STORMWATER CONTROL PLAN

For

Destino Paso, Tract 2962

New Hotels on Proposed Lot 2, 3, 4 and Lot 6
3350 and 3360 Airport Road
Paso Robles, CA
APN 025-436-029 and APN 025-436-030

Karen Stier
4301 Valley Meadow Road
Encino, CA 91436

Jerry & Kathie Handley
P.O. Box 1011
Paso Robles, CA 93446

Prepared by:
North Coast Engineering, Inc.
725 Creston Road, Suite B
Paso Robles, CA 93446

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I. Introduction

Project Name: Destino Paso, Tract 2962

A. The Property

Location: The Destino Paso project site is located on the east side of Airport Road, approximately 0.5 miles from Highway 46 East in Paso Robles. The site includes APNs 025-436-029 and 025-436-030, totaling approximately 40.3 acres of land. See Appendix A for Location Map for reference.

Address: 3350 & 3360 Airport Road, Paso Robles, CA 93446

Assessor's Parcel Numbers: 025-436-029 / 025-436-030

Existing property description:

The majority of the site drains to the west and is covered by native grasses and scattered oak groves. The hotel proposed on Parcel 2 is currently vacant and covered with native grasses. It currently sheet flows to the west and drainage is captured on the east side of Airport Road in existing storm drain inlets that flow into the Huerhuero. The hotel proposed for Parcel 3 currently contains an existing house, and a barn which are all proposed to be demolished prior to the start of construction on Parcel 3. In its existing state, storm water runoff flows via sheet flow and small localized swales. The proposed hotel on Parcel 3 and the proposed hotel on Parcel 4 sit on top of the existing hill, with a majority draining to the southwest, eventually crossing Airport Road and entering the Huerhuero Creek. The northeastern portion of the property drains to an existing drainage course on the north side, also eventually making its way to the Huerhuero Creek. The hotel proposed on Parcel 6 is located at the southwest corner of the site. It currently has a stock pond on the site which if it overtops, sheet flows down to Airport Road and is collected by existing storm drain inlets and is released to the Huerhuero. Proposed Parcel 6 contains an existing farm house and two barns. On the northerly part of the proposed parcel 5 existing water sheet flows through a wide area from an upstream area which is a tree lined drainage area that has an existing lake. No changes are proposed for Parcel 5. The developed condition of the proposed project will maintain the drainage patterns of the site. There are no critical areas or wildlife habitat on the site.

B. The Project

Project Type: Proposed Hotel Development

The proposed project consists of 4 hotels with a total of 291 rooms, and including a restaurant a small conference center, pools, parking lots, etc. The existing dirt road will be redeveloped into a full-width paved public road, providing driveway access to three hotels and potential for continuation onto the adjacent property. The fourth hotel has its own access point on Airport Road which it shares with the existing farmhouse. Five retention basins are proposed, one at the north east portion of the property for Parcel 4. Three basins are proposed on Parcel 2 the hotel on Parcel 2 as well as serving the hotels on Parcel 3 and Parcel 4. Two interconnected basins are proposed for the hotel on Parcel 6. Proposed grading will result in an export of material. (See Appendix C of the Conceptual Plans for reference).

Table 1: Summary of Areas (Parcels 2, 3, 4)

Undisturbed / Permeable / Landscaped Area:		= 448,630 sf
New Impervious Area:		
Concrete (Sidewalks / Paths / Patios / Etc.):	62,045 sf	
Asphalt (Road / Parking Lots):	180,440 sf	
Buildings:	76,300 sf	
		= 318,785 sf
Replaced Impervious Area:		
House / Out Building / Barn:		= 6,765 sf
Total Parcel 2, 3, 4 Site Area:		= 774,180 sf
		= 17.8 acres

Table 2: Summary of Areas (Parcel 6)

Undisturbed / Permeable / Landscaped Area:		= 61,820 sf
New Impervious Area:		
Concrete (Sidewalks / Paths / Patios / Etc.):	3,880 sf	
Asphalt (Road / Parking Lots):	29,800 sf	
Buildings:	16,800 sf	
		= 50,480 sf
Total Parcel 6 Site Area:		= 112,300 sf = 2.6 acres

Table 3: Summary of Areas (Overall)

Total new and/or replaced impervious surface area:	= 376,030 sf
Total Site Area:	= 886,480 sf = 20.4 acres

C. The Purpose

The purpose of this Stormwater Control Plan (SWCP) is to outline the site planning, LID concepts, best management practices (BMP's), and Stormwater Control Measures (SCMs) that will be employed in the design and development of the project. This report will demonstrate how the requirements will be met for the Post-Construction Stormwater Management Requirements in the Central Coast Region Resolution No. R3-2013-0032 prepared by the California Regional Water Quality Control Board Central Coast Region. These requirements went into effect on March 6, 2014. The requirements, methodology of analysis, and results will be outlined in the remainder of this report.

Please note, this report will **not** describe or include the traditional City of Paso Robles Public Works stormwater drainage flooding requirements which are listed in the Engineering Division Standard Details and Specifications.

II. Methodology

A. Post-Construction Stormwater Management Requirements

The total new and/or replaced impervious surface area is **376,030 sf**. (See the summary of areas Tables 1 and 2 above along with the DMA breakdown tables at the end of the report)

The table below summarizes the Post-Construction Stormwater Management Requirement thresholds and if they apply to the project.

Table 4: PCR Requirements

Performance Requirement	Impervious Threshold	Applies:
No. 1 Site Design and Runoff Reduction	> 2,500 sf	Yes
No. 2 Water Quality Treatment	> 5,000 sf	Yes
No. 3 Runoff Retention	> 15,000 sf	Yes
No. 4 Peak Management	> 22,500 sf	Yes

The project is located within Watershed Management Zone 1 (WMZ 1). (See Appendix B)

There are **no adjusted requirements** based on the local jurisdiction's approval, an allowance of a Special Circumstance, or Urban Sustainability Area designation. A description of technical infeasibility will not be needed since there will be no additional associated projects that will be providing off-site mitigation. All of the mitigation is handled on-site.

The performance requirement criteria and how they are satisfied are described and contained in the following sections.

1. Performance Requirement No. 1
   Site Design and Runoff Reduction

Since the project's impervious area of **376,030 sf** exceeds the threshold of 2,500 sf, the following components satisfy this requirement.

Site assessment summary:

The following site assessment measures were used to identify opportunities and constraints to implement LID Stormwater Control Measures. The site plan was developed and designed taking the following into account (See Appendix C: Conceptual Plans for reference):

- Site topography & Vegetative cover/trees
- Hydrologic features including existing swales and watercourses
- Soil types and hydrologic soil groups
- Utilities, Easements, Zoning/Land Use, Setbacks, Other pertinent overlay(s)

Site design measures used:

- Construct drive aisles, sidewalks, and parking stalls to the minimum widths and depths necessary, provided that public safety or mobility uses are not compromised
- Conform the site layout along natural landforms to the maximum extent feasible
- Avoid excessive grading and disturbance of vegetation and soils to the maximum extent feasible

Runoff Reduction Measures:

- Disconnected roof drains
- Minimize stormwater runoff by directing runoff from the buildings, sidewalks and road improvements onto vegetated areas safely away from building foundations and footings, consistent with California building code

Drainage Management Areas (DMAs)

Drainage Management Areas (DMAs) were delineated to support a decentralized approach to stormwater management and associated basins were identified at critical discharge points or important stormwater drainage locations. (See Appendix D for the Watershed Exhibit showing the DMAs and the DMA breakdown tables at the end of the report).

2. Performance Requirement No. 2
   Water Quality Treatment

Since the project's impervious area of **376,030 sf** exceeds the threshold of 5,000 sf, Low Impact Development (LID) Treatment Systems have been incorporated to satisfy this requirement.

The stormwater runoff is treated using onsite measures to reduce pollutant loads and concentrations using physical, biological, and chemical removal using Low Impact Development (LID) Treatment Systems – implementing harvesting and use, infiltration, and evapotransportation Stormwater Control Measures that collectively achieve the following hydraulic sizing criteria:

- Hydraulic sizing criteria: LID systems shall be designed to retain stormwater runoff equal to the volume of runoff generated by the 85th percentile 24-hour storm event, based on local rainfall data.

- 85th Percentile 24-hour Rainfall Depth = **0.8 inches**

    - *Note: Rainfall depth provided by the City of Paso Robles Standard Specifications and Details Section V.A.*

Performance Requirement No. 2 will be satisfied because a greater rainfall depth associated with Performance Requirement No. 3 Runoff Retention also needs to be met. (See the next section).

3. Performance Requirement No. 3
   Runoff Retention

Since the project's impervious area of **376,030 sf** exceeds the threshold of 15,000 sf, LID systems have been incorporated to satisfy this requirement.

- For Watershed Management Zone 1, hydraulic sizing criteria: LID systems shall be designed to retain stormwater runoff equal to the volume of runoff generated by the 95th percentile 24-hour storm event, based on local rainfall data. Prevent offsite discharge from events up to the 95th percentile 24-hour rainfall event. Compliance must be achieved by infiltration.

- 95th Percentile 24-hour Rainfall Depth = **1.45 inches**

    - *Note: Rainfall depth provided by the City of Paso Robles Standard Specifications and Details Section V.A.*

Hybrid LID retention / detention basins along with swales will be sized and installed to capture, convey, and retain the required volume. (See the Hydrology / Hydraulics section B for how the retention / detention basin SCM sizing will satisfy this requirement).

4. Performance Requirement No. 4
   Peak Management

Since the project's impervious area of **376,030 sf** exceeds the threshold of 22,500 sf, hybrid retention / detention basins will be designed and implemented on-site to satisfy this requirement.

- The post-development peak flows, discharged from the site, shall not exceed the pre-project peak flows for the 2 - through 10-year storm events.

The Post-construction Stormwater Structural Control Measures (SCMs) that will be used includes swales that will capture and convey runoff to a storm drain inlet and culvert system that directs the water to the four proposed shallow retention / detention basins. The required, cumulative retention volume will be stored below the spillways. A riser pipe with atrium grate or mid-state box (or approved) equal will act as the detention spillway.

The post-development peak flows, discharged from the site, will not exceed the pre-project peak flows for the 2-year through 10-year storm events. Ponding depths will vary, with a maximum surface inundation depth of 1.5 feet at the upper basin A near Hotel 1, 1-foot at basins B and C uphill of Hotel 3, and a maximum surface inundation depth of 1.3 feet at the lower basin D near Airport Road. The interconnected basins at Hotel 4 will have a maximum surface inundation depth of 1-foot. Safe overland flow will be provided at each of the basins. (See Appendix C of the Conceptual Plans and basin sections for reference).

These SCMs will satisfy all the performance requirements 1, 2, 3 and 4. (See the Hydrology / Hydraulics section B for how these requirements are achieved).

B. Hydrology / Hydraulics

Existing and developed watersheds have been delineated and broken out into drainage management areas (DMAs) using a topographic map of the project site; a review of the topographic information has been completed to verify drainage patterns. All historical drainage patterns were maintained to the extent feasible and disturbance within the natural waterways present on the site were reduced to the extent feasible.

Since the impervious threshold > 15,000 sf is exceeded for Performance Requirement No. 3 Runoff Retention, the 95th percentile storm event will be used to determine all Post-construction Stormwater Management retention requirements. As prescribed in Attachment D of the Post-construction Stormwater Management Requirements, Method 1: Simple Method will be used to determine that the SCM Capture Volume will be greater than the Retention Volume for the 95th Percentile 24-hr Rainfall Depth.

There is some off-site run-on to the property at the northeast part of the property and is included in DMA-A.

A portion of the proposed public road improvements will not be collected and conveyed to a proposed basin. This area is delineated by DMA-E. However, the proposed impervious improvements and associated retention volume will be mitigated on-site within Basin A.

See the summary of calculations below. The pertinent formulas used in this report to calculate the storage requirements are presented below in italics.

DMA Tributary Area = Total Area – Undisturbed Area – Removed – Reduction
(For simplicity, it is assumed that all areas that are not impervious are 'landscape')

The requirements and formulas are prescribed in Attachment D of the Post-Construction Stormwater Management requirements:

95th Percentile 24-hr Storm Event Rainfall Depth > 85th Percentile 24-hr Storm Event Rainfall Depth
1.45 inches > 0.8 inches ***<u>1.45 inches will be used</u>***

Compute the Runoff Coefficient "C"

As set forth in WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998), pages 175-178 and based on the translation of rainfall to runoff using a runoff regression equation developed using two years of data from more than 60 urban watersheds nationwide:

$$C = 0.858i^3 - 0.78i^2 + 0.774i + 0.04$$

Where "i" is the fraction of the tributary area that is impervious

$$i = (\text{Impervious Area}) / (\text{Tributary Area})$$

Retention Volume for 95th Percentile 24-hr Rainfall Depth = (C) x (Rainfall Depth$_{95th}$) x (Tributary Area)

See the Summary Table below for required retention volume calculations by DMA:

Table 5: 95th Runoff Volume Retention Calculation Summary

DMA No.	TOTAL AREA (SF)	New / Repl Impervious Area (SF)	% IMPERVIOUS, i	RUNOFF COEFFICIENT, C	95th REQUIRED RETENTION VOLUME (CF)
A	89,500	28,635	0.32	0.24	2,555
B	73,800	4,705	0.06	0.09	775
C	61,700	5,160	0.08	0.10	745
D	532,245	268,595	0.52	0.35	22,265
E	23,700	11,690	0.49	0.33	960
TOTAL	**780,945**				**27,300**

The 95th Percentile 24-hr Rainfall Depth governs, Performance Requirement No. 3 controls and Performance Requirement No. 2 is satisfied as long as No. 3 is met.

Structural Stormwater Control Measure (SCM) Sizing

As described above, the Method 1: Simple Method was used to determine that the SCM Capture Volume is greater than the Retention Volume for the 95th Percentile 24-hr Rainfall Depth. The available volume of the retention / detention basin SCMs, were calculated in a **static state** to demonstrate the SCM Capture Volume.

See Appendix C for the Conceptual Plans showing the four retention / detention ponding areas. The retention volume for each ponding area below the spillway riser pipe or grate inlet. Here is a summary of the basins (see the basin sections at the back of Appendix C for reference):

Table 6: Basin Summary

Basin A + E:	12" rock	Surface bottom = 817.0	Top of Grate (TG) = 818.5
Basin B:	(no rock)	Surface Bottom = 747.0	Top of Grate (TG) = 748.0
Basin C:	(no rock)	Surface Bottom = 747.0	Top of Grate (TG) = 748.0
Basin D:	(no rock)	Surface Bottom = 730.0	Top of Grate (TG) = 731.3
Basin HTL4:	24" rock	Surface Bottom = 730.0	Top of Grate (TG) = 731.0

Here is a summary of the retention volume provided:

Table 7: SCM Basin Volume Summary

BASIN	Required Volume	Provided	Inundation Depth	Drain time (hr)	(days)
A + E	3,515	3,645	1' rock /1.5' surface	25.0	1.0
B	775	1,846	1-foot	30.3	1.3
C	745	1,062	1-foot	35.2	1.5
D	22,265	23,004	1.3-feet	18.2	0.8
TOTAL	27,300	29,556			

BASIN	Required Volume	Provided	Inundation Depth	Drain time (hr)	(days)
HTL4	4,185	4,581	2' rock/1' surface	28.7	1.2

SCM Capture Volume > Retention Volume for 95th Percentile 24-hr Rainfall Depth

29,556 cubic feet > 27,300 cubic feet

Performance Requirement No. 2 and Performance Requirement No. 3 are both satisfied.

Sanitary Storm and Sewer Analysis (SSA) Modeling and Methodology

For Performance Requirement No. 4, a Sanitary Storm and Sewer Analysis (SSA) model was prepared to analyze the DMA, SCMs and to determine the peak flow rates. SCS TR-55 hydrology method was used with user-defined time of concentrations (TOCs). They hydrodynamic link routing method and Hazen-Williams force main equations were used. The NOAA Atlas 14 24-hour duration rainfall data was used for the 2-, 5- and 10-year storm events. Weighted composite curve numbers (CNs) were calculated for each DMA. Basin depth, area and volume tables were used to define the storage curves for the proposed basins. Orifices were used to model the riser pipe spillway and discharge from the basins. The results of the model show that the detention requirements for the post-development peak flows, discharged from the site, do not exceed the pre-project peak flows for the 2- through 10-year storm events. (See Appendix D for the Watershed Exhibits. See Appendix G for the SSA model and results. Please note, all basin ponding areas are preliminary and schematic; they are subject to change during final design.)

Infiltration data

For the SSA model analysis, infiltration data from Earth Systems Pacific was used from tests conducted on March 16, 2016. (See Appendix H). The test results for the area around Basin A was 1 inch per hour. An infiltration rate of 0.5 inches per hour was used for modeling Basins A, B and C. The test results for the area around Basin D and HTL4 was between 3 and 20 inches per hour. An infiltration rate of 1 inch per hour was used for modeling Basin D and HTL4.

Other Assumptions

- Proposed basins will have a 1% minimum bottom and 4:1 maximum side slopes
- Washed/cleaned No. 57 rock, or equal, with a 40% void ratio was used as the subsurface storage structural section for Basin A and Basin HTL4.

The proposed project maintains the existing drainage patterns and low impact development features are incorporated into site design. The four hybrid retention / detention basins have been designed to meet the PCR requirements. In summary, the post-development peak flows, discharged from the site, will not exceed the pre-project peak flows for the 2 - through 10-year storm events. See Appendix E: SSA Model and Results. Here is a summary:

Table 8: Detention Peak Flow Summary Table

Post-developed Peak		Pre-project Peak
Q_2 = 1.20 cfs	<	Q_2 = 3.65 cfs
Q_5 = 2.07 cfs	<	Q_5 = 5.97 cfs
Q_{10} = 2.34 cfs	<	Q_{10} = 6.82 cfs

Performance Requirement No. 4 is satisfied.

III. Results

During the final design process, the project will incorporate the Runoff Reduction Measures and Structural Stormwater Control Measures (SCMs) described in this report and shown on the SCM exhibits (see the draft plans and sections in Appendix C). This will satisfy all requirements prescribed by the Post-construction Stormwater Management Requirements.

- **Performance Requirement No. 1 is satisfied**
- **Performance Requirement No. 2 is satisfied**
- **Performance Requirement No. 3 is satisfied**
- **Performance Requirement No. 4 is satisfied**

A. Statement of Compliance

On-site compliance can be achieved. There is no documentation needed to demonstrate infeasibility where on-site compliance cannot be achieved because it doesn't apply.

The Water Quality Treatment, Runoff Retention, and Peak Management Performance Requirements will be met on-site.

B. Operations and Maintenance (O&M) Plan

To ensure long-term performance for all structural Stormwater Control Measures (SCMs), the following O&M Plan should be followed:

- Have designated personnel conduct inspections of stormwater conveyance systems prior to the rainy season
- Inspect all structural SCMs:
    - At least once annually prior to the rainy season.
    - Prior to a forecast rain
    - Daily during extended rain events
    - After rain events
    - Weekly during the rainy season
- Keep the parking areas clean and orderly.
    - Remove debris in a timely fashion.
- Routinely sweep, shovel, and dispose of litter to appropriate trash receptacles.
- Allow sheet runoff to flow into landscape areas, bioretention/detention basin areas; remove any accumulated sediment from the curbs and gutters or the curb cuts.
- Inspect overflow inlets for leaves and other debris.
    - Remove and dispose of debris in a timely fashion.
- Establish frequency of road sweeping based on usage and field observations of debris accumulation.
    - Sweep all roads before the onset of the wet season at a frequency that is to be established by the Home Owner's Association
        - Use dry cleaning methods (e.g., sweeping, vacuuming) to prevent the discharge of pollutants into the stormwater conveyance system if possible.
- Annually inspect and review basin vegetation health. Prune, trim and/or remove and replace vegetation as needed to effectively maintain basins.

If / when the property is sold, a Maintenance Agreement and Transfer of Responsibility for SCMs will be completed under separate cover in the future.

Owner of facilities

The owner of the facilities is: Karen Stier, Jerry and Kathie Handley

ADDITIONAL TABLES:

- Drainage Management Area (DMA) Summary Table
- Composite Curve Number (CN) Summary
- 95th Percentile Required Retention Volume Summary
- Basin Provided Retention Volume Summary
- DMA Breakdown Tables (A, B, C, D, E, HTL4)
- Basin Ponding Area Summary Tables (Basins A, B, C, D, HTL4)

PROPOSED

DMA No.	TOTAL AREA (SF)	AREA (AC)	AREA (SQ MI)	Composite Curve Number (CN)	% IMPERVIOUS, i	RUNOFF COEFFICIENT, c	95th RUNOFF VOLUME, RETENTION (cf)	CY
A	89,500	2.0546	0.003210	82	0.32	0.24	2,555	95
B	73,800	1.6942	0.002647	76	0.06	0.09	775	29
C	61,700	1.4164	0.002213	76	0.08	0.10	745	28
D	532,245	12.2187	0.019092	86	0.52	0.35	22,265	825
E	23,700	0.5441	0.000850	86	0.49	0.33	960	36
TOTAL	**780,945**	**17.9**					**27,300**	**1,011**

SUMMARY

BASIN	Required Volume	CY	Provided	CY	Difference	Inundation Depth	Drain time (hr)	(days)
A + E	3,515	130	3,645	135	-5	1' rock /1.5' surface	25.0	1.0
B	775	29	1,846	68	-40	1-foot	30.3	1.3
C	745	28	1,062	39	-12	1-foot	35.2	1.5
D	22,265	825	23,004	852	-27	1.3-feet	18.2	0.8
TOTAL	27,300	1,011	29,556	1,095	-84			

DMA No.	TOTAL AREA (SF)	AREA (AC)	AREA (SQ MI)	Composite Curve Number (CN)	% IMPERVIOUS, i	RUNOFF COEFFICIENT, c	95th RUNOFF VOLUME, RETENTION (cf)	CY
HTL4	112,300	2.5781	0.004028	85	0.45	0.31	4,185	155
TOTAL	**112,300**						**4,185**	**155**

SUMMARY

BASIN	Required Volume	CY	Provided	CY	Difference	Inundation Depth	Drain time (hr)	(days)
HTL4	4,185	155	4,581	170	-15	2' rock/1' surface	28.7	1.2

EXISTING CONDITION

SURFACE TYPE	AREA, SF
CONCRETE	0
ASPHALT	0
BUILDINGS	0
UNDISTURBED GROUND	89,500
TOTAL AREA	**89,500**

PROPOSED CONDITION

SURFACE TYPE	AREA, SF
NEW IMPERVIOUS AREAS	
-	0
-	0
CONCRETE	3,885
ASPHALT	24,750
BUILDINGS	0
SUBTOTAL	28,635
REPLACED IMPERVIOUS AREAS	
N/A	
SUBTOTAL	0
PERVIOUS AREAS	
PERVIOUS CONCRETE	0
LANDSCAPE	60,865
UNDISTURBED GROUND	0
SUBTOTAL	60,865
TOTAL AREA	**89,500**

QUANTITY	VALUE
AREA OF DISTURBANCE (SF) =	89,500
50% REPLACEMENT CREDIT (SF) =	0
% IMPERVIOUS, *i* =	32%
95th RAINFALL DEPTH (IN) =	1.45
RUNOFF COEFFICIENT, c =	0.24
MITIGATION VOLUME (CF) =	**2,555**

EXISTING CONDITION

SURFACE TYPE	AREA, SF
CONCRETE	0
ASPHALT	0
BUILDINGS	0
UNDISTURBED GROUND	73,800
TOTAL AREA	**73,800**

PROPOSED CONDITION

SURFACE TYPE	AREA, SF
NEW IMPERVIOUS AREAS	
-	0
-	0
CONCRETE	1,480
ASPHALT	0
BUILDINGS	3,225
SUBTOTAL	4,705
REPLACED IMPERVIOUS AREAS	
N/A	0
SUBTOTAL	0
PERVIOUS AREAS	
PERVIOUS CONCRETE	0
LANDSCAPE	69,095
UNDISTURBED GROUND	0
SUBTOTAL	69,095
TOTAL AREA	**73,800**

QUANTITY	VALUE
AREA OF DISTURBANCE (SF) =	73,800
50% REPLACEMENT CREDIT (SF) =	0
% IMPERVIOUS, *i* =	6%
95th RAINFALL DEPTH (IN) =	1.45
RUNOFF COEFFICIENT, c =	0.09
MITIGATION VOLUME (CF) =	**775**

EXISTING CONDITION

SURFACE TYPE	AREA, SF
CONCRETE	0
ASPHALT	0
BUILDINGS	0
UNDISTURBED GROUND	61,700
TOTAL AREA	**61,700**

PROPOSED CONDITION

SURFACE TYPE	AREA, SF
NEW IMPERVIOUS AREAS	
-	0
-	0
CONCRETE	1,300
ASPHALT	0
BUILDINGS	3,860
SUBTOTAL	5,160
REPLACED IMPERVIOUS AREAS	
N/A	
SUBTOTAL	0
PERVIOUS AREAS	
PERVIOUS CONCRETE	0
LANDSCAPE	56,540
UNDISTURBED GROUND	0
SUBTOTAL	56,540
TOTAL AREA	**61,700**

QUANTITY	VALUE
AREA OF DISTURBANCE (SF) =	61,700
50% REPLACEMENT CREDIT (SF) =	0
% IMPERVIOUS, *i* =	8%
95th RAINFALL DEPTH (IN) =	1.45
RUNOFF COEFFICIENT, c =	0.10
MITIGATION VOLUME (CF) =	**745**

EXISTING CONDITION

SURFACE TYPE	AREA, SF
CONCRETE	0
ASPHALT	0
BUILDINGS	6,765
UNDISTURBED GROUND	525,480
TOTAL AREA	**532,245**

PROPOSED CONDITION

SURFACE TYPE	AREA, SF
NEW IMPERVIOUS AREAS	
-	0
-	0
CONCRETE	53,820
ASPHALT	145,560
BUILDINGS	69,215
SUBTOTAL	268,595
REPLACED IMPERVIOUS AREAS	
N/A	6,765
SUBTOTAL	6,765
PERVIOUS AREAS	
PERVIOUS CONCRETE	0
LANDSCAPE	256,885
UNDISTURBED GROUND	6,765
SUBTOTAL	263,650
TOTAL AREA	**532,245**

QUANTITY	VALUE
AREA OF DISTURBANCE (SF) =	525,480
50% REPLACEMENT CREDIT (SF) =	3,383
% IMPERVIOUS, *i* =	52%
95th RAINFALL DEPTH (IN) =	1.45
RUNOFF COEFFICIENT, c =	0.35
MITIGATION VOLUME (CF) =	**22,265**

EXISTING CONDITION

SURFACE TYPE	AREA, SF
CONCRETE	0
ASPHALT	0
BUILDINGS	0
UNDISTURBED GROUND	23,700
TOTAL AREA	**23,700**

PROPOSED CONDITION

SURFACE TYPE	AREA, SF
NEW IMPERVIOUS AREAS	
-	0
-	0
CONCRETE	1,560
ASPHALT	10,130
BUILDINGS	0
SUBTOTAL	11,690
REPLACED IMPERVIOUS AREAS	
N/A	
SUBTOTAL	0
PERVIOUS AREAS	
PERVIOUS CONCRETE	0
LANDSCAPE	12,010
UNDISTURBED GROUND	0
SUBTOTAL	12,010
TOTAL AREA	**23,700**

QUANTITY	VALUE
AREA OF DISTURBANCE (SF) =	23,700
50% REPLACEMENT CREDIT (SF) =	0
% IMPERVIOUS, *i* =	49%
95th RAINFALL DEPTH (IN) =	1.45
RUNOFF COEFFICIENT, c =	0.33
MITIGATION VOLUME (CF) =	**960**

EXISTING CONDITION

SURFACE TYPE	AREA, SF
CONCRETE	0
ASPHALT	0
BUILDINGS	0
UNDISTURBED GROUND	112,300
TOTAL AREA	**112,300**

PROPOSED CONDITION

SURFACE TYPE	AREA, SF
NEW IMPERVIOUS AREAS	
-	0
-	0
CONCRETE	3,880
ASPHALT	29,800
BUILDINGS	16,800
SUBTOTAL	50,480
REPLACED IMPERVIOUS AREAS	
N/A	
SUBTOTAL	0
PERVIOUS AREAS	
PERVIOUS CONCRETE	0
LANDSCAPE	61,820
UNDISTURBED GROUND	0
SUBTOTAL	61,820
TOTAL AREA	**112,300**

QUANTITY	VALUE
AREA OF DISTURBANCE (SF) =	112,300
50% REPLACEMENT CREDIT (SF) =	0
% IMPERVIOUS, *i* =	45%
95th RAINFALL DEPTH (IN) =	1.45
RUNOFF COEFFICIENT, c =	0.31
MITIGATION VOLUME (CF) =	**4,185**

Basin Ponding Area Summary (Basin A)

Elevation - Storage - Discharge (SUMMARY)

Elevation - Storage - Discharge							
Elevation	Diff	Depth	Contour	Descrp	Storage Volume		
(FT)	(FT)	(FT)	Area (sf)	(type)	Increment	Sum	(AC-FT)
					(CF)	(CF)	
816.0	0.0	0.0	3500.0	ROCK	0.0	0.0	0.0000
816.5	0.5	0.5	3500.0	ROCK	700.0	700.0	0.0161
817.0	0.5	1.0	783	Bottom	700.0	1,400.0	0.0321
817.5	0.5	1.5	1,208	Surface	497.8	1,897.8	0.0436
818.0	0.5	2.0	1,729	Surface	734.3	2,632.0	0.0604
818.5	0.5	2.5	2,321	Top	1,012.5	3,644.5	0.0837
819.0	0.5	3.0	2,988	Spill	1,327.3	4,971.8	0.1141
819.5	0.5	3.5	3,740	Spill	1,682.0	6,653.8	0.1527
820.0	0.5	4.0	4,735	Spill	2,118.8	8,772.5	0.2014
820.5	0.5	4.5	5,658	Overtop	2,598.3	11,370.8	0.2610

Basin Ponding Area Summary (Basin B)

Elevation - Storage - Discharge (SUMMARY)

Elevation - Storage - Discharge							
Elevation	Diff	Depth	Contour	Descrp	Storage Volume		
(FT)	(FT)	(FT)	Area (sf)	(type)	Increment	Sum	(AC-FT)
					(CF)	(CF)	
747.0	0.0	0.0	1,464	Bottom	0.0	0.0	0.0000
747.5	0.5	0.5	1,840	Surface	826.0	826.0	0.0190
748.0	0.5	1.0	2,238	Top	1,019.5	1,845.5	0.0424
748.5	0.5	1.5	2,664	Spill	1,225.5	3,071.0	0.0705
749.0	0.5	2.0	3,114	Spill	1,444.5	4,515.5	0.1037
749.5	0.5	2.5	3,590	Spill	1,676.0	6,191.5	0.1421
750.0	0.5	3.0	4,628	Spill	2,054.5	8,246.0	0.1893
750.5	0.5	3.5	5,272	Overtop	2,475.0	10,721.0	0.2461

Basin Ponding Area Summary (Basin C)

Elevation - Storage - Discharge (SUMMARY)

Elevation - Storage - Discharge							
Elevation	Diff	Depth	Contour	Descrp	Storage Volume		
(FT)	(FT)	(FT)	Area (sf)	(type)	Increment	Sum	(AC-FT)
					(CF)	(CF)	
747.0	0.0	0.0	725	Bottom	0.0	0.0	0.0000
747.5	0.5	0.5	1,054	Surface	444.8	444.8	0.0102
748.0	0.5	1.0	1,416	Top	617.5	1,062.3	0.0244
748.5	0.5	1.5	1,803	Spill	804.8	1,867.0	0.0429
749.0	0.5	2.0	2,215	Spill	1,004.5	2,871.5	0.0659
749.5	0.5	2.5	2,653	Spill	1,217.0	4,088.5	0.0939
750.0	0.5	3.0	3,115	Spill	1,442.0	5,530.5	0.1270
750.5	0.5	3.5	3,600	Overtop	1,678.8	7,209.3	0.1655

Basin Ponding Area Summary (Basin D)

Elevation - Storage - Discharge (SUMMARY)

Elevation - Storage - Discharge							
Elevation	Diff	Depth	Contour	Descrp	Storage Volume		
(FT)	(FT)	(FT)	Area (sf)	(type)	Increment	Sum	(AC-FT)
					(CF)	(CF)	
730.0	0.0	0.0	15,225	Bottom	0.0	0.0	0.0000
730.5	0.5	0.5	17,127	Surface	8,088.0	8,088.0	0.1857
731.0	0.5	1.0	19,060	Surface	9,046.8	17,134.8	0.3934
731.3	0.3	1.3	20,236	Top	5,894.4	23,029.1	0.5287
731.5	0.2	1.5	21,026	Spill	4,126.2	27,155.4	0.6234
732.0	0.5	2.0	23,024	Spill	11,012.5	38,167.9	0.8762
732.5	0.5	2.5	25,054	Overtop	12,019.5	50,187.4	1.1521

Basin Ponding Area Summary (Basin HTL4)

Elevation - Storage - Discharge (SUMMARY)

Elevation - Storage - Discharge							
Elevation	Diff	Depth	Contour	Descrp	Storage Volume		
(FT)	(FT)	(FT)	Area (sf)	(type)	Increment	Sum	(AC-FT)
					(CF)	(CF)	
728.0	0.0	0.0	1,914	ROCK	0.0	0.0	0.0000
728.5	0.5	0.5	1,914	ROCK	382.8	382.8	0.0088
729.0	0.5	1.0	1,914	ROCK	382.8	765.6	0.0176
729.5	0.5	1.5	1,914	ROCK	382.8	1,148.4	0.0264
730.0	0.5	2.0	1,914	Bottom	382.8	1,531.2	0.0352
730.5	0.5	2.5	3,047	Surface	1,240.3	2,771.5	0.0636
731.0	0.5	3.0	4,192	Surface	1,809.8	4,581.2	0.1052
731.5	0.5	3.5	5,288	Top	2,370.0	6,951.2	0.1596
732.0	0.5	4.0	6,473	Spill	2,940.3	9,891.5	0.2271
732.5	0.5	4.5	7,540	Spill	3,503.3	13,394.7	0.3075
733.0	0.5	5.0	8,658	Overtop	3,782.8	13,674.2	0.3139

APPENDICES:

Appendix A: Location Map

Appendix B: Watershed Management Zone Exhibit

Appendix C: Conceptual Plans (for reference) and Basin Sections

Appendix D: Watershed Exhibits

Appendix E: NRCS Web Soil Survey – Hydrologic Soil Group Data

Appendix F: NOAA Atlas 14 Rainfall Information

Appendix G: SSA Model and Results

Appendix H: Earth Systems Pacific Infiltration Test Data from March 16, 2016

Appendix A: Location Map

LOCATION MAP

NO SCALE

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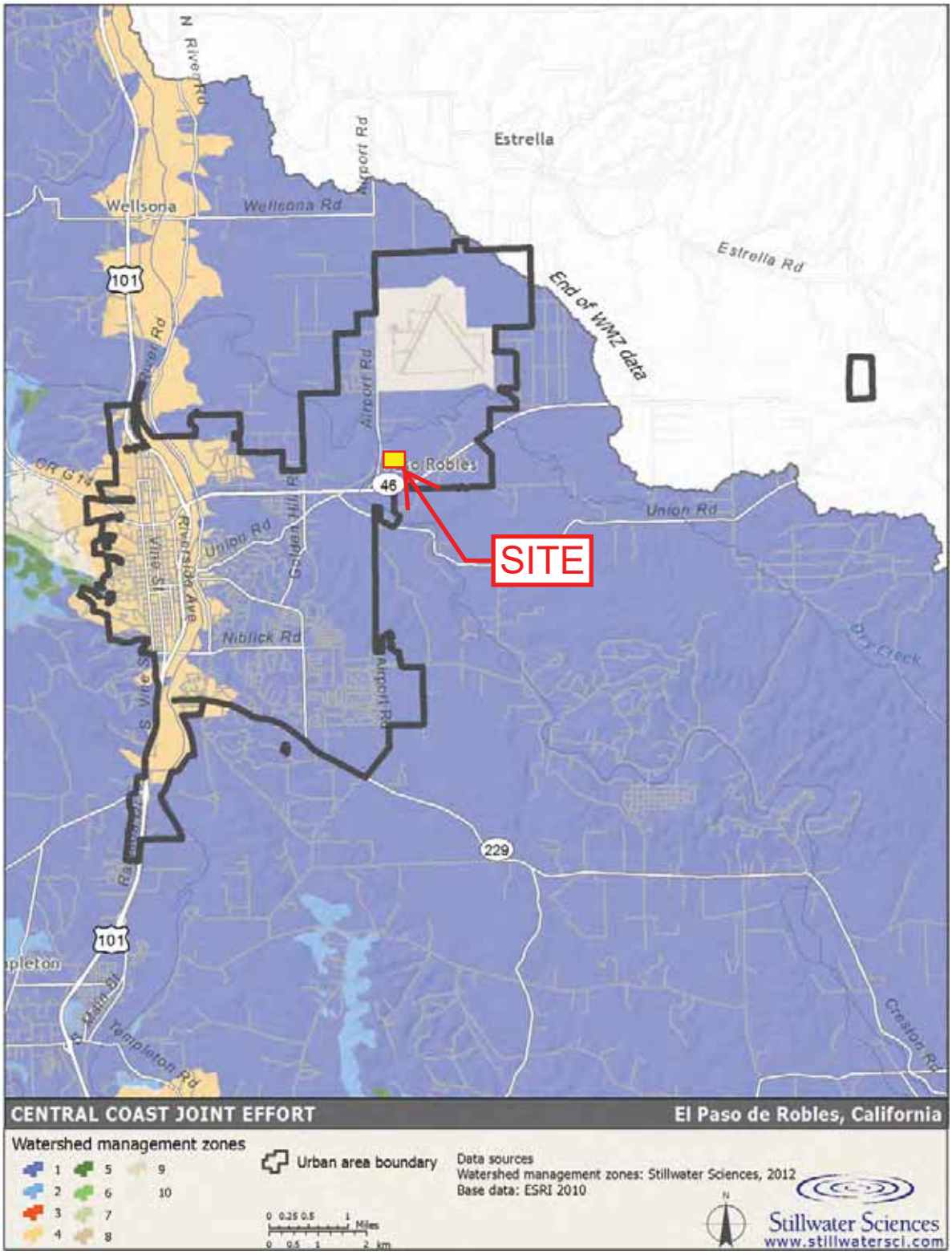
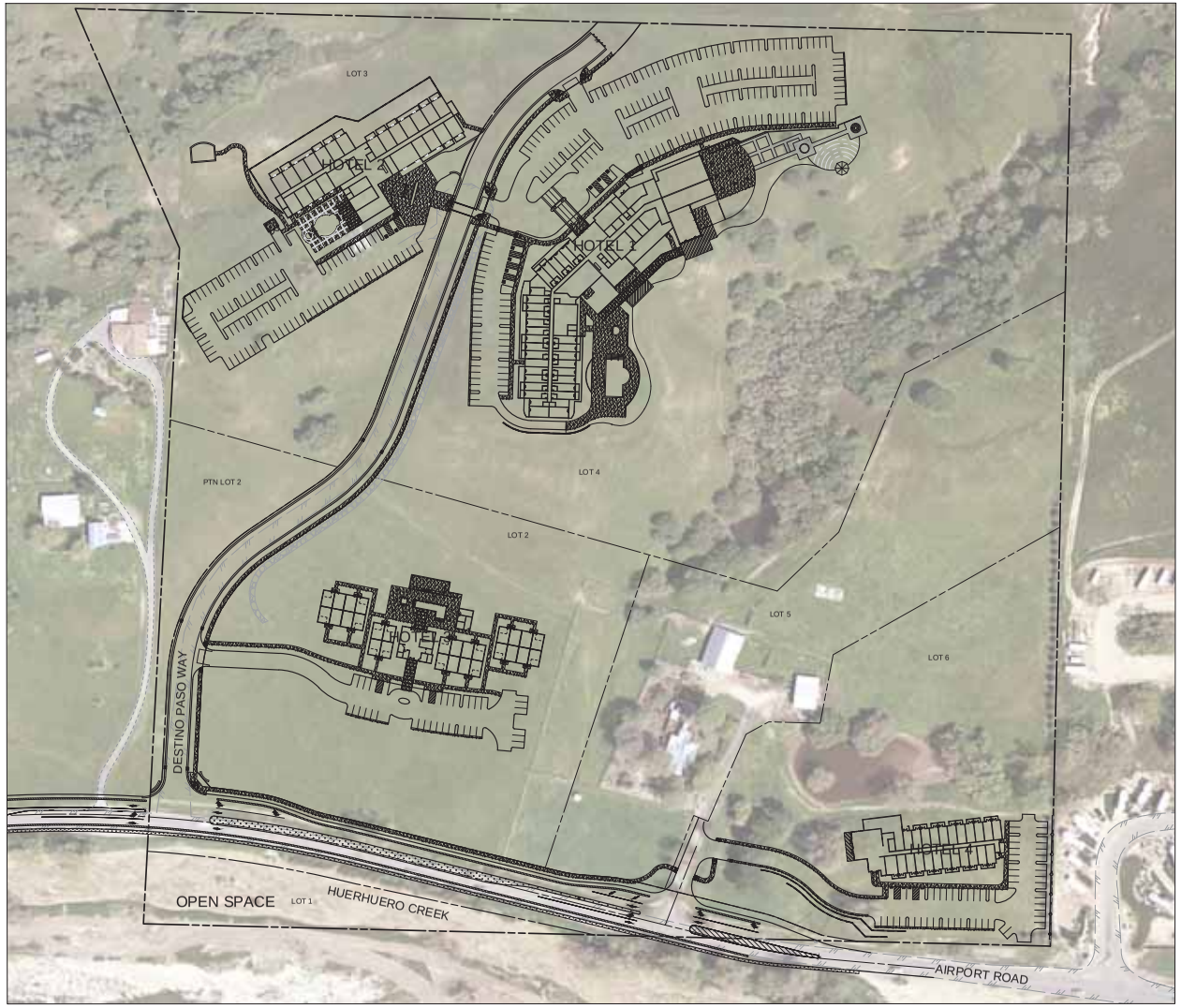
Appendix B: Watershed Management Zone Exhibit


Estrella
Wellsona
Wellsona Rd
Estrella Rd
End of WMZ data
N River Rd
Airport Rd
101
River Rd
OR G14
46
Union Rd
Golden Hill Rd
Riverside Ave
S Vine St
Niblick Rd
SITE
Dry Creek
229
Creston Rd
Templeton Rd
CENTRAL COAST JOINT EFFORT
El Paso de Robles, California
Watershed management zones
1
2
3
4
5
6
7
8
9
10
Urban area boundary
Data sources
Watershed management zones: Stillwater Sciences, 2012
Base data: ESRI 2010
Miles
km
Stillwater Sciences
www.stillwatersci.com

Appendix C: Conceptual Plans (for reference) and Basin Sections

DEVELOPMENT PLAN
FOR

DESTINO PASO RESORT HOTEL

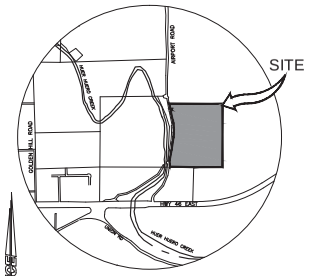


SITE STATISTICS - OVERVIEW

TOTAL GROSS AREA	40.3 ACRES
NET AREA	37.1 ACRES
RECORD OWNERS:	KAREN STIER 4301 VALLEY MEADOW ROAD ENCINO, CA 91436 JERRY & KATHIE HANDLEY P.O. BOX 1011 PASO ROBLES, CA 93447
APPLICANT	KAREN STIER 4301 VALLEY MEADOW ROAD ENCINO, CA 91436
ENGINEER	NORTH COAST ENGINEERING, INC. 725 CRESTON RD., STE. B, PASO ROBLES, CA 93446 CHRISTY GABLER R.C.E. 64821 EXP. 6/30/09
A.P.N.	025-436-029 & 030
EXISTING USE	VACANT / AG / RESIDENCE
EXISTING GENERAL PLAN DESIGNATION	POS
EXISTING ZONING	POS
PROPOSED USE	RESORT / EXISTING HOUSE

SHEET INDEX

1	COVER SHEET	
2	VESTING TENTATIVE MAP	
3	PRELIMINARY GRADING	WEST
4	PRELIMINARY GRADING	EAST
5	PRELIMINARY UNDERGROUND	WEST
6	PRELIMINARY UNDERGROUND	EAST
7	SITE CROSS SECTIONS	



LOCATION MAP
NO SCALE

NCE

0 40' 80' 160'
SCALE: 1"=80'

DATE SUBMITTED: 06/03/2016

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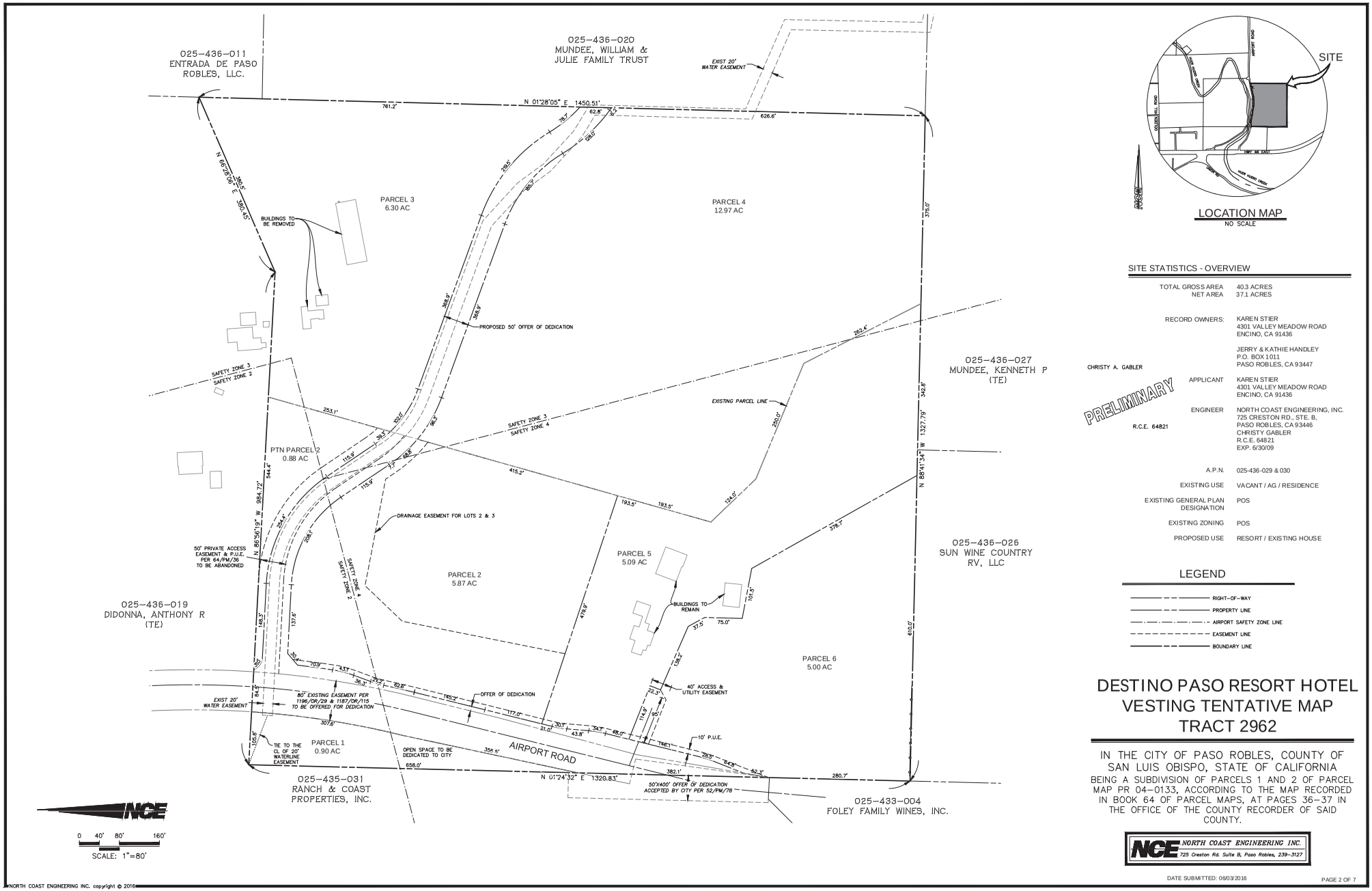

LOCATION MAP
NO SCALE

SITE STATISTICS - OVERVIEW

TOTAL GROSS AREA	40.3 ACRES
NET AREA	37.1 ACRES
RECORD OWNERS:	KAREN STIER 4301 VALLEY MEADOW ROAD ENCINO, CA 91436 JERRY & KATHIE HANDLEY P.O. BOX 1011 PASO ROBLES, CA 93447
APPLICANT	KAREN STIER 4301 VALLEY MEADOW ROAD ENCINO, CA 91436
ENGINEER	NORTH COAST ENGINEERING, INC. 725 CRESTON RD., STE. B, PASO ROBLES, CA 93446 CHRISTY GABLER R.C.E. 64821 EXP. 6/30/09
A.P.N.	025-436-029 & 030
EXISTING USE	VACANT / AG / RESIDENCE
EXISTING GENERAL PLAN DESIGNATION	POS
EXISTING ZONING	POS
PROPOSED USE	RESORT / EXISTING HOUSE

CHRISTY A. GABLER

PRELIMINARY

R.C.E. 64821

LEGEND

- RIGHT-OF-WAY
- PROPERTY LINE
- AIRPORT SAFETY ZONE LINE
- EASEMENT LINE
- BOUNDARY LINE

DESTINO PASO RESORT HOTEL
VESTING TENTATIVE MAP
TRACT 2962

IN THE CITY OF PASO ROBLES, COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA

BEING A SUBDIVISION OF PARCELS 1 AND 2 OF PARCEL MAP PR 04-0133, ACCORDING TO THE MAP RECORDED IN BOOK 64 OF PARCEL MAPS, AT PAGES 36-37 IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

NORTH COAST ENGINEERING INC.
725 Creston Rd. Suite B, Paso Robles, 239-3127

DATE SUBMITTED: 06/03/2016

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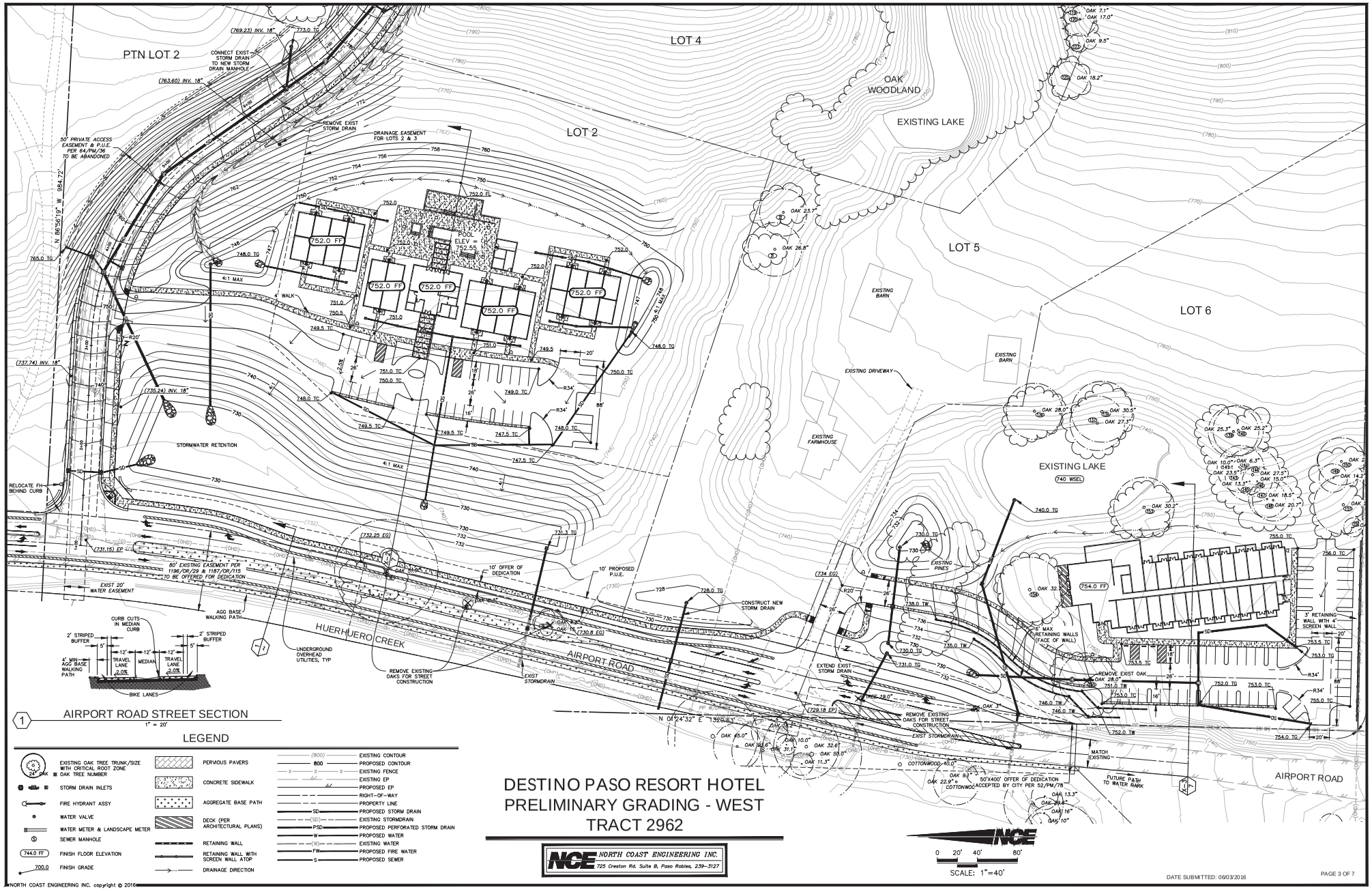
PTN LOT 2
LOT 4
LOT 2
LOT 5
LOT 6
OAK WOODLAND
EXISTING LAKE
EXISTING LAKE
740 WSEL
POOL ELEV = 752.55
752.0 FF
754.0 FF
CONNECT EXIST STORM DRAIN TO NEW STORM DRAIN MANHOLE
REMOVE EXIST STORM DRAIN
DRAINAGE EASEMENT FOR LOTS 2 & 3
50' PRIVATE ACCESS EASEMENT & P.U.E. PER 64/PM/36 TO BE ABANDONED
N 86°56'19" W 984.72'
STORMWATER RETENTION
RELOCATE FH BEHIND CURB
80' EXISTING EASEMENT PER 1196/OR/29 & 1187/OR/115 TO BE OFFERED FOR DEDICATION
EXIST 20' WATER EASEMENT
AGG BASE WALKING PATH
10' OFFER OF DEDICATION
10' PROPOSED P.U.E.
CONSTRUCT NEW STORM DRAIN
UNDERGROUND OVERHEAD UTILITIES, TYP
REMOVE EXISTING OAKS FOR STREET CONSTRUCTION
EXIST STORMDRAIN
EXTEND EXIST STORM DRAIN
HUERHUERO CREEK
AIRPORT ROAD
N 01°24'32" E 1320.85'
EXISTING BARN
EXISTING FARMHOUSE
EXISTING DRIVEWAY
EXISTING PINES
6' MAX RETAINING WALLS (FACE OF WALL)
3' RETAINING WALL WITH 4' SCREEN WALL
MATCH EXISTING
FUTURE PATH TO WATER BARK
50'X400' OFFER OF DEDICATION ACCEPTED BY CITY PER 52/PM/78
COTTONWOOD
CURB CUTS IN MEDIAN CURB
2' STRIPED BUFFER
4' MIN AGG BASE WALKING PATH
TRAVEL LANE 2.0%
MEDIAN
BIKE LANES
1 AIRPORT ROAD STREET SECTION
1" = 20'
LEGEND
EXISTING OAK TREE TRUNK/SIZE WITH CRITICAL ROOT ZONE
OAK TREE NUMBER
STORM DRAIN INLETS
FIRE HYDRANT ASSY
WATER VALVE
WATER METER & LANDSCAPE METER
SEWER MANHOLE
FINISH FLOOR ELEVATION
FINISH GRADE
PERVIOUS PAVERS
CONCRETE SIDEWALK
AGGREGATE BASE PATH
DECK (PER ARCHITECTURAL PLANS)
RETAINING WALL
RETAINING WALL WITH SCREEN WALL ATOP
DRAINAGE DIRECTION
EXISTING CONTOUR
PROPOSED CONTOUR
EXISTING FENCE
EXISTING EP
PROPOSED EP
RIGHT-OF-WAY
PROPERTY LINE
PROPOSED STORM DRAIN
EXISTING STORMDRAIN
PROPOSED PERFORATED STORM DRAIN
PROPOSED WATER
EXISTING WATER
PROPOSED FIRE WATER
PROPOSED SEWER
NORTH COAST ENGINEERING INC. copyright © 2016
DESTINO PASO RESORT HOTEL
PRELIMINARY GRADING - WEST
TRACT 2962
NORTH COAST ENGINEERING INC.
725 Creston Rd. Suite B, Paso Robles, 239-3127
0 20' 40' 80'
SCALE: 1"=40'
DATE SUBMITTED: 06/03/2016
PAGE 3 OF 7
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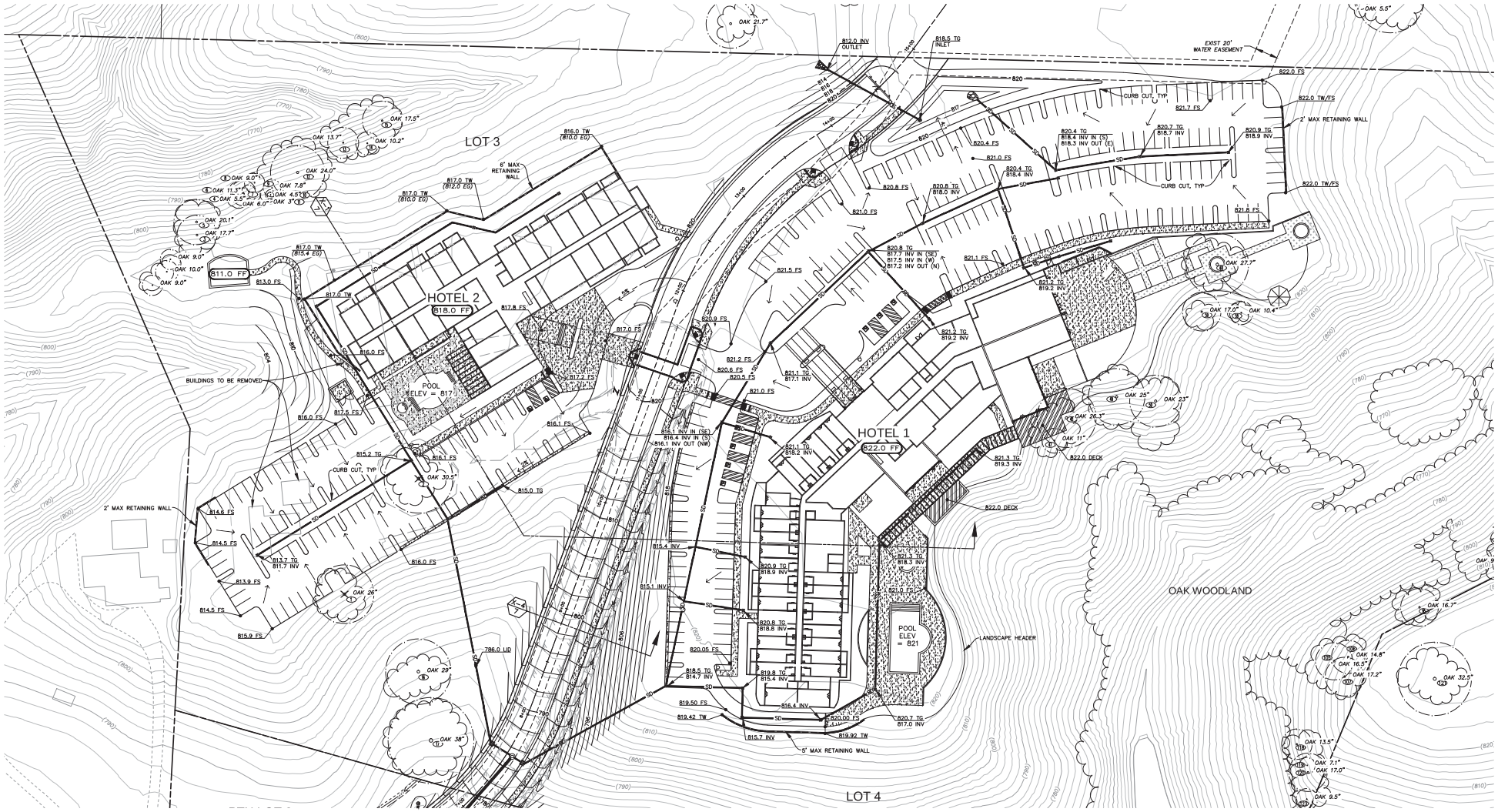

LEGEND

- EXISTING OAK TREE TRUNK/SIZE WITH CRITICAL ROOT ZONE
- OAK TREE NUMBER
- STORM DRAIN INLETS
- FIRE HYDRANT ASSY
- WATER VALVE
- WATER METER & LANDSCAPE METER
- SEWER MANHOLE
- FINISH FLOOR ELEVATION
- FINISH GRADE
- PERVIOUS PAVERS
- CONCRETE SIDEWALK
- AGGREGATE BASE PATH
- DECK (PER ARCHITECTURAL PLANS)
- RETAINING WALL
- RETAINING WALL WITH SCREEN WALL ATOP
- DRAINAGE DIRECTION
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING FENCE
- EXISTING EP
- PROPOSED EP
- RIGHT-OF-WAY
- PROPERTY LINE
- PROPOSED STORM DRAIN
- EXISTING STORMDRAIN
- PROPOSED PERFORATED STORM DRAIN
- PROPOSED WATER
- EXISTING WATER
- PROPOSED FIRE WATER
- PROPOSED SEWER

NCE

0 20' 40' 80'

SCALE: 1"=40'

DESTINO PASO RESORT HOTEL
PRELIMINARY GRADING - EAST
TRACT 2962

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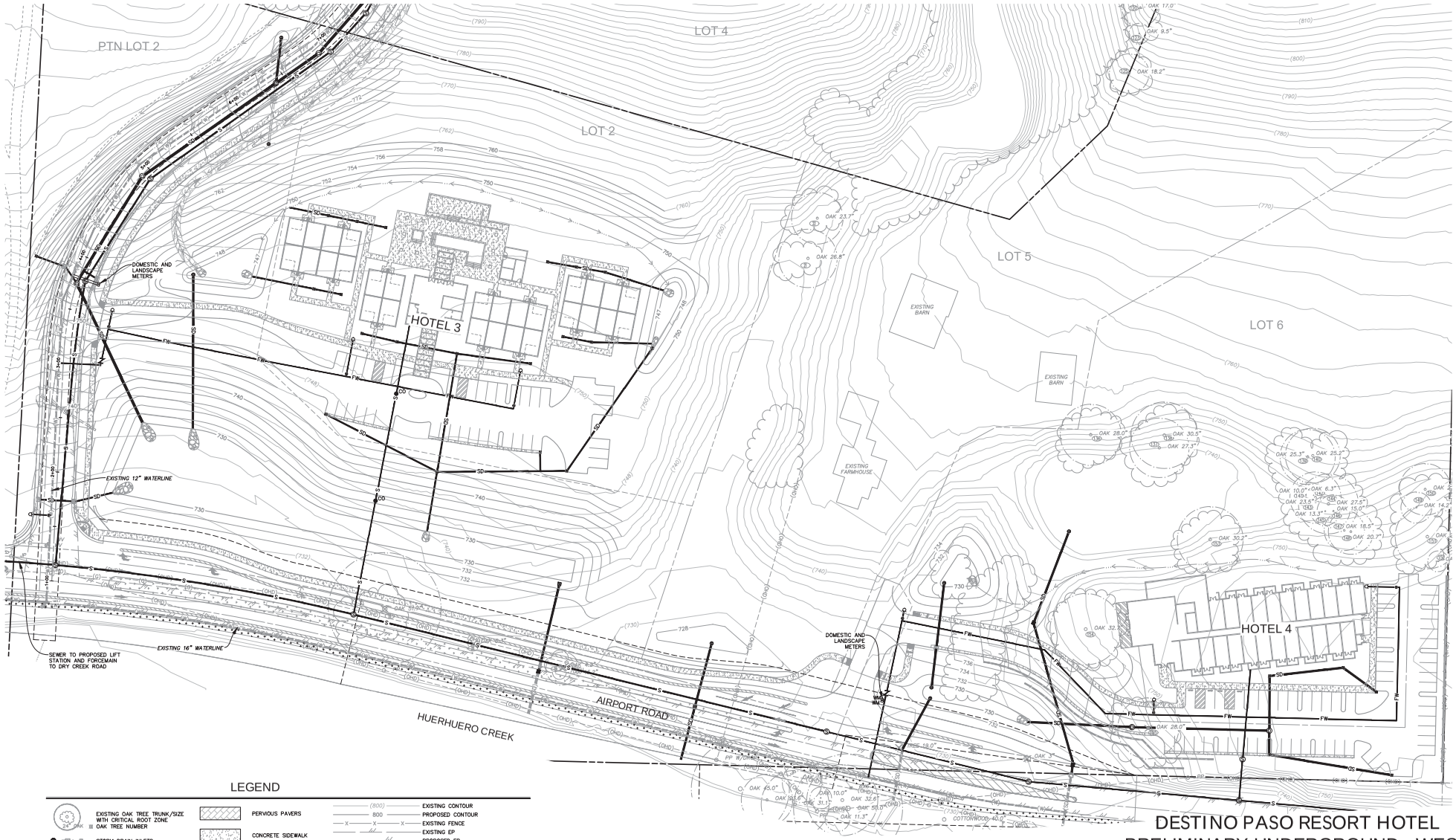

LEGEND

EXISTING OAK TREE TRUNK/SIZE WITH CRITICAL ROOT ZONE	PERVIOUS PAVERS
OAK TREE NUMBER	CONCRETE SIDEWALK
STORM DRAIN INLETS	AGGREGATE BASE PATH
FIRE HYDRANT ASSY	DECK (PER ARCHITECTURAL PLANS)
WATER VALVE	RETAINING WALL
WATER METER & LANDSCAPE METER	RETAINING WALL WITH SCREEN WALL ATOP
SEWER MANHOLE	DRAINAGE DIRECTION
744.0 FF FINISH FLOOR ELEVATION	
700.0 FINISH GRADE	

(800)	EXISTING CONTOUR
800	PROPOSED CONTOUR
X	EXISTING FENCE
	EXISTING EP
	PROPOSED EP
	RIGHT-OF-WAY
	PROPERTY LINE
SD	PROPOSED STORM DRAIN
(SD)	EXISTING STORMDRAIN
PSD	PROPOSED PERFORATED STORM DRAIN
W	PROPOSED WATER
(W)	EXISTING WATER
FW	PROPOSED FIRE WATER
S	PROPOSED SEWER

NCE

0 20' 40' 80'

SCALE: 1"=40'

DESTINO PASO RESORT HOTEL
PRELIMINARY UNDERGROUND - WEST
TRACT 2962

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DATE SUBMITTED: 06/03/2016

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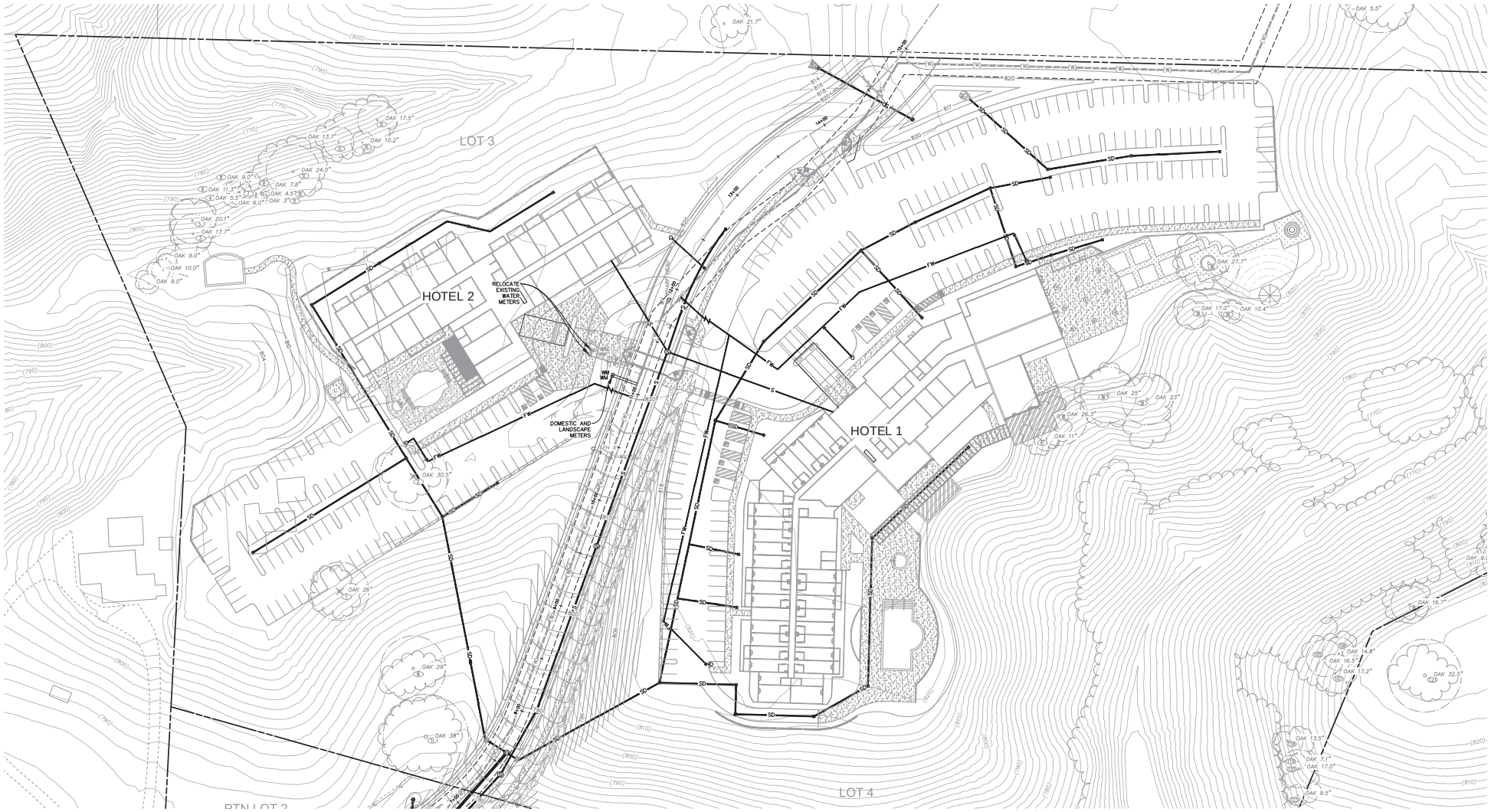

LEGEND

- EXISTING OAK TREE TRUNK/SIZE WITH CRITICAL ROOT ZONE
- OAK TREE NUMBER
- STORM DRAIN INLETS
- FIRE HYDRANT ASSY
- WATER VALVE
- WATER METER & LANDSCAPE METER
- SEWER MANHOLE
- 744.0 FF — FINISH FLOOR ELEVATION
- 700.0 — FINISH GRADE
- PERVIOUS PAVERS
- CONCRETE SIDEWALK
- AGGREGATE BASE PATH
- DECK (PER ARCHITECTURAL PLANS)
- RETAINING WALL
- RETAINING WALL WITH SCREEN WALL ATOP
- DRAINAGE DIRECTION
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING FENCE
- EXISTING EP
- PROPOSED EP
- RIGHT-OF-WAY
- PROPERTY LINE
- PROPOSED STORM DRAIN
- EXISTING STORMDRAIN
- PROPOSED PERFORATED STORM DRAIN
- PROPOSED WATER
- EXISTING WATER
- PROPOSED FIRE WATER
- PROPOSED SEWER

NCE

0 20' 40' 80'

SCALE: 1"=40'

DESTINO PASO RESORT HOTEL
PRELIMINARY UNDERGROUND - EAST
TRACT 2962

NCE NORTH COAST ENGINEERING INC.
725 Creston Rd. Suite B, Paso Robles, 239-3127

DATE SUBMITTED: 06/03/2016

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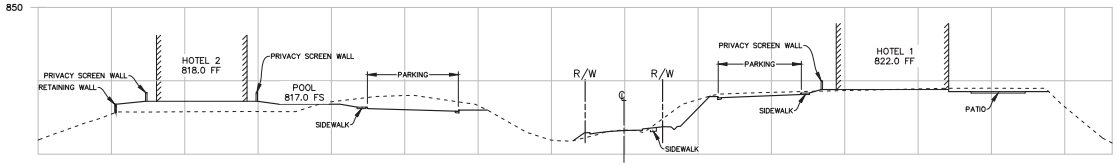
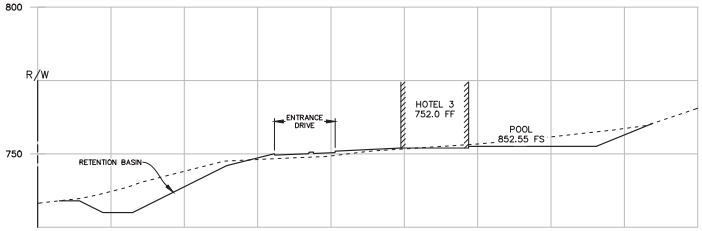
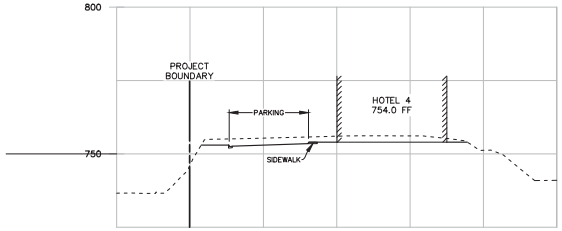


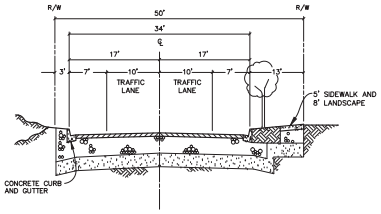
X-1 SITE CROSS SECTION
VERTICAL: 1" = 20
HORIZONTAL: 1" = 40



X-2 SITE CROSS SECTION
VERTICAL: 1" = 20
HORIZONTAL: 1" = 40



X-3 SITE CROSS SECTION
VERTICAL: 1" = 20
HORIZONTAL: 1" = 40



X-4 PUBLIC ROAD TYPICAL SECTION
NOT TO SCALE

DESTINO PASO RESORT HOTEL
SITE CROSS SECTIONS
TRACT 2962

NORTH COAST ENGINEERING INC.
725 Creston Rd. Suite B, Paso Robles, 239-3127

DATE SUBMITTED: 06/03/2016

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R:\PROJ\05162\Design\Plan Set\VesTentMap\05162 XSEC Plan Set.dwg, TM-X-SEC_DETAILS, 6/1/2016 3:43:09 PM, KSB, 1:1

NORTH COAST ENGINEERING, INC.
725 CRESTON ROAD SUITE B
PASO ROBLES, CALIFORNIA 93446

(805) 239-3127

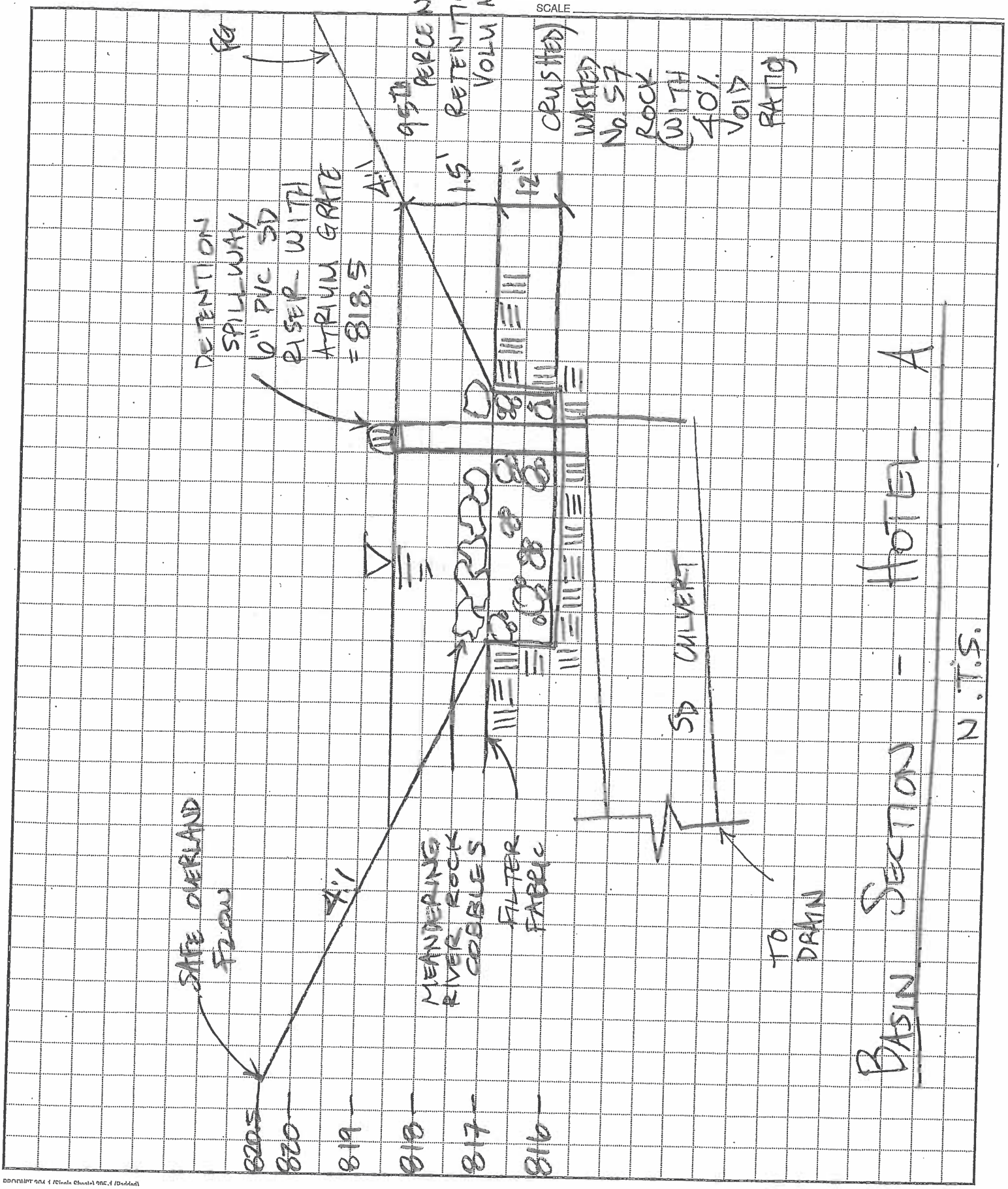
JOB _____

SHEET NO. _____ OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____



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JOB _____

SHEET NO. _____ OF _____

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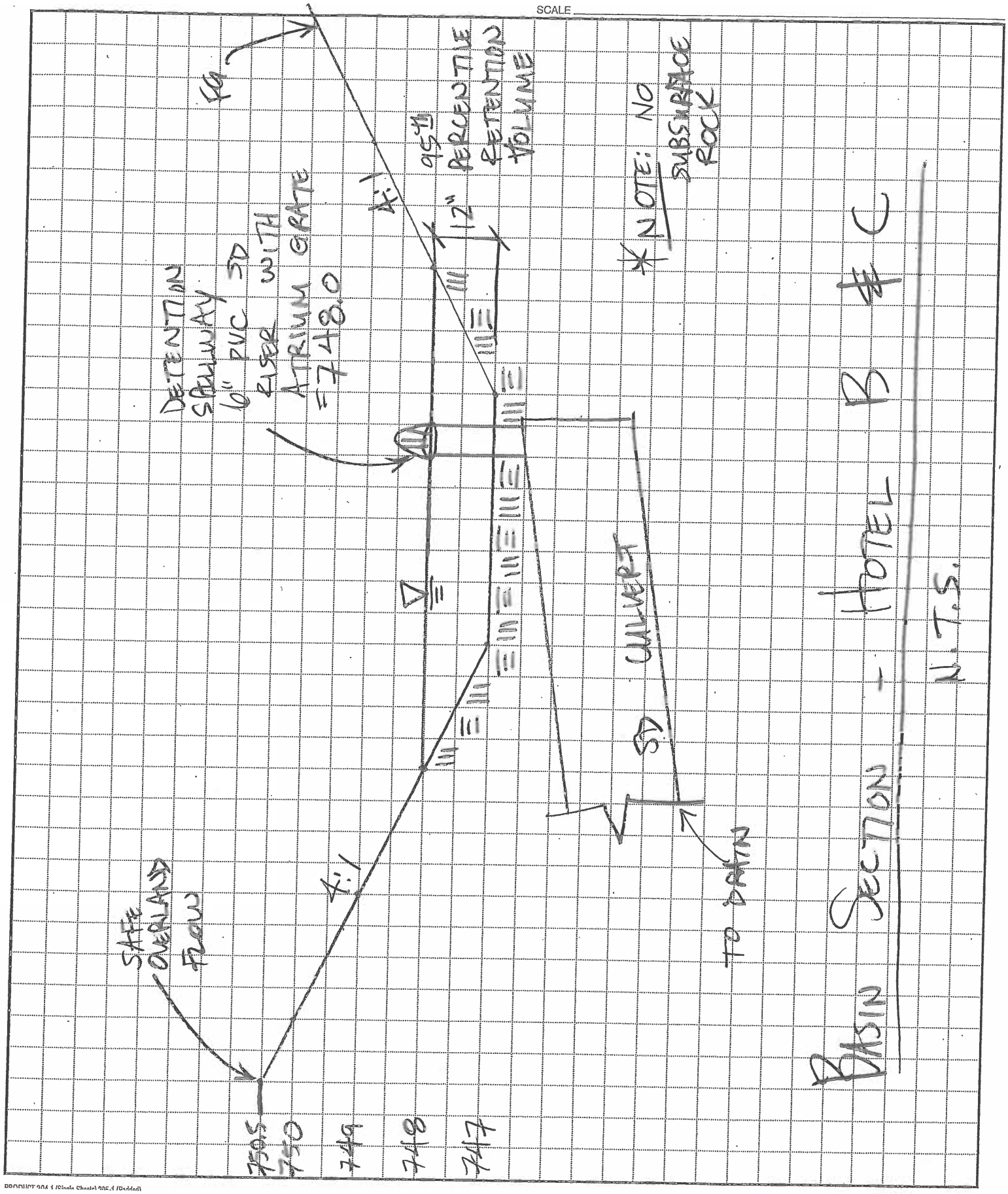
SCALE _____



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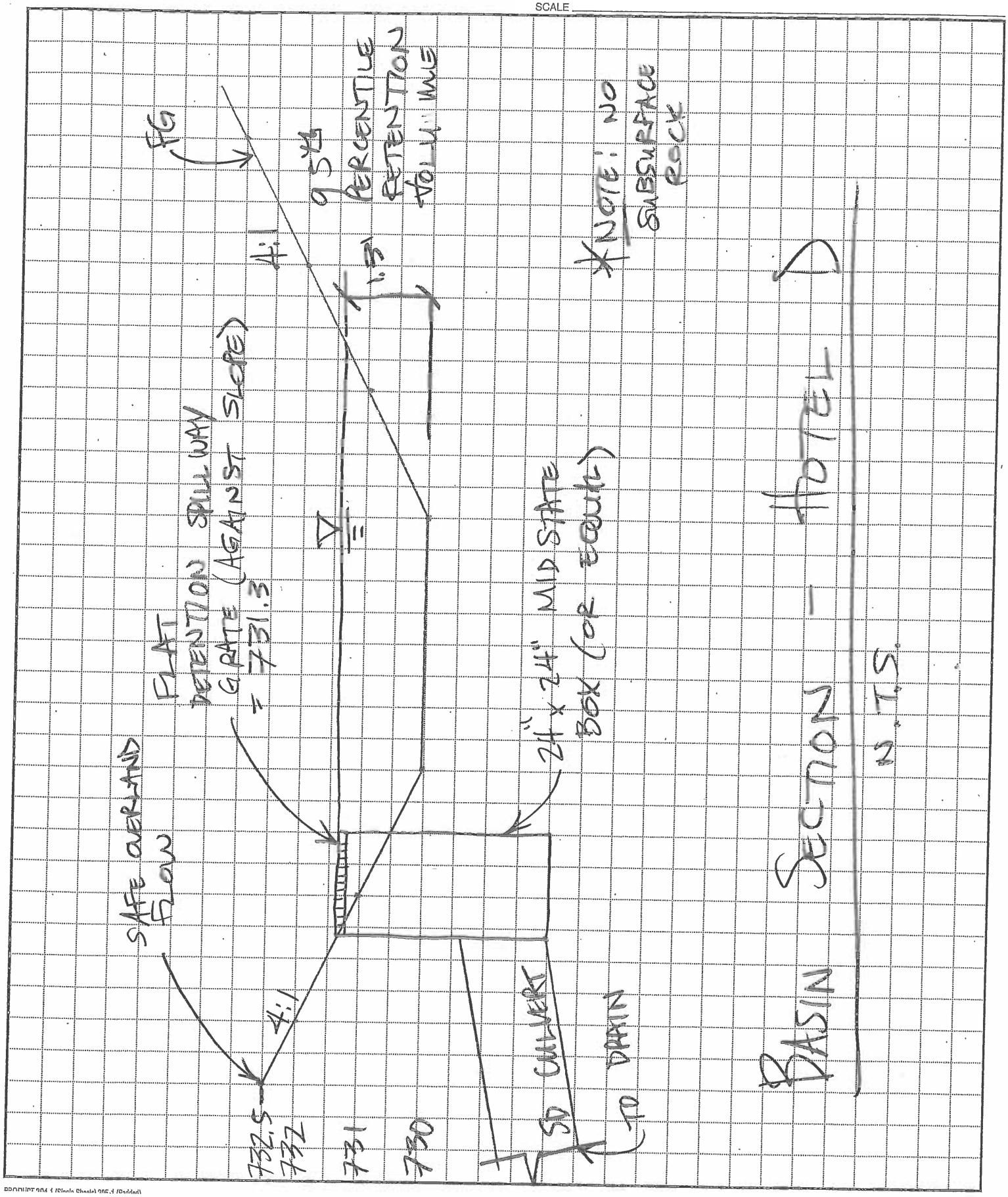
JOB

SHEET NO. OF

CALCULATED BY DATE

CHECKED BY DATE

SCALE



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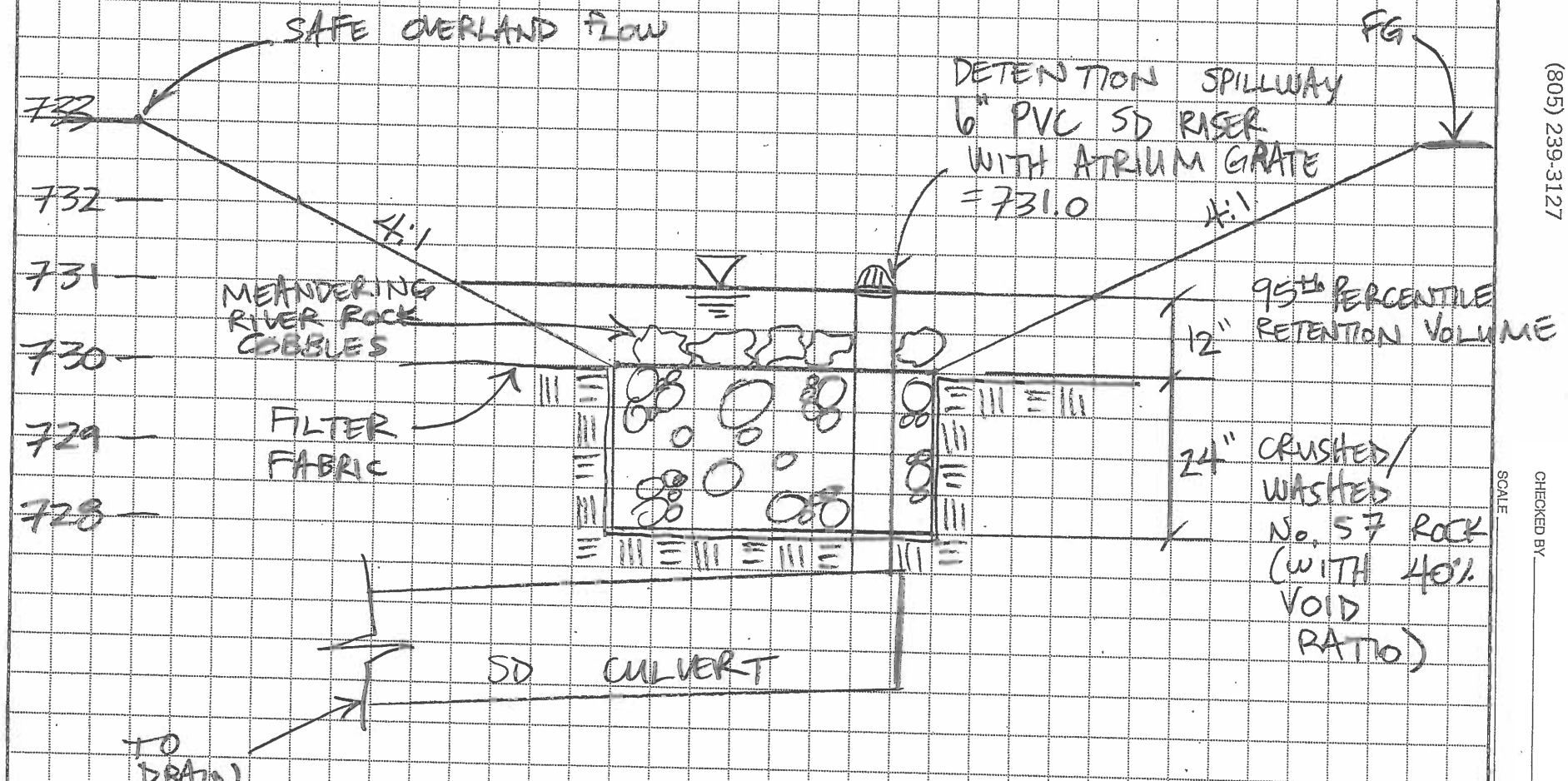
JOB ____ SHEET NO. ____ OF ____
CALCULATED BY ____ DATE ____
CHECKED BY ____ DATE ____
SCALE ____

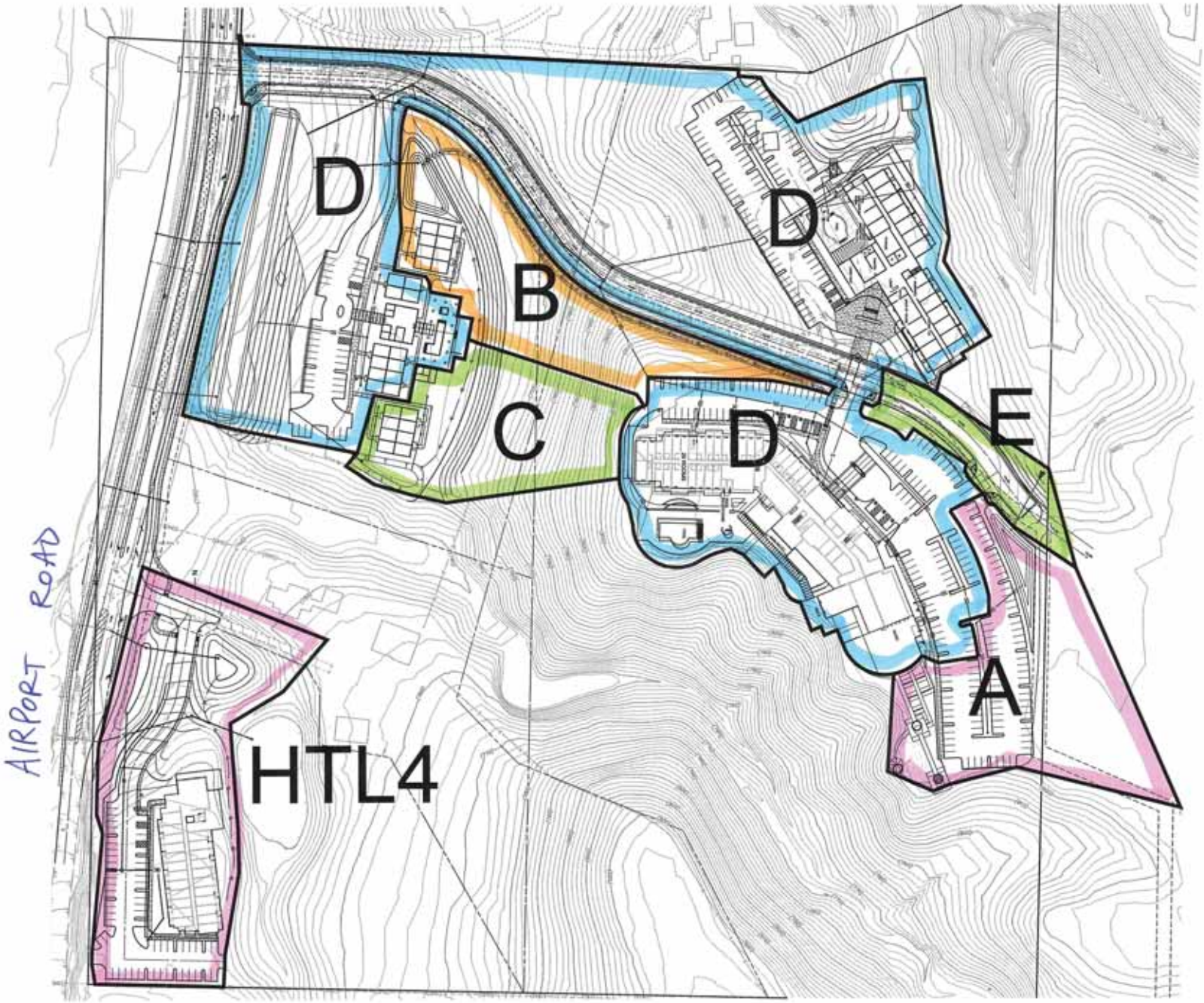
*NOTE: THERE ARE TWO INTERCONNECTED BASINS WITH THIS SAME SECTION. SEE PLANS FOR SD & TG'S THAT CONNECT THEM.



BASIN SECTION - HOTEL 4

N.T.S.

Appendix D: Watershed Exhibit



06162 –
DESTINO
DMA EXHIBIT
5/24/16

Appendix E: NRCS Web Soil Survey – Hydrologic Soil Group Data

Hydrologic Soil Group—San Luis Obispo County, California, Paso Robles Area
(06162 - Destino)

Map Scale: 1:2,490 if printed on B landscape (17" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

Streams and Canals

Transportation

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

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: San Luis Obispo County, California, Paso Robles Area
Survey Area Data: Version 8, Sep 3, 2015

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

Date(s) aerial images were photographed: May 8, 2010—May 21, 2010

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

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — San Luis Obispo County, California, Paso Robles Area (CA665)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
102	Arbuckle-Positas complex, 9 to 15 percent slopes	C	17.8	43.7%
104	Arbuckle-Positas complex, 30 to 50 percent slopes	C	15.8	38.7%
106	Arbuckle-San Ysidro complex, 2 to 9 percent slopes	C	7.2	17.6%
Totals for Area of Interest			**40.8**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Higher

Appendix F: NOAA Atlas 14 Rainfall Information

NOAA Atlas 14, Volume 6, Version 2
Location name: Paso Robles, California, US*
Latitude: 35.6512°, Longitude: -120.6399°
Elevation: 744 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.103 (0.087-0.122)	0.139 (0.118-0.165)	0.186 (0.157-0.222)	0.225 (0.189-0.272)	0.279 (0.225-0.350)	0.321 (0.253-0.412)	0.364 (0.279-0.480)	0.409 (0.304-0.557)	0.471 (0.334-0.672)	0.520 (0.355-0.771)
10-min	0.147 (0.125-0.175)	0.199 (0.169-0.237)	0.267 (0.226-0.319)	0.323 (0.271-0.390)	0.400 (0.323-0.501)	0.460 (0.362-0.590)	0.522 (0.400-0.688)	0.587 (0.435-0.798)	0.676 (0.479-0.963)	0.746 (0.508-1.10)
15-min	0.178 (0.151-0.212)	0.240 (0.204-0.286)	0.323 (0.273-0.386)	0.391 (0.327-0.471)	0.484 (0.390-0.606)	0.557 (0.438-0.714)	0.631 (0.484-0.832)	0.709 (0.527-0.965)	0.817 (0.579-1.17)	0.902 (0.615-1.34)
30-min	0.248 (0.211-0.295)	0.335 (0.284-0.399)	0.450 (0.380-0.537)	0.544 (0.456-0.656)	0.674 (0.544-0.844)	0.775 (0.611-0.994)	0.879 (0.674-1.16)	0.988 (0.734-1.34)	1.14 (0.806-1.62)	1.26 (0.856-1.86)
60-min	0.362 (0.307-0.430)	0.488 (0.414-0.581)	0.656 (0.554-0.783)	0.793 (0.665-0.956)	0.982 (0.792-1.23)	1.13 (0.890-1.45)	1.28 (0.982-1.69)	1.44 (1.07-1.96)	1.66 (1.18-2.37)	1.83 (1.25-2.71)
2-hr	0.545 (0.463-0.648)	0.706 (0.599-0.841)	0.925 (0.782-1.10)	1.11 (0.928-1.33)	1.36 (1.10-1.71)	1.56 (1.23-2.01)	1.78 (1.36-2.34)	2.00 (1.49-2.72)	2.31 (1.64-3.30)	2.56 (1.75-3.80)
3-hr	0.676 (0.574-0.804)	0.871 (0.739-1.04)	1.14 (0.960-1.36)	1.36 (1.14-1.64)	1.67 (1.35-2.09)	1.92 (1.51-2.46)	2.18 (1.67-2.87)	2.45 (1.82-3.34)	2.84 (2.01-4.04)	3.15 (2.15-4.66)
6-hr	0.946 (0.803-1.13)	1.23 (1.04-1.47)	1.61 (1.36-1.93)	1.94 (1.62-2.33)	2.39 (1.92-2.99)	2.74 (2.16-3.52)	3.11 (2.38-4.11)	3.51 (2.60-4.77)	4.05 (2.87-5.78)	4.49 (3.06-6.66)
12-hr	1.17 (0.995-1.39)	1.64 (1.39-1.95)	2.24 (1.90-2.68)	2.73 (2.29-3.29)	3.40 (2.74-4.25)	3.90 (3.08-5.01)	4.42 (3.39-5.83)	4.95 (3.68-6.74)	5.67 (4.02-8.08)	6.22 (4.24-9.22)
24-hr	1.40 (1.26-1.58)	2.10 (1.89-2.38)	2.99 (2.69-3.40)	3.71 (3.31-4.24)	4.65 (4.01-5.51)	5.36 (4.52-6.49)	6.07 (4.99-7.54)	6.79 (5.43-8.68)	7.75 (5.93-10.3)	8.47 (6.26-11.7)
2-day	1.77 (1.60-2.00)	2.60 (2.34-2.94)	3.68 (3.31-4.18)	4.57 (4.07-5.23)	5.79 (4.98-6.85)	6.73 (5.67-8.14)	7.69 (6.32-9.54)	8.69 (6.94-11.1)	10.1 (7.70-13.4)	11.1 (8.22-15.4)
3-day	2.02 (1.83-2.29)	2.90 (2.61-3.28)	4.08 (3.67-4.63)	5.07 (4.52-5.80)	6.45 (5.55-7.64)	7.54 (6.36-9.13)	8.68 (7.13-10.8)	9.88 (7.89-12.6)	11.6 (8.85-15.4)	12.9 (9.53-17.8)
4-day	2.21 (2.00-2.50)	3.13 (2.82-3.54)	4.37 (3.93-4.96)	5.42 (4.84-6.21)	6.91 (5.96-8.19)	8.10 (6.83-9.81)	9.35 (7.69-11.6)	10.7 (8.54-13.6)	12.6 (9.62-16.7)	14.1 (10.4-19.4)
7-day	2.67 (2.41-3.02)	3.67 (3.31-4.15)	5.04 (4.53-5.72)	6.21 (5.54-7.11)	7.88 (6.79-9.33)	9.22 (7.77-11.2)	10.6 (8.75-13.2)	12.2 (9.72-15.5)	14.3 (11.0-19.1)	16.1 (11.9-22.2)
10-day	3.02 (2.72-3.41)	4.08 (3.68-4.62)	5.56 (5.00-6.31)	6.82 (6.08-7.81)	8.63 (7.43-10.2)	10.1 (8.51-12.2)	11.6 (9.57-14.4)	13.3 (10.6-17.0)	15.7 (12.0-20.9)	17.6 (13.0-24.3)
20-day	3.74 (3.38-4.23)	5.02 (4.53-5.68)	6.80 (6.11-7.72)	8.33 (7.42-9.53)	10.5 (9.07-12.5)	12.3 (10.4-14.9)	14.2 (11.7-17.6)	16.3 (13.0-20.8)	19.2 (14.7-25.6)	21.6 (16.0-29.8)
30-day	4.47 (4.04-5.06)	6.01 (5.42-6.80)	8.15 (7.33-9.25)	9.98 (8.90-11.4)	12.6 (10.9-14.9)	14.8 (12.4-17.9)	17.0 (14.0-21.2)	19.5 (15.6-24.9)	23.0 (17.6-30.7)	25.9 (19.1-35.8)
45-day	5.34 (4.82-6.03)	7.19 (6.49-8.14)	9.76 (8.78-11.1)	12.0 (10.7-13.7)	15.1 (13.0-17.9)	17.7 (14.9-21.4)	20.4 (16.8-25.3)	23.3 (18.6-29.8)	27.5 (21.0-36.6)	30.9 (22.8-42.7)
60-day	6.24 (5.63-7.05)	8.41 (7.59-9.52)	11.4 (10.3-13.0)	14.0 (12.5-16.0)	17.6 (15.2-20.9)	20.6 (17.4-24.9)	23.8 (19.5-29.5)	27.1 (21.7-34.7)	31.9 (24.4-42.6)	35.8 (26.5-49.5)

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

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

Please refer to NOAA Atlas 14 document for more information.

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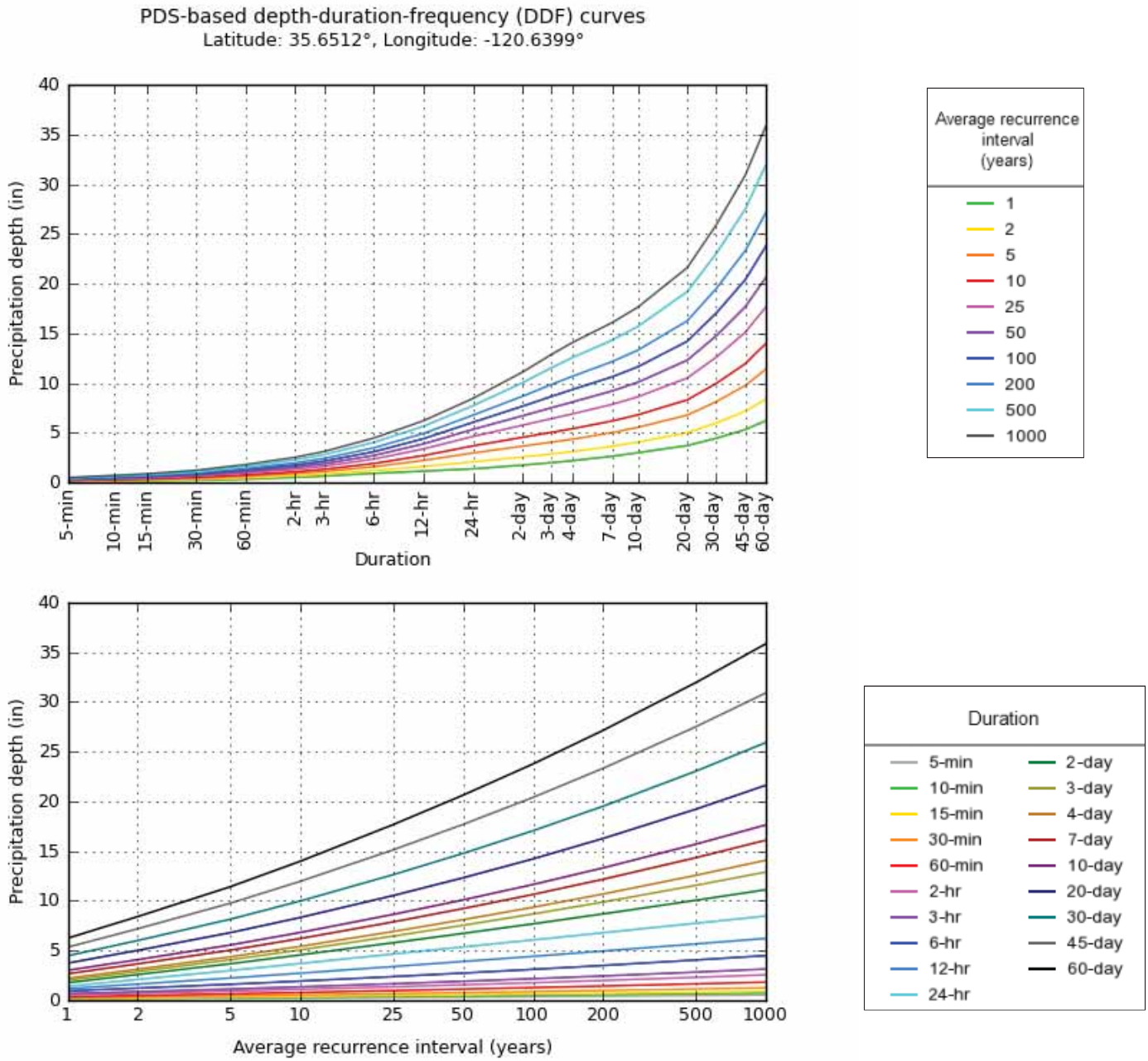
PF graphical



NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Thu May 19 22:54:38 2016

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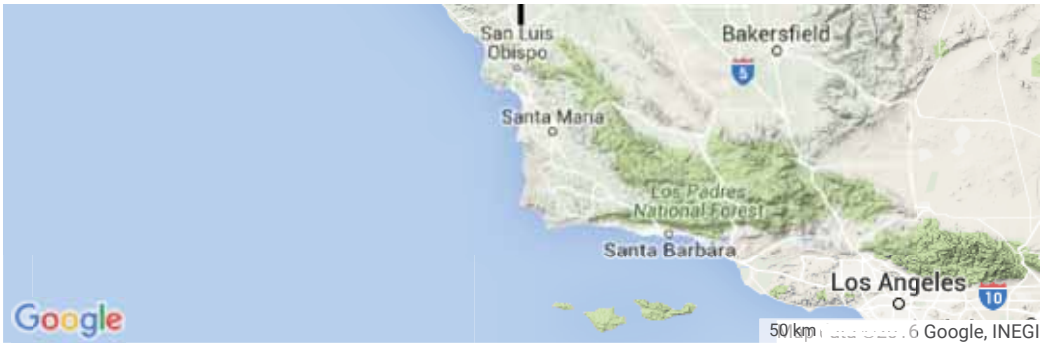
Maps & aerials

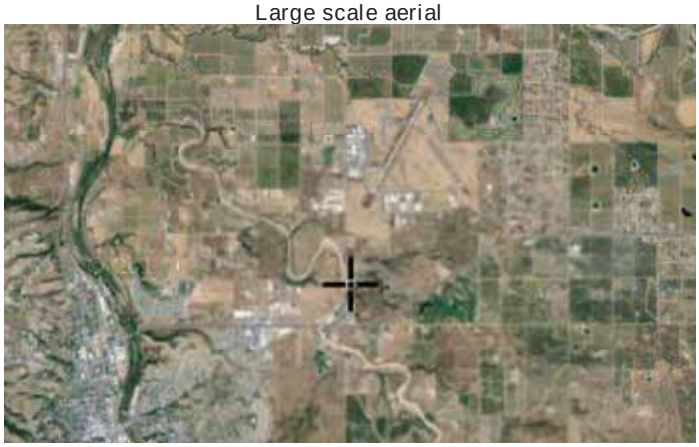
Small scale terrain



Large scale terrain

Large scale map

Large scale aerial



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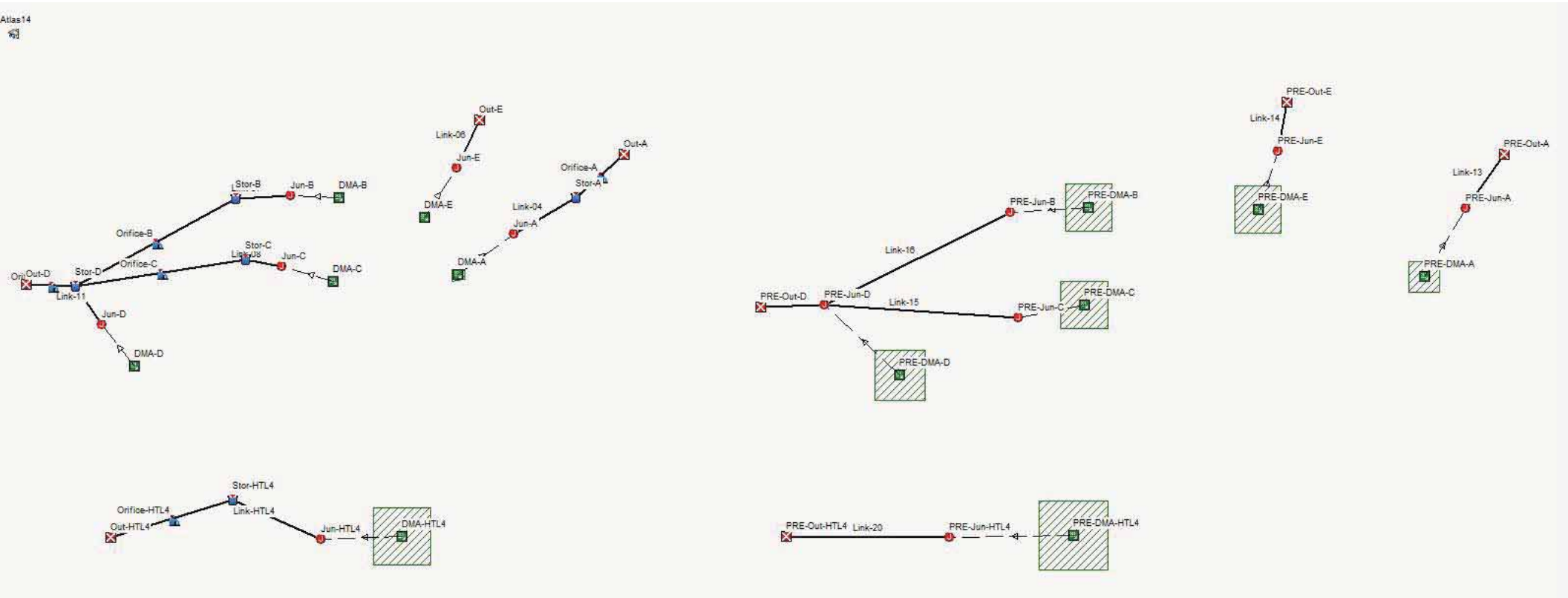
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Appendix G: SSA Model and Results


Atlas14
Out-E
Link-06
Jun-E
DMA-E
Out-A
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Orifice-C
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Stor-D
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DMA-HTL4
PRE-Out-HTL4
Link-20
PRE-Jun-HTL4
PRE-DMA-HTL4

Project Description

File Name	06162 Destino SSA Model.SPF
Description	06162 Destino Basin Modeling for preliminary design

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	User-Defined
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	Jan 01, 3000	00:00:00
End Analysis On	Jan 05, 3000	00:00:00
Start Reporting On	Jan 01, 3000	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	1	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins	12
Nodes	25
Junctions	12
Outfalls	8
Flow Diversions	0
Inlets	0
Storage Nodes	5
Links	17
Channels	0
Pipes	12
Pumps	0
Orifices	5
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1		Time Series	10-yr	Cumulative	inches	None	None	10	3.71	SCS Type I 24-hr

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	DMA-A	2.05	82.00	3.71	1.96	4.02	3.38	0 00:02:00
2	DMA-B	1.69	76.00	3.71	1.52	2.58	2.00	0 00:03:00
3	DMA-C	1.42	76.00	3.71	1.52	2.15	1.67	0 00:03:00
4	DMA-D	12.06	86.00	3.71	2.29	27.56	22.19	0 00:05:00
5	DMA-E	0.54	86.00	3.71	2.29	1.24	1.07	0 00:02:00
6	DMA-HTL4	2.58	85.00	3.71	2.20	5.67	4.67	0 00:04:00
7	PRE-DMA-A	2.05	74.00	3.71	1.39	2.85	2.20	0 00:02:00
8	PRE-DMA-B	1.69	74.00	3.71	1.39	2.35	1.77	0 00:03:00
9	PRE-DMA-C	1.42	74.00	3.71	1.39	1.96	1.48	0 00:03:00
10	PRE-DMA-D	12.06	74.00	3.71	1.39	16.73	11.86	0 00:05:00
11	PRE-DMA-E	0.54	74.00	3.71	1.39	0.75	0.58	0 00:02:00
12	PRE-DMA-HTL4	2.58	74.00	3.71	1.39	3.58	2.62	0 00:04:00

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	Jun-A	Junction	825.00	6.00	0.00	0.00	0.00	3.15	825.00	0.00	0.00	0 00:00	0.00	0.00
2	Jun-B	Junction	825.00	6.00	0.00	0.00	0.00	1.98	825.00	0.00	0.00	0 00:00	0.00	0.00
3	Jun-C	Junction	825.00	6.00	0.00	0.00	0.00	1.65	825.00	0.00	0.00	0 00:00	0.00	0.00
4	Jun-D	Junction	825.00	6.00	0.00	0.00	0.00	22.16	825.00	0.00	0.00	0 00:00	0.00	0.00
5	Jun-E	Junction	825.00	6.00	0.00	0.00	0.00	0.99	825.00	0.00	0.00	0 00:00	0.00	0.00
6	Jun-HTL4	Junction	740.00	6.00	0.00	0.00	0.00	4.66	740.00	0.00	0.00	0 00:00	0.00	0.00
7	PRE-Jun-A	Junction	825.00	6.00	0.00	0.00	0.00	2.07	825.00	0.00	0.00	0 00:00	0.00	0.00
8	PRE-Jun-B	Junction	825.00	6.00	0.00	0.00	0.00	1.76	825.00	0.00	0.00	0 00:00	0.00	0.00
9	PRE-Jun-C	Junction	825.00	6.00	0.00	0.00	0.00	1.46	825.00	0.00	0.00	0 00:00	0.00	0.00
10	PRE-Jun-D	Junction	824.00	6.00	0.00	0.00	0.00	14.99	824.47	0.00	3.53	0 00:00	0.00	0.00
11	PRE-Jun-E	Junction	825.00	6.00	0.00	0.00	0.00	0.55	825.00	0.00	0.00	0 00:00	0.00	0.00
12	PRE-Jun-HTL4	Junction	740.00	6.00	0.00	0.00	0.00	2.62	740.00	0.00	0.00	0 00:00	0.00	0.00
13	Out-A	Outfall	812.00					0.57	812.00					
14	Out-D	Outfall	723.00					4.90	723.00					
15	Out-E	Outfall	812.00					0.99	812.00					
16	Out-HTL4	Outfall	726.00					2.12	726.00					
17	PRE-Out-A	Outfall	812.00					2.07	812.00					
18	PRE-Out-D	Outfall	812.00					15.00	812.41					
19	PRE-Out-E	Outfall	812.00					0.55	812.00					
20	PRE-Out-HTL4	Outfall	726.00					2.62	726.00					
21	Stor-A	Storage Node	816.00	820.50	0.00		0.00	3.15	818.84				0.00	0.00
22	Stor-B	Storage Node	747.00	750.50	0.00		0.00	1.98	748.18				0.00	0.00
23	Stor-C	Storage Node	747.00	750.50	0.00		0.00	1.65	748.36				0.00	0.00
24	Stor-D	Storage Node	730.00	732.50	0.00		0.00	22.34	731.62				0.00	0.00
25	Stor-HTL4	Storage Node	730.00	733.00	0.00		0.00	4.66	732.51				0.00	0.00

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Diameter or Height (in)	Manning's Roughness	Peak Flow (cfs)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Reported Condition
1	Link-04	Pipe	Jun-A	Stor-A	401.88	0.00	0.00	0.0000	0.000	0.0150	3.15	0.00	0.00	0.00	0.00	0.00	0.00	
2	Link-06	Pipe	Jun-E	Out-E	298.72	0.00	0.00	0.0000	0.000	0.0150	0.99	0.00	0.00	0.00	0.00	0.00	0.00	
3	Link-07	Pipe	Jun-B	Stor-B	310.99	0.00	0.00	0.0000	0.000	0.0150	1.98	0.00	0.00	0.00	0.00	0.00	0.00	
4	Link-08	Pipe	Jun-C	Stor-C	459.83	0.00	0.00	0.0000	0.000	0.0150	1.65	0.00	0.00	0.00	0.00	0.00	0.00	
5	Link-11	Pipe	Jun-D	Stor-D	336.43	0.00	0.00	0.0000	0.000	0.0150	22.16	0.00	0.00	0.00	0.00	0.00	0.00	
6	Link-13	Pipe	PRE-Jun-A	PRE-Out-A	373.88	0.00	0.00	0.0000	0.000	0.0150	2.07	0.00	0.00	0.00	0.00	0.00	0.00	
7	Link-14	Pipe	PRE-Jun-E	PRE-Out-E	280.34	0.00	0.00	0.0000	0.000	0.0150	0.55	0.00	0.00	0.00	0.00	0.00	0.00	
8	Link-15	Pipe	PRE-Jun-C	PRE-Jun-D	1091.91	0.00	0.00	0.0000	0.000	0.0150	1.46	0.00	0.00	0.00	0.00	0.00	0.00	
9	Link-16	Pipe	PRE-Jun-B	PRE-Jun-D	1171.10	0.00	0.00	0.0000	0.000	0.0150	1.76	0.00	0.00	0.00	0.00	0.00	0.00	
10	Link-17	Pipe	PRE-Jun-D	PRE-Out-D	82.70	824.00	812.00	14.5100	48.000	0.0100	15.00	711.32	0.02	19.61	0.44	0.11	0.00	Calculated
11	Link-20	Pipe	PRE-Jun-HTL4	PRE-Out-HTL4	920.62	740.00	726.00	1.5200	0.000	0.0150	2.62	0.00	0.02	0.00	0.44	0.11	0.00	Calculated
12	Link-HTL4	Pipe	Jun-HTL4	Stor-HTL4	504.67	740.00	730.00	1.9800	0.000	0.0150	4.66	0.00	0.02	0.00	0.44	0.11	0.00	Calculated
13	Orifice-A	Orifice	Stor-A	Out-A		816.00	812.00		6.000		0.57							
14	Orifice-B	Orifice	Stor-B	Stor-D		747.00	730.00		6.000		0.41							
15	Orifice-C	Orifice	Stor-C	Stor-D		747.00	730.00		6.000		0.58							
16	Orifice-D	Orifice	Stor-D	Out-D		730.00	723.00		24.000		4.90							
17	Orifice-HTL4	Orifice	Stor-HTL4	Out-HTL4		730.00	726.00		8.000		2.12							

Subbasin Hydrology

Subbasin : DMA-A

Input Data

Area (ac) 2.05
Weighted Curve Number 82.00
Rain Gage ID Atlas14

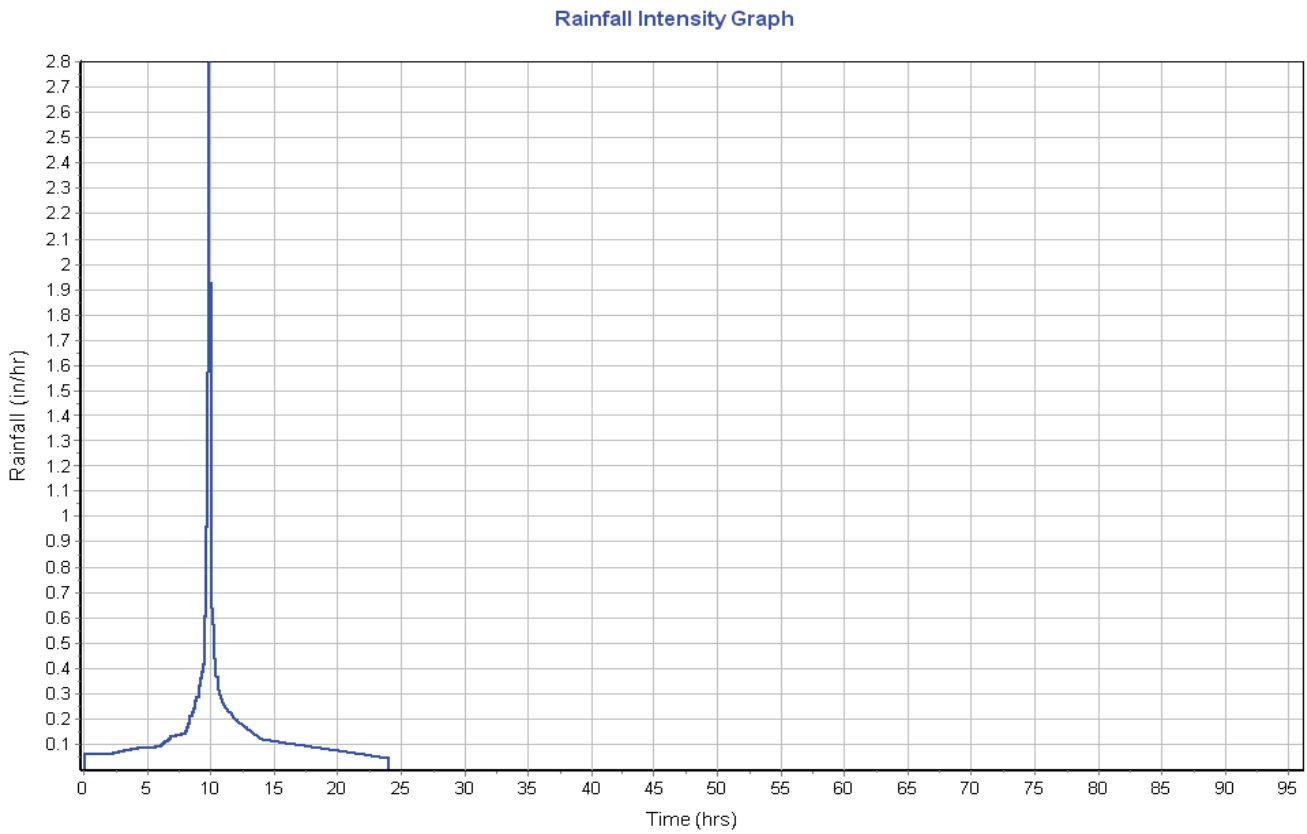
Composite Curve Number

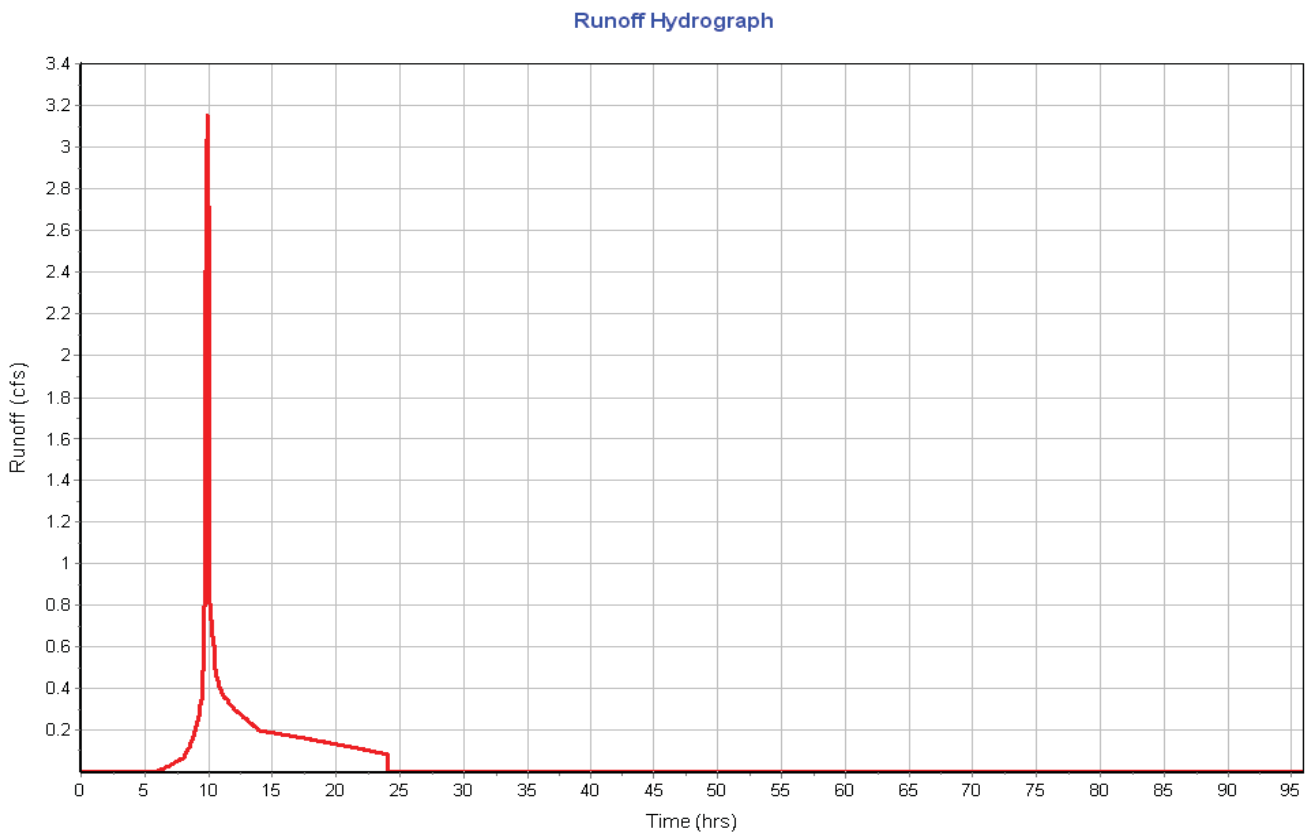
Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	2.05	-	82.00
Composite Area & Weighted CN	2.05		82.00

Subbasin Runoff Results

Total Rainfall (in) 3.71
Total Runoff (in) 1.96
Peak Runoff (cfs) 3.38
Weighted Curve Number 82.00
Time of Concentration (days hh:mm:ss) 0 00:02:00

Subbasin : DMA-A





Subbasin : DMA-B

Input Data

Area (ac) 1.69
Weighted Curve Number 76.00
Rain Gage ID Atlas14

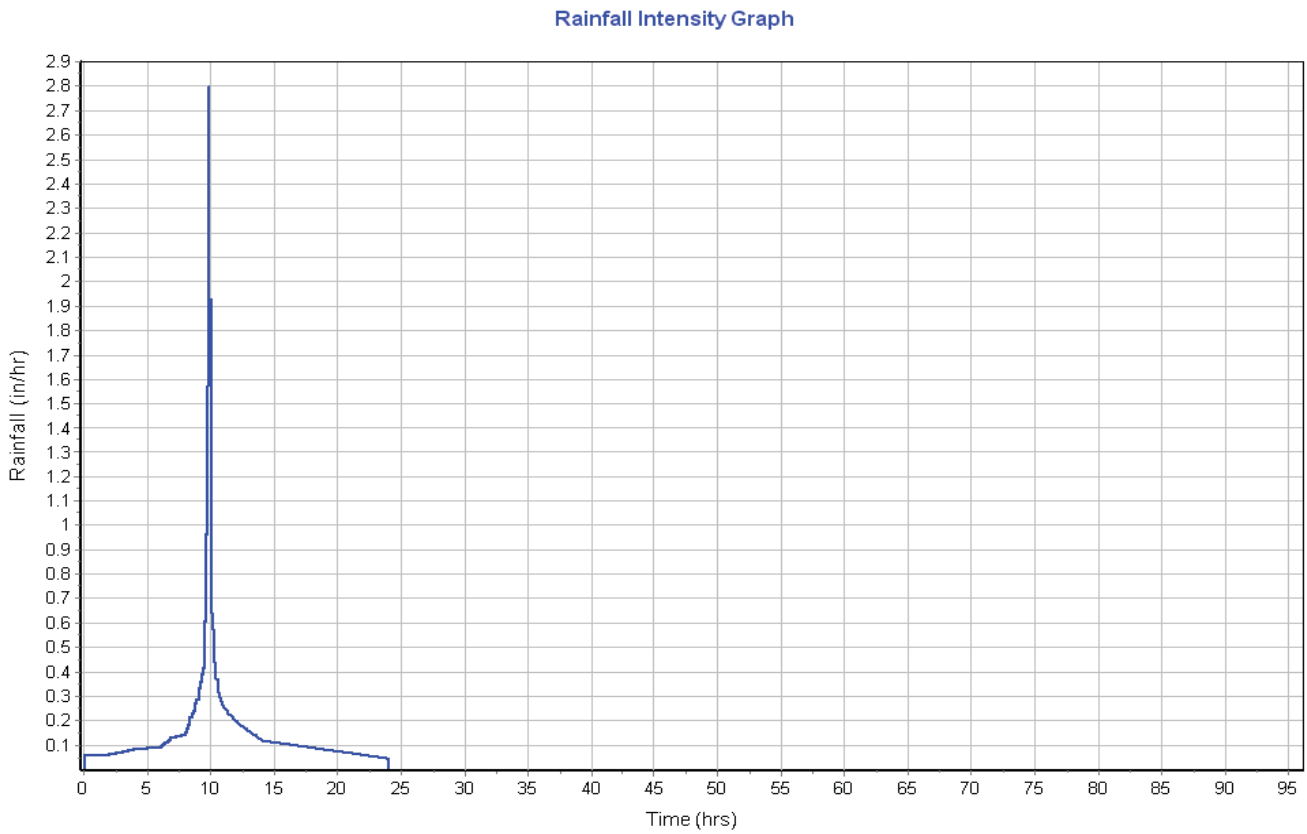
Composite Curve Number

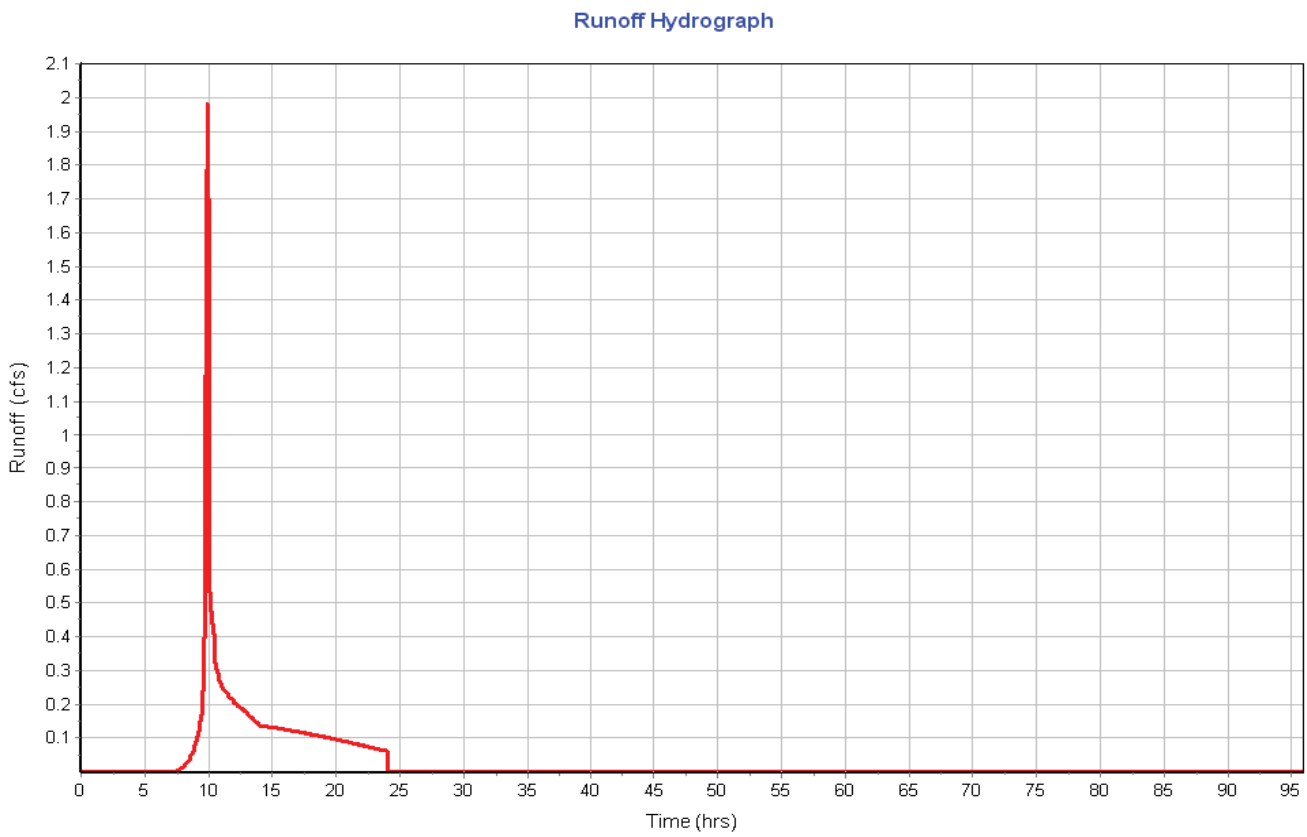
Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.69	-	76.00
Composite Area & Weighted CN	1.69		76.00

Subbasin Runoff Results

Total Rainfall (in) 3.71
Total Runoff (in) 1.52
Peak Runoff (cfs) 2.00
Weighted Curve Number 76.00
Time of Concentration (days hh:mm:ss) 0 00:03:00

Subbasin : DMA-B





Subbasin : DMA-C

Input Data

Area (ac) 1.42
Weighted Curve Number 76.00
Rain Gage ID Atlas14

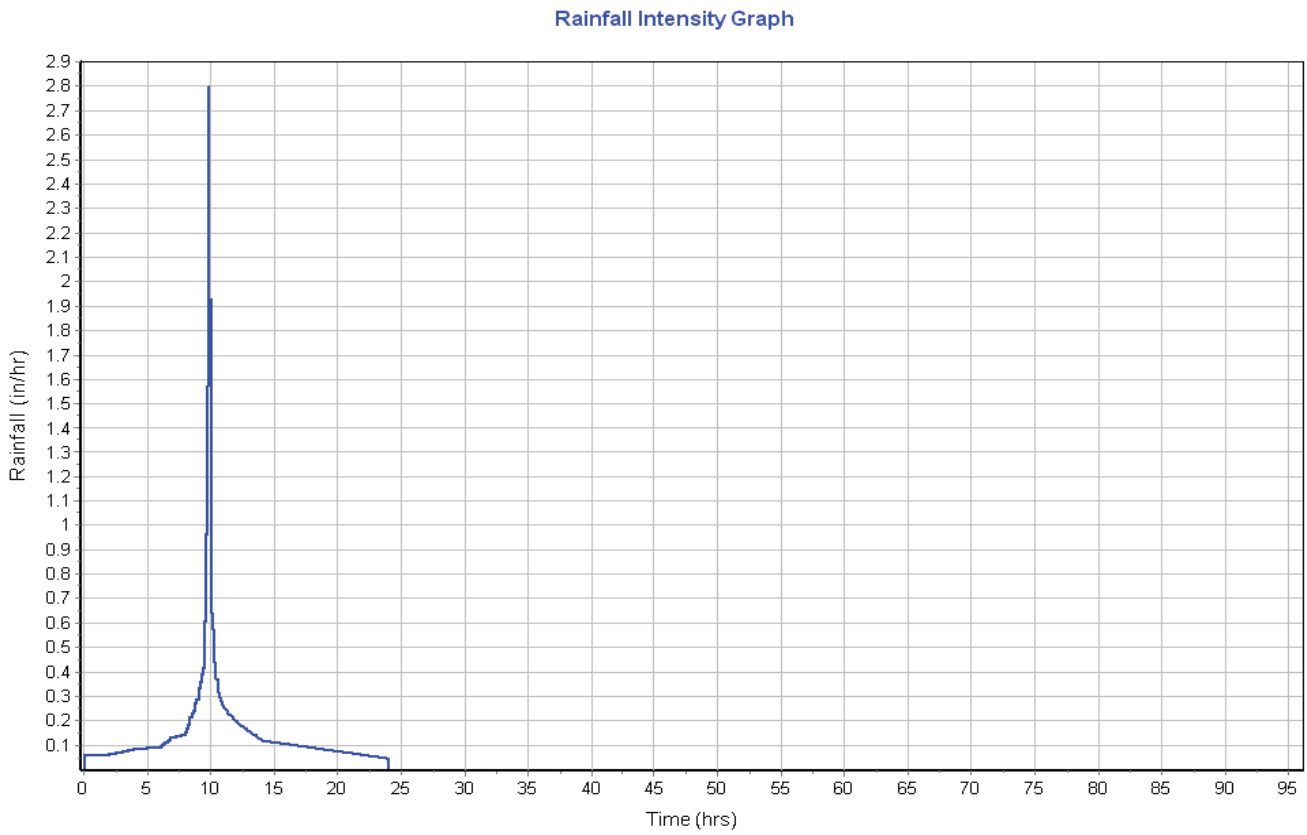
Composite Curve Number

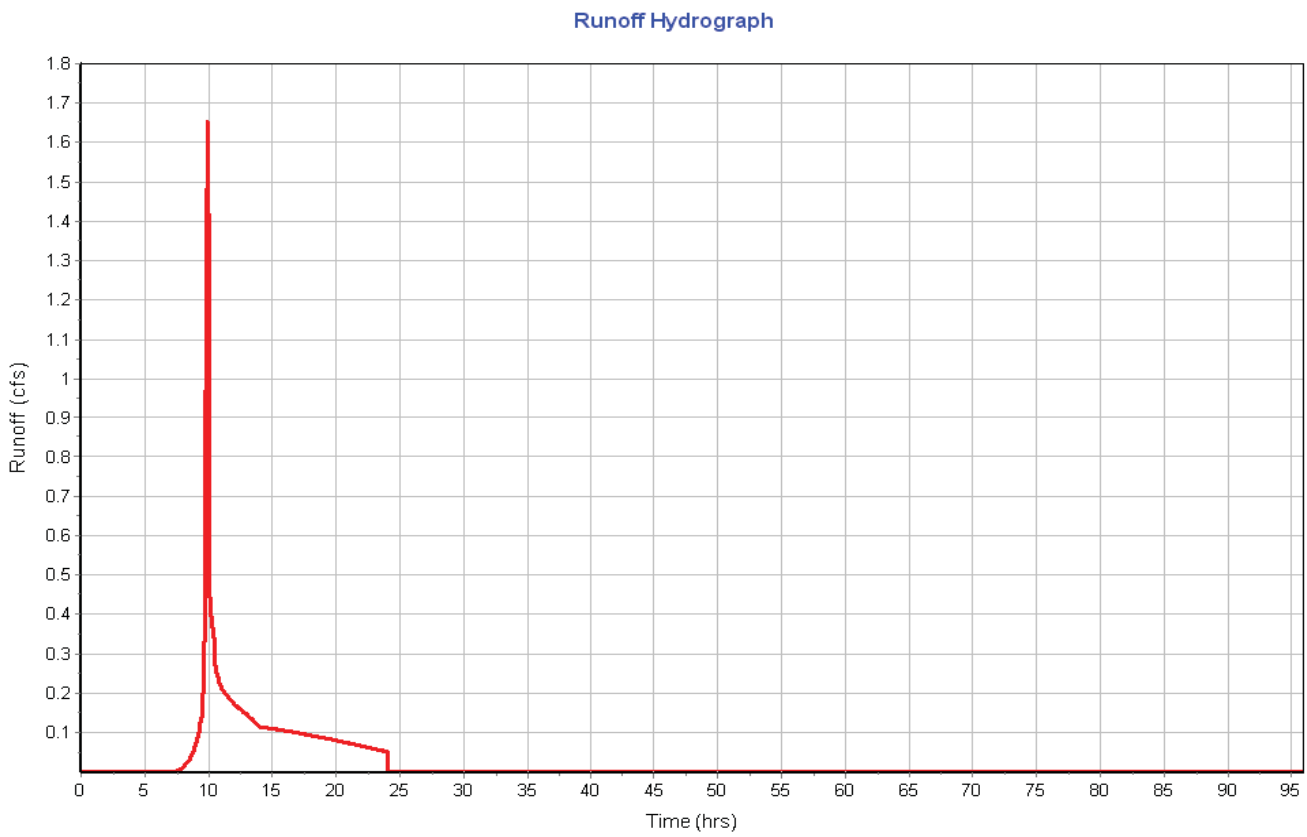
Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.42	-	76.00
Composite Area & Weighted CN	1.42		76.00

Subbasin Runoff Results

Total Rainfall (in) 3.71
Total Runoff (in) 1.52
Peak Runoff (cfs) 1.67
Weighted Curve Number 76.00
Time of Concentration (days hh:mm:ss) 0 00:03:00

Subbasin : DMA-C





Subbasin : DMA-D

Input Data

Area (ac) 12.06
Weighted Curve Number 86.00
Rain Gage ID Atlas14

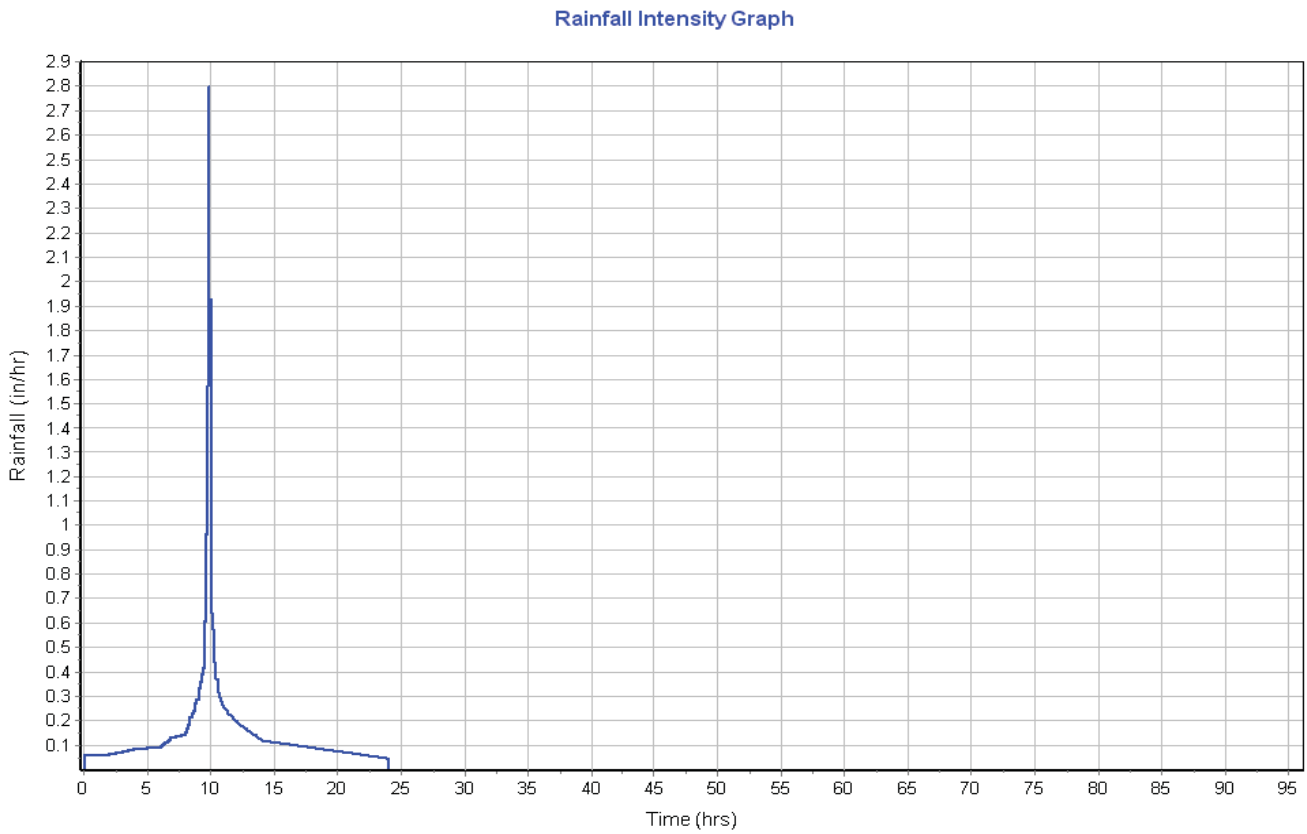
Composite Curve Number

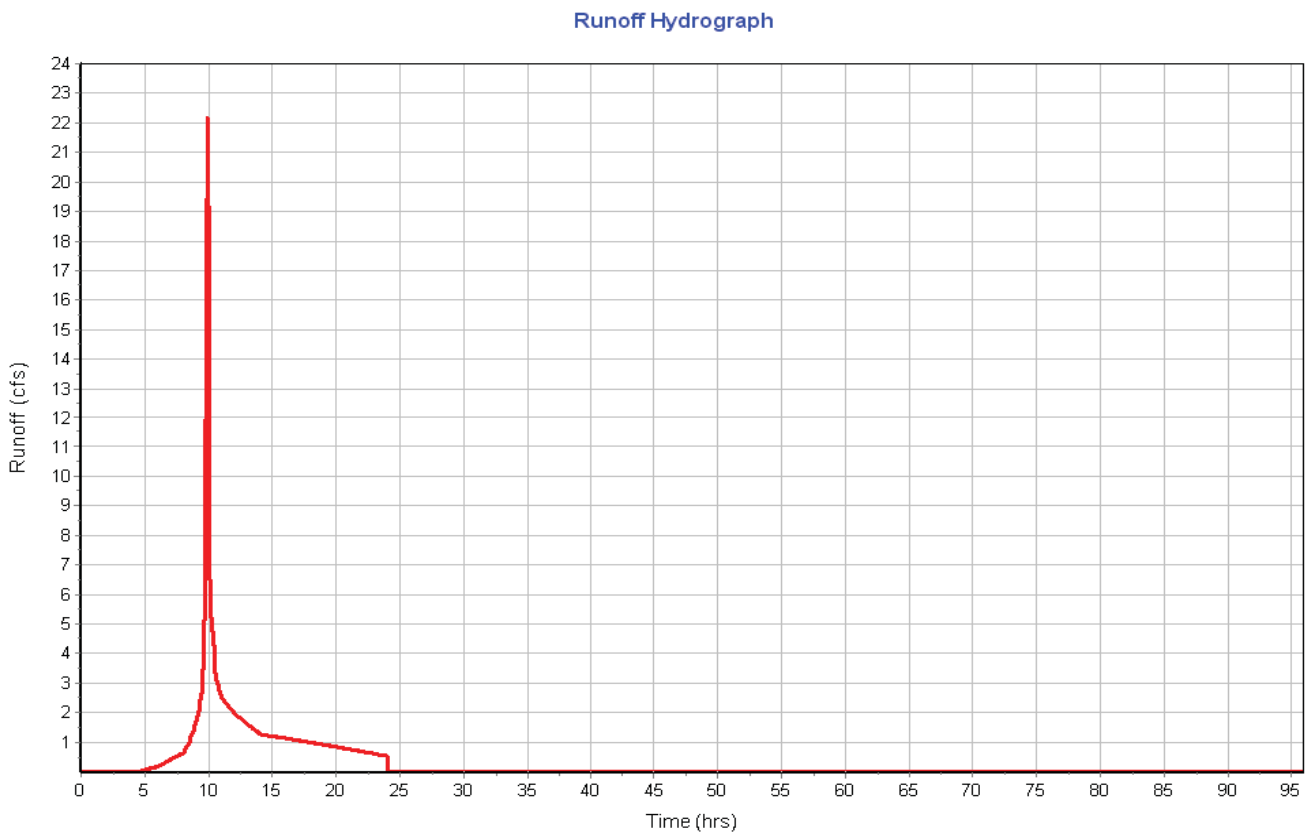
Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	12.06	-	86.00
Composite Area & Weighted CN	12.06		86.00

Subbasin Runoff Results

Total Rainfall (in) 3.71
Total Runoff (in) 2.29
Peak Runoff (cfs) 22.19
Weighted Curve Number 86.00
Time of Concentration (days hh:mm:ss) 0 00:05:00

Subbasin : DMA-D





Subbasin : DMA-E

Input Data

Area (ac) 0.54
Weighted Curve Number 86.00
Rain Gage ID Atlas14

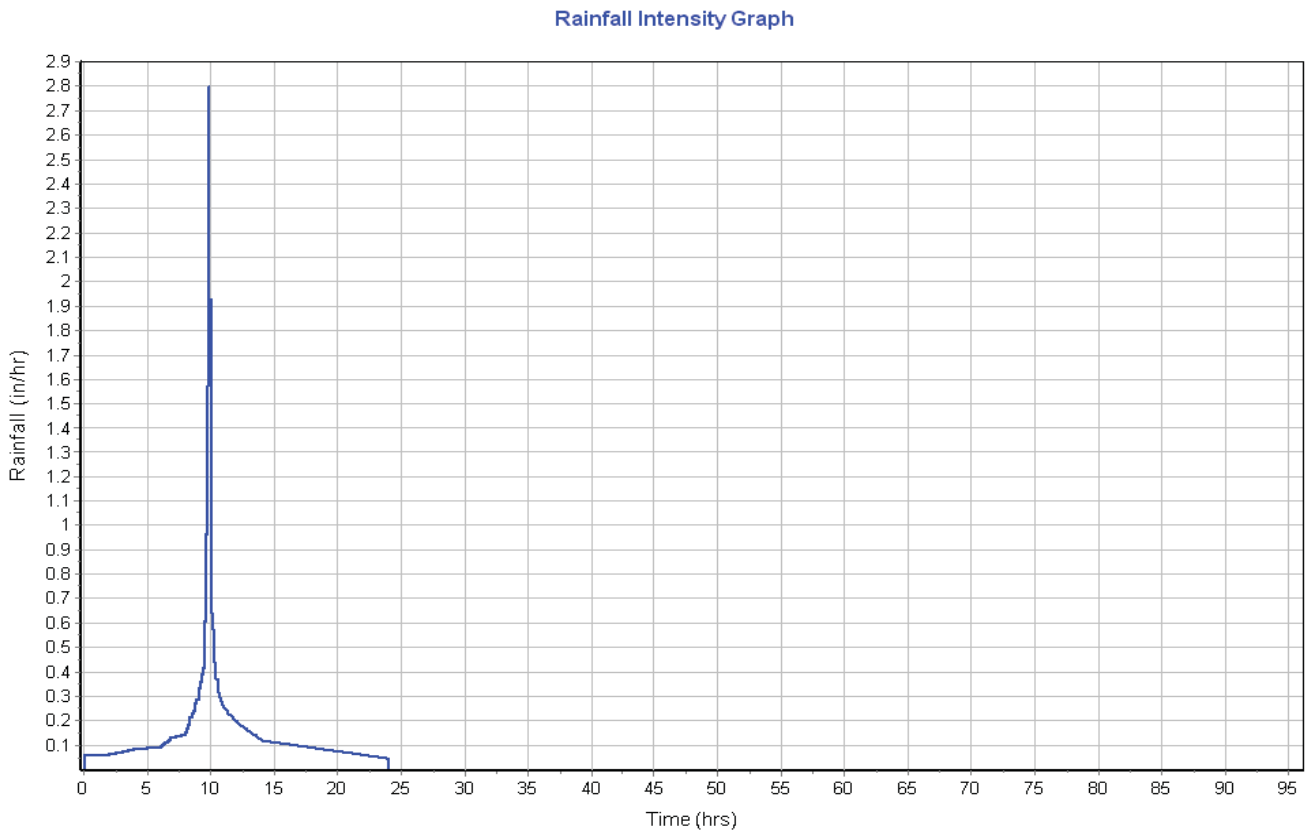
Composite Curve Number

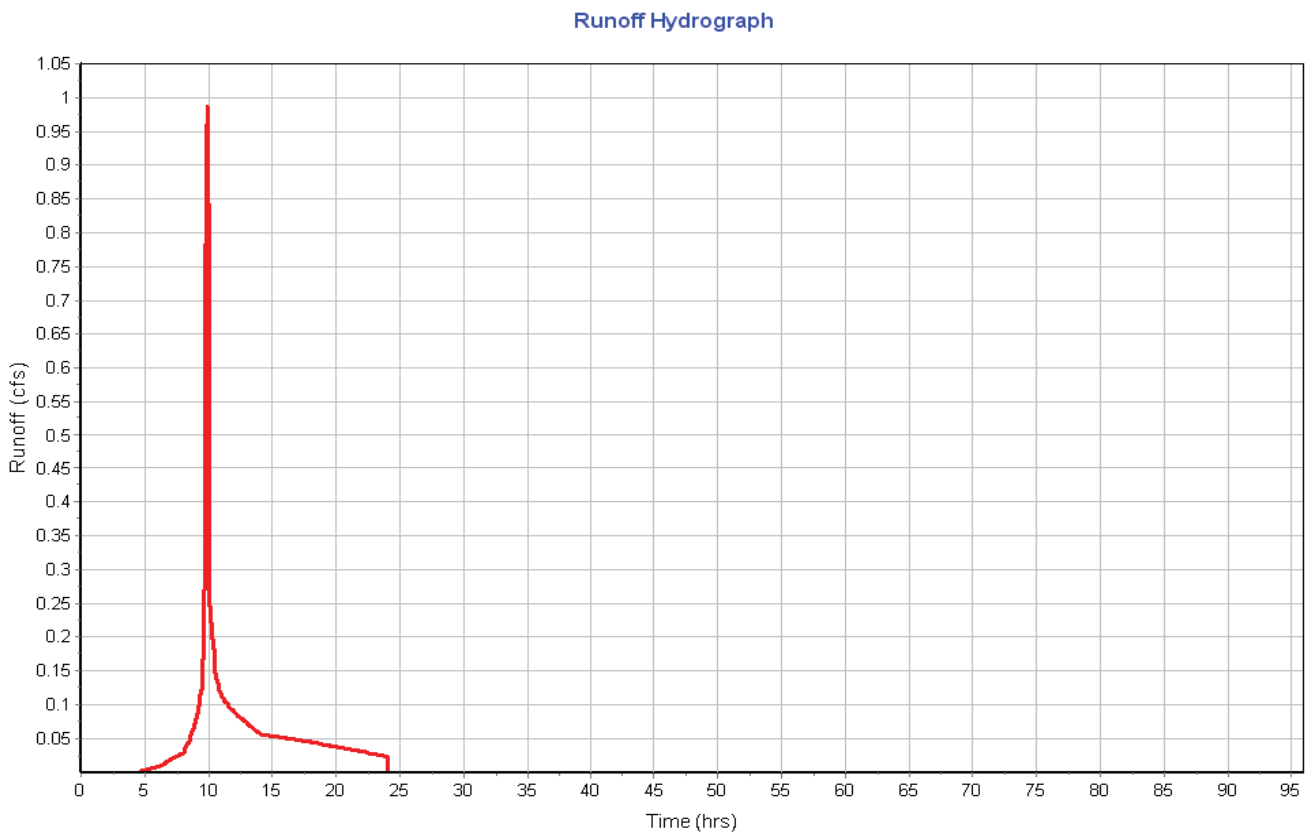
Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.54	-	86.00
Composite Area & Weighted CN	0.54		86.00

Subbasin Runoff Results

Total Rainfall (in) 3.71
Total Runoff (in) 2.29
Peak Runoff (cfs) 1.07
Weighted Curve Number 86.00
Time of Concentration (days hh:mm:ss) 0 00:02:00

Subbasin : DMA-E





Subbasin : DMA-HTL4

Input Data

Area (ac) 2.58
Weighted Curve Number 85.00
Rain Gage ID Atlas14

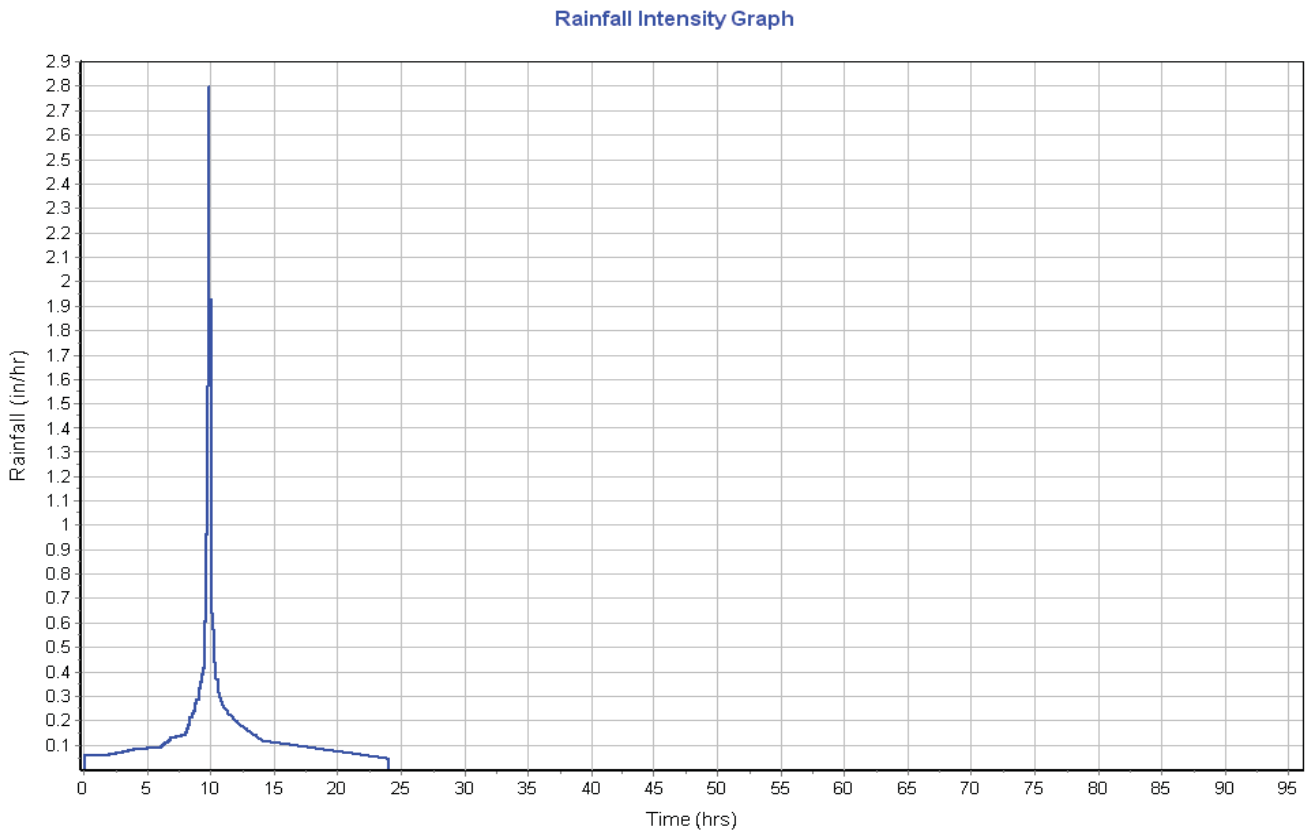
Composite Curve Number

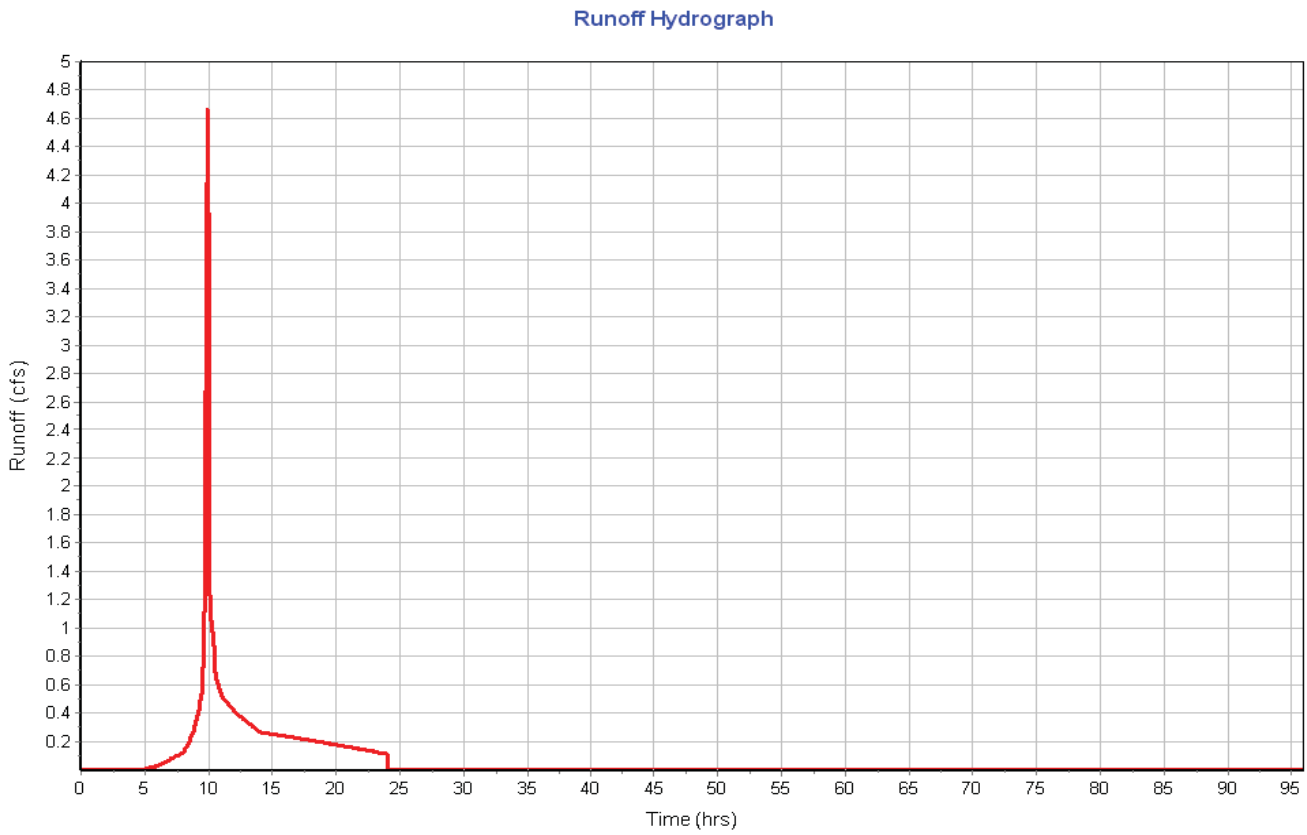
Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	2.05	-	85.00
Composite Area & Weighted CN	2.05		85.00

Subbasin Runoff Results

Total Rainfall (in) 3.71
Total Runoff (in) 2.20
Peak Runoff (cfs) 4.67
Weighted Curve Number 85.00
Time of Concentration (days hh:mm:ss) 0 00:04:00

Subbasin : DMA-HTL4





Subbasin : PRE-DMA-A

Input Data

Area (ac) 2.05
Weighted Curve Number 74.00
Rain Gage ID Atlas14

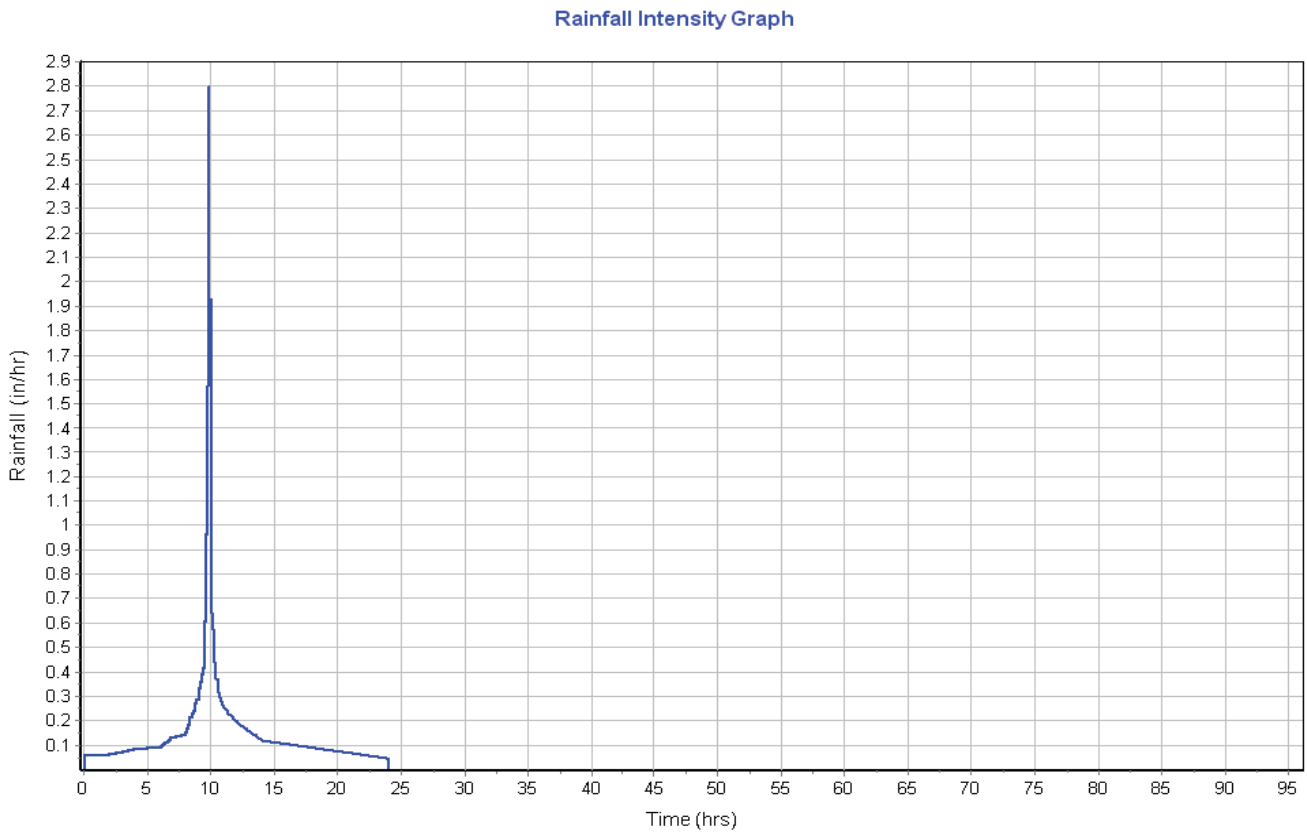
Composite Curve Number

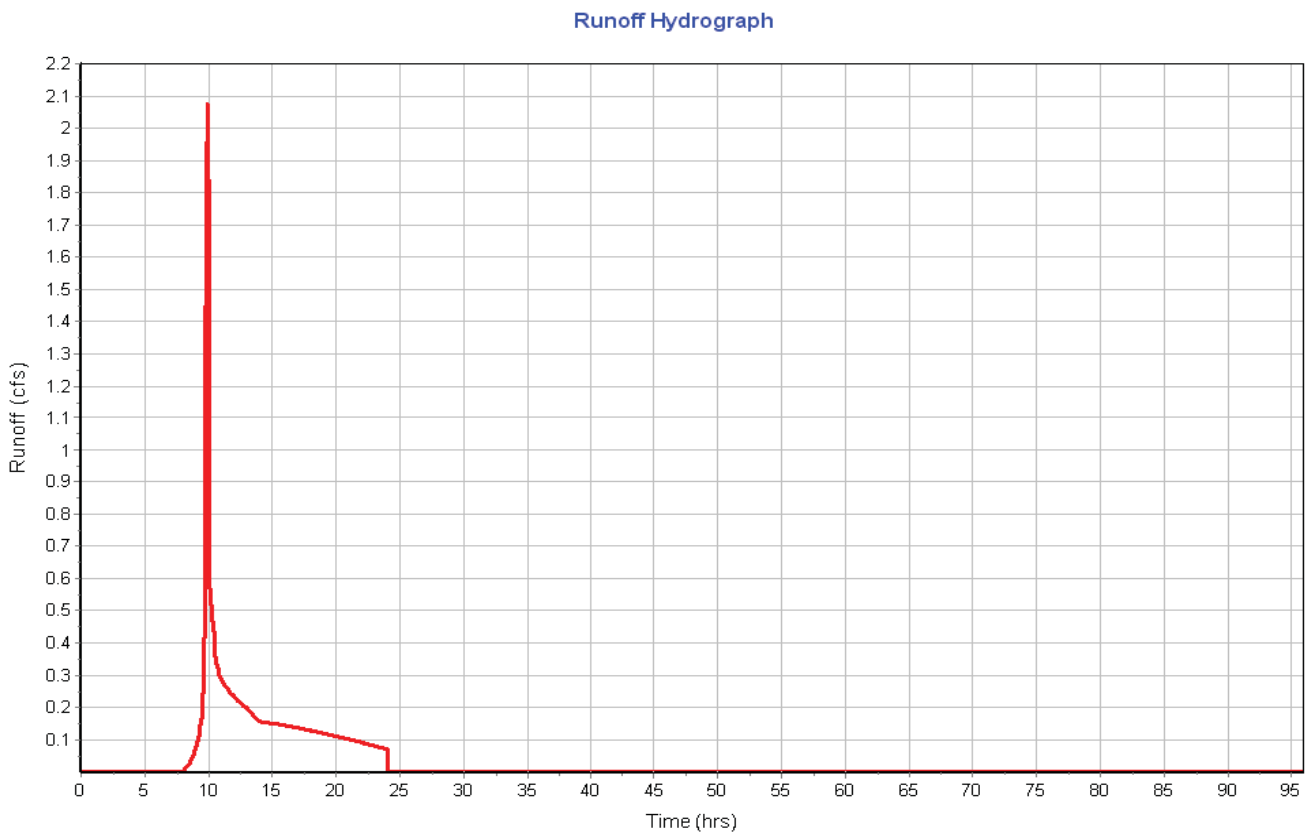
Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	2.05	-	74.00
Composite Area & Weighted CN	2.05		74.00

Subbasin Runoff Results

Total Rainfall (in) 3.71
Total Runoff (in) 1.39
Peak Runoff (cfs) 2.20
Weighted Curve Number 74.00
Time of Concentration (days hh:mm:ss) 0 00:02:00

Subbasin : PRE-DMA-A





Subbasin : PRE-DMA-B

Input Data

Area (ac) 1.69
Weighted Curve Number 74.00
Rain Gage ID Atlas14

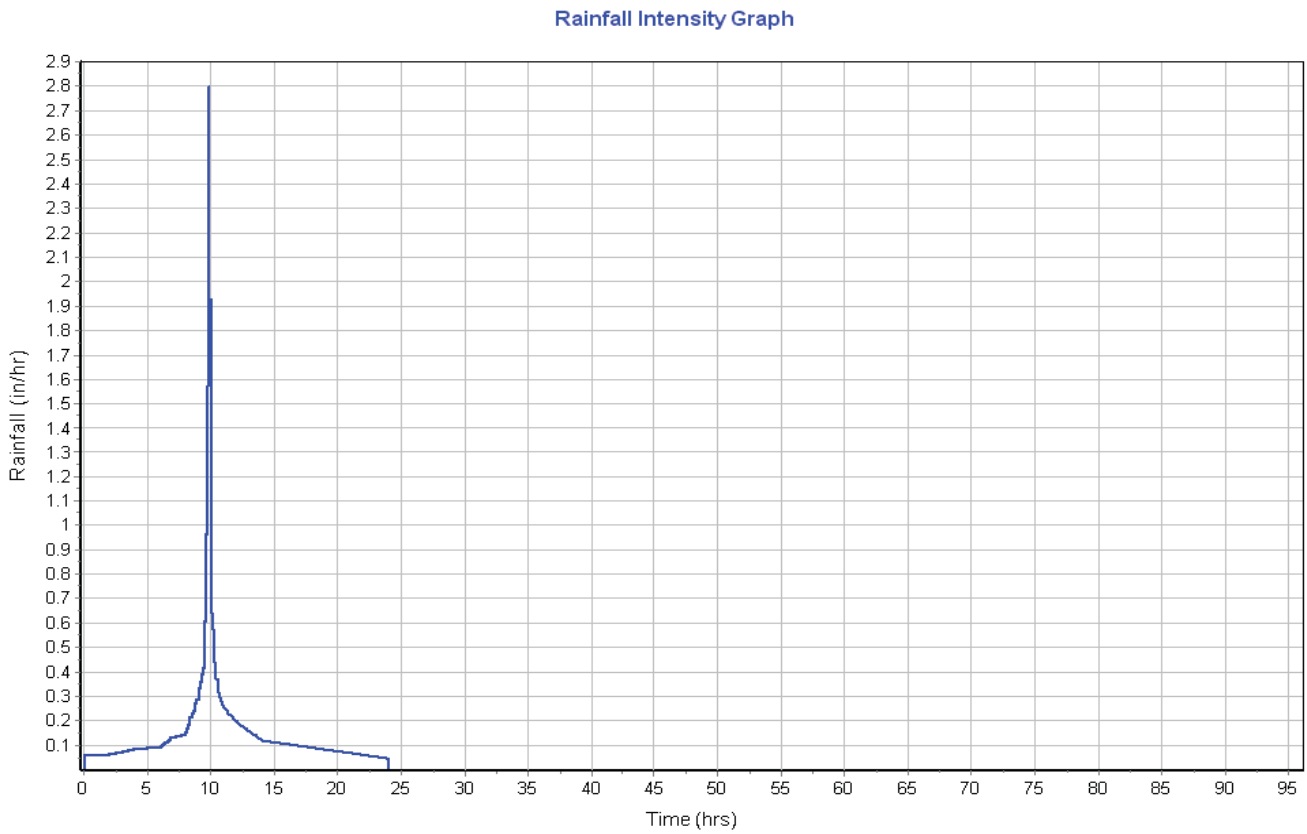
Composite Curve Number

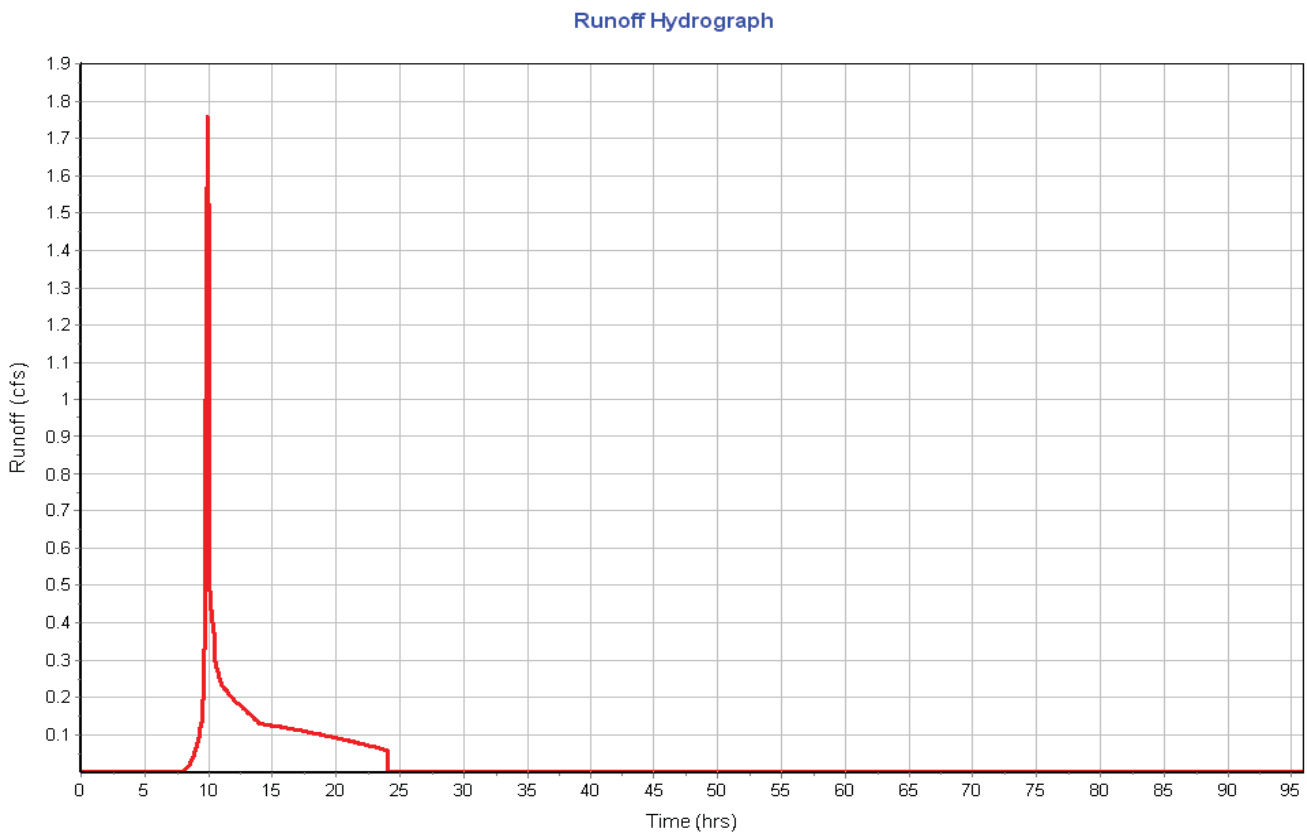
Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	8.21	-	74.00
Composite Area & Weighted CN	8.21		74.00

Subbasin Runoff Results

Total Rainfall (in) 3.71
Total Runoff (in) 1.39
Peak Runoff (cfs) 1.77
Weighted Curve Number 74.00
Time of Concentration (days hh:mm:ss) 0 00:03:00

Subbasin : PRE-DMA-B





Subbasin : PRE-DMA-C

Input Data

Area (ac) 1.42
Weighted Curve Number 74.00
Rain Gage ID Atlas14

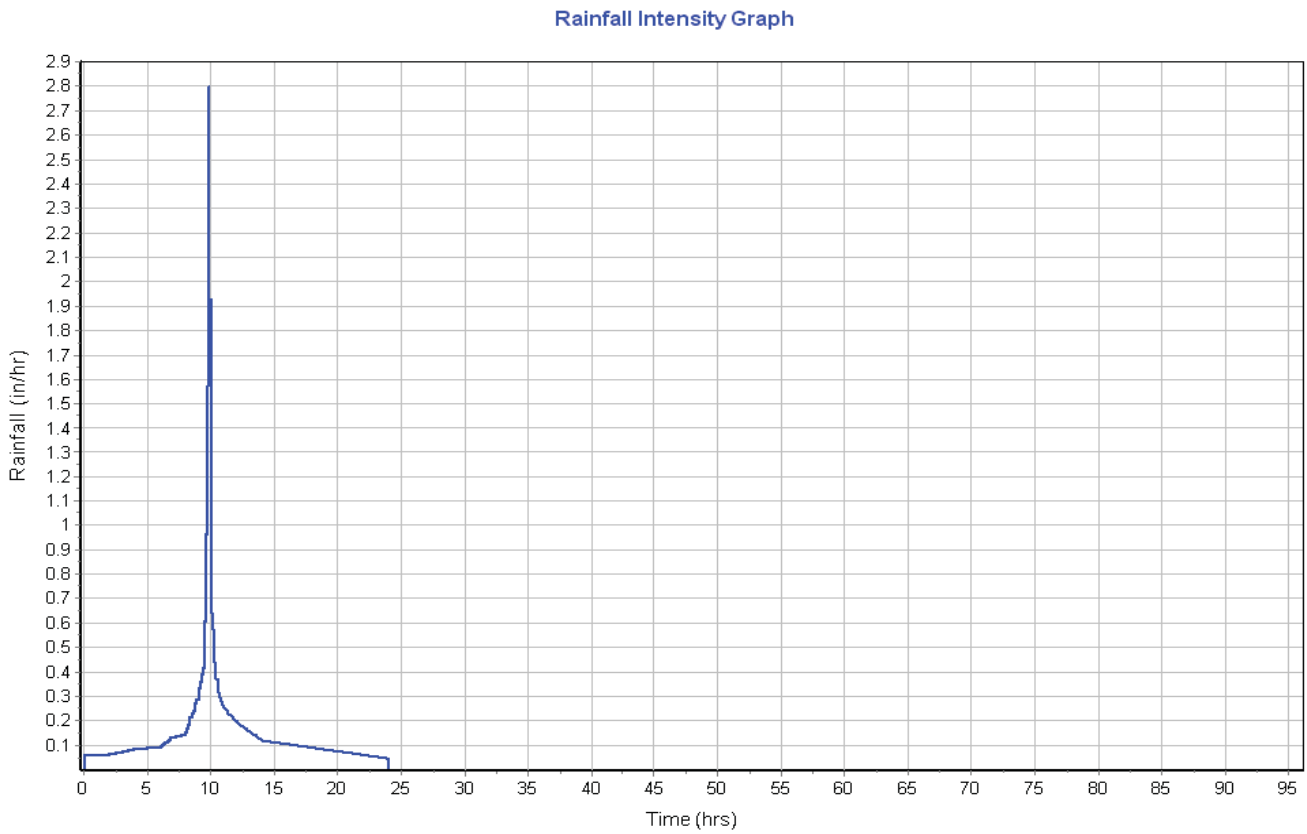
Composite Curve Number

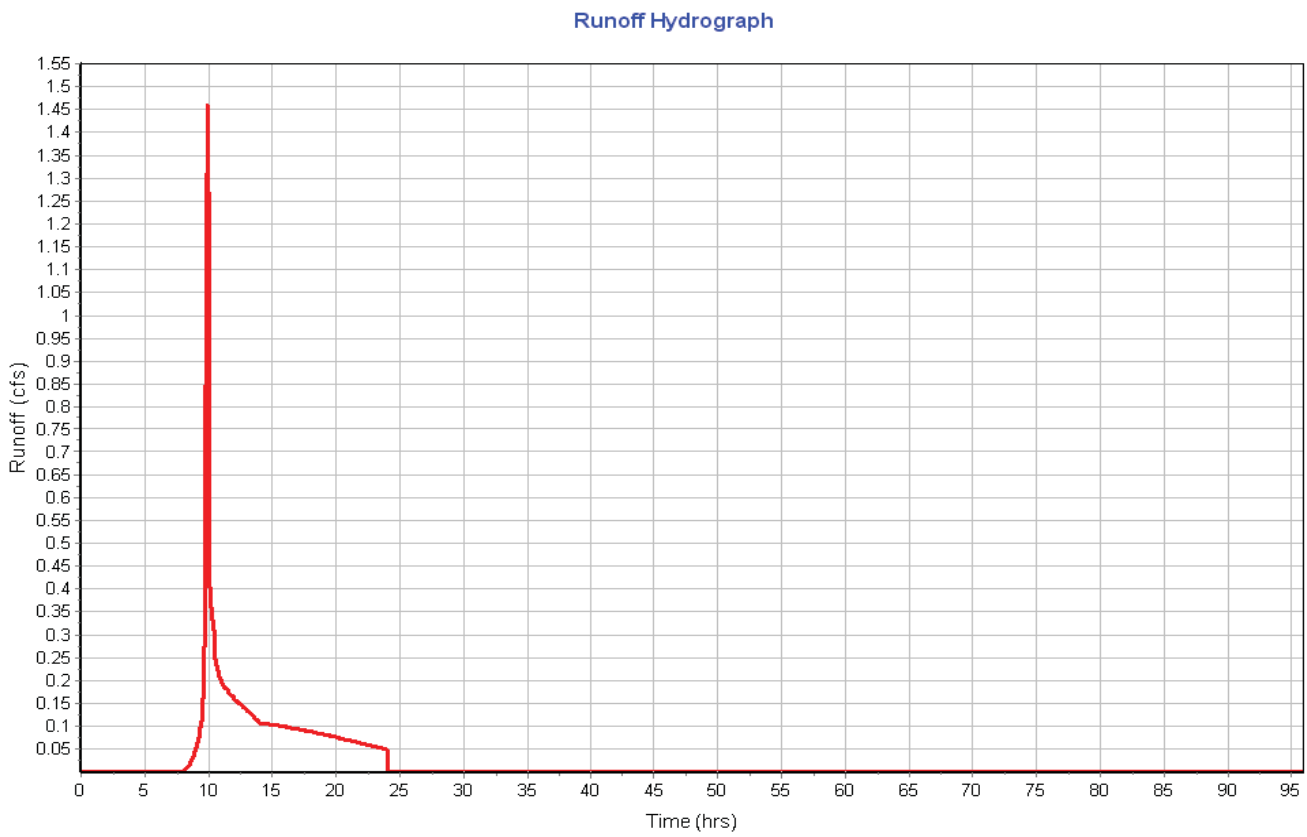
Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.42	-	74.00
Composite Area & Weighted CN	1.42		74.00

Subbasin Runoff Results

Total Rainfall (in) 3.71
Total Runoff (in) 1.39
Peak Runoff (cfs) 1.48
Weighted Curve Number 74.00
Time of Concentration (days hh:mm:ss) 0 00:03:00

Subbasin : PRE-DMA-C





Subbasin : PRE-DMA-D

Input Data

Area (ac) 12.06
Weighted Curve Number 74.00
Rain Gage ID Atlas14

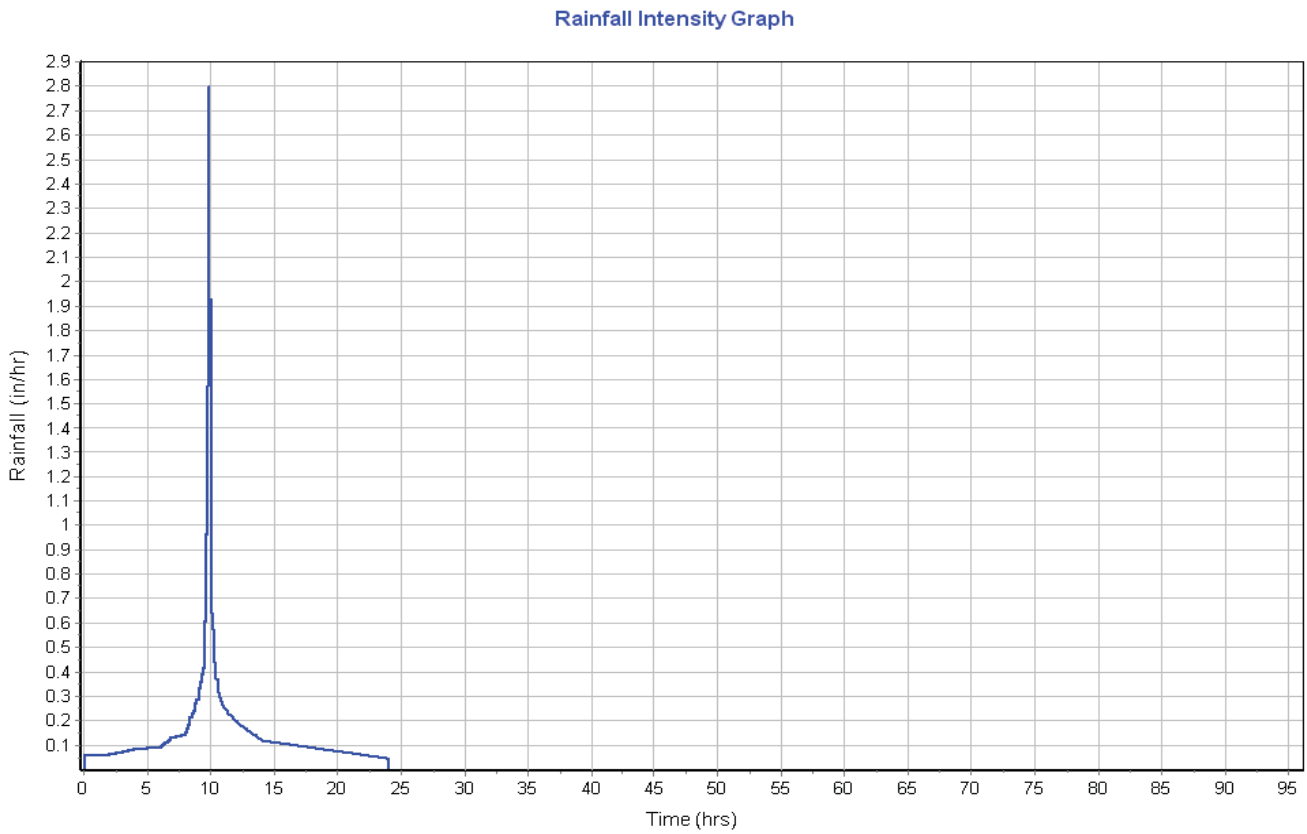
Composite Curve Number

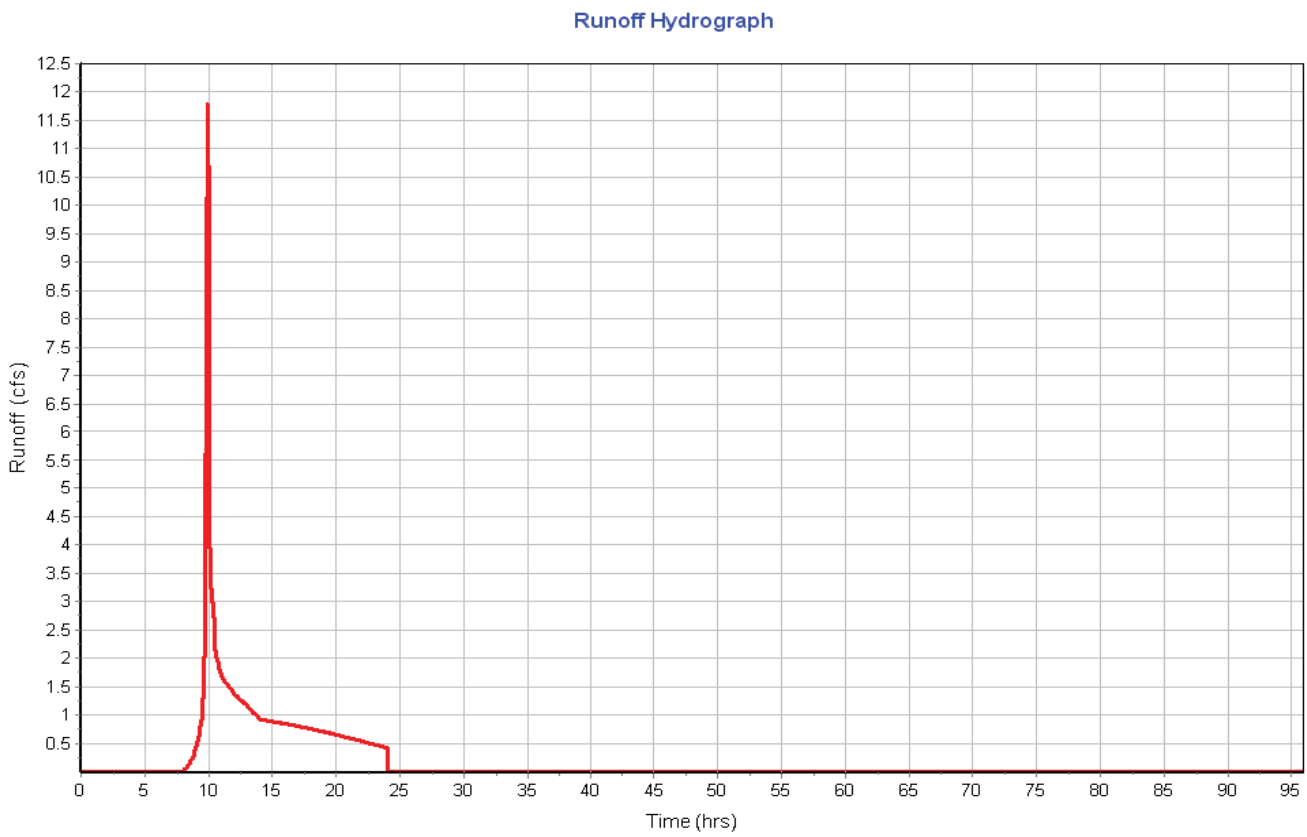
Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	12.06	-	74.00
Composite Area & Weighted CN	12.06		74.00

Subbasin Runoff Results

Total Rainfall (in) 3.71
Total Runoff (in) 1.39
Peak Runoff (cfs) 11.86
Weighted Curve Number 74.00
Time of Concentration (days hh:mm:ss) 0 00:05:00

Subbasin : PRE-DMA-D





Subbasin : PRE-DMA-E

Input Data

Area (ac) 0.54
Weighted Curve Number 74.00
Rain Gage ID Atlas14

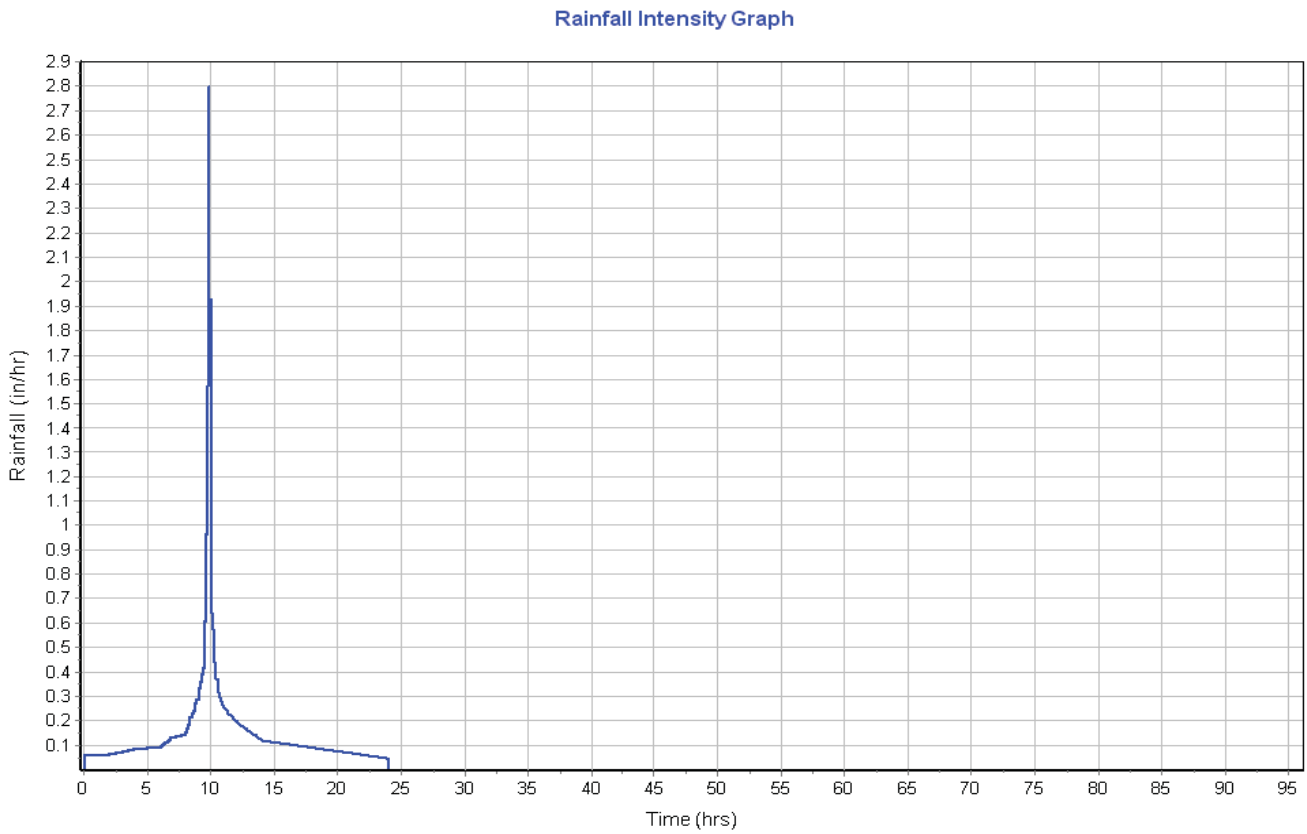
Composite Curve Number

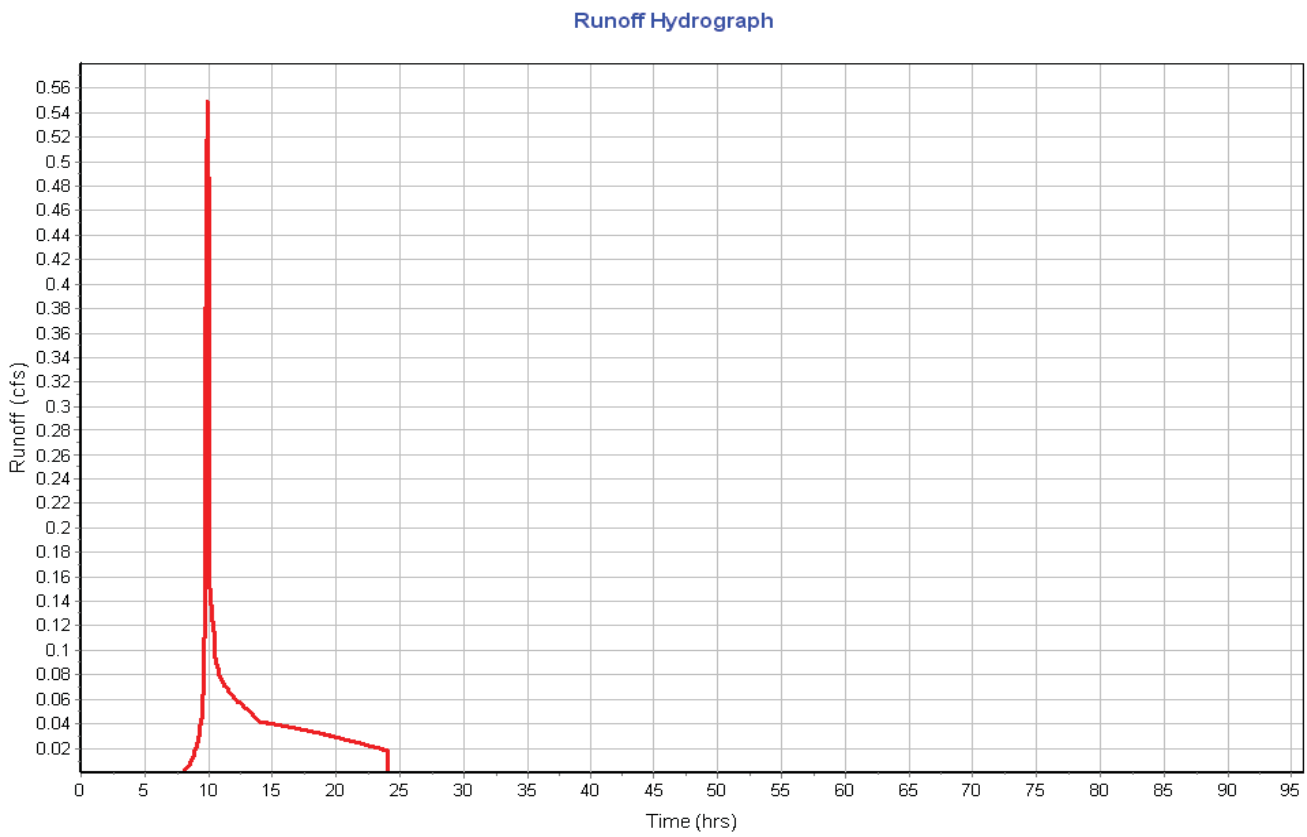
Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.54	-	74.00
Composite Area & Weighted CN	0.54		74.00

Subbasin Runoff Results

Total Rainfall (in) 3.71
Total Runoff (in) 1.39
Peak Runoff (cfs) 0.58
Weighted Curve Number 74.00
Time of Concentration (days hh:mm:ss) 0 00:02:00

Subbasin : PRE-DMA-E





Subbasin : PRE-DMA-HTL4

Input Data

Area (ac) 2.58
Weighted Curve Number 74.00
Rain Gage ID Atlas14

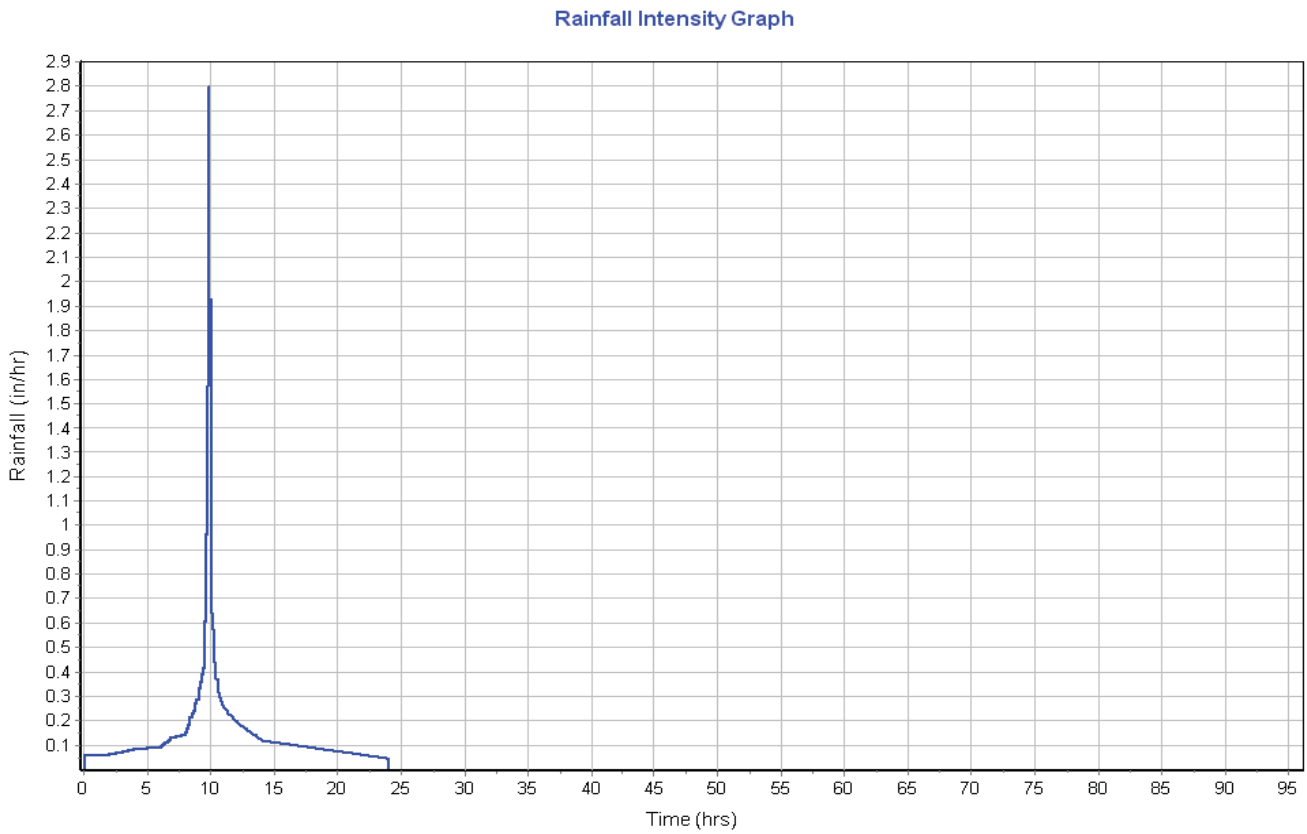
Composite Curve Number

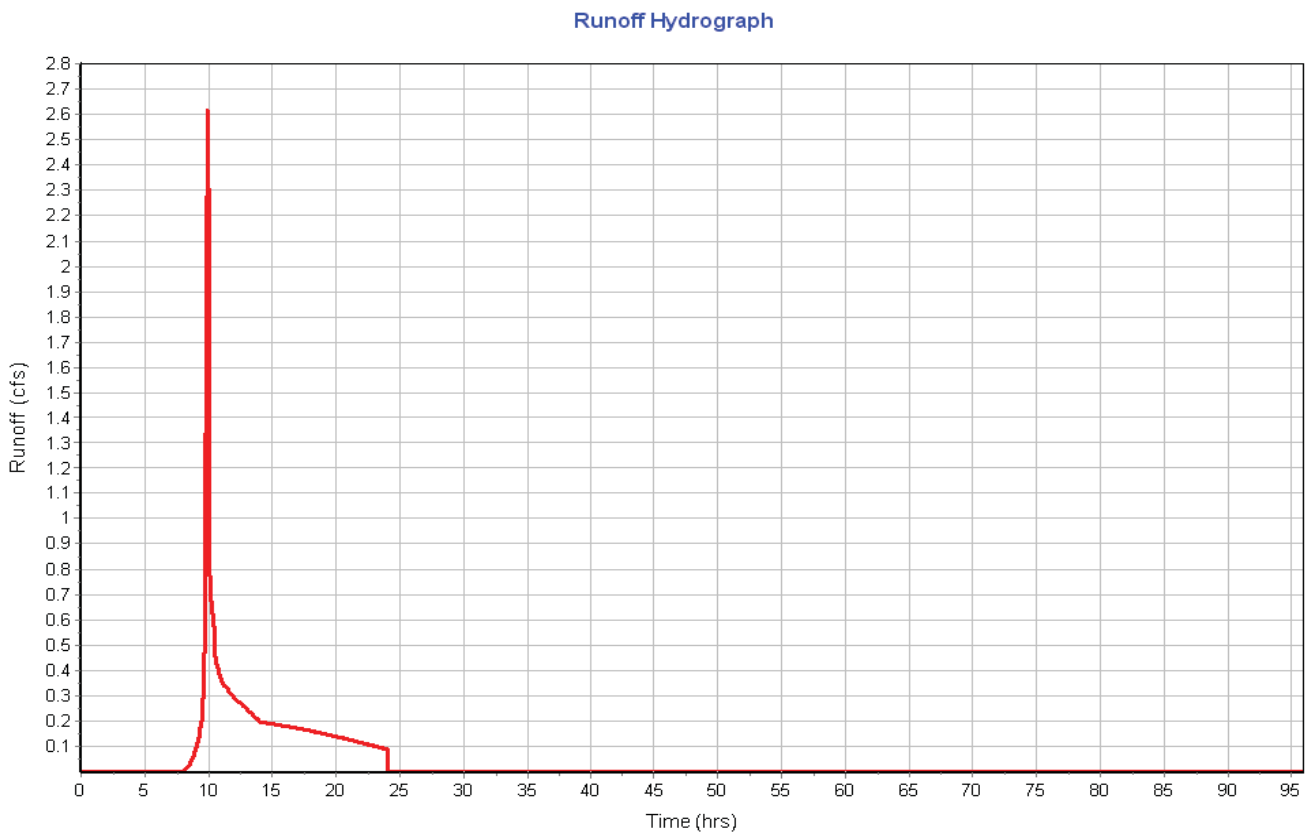
Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	2.05	-	74.00
Composite Area & Weighted CN	2.05		74.00

Subbasin Runoff Results

Total Rainfall (in) 3.71
Total Runoff (in) 1.39
Peak Runoff (cfs) 2.62
Weighted Curve Number 74.00
Time of Concentration (days hh:mm:ss) 0 00:04:00

Subbasin : PRE-DMA-HTL4





Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft²)	Minimum Pipe Cover (in)
1	Jun-A	825.00	6.00	-819.00	0.00	-825.00	0.00	-6.00	0.00	0.00
2	Jun-B	825.00	6.00	-819.00	0.00	-825.00	0.00	-6.00	0.00	0.00
3	Jun-C	825.00	6.00	-819.00	0.00	-825.00	0.00	-6.00	0.00	0.00
4	Jun-D	825.00	6.00	-819.00	0.00	-825.00	0.00	-6.00	0.00	0.00
5	Jun-E	825.00	6.00	-819.00	0.00	-825.00	0.00	-6.00	0.00	0.00
6	Jun-HTL4	740.00	6.00	-734.00	0.00	-740.00	0.00	-6.00	0.00	0.00
7	PRE-Jun-A	825.00	6.00	-819.00	0.00	-825.00	0.00	-6.00	0.00	0.00
8	PRE-Jun-B	825.00	6.00	-819.00	0.00	-825.00	0.00	-6.00	0.00	0.00
9	PRE-Jun-C	825.00	6.00	-819.00	0.00	-825.00	0.00	-6.00	0.00	0.00
10	PRE-Jun-D	824.00	6.00	-818.00	0.00	-824.00	0.00	-6.00	0.00	0.00
11	PRE-Jun-E	825.00	6.00	-819.00	0.00	-825.00	0.00	-6.00	0.00	0.00
12	PRE-Jun-HTL4	740.00	6.00	-734.00	0.00	-740.00	0.00	-6.00	0.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	Jun-A	3.15	3.15	825.00	0.00	0.00	0.00	825.00	0.00	0 00:00	0 00:00	0.00	0.00
2	Jun-B	1.98	1.98	825.00	0.00	0.00	0.00	825.00	0.00	0 00:00	0 00:00	0.00	0.00
3	Jun-C	1.65	1.65	825.00	0.00	0.00	0.00	825.00	0.00	0 00:00	0 00:00	0.00	0.00
4	Jun-D	22.16	22.16	825.00	0.00	0.00	0.00	825.00	0.00	0 00:00	0 00:00	0.00	0.00
5	Jun-E	0.99	0.99	825.00	0.00	0.00	0.00	825.00	0.00	0 00:00	0 00:00	0.00	0.00
6	Jun-HTL4	4.66	4.66	740.00	0.00	0.00	0.00	740.00	0.00	0 00:00	0 00:00	0.00	0.00
7	PRE-Jun-A	2.07	2.07	825.00	0.00	0.00	0.00	825.00	0.00	0 00:00	0 00:00	0.00	0.00
8	PRE-Jun-B	1.76	1.76	825.00	0.00	0.00	0.00	825.00	0.00	0 00:00	0 00:00	0.00	0.00
9	PRE-Jun-C	1.46	1.46	825.00	0.00	0.00	0.00	825.00	0.00	0 00:00	0 00:00	0.00	0.00
10	PRE-Jun-D	14.99	11.78	824.47	0.47	0.00	3.53	824.02	0.02	0 10:00	0 00:00	0.00	0.00
11	PRE-Jun-E	0.55	0.55	825.00	0.00	0.00	0.00	825.00	0.00	0 00:00	0 00:00	0.00	0.00
12	PRE-Jun-HTL4	2.62	2.62	740.00	0.00	0.00	0.00	740.00	0.00	0 00:00	0 00:00	0.00	0.00

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate	No. of Barrels
1	Link-04	401.88	0.00	-825.00	0.00	-816.00	0.00	0.0000	Dummy	0.000	0.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1
2	Link-06	298.72	0.00	-825.00	0.00	-812.00	0.00	0.0000	Dummy	0.000	0.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1
3	Link-07	310.99	0.00	-825.00	0.00	-747.00	0.00	0.0000	Dummy	0.000	0.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1
4	Link-08	459.83	0.00	-825.00	0.00	-747.00	0.00	0.0000	Dummy	0.000	0.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1
5	Link-11	336.43	0.00	-825.00	0.00	-730.00	0.00	0.0000	Dummy	0.000	0.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1
6	Link-13	373.88	0.00	-825.00	0.00	-812.00	0.00	0.0000	Dummy	0.000	0.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1
7	Link-14	280.34	0.00	-825.00	0.00	-812.00	0.00	0.0000	Dummy	0.000	0.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1
8	Link-15	1091.91	0.00	-825.00	0.00	-824.00	0.00	0.0000	Dummy	0.000	0.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1
9	Link-16	1171.10	0.00	-825.00	0.00	-824.00	0.00	0.0000	Dummy	0.000	0.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1
10	Link-17	82.70	824.00	0.00	812.00	0.00	12.00	14.5100	CIRCULAR	48.000	48.000	0.0100	0.5000	0.5000	0.0000	0.00	No	1
11	Link-20	920.62	740.00	0.00	726.00	0.00	14.00	1.5200	Dummy	0.000	0.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1
12	Link-HTL4	504.67	740.00	0.00	730.00	0.00	10.00	1.9800	Dummy	0.000	0.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
1	Link-04	3.15	0 09:59	0.00	0.00	0.00		0.00	0.00	0.00		
2	Link-06	0.99	0 09:59	0.00	0.00	0.00		0.00	0.00	0.00		
3	Link-07	1.98	0 10:00	0.00	0.00	0.00		0.00	0.00	0.00		
4	Link-08	1.65	0 10:00	0.00	0.00	0.00		0.00	0.00	0.00		
5	Link-11	22.16	0 10:00	0.00	0.00	0.00		0.00	0.00	0.00		
6	Link-13	2.07	0 10:00	0.00	0.00	0.00		0.00	0.00	0.00		
7	Link-14	0.55	0 10:00	0.00	0.00	0.00		0.00	0.00	0.00		
8	Link-15	1.46	0 10:00	0.00	0.00	0.00		0.00	0.00	0.00		
9	Link-16	1.76	0 10:00	0.00	0.00	0.00		0.00	0.00	0.00		
10	Link-17	15.00	0 10:00	711.32	0.02	19.61	0.07	0.44	0.11	0.00		Calculated
11	Link-20	2.62	0 10:00	0.00	0.02	0.00		0.44	0.11	0.00		Calculated
12	Link-HTL4	4.66	0 10:00	0.00	0.02	0.00		0.44	0.11	0.00		Calculated

Storage Nodes

Storage Node : Stor-A

Input Data

Invert Elevation (ft) 816.00
Max (Rim) Elevation (ft) 820.50
Max (Rim) Offset (ft) 4.50
Initial Water Elevation (ft) 0.00
Initial Water Depth (ft) ..... -816.00
Ponded Area (ft²) 0.00
Evaporation Loss 0.00

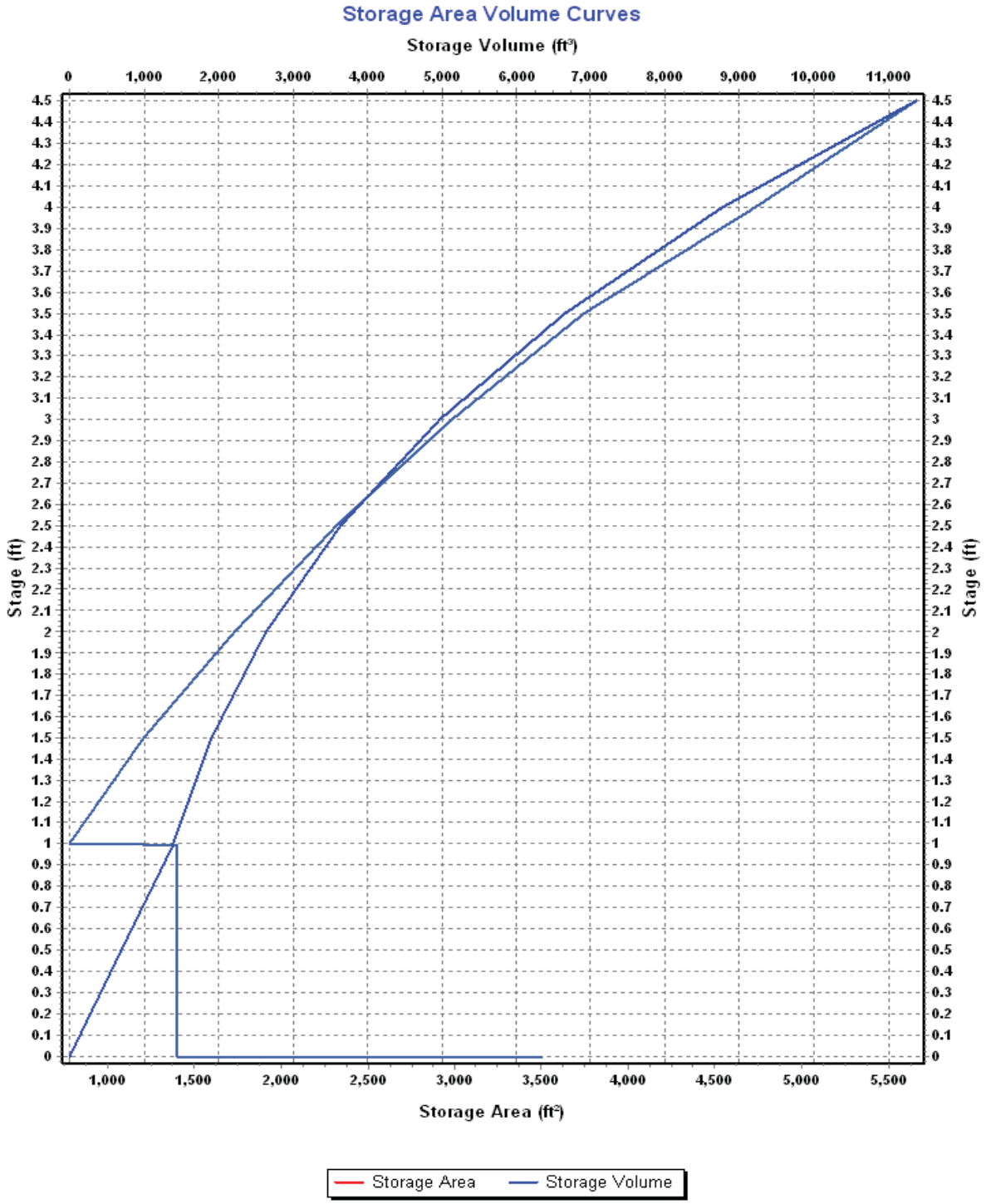
Infiltration/Exfiltration

Exfiltration Rate (in/hr) 0.5000

Storage Area Volume Curves

Storage Curve : Storage-A

Stage (ft)	Storage Area (ft²)	Storage Volume (ft³)
0.000	3500	0.000
0.001	1400	2.45
0.500	1400	701.05
0.999	1400	1399.65
1.000	783	1400.74
1.500	1208	1898.49
2.000	1729	2632.74
2.500	2321	3645.24
3.000	2988	4972.49
3.500	3740	6654.49
4.000	4735	8773.24
4.500	5658	11371.49


Storage Area Volume Curves
Storage Volume (ft³)
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
9,000
10,000
11,000
Stage (ft)
4.5
4.4
4.3
4.2
4.1
4
3.9
3.8
3.7
3.6
3.5
3.4
3.3
3.2
3.1
3
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1,000
1,500
2,000
2,500
3,000
3,500
4,000
4,500
5,000
5,500
Storage Area (ft²)
Storage Area
Storage Volume

Storage Node : Stor-A (continued)

Outflow Orifices

SN	Element ID	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (in)	Rectangular Orifice Height (in)	Rectangular Orifice Width (in)	Orifice Invert Elevation (ft)	Orifice Coefficient
1	Orifice-A	Bottom	CIRCULAR	No	6.00			818.50	0.61

Output Summary Results

Peak Inflow (cfs)	3.15
Peak Lateral Inflow (cfs)	0.00
Peak Outflow (cfs)	0.57
Peak Exfiltration Flow Rate (cfm)	2.43
Max HGL Elevation Attained (ft)	818.84
Max HGL Depth Attained (ft)	2.84
Average HGL Elevation Attained (ft)	817.19
Average HGL Depth Attained (ft)	1.19
Time of Max HGL Occurrence (days hh:mm)	0 10:29
Total Exfiltration Volume (1000-ft³)	5.427
Total Flooded Volume (ac-in)	0
Total Time Flooded (min)	0
Total Retention Time (sec)	0.00

Storage Node : Stor-B

Input Data

Invert Elevation (ft) 747.00
Max (Rim) Elevation (ft) 750.50
Max (Rim) Offset (ft) 3.50
Initial Water Elevation (ft) 0.00
Initial Water Depth (ft) ..... -747.00
Ponded Area (ft²) 0.00
Evaporation Loss 0.00

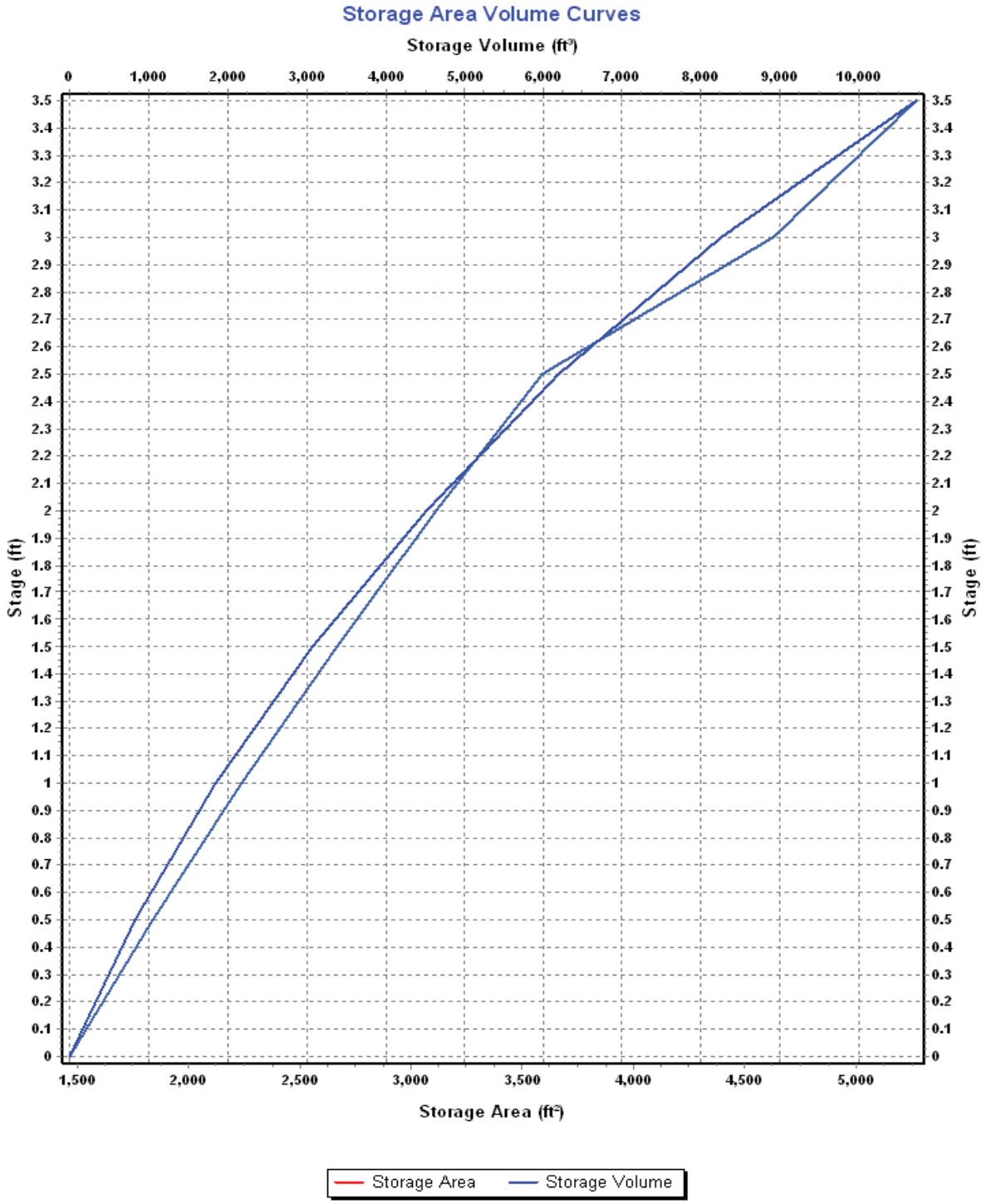
Infiltration/Exfiltration

Exfiltration Rate (in/hr) 0.5000

Storage Area Volume Curves

Storage Curve : Storage-B

Stage (ft)	Storage Area (ft²)	Storage Volume (ft³)
0.0	1464	0.000
0.5	1840	826.00
1.0	2238	1845.50
1.5	2664	3071.00
2.0	3114	4515.50
2.5	3590	6191.50
3.0	4628	8246.00
3.5	5272	10721.00


Storage Area Volume Curves
Storage Volume (ft³)
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
9,000
10,000
Stage (ft)
3.5
3.4
3.3
3.2
3.1
3
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1,500
2,000
2,500
3,000
3,500
4,000
4,500
5,000
Storage Area (ft²)
Storage Area
Storage Volume

Storage Node : Stor-B (continued)

Outflow Orifices

SN	Element ID	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (in)	Rectangular Orifice Height (in)	Rectangular Orifice Width (in)	Orifice Invert Elevation (ft)	Orifice Coefficient
1	Orifice-B	Bottom	CIRCULAR	No	6.00			748.00	0.61

Output Summary Results

Peak Inflow (cfs)	1.98
Peak Lateral Inflow (cfs)	0.00
Peak Outflow (cfs)	0.41
Peak Exfiltration Flow Rate (cfm)	1.66
Max HGL Elevation Attained (ft)	748.18
Max HGL Depth Attained (ft)	1.18
Average HGL Elevation Attained (ft)	747.29
Average HGL Depth Attained (ft)	0.29
Time of Max HGL Occurrence (days hh:mm)	0 10:23
Total Exfiltration Volume (1000-ft³)	3.393
Total Flooded Volume (ac-in)	0
Total Time Flooded (min)	0
Total Retention Time (sec)	0.00

Storage Node : Stor-C

Input Data

Invert Elevation (ft) 747.00
Max (Rim) Elevation (ft) 750.50
Max (Rim) Offset (ft) 3.50
Initial Water Elevation (ft) 0.00
Initial Water Depth (ft) ..... -747.00
Ponded Area (ft²) 0.00
Evaporation Loss 0.00

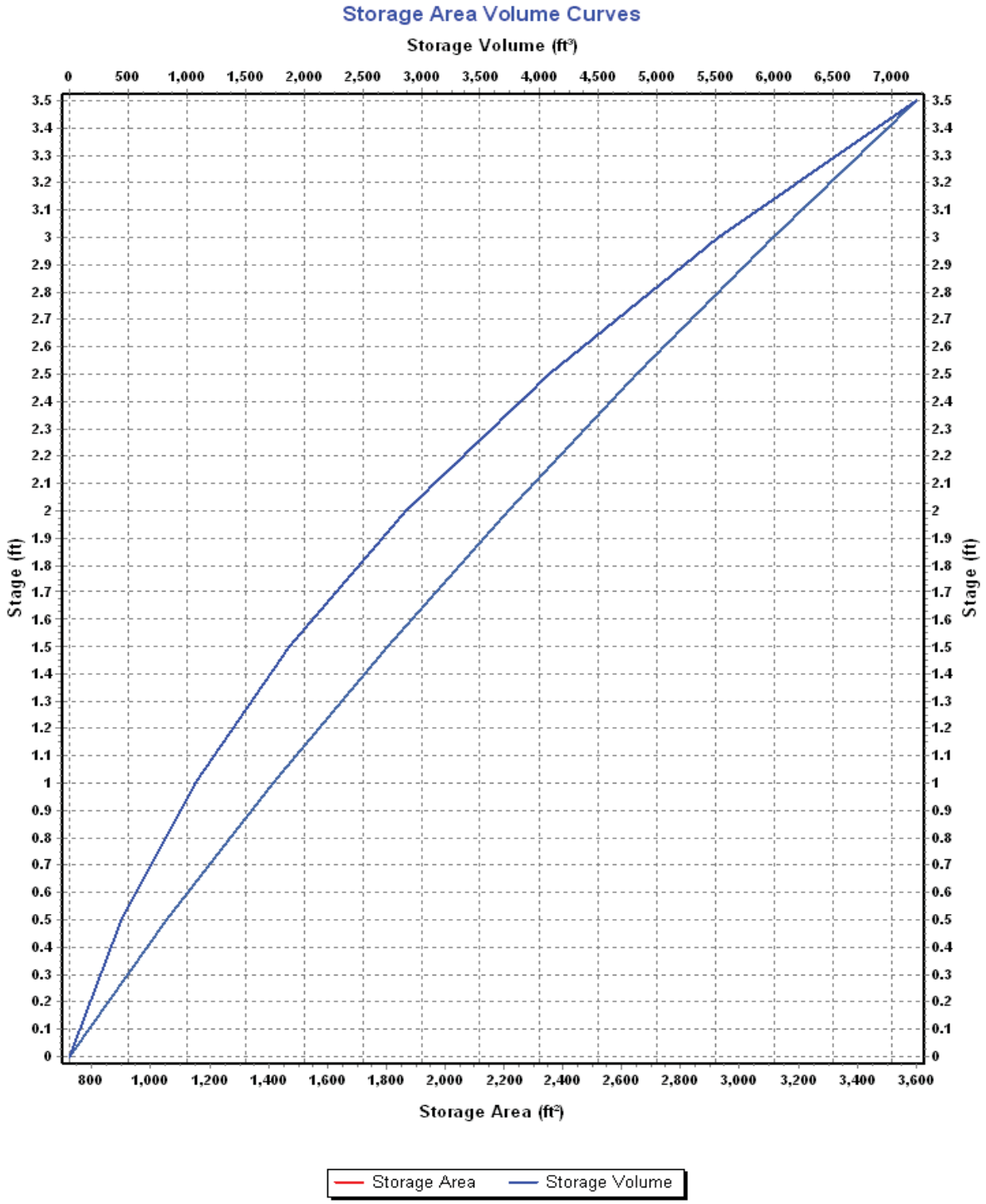
Infiltration/Exfiltration

Exfiltration Rate (in/hr) 0.5000

Storage Area Volume Curves

Storage Curve : Storage-C

Stage (ft)	Storage Area (ft²)	Storage Volume (ft³)
0.0	725	0.000
0.5	1054	444.75
1.0	1416	1062.25
1.5	1803	1867.00
2.0	2215	2871.50
2.5	2653	4088.50
3.0	3115	5530.50
3.5	3600	7209.25


Storage Area Volume Curves
Storage Volume (ft³)
0
500
1,000
1,500
2,000
2,500
3,000
3,500
4,000
4,500
5,000
5,500
6,000
6,500
7,000
Stage (ft)
3.5
3.4
3.3
3.2
3.1
3
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000
3,200
3,400
3,600
Storage Area (ft²)
Storage Area
Storage Volume

Storage Node : Stor-C (continued)

Outflow Orifices

SN	Element ID	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (in)	Rectangular Orifice Height (in)	Rectangular Orifice Width (in)	Orifice Invert Elevation (ft)	Orifice Coefficient
1	Orifice-C	Bottom	CIRCULAR	No	6.00			748.00	0.61

Output Summary Results

Peak Inflow (cfs)	1.65
Peak Lateral Inflow (cfs)	0.00
Peak Outflow (cfs)	0.58
Peak Exfiltration Flow Rate (cfm)	1.18
Max HGL Elevation Attained (ft)	748.36
Max HGL Depth Attained (ft)	1.36
Average HGL Elevation Attained (ft)	747.29
Average HGL Depth Attained (ft)	0.29
Time of Max HGL Occurrence (days hh:mm)	0 10:09
Total Exfiltration Volume (1000-ft³)	2.040
Total Flooded Volume (ac-in)	0
Total Time Flooded (min)	0
Total Retention Time (sec)	0.00

Storage Node : Stor-D

Input Data

Invert Elevation (ft) 730.00
Max (Rim) Elevation (ft) 732.50
Max (Rim) Offset (ft) 2.50
Initial Water Elevation (ft) 0.00
Initial Water Depth (ft) ..... -730.00
Ponded Area (ft²) 0.00
Evaporation Loss 0.00

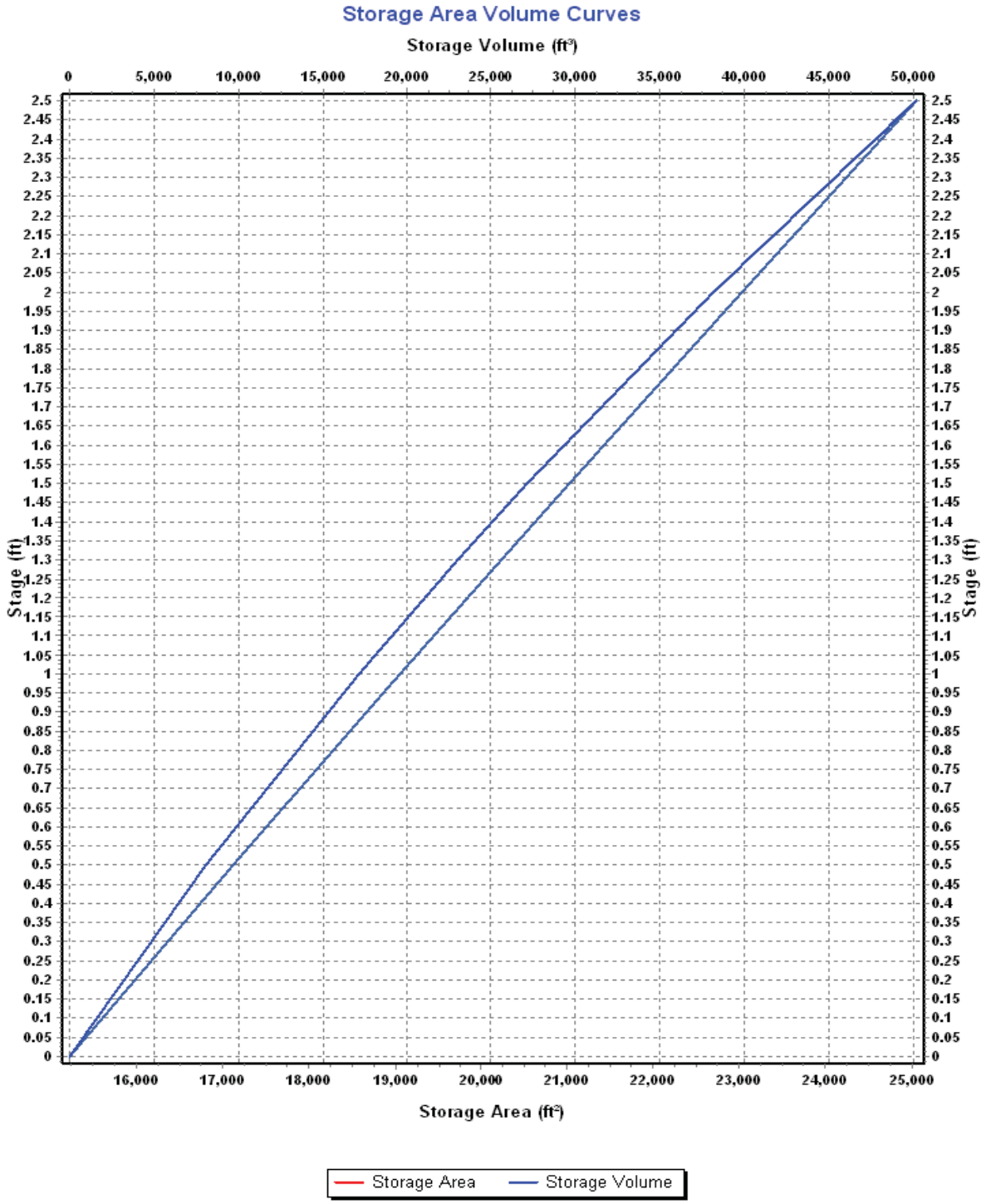
Infiltration/Exfiltration

Exfiltration Rate (in/hr) 1.0000

Storage Area Volume Curves

Storage Curve : Storage-D

Stage (ft)	Storage Area (ft²)	Storage Volume (ft³)
0.0	15225	0.000
0.5	17127	8088.00
1.0	19060	17134.75
1.3	20236	23029.15
1.5	21026	27155.35
2.0	23024	38167.85
2.5	25054	50187.35


Storage Area Volume Curves
Storage Volume (ft³)
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
Stage (ft)
2.5
2.45
2.4
2.35
2.3
2.25
2.2
2.15
2.1
2.05
2
1.95
1.9
1.85
1.8
1.75
1.7
1.65
1.6
1.55
1.5
1.45
1.4
1.35
1.3
1.25
1.2
1.15
1.1
1.05
1
0.95
0.9
0.85
0.8
0.75
0.7
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
16,000
17,000
18,000
19,000
20,000
21,000
22,000
23,000
24,000
25,000
Storage Area (ft²)
Storage Area
Storage Volume

Storage Node : Stor-D (continued)

Outflow Orifices

SN	Element ID	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (in)	Rectangular Orifice Height (in)	Rectangular Orifice Width (in)	Orifice Invert Elevation (ft)	Orifice Coefficient
1	Orifice-D	Bottom	Rectangular	No		24.00	24.00	731.30	0.63

Output Summary Results

Peak Inflow (cfs)	22.34
Peak Lateral Inflow (cfs)	0.00
Peak Outflow (cfs)	4.90
Peak Exfiltration Flow Rate (cfm)	29.89
Max HGL Elevation Attained (ft)	731.62
Max HGL Depth Attained (ft)	1.62
Average HGL Elevation Attained (ft)	730.33
Average HGL Depth Attained (ft)	0.33
Time of Max HGL Occurrence (days hh:mm)	0 10:26
Total Exfiltration Volume (1000-ft³)	53.324
Total Flooded Volume (ac-in)	0
Total Time Flooded (min)	0
Total Retention Time (sec)	0.00

Storage Node : Stor-HTL4

Input Data

Invert Elevation (ft) 730.00
Max (Rim) Elevation (ft) 733.00
Max (Rim) Offset (ft) 3.00
Initial Water Elevation (ft) 0.00
Initial Water Depth (ft) ..... -730.00
Ponded Area (ft²) 0.00
Evaporation Loss 0.00

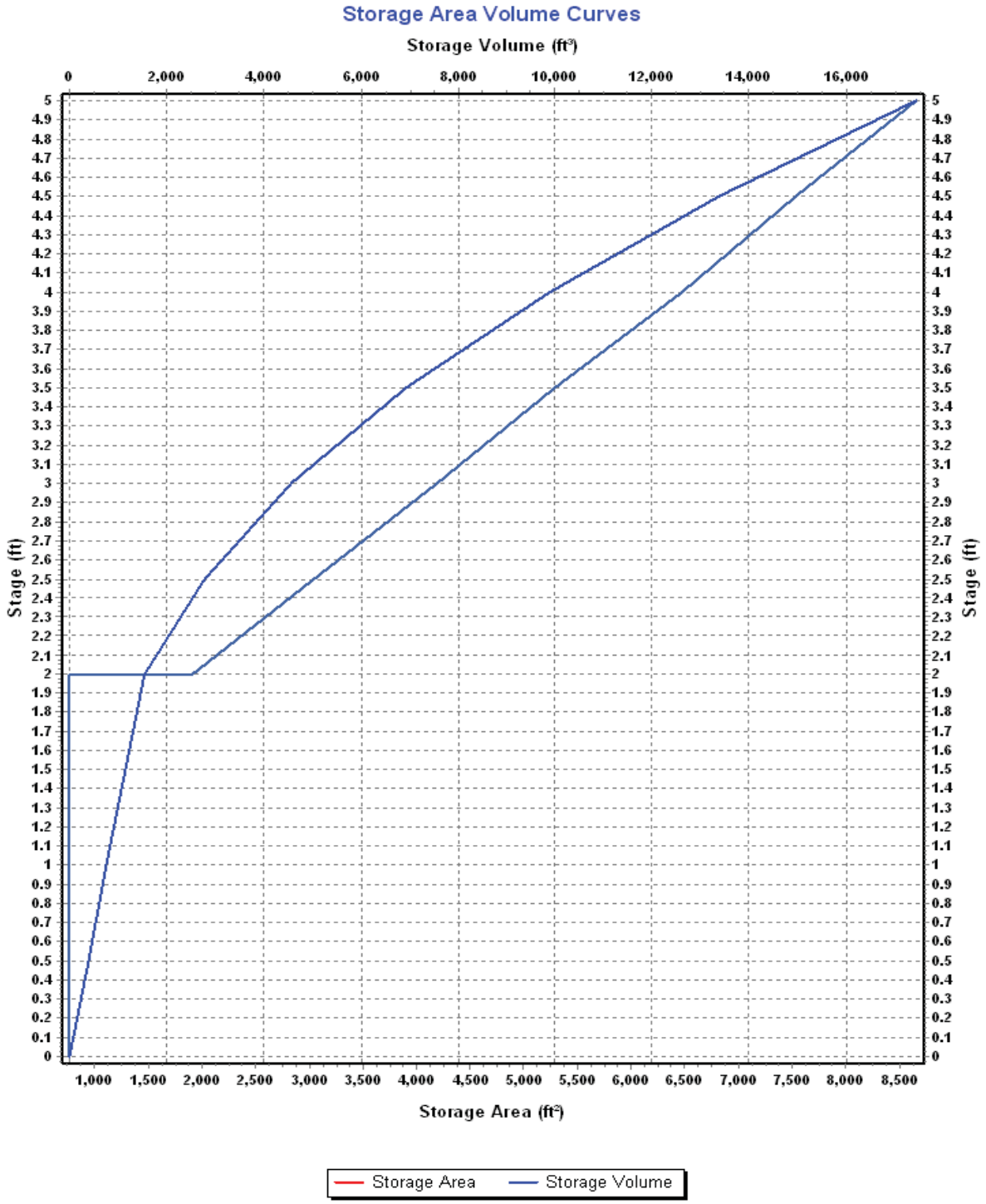
Infiltration/Exfiltration

Exfiltration Rate (in/hr) 1.0000

Storage Area Volume Curves

Storage Curve : Storage-HTL4

Stage (ft)	Storage Area (ft²)	Storage Volume (ft³)
0.000	766	0.000
0.001	766	0.77
0.500	766	383.00
1.000	766	766.00
1.500	766	1149.00
1.999	766	1531.23
2.000	1914	1532.57
2.500	3047	2772.82
3.000	4192	4582.57
3.500	5288	6952.57
4.000	6473	9892.82
4.500	7540	13396.07
5	8658	17445.57


Storage Area Volume Curves
Storage Volume (ft³)
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
Stage (ft)
5
4.9
4.8
4.7
4.6
4.5
4.4
4.3
4.2
4.1
4
3.9
3.8
3.7
3.6
3.5
3.4
3.3
3.2
3.1
3
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1,000
1,500
2,000
2,500
3,000
3,500
4,000
4,500
5,000
5,500
6,000
6,500
7,000
7,500
8,000
8,500
Storage Area (ft²)
Storage Area
Storage Volume

Storage Node : Stor-HTL4 (continued)

Outflow Orifices

SN	Element ID	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (in)	Rectangular Orifice Height (in)	Rectangular Orifice Width (in)	Orifice Invert Elevation (ft)	Orifice Coefficient
1	Orifice-HTL4	Bottom	CIRCULAR	No	8.00			731.00	0.61

Output Summary Results

Peak Inflow (cfs)	4.66
Peak Lateral Inflow (cfs)	0.00
Peak Outflow (cfs)	2.12
Peak Exfiltration Flow Rate (cfm)	4.28
Max HGL Elevation Attained (ft)	732.51
Max HGL Depth Attained (ft)	2.51
Average HGL Elevation Attained (ft)	730.26
Average HGL Depth Attained (ft)	0.26
Time of Max HGL Occurrence (days hh:mm)	0 10:08
Total Exfiltration Volume (1000-ft³)	2.078
Total Flooded Volume (ac-in)	0
Total Time Flooded (min)	0
Total Retention Time (sec)	0.00

Appendix H: Earth Systems Pacific Infiltration Test Data from March 16, 2016

SITE PLAN - HOTEL 1, 2, 3
1/64" = 1'-0"
1

STANTONARCHITECTURE.COM

PASO ROBLES

PASO ROBLES RESORT HOTEL

PASO ROBLES, CA 93446

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NO.	DATE	ISSUE
01	02/22/16	PROPOSED SITE PLANS

DRAWING TITLE
SITE PLAN

STATUS
STATUS

JOB NO.	15029
DRAWN BY	SBC
SHEET NO.	

SK -01

INFILTRATION TEST RESULTS

INFILTRATION TEST: A

DATE DRILLED: 03/15/16 **TEST HOLE DIAMETER: 6 inches**

DATE TESTED: 03/16/16 **TEST HOLE DEPTH: 4.0 feet**

TECHNICIAN: RW **TEST DURATION: 5.5 hours**

CONSTANT HEAD DATA

Time of Constant Head: 30 minutes

Volume Added During Constant Head: 0.01 cubic feet

FALLING HEAD DATA

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	INFILTRATION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
0	7.00	---	---	---
30	10.50	3.50	8.57	7
30	12.00	1.50	20.00	3
30	13.50	1.50	20.00	3
30	14.75	1.25	24.00	3
60	17.50	2.75	21.82	3
60	20.50	3.00	20.00	3
60	23.00	2.50	24.00	3

INFILTRATION TEST RESULTS

INFILTRATION TEST: B

DATE DRILLED: 03/15/16

DATE TESTED: 03/16/16

TECHNICIAN: RW

TEST HOLE DIAMETER: 6 inches

TEST HOLE DEPTH: 4.8 feet

TEST DURATION: 5.5 hours

CONSTANT HEAD DATA

Time of Constant Head: 30 minutes

Volume Added During Constant Head: 0.04 cubic feet

FALLING HEAD DATA

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	INFILTRATION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
0	7.50	---	---	---
30	9.25	1.75	17.14	4
30	11.75	2.50	12.00	5
30	14.25	2.50	12.00	5
30	16.25	2.00	15.00	4
60	19.00	2.75	21.82	3
60	20.00	1.00	60.00	1
60	21.00	1.00	60.00	1

INFILTRATION TEST RESULTS

INFILTRATION TEST: C

DATE DRILLED: 03/15/16

DATE TESTED: 03/16/16

TECHNICIAN: RW

TEST HOLE DIAMETER: 8 inches

TEST HOLE DEPTH: 3.5 feet

TEST DURATION: 5.5 hours

CONSTANT HEAD DATA

Time of Constant Head: 30 minutes

Volume Added During Constant Head: 0.12 cubic feet

FALLING HEAD DATA

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	INFILTRATION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
0	7.00	---	---	---
30	10.50	3.50	8.57	7
30	13.50	3.00	10.00	6
30	13.75	0.25	120.00	1
30	14.00	0.25	120.00	1
60	15.00	1.00	60.00	1
60	16.00	1.00	60.00	1
60	17.00	1.00	60.00	1

INFILTRATION TEST RESULTS

INFILTRATION TEST: D

DATE DRILLED: 03/15/16

DATE TESTED: 03/16/16

TECHNICIAN: RW

TEST HOLE DIAMETER: 8 inches

TEST HOLE DEPTH: 4.3 feet

TEST DURATION: 5.5 hours

CONSTANT HEAD DATA

Time of Constant Head: 30 minutes

Volume Added During Constant Head: 0.51 cubic feet

FALLING HEAD DATA

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	INFILTRATION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
0	15.00	---	---	---
30	35.00	20.00	1.50	40
30	40.00	5.00	6.00	10
30	42.00	2.00	15.00	4
30	42.75	0.75	40.00	2
60	44.00	1.25	48.00	1
60	45.00	1.00	60.00	1
60	46.00	1.00	60.00	1

INFILTRATION TEST RESULTS

INFILTRATION TEST: E

DATE DRILLED: 03/15/16

DATE TESTED: 03/16/16

TECHNICIAN: RW

TEST HOLE DIAMETER: 6 inches

TEST HOLE DEPTH: 3.2 feet

TEST DURATION: 2.5 hours

CONSTANT HEAD DATA

Time of Constant Head: 30 minutes

Volume Added During Constant Head: 0.07 cubic feet

FALLING HEAD DATA

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	INFILTRATION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
0	2.00	---	---	---
5	3.50	1.50	3.33	18
5	6.00	2.50	2.00	30
5	10.00	4.00	1.25	48
5	11.50	1.50	3.33	18
5	13.00	1.50	3.33	18
5	14.25	1.25	4.00	15
5	16.00	1.75	2.86	21
5	18.00	2.00	2.50	24
5	20.00	2.00	2.50	24
5	21.00	1.00	5.00	12
5	22.00	1.00	5.00	12
5	23.00	1.00	5.00	12
20	26.50	3.50	5.71	11
20	30.00	3.50	5.71	11
20	33.00	3.00	6.67	9

INFILTRATION TEST RESULTS

INFILTRATION TEST: F

DATE DRILLED: 03/15/16

DATE TESTED: 03/16/16

TECHNICIAN: RW

TEST HOLE DIAMETER: 6 inches

TEST HOLE DEPTH: 9.5 feet

TEST DURATION: 2.5 hours

CONSTANT HEAD DATA

Time of Constant Head: 30 minutes

Volume Added During Constant Head: 1.39 cubic feet

FALLING HEAD DATA

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	INFILTRATION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
0	12.00	---	---	---
5	49.00	37.00	0.14	444
5	61.00	12.00	0.42	144
5	79.00	18.00	0.28	216
5	85.00	6.00	0.83	72
5	89.00	4.00	1.25	48
5	93.00	4.00	1.25	48
5	96.50	3.50	1.43	42
5	100.00	3.50	1.43	42
5	103.50	3.50	1.43	42
5	107.00	3.50	1.43	42
5	109.00	2.00	2.50	24
5	111.50	2.50	2.00	30
Recharge	7.00	---	---	---
20	79.00	72.00	0.28	216
20	94.50	15.50	1.29	47
20	105.00	10.50	1.90	32

INFILTRATION TEST RESULTS

INFILTRATION TEST: G

DATE DRILLED: 03/15/16

DATE TESTED: 03/16/16

TECHNICIAN: RW

TEST HOLE DIAMETER: 6 inches

TEST HOLE DEPTH: 4.7 feet

TEST DURATION: 2.5 hours

CONSTANT HEAD DATA

Time of Constant Head: 30 minutes

Volume Added During Constant Head: 0.2 cubic feet

FALLING HEAD DATA

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	INFILTRATION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
0	5.00	---	---	---
5	8.00	3.00	1.67	36
5	10.00	2.00	2.50	24
5	12.00	2.00	2.50	24
5	14.00	2.00	2.50	24
5	16.00	2.00	2.50	24
5	18.00	2.00	2.50	24
5	20.00	2.00	2.50	24
5	20.50	0.50	10.00	6
5	21.00	0.50	10.00	6
5	22.00	1.00	5.00	12
5	23.50	1.50	3.33	18
5	24.50	1.00	5.00	12
10	25.50	1.00	10.00	6
10	26.50	1.00	10.00	6
10	27.25	0.75	13.33	5
10	28.00	0.75	13.33	5
10	28.75	0.75	13.33	5
10	29.25	0.50	20.00	3

INFILTRATION TEST RESULTS

INFILTRATION TEST: H

DATE DRILLED: 03/15/16 **TEST HOLE DIAMETER: 6 inches**

DATE TESTED: 03/16/16 **TEST HOLE DEPTH: 3.8 feet**

TECHNICIAN: RW **TEST DURATION: 2.2 hours**

CONSTANT HEAD DATA

Time of Constant Head: 30 minutes

Volume Added During Constant Head: 0.64 cubic feet

FALLING HEAD DATA

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	INFILTRATION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
0	3.50	---	---	---
5	20.00	16.50	0.30	198
5	27.00	7.00	0.71	84
5	32.00	5.00	1.00	60
5	36.00	4.00	1.25	48
5	39.00	3.00	1.67	36
5	40.50	1.50	3.33	18
5	42.00	1.50	3.33	18
5	43.50	1.50	3.33	18
5	45.00	1.50	3.33	18
Recharge	2.00	---	---	---
5	11.50	9.50	0.53	114
5	24.50	13.00	0.38	156
5	30.50	6.00	0.83	72
5	34.50	4.00	1.25	48
5	37.00	2.50	2.00	30
5	39.00	2.00	2.50	24
5	40.75	1.75	2.86	21
5	42.00	1.25	4.00	15
5	43.50	1.50	3.33	18
5	45.00	1.50	3.33	18