	4.07	3.11	962.31	3.91
1000	5.50	3.80	962.43	4.09
1050	6.82	4.35	962.52	4.23
1100	9.70	5.22	962.68	4.45
1110	10.80	5.48	962.72	4.52
1120	12.39	5.80	962.78	4.60
1130	14.70	6.20	962.85	4.70
1131	15.02	6.24	962.86	4.72
1132	15.35	6.29	962.86	4.73
1133	15.68	6.34	962.87	4.74
1134	16.04	6.39	962.88	4.75
1135	16.42	6.44	962.89	4.77
1136	16.83	6.50	962.90	4.78
1137	17.27	6.55	962.91	4.80
1138	17.75	6.61	962.92	4.81
1139	18.27	6.67	962.93	4.83
1140	18.88	6.74	962.94	4.84
1141	19.63	6.80	962.95	4.86
1142	20.52	6.87	962.96	4.88
1143	21.53	6.95	962.98	4.90
1144	22.70	7.03	962.99	4.92
1145	24.07	7.12	963.01	4.94
1146	25.71	7.21	963.02	4.97
1147	27.77	7.32	963.04	4.99
1148	30.53	7.43	963.06	5.02
1149	33.91	7.56	963.09	5.06
1150	38.09	7.72	963.11	5.10
1151	43.59	7.89	963.14	5.14
1152	55.61	8.11	963.18	5.20
1153	68.87	8.40	963.23	5.27
1154	79.88	8.75	963.29	5.36
1155	88.64	9.15	963.36	5.47
1156	94.19	9.59	963.44	5.58
1157	97.91	10.05	963.52	5.70
1158	100.07	10.53	963.60	5.82
1159	102.29	11.01	963.69	5.95
1160	103.30	11.50	963.77	6.07
1161	102.45	11.98	963.86	6.20

1162	98.00	12.45	963.94	6.32
1163	92.10	13.07	964.01	6.43
1164	86.32	14.36	964.07	6.54
1165	80.78	15.53	964.13	6.63
1166	76.53	16.59	964.18	6.72
1167	71.84	17.56	964.22	6.79
1168	67.47	18.44	964.26	6.87
1169	62.74	19.23	964.30	6.93
1170	58.05	19.92	964.33	6.99
1171	53.00	20.52	964.36	7.03
1172	48.10	21.03	964.38	7.08
1173	43.67	21.45	964.40	7.11
1174	39.85	21.79	964.42	7.14
1175	36.03	22.06	964.43	7.16
1176	32.64	22.27	964.44	7.18
1177	29.38	22.42	964.45	7.19
1178	26.34	22.51	964.45	7.20
1179	23.23	22.55	964.46	7.20
1180	20.14	22.53	964.46	7.20
1181	17.44	22.47	964.45	7.19
1182	15.56	22.37	964.45	7.18
1183	14.35	22.24	964.44	7.17
1184	13.33	22.10	964.43	7.16
1185	12.49	21.95	964.43	7.15
1186	11.75	21.78	964.42	7.14
1187	11.12	21.61	964.41	7.12
1188	10.61	21.43	964.40	7.11
1189	10.15	21.24	964.39	7.09
1190	9.77	21.05	964.39	7.08
1191	9.41	20.86	964.38	7.06
1192	9.07	20.66	964.37	7.05
1193	8.75	20.46	964.36	7.03
1194	8.45	20.26	964.35	7.01
1195	8.18	20.06	964.34	7.00
1196	7.92	19.86	964.33	6.98
1197	7.68	19.65	964.32	6.96
1198	7.46	19.45	964.31	6.95
1199	7.25	19.25	964.30	6.93
1200	7.06	19.04	964.29	6.91
1201	6.88	18.84	964.28	6.90
1202	6.71	18.64	964.27	6.88
1203	6.55	18.43	964.26	6.87
1204	6.41	18.23	964.25	6.85
1205	6.27	18.03	964.24	6.83
1206	6.14	17.83	964.24	6.82
1207	6.02	17.63	964.23	6.80
1208	5.91	17.44	964.22	6.78
1209	5.81	17.24	964.21	6.77
1210	5.70	17.05	964.20	6.75
1211	5.60	16.86	964.19	6.74
1212	5.51	16.66	964.18	6.72
1213	5.42	16.48	964.17	6.71
1214	5.34	16.29	964.16	6.69
1215	5.26	16.10	964.15	6.68
1216	5.18	15.92	964.15	6.66
1217	5.11	15.74	964.14	6.65
1218	5.03	15.56	964.13	6.63
1219	4.96	15.38	964.12	6.62
1220	4.90	15.20	964.11	6.60
1221	4.85	15.03	964.10	6.59
1222	4.79	14.86	964.10	6.58

1223	4.71	14.69	964.09	6.56
1224	4.63	14.52	964.08	6.55
1225	4.56	14.35	964.07	6.53
1226	4.50	14.18	964.06	6.52
1227	4.45	14.02	964.06	6.51
1228	4.40	13.86	964.05	6.49
1229	4.36	13.70	964.04	6.48
1230	4.31	13.54	964.03	6.47
1231	4.26	13.39	964.03	6.46
1232	4.22	13.23	964.02	6.44
1233	4.18	13.08	964.01	6.43
1234	4.14	12.93	964.01	6.42
1235	4.10	12.80	964.00	6.41
1236	4.06	12.75	963.99	6.40
1237	4.02	12.71	963.98	6.38
1238	3.98	12.66	963.97	6.37
1239	3.95	12.61	963.97	6.36
1240	3.91	12.57	963.96	6.35
1241	3.88	12.52	963.95	6.34
1242	3.85	12.48	963.94	6.32
1243	3.72	12.43	963.93	6.31
1244	3.68	12.38	963.93	6.30
1245	3.66	12.34	963.92	6.29
1246	3.63	12.29	963.91	6.28
1247	3.60	12.24	963.90	6.26
1248	3.57	12.20	963.89	6.25
1249	3.55	12.15	963.89	6.24
1250	3.52	12.11	963.88	6.23
1251	3.49	12.06	963.87	6.22
1252	3.47	12.02	963.86	6.20
1253	3.44	11.97	963.85	6.19
1254	3.42	11.92	963.85	6.18
1255	3.40	11.88	963.84	6.17
1256	3.38	11.83	963.83	6.16
1257	3.35	11.79	963.82	6.15
1258	3.33	11.74	963.81	6.13
1259	3.31	11.70	963.81	6.12
1260	3.29	11.65	963.80	6.11
1261	3.27	11.61	963.79	6.10
1262	3.25	11.57	963.78	6.09
1263	3.23	11.52	963.78	6.08
1264	3.21	11.48	963.77	6.07
1265	3.19	11.43	963.76	6.05
1266	3.17	11.39	963.75	6.04
1267	3.15	11.34	963.74	6.03
1268	3.13	11.30	963.74	6.02
1269	3.12	11.26	963.73	6.01
1270	3.10	11.21	963.72	6.00
1271	3.08	11.17	963.71	5.99
1272	3.07	11.13	963.71	5.98
1273	3.01	11.08	963.70	5.96
1274	2.94	11.04	963.69	5.95
1275	2.91	11.00	963.68	5.94
1276	2.90	10.96	963.68	5.93
1277	2.88	10.91	963.67	5.92
1278	2.87	10.87	963.66	5.91
1279	2.86	10.83	963.65	5.90
1280	2.84	10.78	963.65	5.89
1281	2.83	10.74	963.64	5.88
1282	2.80	10.70	963.63	5.87
1283	2.76	10.66	963.62	5.85

1284	2.72	10.62	963.62	5.84
1285	2.70	10.57	963.61	5.83
1286	2.67	10.53	963.60	5.82
1287	2.66	10.49	963.60	5.81
1288	2.64	10.45	963.59	5.80
1289	2.63	10.41	963.58	5.79
1290	2.61	10.37	963.57	5.78
1291	2.60	10.32	963.57	5.77
1292	2.59	10.28	963.56	5.76
1293	2.58	10.24	963.55	5.75
1294	2.56	10.20	963.55	5.74
1295	2.55	10.16	963.54	5.73
1296	2.54	10.12	963.53	5.72
1297	2.53	10.08	963.52	5.71
1298	2.52	10.04	963.52	5.69
1299	2.51	10.00	963.51	5.68
1300	2.50	9.96	963.50	5.67
1310	2.40	9.57	963.43	5.57
1320	2.31	9.19	963.37	5.48
1330	2.23	8.83	963.31	5.38
1340	2.16	8.49	963.25	5.29
1350	2.10	8.16	963.19	5.21
1360	1.94	7.84	963.13	5.13
1370	1.85	7.53	963.08	5.05
1380	1.74	7.23	963.03	4.97
1390	1.70	6.95	962.98	4.90
1400	1.66	6.67	962.93	4.83
1420	1.49	6.15	962.84	4.69
1440	1.43	5.68	962.76	4.57

********************** RESERVOIR ROUTING STORM DAY 4 ********************

RESERVOIR ROUTING at 42AH STORM DAY 4 STORM FREQ. 50
INITIAL WATER SURFACE ELEVATION: 962.76

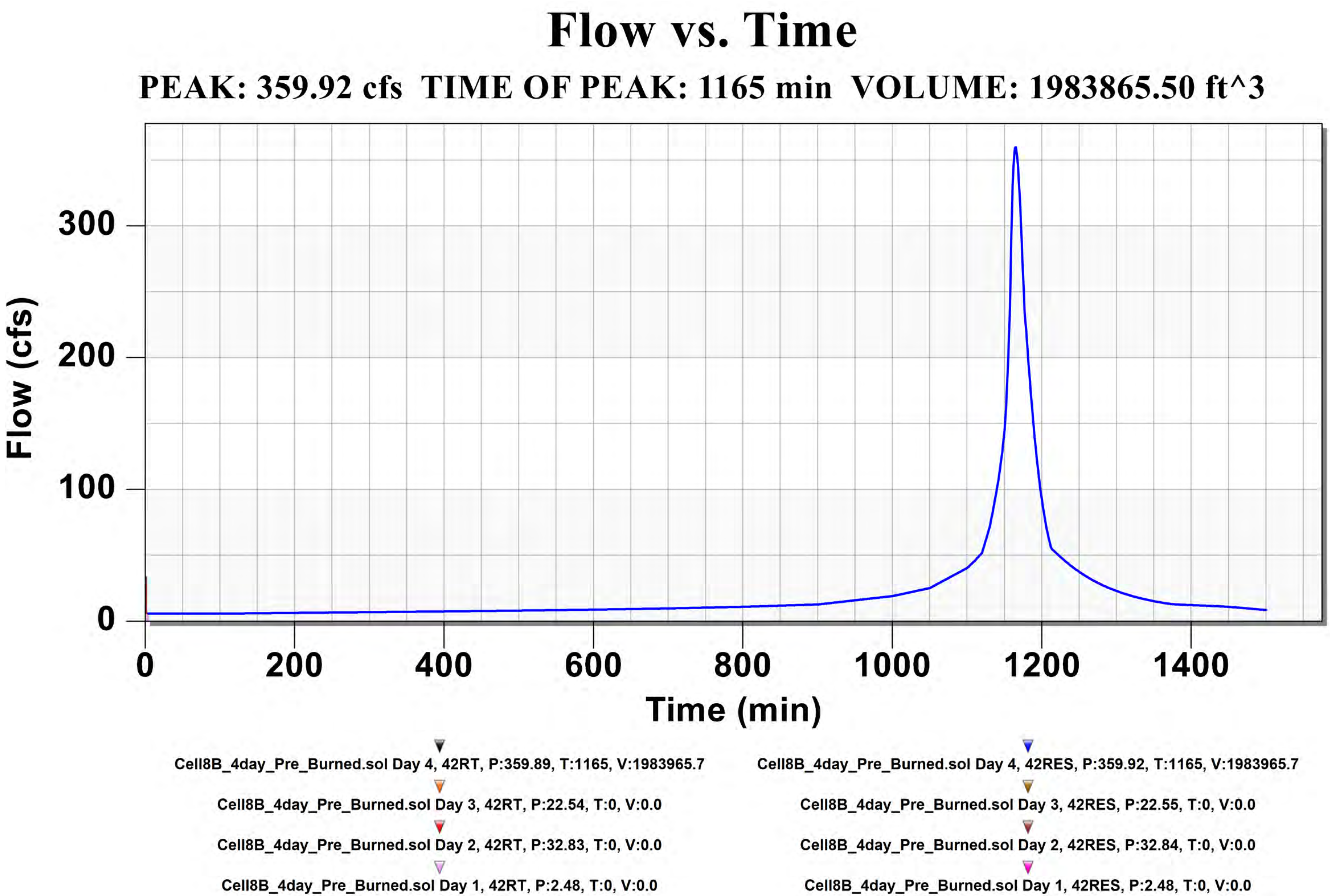
RESERVOIR ROUTING TABLE at 42AH

TIME	INFLOW (cfs)	OUTFLOW (cfs)	W.S.ELEV (ft.)	STORAGE (a.f.)
0	0.00	5.68	962.76	4.57
100	6.89	5.65	962.75	4.56
200	7.31	6.25	962.86	4.72
300	7.82	6.80	962.95	4.86
400	8.44	7.36	963.05	5.00
500	9.22	7.98	963.16	5.16
600	10.22	8.71	963.28	5.35
700	11.60	9.63	963.45	5.59
800	13.60	10.87	963.66	5.91
900	16.85	12.67	963.98	6.37
1000	23.56	19.06	964.29	6.92
1050	36.03	25.21	964.58	7.41
1100	69.06	40.49	965.30	8.65
1110	79.47	45.78	965.54	9.08
1120	93.68	52.12	965.84	9.59
1130	115.69	71.32	966.18	10.21
1131	118.64	74.17	966.21	10.27
1132	121.68	77.03	966.24	10.33
1133	124.85	79.91	966.28	10.39
1134	128.19	82.80	966.31	10.46
1135	131.78	85.74	966.34	10.52
1136	135.58	88.72	966.38	10.58

1137	139.57	91.76	966.41	10.65
1138	143.82	94.86	966.45	10.71
1139	148.38	98.05	966.48	10.78
1140	153.30	101.33	966.52	10.85
1141	158.65	104.73	966.56	10.93
1142	164.48	108.26	966.60	11.00
1143	170.81	111.96	966.64	11.08
1144	177.78	115.83	966.68	11.16
1145	185.56	119.93	966.73	11.25
1146	194.43	124.28	966.78	11.35
1147	204.62	128.96	966.83	11.45
1148	216.65	134.04	966.89	11.55
1149	230.78	139.62	966.95	11.67
1150	248.30	145.83	967.02	11.81
1151	271.40	152.92	967.10	11.96
1152	320.37	161.81	967.20	12.15
1153	372.18	173.28	967.33	12.40
1154	410.32	186.83	967.49	12.69
1155	439.61	201.64	967.65	13.01
1156	460.02	217.07	967.83	13.34
1157	473.45	233.08	968.00	13.67
1158	475.60	263.43	968.16	13.98
1159	474.24	290.01	968.29	14.25
1160	468.32	312.80	968.40	14.49
1161	455.58	331.54	968.50	14.68
1162	431.12	345.60	968.57	14.83
1163	404.09	354.65	968.61	14.92
1164	377.72	359.21	968.64	14.97
1165	352.08	359.92	968.64	14.97
1166	328.46	357.45	968.63	14.95
1167	305.95	352.39	968.60	14.90
1168	284.63	345.22	968.57	14.82
1169	264.23	336.32	968.52	14.73
1170	244.36	326.01	968.47	14.62
1171	223.97	314.46	968.41	14.51
1172	204.07	301.84	968.35	14.38
1173	186.63	288.45	968.28	14.24
1174	171.85	274.72	968.21	14.10
1175	159.16	260.99	968.14	13.96
1176	147.49	247.46	968.08	13.82
1177	136.48	234.20	968.01	13.68
1178	124.63	226.71	967.94	13.54
1179	111.17	219.94	967.86	13.40
1180	96.47	212.72	967.78	13.24
1181	84.61	205.12	967.69	13.08
1182	76.39	197.37	967.61	12.91
1183	70.64	189.67	967.52	12.75
1184	66.03	182.13	967.43	12.59
1185	62.32	174.79	967.35	12.43
1186	58.83	167.69	967.27	12.28
1187	55.55	160.82	967.19	12.13
1188	52.51	154.18	967.12	11.99
1189	49.85	147.78	967.04	11.85
1190	47.34	141.61	966.97	11.72
1191	44.99	135.67	966.91	11.59
1192	42.94	129.97	966.84	11.47
1193	41.03	124.50	966.78	11.35
1194	39.23	119.25	966.72	11.24
1195	37.55	114.23	966.66	11.13
1196	36.05	109.41	966.61	11.03
1197	34.64	104.81	966.56	10.93

1198	33.27	100.40	966.51	10.83
1199	32.02	96.19	966.46	10.74
1200	30.86	92.16	966.41	10.66
1201	29.80	88.32	966.37	10.57
1202	28.83	84.65	966.33	10.49
1203	27.96	81.15	966.29	10.42
1204	27.17	77.82	966.25	10.35
1205	26.46	74.65	966.22	10.28
1206	25.80	71.63	966.18	10.22
1207	25.20	68.76	966.15	10.15
1208	24.64	66.04	966.12	10.10
1209	24.11	63.44	966.09	10.04
1210	23.63	60.98	966.06	9.99
1211	23.21	58.65	966.04	9.94
1212	22.80	56.43	966.01	9.89
1213	22.42	55.21	965.98	9.84
1214	22.06	54.66	965.96	9.80
1215	21.71	54.10	965.93	9.75
1216	21.37	53.55	965.91	9.71
1217	21.05	53.01	965.88	9.66
1218	20.74	52.47	965.86	9.62
1219	20.45	51.93	965.83	9.58
1220	20.19	51.40	965.81	9.53
1221	19.93	50.87	965.78	9.49
1222	19.68	50.34	965.76	9.45
1223	19.43	49.82	965.73	9.41
1224	19.18	49.31	965.71	9.37
1225	18.94	48.80	965.68	9.32
1226	18.70	48.29	965.66	9.28
1227	18.47	47.79	965.64	9.24
1228	18.25	47.30	965.61	9.20
1229	18.03	46.80	965.59	9.16
1230	17.82	46.32	965.57	9.12
1231	17.62	45.83	965.55	9.08
1232	17.43	45.36	965.52	9.05
1233	17.24	44.88	965.50	9.01
1234	17.05	44.42	965.48	8.97
1235	16.87	43.95	965.46	8.93
1236	16.69	43.49	965.44	8.89
1237	16.51	43.04	965.41	8.86
1238	16.35	42.59	965.39	8.82
1239	16.18	42.15	965.37	8.79
1240	16.02	41.71	965.35	8.75
1241	15.87	41.27	965.33	8.71
1242	15.72	40.84	965.31	8.68
1243	15.57	40.42	965.29	8.65
1244	15.42	40.00	965.27	8.61
1245	15.28	39.58	965.25	8.58
1246	15.15	39.17	965.23	8.54
1247	15.01	38.77	965.21	8.51
1248	14.88	38.36	965.20	8.48
1249	14.75	37.97	965.18	8.45
1250	14.63	37.57	965.16	8.42
1251	14.50	37.19	965.14	8.38
1252	14.38	36.80	965.12	8.35
1253	14.27	36.42	965.11	8.32
1254	14.15	36.05	965.09	8.29
1255	14.04	35.68	965.07	8.26
1256	13.93	35.31	965.05	8.23
1257	13.83	34.95	965.04	8.20
1258	13.72	34.59	965.02	8.17

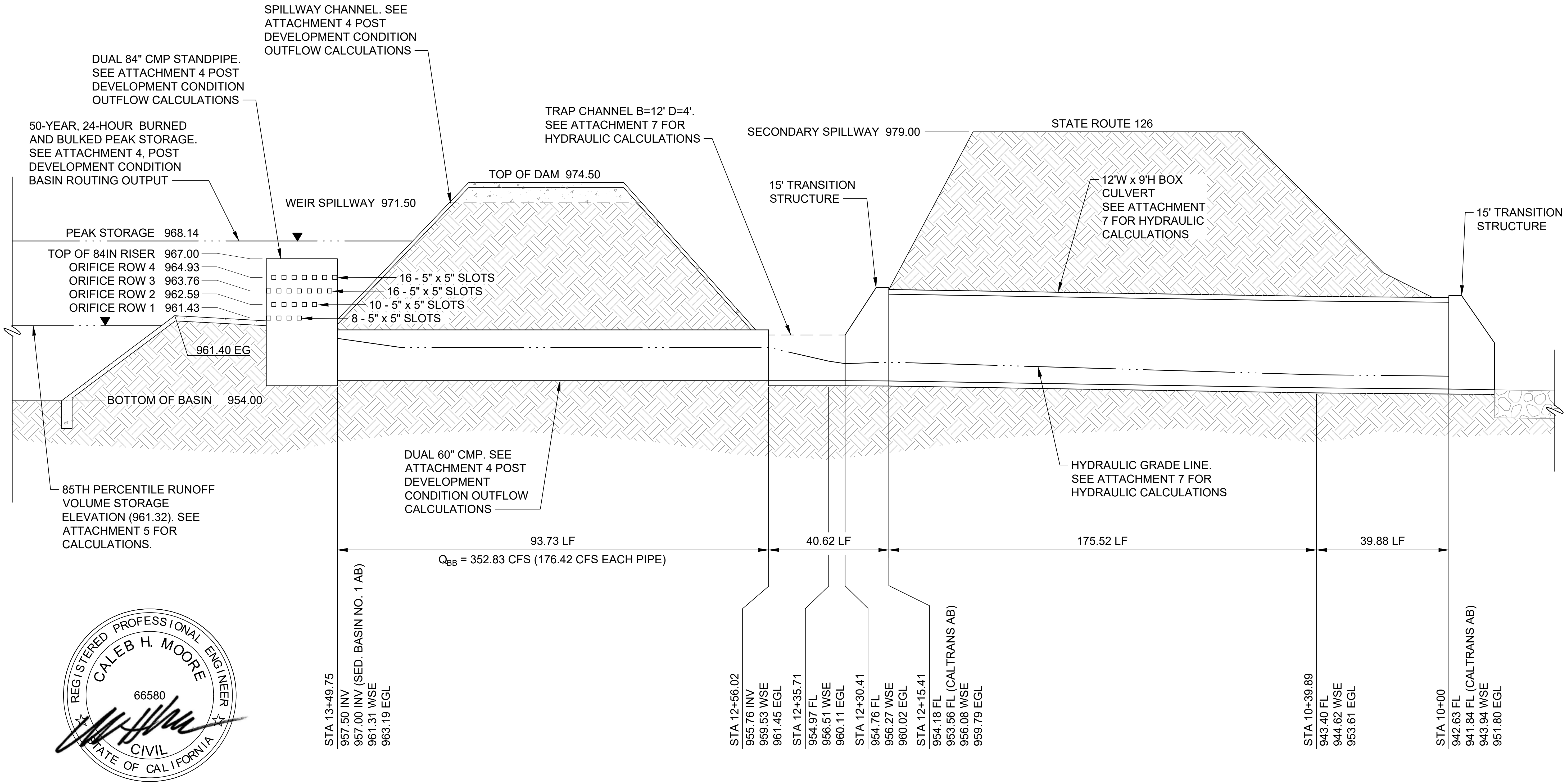
1259	13.62	34.24	965.00	8.15
1260	13.52	33.89	964.99	8.12
1261	13.42	33.55	964.97	8.09
1262	13.33	33.21	964.95	8.06
1263	13.23	32.87	964.94	8.03
1264	13.14	32.54	964.92	8.01
1265	13.05	32.21	964.91	7.98
1266	12.96	31.89	964.89	7.95
1267	12.87	31.57	964.88	7.93
1268	12.78	31.25	964.86	7.90
1269	12.70	30.94	964.85	7.88
1270	12.62	30.63	964.83	7.85
1271	12.54	30.33	964.82	7.83
1272	12.45	30.03	964.81	7.80
1273	12.38	29.73	964.79	7.78
1274	12.30	29.44	964.78	7.76
1275	12.22	29.15	964.76	7.73
1276	12.15	28.86	964.75	7.71
1277	12.07	28.58	964.74	7.69
1278	12.00	28.30	964.72	7.66
1279	11.93	28.02	964.71	7.64
1280	11.86	27.75	964.70	7.62
1281	11.79	27.48	964.69	7.60
1282	11.72	27.22	964.67	7.58
1283	11.65	26.95	964.66	7.56
1284	11.59	26.70	964.65	7.53
1285	11.52	26.44	964.64	7.51
1286	11.46	26.19	964.63	7.49
1287	11.39	25.94	964.61	7.47
1288	11.33	25.69	964.60	7.45
1289	11.27	25.45	964.59	7.43
1290	11.21	25.21	964.58	7.41
1291	11.15	24.97	964.57	7.39
1292	11.09	24.74	964.56	7.38
1293	11.03	24.51	964.55	7.36
1294	10.98	24.28	964.54	7.34
1295	10.92	24.06	964.53	7.32
1296	10.86	23.83	964.52	7.30
1297	10.81	23.62	964.51	7.28
1298	10.76	23.40	964.50	7.27
1299	10.70	23.19	964.49	7.25
1300	10.65	22.97	964.48	7.23
1310	10.17	21.01	964.38	7.07
1320	9.76	19.28	964.30	6.93
1330	9.37	17.76	964.23	6.81
1340	9.02	16.42	964.17	6.70
1350	8.70	15.23	964.11	6.61
1360	8.41	14.19	964.06	6.52
1370	8.15	13.26	964.02	6.45
1380	7.91	12.69	963.98	6.38
1390	7.68	12.44	963.94	6.31
1400	7.48	12.18	963.89	6.25
1420	7.10	11.69	963.80	6.12
1440	6.78	11.21	963.72	6.00


Flow vs. Time
PEAK: 359.92 cfs TIME OF PEAK: 1165 min VOLUME: 1983865.50 ft^3
Flow (cfs)
300
200
100
0
0
200
400
600
800
1000
1200
1400
Time (min)
Cell8B_4day_Pre_Burned.sol Day 4, 42RT, P:359.89, T:1165, V:1983965.7
Cell8B_4day_Pre_Burned.sol Day 4, 42RES, P:359.92, T:1165, V:1983965.7
Cell8B_4day_Pre_Burned.sol Day 3, 42RT, P:22.54, T:0, V:0.0
Cell8B_4day_Pre_Burned.sol Day 3, 42RES, P:22.55, T:0, V:0.0
Cell8B_4day_Pre_Burned.sol Day 2, 42RT, P:32.83, T:0, V:0.0
Cell8B_4day_Pre_Burned.sol Day 2, 42RES, P:32.84, T:0, V:0.0
Cell8B_4day_Pre_Burned.sol Day 1, 42RT, P:2.48, T:0, V:0.0
Cell8B_4day_Pre_Burned.sol Day 1, 42RES, P:2.48, T:0, V:0.0

POST-DEVELOPMENT CONDITION

SEDIMENTATION BASIN ANALYSIS

BASIN STORAGE CAPACITY AND OUTFLOW CALCULATIONS



BASIN OUTFLOW ELEVATION VIEW

NTS

ABBREVIATIONS:

AB	AS-BUILT
CFS	CUBIC FEET PER SECOND
EG	EXISTING GRADE
EGE	ENERGY GRADE ELEVATION
FL	FLOW LINE
INV	INVERT
NTS	NOT TO SCALE
WSE	WATER SURFACE ELEVATION

NOTE:

THE VERTICAL DATUM FOR THE POST-DEVELOPMENT SEDIMENTATION BASIN AND OUTFLOW SYSTEM IS BASED ON AERIAL DRONE TOPOGRAPHY BY BLUE RIDGE SERVICES INC., PERFORMED ON JANUARY 12, 2021. SEE SECTION 3.2 OF REPORT SUMMARY FOR A MORE DETAILED DESCRIPTION.

CHIQUITA CANYON LANDFILL

MODIFIED SEDIMENTATION BASIN OUTFLOW SCHEMATIC

TETRA TECH
21700 Copley Drive, Suite 200
Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

TETRA TECH
BAS

Chiquita Canyon Landfill
Cell 8B Post-Development
Basin Outflow
Calculations

DESIGN CALCULATION REQUIRED

Determine the stage peak outflow (Q) from the modified twin standpipes in the westerly basin at the Chiquita Canyon

CALCULATIONS

Determine peak Q for each orifice row using the calculation per FHWA HEC 22 - Urban Drainage Design Manual, Chapter 8 - Detention and Retention Facility, September 2009. (Publication No. FHWA-NHI-10-009)

Equation: $Q = CA\,(2gh)^{1/2}$

where, Q = discharge in cfs;
A = cross-sectional area of conduit in ft^2;
g = gravitational constant (32.2 ft/sec^2);
h = head, in ft, above centerline of orifice opening;
C = orifice coefficient (0.65).

See Modified Sedimentation Basin Outflow Schematic (see note 1)

Orifice Row	Variable	Units \ Elev.	962	964	966	968	970	972	974	974.5
1	h = Elev. - 961.425	ft	0.58	2.58	4.58	6.58	8.58	10.58	12.58	13.08
	A (8 x 5" sqaure)	ft^2	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39
	Q_1	**cfs**	**5.49**	**11.63**	**15.50**	**18.58**	**21.21**	**23.56**	**25.69**	**26.20**
2	h = Elev. - 962.592	ft	0.00	1.41	3.41	5.41	7.41	9.41	11.41	11.91
	A (10 x 5" sqaure)	ft^2	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74
	Q_2	**cfs**	**0.00**	**10.75**	**16.72**	**21.06**	**24.65**	**27.78**	**30.59**	**31.25**
3	h = Elev. - 963.759	ft	0.00	0.24	2.24	4.24	6.24	8.24	10.24	10.74
	A (16 x 5" sqaure)	ft^2	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78
	Q_3	**cfs**	**0.00**	**7.11**	**21.69**	**29.84**	**36.20**	**41.60**	**46.37**	**47.49**
4	h = Elev. - 964.925	ft	0.00	0.00	1.08	3.08	5.08	7.08	9.08	9.58
	A (16 x 5" sqaure)	ft^2	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78
	Q_4	**cfs**	**0.00**	**0.00**	**15.02**	**25.41**	**32.64**	**38.54**	**43.65**	**44.84**
Total Q_5 = Sum of Q_1 to Q_4		**cfs**	**5.49**	**29.48**	**68.93**	**94.88**	**114.70**	**131.47**	**146.30**	**149.77**

Determine peak Q of the standpipe and outflow culverts as a weir and orifice. The lower of the peak Q's shall be used in the summary

The capacity of a weir can be estimated using the following equations (Brater and King, 1976):

1. Horizontal crested weirs
For horizontal crested weirs (both broad-crested and sharp-crested)
$Q = C L H^{3/2}$ (1303)

Where
Q = Flow (cubic feet per second)
C = weir coefficient
= 3.3 for a sharp-crested weir
= 2.65 for a broad-crested weir
L = Effective horizontal length of weir in
H = Head (feet)

C= 3.30 Sharp Crested Weir

	Variable	Units \ Elev.	962	964	966	968	970	972	974	974.5
Standpipe Weir	h = Elev. - 967	ft	0.00	0.00	0.00	1.00	3.00	5.00	7.00	7.50
	L	ft	21.47	21.47	21.47	21.47	21.47	21.47	21.47	21.47
	Q_6	**cfs**	0.00	0.00	0.00	70.85	368.15	792.14	1312.18	1455.25
Total Riser Pipe Flow	**Q_7 = Q_5 + Q_6**	**cfs**	**5.49**	**29.48**	**68.93**	**165.74**	**482.85**	**923.61**	**1458.47**	**1605.02**
	Q_8 (2 pipes)= 2xQ_7	**cfs**	**10.99**	**58.97**	**137.86**	**331.47**	**965.71**	**1847.22**	**2916.95**	**3210.04**
Culvert - Orifice	h = Elev. - 960	ft	2.00	4.00	6.00	8.00	10.00	12.00	14.00	14.50
	A	ft^2	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63
	Q_9	**cfs**	**144.84**	**204.84**	**250.88**	**289.69**	**323.88**	**354.79**	**383.22**	**390.01**
	Q_{10} (2 pipes)= 2xQ_9	**cfs**	**289.69**	**409.68**	**501.76**	**579.38**	**647.76**	**709.59**	**766.44**	**780.01**

Chiquita Canyon Landfill
Cell 8B Post-Development
Basin Outflow
Calculations

Job Number : 2020-0031
Calculated By: PV
Checked By: JMH
Date: 10 Sept, 2021

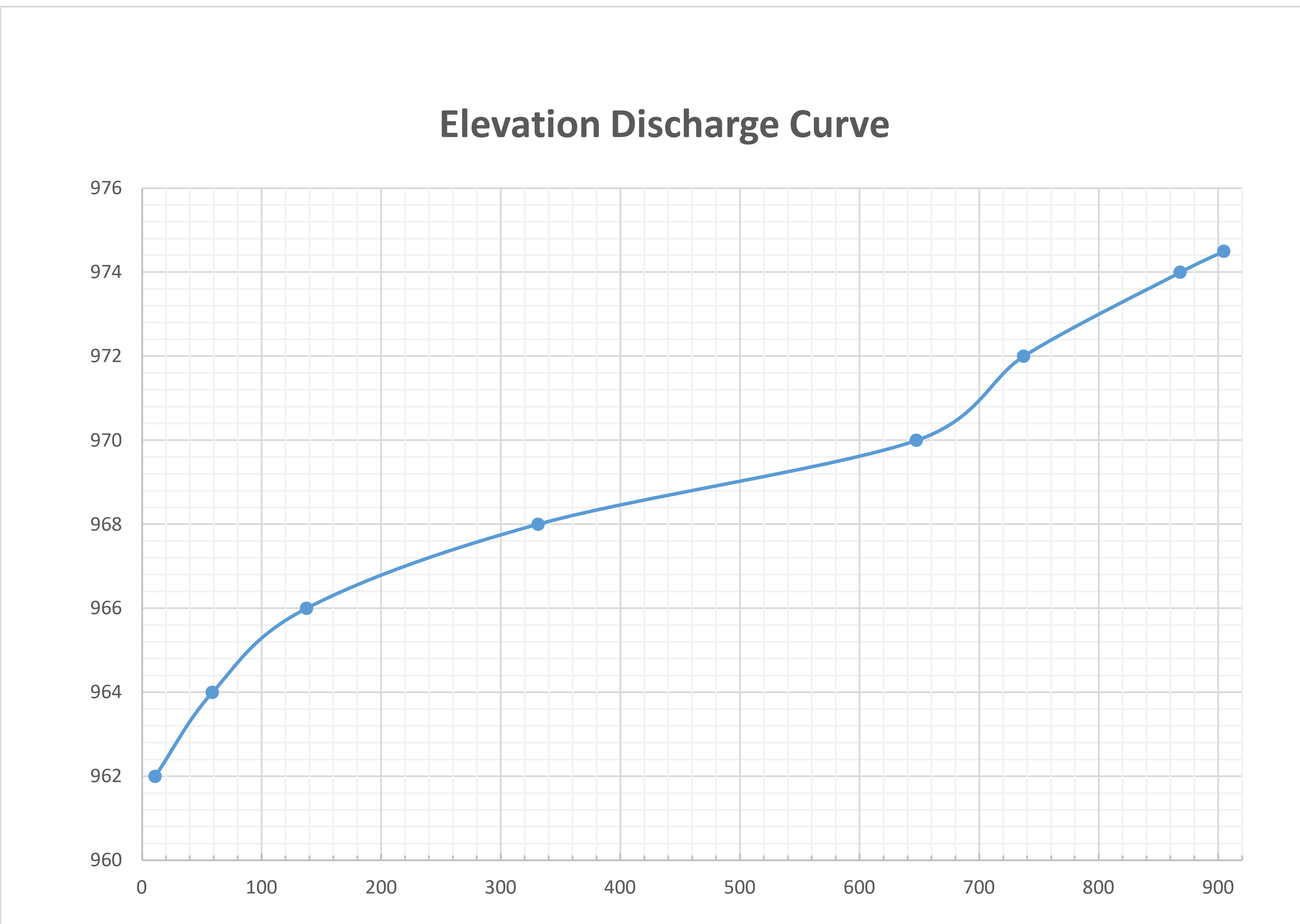
Use Mannings to Determine Peak Q for Riser - See Flowmaster Calculations on Page 2 of 2 for Assumed Input Values

	Variable	Units \ Elev.	962	964	966	968	970	972	974	974.5
Culvert - Mannings	Q_{11}	cfs	205.05	262.43	333.66	392.16	443.00	488.58	530.25	540.17
	Q_{12}(2 pipes)=2xQ_{11}	cfs	410.10	524.86	667.32	784.32	886.00	977.16	1060.50	1080.34

C= 2.65 Broad-crested Weir

	Variable	Units \ Elev.	962	964	966	968	970	972	974	974.5
Spillway Weir	h = Elev. - 970.55	ft	0.00	0.00	0.00	0.00	0.00	1.45	3.45	3.95
	L	ft	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
	Q_{13}	cfs	0.00	0.00	0.00	0.00	0.00	27.76	101.89	124.82

Discharge Curve	Elev.	962	964	966	968	970	972	974	974.5
	Equation	Q_8	Q_8	Q_8	Q_8	$Q_{10}+Q_{13}$	$Q_{10}+Q_{13}$	$Q_{10}+Q_{13}$	$Q_{10}+Q_{13}$
	Q_{total} (cfs)	10.99	58.97	137.86	331.47	647.76	737.35	868.33	904.83



Cicular Pipe (Cell 8B Out Flow Post Condition.fm8) Report

Label	Solve For	Friction Method	Roughness Coefficient	Channel Slope (%)	Normal Depth (ft)	Diameter (ft)	Discharge (ft³/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Top Width (ft)	Critical Depth (ft)	Velocity (ft/s)	Flow Type
Culvert - EL 962	Discharge	Manning Formula	0.024	2.00000	4.00	5.00	195.00	16.84	11.07	1.52	4.00	3.99	11.58	SubCritical

Pressure Pipe (Cell 8B Out Flow Post Condition.fm8) Report

Label	Solve For	Friction Method	Pressure at 1 (feet H2O)	Pressure at 2 (feet H2O)	Elevation at 1 (ft)	Elevation at 2 (ft)	Length (ft)	Roughness Coefficient	Diameter (ft)	Discharge (ft³/s)	Energy Grade at 1 (ft)	Energy Grade at 2 (ft)	Hydraulic Grade at 1 (ft)	Hydraulic Grade at 2 (ft)	Velocity (ft/s)
Culvert - EL 964	Discharge	Manning Formula	1.00	0.00	958.00	956.16	92.00	0.024	5.00	247.85	961.48	958.64	959.00	956.16	12.62
Culvert - EL 966	Discharge	Manning Formula	3.00	0.00	958.00	956.16	92.00	0.024	5.00	323.55	965.22	960.38	961.00	956.16	16.48
Culvert - EL 968	Discharge	Manning Formula	5.00	0.00	958.00	956.16	92.00	0.024	5.00	384.63	968.96	962.12	963.00	956.16	19.59
Culvert - EL 970	Discharge	Manning Formula	7.00	0.00	958.00	956.16	92.00	0.024	5.00	437.26	972.71	963.87	965.00	956.16	22.27
Culvert - EL 972	Discharge	Manning Formula	9.00	0.00	958.00	956.16	92.00	0.024	5.00	484.21	976.45	965.61	967.00	956.16	24.66
Culvert - EL 974	Discharge	Manning Formula	11.00	0.00	958.00	956.16	92.00	0.024	5.00	526.99	980.19	967.35	969.00	956.16	26.84
Culvert - EL 975	Discharge	Manning Formula	12.00	0.00	958.00	956.16	92.00	0.024	5.00	547.12	982.07	968.23	970.00	956.16	27.86

BASIN STORAGE CAPACITY

DATE	9/7/2021	**JOB**	Chiquita Cell 8 Basin Capacity
CALC BY	JMH	**Description**	Post-Development Condition
Checked By	PV		

DESIGN CALCULATION REQUIRED

Determine the total volume of the basin and the dead storage capacity.

CALCULATIONS

The average end-area method was used to determine the basin capacity at each contour interval.

Equation:

$$V = \Sigma \, \mathrm{h} \, \frac{A_1 + A_2}{2}$$

V = Volume
h = height, elevation 1 - elevation 2
A = Area

The area for each elevation was calculated using Auto CAD and is based on the contours from the January 12, 2021 drone topography performed by Blue Ridge Services, Inc. and the proposed grading within the basin, see Sheets C-104 and C-109 of the Cell 8A construction plan set. See Figure 6.

CONTOUR	AREA sq feet	AVE. AREA sq feet	VOLUME cubic yards	ΣVOLUME cubic yards	VOLUME ac-ft	ΣVOLUME ac-ft
950	11,987		0	0	0	0
952	14,787	13,387	992	992	0.61	0.61
954	27,973	21,380	1,584	2,575	0.98	1.60
956	34,039	31,006	2,297	4,872	1.42	3.02
958	40,650	37,345	2,766	7,638	1.71	4.73
960	48,221	44,435	3,292	10,930	2.04	6.77
962	58,823	53,522	3,965	14,894	2.46	9.23
964	70,055	64,439	4,773	19,668	2.96	12.19
966	80,948	75,502	5,593	25,260	3.47	15.66
968	89,193	85,070	6,302	31,562	3.91	19.56
970	98,001	93,597	6,933	38,495	4.30	23.86
972	112,682	105,341	7,803	46,298	4.84	28.70
974	122,634	117,658	8,715	55,013	5.40	34.10
976	132,332	127,483	9,443	64,457	5.85	39.95

The topo has a two foot contour interval, therefore interpolation was used to calculate the volume at a specific elevation.

Equation:

$$y = y_1 + (x - x_1)\,\frac{(y_2 - y_1)}{(x_2 - x_1)}$$

y_1 = Cumulative volume at contour elevation 1
y_2 = Cumulative volume at contour elevation 2
y = Capacity at elevation x

x_1 = Elevation 1
x_2 = Elevation 2
x = Elevation which capacity is required

Dead Storage Capacity			Total Basin Capacity		
y_1 =	6.77	ac-ft	y_1 =	34.10	ac-ft
y_2 =	9.23	ac-ft	y_2 =	39.95	ac-ft
x_1 =	960	ft	x_1 =	974	ft
x_2 =	962	ft	x_2 =	976	ft
x =	961.4	ft (See note)	x =	974.5	ft (See note)
y =	**8.49**	**ac-ft**	**y =**	**35.56**	**ac-ft**

Notes: Elevations for the dead storage capacity and top of spill way are based on field survey performed by Tetra Tech on April 7, 2021, see Figure 6.

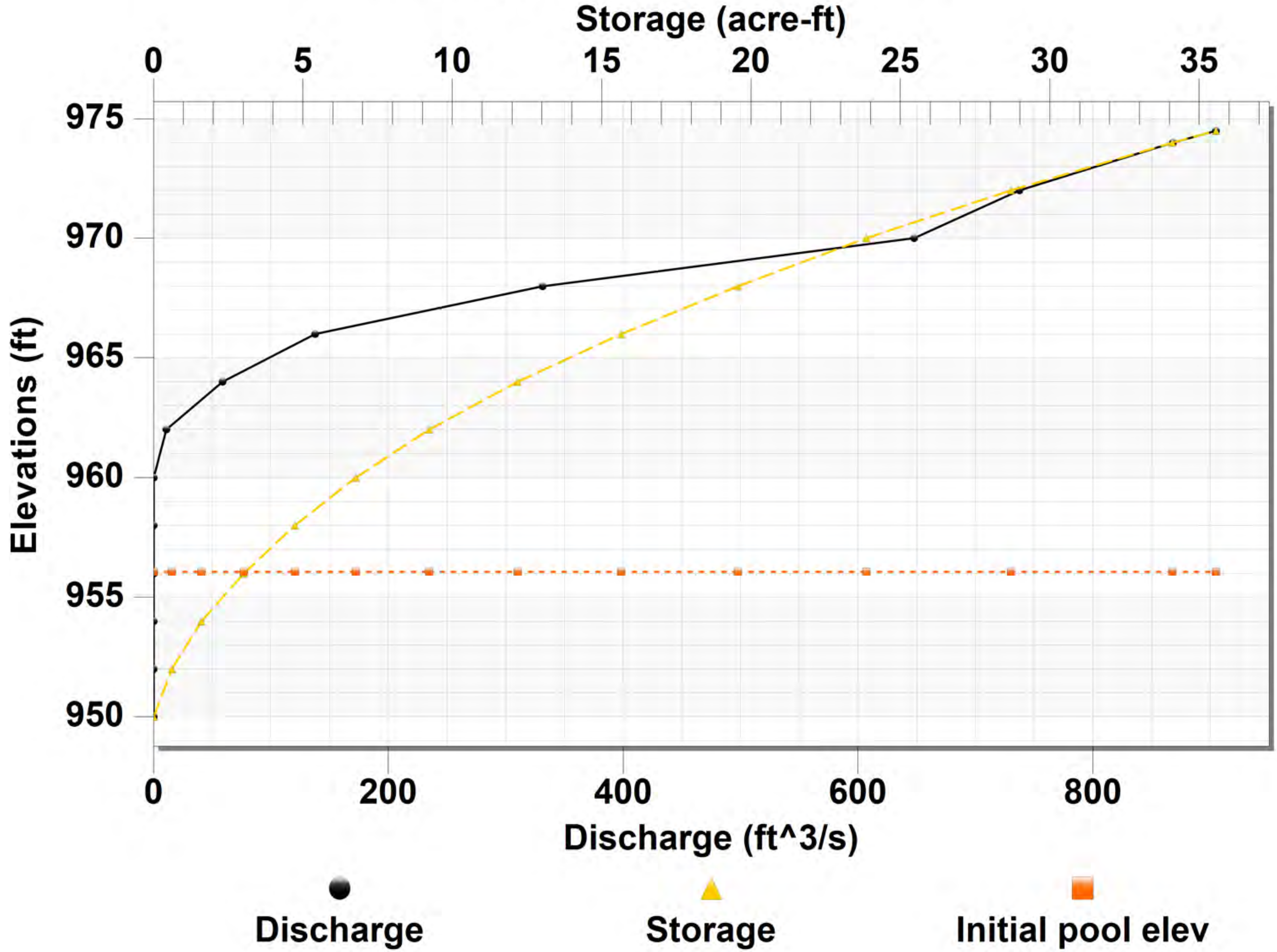
P:\Waste Connections\Chiquita\Cell 8\Docs\Calcs\Hydraulics\Grading Permit\Cell 8B\Basin Outflow\Basin Volume Calculation.xls

RESERVOIR 41AF 14 0 956.0700

COMPOSITE ELEVATION	COMPOSITE STORAGE	COMPOSITE DISCHARGE
950.000000	0.000000	0.000000
952.000000	0.610000	0.000000
954.000000	1.600000	0.000000
956.000000	3.020000	0.000000
958.000000	4.730000	0.000000
960.000000	6.770000	0.000000
962.000000	9.230000	10.990000
964.000000	12.190000	58.970000
966.000000	15.660000	137.860000
968.000000	19.560000	331.470000
970.000000	23.860000	647.760000
972.000000	28.700000	737.350000
974.000000	34.100000	868.330000
974.500000	35.560000	904.830000

END RESERVOIR 41AF

Storage Discharge Curves



POST-DEVELOPMENT CONDITION

SEDIMENTATION BASIN ANALYSIS

WMS BASIN ROUTING OUTPUT

File name: Cell8B_4Day_Post_Outflow_Burn.lac   Run date: Tue Dec 20 11:46:27 2022

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 1   Storm Frequency 50

LOCATION		SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1	1A	22.1	0.73	22.1	0.73	0.113	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1	2A	0.0	0.00	22.1	0.73	0.036	4	532	0.33000	3.00	0.00	0	297	0	5.80	0.00
1	3A	40.4	1.33	62.5	2.06	0.242	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1	4A	0.0	0.00	62.5	2.06	0.144	6	1618	0.03500	3.00	1.00	0	297	0	5.80	0.00
1	5A	23.4	0.69	85.9	2.53	0.263	0	0	0.00000	0.00	0.00	0	297	19	5.80	0.05
1	6B	20.9	0.54	20.9	0.54	0.106	0	0	0.00000	0.00	0.00	0	297	23	5.80	0.05
1	7B	0.0	0.00	20.9	0.54	0.032	4	789	0.25000	3.00	0.00	0	297	0	5.80	0.00
1	8AB	20.9	0.54	106.8	3.06	0.238	6	1659	0.04700	3.00	1.00	0	297	0	5.80	0.00
1	9A	25.5	0.70	132.3	3.52	0.368	0	0	0.00000	0.00	0.00	0	297	21	5.80	0.05
1	10A	0.0	0.00	132.3	3.52	0.306	4	561	0.15000	4.00	0.00	0	297	0	5.80	0.00
1	11A	6.4	0.34	138.7	3.56	0.339	0	0	0.00000	0.00	0.00	0	297	8	5.80	0.05
1	12A	0.0	0.00	138.7	3.56	0.323	4	244	0.29000	4.00	0.00	0	297	0	5.80	0.00
1	13A	7.3	0.29	146.0	3.62	0.361	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1	14A	0.0	0.00	146.0	3.62	0.343	4	51	0.06600	4.00	0.00	0	297	0	5.80	0.00
1	15A	7.6	0.56	153.6	3.83	0.455	0	0	0.00000	0.00	0.00	0	97	11	5.80	0.26
1	16C	34.6	0.90	34.6	0.90	0.176	0	0	0.00000	0.00	0.00	0	297	23	5.80	0.05
1	17C	0.0	0.00	34.6	0.90	0.080	4	686	0.29000	3.00	0.00	0	297	0	5.80	0.00
1	18C	43.6	1.28	78.2	2.17	0.302	0	0	0.00000	0.00	0.00	0	297	19	5.80	0.05
1	19C	0.0	0.00	78.2	2.17	0.204	6	1558	0.06400	3.00	0.00	0	297	0	5.80	0.00
1	20C	11.6	0.64	89.8	2.61	0.310	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.15
1	21D	27.4	0.78	27.4	0.78	0.139	0	0	0.00000	0.00	0.00	0	297	20	5.80	0.05
1	22D	0.0	0.00	27.4	0.78	0.052	4	839	0.29000	3.00	0.00	0	297	0	5.80	0.00
1	23D	19.7	0.75	47.1	1.50	0.153	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	24D	0.0	0.00	47.1	1.50	0.091	4	155	0.09700	2.50	0.00	0	297	0	5.80	0.00
1	25E	12.7	0.39	12.7	0.39	0.065	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	26E	0.0	0.00	12.7	0.39	0.013	4	240	0.13000	2.00	0.00	0	297	0	5.80	0.00
1	27CD	47.1	1.50	136.9	4.05	0.401	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	28CE	12.7	0.39	149.6	4.43	0.365	4	297	0.23000	4.00	0.00	0	297	0	5.80	0.00
1	29C	29.9	1.14	179.5	5.46	0.519	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	30C	0.0	0.00	179.5	5.46	0.451	4	116	0.26000	4.00	0.00	0	297	0	5.80	0.00
1	31F	8.6	0.33	8.6	0.33	0.044	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	32F	0.0	0.00	8.6	0.33	0.007	4	1198	0.18000	3.00	0.00	0	297	0	5.80	0.00
1	33F	18.8	0.76	27.4	1.06	0.104	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1	34F	17.4	0.53	44.8	1.59	0.193	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	35F	0.0	0.00	44.8	1.59	0.096	4	159	0.25000	3.00	0.00	0	297	0	5.80	0.00
1	36F	3.7	0.42	48.5	1.99	0.164	0	0	0.00000	0.00	0.00	0	97	7	5.80	0.36

1 37F	2.6	0.30	51.1	2.28	0.214	0	0	0.00000	0.00	0.00	0	97	7	5.80	0.37
1 38F	1.7	0.30	52.8	2.55	0.254	0	0	0.00000	0.00	0.00	0	97	5	5.80	0.50
1 39F	0.0	0.00	52.8	2.55	0.163	4	162	0.02000	4.00	0.00	0	97	0	5.80	0.00
1 40AC	179.5	5.46	333.1	9.14	0.906	0	0	0.00000	0.00	0.00	0	97	0	5.80	0.00
1 41AF	52.8	2.54	385.9	0.00	0.000	4	92	0.02000	7.00	0.00	0	97	0	5.80	0.00

File name: Cell8B_4Day_Post_Outflow_Burn.lac Run date: Tue Dec 20 11:46:28 2022

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 2 Storm Frequency 50

LOCATION	SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1 1A	22.1	9.44	22.1	9.44	0.722	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1 2A	0.0	0.00	22.1	9.44	0.721	4	532	0.33000	3.00	0.00	0	297	0	5.80	0.00
1 3A	40.4	17.26	62.5	26.66	2.041	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1 4A	0.0	0.00	62.5	26.66	2.040	6	1618	0.03500	3.00	1.00	0	297	0	5.80	0.00
1 5A	23.4	8.89	85.9	34.61	2.801	0	0	0.00000	0.00	0.00	0	297	19	5.80	0.05
1 6B	20.9	6.84	20.9	6.84	0.674	0	0	0.00000	0.00	0.00	0	297	23	5.80	0.05
1 7B	0.0	0.00	20.9	6.84	0.673	4	789	0.25000	3.00	0.00	0	297	0	5.80	0.00
1 8AB	20.9	6.83	106.8	41.41	3.474	6	1659	0.04700	3.00	1.00	0	297	0	5.80	0.00
1 9A	25.5	8.95	132.3	49.11	4.300	0	0	0.00000	0.00	0.00	0	297	21	5.80	0.05
1 10A	0.0	0.00	132.3	49.11	4.299	4	561	0.15000	4.00	0.00	0	297	0	5.80	0.00
1 11A	6.4	4.30	138.7	49.56	4.511	0	0	0.00000	0.00	0.00	0	297	8	5.80	0.05
1 12A	0.0	0.00	138.7	49.56	4.510	4	244	0.29000	4.00	0.00	0	297	0	5.80	0.00
1 13A	7.3	3.78	146.0	52.16	4.750	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1 14A	0.0	0.00	146.0	52.16	4.749	4	51	0.06600	4.00	0.00	0	297	0	5.80	0.00
1 15A	7.6	4.41	153.6	55.61	5.234	0	0	0.00000	0.00	0.00	0	97	11	5.80	0.26
1 16C	34.6	11.32	34.6	11.32	1.117	0	0	0.00000	0.00	0.00	0	297	23	5.80	0.05
1 17C	0.0	0.00	34.6	11.32	1.116	4	686	0.29000	3.00	0.00	0	297	0	5.80	0.00
1 18C	43.6	16.56	78.2	27.81	2.534	0	0	0.00000	0.00	0.00	0	297	19	5.80	0.05
1 19C	0.0	0.00	78.2	27.81	2.534	6	1558	0.06400	3.00	0.00	0	297	0	5.80	0.00
1 20C	11.6	6.06	89.8	33.16	3.084	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.15
1 21D	27.4	10.00	27.4	10.00	0.889	0	0	0.00000	0.00	0.00	0	297	20	5.80	0.05
1 22D	0.0	0.00	27.4	10.00	0.888	4	839	0.29000	3.00	0.00	0	297	0	5.80	0.00
1 23D	19.7	9.67	47.1	19.52	1.534	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1 24D	0.0	0.00	47.1	19.52	1.534	4	155	0.09700	2.50	0.00	0	297	0	5.80	0.00
1 25E	12.7	5.02	12.7	5.02	0.414	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1 26E	0.0	0.00	12.7	5.02	0.340	4	240	0.13000	2.00	0.00	0	297	0	5.80	0.00
1 27CD	47.1	19.50	136.9	52.28	4.618	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1 28CE	12.7	5.02	149.6	57.24	4.958	4	297	0.23000	4.00	0.00	0	297	0	5.80	0.00
1 29C	29.9	14.67	179.5	71.16	5.939	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1 30C	0.0	0.00	179.5	71.16	5.939	4	116	0.26000	4.00	0.00	0	297	0	5.80	0.00
1 31F	8.6	4.22	8.6	4.22	0.282	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05

LOCATION	SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1 32F	0.0	0.00	8.6	4.22	0.189	4	1198	0.18000	3.00	0.00	0	297	0	5.80	0.00
1 33F	18.8	9.74	27.4	13.71	0.806	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1 34F	17.4	6.87	44.8	20.58	1.373	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1 35F	0.0	0.00	44.8	20.58	1.373	4	159	0.25000	3.00	0.00	0	297	0	5.80	0.00
1 36F	3.7	2.95	48.5	23.41	1.663	0	0	0.00000	0.00	0.00	0	97	7	5.80	0.36
1 37F	2.6	2.09	51.1	25.43	1.872	0	0	0.00000	0.00	0.00	0	97	7	5.80	0.37
1 38F	1.7	1.75	52.8	27.01	2.040	0	0	0.00000	0.00	0.00	0	97	5	5.80	0.50
1 39F	0.0	0.00	52.8	27.01	2.040	4	162	0.02000	4.00	0.00	0	97	0	5.80	0.00
1 40AC	179.5	71.13	333.1	125.40	11.173	0	0	0.00000	0.00	0.00	0	97	0	5.80	0.00
1 41AF	52.8	26.84	385.9	51.48	9.676	4	92	0.02000	7.00	0.00	0	97	0	5.80	0.00

File name: Cell8B_4Day_Post_Outflow_Burn.lac   Run date: Tue Dec 20 11:46:29 2022

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 3   Storm Frequency 50

LOCATION	SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1 1A	22.1	7.69	22.1	7.69	0.595	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1 2A	0.0	0.00	22.1	7.69	0.594	4	532	0.33000	3.00	0.00	0	297	0	5.80	0.00
1 3A	40.4	14.05	62.5	21.69	1.682	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1 4A	0.0	0.00	62.5	21.69	1.681	6	1618	0.03500	3.00	1.00	0	297	0	5.80	0.00
1 5A	23.4	7.12	85.9	27.80	2.307	0	0	0.00000	0.00	0.00	0	297	19	5.80	0.05
1 6B	20.9	5.49	20.9	5.49	0.555	0	0	0.00000	0.00	0.00	0	297	23	5.80	0.05
1 7B	0.0	0.00	20.9	5.49	0.553	4	789	0.25000	3.00	0.00	0	297	0	5.80	0.00
1 8AB	20.9	5.49	106.8	33.25	2.860	6	1659	0.04700	3.00	1.00	0	297	0	5.80	0.00
1 9A	25.5	7.19	132.3	39.44	3.539	0	0	0.00000	0.00	0.00	0	297	21	5.80	0.05
1 10A	0.0	0.00	132.3	39.44	3.539	4	561	0.15000	4.00	0.00	0	297	0	5.80	0.00
1 11A	6.4	3.60	138.7	39.69	3.714	0	0	0.00000	0.00	0.00	0	297	8	5.80	0.05
1 12A	0.0	0.00	138.7	39.69	3.713	4	244	0.29000	4.00	0.00	0	297	0	5.80	0.00
1 13A	7.3	3.12	146.0	41.73	3.911	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1 14A	0.0	0.00	146.0	41.73	3.911	4	51	0.06600	4.00	0.00	0	297	0	5.80	0.00
1 15A	7.6	3.69	153.6	44.03	4.330	0	0	0.00000	0.00	0.00	0	97	11	5.80	0.26
1 16C	34.6	9.09	34.6	9.09	0.918	0	0	0.00000	0.00	0.00	0	297	23	5.80	0.05
1 17C	0.0	0.00	34.6	9.09	0.918	4	686	0.29000	3.00	0.00	0	297	0	5.80	0.00
1 18C	43.6	13.27	78.2	22.32	2.084	0	0	0.00000	0.00	0.00	0	297	19	5.80	0.05
1 19C	0.0	0.00	78.2	22.32	2.083	6	1558	0.06400	3.00	0.00	0	297	0	5.80	0.00
1 20C	11.6	5.06	89.8	26.65	2.549	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.15
1 21D	27.4	8.02	27.4	8.02	0.731	0	0	0.00000	0.00	0.00	0	297	20	5.80	0.05
1 22D	0.0	0.00	27.4	8.02	0.730	4	839	0.29000	3.00	0.00	0	297	0	5.80	0.00
1 23D	19.7	7.99	47.1	15.90	1.264	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1 24D	0.0	0.00	47.1	15.90	1.263	4	155	0.09700	2.50	0.00	0	297	0	5.80	0.00
1 25E	12.7	4.03	12.7	4.03	0.340	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1 26E	0.0	0.00	12.7	4.03	0.253	4	240	0.13000	2.00	0.00	0	297	0	5.80	0.00

1 27CD	47.1	15.89	136.9	42.13	3.812	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1 28CE	12.7	4.03	149.6	46.10	4.063	4	297	0.23000	4.00	0.00	0	297	0	5.80	0.00
1 29C	29.9	12.13	179.5	57.51	4.874	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1 30C	0.0	0.00	179.5	57.51	4.874	4	116	0.26000	4.00	0.00	0	297	0	5.80	0.00
1 31F	8.6	3.49	8.6	3.49	0.233	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1 32F	0.0	0.00	8.6	3.49	0.141	4	1198	0.18000	3.00	0.00	0	297	0	5.80	0.00
1 33F	18.8	8.04	27.4	11.33	0.651	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1 34F	17.4	5.52	44.8	16.85	1.118	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1 35F	0.0	0.00	44.8	16.85	1.116	4	159	0.25000	3.00	0.00	0	297	0	5.80	0.00
1 36F	3.7	2.52	48.5	19.24	1.369	0	0	0.00000	0.00	0.00	0	97	7	5.80	0.36
1 37F	2.6	1.78	51.1	20.96	1.550	0	0	0.00000	0.00	0.00	0	97	7	5.80	0.37
1 38F	1.7	1.50	52.8	22.31	1.696	0	0	0.00000	0.00	0.00	0	97	5	5.80	0.50
1 39F	0.0	0.00	52.8	22.31	1.696	4	162	0.02000	4.00	0.00	0	97	0	5.80	0.00
1 40AC	179.5	57.49	333.1	99.95	9.204	0	0	0.00000	0.00	0.00	0	97	0	5.80	0.00
1 41AF	52.8	22.15	385.9	38.27	12.240	4	92	0.02000	7.00	0.00	0	97	0	5.80	0.00

File name: Cell8B_4Day_Post_Outflow_Burn.lac Run date: Tue Dec 20 11:46:31 2022

Los Angeles County Flood Control District
Modified Rational Method Hydrology

Storm Day 4 Storm Frequency 50

LOCATION	SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	TOTAL VOLUME	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN	PCT IMPV
1 1A	22.1	31.90	22.1	31.90	2.871	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1 2A	0.0	0.00	22.1	31.90	2.871	4	532	0.33000	3.00	0.00	0	297	0	5.80	0.00
1 3A	40.4	58.31	62.5	90.15	8.119	0	0	0.00000	0.00	0.00	0	297	16	5.80	0.05
1 4A	0.0	0.00	62.5	90.15	8.121	6	1618	0.03500	3.00	1.00	0	297	0	5.80	0.00
1 5A	23.4	30.50	85.9	119.80	11.156	0	0	0.00000	0.00	0.00	0	297	19	5.80	0.05
1 6B	20.9	24.34	20.9	24.34	2.705	0	0	0.00000	0.00	0.00	0	297	23	5.80	0.05
1 7B	0.0	0.00	20.9	24.34	2.705	4	789	0.25000	3.00	0.00	0	297	0	5.80	0.00
1 8AB	20.9	24.33	106.8	144.12	13.861	6	1659	0.04700	3.00	1.00	0	297	0	5.80	0.00
1 9A	25.5	31.33	132.3	174.30	17.164	0	0	0.00000	0.00	0.00	0	297	21	5.80	0.05
1 10A	0.0	0.00	132.3	174.30	17.165	4	561	0.15000	4.00	0.00	0	297	0	5.80	0.00
1 11A	6.4	13.52	138.7	183.34	17.999	0	0	0.00000	0.00	0.00	0	297	8	5.80	0.05
1 12A	0.0	0.00	138.7	183.34	17.999	4	244	0.29000	4.00	0.00	0	297	0	5.80	0.00
1 13A	7.3	12.35	146.0	194.48	18.949	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1 14A	0.0	0.00	146.0	194.48	18.949	4	51	0.06600	4.00	0.00	0	297	0	5.80	0.00
1 15A	7.6	13.62	153.6	206.45	20.346	0	0	0.00000	0.00	0.00	0	97	11	5.80	0.26
1 16C	34.6	40.29	34.6	40.29	4.479	0	0	0.00000	0.00	0.00	0	297	23	5.80	0.05
1 17C	0.0	0.00	34.6	40.29	4.479	4	686	0.29000	3.00	0.00	0	297	0	5.80	0.00
1 18C	43.6	56.82	78.2	97.01	10.133	0	0	0.00000	0.00	0.00	0	297	19	5.80	0.05
1 19C	0.0	0.00	78.2	97.01	10.132	6	1558	0.06400	3.00	0.00	0	297	0	5.80	0.00
1 20C	11.6	19.22	89.8	115.08	12.008	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.15
1 21D	27.4	34.65	27.4	34.65	3.551	0	0	0.00000	0.00	0.00	0	297	20	5.80	0.05

1	22D	0.0	0.00	27.4	34.65	3.551	4	839	0.29000	3.00	0.00	0	297	0	5.80	0.00
1	23D	19.7	31.89	47.1	66.21	6.114	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	24D	0.0	0.00	47.1	66.21	6.114	4	155	0.09700	2.50	0.00	0	297	0	5.80	0.00
1	25E	12.7	17.08	12.7	17.08	1.648	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	26E	0.0	0.00	12.7	17.08	1.647	4	240	0.13000	2.00	0.00	0	297	0	5.80	0.00
1	27CD	47.1	66.20	136.9	180.83	18.122	0	0	0.00000	0.00	0.00	0	297	0	5.80	0.00
1	28CE	12.7	17.07	149.6	197.86	19.769	4	297	0.23000	4.00	0.00	0	297	0	5.80	0.00
1	29C	29.9	48.39	179.5	244.98	23.658	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	30C	0.0	0.00	179.5	244.98	23.658	4	116	0.26000	4.00	0.00	0	297	0	5.80	0.00
1	31F	8.6	13.92	8.6	13.92	1.119	0	0	0.00000	0.00	0.00	0	297	13	5.80	0.05
1	32F	0.0	0.00	8.6	13.92	1.118	4	1198	0.18000	3.00	0.00	0	297	0	5.80	0.00
1	33F	18.8	31.82	27.4	45.46	3.564	0	0	0.00000	0.00	0.00	0	297	12	5.80	0.05
1	34F	17.4	23.41	44.8	68.85	5.822	0	0	0.00000	0.00	0.00	0	297	18	5.80	0.05
1	35F	0.0	0.00	44.8	68.85	5.821	4	159	0.25000	3.00	0.00	0	297	0	5.80	0.00
1	36F	3.7	8.60	48.5	77.13	6.626	0	0	0.00000	0.00	0.00	0	97	7	5.80	0.36
1	37F	2.6	6.06	51.1	82.99	7.200	0	0	0.00000	0.00	0.00	0	97	7	5.80	0.37
1	38F	1.7	4.86	52.8	87.39	7.649	0	0	0.00000	0.00	0.00	0	97	5	5.80	0.50
1	39F	0.0	0.00	52.8	87.39	7.649	4	162	0.02000	4.00	0.00	0	97	0	5.80	0.00
1	40AC	179.5	244.97	333.1	449.47	44.004	0	0	0.00000	0.00	0.00	0	97	0	5.80	0.00
1	41AF	52.8	87.25	385.9	352.83	51.173	4	92	0.02000	7.00	0.00	0	97	0	5.80	0.00

Normal End of MODRAT

** LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS **
** MODIFIED RATIONAL METHOD HYDROLOGY **
** RESERVOIR ROUTING OUTPUT **

********************* RESERVOIR ROUTING STORM DAY 1 ********************

RESERVOIR ROUTING at 41AF STORM DAY 1 STORM FREQ. 50
INITIAL WATER SURFACE ELEVATION: 956.07
RESERVOIR COMPOSITE ELEVATION-STORAGE-DISCHARGE DATA at 41AF

ELEVATION (ft.)	STORAGE (a.f.)	OUTFLOW (cfs)
950.00	0.00	0.00
952.00	0.61	0.00
954.00	1.60	0.00
956.00	3.02	0.00
958.00	4.73	0.00
960.00	6.77	0.00
962.00	9.23	10.99
964.00	12.19	58.97
966.00	15.66	137.86
968.00	19.56	331.47
970.00	23.86	647.76
972.00	28.70	737.35
974.00	34.10	868.33
974.50	35.56	904.83

RESERVOIR ROUTING TABLE at 41AF

TIME	INFLOW (cfs)	OUTFLOW (cfs)	W.S.ELEV (ft.)	STORAGE (a.f.)
0	0.00	0.00	956.07	3.08
100	0.03	0.00	956.07	3.08
200	0.03	0.00	956.08	3.09
300	0.03	0.00	956.08	3.09
400	0.04	0.00	956.09	3.10
500	0.04	0.00	956.10	3.10
600	0.04	0.00	956.10	3.11
700	0.05	0.00	956.11	3.11
800	0.05	0.00	956.12	3.12
900	0.57	0.00	956.16	3.16
1000	1.07	0.00	956.29	3.27
1050	1.48	0.00	956.39	3.35
1100	2.23	0.00	956.53	3.48
1110	2.45	0.00	956.57	3.51
1120	2.75	0.00	956.61	3.54
1130	3.29	0.00	956.66	3.59
1131	3.35	0.00	956.67	3.59
1132	3.41	0.00	956.67	3.59
1133	3.47	0.00	956.68	3.60
1134	3.54	0.00	956.68	3.60
1135	3.61	0.00	956.69	3.61
1136	3.69	0.00	956.69	3.61
1137	3.77	0.00	956.70	3.62
1138	3.86	0.00	956.71	3.62
1139	3.96	0.00	956.71	3.63
1140	4.06	0.00	956.72	3.64
1141	4.18	0.00	956.73	3.64
1142	4.33	0.00	956.73	3.65
1143	4.50	0.00	956.74	3.65
1144	4.66	0.00	956.75	3.66
1145	4.84	0.00	956.76	3.67
1146	5.03	0.00	956.76	3.67

1147	5.28	0.00	956.77	3.68
1148	5.55	0.00	956.78	3.69
1149	5.86	0.00	956.79	3.69
1150	6.26	0.00	956.80	3.70
1151	6.79	0.00	956.81	3.71
1152	7.93	0.00	956.82	3.72
1153	9.31	0.00	956.84	3.73
1154	10.19	0.00	956.85	3.75
1155	10.81	0.00	956.87	3.76
1156	11.08	0.00	956.89	3.78
1157	11.26	0.00	956.90	3.79
1158	11.26	0.00	956.92	3.81
1159	11.18	0.00	956.94	3.82
1160	11.03	0.00	956.96	3.84
1161	10.88	0.00	956.98	3.85
1162	10.67	0.00	956.99	3.87
1163	10.33	0.00	957.01	3.88
1164	9.89	0.00	957.03	3.90
1165	9.24	0.00	957.04	3.91
1166	8.68	0.00	957.06	3.92
1167	8.34	0.00	957.07	3.93
1168	8.08	0.00	957.08	3.95
1169	7.78	0.00	957.10	3.96
1170	7.47	0.00	957.11	3.97
1171	7.11	0.00	957.12	3.98
1172	6.71	0.00	957.13	3.99
1173	6.25	0.00	957.14	4.00
1174	5.74	0.00	957.15	4.00
1175	5.25	0.00	957.16	4.01
1176	4.85	0.00	957.17	4.02
1177	4.49	0.00	957.18	4.02
1178	4.13	0.00	957.18	4.03
1179	3.77	0.00	957.19	4.04
1180	3.44	0.00	957.19	4.04
1181	3.16	0.00	957.20	4.05
1182	2.89	0.00	957.20	4.05
1183	2.67	0.00	957.21	4.05
1184	2.49	0.00	957.21	4.06
1185	2.34	0.00	957.22	4.06
1186	2.21	0.00	957.22	4.06
1187	2.11	0.00	957.22	4.07
1188	2.01	0.00	957.23	4.07
1189	1.93	0.00	957.23	4.07
1190	1.84	0.00	957.23	4.07
1191	1.75	0.00	957.24	4.08
1192	1.68	0.00	957.24	4.08
1193	1.61	0.00	957.24	4.08
1194	1.55	0.00	957.24	4.08
1195	1.50	0.00	957.25	4.09
1196	1.46	0.00	957.25	4.09
1197	1.36	0.00	957.25	4.09
1198	1.23	0.00	957.25	4.09
1199	1.19	0.00	957.26	4.09
1200	1.17	0.00	957.26	4.10
1201	1.15	0.00	957.26	4.10
1202	1.13	0.00	957.26	4.10
1203	1.11	0.00	957.26	4.10
1204	1.09	0.00	957.26	4.10
1205	1.07	0.00	957.27	4.10
1206	1.06	0.00	957.27	4.10
1207	1.04	0.00	957.27	4.11

1208	1.03	0.00	957.27	4.11
1209	1.02	0.00	957.27	4.11
1210	1.01	0.00	957.27	4.11
1211	0.99	0.00	957.28	4.11
1212	0.98	0.00	957.28	4.11
1213	0.97	0.00	957.28	4.11
1214	0.96	0.00	957.28	4.12
1215	0.95	0.00	957.28	4.12
1216	0.94	0.00	957.28	4.12
1217	0.82	0.00	957.29	4.12
1218	0.73	0.00	957.29	4.12
1219	0.71	0.00	957.29	4.12
1220	0.68	0.00	957.29	4.12
1221	0.66	0.00	957.29	4.12
1222	0.64	0.00	957.29	4.12
1223	0.62	0.00	957.29	4.13
1224	0.61	0.00	957.29	4.13
1225	0.60	0.00	957.29	4.13
1226	0.59	0.00	957.30	4.13
1227	0.59	0.00	957.30	4.13
1228	0.58	0.00	957.30	4.13
1229	0.58	0.00	957.30	4.13
1230	0.57	0.00	957.30	4.13
1231	0.57	0.00	957.30	4.13
1232	0.56	0.00	957.30	4.13
1233	0.56	0.00	957.30	4.13
1234	0.55	0.00	957.30	4.13
1235	0.53	0.00	957.30	4.13
1236	0.47	0.00	957.30	4.14
1237	0.29	0.00	957.30	4.14
1238	0.28	0.00	957.31	4.14
1239	0.28	0.00	957.31	4.14
1240	0.28	0.00	957.31	4.14
1241	0.28	0.00	957.31	4.14
1242	0.27	0.00	957.31	4.14
1243	0.27	0.00	957.31	4.14
1244	0.27	0.00	957.31	4.14
1245	0.25	0.00	957.31	4.14
1246	0.06	0.00	957.31	4.14
1247	0.05	0.00	957.31	4.14
1248	0.05	0.00	957.31	4.14
1249	0.05	0.00	957.31	4.14
1250	0.05	0.00	957.31	4.14
1251	0.05	0.00	957.31	4.14
1252	0.05	0.00	957.31	4.14
1253	0.05	0.00	957.31	4.14
1254	0.05	0.00	957.31	4.14
1255	0.05	0.00	957.31	4.14
1256	0.05	0.00	957.31	4.14
1257	0.05	0.00	957.31	4.14
1258	0.05	0.00	957.31	4.14
1259	0.05	0.00	957.31	4.14
1260	0.05	0.00	957.31	4.14
1261	0.05	0.00	957.31	4.14
1262	0.05	0.00	957.31	4.14
1263	0.05	0.00	957.31	4.14
1264	0.05	0.00	957.31	4.14
1265	0.05	0.00	957.31	4.14
1266	0.05	0.00	957.31	4.14
1267	0.05	0.00	957.31	4.14
1268	0.05	0.00	957.31	4.14

1269	0.05	0.00	957.31	4.14
1270	0.05	0.00	957.31	4.14
1271	0.05	0.00	957.31	4.14
1272	0.05	0.00	957.31	4.14
1273	0.05	0.00	957.31	4.14
1274	0.05	0.00	957.31	4.14
1275	0.05	0.00	957.31	4.14
1276	0.05	0.00	957.31	4.14
1277	0.05	0.00	957.31	4.14
1278	0.05	0.00	957.31	4.14
1279	0.05	0.00	957.31	4.14
1280	0.04	0.00	957.31	4.14
1281	0.04	0.00	957.31	4.14
1282	0.04	0.00	957.31	4.14
1283	0.04	0.00	957.31	4.14
1284	0.04	0.00	957.31	4.14
1285	0.04	0.00	957.31	4.14
1286	0.04	0.00	957.31	4.14
1287	0.04	0.00	957.31	4.14
1288	0.04	0.00	957.31	4.14
1289	0.04	0.00	957.31	4.14
1290	0.04	0.00	957.31	4.14
1291	0.04	0.00	957.31	4.14
1292	0.04	0.00	957.31	4.14
1293	0.04	0.00	957.31	4.14
1294	0.04	0.00	957.31	4.14
1295	0.04	0.00	957.31	4.14
1296	0.04	0.00	957.31	4.14
1297	0.04	0.00	957.31	4.14
1298	0.04	0.00	957.31	4.14
1299	0.04	0.00	957.31	4.14
1300	0.04	0.00	957.31	4.14
1310	0.04	0.00	957.31	4.14
1320	0.04	0.00	957.31	4.14
1330	0.04	0.00	957.31	4.14
1340	0.04	0.00	957.32	4.14
1350	0.04	0.00	957.32	4.15
1360	0.04	0.00	957.32	4.15
1370	0.03	0.00	957.32	4.15
1380	0.03	0.00	957.32	4.15
1390	0.03	0.00	957.32	4.15
1400	0.03	0.00	957.32	4.15
1420	0.03	0.00	957.32	4.15
1440	0.03	0.00	957.32	4.15

********************** RESERVOIR ROUTING STORM DAY 2 ********************

RESERVOIR ROUTING at 41AF STORM DAY 2 STORM FREQ. 50
INITIAL WATER SURFACE ELEVATION: 957.32

RESERVOIR ROUTING TABLE at 41AF

TIME	INFLOW	OUTFLOW	W.S.ELEV	STORAGE
	(cfs)	(cfs)	(ft.)	(a.f.)
0	0.00	0.00	957.32	4.15
100	2.40	0.00	957.63	4.41
200	2.53	0.00	958.02	4.75
300	2.69	0.00	958.37	5.11
400	2.88	0.00	958.75	5.49
500	3.11	0.00	959.15	5.90
600	3.51	0.00	959.60	6.36

700	3.92	0.43	960.08	6.87
800	4.50	2.17	960.40	7.26
900	5.54	3.49	960.64	7.55
1000	7.38	4.84	960.88	7.85
1050	9.25	5.75	961.05	8.06
1100	13.44	7.17	961.30	8.37
1110	15.06	7.59	961.38	8.47
1120	17.32	8.10	961.47	8.58
1130	20.77	8.74	961.59	8.73
1131	21.23	8.82	961.60	8.74
1132	21.72	8.90	961.62	8.76
1133	22.24	8.98	961.63	8.78
1134	22.82	9.06	961.65	8.80
1135	23.49	9.15	961.66	8.82
1136	24.27	9.24	961.68	8.84
1137	25.16	9.33	961.70	8.86
1138	26.16	9.43	961.72	8.88
1139	27.29	9.54	961.74	8.90
1140	28.60	9.65	961.76	8.93
1141	30.08	9.77	961.78	8.96
1142	31.76	9.90	961.80	8.99
1143	33.73	10.04	961.83	9.02
1144	35.95	10.19	961.85	9.05
1145	38.69	10.36	961.89	9.09
1146	41.99	10.54	961.92	9.13
1147	45.92	10.75	961.96	9.18
1148	50.81	10.98	962.00	9.23
1149	56.56	11.89	962.04	9.29
1150	63.46	12.96	962.08	9.35
1151	73.07	14.18	962.13	9.43
1152	93.34	15.70	962.20	9.52
1153	113.92	17.64	962.28	9.64
1154	125.97	19.90	962.37	9.78
1155	135.35	22.35	962.47	9.93
1156	141.74	24.91	962.58	10.09
1157	146.16	27.54	962.69	10.25
1158	148.28	30.18	962.80	10.41
1159	147.96	32.79	962.91	10.57
1160	145.19	35.30	963.01	10.73
1161	141.84	37.69	963.11	10.88
1162	137.50	39.94	963.21	11.02
1163	130.89	42.02	963.29	11.14
1164	122.06	43.89	963.37	11.26
1165	109.53	45.48	963.44	11.36
1166	100.08	46.79	963.49	11.44
1167	94.56	47.90	963.54	11.51
1168	89.47	48.88	963.58	11.57
1169	84.39	49.72	963.61	11.62
1170	78.07	50.41	963.64	11.66
1171	71.03	50.94	963.67	11.69
1172	63.65	51.31	963.68	11.72
1173	54.78	51.48	963.69	11.73
1174	45.72	51.45	963.69	11.73
1175	39.01	51.25	963.68	11.71
1176	34.24	50.93	963.66	11.69
1177	30.04	50.52	963.65	11.67
1178	26.42	50.02	963.63	11.64
1179	23.39	49.47	963.60	11.60
1180	20.89	48.87	963.58	11.57
1181	18.72	48.22	963.55	11.53
1182	17.14	47.55	963.52	11.49

1183	15.98	46.87	963.50	11.44
1184	15.02	46.18	963.47	11.40
1185	14.18	45.48	963.44	11.36
1186	13.42	44.78	963.41	11.31
1187	12.76	44.08	963.38	11.27
1188	12.17	43.38	963.35	11.23
1189	11.65	42.69	963.32	11.19
1190	11.19	42.00	963.29	11.14
1191	10.77	41.31	963.26	11.10
1192	10.40	40.63	963.24	11.06
1193	10.07	39.96	963.21	11.02
1194	9.76	39.30	963.18	10.98
1195	9.51	38.64	963.15	10.94
1196	9.27	38.00	963.13	10.90
1197	9.03	37.36	963.10	10.86
1198	8.83	36.73	963.07	10.82
1199	8.64	36.12	963.05	10.78
1200	8.45	35.51	963.02	10.74
1201	8.28	34.91	963.00	10.71
1202	8.11	34.32	962.97	10.67
1203	7.97	33.74	962.95	10.63
1204	7.82	33.17	962.92	10.60
1205	7.69	32.61	962.90	10.56
1206	7.58	32.05	962.88	10.53
1207	7.47	31.51	962.86	10.50
1208	7.35	30.98	962.83	10.46
1209	7.24	30.46	962.81	10.43
1210	7.13	29.94	962.79	10.40
1211	7.03	29.44	962.77	10.37
1212	6.93	28.94	962.75	10.34
1213	6.83	28.46	962.73	10.31
1214	6.74	27.98	962.71	10.28
1215	6.65	27.51	962.69	10.25
1216	6.57	27.05	962.67	10.22
1217	6.48	26.59	962.65	10.19
1218	6.41	26.15	962.63	10.17
1219	6.33	25.71	962.61	10.14
1220	6.26	25.28	962.60	10.11
1221	6.19	24.86	962.58	10.09
1222	6.12	24.45	962.56	10.06
1223	6.06	24.04	962.54	10.04
1224	5.99	23.65	962.53	10.01
1225	5.93	23.26	962.51	9.99
1226	5.87	22.87	962.50	9.96
1227	5.81	22.50	962.48	9.94
1228	5.75	22.13	962.46	9.92
1229	5.70	21.76	962.45	9.89
1230	5.64	21.41	962.43	9.87
1231	5.59	21.06	962.42	9.85
1232	5.54	20.72	962.41	9.83
1233	5.49	20.38	962.39	9.81
1234	5.44	20.05	962.38	9.79
1235	5.39	19.73	962.36	9.77
1236	5.35	19.41	962.35	9.75
1237	5.30	19.10	962.34	9.73
1238	5.26	18.80	962.33	9.71
1239	5.22	18.50	962.31	9.69
1240	5.17	18.20	962.30	9.68
1241	5.09	17.91	962.29	9.66
1242	5.02	17.63	962.28	9.64
1243	4.96	17.35	962.27	9.62

1244	4.92	17.08	962.25	9.61
1245	4.88	16.81	962.24	9.59
1246	4.84	16.54	962.23	9.57
1247	4.81	16.29	962.22	9.56
1248	4.77	16.03	962.21	9.54
1249	4.74	15.78	962.20	9.53
1250	4.71	15.54	962.19	9.51
1251	4.67	15.30	962.18	9.50
1252	4.64	15.06	962.17	9.48
1253	4.61	14.83	962.16	9.47
1254	4.58	14.61	962.15	9.45
1255	4.55	14.39	962.14	9.44
1256	4.52	14.17	962.13	9.43
1257	4.49	13.96	962.12	9.41
1258	4.46	13.75	962.11	9.40
1259	4.43	13.54	962.11	9.39
1260	4.41	13.34	962.10	9.37
1261	4.38	13.14	962.09	9.36
1262	4.36	12.95	962.08	9.35
1263	4.33	12.76	962.07	9.34
1264	4.30	12.57	962.07	9.33
1265	4.28	12.39	962.06	9.32
1266	4.25	12.21	962.05	9.31
1267	4.23	12.03	962.04	9.29
1268	4.20	11.86	962.04	9.28
1269	4.18	11.69	962.03	9.27
1270	4.16	11.53	962.02	9.26
1271	4.14	11.36	962.02	9.25
1272	4.11	11.20	962.01	9.24
1273	4.09	11.05	962.00	9.23
1274	4.07	10.96	962.00	9.22
1275	4.05	10.92	961.99	9.21
1276	4.03	10.88	961.98	9.20
1277	4.01	10.84	961.97	9.20
1278	3.99	10.79	961.96	9.19
1279	3.97	10.75	961.96	9.18
1280	3.95	10.71	961.95	9.17
1281	3.93	10.67	961.94	9.16
1282	3.91	10.63	961.93	9.15
1283	3.89	10.59	961.93	9.14
1284	3.87	10.55	961.92	9.13
1285	3.85	10.50	961.91	9.12
1286	3.83	10.46	961.90	9.11
1287	3.81	10.42	961.90	9.10
1288	3.80	10.38	961.89	9.09
1289	3.78	10.34	961.88	9.08
1290	3.76	10.30	961.87	9.08
1291	3.74	10.26	961.87	9.07
1292	3.73	10.22	961.86	9.06
1293	3.71	10.18	961.85	9.05
1294	3.69	10.14	961.85	9.04
1295	3.68	10.10	961.84	9.03
1296	3.66	10.06	961.83	9.02
1297	3.64	10.02	961.82	9.01
1298	3.63	9.98	961.82	9.00
1299	3.61	9.94	961.81	9.00
1300	3.60	9.91	961.80	8.99
1310	3.46	9.53	961.73	8.90
1320	3.30	9.16	961.67	8.82
1330	3.12	8.80	961.60	8.74
1340	3.02	8.46	961.54	8.66

1350	2.93	8.13	961.48	8.59
1360	2.84	7.82	961.42	8.52
1370	2.77	7.52	961.37	8.45
1380	2.69	7.23	961.32	8.39
1390	2.63	6.96	961.27	8.33
1400	2.57	6.70	961.22	8.27
1420	2.45	6.21	961.13	8.16
1440	2.36	5.77	961.05	8.06

********************** RESERVOIR ROUTING STORM DAY 3 ********************

RESERVOIR ROUTING at 41AF STORM DAY 3 STORM FREQ. 50
INITIAL WATER SURFACE ELEVATION: 961.05

RESERVOIR ROUTING TABLE at 41AF

TIME	INFLOW (cfs)	OUTFLOW (cfs)	W.S.ELEV (ft.)	STORAGE (a.f.)
0	0.00	5.77	961.05	8.06
100	2.06	3.90	960.71	7.64
200	2.17	3.08	960.56	7.46
300	2.30	2.70	960.49	7.37
400	2.46	2.56	960.47	7.34
500	2.66	2.56	960.47	7.34
600	2.91	2.67	960.49	7.37
700	3.34	2.86	960.52	7.41
800	3.83	3.20	960.58	7.49
900	4.60	3.67	960.67	7.59
1000	6.21	4.47	960.81	7.77
1050	7.74	5.13	960.93	7.92
1100	11.16	6.22	961.13	8.16
1110	12.48	6.55	961.19	8.24
1120	14.33	6.96	961.27	8.33
1130	17.13	7.48	961.36	8.44
1131	17.49	7.54	961.37	8.46
1132	17.88	7.60	961.38	8.47
1133	18.29	7.66	961.39	8.49
1134	18.73	7.73	961.41	8.50
1135	19.20	7.80	961.42	8.52
1136	19.71	7.87	961.43	8.53
1137	20.25	7.94	961.45	8.55
1138	20.83	8.02	961.46	8.57
1139	21.48	8.10	961.47	8.58
1140	22.22	8.19	961.49	8.60
1141	23.12	8.28	961.51	8.62
1142	24.22	8.37	961.52	8.64
1143	25.50	8.47	961.54	8.67
1144	26.98	8.58	961.56	8.69
1145	28.77	8.70	961.58	8.72
1146	30.94	8.83	961.61	8.75
1147	33.58	8.97	961.63	8.78
1148	36.79	9.13	961.66	8.81
1149	40.98	9.32	961.70	8.86
1150	46.57	9.53	961.73	8.90
1151	54.02	9.78	961.78	8.96
1152	70.82	10.10	961.84	9.03
1153	88.73	10.53	961.92	9.13
1154	99.24	11.17	962.01	9.24
1155	106.83	13.19	962.09	9.37
1156	112.32	15.32	962.18	9.50
1157	116.02	17.51	962.27	9.63

1158	118.21	19.70	962.36	9.77
1159	118.49	21.88	962.45	9.90
1160	116.53	23.99	962.54	10.03
1161	113.84	26.01	962.63	10.16
1162	110.59	27.91	962.71	10.27
1163	105.42	29.68	962.78	10.38
1164	98.49	31.28	962.85	10.48
1165	88.20	32.65	962.90	10.57
1166	80.80	33.79	962.95	10.64
1167	76.88	34.79	962.99	10.70
1168	72.75	35.67	963.03	10.75
1169	68.62	36.44	963.06	10.80
1170	63.35	37.10	963.09	10.84
1171	57.65	37.61	963.11	10.87
1172	51.27	37.98	963.13	10.90
1173	44.49	38.20	963.13	10.91
1174	37.83	38.27	963.14	10.91
1175	32.59	38.20	963.13	10.91
1176	28.27	38.03	963.13	10.90
1177	24.98	37.78	963.12	10.88
1178	22.20	37.46	963.10	10.86
1179	19.79	37.10	963.09	10.84
1180	17.62	36.69	963.07	10.82
1181	16.00	36.26	963.05	10.79
1182	14.77	35.79	963.03	10.76
1183	13.74	35.32	963.01	10.73
1184	12.84	34.83	962.99	10.70
1185	12.05	34.34	962.97	10.67
1186	11.36	33.84	962.95	10.64
1187	10.76	33.34	962.93	10.61
1188	10.24	32.83	962.91	10.58
1189	9.78	32.33	962.89	10.55
1190	9.38	31.83	962.87	10.52
1191	9.07	31.33	962.85	10.48
1192	8.79	30.83	962.83	10.45
1193	8.49	30.34	962.81	10.42
1194	8.23	29.86	962.79	10.39
1195	8.00	29.38	962.77	10.36
1196	7.78	28.90	962.75	10.34
1197	7.59	28.43	962.73	10.31
1198	7.42	27.97	962.71	10.28
1199	7.27	27.52	962.69	10.25
1200	7.13	27.07	962.67	10.22
1201	6.99	26.63	962.65	10.19
1202	6.86	26.19	962.63	10.17
1203	6.72	25.76	962.62	10.14
1204	6.60	25.34	962.60	10.12
1205	6.49	24.93	962.58	10.09
1206	6.38	24.52	962.56	10.06
1207	6.28	24.12	962.55	10.04
1208	6.18	23.72	962.53	10.02
1209	6.09	23.33	962.51	9.99
1210	6.00	22.95	962.50	9.97
1211	5.91	22.58	962.48	9.94
1212	5.83	22.21	962.47	9.92
1213	5.75	21.84	962.45	9.90
1214	5.68	21.49	962.44	9.88
1215	5.61	21.14	962.42	9.86
1216	5.54	20.79	962.41	9.83
1217	5.47	20.46	962.39	9.81
1218	5.40	20.12	962.38	9.79

1219	5.34	19.80	962.37	9.77
1220	5.27	19.48	962.35	9.75
1221	5.18	19.16	962.34	9.73
1222	5.09	18.85	962.33	9.72
1223	5.02	18.55	962.32	9.70
1224	4.96	18.25	962.30	9.68
1225	4.91	17.96	962.29	9.66
1226	4.86	17.67	962.28	9.64
1227	4.81	17.38	962.27	9.62
1228	4.77	17.11	962.25	9.61
1229	4.72	16.83	962.24	9.59
1230	4.68	16.57	962.23	9.57
1231	4.63	16.30	962.22	9.56
1232	4.59	16.04	962.21	9.54
1233	4.55	15.79	962.20	9.53
1234	4.51	15.54	962.19	9.51
1235	4.47	15.30	962.18	9.50
1236	4.44	15.06	962.17	9.48
1237	4.40	14.82	962.16	9.47
1238	4.36	14.59	962.15	9.45
1239	4.33	14.37	962.14	9.44
1240	4.30	14.15	962.13	9.42
1241	4.26	13.93	962.12	9.41
1242	4.23	13.71	962.11	9.40
1243	4.20	13.50	962.10	9.39
1244	4.17	13.30	962.10	9.37
1245	4.13	13.10	962.09	9.36
1246	4.10	12.90	962.08	9.35
1247	4.08	12.70	962.07	9.34
1248	4.05	12.51	962.06	9.32
1249	4.02	12.33	962.06	9.31
1250	3.99	12.14	962.05	9.30
1251	3.96	11.96	962.04	9.29
1252	3.94	11.78	962.03	9.28
1253	3.91	11.61	962.03	9.27
1254	3.89	11.44	962.02	9.26
1255	3.86	11.27	962.01	9.25
1256	3.84	11.11	962.00	9.24
1257	3.81	10.98	962.00	9.23
1258	3.79	10.93	961.99	9.22
1259	3.77	10.89	961.98	9.21
1260	3.74	10.85	961.97	9.20
1261	3.72	10.80	961.97	9.19
1262	3.70	10.76	961.96	9.18
1263	3.68	10.72	961.95	9.17
1264	3.66	10.67	961.94	9.16
1265	3.64	10.63	961.93	9.15
1266	3.61	10.59	961.93	9.14
1267	3.59	10.54	961.92	9.13
1268	3.57	10.50	961.91	9.12
1269	3.55	10.46	961.90	9.11
1270	3.54	10.42	961.90	9.10
1271	3.52	10.37	961.89	9.09
1272	3.50	10.33	961.88	9.08
1273	3.48	10.29	961.87	9.07
1274	3.46	10.25	961.87	9.06
1275	3.44	10.21	961.86	9.05
1276	3.43	10.17	961.85	9.05
1277	3.41	10.12	961.84	9.04
1278	3.39	10.08	961.83	9.03
1279	3.38	10.04	961.83	9.02

1280	3.33	10.00	961.82	9.01
1281	3.26	9.96	961.81	9.00
1282	3.23	9.92	961.80	8.99
1283	3.21	9.88	961.80	8.98
1284	3.19	9.84	961.79	8.97
1285	3.18	9.80	961.78	8.96
1286	3.17	9.75	961.78	8.95
1287	3.15	9.71	961.77	8.94
1288	3.14	9.67	961.76	8.94
1289	3.12	9.63	961.75	8.93
1290	3.11	9.59	961.75	8.92
1291	3.09	9.55	961.74	8.91
1292	3.08	9.51	961.73	8.90
1293	3.07	9.47	961.72	8.89
1294	3.05	9.44	961.72	8.88
1295	3.04	9.40	961.71	8.87
1296	3.03	9.36	961.70	8.86
1297	3.01	9.32	961.70	8.86
1298	3.00	9.28	961.69	8.85
1299	2.99	9.24	961.68	8.84
1300	2.98	9.20	961.67	8.83
1310	2.86	8.83	961.61	8.75
1320	2.76	8.47	961.54	8.67
1330	2.67	8.12	961.48	8.59
1340	2.58	7.80	961.42	8.52
1350	2.50	7.48	961.36	8.44
1360	2.43	7.18	961.31	8.38
1370	2.37	6.90	961.26	8.31
1380	2.31	6.63	961.21	8.25
1390	2.25	6.37	961.16	8.19
1400	2.20	6.12	961.11	8.14
1420	2.10	5.66	961.03	8.04
1440	2.02	5.24	960.95	7.94

********************** RESERVOIR ROUTING STORM DAY 4 ********************

RESERVOIR ROUTING at 41AF STORM DAY 4 STORM FREQ. 50
INITIAL WATER SURFACE ELEVATION: 960.95

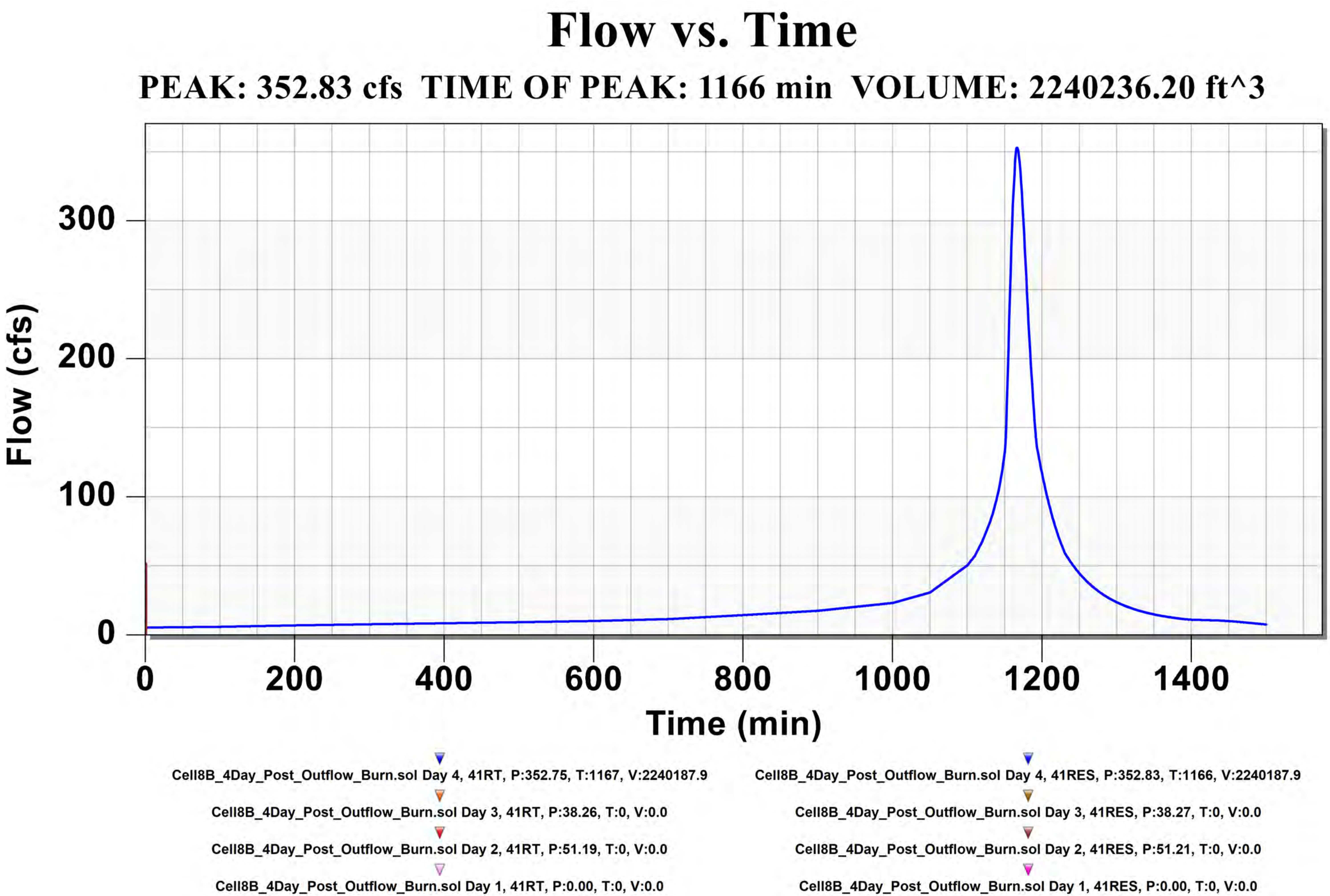
RESERVOIR ROUTING TABLE at 41AF

TIME	INFLOW (cfs)	OUTFLOW (cfs)	W.S.ELEV (ft.)	STORAGE (a.f.)
0	0.00	5.24	960.95	7.94
100	7.76	5.78	961.05	8.06
200	8.25	6.81	961.24	8.30
300	8.84	7.62	961.39	8.48
400	9.54	8.35	961.52	8.64
500	10.43	9.12	961.66	8.81
600	11.58	10.00	961.82	9.01
700	13.17	11.39	962.02	9.25
800	15.46	14.28	962.14	9.43
900	19.22	17.44	962.27	9.63
1000	27.05	23.14	962.51	9.98
1050	41.39	30.77	962.82	10.45
1100	78.69	50.49	963.65	11.67
1110	90.46	57.32	963.93	12.09
1120	106.32	67.83	964.22	12.58
1130	131.67	81.48	964.57	13.18
1131	135.07	83.08	964.61	13.25
1132	138.57	84.73	964.65	13.32

1133	142.22	86.45	964.70	13.40
1134	146.13	88.23	964.74	13.48
1135	150.24	90.08	964.79	13.56
1136	154.55	92.00	964.84	13.64
1137	159.09	94.00	964.89	13.73
1138	163.92	96.08	964.94	13.82
1139	169.09	98.25	965.00	13.92
1140	174.71	100.52	965.05	14.02
1141	180.93	102.91	965.11	14.12
1142	187.75	105.42	965.18	14.23
1143	195.31	108.07	965.24	14.35
1144	203.42	110.89	965.32	14.47
1145	212.45	113.88	965.39	14.61
1146	222.77	117.08	965.47	14.75
1147	234.42	120.52	965.56	14.90
1148	248.06	124.24	965.65	15.06
1149	264.56	128.31	965.76	15.24
1150	285.41	132.83	965.87	15.44
1151	313.78	138.10	966.00	15.66
1152	377.20	151.82	966.14	15.94
1153	439.82	168.79	966.32	16.28
1154	476.54	187.92	966.52	16.67
1155	504.60	207.93	966.72	17.07
1156	521.56	228.11	966.93	17.48
1157	529.69	247.78	967.14	17.87
1158	529.22	266.41	967.33	18.25
1159	521.00	283.51	967.50	18.59
1160	507.23	298.76	967.66	18.90
1161	492.87	312.07	967.80	19.17
1162	477.19	323.50	967.92	19.40
1163	455.80	333.64	968.01	19.59
1164	428.42	344.10	968.08	19.73
1165	390.09	350.38	968.12	19.82
1166	361.37	352.83	968.14	19.85
1167	342.67	352.75	968.13	19.85
1168	323.89	350.87	968.12	19.82
1169	305.07	347.36	968.10	19.78
1170	281.50	342.15	968.07	19.71
1171	254.95	335.02	968.02	19.61
1172	225.61	327.64	967.96	19.48
1173	193.91	319.85	967.88	19.33
1174	166.39	310.61	967.78	19.14
1175	147.35	300.44	967.68	18.94
1176	131.91	289.81	967.57	18.72
1177	118.37	278.92	967.46	18.50
1178	106.17	267.90	967.34	18.28
1179	95.67	256.86	967.23	18.06
1180	86.99	245.92	967.12	17.84
1181	80.50	235.20	967.01	17.62
1182	75.04	224.79	966.90	17.41
1183	70.32	214.73	966.79	17.21
1184	66.14	205.04	966.69	17.01
1185	62.54	195.74	966.60	16.83
1186	59.32	186.83	966.51	16.65
1187	56.36	178.30	966.42	16.47
1188	53.55	170.14	966.33	16.31
1189	50.90	162.35	966.25	16.15
1190	48.50	154.90	966.18	16.00
1191	46.25	147.79	966.10	15.86
1192	44.21	141.01	966.03	15.72
1193	42.32	136.31	965.96	15.59

1194	40.59	133.39	965.89	15.46
1195	39.02	130.50	965.81	15.34
1196	37.51	127.66	965.74	15.21
1197	36.18	124.86	965.67	15.09
1198	34.86	122.11	965.60	14.97
1199	33.71	119.40	965.53	14.85
1200	32.69	116.74	965.46	14.73
1201	31.80	114.13	965.40	14.62
1202	30.98	111.58	965.33	14.50
1203	30.19	109.09	965.27	14.39
1204	29.42	106.64	965.21	14.29
1205	28.69	104.25	965.15	14.18
1206	28.02	101.91	965.09	14.08
1207	27.39	99.62	965.03	13.98
1208	26.81	97.39	964.97	13.88
1209	26.27	95.20	964.92	13.78
1210	25.77	93.07	964.86	13.69
1211	25.29	90.99	964.81	13.60
1212	24.85	88.95	964.76	13.51
1213	24.43	86.97	964.71	13.42
1214	24.04	85.04	964.66	13.34
1215	23.67	83.15	964.61	13.25
1216	23.34	81.31	964.57	13.17
1217	23.04	79.52	964.52	13.09
1218	22.74	77.77	964.48	13.02
1219	22.46	76.07	964.43	12.94
1220	22.17	74.41	964.39	12.87
1221	21.89	72.80	964.35	12.80
1222	21.62	71.23	964.31	12.73
1223	21.35	69.69	964.27	12.66
1224	21.09	68.20	964.23	12.60
1225	20.84	66.74	964.20	12.53
1226	20.59	65.32	964.16	12.47
1227	20.35	63.94	964.13	12.41
1228	20.12	62.59	964.09	12.35
1229	19.89	61.28	964.06	12.29
1230	19.67	60.00	964.03	12.24
1231	19.46	58.81	963.99	12.18
1232	19.26	57.94	963.96	12.13
1233	19.06	57.09	963.92	12.07
1234	18.86	56.24	963.89	12.02
1235	18.67	55.42	963.85	11.97
1236	18.48	54.60	963.82	11.92
1237	18.30	53.80	963.78	11.87
1238	18.13	53.02	963.75	11.82
1239	17.96	52.25	963.72	11.78
1240	17.79	51.49	963.69	11.73
1241	17.62	50.74	963.66	11.68
1242	17.46	50.01	963.63	11.64
1243	17.30	49.29	963.60	11.59
1244	17.14	48.58	963.57	11.55
1245	16.99	47.88	963.54	11.51
1246	16.85	47.20	963.51	11.46
1247	16.71	46.53	963.48	11.42
1248	16.57	45.87	963.45	11.38
1249	16.44	45.22	963.43	11.34
1250	16.29	44.58	963.40	11.30
1251	16.16	43.96	963.37	11.26
1252	16.04	43.34	963.35	11.23
1253	15.91	42.74	963.32	11.19
1254	15.78	42.14	963.30	11.15

1255	15.66	41.56	963.27	11.12
1256	15.55	40.99	963.25	11.08
1257	15.44	40.42	963.23	11.05
1258	15.32	39.87	963.20	11.01
1259	15.21	39.33	963.18	10.98
1260	15.10	38.79	963.16	10.95
1261	14.99	38.27	963.14	10.91
1262	14.90	37.75	963.12	10.88
1263	14.79	37.25	963.09	10.85
1264	14.69	36.75	963.07	10.82
1265	14.59	36.26	963.05	10.79
1266	14.49	35.78	963.03	10.76
1267	14.40	35.31	963.01	10.73
1268	14.30	34.85	962.99	10.70
1269	14.21	34.39	962.98	10.67
1270	14.12	33.95	962.96	10.65
1271	14.03	33.51	962.94	10.62
1272	13.94	33.08	962.92	10.59
1273	13.85	32.65	962.90	10.57
1274	13.77	32.24	962.89	10.54
1275	13.68	31.83	962.87	10.52
1276	13.60	31.43	962.85	10.49
1277	13.52	31.03	962.84	10.47
1278	13.44	30.65	962.82	10.44
1279	13.36	30.26	962.80	10.42
1280	13.28	29.89	962.79	10.40
1281	13.21	29.52	962.77	10.37
1282	13.13	29.16	962.76	10.35
1283	13.05	28.81	962.74	10.33
1284	12.98	28.46	962.73	10.31
1285	12.91	28.12	962.71	10.29
1286	12.84	27.78	962.70	10.27
1287	12.77	27.45	962.69	10.25
1288	12.70	27.12	962.67	10.23
1289	12.63	26.80	962.66	10.21
1290	12.57	26.49	962.65	10.19
1291	12.50	26.18	962.63	10.17
1292	12.43	25.88	962.62	10.15
1293	12.37	25.58	962.61	10.13
1294	12.30	25.29	962.60	10.11
1295	12.24	25.00	962.58	10.09
1296	12.18	24.72	962.57	10.08
1297	12.12	24.44	962.56	10.06
1298	12.06	24.17	962.55	10.04
1299	12.00	23.90	962.54	10.03
1300	11.95	23.64	962.53	10.01
1310	11.40	21.24	962.43	9.86
1320	10.92	19.22	962.34	9.74
1330	10.49	17.51	962.27	9.63
1340	10.10	16.07	962.21	9.54
1350	9.75	14.84	962.16	9.47
1360	9.43	13.79	962.12	9.40
1370	9.14	12.88	962.08	9.35
1380	8.87	12.10	962.05	9.30
1390	8.62	11.43	962.02	9.26
1400	8.39	10.95	961.99	9.22
1420	7.97	10.63	961.93	9.15
1440	7.61	10.30	961.87	9.08



Flow vs. Time
PEAK: 352.83 cfs TIME OF PEAK: 1166 min VOLUME: 2240236.20 ft^3
Flow (cfs)
0
100
200
300
0
200
400
600
800
1000
1200
1400
Time (min)
Cell8B_4Day_Post_Outflow_Burn.sol Day 4, 41RT, P:352.75, T:1167, V:2240187.9
Cell8B_4Day_Post_Outflow_Burn.sol Day 4, 41RES, P:352.83, T:1166, V:2240187.9
Cell8B_4Day_Post_Outflow_Burn.sol Day 3, 41RT, P:38.26, T:0, V:0.0
Cell8B_4Day_Post_Outflow_Burn.sol Day 3, 41RES, P:38.27, T:0, V:0.0
Cell8B_4Day_Post_Outflow_Burn.sol Day 2, 41RT, P:51.19, T:0, V:0.0
Cell8B_4Day_Post_Outflow_Burn.sol Day 2, 41RES, P:51.21, T:0, V:0.0
Cell8B_4Day_Post_Outflow_Burn.sol Day 1, 41RT, P:0.00, T:0, V:0.0
Cell8B_4Day_Post_Outflow_Burn.sol Day 1, 41RES, P:0.00, T:0, V:0.0

ATTACHMENT 5

LOW IMPACT DEVELOPMENT ANALYSIS

RUNOFF VOLUME CALCULATIONS AND HYDROCALC OUTPUT

DESIGN ANALYSIS REQUIRED

Determine if the existing basin has adequate capacity to store the 85th Percentile storm event and debris volume to meet the low impact development requirements.

CALCULATIONS

Design Storm

85th Percentile, 24-hour event= 1.1 inches
LIDSM, Los Angeles County 85th Percentile Isoheytal Map, Attachment 2

Required Storage

85th Percentile runoff volume (see Page 2 of calculations) =	5.31	ac-ft
Cell 8B Debris Production Volume (see Attachment 1) =	3.08	ac-ft
Required Storage for LID (debris volume + total runoff volume) =	**8.39**	**ac-ft**

Basin Elevation

	(ac-ft)	Elev.	Notes
Known Basin Storage	6.77	960	Known Basin Elevation (ft)
Required Basin Storage for LID	8.39	**961.32**	**Calculated Basin Elevation (ft)**[1]
Known Basin Storage	9.23	962	Known Basin Elevation (ft)

Note 1) The known basin storage volumes and elevations can be found in Attachment 4 - post-development condition basin outfall calculations. The topo which the basin storage volumes were calculated from has a 2-foot contour interval, therefore the elevation that the required basin storage volume for the LID would reach was interpolated between two known elevations.

RESULTS

The existing basin (taking into account the reduced capacity from Cell 8B grading) has adequate capacity to store the 85th percentile storm and debris.

Elevation of top of debris and 85th percentile storm = 961.32 ft
<
Elevation of the lowest discharge point[2] = 961.40 ft **OK**

Note 2) The proposed elevation of the bottom of the lowest orifice is 961.22, however the water has to crest the concrete slab at elevation 961.40 before it reach the standpipe, see the modified sediment basin outflow schematic in Attachment 4.

TETRA TECH BAS

CHIQUITA CANYON LANDFILL
CELL 8B POST-DEVELOPMENT HYDROLOGY
LOW IMPACT DEVELOPMENT ANALYSIS

Calculated By: PV
Checked By: JMH
Date: 12-19-2022

85th Percentile Storm Event

SUB AREA ID	AREA ac	FLOW PATH ft	FLOW PATH SLOPE TOP EL	BOT EL	ft/ft	IMP %	SOIL TYPE	24-Hour Runoff Volume cu-ft	24-Hour Runoff Volume ac-ft
1A	22.1	1,661	1430	1396	0.020	5	97	12,256	0.28
3A	40.4	2,405	1420	1252	0.070	5	97	22,405	0.51
5A	23.4	2,642	1310	1196	0.043	5	97	12,979	0.30
6B	20.9	2,358	1424	1396	0.012	5	97	11,594	0.27
9A	25.5	3,103	1289	1118	0.055	5	97	14,144	0.32
11A	6.4	1,125	1220	1044	0.156	5	97	3,548	0.08
13A	7.3	1,758	1220	976	0.139	5	97	4,048	0.09
15A	7.6	1,136	999	956	0.038	26	97	9,270	0.21
16C	34.6	2,519	1419	1382	0.015	5	97	19,194	0.44
18C	43.6	2,931	1346	1160	0.063	5	97	24,182	0.56
20C	11.6	1,961	1274	1058	0.110	15	97	10,107	0.23
21D	27.4	2,426	1430	1368	0.026	5	97	15,198	0.35
23D	19.7	1,966	1382	1126	0.130	5	97	10,924	0.25
25E	12.7	2,462	1269	1146	0.050	5	97	7,043	0.16
29C	29.9	2,230	1368	1011	0.160	5	97	16,580	0.38
31F	8.6	1,402	1269	1218	0.036	5	97	4,769	0.11
33F	18.8	1,524	1116	1008	0.071	5	97	10,425	0.24
34F	17.4	3,136	1485	1108	0.120	5	97	9,650	0.22
36F	3.7	843	1106	1000	0.126	36	97	5,685	0.13
37F	2.6	712	1015	982	0.046	37	97	4,077	0.09
38F	1.7	278	1000	976	0.086	50	97	3,383	0.08
							Total Runoff Volume (SWQDv) =	**231,460**	**5.31**

Peak Flow Hydrologic Analysis

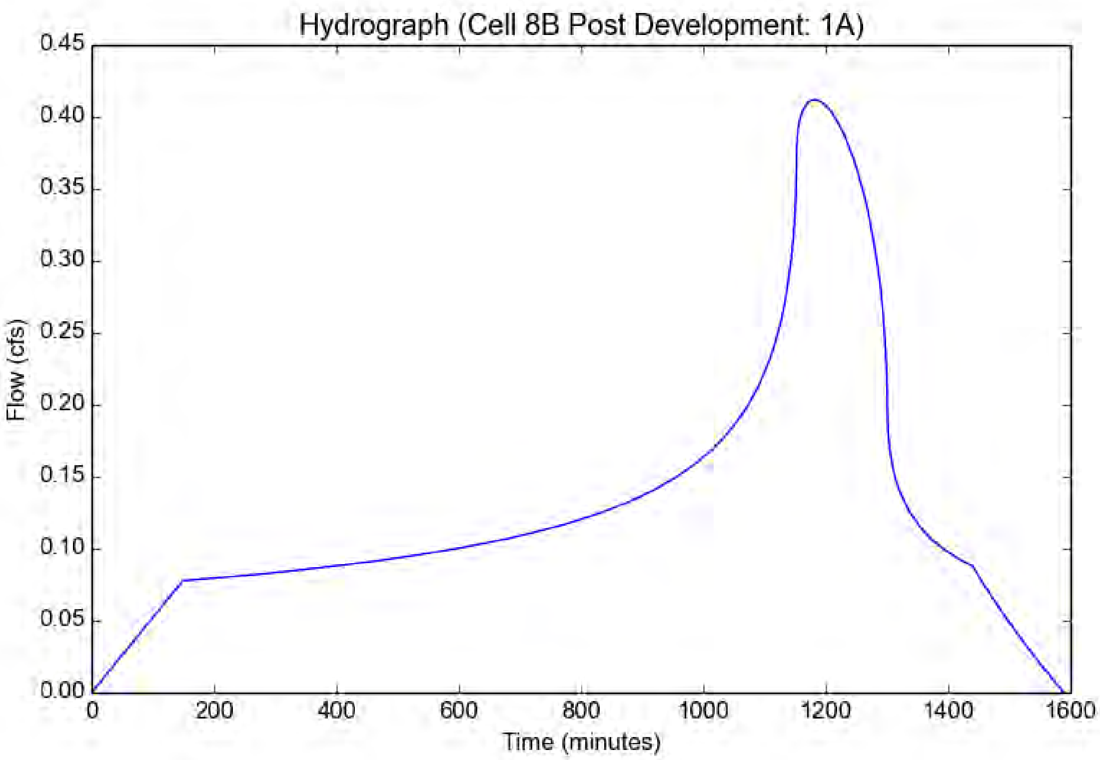
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B P
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	1A
Area (ac)	22.1
Flow Path Length (ft)	1661.0
Flow Path Slope (vft/hft)	0.02
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1331
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	149.0
Clear Peak Flow Rate (cfs)	0.4118
Burned Peak Flow Rate (cfs)	0.4118
24-Hr Clear Runoff Volume (ac-ft)	0.2814
24-Hr Clear Runoff Volume (cu-ft)	12256.0019



Peak Flow Hydrologic Analysis

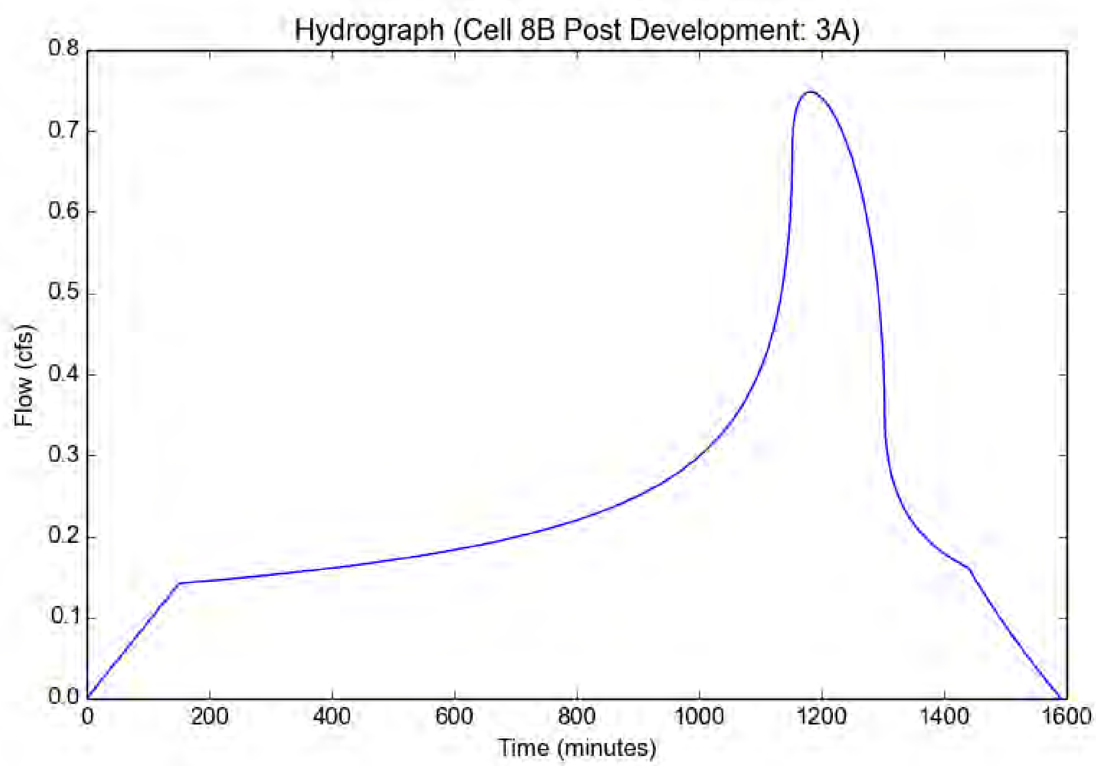
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B F
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	3A
Area (ac)	40.4
Flow Path Length (ft)	2405.0
Flow Path Slope (vft/hft)	0.07
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1323
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	151.0
Clear Peak Flow Rate (cfs)	0.7482
Burned Peak Flow Rate (cfs)	0.7482
24-Hr Clear Runoff Volume (ac-ft)	0.5143
24-Hr Clear Runoff Volume (cu-ft)	22404.8327



Peak Flow Hydrologic Analysis

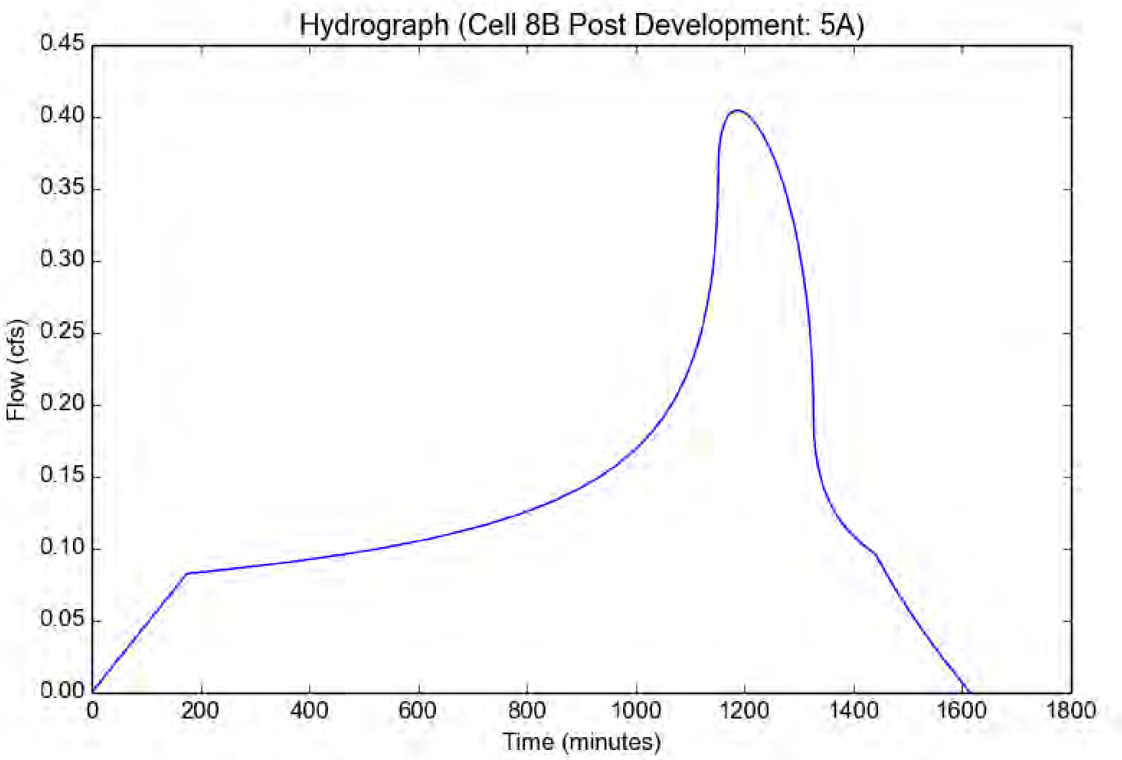
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B P
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	5A
Area (ac)	23.4
Flow Path Length (ft)	2642.0
Flow Path Slope (vft/hft)	0.043
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1234
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	175.0
Clear Peak Flow Rate (cfs)	0.4043
Burned Peak Flow Rate (cfs)	0.4043
24-Hr Clear Runoff Volume (ac-ft)	0.2979
24-Hr Clear Runoff Volume (cu-ft)	12978.5575



Peak Flow Hydrologic Analysis

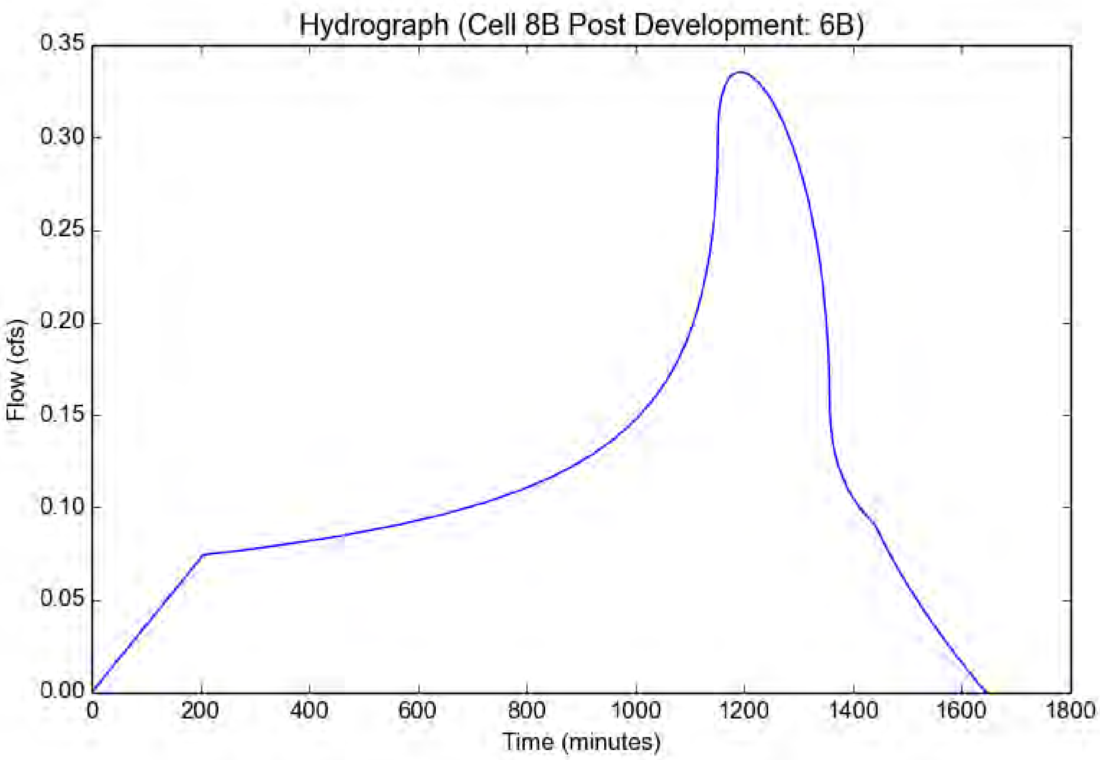
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B F
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	6B
Area (ac)	20.9
Flow Path Length (ft)	2358.0
Flow Path Slope (vft/hft)	0.012
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1146
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	205.0
Clear Peak Flow Rate (cfs)	0.3352
Burned Peak Flow Rate (cfs)	0.3352
24-Hr Clear Runoff Volume (ac-ft)	0.2662
24-Hr Clear Runoff Volume (cu-ft)	11593.9722



Peak Flow Hydrologic Analysis

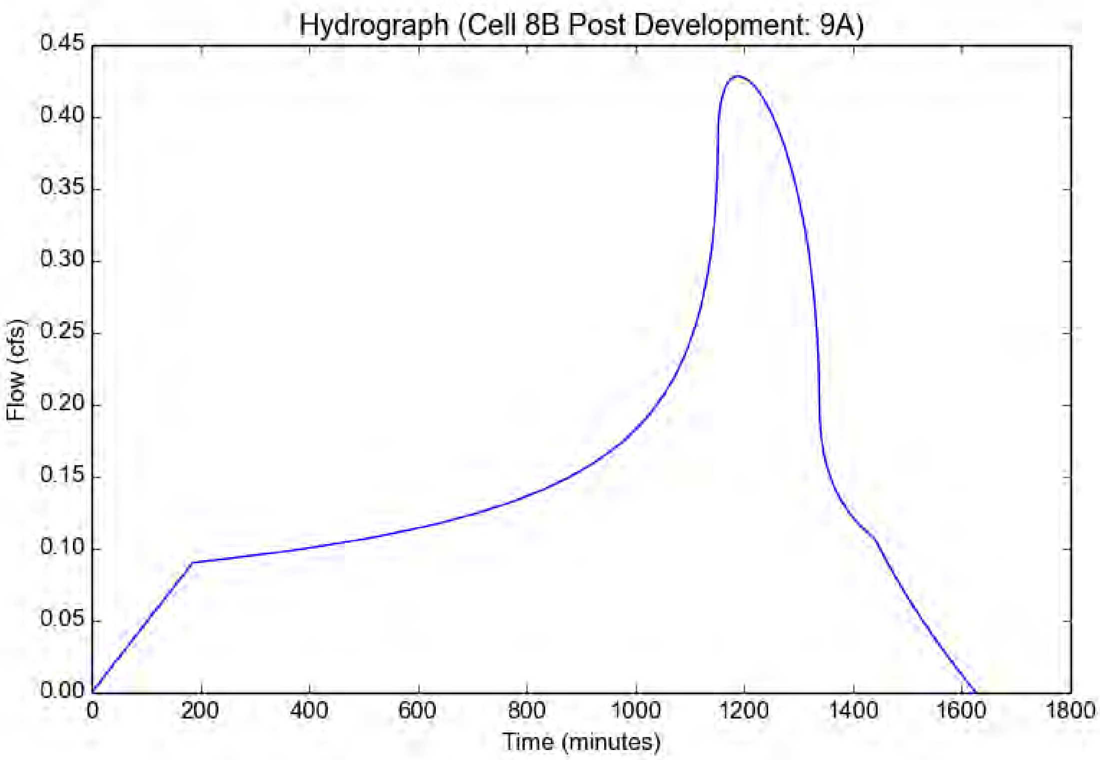
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B F
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	9A
Area (ac)	25.5
Flow Path Length (ft)	3103.0
Flow Path Slope (vft/hft)	0.055
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1199
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	186.0
Clear Peak Flow Rate (cfs)	0.4282
Burned Peak Flow Rate (cfs)	0.4282
24-Hr Clear Runoff Volume (ac-ft)	0.3247
24-Hr Clear Runoff Volume (cu-ft)	14144.1458



Peak Flow Hydrologic Analysis

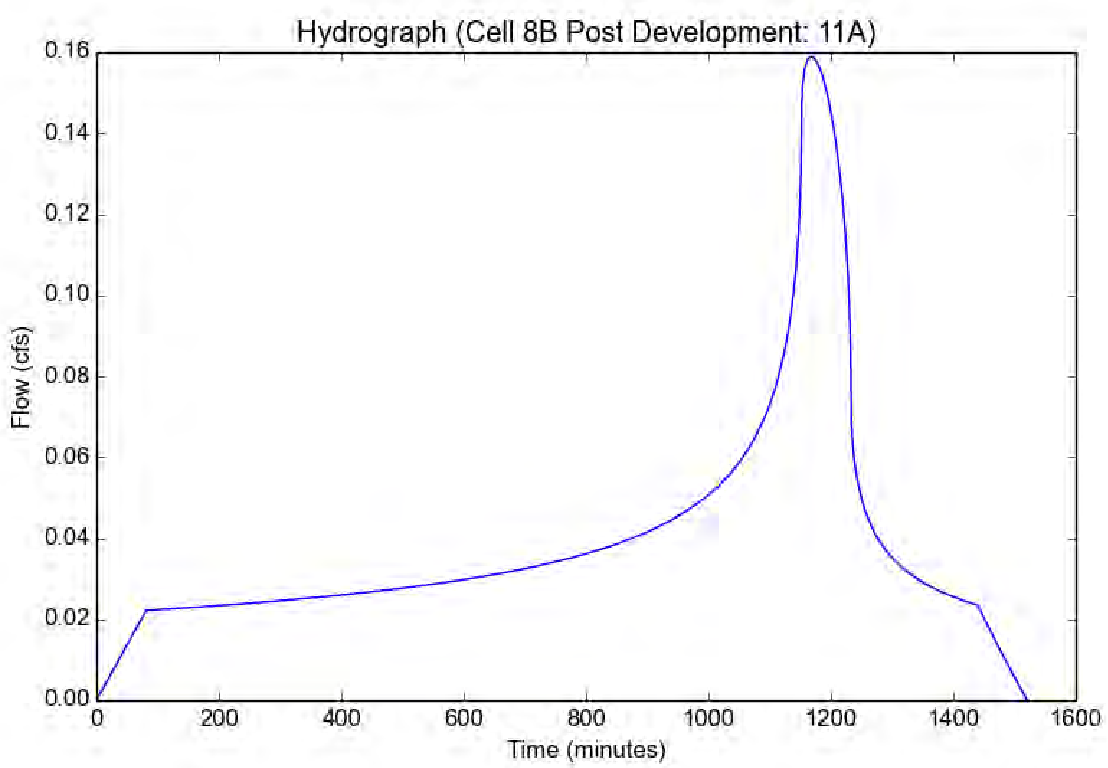
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B I
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	11A
Area (ac)	6.4
Flow Path Length (ft)	1125.0
Flow Path Slope (vft/hft)	0.156
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1773
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	81.0
Clear Peak Flow Rate (cfs)	0.1588
Burned Peak Flow Rate (cfs)	0.1588
24-Hr Clear Runoff Volume (ac-ft)	0.0815
24-Hr Clear Runoff Volume (cu-ft)	3548.4672



Peak Flow Hydrologic Analysis

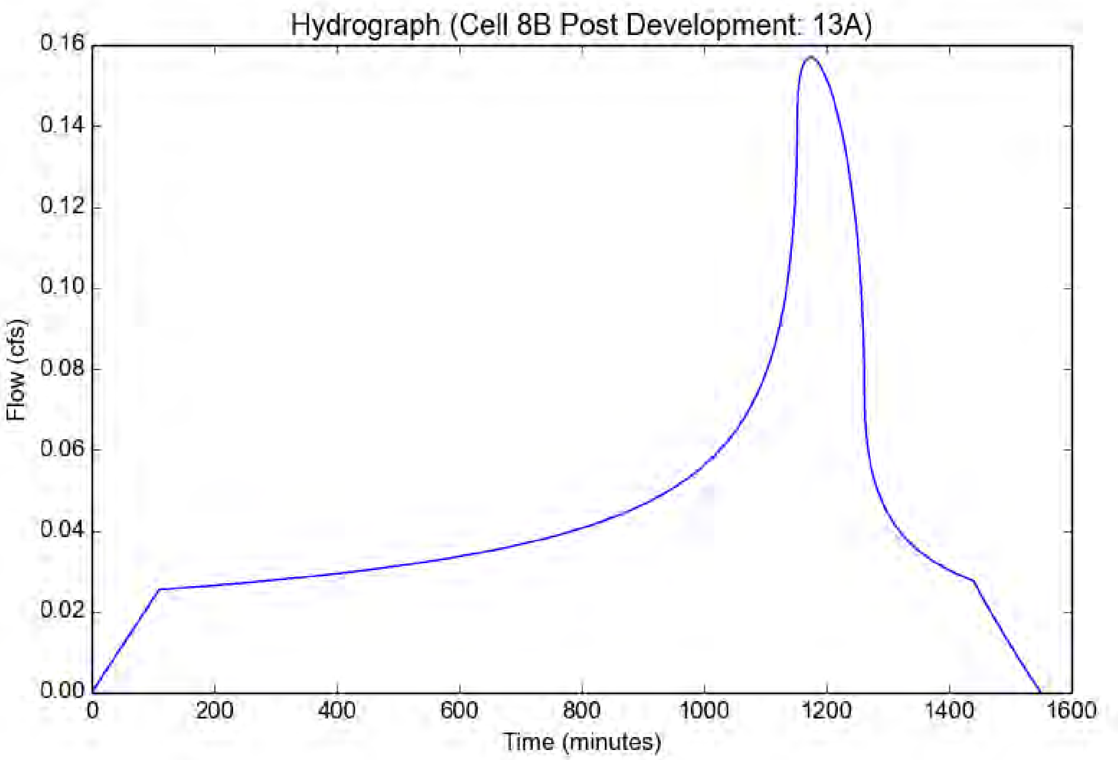
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B P
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	13A
Area (ac)	7.3
Flow Path Length (ft)	1758.0
Flow Path Slope (vft/hft)	0.139
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1535
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	110.0
Clear Peak Flow Rate (cfs)	0.1569
Burned Peak Flow Rate (cfs)	0.1569
24-Hr Clear Runoff Volume (ac-ft)	0.0929
24-Hr Clear Runoff Volume (cu-ft)	4047.7791



Peak Flow Hydrologic Analysis

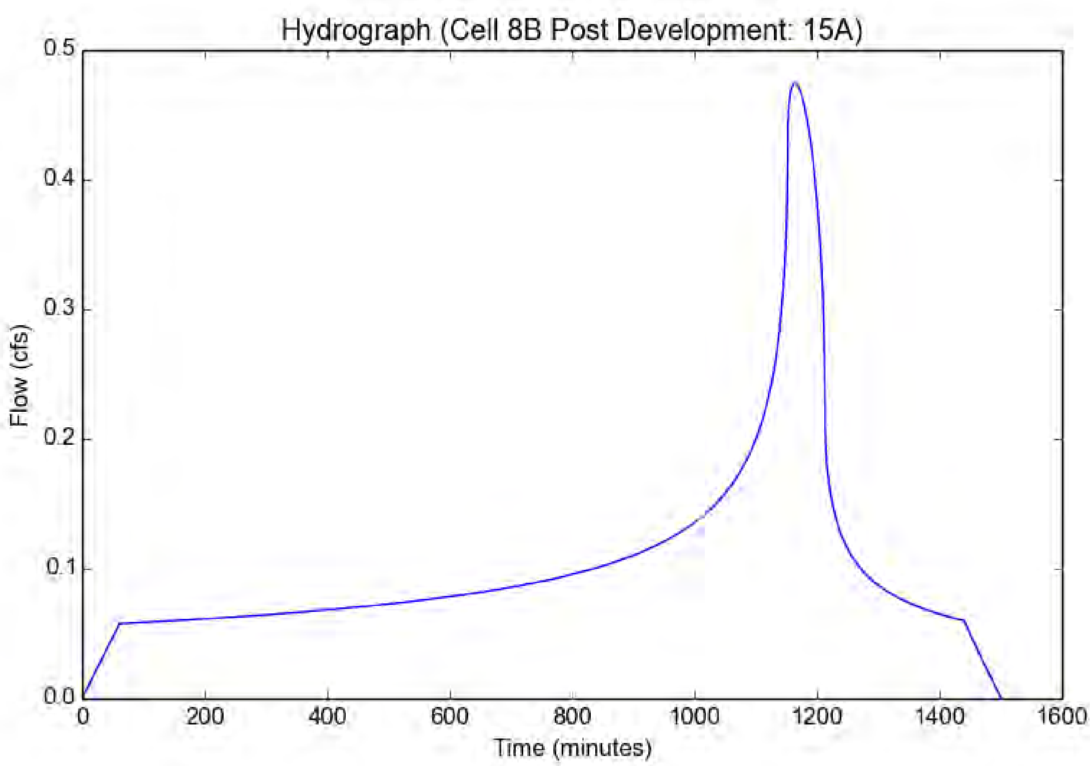
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B F
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	15A
Area (ac)	7.6
Flow Path Length (ft)	1136.0
Flow Path Slope (vft/hft)	0.038
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.26
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.2025
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.308
Time of Concentration (min)	61.0
Clear Peak Flow Rate (cfs)	0.4741
Burned Peak Flow Rate (cfs)	0.4741
24-Hr Clear Runoff Volume (ac-ft)	0.2128
24-Hr Clear Runoff Volume (cu-ft)	9270.0171



Peak Flow Hydrologic Analysis

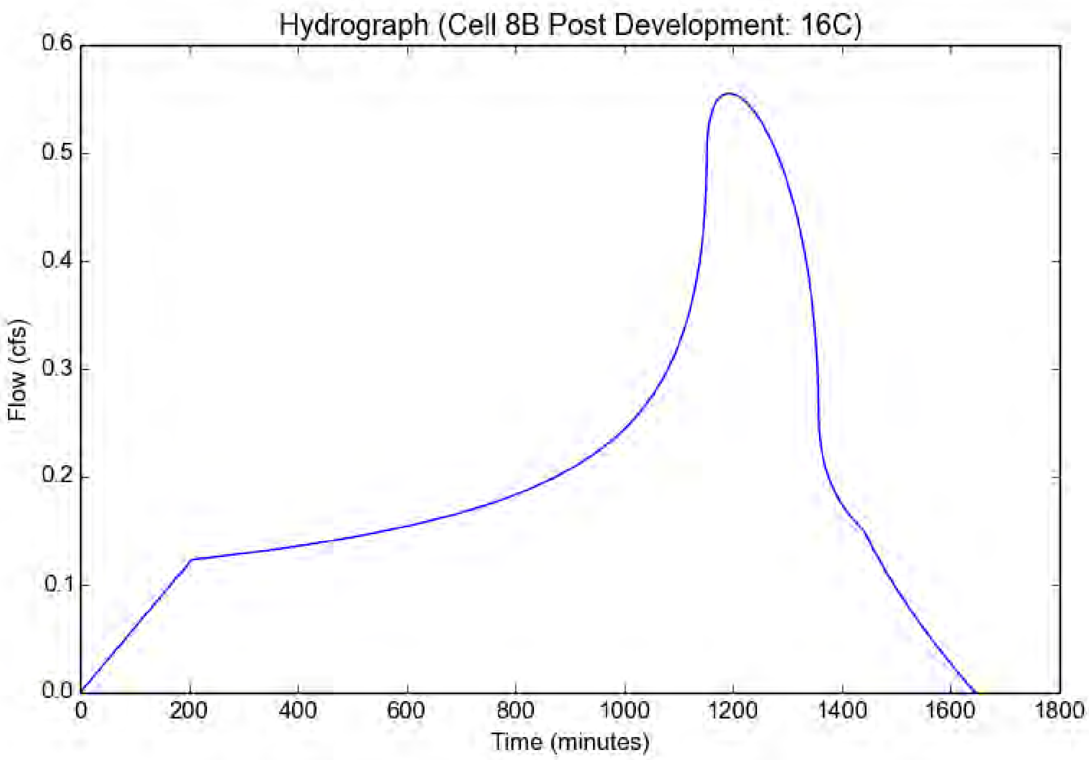
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B P
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	16C
Area (ac)	34.6
Flow Path Length (ft)	2519.0
Flow Path Slope (vft/hft)	0.015
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1146
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	205.0
Clear Peak Flow Rate (cfs)	0.555
Burned Peak Flow Rate (cfs)	0.555
24-Hr Clear Runoff Volume (ac-ft)	0.4406
24-Hr Clear Runoff Volume (cu-ft)	19193.8487



Peak Flow Hydrologic Analysis

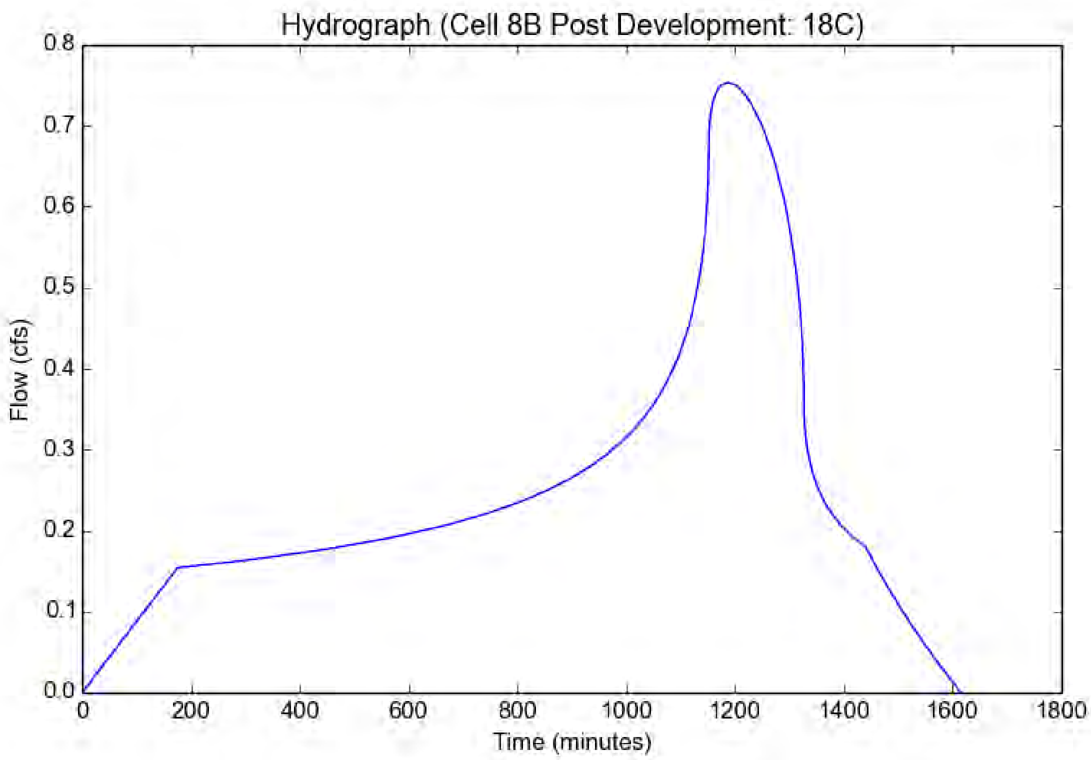
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B F
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	18C
Area (ac)	43.6
Flow Path Length (ft)	2931.0
Flow Path Slope (vft/hft)	0.063
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1234
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	175.0
Clear Peak Flow Rate (cfs)	0.7534
Burned Peak Flow Rate (cfs)	0.7534
24-Hr Clear Runoff Volume (ac-ft)	0.5551
24-Hr Clear Runoff Volume (cu-ft)	24182.2695



Peak Flow Hydrologic Analysis

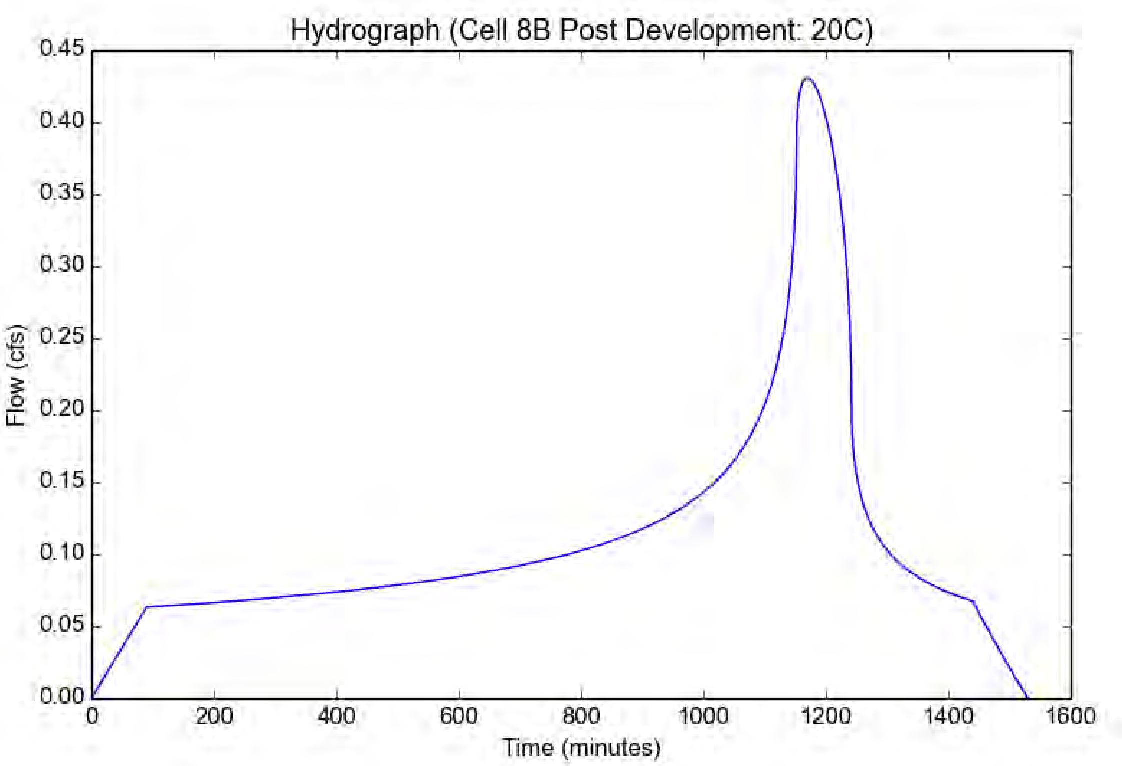
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B F
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	20C
Area (ac)	11.6
Flow Path Length (ft)	1961.0
Flow Path Slope (vft/hft)	0.11
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.15
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1687
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.22
Time of Concentration (min)	90.0
Clear Peak Flow Rate (cfs)	0.4305
Burned Peak Flow Rate (cfs)	0.4305
24-Hr Clear Runoff Volume (ac-ft)	0.232
24-Hr Clear Runoff Volume (cu-ft)	10107.0068



Peak Flow Hydrologic Analysis

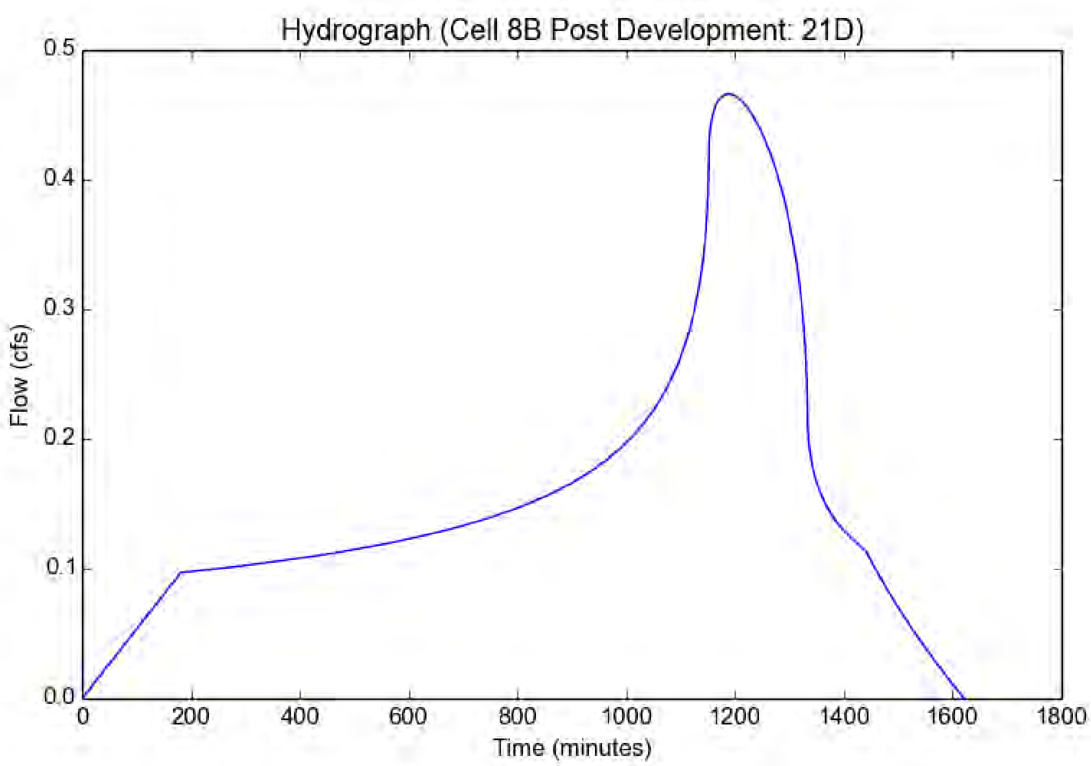
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B P
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	21D
Area (ac)	27.4
Flow Path Length (ft)	2426.0
Flow Path Slope (vft/hft)	0.026
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1215
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	181.0
Clear Peak Flow Rate (cfs)	0.466
Burned Peak Flow Rate (cfs)	0.466
24-Hr Clear Runoff Volume (ac-ft)	0.3489
24-Hr Clear Runoff Volume (cu-ft)	15197.6019



Peak Flow Hydrologic Analysis

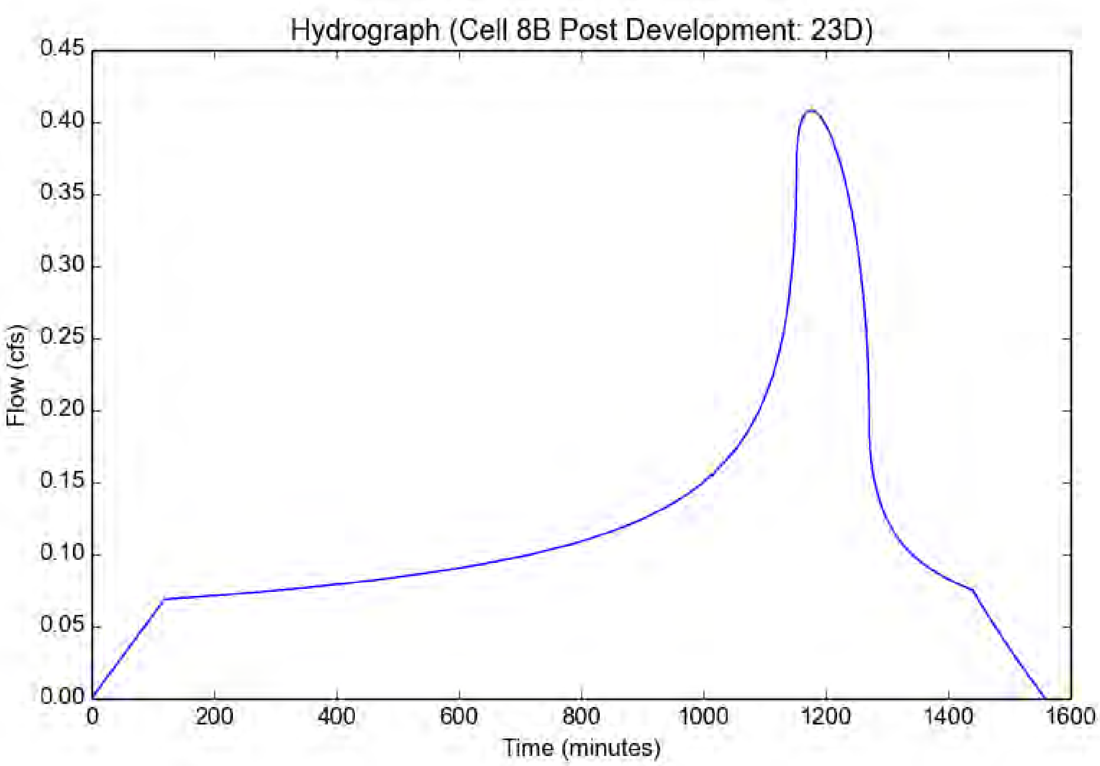
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B F
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	23D
Area (ac)	19.7
Flow Path Length (ft)	1966.0
Flow Path Slope (vft/hft)	0.13
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1479
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	119.0
Clear Peak Flow Rate (cfs)	0.408
Burned Peak Flow Rate (cfs)	0.408
24-Hr Clear Runoff Volume (ac-ft)	0.2508
24-Hr Clear Runoff Volume (cu-ft)	10923.7745



Peak Flow Hydrologic Analysis

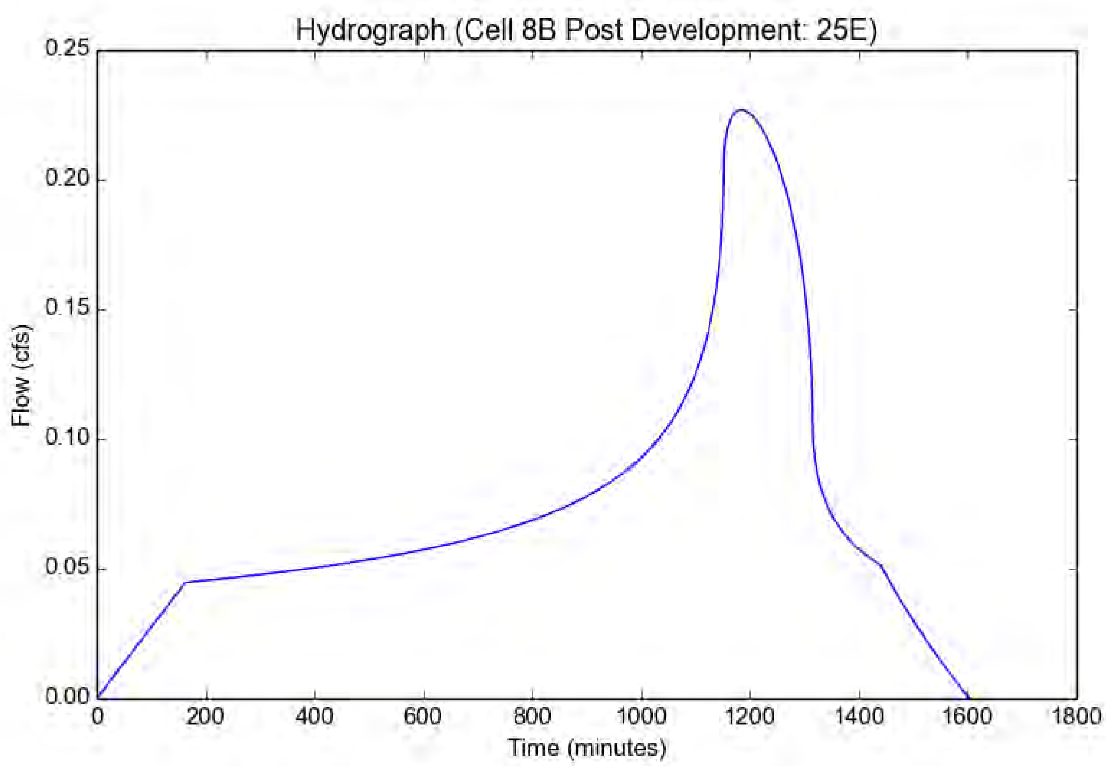
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B F
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	25E
Area (ac)	12.7
Flow Path Length (ft)	2462.0
Flow Path Slope (vft/hft)	0.05
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1276
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	163.0
Clear Peak Flow Rate (cfs)	0.2269
Burned Peak Flow Rate (cfs)	0.2269
24-Hr Clear Runoff Volume (ac-ft)	0.1617
24-Hr Clear Runoff Volume (cu-ft)	7043.493



Peak Flow Hydrologic Analysis

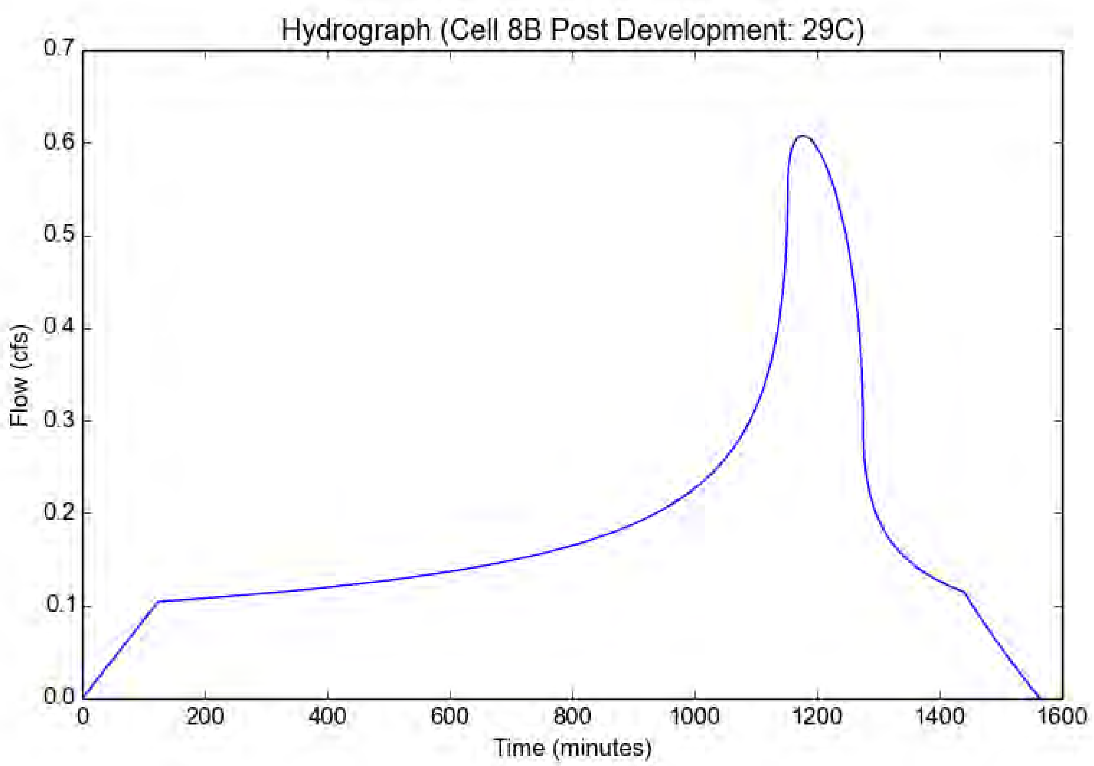
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B I
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	29C
Area (ac)	29.9
Flow Path Length (ft)	2230.0
Flow Path Slope (vft/hft)	0.16
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1451
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	124.0
Clear Peak Flow Rate (cfs)	0.6074
Burned Peak Flow Rate (cfs)	0.6074
24-Hr Clear Runoff Volume (ac-ft)	0.3806
24-Hr Clear Runoff Volume (cu-ft)	16580.0237



Peak Flow Hydrologic Analysis

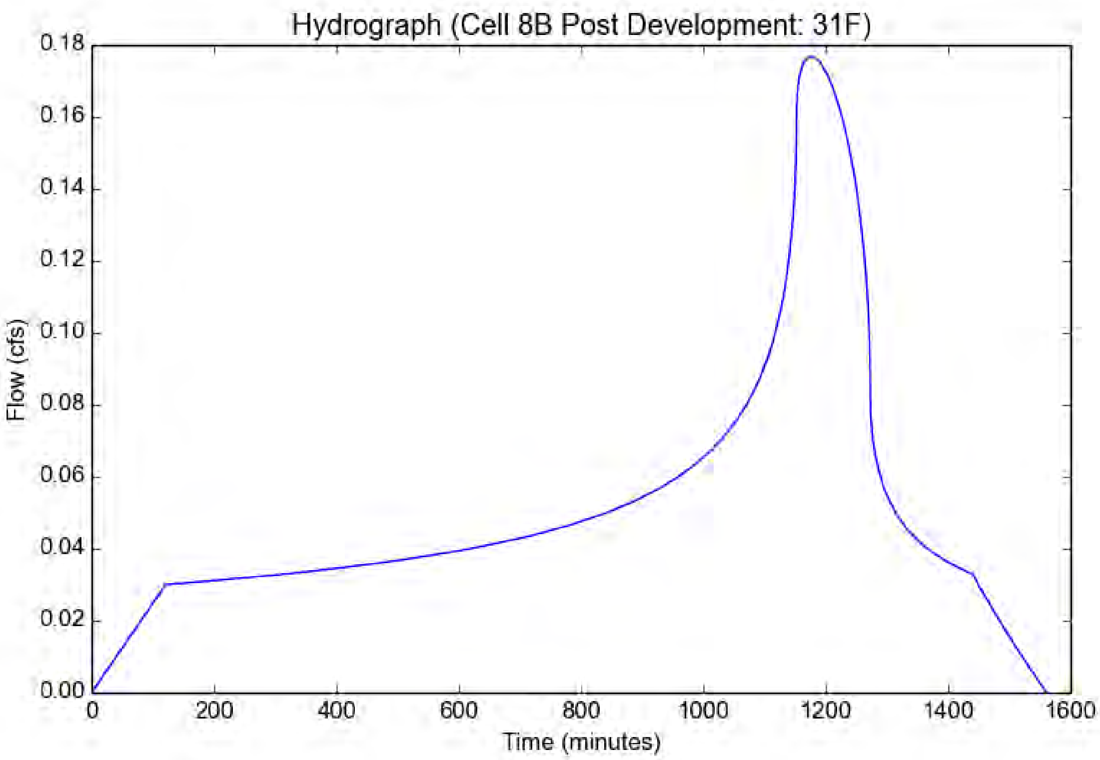
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B P
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	31F
Area (ac)	8.6
Flow Path Length (ft)	1402.0
Flow Path Slope (vft/hft)	0.036
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1468
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	121.0
Clear Peak Flow Rate (cfs)	0.1767
Burned Peak Flow Rate (cfs)	0.1767
24-Hr Clear Runoff Volume (ac-ft)	0.1095
24-Hr Clear Runoff Volume (cu-ft)	4768.7867



Peak Flow Hydrologic Analysis

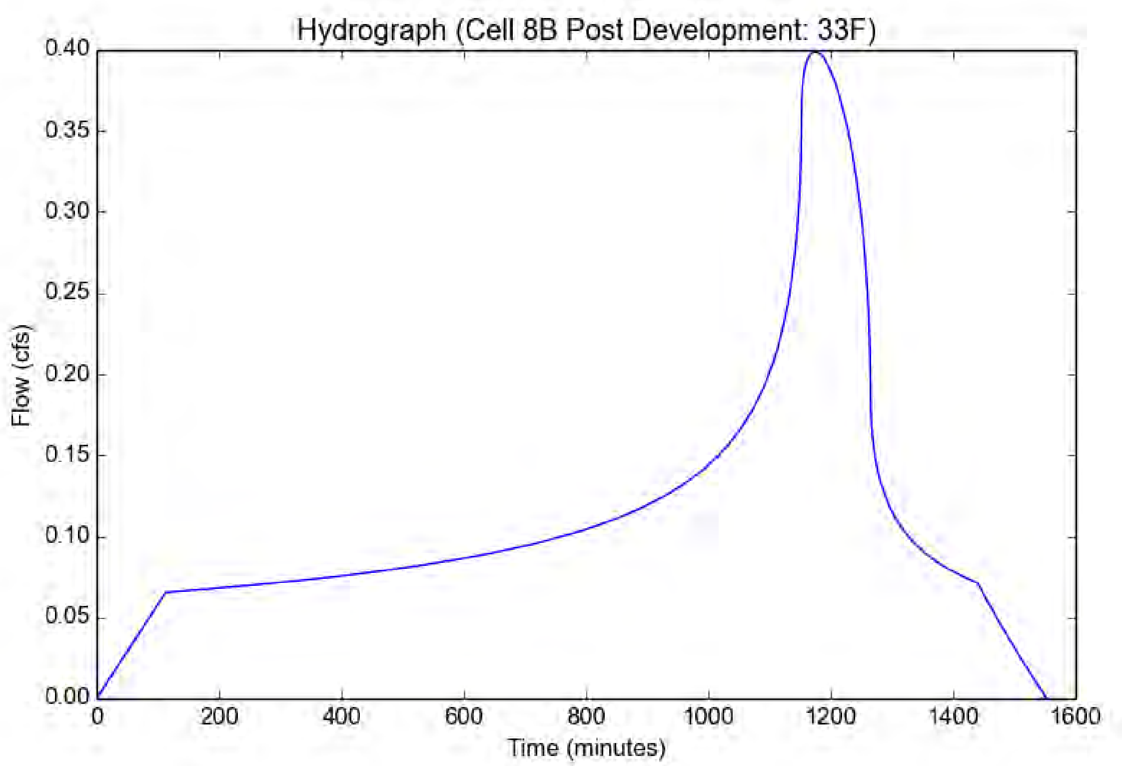
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B P
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	33F
Area (ac)	18.8
Flow Path Length (ft)	1524.0
Flow Path Slope (vft/hft)	0.071
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1516
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	113.0
Clear Peak Flow Rate (cfs)	0.399
Burned Peak Flow Rate (cfs)	0.399
24-Hr Clear Runoff Volume (ac-ft)	0.2393
24-Hr Clear Runoff Volume (cu-ft)	10424.5149



Peak Flow Hydrologic Analysis

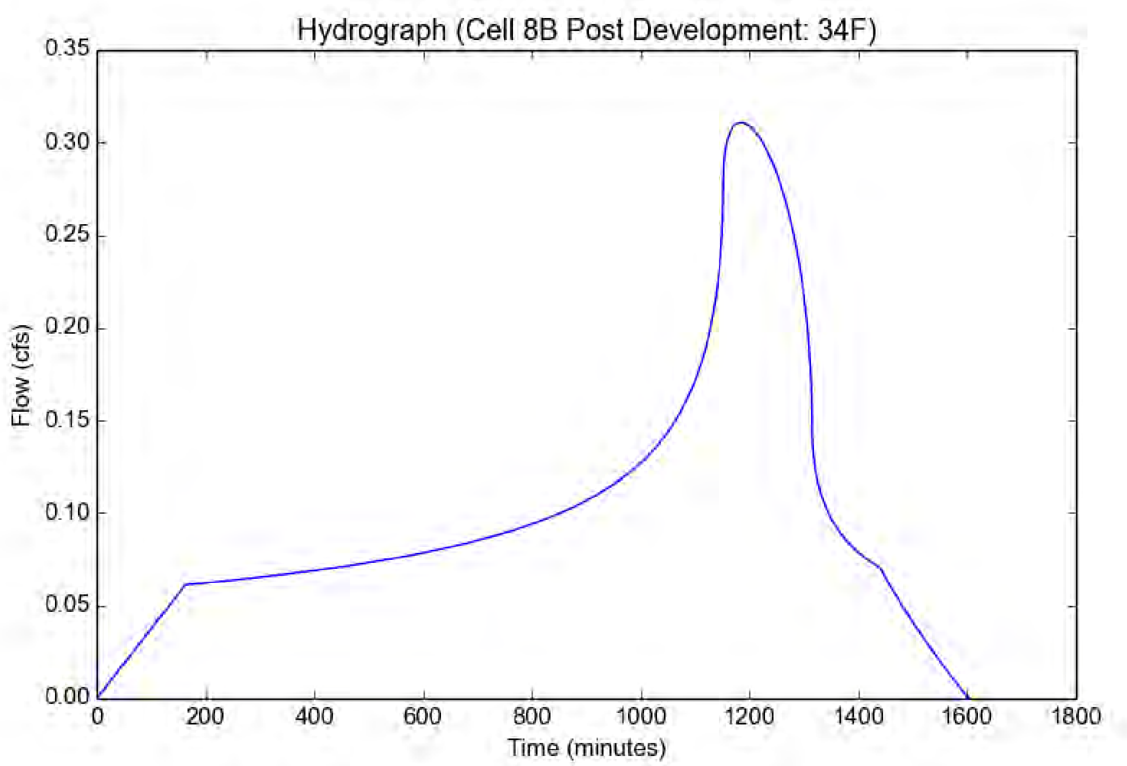
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B P
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	34F
Area (ac)	17.4
Flow Path Length (ft)	3136.0
Flow Path Slope (vft/hft)	0.12
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.05
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.1276
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.14
Time of Concentration (min)	163.0
Clear Peak Flow Rate (cfs)	0.3109
Burned Peak Flow Rate (cfs)	0.3109
24-Hr Clear Runoff Volume (ac-ft)	0.2215
24-Hr Clear Runoff Volume (cu-ft)	9650.14



Peak Flow Hydrologic Analysis

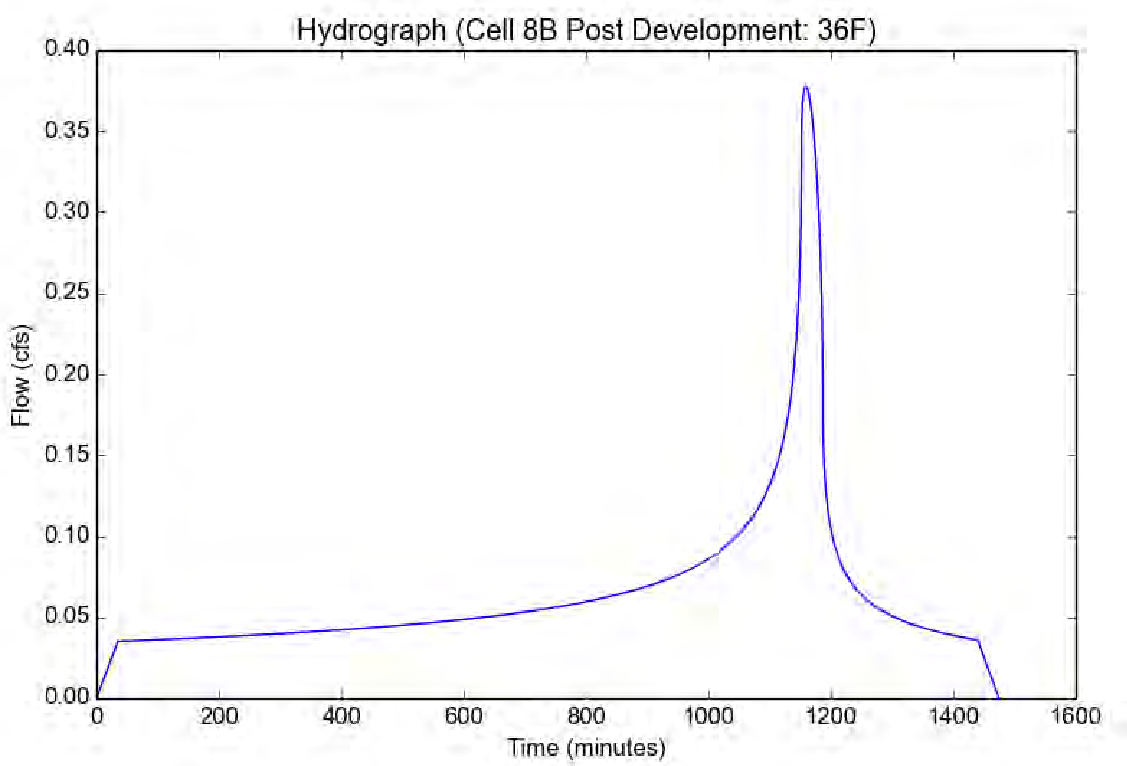
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B F
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	36F
Area (ac)	3.7
Flow Path Length (ft)	843.0
Flow Path Slope (vft/hft)	0.126
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.36
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.263
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.388
Time of Concentration (min)	35.0
Clear Peak Flow Rate (cfs)	0.3775
Burned Peak Flow Rate (cfs)	0.3775
24-Hr Clear Runoff Volume (ac-ft)	0.1305
24-Hr Clear Runoff Volume (cu-ft)	5685.0651



Peak Flow Hydrologic Analysis

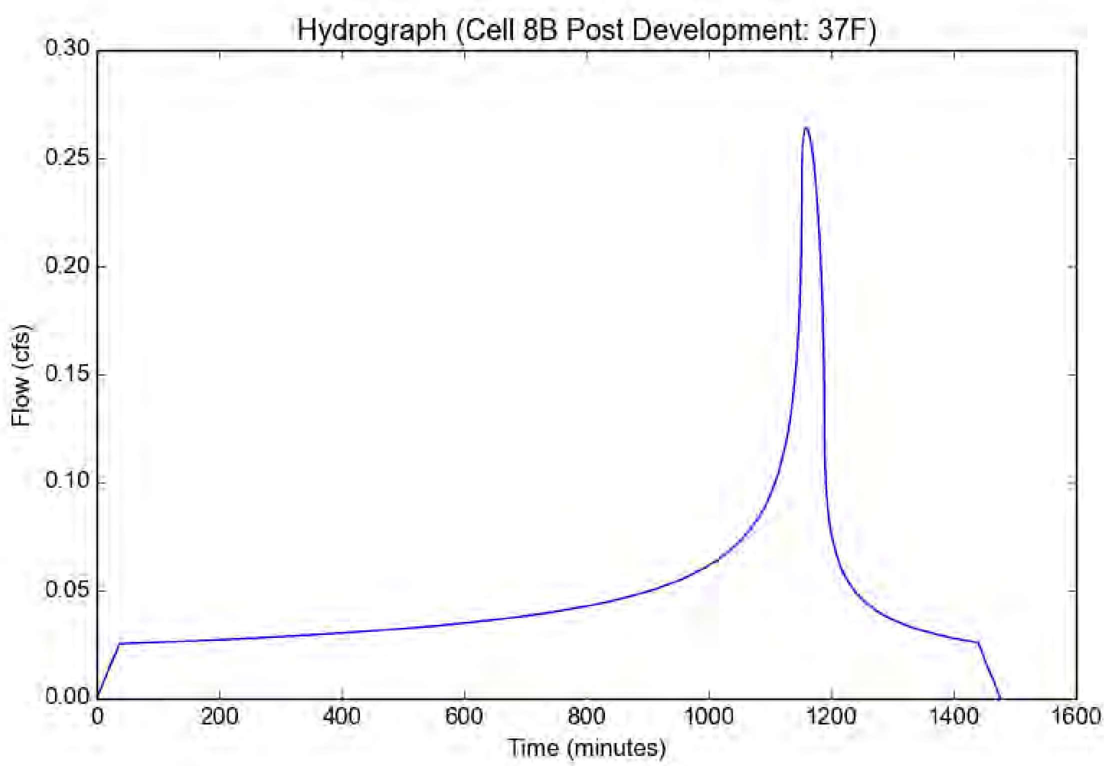
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B I
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	37F
Area (ac)	2.6
Flow Path Length (ft)	712.0
Flow Path Slope (vft/hft)	0.046
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.37
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.2562
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.396
Time of Concentration (min)	37.0
Clear Peak Flow Rate (cfs)	0.2638
Burned Peak Flow Rate (cfs)	0.2638
24-Hr Clear Runoff Volume (ac-ft)	0.0936
24-Hr Clear Runoff Volume (cu-ft)	4077.2875



Peak Flow Hydrologic Analysis

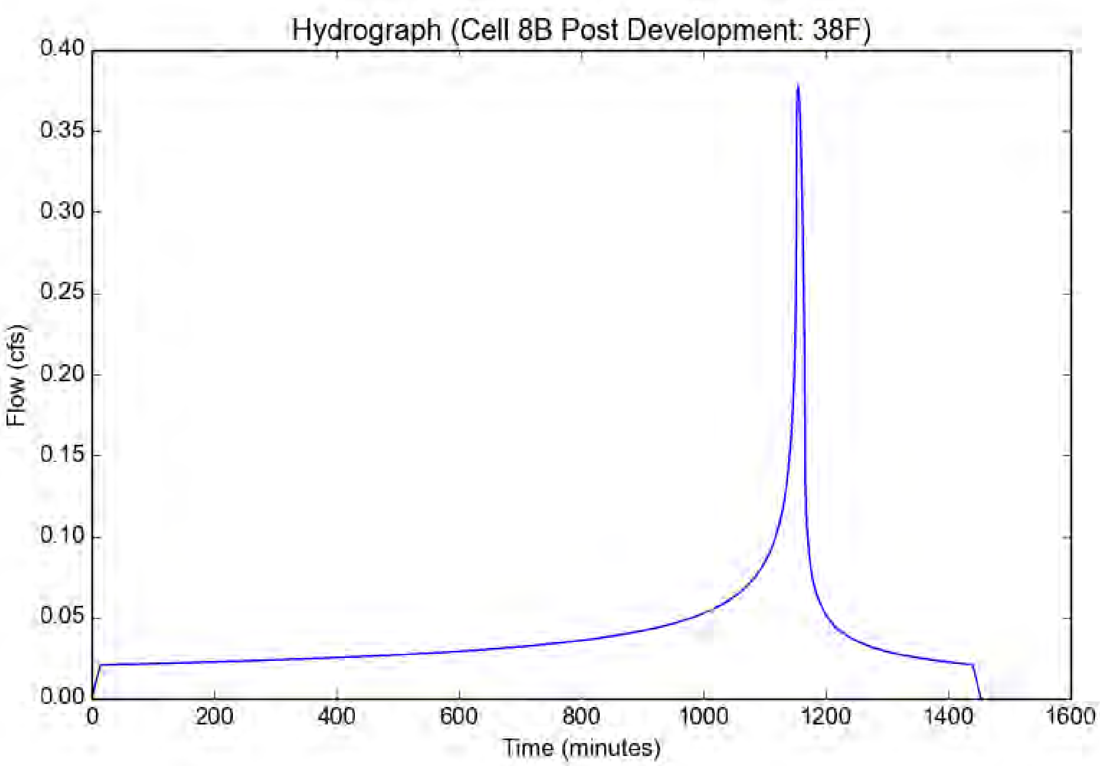
File location: P:/Waste Connections/Chiquita/Cell 8/Docs/Calcs/Hydrology/Grading Permit/Cell 8B/Post Development/HydroCalc/85th Percentile/Cell 8B I
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Cell 8B Post Development
Subarea ID	38F
Area (ac)	1.7
Flow Path Length (ft)	278.0
Flow Path Slope (vft/hft)	0.086
85th Percentile Rainfall Depth (in)	1.1
Percent Impervious	0.5
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.1
Peak Intensity (in/hr)	0.4045
Undeveloped Runoff Coefficient (Cu)	0.1997
Developed Runoff Coefficient (Cd)	0.5498
Time of Concentration (min)	14.0
Clear Peak Flow Rate (cfs)	0.3781
Burned Peak Flow Rate (cfs)	0.3781
24-Hr Clear Runoff Volume (ac-ft)	0.0777
24-Hr Clear Runoff Volume (cu-ft)	3382.5629



ATTACHMENT 6

HYDRAULICS SUMMARY TABLE

CHIQUITA CANYON LANDFILL
CELL 8B HYDRAULICS SUMMARY TABLE
50-YEAR BURNED AND BULKED PEK FLOW

Calculated By: PV
Checked By: CHM
Date: 12-21-2022

COLLECTION POINT OR SUBAREA ID [1]	DRAINAGE STRUCTURE	MAX PEAK FLOW [2] cfs	MAX CAPACITY [3] cfs
19C	Dual Wall HDPE Pipe 36" @ 5.3% Slope (full pipe flow)	101.67	178.93
19C + 24D	Dual Wall HDPE Pipe 42" @ 2.5% Slope (full pipe flow)	167.88	185.37
24D	Dual Wall HDPE Pipe 30" @ 3% Slope (full pipe flow)	66.21	82.79
26E	Corrugated Steel Pipe 36" @ 2% Slope (full pipe flow)	17.08	54.96
28CD	Concrete Trap Channel B=3' D=3' @2.5% (6" freeboard)	202.83	283.98
30C	Dual Wall HDPE Pipe 48" @ 4.4% Slope (full pipe flow)	250.11	351.11
35F	Concrete Trap Channel B=2' D=2' @5% (6" freeboard)	70.67	111.01
35F	Corrugated Steel Pipe 36" @ 6.5% Slope (full pipe flow)	70.67	99.08
39F	Corrugated Steel Pipe 48" @ 2% Slope (full pipe flow)	90.14	118.36
Basin Outflow	Existing Box Culvert 12'W x 9'H (2' FB)	352.83	4356.81

Note:
1. Collection point or subarea IDs are shown for reference to specific areas draining into respective drainage structures. See Figure 5 Hydrology Maps for collection point or subarea correlation.
2. Max peak flow value reflects the largest peak flow collected by its respective drainage structure.
3. Drainage structures were calculated for maximim capacity with freeboard as shown on table.

ATTACHMENT 7

HYDRAULICS CALCULATIONS

Worksheet for 36" HDPE Pipe @5.3%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.012
Channel Slope	0.053 ft/ft
Diameter	36.0 in
Discharge	101.67 cfs

Results

Normal Depth	20.3 in
Flow Area	4.1 ft²
Wetted Perimeter	5.1 ft
Hydraulic Radius	9.7 in
Top Width	2.97 ft
Critical Depth	34.8 in
Percent Full	56.5 %
Critical Slope	0.017 ft/ft
Velocity	24.70 ft/s
Velocity Head	9.48 ft
Specific Energy	11.18 ft
Froude Number	3.702
Maximum Discharge	178.93 cfs
Discharge Full	166.34 cfs
Slope Full	0.020 ft/ft
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	56.5 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	20.3 in
Critical Depth	34.8 in
Channel Slope	0.053 ft/ft
Critical Slope	0.017 ft/ft

Worksheet for 42" HDPE Pipe @2.5%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.012	
Channel Slope	0.025	ft/ft
Diameter	42.0	in
Discharge	167.88	cfs

Results

Normal Depth	33.5	in
Flow Area	8.2	ft²
Wetted Perimeter	7.7	ft
Hydraulic Radius	12.8	in
Top Width	2.81	ft
Critical Depth	41.1	in
Percent Full	79.7	%
Critical Slope	0.021	ft/ft
Velocity	20.41	ft/s
Velocity Head	6.47	ft
Specific Energy	9.27	ft
Froude Number	2.105	
Maximum Discharge	185.37	cfs
Discharge Full	172.33	cfs
Slope Full	0.024	ft/ft
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	79.7	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	33.5	in
Critical Depth	41.1	in
Channel Slope	0.025	ft/ft
Critical Slope	0.021	ft/ft

Worksheet for 30" HDPE Pipe @3%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.012
Channel Slope	0.030 ft/ft
Diameter	30.0 in
Discharge	66.21 cfs

Results

Normal Depth	21.4 in
Flow Area	3.8 ft²
Wetted Perimeter	5.0 ft
Hydraulic Radius	8.9 in
Top Width	2.26 ft
Critical Depth	29.1 in
Percent Full	71.5 %
Critical Slope	0.020 ft/ft
Velocity	17.63 ft/s
Velocity Head	4.83 ft
Specific Energy	6.62 ft
Froude Number	2.410
Maximum Discharge	82.79 cfs
Discharge Full	76.96 cfs
Slope Full	0.022 ft/ft
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	71.5 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	21.4 in
Critical Depth	29.1 in
Channel Slope	0.030 ft/ft
Critical Slope	0.020 ft/ft

Worksheet for 36" CSP @2%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.024
Channel Slope	0.020 ft/ft
Diameter	36.0 in
Discharge	17.08 cfs

Results	
Normal Depth	14.3 in
Flow Area	2.6 ft²
Wetted Perimeter	4.1 ft
Hydraulic Radius	7.7 in
Top Width	2.94 ft
Critical Depth	15.9 in
Percent Full	39.8 %
Critical Slope	0.014 ft/ft
Velocity	6.51 ft/s
Velocity Head	0.66 ft
Specific Energy	1.85 ft
Froude Number	1.213
Maximum Discharge	54.96 cfs
Discharge Full	51.09 cfs
Slope Full	0.002 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	39.8 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	14.3 in
Critical Depth	15.9 in
Channel Slope	0.020 ft/ft
Critical Slope	0.014 ft/ft

Worksheet for Concrete Trap Channel B=3' D=3'

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.014
Channel Slope	0.025 ft/ft
Left Side Slope	1.000 H:V
Right Side Slope	1.000 H:V
Bottom Width	3.00 ft
Discharge	202.83 cfs

Results

Normal Depth	25.2 in
Flow Area	10.7 ft²
Wetted Perimeter	8.9 ft
Hydraulic Radius	14.4 in
Top Width	7.20 ft
Critical Depth	42.9 in
Critical Slope	0.003 ft/ft
Velocity	18.93 ft/s
Velocity Head	5.57 ft
Specific Energy	7.67 ft
Froude Number	2.736
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	25.2 in
Critical Depth	42.9 in
Channel Slope	0.025 ft/ft
Critical Slope	0.003 ft/ft

Worksheet for Concrete Trap Channel B=3' D=3' (Max Cap)

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.014
Channel Slope	0.025 ft/ft
Normal Depth	30.0 in
Left Side Slope	1.000 H:V
Right Side Slope	1.000 H:V
Bottom Width	3.00 ft

Results

Discharge	283.98 cfs
Flow Area	13.8 ft²
Wetted Perimeter	10.1 ft
Hydraulic Radius	16.4 in
Top Width	8.00 ft
Critical Depth	50.8 in
Critical Slope	0.003 ft/ft
Velocity	20.65 ft/s
Velocity Head	6.63 ft
Specific Energy	9.13 ft
Froude Number	2.777
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	30.0 in
Critical Depth	50.8 in
Channel Slope	0.025 ft/ft
Critical Slope	0.003 ft/ft

Worksheet for 48" HDPE Pipe @4.4%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.012
Channel Slope	0.044 ft/ft
Diameter	48.0 in
Discharge	250.11 cfs

Results

Normal Depth	31.5 in
Flow Area	8.7 ft²
Wetted Perimeter	7.6 ft
Hydraulic Radius	13.9 in
Top Width	3.80 ft
Critical Depth	47.2 in
Percent Full	65.6 %
Critical Slope	0.023 ft/ft
Velocity	28.62 ft/s
Velocity Head	12.73 ft
Specific Energy	15.36 ft
Froude Number	3.328
Maximum Discharge	351.11 cfs
Discharge Full	326.40 cfs
Slope Full	0.026 ft/ft
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	65.6 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	31.5 in
Critical Depth	47.2 in
Channel Slope	0.044 ft/ft
Critical Slope	0.023 ft/ft

Worksheet for Concrete Trap Channel B=2' D=2'

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.014
Channel Slope	0.050 ft/ft
Left Side Slope	1.000 H:V
Right Side Slope	1.000 H:V
Bottom Width	2.00 ft
Discharge	70.67 cfs

Results	
Normal Depth	14.2 in
Flow Area	3.8 ft^2
Wetted Perimeter	5.3 ft
Hydraulic Radius	8.4 in
Top Width	4.36 ft
Critical Depth	28.0 in
Critical Slope	0.003 ft/ft
Velocity	18.78 ft/s
Velocity Head	5.48 ft
Specific Energy	6.66 ft
Froude Number	3.566
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	14.2 in
Critical Depth	28.0 in
Channel Slope	0.050 ft/ft
Critical Slope	0.003 ft/ft

Worksheet for Concrete Trap Channel B=2' D=2' (Max Cap)

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.014
Channel Slope	0.050 ft/ft
Normal Depth	18.0 in
Left Side Slope	1.000 H:V
Right Side Slope	1.000 H:V
Bottom Width	2.00 ft

Results

Discharge	111.01 cfs
Flow Area	5.3 ft²
Wetted Perimeter	6.2 ft
Hydraulic Radius	10.1 in
Top Width	5.00 ft
Critical Depth	35.2 in
Critical Slope	0.003 ft/ft
Velocity	21.15 ft/s
Velocity Head	6.95 ft
Specific Energy	8.45 ft
Froude Number	3.638
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	18.0 in
Critical Depth	35.2 in
Channel Slope	0.050 ft/ft
Critical Slope	0.003 ft/ft

Worksheet for 36" CSP @6.5%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.024
Channel Slope	0.065 ft/ft
Diameter	36.0 in
Discharge	70.67 cfs

Results

Normal Depth	23.6 in
Flow Area	4.9 ft²
Wetted Perimeter	5.7 ft
Hydraulic Radius	10.4 in
Top Width	2.85 ft
Critical Depth	32.0 in
Percent Full	65.7 %
Critical Slope	0.034 ft/ft
Velocity	14.36 ft/s
Velocity Head	3.21 ft
Specific Energy	5.18 ft
Froude Number	1.927
Maximum Discharge	99.08 cfs
Discharge Full	92.10 cfs
Slope Full	0.038 ft/ft
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	65.7 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	23.6 in
Critical Depth	32.0 in
Channel Slope	0.065 ft/ft
Critical Slope	0.034 ft/ft

Worksheet for 18" CSP @7.7%

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.024
Channel Slope	0.077 ft/ft
Normal Depth	18.0 in
Diameter	18.0 in

Results

Discharge	15.79 cfs
Flow Area	1.8 ft²
Wetted Perimeter	4.7 ft
Hydraulic Radius	4.5 in
Top Width	0.00 ft
Critical Depth	17.0 in
Percent Full	100.0 %
Critical Slope	0.067 ft/ft
Velocity	8.93 ft/s
Velocity Head	1.24 ft
Specific Energy	2.74 ft
Froude Number	(N/A)
Maximum Discharge	16.98 cfs
Discharge Full	15.79 cfs
Slope Full	0.077 ft/ft
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	18.0 in
Critical Depth	17.0 in
Channel Slope	0.077 ft/ft
Critical Slope	0.067 ft/ft

Worksheet for 12" HDPE Pipe @1.2%

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.012
Channel Slope	0.012 ft/ft
Normal Depth	12.0 in
Diameter	12.0 in

Results

Discharge	4.23 cfs
Flow Area	0.8 ft²
Wetted Perimeter	3.1 ft
Hydraulic Radius	3.0 in
Top Width	0.00 ft
Critical Depth	10.4 in
Percent Full	100.0 %
Critical Slope	0.011 ft/ft
Velocity	5.38 ft/s
Velocity Head	0.45 ft
Specific Energy	1.45 ft
Froude Number	(N/A)
Maximum Discharge	4.55 cfs
Discharge Full	4.23 cfs
Slope Full	0.012 ft/ft
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	12.0 in
Critical Depth	10.4 in
Channel Slope	0.012 ft/ft
Critical Slope	0.011 ft/ft

Worksheet for 48" CSP @2%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.024
Channel Slope	0.020 ft/ft
Diameter	48.0 in
Discharge	90.14 cfs

Results

Normal Depth	33.1 in
Flow Area	9.2 ft²
Wetted Perimeter	7.8 ft
Hydraulic Radius	14.1 in
Top Width	3.70 ft
Critical Depth	34.5 in
Percent Full	68.9 %
Critical Slope	0.018 ft/ft
Velocity	9.77 ft/s
Velocity Head	1.48 ft
Specific Energy	4.24 ft
Froude Number	1.091
Maximum Discharge	118.36 cfs
Discharge Full	110.03 cfs
Slope Full	0.013 ft/ft
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	68.9 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	33.1 in
Critical Depth	34.5 in
Channel Slope	0.020 ft/ft
Critical Slope	0.018 ft/ft

PRE-DEVELOPMENT CONDITION

HYDRAULIC OUTFLOW CALCULATIONS

WATER SURFACE PRESSURE GRADIENT ANALYSIS

Chiquita Canyon Landfill
Cell 8B Grading Permit
Pre Development Condition

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	942.970	1.319	944.289	359.92	22.74	8.03	952.32	.00	3.03	12.00	9.000	12.000	.00	0 .0
11.568	.0200					.0425	.49	1.32	3.49	1.67	.014	.00	.00	BOX
1011.568	943.201	1.296	944.498	359.92	23.14	8.31	952.81	.00	3.03	12.00	9.000	12.000	.00	0 .0
28.432	.0200					.0471	1.34	1.30	3.58	1.67	.014	.00	.00	BOX
1040.000	943.770	1.236	945.006	359.92	24.27	9.15	954.15	.00	3.03	12.00	9.000	12.000	.00	0 .0
26.967	.0620					.0490	1.32	1.24	3.85	1.16	.014	.00	.00	BOX
1066.967	945.442	1.262	946.704	359.92	23.77	8.77	955.47	.00	3.03	12.00	9.000	12.000	.00	0 .0
41.261	.0620					.0442	1.82	1.26	3.73	1.16	.014	.00	.00	BOX
1108.228	947.999	1.324	949.323	359.92	22.66	7.97	957.30	.00	3.03	12.00	9.000	12.000	.00	0 .0
27.645	.0620					.0381	1.05	1.32	3.47	1.16	.014	.00	.00	BOX
1135.873	949.713	1.388	951.101	359.92	21.60	7.25	958.35	.00	3.03	12.00	9.000	12.000	.00	0 .0
20.323	.0620					.0329	.67	1.39	3.23	1.16	.014	.00	.00	BOX
1156.196	950.973	1.456	952.429	359.92	20.60	6.59	959.02	.00	3.03	12.00	9.000	12.000	.00	0 .0
15.726	.0620					.0284	.45	1.46	3.01	1.16	.014	.00	.00	BOX
1171.923	951.948	1.527	953.475	359.92	19.64	5.99	959.46	.00	3.03	12.00	9.000	12.000	.00	0 .0
12.557	.0620					.0246	.31	1.53	2.80	1.16	.014	.00	.00	BOX
1184.480	952.726	1.602	954.328	359.92	18.73	5.45	959.77	.00	3.03	12.00	9.000	12.000	.00	0 .0
10.229	.0620					.0212	.22	1.60	2.61	1.16	.014	.00	.00	BOX

Chiquita Canyon Landfill
Cell 8B Grading Permit
Pre Development Condition

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1194.709	953.360	1.680	955.040	359.92	17.86	4.95	959.99	.00	3.03	12.00	9.000	12.000	.00	0 .0
8.438	.0620					.0184	.15	1.68	2.43	1.16	.014	.00	.00	BOX
1203.146	953.883	1.762	955.645	359.92	17.02	4.50	960.15	.00	3.03	12.00	9.000	12.000	.00	0 .0
7.011	.0620					.0159	.11	1.76	2.26	1.16	.014	.00	.00	BOX
1210.157	954.318	1.848	956.166	359.92	16.23	4.09	960.26	.00	3.03	12.00	9.000	12.000	.00	0 .0
5.843	.0620					.0138	.08	1.85	2.10	1.16	.014	.00	.00	BOX
1216.000	954.680	1.938	956.618	359.92	15.48	3.72	960.34	.00	3.03	12.00	9.000	12.000	.00	0 .0
TRANS STR	.0540					.0137	.21	1.94	1.96		.014	.00	.00	BOX
1231.000	955.490	1.582	957.072	359.92	15.00	3.49	960.57	.00	2.61	18.33	4.000	12.000	2.00	0 .0
5.000	.0280					.0145	.07	1.58	2.31	1.32	.014	.00	2.00	TRAP
1236.000	955.630	1.598	957.228	359.92	14.82	3.41	960.64	.00	2.61	18.39	4.000	12.000	2.00	0 .0

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   1.786    .0265                                            .0141      .03     1.60    2.27    1.34    .014       .00  2.00  TRAP
        |         |        |         |         |                   |         |       |        |        |       |       |      |
 1237.786   955.677   1.603   957.281   359.92  14.76    3.38   960.67     .00    2.61    18.41    4.000   12.000  2.00   0   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  18.214    .0265                                            .0131      .24     1.60    2.26    1.34    .014       .00  2.00  TRAP
        |         |        |         |         |                   |         |       |        |        |       |       |      |
 1256.000   956.160   1.667   957.827   359.92  14.08    3.08   960.90     .00    2.61    18.67    4.000   12.000  2.00   0   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
 WALL  EXIT
        |         |        |         |         |                   |         |       |        |        |       |       |      |
 1256.000   956.160   3.715   959.875   359.92  11.50    2.05   961.93     .00    3.84     4.37    5.000     .000   .00   2   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  79.593    .0200                                            .0200     1.59     3.72     .76    3.72    .024       .00   .00  PIPE
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 FILE: Cell_8A_PreDev.WSW                 W S P G W - CIVILDESIGN Version 14.08                                      PAGE    3
                              Program Package Serial Number: 7289
                                                    WATER SURFACE PROFILE LISTING                   Date: 9- 7-2021  Time:12:35:30
                        Chiquita Canyon Landfill
                          Cell 8B Grading Permit
                            Pre Development Condition
****************************************************************************************************************** ********
         | Invert  | Depth | Water   |    Q    |  Vel     Vel   | Energy  | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   | (FT)  |  Elev   |  (CFS)  | (FPS)    Head  | Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |       |         |         |         SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
        |         |        |         |         |                   |         |       |        |        |       |       |      |
 1335.593   957.752   3.715   961.467   359.92  11.50    2.05   963.52     .00    3.84     4.37    5.000     .000   .00   2   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  12.407    .0200                                            .0193      .24     3.72     .76    3.72    .024       .00   .00  PIPE
        |         |        |         |         |                   |         |       |        |        |       |       |      |
 1348.000   958.000   3.842   961.842   359.92  11.12    1.92   963.76     .00    3.84     4.22    5.000     .000   .00   2   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
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                        Chiquita Canyon Landfill

                          Cell 8B Grading Permit

                            Pre Development Condition


   1000.00    .I     W       C                            HE                                                      .    R

   1007.10    .                                                                                                   .

   1014.20    . I     W       C                            H  E                                                   .    R

   1021.31    .                                                                                                   .

   1028.41    .                                                                                                   .

   1035.51    .                                                                                                   .

   1042.61    .   I     W        C                            H     E                                             .    R

   1049.71    .                                                                                                   .

   1056.82    .                                                                                                   .

   1063.92    .                                                                                                   .

   1071.02    .           I     W        C                            H    E                                      .    R

   1078.12    .                                                                                                   .
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1085.22    .                                                                                                    .
1092.33    .                                                                                                    .
1099.43    .                                                                                                    .
1106.53    .                                                                                                    .
1113.63    .                        I     W       C                            HE                               .    R
1120.73    .                                                                                                    .
1127.84    .                                                                                                    .
1134.94    .                                                                                                    .
1142.04    .                                I      W       C                         E H                        .    R
1149.14    .                                                                                                    .
1156.24    .                                      I      W       C                       E   H                  .    R
1163.35    .                                                                                                    .
1170.45    .                                                                                                    .
1177.55    .                                           I      W      C                     E      H             .    R
1184.65    .                                              I       W      C                  E         H         .    R
1191.76    .                                                                                                    .
1198.86    .                                                 I        W     C                E           H      .    R
1205.96    .                                                    I       W      C              E            H    .    R
1213.06    .                                                      I        W     C             E             H  .    R
1220.16    .                                                        I        W    C            E               H.    TX
1227.27    .                                                                                                    .
1234.37    .                                                            I      W    C      H    E               .    R
1241.47    .                                                            I       W    C      H   E               .    R
1248.57    .                                                             I      W    C      H    E              .    R
1255.67    .                                                                                                    .
1262.78    .                                                               IYYYYYYYWYYYCYYYYYYH   E             .    WX
1269.88    .                                                               I                 W     H   E        .    R
1276.98    .                                                                                                    .
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   1284.08    .                                                                                                     .

   1291.18    .                                                                                                     .

   1298.29    .                                                                                                     .

   1305.39    .                                                                                                     .

   1312.49    .                                                                                                     .

   1319.59    .                                                                                                     .

   1326.69    .                                                                                                     .

   1333.80    .                                                                                                     .

   1340.90    .                                                                       I               WC      H  E  .    R

   1348.00    .                                                                        I                 W     H   E.    R

             942.970   945.049   947.128   949.207   951.286   953.365   955.445   957.524   959.603   961.682   963.761
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N O T E S
1. GLOSSARY
   I = INVERT ELEVATION
   C = CRITICAL DEPTH
   W = WATER SURFACE ELEVATION
   S = SUPER-ELEVATION
   H = HEIGHT OF CHANNEL
   E = ENERGY GRADE LINE
   X = CURVES CROSSING OVER
   B = BRIDGE ENTRANCE OR EXIT
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

POST-DEVELOPMENT CONDITION

HYDRAULIC OUTFLOW CALCULATIONS

WATER SURFACE PRESSURE GRADIENT ANALYSIS

Chiquita Canyon Landfill
Cell 8B Grading Permit
Post Development Condition

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth	Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1000.000	942.630	1.307	943.937	352.83	22.50	7.86	951.80	.00	2.99	12.00	9.000	12.000	.00	0	.0
12.432	.0193					.0422	.52	1.31	3.47	1.67	.014	.00	.00	BOX	
1012.432	942.870	1.282	944.152	352.83	22.94	8.17	952.32	.00	2.99	12.00	9.000	12.000	.00	0	.0
27.458	.0193					.0469	1.29	1.28	3.57	1.67	.014	.00	.00	BOX	
1039.890	943.400	1.222	944.622	352.83	24.06	8.99	953.61	.00	2.99	12.00	9.000	12.000	.00	0	.0
19.129	.0614					.0493	.94	1.22	3.84	1.15	.014	.00	.00	BOX	
1059.019	944.575	1.239	945.813	352.83	23.74	8.75	954.56	.00	2.99	12.00	9.000	12.000	.00	0	.0
44.690	.0614					.0450	2.01	1.24	3.76	1.15	.014	.00	.00	BOX	
1103.709	947.320	1.299	948.619	352.83	22.63	7.95	956.57	.00	2.99	12.00	9.000	12.000	.00	0	.0
29.171	.0614					.0388	1.13	1.30	3.50	1.15	.014	.00	.00	BOX	
1132.880	949.111	1.363	950.474	352.83	21.58	7.23	957.70	.00	2.99	12.00	9.000	12.000	.00	0	.0
21.161	.0614					.0335	.71	1.36	3.26	1.15	.014	.00	.00	BOX	
1154.041	950.411	1.429	951.840	352.83	20.58	6.57	958.41	.00	2.99	12.00	9.000	12.000	.00	0	.0
16.246	.0614					.0289	.47	1.43	3.03	1.15	.014	.00	.00	BOX	
1170.287	951.409	1.499	952.907	352.83	19.62	5.98	958.88	.00	2.99	12.00	9.000	12.000	.00	0	.0
12.907	.0614					.0250	.32	1.50	2.82	1.15	.014	.00	.00	BOX	
1183.193	952.201	1.572	953.773	352.83	18.70	5.43	959.21	.00	2.99	12.00	9.000	12.000	.00	0	.0
10.478	.0614					.0216	.23	1.57	2.63	1.15	.014	.00	.00	BOX	

Chiquita Canyon Landfill
Cell 8B Grading Permit
Post Development Condition

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth	Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1193.672	952.845	1.649	954.494	352.83	17.83	4.94	959.43	.00	2.99	12.00	9.000	12.000	.00	0	.0
8.624	.0614					.0187	.16	1.65	2.45	1.15	.014	.00	.00	BOX	
1202.296	953.375	1.729	955.104	352.83	17.00	4.49	959.59	.00	2.99	12.00	9.000	12.000	.00	0	.0
7.156	.0614					.0162	.12	1.73	2.28	1.15	.014	.00	.00	BOX	
1209.451	953.814	1.813	955.628	352.83	16.21	4.08	959.71	.00	2.99	12.00	9.000	12.000	.00	0	.0
5.959	.0614					.0140	.08	1.81	2.12	1.15	.014	.00	.00	BOX	
1215.410	954.180	1.902	956.082	352.83	15.46	3.71	959.79	.00	2.99	12.00	9.000	12.000	.00	0	.0
TRANS STR	.0387					.0148	.22	1.90	1.98		.014	.00	.00	BOX	
1230.410	954.760	1.511	956.271	352.83	15.55	3.75	960.02	.00	2.58	18.04	4.000	12.000	2.00	0	.0
5.300	.0396					.0162	.09	1.51	2.44	1.18	.014	.00	2.00	TRAP	
1235.710	954.970	1.537	956.507	352.83	15.23	3.60	960.11	.00	2.58	18.15	4.000	12.000	2.00	0	.0

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    .601    .0389                                                   .0156      .01     1.54    2.38    1.19    .014      .00  2.00  TRAP
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1236.311   954.993    1.539   956.533    352.83   15.20    3.59   960.12     .00    2.58   18.16    4.000   12.000  2.00   0    .0
      -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   10.852    .0389                                                   .0146      .16     1.54    2.37    1.19    .014      .00  2.00  TRAP
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1247.163   955.415    1.601   957.017    352.83   14.49    3.26   960.28     .00    2.58   18.41    4.000   12.000  2.00   0    .0
      -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    8.857    .0389                                                   .0127      .11     1.60    2.22    1.19    .014      .00  2.00  TRAP
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1256.020   955.760    1.666   957.426    352.83   13.82    2.96   960.39     .00    2.58   18.66    4.000   12.000  2.00   0    .0
      -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
 WALL  EXIT
↑ FILE: Cell_8B_PostDev.WSW                    W S P G W - CIVILDESIGN Version 14.08                                     PAGE    3
                              Program Package Serial Number: 7289
                                                    WATER SURFACE PROFILE LISTING                   Date:12-20-2022  Time: 1:55:45
                         Chiquita Canyon Landfill
                           Cell 8B Grading Permit
                             Post Development Condition
************************************************************************************************************************* ********
          | Invert  |  Depth |  Water  |    Q    |  Vel     Vel   |  Energy | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station  |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head  | Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
      -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    -|
 L/Elem   |Ch Slope |        |         |         |       SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
          |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1256.020   955.760    3.771   959.531    352.83   11.10    1.91   961.45     .00    3.81     4.31    5.000     .000   .00   2    .0
      -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   90.221    .0186                                                   .0186     1.67     3.77     .72    3.77    .024      .00   .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1346.241   957.435    3.771   961.206    352.83   11.10    1.91   963.12     .00    3.81     4.31    5.000     .000   .00   2    .0
      -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    3.509    .0186                                                   .0184      .06     3.77     .72    3.77    .024      .00   .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1349.750   957.500    3.805   961.305    352.83   11.00    1.88   963.19     .00    3.81     4.26    5.000     .000   .00   2    .0
      -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
↑
↑

                         Chiquita Canyon Landfill

                           Cell 8B Grading Permit

                             Post Development Condition



   1000.00    .I     W       C                           HE                                                       .    R

   1007.14    .                                                                                                   .

   1014.28    . I     W       C                           H  E                                                    .    R

   1021.41    .                                                                                                   .

   1028.55    .                                                                                                   .

   1035.69    .                                                                                                   .

   1042.83    .   I     W        C                           H     E                                              .    R

   1049.96    .                                                                                                   .

   1057.10    .                                                                                                   .

   1064.24    .         I     W        C                           H    E                                         .    R

   1071.38    .                                                                                                   .
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1078.52    .                                                                                                    .
1085.65    .                                                                                                    .
1092.79    .                                                                                                    .
1099.93    .                                                                                                    .
1107.07    .                      I      W       C                           HE                                 .    R
1114.20    .                                                                                                    .
1121.34    .                                                                                                    .
1128.48    .                                                                                                    .
1135.62    .                               I      W       C                         E H                         .    R
1142.76    .                                                                                                    .
1149.89    .                                                                                                    .
1157.03    .                                     I      W       C                      E    H                   .    R
1164.17    .                                                                                                    .
1171.31    .                                          I      W      C                     E      H              .    R
1178.44    .                                                                                                    .
1185.58    .                                              I       W     C                  E         H          .    R
1192.72    .                                                                                                    .
1199.86    .                                                 I      W      C                E           H       .    R
1206.99    .                                                    I      W     C               E             H    .    R
1214.13    .                                                      I       W    C              E              H  .    R
1221.27    .                                                        I       W    C            E               H .    TX
1228.41    .                                                                                                    .
1235.55    .                                                          I      W    C      H     E                .    R
1242.68    .                                                           I      W    C      H     E               .    R
1249.82    .                                                           I      W    C      H     E               .    R
1256.96    .                                                             I      W    C      H   E               .    R
1264.10    .                                                              IYYYYYYYWYYYYCYYYYYYYH E              .    WX
1271.23    .                                                              I                  W     H  E         .    R
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   1278.37    .                                                                                                     .

   1285.51    .                                                                                                     .

   1292.65    .                                                                                                     .

   1299.79    .                                                                                                     .

   1306.92    .                                                                                                     .

   1314.06    .                                                                                                     .

   1321.20    .                                                                                                     .

   1328.34    .                                                                                                     .

   1335.47    .                                                                                                     .

   1342.61    .                                                                                                     .

   1349.75    .                                                                        I                 W     H  E .    R

             942.630   944.685   946.741   948.796   950.852   952.907   954.963   957.018   959.074   961.129   963.185


N O T E S
1. GLOSSARY
   I = INVERT ELEVATION
   C = CRITICAL DEPTH
   W = WATER SURFACE ELEVATION
   S = SUPER-ELEVATION
   H = HEIGHT OF CHANNEL
   E = ENERGY GRADE LINE
   X = CURVES CROSSING OVER
   B = BRIDGE ENTRANCE OR EXIT
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY
```