

***STORMWATER MANAGEMENT,
GROUNDWATER RECHARGE AND
WATER QUALITY ANALYSIS***

For

***Stack Storage, LLC
Proposed Self-Storage Facility***


*Vanderburg Road and Boundary Road
Block 360, Lots 7 & 8
Township of Marlboro,
Monmouth County,
New Jersey*

Prepared by:



**DYNAMIC
ENGINEERING**

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June, 2021
DEC# 3724-99-001

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I. SITE DESCRIPTION

The project area consists of Block 360, Lots 7 & 8, located at the southeastern corner of the intersection of Vanderburg Road and Boundary Road in the Township of Marlboro, Monmouth County, New Jersey. The site is approximately 7.847 acres and consists of an undeveloped wooded area and open space. The Applicant proposes to construct three (3) single-story self-storage buildings, each 29,900 SF in size, with associated improvements including parking areas, landscaping, lighting, stormwater management facilities, and utilities as shown on the accompanying Site Plan drawings. The existing conditions of the tract have been verified by the Boundary and Topographic Survey as prepared by Dynamic Survey, LLC.

II. DESIGN OVERVIEW

This report has been prepared to define and analyze the stormwater drainage conditions that would occur as a result of the development of Block 360, Lots 7 & 8, in the Township of Marlboro, Monmouth County, New Jersey.

The scope of the study includes the proposed three (3) single-story self-storage buildings, each 29,900 SF in size, and the associated driveways, parking areas, landscaping and other related site improvements as shown on the accompanying engineering drawings. Overall, the development proposes a limit of disturbance of 346,024 SF (7.943 AC) and a net increase of impervious surface of 201,360 SF.

Based upon the fact that the proposed improvements will result in more than one (1) acre of land disturbance and an increase in impervious coverage by more than $\frac{1}{4}$ acre, this project is classified as a “major development”; and therefore, has been designed to meet the stormwater runoff quantity, quality and groundwater recharge standards, set forth by the Township of Marlboro Land Use Ordinance and NJAC 7:8. Accordingly, the following items are addressed within this report:

- Erosion control, groundwater recharge and runoff quantity standards (7:8-5.4)
- Stormwater runoff quality standards (7:8-5.5)
- Calculation of stormwater runoff and groundwater recharge (7:8-5.6)
- Standards for structural stormwater management measures (7:8-5.7)

A hydrological evaluation is provided for the NJDEP Water Quality, 2, 10, and 100 year storm events utilizing the Urban Hydrology for Small Watershed TR55 method.

The Marlboro Township and NJDEP flow reduction requirements are as follows:

2-year: 50% reduction
10-year: 25% reduction
100-year: 20% reduction

It is the intention of the design of this facility to comply with the Stormwater Management Best Management Practices.

III. EXISTING DRAINAGE CONDITIONS

The tract has been evaluated with the following drainage sub-watershed areas as depicted on the Existing Drainage Area Map:

Study Area Existing North: This portion of the tract consists of open space areas associated with the northwesterly portion of the subject parcel. Stormwater runoff from this area is tributary to the north via overland flow.

Study Area Existing South: This portion of the tract consists of wooded and open space areas associated with the majority of the subject parcel. Stormwater runoff from this area is tributary to the existing stormwater conveyance system within Boundary Road located at the southeasterly property corner via overland flow.

Based on the Monmouth County soils survey information, the soil types native to the site include:

MONMOUTH COUNTY SOIL SURVEY INFORMATION		
SOIL TYPE (SYMBOL)	SOIL TYPE (NAME)	HYDROLOGIC SOIL GROUP
ShrA	Shrewsbury sandy Loam	B/D
ThgB	Tinton Loamy Sand	A
ThgC	Tinton Loamy Sand	A

IV. PROPOSED DRAINAGE CONDITIONS

The tract has been evaluated with the following sub-watershed areas as depicted on the Proposed Drainage Area Map:

Study Area North Undetained: This portion of the tract consists of open space area that drains via overland flow off site to the north, as is consistent with existing conditions.

Study Area Building A North: This portion of tract will consist of roof runoff of the northern half of the northern most building (referred to as “Building A”). Runoff from this tract will be collected via roof leaders and will be tributary to the above ground infiltration basin noted as “Basin North 1”.

Study Area Building A South: This portion of tract will consist of roof runoff of the southern half of the northern most building (referred to as “Building A”). Runoff from this tract will be collected via roof leaders and will be tributary to the above ground infiltration basin noted as “Basin North 2”.

Study Area Building B1 North: This portion of tract will consist of roof runoff of the northern half of the central building (referred to as “Building B1”). Runoff from this tract will be collected via roof leaders and will be tributary to the above ground infiltration basin noted as “Basin North 2”.

Study Area Building B1 South: This portion of tract will consist of roof runoff of the southern half of the central building (referred to as “Building B1”). Runoff from this tract will be collected via roof leaders and will be tributary to the above ground infiltration basin noted as “Basin South 1”.

Study Area Building B2 North: This portion of tract will consist of roof runoff of the northern half of the southern most building (referred to as “Building B2”). Runoff from this tract will be collected via roof leaders and will be tributary to the above ground infiltration basin noted as “Basin South 1”.

Study Area Building B2 South: This portion of tract will consist of roof runoff of the southern half of the southern most building (referred to as “Building B2”). Runoff from this tract will be collected via roof leaders and will be tributary to the above ground infiltration basin noted as “Basin South 2”.

Study Area Proposed Aboveground Basin North 1: This portion of the tract consists of open space and impervious areas associated with the northern half of the site including parking areas, drive aisles, and tributary yard areas. Stormwater runoff from this area is tributary to the proposed aboveground infiltration basin, Basin North 1, located at the northerly portion of the proposed development via the on-site stormwater conveyance system and overland flow. Stormwater which does not infiltrate into the groundwater system will be discharged from the aboveground infiltration basin at a controlled rate via the proposed outlet control structure and is ultimately routed to the existing stormwater conveyance system located within Boundary Road.

Study Area Proposed Aboveground Basin North 2: This portion of the tract consists of open space and impervious areas associated with the northern half of the site including parking areas, drive aisles and tributary yard areas. Stormwater runoff from this area is tributary to the proposed aboveground infiltration basin, Basin North 2, located at the north eastern portion of the proposed development via on-site stormwater conveyance system. Stormwater which does not infiltrate into the groundwater system will be discharged from the

aboveground infiltration basin at a controlled rate via the proposed outlet control structure and is ultimately routed to the existing stormwater conveyance system located within Boundary Road.

Study Area Proposed Aboveground Basin South 1: This portion of the tract consists of open space and impervious areas associated with the southern half of the site including parking areas, drive aisles and tributary yard areas. Stormwater runoff from this area is tributary to the proposed aboveground infiltration basin, Basin South 1, located at the southern portion of the proposed development via on-site stormwater conveyance system. Stormwater which does not infiltrate into the groundwater system will be discharged from the aboveground infiltration basin at a controlled rate via the proposed outlet control structure and is ultimately routed to the existing stormwater conveyance system located within Boundary Road.

Study Area Proposed Aboveground Basin South 2: This portion of the tract consists of open space and impervious areas associated with the northern half of the site including parking areas, drive aisles and tributary yard areas. Stormwater runoff from this area is tributary to the proposed aboveground infiltration basin, Basin South 2, located at the south eastern portion of the proposed development via the on-site stormwater conveyance system and overland flow. Stormwater which does not infiltrate into the groundwater system will be discharged from the aboveground infiltration basin at a controlled rate via the proposed outlet control structure and is ultimately routed to the existing stormwater conveyance system located within Boundary Road.

V. DESIGN METHODOLOGY

The intention of the design of the proposed stormwater management facilities for this project is to provide measures as required to address applicable aspects of the Township of Marlboro Land Use Ordinance and NJAC 7:8. In order to prepare the stormwater calculations for the subject project, extensive initial investigation of the property and topography was performed. On-site review of the tract was performed by Dynamic Engineering Consultants, PC to verify existing site conditions and land cover characteristics. Dynamic Survey, LLC was contracted to prepare the Boundary and Topographic Survey with topography for the existing site and surrounding watershed areas.

Based on our review of the existing site conditions and the Topographic Survey, the Drainage Area Maps for the existing and proposed site conditions as defined within this report were established. A grading plan was developed for the proposed site improvements with consideration to the existing drainage patterns. The plan was designed to ensure runoff from the proposed development could be directed to stormwater management facilities in order to address the applicable sections of the Township of Marlboro Land Development Ordinance and NJAC 7:8.

Furthermore, Dynamic Earth, LLC performed test pits within the site to establish seasonal high-water table and soil permeability rates.

Under proposed conditions, stormwater runoff from the building roof areas and the majority of the paved parking areas and yard areas is tributary to one of the four (4) proposed aboveground infiltration basins around site. The above ground infiltration basins serve to treat and infiltrate stormwater runoff generated by the 2, 10- and 100-year storm events at a controlled rate via the proposed outlet control structure thereby assisting to satisfy the stormwater quantity requirements set forth by NJAC 7:8. Stormwater which does not infiltrate into the groundwater system will be discharged from the aboveground infiltration basins at a controlled rate via the proposed outlet control structures and is ultimately routed to the existing stormwater conveyance system located within Boundary Road.

The aboveground infiltration basins are designed to comply with the standards set forth by the NJ Stormwater Best Management Practices Manual, thereby providing a TSS Removal Rate of 80% for the entirety of the site to satisfy the water quality aspect of the Township of Marlboro Land Use Ordinance and NJAC 7:8. Furthermore, the basin system has been designed to infiltrate 100 percent of the post development recharge deficit, thereby complying with the groundwater recharge aspects of the Township of Marlboro Land Use Ordinance and NJAC 7:8.

The overall stormwater management report for the subject tract has been evaluated by Dynamic Engineering Consultants to ensure that the overall development satisfies the stormwater criteria set forth by the Township of Marlboro Land Use Ordinance and NJAC 7:8.

VI. ABOVEGROUND INFILTRATION BASIN DESIGN

In order to meet the stormwater runoff quantity, quality and groundwater recharge requirements set forth by the Township of Marlboro and NJAC 7:8 for the proposed development, the site design incorporates four (4) aboveground infiltration basins. The infiltration basins accept stormwater runoff from the proposed parking areas, tributary yard areas, and roof areas. The runoff is conveyed to the basins via overland flow as well as the proposed stormwater conveyance system. In accordance with the New Jersey Stormwater Best Management Practices Manual, the following design considerations have been satisfied:

- Bottom of Basins must be a minimum of 2 feet above Seasonal High-Water Table.
- Basins must fully drain the basin volume within 72 hours.
- Basin bottoms must be as level as possible.
- Construction of basins must be done to avoid compaction of sub-grade soils.
- Minimum design Permeability Rate of 0.5 inches/hour.

- Basins must be designed to safely convey overflow volume.
- Bottom of basins must consist of sand layer meeting K5 standard.
- Basins may not be used where there is risk of basement flooding, etc

VII. RUNOFF RATE REDUCTION PERFORMANCE

Pre- and Post-Development Peak Runoff Results Summary for Points of Analysis

PRE VS. POST SUMMARY CHART (NORTH)			
DESIGN STORM	PRE-DEVELOPMENT CONDITIONS (CFS)	POST-DEVELOPMENT CONDITIONS (CFS)	REDUCTION IN FLOW (CFS)
2 YR	0.001	0.000	0.000
10 YR	0.046	0.009	0.037
100 YR	0.816	0.169	0.647

PRE VS. POST SUMMARY CHART (SOUTH)			
DESIGN STORM	PRE-DEVELOPMENT CONDITIONS (CFS)	POST-DEVELOPMENT CONDITIONS (CFS)	REDUCTION IN FLOW (CFS)
2 YR	0.000	0.000	0.000
10 YR	0.161	0.150	0.011
100 YR	4.013	3.392	0.621

Pre- and Post-Development Peak Runoff Results Summary for Total Tract

	EXISTING RUNOFF RATE	REQUIRED REDUCTION	ALLOWABLE RUNOFF RATE	PROPOSED RUNOFF RATE
2-Year	0.001 CFS	50%	0.000 CFS	0.000 CFS
10-Year	0.204 CFS	25%	0.153 CFS	0.152 CFS
25-Year	0.986 CFS	Cannot Exceed Existing	0.986 CFS	0.464 CFS
100-Year	4.829 CFS	20%	3.437 CFS	3.435 CFS

VIII. WATER QUALITY

As noted previously in this report, the TSS removal rate requirement set forth by the Township of Marlboro Land Use Ordinance and NJAC 7:8 for the subject site is 80%. The design for the subject development meets the obligation for TSS removal by utilizing four (4) aboveground infiltration basins, each capable of a TSS removal of 80% for the proposed development. Therefore, the proposed BMPs provide a TSS removal of 80% for the subject project, satisfying the water quality aspect of the Township of Marlboro Land Use Ordinance and NJAC 7:8.

IX. GROUNDWATER RECHARGE

This project has been designed to satisfy the Groundwater Recharge requirements set forth by the Township of Marlboro Land Use Ordinance and NJAC 7:8. The New Jersey Best Management Practices Manual, the New Jersey Groundwater Recharge Spreadsheet (NJGRS) – Version 2 has been utilized to verify satisfaction of the recharge requirement. The calculations, a written conclusion, and the computer printout of the completed NJGRS are included within the Appendix of this report.

X. CONCLUSION

The proposed overall development has been designed with provisions for the safe and efficient control of stormwater runoff in a manner that will not adversely impact the existing drainage patterns, adjacent roadways, or adjacent parcels. The TSS removal obligations set forth by the Township of Marlboro Land Use Ordinance and NJAC 7:8 have been satisfied by utilizing four (4) aboveground infiltration basins to achieve the 80% TSS required removal rate for the development.

In addition, the project promotes groundwater recharge into the sub-surface soils. The aboveground infiltration basins have been designed to infiltrate the post development recharge deficit, thereby complying with the groundwater recharge aspects of NJAC 7:8 and the Township of Marlboro Land Use Ordinance.

Furthermore, the basin system design shall reduce peak flow rates for the proposed development area and meets the minimum peak flow reduction for the 2, 10 and 100-year storm frequencies as dictated by the Township of Marlboro Land Use Ordinance and NJAC 7:8. With this stated, it is evident that the proposed development will not have a negative impact on the existing drainage pattern, water quality, or groundwater recharge on site or within the vicinity of the subject parcel.

APPENDIX

**RUNOFF COEFFICIENT (CN) CALCULATIONS –
EXISTING**

**RUNOFF COEFFICIENT (CN) CALCULATIONS –
PROPOSED**



PROPOSED DRAINAGE AREA SUMMARY AND AVERAGE CURVE NUMBER(CN) CALCULATIONS

Project:
Job #:
Location:

Computed By:
Checked By:
Date:

Drainage Area	Impervious Area (acre)	Impervious Area (sf)	Curve Number (CN) Used	HSG A - Open Space Area (acre)	HSG A - Open Space Area (sf)	Curve Number (CN) Used	HSG A - Wooded Area (acre)	HSG A - Wooded Area (sf)	Curve Number (CN) Used	HSG B - Open Space Area (acre)	HSG B - Open Space Area (sf)	Curve Number (CN) Used	HSG B - Wooded Area (acre)	HSG B - Wooded Area (sf)	Curve Number (CN) Used	HSG C - Open Space Area (acre)	HSG C - Open Space Area (sf)	Curve Number (CN) Used	HSG C - Wooded Area (acre)
SA Undeveloped North	0.00	-	98	0.20	8,690	39	0.00	-	30	0.00	-	61	0.00	-	55	0.00	-	74	0.00
SA Basin North 1	0.75	32,870	98	0.87	38,042	39	0.00	-	30	0.01	472	61	0.00	-	55	0.00	-	74	0.00
SA Basin North 2	0.80	34,848	98	0.66	28,996	39	0.00	-	30	0.00	-	61	0.00	-	55	0.00	-	74	0.00
SA Basin South 1	0.40	17,424	98	0.45	19,604	39	0.00	-	30	0.25	10,930	61	0.00	-	55	0.00	-	74	0.00
SA Basin South 2	0.55	23,958	98	0.35	15,303	39	0.15	6,552	30	0.31	13,489	61	0.00	-	55	0.00	-	74	0.00
SA Building A North	0.34	14,950	98	0.00	-	39	0.00	-	30	0.00	-	61	0.00	-	55	0.00	-	74	0.00
SA Building A South	0.34	14,950	98	0.00	-	39	0.00	-	30	0.00	-	61	0.00	-	55	0.00	-	74	0.00
SA Building B1 North	0.34	14,950	98	0.00	-	39	0.00	-	30	0.00	-	61	0.00	-	55	0.00	-	74	0.00
SA Building B1 South	0.34	14,950	98	0.00	-	39	0.00	-	30	0.00	-	61	0.00	-	55	0.00	-	74	0.00
SA Building B2 North	0.34	14,950	98	0.00	-	39	0.00	-	30	0.00	-	61	0.00	-	55	0.00	-	74	0.00
SA Building B2 South	0.34	14,950	98	0.00	-	39	0.00	-	30	0.00	-	61	0.00	-	55	0.00	-	74	0.00
Total	4.56	198600.00	98	2.33	101645.00	39	0.15	6552.00	30	0.57	24891.00	81	0.00	0.00	55	0.00	0.00	74	0.00

Per County Soil Survey -	ShrA	HSG B	Soil
Per County Soil Survey -	1ThgB	HSG A	Shrewsbury sandy Loam
Per County Soil Survey -	1ThgC	HSG A	Tinton Loamy Sand
			Tinton Loam Sand

Description	Runoff Curve Number (CN)	Runoff Curve Number (CN)	Runoff Curve Number (CN)
Impervious Surface	98	98	98
Open Space (lawn) (good)	39	61	74
Woods (good)	30	55	70

**EXISTING AND PROPOSED TIME OF
CONCENTRATION (TC) CALCULATIONS**



1904 Main Street, Lake Como, NJ 07719
(732) 974-0198

Date: 5/9/2021
Project: Proposed Self Storage Facility
Project No: 3724-99-001

Calculated By: TJB
Checked By: RM

Worksheet 3: Time of Concentration (T_c) Calculations

Land Condition: Existing
Drainage Area: North

• **Sheet Flow :**

1. Surface Description
2. Manning's Roughness Coefficient, n
3. Flow Length, L { total $L \leq 100$ ft }
4. Two-Year 24-hour Rainfall, p_2 for ... **Monmouth County**
5. Land Slope, s (ft/ft)
6. Travel Time, $T_t = \frac{0.007 (n L)^{0.8}}{p_2^{0.5} s^{0.4}}$

AB				
Range (natural)				
0.13				
100.0 ft				
3.38 in		3.38 in		3.38 in
0.019 ft/ft				
0.145 hr	+	0.000 hr	+	0.000 hr
				=
				0.145 hr

• **Shallow Concentrated Flow :**

7. Surface Description
8. Flow Length, L
9. Watercourse Slope, s
10. Average velocity, V { see Figure 3.1 }
11. Travel Time, $T_t = \frac{L}{3600 V}$

BC		CD		
Unpaved		Unpaved		
95.0 ft		171.0 ft		
0.013 ft/ft		0.026 ft/ft		
1.85 ft/s		2.62 ft/s		
0.014 hr	+	0.018 hr	+	0.000 hr
				=
				0.032 hr

• **Channel Flow :**

12. Pipe Diameter, D
13. Cross-Sectional Flow Area, A
14. Wetted Perimeter, p_w
15. Hydraulic Radius, $r = A / p_w$
16. Channel Slope, s
17. Pipe Material
18. Manning's Roughness Coefficient, n
19. Velocity, $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$
20. Flow Length, L
21. Travel Time, $T_t = \frac{L}{3600 V}$
22. Watershed or subarea Time of Concentration, T_c { add T_t in steps 6, 11 and 21 }

0.000 hr	+	0.000 hr	+	0.000 hr
				=
				0.000 hr
				0.177 hr
				10.6 min

**HYDROGRAPH SUMMARY REPORTS –
EXISTING & PROPOSED CONDITIONS 2 YR. 10 YR.
25 YR. & 100 YR.**

Hydrograph Summary Report

Hydroflow Hydrographs by Intellisolve v9.1

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time Interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total storage used (acft)	Hydrograph description
1	SCS Runoff	0.001	5	1430	0.000				Ex Study Area North (Total)
2	SCS Runoff	0.000	5	n/a	0.000				Ex Study Area South (Total)
3	Combine	0.001	5	1430	0.000	1, 2			Ex Total
5	SCS Runoff	0.000	5	1330	0.000				Prop SA Undetained North (Total)
7	SCS Runoff	1.379	5	730	0.195				Prop SA Basin North 1 (Imp)
8	SCS Runoff	0.001	5	1430	0.000				Prop SA Basin North 1 (Perv)
9	SCS Runoff	0.625	5	730	0.089				Prop SA Building A North
10	Combine	2.004	5	730	0.284	7, 8, 9			Total To Basin North1
11	Reservoir	0.000	5	n/a	0.000	10	125.20	0.284	Prop Route A GBasin North1
13	SCS Runoff	1.471	5	730	0.208				Prop SA Basin North 2 (Imp)
14	SCS Runoff	0.001	5	1430	0.000				Prop SA Basin North 2 (Perv)
15	SCS Runoff	0.625	5	730	0.089				Prop SA Building B1 North
16	SCS Runoff	0.625	5	730	0.089				Prop SA Building A South
17	Combine	2.721	5	730	0.386	13, 14, 15, 16			Total To AG Basin North2
18	Reservoir	0.000	5	n/a	0.000	17	125.21	0.386	Post Route A GBasin North2
20	SCS Runoff	0.735	5	730	0.104				Prop SA Basin South 1 (Imp)
21	SCS Runoff	0.006	5	870	0.004				Prop SA Basin South 1 (Perv)
22	SCS Runoff	0.625	5	730	0.089				Prop SA Building B2 North
23	SCS Runoff	0.625	5	730	0.089				Prop SA Building B1 South
24	Combine	1.986	5	730	0.286	20, 21, 22, 23			Total To AG Basin South 1
25	Reservoir	0.000	5	n/a	0.000	24	122.97	0.286	Prop Route A GBasin South1
27	SCS Runoff	1.011	5	730	0.143				Prop SA Basin South 2 (Imp)
28	SCS Runoff	0.008	5	870	0.006				Prop SA Basin South 2 (Perv)
29	SCS Runoff	0.625	5	730	0.089				Prop SA Building B2 South
30	Combine	1.636	5	730	0.238	27, 28, 29			Total To AG Basin South2
31	Reservoir	0.000	5	n/a	0.000	30	121.26	0.238	Prop Route A GBasin South2
33	Combine	0.000	5	n/a	0.000	11, 18, 25, 31			Prop. Total SA South
35	Combine	0.000	5	1330	0.000	5, 33			Prop Total

Return Period: 2 Year

Thursday, Jun 24, 2021

2021-06-22.ExProp2,10,25,100YR.gpw

Hydrograph Report

Hydroflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

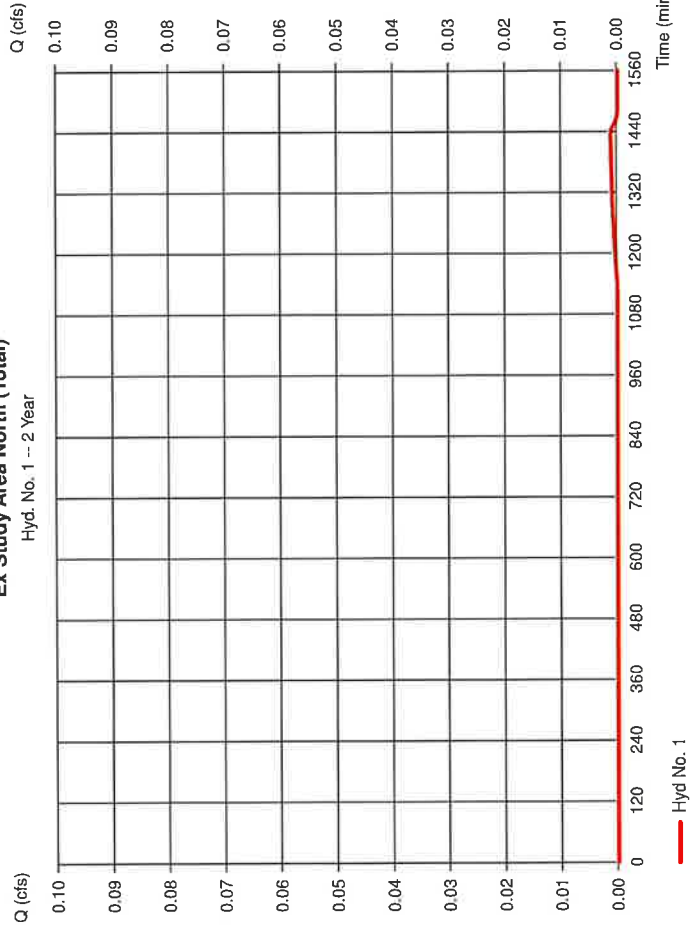
Hyd. No. 1

Ex Study Area North (Total)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.001 cfs
Storm frequency	= 2 yrs	Time to peak	= 1430 min
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Drainage area	= 1.070 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.60 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Ex Study Area North (Total)

Hyd. No. 1 -- 2 Year



Precipitation Report

Hydrailow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 1

Ex Study Area North (Total)
 Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

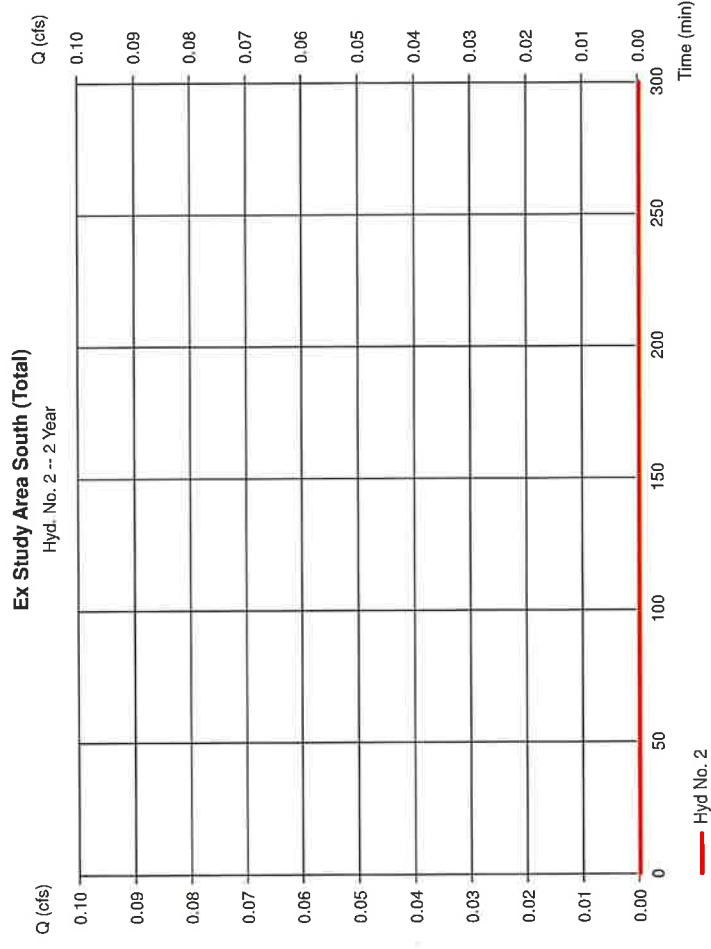
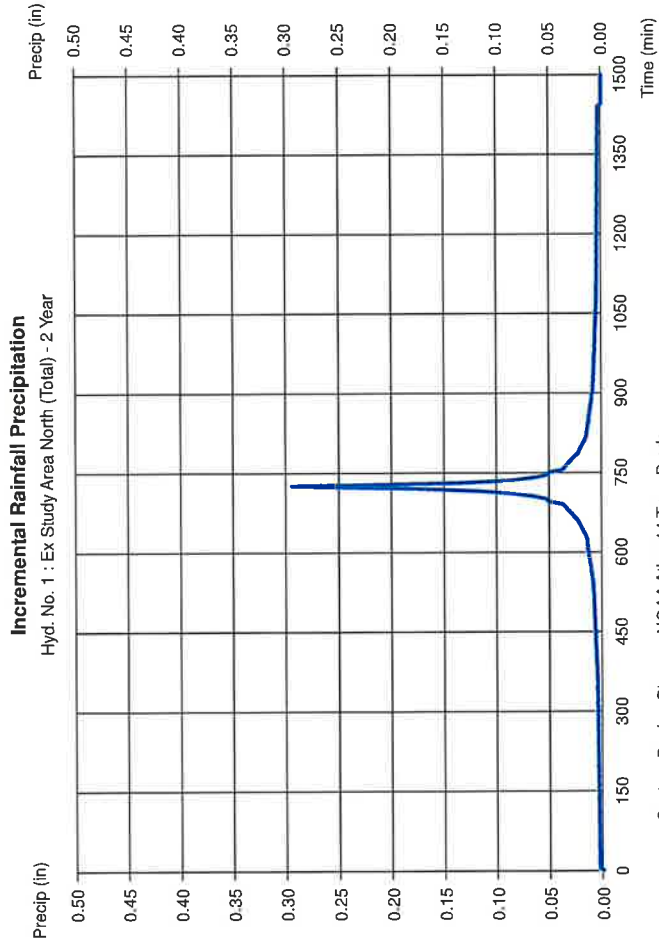
Hydrailow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 2

Ex Study Area South (Total)

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 6.730 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Curve number = 37
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 14.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 2

Ex Study Area South (Total)

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

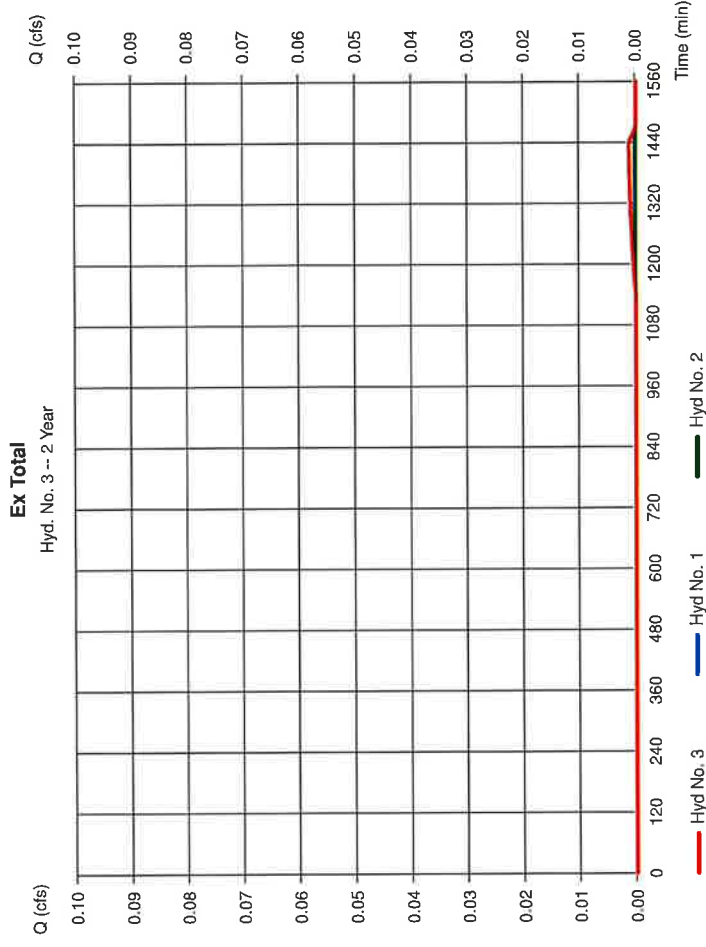
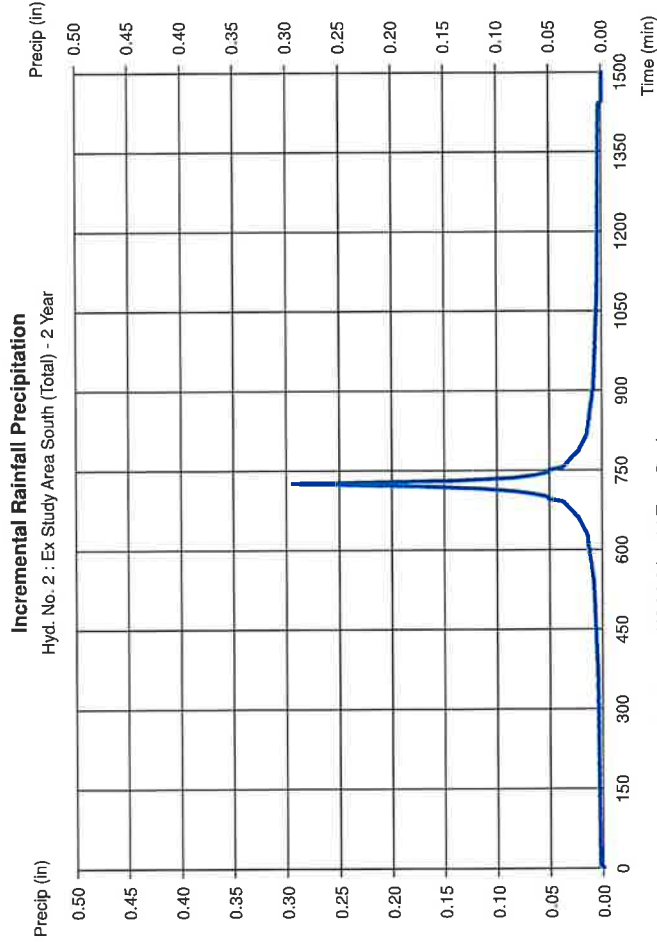
Thursday, Jun 24, 2021

Hyd. No. 3

Ex Total

Hydrograph type = Combine
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyds. = 1, 2

Peak discharge = 0.001 cfs
 Time to peak = 1430 min
 Hyd. volume = 0.000 acft
 Contrib. drain. area = 7.800 ac



Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 5

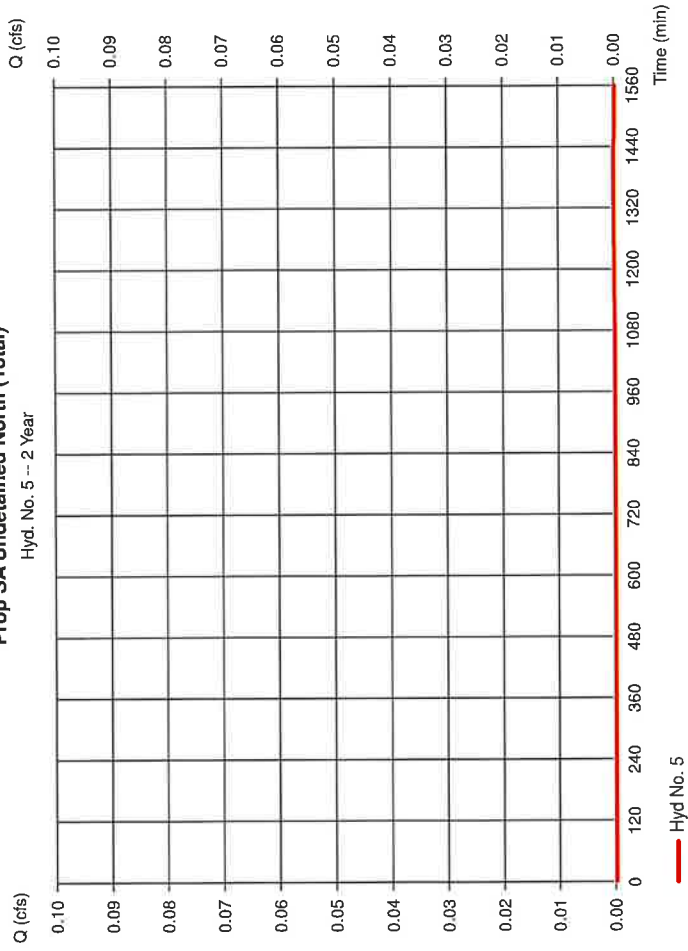
Prop SA Undetained North (Total)

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.200 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = 24 hrs

Peak discharge = 0.000 cfs
 Time to peak = 1330 min
 Hyd. volume = 0.000 acft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Type III
 Shape factor = 285

Prop SA Undetained North (Total)

Hyd. No. 5 -- 2 Year



Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 7

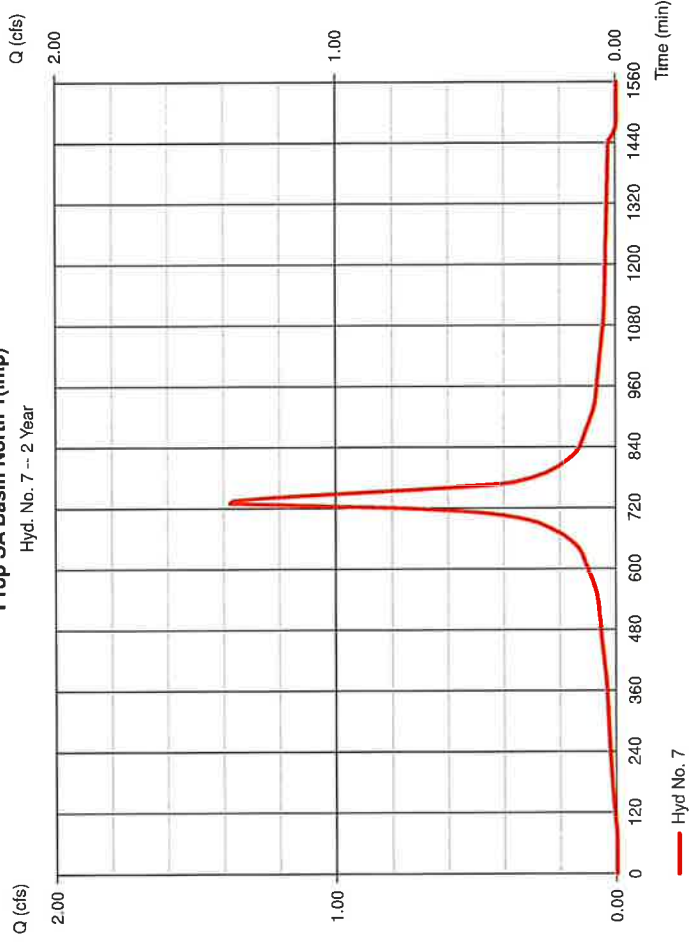
Prop SA Basin North 1 (Imp)

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.750 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 1.379 cfs
 Time to peak = 730 min
 Hyd. volume = 0.195 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Prop SA Basin North 1 (Imp)

Hyd. No. 7 -- 2 Year



Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 7

Prop SA Basin North 1 (Imp)
 Storm Frequency = 2 Yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 8

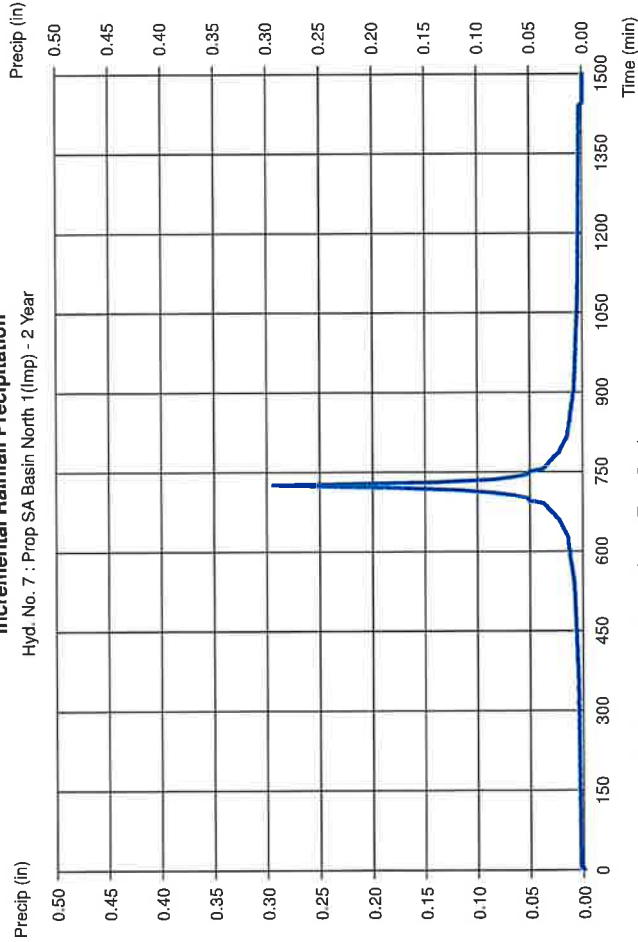
Prop SA Basin North 1 (Perv)

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.880 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.001 cfs
 Time to peak = 1430 min
 Hyd. volume = 0.000 acft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Incremental Rainfall Precipitation

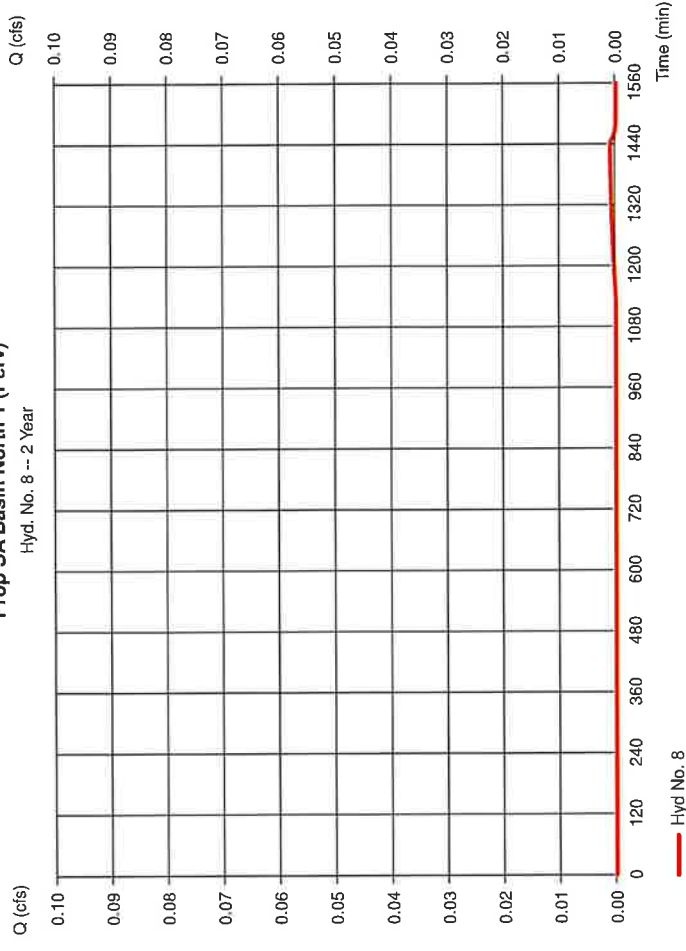
Hyd. No. 7 : Prop SA Basin North 1 (Imp) - 2 Year



— Custom Design Storm -- NOAA Atlas 14 Type-D.cds

Prop SA Basin North 1 (Perv)

Hyd. No. 8 -- 2 Year



— Hyd No. 8

Precipitation Report

Hydralow Hydrographs by Intellisolve v8.1

Thursday, Jun 24, 2021

Hyd. No. 8

Prop SA Basin North 1 (Perv)

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v8.1

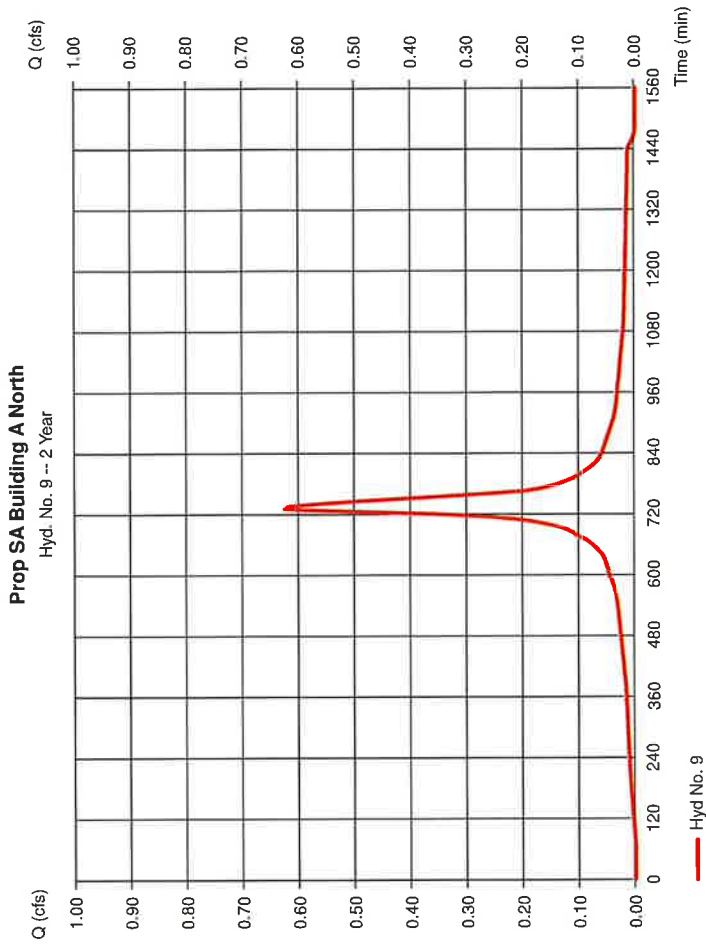
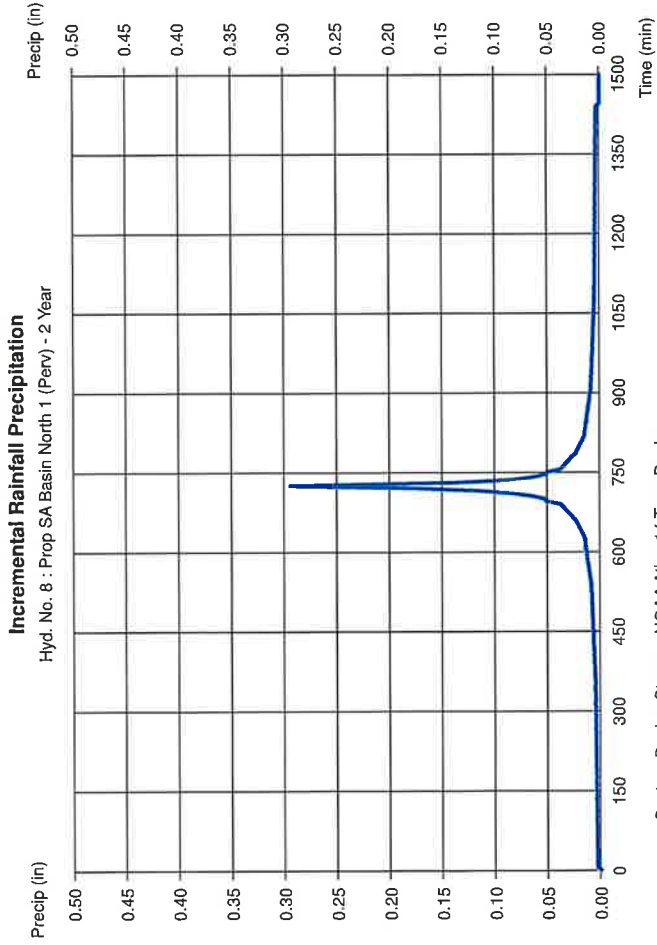
Thursday, Jun 24, 2021

Hyd. No. 9

Prop SA Building A North

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.625 cfs
 Time to peak = 730 min
 Hyd. volume = 0.089 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 9

Prop SA Building A North

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

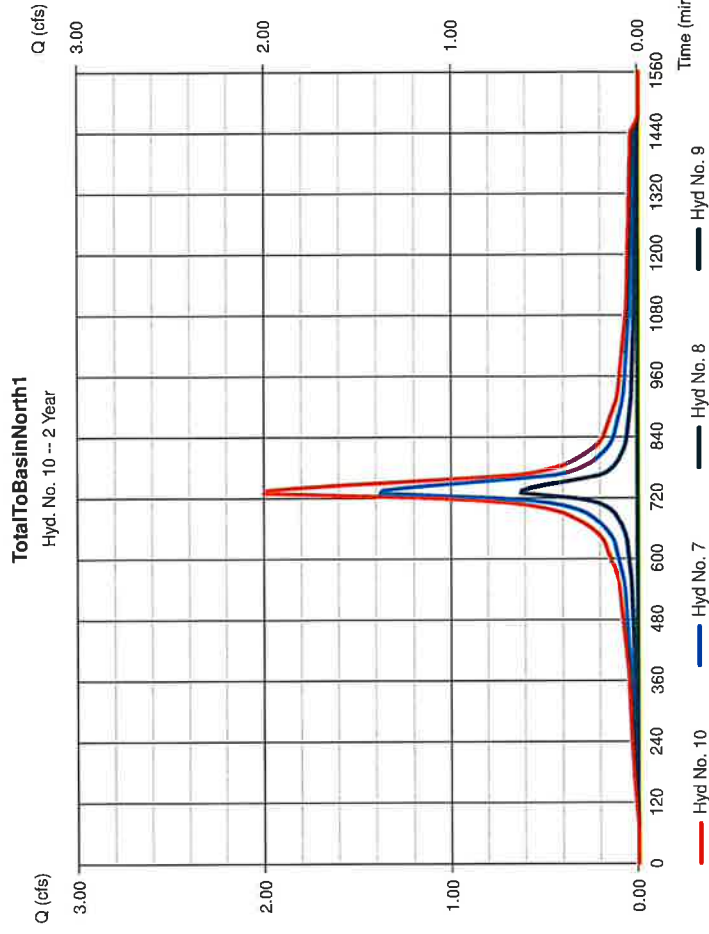
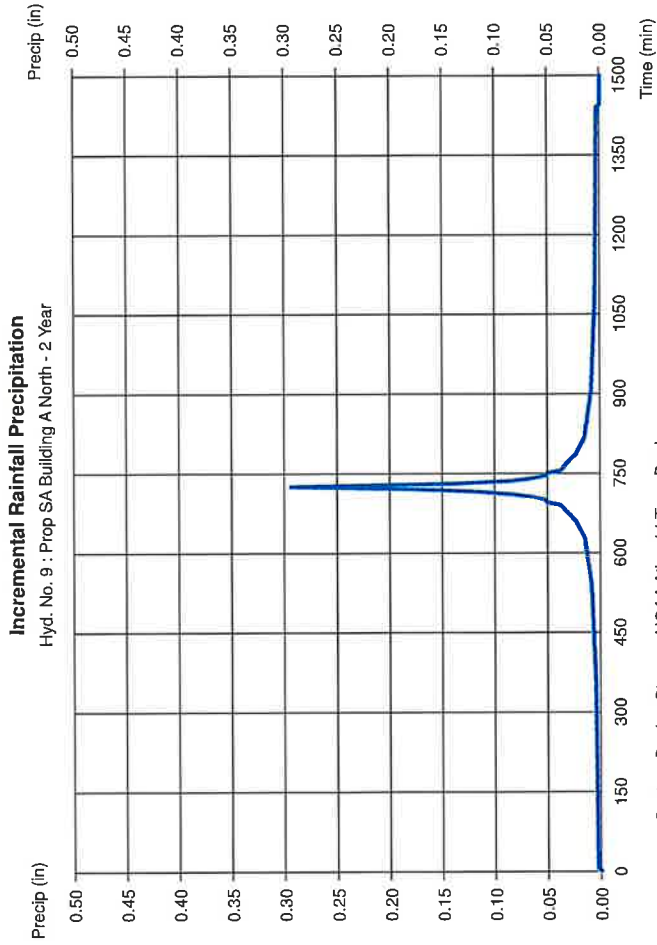
Thursday, Jun 24, 2021

Hyd. No. 10

TotalToBasinNorth1

Hydrograph type = Combine
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyds. = 7, 8, 9

Peak discharge = 2.004 cfs
 Time to peak = 730 min
 Hyd. volume = 0.284 acft
 Contrib. drain. area = 1.970 ac



Hydrograph Report

Hydralllow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 11

PropRouteAGBasinNorth1

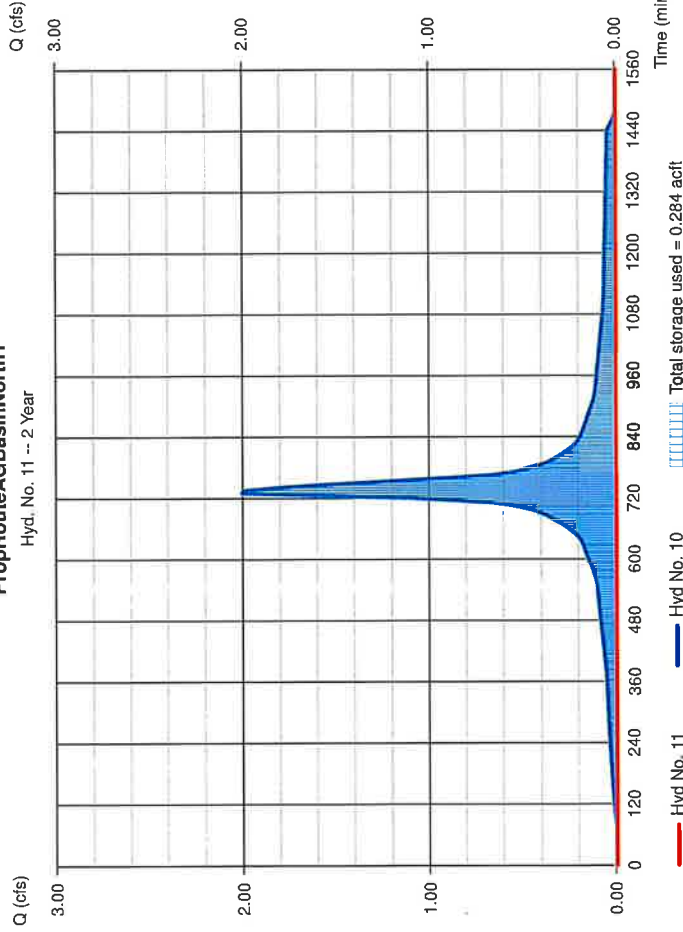
Hydrograph type = Reservoir
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyd. No. = 10 - TotalToBasinNorth1
 Reservoir name = Prop AG Basin North 1

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Max. Elevation = 125.20 ft
 Max. Storage = 0.284 acft

Storage Indication method used.

PropRouteAGBasinNorth1

Hyd. No. 11 -- 2 Year



Pond Report

Hydralllow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Pond No. 1 - Prop AG Basin North 1

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 123.60 ft

Stage / Storage Table	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	123.60	5.550	0.000	0.000
0.40	124.00	7.027	0.058	0.058
1.40	125.00	8.856	0.182	0.239
2.40	126.00	10.712	0.224	0.464
3.40	127.00	12.588	0.267	0.731
3.90	127.50	13.636	0.150	0.881
4.40	128.00	14.818	0.169	1.045
4.60	128.20	16.594	0.072	1.117

Culvert / Orifice Structures

Weir Structures

	[A]	[B]	[C]	[PrfRsr]	[A]	[B]	[C]	[D]
Rise (in)	= 15.00	1.75	4.00	0.00	Crest Len (ft)	= 16.00	25.00	0.00
Span (in)	= 15.00	1.75	4.00	0.00	Crest El. (ft)	= 127.45	0.00	0.00
No. Barrels	= 1	1	1	0	Weir Coeff.	= 3.33	2.60	3.33
Invert El. (ft)	= 123.60	125.60	126.25	0.00	Weir Type	= Rect	Broad	---
Length (ft)	= 50.00	0.00	0.00	n/a	Multi-Stage	= Yes	Yes	No
Slope (%)	= 0.05	0.00	0.00	n/a				
N-Value	= .013	.013	.013	n/a				
Orifice Coeff.	= 0.60	0.60	0.60	0.60	Exfil. (in/hr)	= 0.000 (by Weir area)		
Multi-Stage	= n/a	Yes	Yes	No	TW Elev. (ft)	= 0.00		

Note: Culvert/Orifice outflows are analyzed under inlet (Ic) and outlet (Oc) control. Weir rises checked for orifice conditions (Ic) and submergence (Is).

Stage / Storage / Discharge Table

Stage / Storage / Discharge Table	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	123.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	0.006	123.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.08	0.012	123.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.12	0.017	123.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.16	0.023	123.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.20	0.029	123.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.24	0.035	123.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.28	0.040	123.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.32	0.046	123.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.36	0.052	123.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.40	0.058	124.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.50	0.076	124.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.60	0.094	124.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.70	0.112	124.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.80	0.130	124.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.90	0.149	124.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	0.167	124.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.10	0.185	124.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.20	0.203	124.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.30	0.221	124.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.40	0.239	125.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.50	0.257	125.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.60	0.274	125.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.70	0.292	125.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.80	0.309	125.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.90	0.326	125.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	0.343	125.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.10	0.360	125.70	0.01 cc	0.03 ic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2.20	0.419	125.80	0.04 cc	0.04 ic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
2.30	0.464	126.00	0.05 cc	0.05 ic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
2.40	0.490	126.10	0.05 cc	0.05 ic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
2.50	0.517	126.20	0.06 cc	0.06 ic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
2.60	0.544	126.30	0.07 cc	0.07 ic	0.01 ic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
2.70	0.571	126.40	0.12 cc	0.12 ic	0.05 ic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
2.80	0.571	126.40	0.12 cc	0.07 ic	0.07 ic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
2.90	0.597	126.50	0.20 cc	0.07 ic	0.12 ic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19

Continues on next page.

Hydrograph Report

Hydralflow Hydrographs by IntelliSolve v8.1
Thursday, Jun 24, 2021

Hyd. No. 13

Prop SA Basin North 2 (Imp)
 Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.800 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

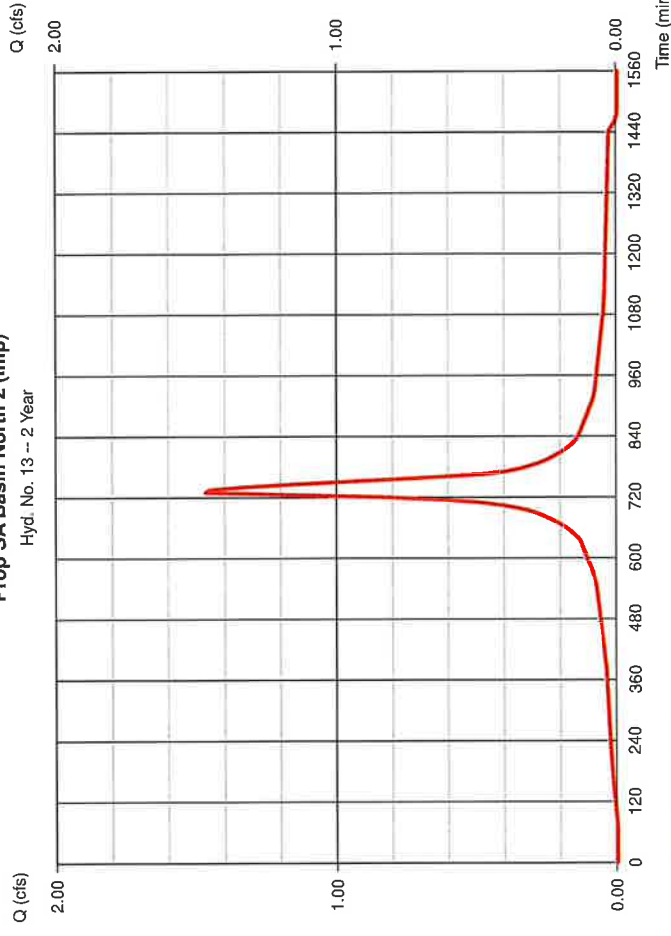
Peak discharge = 1.471 cfs
 Time to peak = 730 min
 Hyd. volume = 0.208 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Prop AG Basin North 1 Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.00	0.624	126.60	0.26 cc	0.08 ic	0.18 ic	***	0.00	0.00	***	***	***	***	0.26
3.05	0.651	126.70	0.31 cc	0.09 ic	0.22 ic	***	0.00	0.00	***	***	***	***	0.31
3.20	0.677	126.80	0.36 cc	0.09 ic	0.26 ic	***	0.00	0.00	***	***	***	***	0.35
3.30	0.704	126.90	0.39 cc	0.09 ic	0.29 ic	***	0.00	0.00	***	***	***	***	0.38
3.40	0.731	127.00	0.42 cc	0.09 ic	0.32 ic	***	0.00	0.00	***	***	***	***	0.41
3.45	0.746	127.05	0.43 cc	0.09 ic	0.33 ic	***	0.00	0.00	***	***	***	***	0.43
3.50	0.761	127.10	0.45 cc	0.10 ic	0.35 ic	***	0.00	0.00	***	***	***	***	0.44
3.55	0.776	127.15	0.47 cc	0.10 ic	0.36 ic	***	0.00	0.00	***	***	***	***	0.46
3.60	0.791	127.20	0.48 cc	0.10 ic	0.37 ic	***	0.00	0.00	***	***	***	***	0.47
3.65	0.806	127.25	0.49 cc	0.10 ic	0.38 ic	***	0.00	0.00	***	***	***	***	0.48
3.70	0.821	127.30	0.50 cc	0.10 ic	0.39 ic	***	0.00	0.00	***	***	***	***	0.50
3.75	0.836	127.35	0.51 cc	0.10 ic	0.41 ic	***	0.00	0.00	***	***	***	***	0.51
3.80	0.851	127.40	0.53 cc	0.11 ic	0.42 ic	***	0.00	0.00	***	***	***	***	0.52
3.85	0.866	127.45	0.54 cc	0.11 ic	0.43 ic	***	0.00	0.00	***	***	***	***	0.53
3.90	0.881	127.50	1.14 cc	0.11 ic	0.44 ic	***	0.60	0.00	***	***	***	***	0.93
3.95	0.898	127.55	2.97 cc	0.11 ic	0.44 ic	***	0.69	0.00	***	***	***	***	2.97
4.00	0.914	127.60	5.72 cc	0.11 ic	0.46 ic	***	0.78	0.00	***	***	***	***	5.72
4.05	0.930	127.65	8.94 cc	0.11 ic	0.46 ic	***	0.79	0.00	***	***	***	***	8.94
4.10	0.947	127.70	10.95 cc	0.12 ic	0.48 ic	***	4.71	0.00	***	***	***	***	10.99
4.15	0.963	127.75	10.95 cc	0.12 ic	0.48 ic	***	5.12	0.00	***	***	***	***	10.25
4.20	0.979	127.80	10.37 cc	0.02 ic	0.02 ic	***	5.08	5.21	***	***	***	***	10.37
4.25	0.996	127.85	10.46 cc	0.01 ic	0.06 ic	***	5.07	5.32	***	***	***	***	10.46
4.30	1.012	127.90	10.58 cc	0.01 ic	0.05 ic	***	5.07	5.42	***	***	***	***	10.55
4.35	1.028	127.95	10.67 cc	0.01 ic	0.04 ic	***	5.09	5.52	***	***	***	***	10.65
4.40	1.045	128.00	10.76 cc	0.01 ic	0.04 ic	***	5.09	5.59	***	***	***	***	10.73
4.42	1.052	128.02	10.80 cc	0.01 ic	0.04 ic	***	5.10	5.62	***	***	***	***	10.79
4.44	1.059	128.04	10.83 cc	0.01 ic	0.04 ic	***	5.11	5.65	***	***	***	***	10.79
4.46	1.066	128.06	10.87 cc	0.01 ic	0.03 ic	***	5.12	5.68	***	***	***	***	10.84
4.48	1.073	128.08	10.90 cc	0.01 ic	0.03 ic	***	5.14	5.72	***	***	***	***	10.90
4.50	1.081	128.10	10.94 cc	0.01 ic	0.03 ic	***	5.14	5.75	***	***	***	***	10.92
4.52	1.088	128.12	10.97 cc	0.01 ic	0.03 ic	***	5.16	5.77	***	***	***	***	10.97
4.54	1.095	128.14	11.00 cc	0.01 ic	0.03 ic	***	5.16	5.79	***	***	***	***	10.99
4.56	1.102	128.16	11.04 cc	0.01 ic	0.03 ic	***	5.14	5.79	***	***	***	***	10.96
4.58	1.109	128.18	11.07 cc	0.00 ic	0.03 ic	***	5.14	5.78	***	***	***	***	10.96
4.60	1.117	128.20	11.10 cc	0.00 ic	0.03 ic	***	5.19	5.69	***	***	***	***	11.08

Prop SA Basin North 2 (Imp)

Hyd. No. 13 -- 2 Year



Precipitation Report

Hydralow Hydrographs by Intellisolve v3.1

Thursday, Jun 24, 2021

Hyd. No. 13

Prop SA Basin North 2 (Imp)

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v3.1

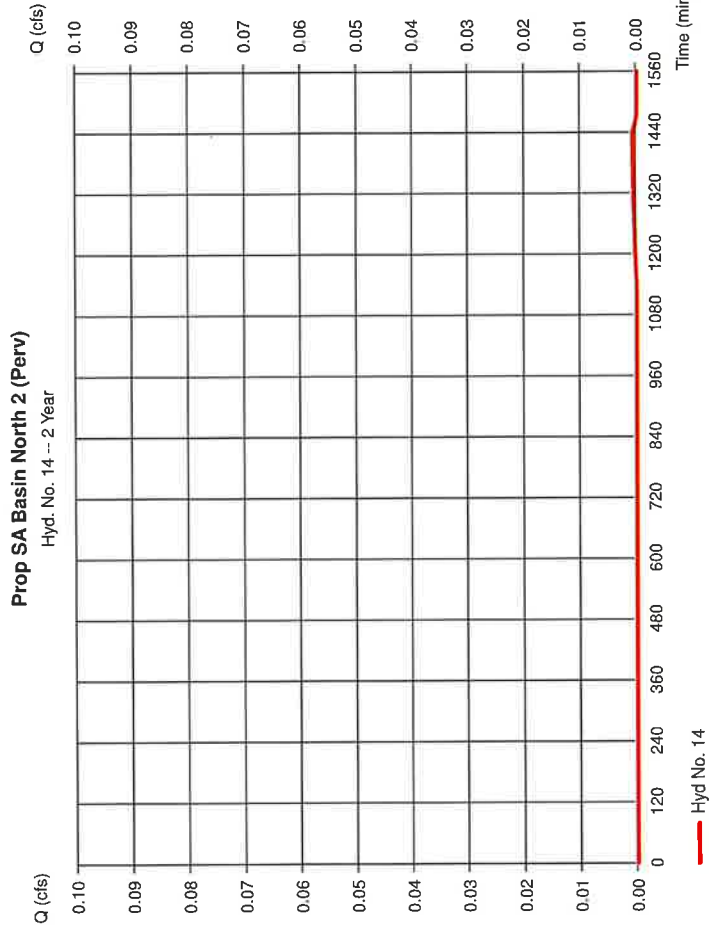
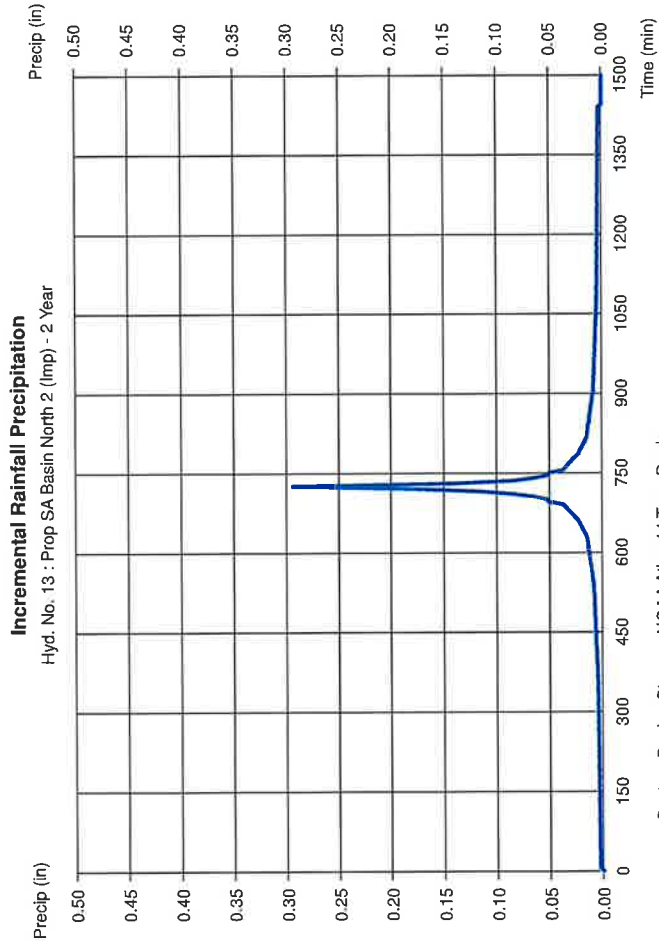
Thursday, Jun 24, 2021

Hyd. No. 14

Prop SA Basin North 2 (Perv)

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.660 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.001 cfs
 Time to peak = 1430 min
 Hyd. volume = 0.000 acft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 14

Prop SA Basin North 2 (Perv)
 Storm Frequency = 2 yrs
 Total precip. = 3.3600 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

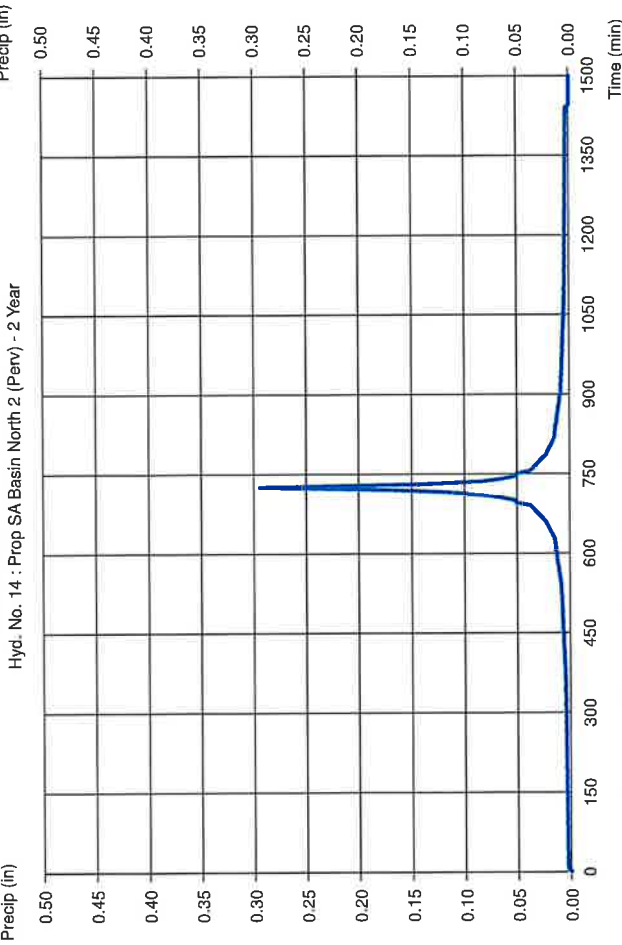
Thursday, Jun 24, 2021

Hyd. No. 15

Prop SA Building B1 North
 Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.625 cfs
 Time to peak = 730 min
 Hyd. volume = 0.089 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

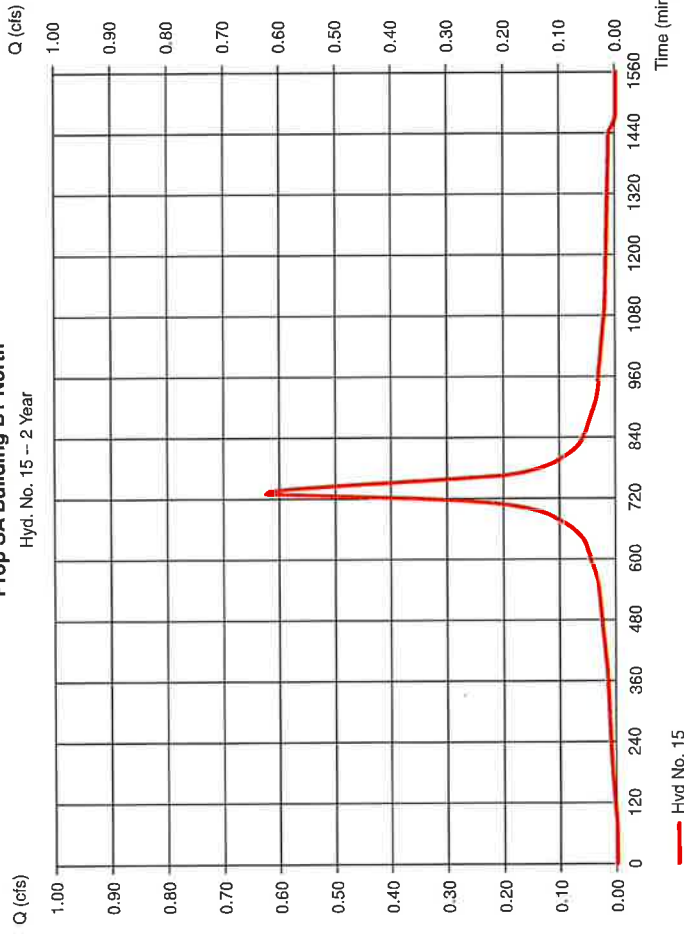
Incremental Rainfall Precipitation



— Custom Design Storm -- NOAA Atlas 14 Type-D.cds

Prop SA Building B1 North

Hyd. No. 15 -- 2 Year



— Hyd No. 15

Precipitation Report

Hydrow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 15

Prop SA Building B1 North

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydrow Hydrographs by Intellisolve v9.1

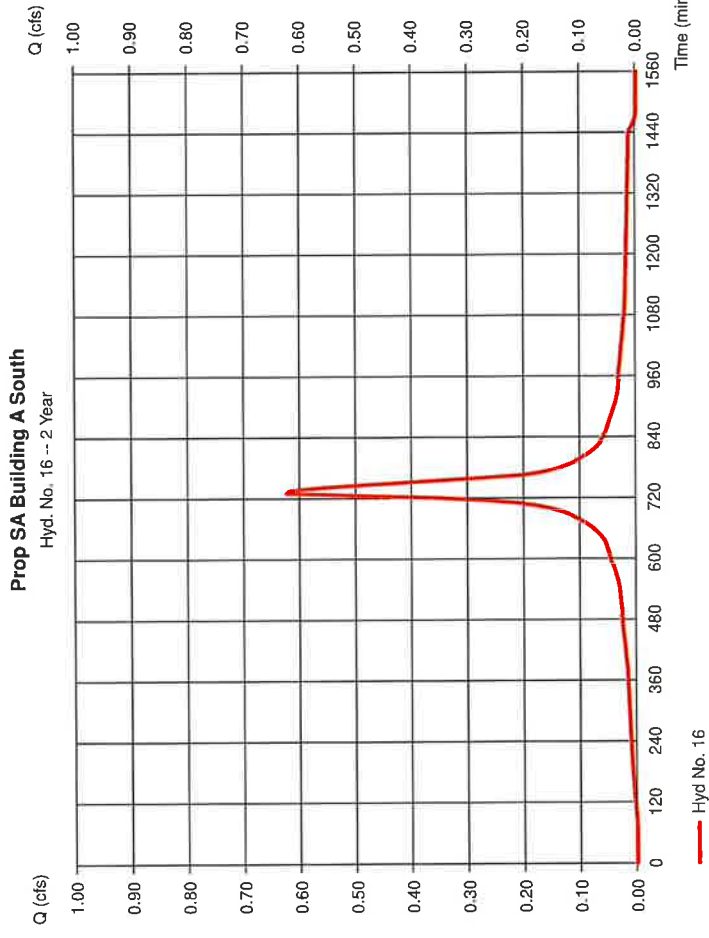
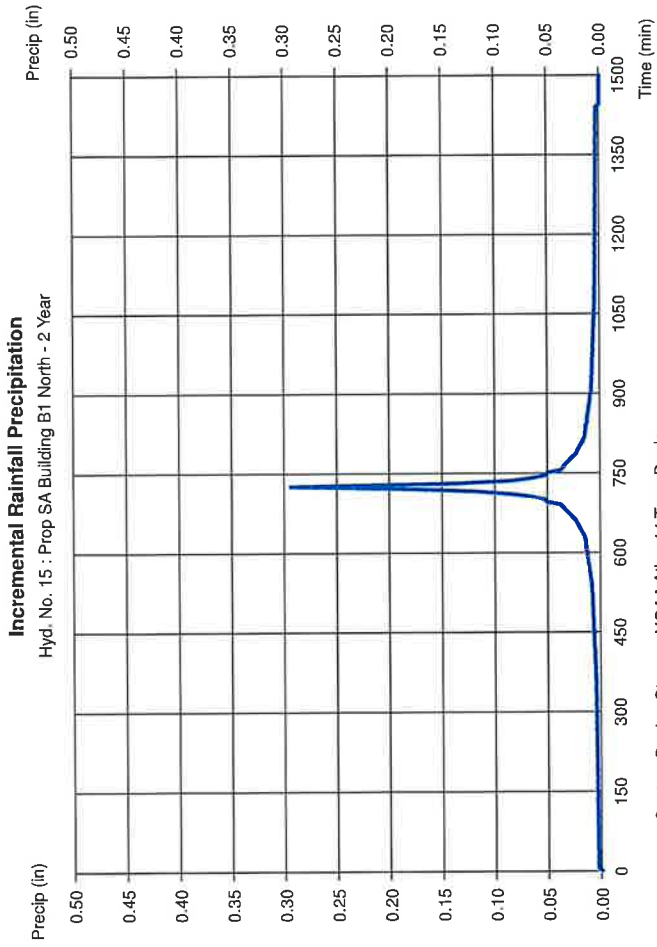
Thursday, Jun 24, 2021

Hyd. No. 16

Prop SA Building A South

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.625 cfs
 Time to peak = 730 min
 Hyd. volume = 0.089 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 16

Prop SA Building A South

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralflow Hydrographs by Intellisolve v9.1

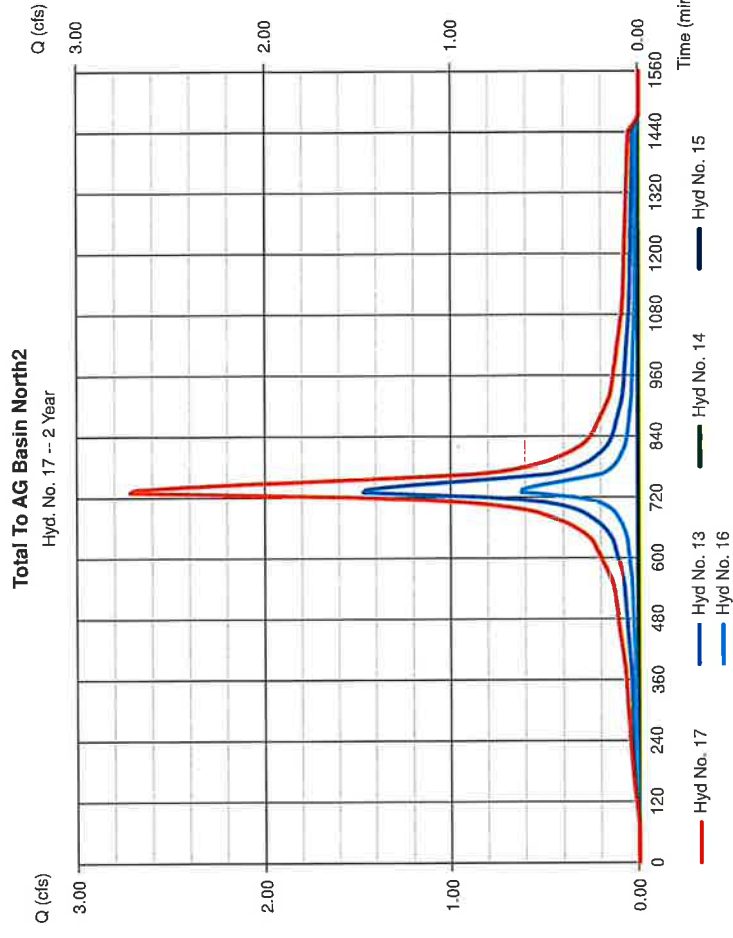
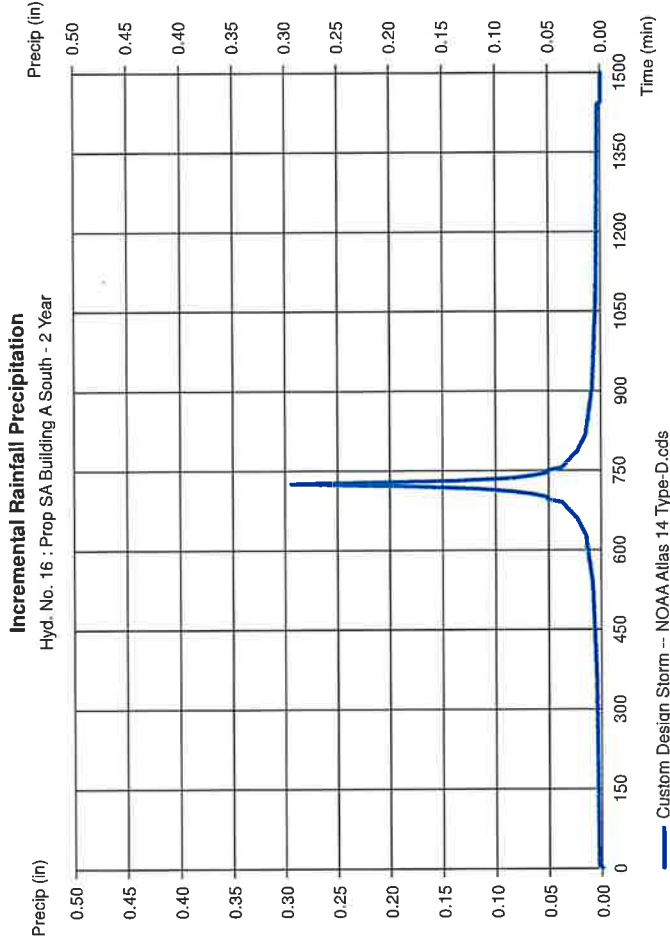
Thursday, Jun 24, 2021

Hyd. No. 17

Total To AG Basin North2

Hydrograph type = Combine
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hydys. = 13, 14, 15, 16

Peak discharge = 2.721 cfs
 Time to peak = 730 min
 Hyd. volume = 0.386 acft
 Contrib. drain. area = 2.140 ac



Hydrograph Report

Hydraulic Hydrographs by Inellicolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 18

PostRouteAGBasinNorth2

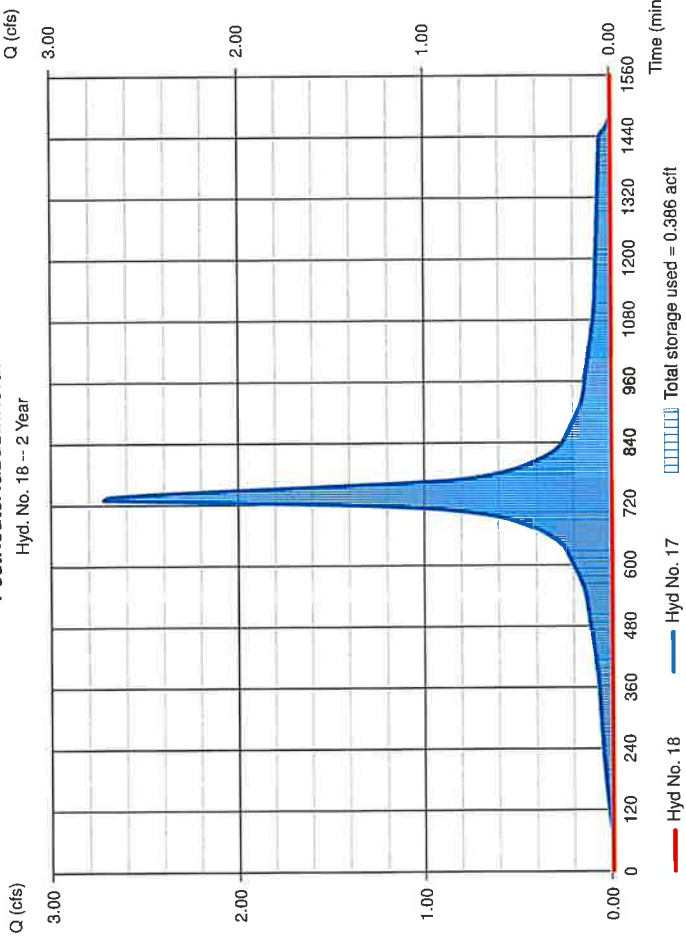
Hydrograph type = Reservoir
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyd. No. = 17 - Total To AG Basin North2
 Reservoir name = Prop. AG Basin North 2

Storage Indication method used.

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Max. Elevation = 125.21 ft
 Max. Storage = 0.386 acft

PostRouteAGBasinNorth2

Hyd. No. 18 -- 2 Year



Pond Report

Hydraulic Hydrographs by Inellicolve v9.1

Thursday, Jun 24, 2021

Pond No. 3 - Prop. AG Basin North 2

Pond Data

Contours - User-defined contour areas, Conic method used for volume calculation. Beginning Elevation = 123.60 ft

Stage / Storage Table	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total Storage (acft)
0.00	123.60	7.227	0.000	0.000
0.40	124.00	10.203	0.080	0.080
1.40	125.00	11.325	0.247	0.327
2.40	126.00	13.137	0.280	0.607
3.40	127.00	14.689	0.319	0.926
3.90	127.50	15.576	0.174	1.100
4.40	128.00	17.314	0.169	1.269
4.60	128.20	19.222	0.084	1.372

Culvert / Orifice Structures

[A]	[B]	[C]	[P]R[Rs]
= 15.00	1.75	0.00	0.00
= 15.00	1.75	0.00	0.00
= 1	0	0	0
= 123.60	125.60	0.00	0.00
= 50.00	0.00	0.00	0.00
= 0.50	0.00	0.00	n/a
= .013	.013	.013	n/a
= 6.60	0.60	0.60	0.60
= n/a	Yes	No	No

Weir Structures

[A]	[B]	[C]	[D]
= 2.50	16.00	25.00	0.00
= 126.35	127.45	127.50	0.00
= 3.33	2.60	3.33	3.33
= Rect	Rect	Broad	---
= Yes	Yes	Yes	No

Crest Len (ft) = 2.50
 Crest El. (ft) = 126.35
 Weir Coeff. = 3.33
 Weir Type = Rect
 Multi-Stage = Yes
 Exfil. (in/hr) = 0.000 (by Contour)
 TW Elev. (ft) = 0.00

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	123.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	0.008	123.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.08	0.016	123.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.12	0.024	123.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.16	0.032	123.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.20	0.040	123.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.24	0.048	123.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.28	0.056	123.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.32	0.064	123.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.36	0.072	123.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.40	0.080	124.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.50	0.104	124.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.60	0.128	124.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.70	0.154	124.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.80	0.178	124.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.90	0.203	124.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	0.228	124.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.10	0.253	124.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.20	0.277	124.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.30	0.302	124.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.40	0.327	125.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.50	0.355	125.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.60	0.383	125.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.70	0.411	125.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.80	0.439	125.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.90	0.467	125.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	0.495	125.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.10	0.523	125.70	0.01 c	0.01 c	0.01 c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2.20	0.551	125.80	0.03 c	0.03 c	0.03 c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
2.30	0.579	125.90	0.04 c	0.04 c	0.04 c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
2.40	0.607	126.00	0.05 c	0.05 c	0.05 c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
2.50	0.639	126.10	0.06 c	0.06 c	0.06 c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
2.60	0.671	126.20	0.06 c	0.06 c	0.06 c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
2.70	0.703	126.30	0.08 c	0.08 c	0.08 c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
2.80	0.735	126.40	0.16 c	0.16 c	0.16 c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
2.90	0.767	126.50	0.56 c	0.56 c	0.56 c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56

Note: Culvert/Orifice outflows are analyzed under inlet (ci) and outlet (co) control. Weir risers checked for orifice conditions (ci) and submergence (ci).

Continues on next page...

Hydrograph Report

Hydroflow Hydrographs by IntelliSolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 20

Prop SA Basin South 1 (Imp)

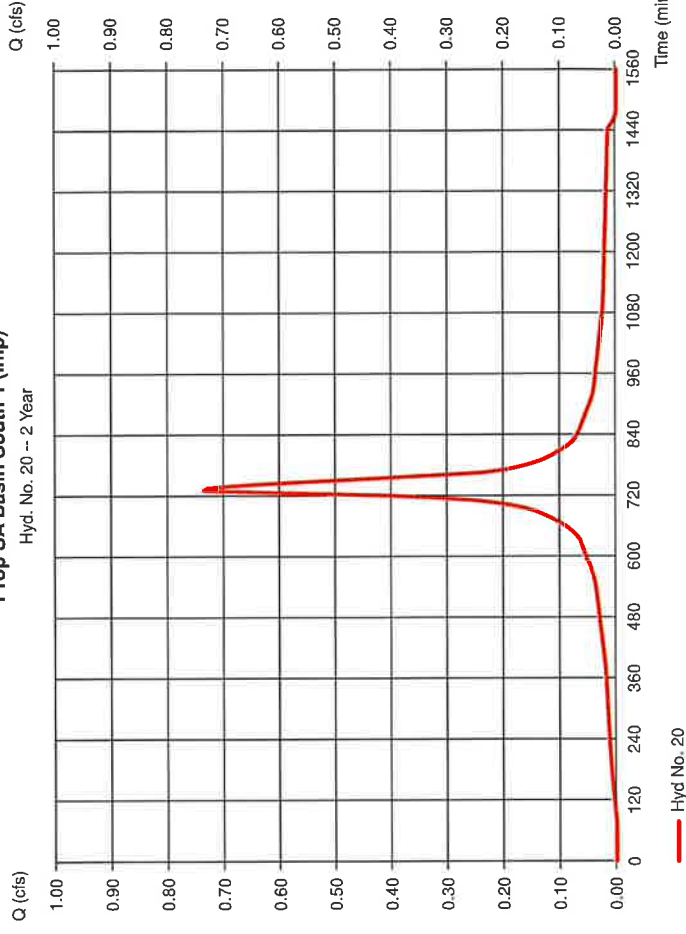
- Hydrograph type = SCS Runoff
- Storm frequency = 2 yrs
- Time interval = 5 min
- Drainage area = 0.400 ac
- Basin Slope = 0.0 %
- Tc method = USER
- Total precip. = 3.38 in
- Storm duration = NOAA Atlas 14 Type-D.cds
- Peak discharge = 0.735 cfs
- Time to peak = 730 min
- Hyd. volume = 0.104 acft
- Curve number = 98
- Hydraulic length = 0 ft
- Time of conc. (Tc) = 10.00 min
- Distribution = Custom
- Shape factor = 285

Stage / Storage / Discharge Table

Stage ft	Storage act	Elevation ft	Civ A dis	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfl cfs	User cfs	Total cfs
3.00	0.799	126.50	1.14 cc	0.08 ic	---	---	1.04	0.00	0.00	---	---	---	1.12
3.10	0.631	126.60	1.92 cc	0.09 ic	---	---	1.72	0.00	0.00	---	---	---	1.81
3.20	0.894	126.80	2.63 cc	0.09 ic	---	---	2.51	0.00	0.00	---	---	---	2.60
3.30	0.994	126.90	3.48 cc	0.09 ic	---	---	3.40	0.00	0.00	---	---	---	3.48
3.40	0.826	127.00	4.46 cc	0.09 ic	---	---	4.36	0.00	0.00	---	---	---	4.46
3.45	0.944	127.05	4.97 cc	0.09 ic	---	---	4.88	0.00	0.00	---	---	---	4.97
3.50	0.961	127.10	5.50 cc	0.10 ic	---	---	5.41	0.00	0.00	---	---	---	5.50
3.55	0.978	127.15	6.05 cc	0.10 ic	---	---	5.96	0.00	0.00	---	---	---	6.05
3.60	0.996	127.20	6.62 cc	0.10 ic	---	---	6.52	0.00	0.00	---	---	---	6.62
3.70	1.030	127.30	7.20 cc	0.09 ic	---	---	7.11	0.00	0.00	---	---	---	7.79
3.75	1.048	127.35	8.27 cc	0.08 ic	---	---	6.19 s	0.00	0.00	---	---	---	8.27
3.80	1.065	127.40	8.58 cc	0.07 ic	---	---	8.51 s	0.00	0.00	---	---	---	8.88
3.85	1.063	127.45	8.84 cc	0.07 ic	---	---	8.77 s	0.00	0.00	---	---	---	8.84
3.90	1.100	127.50	9.22 cc	0.06 ic	---	---	8.69 s	0.47	0.00	---	---	---	9.22
3.95	1.119	127.55	9.80 cc	0.05 ic	---	---	7.51 s	1.32	0.93	---	---	---	8.90
4.00	1.198	127.60	10.28 cc	0.03 ic	---	---	5.35 s	2.29 s	2.63 s	---	---	---	10.97
4.05	1.157	127.65	10.47 cc	0.02 ic	---	---	4.25 s	2.75 s	4.27 s	---	---	---	10.97
4.10	1.175	127.70	10.99 cc	0.01 ic	---	---	3.18 s	2.76 s	4.26 s	---	---	---	10.59
4.15	1.194	127.75	10.79 cc	0.01 ic	---	---	3.18 s	2.66 s	4.64 s	---	---	---	10.78
4.20	1.232	127.80	10.70 cc	0.01 ic	---	---	2.88 s	2.94 s	4.95 s	---	---	---	10.86
4.25	1.251	127.85	10.88 cc	0.01 ic	---	---	2.64 s	3.02 s	5.20 s	---	---	---	10.95
4.30	1.270	127.90	11.06 cc	0.01 ic	---	---	2.45 s	3.08 s	5.41 s	---	---	---	11.03
4.35	1.289	128.00	11.14 cc	0.01 ic	---	---	2.30 s	3.14 s	5.58 s	---	---	---	11.14
4.40	1.297	128.02	11.18 cc	0.01 ic	---	---	2.18 s	3.20 s	5.76 s	---	---	---	11.14
4.44	1.305	128.04	11.21 cc	0.01 ic	---	---	2.09 s	3.19 s	5.77 s	---	---	---	11.09
4.46	1.314	128.06	11.24 cc	0.00 ic	---	---	2.05 s	3.23 s	5.65 s	---	---	---	11.21
4.48	1.322	128.08	11.29 cc	0.00 ic	---	---	2.05 s	3.25 s	5.91 s	---	---	---	11.21
4.50	1.331	128.10	11.31 cc	0.00 ic	---	---	2.01 s	3.26 s	5.95 s	---	---	---	11.23
4.52	1.339	128.12	11.34 cc	0.00 ic	---	---	1.97 s	3.26 s	5.96 s	---	---	---	11.19
4.54	1.347	128.14	11.37 cc	0.00 ic	---	---	1.94 s	3.28 s	6.02 s	---	---	---	11.25
4.56	1.356	128.16	11.41 cc	0.00 ic	---	---	1.91 s	3.30 s	6.07 s	---	---	---	11.29
4.58	1.364	128.18	11.44 cc	0.00 ic	---	---	1.88 s	3.31 s	6.10 s	---	---	---	11.29
4.60	1.372	128.20	11.47 cc	0.00 ic	---	---	1.84 s	3.30 s	6.15 s	---	---	---	11.30

Prop SA Basin South 1 (Imp)

Hyd. No. 20 -- 2 Year

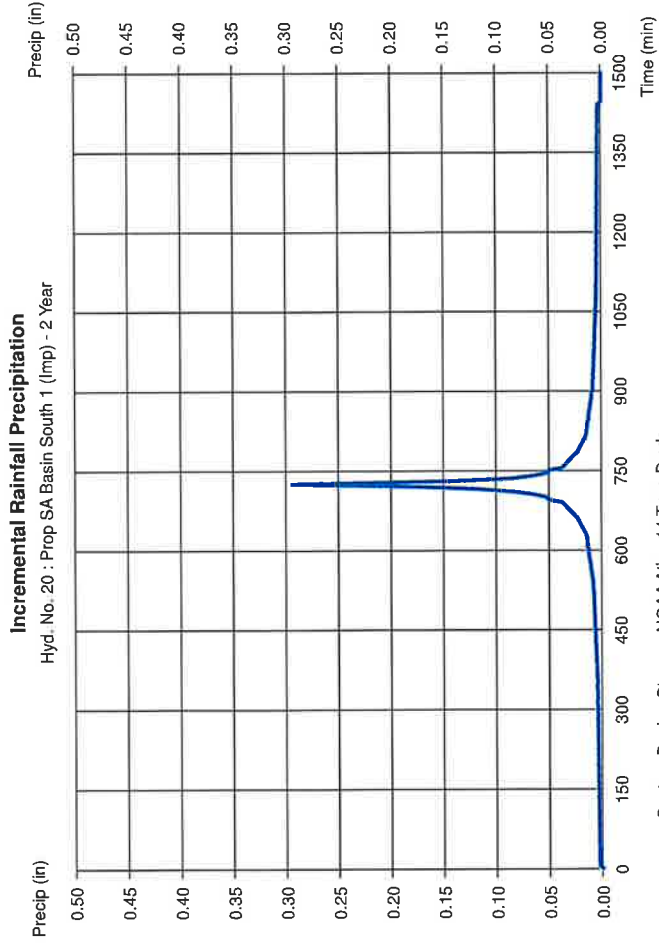


Precipitation Report

Hydralow Hydrographs by Intellisolve v6.1 Thursday, Jun 24, 2021

Hyd. No. 20

Prop SA Basin South 1 (Imp)
 Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds
 Time interval = 5 min
 Distribution = Custom

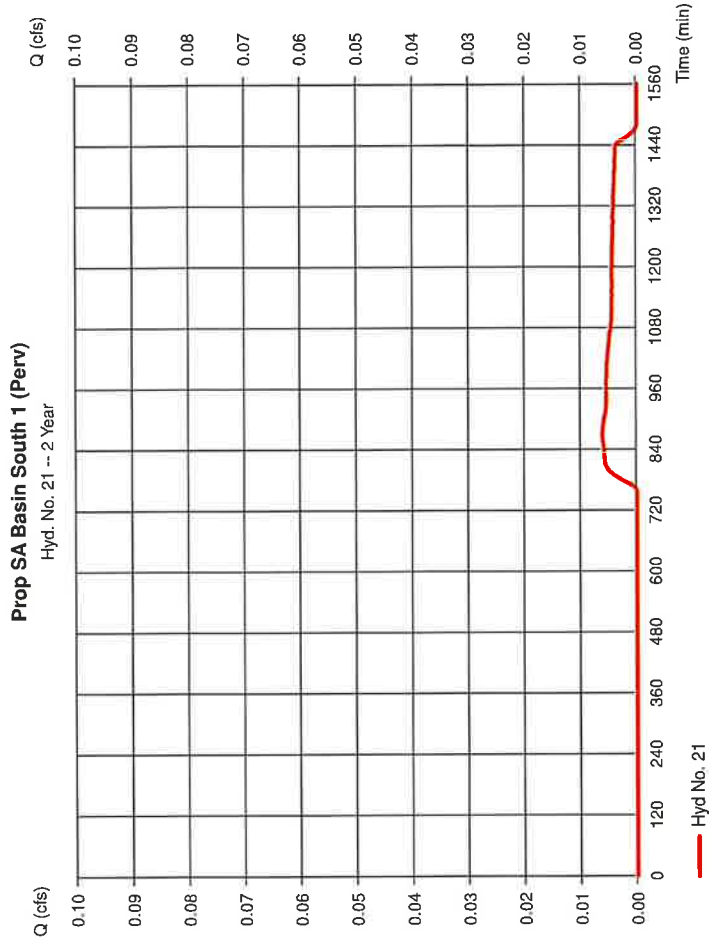


Hydrograph Report

Hydralow Hydrographs by Intellisolve v6.1 Thursday, Jun 24, 2021

Hyd. No. 21

Prop SA Basin South 1 (Perv)
 Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.650 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds
 Peak discharge = 0.006 cfs
 Time to peak = 870 min
 Hyd. volume = 0.004 acft
 Curve number = 46
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 21

Prop SA Basin South 1 (Perv)

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 22

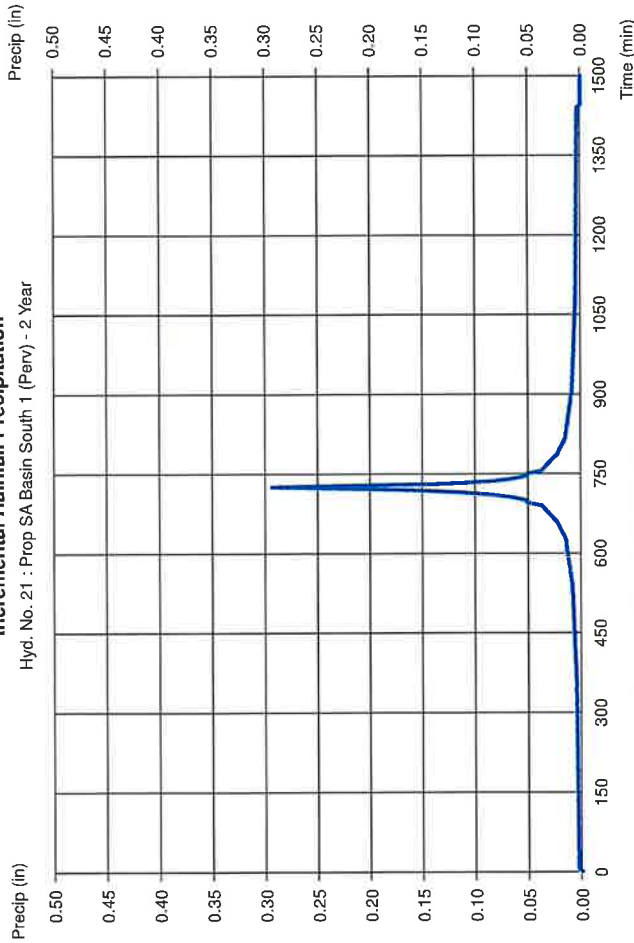
Prop SA Building B2 North

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.625 cfs
 Time to peak = 730 min
 Hyd. volume = 0.089 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Incremental Rainfall Precipitation

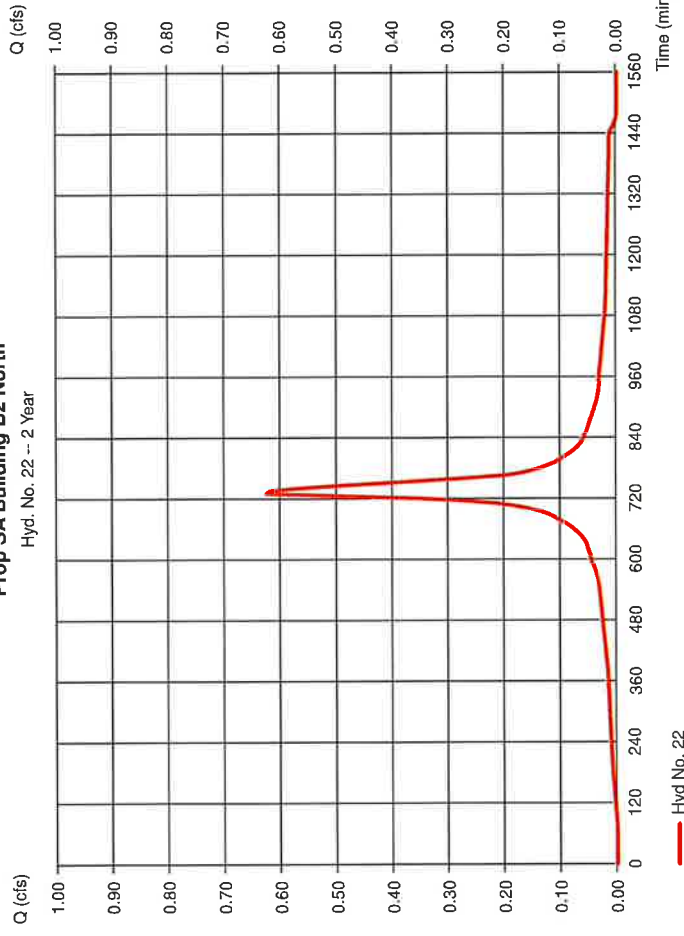
Hyd. No. 21 : Prop SA Basin South 1 (Perv) - 2 Year



— Custom Design Storm -- NOAA Atlas 14 Type-D.cds

Prop SA Building B2 North

Hyd. No. 22 -- 2 Year



— Hyd No. 22

Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 22

Prop SA Building B2 North

Storm Frequency = 2 Yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 23

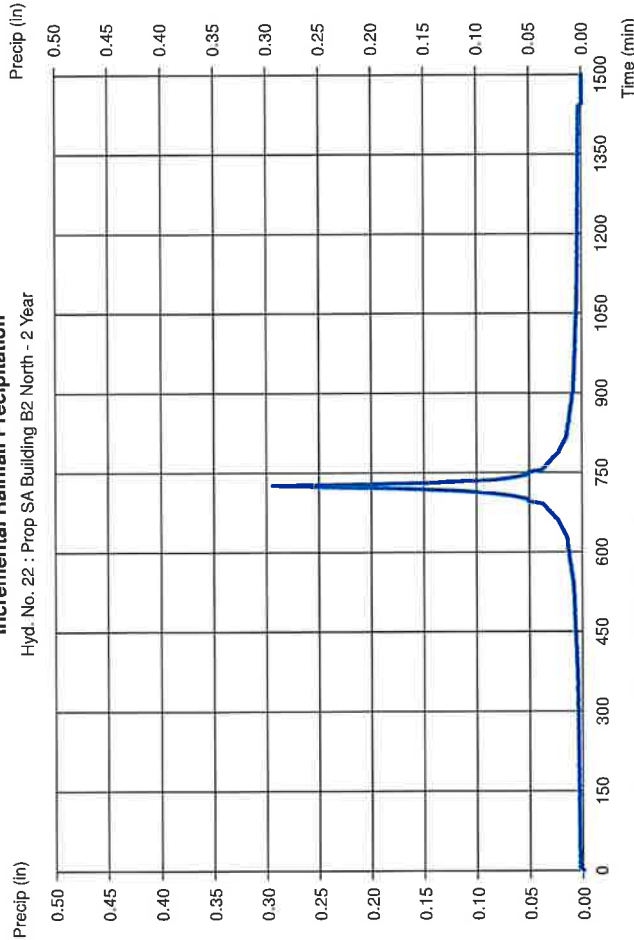
Prop SA Building B1 South

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.625 cfs
 Time to peak = 730 min
 Hyd. volume = 0.089 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Incremental Rainfall Precipitation

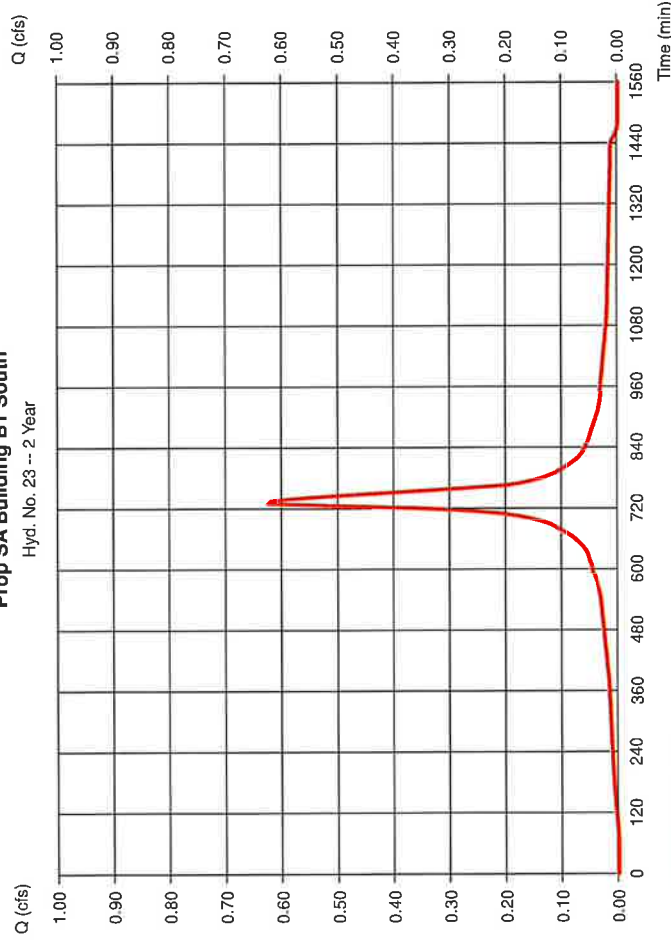
Hyd. No. 22 : Prop SA Building B2 North - 2 Year



— Custom Design Storm -- NOAA Atlas 14 Type-D.cds

Prop SA Building B1 South

Hyd. No. 23 -- 2 Year



— Hyd. No. 23

Precipitation Report

Hydrow Hydrographs by Intellisolve v8.1

Thursday, Jun 24, 2021

Hyd. No. 23

Prop SA Building B1 South

Storm Frequency = 2 yrs
Total precip. = 3.3800 in
Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
Distribution = Custom

Hydrograph Report

Hydrow Hydrographs by Intellisolve v8.1

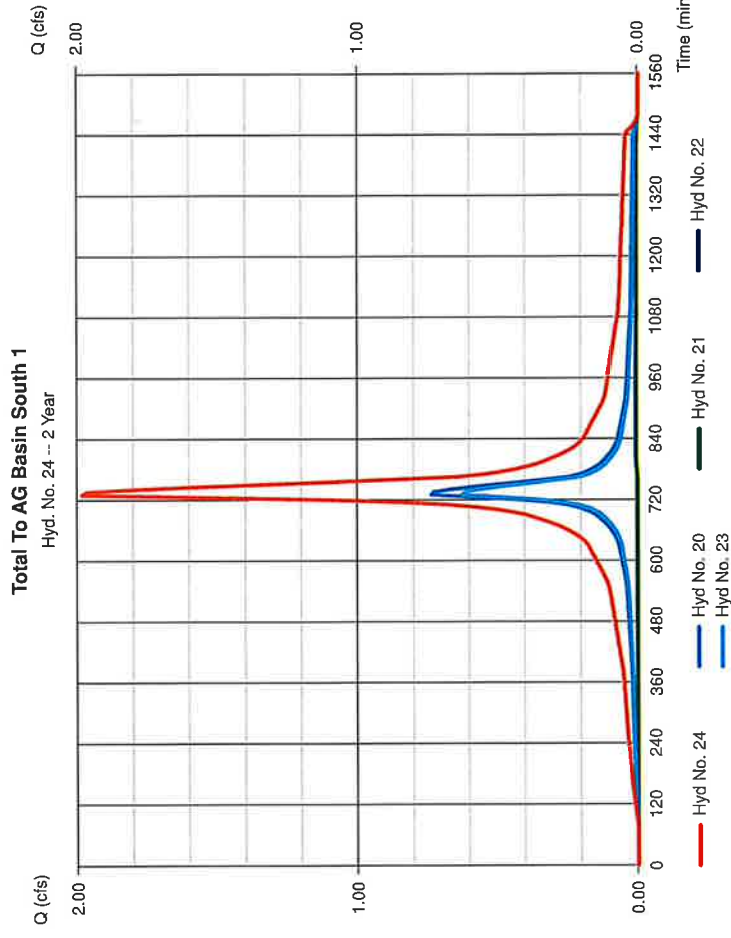
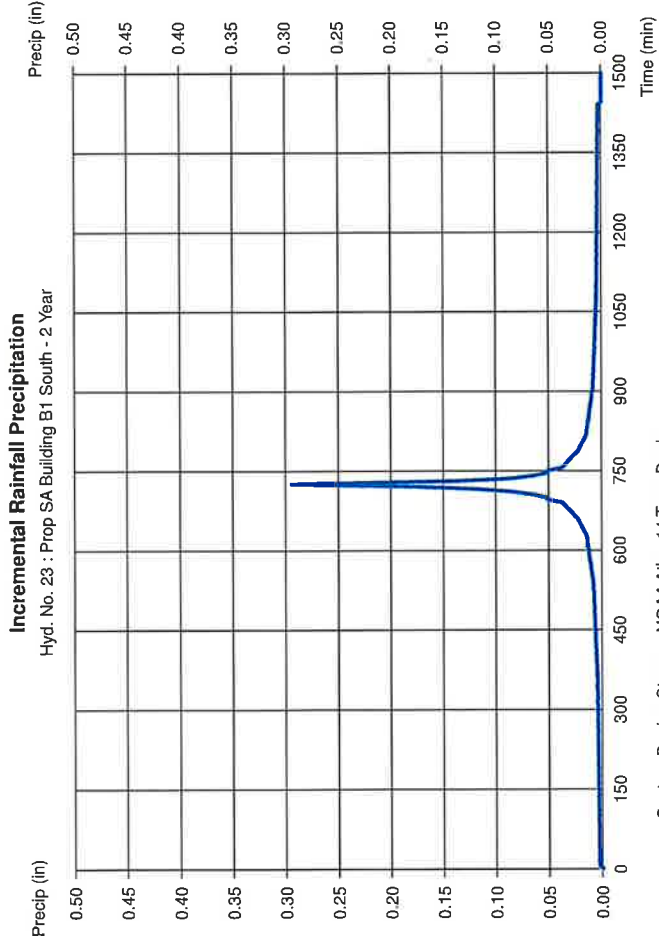
Thursday, Jun 24, 2021

Hyd. No. 24

Total To AG Basin South 1

Hydrograph type = Combine
Storm frequency = 2 yrs
Time interval = 5 min
Inflow hyds. = 20, 21, 22, 23

Peak discharge = 1.986 cfs
Time to peak = 730 min
Hyd. volume = 0.286 acft
Contrib. drain. area = 1.730 ac



Hydrograph Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 25

PropRouteAGBasinSouth1

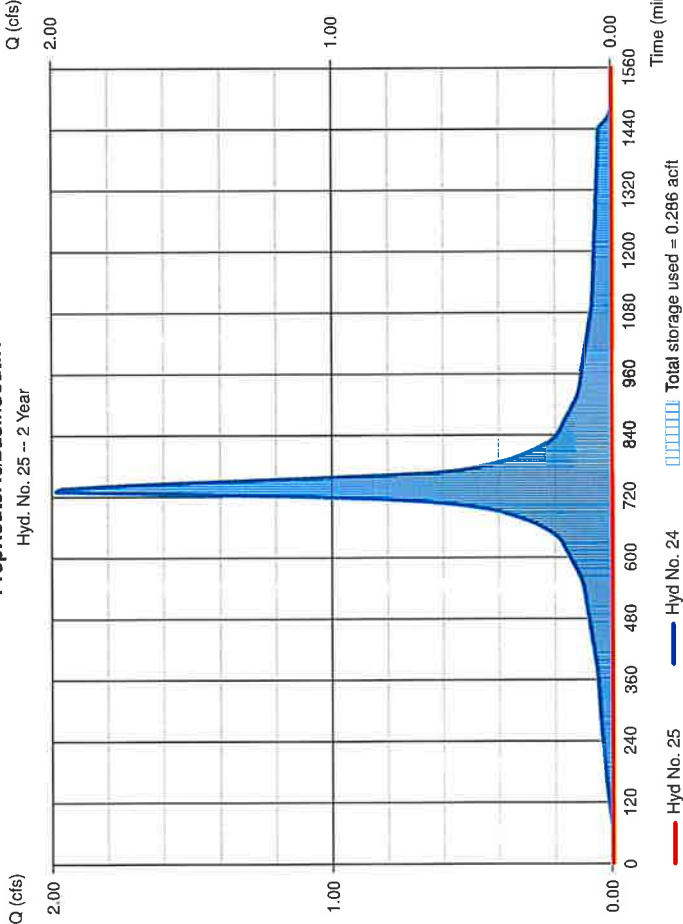
Hydrograph type = Reservoir
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyd. No. = 24 - Total To AG Basin South 1
 Reservoir name = Prop AG Basin South 1

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Max. Elevation = 122.97 ft
 Max. Storage = 0.286 acft

Storage indication method used.

PropRouteAGBasinSouth1

Hyd. No. 25 -- 2 Year



Pond Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Pond No. 2 - Prop AG Basin South 1

Pond Data

Contours -- User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 121.25 ft

Stage / Storage Table	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	121.25	5,313	0.000	0.000
0.75	122.00	7,141	0.107	0.107
1.75	123.00	8,920	0.184	0.291
2.75	124.00	10,940	0.228	0.518
3.75	125.00	13,320	0.278	0.796
4.00	125.25	16,541	0.096	0.892

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]	[A]	[B]	[C]	[D]
Rise (ft)	= 15.00	1.75	0.00	0.00	Crest Len (ft)	= 2.50	16.00	25.00
Span (ft)	= 15.00	1.75	0.00	0.00	Crest El. (ft)	= 124.70	124.75	0.00
No. Barrels	= 1	1	0	0	Weir Coeff.	= 3.53	3.33	2.60
Invert El. (ft)	= 121.25	123.25	0.00	0.00	Weir Type	= Rect	Rect	Broad
Length (ft)	= 50.00	0.00	0.00	0.00	Multi-Stage	= Yes	Yes	No
Slope (%)	= 0.50	0.00	0.00	n/a	Exfil. (in/hr)	= 0.000 (by Wet area)		
N-Value	= 0.13	-0.13	-0.13	n/a	TW Elev. (ft)	= 0.00		
Orifice Coeff.	= 0.60	Yes	No	No				
Multi-Stage	= n/a							

Weir Structures

	[A]	[B]	[C]	[PrfRsr]	[A]	[B]	[C]	[D]
Rise (ft)	= 15.00	1.75	0.00	0.00	Crest Len (ft)	= 2.50	16.00	25.00
Span (ft)	= 15.00	1.75	0.00	0.00	Crest El. (ft)	= 124.70	124.75	0.00
No. Barrels	= 1	1	0	0	Weir Coeff.	= 3.53	3.33	2.60
Invert El. (ft)	= 121.25	123.25	0.00	0.00	Weir Type	= Rect	Rect	Broad
Length (ft)	= 50.00	0.00	0.00	0.00	Multi-Stage	= Yes	Yes	No
Slope (%)	= 0.50	0.00	0.00	n/a	Exfil. (in/hr)	= 0.000 (by Wet area)		
N-Value	= 0.13	-0.13	-0.13	n/a	TW Elev. (ft)	= 0.00		
Orifice Coeff.	= 0.60	Yes	No	No				
Multi-Stage	= n/a							

Note: Culvert/Orifice outflows are analyzed under inlet (fi) and outlet (fo) control. Weir rears checked for orifice conditions (fi) and submergence (fo)

Stage / Storage / Discharge Table	Stage	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	121.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.08	0.011	121.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.15	0.021	121.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.032	121.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.30	0.043	121.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.38	0.053	121.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.45	0.054	121.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.53	0.065	121.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.60	0.066	121.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.68	0.066	121.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.75	0.107	122.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.85	0.125	122.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.95	0.144	122.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.05	0.162	122.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.15	0.180	122.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.25	0.199	122.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.35	0.217	122.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.45	0.236	122.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.55	0.254	122.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.65	0.272	122.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.75	0.291	123.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.85	0.314	123.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.95	0.336	123.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.05	0.369	123.30	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
2.15	0.405	123.40	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
2.25	0.427	123.50	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
2.35	0.427	123.60	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
2.45	0.450	123.70	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
2.55	0.473	123.80	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
2.65	0.496	123.90	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
2.75	0.518	124.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
2.85	0.546	124.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
2.95	0.574	124.20	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
3.05	0.602	124.30	1.48	0.00	0.00	0.00	0.00	1.37	0.00	0.00	0.00	0.00	0.00	1.45
3.15	0.630	124.40	2.21	0.00	0.00	0.00	0.00	2.11	0.00	0.00	0.00	0.00	0.00	2.19
3.25	0.657	124.50	3.03	0.00	0.00	0.00	0.00	2.84	0.00	0.00	0.00	0.00	0.00	3.03
3.35	0.685	124.60	3.95	0.00	0.00	0.00	0.00	3.57	0.00	0.00	0.00	0.00	0.00	3.95
3.45	0.713	124.70	4.97	0.00	0.00	0.00	0.00	4.88	0.00	0.00	0.00	0.00	0.00	4.97

Continues on next page --

Hydrograph Report

Hydrowflow Hydrographs by Ineliliosolve v3.1

Thursday, Jun 24, 2021

Hyd. No. 27

Prop SA Basin South 2 (Imp)

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.550 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 1.011 cfs
 Time to peak = 730 min
 Hyd. volume = 0.143 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Prop AG Basin South 1

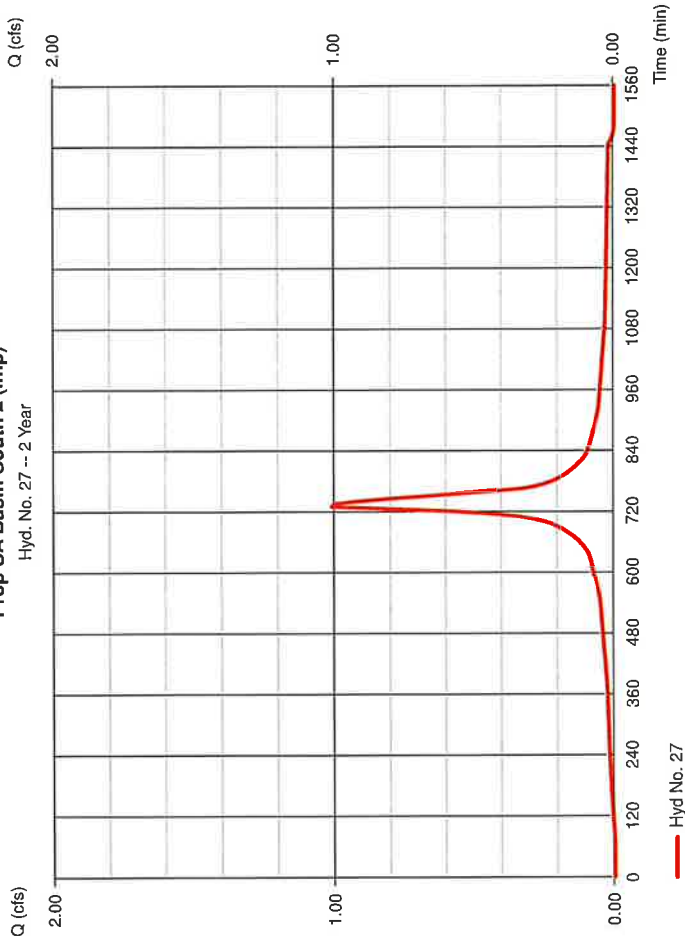
Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.55	0.741	124.80	8.29 cc	0.07 lg	...	...	5.81 \$	1.68	0.73	...	...	...	8.28
3.65	0.768	125.80	9.66 cc	0.07 lg	...	...	3.05	3.55 \$	3.09 \$	...	...	...	9.72
3.70	0.795	125.03	10.04 cc	0.01 lg	...	...	2.31	3.84 \$	3.82 \$	...	...	...	9.98
3.80	0.813	125.05	10.09 cc	0.01 lg	...	...	2.19	3.89 \$	3.93 \$	...	...	...	10.02
3.83	0.822	125.08	10.14 cc	0.01 lg	...	...	2.10	3.93 \$	4.04 \$	...	...	...	10.08
3.85	0.831	125.10	10.19 cc	0.01 lg	...	...	2.02	3.98 \$	4.13 \$	...	...	...	10.14
3.88	0.839	125.13	10.24 cc	0.01 lg	...	...	1.94	4.01 \$	4.21 \$	...	...	...	10.17
3.90	0.848	125.15	10.28 cc	0.01 lg	...	...	1.82	4.08 \$	4.36 \$	...	...	...	10.20
3.93	0.856	125.18	10.33 cc	0.01 lg	...	...	1.76	4.11 \$	4.43 \$	...	...	...	10.31
3.95	0.865	125.20	10.38 cc	0.01 lg	...	...	1.72	4.14 \$	4.49 \$	...	...	...	10.36
3.98	0.873	125.23	10.42 cc	0.01 lg	...	...	1.67	4.16 \$	4.54 \$	...	...	...	10.39
4.00	0.882	125.25	10.47 cc	0.01 lg	...	...	1.64	4.20 \$	4.61 \$	...	...	...	10.46

...End

Prop SA Basin South 2 (Imp)

Hyd. No. 27 -- 2 Year



Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 27

Prop SA Basin South 2 (Imp)
 Storm Frequency = 2 Yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

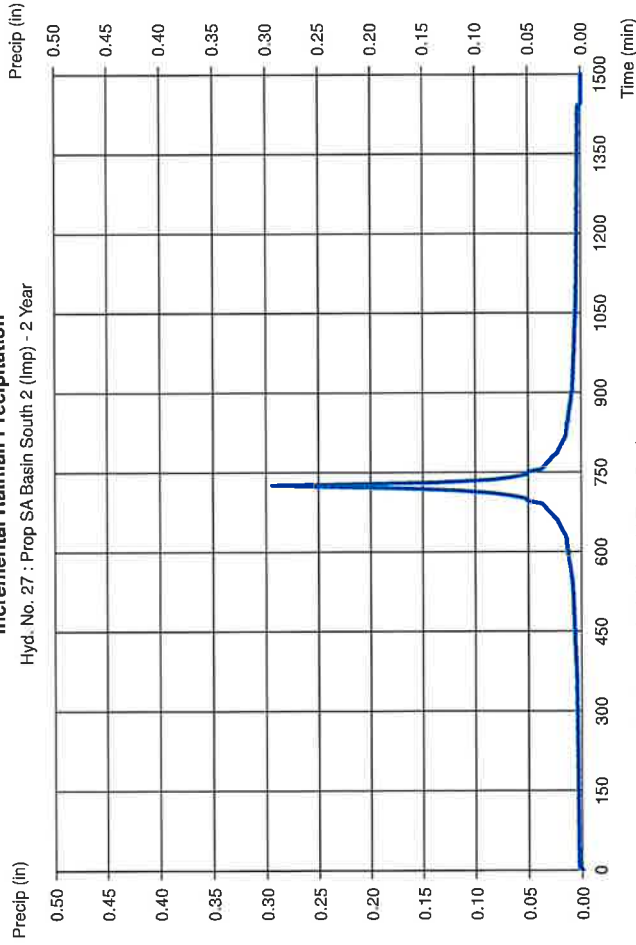
Hyd. No. 28

Prop SA Basin South 2 (Perv)
 Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.810 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.008 cfs
 Time to peak = 870 min
 Hyd. volume = 0.006 acft
 Curve number = 46
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Incremental Rainfall Precipitation

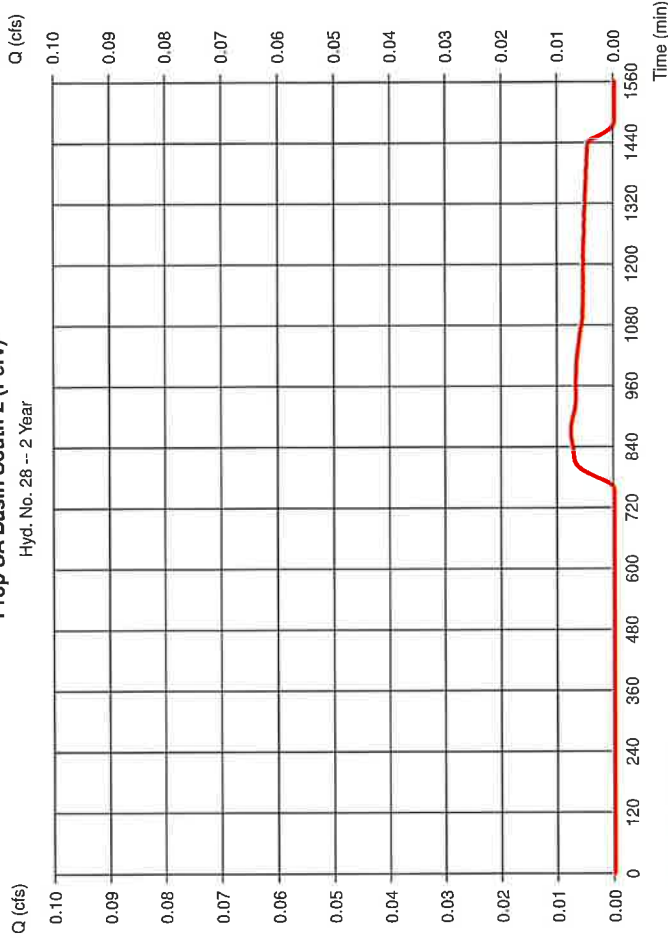
Hyd. No. 27 : Prop SA Basin South 2 (Imp) - 2 Year



— Custom Design Storm -- NOAA Atlas 14 Type-D.cds

Prop SA Basin South 2 (Perv)

Hyd. No. 28 -- 2 Year



— Hyd. No. 28

Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 28

Prop SA Basin South 2 (Perv)
 Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

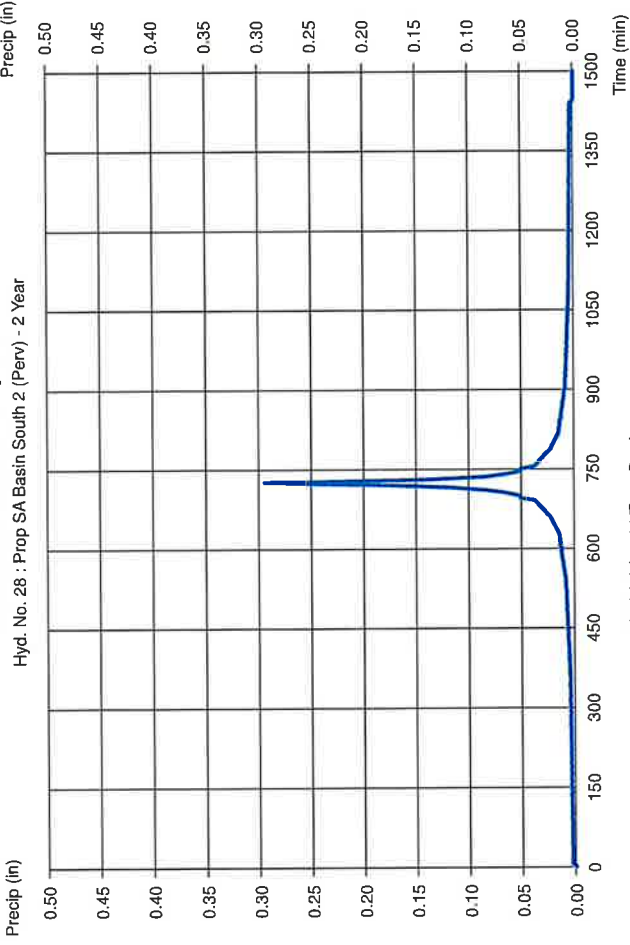
Hydralow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 29

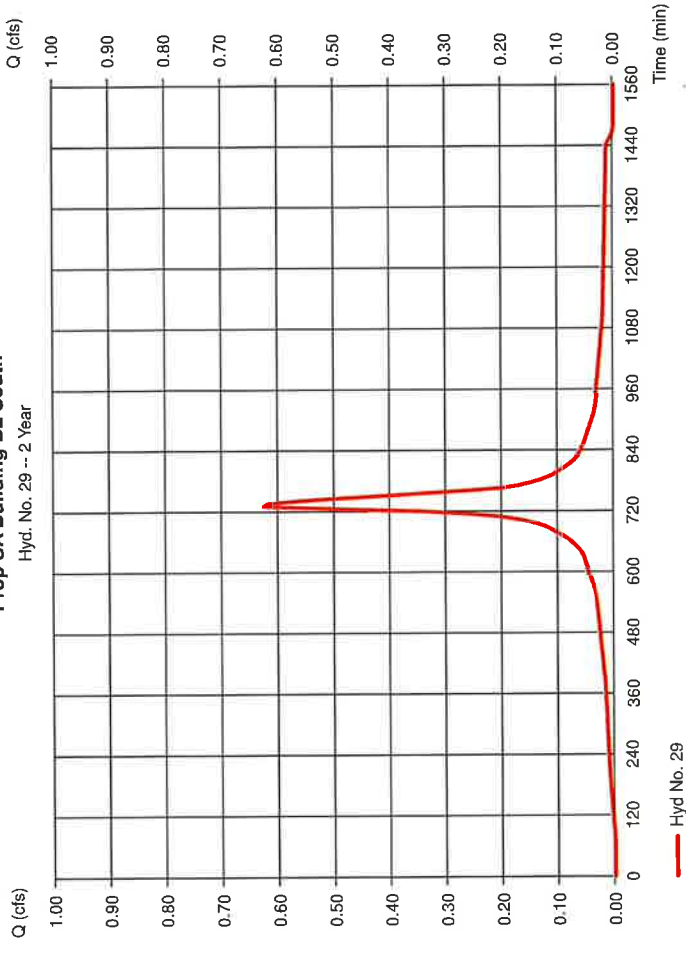
Prop SA Building B2 South
 Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.625 cfs
 Time to peak = 730 min
 Hyd. volume = 0.089 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Incremental Rainfall Precipitation



Prop SA Building B2 South



Precipitation Report

Hydrflow Hydrographs by Intellisolve v8.1 Thursday, Jun 24, 2021

Hyd. No. 29

Prop SA Building B2 South
 Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds
 Time interval = 5 min
 Distribution = Custom

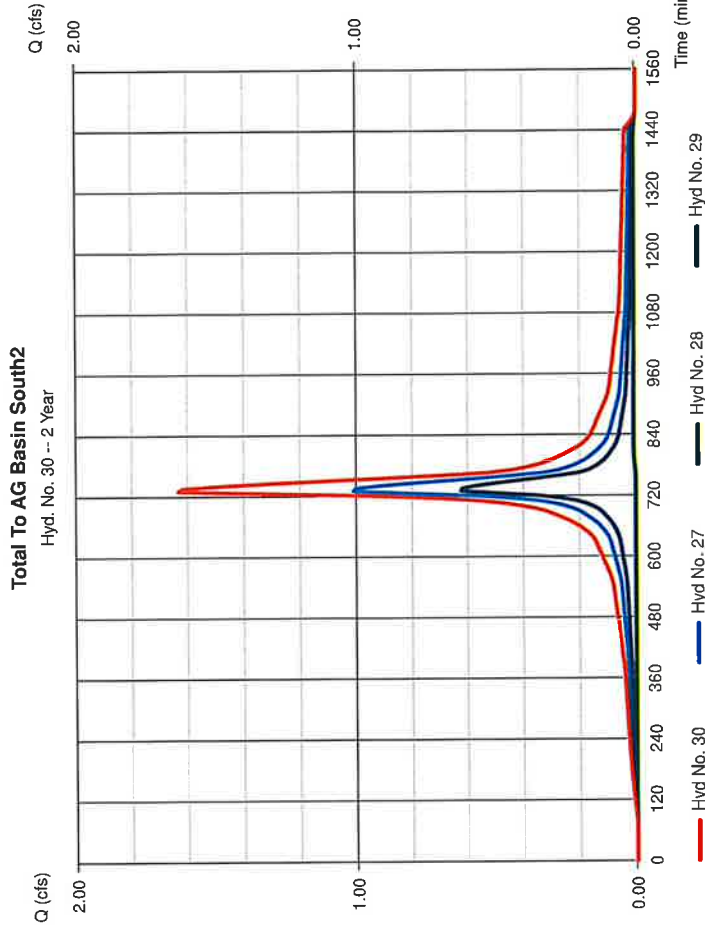
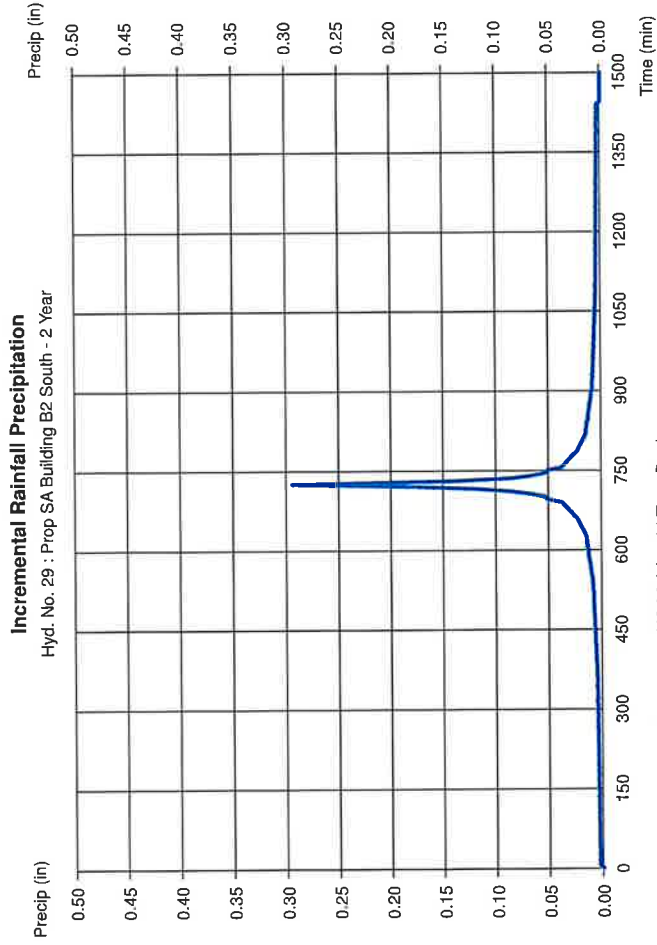
Hydrograph Report

Hydrflow Hydrographs by Intellisolve v8.1 Thursday, Jun 24, 2021

Hyd. No. 30

Total To AG Basin South2
 Hydrograph type = Combine
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyds. = 27, 28, 29

Peak discharge = 1.636 cfs
 Time to peak = 730 min
 Hyd. volume = 0.238 acft
 Contrib. drain. area = 1.700 ac



Hydrograph Report

Hydratlow Hydrographs by InelIsolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 31

PropRouteAGBasinSouth2

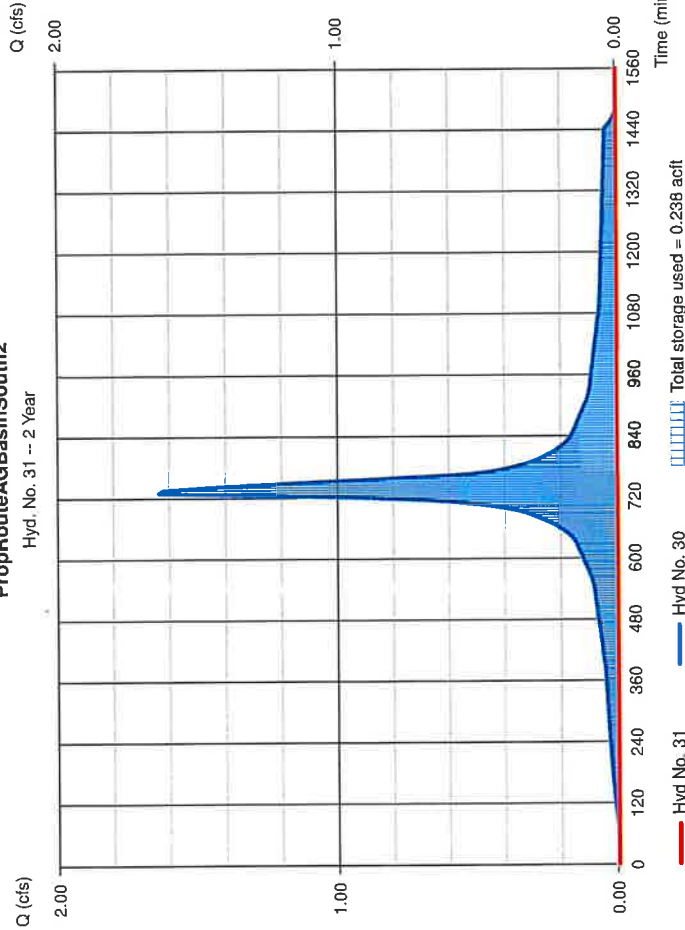
Hydrograph type = Reservoir
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyd. No. = 30 - Total To AG Basin South2
 Reservoir name = Prop. AG Basin South 2

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Max. Elevation = 121.26 ft
 Max. Storage = 0.238 acft

Storage indication method used.

PropRouteAGBasinSouth2

Hyd. No. 31 -- 2 Year



Pond Report

Hydratlow Hydrographs by InelIsolve v9.1

Thursday, Jun 24, 2021

Pond No. 4 - Prop. AG Basin South 2

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 119.90 ft

Stage / Storage Table	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	119.90	5,576	0.000	0.000
0.10	120.00	6,559	0.014	0.014
1.10	121.00	8,239	0.169	0.183
2.10	122.00	9,986	0.209	0.392
3.10	123.00	13,638	0.270	0.662
3.60	123.50	15,475	0.167	0.829

Culvert / Orifice Structures

[A]	[B]	[C]	[PrfRsr]	[A]	[B]	[C]	[D]
Rise (In)	= 15.00	1.75	0.00	Crest Len (ft)	= 2.50	16.00	25.00
Span (In)	= 15.00	1.75	0.00	Crest El. (ft)	= 122.10	122.90	122.95
No. Barrels	= 1	0	0	Weir Coeff.	= 3.33	2.60	3.33
Invert El. (ft)	= 119.90	121.90	0.00	Weir Type	= Rect	Broad	...
Length (ft)	= 50.00	0.00	0.00	Multi-Stage	= Yes	Yes	No
Slope (%)	= 0.50	0.00	0.00	Exfil. (in/hr)	= 0.000 (by Wet area)		
N-Value	= .013	.013	n/a	TW Elev. (ft)	= 0.00		
Orifice Coeff.	= 0.60	0.60	0.60				
Multi-Stage	= n/a	Yes	No				

Weir Structures

Stage / Storage / Discharge Table	Elevation	Civ A	Civ B	Civ C	PrfRsr	Wr A	Wr B	Wr C	Wr D	Exfil	User	Total
ft	ft	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
0.00	119.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	119.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	119.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.03	119.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	119.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.05	119.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.06	119.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.07	119.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.08	119.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	119.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.10	120.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.20	120.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.30	120.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.40	120.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.50	120.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.60	120.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.70	120.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.80	120.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.90	120.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	120.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.10	120.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.20	120.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.30	120.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.40	120.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.50	120.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.60	120.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.70	120.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.80	120.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.90	120.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	120.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.10	120.20	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2.20	120.21	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
2.30	120.22	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2.40	120.23	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
2.50	120.24	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
2.60	120.25	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
2.70	120.26	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
2.80	120.27	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
3.94	122.70	0.381	3.94	0.07	0.07	0.381	3.94	0.07	0.07	0.381	3.94	0.07

Note: Culvert/orifice outflows are analyzed under inlet (IC) and outlet (OC) control. Weir risers checked for orifice conditions (IC and submergence (S)).

Continues on next page...

Hydrograph Report

Hydroflow Hydrographs by Intellisolve v9.1
Thursday, Jun 24, 2021

Hyd. No. 33

Prop. Total SA South

Peak discharge = 0.000 cfs
Time to peak = n/a
Hyd. volume = 0.000 acft
Contrib. drain. area = 0.000 ac

Hydrograph type = Combine
Storm frequency = 2 yrs
Time interval = 5 min
Inflow hyds. = 11, 18, 25, 31

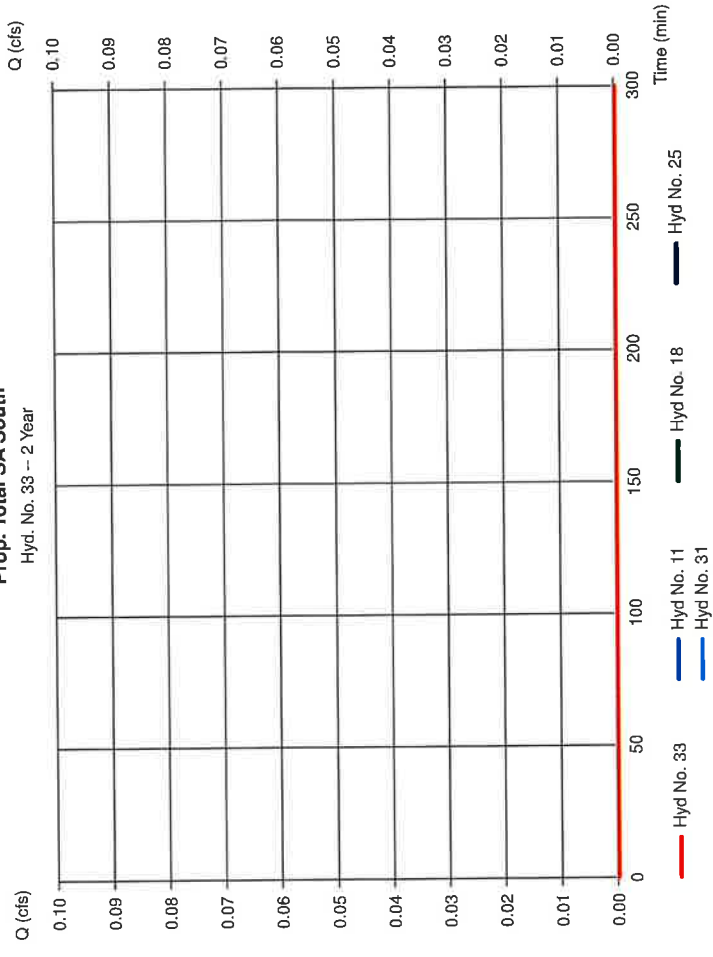
Prop. AG Basin South 2 Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exdl cfs	User cfs	Total cfs
2.90	0.608	122.80	4.95 cc	0.07 ic	---	---	4.88	0.00	0.00	---	---	---	4.85
3.00	0.635	122.90	5.03 cc	0.08 ic	---	---	5.04	0.00	0.00	---	---	---	6.03
3.10	0.662	123.00	8.00 cc	0.09 ic	---	---	5.50	1.68	0.73	---	---	---	8.00
3.15	0.679	123.05	8.66 cc	0.09 ic	---	---	3.74	2.84	2.06 s	---	---	---	8.66
3.20	0.696	123.10	9.05 cc	0.09 ic	---	---	2.90	3.12	2.74 s	---	---	---	8.87
3.25	0.712	123.15	9.07 cc	0.01 ic	---	---	2.57	3.30	3.13 s	---	---	---	9.01
3.30	0.726	123.20	9.14 cc	0.01 ic	---	---	2.29	3.42 s	3.40 s	---	---	---	9.12
3.35	0.746	123.25	9.25 cc	0.01 ic	---	---	2.08	3.52 s	3.61 s	---	---	---	9.22
3.40	0.762	123.30	9.35 cc	0.01 ic	---	---	1.92	3.60 s	3.79 s	---	---	---	9.32
3.45	0.779	123.35	9.45 cc	0.01 ic	---	---	1.80	3.68 s	3.93 s	---	---	---	9.41
3.50	0.796	123.40	9.55 cc	0.01 ic	---	---	1.70	3.74 s	4.06 s	---	---	---	9.50
3.55	0.813	123.45	9.65 cc	0.01 ic	---	---	1.62	3.82 s	4.19 s	---	---	---	9.63
3.60	0.829	123.50	9.75 cc	0.00 ic	---	---	1.55 s	3.86 s	4.27 s	---	---	---	9.69

---End

Prop. Total SA South

Hyd. No. 33 -- 2 Year



Hydrograph Report

Hydralow Hydrographs by InTeLLiSolve v9.1

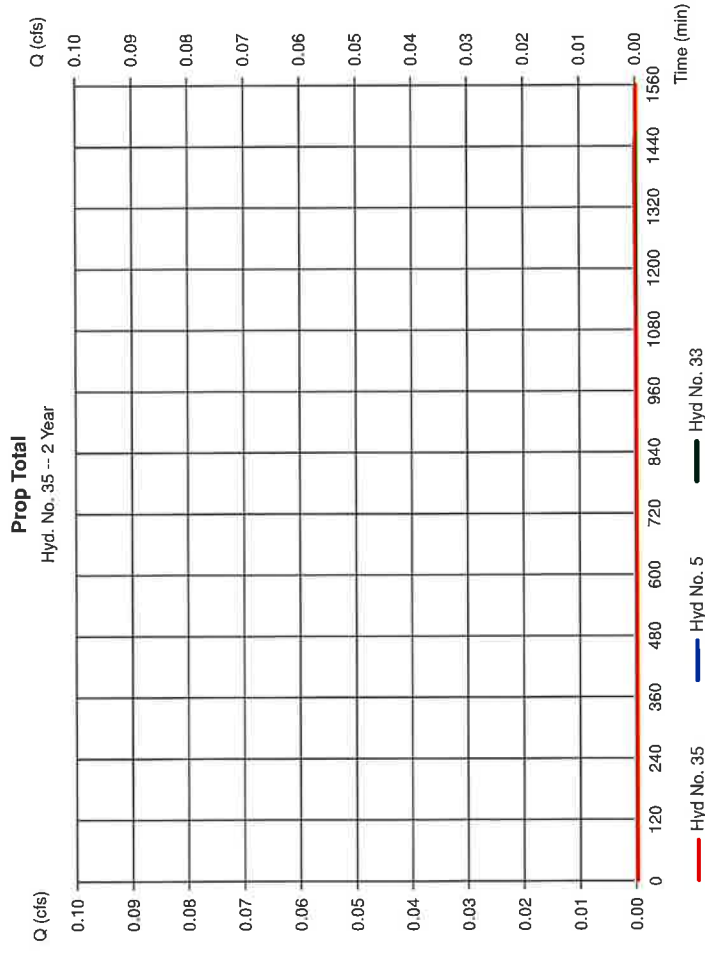
Thursday, Jun 24, 2021

Hyd. No. 35

Prop Total

Hydrograph type = Combine
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyds. = 5, 33

Peak discharge = 0.000 cfs
 Time to peak = 1330 min
 Hyd. volume = 0.000 acft
 Contrib. drain. area = 0.200 ac



Hydrograph Summary Report

Hydralow Hydrographs by InTeLLiSolve v9.1

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time Interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description
1	SCS Runoff	0.046	5	780	0.022	1, 2	125.92	0.446	Ex Study Area North (Total)
2	SCS Runoff	0.161	5	800	0.098	1, 2	125.92	0.446	Ex Study Area South (Total)
3	Combine	0.204	5	800	0.120	1, 2	125.92	0.446	Ex Total
5	SCS Runoff	0.009	5	765	0.004	1, 2	125.92	0.446	Prop SA Undelained North (Total)
7	SCS Runoff	2.150	5	730	0.310	1, 2	125.92	0.446	Prop SA Basin North 1 (Imp)
8	SCS Runoff	0.038	5	760	0.018	1, 2	125.92	0.446	Prop SA Basin North 1 (Perv)
9	SCS Runoff	0.975	5	730	0.141	1, 2	125.92	0.446	Prop SA Building A North
10	Combine	3.125	5	730	0.469	7, 8, 9	125.92	0.446	Total To Basin North1
11	Reservoir	0.040	5	1455	0.093	10	125.92	0.446	Prop Route A GBasin North1
13	SCS Runoff	2.294	5	730	0.331	1, 2	125.92	0.446	Prop SA Basin North 2 (Imp)
14	SCS Runoff	0.029	5	780	0.014	1, 2	125.92	0.446	Prop SA Basin North 2 (Perv)
15	SCS Runoff	0.975	5	730	0.141	1, 2	125.92	0.446	Prop SA Building B1 North
16	SCS Runoff	0.975	5	730	0.141	1, 2	125.92	0.446	Prop SA Building A South
17	Combine	4.244	5	730	0.625	13, 14, 15, 16	125.92	0.446	Total To AG Basin North2
18	Reservoir	0.044	5	1455	0.128	17	125.92	0.446	Post Route A GBasin North2
20	SCS Runoff	1.147	5	730	0.165	1, 2	125.92	0.446	Prop SA Basin South 1 (Imp)
21	SCS Runoff	0.127	5	750	0.031	1, 2	125.92	0.446	Prop SA Basin South 1 (Perv)
22	SCS Runoff	0.975	5	730	0.141	1, 2	125.92	0.446	Prop SA Building B2 North
23	SCS Runoff	0.975	5	730	0.141	1, 2	125.92	0.446	Prop SA Building B1 South
24	Combine	3.168	5	730	0.477	20, 21, 22, 23	125.92	0.446	Total To AG Basin South 1
25	Reservoir	0.048	5	1450	0.135	24	125.92	0.446	Prop Route A GBasin South1
27	SCS Runoff	1.577	5	730	0.227	1, 2	125.92	0.446	Prop SA Basin South 2 (Imp)
28	SCS Runoff	0.159	5	750	0.038	1, 2	125.92	0.446	Prop SA Basin South 2 (Perv)
29	SCS Runoff	0.975	5	730	0.141	1, 2	125.92	0.446	Prop SA Building B2 South
30	Combine	2.652	5	735	0.406	27, 28, 29	125.92	0.446	Total To AG Basin South2
31	Reservoir	0.018	5	1460	0.033	30	125.92	0.446	Prop Route A GBasin South2
33	Combine	0.150	5	1455	0.390	11, 18, 25, 31	125.92	0.446	Prop Total SA South
35	Combine	0.152	5	1445	0.394	5, 33	125.92	0.446	Prop Total

Return Period: 10 Year

2021-06-22.ExProp2,10,25,100YR.gpw

Thursday, Jun 24, 2021

Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 1

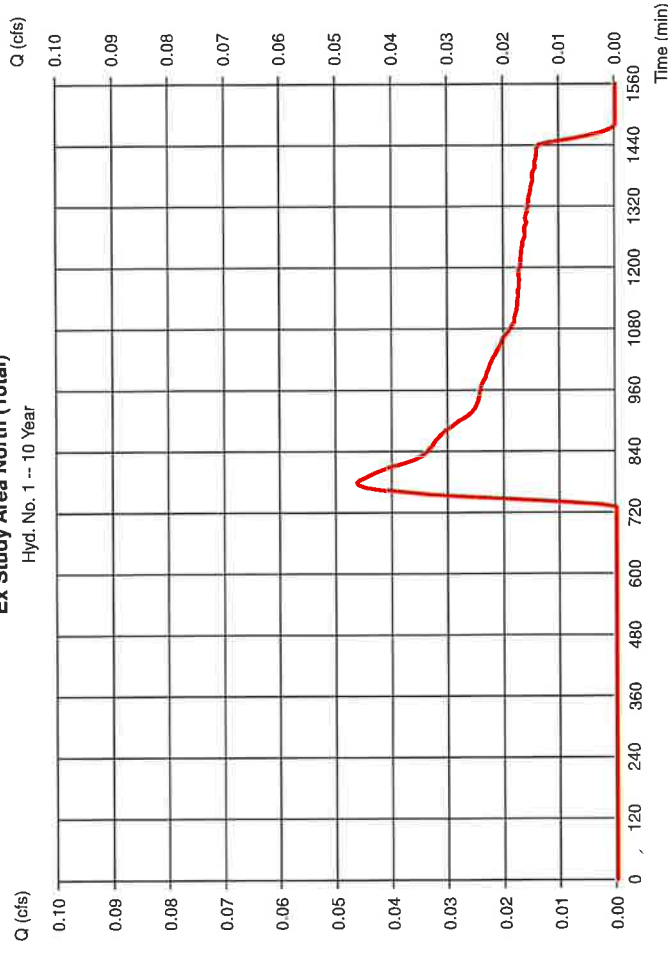
Ex Study Area North (Total)

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 5 min
 Drainage area = 1.070 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 5.23 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.046 cfs
 Time to peak = 780 min
 Hyd. volume = 0.022 acft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.60 min
 Distribution = Custom
 Shape factor = 285

Ex Study Area North (Total)

Hyd. No. 1 -- 10 Year



Hyd No. 1

Precipitation Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 1

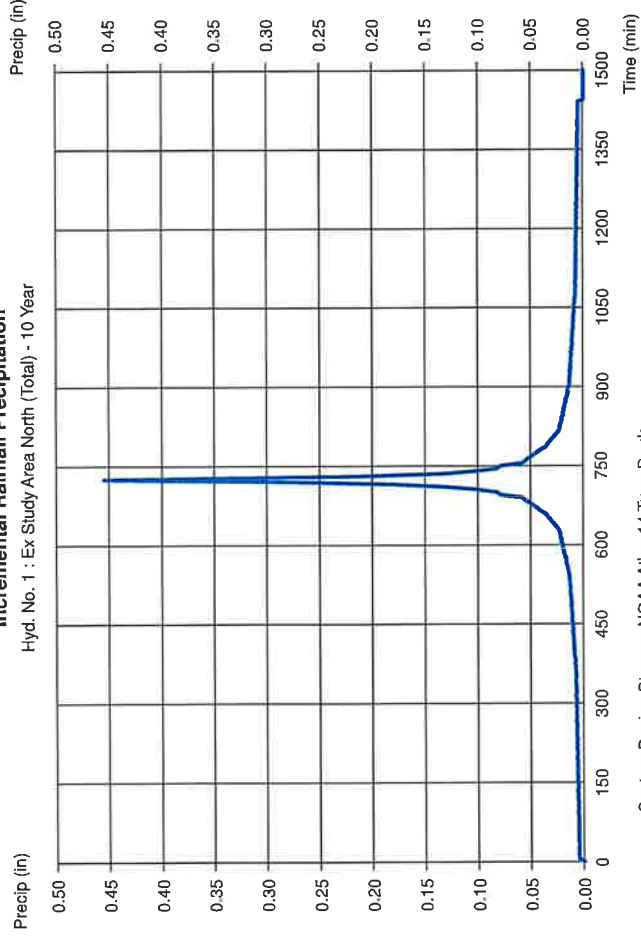
Ex Study Area North (Total)

Storm Frequency = 10 yrs
 Total precip. = 5.2300 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Incremental Rainfall Precipitation

Hyd. No. 1 : Ex Study Area North (Total) - 10 Year



Custom Design Storm -- NOAA Atlas 14 Type-D.cds

Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

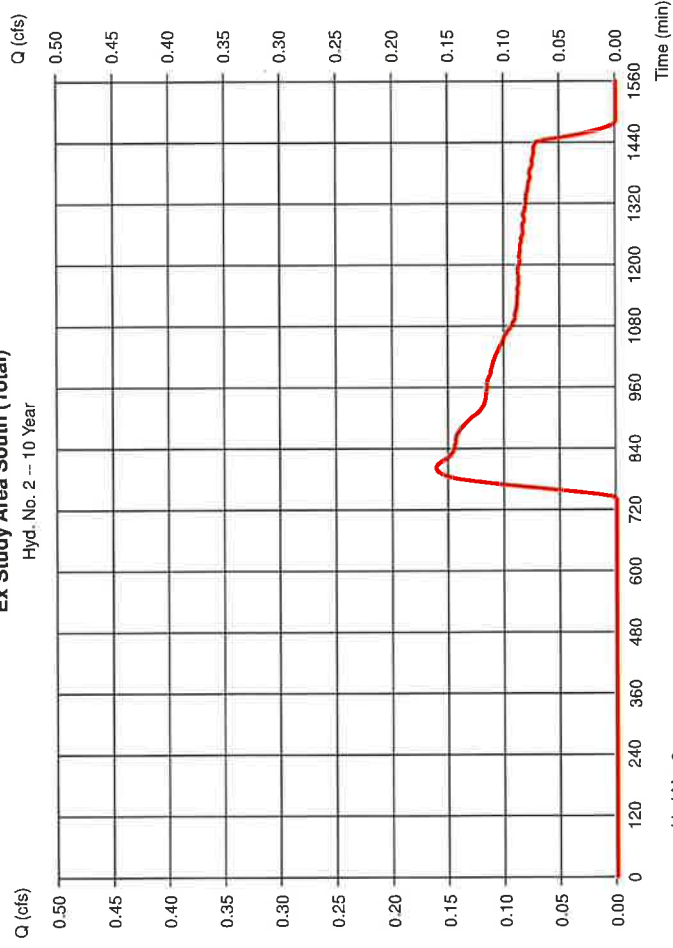
Hyd. No. 2

Ex Study Area South (Total)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.161 cfs
Storm frequency	= 10 yrs	Time to peak	= 800 min
Time interval	= 5 min	Hyd. volume	= 0.098 acft
Drainage area	= 6.730 ac	Curve number	= 37
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 14.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Ex Study Area South (Total)

Hyd. No. 2 -- 10 Year



Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

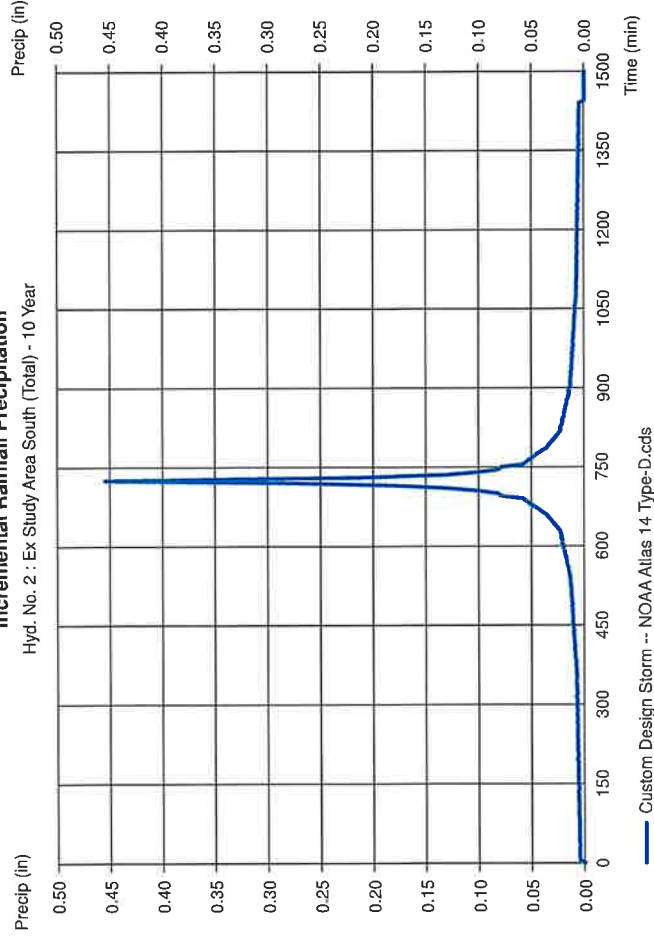
Hyd. No. 2

Ex Study Area South (Total)

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 2 : Ex Study Area South (Total) - 10 Year



Hydrograph Report

Hydrallow Hydrographs by Intellisolve v8.1

Thursday, Jun 24, 2021

Hyd. No. 3

Ex Total

Hydrograph type	= Combine	Peak discharge	= 0.204 cfs
Storm frequency	= 10 yrs	Time to peak	= 800 min
Time interval	= 5 min	Hyd. volume	= 0.120 acft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 7.800 ac

Hydrograph Report

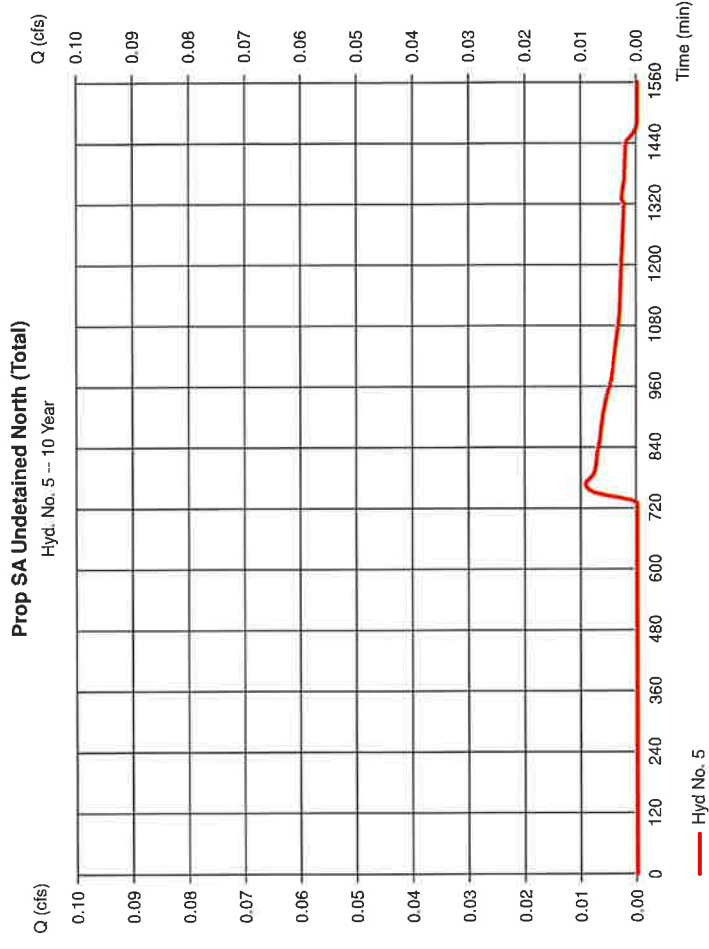
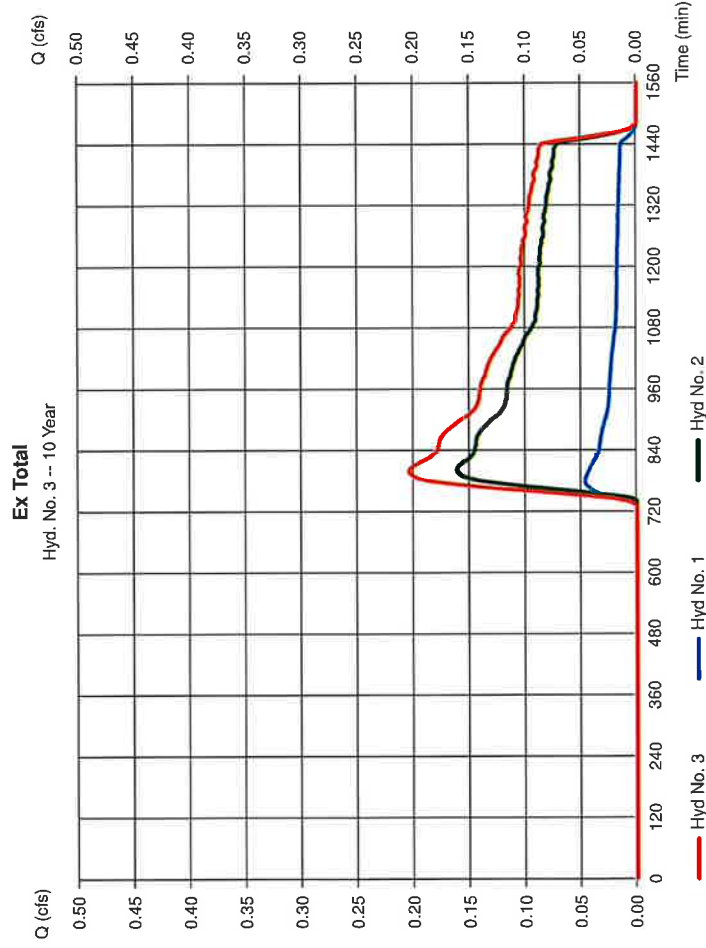
Hydrallow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 5

Prop SA Undetained North (Total)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.009 cfs
Storm frequency	= 10 yrs	Time to peak	= 765 min
Time interval	= 5 min	Hyd. volume	= 0.004 acft
Drainage area	= 0.200 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 285



Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

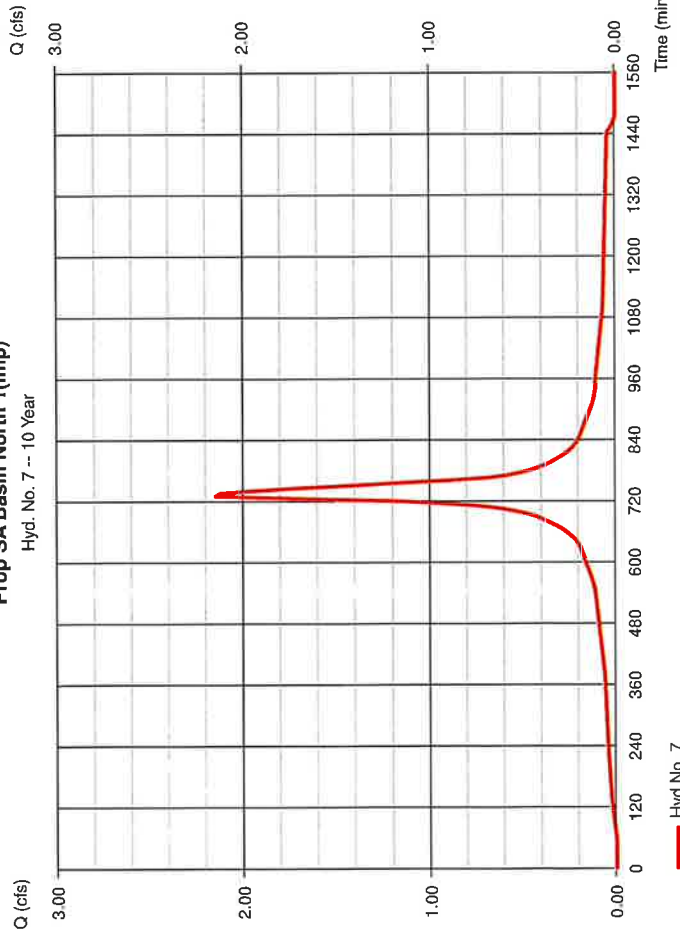
Hyd. No. 7

Prop SA Basin North 1 (Imp)

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.150 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	5 min	Hyd. volume	=	0.310 acft
Drainage area	=	0.750 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.23 in	Distribution	=	Custom
Storm duration	=	NOAA Atlas 14 Type-D.cds	Shape factor	=	285

Prop SA Basin North 1 (Imp)

Hyd. No. 7 -- 10 Year



Precipitation Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

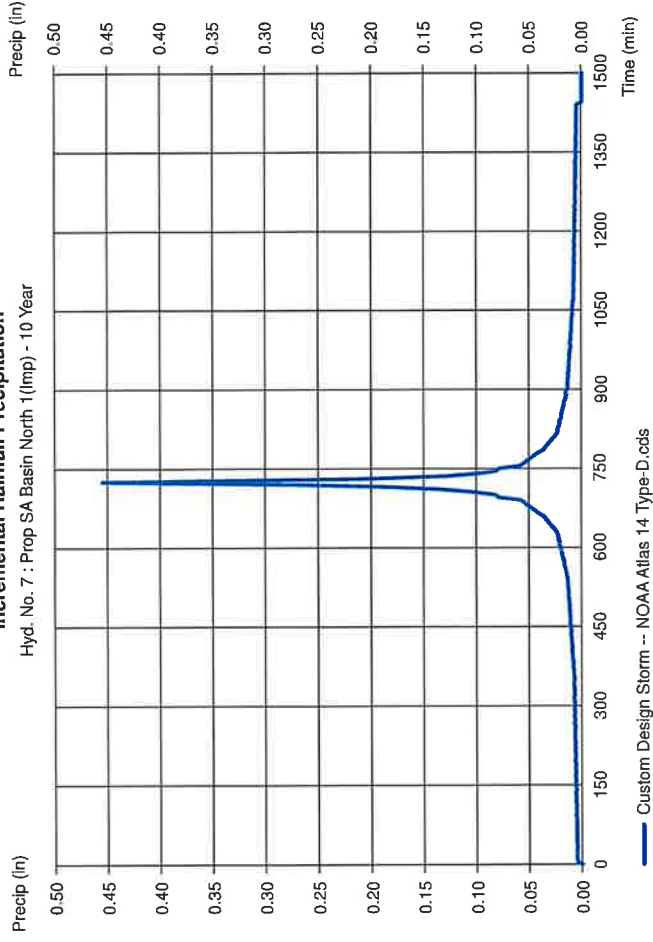
Hyd. No. 7

Prop SA Basin North 1 (Imp)

Storm Frequency	=	10 yrs	Time interval	=	5 min
Total precip.	=	5.2300 in	Distribution	=	Custom
Storm duration	=	NOAA Atlas 14 Type-D.cds			

Incremental Rainfall Precipitation

Hyd. No. 7 : Prop SA Basin North 1 (Imp) - 10 Year



Hydrograph Report

Hydralfow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

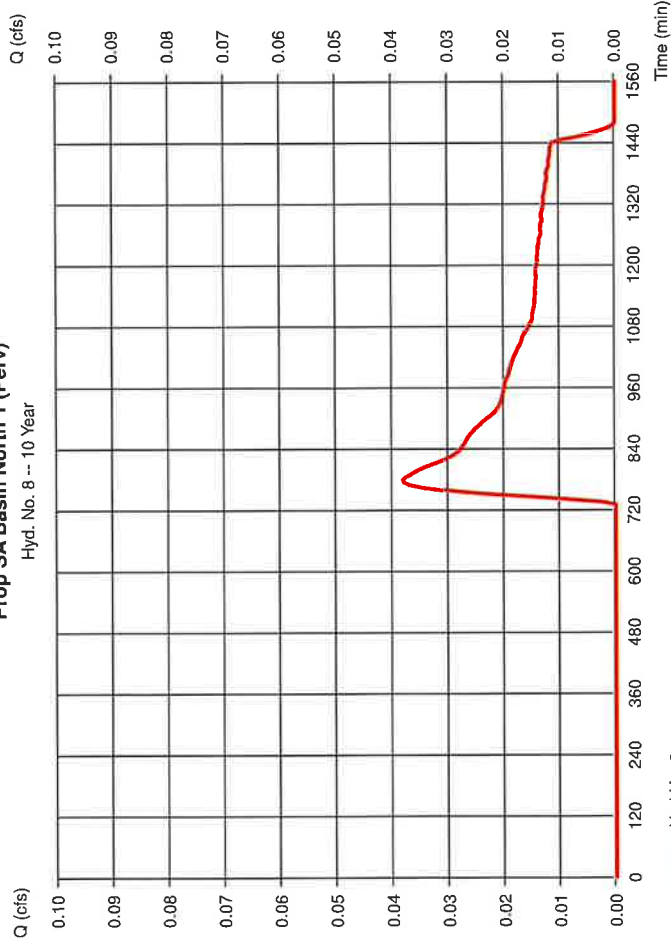
Hyd. No. 8

Prop SA Basin North 1 (Perv)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.038 cfs
Storm frequency	= 10 yrs	Time to peak	= 780 min
Time interval	= 5 min	Hyd. volume	= 0.018 acft
Drainage area	= 0.880 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Prop SA Basin North 1 (Perv)

Hyd. No. 8 -- 10 Year



Hyd No. 8

Precipitation Report

Hydralfow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

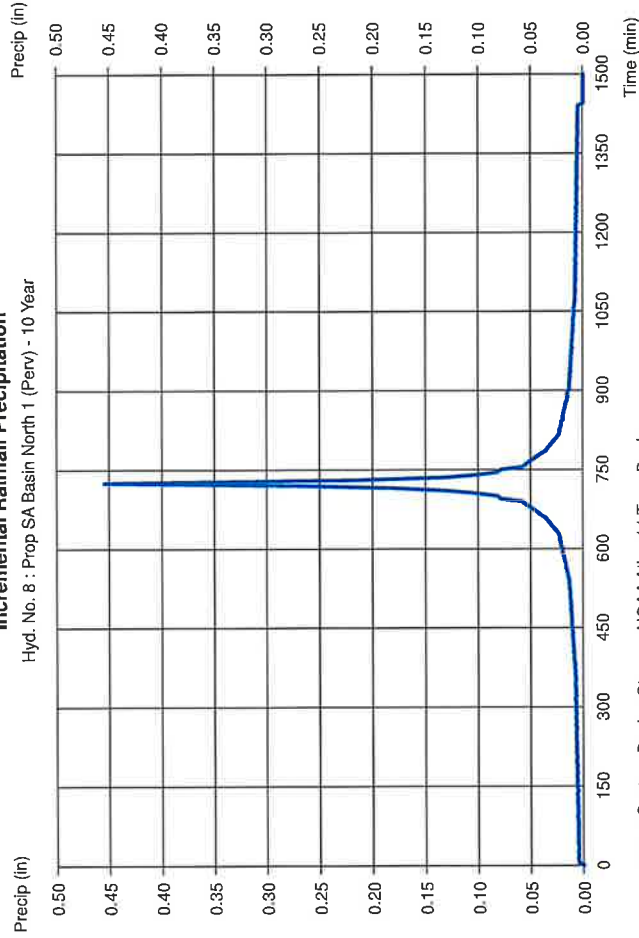
Hyd. No. 8

Prop SA Basin North 1 (Perv)

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 8 : Prop SA Basin North 1 (Perv) - 10 Year



Custom Design Storm -- NOAA Atlas 14 Type-D.cds

Hydrograph Report

Hydrow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 9

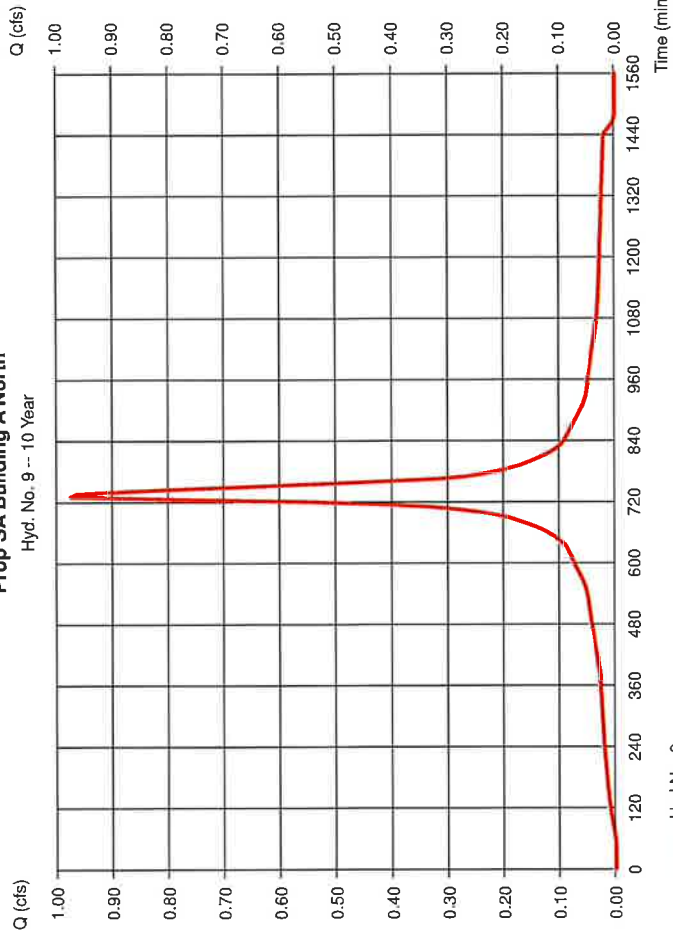
Prop SA Building A North

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 5.23 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.975 cfs
 Time to peak = 730 min
 Hyd. volume = 0.141 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Prop SA Building A North

Hyd. No. 9 -- 10 Year



Precipitation Report

Hydrow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 9

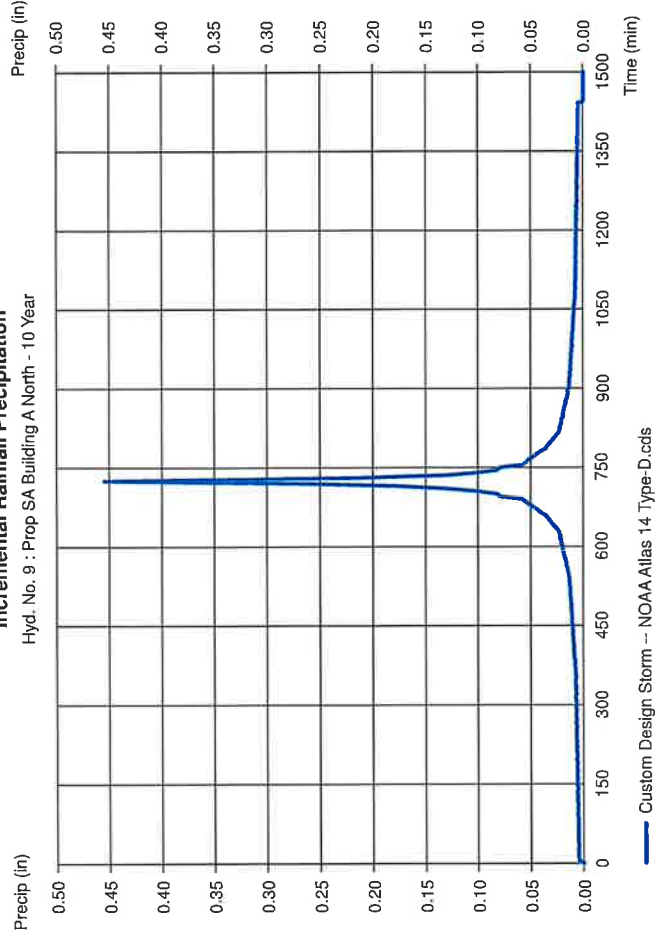
Prop SA Building A North

Storm Frequency = 10 yrs
 Total precip. = 5.2300 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Incremental Rainfall Precipitation

Hyd. No. 9 : Prop SA Building A North - 10 Year



Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

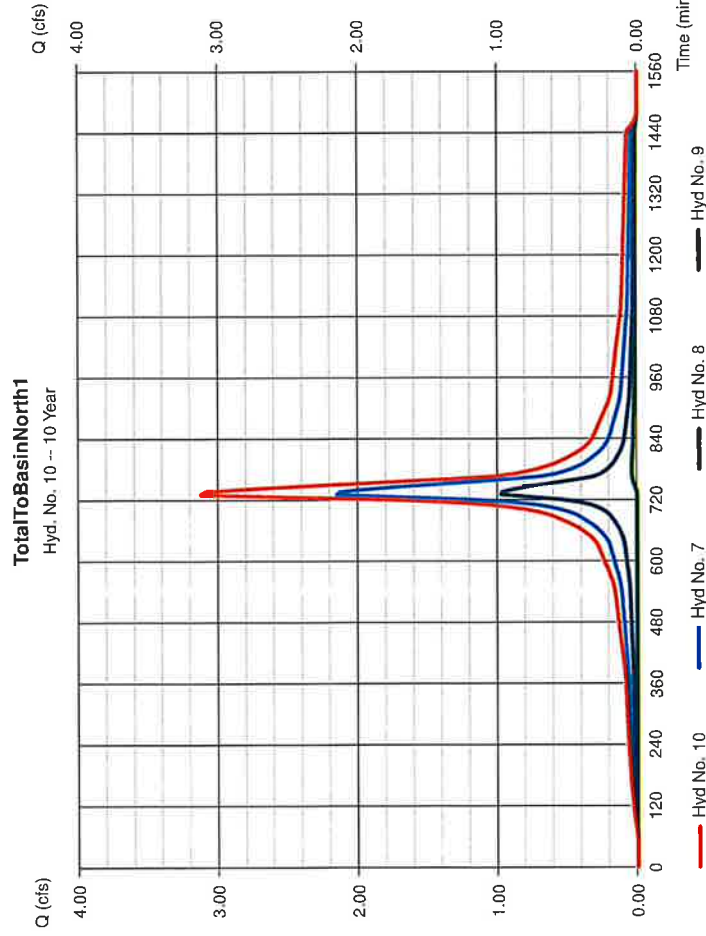
Hyd. No. 10

TotalToBasinNorth1

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyds. = 7, 8, 9

Peak discharge = 3.125 cfs
 Time to peak = 730 min
 Hyd. volume = 0.469 acft
 Contrib. drain. area = 1.9770 ac

Storage Indication: method used.



Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

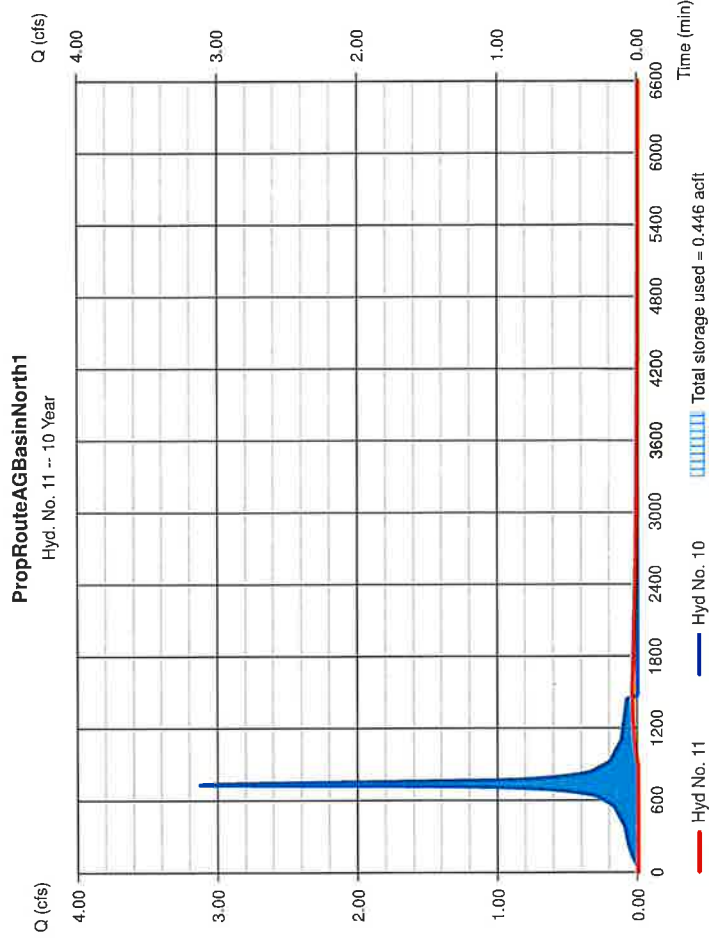
Hyd. No. 11

PropRouteAGBasinNorth1

Hydrograph type = Reservoir
 Storm frequency = 10 Yrs
 Time interval = 5 min
 Inflow hyd. No. = 10 - TotalToBasinNorth1
 Reservoir name = Prop AG Basin North 1

Peak discharge = 0.040 cfs
 Time to peak = 1455 min
 Hyd. volume = 0.093 acft
 Max. Elevation = 125.92 ft
 Max. Storage = 0.446 acft

Storage Indication: method used.



Hydrograph Report

Hydrallow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 13

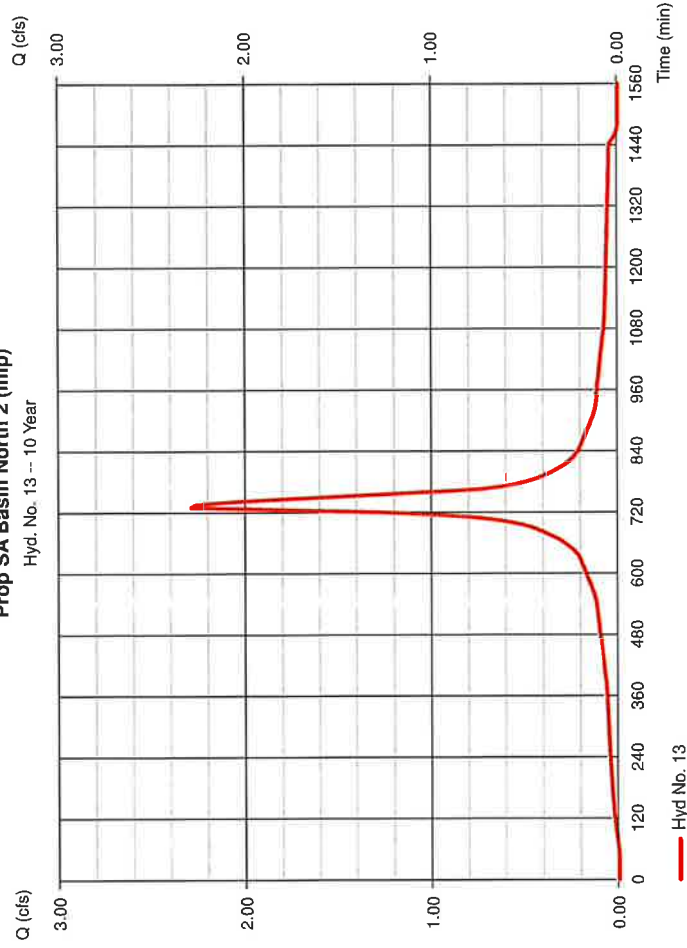
Prop SA Basin North 2 (Imp)

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 5 min
 Drainage area = 0.800 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 5.23 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 2,294 cfs
 Time to peak = 730 min
 Hyd. volume = 0.331 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Prop SA Basin North 2 (Imp)

Hyd. No. 13 -- 10 Year



Precipitation Report

Hydrallow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 13

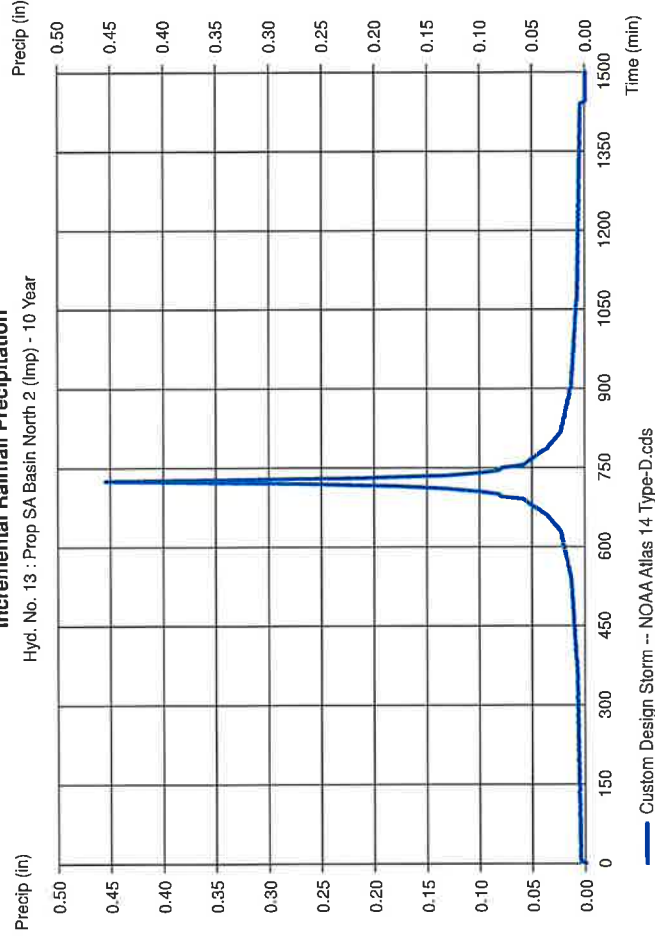
Prop SA Basin North 2 (Imp)

Storm Frequency = 10 yrs
 Total precip. = 5.2300 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Incremental Rainfall Precipitation

Hyd. No. 13 : Prop SA Basin North 2 (Imp) - 10 Year



Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 14

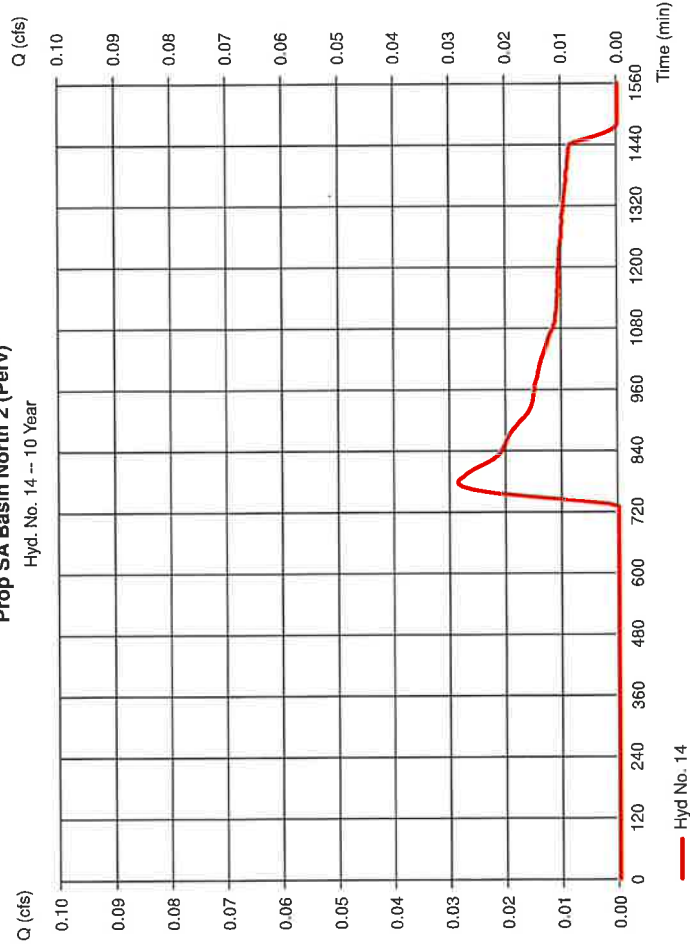
Prop SA Basin North 2 (Perv)

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 5 min
 Drainage area = 0.660 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 5.23 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.029 cfs
 Time to peak = 780 min
 Hyd. volume = 0.014 acft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Prop SA Basin North 2 (Perv)

Hyd. No. 14 -- 10 Year



Precipitation Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 14

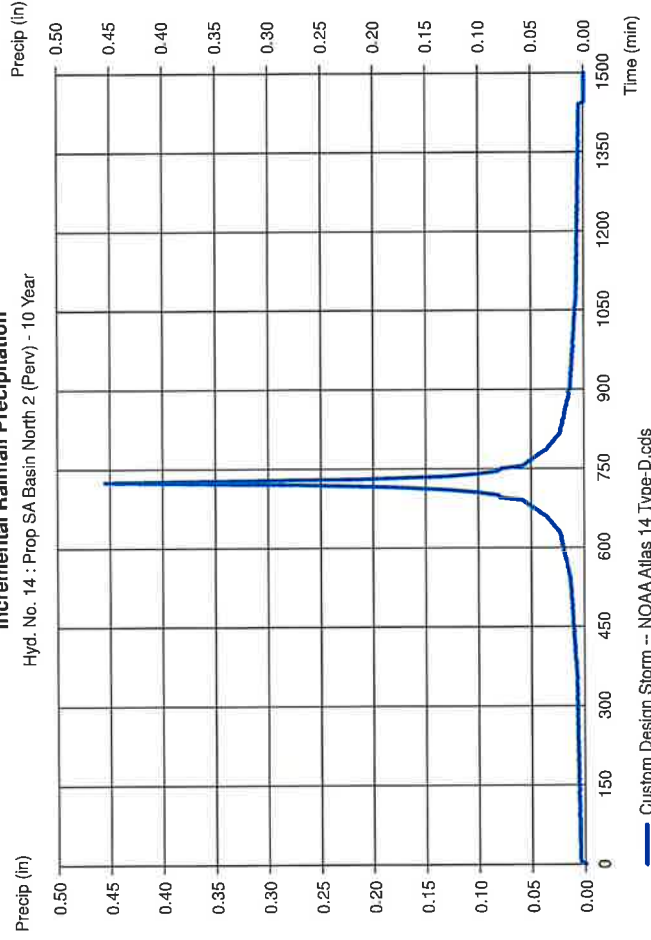
Prop SA Basin North 2 (Perv)

Storm Frequency = 10 yrs
 Total precip. = 5.2300 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Incremental Rainfall Precipitation

Hyd. No. 14 : Prop SA Basin North 2 (Perv) - 10 Year



Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

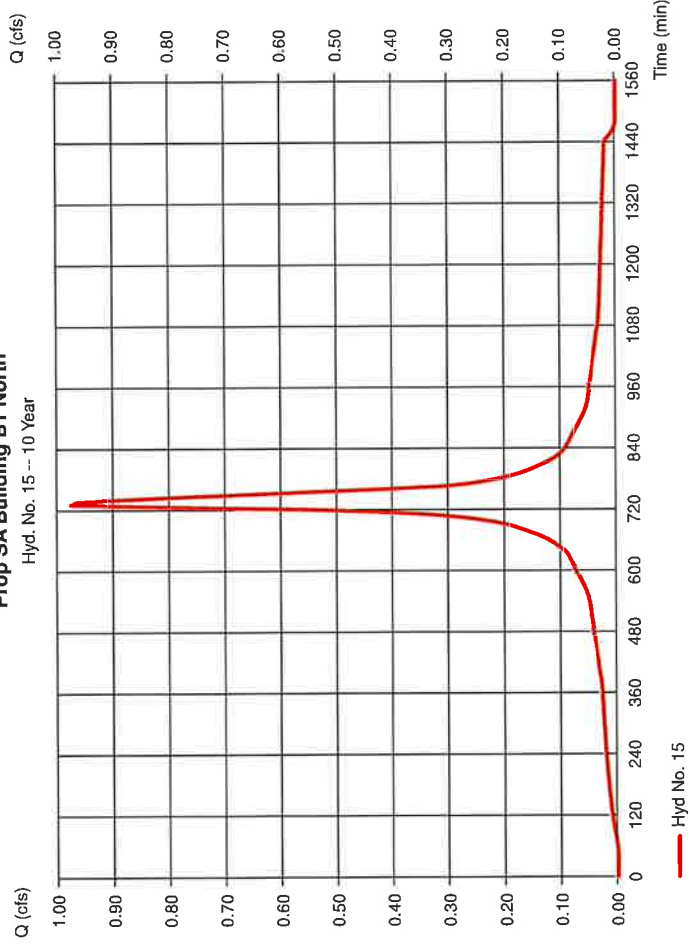
Hyd. No. 15

Prop SA Building B1 North

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.975 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	5 min	Hyd. volume	=	0.141 acft
Drainage area	=	0.340 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.23 in	Distribution	=	Custom
Storm duration	=	NOAA Atlas 14 Type-D.cds	Shape factor	=	285

Prop SA Building B1 North

Hyd. No. 15 -- 10 Year



Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

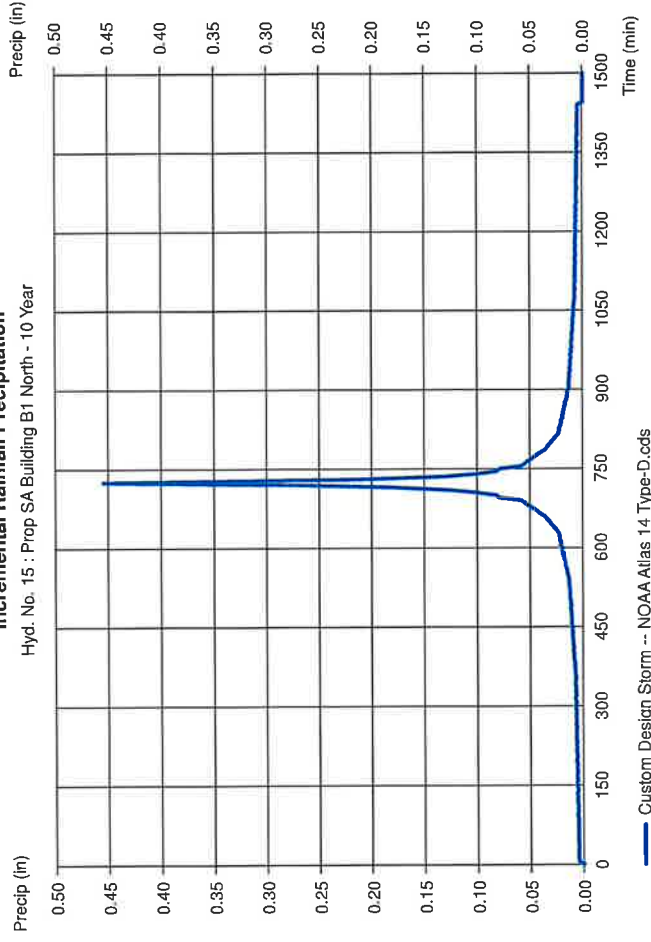
Hyd. No. 15

Prop SA Building B1 North

Storm Frequency	=	10 yrs	Time interval	=	5 min
Total precip.	=	5.2300 in	Distribution	=	Custom
Storm duration	=	NOAA Atlas 14 Type-D.cds			

Incremental Rainfall Precipitation

Hyd. No. 15 : Prop SA Building B1 North - 10 Year



Hydrograph Report

Hydratlow/Hydrographs by intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 16

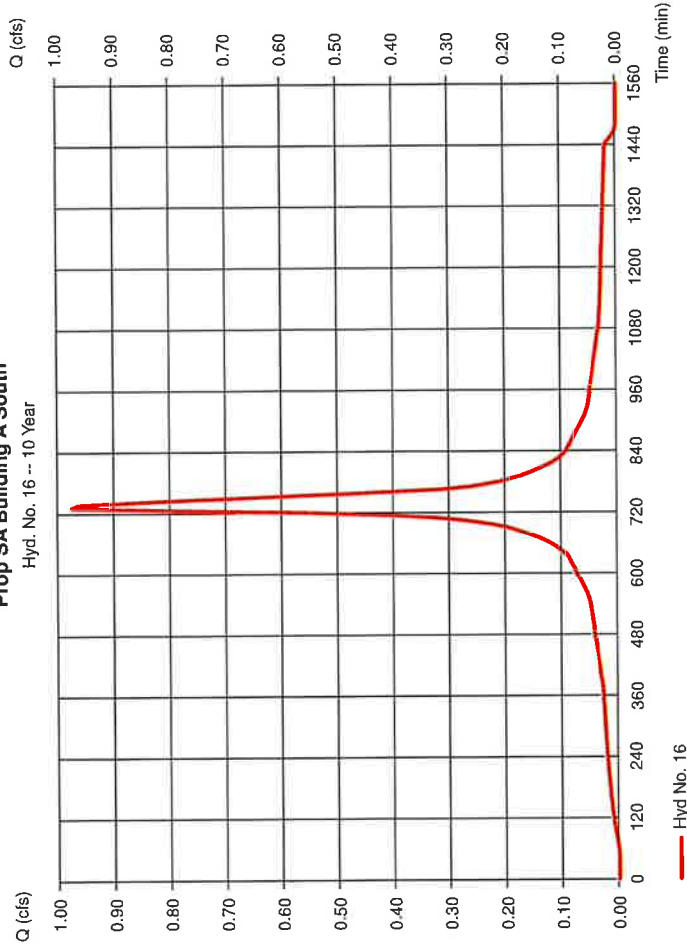
Prop SA Building A South

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 5.23 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.975 cfs
 Time to peak = 730 min
 Hyd. volume = 0.141 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Prop SA Building A South

Hyd. No. 16 -- 10 Year



Precipitation Report

Hydratlow/Hydrographs by intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 16

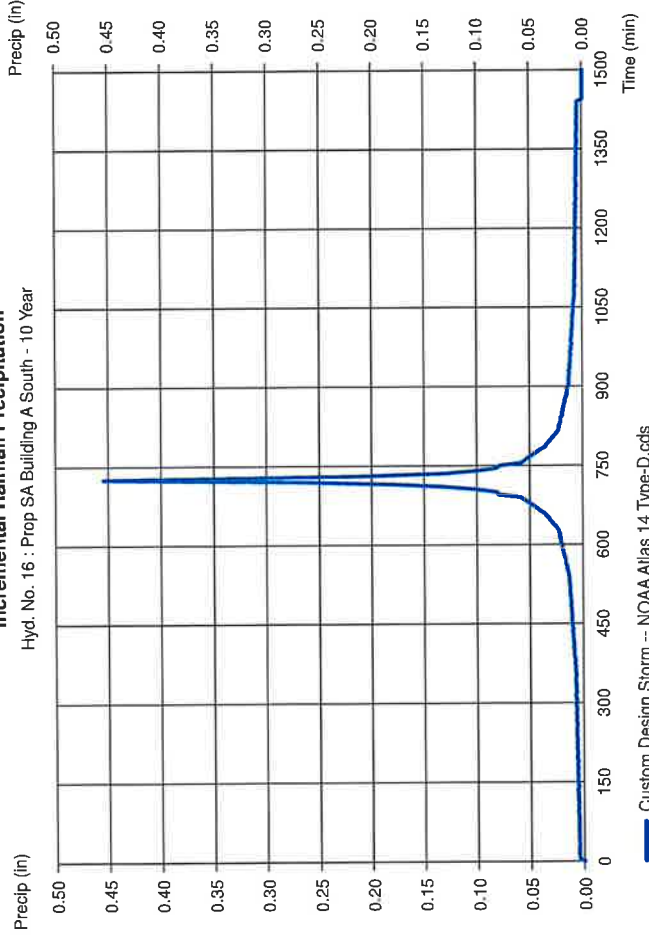
Prop SA Building A South

Storm Frequency = 10 yrs
 Total precip. = 5.2300 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Incremental Rainfall Precipitation

Hyd. No. 16 : Prop SA Building A South - 10 Year



Hydrograph Report

Hydrowall Hydrographs by Intellisolve v8.1

Thursday, Jun 24, 2021

Hyd. No. 17

Total To AG Basin North2

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyd. = 13, 14, 15, 16

Peak discharge = 4.244 cfs
 Time to peak = 730 min
 Hyd. volume = 0.625 acft
 Contrib. drain. area = 2.140 ac

Hydrograph Report

Hydrowall Hydrographs by Intellisolve v8.1

Thursday, Jun 24, 2021

Hyd. No. 18

PostRouteAGBasinNorth2

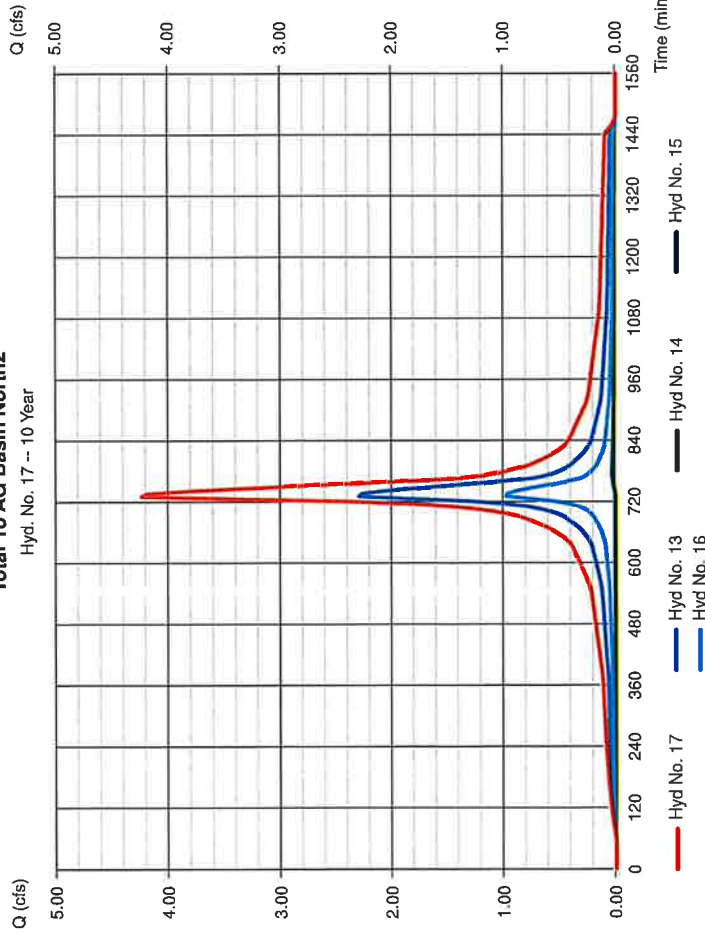
Hydrograph type = Reservoir
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyd. No. = 17 - Total To AG Basin North2
 Reservoir name = Prop. AG Basin North 2

Peak discharge = 0.044 cfs
 Time to peak = 1455 min
 Hyd. volume = 0.128 acft
 Max. Elevation = 125.97 ft
 Max. Storage = 0.600 acft

Storage Indication method used.

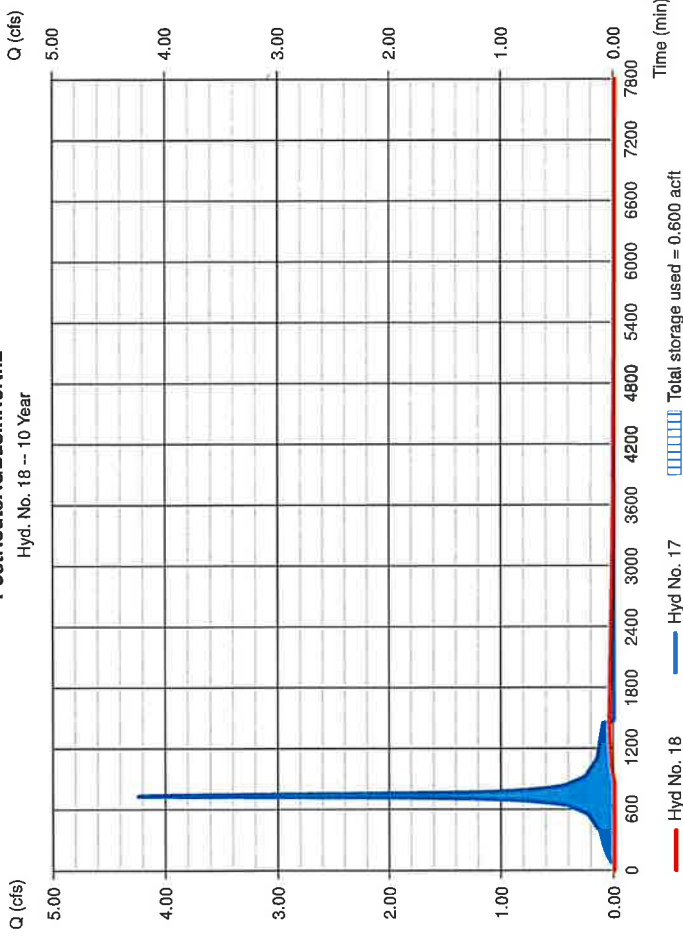
Total To AG Basin North2

Hyd. No. 17 -- 10 Year



PostRouteAGBasinNorth2

Hyd. No. 18 -- 10 Year



Hydrograph Report

Hydrallow Hydrographs by Intellisolve v6.1

Thursday, Jun 24, 2021

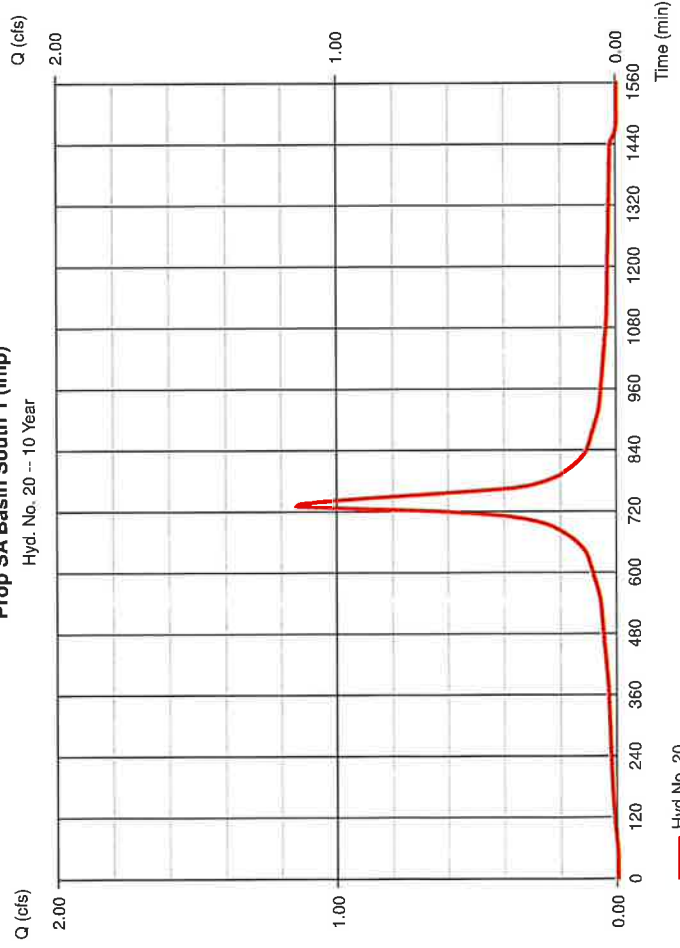
Hyd. No. 20

Prop SA Basin South 1 (Imp)

- Hydrograph type = SCS Runoff
- Storm frequency = 10 yrs
- Time interval = 5 min
- Drainage area = 0.400 ac
- Basin Slope = 0.0 %
- Tc method = USER
- Total precip. = 5.23 in
- Storm duration = NOAA Atlas 14 Type-D.ods
- Peak discharge = 1.147 cfs
- Time to peak = 730 min
- Hyd. volume = 0.165 acft
- Curve number = 98
- Hydraulic length = 0 ft
- Time of conc. (Tc) = 10.00 min
- Distribution = Custom
- Shape factor = 285

Prop SA Basin South 1 (Imp)

Hyd. No. 20 -- 10 Year



Precipitation Report

Hydrallow Hydrographs by Intellisolve v6.1

Thursday, Jun 24, 2021

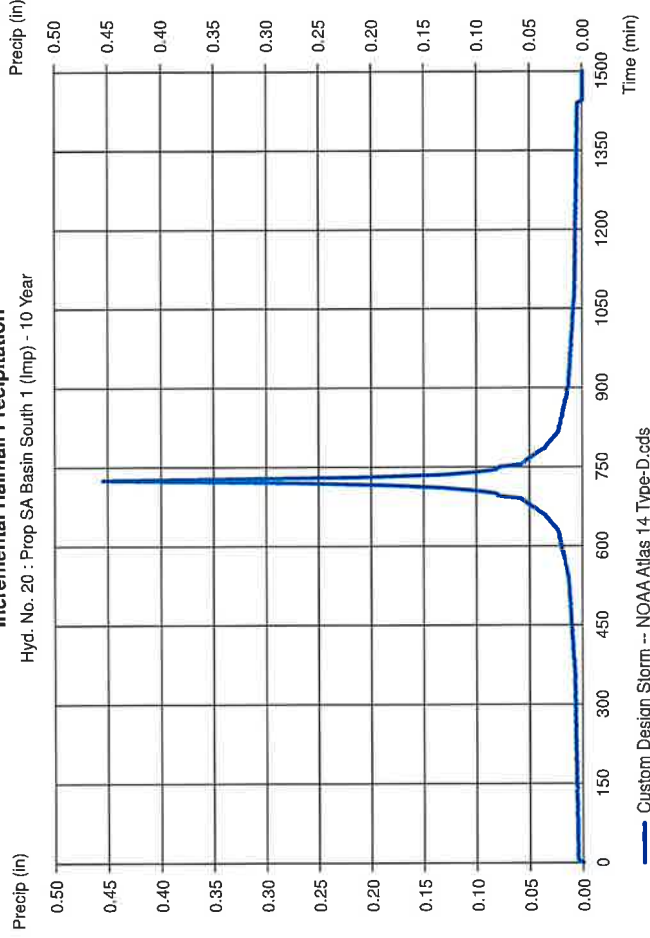
Hyd. No. 20

Prop SA Basin South 1 (Imp)

- Storm Frequency = 10 yrs
- Total precip. = 5.2300 in
- Storm duration = NOAA Atlas 14 Type-D.ods
- Time interval = 5 min
- Distribution = Custom

Incremental Rainfall Precipitation

Hyd. No. 20 : Prop SA Basin South 1 (Imp) - 10 Year



Hydrograph Report

Hydrow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

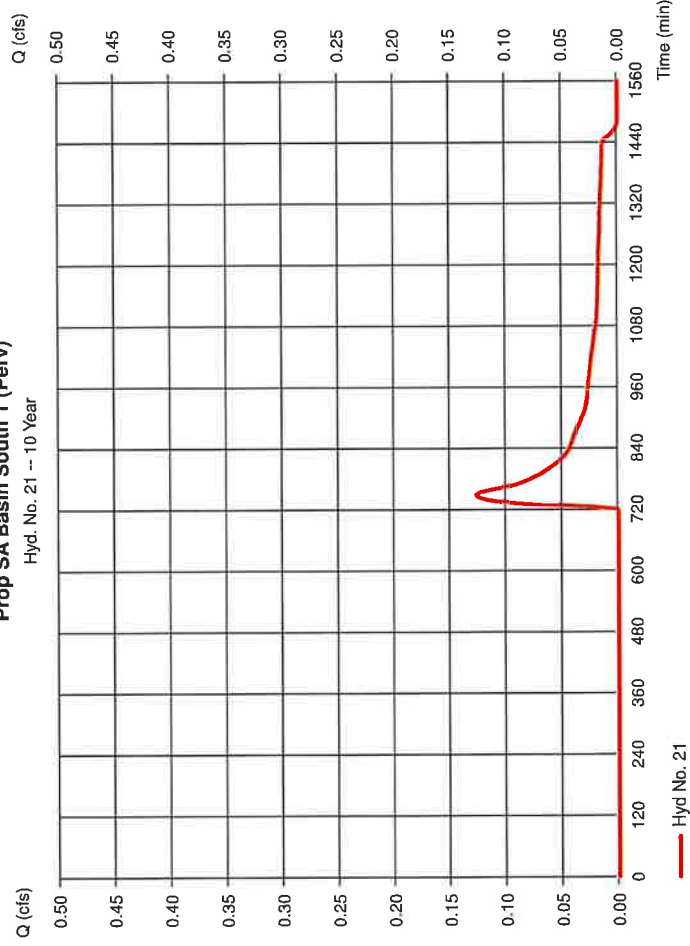
Hyd. No. 21

Prop SA Basin South 1 (Perv)

- Hydrograph type = SCS Runoff
- Storm frequency = 10 yrs
- Time interval = 5 min
- Drainage area = 0.650 ac
- Basin Slope = 0.0 %
- Tc method = USER
- Total precip. = 5.23 in
- Storm duration = NOAA Atlas 14 Type-D.ods
- Peak discharge = 0.127 cfs
- Time to peak = 750 min
- Hyd. volume = 0.031 acft
- Curve number = 46
- Hydraulic length = 0 ft
- Time of conc. (Tc) = 10.00 min
- Distribution = Custom
- Shape factor = 285

Prop SA Basin South 1 (Perv)

Hyd. No. 21 -- 10 Year



Precipitation Report

Hydrow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

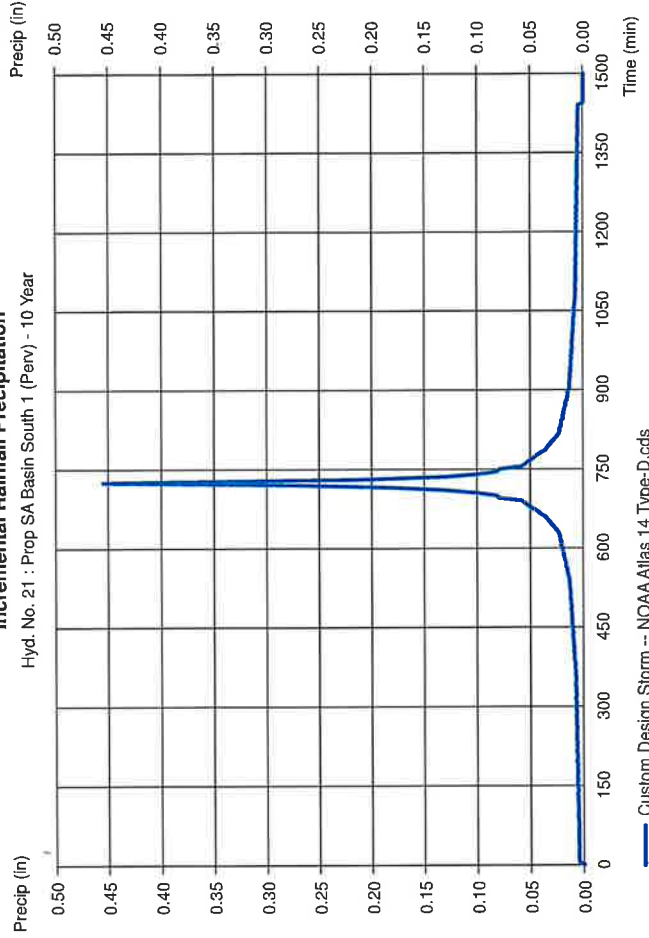
Hyd. No. 21

Prop SA Basin South 1 (Perv)

- Storm Frequency = 10 yrs
- Total precip. = 5.2300 in
- Storm duration = NOAA Atlas 14 Type-D.ods
- Time interval = 5 min
- Distribution = Custom

Incremental Rainfall Precipitation

Hyd. No. 21 : Prop SA Basin South 1 (Perv) - 10 Year



Hydrograph Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

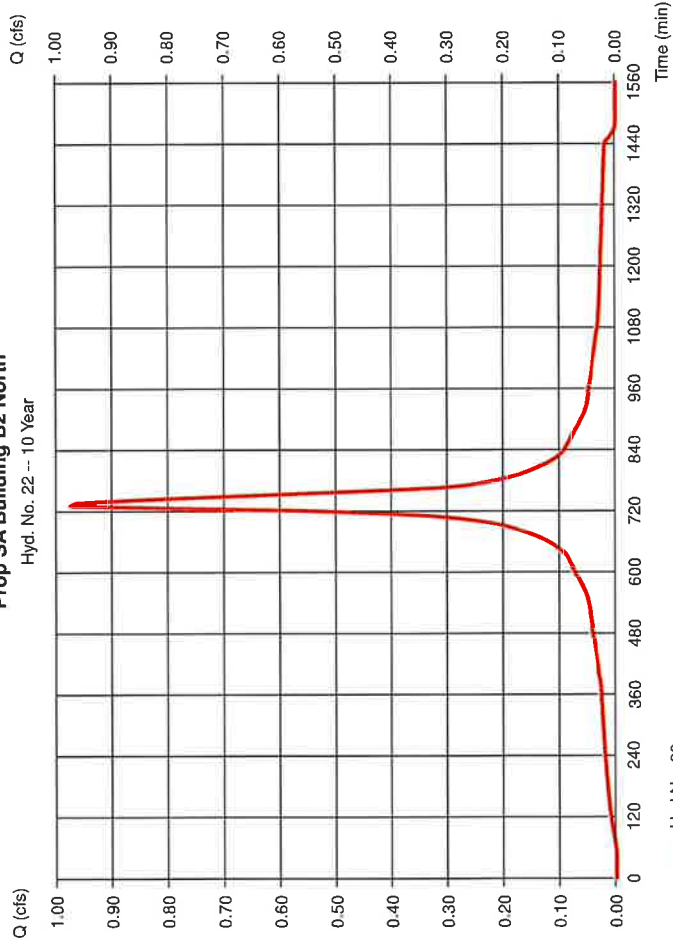
Hyd. No. 22

Prop SA Building B2 North

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.975 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	5 min	Hyd. volume	=	0.141 acft
Drainage area	=	0.340 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.23 in	Distribution	=	Custom
Storm duration	=	NOAA Atlas 14 Type-D.cds	Shape factor	=	285

Prop SA Building B2 North

Hyd. No. 22 -- 10 Year



Precipitation Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

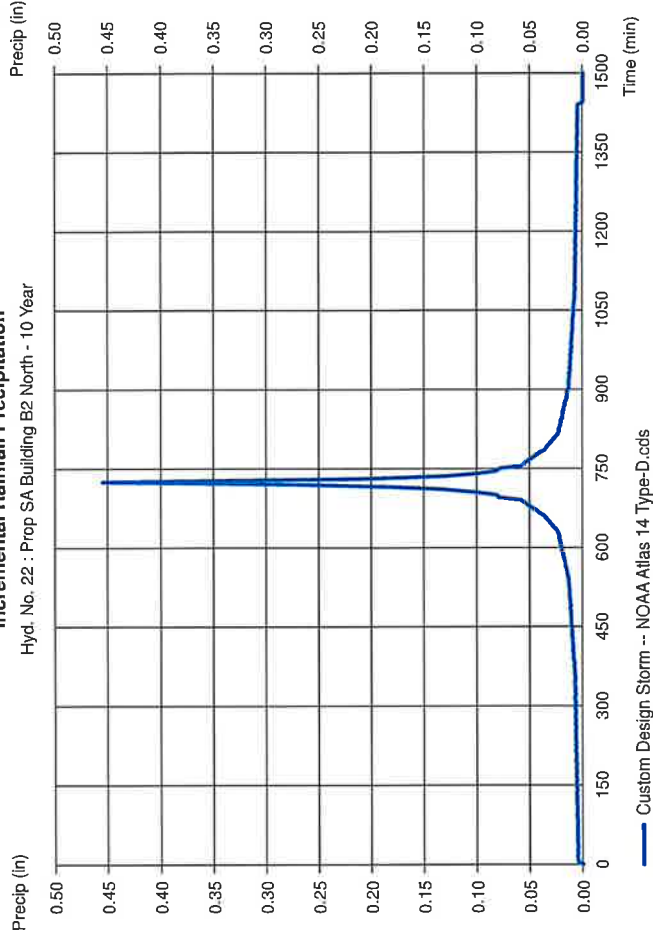
Hyd. No. 22

Prop SA Building B2 North

Storm Frequency	=	10 yrs	Time interval	=	5 min
Total precip.	=	5.2300 in	Distribution	=	Custom
Storm duration	=	NOAA Atlas 14 Type-D.cds			

Incremental Rainfall Precipitation

Hyd. No. 22 : Prop SA Building B2 North - 10 Year



Hydrograph Report

Hydrflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

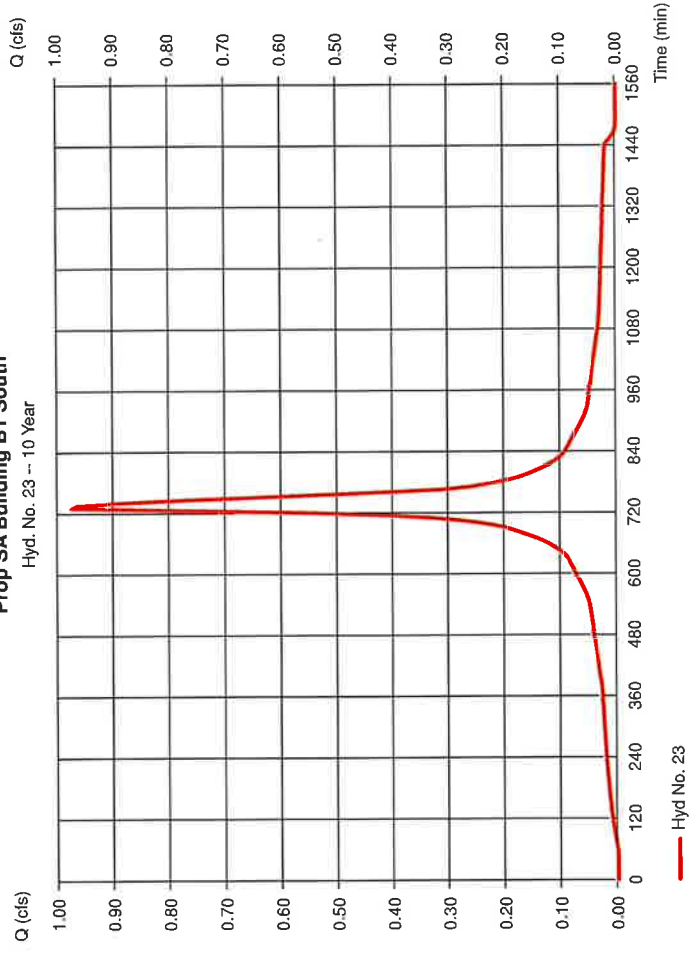
Hyd. No. 23

Prop SA Building B1 South

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.975 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	5 min	Hyd. volume	=	0.141 acft
Drainage area	=	0.340 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.23 in	Distribution	=	Custom
Storm duration	=	NOAA Atlas 14 Type-D.cds	Shape factor	=	285

Prop SA Building B1 South

Hyd. No. 23 -- 10 Year



Precipitation Report

Hydrflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

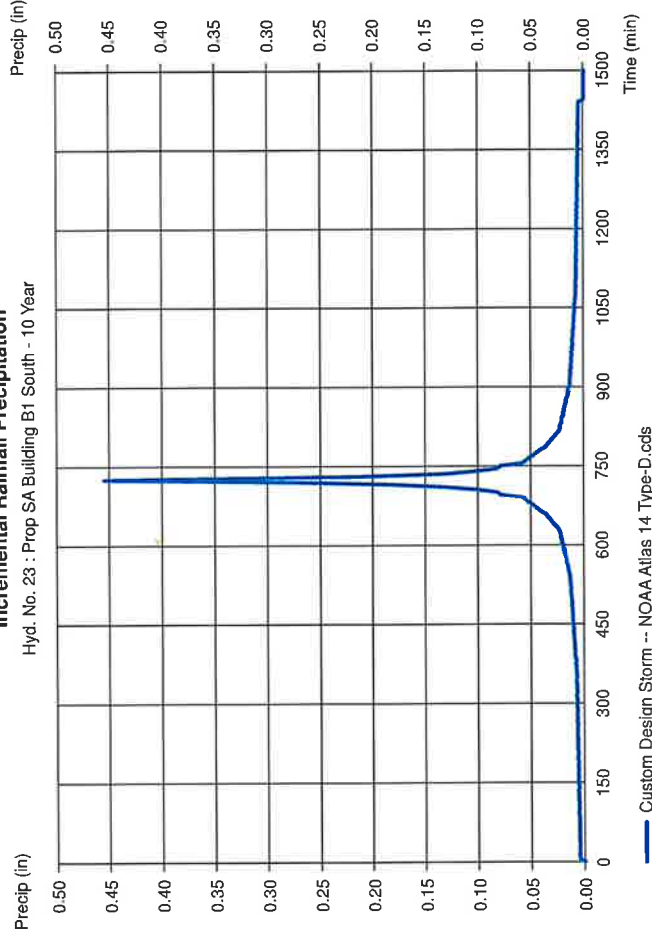
Hyd. No. 23

Prop SA Building B1 South

Storm Frequency	=	10 yrs	Time interval	=	5 min
Total precip.	=	5.2300 in	Distribution	=	Custom
Storm duration	=	NOAA Atlas 14 Type-D.cds			

Incremental Rainfall Precipitation

Hyd. No. 23 : Prop SA Building B1 South - 10 Year



Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

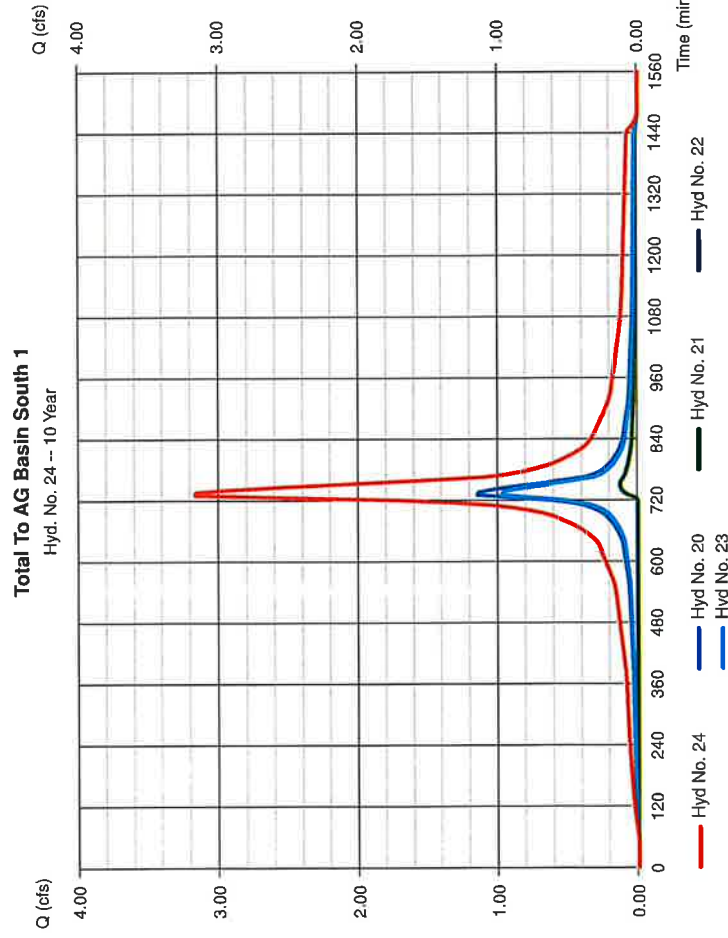
Thursday, Jun 24, 2021

Hyd. No. 24

Total To AG Basin South 1

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyds. = 20, 21, 22, 23

Peak discharge = 3.168 cfs
 Time to peak = 730 min
 Hyd. volume = 0.477 acft
 Contrib. drain. area = 1.730 ac



Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

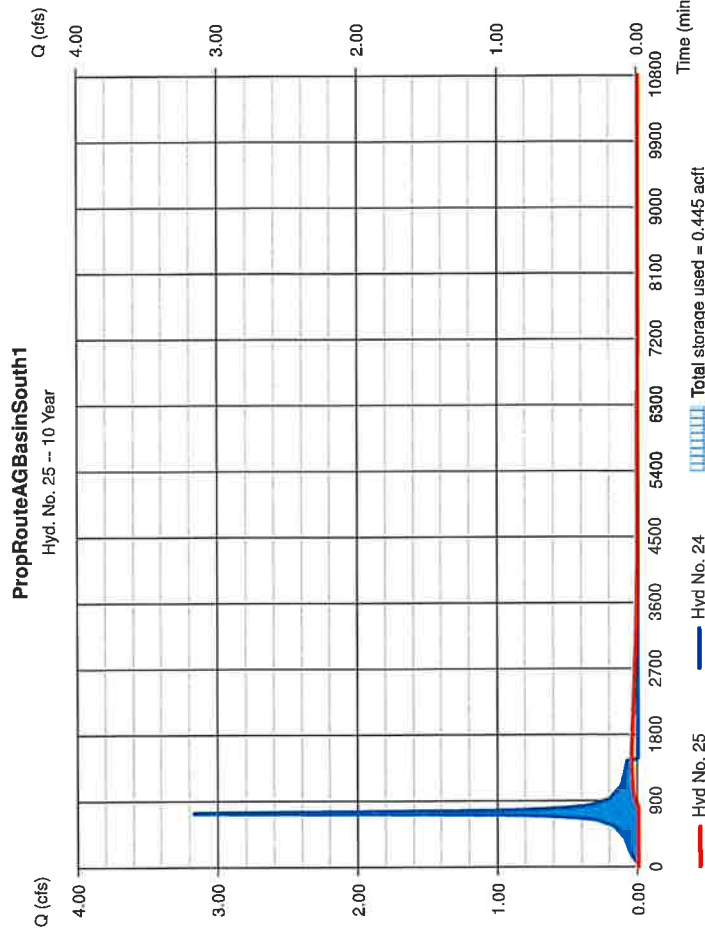
Hyd. No. 25

PropRouteAGBasinSouth1

Hydrograph type = Reservoir
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyd. No. = 24 - Total To AG Basin South 1
 Reservoir name = Prop AG Basin South 1

Peak discharge = 0.048 cfs
 Time to peak = 1450 min
 Hyd. volume = 0.135 acft
 Max. Elevation = 123.68 ft
 Max. Storage = 0.445 acft

Storage indication method used.



Hydrograph Report

Hydrallow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

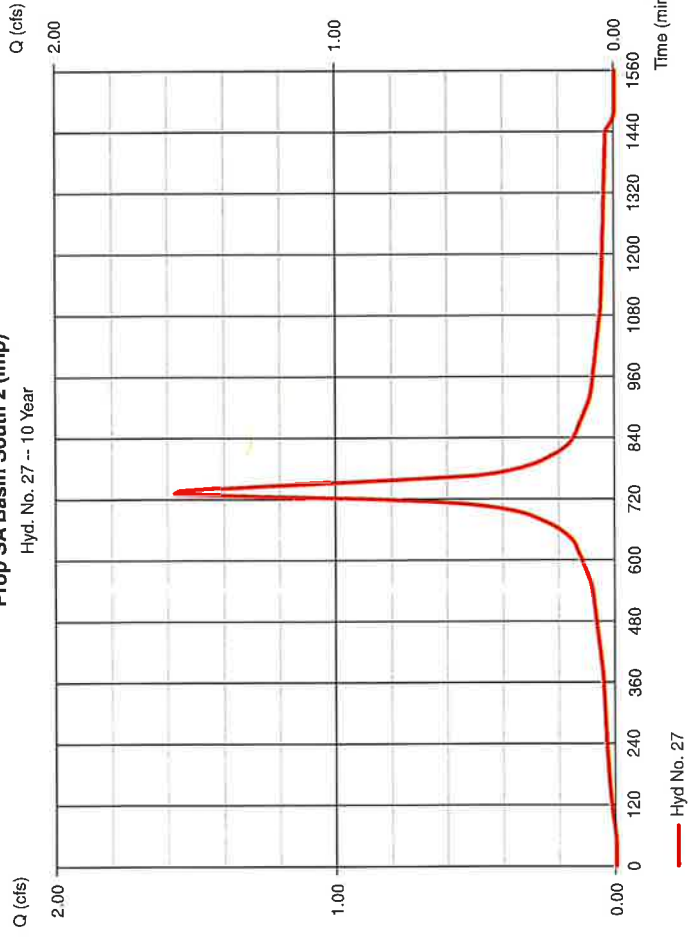
Hyd. No. 27

Prop SA Basin South 2 (Imp)
 Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 5 min
 Drainage area = 0.550 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 5.23 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 1.577 cfs
 Time to peak = 730 min
 Hyd. volume = 0.227 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Prop SA Basin South 2 (Imp)

Hyd. No. 27 -- 10 Year



Precipitation Report

Hydrallow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

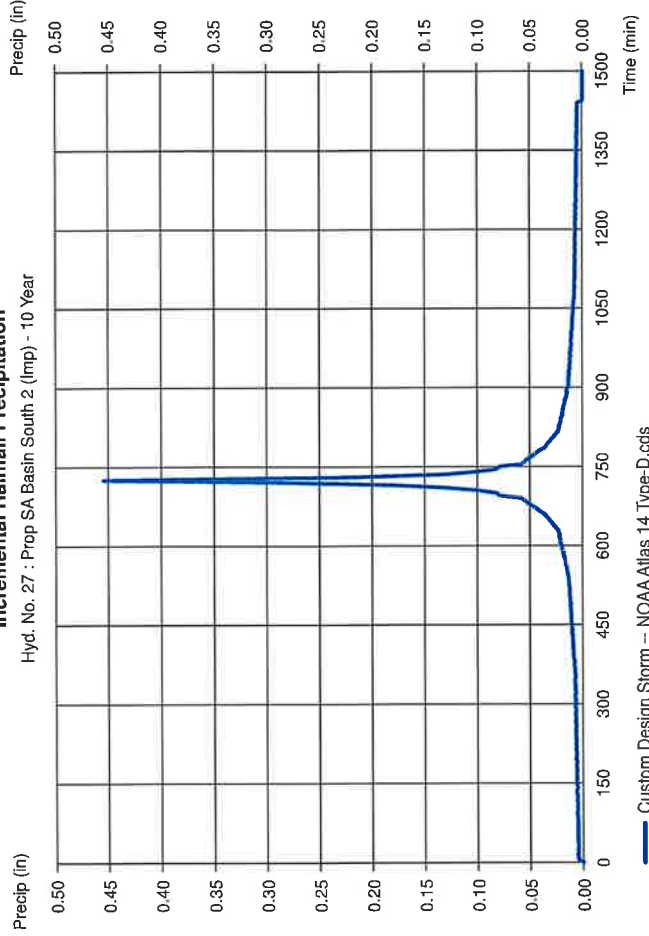
Hyd. No. 27

Prop SA Basin South 2 (Imp)
 Storm Frequency = 10 yrs
 Total precip. = 5.2300 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Incremental Rainfall Precipitation

Hyd. No. 27 : Prop SA Basin South 2 (Imp) - 10 Year



Hydrograph Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 28

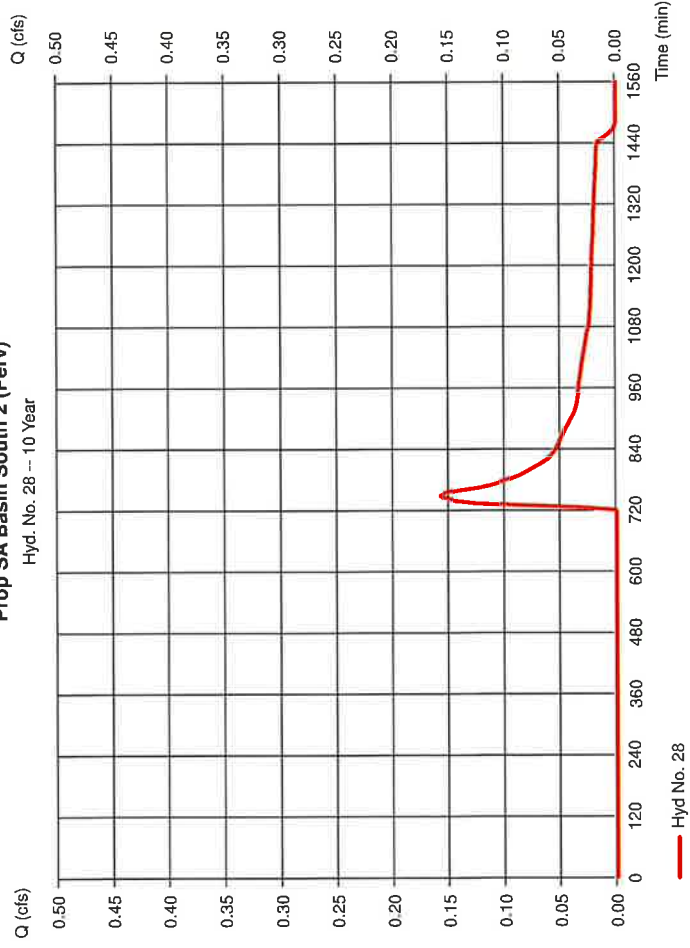
Prop SA Basin South 2 (Perv)

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 5 min
 Drainage area = 0.810 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 5.23 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.158 cfs
 Time to peak = 750 min
 Hyd. volume = 0.038 acft
 Curve number = 46
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Prop SA Basin South 2 (Perv)

Hyd. No. 28 -- 10 Year



Precipitation Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 28

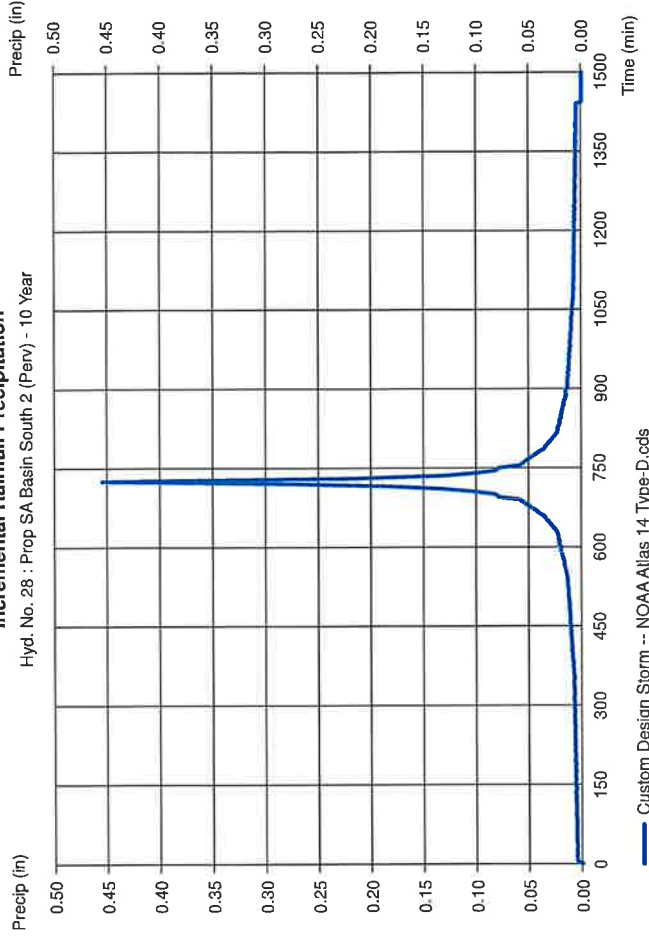
Prop SA Basin South 2 (Perv)

Storm Frequency = 10 yrs
 Total precip. = 5.2300 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Incremental Rainfall Precipitation

Hyd. No. 28 : Prop SA Basin South 2 (Perv) - 10 Year



Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

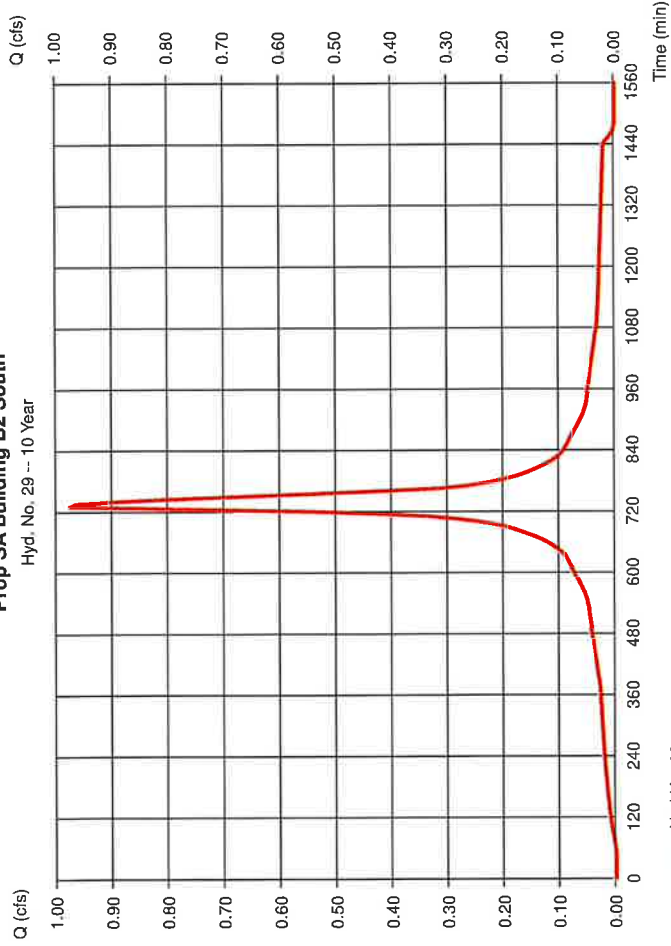
Hyd. No. 29

Prop SA Building B2 South

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.975 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	5 min	Hyd. volume	=	0.141 acft
Drainage area	=	0.340 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.23 in	Distribution	=	Custom
Storm duration	=	NOAA Atlas 14 Type-D.ods	Shape factor	=	285

Prop SA Building B2 South

Hyd. No. 29 -- 10 Year



Precipitation Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

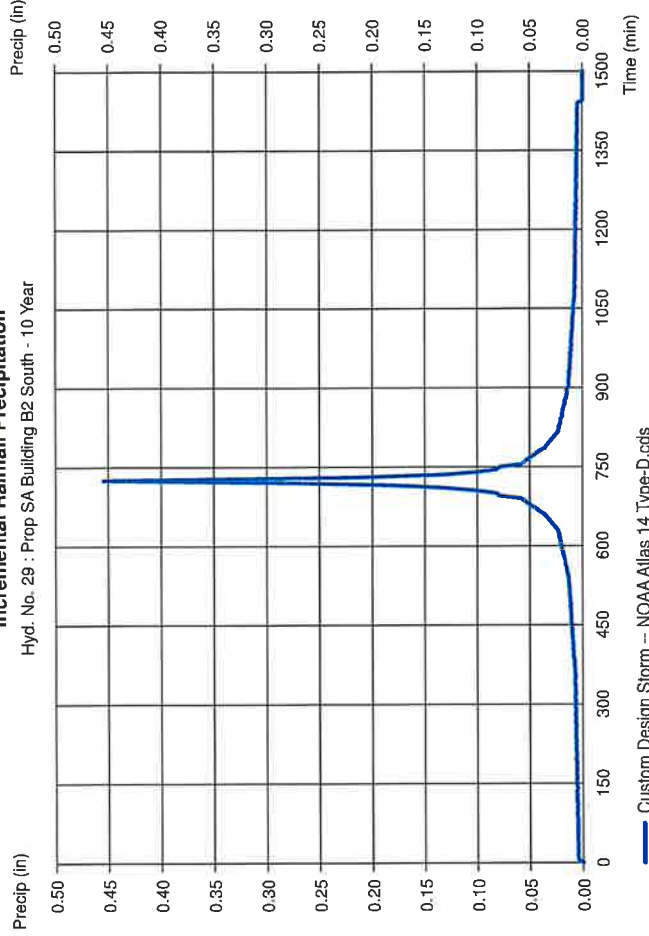
Hyd. No. 29

Prop SA Building B2 South

Storm Frequency	=	10 yrs	Time interval	=	5 min
Total precip.	=	5.2300 in	Distribution	=	Custom
Storm duration	=	NOAA Atlas 14 Type-D.ods			

Incremental Rainfall Precipitation

Hyd. No. 29 : Prop SA Building B2 South - 10 Year



Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 30

Total To AG Basin South2

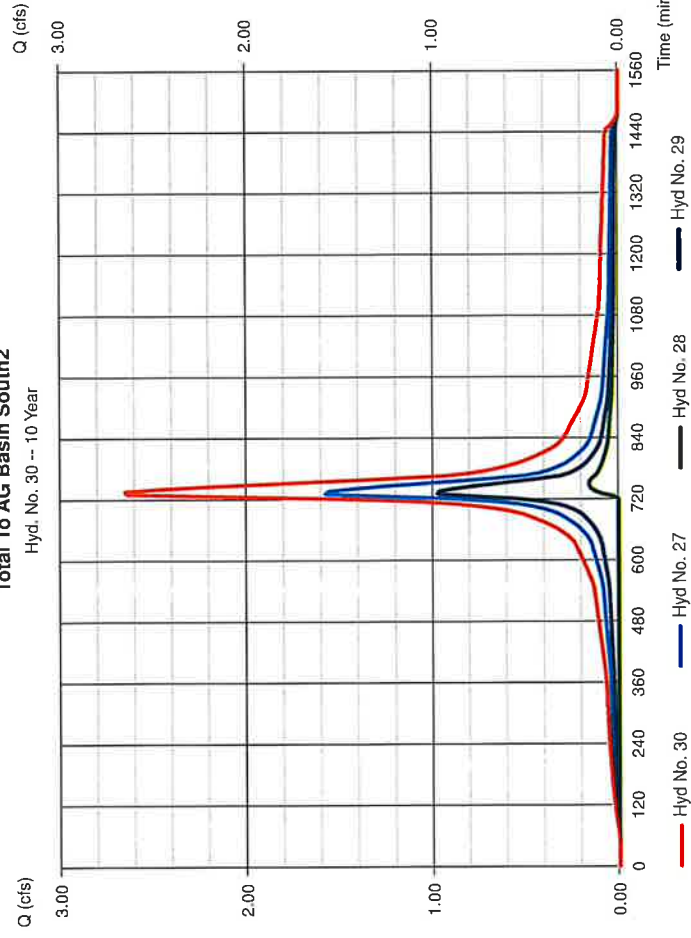
Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyds. = 27, 28, 29

Peak discharge = 2.652 cfs
 Time to peak = 735 min
 Hyd. volume = 0.406 acft
 Contrib. drain. area = 1.700 ac

Storage Indication method used.

Total To AG Basin South2

Hyd. No. 30 -- 10 Year



Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 31

PropRouteAGBasinSouth2

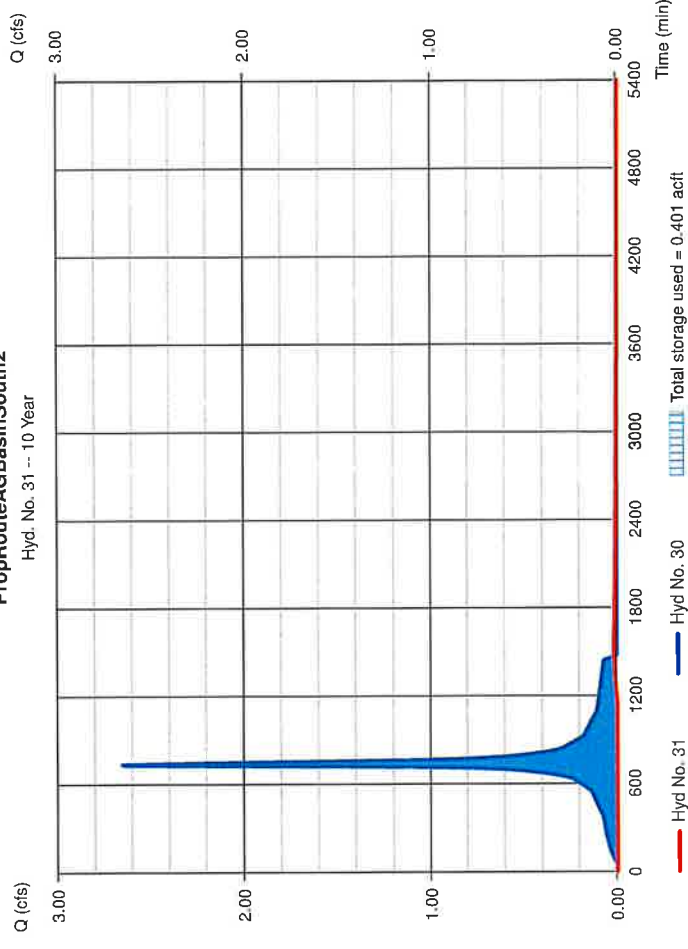
Hydrograph type = Reservoir
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyd. No. = 30 - Total To AG Basin South2
 Reservoir name = Prop. AG Basin South 2

Peak discharge = 0.018 cfs
 Time to peak = 1460 min
 Hyd. volume = 0.033 acft
 Max. Elevation = 122.03 ft
 Max. Storage = 0.401 acft

Storage Indication method used.

PropRouteAGBasinSouth2

Hyd. No. 31 -- 10 Year



Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

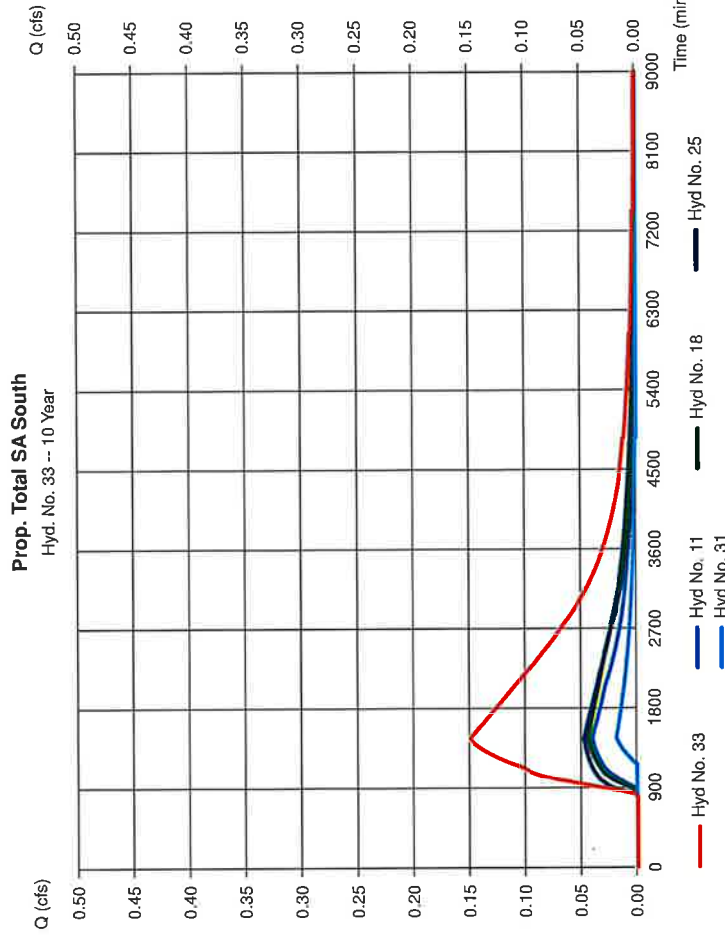
Thursday, Jun 24, 2021

Hyd. No. 33

Prop. Total SA South

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyds. = 11, 18, 25, 31

Peak discharge = 0.150 cfs
 Time to peak = 1455 min
 Hyd. volume = 0.390 acft
 Contrib. drain. area = 0.000 ac



Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

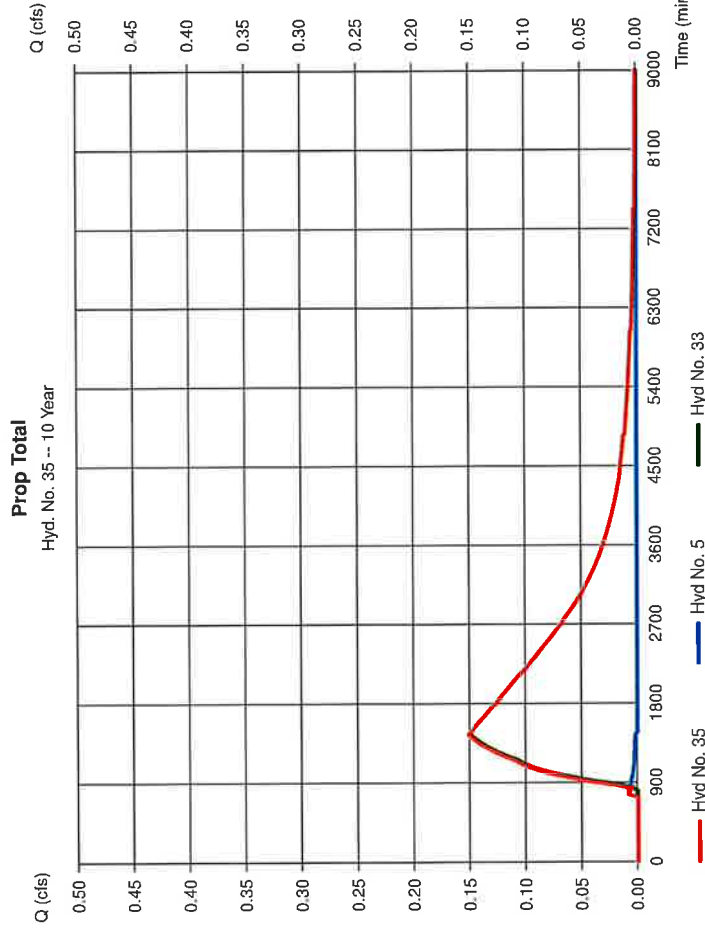
Thursday, Jun 24, 2021

Hyd. No. 35

Prop Total

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyds. = 5, 33

Peak discharge = 0.152 cfs
 Time to peak = 1445 min
 Hyd. volume = 0.394 acft
 Contrib. drain. area = 0.200 ac



Hydrograph Summary Report

Hydratlow Hydrographs by Inletisolve v9.1

Hyd. No.	Hydrograph type (origin)	Peak flow type (cfs)	Time Interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow Hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description
1	SCS Runoff	0.616	5	740	0.140				Ex Study Area North (Total)
2	SCS Runoff	4.013	5	740	0.756				Ex Study Area South (Total)
3	Combine	4.929	5	740	0.896	1, 2			Ex Total
5	SCS Runoff	0.169	5	745	0.026				Prop SA Undealined North (Total)
7	SCS Runoff	3.691	5	730	0.540				Prop SA Basin North 1 (Imp)
8	SCS Runoff	0.671	5	740	0.115				Prop SA Basin North 1 (Perv)
9	SCS Runoff	1.673	5	730	0.245				Prop SA Building A North
10	Combine	5.957	5	735	0.900	7, 8, 9			TotalToBasinNorth1
11	Reservoir	0.337	5	985	0.524	10	126.78	0.672	PropRouteAGBasinNorth1
13	SCS Runoff	3.837	5	730	0.576				Prop SA Basin North 2 (Imp)
14	SCS Runoff	0.503	5	740	0.086				Prop SA Basin North 2 (Perv)
15	SCS Runoff	1.673	5	730	0.245				Prop SA Building B1 North
16	SCS Runoff	1.673	5	730	0.245				Prop SA Building A South
17	Combine	7.701	5	730	1.152	13, 14, 15, 16			Total To AG Basin North2
18	Reservoir	1.013	5	615	0.655	17	126.58	0.793	PostRouteAGBasinNorth2
20	SCS Runoff	1.968	5	730	0.288				Prop SA Basin South 1 (Imp)
21	SCS Runoff	0.892	5	735	0.128				Prop SA Basin South 1 (Perv)
22	SCS Runoff	1.673	5	730	0.245				Prop SA Building B2 North
23	SCS Runoff	1.673	5	730	0.245				Prop SA Building B1 South
24	Combine	6.150	5	735	0.905	20, 21, 22, 23			Total To AG Basin South 1
25	Reservoir	1.073	5	800	0.553	24	124.24	0.585	PropRouteAGBasinSouth1
27	SCS Runoff	2.707	5	730	0.396				Prop SA Basin South 2 (Imp)
28	SCS Runoff	1.112	5	735	0.159				Prop SA Basin South 2 (Perv)
29	SCS Runoff	1.673	5	730	0.245				Prop SA Building B2 South
30	Combine	5.445	5	735	0.800	27, 28, 29			Total To AG Basin South2
31	Reservoir	1.152	5	790	0.427	30	122.36	0.489	PropRouteAGBasinSouth2
33	Combine	3.392	5	805	2.170	11, 18, 25, 31,			Prop. Total SA South
35	Combine	3.435	5	805	2.196	5, 33,			Prop Total

2021-06-22:ExProp2,10,25,100YR.gpw

Return Period: 100 Year

Thursday, Jun 24, 2021

Hydrograph Report

Hydratlow Hydrographs by Inletisolve v9.1

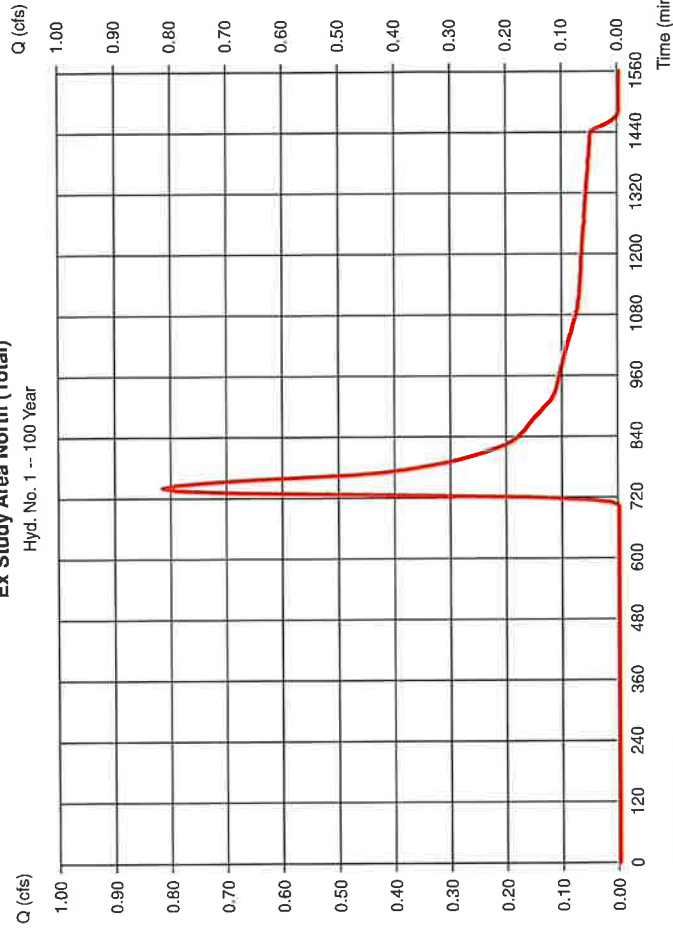
Hyd. No. 1

Ex Study Area North (Total)

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 1.070 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 8.94 in
 Storm duration = NOAA Atlas 14 Type-D.cds
 Peak discharge = 0.816 cfs
 Time to peak = 740 min
 Hyd. volume = 0.140 acft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.60 min
 Distribution = Custom
 Shape factor = 285

Ex Study Area North (Total)

Hyd. No. 1 -- 100 Year



Hyd No. 1

Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 1

Ex Study Area North (Total)

Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

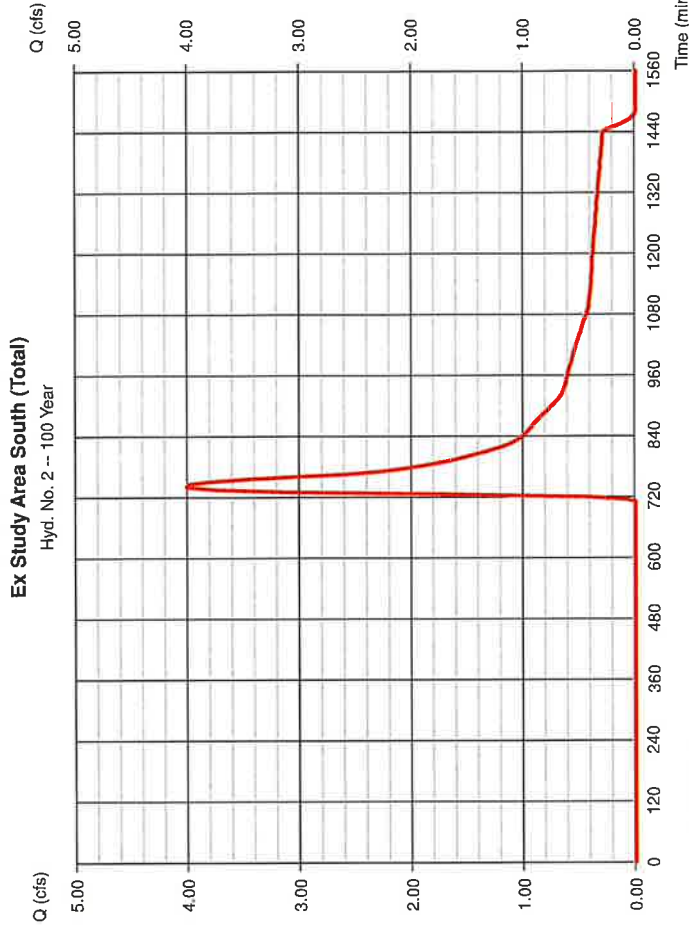
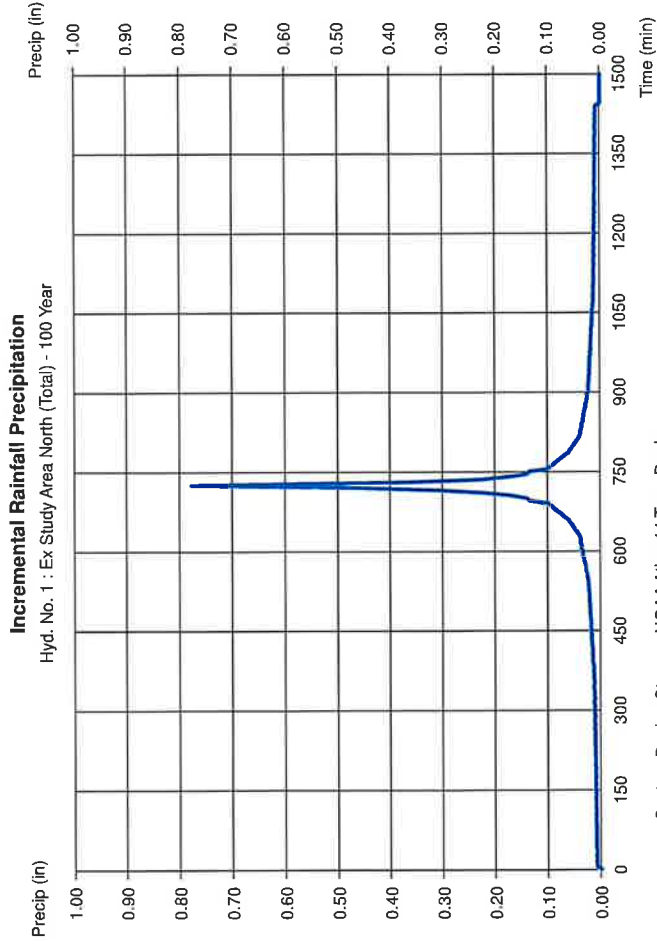
Hydralow Hydrographs by Intellisolve v9.1

Hyd. No. 2

Ex Study Area South (Total)

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 6.730 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 8.94 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 4.013 cfs
 Time to peak = 740 min
 Hyd. volume = 0.756 acft
 Curve number = 37
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 14.00 min
 Distribution = Custom
 Shape factor = 285



— Custom Design Storm -- NOAA Atlas 14 Type-D.cds

— Hyd. No. 2

Precipitation Report

Hydralow Hydrographs by Intellisolve v8.1

Thursday, Jun 24, 2021

Hyd. No. 2

Ex Study Area South (Total)

Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

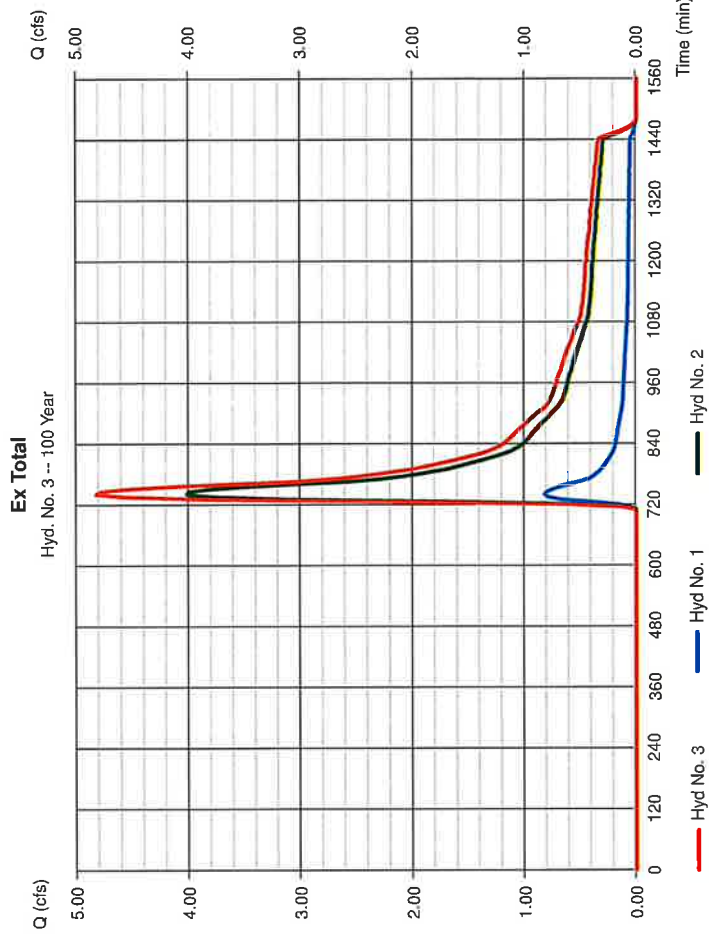
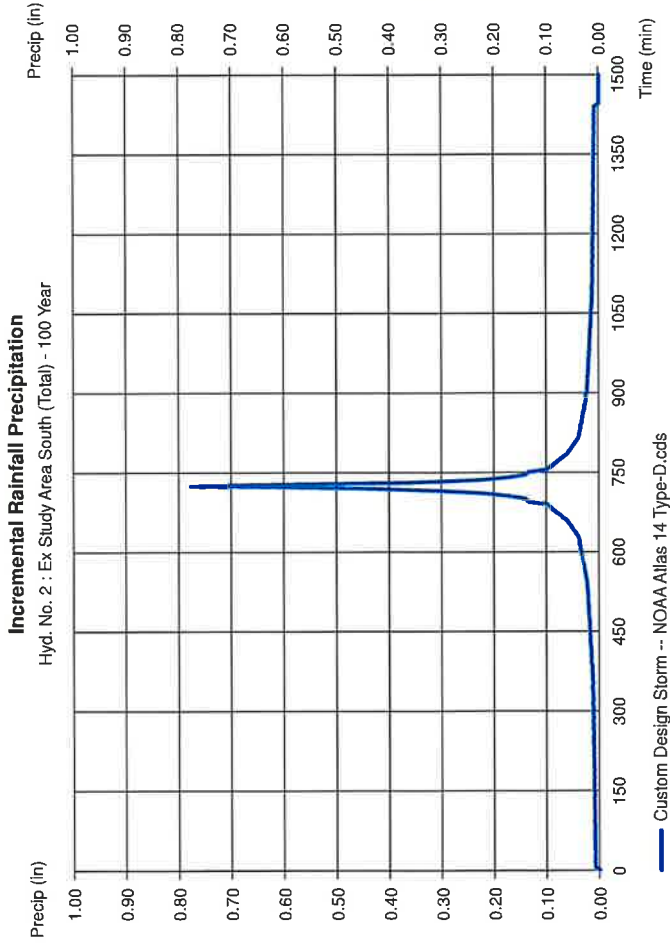
Thursday, Jun 24, 2021

Hyd. No. 3

Ex Total

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Time interval = 5 min
 Inflow hyds. = 1, 2

Peak discharge = 4.829 cfs
 Time to peak = 740 min
 Hyd. volume = 0.896 acft
 Contrib. drain. area = 7.800 ac



Hydrograph Report

Hydrflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

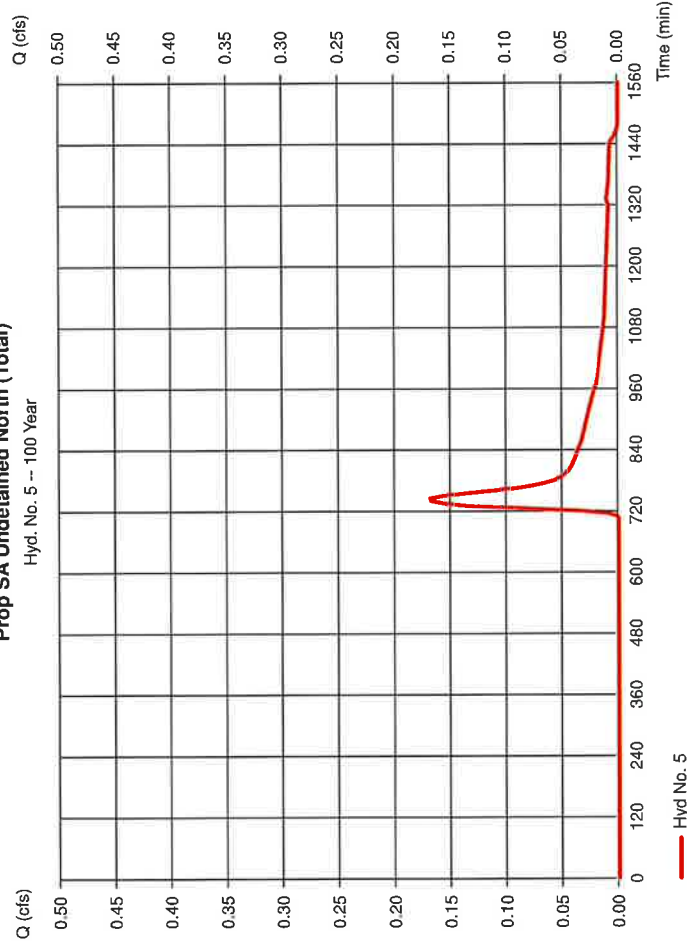
Hyd. No. 5

Prop SA Undetained North (Total)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.169 cfs
Storm frequency	=	100 yrs	Time to peak	=	745 min
Time interval	=	5 min	Hyd. volume	=	0.026 acft
Drainage area	=	0.200 ac	Curve number	=	39
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	8.94 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	285

Prop SA Undetained North (Total)

Hyd. No. 5 -- 100 Year



Hydrograph Report

Hydrflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

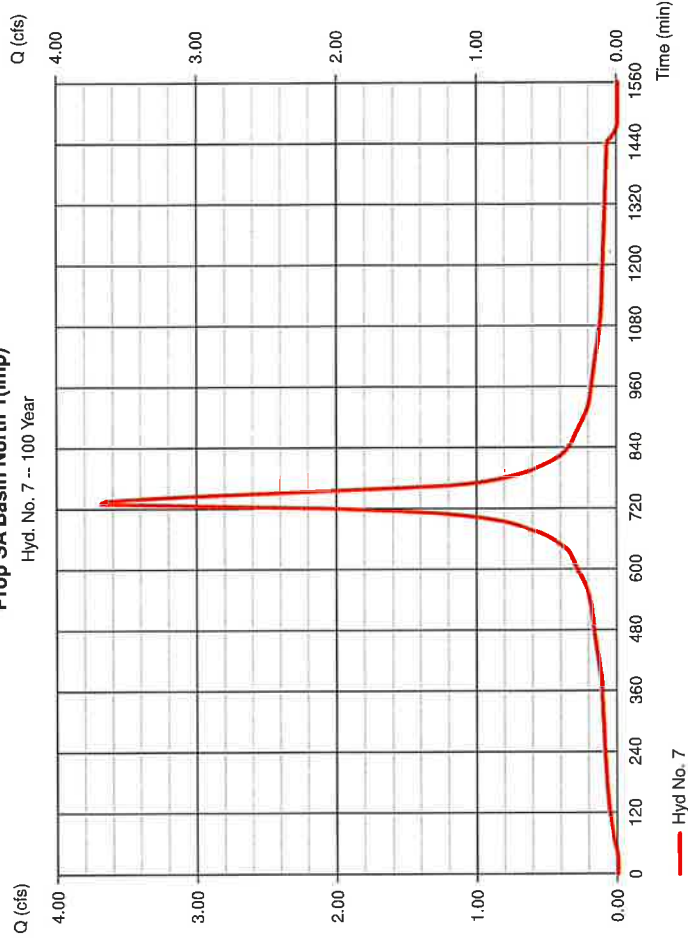
Hyd. No. 7

Prop SA Basin North 1 (Imp)

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.691 cfs
Storm frequency	=	100 yrs	Time to peak	=	730 min
Time interval	=	5 min	Hyd. volume	=	0.540 acft
Drainage area	=	0.750 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	8.94 in	Distribution	=	Custom
Storm duration	=	NOAA Atlas 14 Type-D.cds	Shape factor	=	285

Prop SA Basin North 1 (Imp)

Hyd. No. 7 -- 100 Year



Precipitation Report

Hydrallow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 7

Prop SA Basin North 1(lmp)

Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydrallow Hydrographs by Intellisolve v9.1

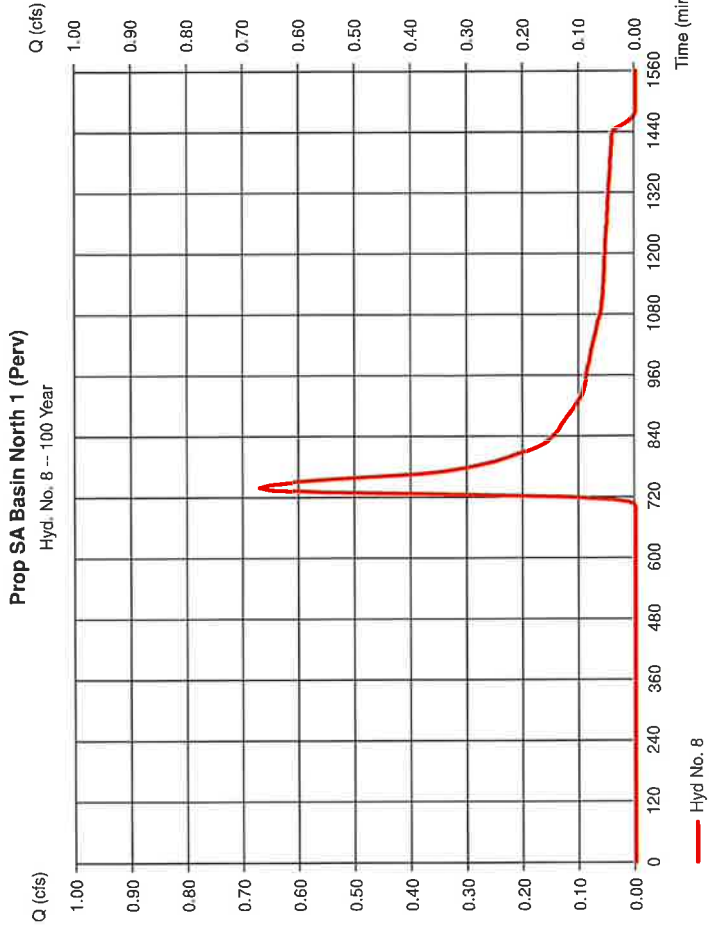
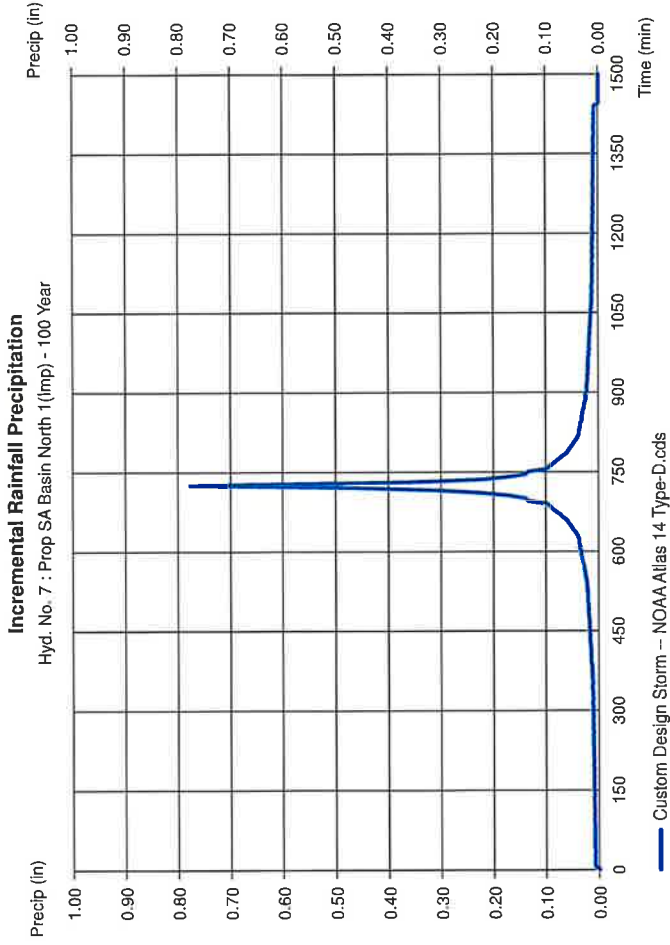
Thursday, Jun 24, 2021

Hyd. No. 8

Prop SA Basin North 1 (Perv)

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 0.880 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 8.94 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.671 cfs
 Time to peak = 740 min
 Hyd. volume = 0.115 acft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydralow Hydrographs by Intellisolve v6.1

Thursday, Jun 24, 2021

Hyd. No. 8

Prop SA Basin North 1 (Perv)

Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 9

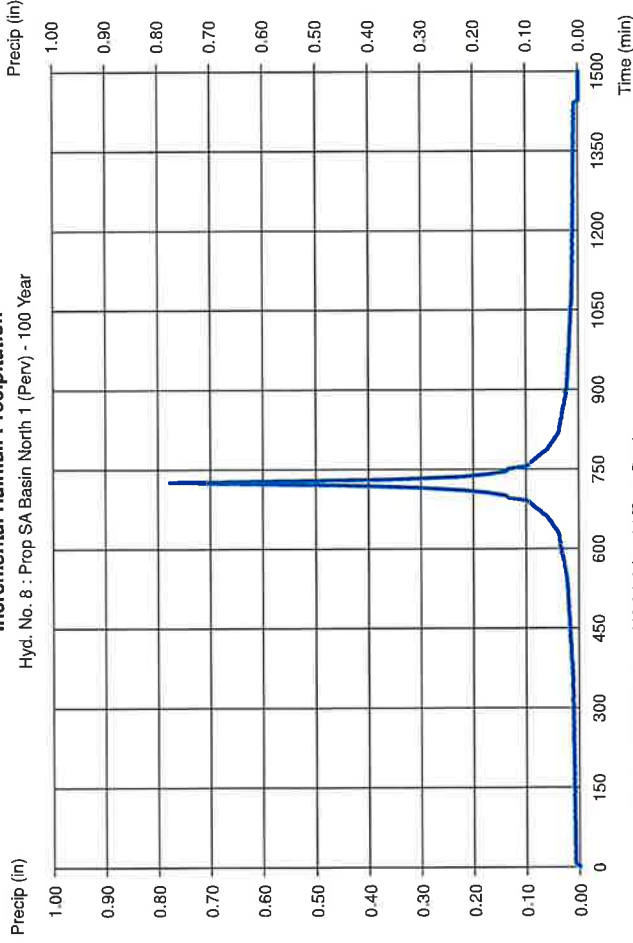
Prop SA Building A North

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 8.94 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 1.673 cfs
 Time to peak = 730 min
 Hyd. volume = 0.245 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Incremental Rainfall Precipitation

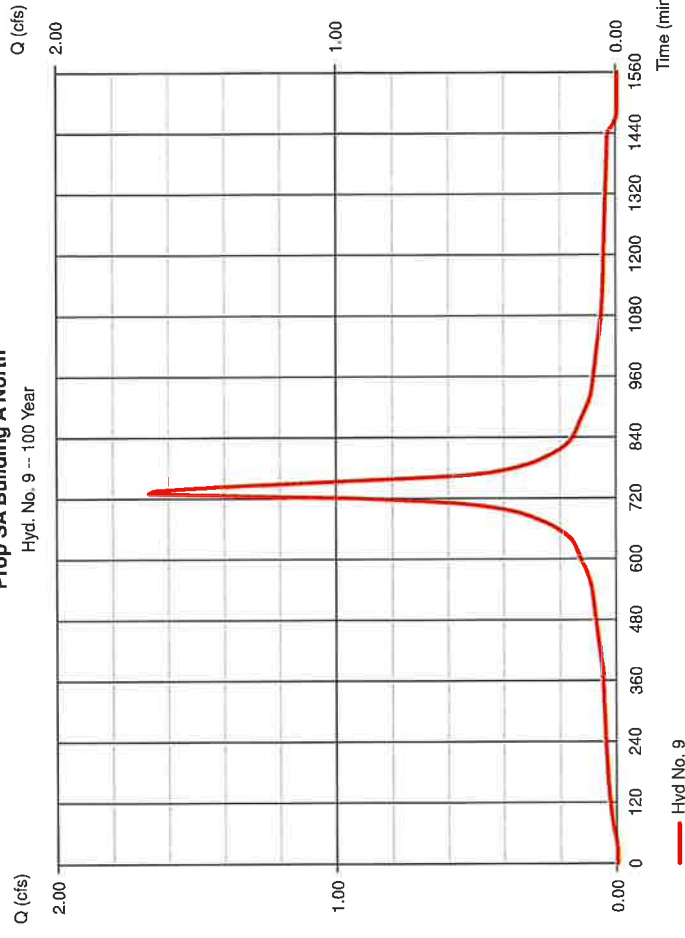
Hyd. No. 8 : Prop SA Basin North 1 (Perv) - 100 Year



— Custom Design Storm -- NOAA Atlas 14 Type-D.cds

Prop SA Building A North

Hyd. No. 9 -- 100 Year



— Hyd No. 9

Precipitation Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 9

Prop SA Building A North

Storm Frequency = 100 yrs
Total precip. = 8.9400 in
Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
Distribution = Custom

Hydrograph Report

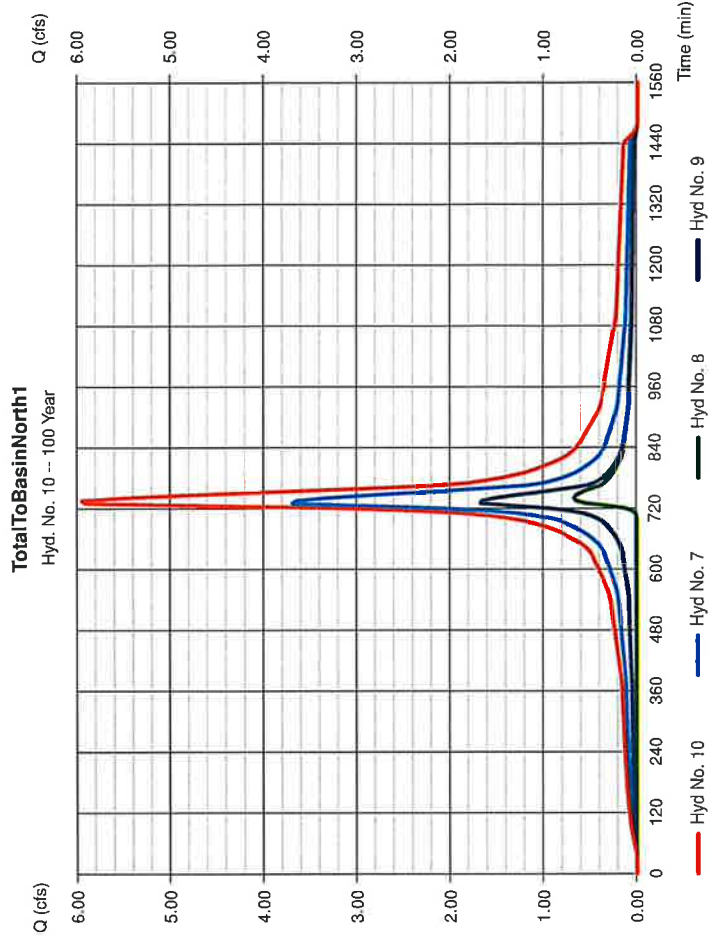
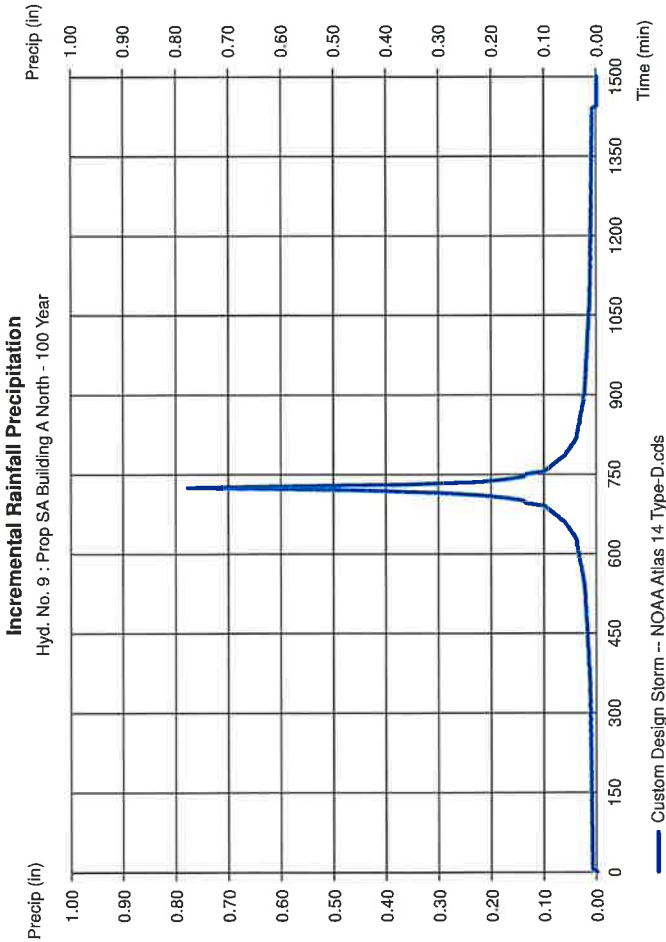
Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 10

TotalToBasinNorth1

Hydrograph type = Combine
Storm frequency = 100 yrs
Time interval = 5 min
Inflow hyds. = 7, 8, 9
Peak discharge = 5.957 cfs
Time to peak = 735 min
Hyd. volume = 0.900 acft
Contrib. drain. area = 1.970 ac



Hydrograph Report

Hydratlow Hydrographs by InletSolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 11

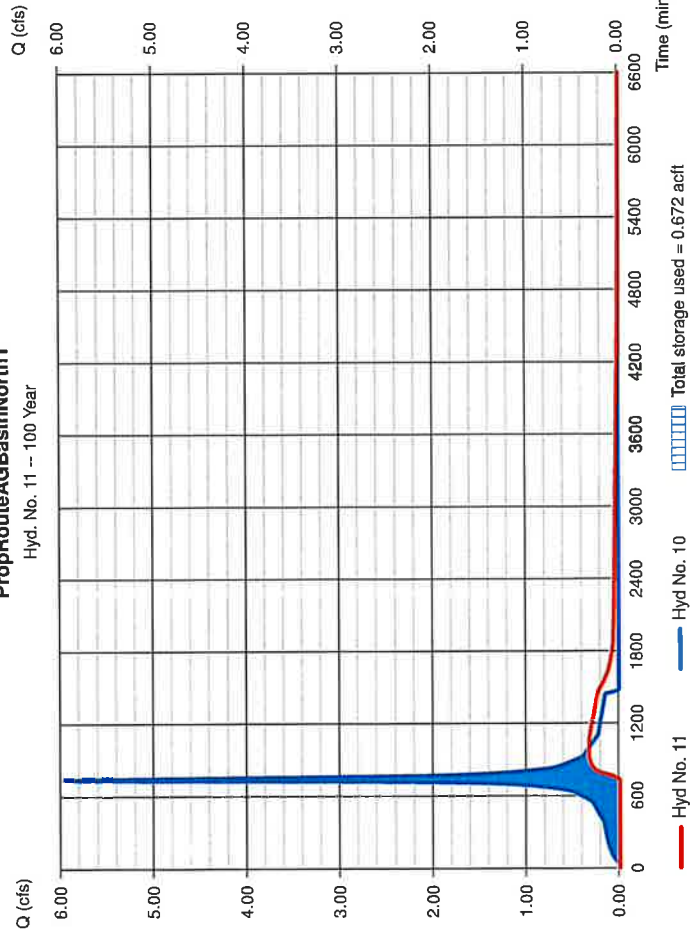
PropRouteAGBasinNorth1

Hydrograph type	= Reservoir	Peak discharge	= 0.337 cfs
Storm frequency	= 100 yrs	Time to peak	= 985 min
Time interval	= 5 min	Hyd. volume	= 0.524 acft
Inflow hyd. No.	= 10 - TotalToBasinNorth1	Max. Elevation	= 126.78 ft
Reservoir name	= Prop AG Basin North 1	Max. Storage	= 0.672 acft

Storage indication method used.

PropRouteAGBasinNorth1

Hyd. No. 11 -- 100 Year



Hydrograph Report

Hydratlow Hydrographs by InletSolve v9.1

Thursday, Jun 24, 2021

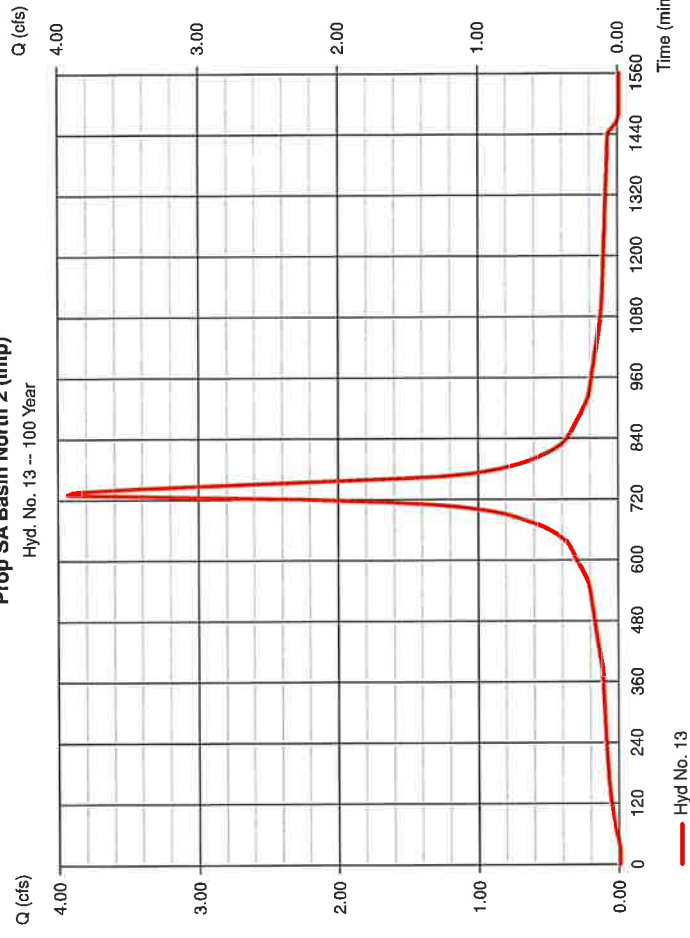
Hyd. No. 13

Prop SA Basin North 2 (Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 3.937 cfs
Storm frequency	= 100 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.576 acft
Drainage area	= 0.800 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 8.94 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Prop SA Basin North 2 (Imp)

Hyd. No. 13 -- 100 Year



Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 13

Prop SA Basin North 2 (Imp)

Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

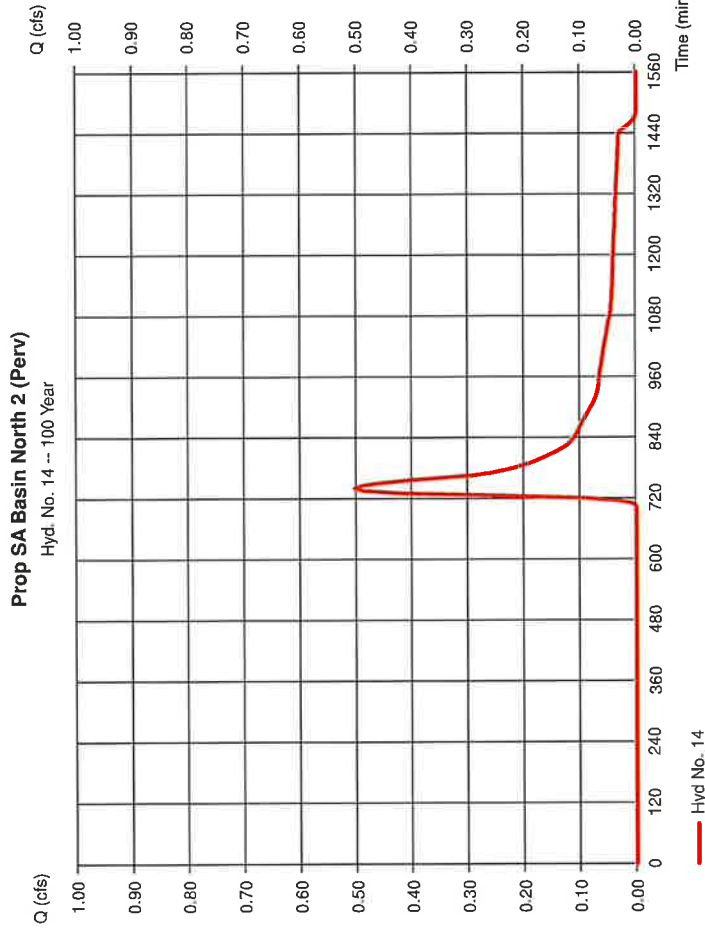
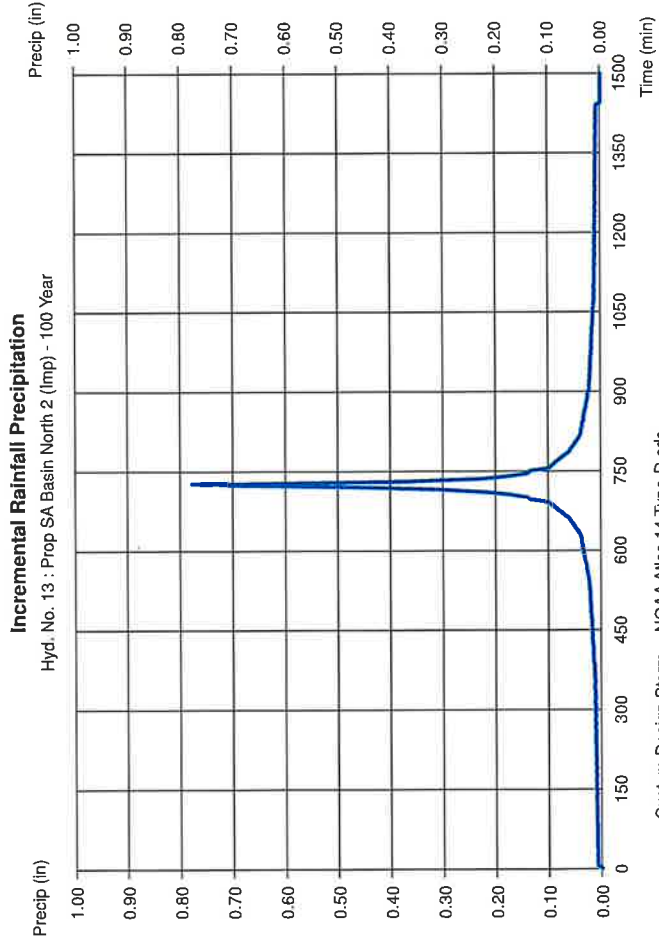
Thursday, Jun 24, 2021

Hyd. No. 14

Prop SA Basin North 2 (Perv)

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 0.660 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 8.94 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.503 cfs
 Time to peak = 740 min
 Hyd. volume = 0.086 acft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 14

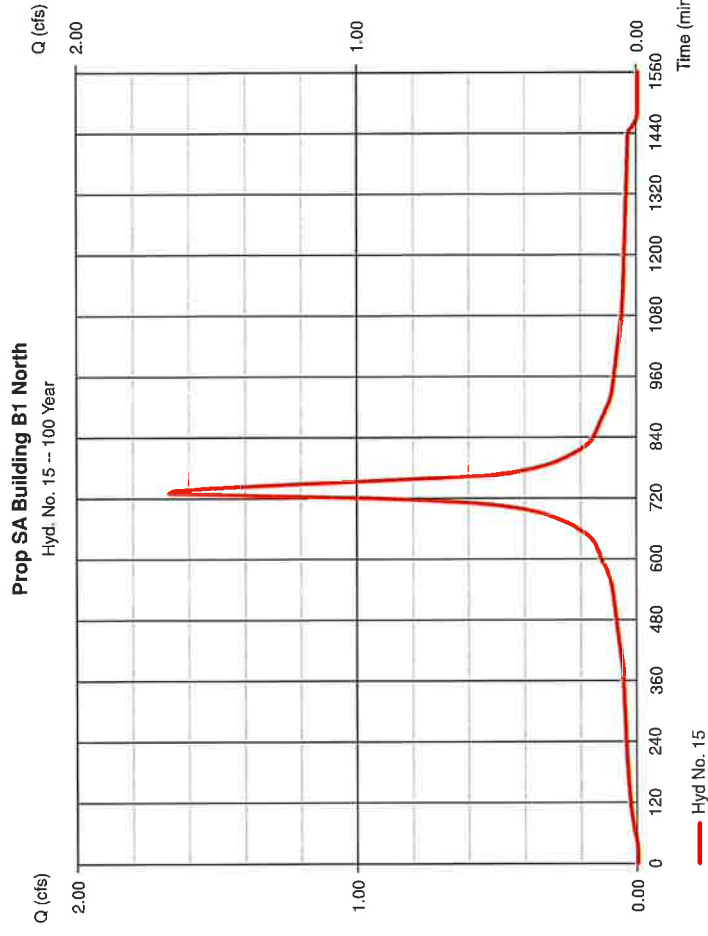
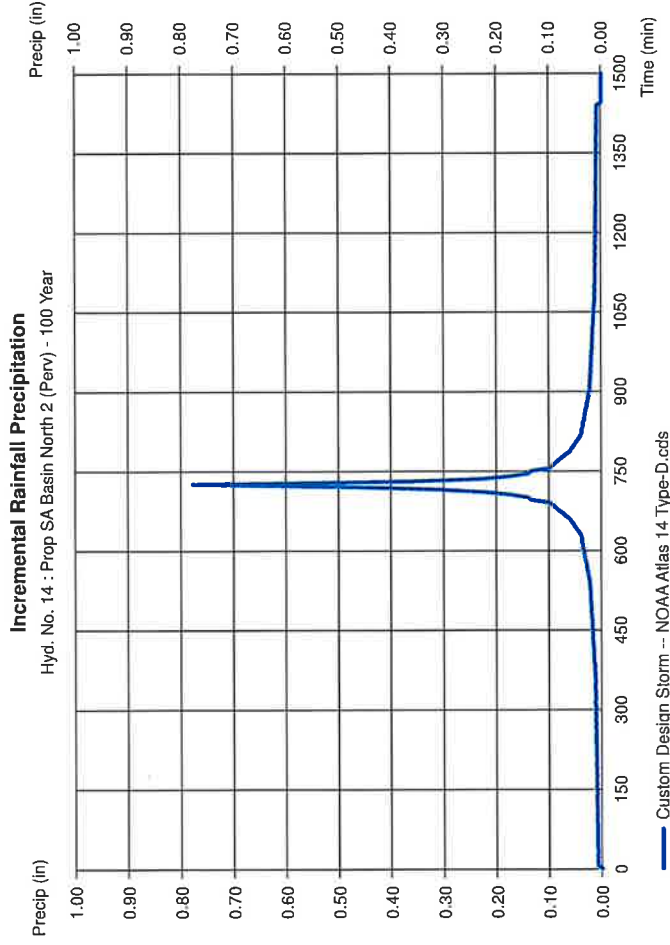
Prop SA Basin North 2 (Perv)
 Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds
 Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 15

Prop SA Building B1 North
 Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 8.94 in
 Storm duration = NOAA Atlas 14 Type-D.cds
 Peak discharge = 1.673 cfs
 Time to peak = 730 min
 Hyd. volume = 0.245 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydrowall Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 15

Prop SA Building B1 North

Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydrowall Hydrographs by Intellisolve v9.1

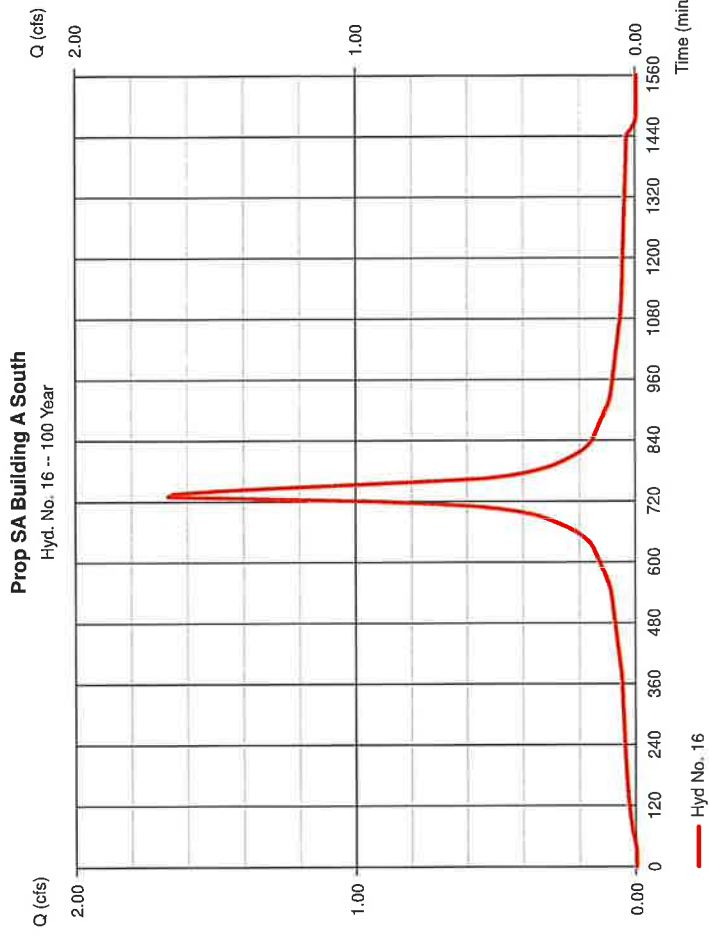
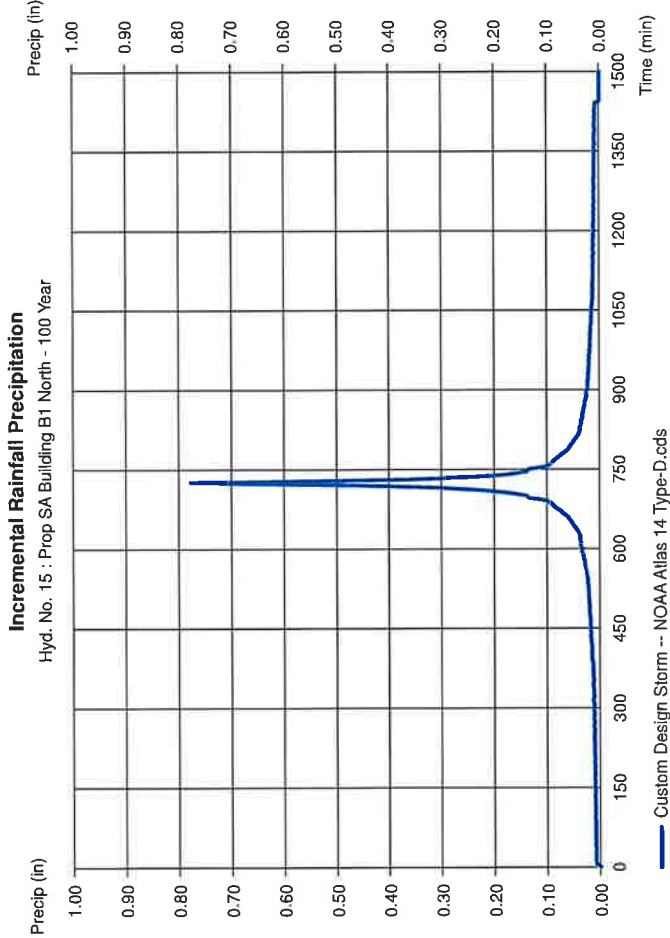
Thursday, Jun 24, 2021

Hyd. No. 16

Prop SA Building A South

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 8.94 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 1.673 cfs
 Time to peak = 730 min
 Hyd. volume = 0.245 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydrow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 16

Prop SA Building A South

Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydrow Hydrographs by Intellisolve v9.1

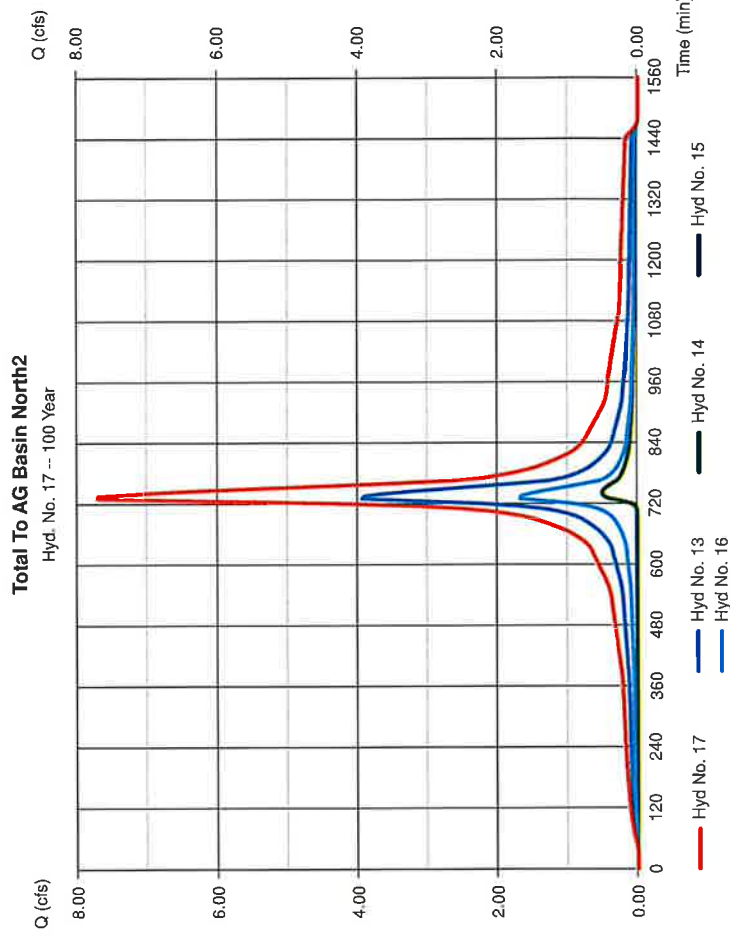
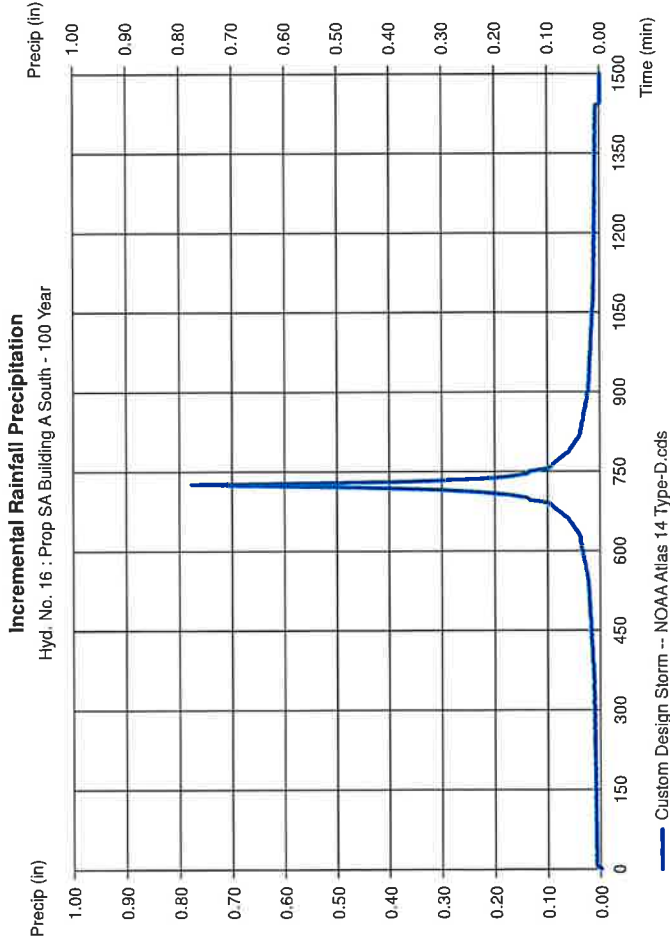
Thursday, Jun 24, 2021

Hyd. No. 17

Total To AG Basin North2

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Time interval = 5 min
 Inflow hyds. = 13, 14, 15, 16

Peak discharge = 7.701 cfs
 Time to peak = 730 min
 Hyd. volume = 1.152 acft
 Contrib. drain. area = 2.140 ac



Hydrograph Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 18

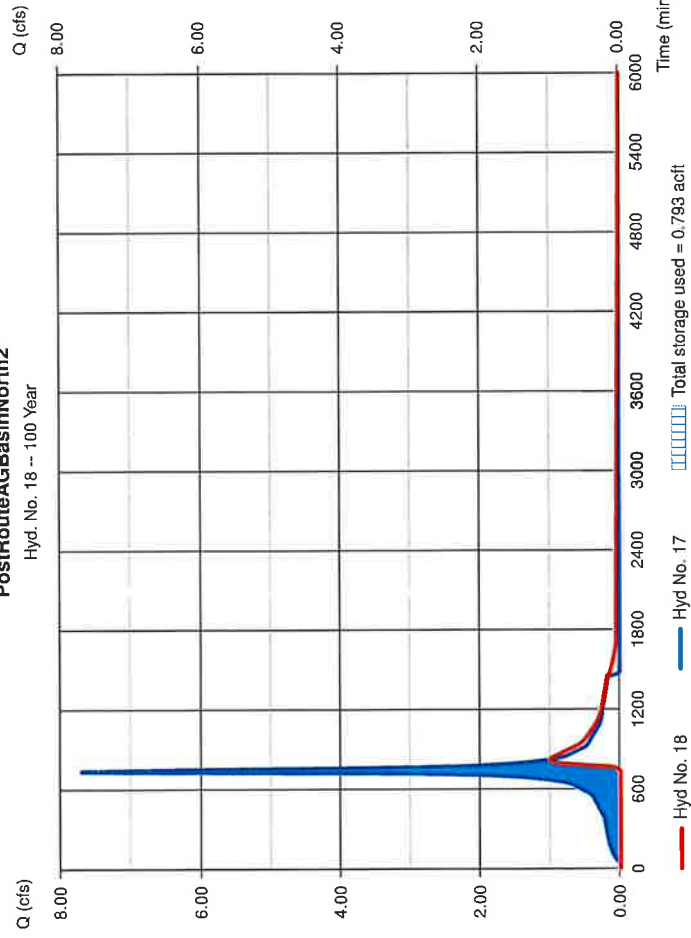
PostRouteAGBasinNorth2

Hydrograph type	= Reservoir	Peak discharge	= 1.013 cfs
Storm frequency	= 100 yrs	Time to peak	= 815 min
Time interval	= 5 min	Hyd. volume	= 0.655 acft
Inflow hyd. No.	= 17 - Total To AG Basin North2	Max. Elevation	= 126.58 ft
Reservoir name	= Prop. AG Basin North 2	Max. Storage	= 0.793 acft

Storage indication method used.

PostRouteAGBasinNorth2

Hyd. No. 18 -- 100 Year



Hydrograph Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

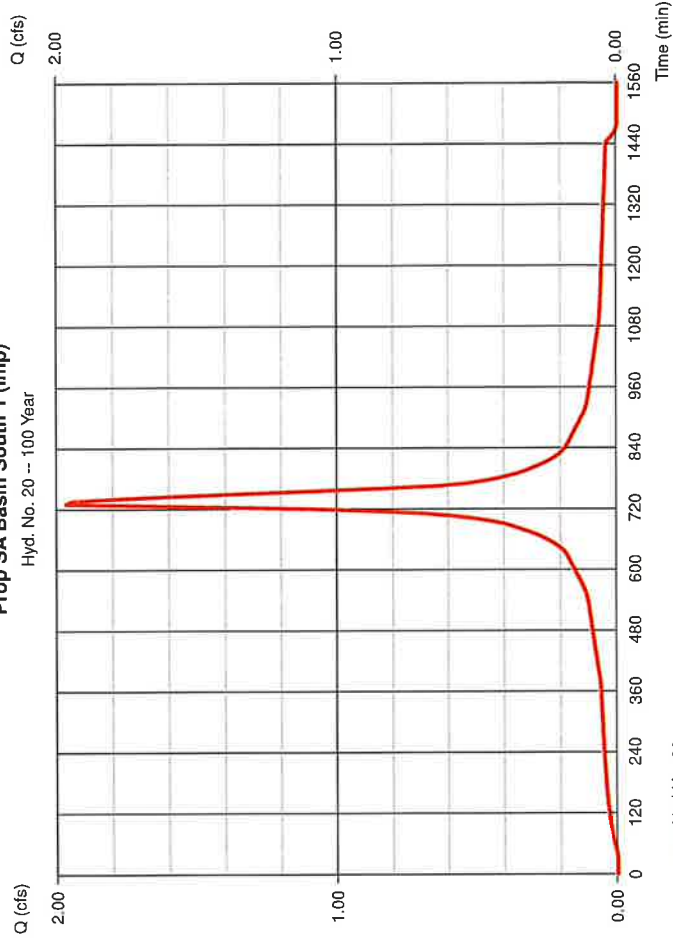
Hyd. No. 20

Prop SA Basin South 1 (Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 1.968 cfs
Storm frequency	= 100 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.288 acft
Drainage area	= 0.400 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 8.94 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Prop SA Basin South 1 (Imp)

Hyd. No. 20 -- 100 Year



Precipitation Report

Hydrow Hydrographs by Intellisolve v8.1

Thursday, Jun 24, 2021

Hyd. No. 20

Prop SA Basin South 1 (Imp)

Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.ods

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydrow Hydrographs by Intellisolve v8.1

Thursday, Jun 24, 2021

Hyd. No. 21

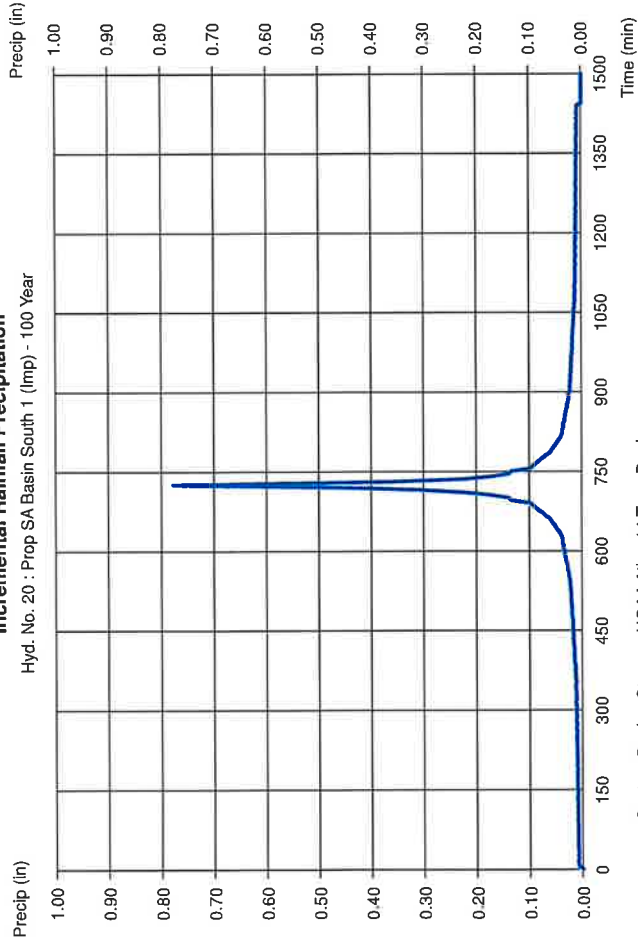
Prop SA Basin South 1 (Perv)

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 0.650 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 8.94 in
 Storm duration = NOAA Atlas 14 Type-D.ods

Peak discharge = 0.892 cfs
 Time to peak = 735 min
 Hyd. volume = 0.128 acft
 Curve number = 46
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Incremental Rainfall Precipitation

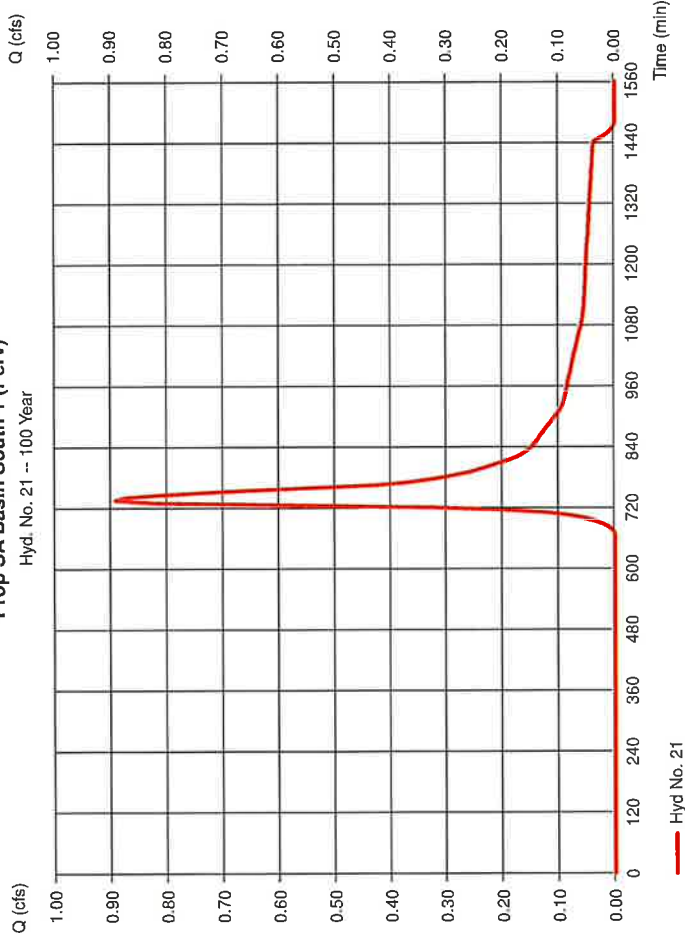
Hyd. No. 20 : Prop SA Basin South 1 (Imp) - 100 Year



— Custom Design Storm -- NOAA Atlas 14 Type-D.ods

Prop SA Basin South 1 (Perv)

Hyd. No. 21 -- 100 Year



— Hyd No. 21

Precipitation Report

Hydralflow Hydrographs by Intellisolve v3.1

Thursday, Jun 24, 2021

Hyd. No. 21

Prop SA Basin South 1 (Perv)

Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralflow Hydrographs by Intellisolve v3.1

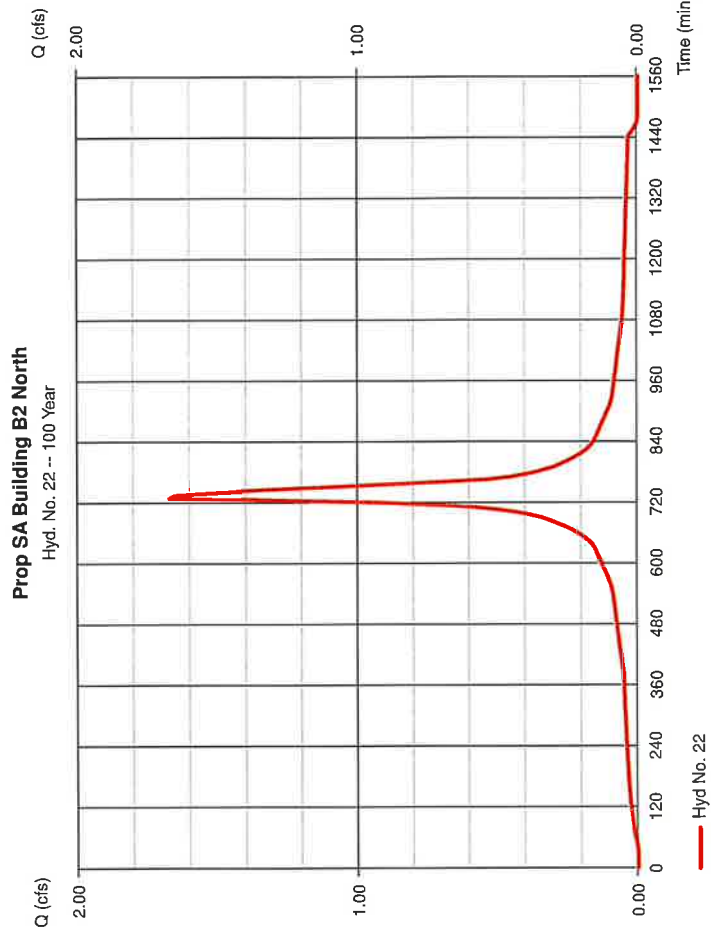
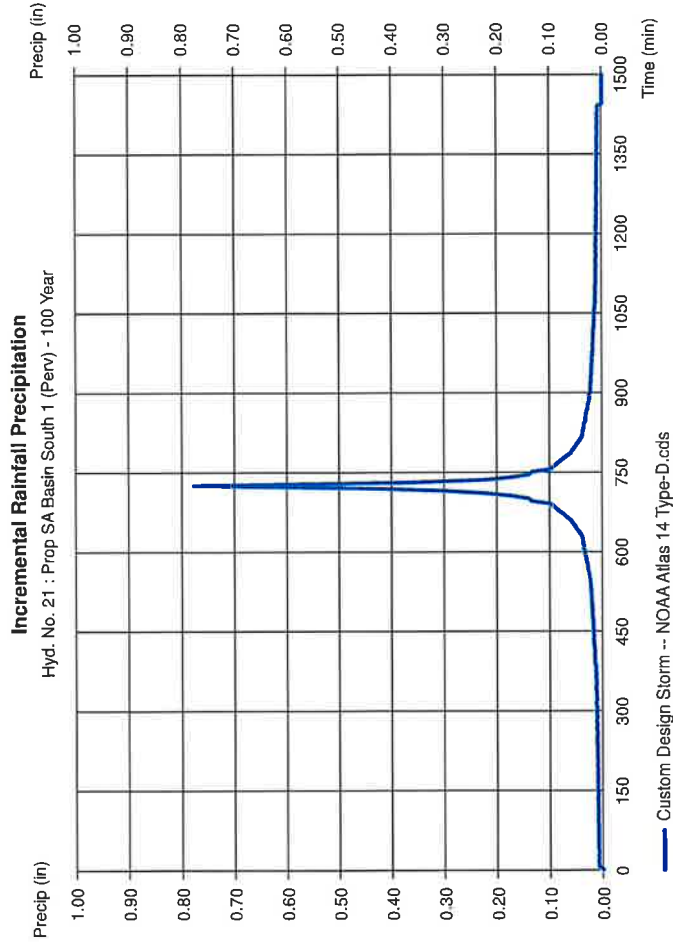
Thursday, Jun 24, 2021

Hyd. No. 22

Prop SA Building B2 North

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 8.94 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 1.673 cfs
 Time to peak = 730 min
 Hyd. volume = 0.245 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydrowflow Hydrographs by Intelisolve v3.1

Thursday, Jun 24, 2021

Hyd. No. 22

Prop SA Building B2 North

Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydrowflow Hydrographs by Intelisolve v3.1

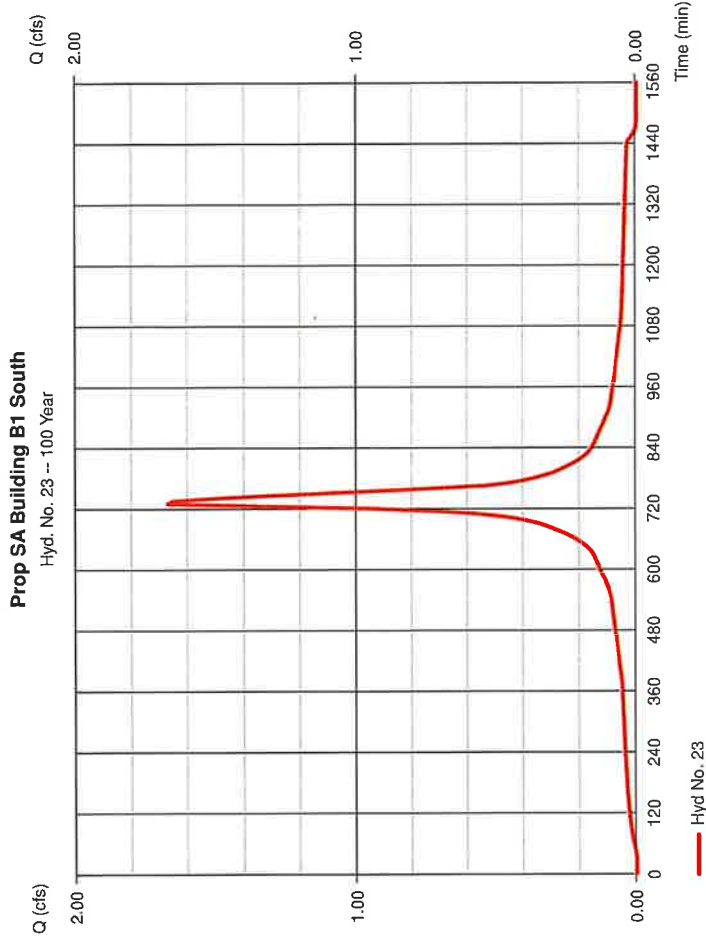
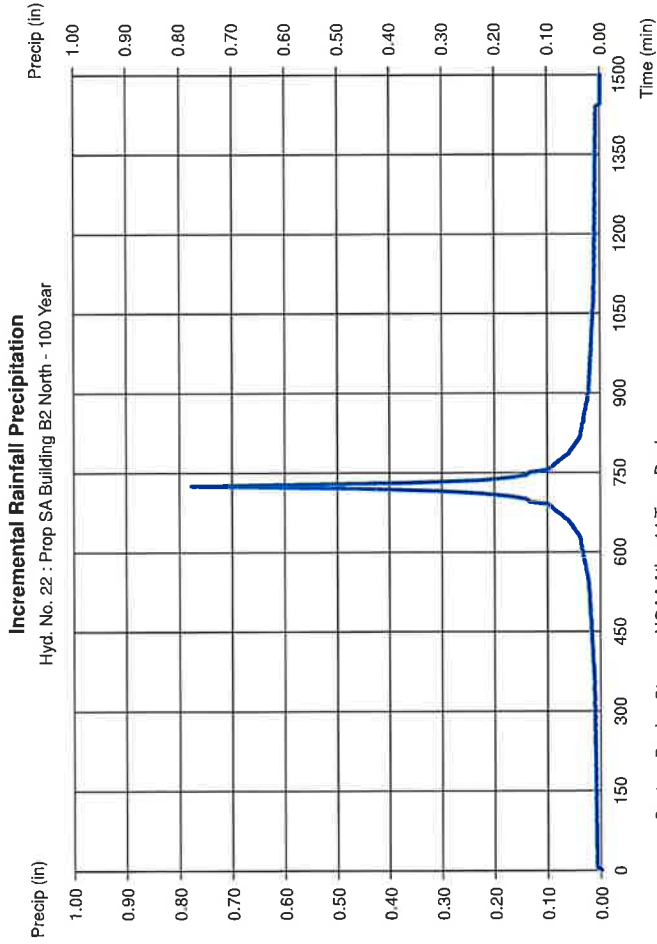
Thursday, Jun 24, 2021

Hyd. No. 23

Prop SA Building B1 South

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 8.94 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 1.673 cfs
 Time to peak = 730 min
 Hyd. volume = 0.245 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydrow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 23

Prop SA Building B1 South

Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydrow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 24

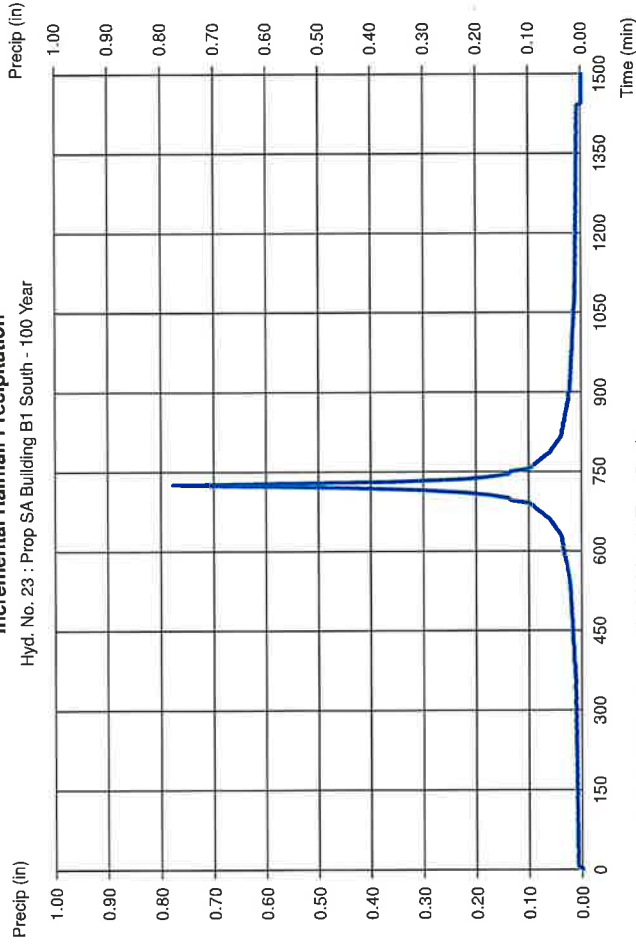
Total To AG Basin South 1

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Time interval = 5 min
 Inflow hyds. = 20, 21, 22, 23

Peak discharge = 6.150 cfs
 Time to peak = 735 min
 Hyd. volume = 0.906 acft
 Contrib. drain. area = 1.730 ac

Incremental Rainfall Precipitation

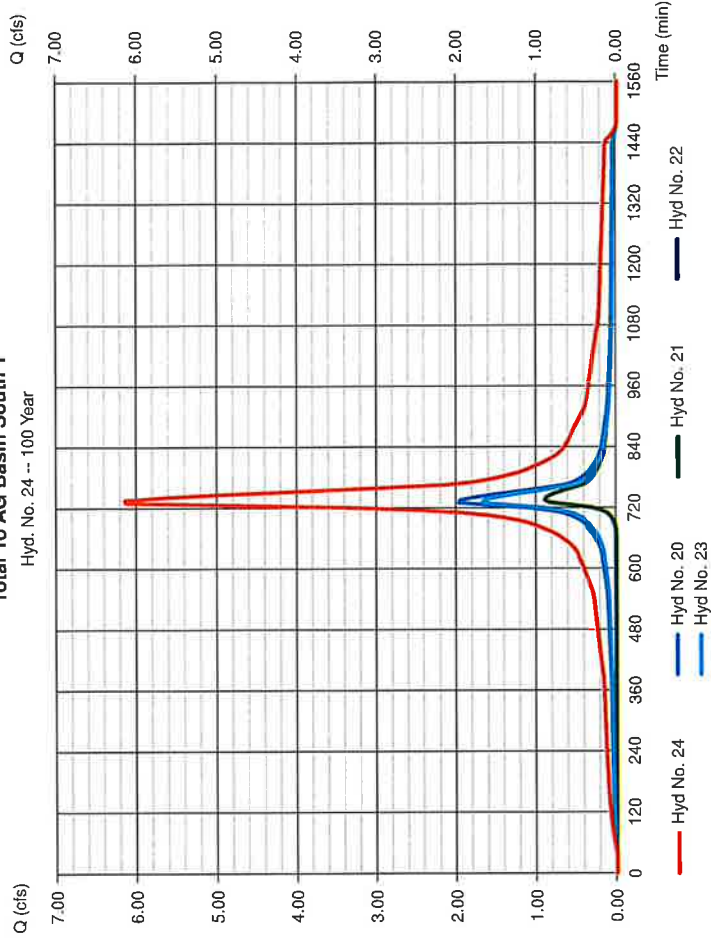
Hyd. No. 23 : Prop SA Building B1 South - 100 Year



— Custom Design Storm -- NOAA Atlas 14 Type-D.cds

Total To AG Basin South 1

Hyd. No. 24 -- 100 Year



— Hyd No. 20

— Hyd No. 21

— Hyd No. 22

— Hyd No. 24

Hydrograph Report

Hydrallow Hydrographs by Intellisolve v6.1

Thursday, Jun 24, 2021

Hyd. No. 25

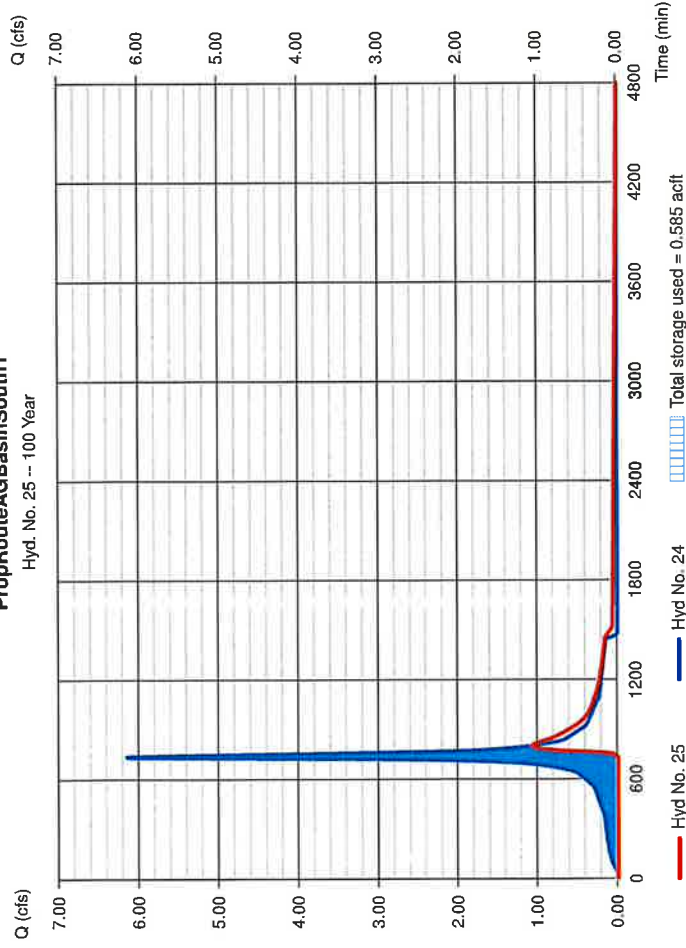
PropRouteAGBasinSouth1

Hydrograph type	= Reservoir	Peak discharge	= 1.073 cfs
Storm frequency	= 100 yrs	Time to peak	= 800 min
Time interval	= 5 min	Hyd. volume	= 0.563 acft
Inflow hyd. No.	= 24 - Total To AG Basin South 1	Max. Elevation	= 124.24 ft
Reservoir name	= Prop AG Basin South 1	Max. Storage	= 0.585 acft

Storage Indication method used.

PropRouteAGBasinSouth1

Hyd. No. 25 -- 100 Year



Hydrograph Report

Hydrallow Hydrographs by Intellisolve v6.1

Thursday, Jun 24, 2021

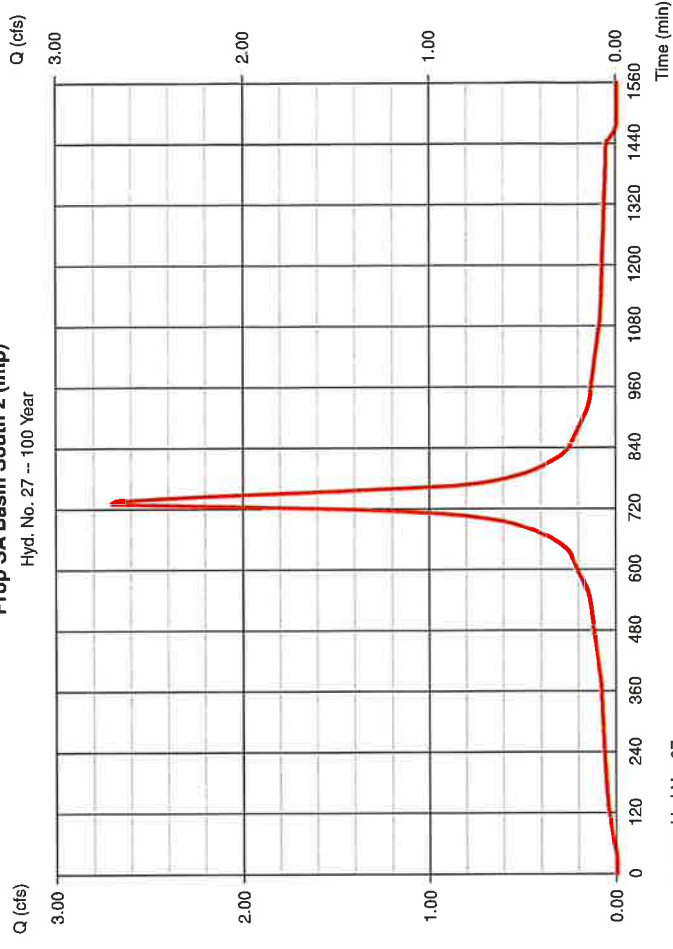
Hyd. No. 27

Prop SA Basin South 2 (Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 2.707 cfs
Storm frequency	= 100 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.396 acft
Drainage area	= 0.550 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 8.94 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Prop SA Basin South 2 (Imp)

Hyd. No. 27 -- 100 Year



Precipitation Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 27

Prop SA Basin South 2 (Imp)
 Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralflow Hydrographs by Intellisolve v9.1

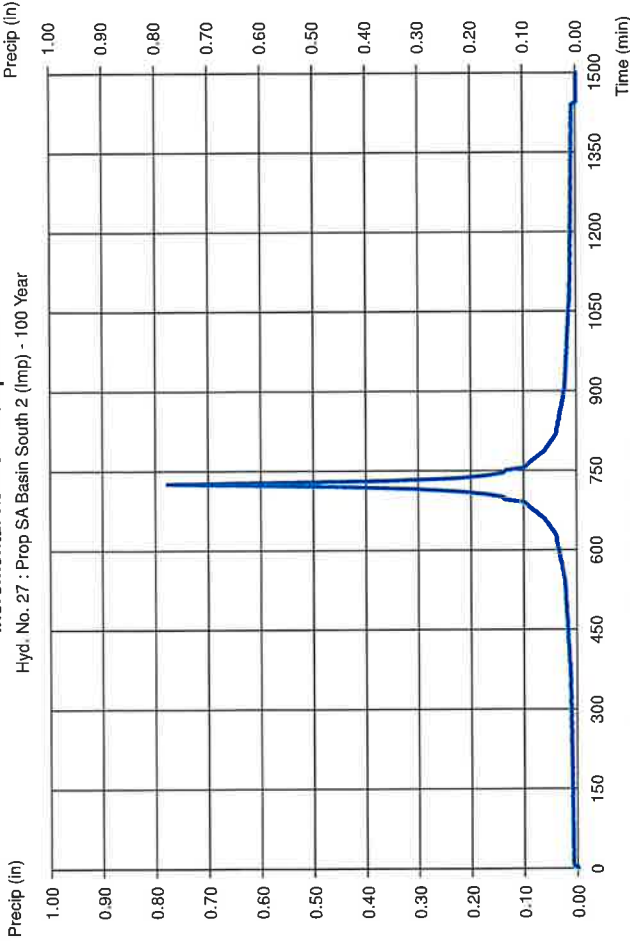
Thursday, Jun 24, 2021

Hyd. No. 28

Prop SA Basin South 2 (Perv)
 Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 0.810 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 8.94 in
 Storm duration = NOAA Atlas 14 Type-D.cds

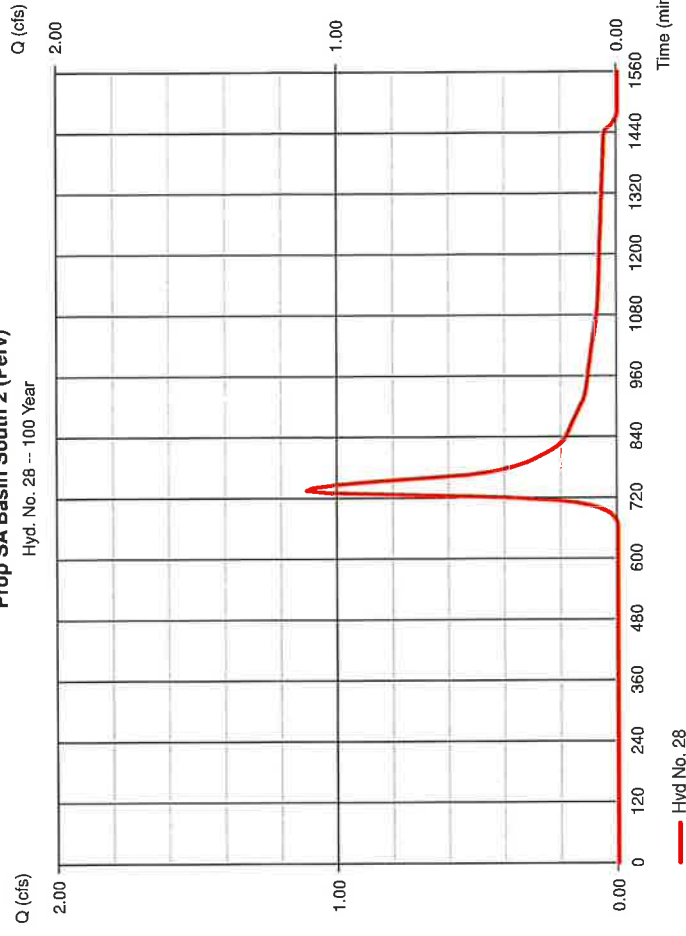
Peak discharge = 1.112 cfs
 Time to peak = 735 min
 Hyd. volume = 0.159 acft
 Curve number = 46
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Incremental Rainfall Precipitation



Prop SA Basin South 2 (Perv)

Hyd. No. 28 -- 100 Year



Precipitation Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 28

Prop SA Basin South 2 (Perv)
 Storm Frequency = 100 yrs
 Total precip. = 8.9400 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

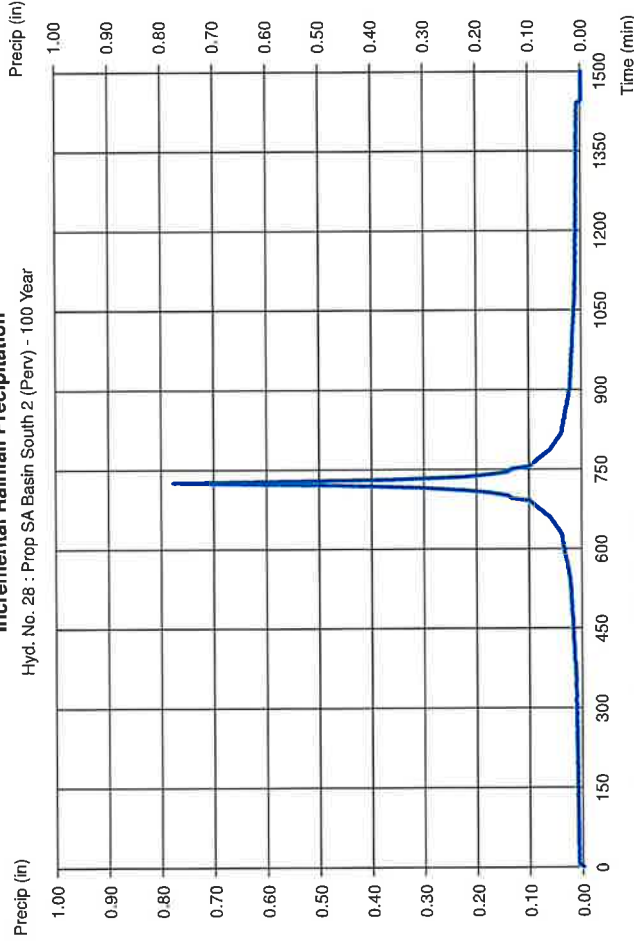
Hyd. No. 29

Prop SA Building B2 South
 Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 8.94 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 1.673 cfs
 Time to peak = 730 min
 Hyd. volume = 0.245 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Incremental Rainfall Precipitation

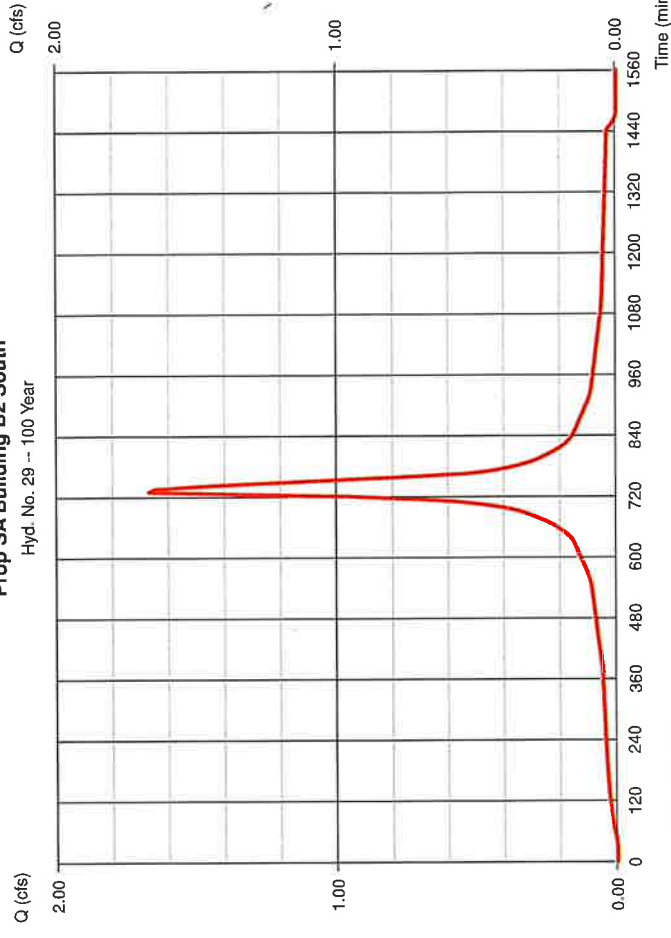
Hyd. No. 28 : Prop SA Basin South 2 (Perv) - 100 Year



— Custom Design Storm -- NOAA Atlas 14 Type-D.cds

Prop SA Building B2 South

Hyd. No. 29 -- 100 Year



— Hyd. No. 29

Precipitation Report

Hydraflo Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 29

Prop SA Building B2 South

Storm Frequency = 100 yrs
Total precip. = 8.9400 in
Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
Distribution = Custom

Hydrograph Report

Hydraflo Hydrographs by Intellisolve v9.1

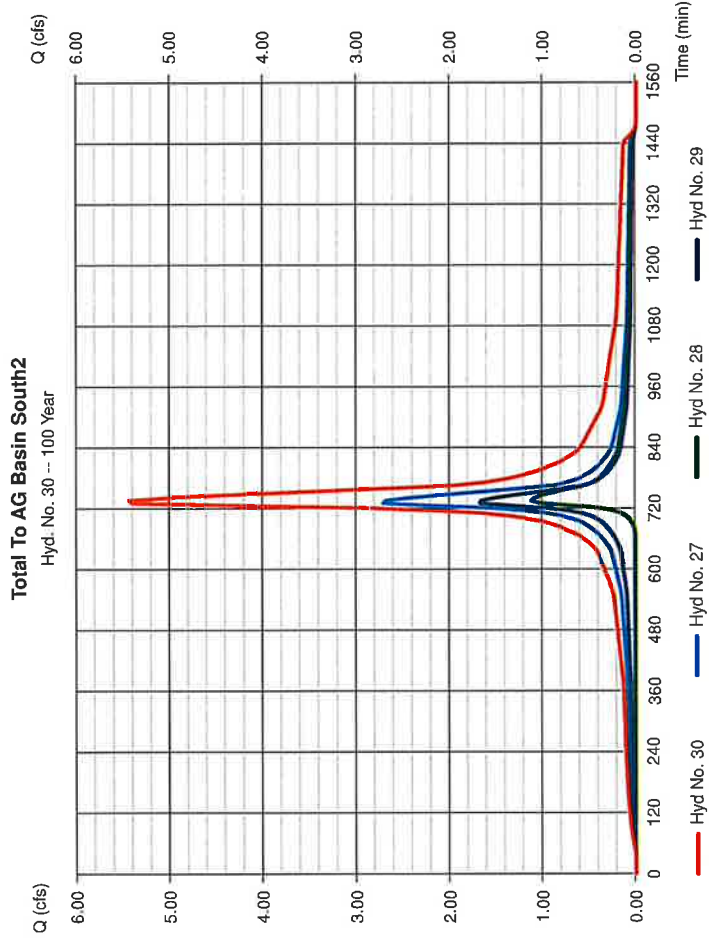
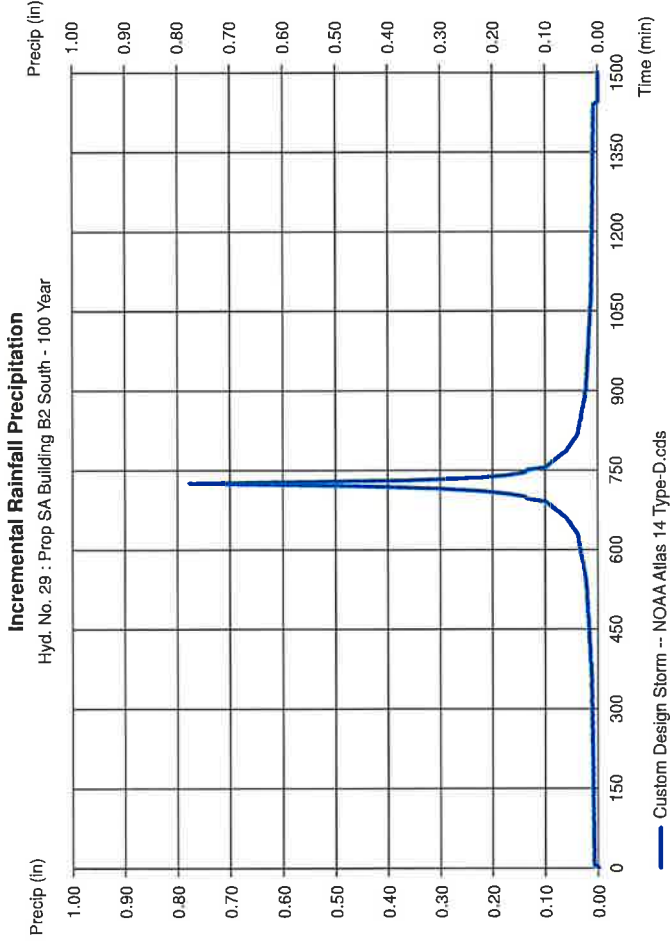
Thursday, Jun 24, 2021

Hyd. No. 30

Total To AG Basin South2

Hydrograph type = Combine
Storm frequency = 100 yrs
Time interval = 5 min
Inflow hyds. = 27, 28, 29

Peak discharge = 5.445 cfs
Time to peak = 735 min
Hyd. volume = 0.800 acft
Contrib. drain. area = 1.700 ac



Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 31

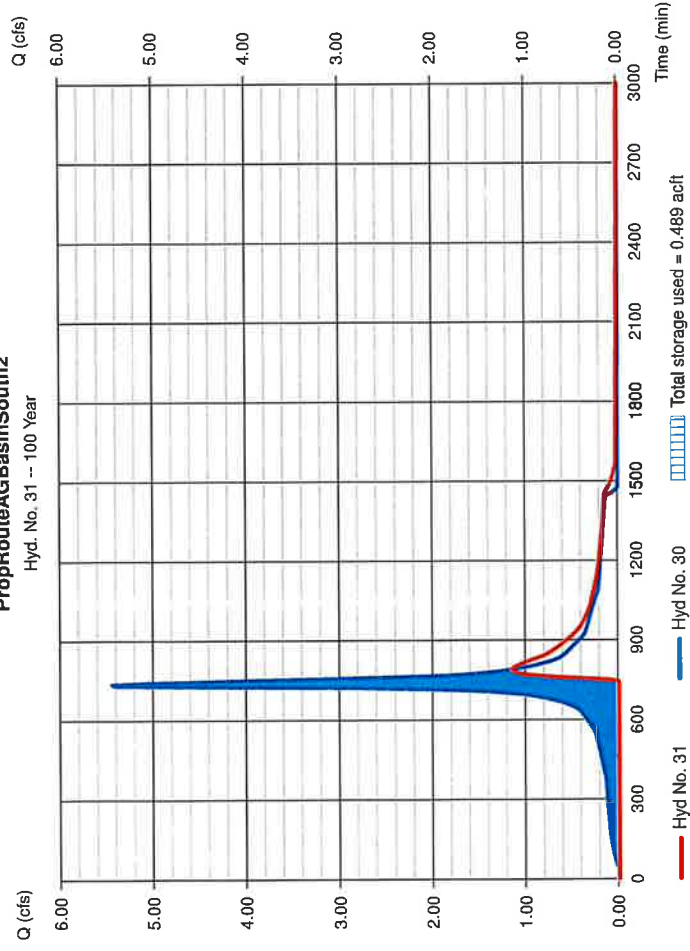
PropRouteAGBasinSouth2

Hydrograph type	= Reservoir	Peak discharge	= 1.152 cfs
Storm frequency	= 100 yrs	Time to peak	= 790 min
Time interval	= 5 min	Hyd. volume	= 0.427 acft
Inflow hyd. No.	= 30 - Total To AG Basin South2	Max. Elevation	= 122.36 ft
Reservoir name	= Prop. AG Basin South 2	Max. Storage	= 0.489 acft

Storage indication method used.

PropRouteAGBasinSouth2

Hyd. No. 31 -- 100 Year



Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

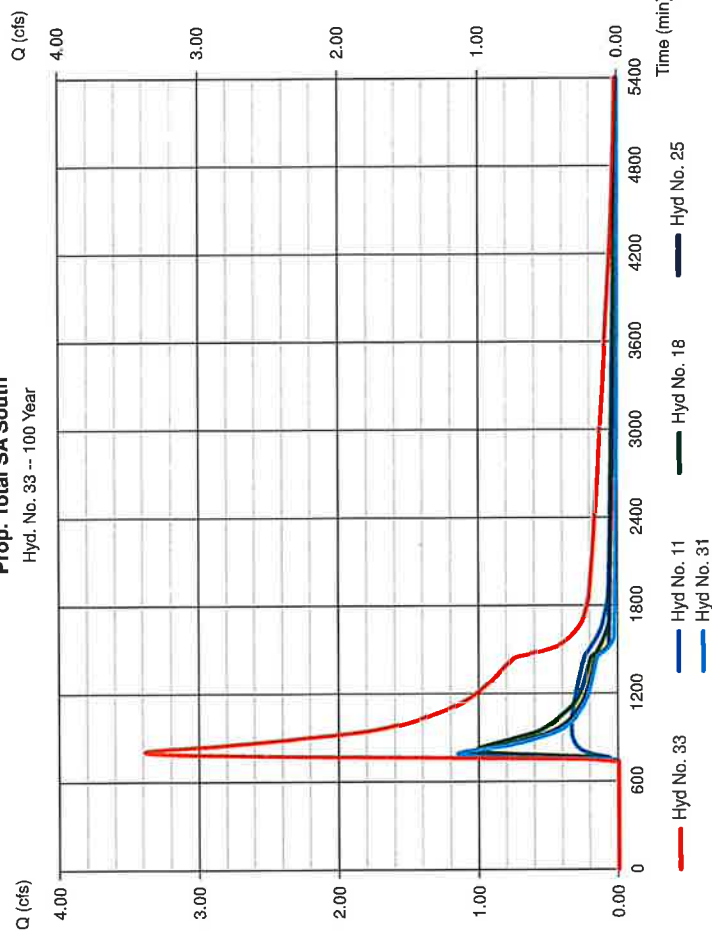
Hyd. No. 33

Prop. Total SA South

Hydrograph type	= Combine	Peak discharge	= 3.392 cfs
Storm frequency	= 100 yrs	Time to peak	= 805 min
Time interval	= 5 min	Hyd. volume	= 2.170 acft
Inflow hyds.	= 11, 18, 25, 31	Contrib. drain. area	= 0.000 ac

Prop. Total SA South

Hyd. No. 33 -- 100 Year



Hydrograph Report

Hydraflow Hydrographs by Intellisolve v9.1

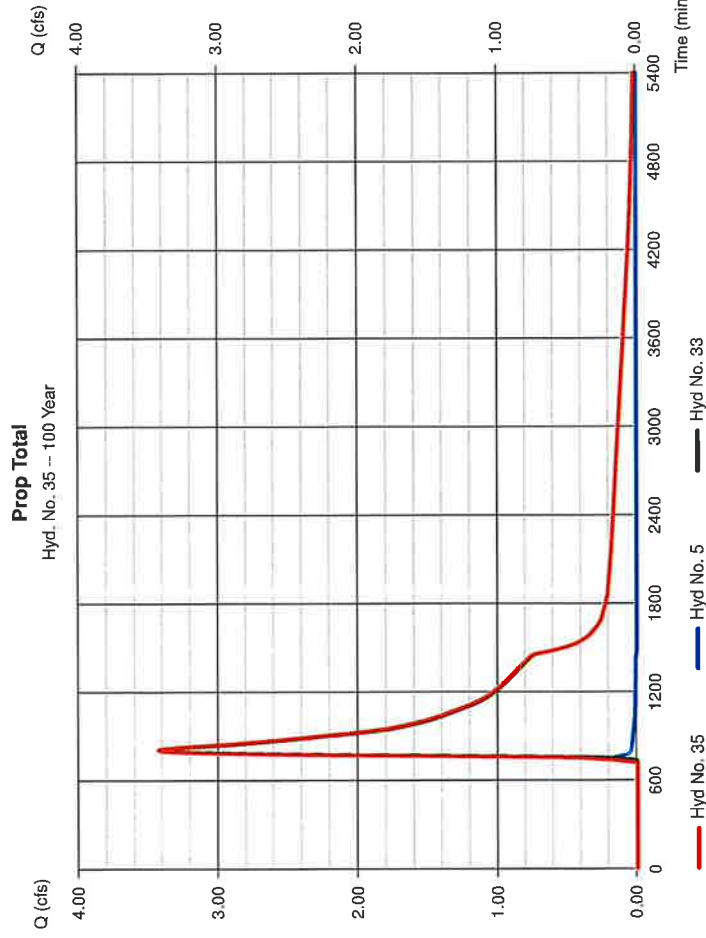
Thursday, Jun 24, 2021

Hyd. No. 35

Prop Total

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Time interval = 5 min
 Inflow hyds. = 5, 33

Peak discharge = 3.435 cfs
 Time to peak = 805 min
 Hyd. volume = 2.196 acft
 Contrib. drain. area = 0.200 ac



Hydraflow Rainfall Report

Hydraflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)				
	B	D	E	(N/A)	
1	0.0000	0.0000	0.0000		
2	69.8703	13.1000	0.8658		
3	0.0000	0.0000	0.0000		
5	79.2597	14.6000	0.8369		
10	88.2351	15.5000	0.8279		
25	102.6072	16.5000	0.8217		
50	114.8193	17.2000	0.8199		
100	127.1596	17.8000	0.8186		

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	5 min	Intensity Values (in/hr)															
		10	15	20	25	30	35	40	45	50	55	60					
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70	1.60	1.50	1.40	1.30	1.20
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15	2.04	1.93	1.83	1.73	1.63
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46	2.34	2.23	2.13	2.03	1.93
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91	2.78	2.66	2.55	2.44	2.34
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25	3.08	2.93	2.79	2.66	2.54
100	9.89	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60	3.42	3.26	3.11	2.97	2.84

Tc = time in minutes. Values may exceed 60.

Precip. file name: Merrimouth County.fgp

Storm Distribution	Rainfall Precipitation Table (in)									
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr		
SCS 24-hour	0.00	3.38	0.00	0.00	5.23	6.53	0.00	8.94		
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
H-Inf-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
H-Inf-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
H-Inf-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
H-Inf-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
H-Inf-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Custom	1.25	3.38	0.00	0.00	5.23	6.53	0.00	8.94		

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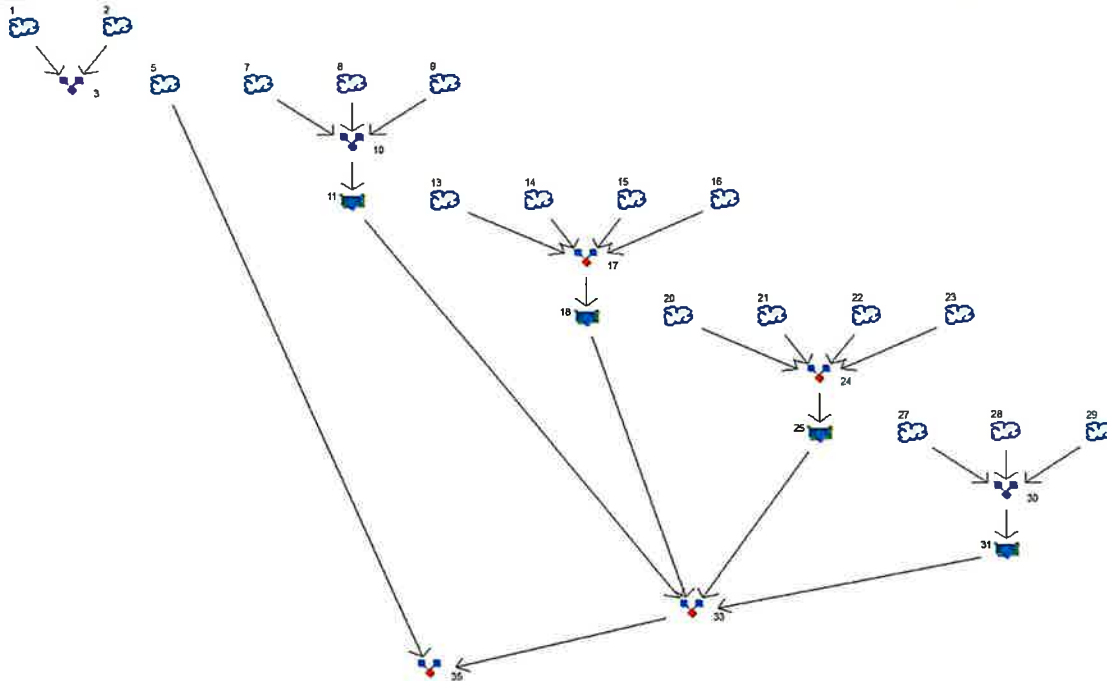
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Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	Ex Study Area North (Total)
2	SCS Runoff	Ex Study Area South (Total)
3	Combine	Ex Total
5	SCS Runoff	Prop SA Undetained North (Total)
7	SCS Runoff	Prop SA Basin North 1 (Imp)
8	SCS Runoff	Prop SA Basin North 1 (Perv)
9	SCS Runoff	Prop SA Building A North
10	Combine	TotalToBasinNorth1
11	Reservoir	PropRouteAGBasinNorth1
13	SCS Runoff	Prop SA Basin North 2 (Imp)
14	SCS Runoff	Prop SA Basin North 2 (Perv)
15	SCS Runoff	Prop SA Building B1 North
16	SCS Runoff	Prop SA Building A South
17	Combine	Total To AG Basin North2
18	Reservoir	PostRouteAGBasinNorth2
20	SCS Runoff	Prop SA Basin South 1 (Imp)
21	SCS Runoff	Prop SA Basin South 1 (Perv)
22	SCS Runoff	Prop SA Building B2 North
23	SCS Runoff	Prop SA Building B1 South
24	Combine	Total To AG Basin South 1
25	Reservoir	PropRouteAGBasinSouth1
27	SCS Runoff	Prop SA Basin South 2 (Imp)
28	SCS Runoff	Prop SA Basin South 2 (Perv)
29	SCS Runoff	Prop SA Building B2 South
30	Combine	Total To AG Basin South2
31	Reservoir	PropRouteAGBasinSouth2
33	Combine	Prop. Total SA South
35	Combine	Prop Total

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	-----	-----	0.001	-----	-----	0.046	0.197	-----	0.816	Ex Study Area North (Total)
2	SCS Runoff	-----	-----	0.000	-----	-----	0.161	0.796	-----	4.013	Ex Study Area South (Total)
3	Combine	1, 2	-----	0.001	-----	-----	0.204	0.986	-----	4.829	Ex Total
5	SCS Runoff	-----	-----	0.000	-----	-----	0.009	0.045	-----	0.169	Prop SA Undetained North (Total)
7	SCS Runoff	-----	-----	1.379	-----	-----	2.150	2.691	-----	3.691	Prop SA Basin North 1 (Imp)
8	SCS Runoff	-----	-----	0.001	-----	-----	0.038	0.162	-----	0.671	Prop SA Basin North 1 (Perv)
9	SCS Runoff	-----	-----	0.625	-----	-----	0.975	1.220	-----	1.673	Prop SA Building A North
10	Combine	7, 8, 9	-----	2.004	-----	-----	3.125	3.984	-----	5.957	TotalToBasinNorth1
11	Reservoir	10	-----	0.000	-----	-----	0.040	0.086	-----	0.337	PropRouteAGBasinNorth1
13	SCS Runoff	-----	-----	1.471	-----	-----	2.294	2.870	-----	3.937	Prop SA Basin North 2 (Imp)
14	SCS Runoff	-----	-----	0.001	-----	-----	0.029	0.121	-----	0.503	Prop SA Basin North 2 (Perv)
15	SCS Runoff	-----	-----	0.625	-----	-----	0.975	1.220	-----	1.673	Prop SA Building B1 North
16	SCS Runoff	-----	-----	0.625	-----	-----	0.975	1.220	-----	1.673	Prop SA Building A South
17	Combine	13, 14, 15, 16	-----	2.721	-----	-----	4.244	5.365	-----	7.701	Total To AG Basin North2
18	Reservoir	17	-----	0.000	-----	-----	0.044	0.130	-----	1.013	PostRouteAGBasinNorth2
20	SCS Runoff	-----	-----	0.735	-----	-----	1.147	1.435	-----	1.968	Prop SA Basin South 1 (Imp)
21	SCS Runoff	-----	-----	0.006	-----	-----	0.127	0.336	-----	0.892	Prop SA Basin South 1 (Perv)
22	SCS Runoff	-----	-----	0.625	-----	-----	0.975	1.220	-----	1.673	Prop SA Building B2 North
23	SCS Runoff	-----	-----	0.625	-----	-----	0.975	1.220	-----	1.673	Prop SA Building B1 South
24	Combine	20, 21, 22, 23	-----	1.986	-----	-----	3.168	4.158	-----	6.150	Total To AG Basin South 1
25	Reservoir	24	-----	0.000	-----	-----	0.048	0.146	-----	1.073	PropRouteAGBasinSouth1
27	SCS Runoff	-----	-----	1.011	-----	-----	1.577	1.973	-----	2.707	Prop SA Basin South 2 (Imp)
28	SCS Runoff	-----	-----	0.008	-----	-----	0.158	0.419	-----	1.112	Prop SA Basin South 2 (Perv)
29	SCS Runoff	-----	-----	0.625	-----	-----	0.975	1.220	-----	1.673	Prop SA Building B2 South
30	Combine	27, 28, 29	-----	1.636	-----	-----	2.652	3.563	-----	5.445	Total To AG Basin South2
31	Reservoir	30	-----	0.000	-----	-----	0.018	0.185	-----	1.152	PropRouteAGBasinSouth2
33	Combine	11, 18, 25, 31,	-----	0.000	-----	-----	0.150	0.459	-----	3.392	Prop. Total SA South
35	Combine	5, 33,	-----	0.000	-----	-----	0.152	0.464	-----	3.435	Prop Total

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description	
1	SCS Runoff	0.197	5	750	0.054	---	-----	-----	Ex Study Area North (Total)	
2	SCS Runoff	0.796	5	760	0.267	---	-----	-----	Ex Study Area South (Total)	
3	Combine	0.986	5	755	0.321	1, 2	-----	-----	Ex Total	
5	SCS Runoff	0.045	5	750	0.010	---	-----	-----	Prop SA Undetained North (Total)	
7	SCS Runoff	2.691	5	730	0.391	---	-----	-----	Prop SA Basin North 1 (Imp)	
8	SCS Runoff	0.162	5	750	0.044	---	-----	-----	Prop SA Basin North 1 (Perv)	
9	SCS Runoff	1.220	5	730	0.177	---	-----	-----	Prop SA Building A North	
10	Combine	3.984	5	735	0.612	7, 8, 9	-----	-----	TotalToBasinNorth1	
11	Reservoir	0.086	5	1445	0.236	10	126.33	0.553	PropRouteAGBasinNorth1	
13	SCS Runoff	2.870	5	730	0.417	---	-----	-----	Prop SA Basin North 2 (Imp)	
14	SCS Runoff	0.121	5	750	0.033	---	-----	-----	Prop SA Basin North 2 (Perv)	
15	SCS Runoff	1.220	5	730	0.177	---	-----	-----	Prop SA Building B1 North	
16	SCS Runoff	1.220	5	730	0.177	---	-----	-----	Prop SA Building A South	
17	Combine	5.365	5	730	0.804	13, 14, 15, 16	-----	-----	Total To AG Basin North2	
18	Reservoir	0.130	5	1410	0.307	17	126.37	0.725	PostRouteAGBasinNorth2	
20	SCS Runoff	1.435	5	730	0.208	---	-----	-----	Prop SA Basin South 1 (Imp)	
21	SCS Runoff	0.336	5	740	0.059	---	-----	-----	Prop SA Basin South 1 (Perv)	
22	SCS Runoff	1.220	5	730	0.177	---	-----	-----	Prop SA Building B2 North	
23	SCS Runoff	1.220	5	730	0.177	---	-----	-----	Prop SA Building B1 South	
24	Combine	4.158	5	735	0.622	20, 21, 22, 23	-----	-----	Total To AG Basin South 1	
25	Reservoir	0.146	5	1155	0.280	24	124.03	0.527	PropRouteAGBasinSouth1	
27	SCS Runoff	1.973	5	730	0.287	---	-----	-----	Prop SA Basin South 2 (Imp)	
28	SCS Runoff	0.419	5	740	0.074	---	-----	-----	Prop SA Basin South 2 (Perv)	
29	SCS Runoff	1.220	5	730	0.177	---	-----	-----	Prop SA Building B2 South	
30	Combine	3.563	5	735	0.537	27, 28, 29	-----	-----	Total To AG Basin South2	
31	Reservoir	0.185	5	1025	0.165	30	122.16	0.435	PropRouteAGBasinSouth2	
33	Combine	0.459	5	1235	0.988	11, 18, 25, 31,	-----	-----	Prop. Total SA South	
35	Combine	0.464	5	1225	0.998	5, 33,	-----	-----	Prop Total	
2021-06-22.ExProp2,10,25,100YR.gpw					Return Period: 25 Year			Thursday, Jun 24, 2021		

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

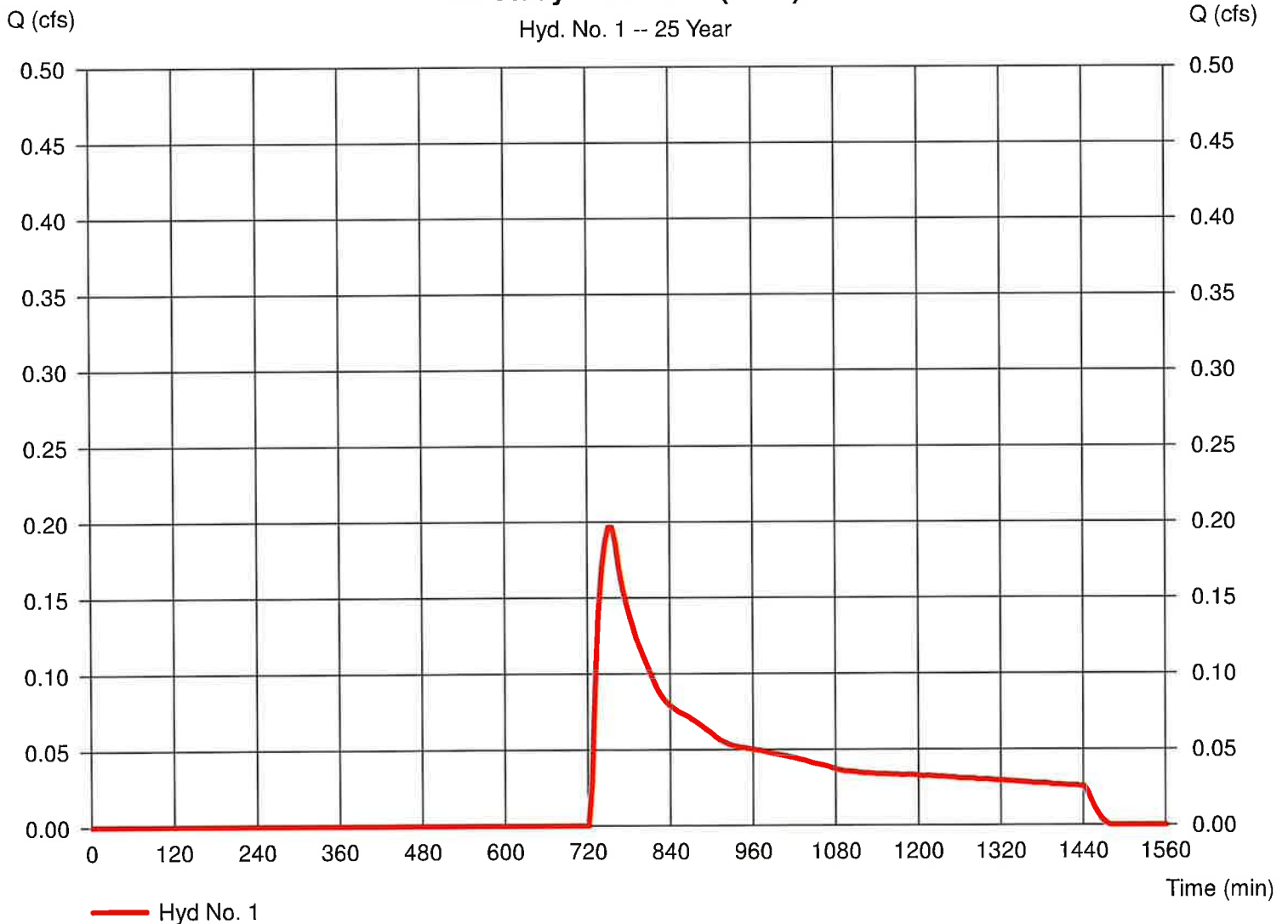
Hyd. No. 1

Ex Study Area North (Total)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.197 cfs
Storm frequency	= 25 yrs	Time to peak	= 750 min
Time interval	= 5 min	Hyd. volume	= 0.054 acft
Drainage area	= 1.070 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.60 min
Total precip.	= 6.53 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Ex Study Area North (Total)

Hyd. No. 1 -- 25 Year



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

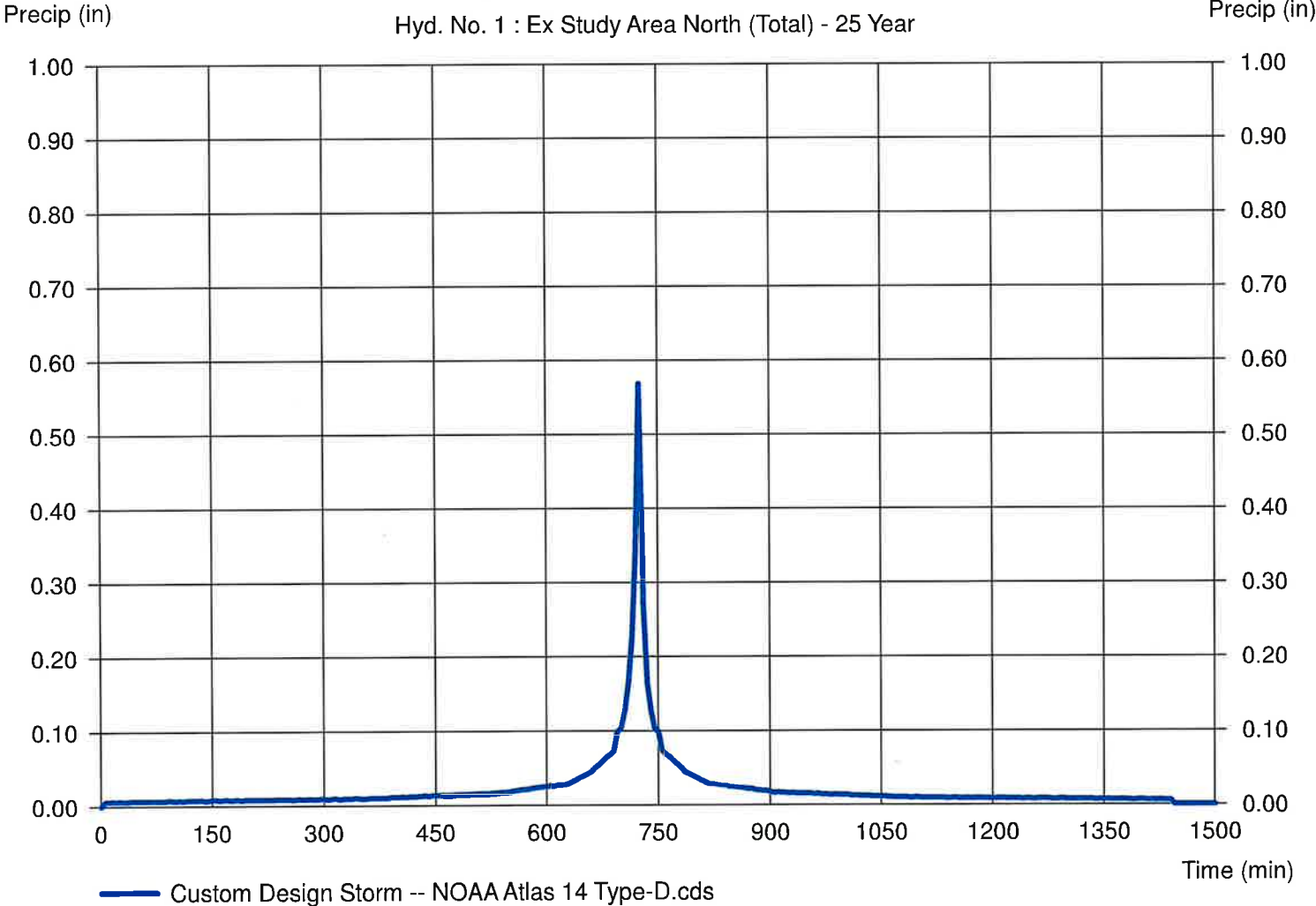
Hyd. No. 1

Ex Study Area North (Total)

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 1 : Ex Study Area North (Total) - 25 Year



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

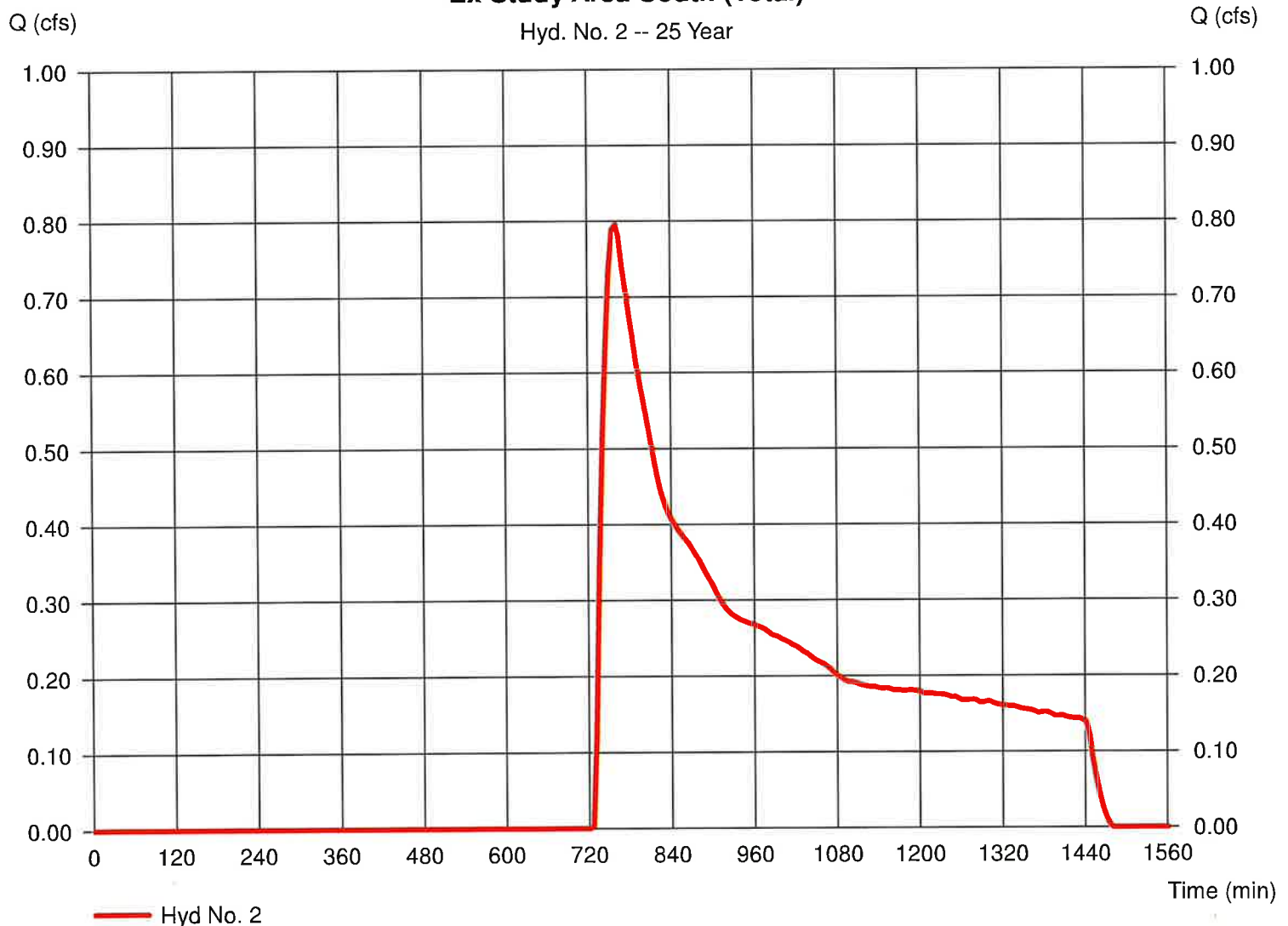
Hyd. No. 2

Ex Study Area South (Total)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.796 cfs
Storm frequency	= 25 yrs	Time to peak	= 760 min
Time interval	= 5 min	Hyd. volume	= 0.267 acft
Drainage area	= 6.730 ac	Curve number	= 37
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 14.00 min
Total precip.	= 6.53 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Ex Study Area South (Total)

Hyd. No. 2 -- 25 Year



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

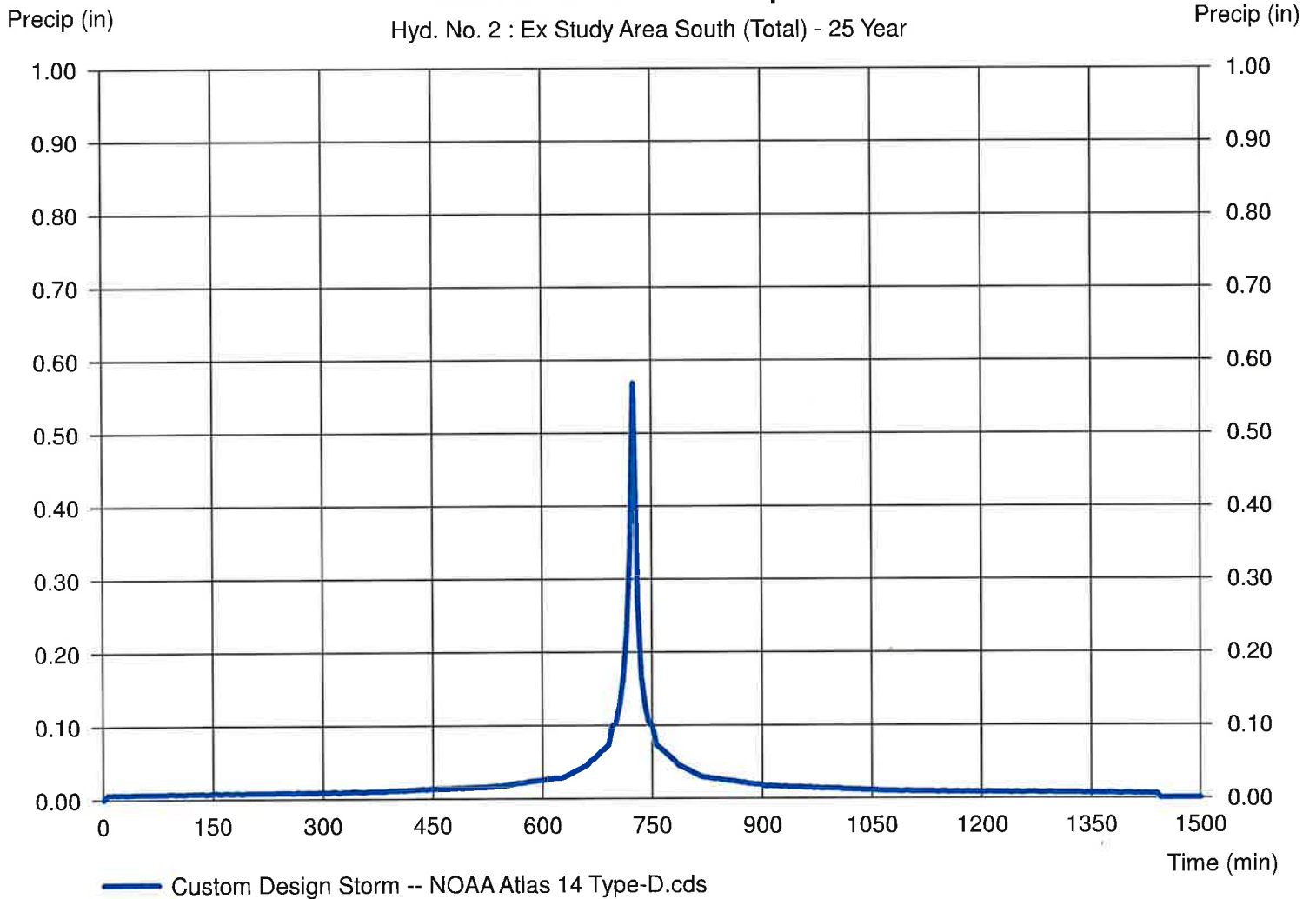
Hyd. No. 2

Ex Study Area South (Total)

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 2 : Ex Study Area South (Total) - 25 Year



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

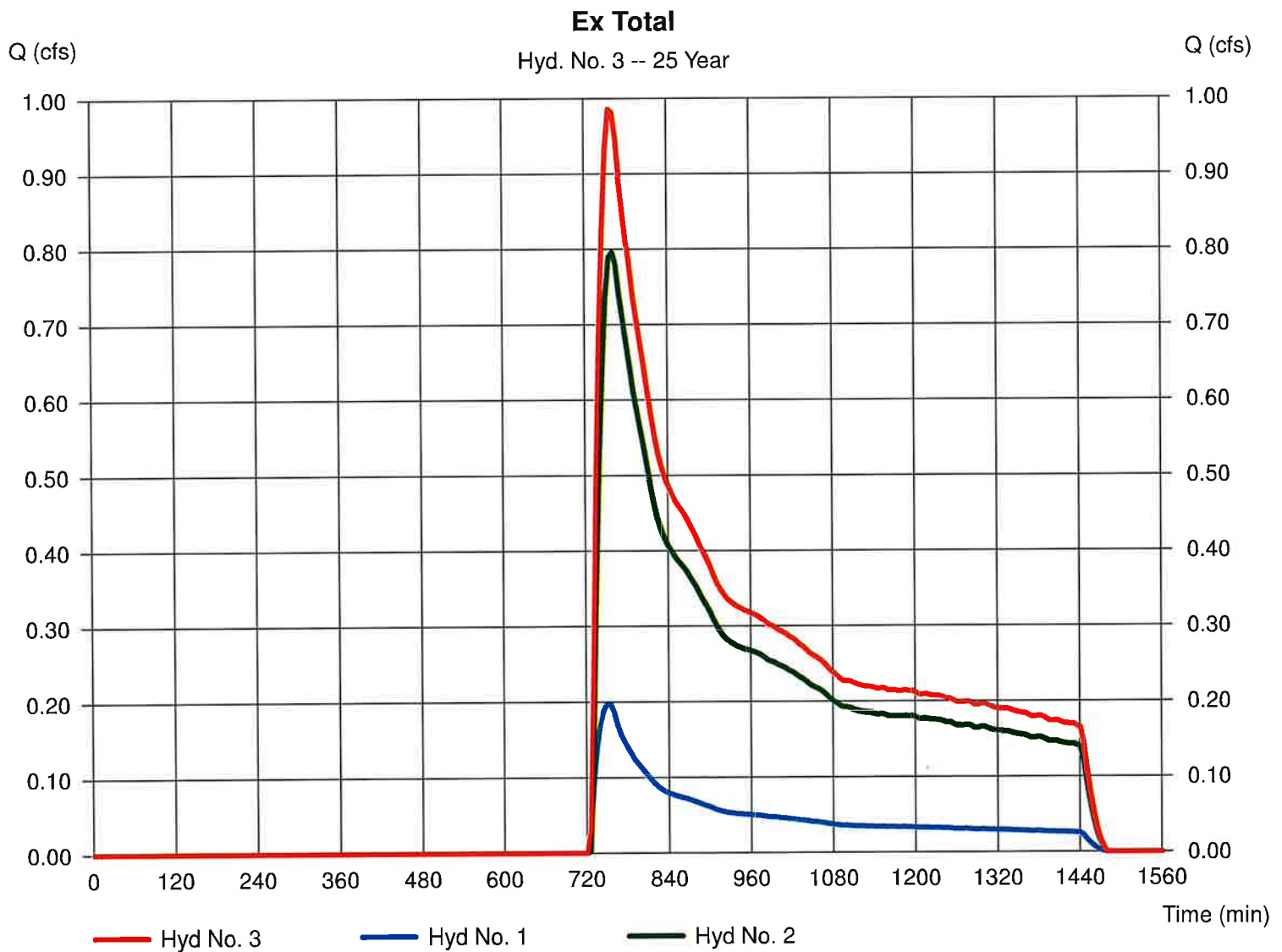
Thursday, Jun 24, 2021

Hyd. No. 3

Ex Total

Hydrograph type = Combine
 Storm frequency = 25 yrs
 Time interval = 5 min
 Inflow hyds. = 1, 2

Peak discharge = 0.986 cfs
 Time to peak = 755 min
 Hyd. volume = 0.321 acft
 Contrib. drain. area = 7.800 ac



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 5

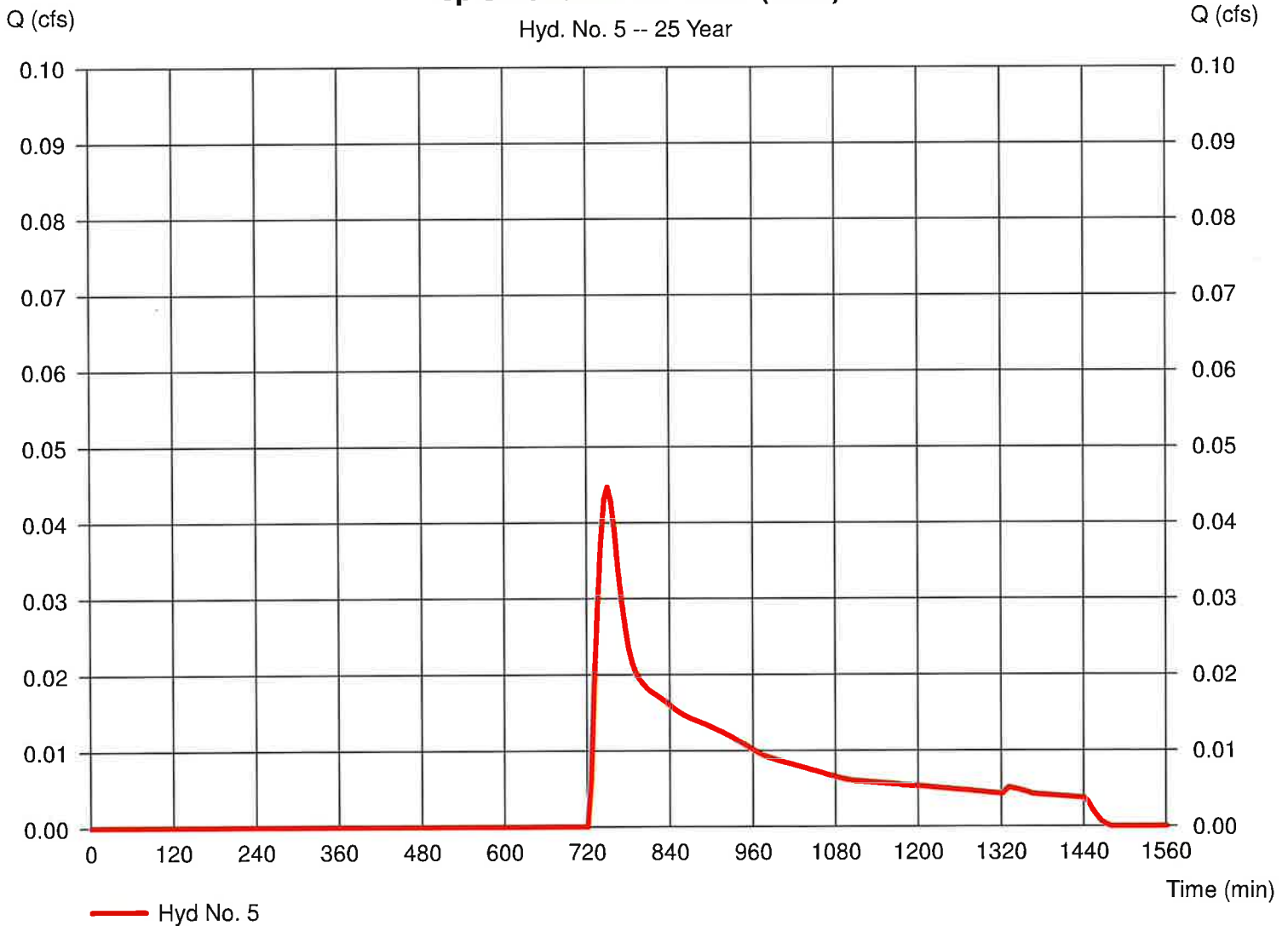
Prop SA Undetained North (Total)

Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 5 min
 Drainage area = 0.200 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 6.53 in
 Storm duration = 24 hrs

Peak discharge = 0.045 cfs
 Time to peak = 750 min
 Hyd. volume = 0.010 acft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Type III
 Shape factor = 285

Prop SA Undetained North (Total)

Hyd. No. 5 -- 25 Year



Hydrograph Report

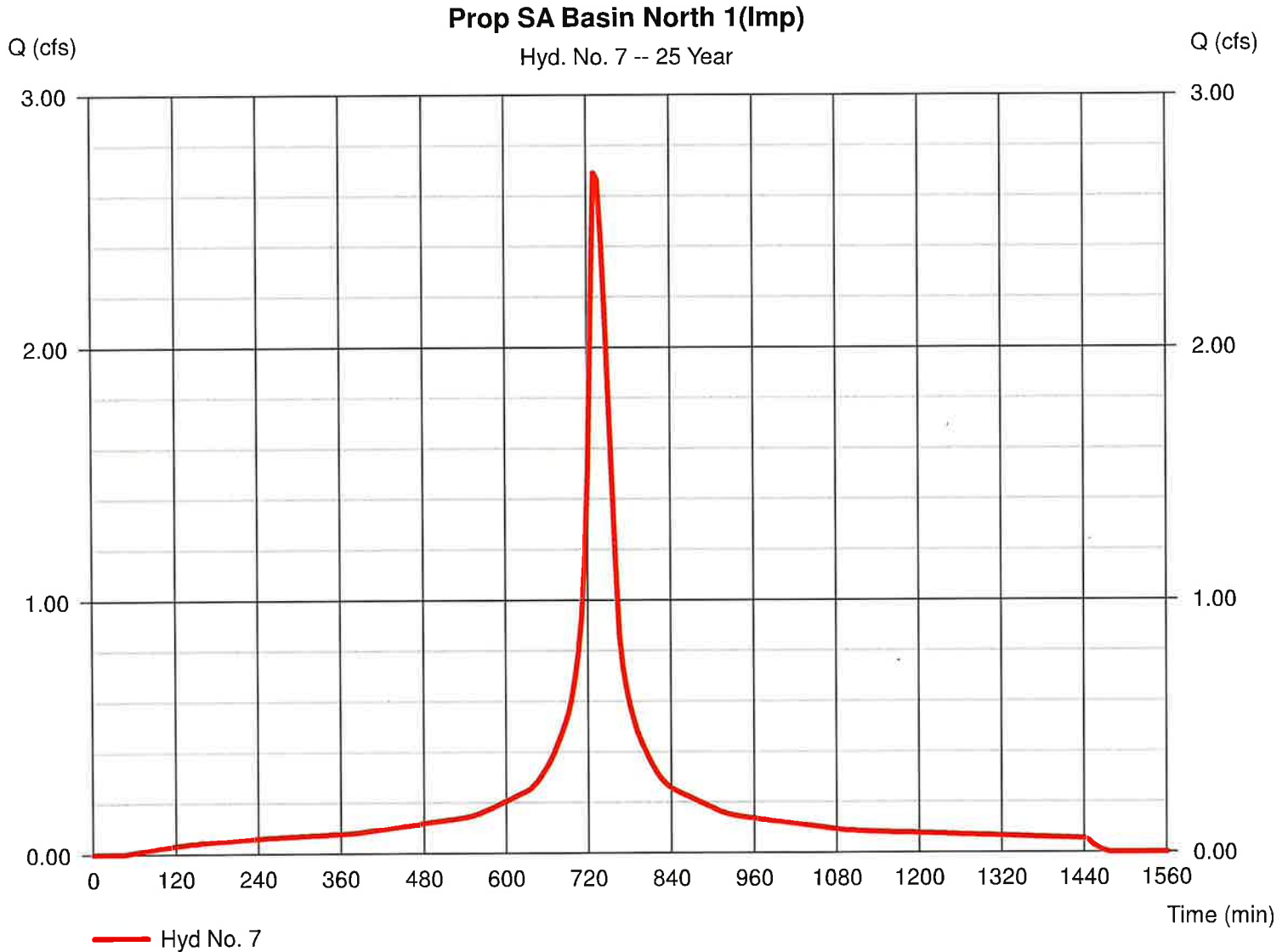
Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 7

Prop SA Basin North 1(Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 2.691 cfs
Storm frequency	= 25 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.391 acft
Drainage area	= 0.750 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.53 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

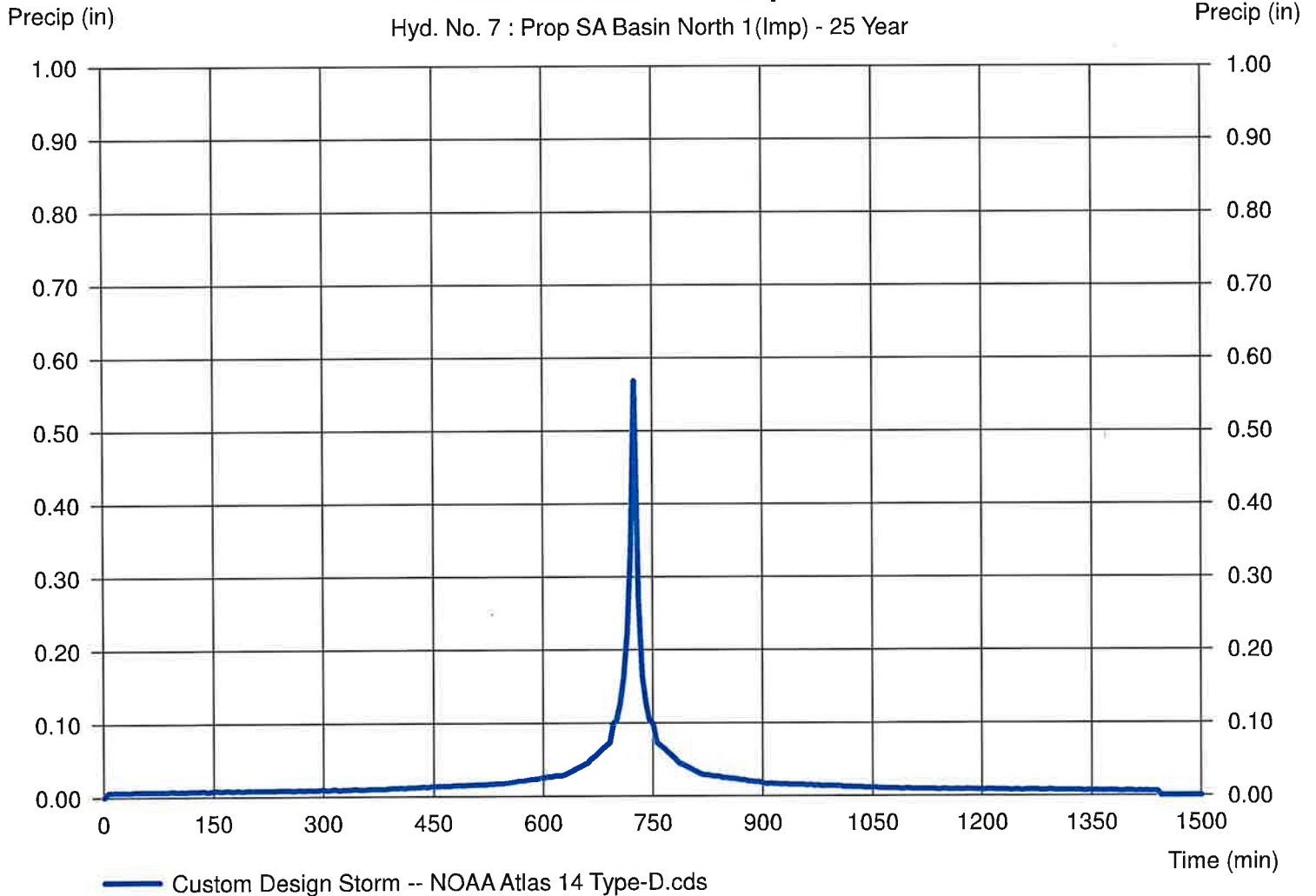
Hyd. No. 7

Prop SA Basin North 1(Imp)

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 7 : Prop SA Basin North 1(Imp) - 25 Year



Hydrograph Report

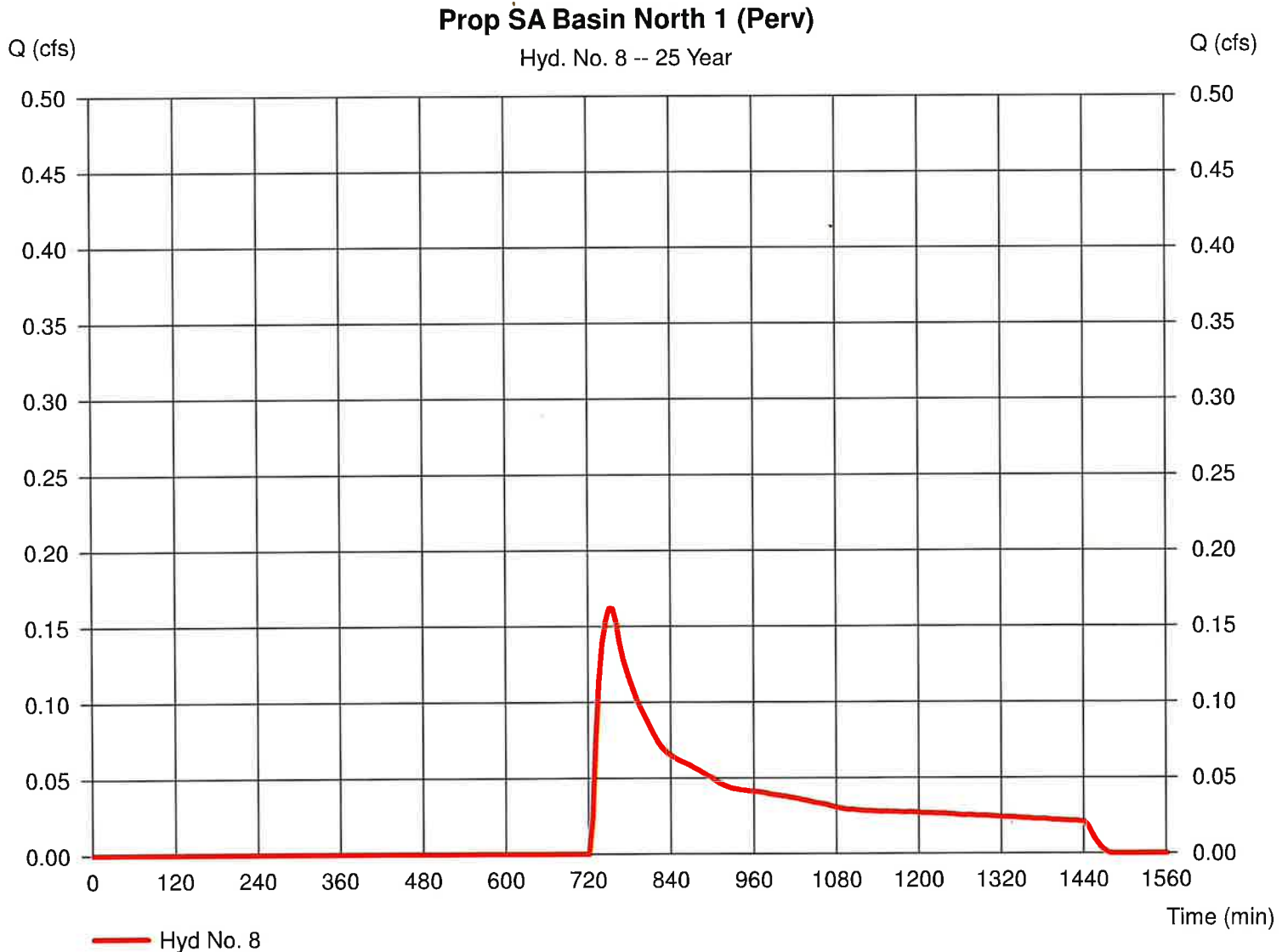
Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 8

Prop SA Basin North 1 (Perv)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.162 cfs
Storm frequency	= 25 yrs	Time to peak	= 750 min
Time interval	= 5 min	Hyd. volume	= 0.044 acft
Drainage area	= 0.880 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.53 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

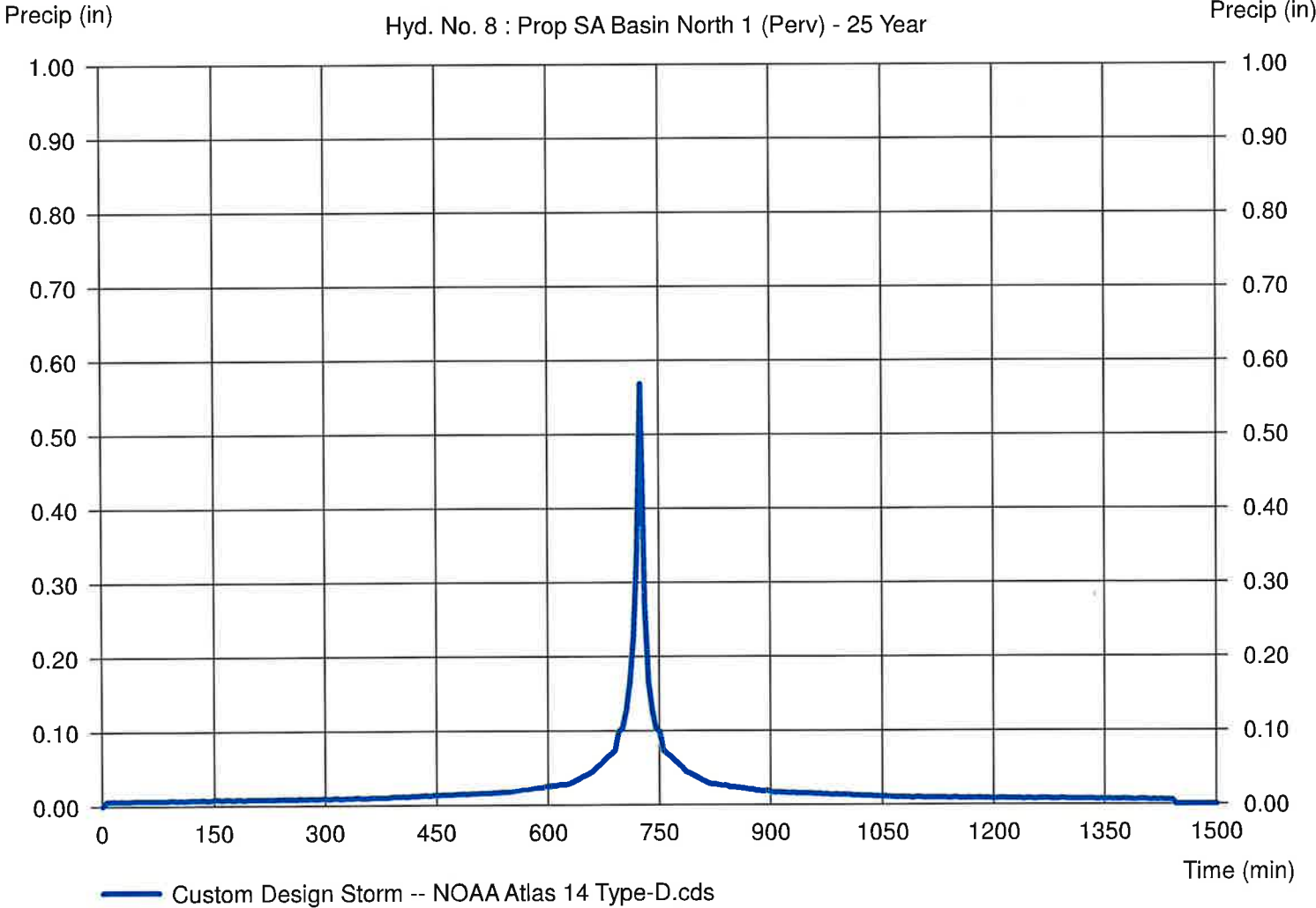
Hyd. No. 8

Prop SA Basin North 1 (Perv)

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 8 : Prop SA Basin North 1 (Perv) - 25 Year



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

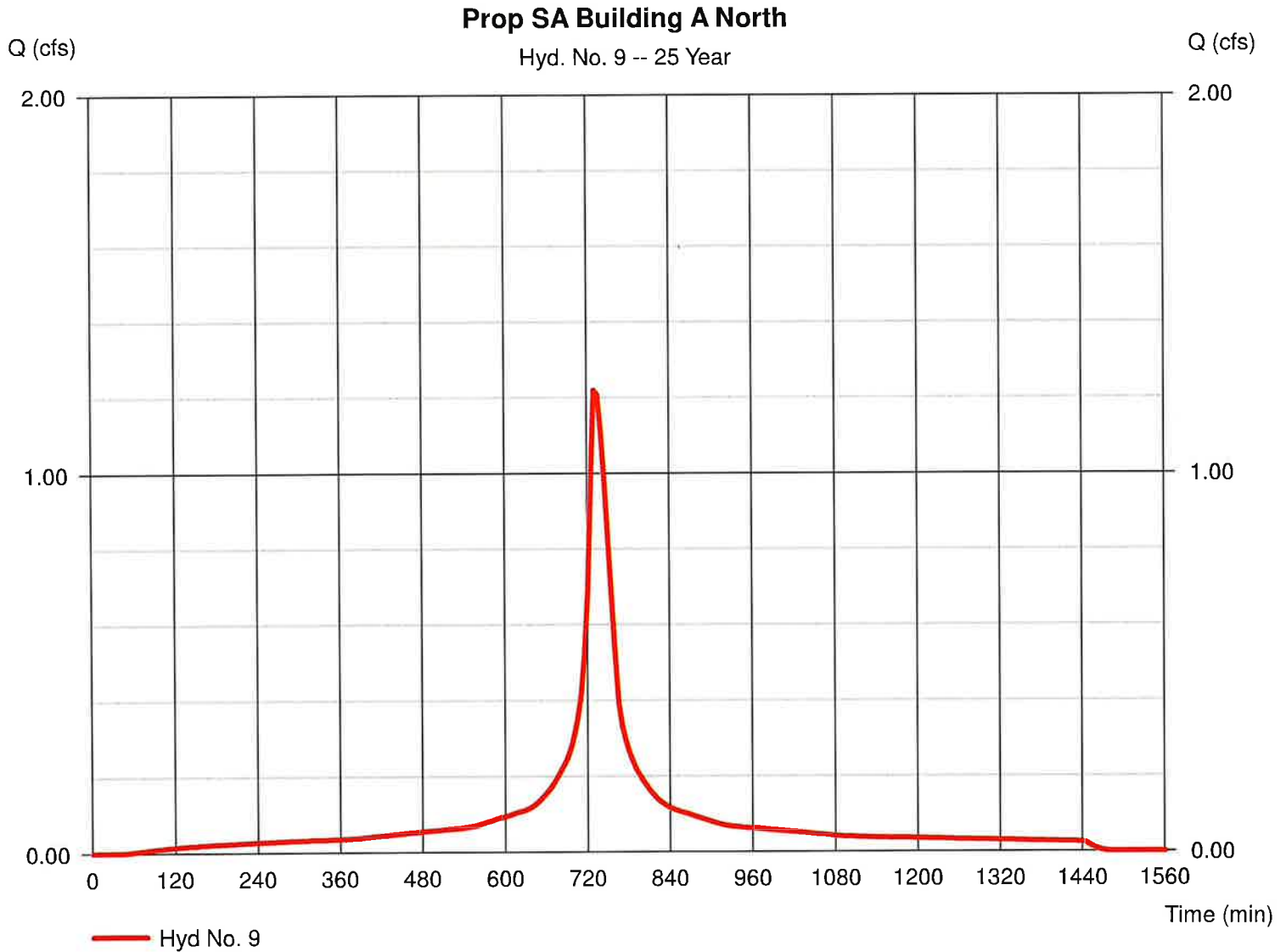
Thursday, Jun 24, 2021

Hyd. No. 9

Prop SA Building A North

Hydrograph type = SCS Runoff
Storm frequency = 25 yrs
Time interval = 5 min
Drainage area = 0.340 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 6.53 in
Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 1.220 cfs
Time to peak = 730 min
Hyd. volume = 0.177 acft
Curve number = 98
Hydraulic length = 0 ft
Time of conc. (Tc) = 10.00 min
Distribution = Custom
Shape factor = 285



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

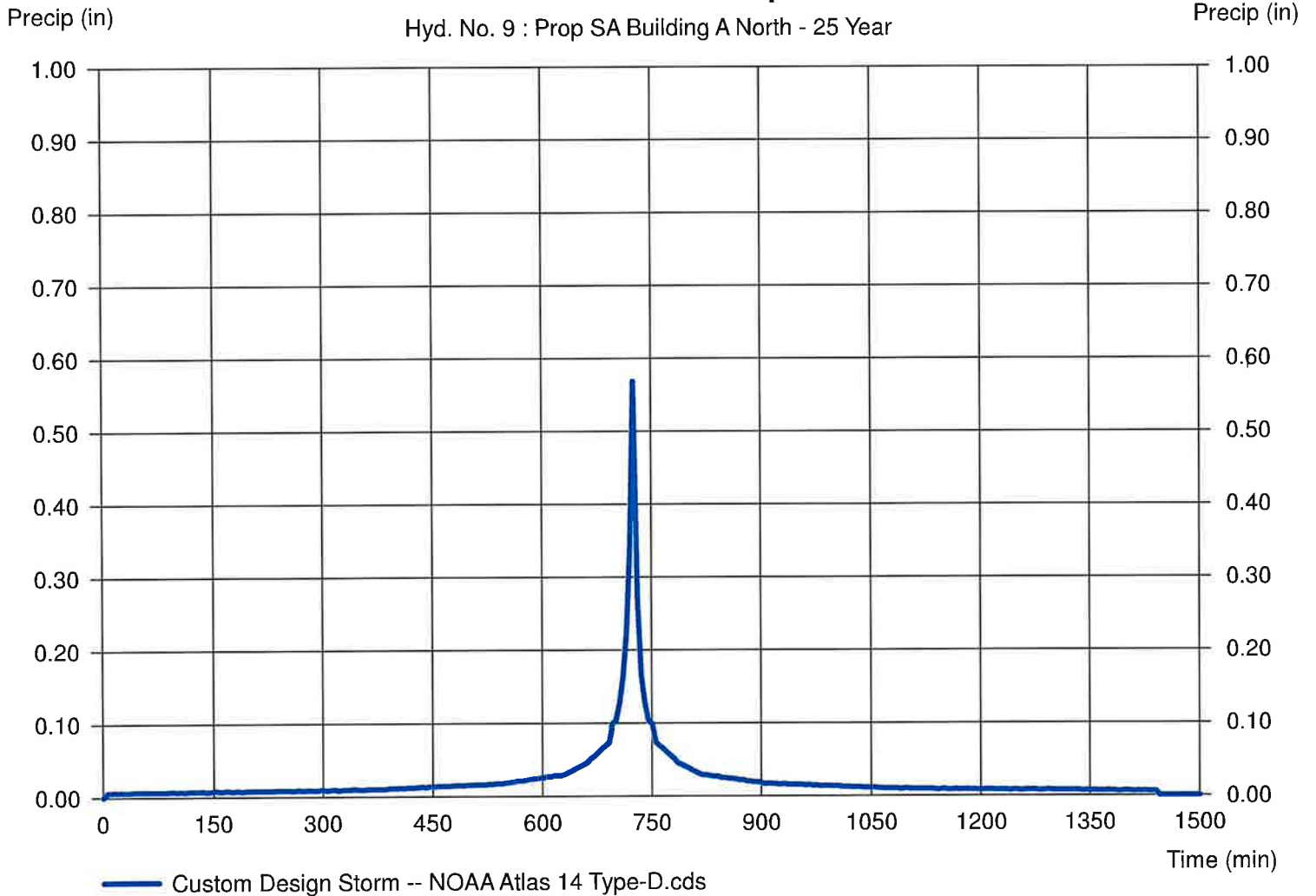
Hyd. No. 9

Prop SA Building A North

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 9 : Prop SA Building A North - 25 Year



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

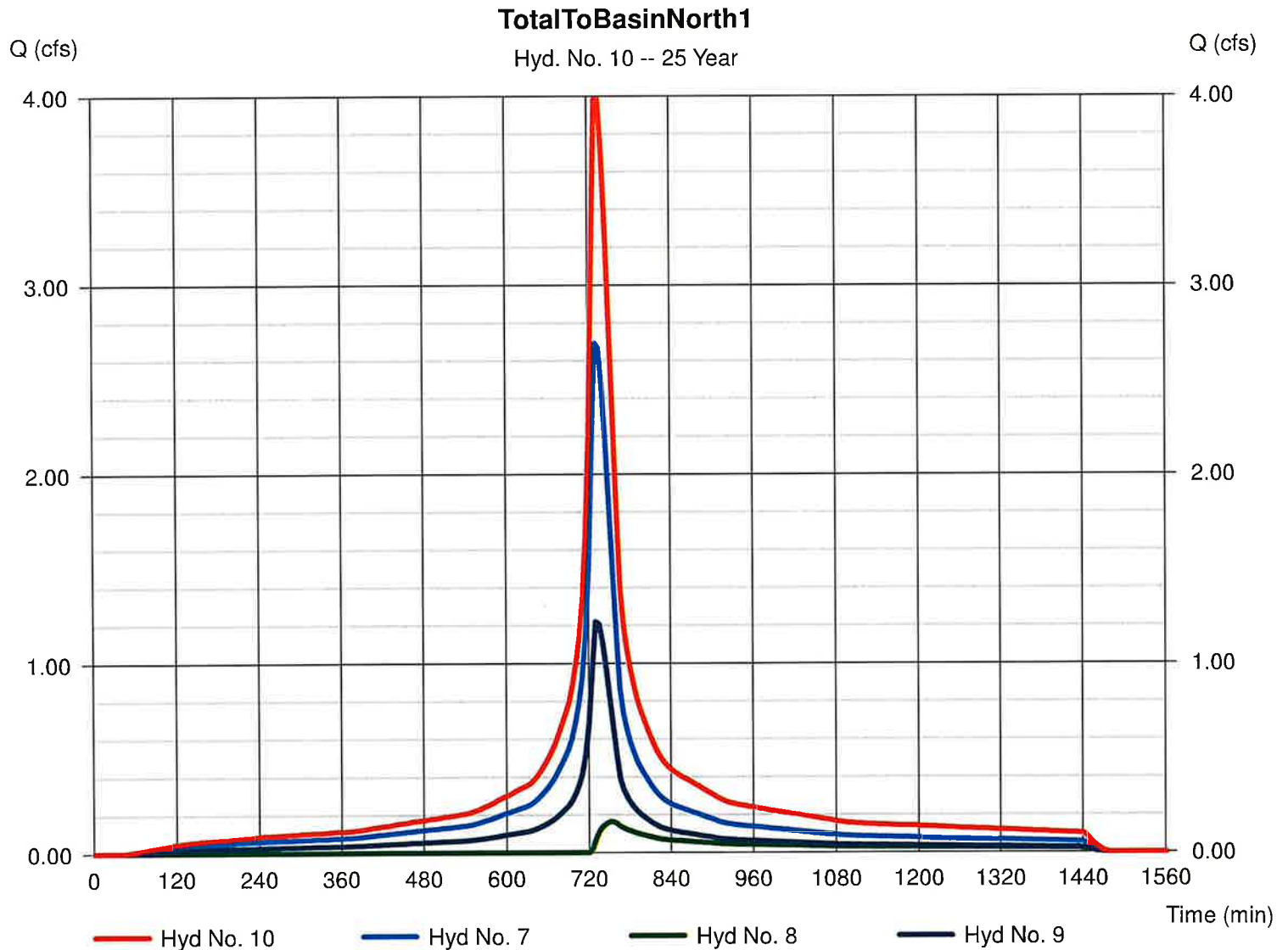
Thursday, Jun 24, 2021

Hyd. No. 10

TotalToBasinNorth1

Hydrograph type = Combine
Storm frequency = 25 yrs
Time interval = 5 min
Inflow hyds. = 7, 8, 9

Peak discharge = 3.984 cfs
Time to peak = 735 min
Hyd. volume = 0.612 acft
Contrib. drain. area = 1.970 ac



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

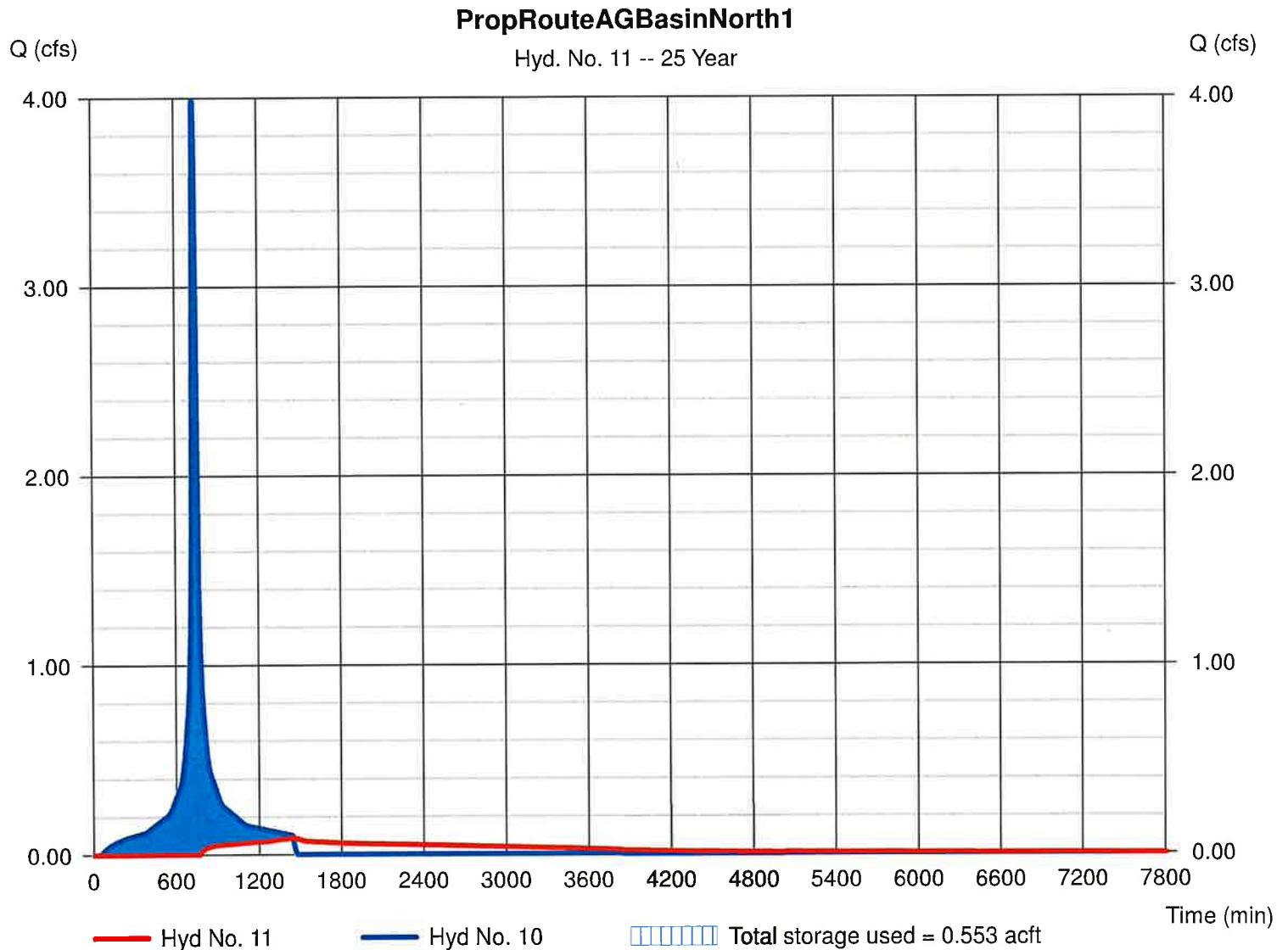
Thursday, Jun 24, 2021

Hyd. No. 11

PropRouteAGBasinNorth1

Hydrograph type	= Reservoir	Peak discharge	= 0.086 cfs
Storm frequency	= 25 yrs	Time to peak	= 1445 min
Time interval	= 5 min	Hyd. volume	= 0.236 acft
Inflow hyd. No.	= 10 - TotalToBasinNorth1	Max. Elevation	= 126.33 ft
Reservoir name	= Prop AG Basin North 1	Max. Storage	= 0.553 acft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

Pond No. 1 - Prop AG Basin North 1

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 123.60 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	123.60	5,550	0.000	0.000
0.40	124.00	7,027	0.058	0.058
1.40	125.00	8,856	0.182	0.239
2.40	126.00	10,712	0.224	0.464
3.40	127.00	12,588	0.267	0.731
3.90	127.50	13,636	0.150	0.881
4.40	128.00	14,818	0.163	1.045
4.60	128.20	16,594	0.072	1.117

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	1.75	4.00	0.00
Span (in)	= 15.00	1.75	4.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 123.60	125.60	126.25	0.00
Length (ft)	= 50.00	0.00	0.00	0.00
Slope (%)	= 0.05	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 16.00	25.00	0.00	0.00
Crest El. (ft)	= 127.45	127.50	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= Rect	Broad	---	---
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000	(by Wet area)		
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	123.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.04	0.006	123.64	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.08	0.012	123.68	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.12	0.017	123.72	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.16	0.023	123.76	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.20	0.029	123.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.24	0.035	123.84	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.28	0.040	123.88	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.32	0.046	123.92	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.36	0.052	123.96	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.40	0.058	124.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.50	0.076	124.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.60	0.094	124.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.70	0.112	124.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.80	0.130	124.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.90	0.149	124.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
1.00	0.167	124.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
1.10	0.185	124.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
1.20	0.203	124.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
1.30	0.221	124.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
1.40	0.239	125.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
1.50	0.262	125.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
1.60	0.284	125.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
1.70	0.307	125.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
1.80	0.329	125.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
1.90	0.352	125.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
2.00	0.374	125.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
2.10	0.396	125.70	0.01 oc	0.01 ic	0.00	---	0.00	0.00	---	---	---	---	0.01
2.20	0.419	125.80	0.03 oc	0.03 ic	0.00	---	0.00	0.00	---	---	---	---	0.03
2.30	0.441	125.90	0.04 oc	0.04 ic	0.00	---	0.00	0.00	---	---	---	---	0.04
2.40	0.464	126.00	0.05 oc	0.05 ic	0.00	---	0.00	0.00	---	---	---	---	0.05
2.50	0.490	126.10	0.05 oc	0.05 ic	0.00	---	0.00	0.00	---	---	---	---	0.05
2.60	0.517	126.20	0.06 oc	0.06 ic	0.00	---	0.00	0.00	---	---	---	---	0.06
2.70	0.544	126.30	0.07 oc	0.06 ic	0.01 ic	---	0.00	0.00	---	---	---	---	0.07
2.80	0.571	126.40	0.12 oc	0.07 ic	0.05 ic	---	0.00	0.00	---	---	---	---	0.12
2.90	0.597	126.50	0.20 oc	0.07 ic	0.12 ic	---	0.00	0.00	---	---	---	---	0.19

Continues on next page...

Prop AG Basin North 1

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.00	0.624	126.60	0.26 oc	0.08 ic	0.18 ic	---	0.00	0.00	---	---	---	---	0.26
3.10	0.651	126.70	0.31 oc	0.08 ic	0.22 ic	---	0.00	0.00	---	---	---	---	0.31
3.20	0.677	126.80	0.35 oc	0.09 ic	0.26 ic	---	0.00	0.00	---	---	---	---	0.35
3.30	0.704	126.90	0.39 oc	0.09 ic	0.29 ic	---	0.00	0.00	---	---	---	---	0.38
3.40	0.731	127.00	0.42 oc	0.09 ic	0.32 ic	---	0.00	0.00	---	---	---	---	0.41
3.45	0.746	127.05	0.43 oc	0.09 ic	0.33 ic	---	0.00	0.00	---	---	---	---	0.43
3.50	0.761	127.10	0.45 oc	0.10 ic	0.35 ic	---	0.00	0.00	---	---	---	---	0.44
3.55	0.776	127.15	0.47 oc	0.10 ic	0.36 ic	---	0.00	0.00	---	---	---	---	0.46
3.60	0.791	127.20	0.48 oc	0.10 ic	0.37 ic	---	0.00	0.00	---	---	---	---	0.47
3.65	0.806	127.25	0.49 oc	0.10 ic	0.38 ic	---	0.00	0.00	---	---	---	---	0.48
3.70	0.821	127.30	0.50 oc	0.10 ic	0.39 ic	---	0.00	0.00	---	---	---	---	0.50
3.75	0.836	127.35	0.51 oc	0.10 ic	0.41 ic	---	0.00	0.00	---	---	---	---	0.51
3.80	0.851	127.40	0.53 oc	0.11 ic	0.42 ic	---	0.00	0.00	---	---	---	---	0.52
3.85	0.866	127.45	0.54 oc	0.11 ic	0.43 ic	---	0.00	0.00	---	---	---	---	0.53
3.90	0.881	127.50	1.14 oc	0.11 ic	0.44 ic	---	0.60	0.00	---	---	---	---	1.14
3.95	0.898	127.55	2.97 oc	0.11 ic	0.45 ic	---	1.69	0.73	---	---	---	---	2.97
4.00	0.914	127.60	5.72 oc	0.11 ic	0.46 ic	---	3.10	2.06	---	---	---	---	5.72
4.05	0.930	127.65	8.94 oc	0.06 ic	0.34 ic	---	4.77	3.78	---	---	---	---	8.94
4.10	0.947	127.70	10.09 oc	0.02 ic	0.13 ic	---	5.12 s	4.81 s	---	---	---	---	10.09
4.15	0.963	127.75	10.25 oc	0.02 ic	0.09 ic	---	5.09 s	5.05 s	---	---	---	---	10.25
4.20	0.979	127.80	10.37 oc	0.01 ic	0.07 ic	---	5.08 s	5.21 s	---	---	---	---	10.37
4.25	0.996	127.85	10.48 oc	0.01 ic	0.06 ic	---	5.07 s	5.32 s	---	---	---	---	10.46
4.30	1.012	127.90	10.58 oc	0.01 ic	0.05 ic	---	5.07 s	5.42 s	---	---	---	---	10.56
4.35	1.028	127.95	10.67 oc	0.01 ic	0.04 ic	---	5.09 s	5.52 s	---	---	---	---	10.66
4.40	1.045	128.00	10.76 oc	0.01 ic	0.04 ic	---	5.09 s	5.59 s	---	---	---	---	10.73
4.42	1.052	128.02	10.80 oc	0.01 ic	0.04 ic	---	5.10 s	5.62 s	---	---	---	---	10.77
4.44	1.059	128.04	10.83 oc	0.01 ic	0.04 ic	---	5.11 s	5.65 s	---	---	---	---	10.79
4.46	1.066	128.06	10.87 oc	0.01 ic	0.03 ic	---	5.12 s	5.68 s	---	---	---	---	10.84
4.48	1.073	128.08	10.90 oc	0.01 ic	0.03 ic	---	5.14 s	5.72 s	---	---	---	---	10.90
4.50	1.081	128.10	10.94 oc	0.01 ic	0.03 ic	---	5.14 s	5.74 s	---	---	---	---	10.92
4.52	1.088	128.12	10.97 oc	0.01 ic	0.03 ic	---	5.16 s	5.77 s	---	---	---	---	10.97
4.54	1.095	128.14	11.00 oc	0.01 ic	0.03 ic	---	5.16 s	5.79 s	---	---	---	---	10.98
4.56	1.102	128.16	11.04 oc	0.01 ic	0.03 ic	---	5.14 s	5.78 s	---	---	---	---	10.95
4.58	1.109	128.18	11.07 oc	0.00 ic	0.03 ic	---	5.14 s	5.79 s	---	---	---	---	10.96
4.60	1.117	128.20	11.10 oc	0.00 ic	0.03 ic	---	5.19 s	5.86 s	---	---	---	---	11.08

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

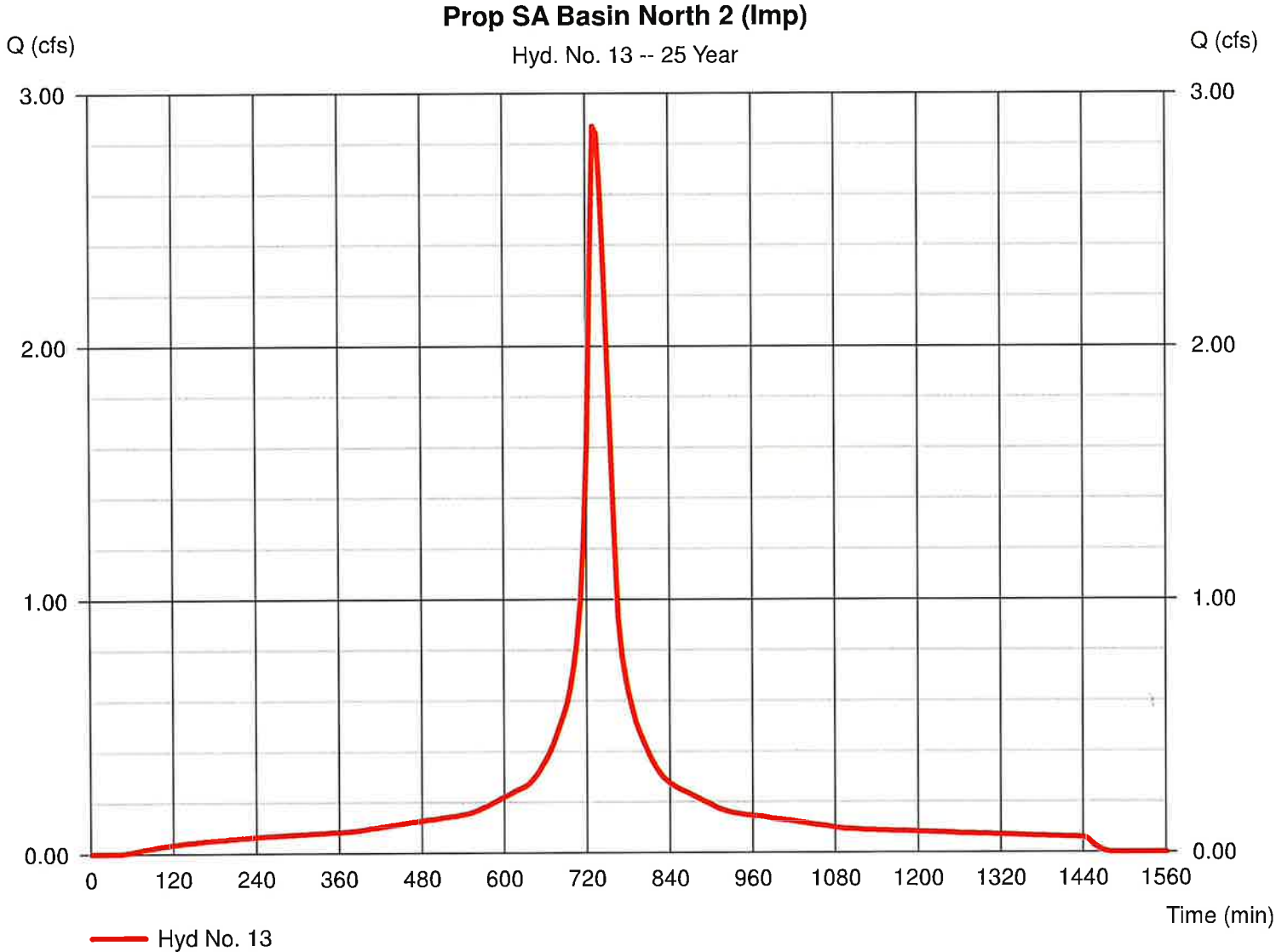
Thursday, Jun 24, 2021

Hyd. No. 13

Prop SA Basin North 2 (Imp)

Hydrograph type = SCS Runoff
Storm frequency = 25 yrs
Time interval = 5 min
Drainage area = 0.800 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 6.53 in
Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 2.870 cfs
Time to peak = 730 min
Hyd. volume = 0.417 acft
Curve number = 98
Hydraulic length = 0 ft
Time of conc. (Tc) = 10.00 min
Distribution = Custom
Shape factor = 285



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

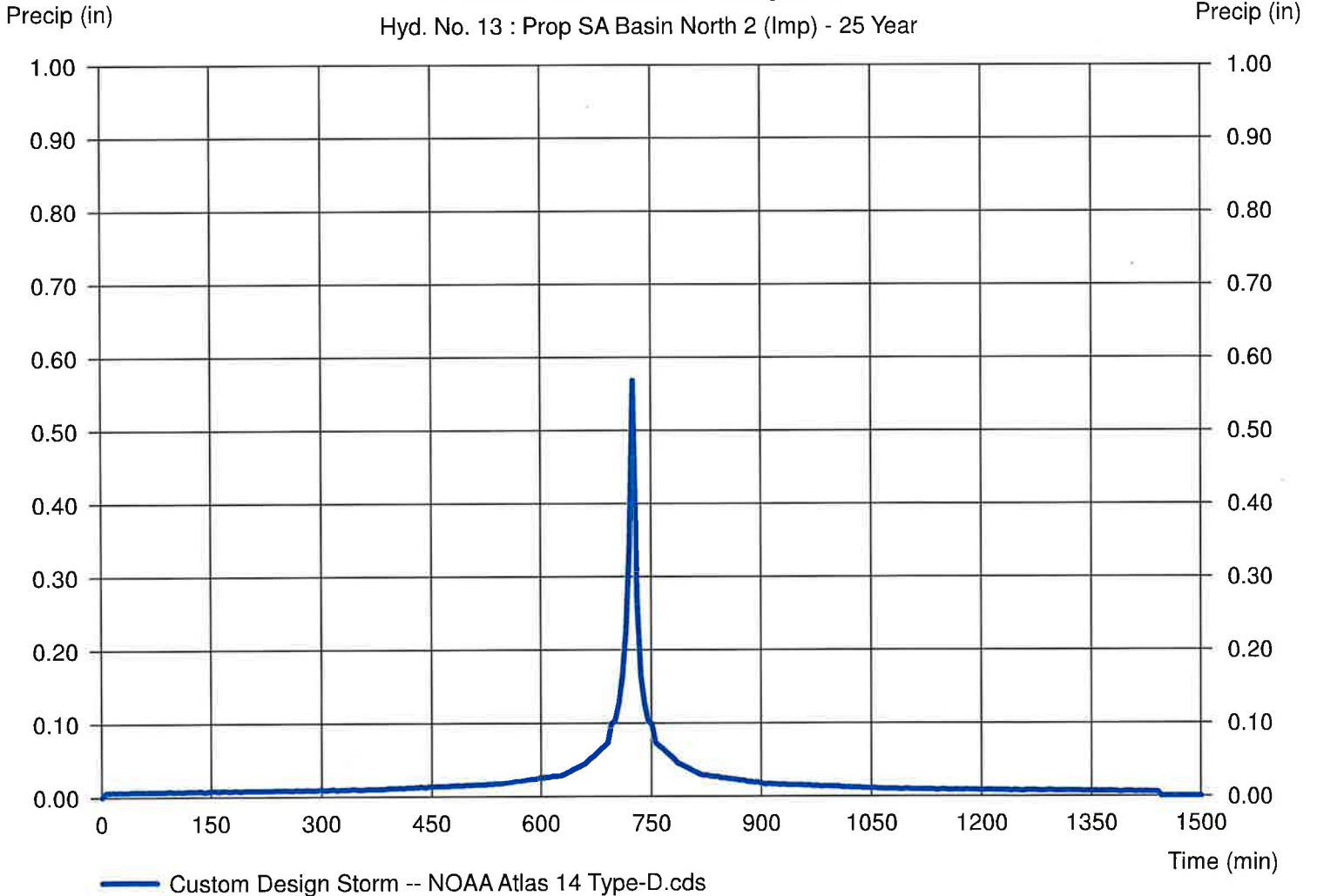
Thursday, Jun 24, 2021

Hyd. No. 13

Prop SA Basin North 2 (Imp)

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

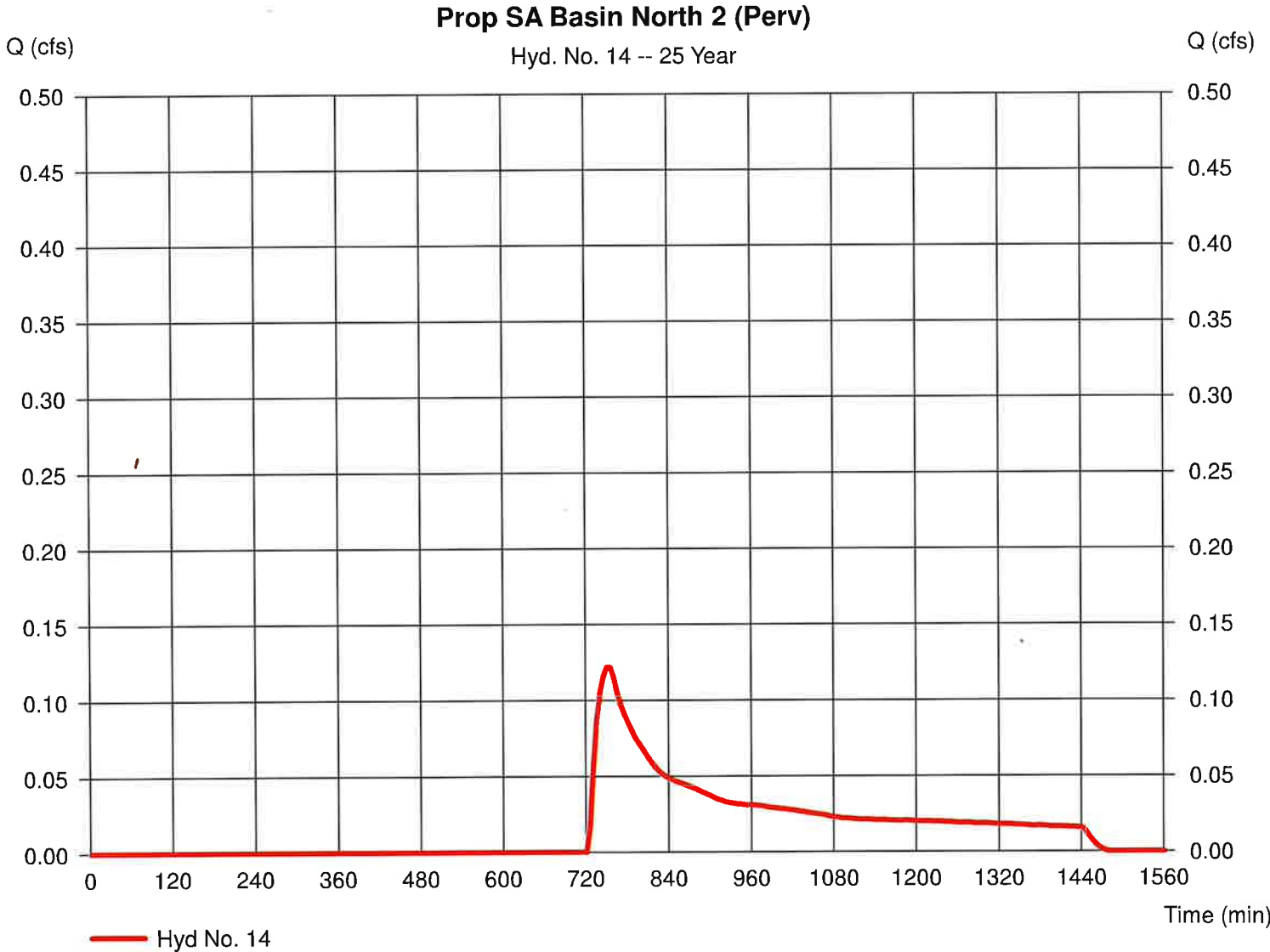
Thursday, Jun 24, 2021

Hyd. No. 14

Prop SA Basin North 2 (Perv)

Hydrograph type = SCS Runoff
Storm frequency = 25 yrs
Time interval = 5 min
Drainage area = 0.660 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 6.53 in
Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.121 cfs
Time to peak = 750 min
Hyd. volume = 0.033 acft
Curve number = 39
Hydraulic length = 0 ft
Time of conc. (Tc) = 10.00 min
Distribution = Custom
Shape factor = 285



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

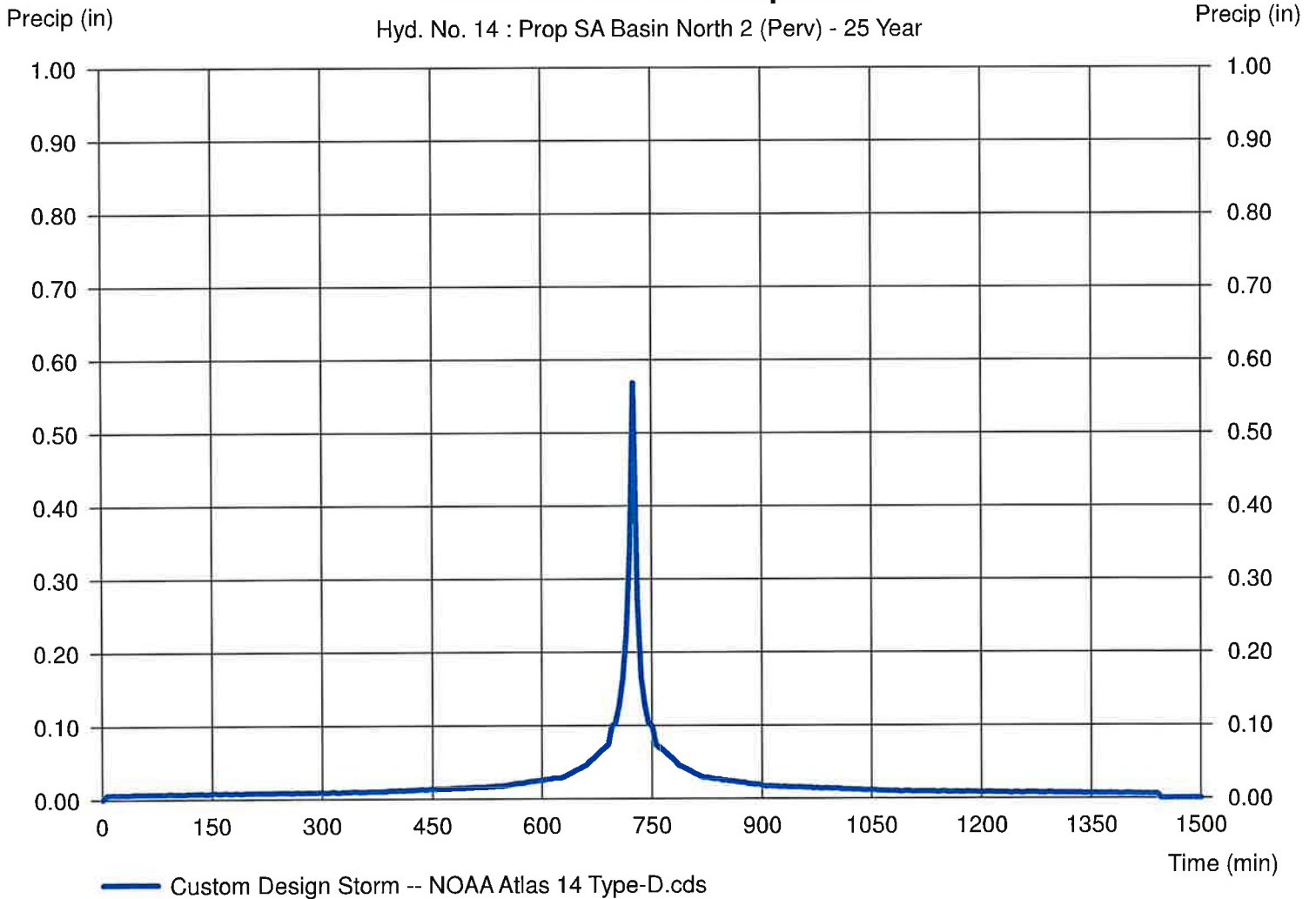
Hyd. No. 14

Prop SA Basin North 2 (Perv)

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 14 : Prop SA Basin North 2 (Perv) - 25 Year



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

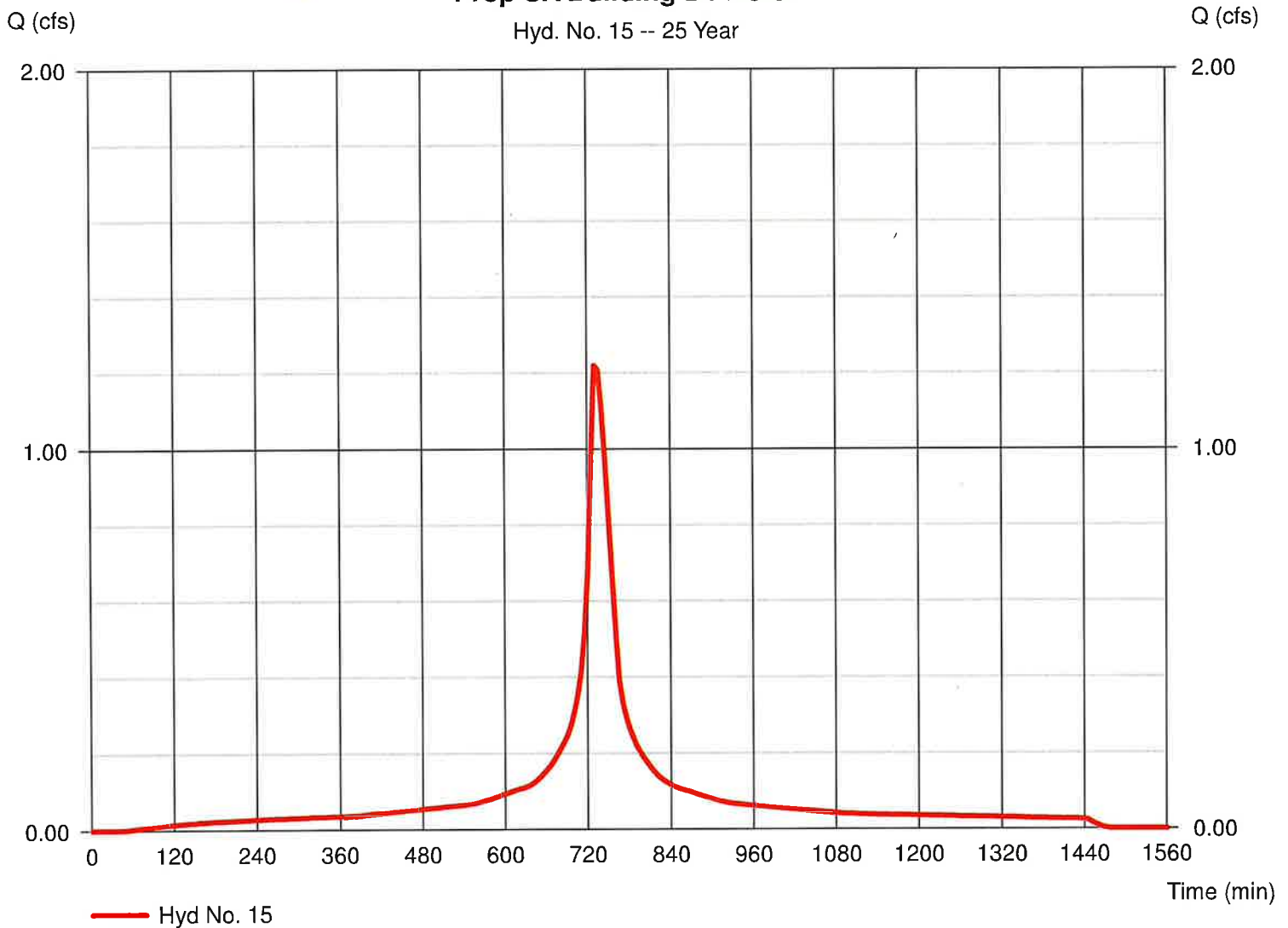
Hyd. No. 15

Prop SA Building B1 North

Hydrograph type	= SCS Runoff	Peak discharge	= 1.220 cfs
Storm frequency	= 25 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.177 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.53 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Prop SA Building B1 North

Hyd. No. 15 -- 25 Year



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

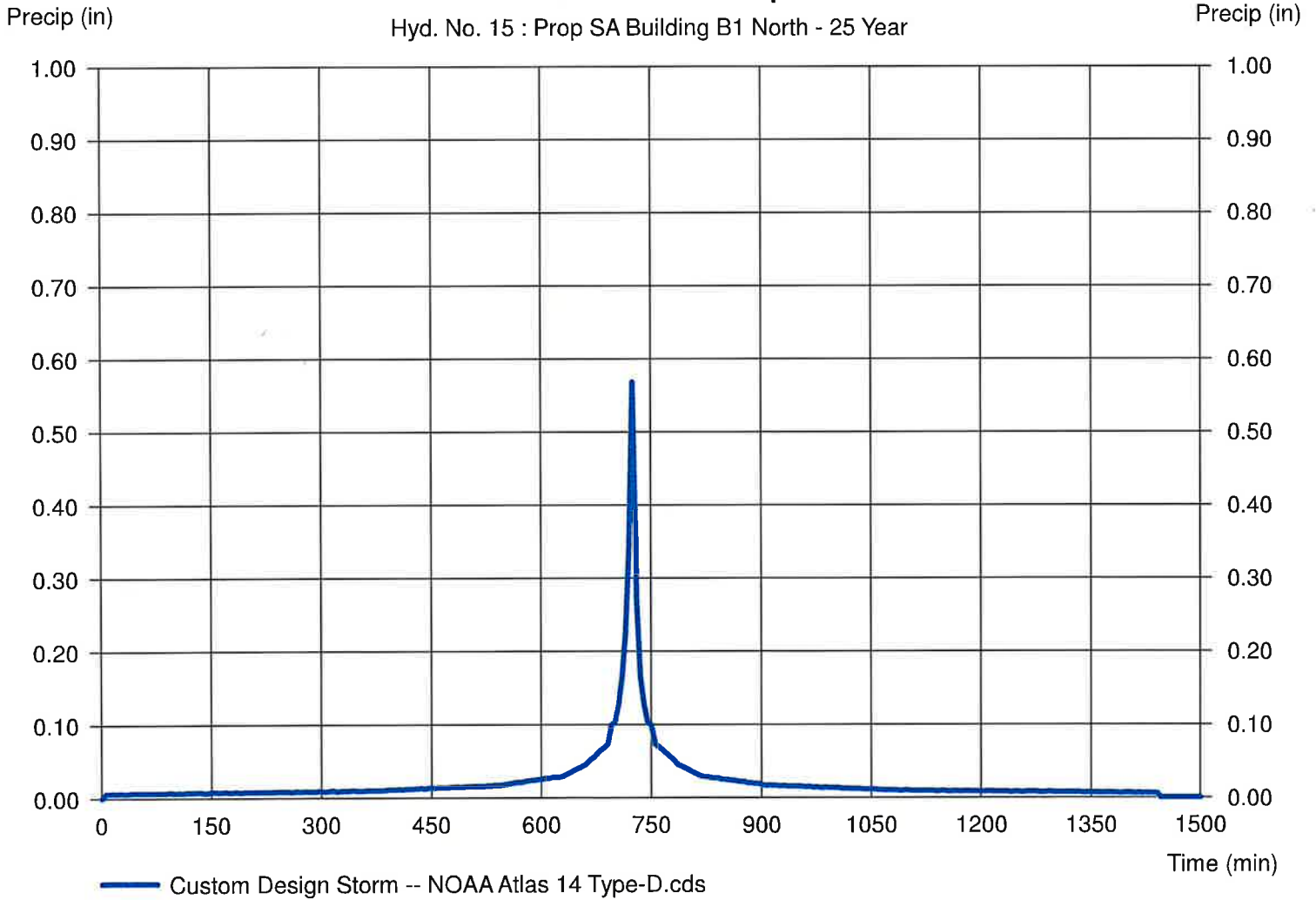
Hyd. No. 15

Prop SA Building B1 North

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 15 : Prop SA Building B1 North - 25 Year



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

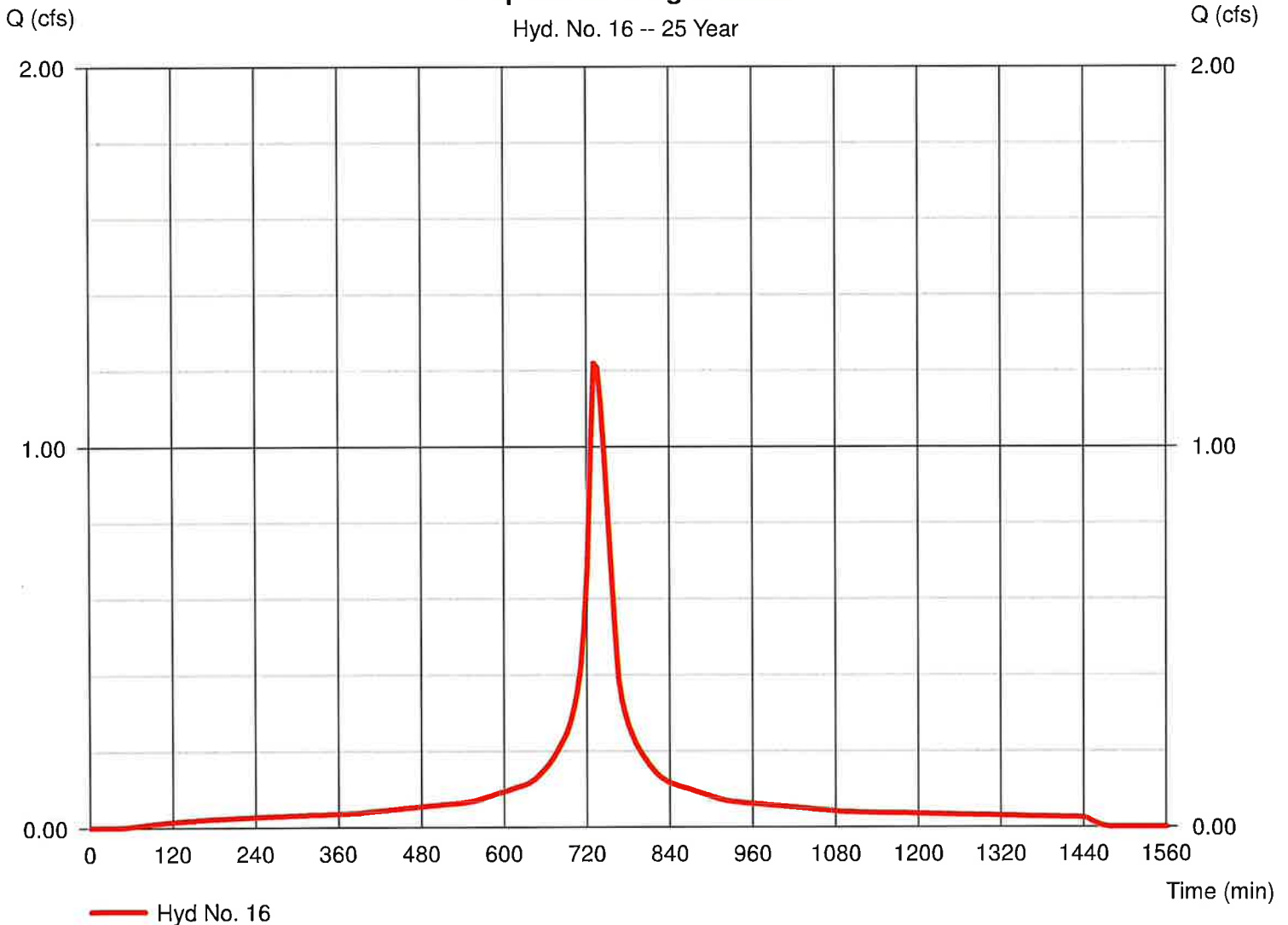
Hyd. No. 16

Prop SA Building A South

Hydrograph type	= SCS Runoff	Peak discharge	= 1.220 cfs
Storm frequency	= 25 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.177 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.53 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Prop SA Building A South

Hyd. No. 16 -- 25 Year



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

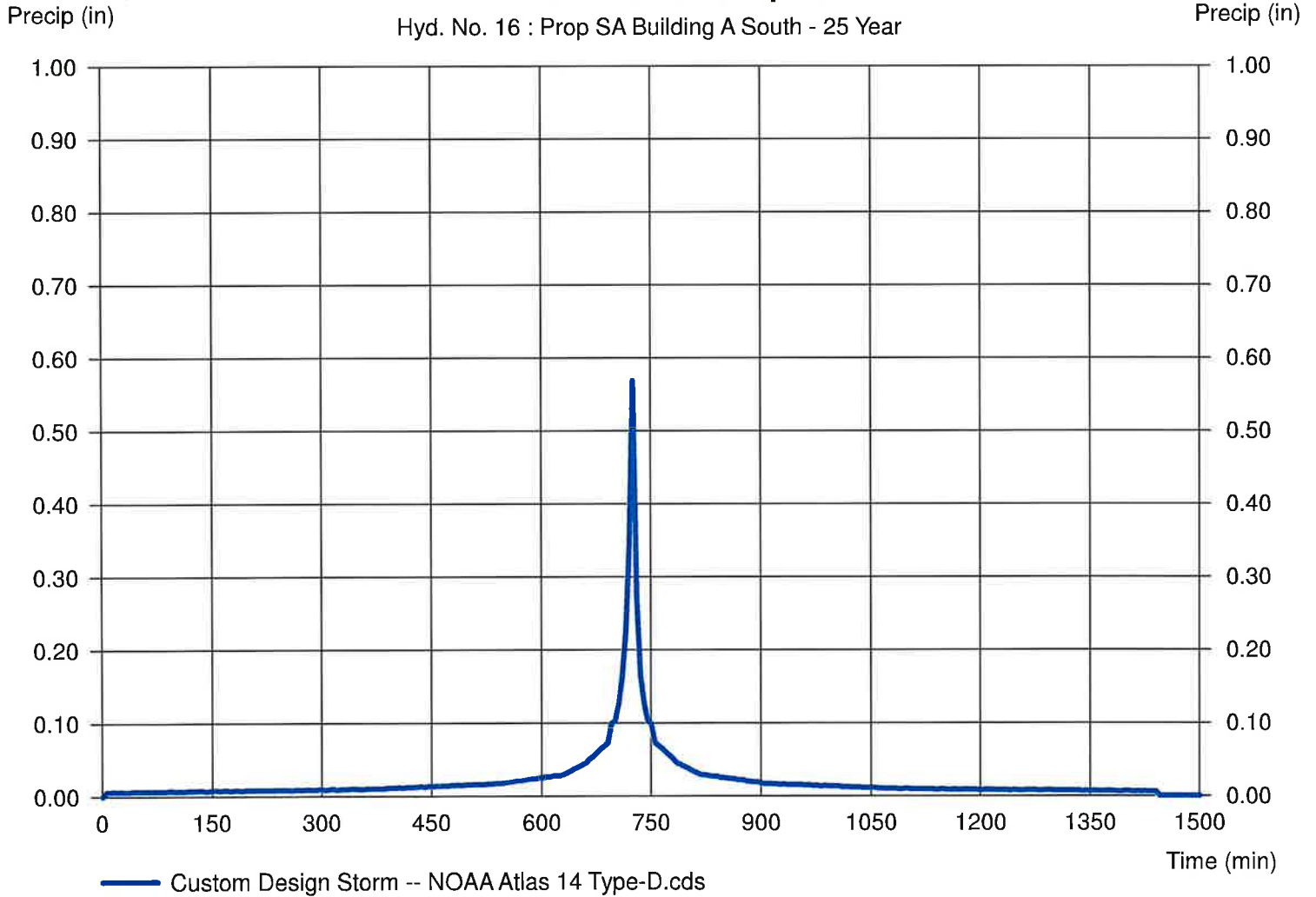
Hyd. No. 16

Prop SA Building A South

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 16 : Prop SA Building A South - 25 Year



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

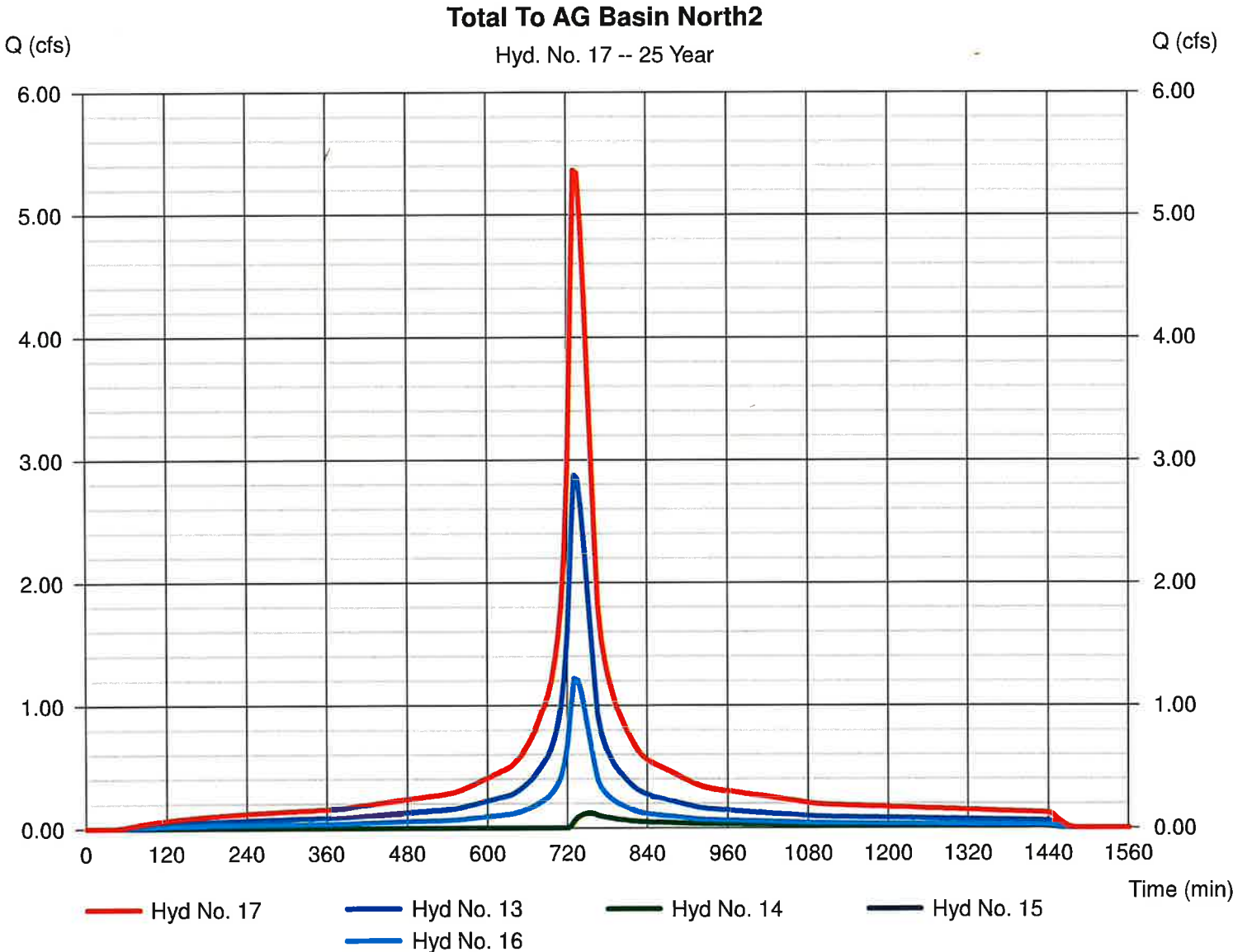
Thursday, Jun 24, 2021

Hyd. No. 17

Total To AG Basin North2

Hydrograph type = Combine
Storm frequency = 25 yrs
Time interval = 5 min
Inflow hyds. = 13, 14, 15, 16

Peak discharge = 5.365 cfs
Time to peak = 730 min
Hyd. volume = 0.804 acft
Contrib. drain. area = 2.140 ac



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

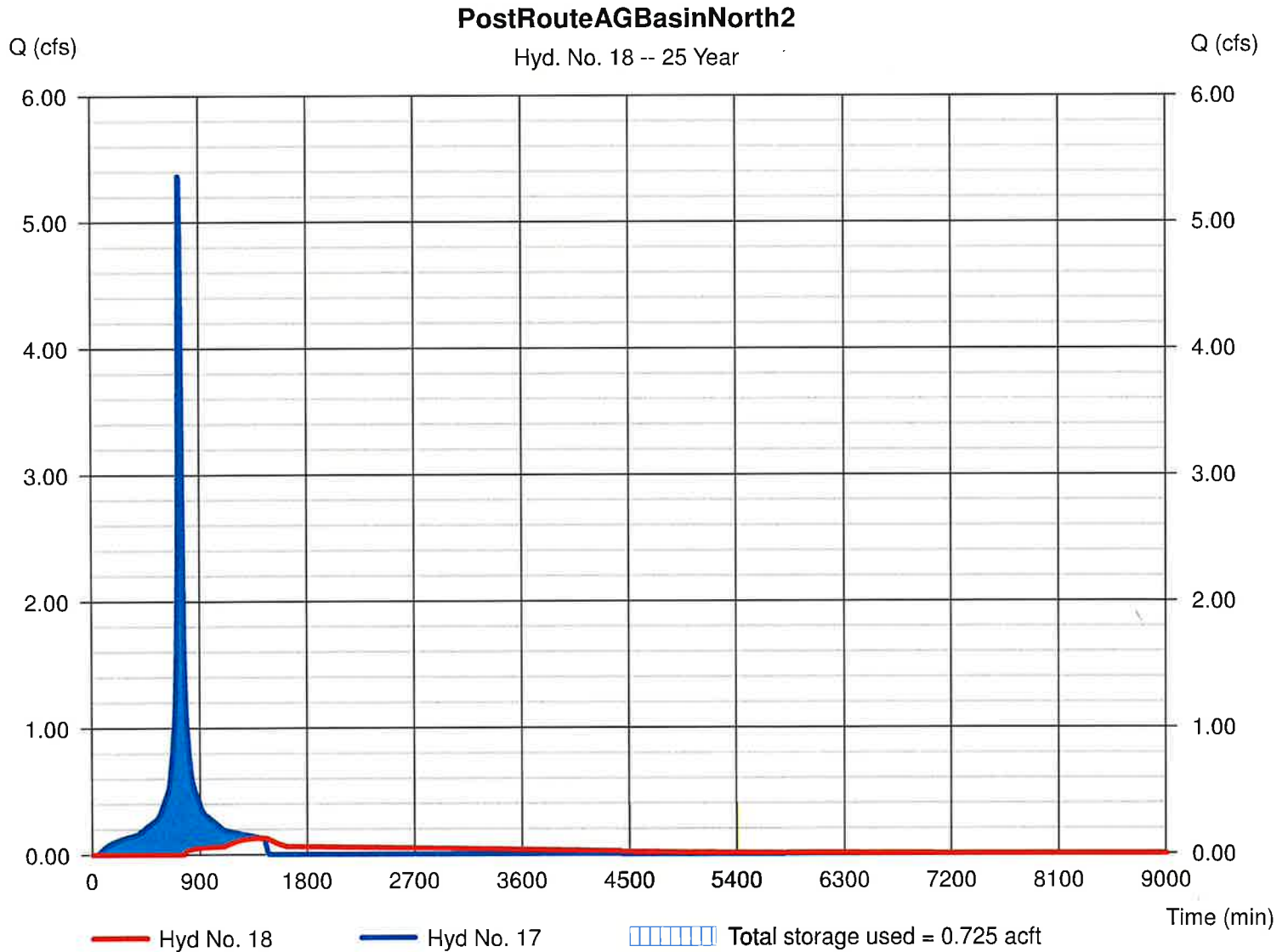
Hyd. No. 18

PostRouteAGBasinNorth2

Hydrograph type = Reservoir
Storm frequency = 25 yrs
Time interval = 5 min
Inflow hyd. No. = 17 - Total To AG Basin North2
Reservoir name = Prop. AG Basin North 2

Peak discharge = 0.130 cfs
Time to peak = 1410 min
Hyd. volume = 0.307 acft
Max. Elevation = 126.37 ft
Max. Storage = 0.725 acft

Storage Indication method used.



Pond No. 3 - Prop. AG Basin North 2

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 123.60 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	123.60	7,227	0.000	0.000
0.40	124.00	10,203	0.080	0.080
1.40	125.00	11,325	0.247	0.327
2.40	126.00	13,137	0.280	0.607
3.40	127.00	14,689	0.319	0.926
3.90	127.50	15,576	0.174	1.100
4.40	128.00	17,314	0.189	1.289
4.60	128.20	19,222	0.084	1.372

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	1.75	0.00	0.00
Span (in)	= 15.00	1.75	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 123.60	125.60	0.00	0.00
Length (ft)	= 50.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.50	16.00	25.00	0.00
Crest El. (ft)	= 126.35	127.45	127.50	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= Rect	Rect	Broad	---
Multi-Stage	= Yes	Yes	Yes	No
Exfil.(in/hr)	= 0.000 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	123.60	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.04	0.008	123.64	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.08	0.016	123.68	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.12	0.024	123.72	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.16	0.032	123.76	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.20	0.040	123.80	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.24	0.048	123.84	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.28	0.056	123.88	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.32	0.064	123.92	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.36	0.072	123.96	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.40	0.080	124.00	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.50	0.104	124.10	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.60	0.129	124.20	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.70	0.154	124.30	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.80	0.178	124.40	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.90	0.203	124.50	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.00	0.228	124.60	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.10	0.253	124.70	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.20	0.277	124.80	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.30	0.302	124.90	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.40	0.327	125.00	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.50	0.355	125.10	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.60	0.383	125.20	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.70	0.411	125.30	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.80	0.439	125.40	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.90	0.467	125.50	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
2.00	0.495	125.60	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
2.10	0.523	125.70	0.01 ic	0.01 ic	---	---	0.00	0.00	0.00	---	---	---	0.01
2.20	0.551	125.80	0.03 ic	0.03 ic	---	---	0.00	0.00	0.00	---	---	---	0.03
2.30	0.579	125.90	0.04 ic	0.04 ic	---	---	0.00	0.00	0.00	---	---	---	0.04
2.40	0.607	126.00	0.05 ic	0.05 ic	---	---	0.00	0.00	0.00	---	---	---	0.05
2.50	0.639	126.10	0.06 ic	0.05 ic	---	---	0.00	0.00	0.00	---	---	---	0.05
2.60	0.671	126.20	0.06 ic	0.06 ic	---	---	0.00	0.00	0.00	---	---	---	0.06
2.70	0.703	126.30	0.06 ic	0.06 ic	---	---	0.00	0.00	0.00	---	---	---	0.06
2.80	0.735	126.40	0.16 ic	0.07 ic	---	---	0.09	0.00	0.00	---	---	---	0.16
2.90	0.767	126.50	0.56 ic	0.07 ic	---	---	0.48	0.00	0.00	---	---	---	0.56

Continues on next page...

Prop. AG Basin North 2

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.00	0.799	126.60	1.14 oc	0.08 ic	---	---	1.04	0.00	0.00	---	---	---	1.12
3.10	0.831	126.70	1.82 oc	0.08 ic	---	---	1.72	0.00	0.00	---	---	---	1.81
3.20	0.862	126.80	2.60 oc	0.09 ic	---	---	2.51	0.00	0.00	---	---	---	2.60
3.30	0.894	126.90	3.48 oc	0.09 ic	---	---	3.40	0.00	0.00	---	---	---	3.48
3.40	0.926	127.00	4.46 oc	0.09 ic	---	---	4.36	0.00	0.00	---	---	---	4.46
3.45	0.944	127.05	4.97 oc	0.09 ic	---	---	4.88	0.00	0.00	---	---	---	4.97
3.50	0.961	127.10	5.50 oc	0.10 ic	---	---	5.41	0.00	0.00	---	---	---	5.50
3.55	0.978	127.15	6.05 oc	0.10 ic	---	---	5.96	0.00	0.00	---	---	---	6.05
3.60	0.996	127.20	6.62 oc	0.10 ic	---	---	6.52	0.00	0.00	---	---	---	6.62
3.65	1.013	127.25	7.20 oc	0.09 ic	---	---	7.11	0.00	0.00	---	---	---	7.20
3.70	1.030	127.30	7.79 oc	0.08 ic	---	---	7.71	0.00	0.00	---	---	---	7.79
3.75	1.048	127.35	8.27 oc	0.08 ic	---	---	8.19 s	0.00	0.00	---	---	---	8.27
3.80	1.065	127.40	8.58 oc	0.07 ic	---	---	8.51 s	0.00	0.00	---	---	---	8.58
3.85	1.083	127.45	8.84 oc	0.07 ic	---	---	8.77 s	0.00	0.00	---	---	---	8.84
3.90	1.100	127.50	9.22 oc	0.06 ic	---	---	8.69 s	0.47	0.00	---	---	---	9.22
3.95	1.119	127.55	9.80 oc	0.05 ic	---	---	7.51 s	1.32	0.93	---	---	---	9.80
4.00	1.138	127.60	10.28 oc	0.03 ic	---	---	5.32 s	2.29 s	2.63	---	---	---	10.28
4.05	1.157	127.65	10.47 oc	0.02 ic	---	---	4.22 s	2.55 s	3.67 s	---	---	---	10.47
4.10	1.175	127.70	10.59 oc	0.01 ic	---	---	3.61 s	2.72 s	4.24 s	---	---	---	10.59
4.15	1.194	127.75	10.70 oc	0.01 ic	---	---	3.19 s	2.85 s	4.64 s	---	---	---	10.70
4.20	1.213	127.80	10.79 oc	0.01 ic	---	---	2.88 s	2.94 s	4.95 s	---	---	---	10.78
4.25	1.232	127.85	10.88 oc	0.01 ic	---	---	2.64 s	3.02 s	5.20 s	---	---	---	10.86
4.30	1.251	127.90	10.97 oc	0.01 ic	---	---	2.45 s	3.08 s	5.41 s	---	---	---	10.95
4.35	1.270	127.95	11.06 oc	0.01 ic	---	---	2.30 s	3.14 s	5.58 s	---	---	---	11.03
4.40	1.289	128.00	11.14 oc	0.01 ic	---	---	2.18 s	3.20 s	5.76 s	---	---	---	11.14
4.42	1.297	128.02	11.18 oc	0.01 ic	---	---	2.12 s	3.19 s	5.77 s	---	---	---	11.08
4.44	1.305	128.04	11.21 oc	0.01 ic	---	---	2.09 s	3.23 s	5.85 s	---	---	---	11.17
4.46	1.314	128.06	11.24 oc	0.00 ic	---	---	2.05 s	3.25 s	5.91 s	---	---	---	11.21
4.48	1.322	128.08	11.28 oc	0.00 ic	---	---	2.01 s	3.26 s	5.95 s	---	---	---	11.23
4.50	1.331	128.10	11.31 oc	0.00 ic	---	---	1.97 s	3.26 s	5.96 s	---	---	---	11.19
4.52	1.339	128.12	11.34 oc	0.00 ic	---	---	1.94 s	3.28 s	6.02 s	---	---	---	11.25
4.54	1.347	128.14	11.37 oc	0.00 ic	---	---	1.91 s	3.30 s	6.07 s	---	---	---	11.29
4.56	1.356	128.16	11.41 oc	0.00 ic	---	---	1.88 s	3.31 s	6.10 s	---	---	---	11.29
4.58	1.364	128.18	11.44 oc	0.00 ic	---	---	1.84 s	3.30 s	6.11 s	---	---	---	11.26
4.60	1.372	128.20	11.47 oc	0.00 ic	---	---	1.82 s	3.32 s	6.15 s	---	---	---	11.30

...End

Hydrograph Report

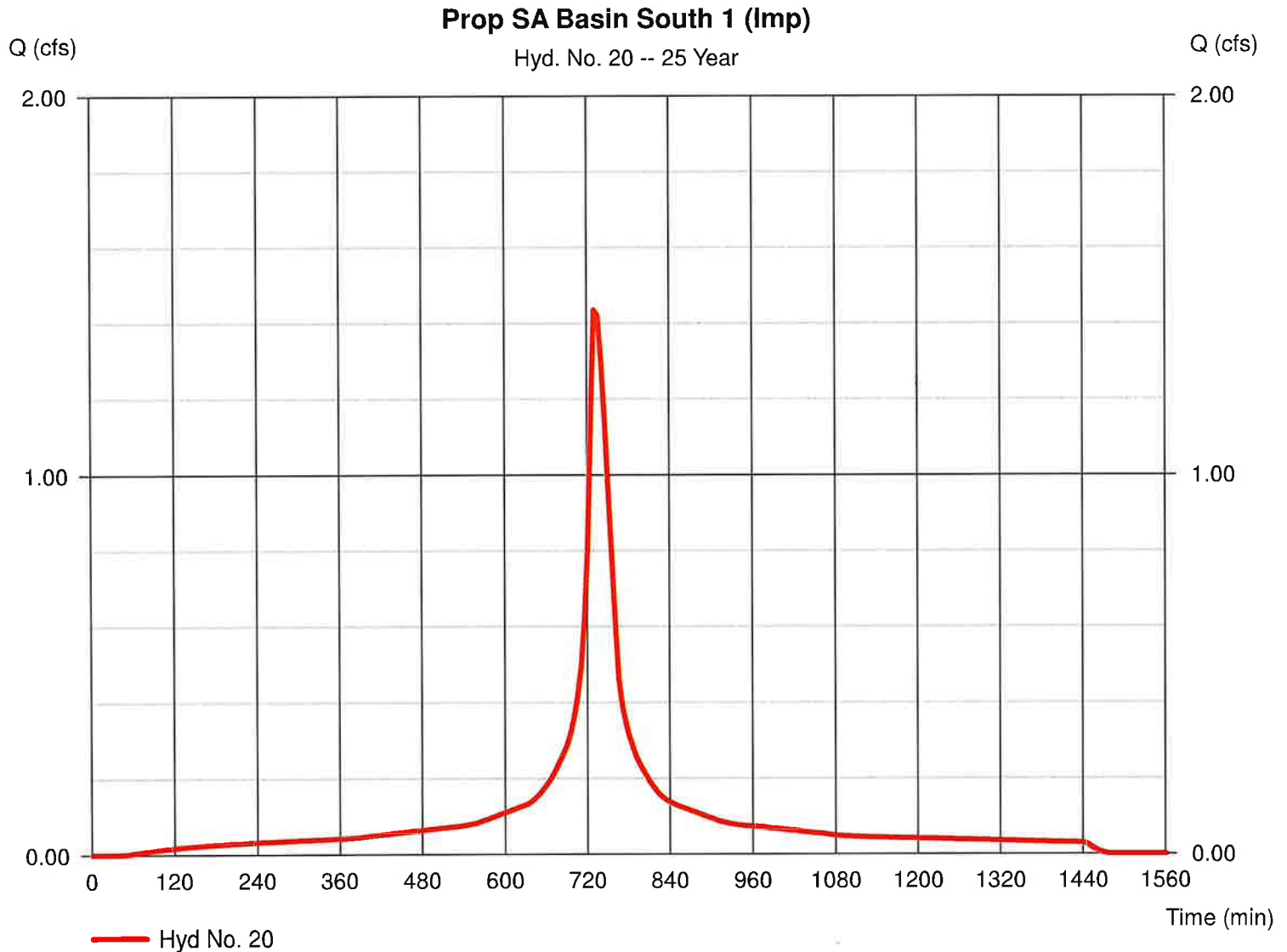
Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 20

Prop SA Basin South 1 (Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 1.435 cfs
Storm frequency	= 25 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.208 acft
Drainage area	= 0.400 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.53 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

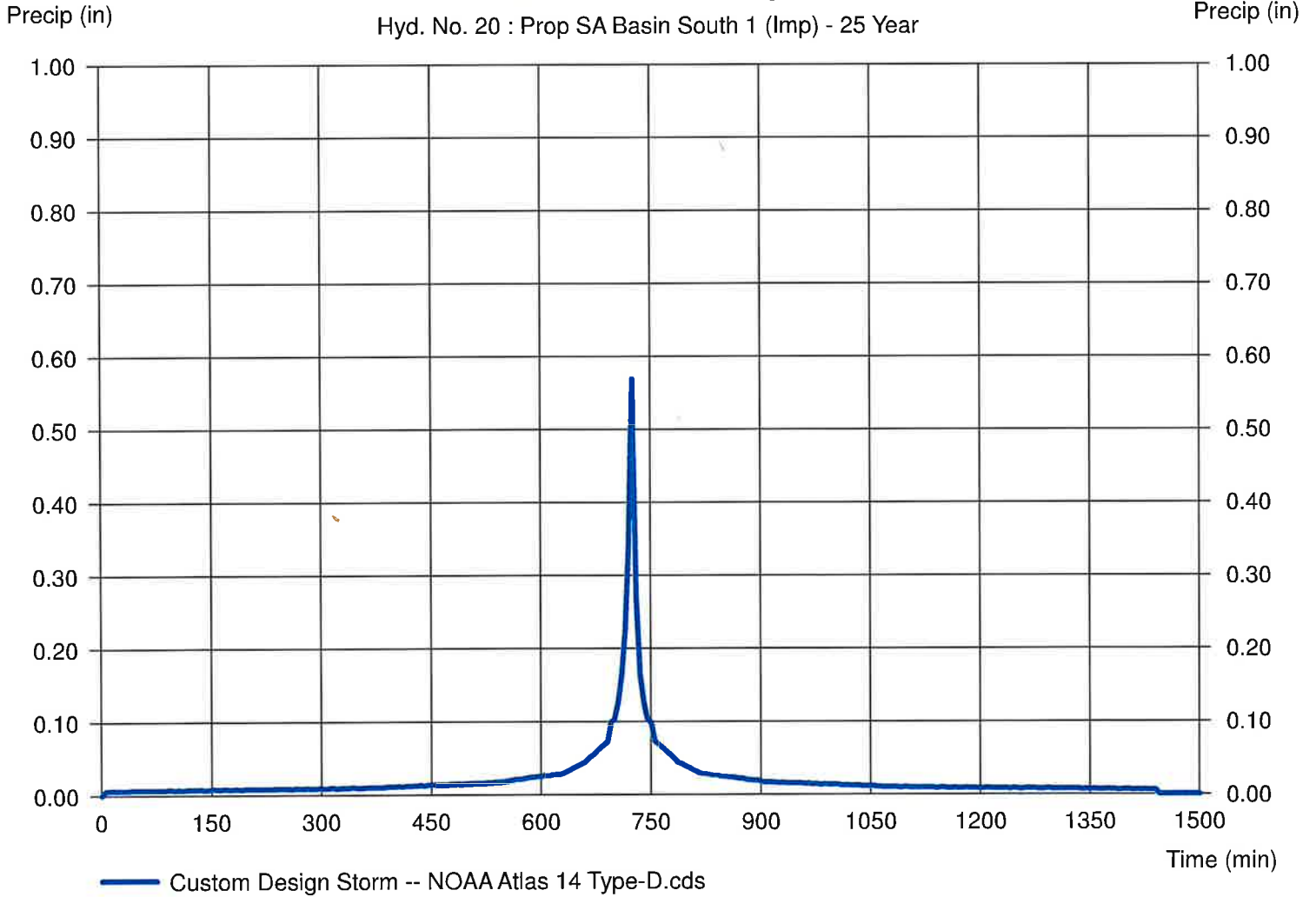
Hyd. No. 20

Prop SA Basin South 1 (Imp)

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 20 : Prop SA Basin South 1 (Imp) - 25 Year



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

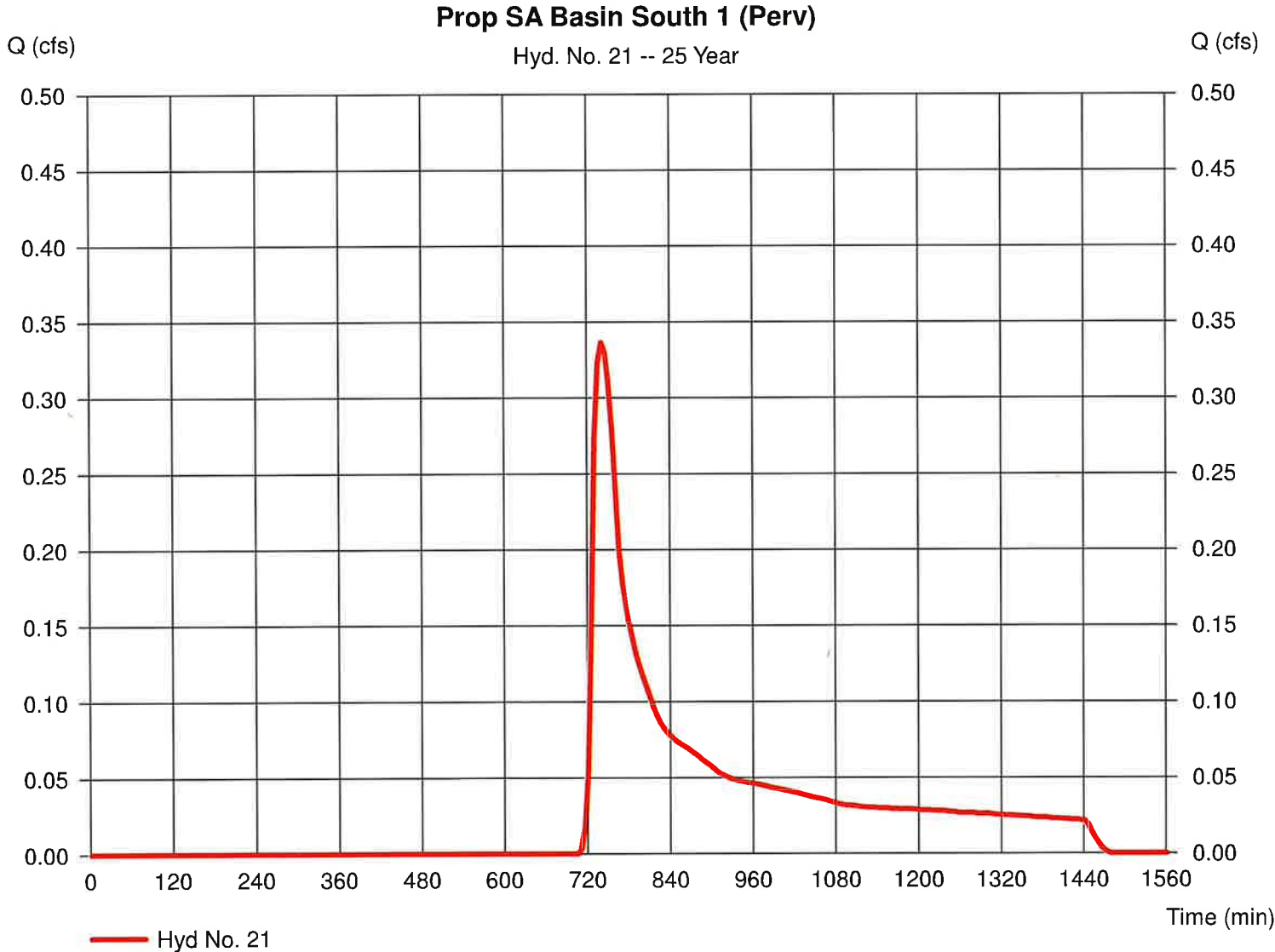
Thursday, Jun 24, 2021

Hyd. No. 21

Prop SA Basin South 1 (Perv)

Hydrograph type = SCS Runoff
Storm frequency = 25 yrs
Time interval = 5 min
Drainage area = 0.650 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 6.53 in
Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.336 cfs
Time to peak = 740 min
Hyd. volume = 0.059 acft
Curve number = 46
Hydraulic length = 0 ft
Time of conc. (Tc) = 10.00 min
Distribution = Custom
Shape factor = 285



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

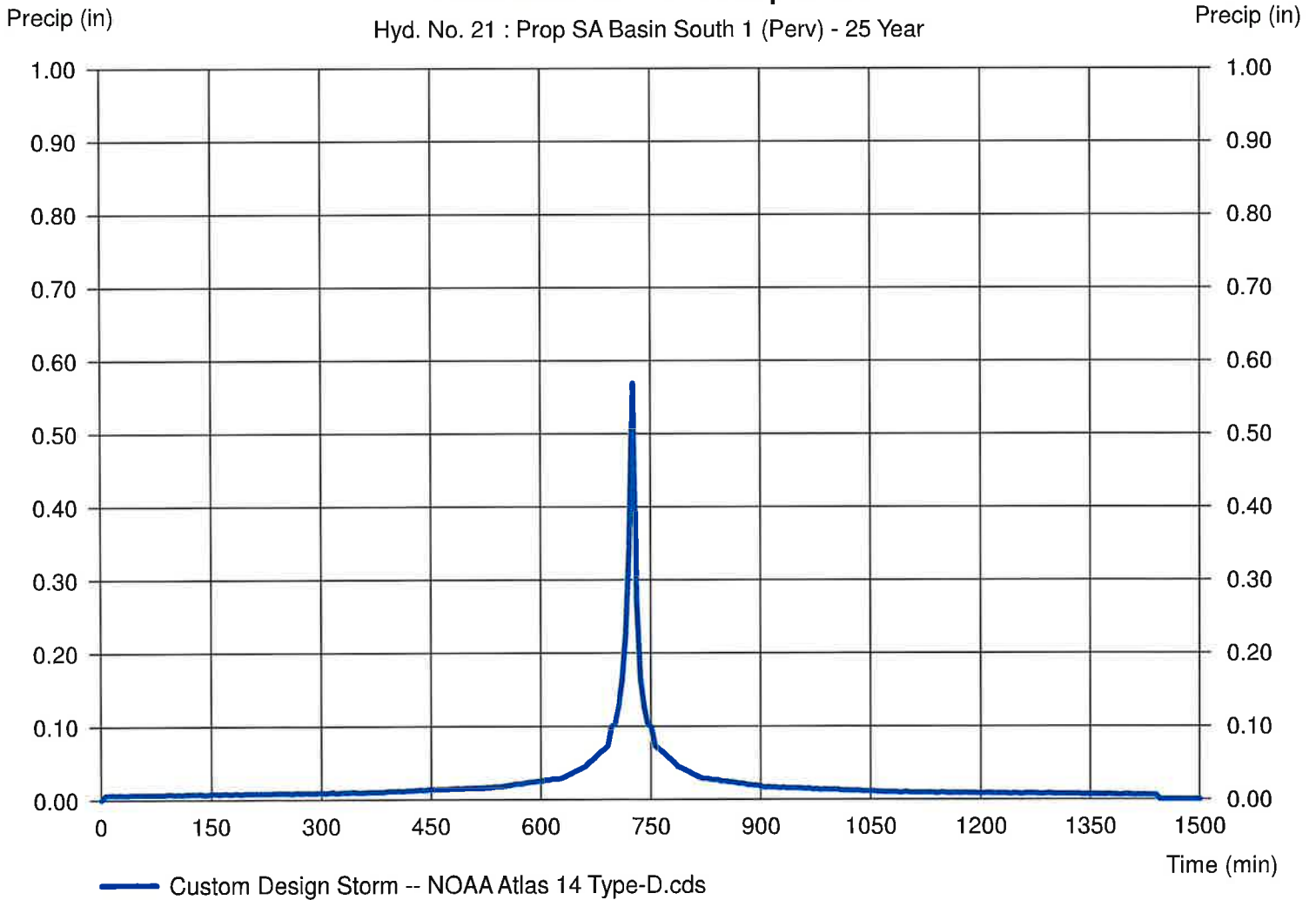
Hyd. No. 21

Prop SA Basin South 1 (Perv)

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 21 : Prop SA Basin South 1 (Perv) - 25 Year



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

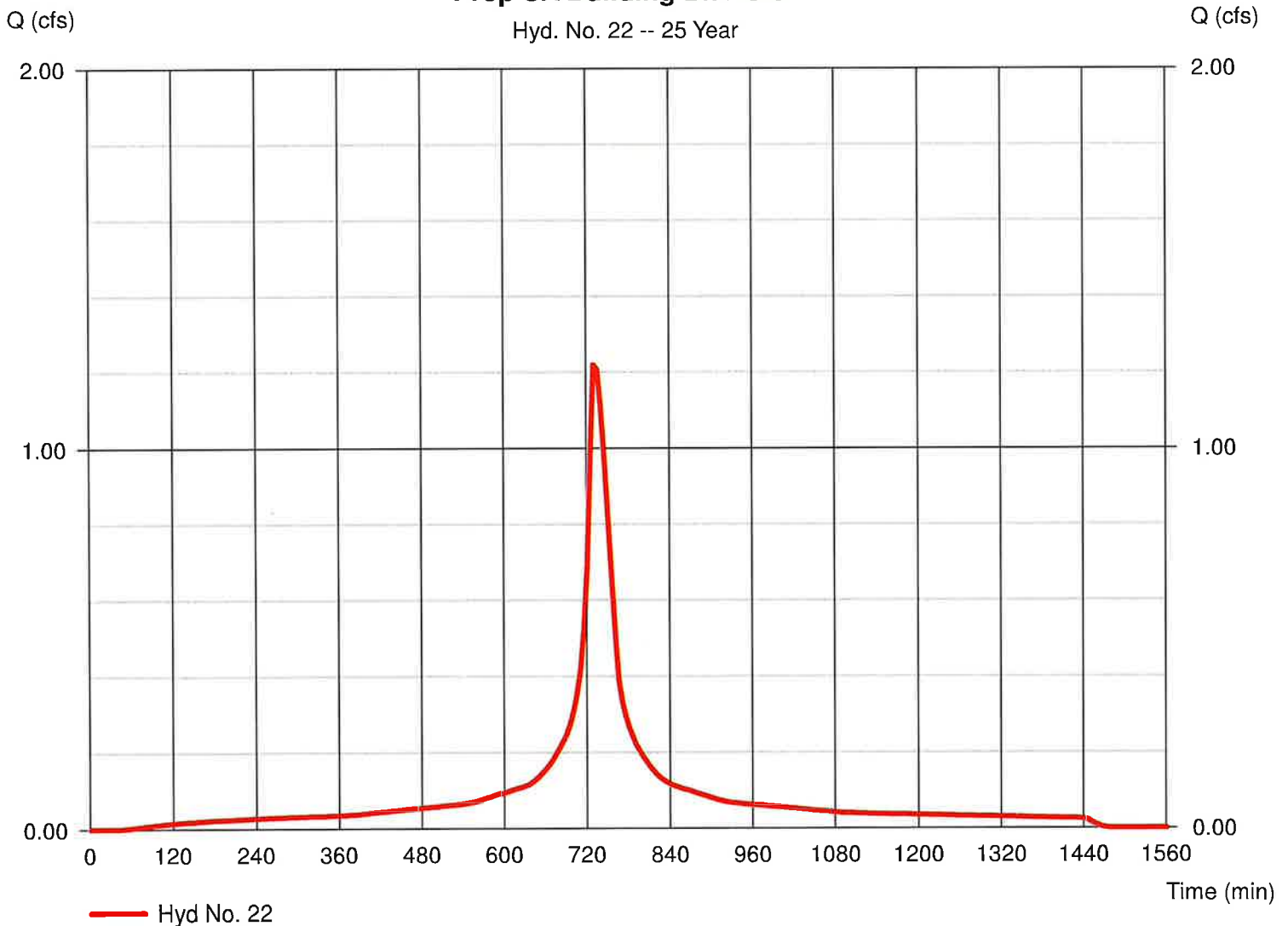
Hyd. No. 22

Prop SA Building B2 North

Hydrograph type	= SCS Runoff	Peak discharge	= 1.220 cfs
Storm frequency	= 25 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.177 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.53 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Prop SA Building B2 North

Hyd. No. 22 -- 25 Year



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

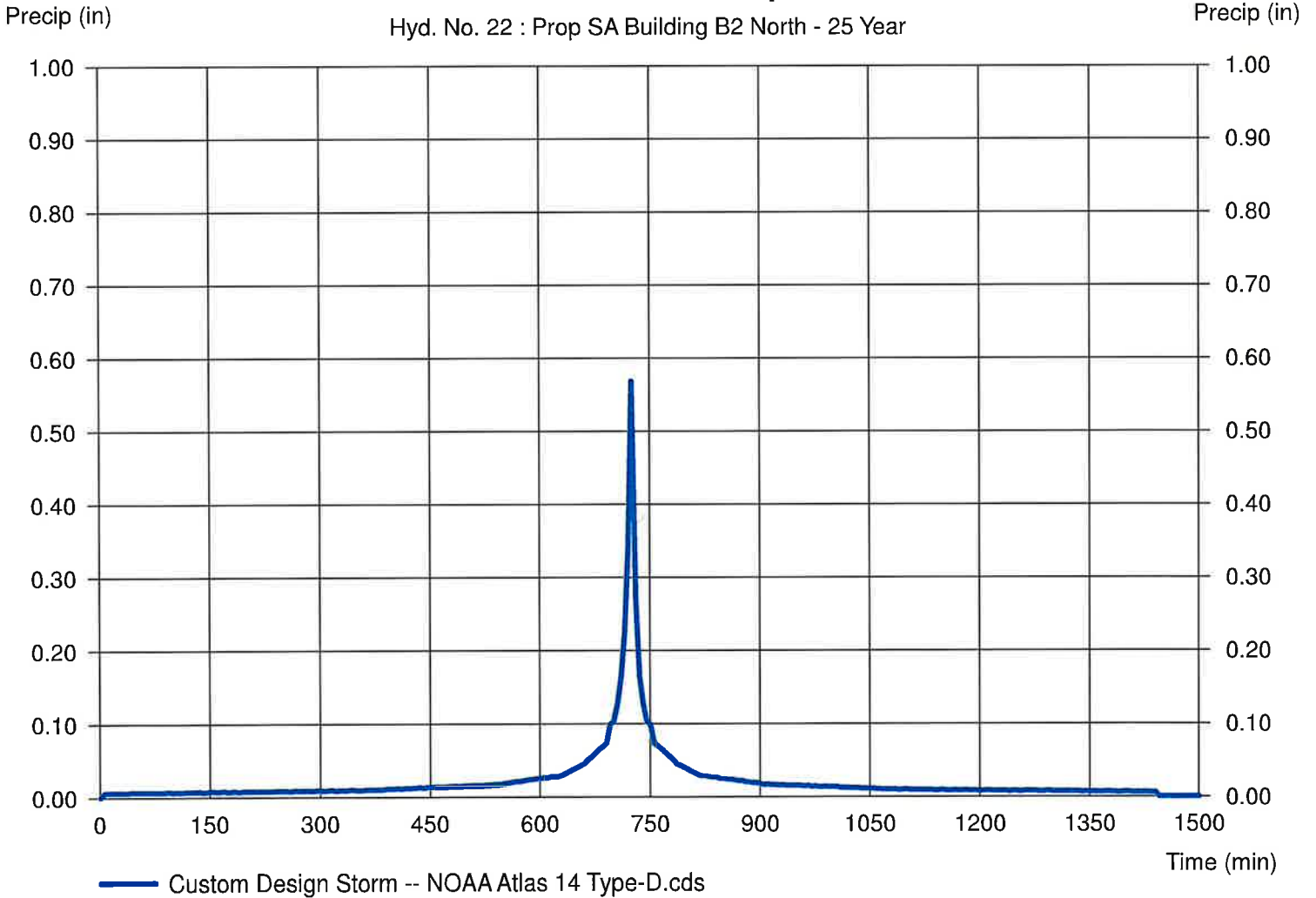
Hyd. No. 22

Prop SA Building B2 North

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 22 : Prop SA Building B2 North - 25 Year



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

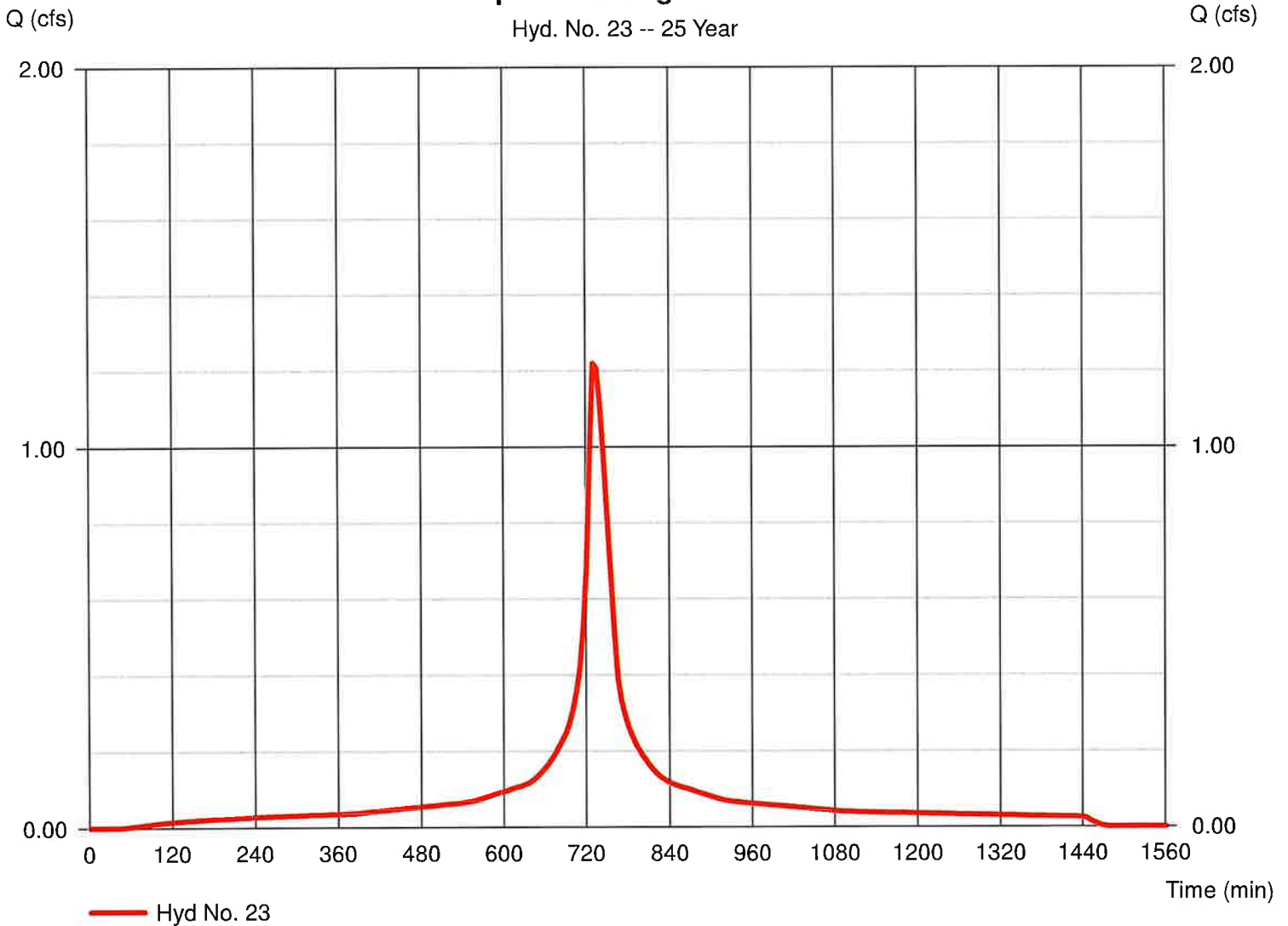
Hyd. No. 23

Prop SA Building B1 South

Hydrograph type	= SCS Runoff	Peak discharge	= 1.220 cfs
Storm frequency	= 25 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.177 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.53 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Prop SA Building B1 South

Hyd. No. 23 -- 25 Year



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

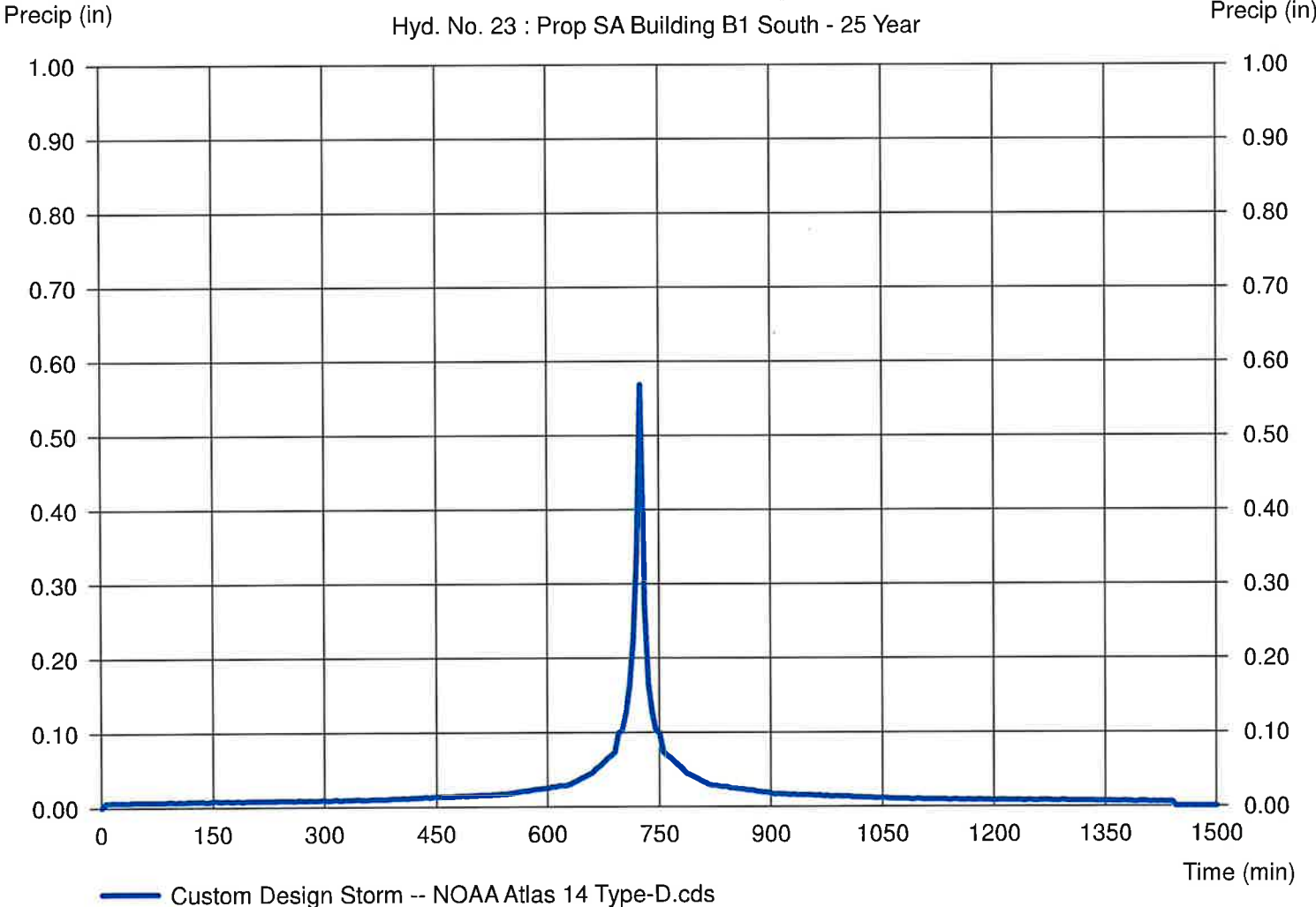
Hyd. No. 23

Prop SA Building B1 South

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 23 : Prop SA Building B1 South - 25 Year



— Custom Design Storm -- NOAA Atlas 14 Type-D.cds

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

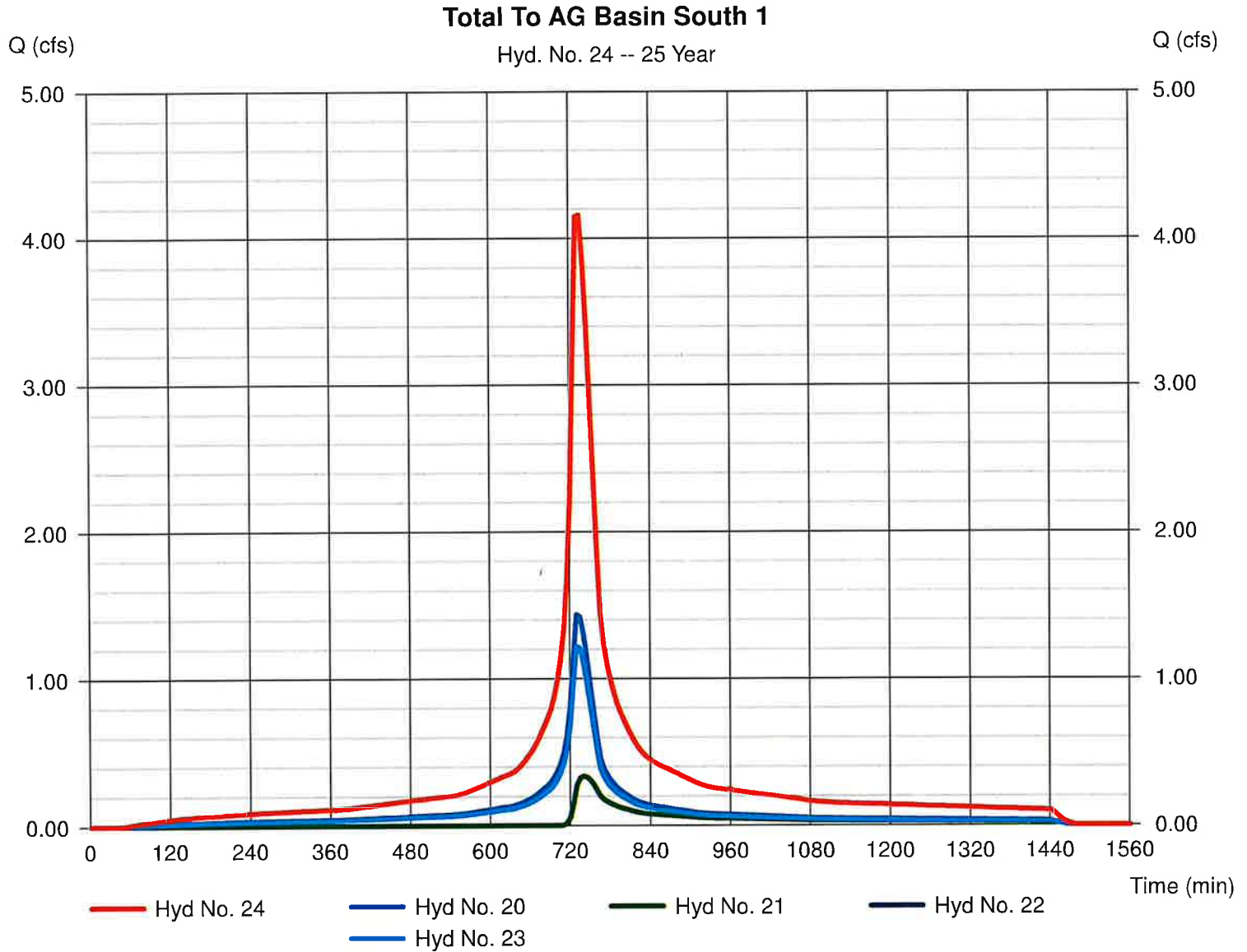
Thursday, Jun 24, 2021

Hyd. No. 24

Total To AG Basin South 1

Hydrograph type = Combine
Storm frequency = 25 yrs
Time interval = 5 min
Inflow hyds. = 20, 21, 22, 23

Peak discharge = 4.158 cfs
Time to peak = 735 min
Hyd. volume = 0.622 acft
Contrib. drain. area = 1.730 ac



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

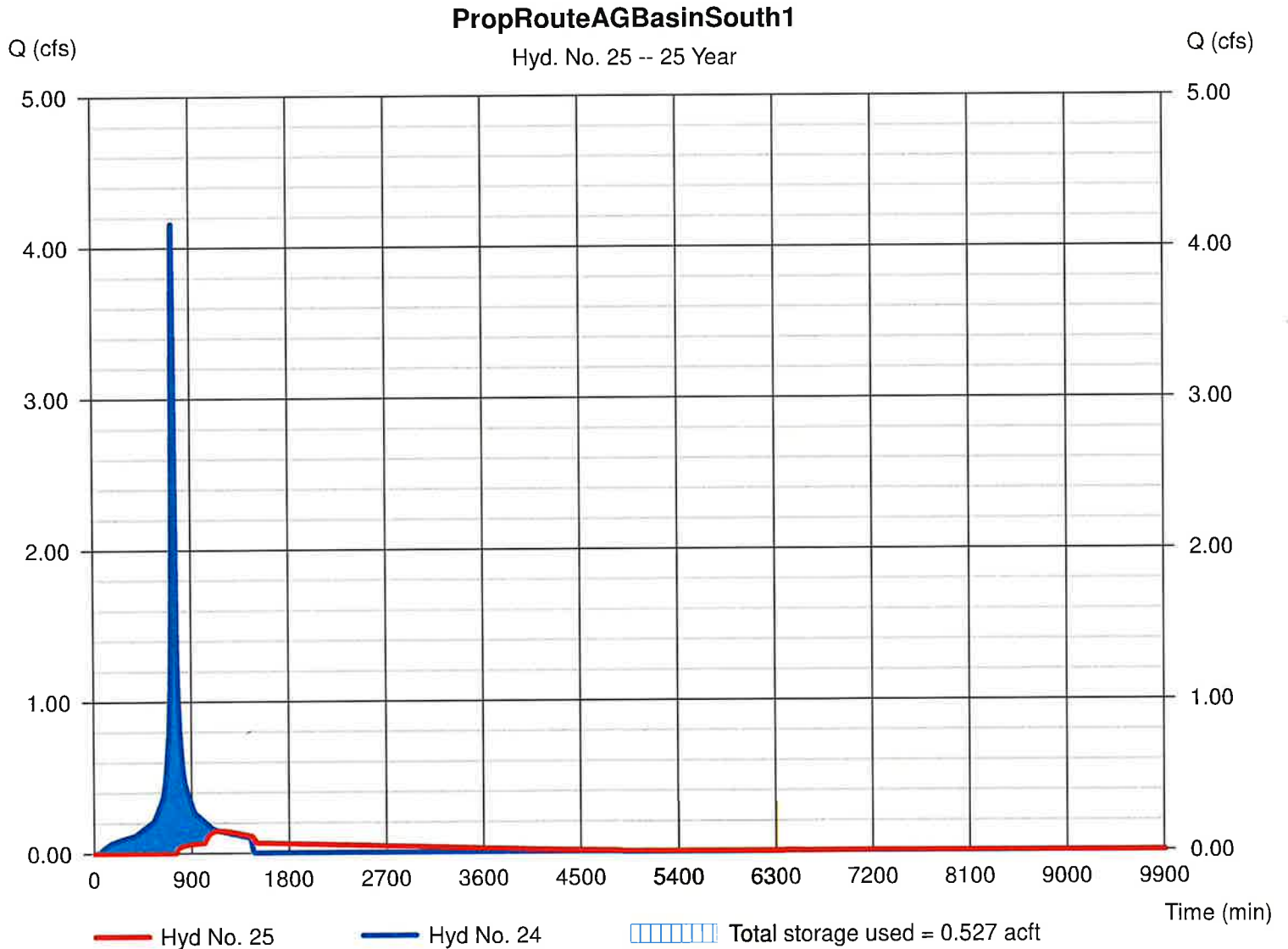
Thursday, Jun 24, 2021

Hyd. No. 25

PropRouteAGBasinSouth1

Hydrograph type	= Reservoir	Peak discharge	= 0.146 cfs
Storm frequency	= 25 yrs	Time to peak	= 1155 min
Time interval	= 5 min	Hyd. volume	= 0.280 acft
Inflow hyd. No.	= 24 - Total To AG Basin South 1	Max. Elevation	= 124.03 ft
Reservoir name	= Prop AG Basin South 1	Max. Storage	= 0.527 acft

Storage Indication method used.



Pond Report

Pond No. 2 - Prop AG Basin South 1

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 121.25 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	121.25	5,313	0.000	0.000
0.75	122.00	7,141	0.107	0.107
1.75	123.00	8,920	0.184	0.291
2.75	124.00	10,940	0.228	0.518
3.75	125.00	13,320	0.278	0.796
4.00	125.25	16,541	0.086	0.882

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	1.75	0.00	0.00
Span (in)	= 15.00	1.75	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 121.25	123.25	0.00	0.00
Length (ft)	= 50.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.50	16.00	25.00	0.00
Crest El. (ft)	= 124.00	124.70	124.75	0.00
Weir Coeff.	= 3.33	3.33	2.60	3.33
Weir Type	= Rect	Rect	Broad	---
Multi-Stage	= Yes	Yes	Yes	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	121.25	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.08	0.011	121.33	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.15	0.021	121.40	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.23	0.032	121.48	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.30	0.043	121.55	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.38	0.053	121.63	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.45	0.064	121.70	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.53	0.075	121.78	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.60	0.085	121.85	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.68	0.096	121.93	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.75	0.107	122.00	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.85	0.125	122.10	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.95	0.144	122.20	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.05	0.162	122.30	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.15	0.180	122.40	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.25	0.199	122.50	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.35	0.217	122.60	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.45	0.236	122.70	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.55	0.254	122.80	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.65	0.272	122.90	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.75	0.291	123.00	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.85	0.314	123.10	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.95	0.336	123.20	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
2.05	0.359	123.30	0.00 ic	0.00 ic	---	---	0.00	0.00	0.00	---	---	---	0.00
2.15	0.382	123.40	0.02 ic	0.02 ic	---	---	0.00	0.00	0.00	---	---	---	0.02
2.25	0.405	123.50	0.04 ic	0.03 ic	---	---	0.00	0.00	0.00	---	---	---	0.03
2.35	0.427	123.60	0.05 ic	0.04 ic	---	---	0.00	0.00	0.00	---	---	---	0.04
2.45	0.450	123.70	0.05 ic	0.05 ic	---	---	0.00	0.00	0.00	---	---	---	0.05
2.55	0.473	123.80	0.06 ic	0.06 ic	---	---	0.00	0.00	0.00	---	---	---	0.06
2.65	0.496	123.90	0.06 ic	0.06 ic	---	---	0.00	0.00	0.00	---	---	---	0.06
2.75	0.518	124.00	0.07 ic	0.07 ic	---	---	0.00	0.00	0.00	---	---	---	0.07
2.85	0.546	124.10	0.33 ic	0.07 ic	---	---	0.26	0.00	0.00	---	---	---	0.33
2.95	0.574	124.20	0.83 ic	0.08 ic	---	---	0.74	0.00	0.00	---	---	---	0.82
3.05	0.602	124.30	1.48 oc	0.08 ic	---	---	1.37	0.00	0.00	---	---	---	1.45
3.15	0.630	124.40	2.21 oc	0.08 ic	---	---	2.11	0.00	0.00	---	---	---	2.19
3.25	0.657	124.50	3.03 oc	0.09 ic	---	---	2.94	0.00	0.00	---	---	---	3.03
3.35	0.685	124.60	3.96 oc	0.09 ic	---	---	3.87	0.00	0.00	---	---	---	3.96
3.45	0.713	124.70	4.97 oc	0.09 ic	---	---	4.88	0.00	0.00	---	---	---	4.97

Continues on next page...

Prop AG Basin South 1

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.55	0.741	124.80	8.29 oc	0.07 ic	---	---	5.81 s	1.68	0.73	---	---	---	8.29
3.65	0.769	124.90	9.72 oc	0.02 ic	---	---	3.05 s	3.55 s	3.09 s	---	---	---	9.72
3.75	0.796	125.00	9.98 oc	0.01 ic	---	---	2.31 s	3.84 s	3.82 s	---	---	---	9.98
3.78	0.805	125.03	10.04 oc	0.01 ic	---	---	2.19 s	3.89 s	3.93 s	---	---	---	10.02
3.80	0.813	125.05	10.09 oc	0.01 ic	---	---	2.10 s	3.93 s	4.04 s	---	---	---	10.08
3.83	0.822	125.08	10.14 oc	0.01 ic	---	---	2.02 s	3.98 s	4.13 s	---	---	---	10.14
3.85	0.831	125.10	10.19 oc	0.01 ic	---	---	1.94 s	4.01 s	4.21 s	---	---	---	10.17
3.88	0.839	125.13	10.24 oc	0.01 ic	---	---	1.87 s	4.04 s	4.28 s	---	---	---	10.20
3.90	0.848	125.15	10.28 oc	0.01 ic	---	---	1.82 s	4.08 s	4.36 s	---	---	---	10.26
3.93	0.856	125.18	10.33 oc	0.01 ic	---	---	1.76 s	4.11 s	4.43 s	---	---	---	10.31
3.95	0.865	125.20	10.38 oc	0.01 ic	---	---	1.72 s	4.14 s	4.49 s	---	---	---	10.36
3.98	0.873	125.23	10.42 oc	0.01 ic	---	---	1.67 s	4.16 s	4.54 s	---	---	---	10.39
4.00	0.882	125.25	10.47 oc	0.01 ic	---	---	1.64 s	4.20 s	4.61 s	---	---	---	10.46

...End

Hydrograph Report

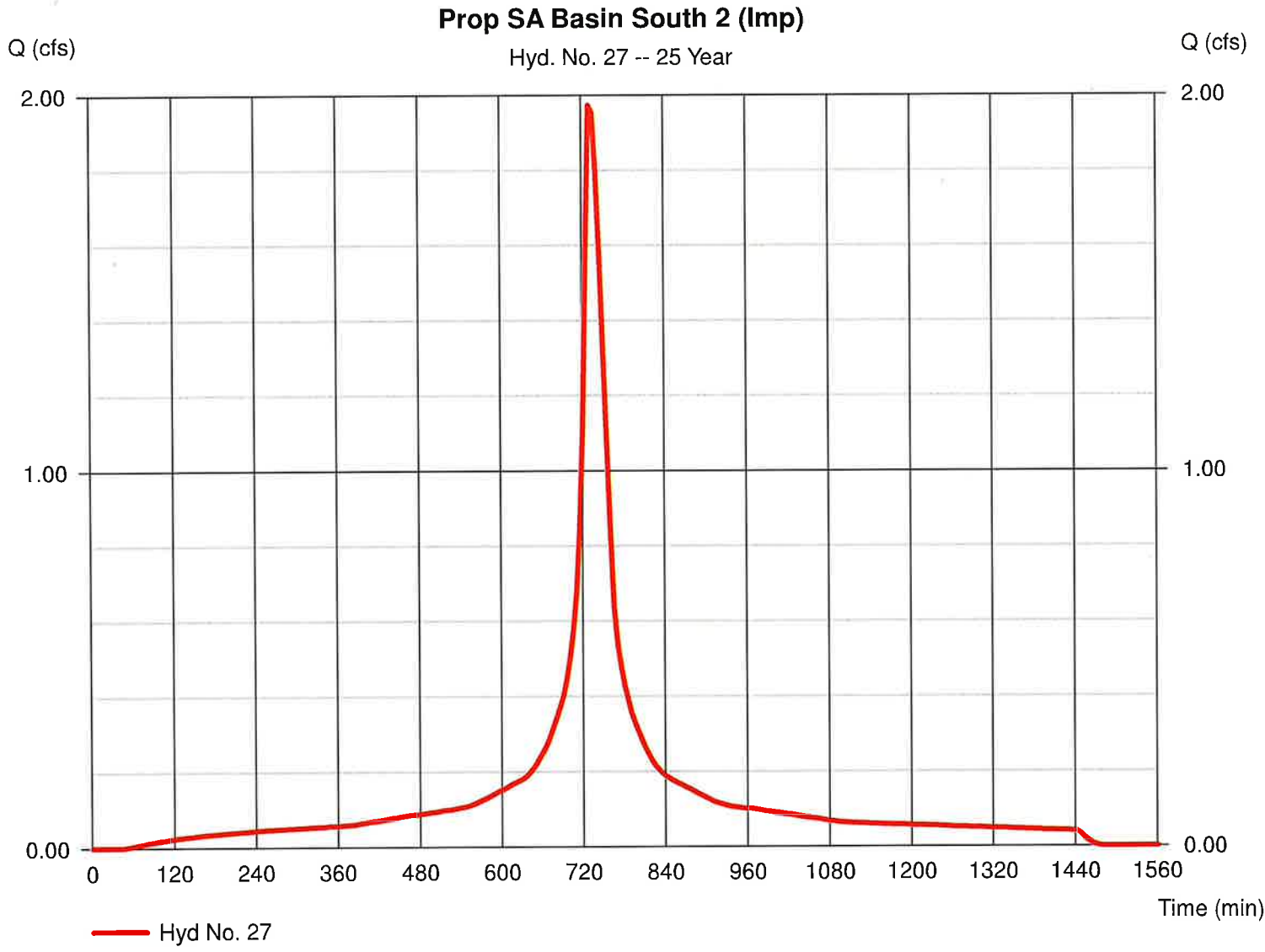
Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 27

Prop SA Basin South 2 (Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 1.973 cfs
Storm frequency	= 25 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.287 acft
Drainage area	= 0.550 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.53 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

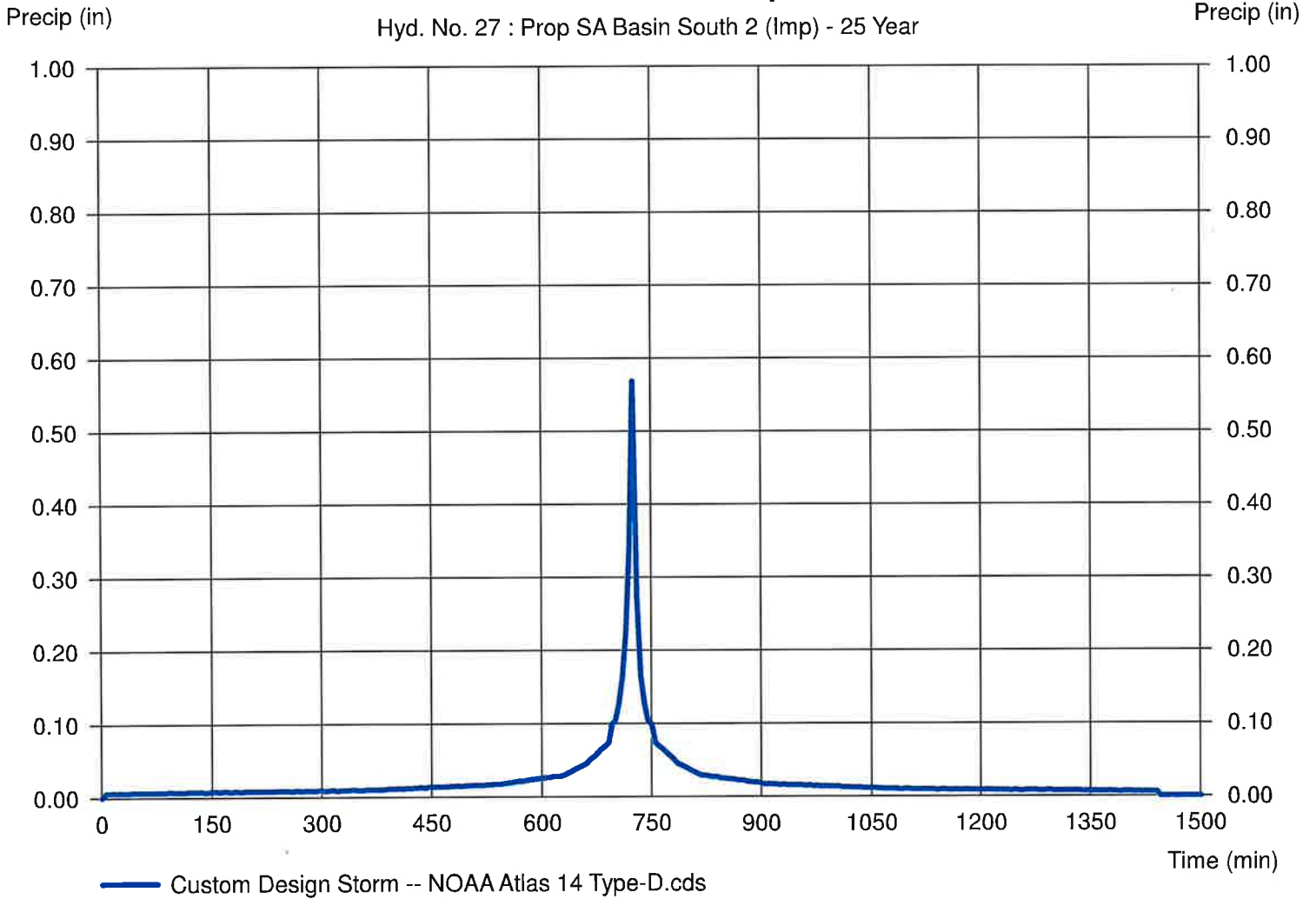
Hyd. No. 27

Prop SA Basin South 2 (Imp)

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 27 : Prop SA Basin South 2 (Imp) - 25 Year



Hydrograph Report

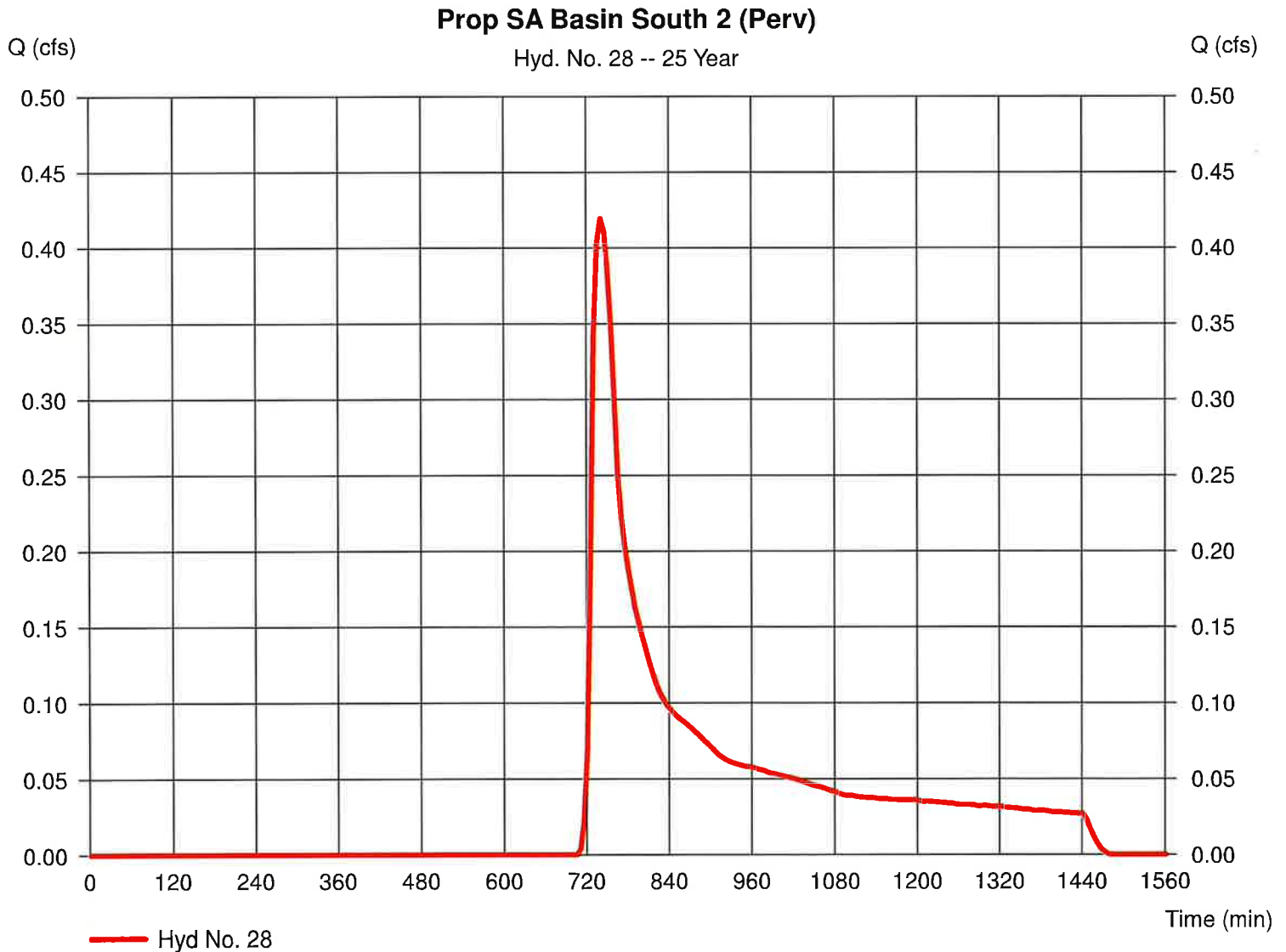
Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 28

Prop SA Basin South 2 (Perv)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.419 cfs
Storm frequency	= 25 yrs	Time to peak	= 740 min
Time interval	= 5 min	Hyd. volume	= 0.074 acft
Drainage area	= 0.810 ac	Curve number	= 46
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.53 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

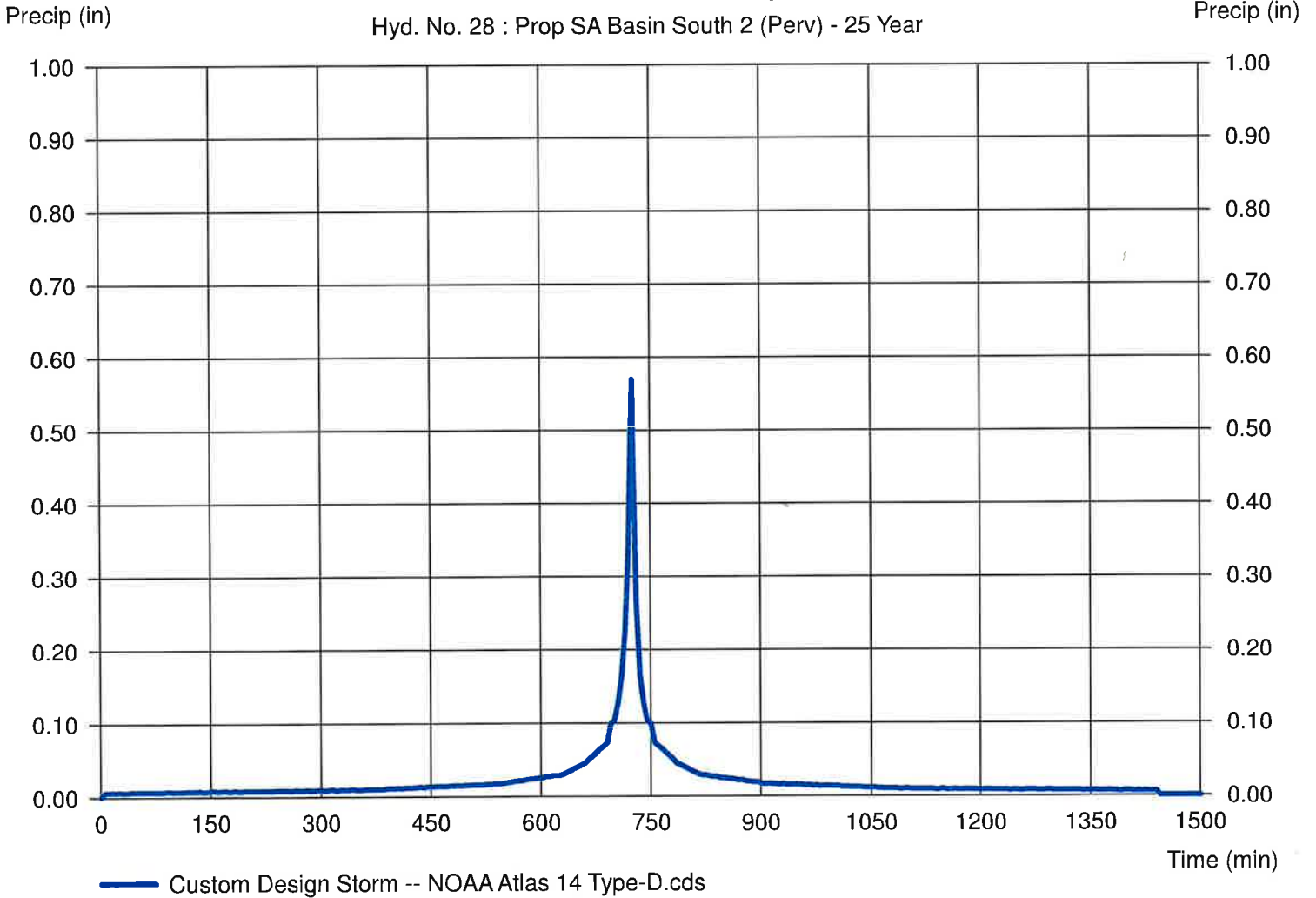
Thursday, Jun 24, 2021

Hyd. No. 28

Prop SA Basin South 2 (Perv)

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

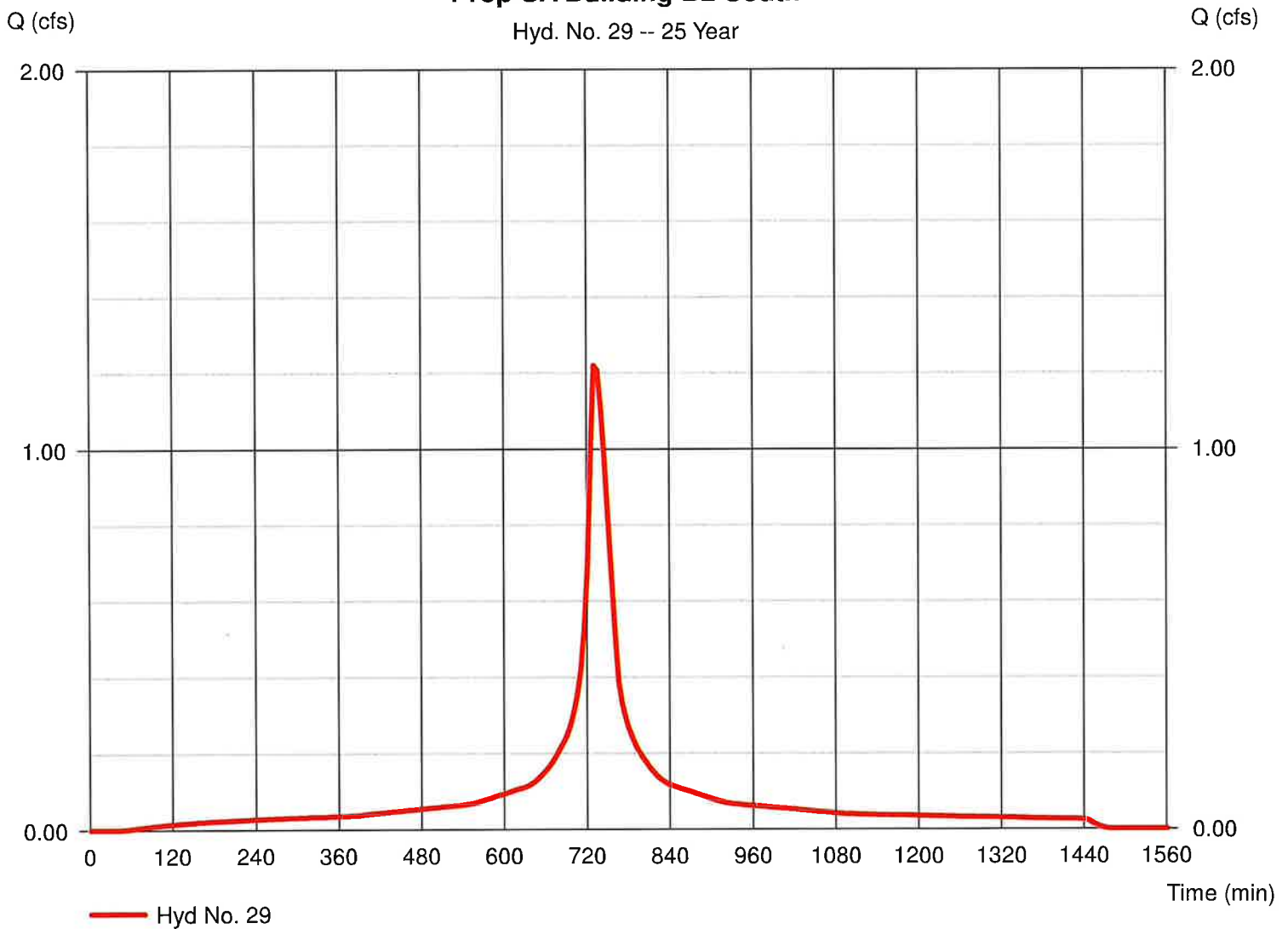
Hyd. No. 29

Prop SA Building B2 South

Hydrograph type	= SCS Runoff	Peak discharge	= 1.220 cfs
Storm frequency	= 25 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.177 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.53 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

Prop SA Building B2 South

Hyd. No. 29 -- 25 Year



Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

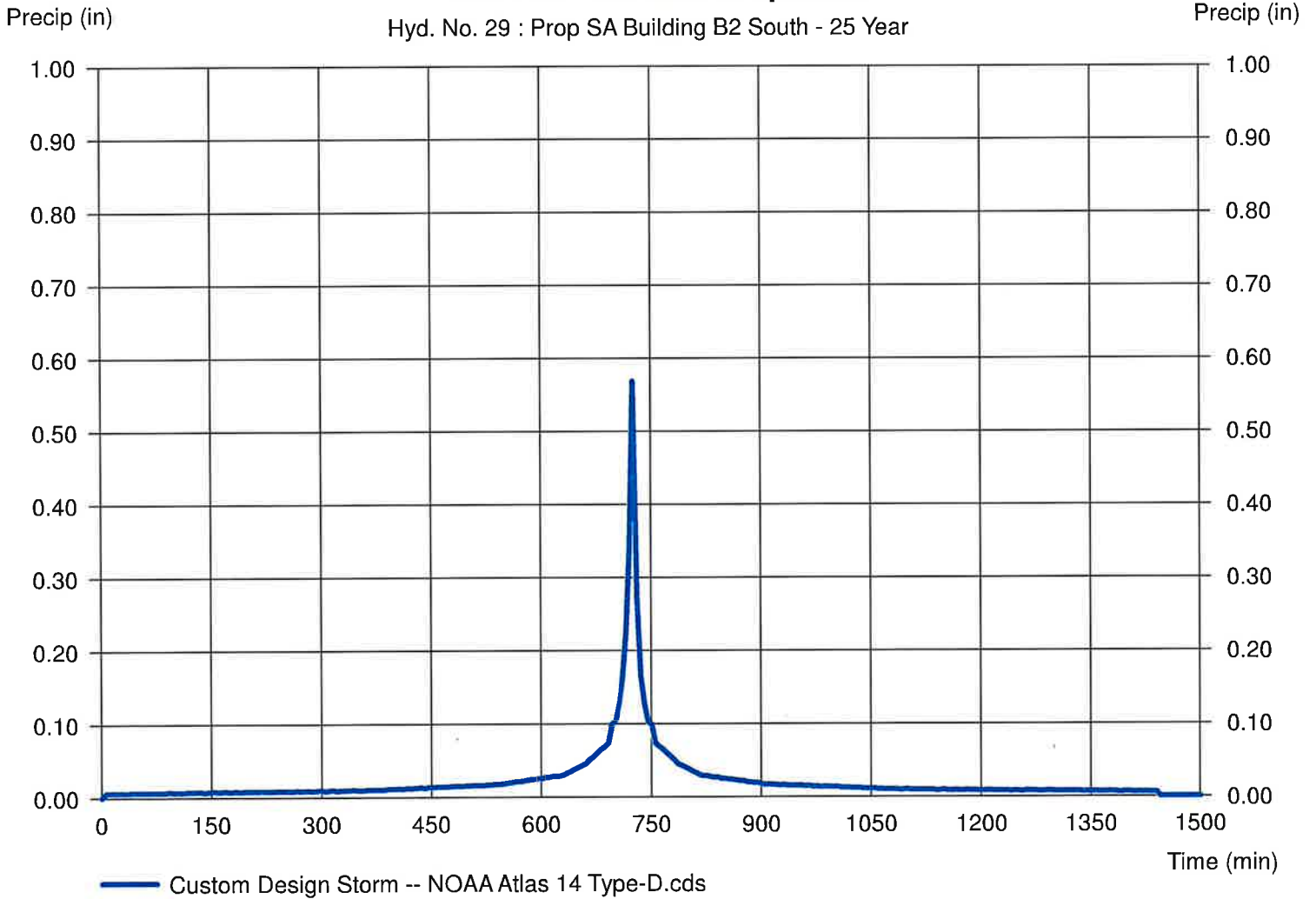
Hyd. No. 29

Prop SA Building B2 South

Storm Frequency	= 25 yrs	Time interval	= 5 min
Total precip.	= 6.5300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

Incremental Rainfall Precipitation

Hyd. No. 29 : Prop SA Building B2 South - 25 Year



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

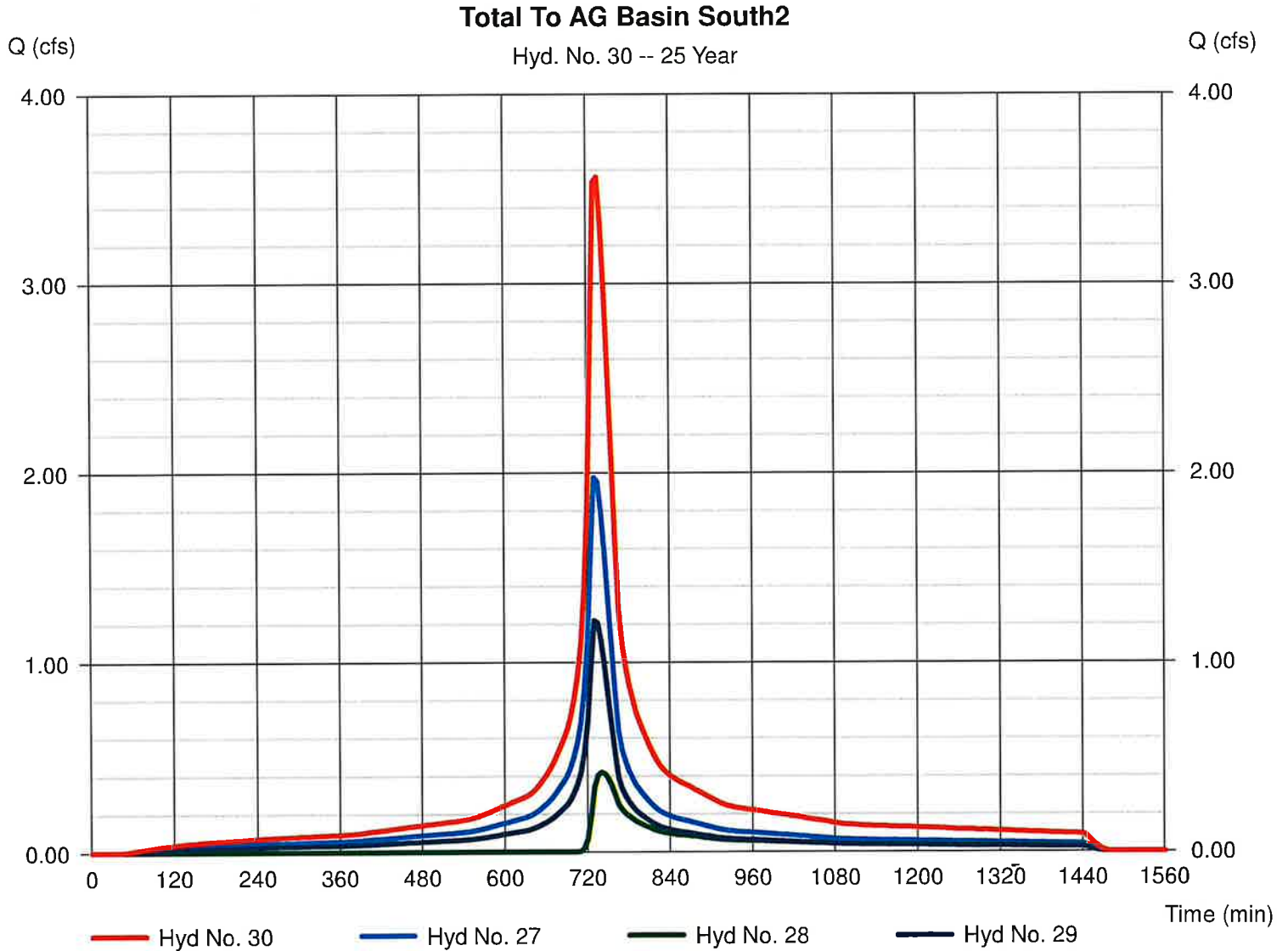
Thursday, Jun 24, 2021

Hyd. No. 30

Total To AG Basin South2

Hydrograph type = Combine
Storm frequency = 25 yrs
Time interval = 5 min
Inflow hyds. = 27, 28, 29

Peak discharge = 3.563 cfs
Time to peak = 735 min
Hyd. volume = 0.537 acft
Contrib. drain. area = 1.700 ac



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

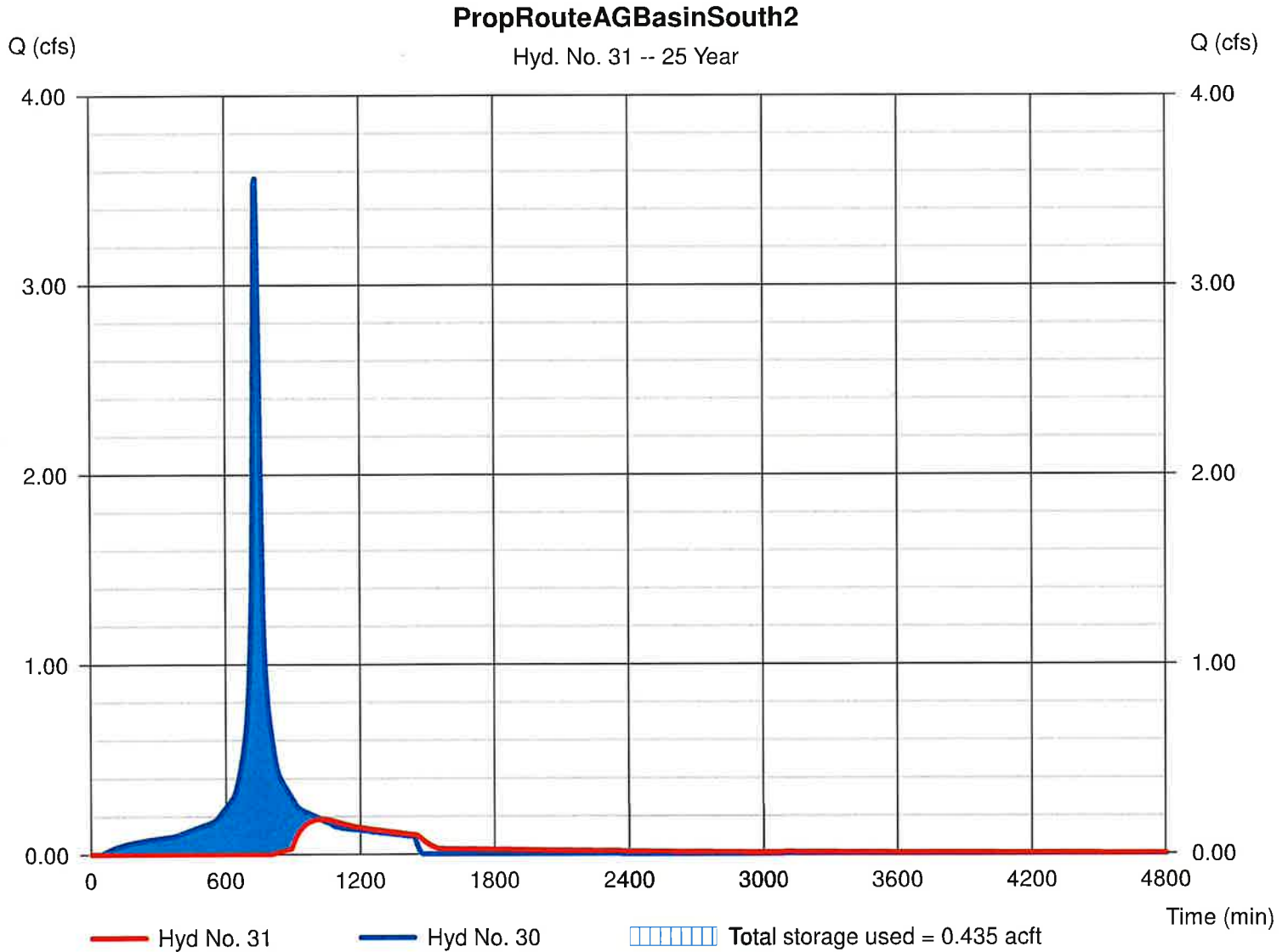
Hyd. No. 31

PropRouteAGBasinSouth2

Hydrograph type = Reservoir
Storm frequency = 25 yrs
Time interval = 5 min
Inflow hyd. No. = 30 - Total To AG Basin South2
Reservoir name = Prop. AG Basin South 2

Peak discharge = 0.185 cfs
Time to peak = 1025 min
Hyd. volume = 0.165 acft
Max. Elevation = 122.16 ft
Max. Storage = 0.435 acft

Storage Indication method used.



Pond Report

Pond No. 4 - Prop. AG Basin South 2

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 119.90 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	119.90	5,576	0.000	0.000
0.10	120.00	6,539	0.014	0.014
1.10	121.00	8,239	0.169	0.183
2.10	122.00	9,996	0.209	0.392
3.10	123.00	13,638	0.270	0.662
3.60	123.50	15,475	0.167	0.829

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	1.75	0.00	0.00
Span (in)	= 15.00	1.75	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 119.90	121.90	0.00	0.00
Length (ft)	= 50.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.50	16.00	25.00	0.00
Crest El. (ft)	= 122.10	122.90	122.95	0.00
Weir Coeff.	= 3.33	3.33	2.60	3.33
Weir Type	= Rect	Rect	Broad	---
Multi-Stage	= Yes	Yes	Yes	No
Exfil.(in/hr)	= 0.000	(by Wet area)		
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	119.90	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.01	0.001	119.91	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.02	0.003	119.92	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.03	0.004	119.93	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.04	0.006	119.94	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.05	0.007	119.95	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.06	0.008	119.96	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.07	0.010	119.97	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.08	0.011	119.98	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.09	0.013	119.99	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.10	0.014	120.00	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.20	0.031	120.10	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.30	0.048	120.20	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.40	0.065	120.30	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.50	0.082	120.40	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.60	0.099	120.50	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.70	0.115	120.60	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.80	0.132	120.70	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
0.90	0.149	120.80	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.00	0.166	120.90	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.10	0.183	121.00	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.20	0.204	121.10	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.30	0.225	121.20	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.40	0.246	121.30	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.50	0.267	121.40	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.60	0.288	121.50	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.70	0.309	121.60	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.80	0.329	121.70	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
1.90	0.350	121.80	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
2.00	0.371	121.90	0.00	0.00	---	---	0.00	0.00	0.00	---	---	---	0.00
2.10	0.392	122.00	0.01 ic	0.01 ic	---	---	0.00	0.00	0.00	---	---	---	0.01
2.20	0.419	122.10	0.03 ic	0.03 ic	---	---	0.00	0.00	0.00	---	---	---	0.03
2.30	0.446	122.20	0.31 ic	0.04 ic	---	---	0.26	0.00	0.00	---	---	---	0.30
2.40	0.473	122.30	0.80 ic	0.05 ic	---	---	0.74	0.00	0.00	---	---	---	0.79
2.50	0.500	122.40	1.44 oc	0.05 ic	---	---	1.37	0.00	0.00	---	---	---	1.42
2.60	0.527	122.50	2.18 oc	0.06 ic	---	---	2.11	0.00	0.00	---	---	---	2.16
2.70	0.554	122.60	3.02 oc	0.06 ic	---	---	2.94	0.00	0.00	---	---	---	3.01
2.80	0.581	122.70	3.94 oc	0.07 ic	---	---	3.87	0.00	0.00	---	---	---	3.94

Continues on next page...

Prop. AG Basin South 2

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
2.90	0.608	122.80	4.95 oc	0.07 ic	---	---	4.88	0.00	0.00	---	---	---	4.95
3.00	0.635	122.90	6.03 oc	0.08 ic	---	---	5.96	0.00	0.00	---	---	---	6.03
3.10	0.662	123.00	8.00 oc	0.05 ic	---	---	5.54 s	1.68	0.73	---	---	---	8.00
3.15	0.679	123.05	8.66 oc	0.03 ic	---	---	3.74 s	2.84 s	2.06 s	---	---	---	8.66
3.20	0.696	123.10	8.87 oc	0.02 ic	---	---	2.99 s	3.12 s	2.74 s	---	---	---	8.87
3.25	0.712	123.15	9.02 oc	0.01 ic	---	---	2.57 s	3.30 s	3.13 s	---	---	---	9.01
3.30	0.729	123.20	9.14 oc	0.01 ic	---	---	2.29 s	3.42 s	3.40 s	---	---	---	9.12
3.35	0.746	123.25	9.25 oc	0.01 ic	---	---	2.08 s	3.52 s	3.61 s	---	---	---	9.22
3.40	0.762	123.30	9.35 oc	0.01 ic	---	---	1.92 s	3.60 s	3.79 s	---	---	---	9.32
3.45	0.779	123.35	9.45 oc	0.01 ic	---	---	1.80 s	3.68 s	3.93 s	---	---	---	9.41
3.50	0.796	123.40	9.55 oc	0.01 ic	---	---	1.70 s	3.74 s	4.06 s	---	---	---	9.50
3.55	0.813	123.45	9.65 oc	0.01 ic	---	---	1.62 s	3.82 s	4.19 s	---	---	---	9.63
3.60	0.829	123.50	9.75 oc	0.00 ic	---	---	1.55 s	3.86 s	4.27 s	---	---	---	9.69

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

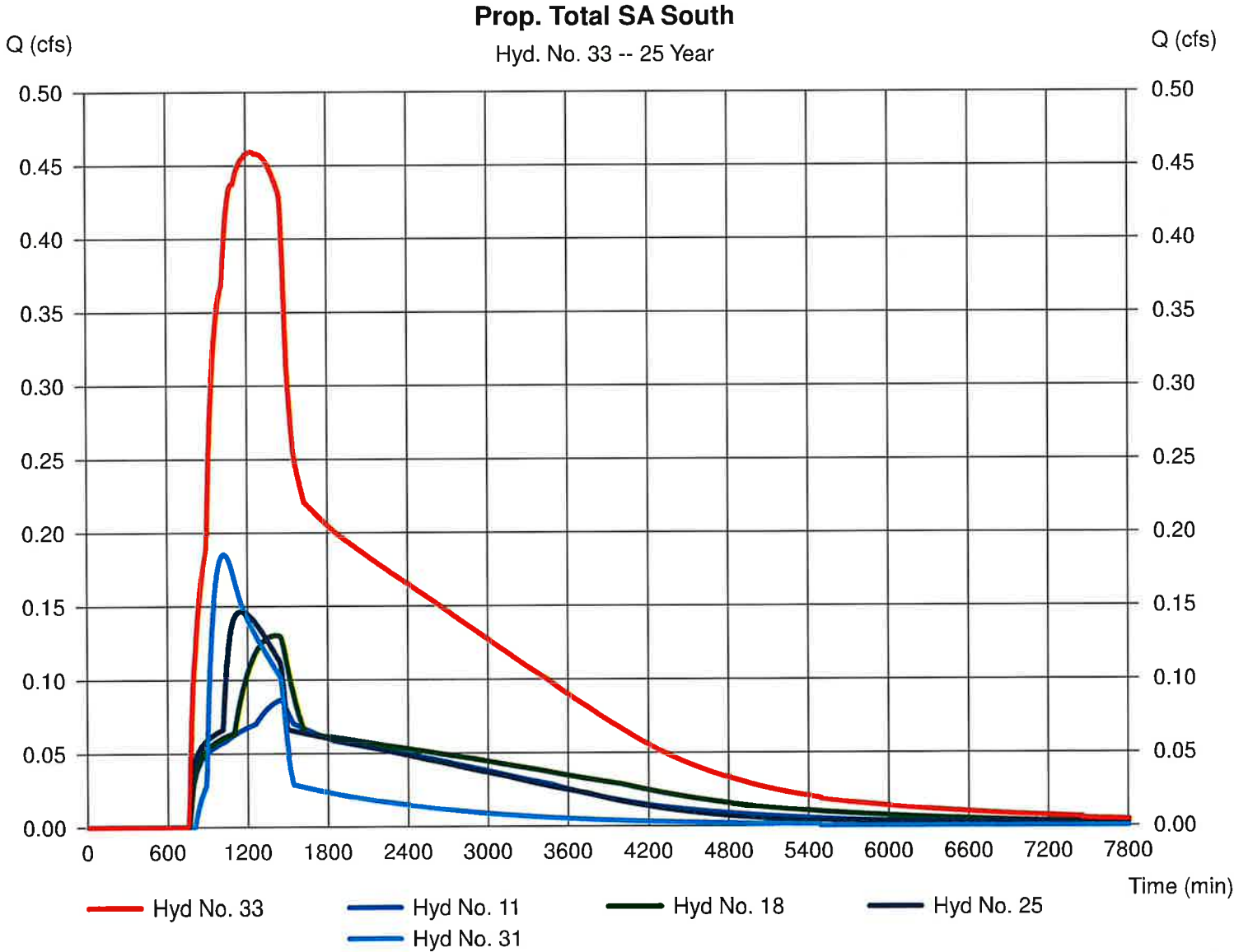
Thursday, Jun 24, 2021

Hyd. No. 33

Prop. Total SA South

Hydrograph type = Combine
Storm frequency = 25 yrs
Time interval = 5 min
Inflow hyds. = 11, 18, 25, 31

Peak discharge = 0.459 cfs
Time to peak = 1235 min
Hyd. volume = 0.988 acft
Contrib. drain. area = 0.000 ac



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

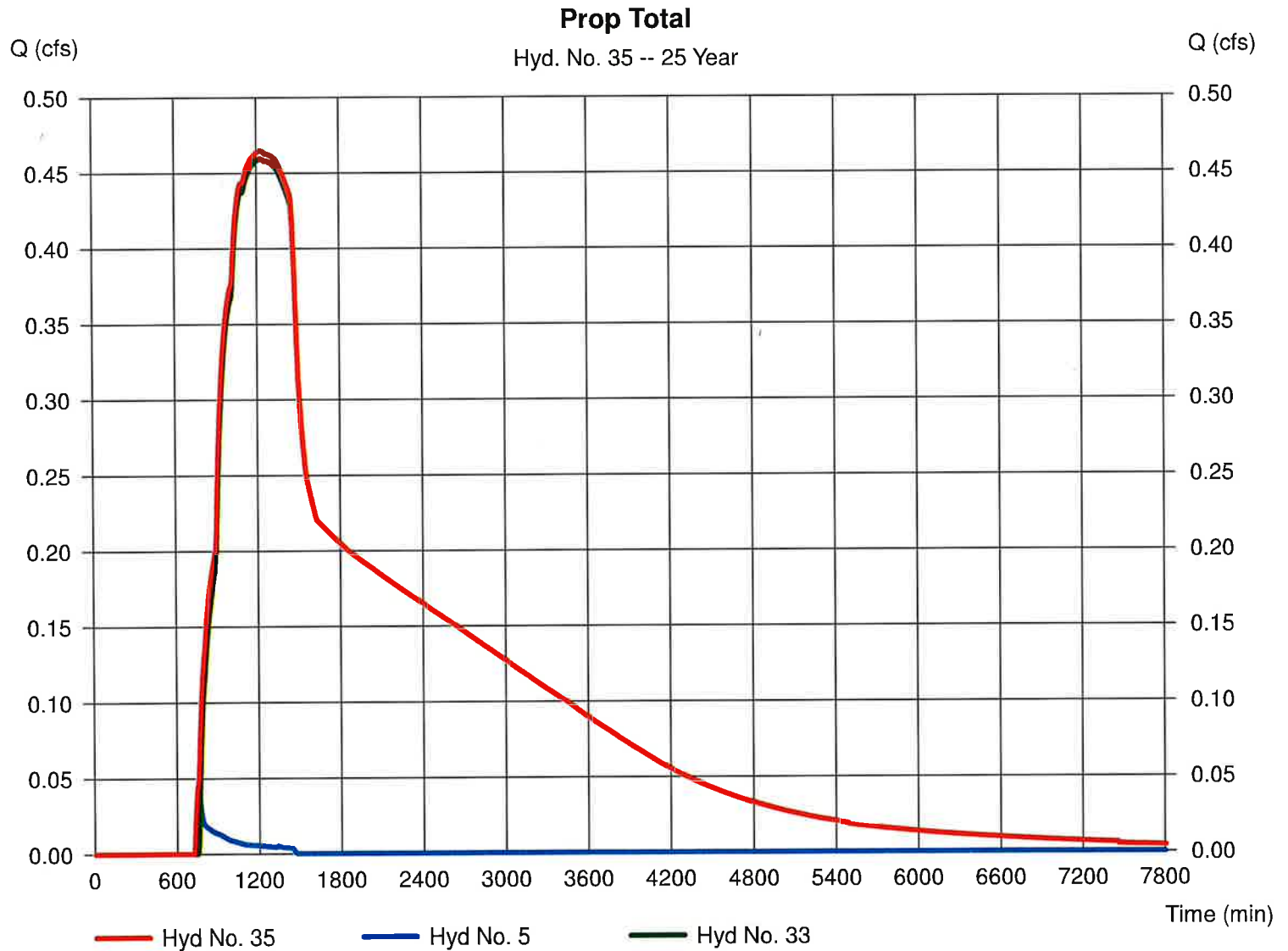
Thursday, Jun 24, 2021

Hyd. No. 35

Prop Total

Hydrograph type = Combine
Storm frequency = 25 yrs
Time interval = 5 min
Inflow hyds. = 5, 33

Peak discharge = 0.464 cfs
Time to peak = 1225 min
Hyd. volume = 0.998 acft
Contrib. drain. area = 0.200 ac



Hydraflow Rainfall Report

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	-----
2	69.8703	13.1000	0.8658	-----
3	0.0000	0.0000	0.0000	-----
5	79.2597	14.6000	0.8369	-----
10	88.2351	15.5000	0.8279	-----
25	102.6072	16.5000	0.8217	-----
50	114.8193	17.2000	0.8199	-----
100	127.1596	17.8000	0.8186	-----

File name: SampleFHA.idf

$$\text{Intensity} = B / (T_c + D)^E$$

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25
100	9.83	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60

T_c = time in minutes. Values may exceed 60.

Precip. file name: Monmouth County.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	0.00	3.38	0.00	0.00	5.23	6.53	0.00	8.94
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	1.25	3.38	0.00	0.00	5.23	6.53	0.00	8.94

Hydraflow Table of Contents

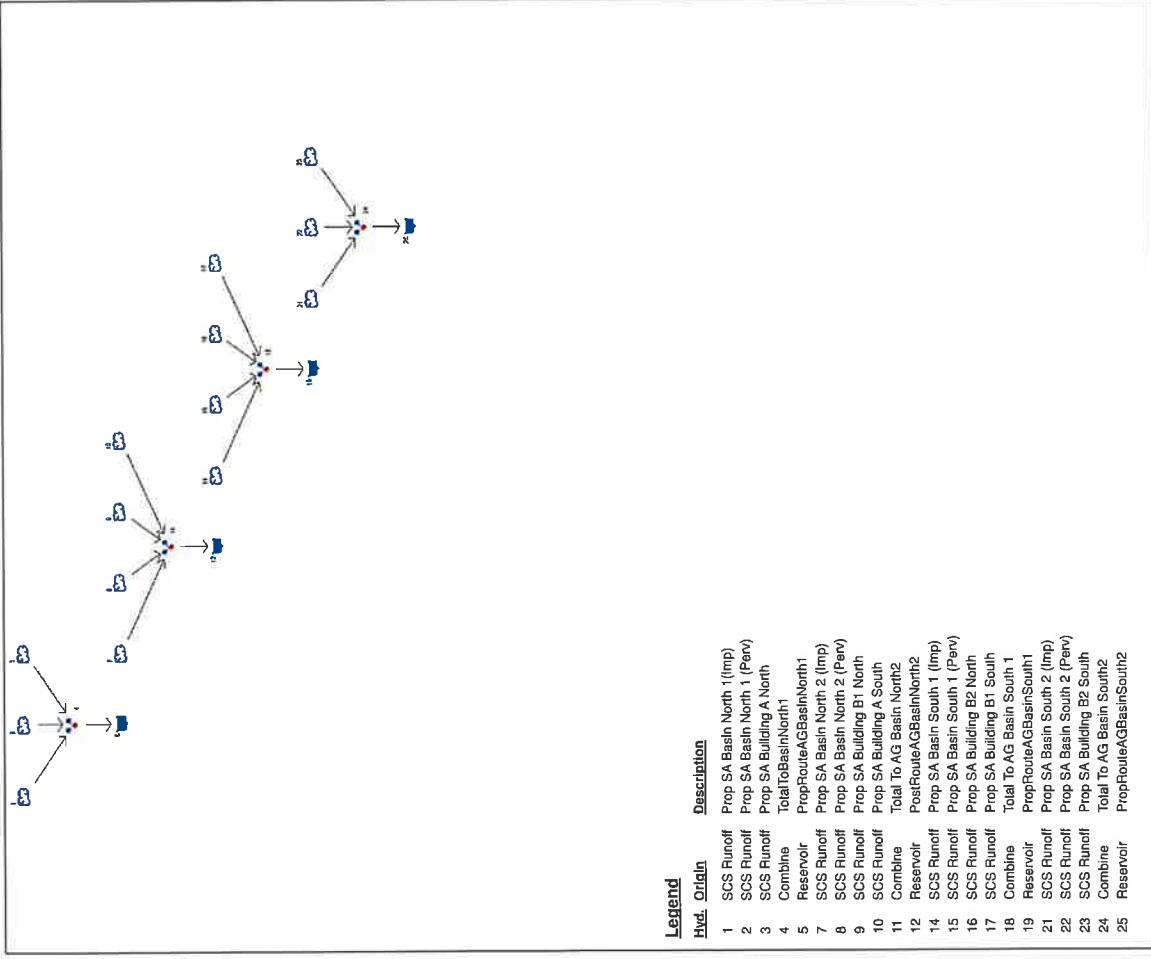
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**HYDROGRAPH SUMMARY REPORTS – WATER
QUALITY STORM**

Watershed Model Schematic

Hydraflow Hydrographs by Intellisolve v9.1



Legend

Hyd. Origin	Description
1	SCS Runoff Prop SA Basin North 1 (Imp)
2	SCS Runoff Prop SA Basin North 1 (Perv)
3	SCS Runoff Prop SA Building A North
4	Combine TotalToBasinNorth1
5	Reservoir PropRouteAGBasinNorth1
7	SCS Runoff Prop SA Basin North 2 (Imp)
8	SCS Runoff Prop SA Basin North 2 (Perv)
9	SCS Runoff Prop SA Building B1 North
10	SCS Runoff Prop SA Building A South
11	Combine Total To AG Basin North2
12	Reservoir PostRouteAGBasinNorth2
14	SCS Runoff Prop SA Basin South 1 (Imp)
15	SCS Runoff Prop SA Basin South 1 (Perv)
16	SCS Runoff Prop SA Building B2 North
17	SCS Runoff Prop SA Building B1 South
18	Combine Total To AG Basin South 1
19	Reservoir PropRouteAGBasinSouth1
21	SCS Runoff Prop SA Basin South 2 (Imp)
22	SCS Runoff Prop SA Basin South 2 (Perv)
23	SCS Runoff Prop SA Building B2 South
24	Combine Total To AG Basin South2
25	Reservoir PropRouteAGBasinSouth2

Project: WQ.gpw

Thursday, Jun 24, 2021

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intellisolve v9.1

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)						Hydrograph description			
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr		50-Yr	100-Yr	
1	SCS Runoff	*****	1,214	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Basin North 1 (Imp)
2	SCS Runoff	*****	0.000	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Basin North 1 (Perv)
3	SCS Runoff	*****	0.551	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Building A North
4	Combine	1, 2, 3	1,765	*****	*****	*****	*****	*****	*****	*****	*****	TotalToBasinNorth1
5	Reservoir	4	0.000	*****	*****	*****	*****	*****	*****	*****	*****	PropRouteAGBasinNorth1
7	SCS Runoff	*****	1,295	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Basin North 2 (Imp)
8	SCS Runoff	*****	0.000	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Basin North 2 (Perv)
9	SCS Runoff	*****	0.551	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Building B1 North
10	SCS Runoff	*****	0.551	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Building A South
11	Combine	7, 8, 9, 10	2,386	*****	*****	*****	*****	*****	*****	*****	*****	Total To AG Basin North2
12	Reservoir	11	0.000	*****	*****	*****	*****	*****	*****	*****	*****	PostRouteAGBasinNorth2
14	SCS Runoff	*****	0.648	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Basin South 1 (Imp)
15	SCS Runoff	*****	0.000	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Basin South 1 (Perv)
16	SCS Runoff	*****	0.551	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Building B2 North
17	SCS Runoff	*****	0.551	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Building B1 South
19	Combine	14, 15, 16, 17, 749	17,749	*****	*****	*****	*****	*****	*****	*****	*****	Total To AG Basin South 1
19	Reservoir	18	0.000	*****	*****	*****	*****	*****	*****	*****	*****	PropRouteAGBasinSouth1
21	SCS Runoff	*****	0.891	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Basin South 2 (Imp)
22	SCS Runoff	*****	0.000	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Basin South 2 (Perv)
23	SCS Runoff	*****	0.551	*****	*****	*****	*****	*****	*****	*****	*****	Prop SA Building B2 South
24	Combine	21, 22, 23	1,441	*****	*****	*****	*****	*****	*****	*****	*****	Total To AG Basin South2
25	Reservoir	24	0.000	*****	*****	*****	*****	*****	*****	*****	*****	PropRouteAGBasinSouth2

Proj. file: WQ.gpw

Thursday, Jun 24, 2021

Hydrograph Summary Report

Hydroflow Hydrographs by Intellisoive v9.1

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time Interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strage used (acft)	Hydrograph description
1	SCS Runoff	1.214	5	70	0.064	***	*****	*****	Prop SA Basin North 1 (Imp)
2	SCS Runoff	0.000	5	n/a	0.000	***	*****	*****	Prop SA Basin North 1 (Perv)
3	SCS Runoff	0.551	5	70	0.029	***	*****	*****	Prop SA Building A North
4	Combine	1.765	5	70	0.093	1, 2, 3	*****	*****	TotalToBasinNorth1
5	Reservoir	0.000	5	n/a	0.000	4	124.20	0.093	PropRouteAGBasinNorth1
7	SCS Runoff	1.295	5	70	0.069	***	*****	*****	Prop SA Basin North 2 (Imp)
8	SCS Runoff	0.000	5	n/a	0.000	***	*****	*****	Prop SA Basin North 2 (Perv)
9	SCS Runoff	0.551	5	70	0.029	***	*****	*****	Prop SA Building B1 North
10	SCS Runoff	0.551	5	70	0.029	***	*****	*****	Prop SA Building A South
11	Combine	2.396	5	70	0.127	7, 8, 9, 10	*****	*****	Total To AG Basin North2
12	Reservoir	0.000	5	n/a	0.000	11	124.19	0.127	PostRouteAGBasinNorth2
14	SCS Runoff	0.648	5	70	0.034	***	*****	*****	Prop SA Basin South 1 (Imp)
15	SCS Runoff	0.000	5	n/a	0.000	***	*****	*****	Prop SA Basin South 1 (Perv)
16	SCS Runoff	0.551	5	70	0.029	***	*****	*****	Prop SA Building B2 North
17	SCS Runoff	0.551	5	70	0.029	***	*****	*****	Prop SA Building B1 South
18	Combine	1.749	5	70	0.092	14, 15, 16, 17	*****	*****	Total To AG Basin South 1
19	Reservoir	0.000	5	n/a	0.000	18	121.90	0.092	PropRouteAGBasinSouth1
21	SCS Runoff	0.891	5	70	0.047	***	*****	*****	Prop SA Basin South 2 (Imp)
22	SCS Runoff	0.000	5	n/a	0.000	***	*****	*****	Prop SA Basin South 2 (Perv)
23	SCS Runoff	0.551	5	70	0.029	***	*****	*****	Prop SA Building B2 South
24	Combine	1.441	5	70	0.076	21, 22, 23	*****	*****	Total To AG Basin South2
25	Reservoir	0.000	5	n/a	0.000	24	120.37	0.076	PropRouteAGBasinSouth2

WQ.gpw

Return Period: 1 Year

Thursday, Jun 24, 2021

Hydrograph Report

Hydroflow Hydrographs by Intellisoive v9.1

Thursday, Jun 24, 2021

Hyd. No. 1

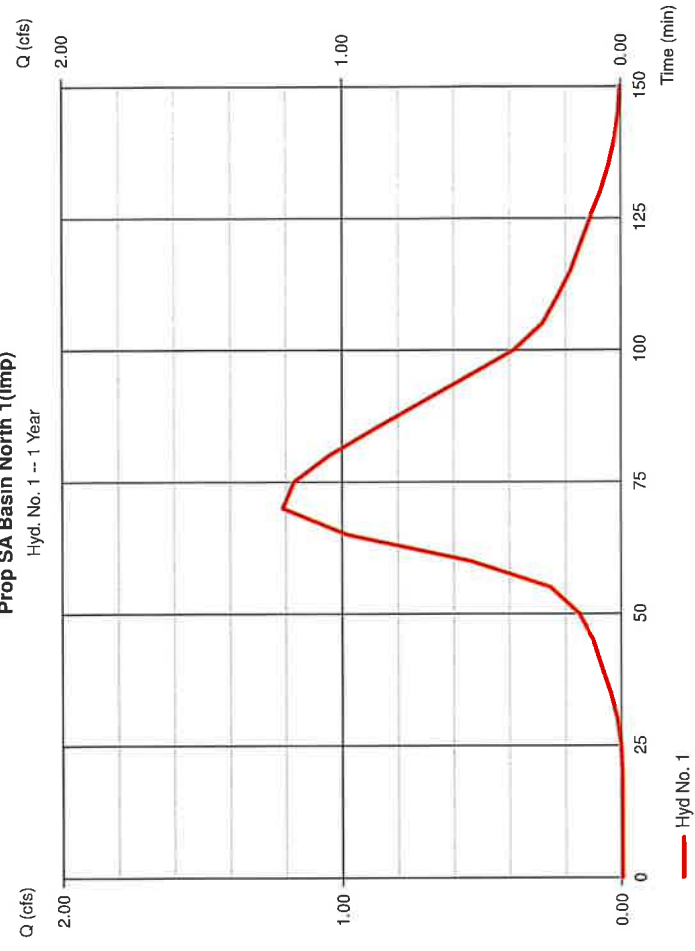
Prop SA Basin North 1 (Imp)

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.750 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 1.214 cfs
 Time to peak = 70 min
 Hyd. volume = 0.064 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Prop SA Basin North 1 (Imp)

Hyd. No. 1 -- 1 Year



Hyd. No. 1

Precipitation Report

Hydralow Hydrographs by Intellisolve v6.1

Thursday, Jun 24, 2021

Hyd. No. 1

Prop SA Basin North 1(1mp)

Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v6.1

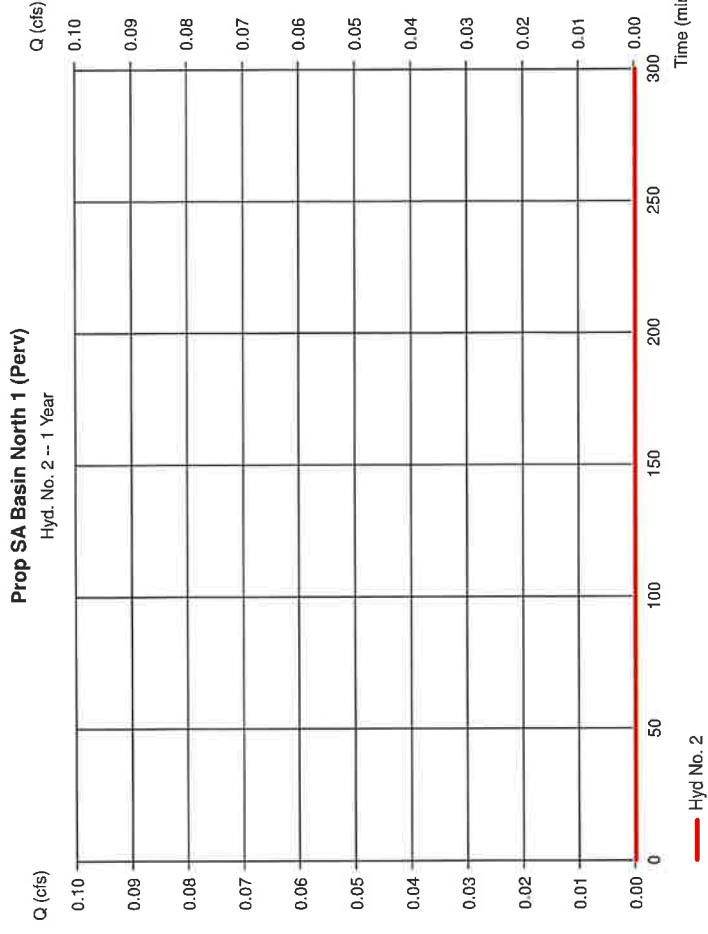
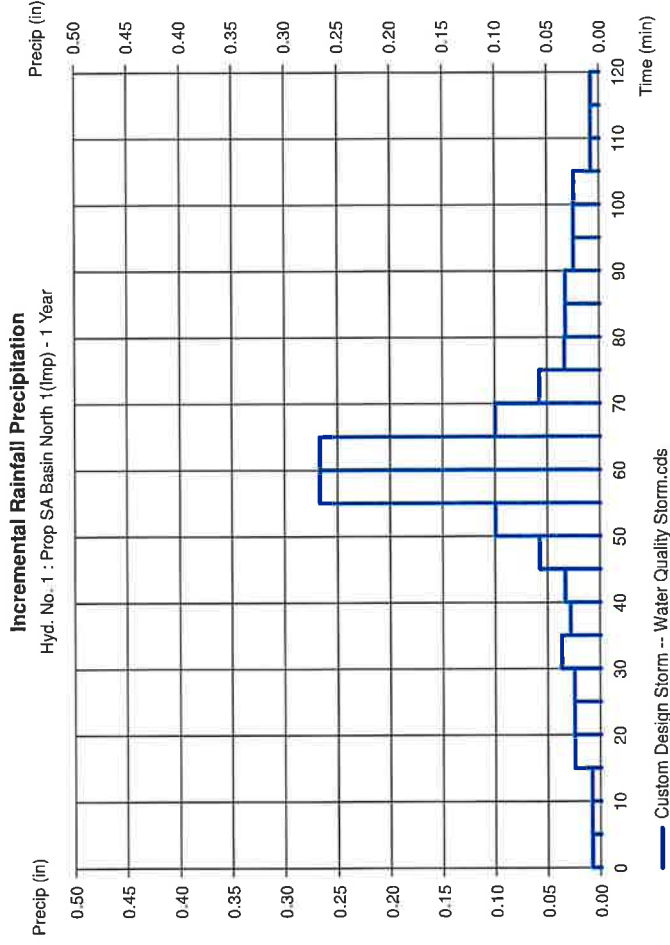
Thursday, Jun 24, 2021

Hyd. No. 2

Prop SA Basin North 1 (Perv)

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.880 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydrow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 2

Prop SA Basin North 1 (Perv)

Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydrow Hydrographs by Intellisolve v9.1

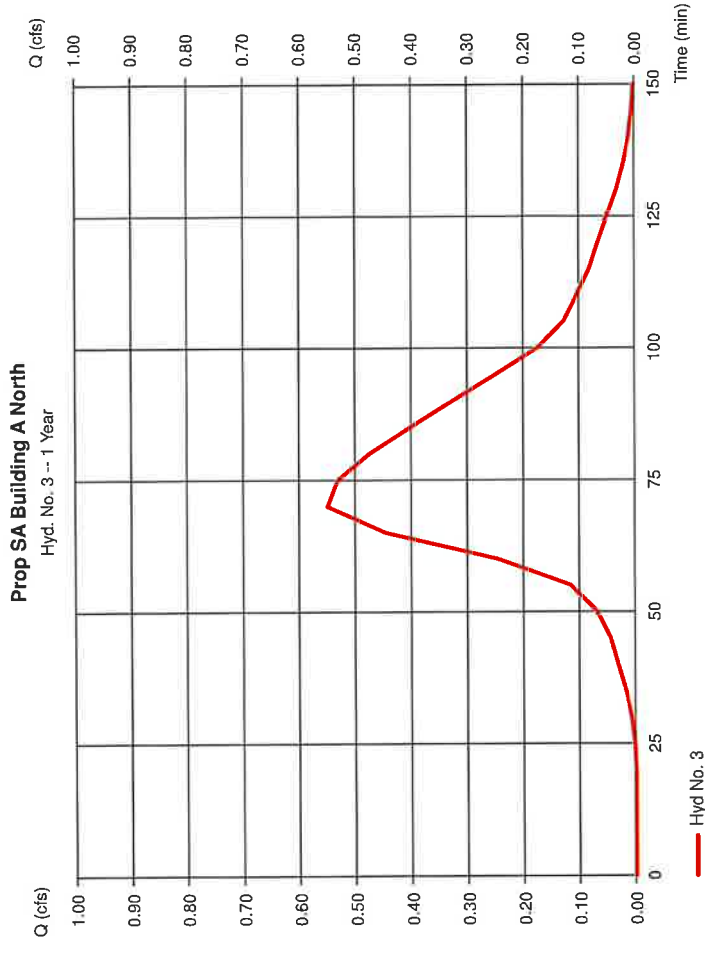
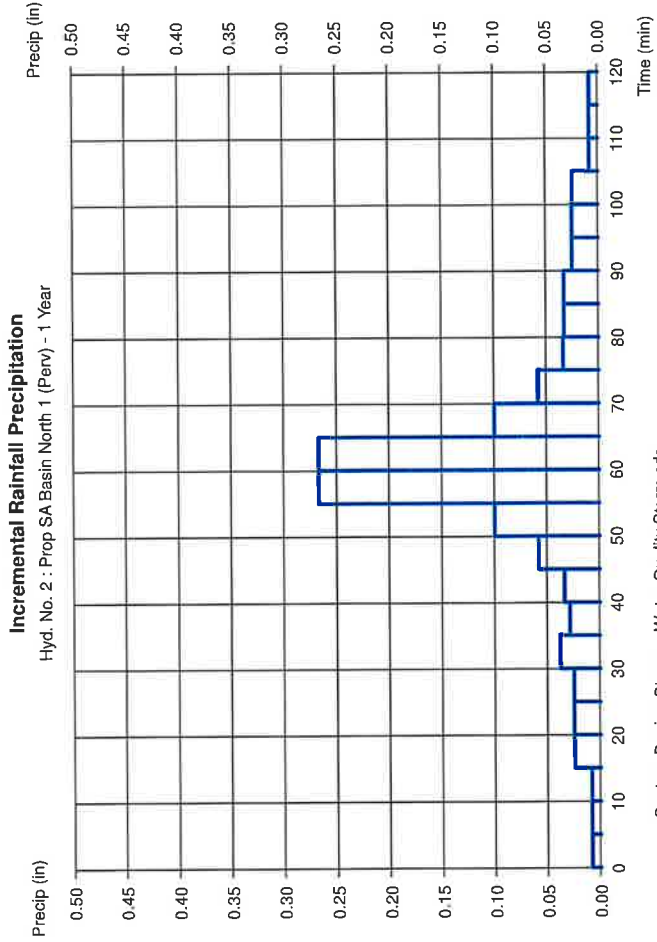
Thursday, Jun 24, 2021

Hyd. No. 3

Prop SA Building A North

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 0.551 cfs
 Time to peak = 70 min
 Hyd. volume = 0.029 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

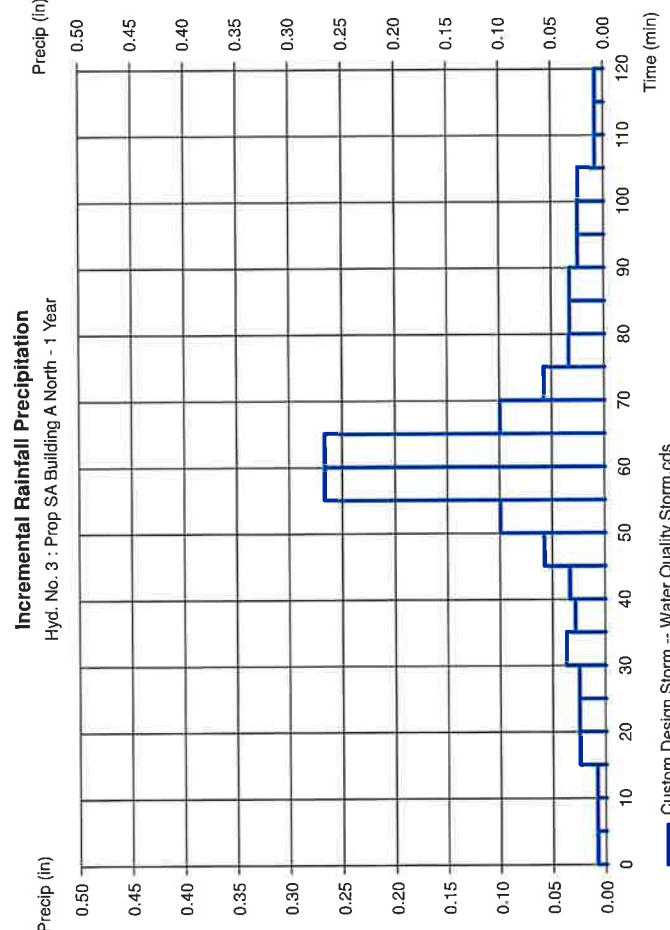


Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 3

Prop SA Building A North
 Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds
 Time interval = 5 min
 Distribution = Custom

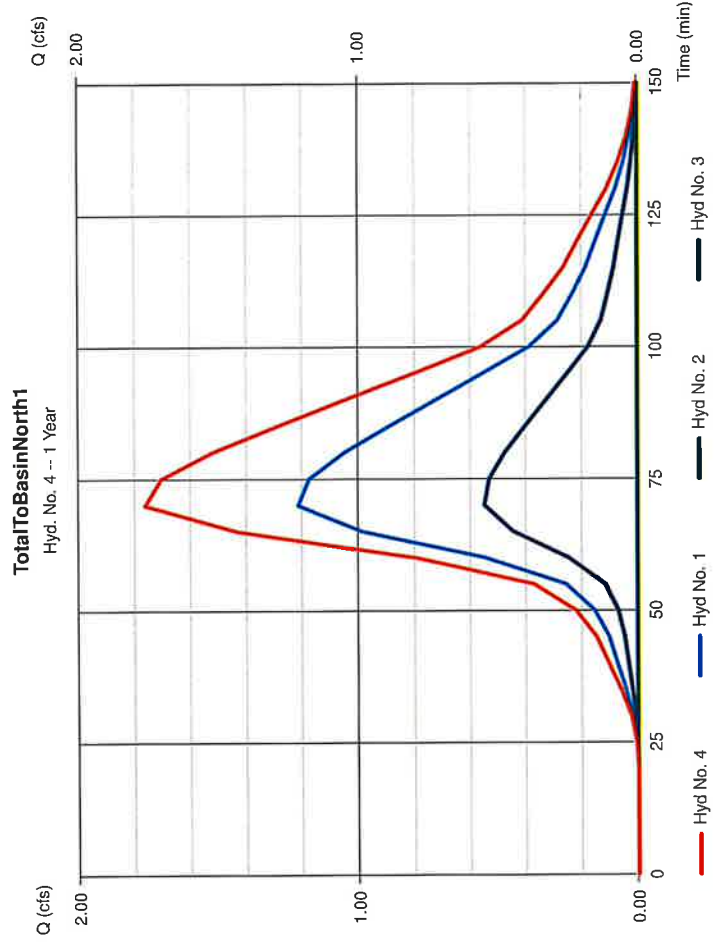


Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 4

TotalToBasinNorth1
 Hydrograph type = Combine
 Storm frequency = 1 yrs
 Time interval = 5 min
 Inflow hydys. = 1, 2, 3
 Peak discharge = 1.765 cfs
 Time to peak = 70 min
 Hyd. volume = 0.093 acft
 Contrib. drain. area = 1.970 ac



Hydrograph Report

Hydrallow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 5

PropRouteAGBasinNorth1

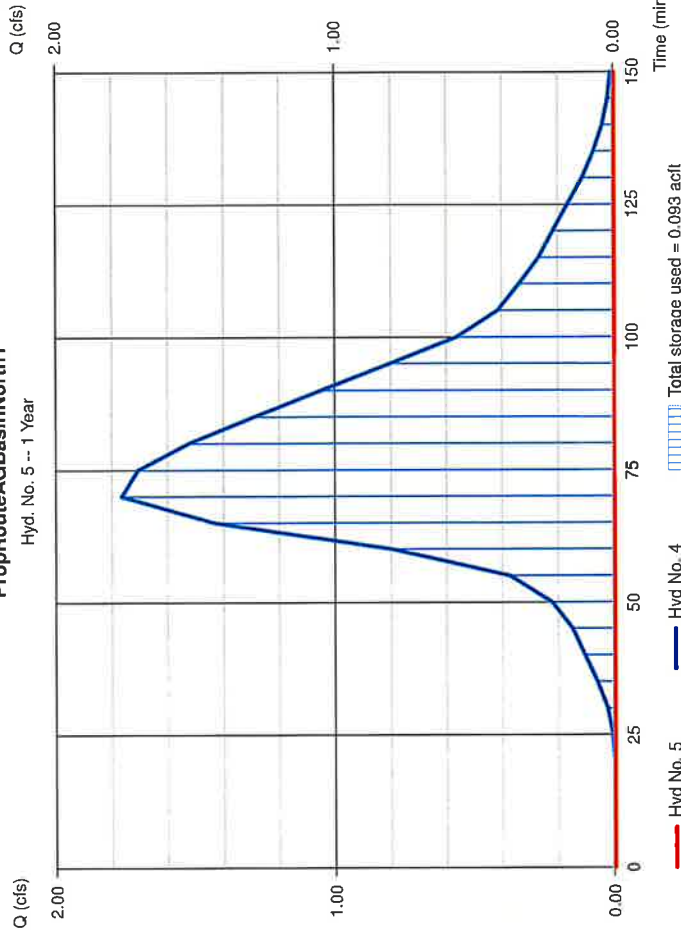
Hydrograph type = Reservoir
 Storm frequency = 1 yrs
 Time interval = 5 min
 Inflow hyd. No. = 4 - TotalToBasinNorth1
 Reservoir name = Prop AG Basin North 1

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Max. Elevation = 124.20 ft
 Max. Storage = 0.093 acft

Storage Indication method used.

PropRouteAGBasinNorth1

Hyd. No. 5 -- 1 Year



Pond Report

Hydrallow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Pond No. 1 - Prop AG Basin North 1

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 123.60 ft

Stage / Storage Table	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	123.60	5,550	0.000	0.000
0.40	124.00	7,027	0.058	0.058
1.40	125.00	8,656	0.182	0.239
2.40	126.00	10,712	0.224	0.464
3.40	127.00	12,588	0.257	0.731
3.90	127.50	13,636	0.150	0.881
4.40	128.00	14,818	0.163	1.045
4.60	128.20	16,394	0.072	1.117

Culvert / Orifice Structures

[A]	[B]	[C]	[PrRsr]	[A]	[B]	[C]	[D]
Rise (in) = 0.00	0.00	0.00	0.00	Crest Len (ft) = 0.00	0.00	0.00	0.00
Span (in) = 0.00	0.00	0.00	0.00	Crest El. (ft) = 0.00	0.00	0.00	0.00
No. Barrels = 0	0	0	0	Weir Coeff. = 3.33	3.33	3.33	3.33
Invert El. (ft) = 0.00	0.00	0.00	0.00	Weir Type =			
Length (ft) = 0.00	0.00	0.00	0.00	Multi-Stage =	No	No	No
Slope (%) = 0.00	0.00	0.00	n/a				
N-Value = .013	.013	.013		Exfil. (in/hr) = 0.00 (by Wet area)			
Orifice Coeff. = 0.60	0.60	0.60	0.60	TW Elev. (ft) = 0.00			
Multi-Stage = n/a	No	No	No				

Weir Structures

Stage / Storage / Discharge Table	Stage	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrRsr cfs	Wf A cfs	Wf B cfs	Wf C cfs	Wf D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.00	0.000	123.60											0.00
0.40	0.05	0.058	124.00											0.00
0.90	0.12	0.123	124.40											0.00
1.40	0.16	0.167	124.80											0.00
1.90	0.20	0.209	125.20											0.00
2.40	0.24	0.240	125.60											0.00
2.80	0.28	0.280	126.00											0.00
3.20	0.32	0.320	126.40											0.00
3.60	0.36	0.360	126.80											0.00
4.00	0.40	0.400	127.20											0.00
4.40	0.44	0.440	127.60											0.00
4.60	0.46	0.464	127.80											0.00
4.80	0.48	0.480	128.00											0.00
5.00	0.50	0.500	128.20											0.00
5.20	0.52	0.520	128.40											0.00
5.40	0.54	0.540	128.60											0.00
5.60	0.56	0.560	128.80											0.00
5.80	0.58	0.580	129.00											0.00
6.00	0.60	0.600	129.20											0.00
6.20	0.62	0.620	129.40											0.00
6.40	0.64	0.640	129.60											0.00
6.60	0.66	0.660	129.80											0.00
6.80	0.68	0.680	130.00											0.00
7.00	0.70	0.700	130.20											0.00
7.20	0.72	0.720	130.40											0.00
7.40	0.74	0.740	130.60											0.00
7.60	0.76	0.760	130.80											0.00
7.80	0.78	0.780	131.00											0.00
8.00	0.80	0.800	131.20											0.00
8.20	0.82	0.820	131.40											0.00
8.40	0.84	0.840	131.60											0.00
8.60	0.86	0.860	131.80											0.00
8.80	0.88	0.880	132.00											0.00
9.00	0.90	0.900	132.20											0.00
9.20	0.92	0.920	132.40											0.00
9.40	0.94	0.940	132.60											0.00
9.60	0.96	0.960	132.80											0.00
9.80	0.98	0.980	133.00											0.00
10.00	1.00	1.000	133.20											0.00
10.20	1.02	1.020	133.40											0.00
10.40	1.04	1.040	133.60											0.00
10.60	1.06	1.060	133.80											0.00
10.80	1.08	1.080	134.00											0.00
11.00	1.10	1.100	134.20											0.00
11.20	1.12	1.120	134.40											0.00
11.40	1.14	1.140	134.60											0.00
11.60	1.16	1.160	134.80											0.00
11.80	1.18	1.180	135.00											0.00
12.00	1.20	1.200	135.20											0.00
12.20	1.22	1.220	135.40											0.00
12.40	1.24	1.240	135.60											0.00
12.60	1.26	1.260	135.80											0.00
12.80	1.28	1.280	136.00											0.00
13.00	1.30	1.300	136.20											0.00
13.20	1.32	1.320	136.40											0.00
13.40	1.34	1.340	136.60											0.00
13.60	1.36	1.360	136.80											0.00
13.80	1.38	1.380	137.00											0.00
14.00	1.40	1.400	137.20											0.00
14.20	1.42	1.420	137.40											0.00
14.40	1.44	1.440	137.60											0.00
14.60	1.46	1.460	137.80											0.00
14.80	1.48	1.480	138.00											0.00
15.00	1.50	1.500	138.20											0.00
15.20	1.52	1.520	138.40											0.00
15.40	1.54	1.540	138.60											0.00
15.60	1.56	1.560	138.80											0.00
15.80	1.58	1.580	139.00											0.00
16.00	1.60	1.600	139.20											0.00
16.20	1.62	1.620	139.40											0.00
16.40	1.64	1.640	139.60											0.00
16.60	1.66	1.660	139.80											0.00
16.80	1.68	1.680	140.00											0.00
17.00	1.70	1.700	140.20											0.00
17.20	1.72	1.720	140.40											0.00
17.40	1.74	1.740	140.60											0.00
17.60	1.76	1.760	140.80											0.00
17.80	1.78	1.780	141.00											0.00
18.00	1.80	1.800	141.20											0.00
18.20	1.82	1.820	141.40											0.00
18.40	1.84	1.840	141.60											0.00
18.60	1.86	1.860	141.80											0.00
18.80	1.88	1.880	142.00											0.00
19.00	1.90	1.900	142.20											0.00
19.20	1.92	1.920	142.40											0.00
19.40	1.94	1.940	142.60											0.00
19.60	1.96	1.960	142.80											0.00
19.80	1.98	1.980	143.00											0.00
20.00	2.00	2.000	143.20											0.00
20.20	2.02	2.020	143.40											0.00
20.40	2.04	2.040	143.60											0.00
20.60	2.06	2.060	143.80											0.00
20.80	2.08	2.080	144.00											0.00
21.00	2.10	2.100	144.20											0.00
21.20	2.12	2.120	144.40											0.00
21.40	2.14	2.140	144.60											0.00
21.60	2.16	2.160	144.80											0.00
21.80	2.18	2.180	145.00											0.00
22.00	2.20	2.200	145.20											0.00
22.20	2.22	2.220	145.40											0.00
22.40	2.24	2.240	145.60											0.00
22.60	2.26	2.260	145.80											0.00
22.80	2.28	2.280	146.00											0

Hydrograph Report

Hydrowall Hydrographs by Intellisolve v9.1
Thursday, Jun 24, 2021

Hyd. No. 7

Prop SA Basin North 2 (Imp)

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.800 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 1.295 cfs
 Time to peak = 70 min
 Hyd. volume = 0.069 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

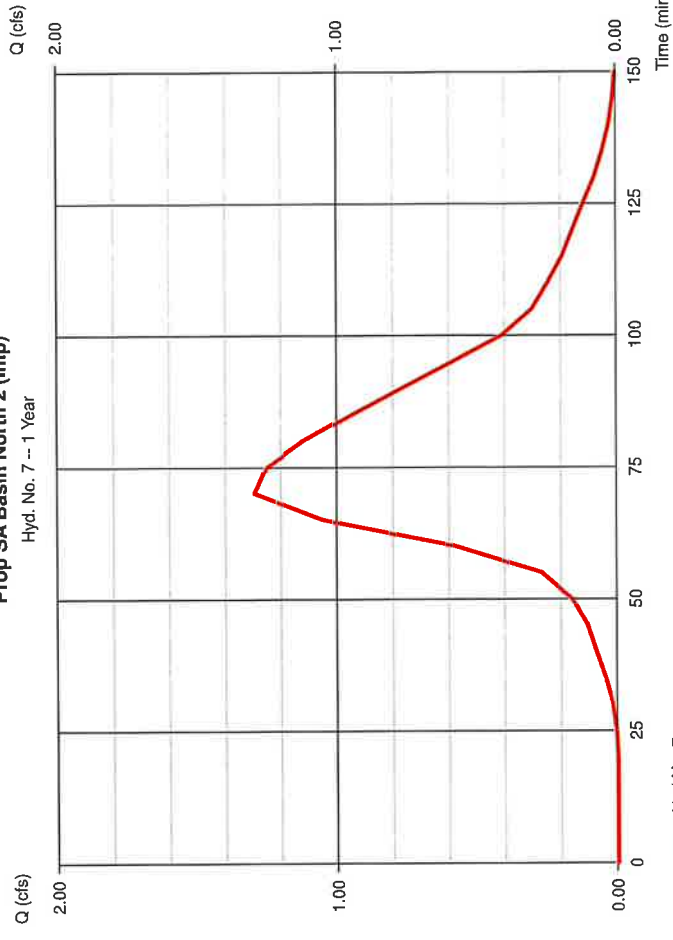
Prop AG Basin North 1 Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PriRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exdl cfs	User cfs	Total cfs
3.00	0.624	126.60	...	...	...	...	...	...	...	...	...	...	0.00
3.10	0.651	126.70	...	...	...	...	...	...	...	...	...	...	0.00
3.20	0.677	126.80	...	...	...	...	...	...	...	...	...	...	0.00
3.30	0.704	126.90	...	...	...	...	...	...	...	...	...	...	0.00
3.40	0.731	127.00	...	...	...	...	...	...	...	...	...	...	0.00
3.50	0.758	127.10	...	...	...	...	...	...	...	...	...	...	0.00
3.60	0.785	127.20	...	...	...	...	...	...	...	...	...	...	0.00
3.70	0.812	127.30	...	...	...	...	...	...	...	...	...	...	0.00
3.80	0.839	127.40	...	...	...	...	...	...	...	...	...	...	0.00
3.90	0.866	127.50	...	...	...	...	...	...	...	...	...	...	0.00
4.00	0.893	127.60	...	...	...	...	...	...	...	...	...	...	0.00
4.10	0.920	127.70	...	...	...	...	...	...	...	...	...	...	0.00
4.20	0.947	127.80	...	...	...	...	...	...	...	...	...	...	0.00
4.30	0.974	127.90	...	...	...	...	...	...	...	...	...	...	0.00
4.40	1.001	128.00	...	...	...	...	...	...	...	...	...	...	0.00
4.50	1.028	128.10	...	...	...	...	...	...	...	...	...	...	0.00
4.60	1.055	128.20	...	...	...	...	...	...	...	...	...	...	0.00
4.70	1.082	128.30	...	...	...	...	...	...	...	...	...	...	0.00
4.80	1.109	128.40	...	...	...	...	...	...	...	...	...	...	0.00
4.90	1.136	128.50	...	...	...	...	...	...	...	...	...	...	0.00

...End

Prop SA Basin North 2 (Imp)

Hyd. No. 7 -- 1 Year



Precipitation Report

Hydralow Hydrographs by Inelissolve v8.1 Thursday, Jun 24, 2021

Hyd. No. 7

Prop SA Basin North 2 (Imp)

Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Inelissolve v8.1 Thursday, Jun 24, 2021

Hyd. No. 8

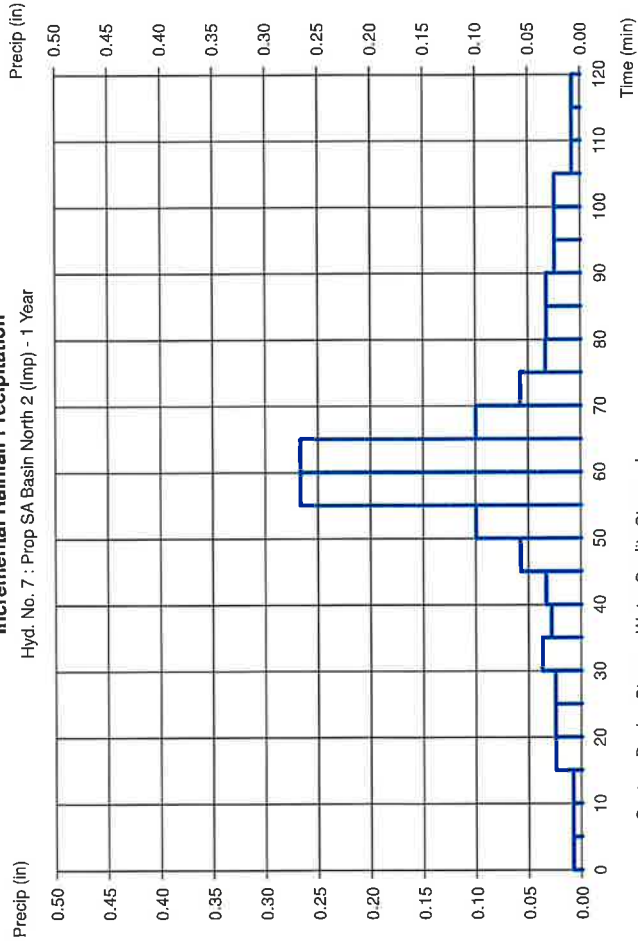
Prop SA Basin North 2 (Perv)

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.660 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

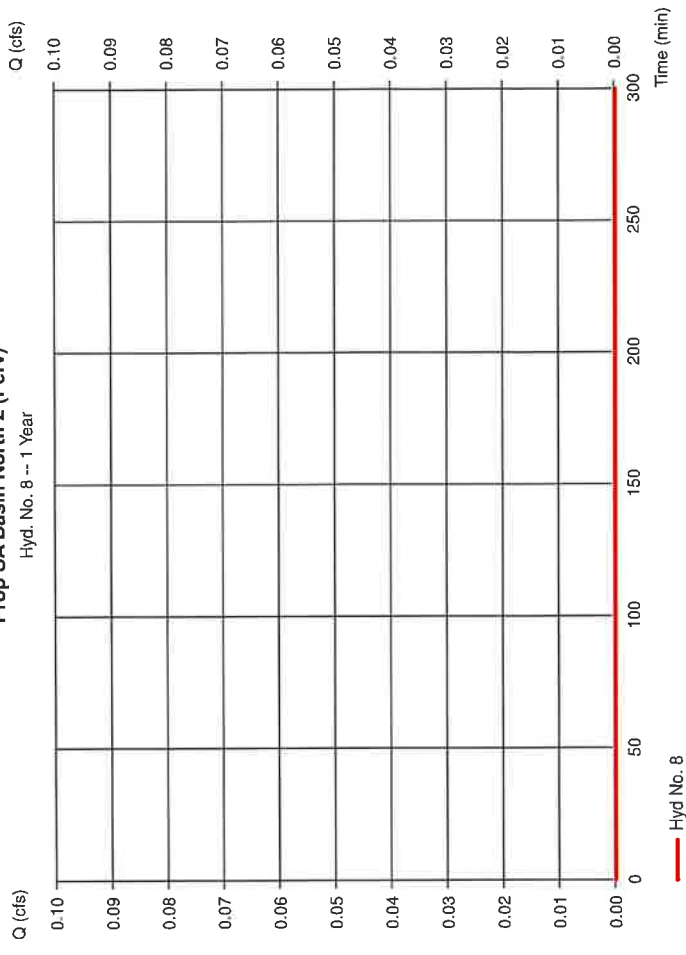
Incremental Rainfall Precipitation

Hyd. No. 7 : Prop SA Basin North 2 (Imp) - 1 Year



Prop SA Basin North 2 (Perv)

Hyd. No. 8 -- 1 Year



Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 8

Prop SA Basin North 2 (Perv)

Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

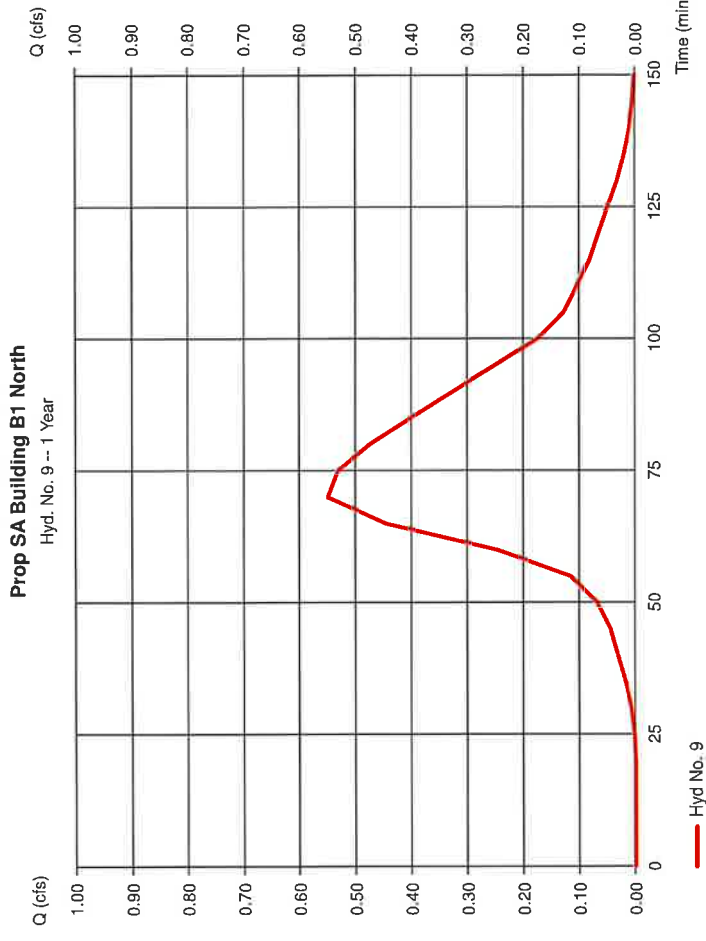
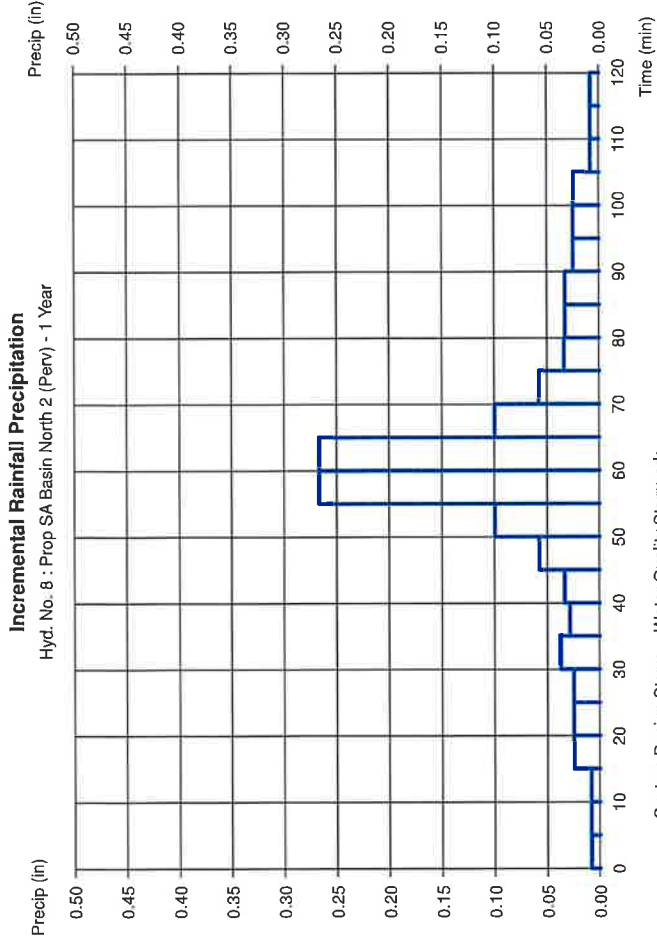
Hydralow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 9

Prop SA Building B1 North

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 0.551 cfs
 Time to peak = 70 min
 Hyd. volume = 0.029 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 265



Precipitation Report

Hydralflow Hydrographs by Intellisolve v3.1 Thursday, Jun 24, 2021

Hyd. No. 9

Prop SA Building B1 North
 Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds

Time interval = 5 min
 Distribution = Custom

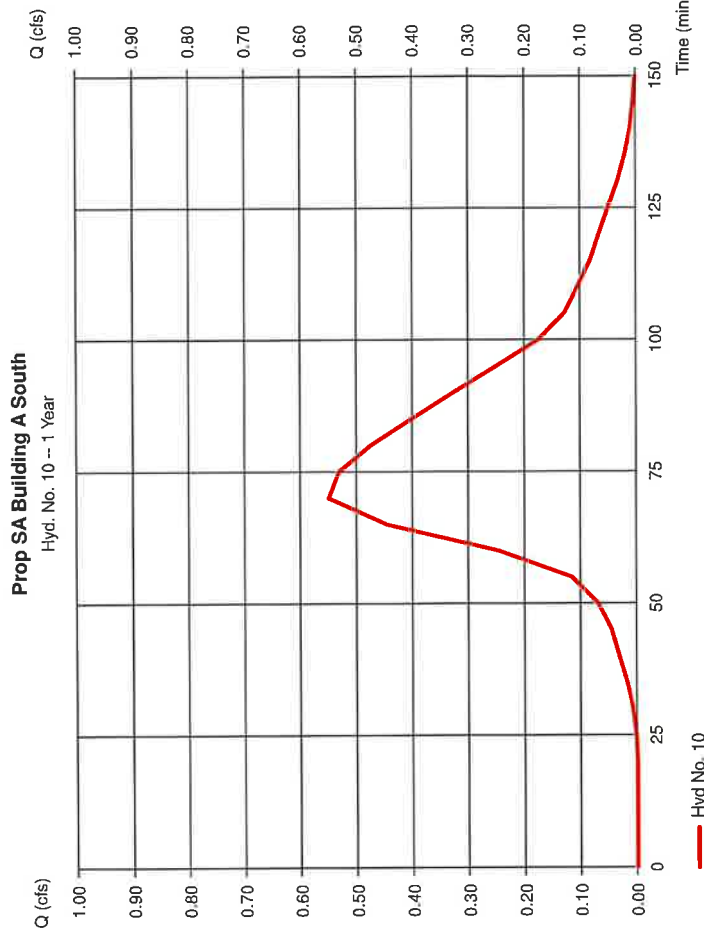
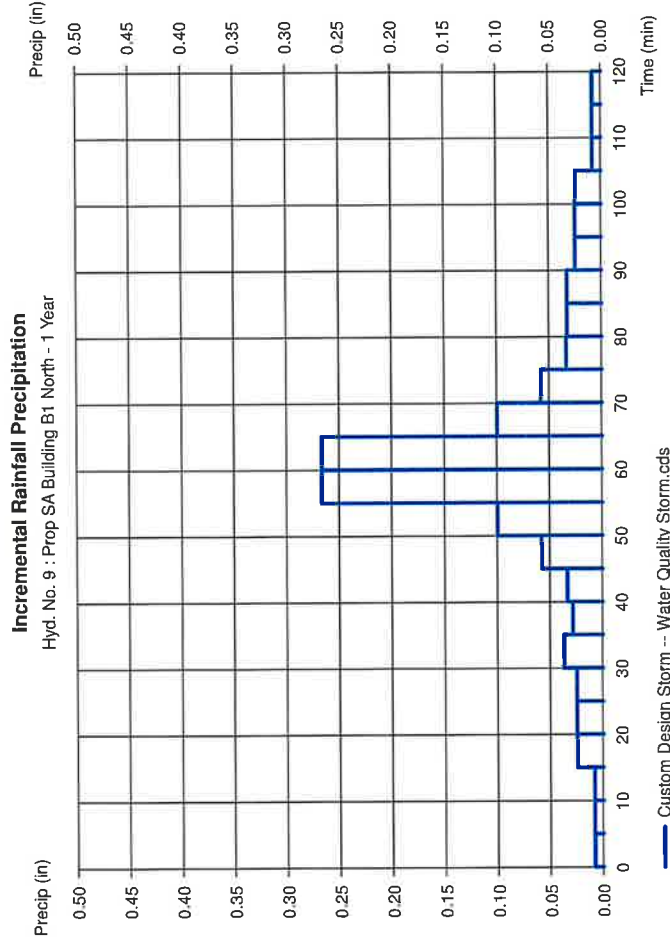
Hydrograph Report

Hydralflow Hydrographs by Intellisolve v3.1 Thursday, Jun 24, 2021

Hyd. No. 10

Prop SA Building A South
 Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 0.551 cfs
 Time to peak = 70 min
 Hyd. volume = 0.029 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

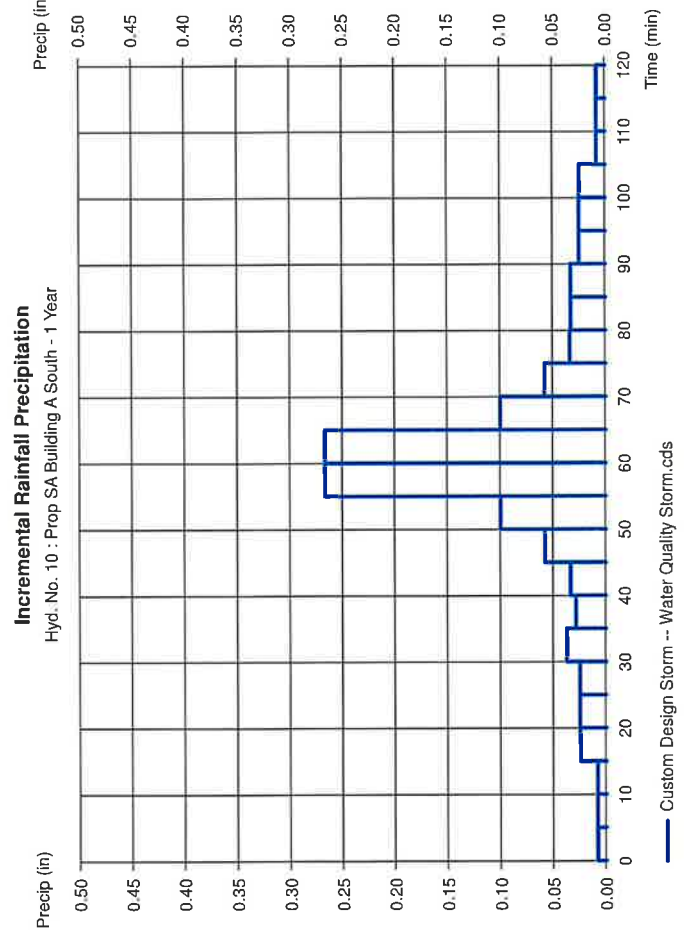


Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 10

Prop SA Building A South
 Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds
 Time interval = 5 min
 Distribution = Custom

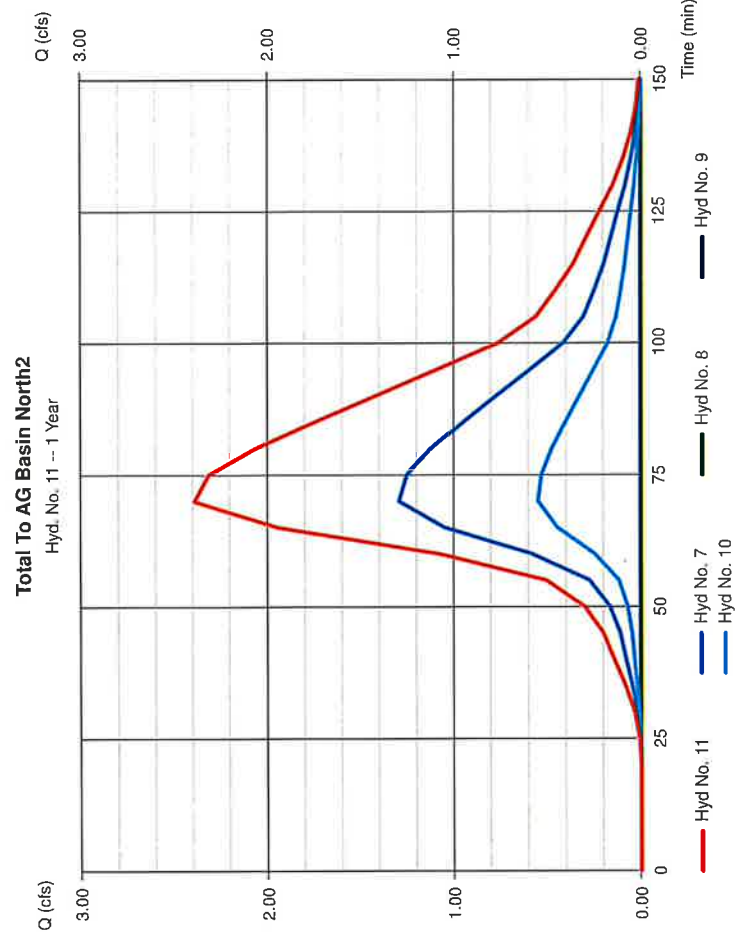


Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 11

Total To AG Basin North2
 Hydrograph type = Combine
 Storm frequency = 1 yrs
 Time interval = 5 min
 Inflow hyds. = 7, 8, 9, 10
 Peak discharge = 2.396 cfs
 Time to peak = 70 min
 Hyd. volume = 0.127 acft
 Contrib. drain. area = 2.140 ac



Hydrograph Report

Hydralflow Hydrographs by Intellisolve v6.1

Thursday, Jun 24, 2021

Hyd. No. 12

PostRouteAGBasinNorth2

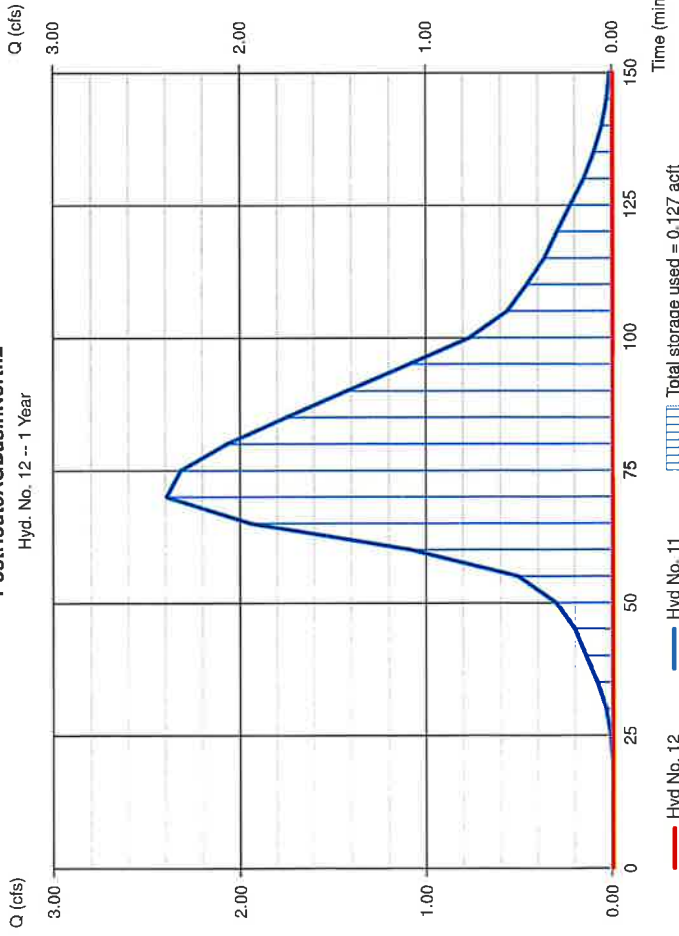
Hydrograph type = Reservoir
 Storm frequency = 1 yrs
 Time interval = 5 min
 Inflow hyd. No. = 11 - Total To AG Basin North2
 Reservoir name = Prop. AG Basin North 2

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Max. Elevation = 124.19 ft
 Max. Storage = 0.127 acft

Storage Indication method used.

PostRouteAGBasinNorth2

Hyd. No. 12 -- 1 Year



Pond Report

Hydralflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Pond No. 3 - Prop. AG Basin North 2

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 123.60 ft

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	123.60	7,227	0.000	0.000
0.40	124.00	10,203	0.080	0.080
1.40	125.00	11,325	0.247	0.327
2.40	126.00	13,137	0.280	0.607
3.40	127.00	14,689	0.319	0.926
3.90	127.50	15,576	0.174	1.100
4.40	128.00	17,314	0.189	1.289
4.60	128.20	19,222	0.084	1.372

Culvert / Orifice Structures

Weir Structures

	[A]	[B]	[C]	[Prffsr]	[A]	[B]	[C]	[D]
Rise (ft)	= 0.00	0.00	0.00	0.00	Crest Len (ft)	= 0.00	0.00	0.00
Span (ft)	= 0.00	0.00	0.00	0.00	Crest EI. (ft)	= 0.00	0.00	0.00
No. Barrels	= 0	0	0	0	Weir Coeff.	= 3.33	3.33	3.33
Invert EI. (ft)	= 0.00	0.00	0.00	0.00	Weir Type	= ...	...	...
Length (ft)	= 0.00	0.00	0.00	0.00	Multi-Stage	= No	No	No
Slope (%)	= 0.00	0.00	0.00	n/a				
M-Value	= .013	.013	.013	n/a				
Orifice Coeff.	= 0.60	0.60	0.60	0.60	Exfil. (in/hr)	= 0.00 (by Contour)		
Multi-Stage	= n/a	No	No	No	TW Elev. (ft)	= 0.00		

Note: Culvert/Orifice outflows are analyzed under inlet (ft) and outlet (ft) control. Weir rises checked for orifice conditions (A) and submergence (S).

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	Prffsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	123.60	...	...	...	...	...	...	...	...	...	...	0.00
0.04	0.008	123.64	...	...	...	...	...	...	...	...	...	...	0.00
0.08	0.016	123.68	...	...	...	...	...	...	...	...	...	...	0.00
0.12	0.024	123.72	...	...	...	...	...	...	...	...	...	...	0.00
0.16	0.032	123.76	...	...	...	...	...	...	...	...	...	...	0.00
0.20	0.040	123.80	...	...	...	...	...	...	...	...	...	...	0.00
0.24	0.048	123.84	...	...	...	...	...	...	...	...	...	...	0.00
0.28	0.055	123.88	...	...	...	...	...	...	...	...	...	...	0.00
0.32	0.064	123.92	...	...	...	...	...	...	...	...	...	...	0.00
0.36	0.072	123.96	...	...	...	...	...	...	...	...	...	...	0.00
0.40	0.080	124.00	...	...	...	...	...	...	...	...	...	...	0.00
0.50	0.104	124.10	...	...	...	...	...	...	...	...	...	...	0.00
0.60	0.129	124.20	...	...	...	...	...	...	...	...	...	...	0.00
0.70	0.154	124.30	...	...	...	...	...	...	...	...	...	...	0.00
0.80	0.178	124.40	...	...	...	...	...	...	...	...	...	...	0.00
0.90	0.203	124.50	...	...	...	...	...	...	...	...	...	...	0.00
1.00	0.228	124.60	...	...	...	...	...	...	...	...	...	...	0.00
1.10	0.253	124.70	...	...	...	...	...	...	...	...	...	...	0.00
1.20	0.277	124.80	...	...	...	...	...	...	...	...	...	...	0.00
1.30	0.302	124.90	...	...	...	...	...	...	...	...	...	...	0.00
1.40	0.327	125.00	...	...	...	...	...	...	...	...	...	...	0.00
1.50	0.355	125.10	...	...	...	...	...	...	...	...	...	...	0.00
1.60	0.383	125.20	...	...	...	...	...	...	...	...	...	...	0.00
1.70	0.411	125.30	...	...	...	...	...	...	...	...	...	...	0.00
1.80	0.439	125.40	...	...	...	...	...	...	...	...	...	...	0.00
1.90	0.467	125.50	...	...	...	...	...	...	...	...	...	...	0.00
2.00	0.495	125.60	...	...	...	...	...	...	...	...	...	...	0.00
2.10	0.523	125.70	...	...	...	...	...	...	...	...	...	...	0.00
2.20	0.551	125.80	...	...	...	...	...	...	...	...	...	...	0.00
2.30	0.579	125.90	...	...	...	...	...	...	...	...	...	...	0.00
2.40	0.607	126.00	...	...	...	...	...	...	...	...	...	...	0.00
2.50	0.639	126.10	...	...	...	...	...	...	...	...	...	...	0.00
2.60	0.671	126.20	...	...	...	...	...	...	...	...	...	...	0.00
2.70	0.703	126.30	...	...	...	...	...	...	...	...	...	...	0.00
2.80	0.735	126.40	...	...	...	...	...	...	...	...	...	...	0.00
2.90	0.767	126.50	...	...	...	...	...	...	...	...	...	...	0.00

Continues on next page...

Hydrograph Report

Hydroflow Hydrographs by Inellissolve v8.1

Thursday, Jun 24, 2021

Hyd. No. 14

Prop SA Basin South 1 (Imp)

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.400 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 0.648 cfs
 Time to peak = 70 min
 Hyd. volume = 0.034 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

Prop. AG Basin North 2

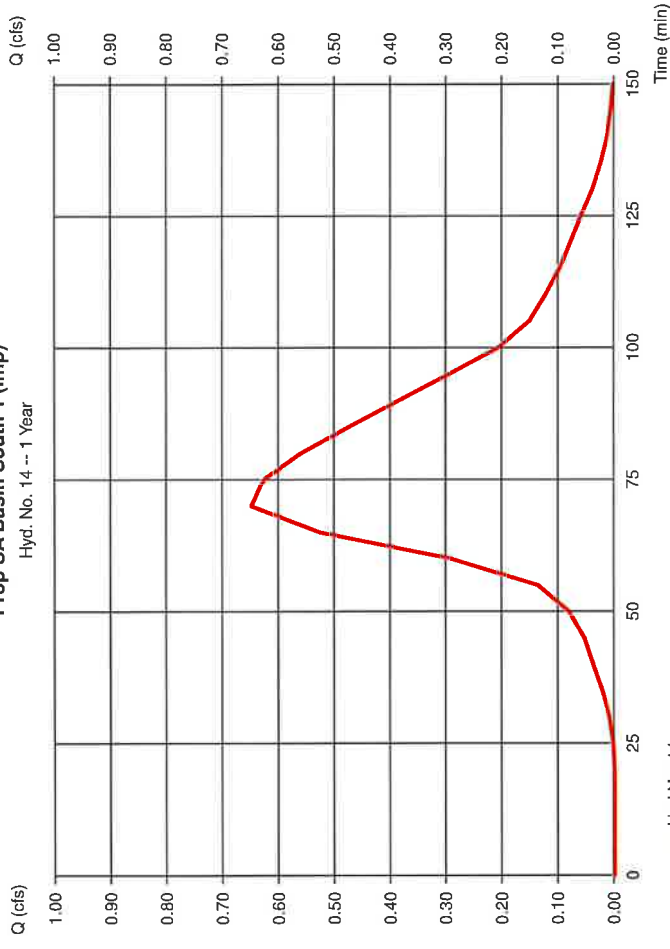
Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PvRfR cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.00	0.799	126.60	...	...	...	...	...	...	...	...	...	...	0.00
3.10	0.831	126.70	...	...	...	...	...	...	...	...	...	...	0.00
3.20	0.862	126.80	...	...	...	...	...	...	...	...	...	...	0.00
3.30	0.894	126.90	...	...	...	...	...	...	...	...	...	...	0.00
3.40	0.926	127.00	...	...	...	...	...	...	...	...	...	...	0.00
3.45	0.944	127.05	...	...	...	...	...	...	...	...	...	...	0.00
3.50	0.961	127.10	...	...	...	...	...	...	...	...	...	...	0.00
3.55	0.978	127.15	...	...	...	...	...	...	...	...	...	...	0.00
3.60	0.996	127.20	...	...	...	...	...	...	...	...	...	...	0.00
3.65	1.013	127.25	...	...	...	...	...	...	...	...	...	...	0.00
3.70	1.030	127.30	...	...	...	...	...	...	...	...	...	...	0.00
3.75	1.048	127.35	...	...	...	...	...	...	...	...	...	...	0.00
3.80	1.065	127.40	...	...	...	...	...	...	...	...	...	...	0.00
3.85	1.083	127.45	...	...	...	...	...	...	...	...	...	...	0.00
3.90	1.100	127.50	...	...	...	...	...	...	...	...	...	...	0.00
3.95	1.119	127.55	...	...	...	...	...	...	...	...	...	...	0.00
4.00	1.138	127.60	...	...	...	...	...	...	...	...	...	...	0.00
4.05	1.157	127.65	...	...	...	...	...	...	...	...	...	...	0.00
4.10	1.175	127.70	...	...	...	...	...	...	...	...	...	...	0.00
4.15	1.194	127.75	...	...	...	...	...	...	...	...	...	...	0.00
4.20	1.213	127.80	...	...	...	...	...	...	...	...	...	...	0.00
4.25	1.232	127.85	...	...	...	...	...	...	...	...	...	...	0.00
4.30	1.251	127.90	...	...	...	...	...	...	...	...	...	...	0.00
4.35	1.270	127.95	...	...	...	...	...	...	...	...	...	...	0.00
4.40	1.289	128.00	...	...	...	...	...	...	...	...	...	...	0.00
4.42	1.297	128.02	...	...	...	...	...	...	...	...	...	...	0.00
4.44	1.305	128.04	...	...	...	...	...	...	...	...	...	...	0.00
4.46	1.314	128.06	...	...	...	...	...	...	...	...	...	...	0.00
4.48	1.322	128.08	...	...	...	...	...	...	...	...	...	...	0.00
4.50	1.331	128.10	...	...	...	...	...	...	...	...	...	...	0.00
4.52	1.339	128.12	...	...	...	...	...	...	...	...	...	...	0.00
4.54	1.347	128.14	...	...	...	...	...	...	...	...	...	...	0.00
4.56	1.356	128.16	...	...	...	...	...	...	...	...	...	...	0.00
4.58	1.364	128.18	...	...	...	...	...	...	...	...	...	...	0.00
4.60	1.372	128.20	...	...	...	...	...	...	...	...	...	...	0.00

...End

Prop SA Basin South 1 (Imp)

Hyd. No. 14 -- 1 Year



Hyd No. 14

Precipitation Report

Hydralow Hydrographs by Inellicolve v8.1

Thursday, Jun 24, 2021

Hyd. No. 14

Prop SA Basin South 1 (Imp)

Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Inellicolve v8.1

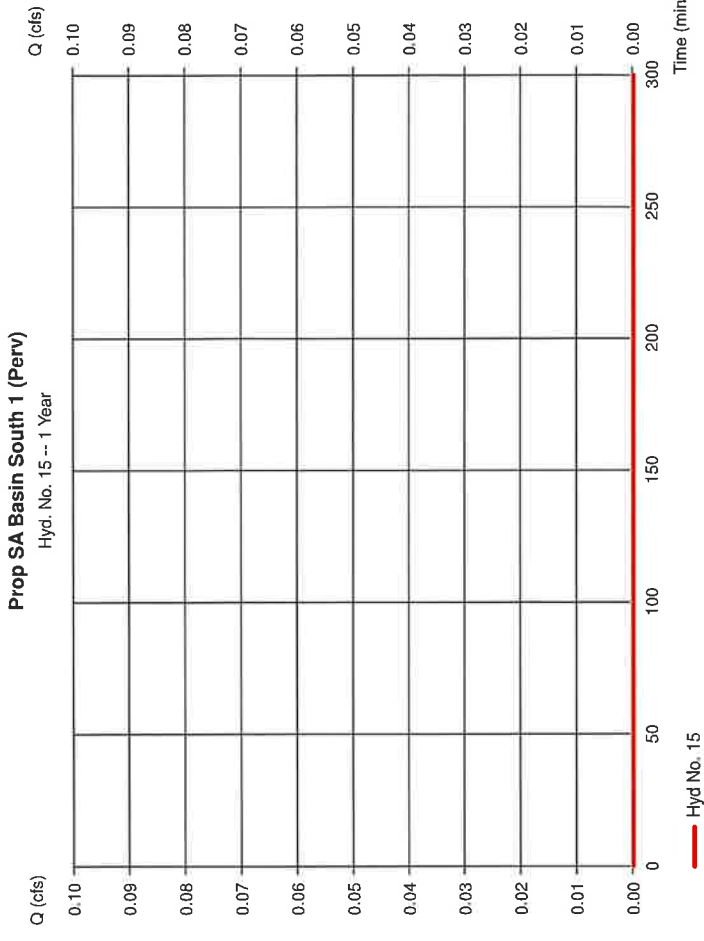
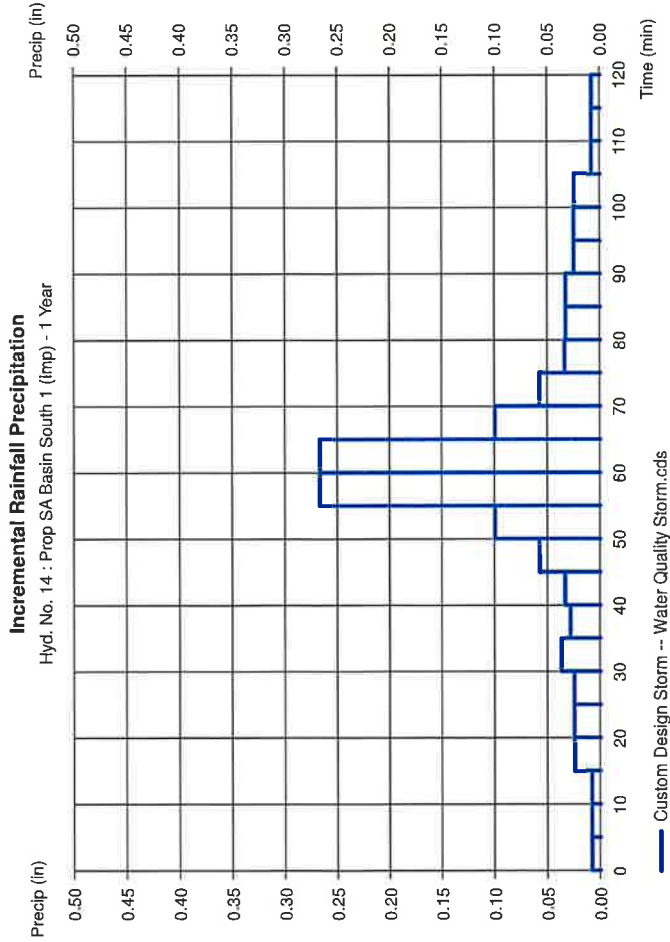
Thursday, Jun 24, 2021

Hyd. No. 15

Prop SA Basin South 1 (Perv)

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.650 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Curve number = 46
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydralow Hydrographs by Ineliasolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 15

Prop SA Basin South 1 (Perv)

Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Ineliasolve v9.1

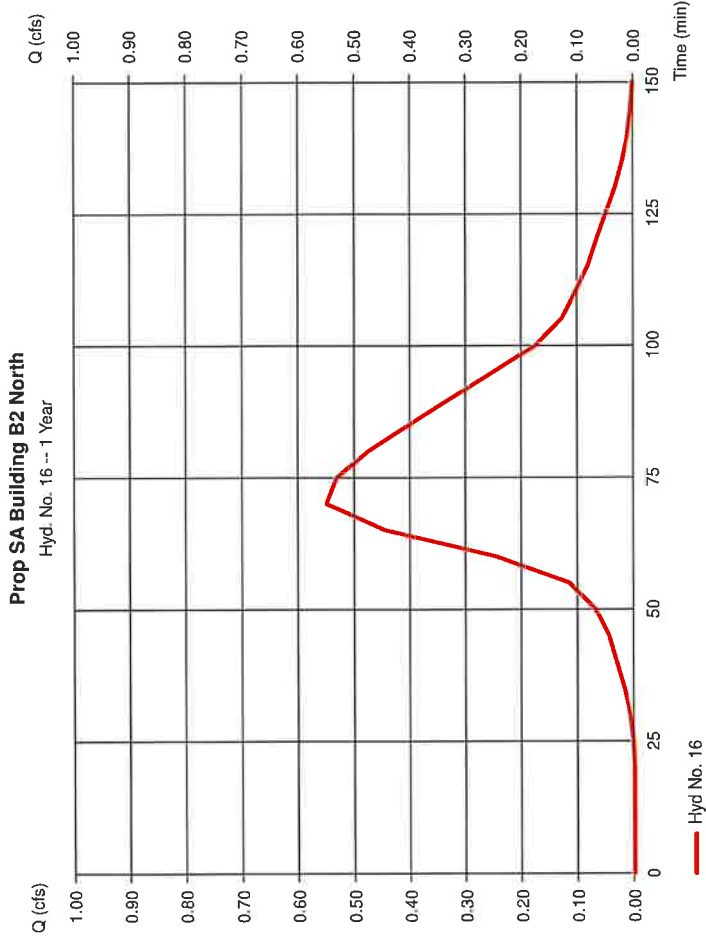
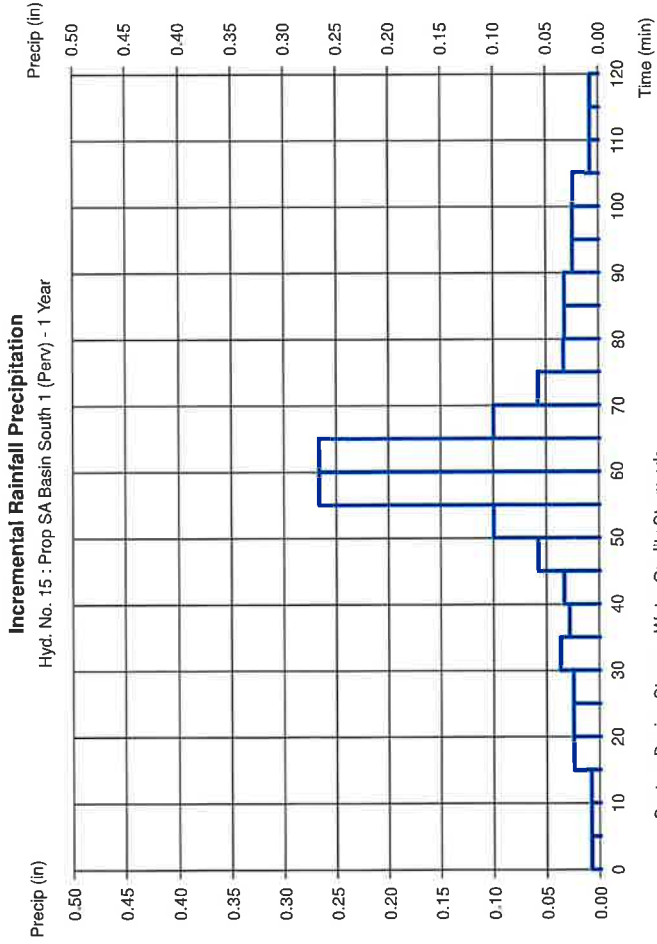
Thursday, Jun 24, 2021

Hyd. No. 16

Prop SA Building B2 North

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 0.551 cfs
 Time to peak = 70 min
 Hyd. volume = 0.029 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydrowflow Hydrographs by Inelissolve v3.1

Thursday, Jun 24, 2021

Hyd. No. 16

Prop SA Building B2 North

Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydrowflow Hydrographs by Inelissolve v3.1

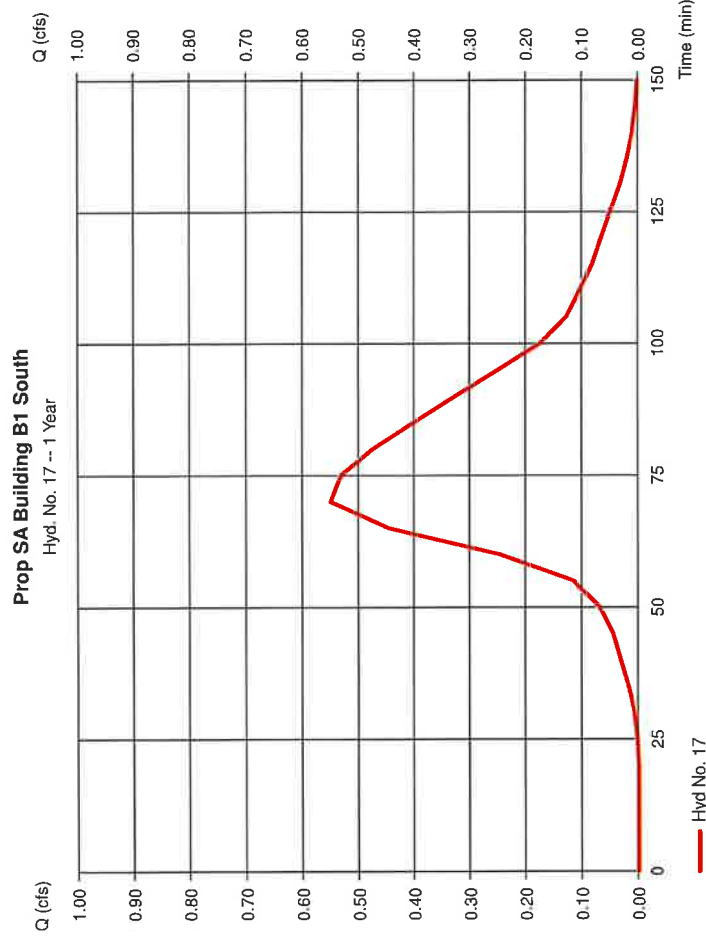
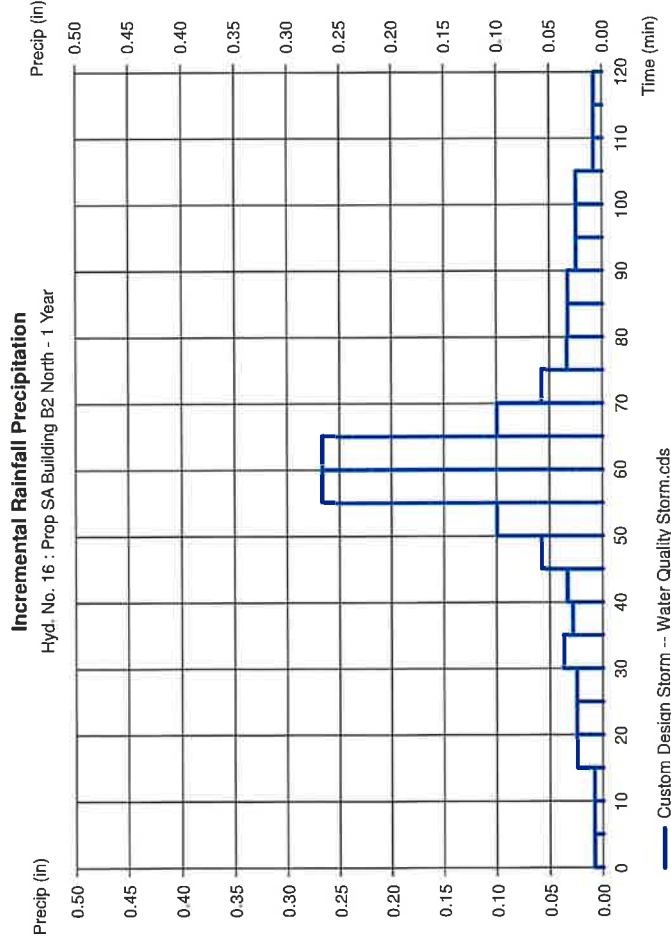
Thursday, Jun 24, 2021

Hyd. No. 17

Prop SA Building B1 South

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 0.551 cfs
 Time to peak = 70 min
 Hyd. volume = 0.029 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

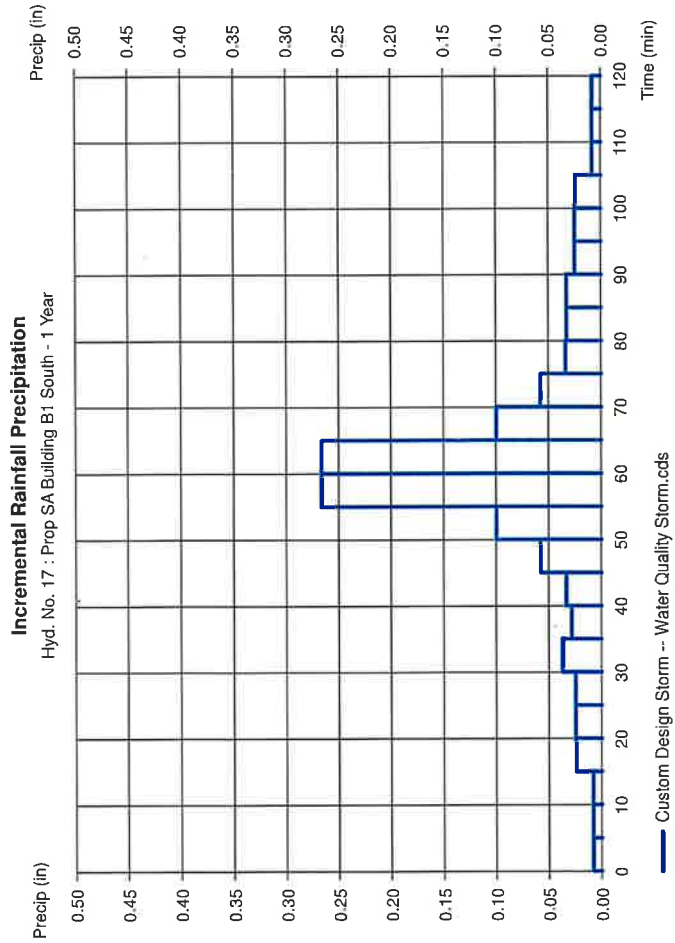


Precipitation Report

Hydralflow Hydrographs by Inellicolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 17

Prop SA Building B1 South
 Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds
 Time interval = 5 min
 Distribution = Custom

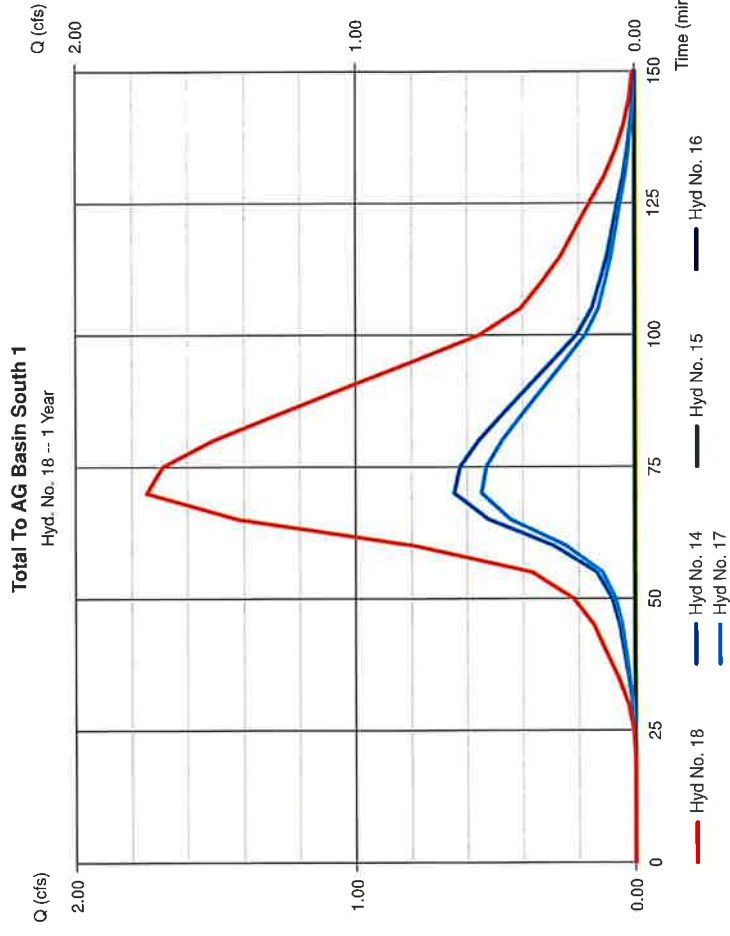


Hydrograph Report

Hydralflow Hydrographs by Inellicolve v9.1 Thursday, Jun 24, 2021

Hyd. No. 18

Total To AG Basin South 1
 Hydrograph type = Combine
 Storm frequency = 1 yrs
 Time interval = 5 min
 Inflow hydcs. = 14, 15, 16, 17
 Peak discharge = 1.749 cfs
 Time to peak = 70 min
 Hyd. volume = 0.092 acft
 Contrib. drain. area = 1.730 ac



Hydrograph Report

Hydroflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 19

PropRouteAGBasinSouth1

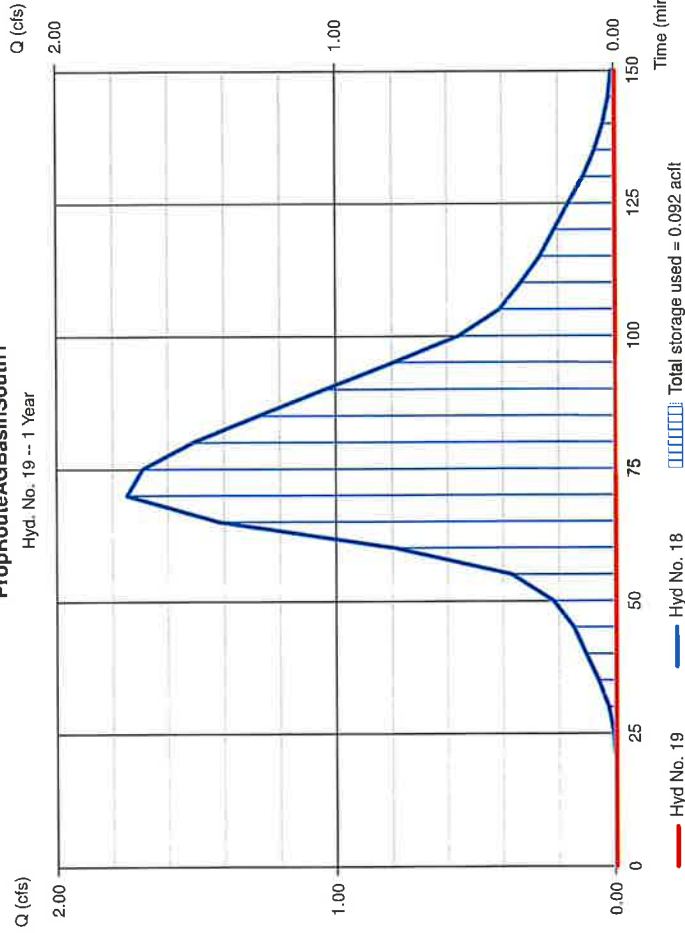
Hydrograph type = Reservoir
 Storm frequency = 1 yrs
 Time interval = 5 min
 Inflow hyd. No. = 18 - Total To AG Basin South 1
 Reservoir name = Prop AG Basin South 1

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Max. Elevation = 121.90 ft
 Max. Storage = 0.092 acft

Storage indication method used.

PropRouteAGBasinSouth1

Hyd. No. 19 -- 1 Year



Pond Report

Hydroflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Pond No. 2 - Prop AG Basin South 1

Pond Data

Contours - User-defined contour areas. Contic method used for volume calculation. Beginning Elevation = 121.25 ft

Stage / Storage Table	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
Stage (ft)	121.25	5,313	0.000	0.000
0.00	122.00	7,421	0.107	0.107
0.25	123.00	10,920	0.291	0.291
1.75	123.00	10,920	0.228	0.518
3.75	123.00	13,320	0.278	0.796
4.00	123.25	16,541	0.066	0.862

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrRsr]	[A]	[B]	[C]	[D]
Rise (In)	= 0.00	0.00	0.00	0.00	= 0.00	0.00	0.00	0.00
Span (In)	= 0.00	0.00	0.00	0.00	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0	= 3.33	3.33	3.33	3.33
Invert El. (ft)	= 0.00	0.00	0.00	0.00	=			
Length (ft)	= 0.00	0.00	0.00	0.00	= No	No	No	No
Slope (%)	= 0.00	0.00	0.00	n/a	=			
N-Value	= .013	.013	.013	n/a	=			
Orifice Coeff.	= 0.60	0.60	0.60	0.60	= 0.000 (by Wet area)			
Multi-Stage	= n/a	No	No	No	= 0.00			

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coef.	= 3.33	3.33	3.33	3.33
Weir Type	=			
Multi-Stage	= No	No	No	No
Exfil. (In/hr)	=			
TW Elev. (ft)	=			

Note: Culvert/Orifice outflows are analyzed under (In) (C) and outlet (Out) (D) control. Weir Risers checked for orifice conditions (C) and submerged (S).

Stage / Storage / Discharge Table	Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
	0.00	0.000	121.25	...	...	...	...	...	...	...	...	...	...	0.00
	0.08	0.011	121.33	...	...	...	...	...	...	...	...	...	...	0.00
	0.15	0.021	121.40	...	...	...	...	...	...	...	...	...	...	0.00
	0.23	0.032	121.48	...	...	...	...	...	...	...	...	...	...	0.00
	0.30	0.043	121.55	...	...	...	...	...	...	...	...	...	...	0.00
	0.38	0.053	121.63	...	...	...	...	...	...	...	...	...	...	0.00
	0.45	0.064	121.70	...	...	...	...	...	...	...	...	...	...	0.00
	0.53	0.075	121.78	...	...	...	...	...	...	...	...	...	...	0.00
	0.60	0.085	121.85	...	...	...	...	...	...	...	...	...	...	0.00
	0.68	0.096	121.93	...	...	...	...	...	...	...	...	...	...	0.00
	0.75	0.107	122.00	...	...	...	...	...	...	...	...	...	...	0.00
	0.85	0.125	122.10	...	...	...	...	...	...	...	...	...	...	0.00
	0.95	0.144	122.20	...	...	...	...	...	...	...	...	...	...	0.00
	1.05	0.162	122.30	...	...	...	...	...	...	...	...	...	...	0.00
	1.15	0.180	122.40	...	...	...	...	...	...	...	...	...	...	0.00
	1.25	0.197	122.50	...	...	...	...	...	...	...	...	...	...	0.00
	1.35	0.217	122.60	...	...	...	...	...	...	...	...	...	...	0.00
	1.45	0.236	122.70	...	...	...	...	...	...	...	...	...	...	0.00
	1.55	0.254	122.80	...	...	...	...	...	...	...	...	...	...	0.00
	1.65	0.272	122.90	...	...	...	...	...	...	...	...	...	...	0.00
	1.75	0.291	123.00	...	...	...	...	...	...	...	...	...	...	0.00
	1.85	0.314	123.10	...	...	...	...	...	...	...	...	...	...	0.00
	1.95	0.336	123.20	...	...	...	...	...	...	...	...	...	...	0.00
	2.05	0.359	123.30	...	...	...	...	...	...	...	...	...	...	0.00
	2.15	0.382	123.40	...	...	...	...	...	...	...	...	...	...	0.00
	2.25	0.405	123.50	...	...	...	...	...	...	...	...	...	...	0.00
	2.35	0.427	123.60	...	...	...	...	...	...	...	...	...	...	0.00
	2.45	0.450	123.70	...	...	...	...	...	...	...	...	...	...	0.00
	2.55	0.473	123.80	...	...	...	...	...	...	...	...	...	...	0.00
	2.65	0.496	123.90	...	...	...	...	...	...	...	...	...	...	0.00
	2.75	0.518	124.00	...	...	...	...	...	...	...	...	...	...	0.00
	2.85	0.541	124.10	...	...	...	...	...	...	...	...	...	...	0.00
	2.95	0.574	124.20	...	...	...	...	...	...	...	...	...	...	0.00
	3.05	0.602	124.30	...	...	...	...	...	...	...	...	...	...	0.00
	3.15	0.630	124.40	...	...	...	...	...	...	...	...	...	...	0.00
	3.25	0.657	124.50	...	...	...	...	...	...	...	...	...	...	0.00
	3.35	0.665	124.60	...	...	...	...	...	...	...	...	...	...	0.00
	3.45	0.713	124.70	...	...	...	...	...	...	...	...	...	...	0.00

Continues on next page...

Hydrograph Report

Hydroflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 21

Prop SA Basin South 2 (Imp)

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.550 ac
 Basin Slope = 0.0 %
 To method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 0.891 cfs
 Time to peak = 70 min
 Hyd. volume = 0.047 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285

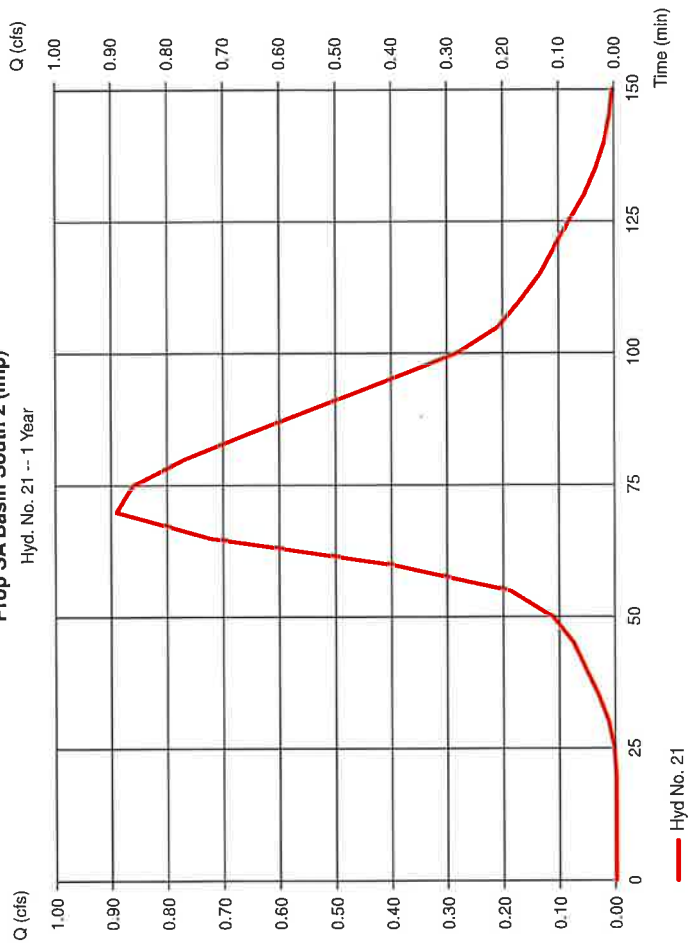
Prop AG Basin South 1 Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.55	0.741	124.80	...	...	...	...	...	...	...	...	...	...	0.00
3.65	0.769	124.90	...	...	...	...	...	...	...	...	...	...	0.00
3.75	0.796	125.00	...	...	...	...	...	...	...	...	...	...	0.00
3.78	0.805	125.03	...	...	...	...	...	...	...	...	...	...	0.00
3.80	0.813	125.05	...	...	...	...	...	...	...	...	...	...	0.00
3.83	0.822	125.08	...	...	...	...	...	...	...	...	...	...	0.00
3.85	0.831	125.10	...	...	...	...	...	...	...	...	...	...	0.00
3.88	0.839	125.13	...	...	...	...	...	...	...	...	...	...	0.00
3.90	0.848	125.15	...	...	...	...	...	...	...	...	...	...	0.00
3.93	0.856	125.18	...	...	...	...	...	...	...	...	...	...	0.00
3.95	0.865	125.20	...	...	...	...	...	...	...	...	...	...	0.00
3.98	0.873	125.23	...	...	...	...	...	...	...	...	...	...	0.00
4.00	0.882	125.25	...	...	...	...	...	...	...	...	...	...	0.00

...End

Prop SA Basin South 2 (Imp)

Hyd. No. 21 -- 1 Year



Precipitation Report

Hydralow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 21

Prop SA Basin South 2 (Imp)

Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve v9.1

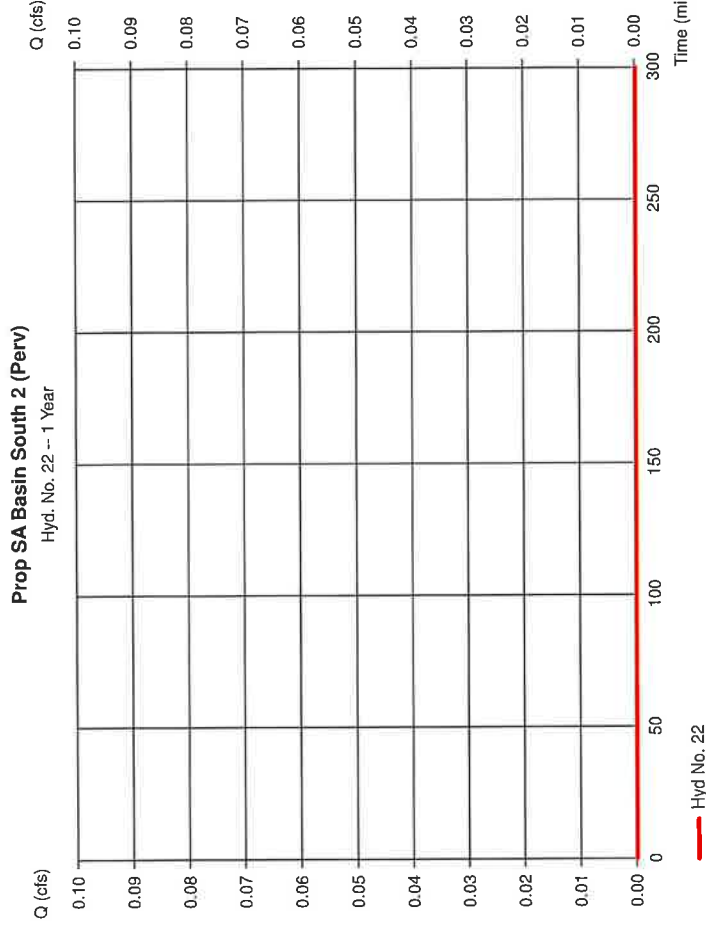
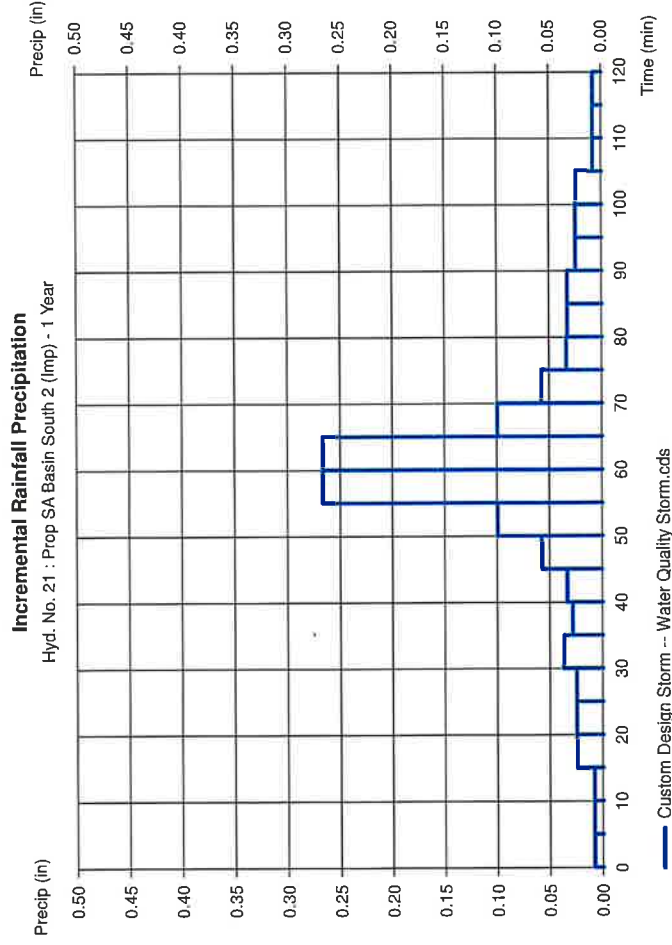
Thursday, Jun 24, 2021

Hyd. No. 22

Prop SA Basin South 2 (Perv)

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.810 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Curve number = 46
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydralow Hydrographs by Intellisolve vs.1

Thursday, Jun 24, 2021

Hyd. No. 22

Prop SA Basin South 2 (Perv)

Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydralow Hydrographs by Intellisolve vs.1

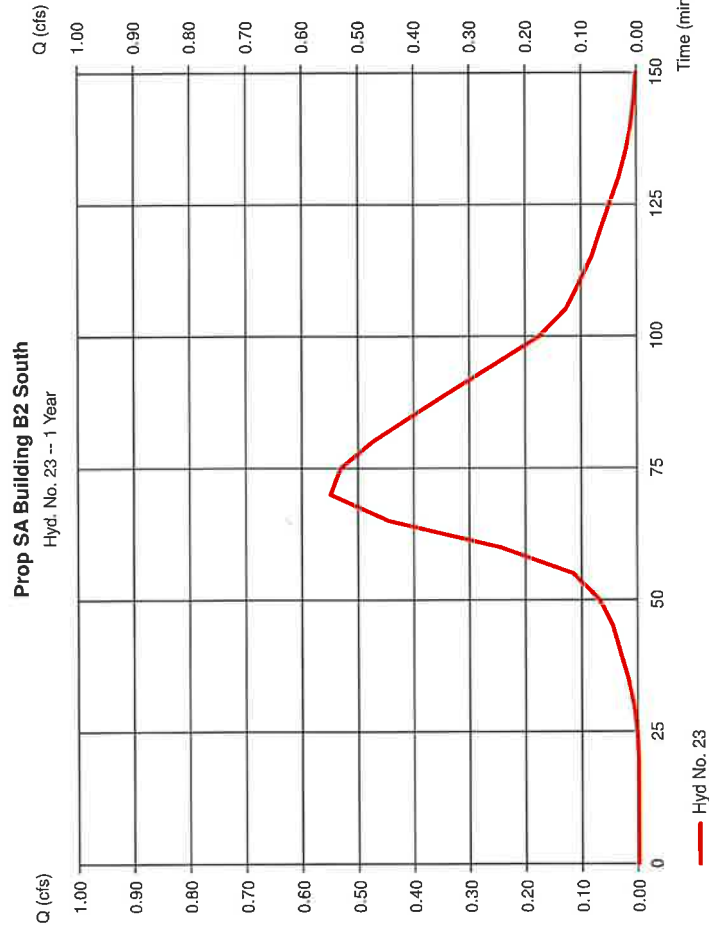
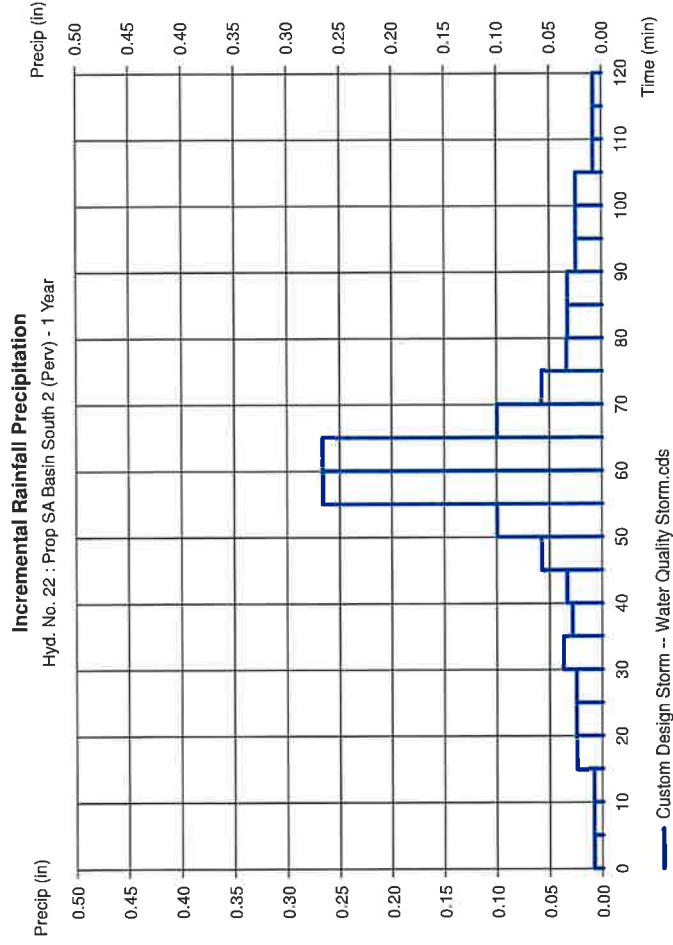
Thursday, Jun 24, 2021

Hyd. No. 23

Prop SA Building B2 South

Hydrograph type = SCS Runoff
 Storm frequency = 1 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 1.25 in
 Storm duration = Water Quality Storm.cds

Peak discharge = 0.551 cfs
 Time to peak = 70 min
 Hyd. volume = 0.029 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydraflo Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 23

Prop SA Building B2 South

Storm Frequency = 1 yrs
 Total precip. = 1.2500 in
 Storm duration = Water Quality Storm.cds

Time interval = 5 min
 Distribution = Custom

Hydrograph Report

Hydraflo Hydrographs by Intellisolve v9.1

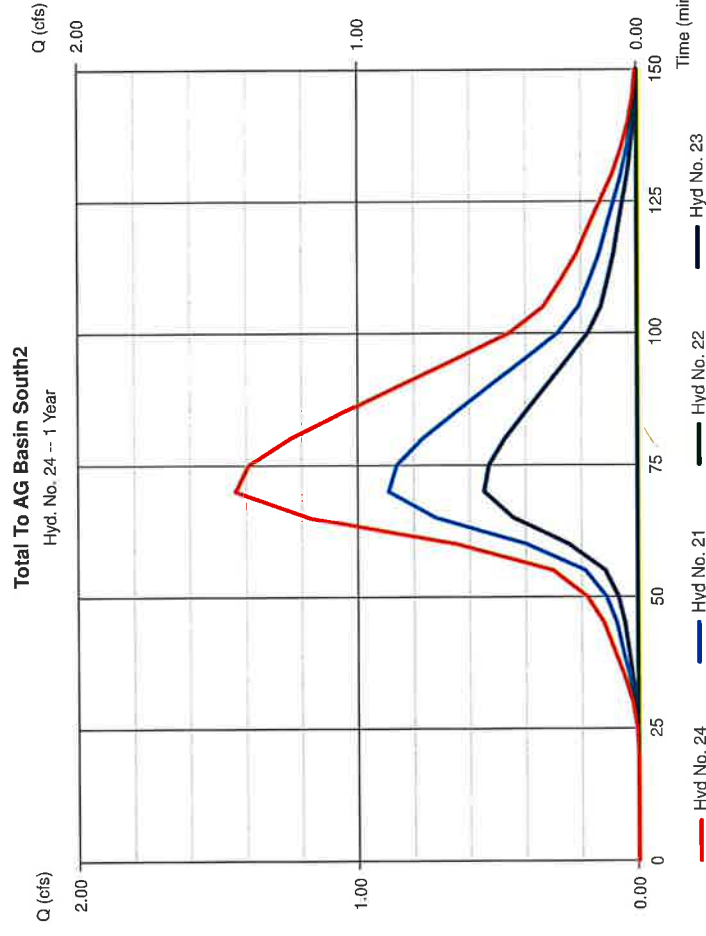
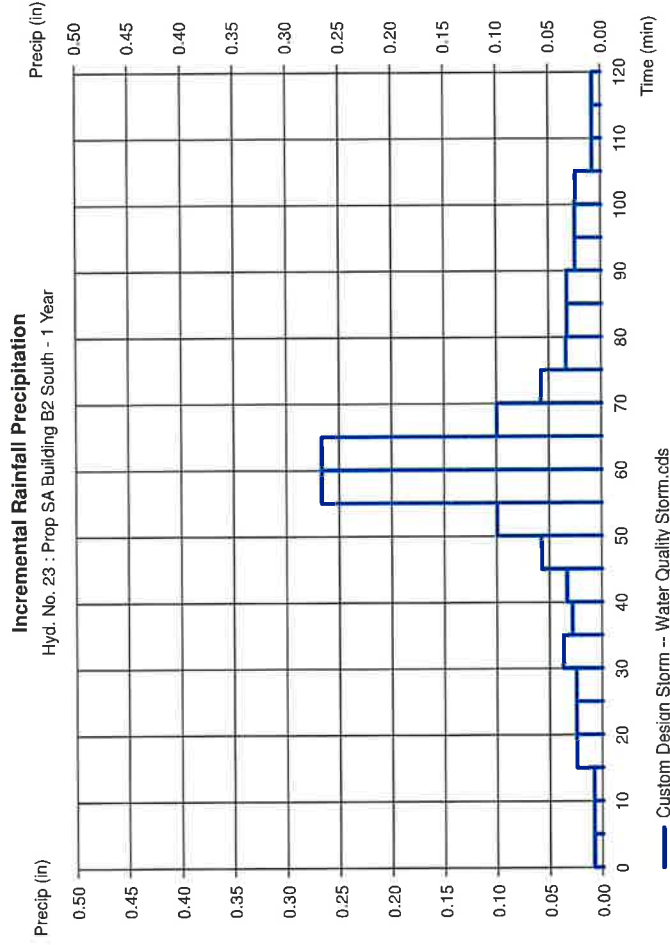
Thursday, Jun 24, 2021

Hyd. No. 24

Total To AG Basin South2

Hydrograph type = Combine
 Storm frequency = 1 yrs
 Time interval = 5 min
 Inflow hydts. = 21, 22, 23

Peak discharge = 1.441 cfs
 Time to peak = 70 min
 Hyd. volume = 0.076 acft
 Contrib. drain. area = 1.700 ac



Hydrograph Report

Hydrflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 25

PropRouteAGBasinSouth2

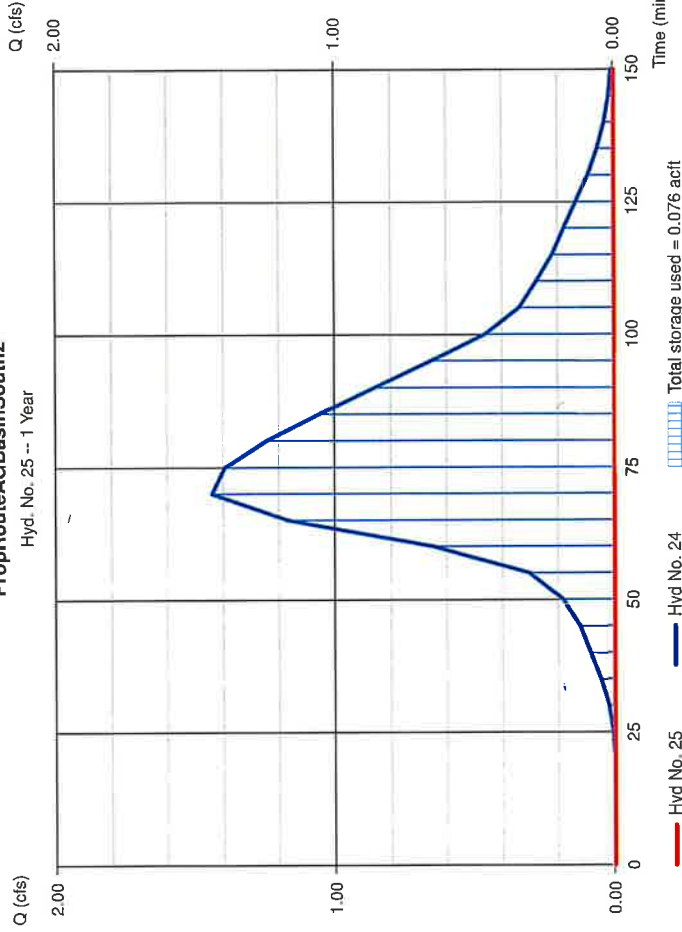
Hydrograph type = Reservoir
 Storm frequency = 1 yrs
 Time interval = 5 min
 Inflow hyd. No. = 24 - Total To AG Basin South2
 Reservoir name = Prop. AG Basin South 2

Peak discharge = 0.000 cfs
 Time to peak = n/a
 Hyd. volume = 0.000 acft
 Max. Elevation = 120.37 ft
 Max. Storage = 0.076 acft

Storage Indication method used.

PropRouteAGBasinSouth2

Hyd. No. 25 -- 1 Year



Pond Report

Hydrflow Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Pond No. 4 - Prop. AG Basin South 2

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 119.90 ft

Stage / Storage Table	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	119.90	5.576	0.000	0.000
0.10	120.00	6.539	0.014	0.014
1.10	121.00	8.239	0.169	0.183
2.10	122.00	9.986	0.209	0.392
3.10	123.00	13.638	0.270	0.662
3.60	123.50	15.475	0.167	0.829

Culvert / Orifice Structures

[A]	[B]	[C]	[PrfRsr]	[A]	[B]	[C]	[D]
Rise (In) = 0.00	0.00	0.00	0.00	Crest Len (ft) = 0.00	0.00	0.00	0.00
Span (In) = 0.00	0.00	0.00	0.00	Crest El. (ft) = 0.00	0.00	0.00	0.00
No. Barrels = 0	0	0	0	Weir Coeff. = 3.33	3.33	3.33	3.33
Invert EL (ft) = 0.00	0.00	0.00	0.00	Weir Type =			
Length (ft) = 0.00	0.00	0.00	0.00	Multi-Stage =	No	No	No
Slope (%) = 0.00	0.00	0.00	n/a				
N-Value = .013	.013	.013	n/a	Exfil. (m/hr) = 0.00 (by Wet area)			
Orifice Coeff. = 0.60	0.60	0.60	0.60	TW Elev. (ft) = 0.00			
Multi-Stage = n/a	No	No	No				

Weir Structures

Stage / Storage / Discharge Table	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	119.90											0.00
0.01	0.001	119.91											0.00
0.02	0.003	119.92											0.00
0.03	0.004	119.93											0.00
0.04	0.006	119.94											0.00
0.05	0.007	119.95											0.00
0.06	0.008	119.96											0.00
0.07	0.010	119.97											0.00
0.08	0.011	119.98											0.00
0.09	0.013	119.99											0.00
0.10	0.014	120.00											0.00
0.20	0.031	120.10											0.00
0.30	0.048	120.20											0.00
0.40	0.065	120.30											0.00
0.50	0.082	120.40											0.00
0.60	0.099	120.50											0.00
0.70	0.115	120.60											0.00
0.80	0.132	120.70											0.00
0.90	0.148	120.80											0.00
1.00	0.163	120.90											0.00
1.10	0.183	121.00											0.00
1.20	0.204	121.10											0.00
1.30	0.225	121.20											0.00
1.40	0.246	121.30											0.00
1.50	0.267	121.40											0.00
1.60	0.288	121.50											0.00
1.70	0.309	121.60											0.00
1.80	0.329	121.70											0.00
1.90	0.350	121.80											0.00
2.00	0.371	121.90											0.00
2.10	0.392	122.00											0.00
2.20	0.419	122.10											0.00
2.30	0.448	122.20											0.00
2.40	0.473	122.30											0.00
2.50	0.500	122.40											0.00
2.60	0.527	122.50											0.00
2.70	0.554	122.60											0.00
2.80	0.581	122.70											0.00

Note: Culvert/Orifice outflows are analyzed under inlet (Ic) and outlet (Oc) control. Weir flows checked for orifice conditions (Ic) and submergence (Ic).

Continues on next page.

Prop. AG Basin South 2

Stage / Storage / Discharge Table

Stage ft	Storage ac-ft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfBsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
2.90	0.608	122.80	...	...	...	...	...	...	...	...	...	...	0.00
3.00	0.635	122.90	...	...	...	...	...	...	...	...	...	...	0.00
3.10	0.662	123.00	...	...	...	...	...	...	...	...	...	...	0.00
3.15	0.679	123.05	...	...	...	...	...	...	...	...	...	...	0.00
3.20	0.696	123.10	...	...	...	...	...	...	...	...	...	...	0.00
3.25	0.712	123.15	...	...	...	...	...	...	...	...	...	...	0.00
3.30	0.729	123.20	...	...	...	...	...	...	...	...	...	...	0.00
3.35	0.746	123.25	...	...	...	...	...	...	...	...	...	...	0.00
3.40	0.762	123.30	...	...	...	...	...	...	...	...	...	...	0.00
3.45	0.779	123.35	...	...	...	...	...	...	...	...	...	...	0.00
3.50	0.796	123.40	...	...	...	...	...	...	...	...	...	...	0.00
3.55	0.813	123.45	...	...	...	...	...	...	...	...	...	...	0.00
3.60	0.829	123.50	...	...	...	...	...	...	...	...	...	...	0.00
...	...	...	...	...	...	...	...	...	...	...	...	...	0.00

...End

Hydraflow Rainfall Report

Hydraflow Hydrographs by Intelsolve v8.1

Thursday, Jun 24, 2021

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	.....
2	69.8703	13.1000	0.8658	.....
3	0.0000	0.0000	0.0000	.....
5	79.2597	14.6000	0.9369	.....
10	88.2351	15.5000	0.9279	.....
25	102.6072	16.5000	0.8217	.....
50	114.8193	17.2000	0.8199	.....
100	127.1596	17.8000	0.8186	.....

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.51	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25
100	9.83	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60

Tc = time in minutes. Values may exceed 60.

Precip. file name: Monmouth County.pcp

Storm Distribution	Rainfall Precipitation Table (in)									
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr		
SCS 24-hour	0.00	3.38	0.00	0.00	5.23	6.53	0.00	8.94		
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Custom	1.25	3.38	0.00	0.00	5.23	6.53	0.00	8.94		

Hydraflow Table of Contents

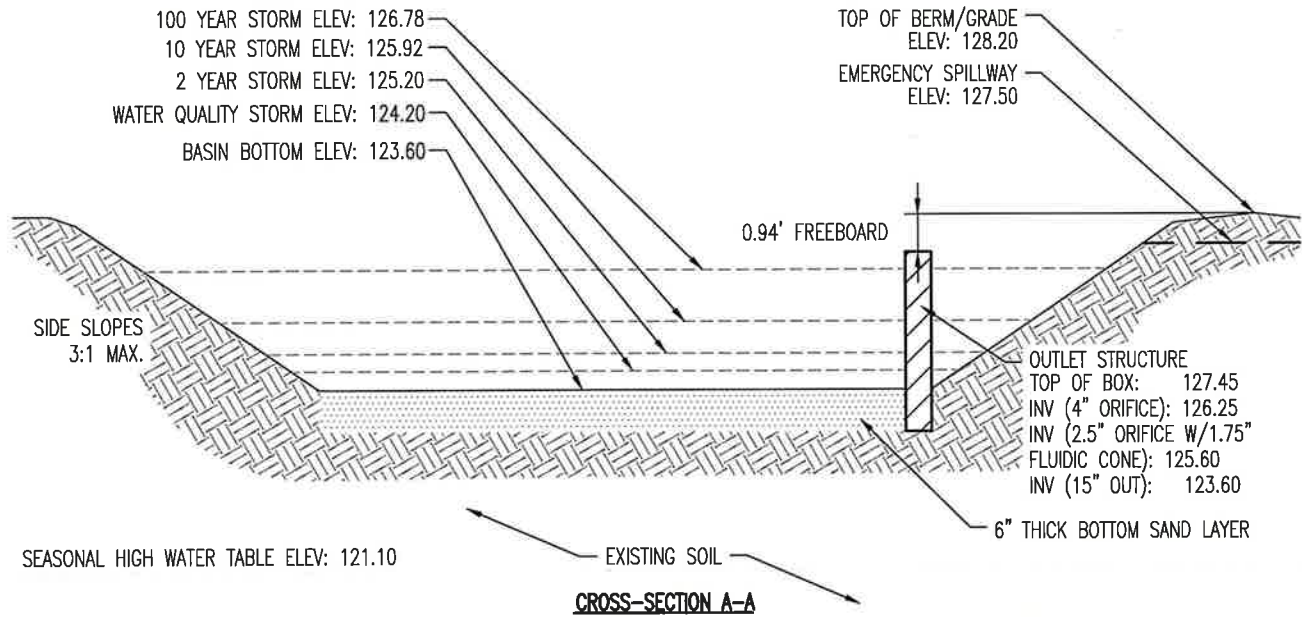
WQ.gpw

Hydraflow Hydrographs by Intelisolve v9.1

Thursday, Jun 24, 2021

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BASIN SCHEMATIC DETAILS



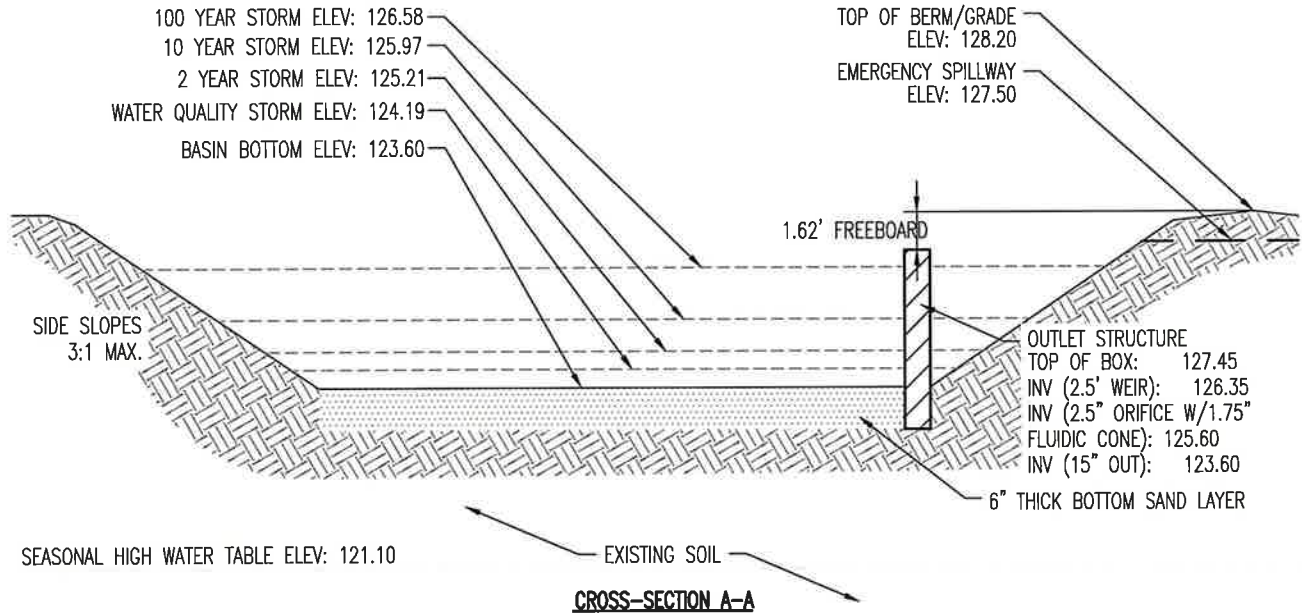
- NOTES:**
1. CONTRACTOR OR OWNER TO ENGAGE QUALIFIED GEOTECHNICAL ENGINEER TO TEST SOIL PERMEABILITY AND PROVIDE CONSTRUCTION PHASE INSPECTIONS OF THE BASIN BOTTOM SOILS AND FILL MATERIALS WITHIN ANY PROPOSED INFILTRATION OR RETENTION BASIN TO COMPARE RESULTS TO DESIGN CRITERIA.
 2. TOPSOIL AND UNSUITABLE MATERIALS ARE TO BE STRIPPED FROM BASIN BOTTOM AREA AND REPLACED WITH SUITABLE MATERIAL PROVIDING PERMEABILITY RATES CONSISTENT WITH THAT OF THE SUBSURFACE SOILS ZONE OF INFILTRATION. CONTRACTOR SHALL PROVIDE A RECORD OF THE REPLACEMENT MATERIAL USED AND ITS CORRESPONDING PERMEABILITY RATE. REFER TO THE TEST PIT AND/OR SOIL BORING RECORDS AND STORMWATER MANAGEMENT REPORT TO CONFIRM THE DEPTH OF THE ZONE OF INFILTRATION.
 3. BOTTOM SAND LAYER MUST CONSIST OF K5 SAND WITH A MAXIMUM OF 15% FINES AND A MINIMUM PERMEABILITY RATE OF 20 INCHES PER HOUR. SOIL TO BE CERTIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER.
 4. BASIN CONSTRUCTION MUST NOT COMPACT SOILS BELOW BASIN BOTTOM.

INFILTRATION BASIN NORTH 1 (SAND) DETAIL

NOT TO SCALE



1904 Main Street - Lake Como, NJ 07719
 T: 732.974.0198 - F: 732.974.3521
 www.dynamiccec.com



NOTES:

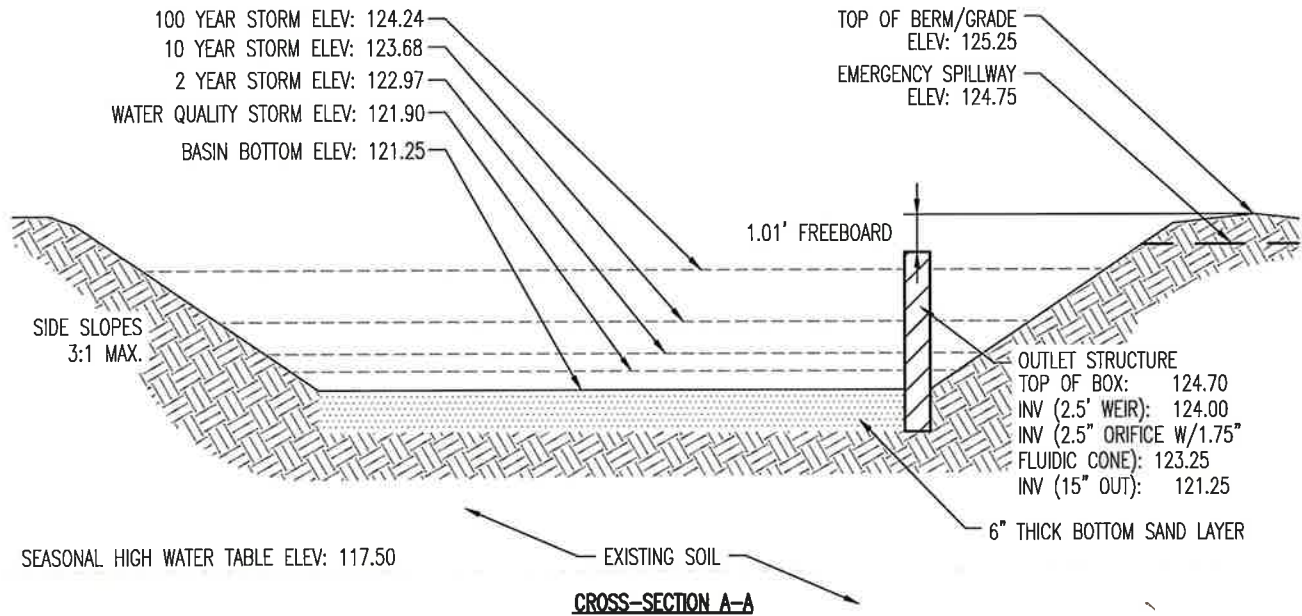
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4. BASIN CONSTRUCTION MUST NOT COMPACT SOILS BELOW BASIN BOTTOM.

INFILTRATION BASIN NORTH 2 (SAND) DETAIL

NOT TO SCALE



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NOTES:

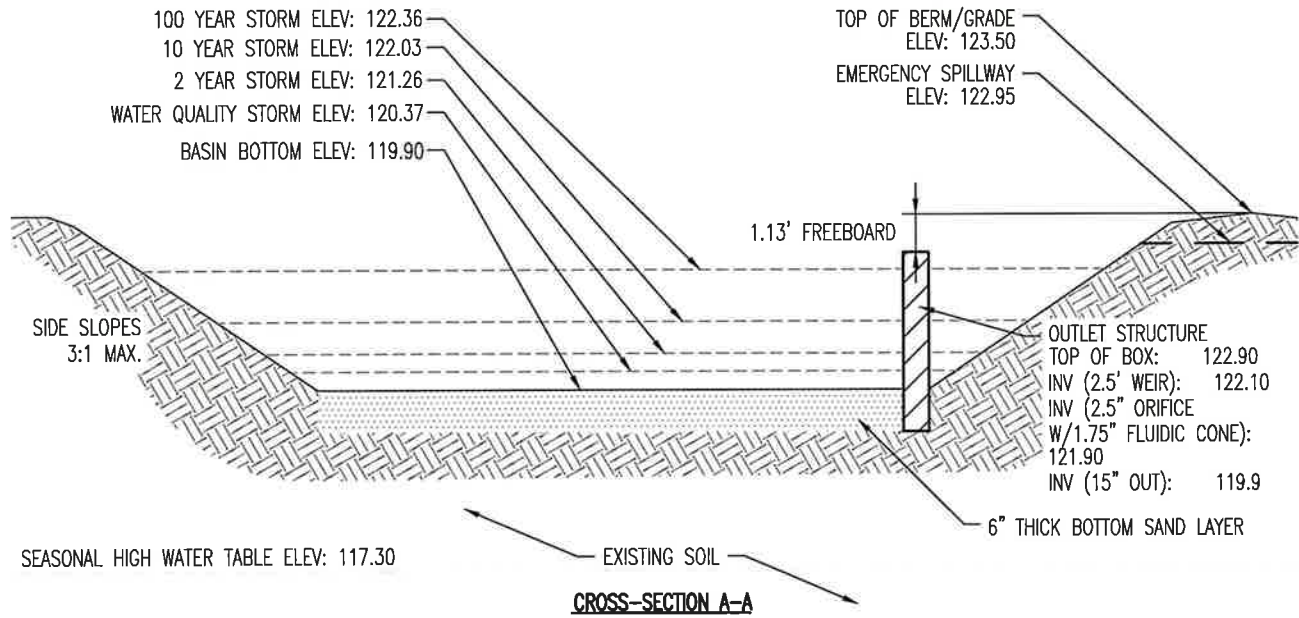
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4. BASIN CONSTRUCTION MUST NOT COMPACT SOILS BELOW BASIN BOTTOM.

INFILTRATION BASIN SOUTH 1 (SAND) DETAIL

NOT TO SCALE



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NOTES:

1. CONTRACTOR OR OWNER TO ENGAGE QUALIFIED GEOTECHNICAL ENGINEER TO TEST SOIL PERMEABILITY AND PROVIDE CONSTRUCTION PHASE INSPECTIONS OF THE BASIN BOTTOM SOILS AND FILL MATERIALS WITHIN ANY PROPOSED INFILTRATION OR RETENTION BASIN TO COMPARE RESULTS TO DESIGN CRITERIA.
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4. BASIN CONSTRUCTION MUST NOT COMPACT SOILS BELOW BASIN BOTTOM.

INFILTRATION BASIN SOUTH 2 (SAND) DETAIL

NOT TO SCALE



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INFILTRATION DRAIN TIME CALCULATIONS



Infiltration Basin Drain time Calculations

Project:	Stack Storage, LLC	Computed By:	TB
Job #:	3724-99-001	Checked By:	RDM
Location:	Marlboro, NJ	Date:	6/21/21
Basin Name:	AG Basin North 1	Revised:	

Volume of Runoff to be Infiltrated = 22,835 cubic feet
 Surface Area of Infiltration Area = 5,550 square feet
 Surface Area of Infiltration Area = 4.11 feet = 49.37 inches
 Field Tested Recharge Rate = 15.3 inches per hour
 Design Recharge Rate * = 7.65 inches per hour

Effective Depth of Runoff to be Infiltrated / Design Recharge Rate = Time to Empty Basin = 6.45 hours**

*Note : Factor of Safety of 2 is applied to the Field Tested Recharge Rate to establish the Design Recharge Rate
 **Note : Time to Empty Basin must be less than 72 hours. Therefore, Design Recharge Rate = 7.65 inches per hour



Infiltration Basin Drain time Calculations

Project:	Stack Storage, LLC	Computed By:	TB
Job #:	3724-99-001	Checked By:	RDM
Location:	Marlboro, NJ	Date:	6/21/21
Basin Name:	AG Basin North 2	Revised:	

Effective Depth of Runoff to be Infiltrated = Volume of Runoff to be Infiltrated / Surface Area of Infiltration Area =

$$\frac{28,541 \text{ cubic feet}}{7,227 \text{ square feet}} = 3.95 \text{ feet} = 47.39 \text{ inches}$$

Effective Depth of Runoff to be Infiltrated = Volume of Runoff to be Infiltrated / Surface Area of Infiltration Area =

$$\frac{28,541 \text{ cubic feet}}{7,227 \text{ square feet}} = 3.95 \text{ feet} = 47.39 \text{ inches}$$

Field Tested Recharge Rate = 20 inches per hour
 Design Recharge Rate * = 10 inches per hour

Effective Depth of Runoff to be Infiltrated / Design Recharge Rate = Time to Empty Basin = 4.74 hours**

*Note : Factor of Safety of 2 is applied to the Field Tested Recharge Rate to establish the Design Recharge Rate
 **Note : Time to Empty Basin must be less than 72 hours. Therefore, Design Recharge Rate = 10 inches per hour



Infiltration Basin Drain time Calculations

Project:	Stack Storage, LLC	Computed By:	TB
Job #:	3724-99-001	Checked By:	RDM
Location:	Marlboro, NJ	Date:	6/21/21
Basin Name:	AG Basin South 1	Revised:	

Volume of Runoff to be Infiltrated = 24,546 cubic feet
Surface Area of Infiltration Area = 5,313 square feet
Effective Depth of Runoff to be Infiltrated = Volume of Runoff to be Infiltrated / Surface Area of Infiltration Area = 4.62 feet = 55.44 inches
Field Tested Recharge Rate = 9.7 inches per hour
Design Recharge Rate * = 4.85 inches per hour

Effective Depth of Runoff to be Infiltrated / Design Recharge Rate = Time to Empty Basin = 11.43 hours**

*Note : Factor of Safety of 2 is applied to the Field Tested Recharge Rate to establish the Design Recharge Rate
Note : Time to Empty Basin must be less than 72 hours. Therefore: **Design Recharge Rate = 9.7 inches per hour



Infiltration Basin Drain time Calculations

Project:
Job #:
Location:

Stack Storage, LLC
3724-99-001
Marlboro, NJ

Computed By:
Checked By:
Date:
Revised:

TB
RDM
6/21/21

Basin Name:

AG Basin South 2

Volume of Runoff to be Infiltrated =

18,617

 cubic feet
Surface Area of Infiltration Area =

5,576

 square feet
Effective Depth of Runoff to be Infiltrated = Volume of Runoff to be Infiltrated / Surface Area of Infiltration Area =

3.34

 feet =

40.07

 inches
Field Tested Recharge Rate =

1.8

 inches per hour
Design Recharge Rate * =

0.9

 inches per hour

Effective Depth of Runoff to be Infiltrated / Design Recharge Rate = Time to Empty Basin = **44.52 hours****

*Note : Factor of Safety of 2 is applied to the Field Tested Recharge Rate to establish the Design Recharge Rate
Note : Time to Empty Basin must be less than 72 hours. Therefore, **DESIGN TIME IS LESS THAN 72 HOURS THEREFORE DESIGN IS ACCEPTABLE

EMERGENCY SPILLWAY CALCULATIONS



Overflow Spillway Calculations

Project: Stack Storage, LLC
Job #: 3724-99-001
Location: Marlboro, NJ
Computed By: TB
Checked By: RDM
Date: 6/21/2021

BASIN NAME AG Basin North 1

To Size Spillway:

- Assume complete blockage of the outlet control structure and no infiltration
- Route 2 & 10 year storm through basin assuming that the basin is filled with water up to the Emergency Spillway Elevation

	2 Year	10 Year
Spillway Width (ft.)	25.00	25.00
Spillway Elevation (ft.)	127.50	127.50
Flow through Spillway (Q) (cfs)	1.742	2.830
Water Surface Elevation (ft)	127.59	127.62
Depth of Flow (ft)	0.09	0.12
Area of Flow (A) (sf)*	2.26	3.01

Velocity (V) = Q / A (ft/sec) 0.77 0.94

✱ V = < 2.0 FPS ✱ Stability Achieved



Overflow Spillway Calculations

Project: Stack Storage, LLC
Job #: 3724-99-001
Location: Marlboro, NJ
Computed By: TB
Checked By: RDM
Date: 6/21/2021

BASIN NAME AG Basin North 2

To Size Spillway:

- Assume complete blockage of the outlet control structure and no infiltration
- Route 2 & 10 year storm through basin assuming that the basin is filled with water up to the Emergency Spillway Elevation

	2 Year	10 Year
Spillway Width (ft.)	25.00	25.00
Spillway Elevation (ft.)	127.50	127.50
Flow through Spillway (Q) (cfs)	2.423	3.907
Water Surface Elevation (ft)	127.59	127.63
Depth of Flow (ft)	0.09	0.13
Area of Flow (A) (sf)*	2.26	3.27

Velocity (V) = Q / A (ft/sec) 1.07 1.20

** V = < 2.0 FPS ** Stability Achieved



Overflow Spillway Calculations

Project: Stack Storage, LLC
Job #: 3724-99-001
Location: Marlboro, NJ
Computed By: TB
Checked By: RDM
Date: 6/21/2021

BASIN NAME AG Basin South 1

To Size Spillway:

- Assume complete blockage of the outlet control structure and no infiltration
- Route 2 & 10 year storm through basin assuming that the basin is filled with water up to the Emergency Spillway Elevation

	2 Year	10 Year
Spillway Width (ft.)	25.00	25.00
Spillway Elevation (ft.)	124.75	124.75
Flow through Spillway (Q) (cfs)	1.775	2.921
Water Surface Elevation (ft)	124.84	124.88
Depth of Flow (ft)	0.09	0.13
Area of Flow (A) (sf)*	2.26	3.27

Velocity (V) = Q / A (ft/sec) 0.79 0.89

** V = < 2.0 FPS ** Stability Achieved



Overflow Spillway Calculations

Project: Stack Storage, LLC
Job #: 3724-99-001
Location: Marlboro, NJ
Computed By: TB
Checked By: RDM
Date: 6/21/2021

BASIN NAME AG Basin South 2

To Size Spillway:

- Assume complete blockage of the outlet control structure and no infiltration
- Route 2 & 10 year storm through basin assuming that the basin is filled with water up to the Emergency Spillway Elevation

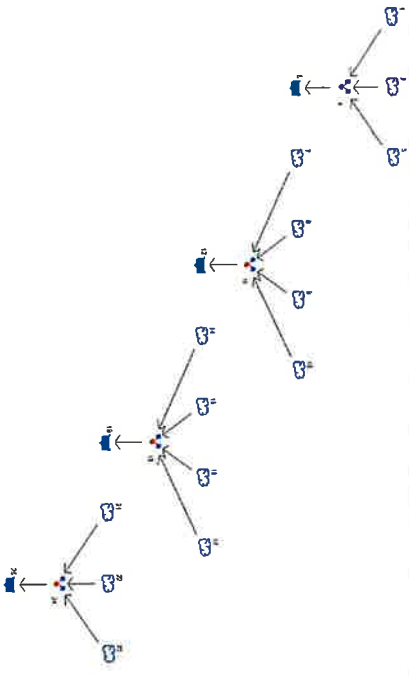
	2 Year	10 Year
Spillway Width (ft.)	25.00	25.00
Spillway Elevation (ft.)	122.95	122.95
Flow through Spillway (Q) (cfs)	1.423	2.373
Water Surface Elevation (ft)	123.03	123.06
Depth of Flow (ft)	0.08	0.11
Area of Flow (A) (sf)*	2.01	2.76

Velocity (V) = Q / A (ft/sec) 0.71 0.86

** V = < 2.0 FPS ** Stability Achieved

Watershed Model Schematic

Hydralow Hydrographs by Inletssolve v3.1



1

Hyd. Origin	Description
1	SCS Runoff Prop SA Basin North 1 (Imp)
2	SCS Runoff Prop SA Basin North 1 (Per)
3	SCS Runoff Prop SA Building A North
4	Combine TotalToBasinNorth1
5	Reservoir PropRouteAGBasinNorth1
7	SCS Runoff Prop SA Basin North 2 (Imp)
8	SCS Runoff Prop SA Basin North 2 (Per)
9	SCS Runoff Prop SA Building B1 North
10	SCS Runoff Prop SA Building A South
11	Combine Total To AG Basin North2
12	Reservoir PostRouteAGBasinNorth2
14	SCS Runoff Prop SA Basin South 1 (Imp)
15	SCS Runoff Prop SA Basin South 1 (Per)
16	SCS Runoff Prop SA Building B2 North
17	SCS Runoff Prop SA Building B1 South
18	Combine Total To AG Basin South 1
19	Reservoir PropRouteAGBasinSouth1
21	SCS Runoff Prop SA Basin South 2 (Imp)
22	SCS Runoff Prop SA Basin South 2 (Per)
23	SCS Runoff Prop SA Building B2 South
24	Combine Total To AG Basin South2
25	Reservoir PropRouteAGBasinSouth2

Project: ES.gpw

Thursday, Jun 24, 2021

Hydrograph Return Period Recap

Hydralow Hydrographs by Inletssolve v3.1

2

Hyd. No.	Hydrograph Type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)						Hydrograph description		
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr		50-Yr	100-Yr
1	SCS Runoff	.....	.....	1,379	.....	.....	2,150	.....	.....	.....	Prop SA Basin North 1 (Imp)
2	SCS Runoff	.....	.....	0,001	.....	.....	0,036	.....	.....	.....	Prop SA Basin North 1 (Per)
3	SCS Runoff	.....	.....	0,625	.....	.....	0,975	.....	.....	.....	Prop SA Building A North
4	Combine	1, 2, 3	.....	2,004	.....	.....	3,125	.....	.....	.....	TotalToBasinNorth1
5	Reservoir	4	.....	1,742	.....	.....	2,830	.....	.....	.....	PropRouteAGBasinNorth1
7	SCS Runoff	.....	.....	1,471	.....	.....	2,294	.....	.....	.....	Prop SA Basin North 2 (Imp)
8	SCS Runoff	.....	.....	0,001	.....	.....	0,029	.....	.....	.....	Prop SA Basin North 2 (Per)
9	SCS Runoff	.....	.....	0,625	.....	.....	0,975	.....	.....	.....	Prop SA Building B1 North
10	SCS Runoff	.....	.....	0,625	.....	.....	0,975	.....	.....	.....	Prop SA Building A South
11	Combine	7, 8, 9, 10	.....	2,721	.....	.....	4,244	.....	.....	.....	Total To AG Basin North2
12	Reservoir	11	.....	2,423	.....	.....	3,907	.....	.....	.....	PostRouteAGBasinNorth2
14	SCS Runoff	.....	.....	0,795	.....	.....	1,147	.....	.....	.....	Prop SA Basin South 1 (Imp)
15	SCS Runoff	.....	.....	0,006	.....	.....	0,127	.....	.....	.....	Prop SA Basin South 1 (Per)
16	SCS Runoff	.....	.....	0,625	.....	.....	0,975	.....	.....	.....	Prop SA Building B2 North
17	SCS Runoff	.....	.....	0,625	.....	.....	0,975	.....	.....	.....	Prop SA Building B1 South
18	Combine	14, 15, 16, 17	.....	1,986	.....	.....	3,158	.....	.....	.....	Total To AG Basin South 1
19	Reservoir	18	.....	1,775	.....	.....	2,921	.....	.....	.....	PropRouteAGBasinSouth1
21	SCS Runoff	.....	.....	1,011	.....	.....	1,577	.....	.....	.....	Prop SA Basin South 2 (Imp)
22	SCS Runoff	.....	.....	0,008	.....	.....	0,156	.....	.....	.....	Prop SA Basin South 2 (Per)
23	SCS Runoff	.....	.....	0,625	.....	.....	0,975	.....	.....	.....	Prop SA Building B2 South
24	Combine	21, 22, 23	.....	1,636	.....	.....	2,652	.....	.....	.....	Total To AG Basin South2
25	Reservoir	24	.....	1,423	.....	.....	2,373	.....	.....	.....	PropRouteAGBasinSouth2

Proj. file: ES.gpw

Thursday, Jun 24, 2021

Hydrograph Summary Report

Hydroflow Hydrographs by Intelsolve v9.1

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time Interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total stage used (acft)	Hydrograph description
1	SCS Runoff	1.379	5	730	0.195	.....	.....	.....	Prop SA Basin North 1(lmp)
2	SCS Runoff	0.001	5	1430	0.000	.....	.....	.....	Prop SA Basin North 1 (Perv)
3	SCS Runoff	0.625	5	730	0.089	.....	.....	.....	Prop SA Building A North
4	Combine	2.004	5	730	0.284	1, 2, 3	.....	.....	TotalBasinNorth1
5	Reservoir	1.742	5	740	0.284	4	127.59	0.029	PropRouteAGBasinNorth1
7	SCS Runoff	1.471	5	730	0.208	.....	.....	.....	Prop SA Basin North 2 (lmp)
8	SCS Runoff	0.001	5	1430	0.000	.....	.....	.....	Prop SA Basin North 2 (Perv)
9	SCS Runoff	0.625	5	730	0.089	.....	.....	.....	Prop SA Building B1 North
10	SCS Runoff	0.625	5	730	0.089	.....	.....	.....	Prop SA Building A South
11	Combine	2.721	5	730	0.286	7, 8, 9, 10	.....	.....	Total To AG Basin North2
12	Reservoir	2.423	5	740	0.286	11	127.59	0.095	PostRouteAGBasinNorth2
14	SCS Runoff	0.735	5	730	0.104	.....	.....	.....	Prop SA Basin South 1 (lmp)
15	SCS Runoff	0.006	5	870	0.004	.....	.....	.....	Prop SA Basin South 1 (Perv)
16	SCS Runoff	0.625	5	730	0.089	.....	.....	.....	Prop SA Building B2 North
17	SCS Runoff	0.625	5	730	0.089	.....	.....	.....	Prop SA Building B1 South
18	Combine	1.986	5	730	0.286	14, 15, 16, 17	.....	.....	Total To AG Basin South 1
19	Reservoir	1.775	5	740	0.286	18	124.84	0.027	PropRouteAGBasinSouth1
21	SCS Runoff	1.011	5	730	0.143	.....	.....	.....	Prop SA Basin South 2 (lmp)
22	SCS Runoff	0.008	5	870	0.006	.....	.....	.....	Prop SA Basin South 2 (Perv)
23	SCS Runoff	0.625	5	730	0.089	.....	.....	.....	Prop SA Building B2 South
24	Combine	1.696	5	730	0.238	21, 22, 23	.....	.....	Total To AG Basin South2
25	Reservoir	1.423	5	740	0.237	24	123.03	0.024	PropRouteAGBasinSouth2

Return Period: 2 Year

Thursday, Jun 24, 2021

Hydrograph Report

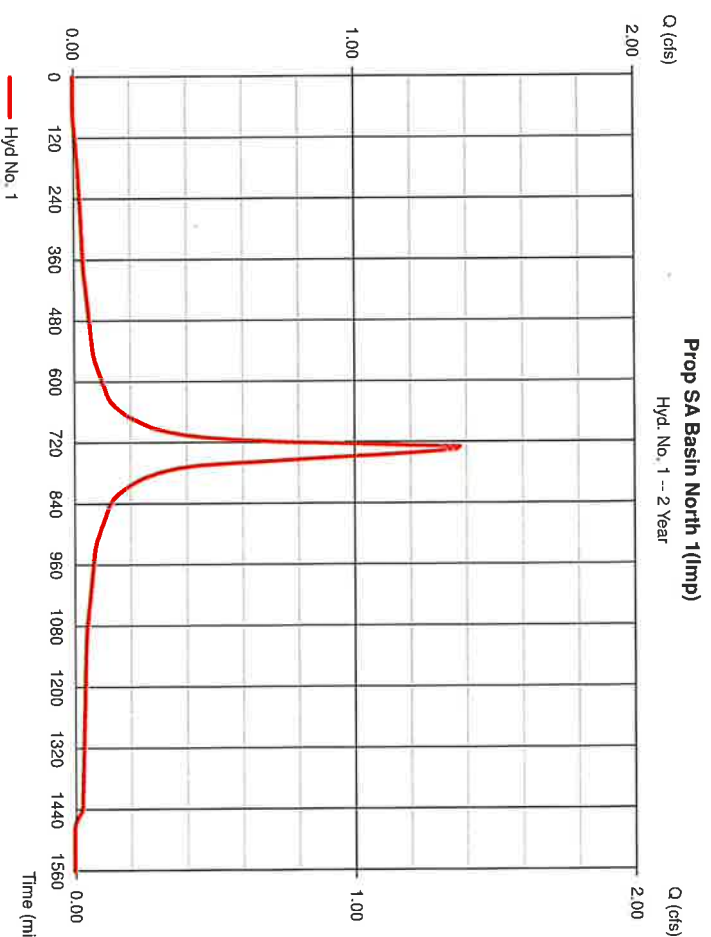
Hydroflow Hydrographs by Intelsolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 1
 Prop SA Basin North 1(lmp)

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time Interval = 5 min
 Drainage area = 0.750 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 1.379 cfs
 Time to peak = 730 min
 Hyd. volume = 0.195 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydralion Hydrographs by Inletolve v9.1

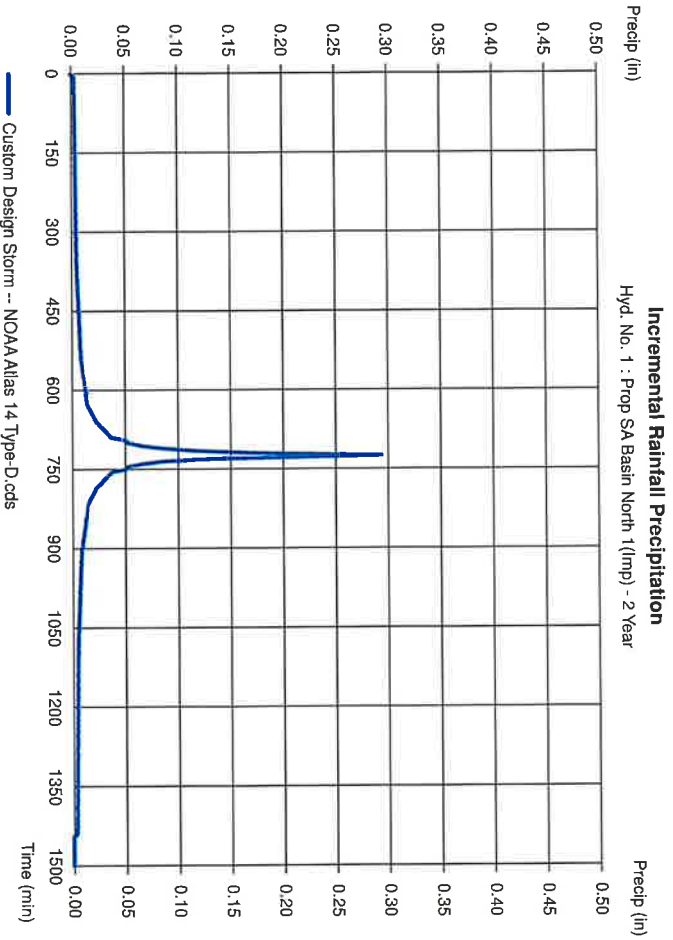
Thursday, Jun 24, 2021

Hyd. No. 1

Prop SA Basin North 1 (Imp)

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval Distribution = 5 min
 = Custom



Hydrograph Report

Hydralion Hydrographs by Inletolve v9.1

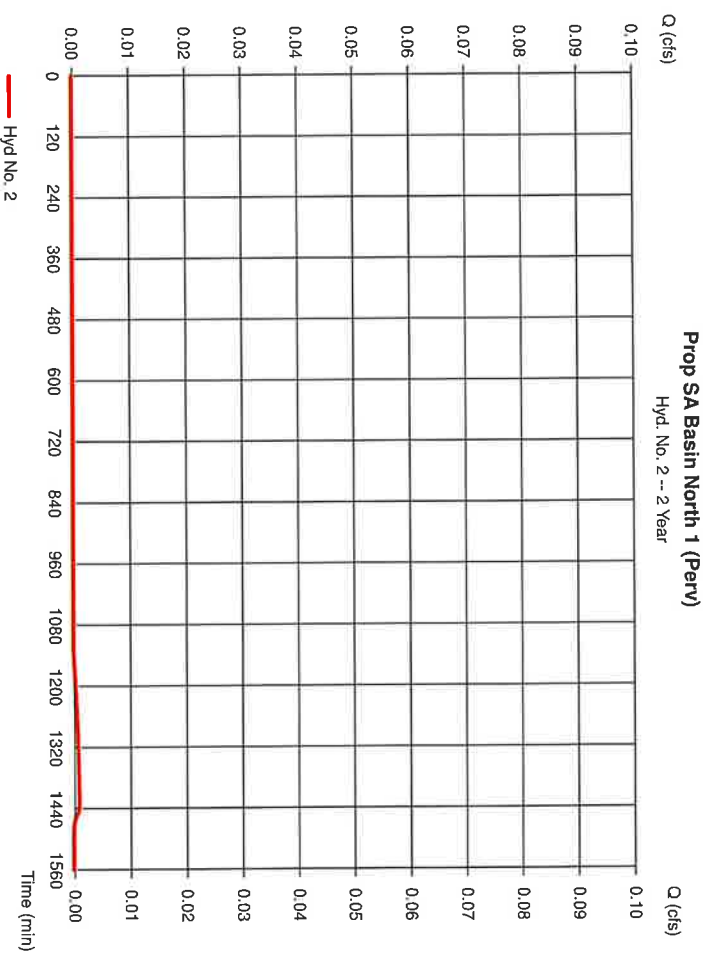
Thursday, Jun 24, 2021

Hyd. No. 2

Prop SA Basin North 1 (Perv)

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.880 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.001 cfs
 Time to peak = 1430 min
 Hyd. volume = 0.000 acft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydralow Hydrographs by Intelsolve v9.1

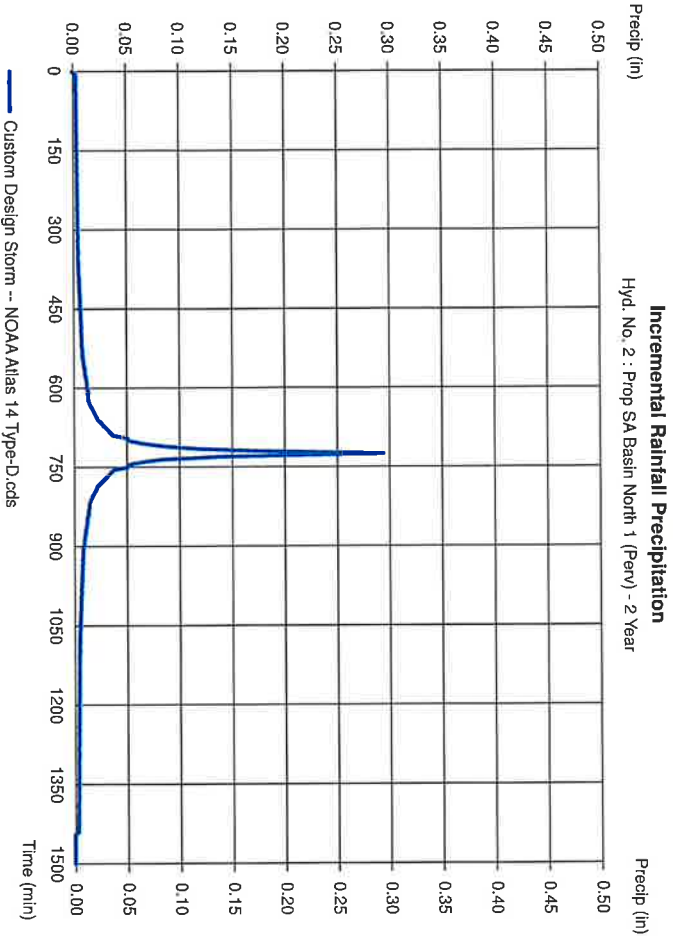
Thursday, Jun 24, 2021

Hyd. No. 2

Prop SA Basin North 1 (Perv)

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom



Hydrograph Report

Hydralow Hydrographs by Intelsolve v9.1

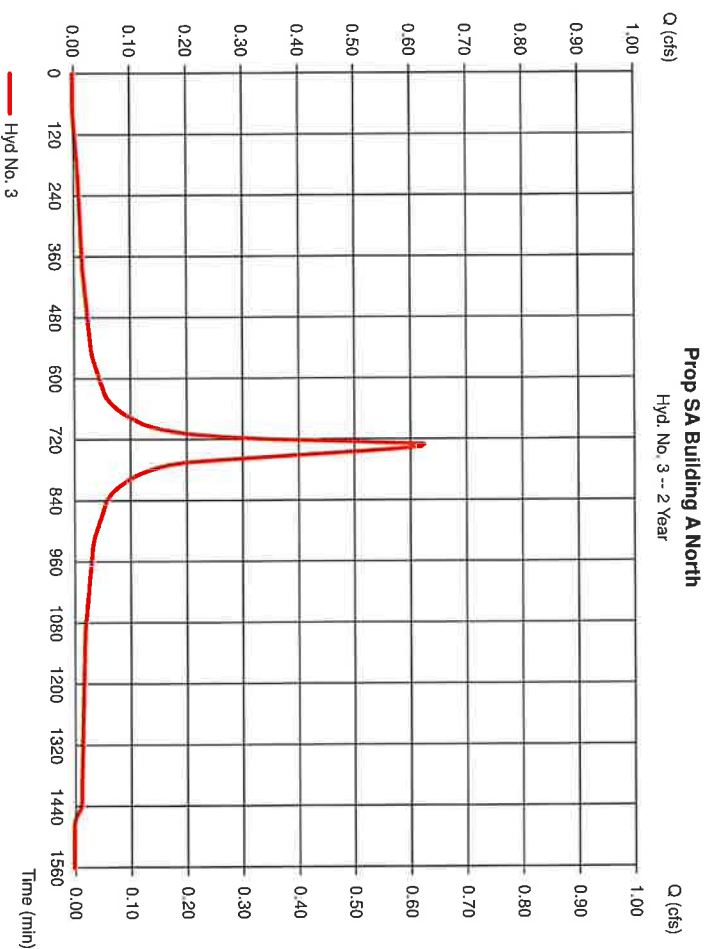
Thursday, Jun 24, 2021

Hyd. No. 3

Prop SA Building A North

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.625 cfs
 Time to peak = 730 min
 Hyd. volume = 0.089 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydralow Hydrographs by Intellisoive v9.1

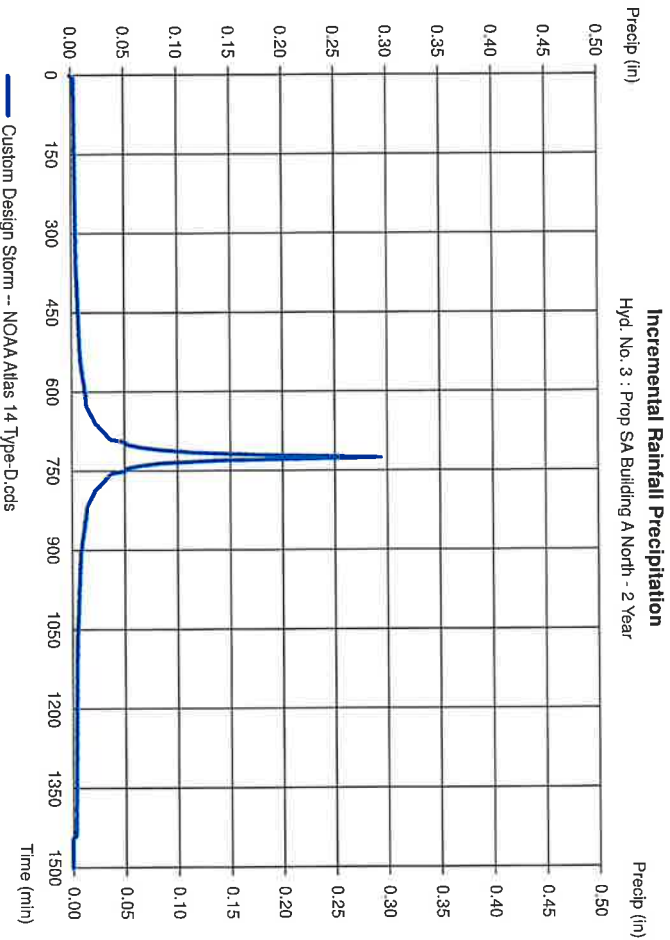
Thursday, Jun 24, 2021

Hyd. No. 3

Prop SA Building A North

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom



Hydrograph Report

Hydralow Hydrographs by Intellisoive v9.1

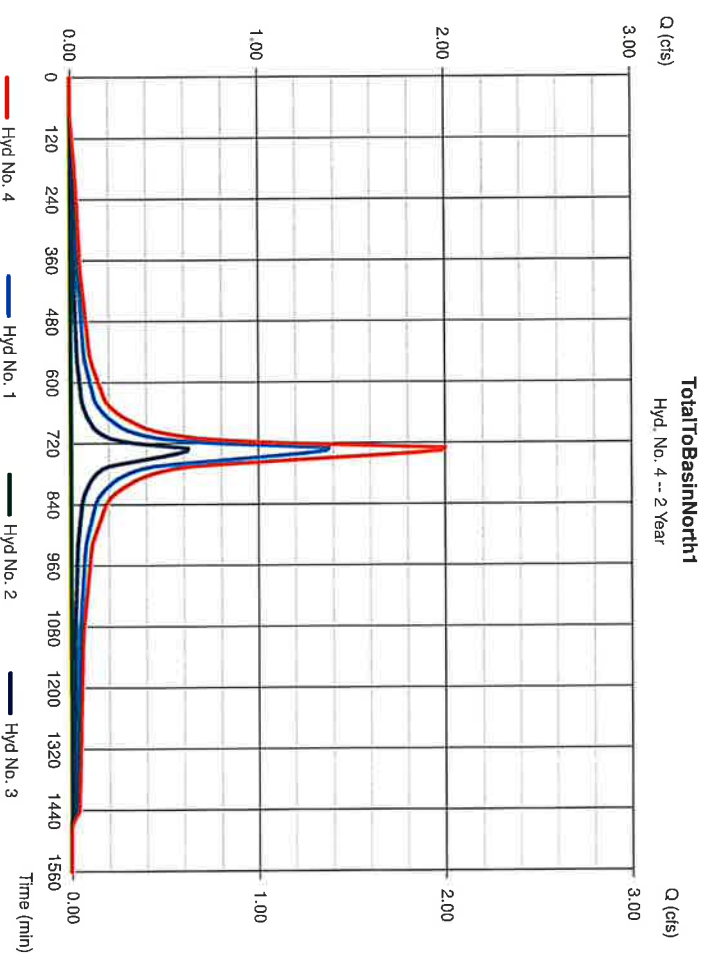
Thursday, Jun 24, 2021

Hyd. No. 4

TotalToBasinNorth1

Hydrograph type = Combine
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyds. = 1, 2, 3

Peak discharge = 2.004 cfs
 Time to peak = 730 min
 Hyd. volume = 0.284 acft
 Contrib. drain. area = 1.970 ac



Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

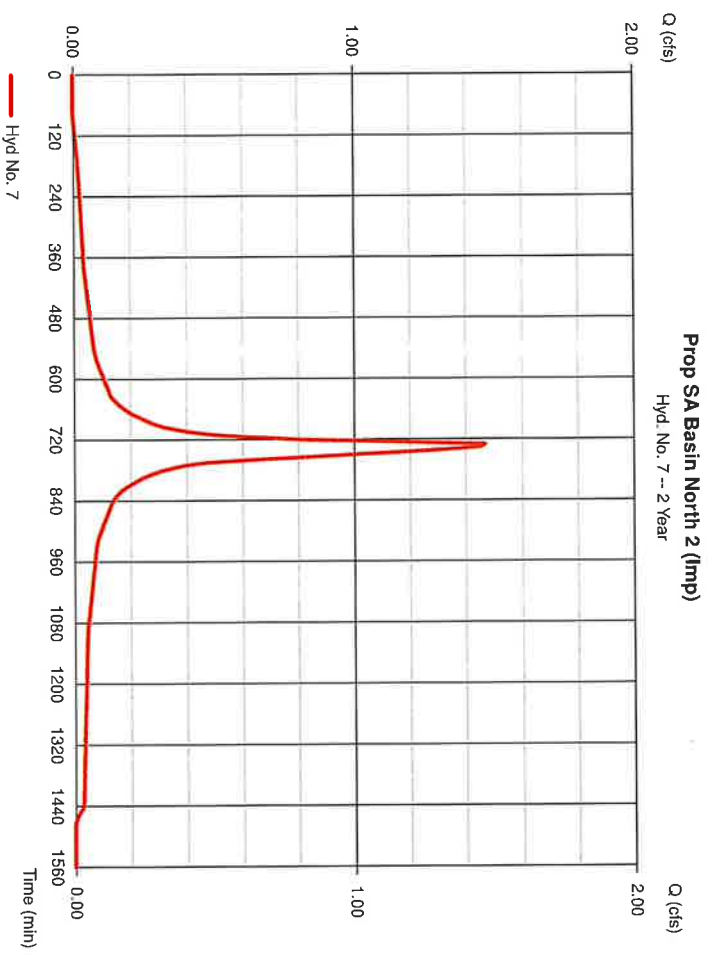
Thursday, Jun 24, 2021

13

Hyd. No. 7

Prop SA Basin North 2 (Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 1.471 cfs
Storm frequency	= 2 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.208 acft
Drainage area	= 0.800 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
To method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydratlow Hydrographs by Intellisolve v9.1

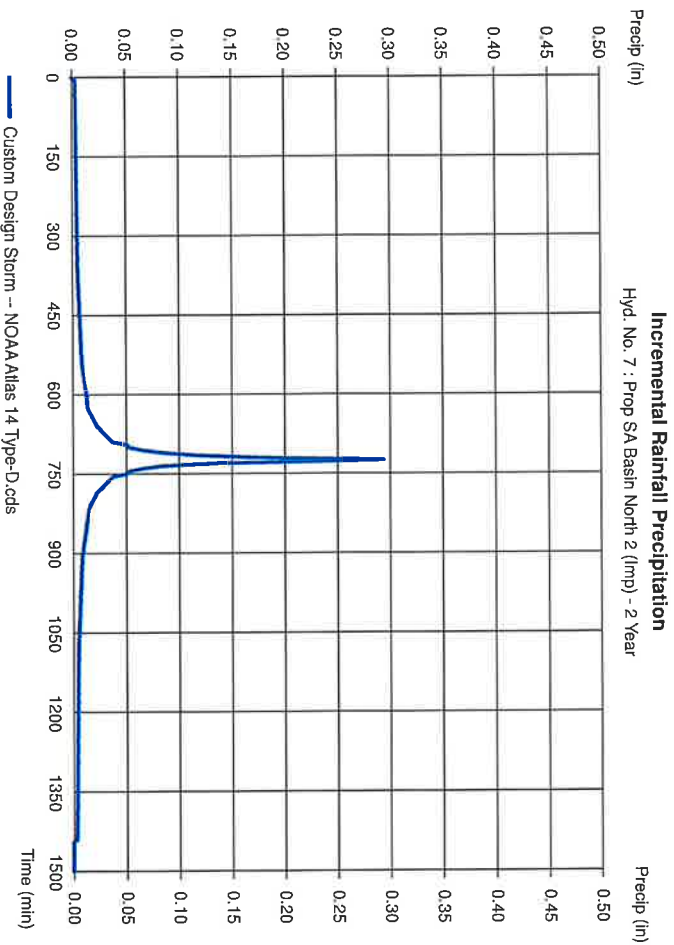
Thursday, Jun 24, 2021

14

Hyd. No. 7

Prop SA Basin North 2 (Imp)

Storm Frequency	= 2 yrs	Time interval	= 5 min
Total precip.	= 3.3800 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydrowell Hydrographs by Intellisolve v9.1

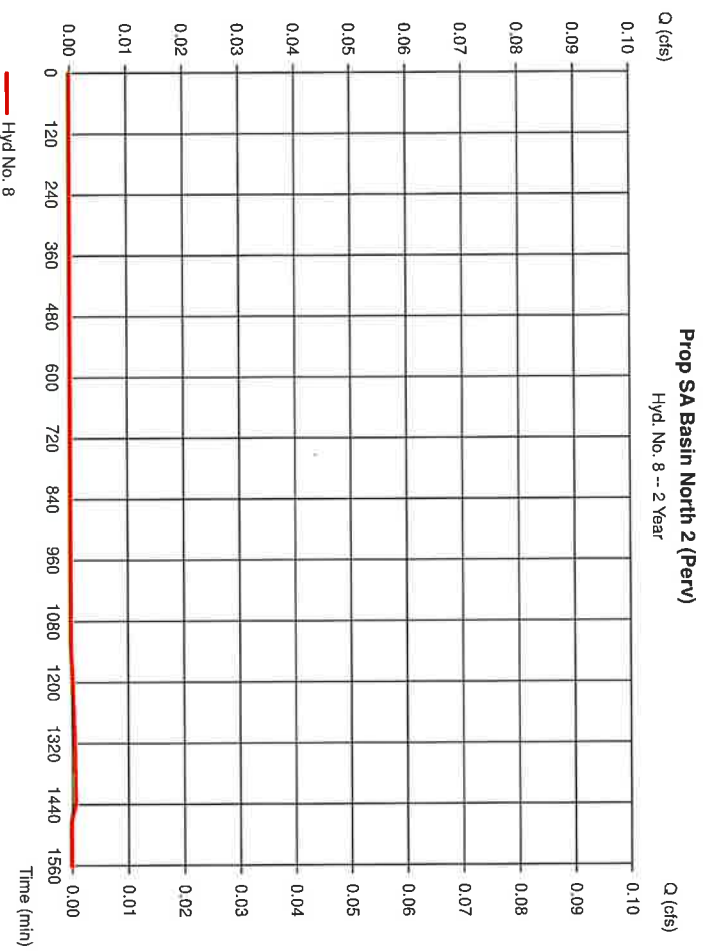
Thursday, Jun 24, 2021

15

Hyd. No. 8

Prop SA Basin North 2 (Perv)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.001 cfs
Storm frequency	= 2 yrs	Time to peak	= 1430 min
Time interval	= 5 min	Hyd. volume	= 0.000 acft
Drainage area	= 0.660 ac	Curve number	= 39
Basin slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydrowell Hydrographs by Intellisolve v9.1

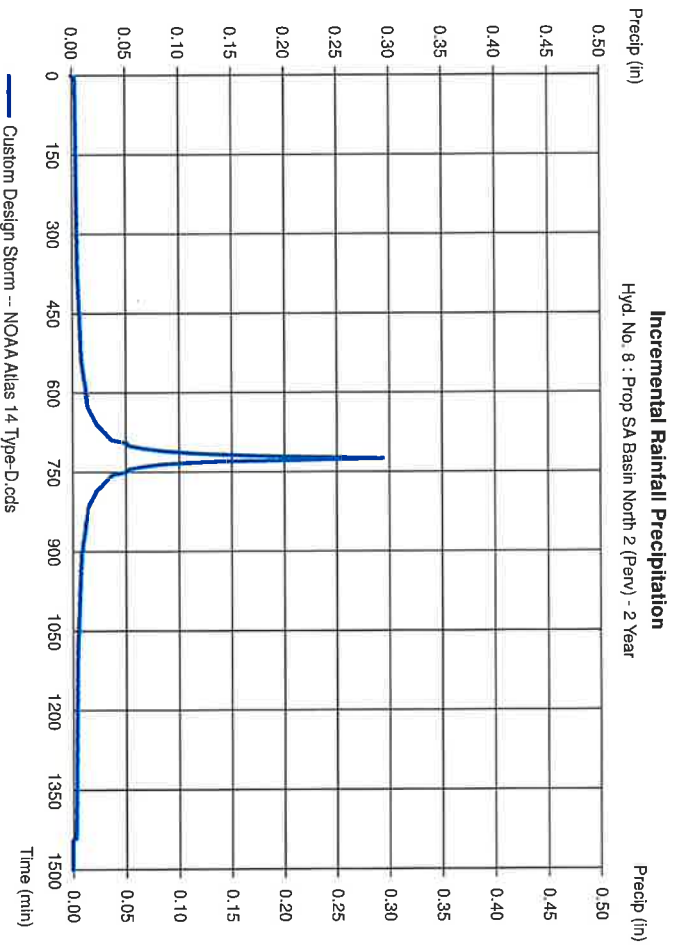
Thursday, Jun 24, 2021

16

Hyd. No. 8

Prop SA Basin North 2 (Perv)

Storm Frequency	= 2 yrs	Time interval	= 5 min
Total precip.	= 3.3800 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

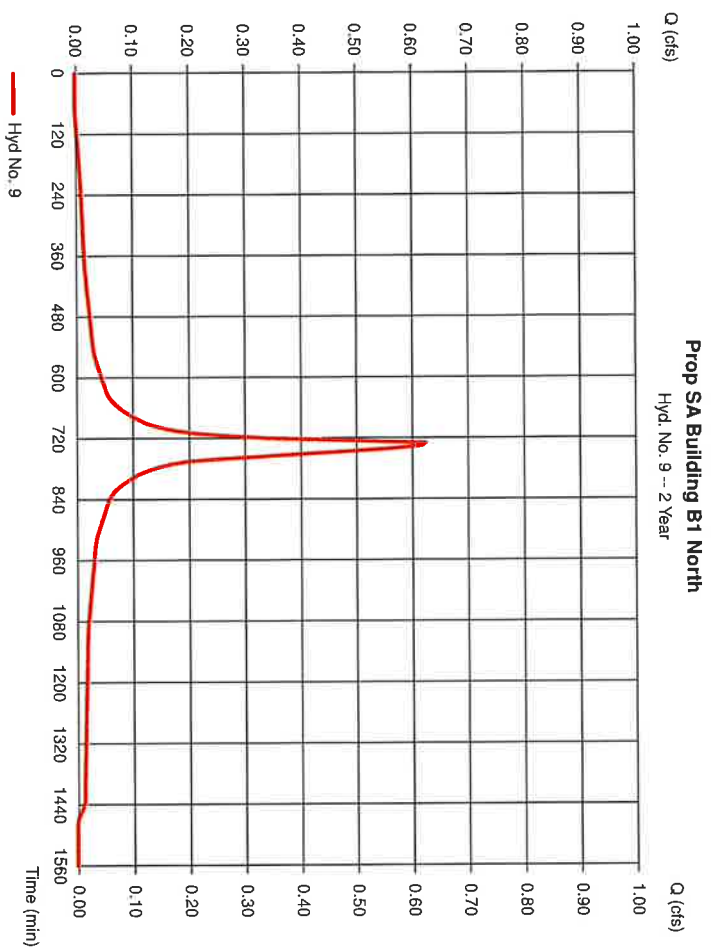
Hydratlow Hydrographs by Intelsolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 9

Prop SA Building B1 North

Hydrograph type	= SCS Runoff	Peak discharge	= 0.625 cfs
Storm frequency	= 2 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.089 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

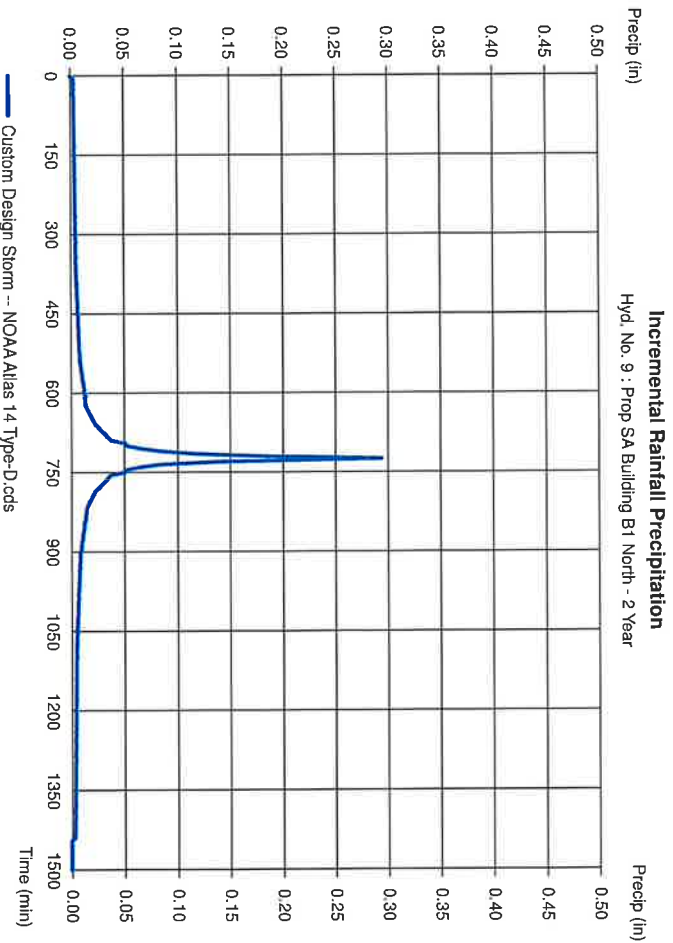
Hydratlow Hydrographs by Intelsolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 9

Prop SA Building B1 North

Storm Frequency	= 2 yrs	Time interval	= 5 min
Total precip.	= 3.3800 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		

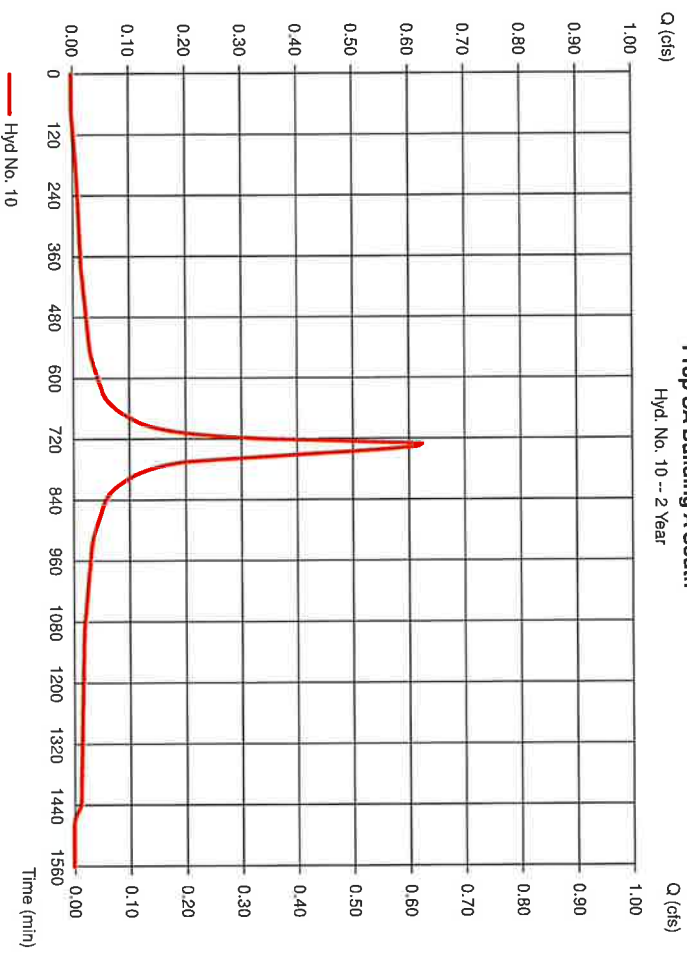


Hydrograph Report

Hyd. No. 10

Prop SA Building A South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.625 cfs
Storm frequency	= 2 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.089 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285

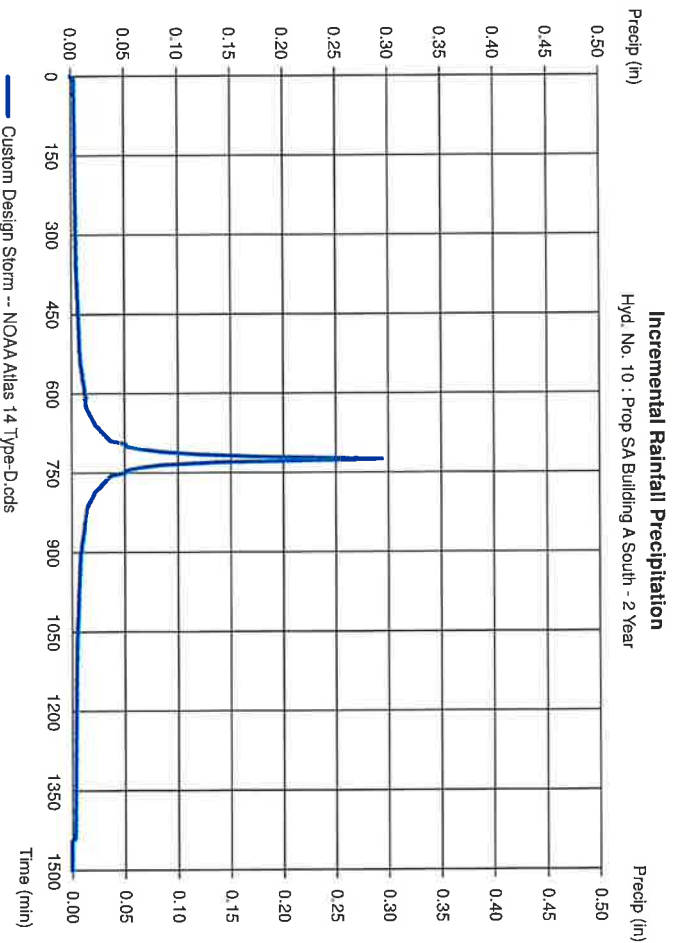


Precipitation Report

Hyd. No. 10

Prop SA Building A South

Storm Frequency	= 2 yrs	Time interval	= 5 min
Total precip.	= 3.3800 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydrow Hydrographs by Intellisoive v9.1

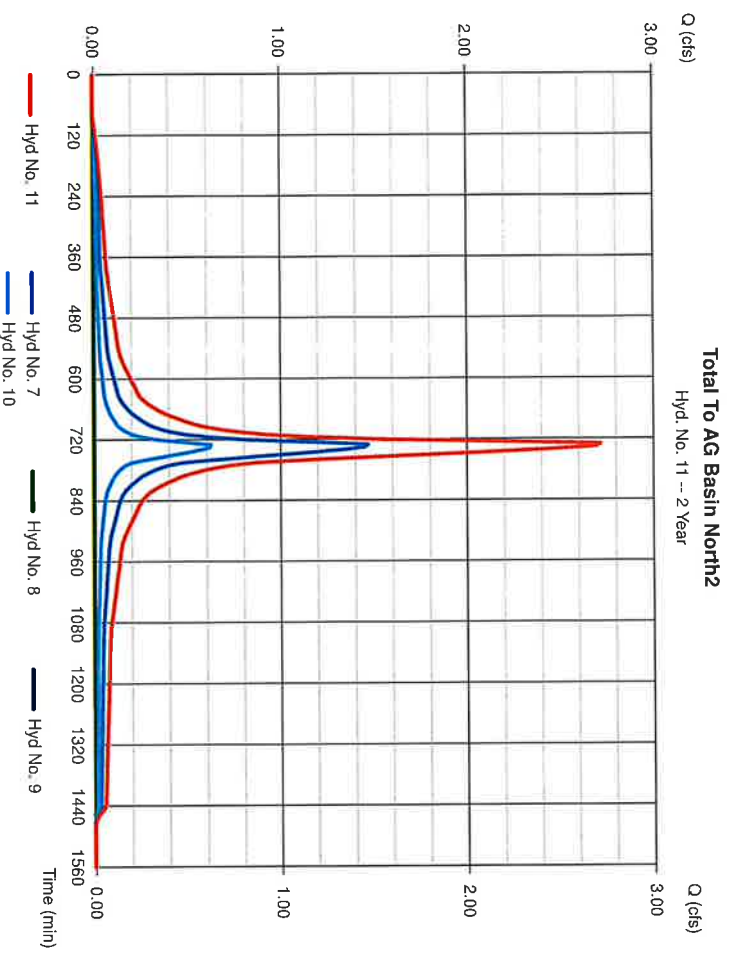
Thursday, Jun 24, 2021

Hyd. No. 11

Total To AG Basin North2

Hydrograph type = Combine
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyds. = 7, 8, 9, 10

Peak discharge = 2.721 cfs
 Time to peak = 730 min
 Hyd. volume = 0.386 acft
 Contrib. drain. area = 2.140 ac



Hydrograph Report

Hydrow Hydrographs by Intellisoive v9.1

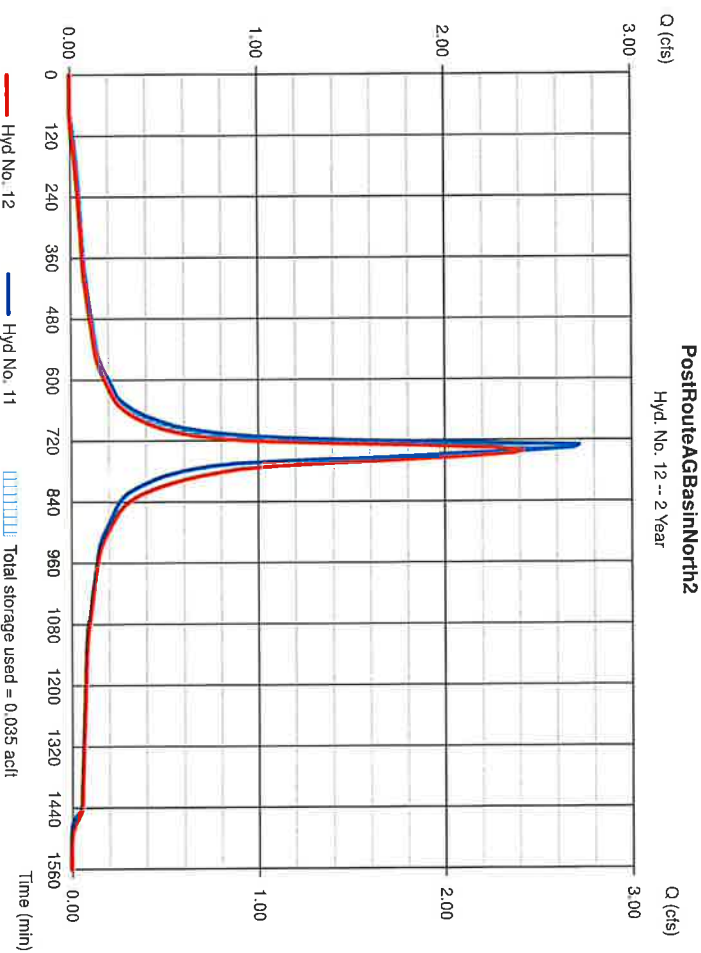
Thursday, Jun 24, 2021

Hyd. No. 12

PostRouteAGBasinNorth2

Hydrograph type = Reservoir
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyd. No. = 11 - Total To AG Basin North2
 Reservoir name = Prop. AG Basin North 2

Peak discharge = 2.423 cfs
 Time to peak = 740 min
 Hyd. volume = 0.386 acft
 Max. Elevation = 127.59 ft
 Max. Storage = 0.035 acft



Storage Indication method used.

Pond Report

Hydratlow Hydrographs by Inelissolve v3.1

Thursday, Jun 24, 2021

Pond No. 3 - Prop. AG Basin North 2

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 127.50 ft

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	127.50	15,576	0.000	0.000
0.50	128.00	17,914	0.189	0.189
0.70	128.20	19,222	0.084	0.272

Culvert / Orifice Structures

	[A]	[B]	[C]	[P-Rst]	Weir Structures	[A]	[B]	[C]	[D]
Rise (in)	= 0.00	0.00	0.00	0.00	Crest Len (ft)	= 0.00	0.00	25.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00	Crest El. (ft)	= 0.00	0.00	127.50	0.00
No. Barrels	= 0	0	0	0	Weir Coef.	= 3.33	3.33	3.33	3.33
Invert El. (ft)	= 0.00	0.00	0.00	0.00	Weir Type	= Broad	Broad	Broad	Broad
Length (ft)	= 0.00	0.00	0.00	n/a	Multi-Stage	= No	No	No	No
Slope (%)	= 0.00	0.00	0.00	n/a	Exhl. (m/hr)	= 0.00 (by Contour)	0.00	0.00	0.00
N-Value	= 0.13	.013	.013	.013	TW Elev. (ft)	= 0.00	0.00	0.00	0.00
Orifice Coef.	= 0.60	0.60	0.60	0.60					
Multi-Stage	= n/a	No	No	No					

Note: Culvert/orifice outflows are analyzed under their (c) and outlet (d) control. Weir rises checked for orifice conditions (c) and submergedness (d).

Stage / Storage / Discharge Table	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	Prrsr cfs	W-R A cfs	W-R B cfs	W-R C cfs	W-R D cfs	Exhl cfs	User cfs	Total cfs
0.00	0.000	127.50	...	...	...	...	...	...	0.00	...	...	...	0.00
0.05	0.019	127.55	...	...	...	...	...	...	0.93	...	...	...	0.93
0.10	0.038	127.60	...	...	...	...	...	...	2.63	...	...	...	2.63
0.15	0.057	127.65	...	...	...	...	...	...	4.84	...	...	...	4.84
0.20	0.075	127.70	...	...	...	...	...	...	7.45	...	...	...	7.45
0.25	0.094	127.75	...	...	...	...	...	...	10.41	...	...	...	10.41
0.30	0.113	127.80	...	...	...	...	...	...	13.88	...	...	...	13.88
0.35	0.132	127.85	...	...	...	...	...	...	17.24	...	...	...	17.24
0.40	0.151	127.90	...	...	...	...	...	...	21.06	...	...	...	21.06
0.45	0.170	128.00	...	...	...	...	...	...	25.13	...	...	...	25.13
0.50	0.189	128.02	...	...	...	...	...	...	29.42	...	...	...	29.42
0.52	0.197	128.02	...	...	...	...	...	...	31.22	...	...	...	31.22
0.54	0.205	128.04	...	...	...	...	...	...	33.04	...	...	...	33.04
0.56	0.214	128.06	...	...	...	...	...	...	34.89	...	...	...	34.89
0.58	0.222	128.06	...	...	...	...	...	...	36.77	...	...	...	36.77
0.60	0.230	128.10	...	...	...	...	...	...	38.69	...	...	...	38.69
0.62	0.239	128.12	...	...	...	...	...	...	40.64	...	...	...	40.64
0.64	0.247	128.14	...	...	...	...	...	...	42.63	...	...	...	42.63
0.66	0.256	128.15	...	...	...	...	...	...	44.64	...	...	...	44.64
0.68	0.264	128.18	...	...	...	...	...	...	46.69	...	...	...	46.69
0.70	0.272	128.20	...	...	...	...	...	...	48.76	...	...	...	48.76

Hydrograph Report

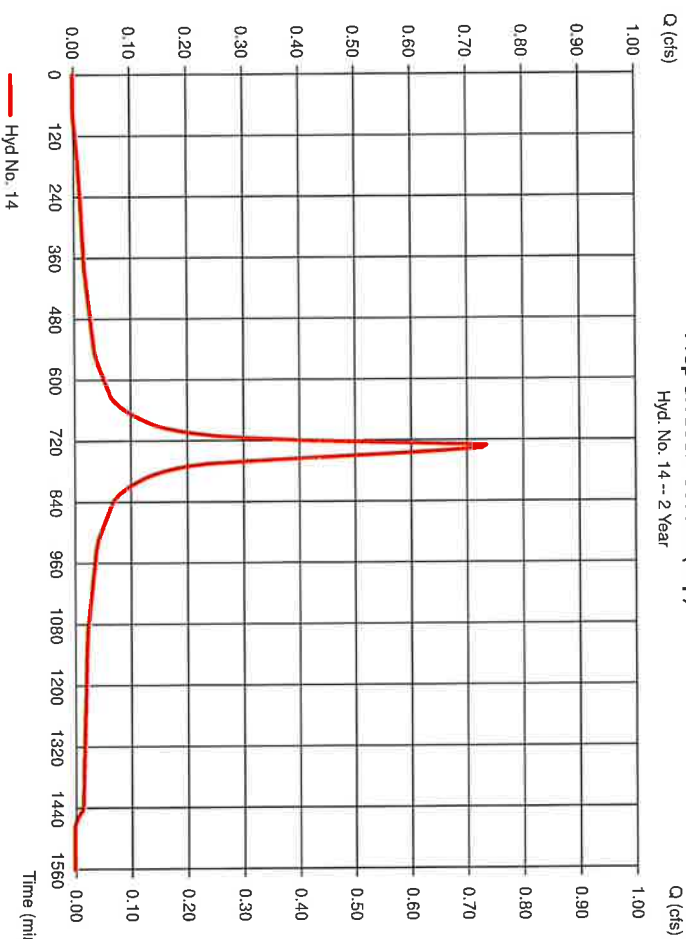
Hydratlow Hydrographs by Inelissolve v3.1

Thursday, Jun 24, 2021

Hyd. No. 14

Prop SA Basin South 1 (Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.735 cfs
Storm frequency	= 2 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.104 acft
Drainage area	= 0.400 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydralflow Hydrographs by IntelliSolve v9.1

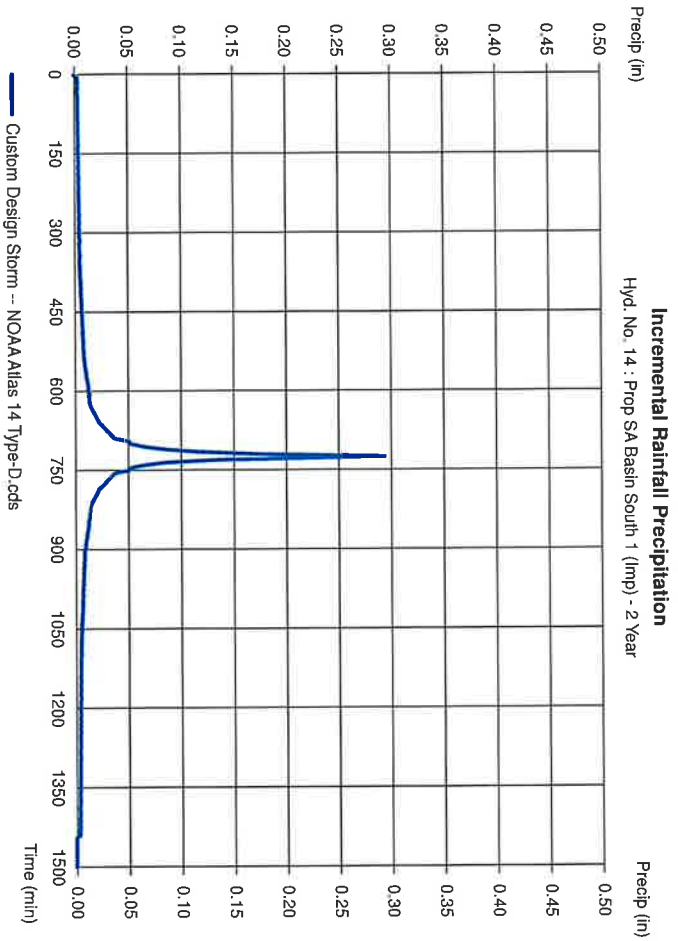
Thursday, Jun 24, 2021

Hyd. No. 14

Prop SA Basin South 1 (Imp)

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time Interval = 5 min
 Distribution = Custom



Hydrograph Report

Hydralflow Hydrographs by IntelliSolve v9.1

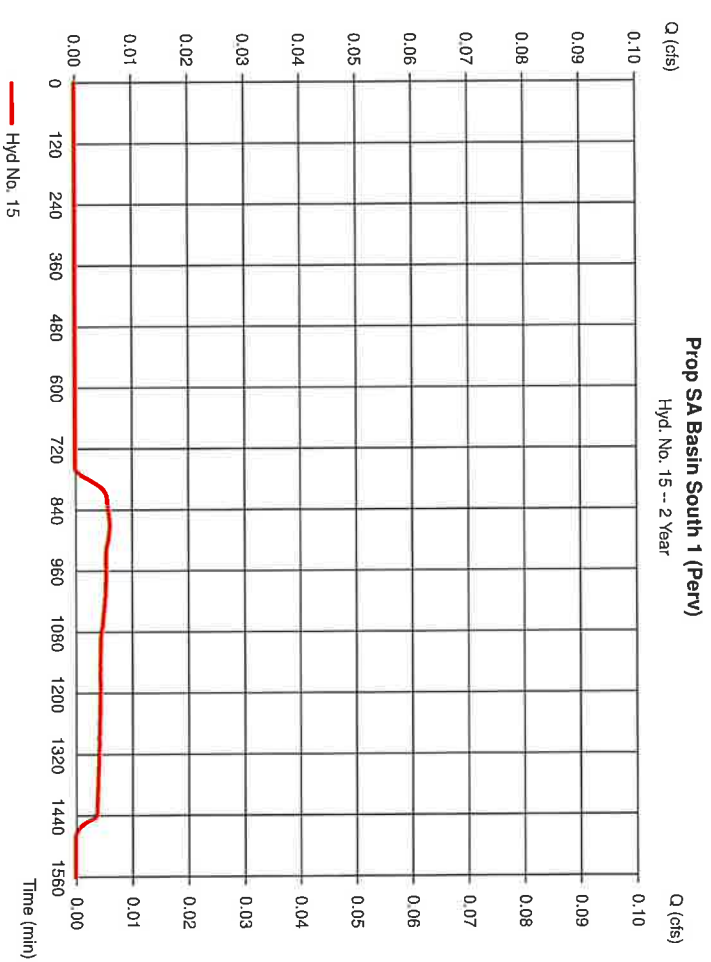
Thursday, Jun 24, 2021

Hyd. No. 15

Prop SA Basin South 1 (Perv)

Hydrograph type = SCS Runoff
 Storm Frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.650 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.006 cfs
 Time to peak = 870 min
 Hyd. volume = 0.004 acft
 Curve number = 46
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydroware Hydrographs by IntelliSolve v9.1

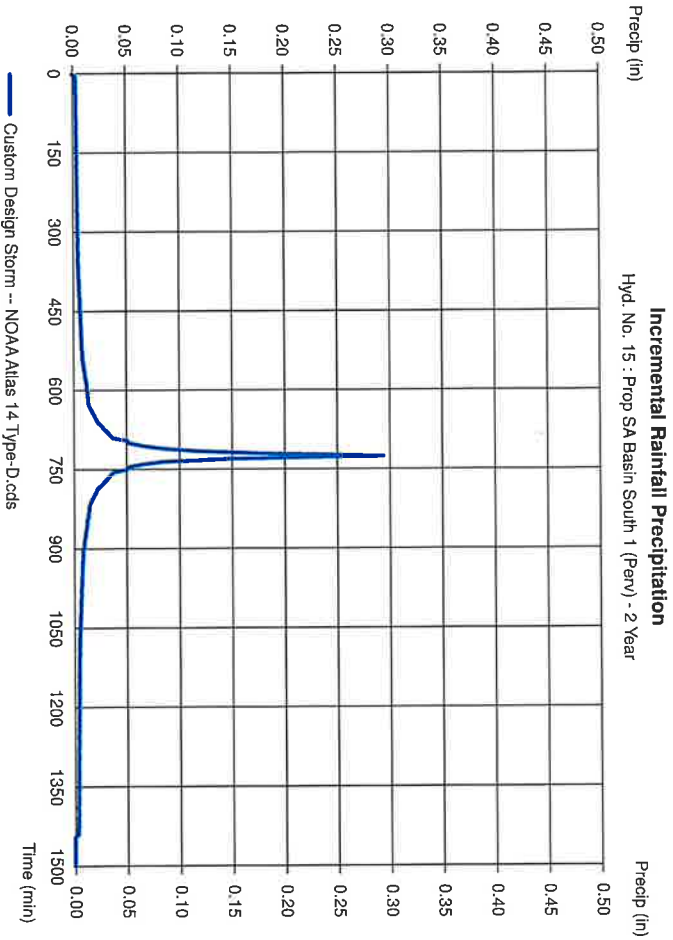
Thursday, Jun 24, 2021

Hyd. No. 15

Prop SA Basin South 1 (Perv)

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom



Hydrograph Report

Hydroware Hydrographs by IntelliSolve v9.1

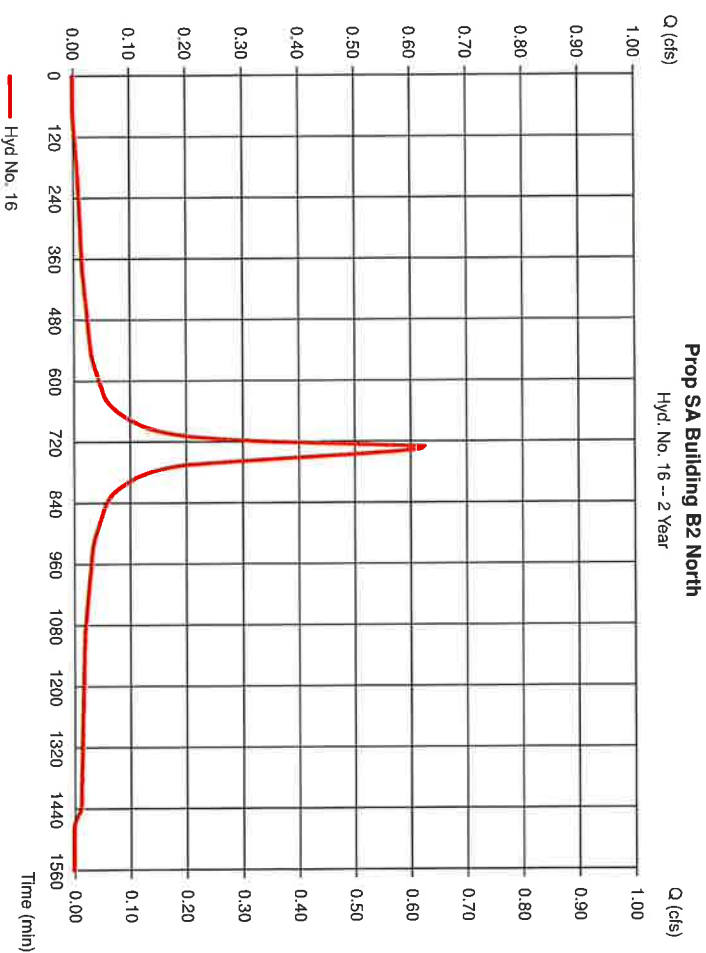
Thursday, Jun 24, 2021

Hyd. No. 16

Prop SA Building B2 North

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 To method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.625 cfs
 Time to peak = 730 min
 Hyd. volume = 0.089 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydrowell Hydrographs by IntelliSolve v9.1

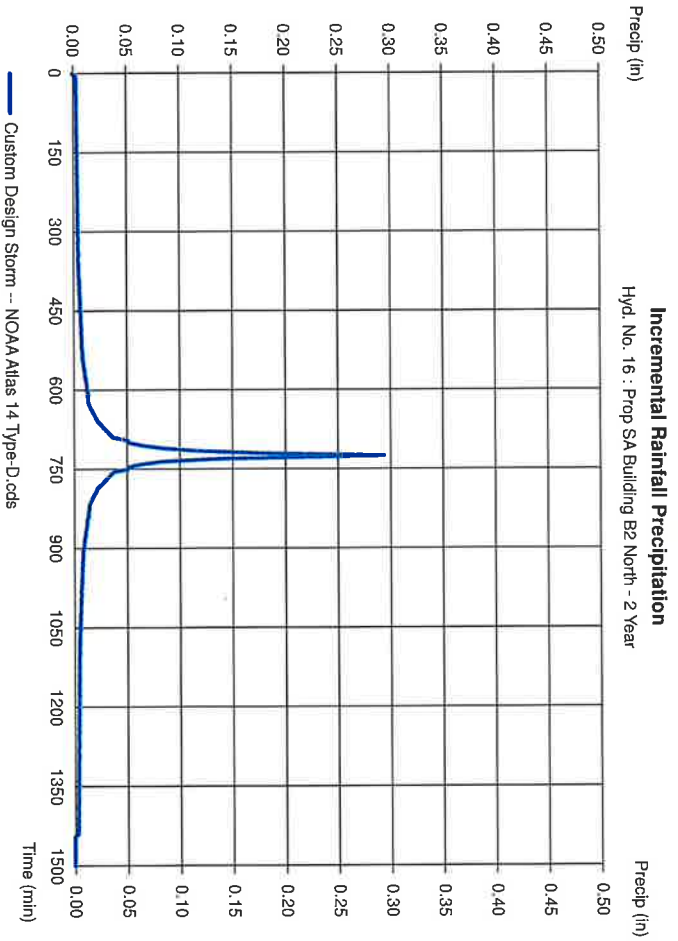
Thursday, Jun 24, 2021

Hyd. No. 16

Prop SA Building B2 North

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time Interval = 5 min
 Distribution = Custom



Hydrograph Report

Hydrowell Hydrographs by IntelliSolve v9.1

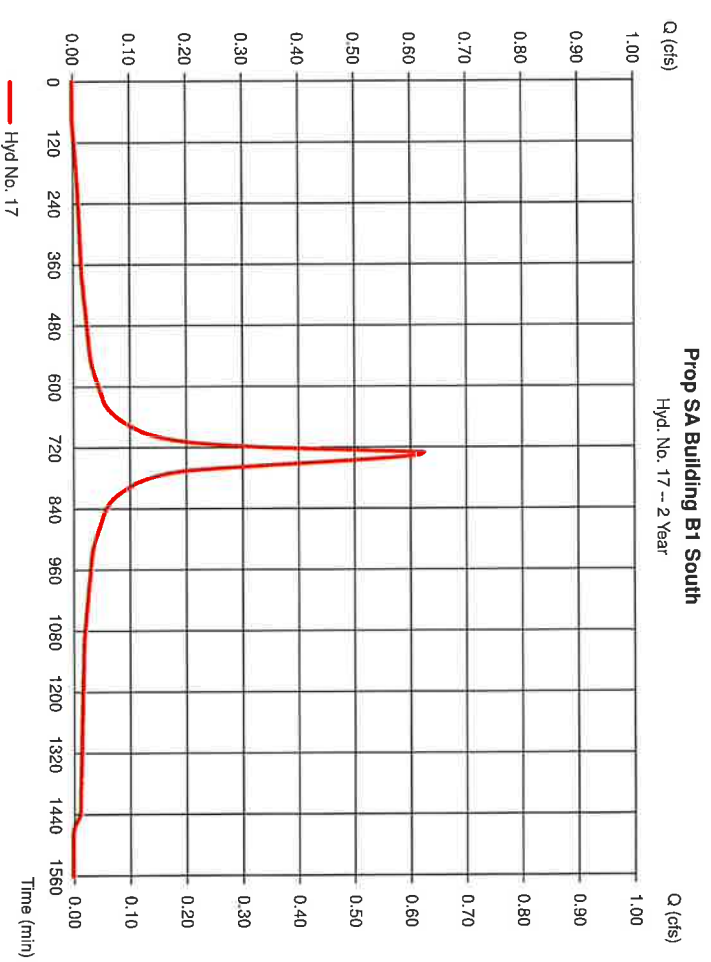
Thursday, Jun 24, 2021

Hyd. No. 17

Prop SA Building B1 South

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 0.340 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.38 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Peak discharge = 0.625 cfs
 Time to peak = 730 min
 Hyd. volume = 0.089 acft
 Curve number = 98
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Custom
 Shape factor = 285



Precipitation Report

Hydrowlow Hydrographs by Intellisoive v9.1

Thursday, Jun 24, 2021

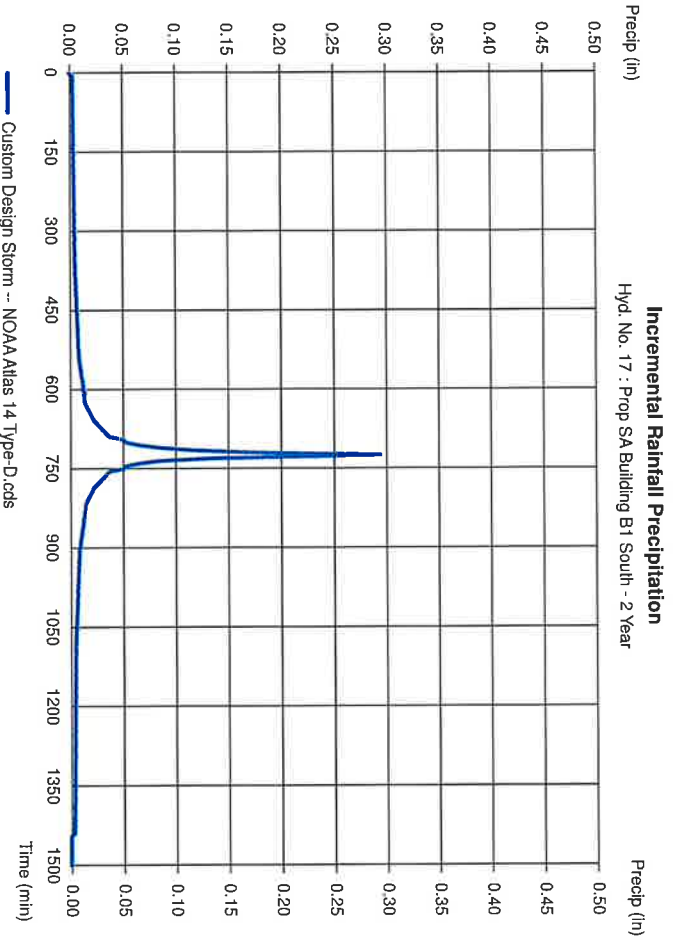
31

Hyd. No. 17

Prop SA Building B1 South

Storm Frequency = 2 yrs
 Total precip. = 3.3800 in
 Storm duration = NOAA Atlas 14 Type-D.cds

Time interval = 5 min
 Distribution = Custom



Hydrograph Report

Hydrowlow Hydrographs by Intellisoive v9.1

Thursday, Jun 24, 2021

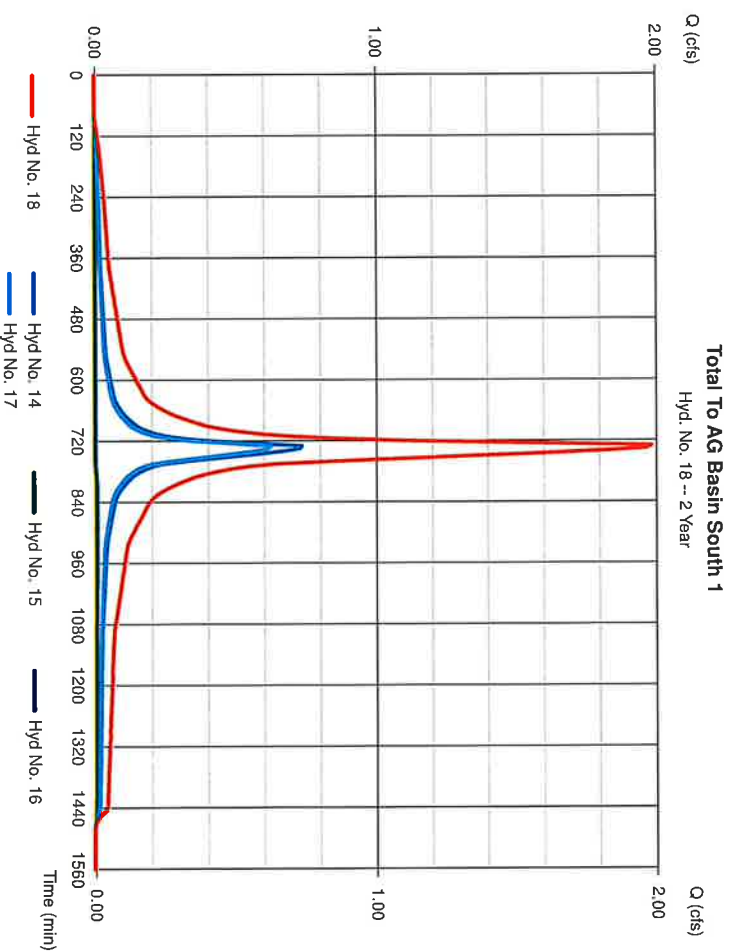
32

Hyd. No. 18

Total To AG Basin South 1

Hydrograph type = Combine
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyds. = 14, 15, 16, 17

Peak discharge = 1.986 cfs
 Time to peak = 730 min
 Hyd. volume = 0.286 acft
 Contrib. drain. area = 1.730 ac



Hydrograph Report

Hydrow Hydrographs by Inletisolve v9.1

Thursday, Jun 24, 2021

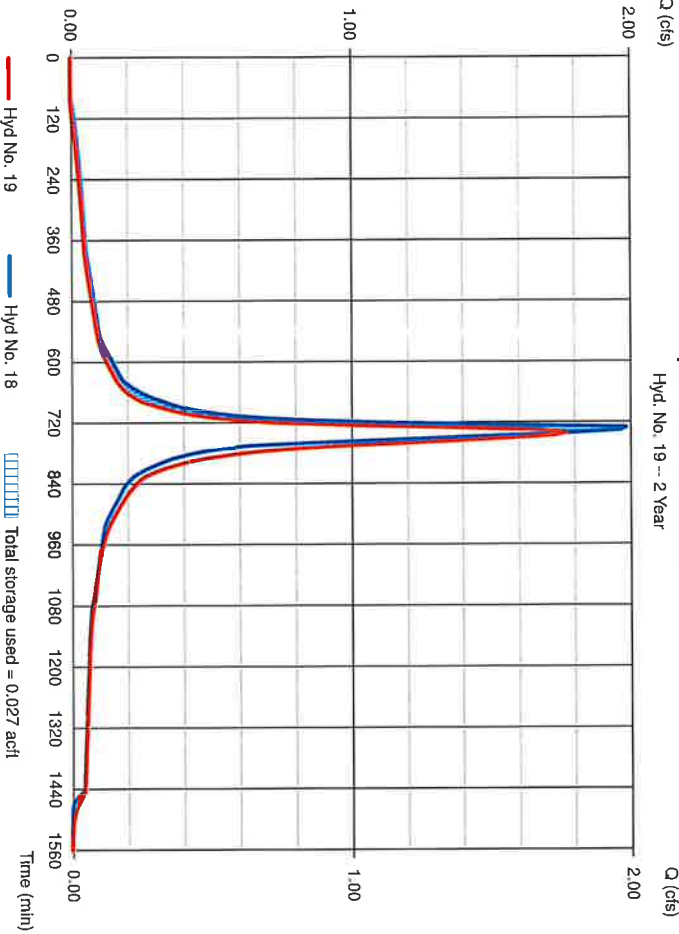
Hyd. No. 19

PropRouteAGBasinSouth1

Hydrograph type = Reservoir
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyd. No. = 18 - Total To AG Basin South 1
 Reservoir name = Prop AG Basin South 1

Peak discharge = 1.775 cfs
 Time to peak = 740 min
 Hyd. volume = 0.286 acft
 Max. Elevation = 124.84 ft
 Max. Storage = 0.027 acft

Storage indication method used:



Pond Report

Hydrow Hydrographs by Inletisolve v9.1

Thursday, Jun 24, 2021

Pond No. 2 - Prop AG Basin South 1

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 124.75 ft

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	124.75	12,725	0.000	0.000
0.25	125.00	13,320	0.075	0.075
0.50	125.25	16,541	0.088	0.160

Culvert / Orifice Structures

	[A]	[B]	[C]	[PFRSR]	Well Structures	[A]	[B]	[C]	[D]
Rise (in)	= 0.00	0.00	0.00	0.00	Crest Len (ft)	= 0.00	0.00	25.00	0.00
Span (ft)	= 0.00	0.00	0.00	0.00	Crest El. (ft)	= 0.00	0.00	124.75	0.00
No. Barrels	= 0	0	0	0	Weir Coeff.	= 3.33	3.33	2.60	3.33
Invert El. (ft)	= 0.00	0.00	0.00	0.00	Weir Type	= Broad	Broad	No	No
Length (ft)	= 0.00	0.00	0.00	n/a	Multi-Stage	= No	No	No	No
Slope (%)	= 0.00	0.00	0.13	n/a					
N-Value	= 0.13	0.13	0.13	n/a	Exfil. (in/hr)	= 0.00 (by Weir area)			
Orifice Coeff.	= n/a	0.60	0.60	0.60	TW Elev. (ft)	= 0.00			
Multi-Stage	= n/a	No	No	No					

Note: Culvert/orifice equations are analyzed under inlet (a) and outlet (c) control. Weir raises checked for orifice conditions (b) and submergence (d).

Stage / Storage / Discharge Table

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PFRSR cfs	WT-A cfs	WT-B cfs	WT-C cfs	WT-D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	124.75	...	...	...	...	...	...	0.00	...	...	...	0.00
0.03	0.007	124.78	...	...	...	...	...	...	0.28	...	...	...	0.28
0.05	0.015	124.80	...	...	...	...	...	...	0.53	...	...	...	0.53
0.08	0.022	124.83	...	...	...	...	...	...	1.04	...	...	...	1.04
0.10	0.030	124.85	...	...	...	...	...	...	2.06	...	...	...	2.06
0.13	0.047	124.89	...	...	...	...	...	...	2.87	...	...	...	2.87
0.15	0.055	124.90	...	...	...	...	...	...	3.78	...	...	...	3.78
0.18	0.062	124.93	...	...	...	...	...	...	4.76	...	...	...	4.76
0.20	0.069	124.95	...	...	...	...	...	...	5.81	...	...	...	5.81
0.23	0.075	124.98	...	...	...	...	...	...	6.94	...	...	...	6.94
0.25	0.078	125.00	...	...	...	...	...	...	8.13	...	...	...	8.13
0.28	0.088	125.03	...	...	...	...	...	...	9.37	...	...	...	9.37
0.30	0.092	125.05	...	...	...	...	...	...	10.68	...	...	...	10.68
0.33	0.100	125.08	...	...	...	...	...	...	12.04	...	...	...	12.04
0.35	0.109	125.09	...	...	...	...	...	...	13.46	...	...	...	13.46
0.38	0.117	125.13	...	...	...	...	...	...	14.93	...	...	...	14.93
0.40	0.126	125.15	...	...	...	...	...	...	16.44	...	...	...	16.44
0.43	0.135	125.18	...	...	...	...	...	...	18.01	...	...	...	18.01
0.45	0.143	125.20	...	...	...	...	...	...	19.62	...	...	...	19.62
0.48	0.152	125.22	...	...	...	...	...	...	21.28	...	...	...	21.28
0.50	0.160	125.25	...	...	...	...	...	...	22.98	...	...	...	22.98

Hydrograph Report

Hydralow Hydrographs by Intellisphere v9.1

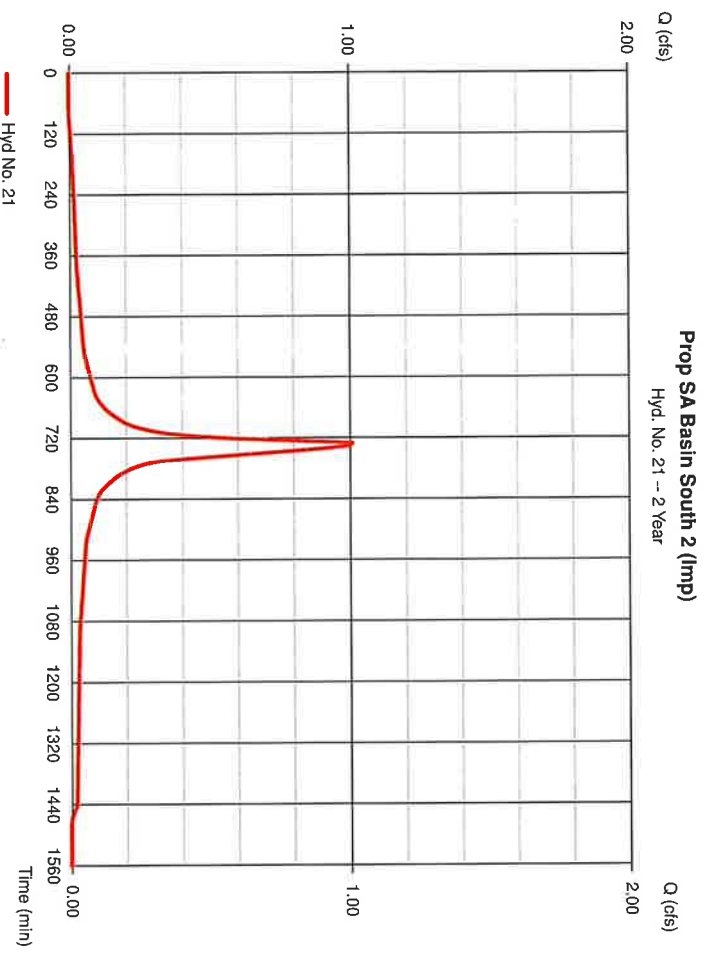
Thursday, Jun 24, 2021

35

Hyd. No. 21

Prop SA Basin South 2 (Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 1.011 cfs
Storm frequency	= 2 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.143 acft
Drainage area	= 0.550 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
To method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydralow Hydrographs by Intellisphere v9.1

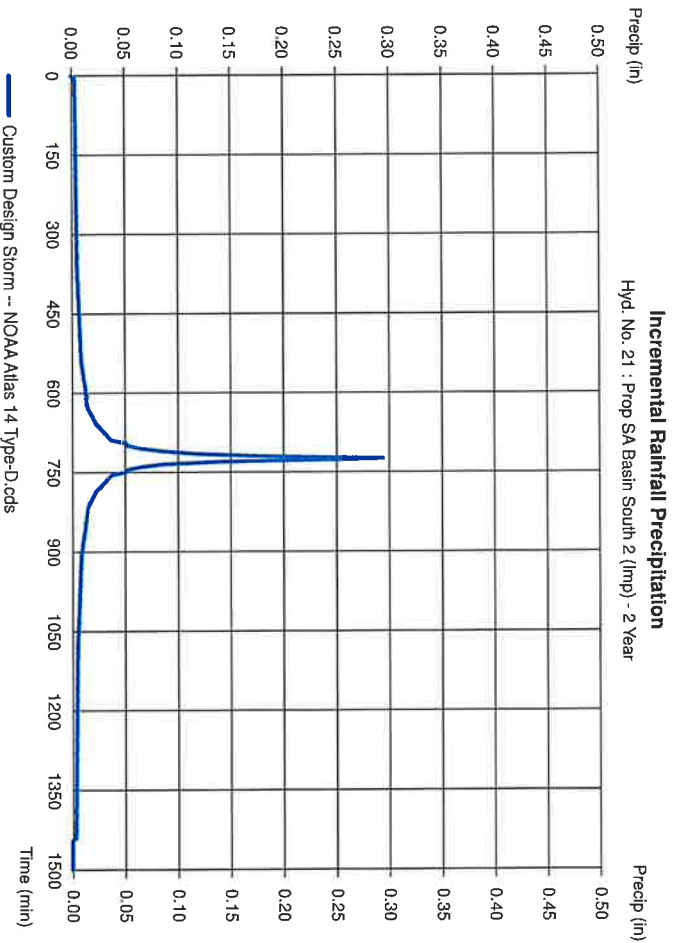
Thursday, Jun 24, 2021

36

Hyd. No. 21

Prop SA Basin South 2 (Imp)

Storm Frequency	= 2 yrs	Time interval	= 5 min
Total precip.	= 3.3800 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydraulic Hydrographs by Intellisolve v9.1

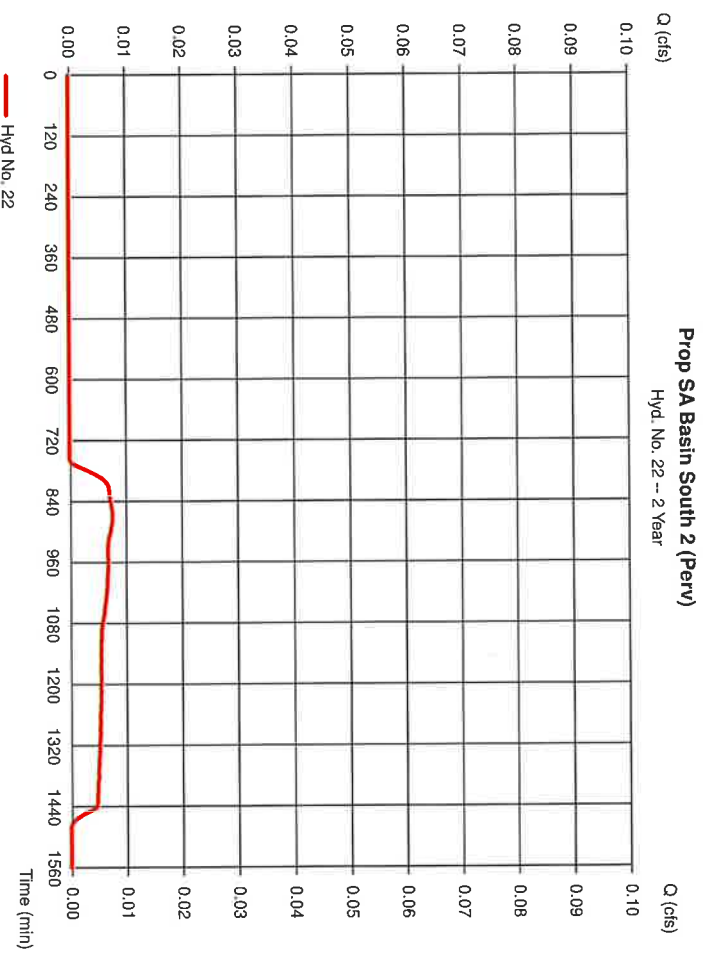
Thursday, Jun 24, 2021

37

Hyd. No. 22

Prop SA Basin South 2 (Perv)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.008 cfs
Storm frequency	= 2 yrs	Time to peak	= 870 min
Time interval	= 5 min	Hyd. volume	= 0.006 acft
Drainage area	= 0.810 ac	Curve number	= 46
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
To method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydraulic Hydrographs by Intellisolve v9.1

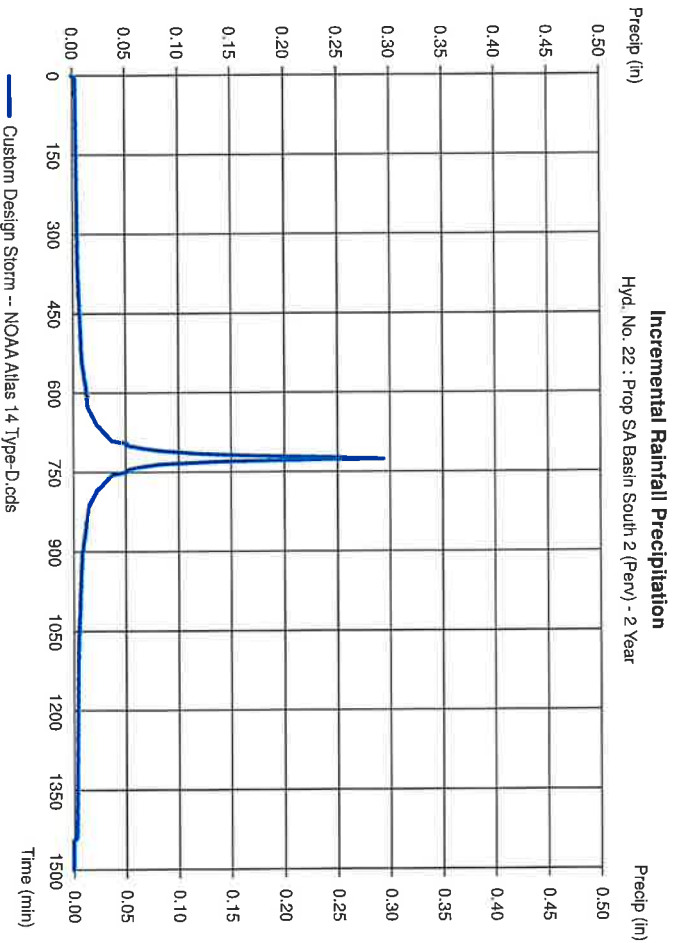
Thursday, Jun 24, 2021

38

Hyd. No. 22

Prop SA Basin South 2 (Perv)

Storm Frequency	= 2 yrs	Time interval	= 5 min
Total precip.	= 3.3800 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydrowell Hydrographs by IntelliSolve v9.1

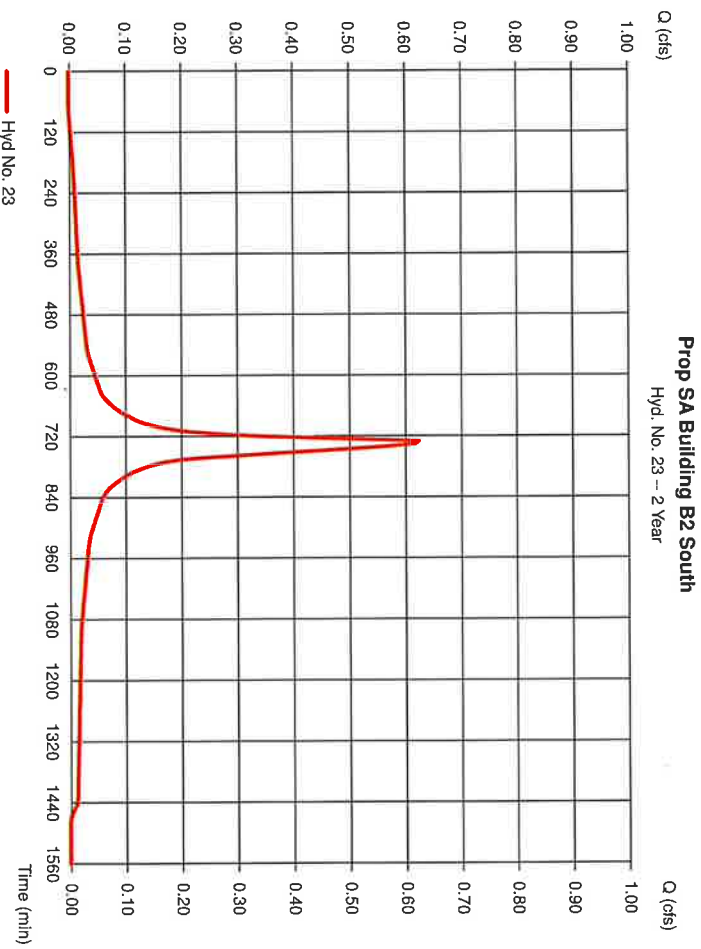
Thursday, Jun 24, 2021

39

Hyd. No. 23

Prop SA Building B2 South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.625 cfs
Storm frequency	= 2 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.089 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Storm duration	= 3.38 in	Distribution	= Custom
	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydrowell Hydrographs by IntelliSolve v9.1

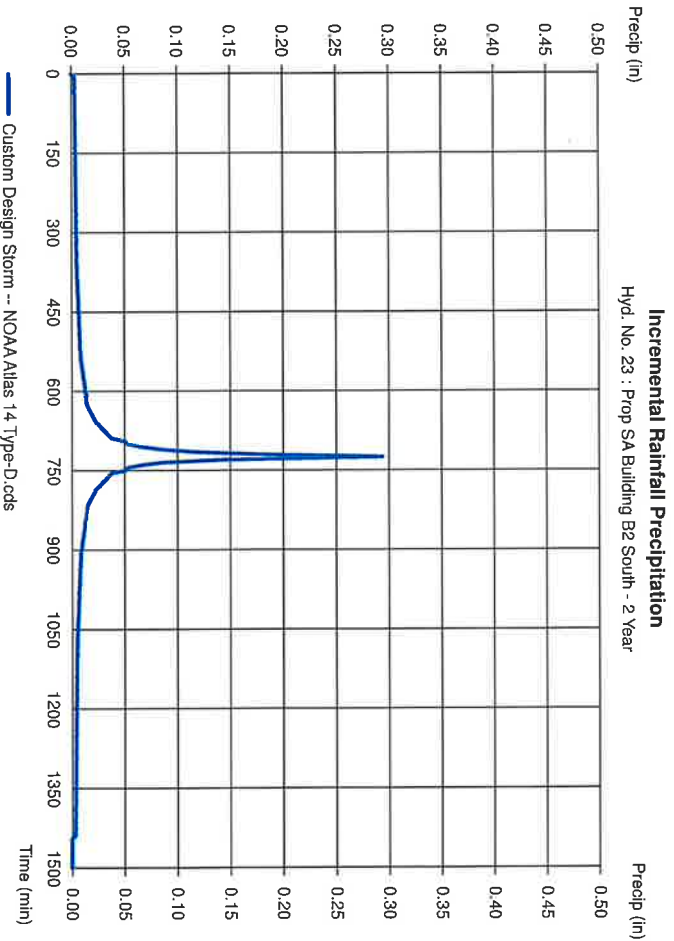
Thursday, Jun 24, 2021

40

Hyd. No. 23

Prop SA Building B2 South

Storm Frequency	= 2 yrs	Time interval	= 5 min
Total precip.	= 3.3800 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydratlow Hydrographs by IntelliSolve v9.1

Thursday, Jun 24, 2021

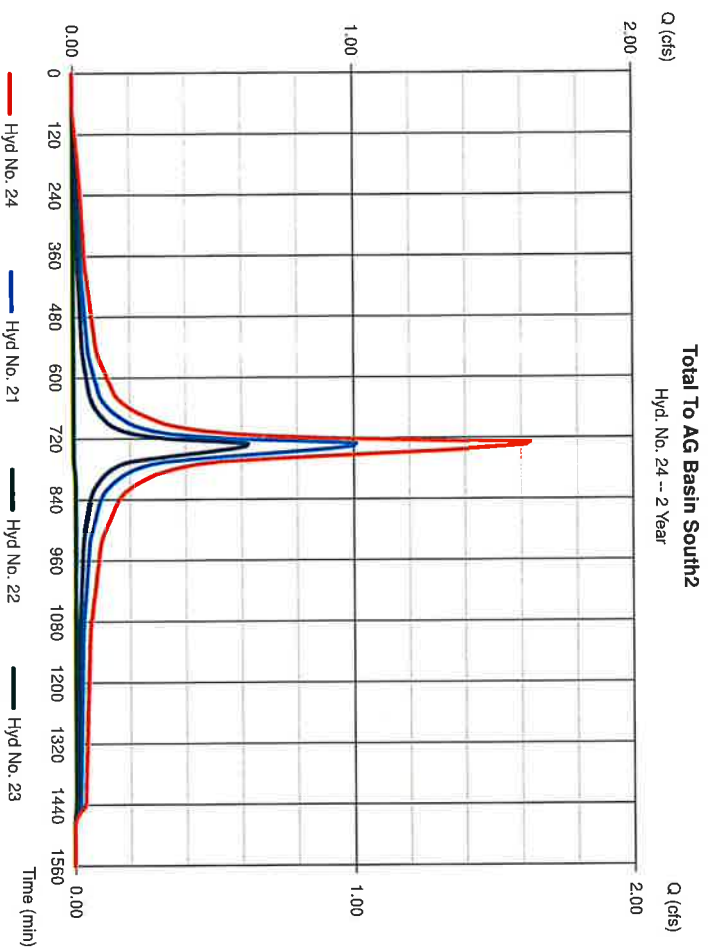
41

Hyd. No. 24

Total To AG Basin South2

Hydrograph type = Combine
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyds. = 21, 22, 23

Peak discharge = 1.636 cfs
 Time to peak = 730 min
 Hyd. volume = 0.238 acft
 Contrib. drain. area = 1.700 ac



Hydrograph Report

Hydratlow Hydrographs by IntelliSolve v9.1

Thursday, Jun 24, 2021

42

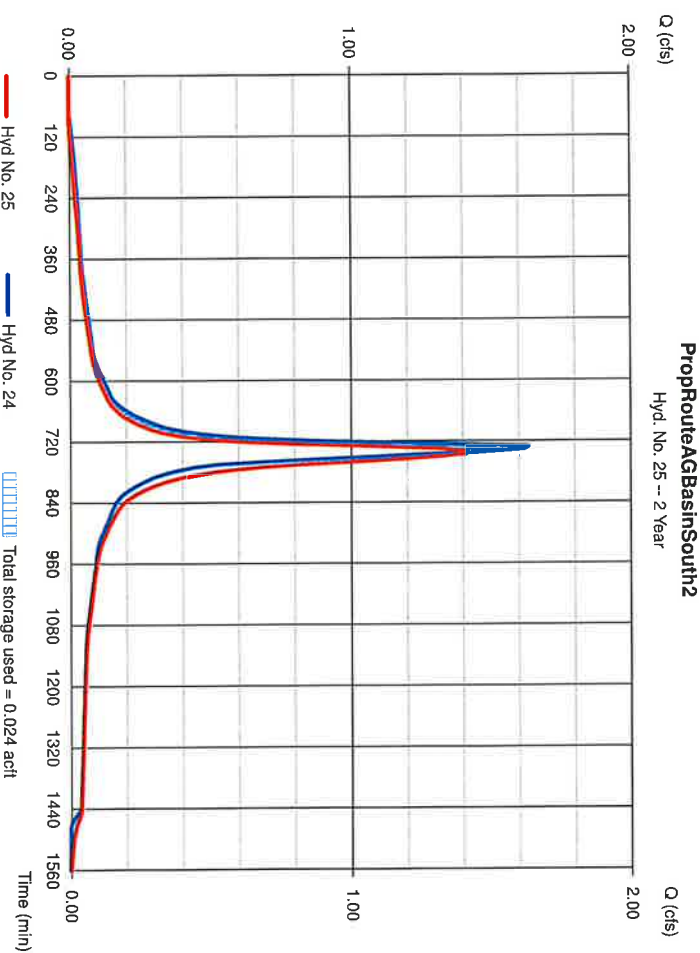
Hyd. No. 25

PropRouteAGBasinSouth2

Hydrograph type = Reservoir
 Storm frequency = 2 yrs
 Time interval = 5 min
 Inflow hyd. No. = 24 - Total To AG Basin South2
 Reservoir name = Prop. AG Basin South 2

Peak discharge = 1.423 cfs
 Time to peak = 740 min
 Hyd. volume = 0.237 acft
 Max. Elevation = 123.03 ft
 Max. Storage = 0.024 acft

Storage Indication method used.



Pond Report

43

Hydratlow Hydrographs by Inlet/Solve v9.1

Thursday, Jun 24, 2021

Pond No. 4 - Prop. AG Basin South 2

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 122.95 ft

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr Storage (acft)	Total storage (acft)
0.00	122.95	13,455	0.000	0.000
0.05	123.00	13,638	0.016	0.016
0.55	123.50	15,475	0.167	0.183

Culvert / Orifice Structures

	[A]	[B]	[C]	[P-R]sr1	Weir Structures	[A]	[B]	[C]	[D]
Rise (ft)	= 0.00	0.00	0.00	0.00	Crest Len (ft)	= 0.00	0.00	25.00	0.00
Span (ft)	= 0.00	0.00	0.00	0.00	Crest El. (ft)	= 0.00	0.00	122.95	0.00
No. Barrels	= 0	0	0	0	Weir Coeff.	= 3.33	3.33	2.60	3.33
Invert El. (ft)	= 0.00	0.00	0.00	0.00	Weir Type	= Broad	Broad	No	No
Length (ft)	= 0.00	0.00	0.00	n/a	Multi-Stage	= No	No	No	No
Slope (%)	= 0.00	0.00	0.00	n/a	EMill (ft/hr)	= 0.000 (by Weir area)			
N-Value	= 0.13	0.13	0.13	n/a	TW Elev. (ft)	= 0.00			
Orifice Coeff.	= n/a	0.60	0.60	0.60					
Multi-Stage	= n/a	No	No	No					

Note: Culvert/Orifice outflows are analyzed under final (R) and outlet (O) control. Weir flows checked for outflow conditions (B) and submergence (S).

Stage / Storage / Discharge Table	Storage acft	Elevation ft	CIV A cfs	CIV B cfs	CIV C cfs	P-R]sr cfs	W-R]A cfs	W-R]B cfs	W-R]C cfs	W-R]D cfs	EMill cfs	User cfs	Total cfs
0.00	0.000	122.95	...	...	...	...	...	...	...	...	...	...	0.00
0.01	0.002	122.96	...	...	...	...	...	...	...	...	...	...	0.02
0.02	0.003	122.96	...	...	...	...	...	...	...	...	...	...	0.06
0.02	0.006	122.97	...	...	...	...	...	...	...	...	...	...	0.12
0.03	0.008	122.98	...	...	...	...	...	...	...	...	...	...	0.18
0.03	0.009	122.98	...	...	...	...	...	...	...	...	...	...	0.26
0.04	0.011	122.99	...	...	...	...	...	...	...	...	...	...	0.34
0.04	0.012	122.99	...	...	...	...	...	...	...	...	...	...	0.43
0.05	0.014	123.00	...	...	...	...	...	...	...	...	...	...	0.52
0.05	0.016	123.00	...	...	...	...	...	...	...	...	...	...	0.75
0.10	0.032	123.05	...	...	...	...	...	...	...	...	...	...	2.06
0.10	0.049	123.10	...	...	...	...	...	...	...	...	...	...	3.78
0.20	0.089	123.20	...	...	...	...	...	...	...	...	...	...	8.13
0.30	0.098	123.25	...	...	...	...	...	...	...	...	...	...	10.68
0.35	0.098	123.30	...	...	...	...	...	...	...	...	...	...	13.46
0.40	0.132	123.35	...	...	...	...	...	...	...	...	...	...	16.45
0.45	0.149	123.40	...	...	...	...	...	...	...	...	...	...	19.62
0.50	0.165	123.45	...	...	...	...	...	...	...	...	...	...	22.98
0.55	0.183	123.50	...	...	...	...	...	...	...	...	...	...	26.51

Hydrograph Summary Report

44

Hydratlow Hydrographs by Inlet/Solve v9.1

Hyd. No.	Hydrograph type (orig/in)	Peak flow (cfs)	Time Interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description
1	SCS Runoff	2,150	5	730	0.310	.....	.....	.....	Prop SA Basin North 1(imp)
2	SCS Runoff	0.038	5	730	0.018	.....	.....	.....	Prop SA Basin North 1 (Per)
3	SCS Runoff	0.975	5	730	0.141	.....	.....	.....	Prop SA Building A North
4	Combine	3,125	5	730	0.469	1, 2, 3	.....	.....	TotaltoBasinNorth1
5	Reservoir	2,830	5	740	0.469	4	127.62	0.040	PropRouteAGBasinNorth1
7	SCS Runoff	2,294	5	730	0.331	.....	.....	.....	Prop SA Basin North 2 (imp)
8	SCS Runoff	0.029	5	730	0.014	.....	.....	.....	Prop SA Basin North 2 (Per)
9	SCS Runoff	0.975	5	730	0.141	.....	.....	.....	Prop SA Building B1 North
10	SCS Runoff	0.975	5	730	0.141	.....	.....	.....	Prop SA Building A South
11	Combine	4,244	5	730	0.625	7, 8, 9, 10	.....	.....	Total To AG Basin North2
12	Reservoir	3,907	5	740	0.625	11	127.63	0.049	PostRouteAGBasinNorth2
14	SCS Runoff	1,147	5	730	0.165	.....	.....	.....	Prop SA Basin South 1 (imp)
15	SCS Runoff	0.127	5	750	0.031	.....	.....	.....	Prop SA Basin South 1 (Per)
16	SCS Runoff	0.975	5	730	0.141	.....	.....	.....	Prop SA Building B2 North
17	SCS Runoff	0.975	5	730	0.141	.....	.....	.....	Prop SA Building B1 South
18	Combine	3,168	5	730	0.477	14, 15, 16, 17	.....	.....	Total To AG Basin South 1
19	Reservoir	2,921	5	740	0.477	18	124.88	0.038	PropRouteAGBasinSouth1
21	SCS Runoff	1,577	5	730	0.227	.....	.....	.....	Prop SA Basin South 2 (imp)
22	SCS Runoff	0.158	5	750	0.038	.....	.....	.....	Prop SA Basin South 2 (Per)
23	SCS Runoff	0.975	5	730	0.141	.....	.....	.....	Prop SA Building B2 South
24	Combine	2,652	5	735	0.406	21, 22, 23	.....	.....	Total To AG Basin South2
25	Reservoir	2,373	5	740	0.406	24	123.06	0.035	PropRouteAGBasinSouth2

ES.gpw

Return Period: 10 Year

Thursday, Jun 24, 2021

Hydrograph Report

Hydratlow Hydrographs by Intelsolve v9.1

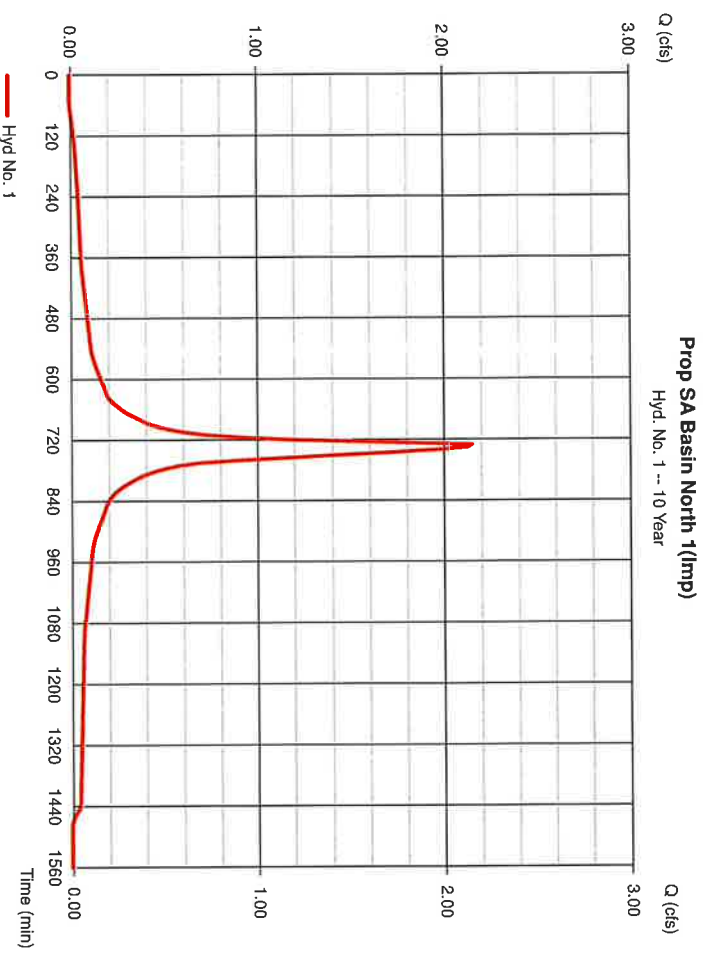
Thursday, Jun 24, 2021

45

Hyd. No. 1

Prop SA Basin North 1(1mp)

Hydrograph type	= SCS Runoff	Peak discharge	= 2.150 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.310 acft
Drainage area	= 0.750 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
To method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydratlow Hydrographs by Intelsolve v9.1

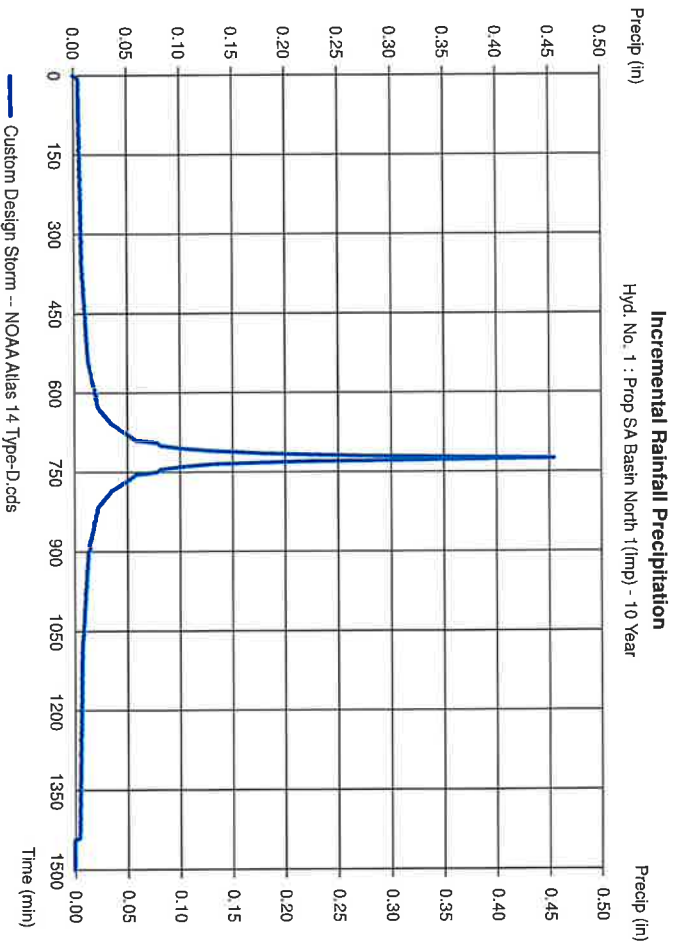
Thursday, Jun 24, 2021

46

Hyd. No. 1

Prop SA Basin North 1(1mp)

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydroflow Hydrographs by Intellisoive v9.1

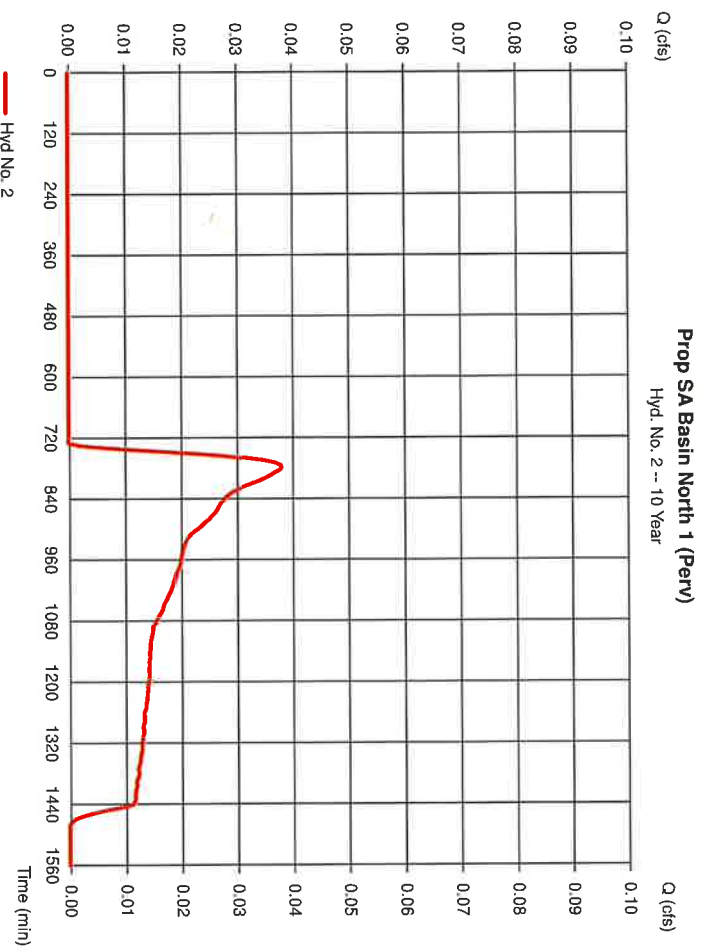
Thursday, Jun 24, 2021

47

Hyd. No. 2

Prop SA Basin North 1 (Perv)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.038 cfs
Storm frequency	= 10 yrs	Time to peak	= 780 min
Time interval	= 5 min	Hyd. volume	= 0.018 acft
Drainage area	= 0.880 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
To method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydroflow Hydrographs by Intellisoive v9.1

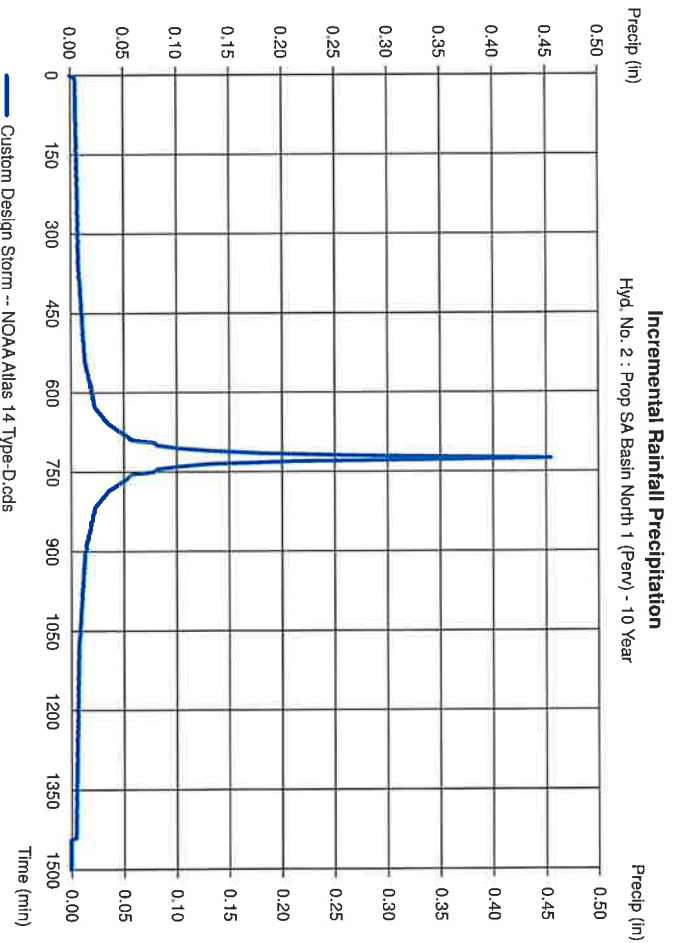
Thursday, Jun 24, 2021

48

Hyd. No. 2

Prop SA Basin North 1 (Perv)

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

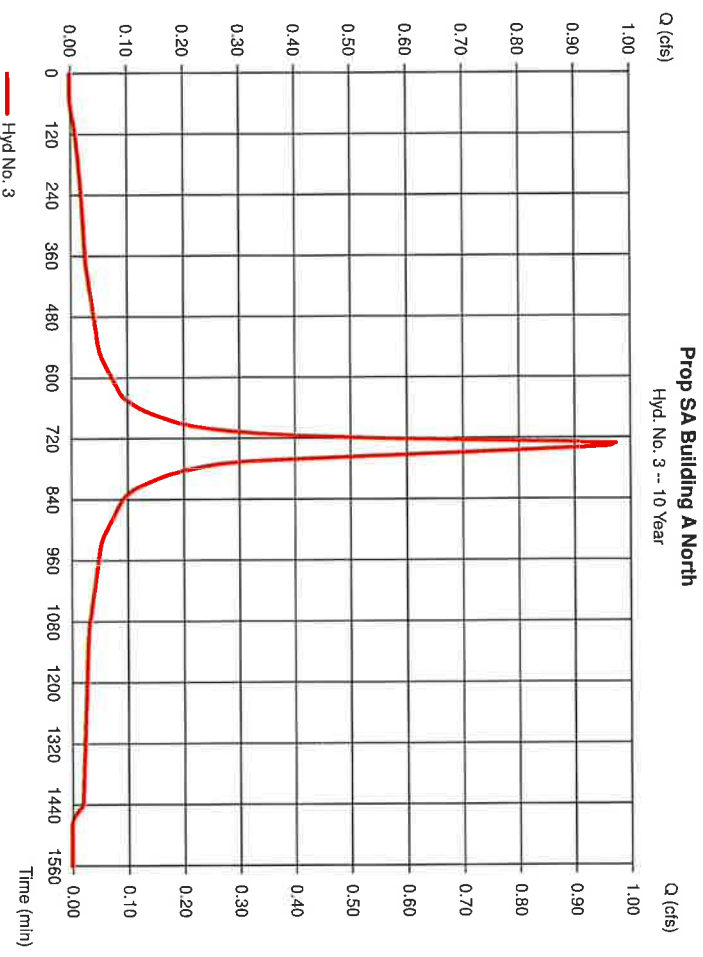
Hydratlow Hydrographs by Intelsolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 3

Prop SA Building A North

Hydrograph type	= SCS Runoff	Peak discharge	= 0.975 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.141 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

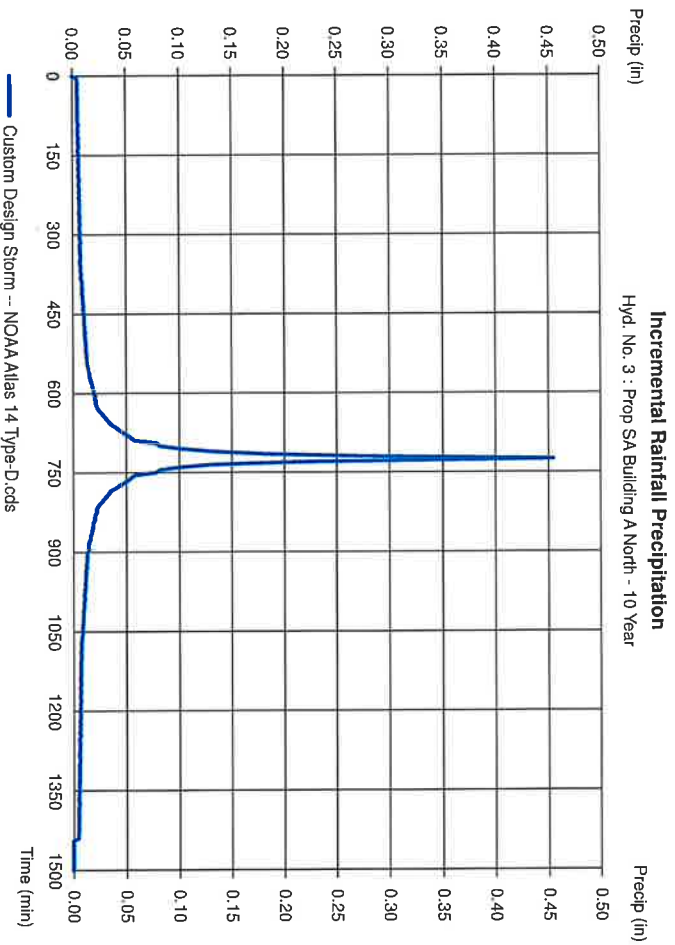
Hydratlow Hydrographs by Intelsolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 3

Prop SA Building A North

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydralow Hydrographs by Intellisoive v9.1

Thursday, Jun 24, 2021

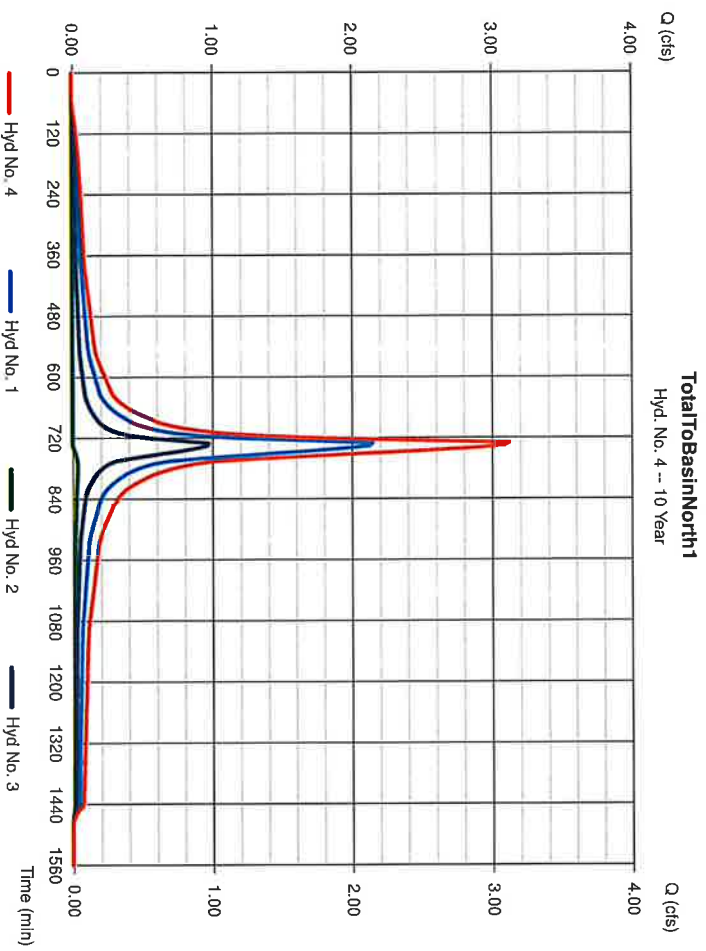
51

Hyd. No. 4

TotalToBasinNorth1

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyds. = 1, 2, 3

Peak discharge = 3.125 cfs
 Time to peak = 730 min
 Hyd. volume = 0.469 acft
 Contrib. drain. area = 1.970 ac



Hydrograph Report

Hydralow Hydrographs by Intellisoive v9.1

Thursday, Jun 24, 2021

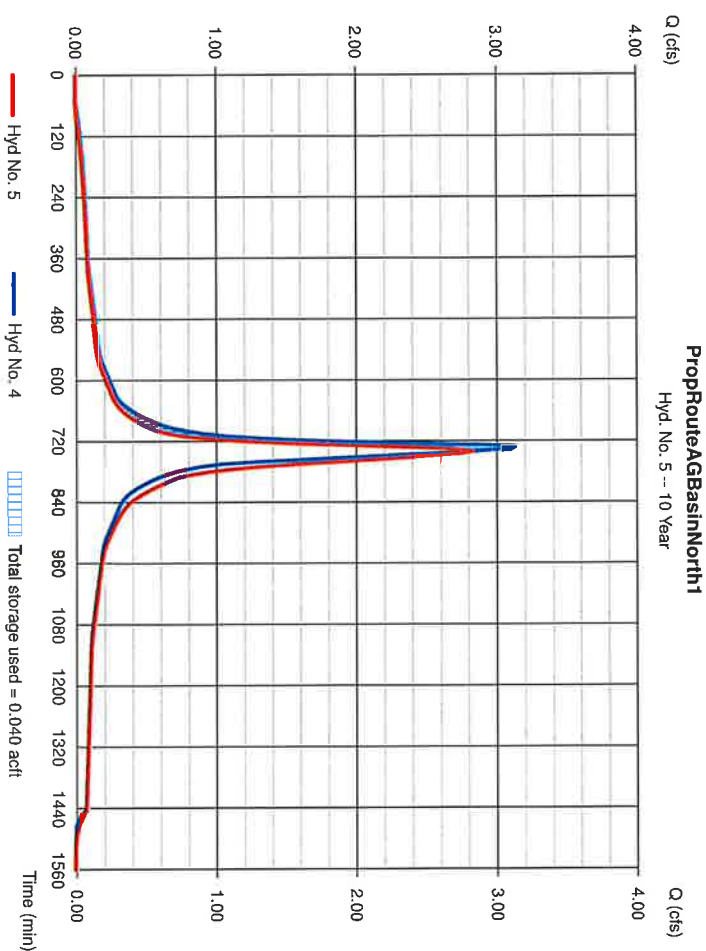
52

Hyd. No. 5

PropRouteAGBasinNorth1

Hydrograph type = Reservoir
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyd. No. = 4 - TotalToBasinNorth1
 Reservoir name = Prop AG Basin North 1

Peak discharge = 2.830 cfs
 Time to peak = 740 min
 Hyd. volume = 0.469 acft
 Max. Elevation = 127.62 ft
 Max. Storage = 0.040 acft



Storage indication method used.

Hydrograph Report

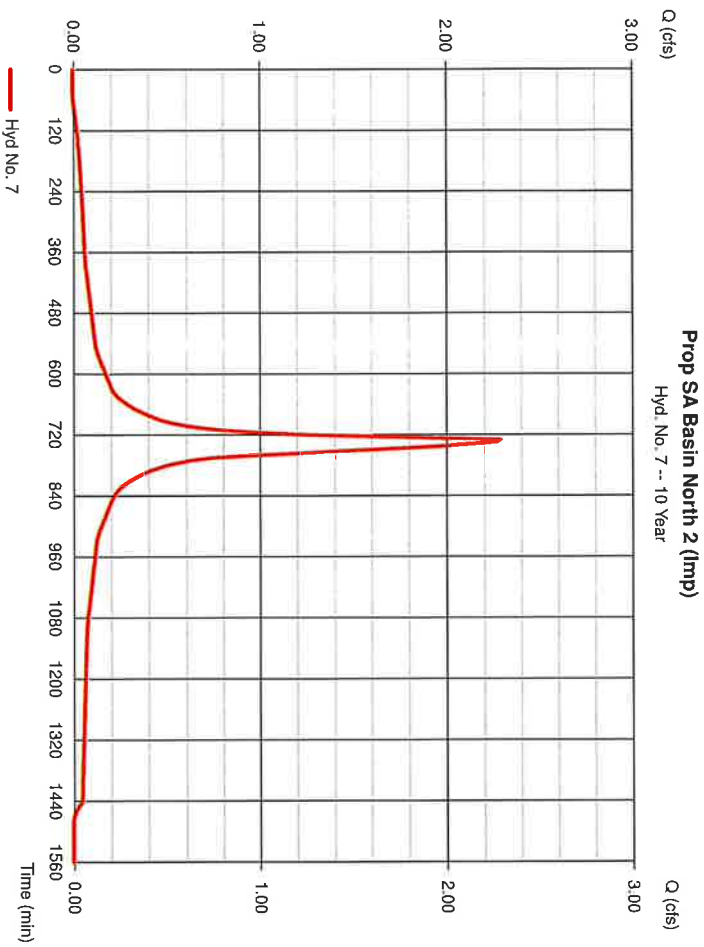
Hydrowell Hydrographs by IntelliSolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 7

Prop SA Basin North 2 (Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 2,294 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.331 acft
Drainage area	= 0.800 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

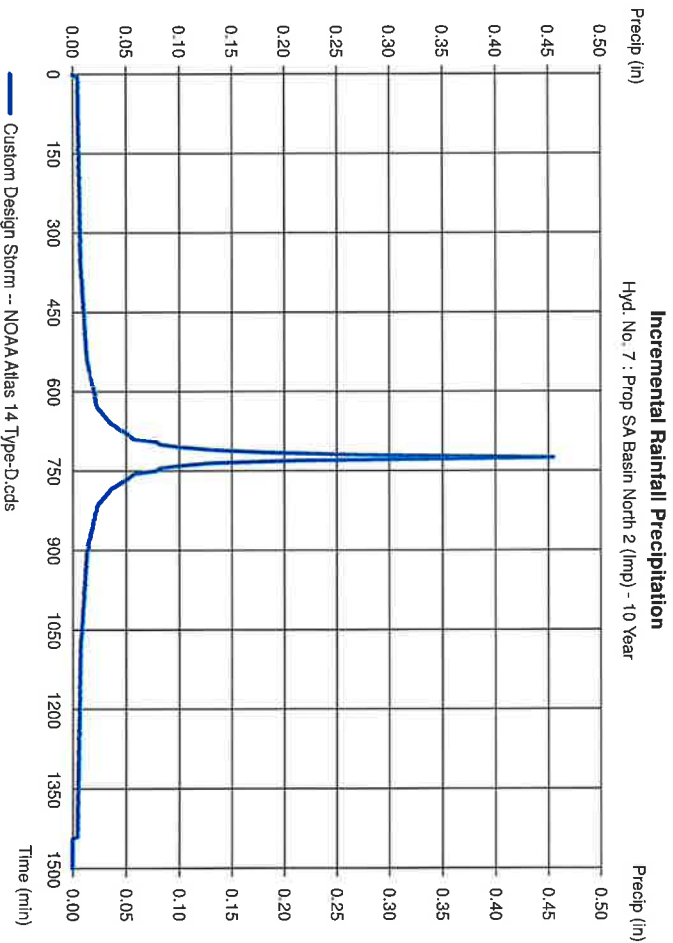
Hydrowell Hydrographs by IntelliSolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 7

Prop SA Basin North 2 (Imp)

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydroware Hydrographs by Intellisoive v9.1

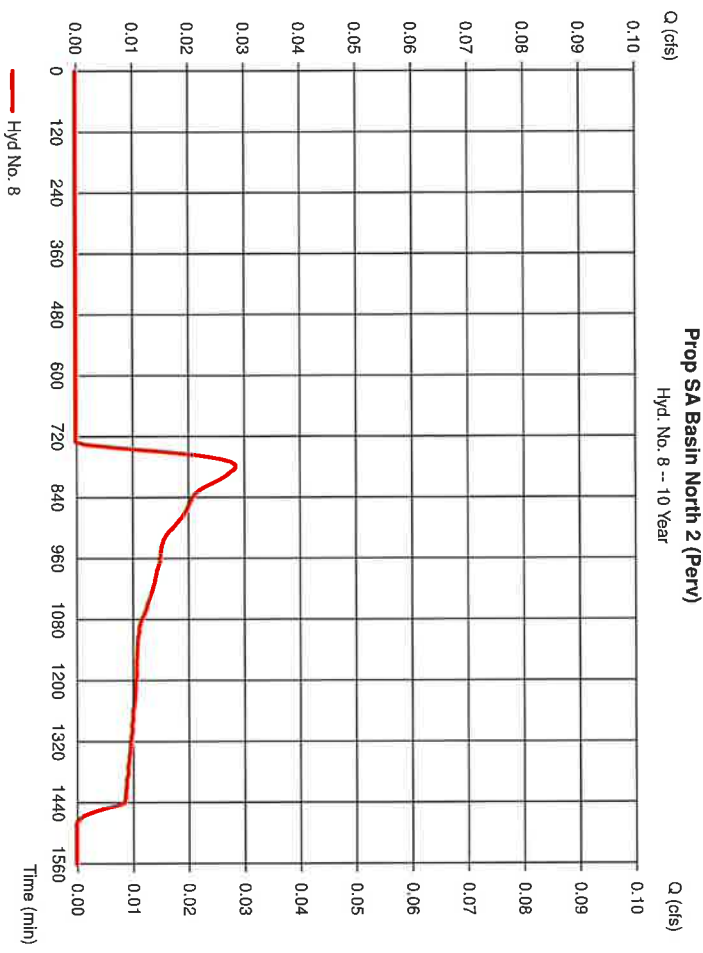
Thursday, Jun 24, 2021

55

Hyd. No. 8

Prop SA Basin North 2 (Perv)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.029 cfs
Storm frequency	= 10 yrs	Time to peak	= 780 min
Time interval	= 5 min	Hyd. volume	= 0.014 acft
Drainage area	= 0.660 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydroware Hydrographs by Intellisoive v8.1

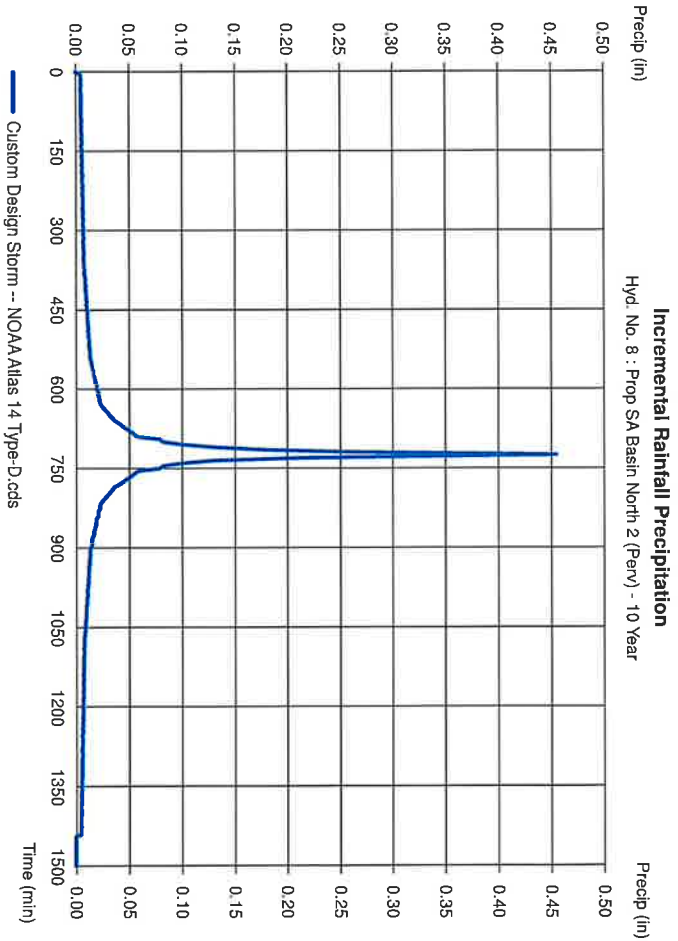
Thursday, Jun 24, 2021

56

Hyd. No. 8

Prop SA Basin North 2 (Perv)

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydrow Hydrographs by Intelsolve v9.1

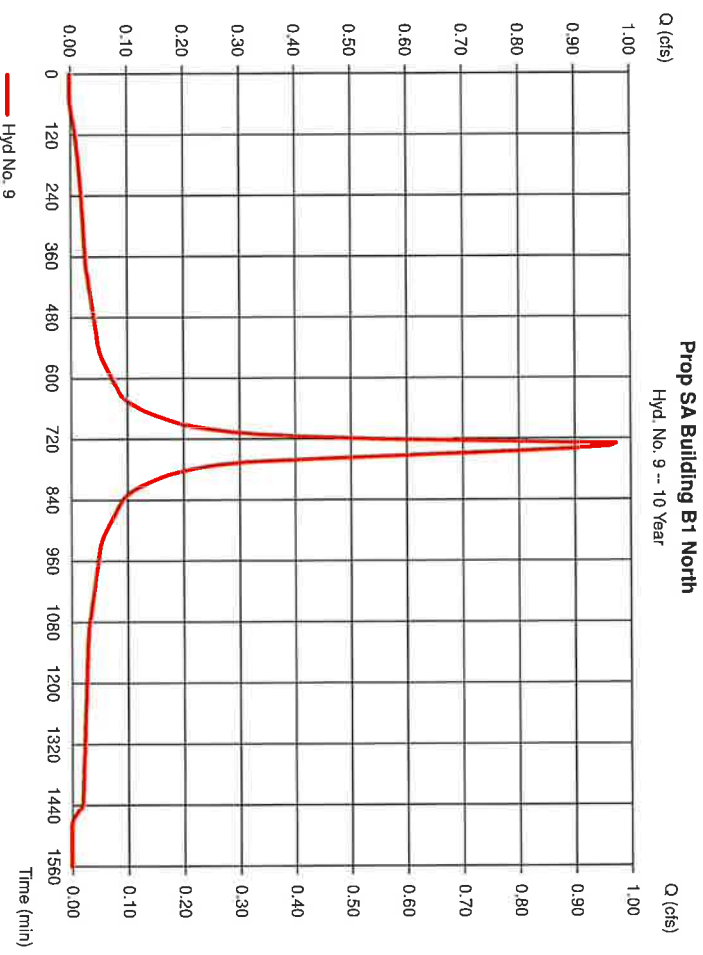
Thursday, Jun 24, 2021

57

Hyd. No. 9

Prop SA Building B1 North

Hydrograph type	= SCS Runoff	Peak discharge	= 0.975 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.141 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
To method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydrow Hydrographs by Intelsolve v9.1

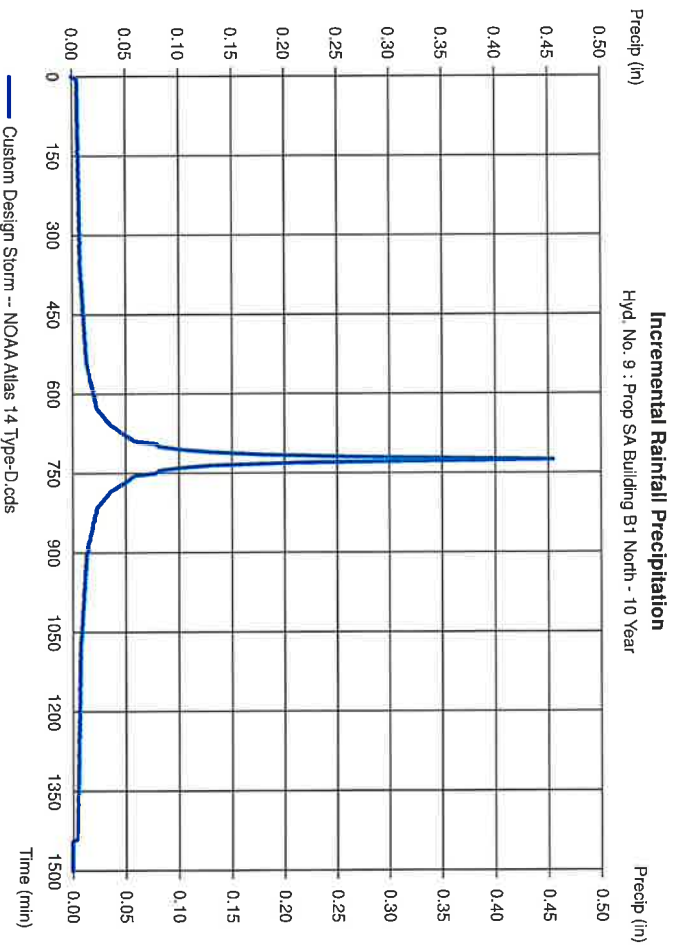
Thursday, Jun 24, 2021

58

Hyd. No. 9

Prop SA Building B1 North

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

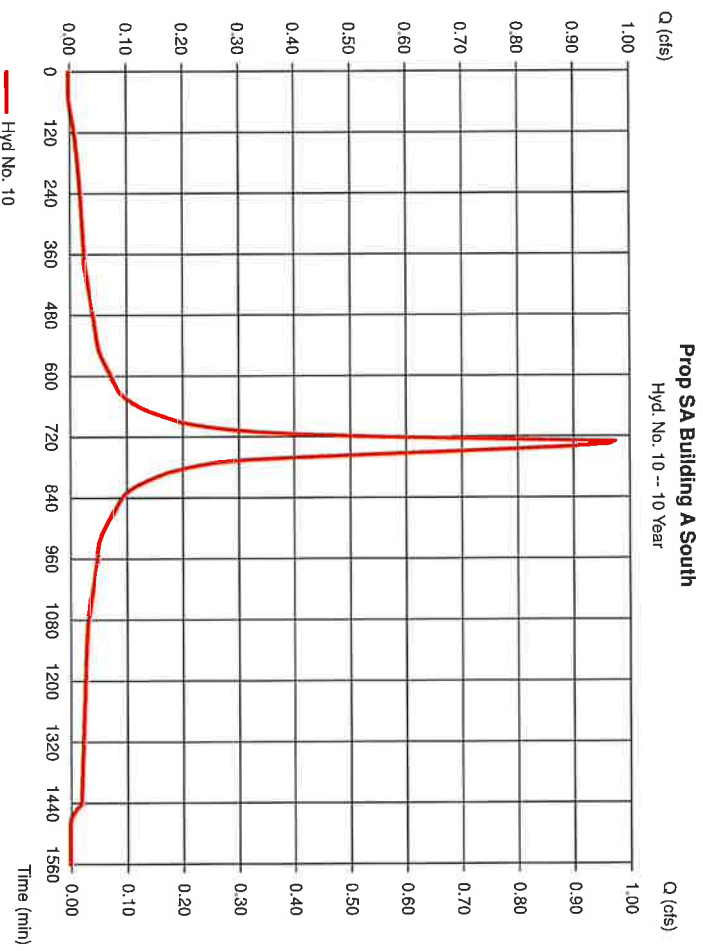
Hydrowell Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 10

Prop SA Building A South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.975 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.141 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

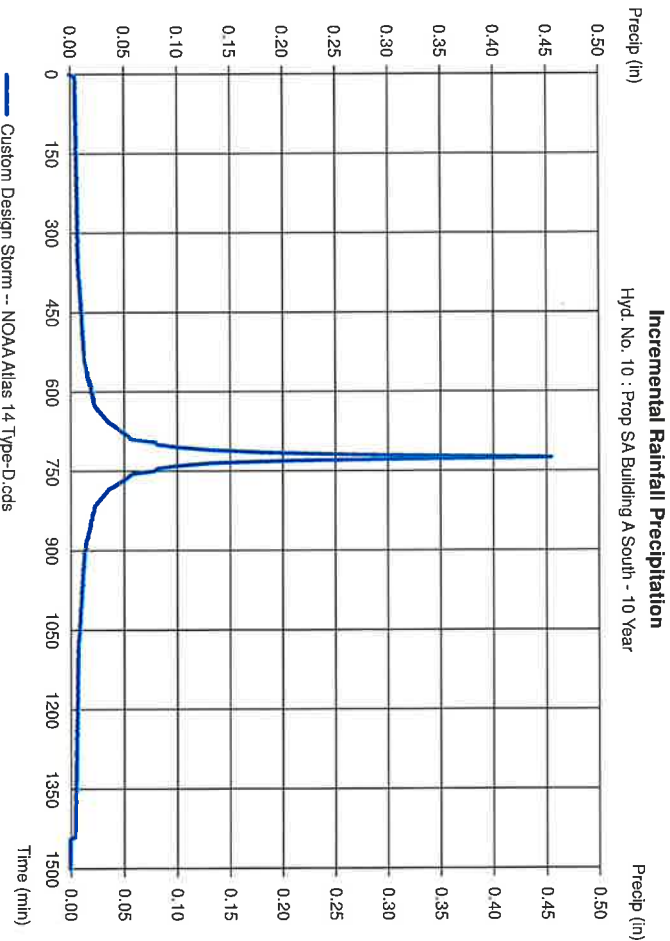
Hydrowell Hydrographs by Intellisolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 10

Prop SA Building A South

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydrarlow Hydrographs by Intellecive v9.1

Thursday, Jun 24, 2021

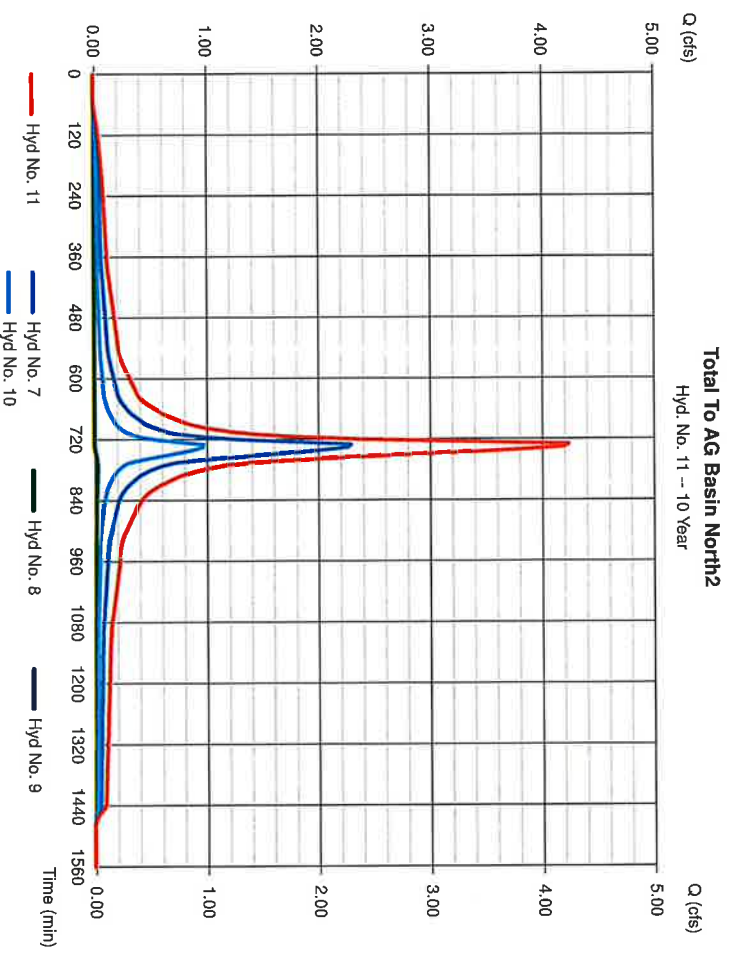
61

Hyd. No. 11

Total To AG Basin North2

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyds. = 7, 8, 9, 10

Peak discharge = 4.244 cfs
 Time to peak = 730 min
 Hyd. volume = 0.625 acft
 Contrib. drain. area = 2.140 ac



Hydrograph Report

Hydrarlow Hydrographs by Intellecive v9.1

Thursday, Jun 24, 2021

62

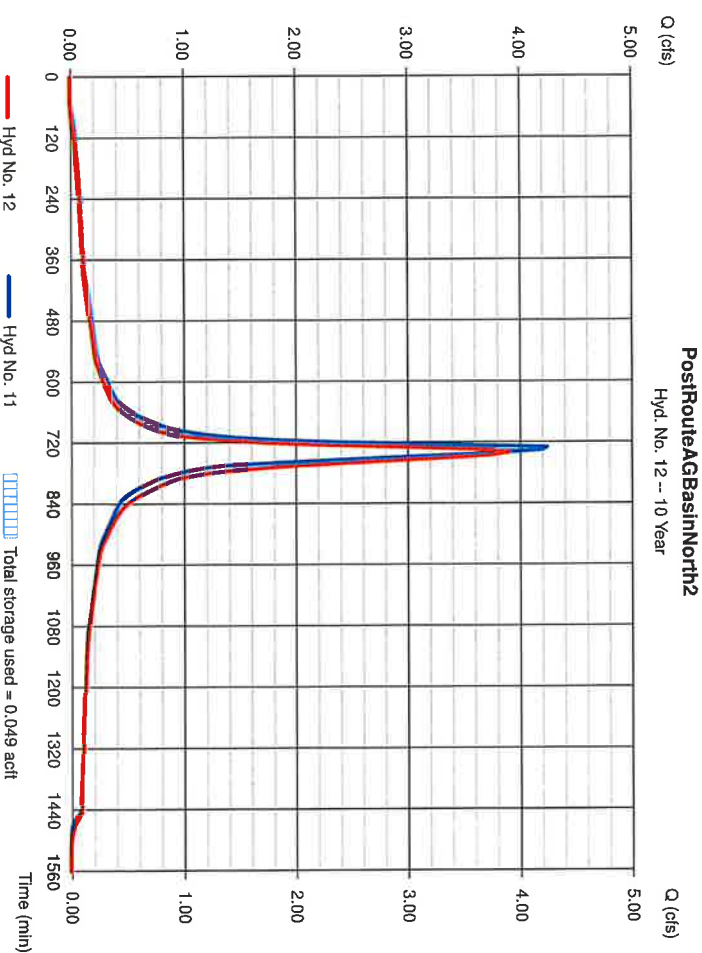
Hyd. No. 12

PostRouteAGBasinNorth2

Hydrograph type = Reservoir
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyd. No. = 11 - Total To AG Basin North2
 Reservoir name = Prop. AG Basin North 2

Peak discharge = 3.907 cfs
 Time to peak = 740 min
 Hyd. volume = 0.625 acft
 Max. Elevation = 127.63 ft
 Max. Storage = 0.049 acft

Storage indication method used.



Hydrograph Report

Hydrowell Hydrographs by Intellisolve v9.1

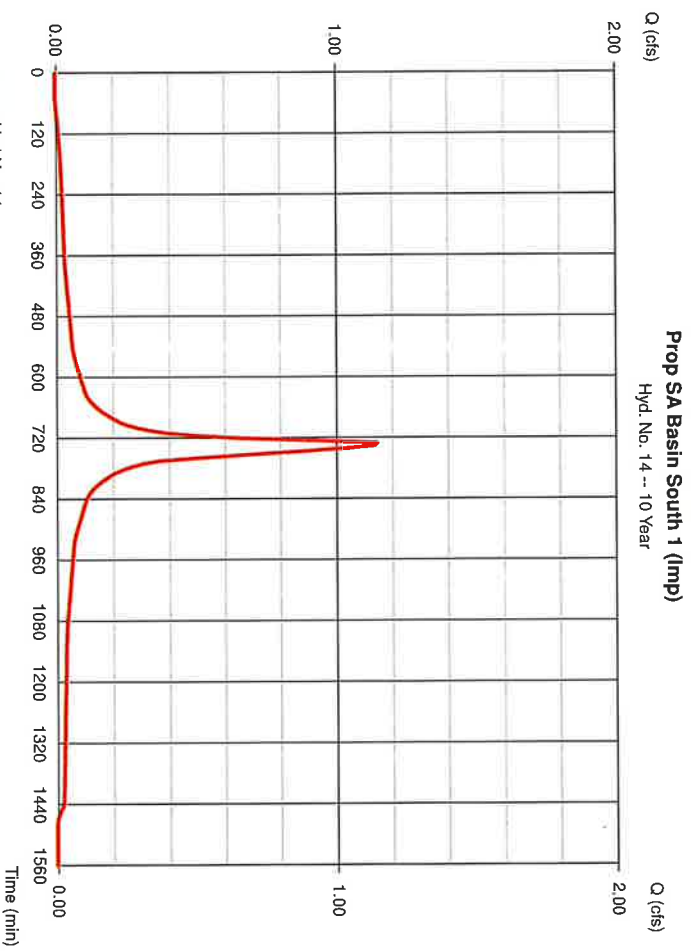
Thursday, Jun 24, 2021

63

Hyd. No. 14

Prop SA Basin South 1 (imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 1.147 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.165 acft
Drainage area	= 0.400 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydrowell Hydrographs by Intellisolve v9.1

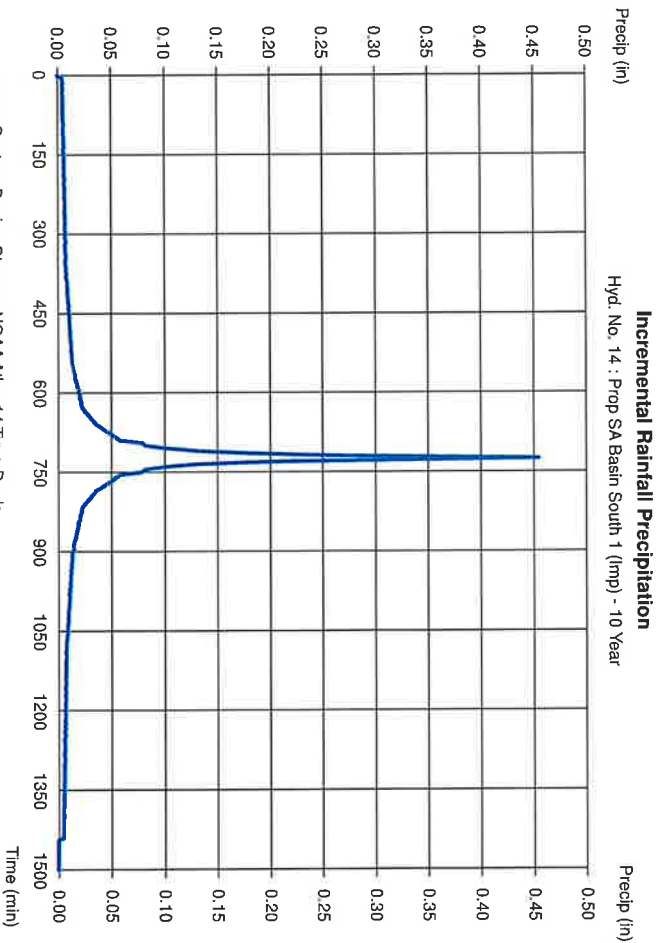
Thursday, Jun 24, 2021

64

Hyd. No. 14

Prop SA Basin South 1 (imp)

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydrow Hydrographs by Intelseive v9.1

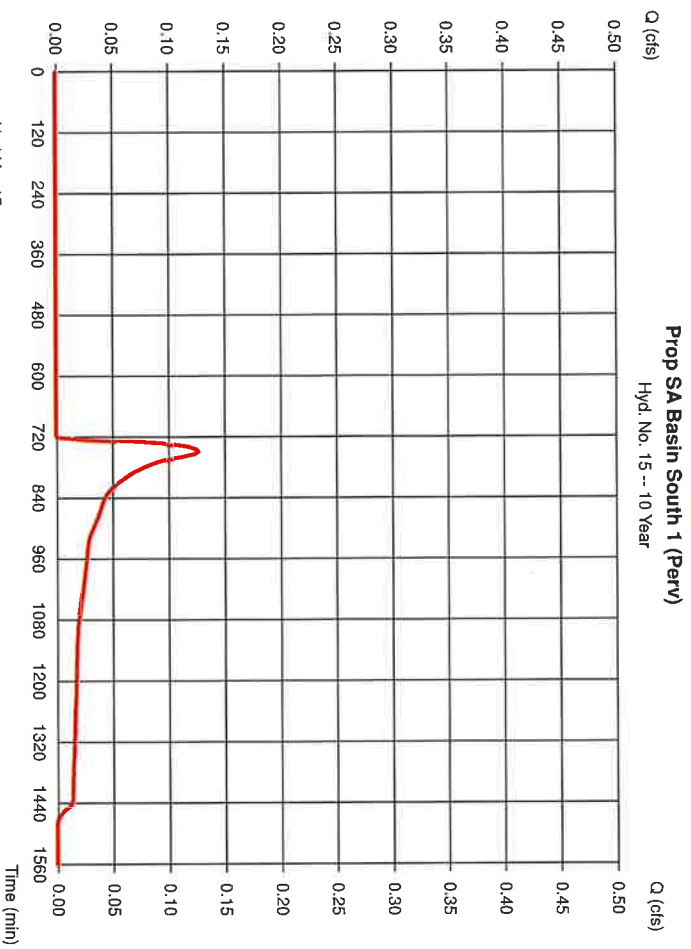
Thursday, Jun 24, 2021

65

Hyd. No. 15

Prop SA Basin South 1 (Perv)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.127 cfs
Storm frequency	= 10 yrs	Time to peak	= 750 min
Time interval	= 5 min	Hyd. volume	= 0.031 acft
Drainage area	= 0.650 ac	Curve number	= 46
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
To method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydrow Hydrographs by Intelseive v9.1

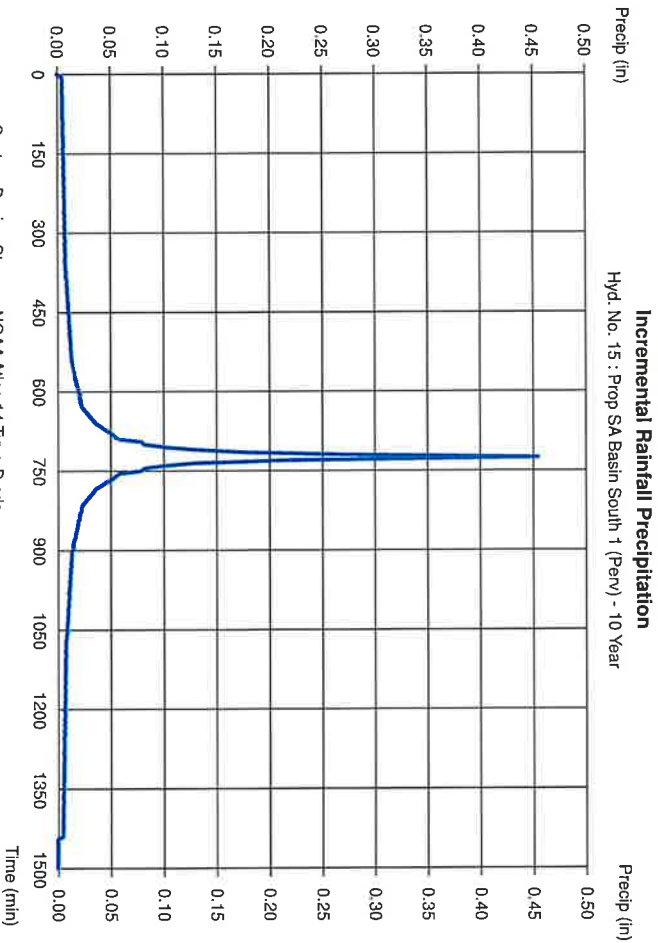
Thursday, Jun 24, 2021

66

Hyd. No. 15

Prop SA Basin South 1 (Perv)

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydroflow Hydrographs by Intelsolve v9.1

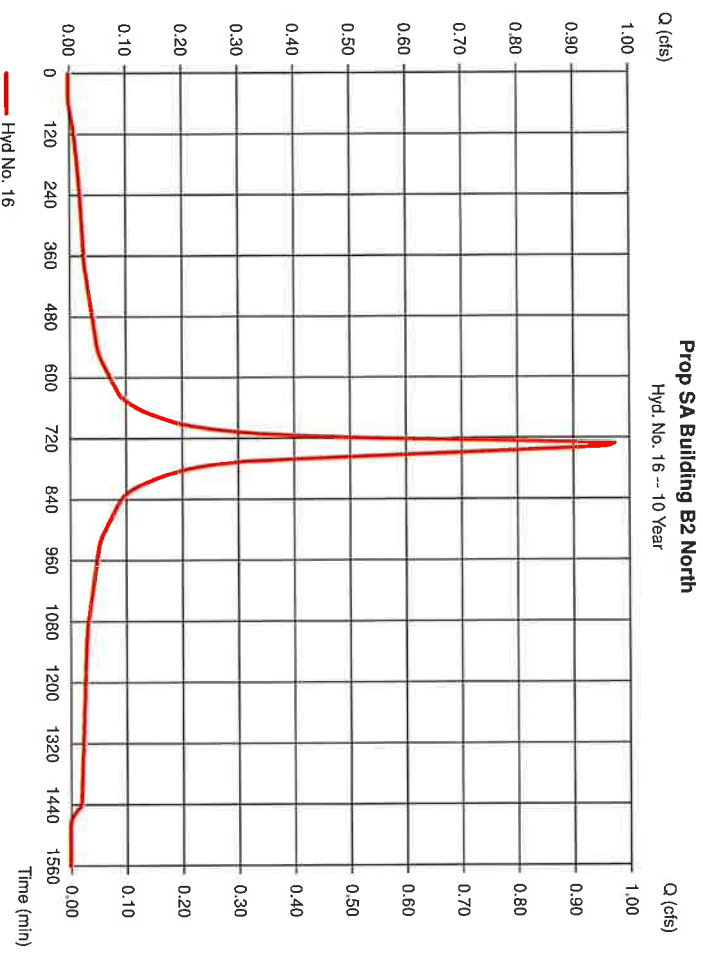
Thursday, Jun 24, 2021

67

Hyd. No. 16

Prop SA Building B2 North

Hydrograph type	= SCS Runoff	Peak discharge	= 0.975 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.141 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
To method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydroflow Hydrographs by Intelsolve v9.1

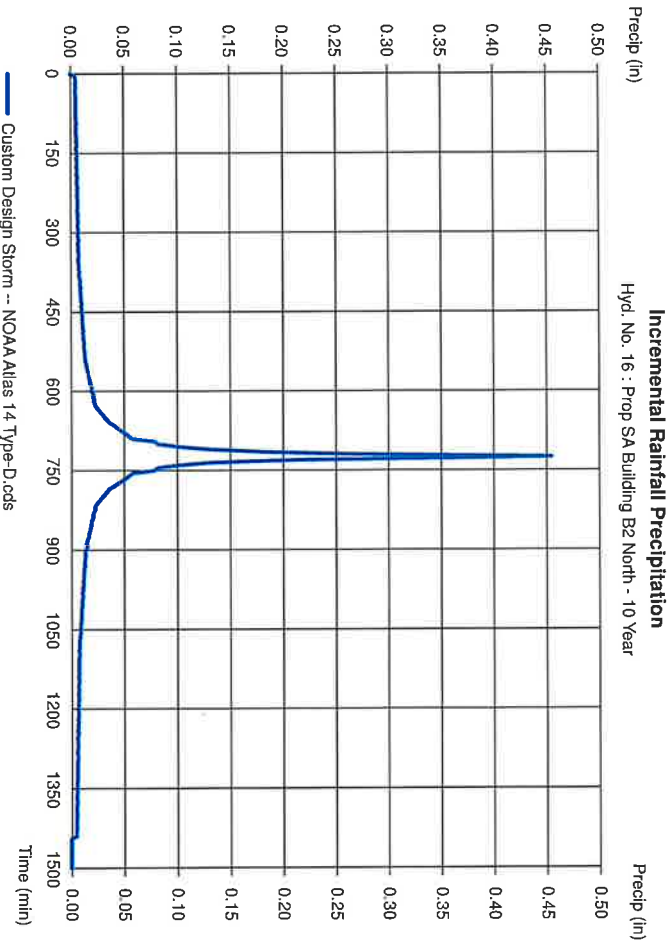
Thursday, Jun 24, 2021

68

Hyd. No. 16

Prop SA Building B2 North

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydralow Hydrographs by Intellisoive v3.1

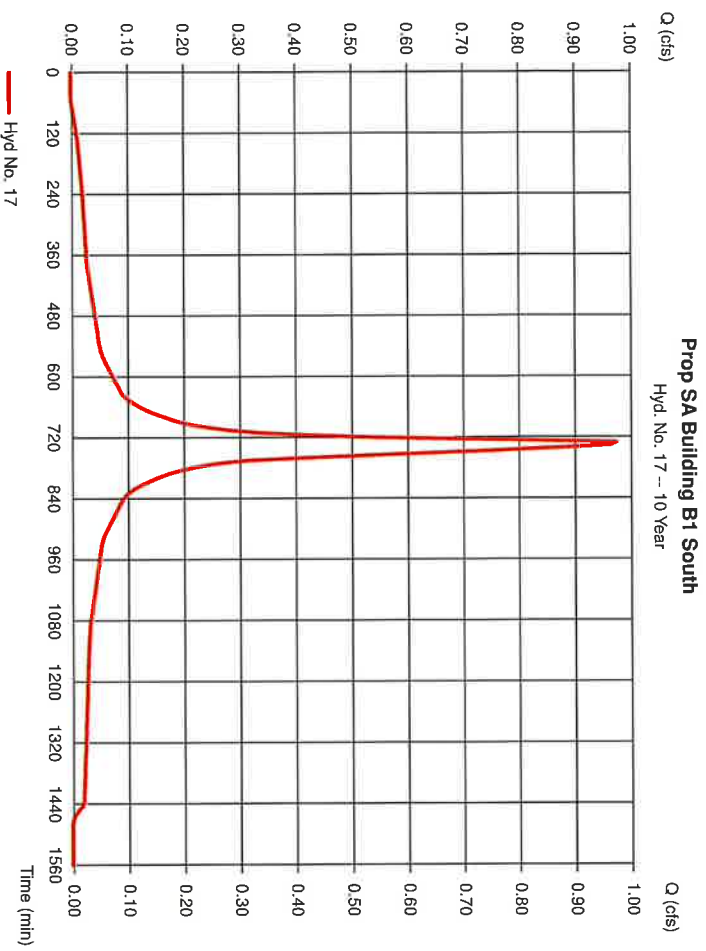
Thursday, Jun 24, 2021

69

Hyd. No. 17

Prop SA Building B1 South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.975 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.141 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydralow Hydrographs by Intellisoive v3.1

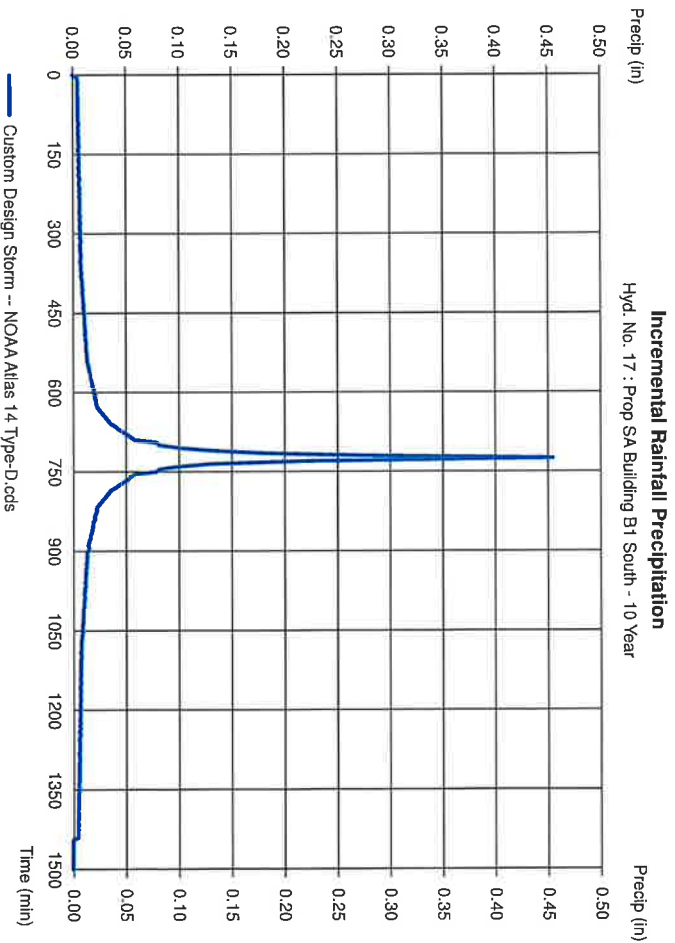
Thursday, Jun 24, 2021

70

Hyd. No. 17

Prop SA Building B1 South

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

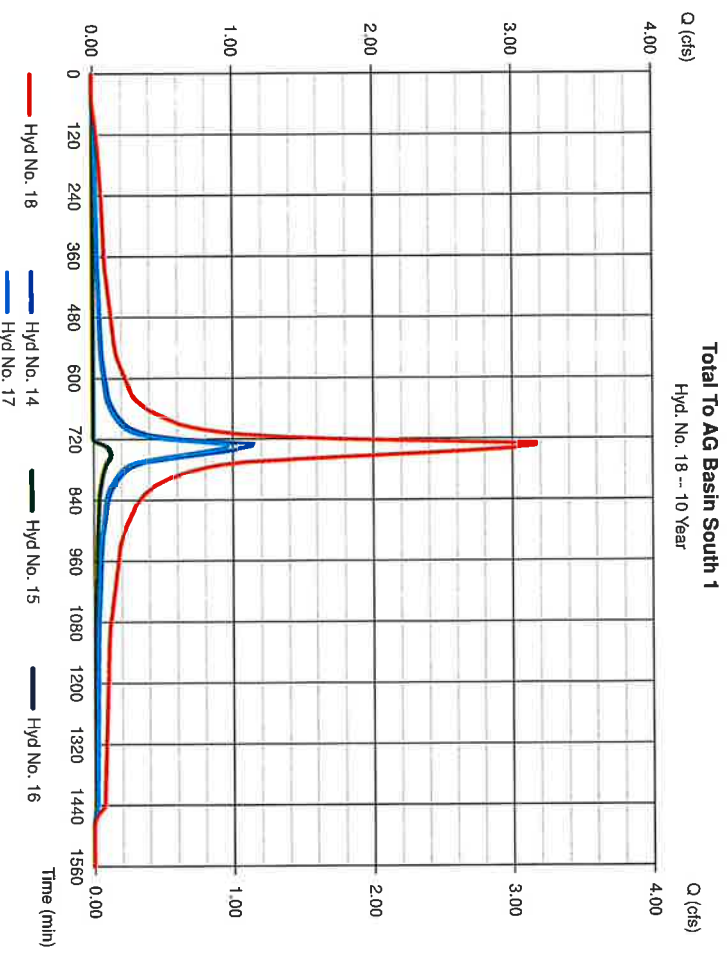
Thursday, Jun 24, 2021

71

Hyd. No. 18

Total To AG Basin South 1

Hydrograph type	= Combine	Peak discharge	= 3.168 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.477 acft
Inflow hyds.	= 14, 15, 16, 17	Contrib. drain. area	= 1.730 ac



Hydrograph Report

Hydratlow Hydrographs by Intellisolve v9.1

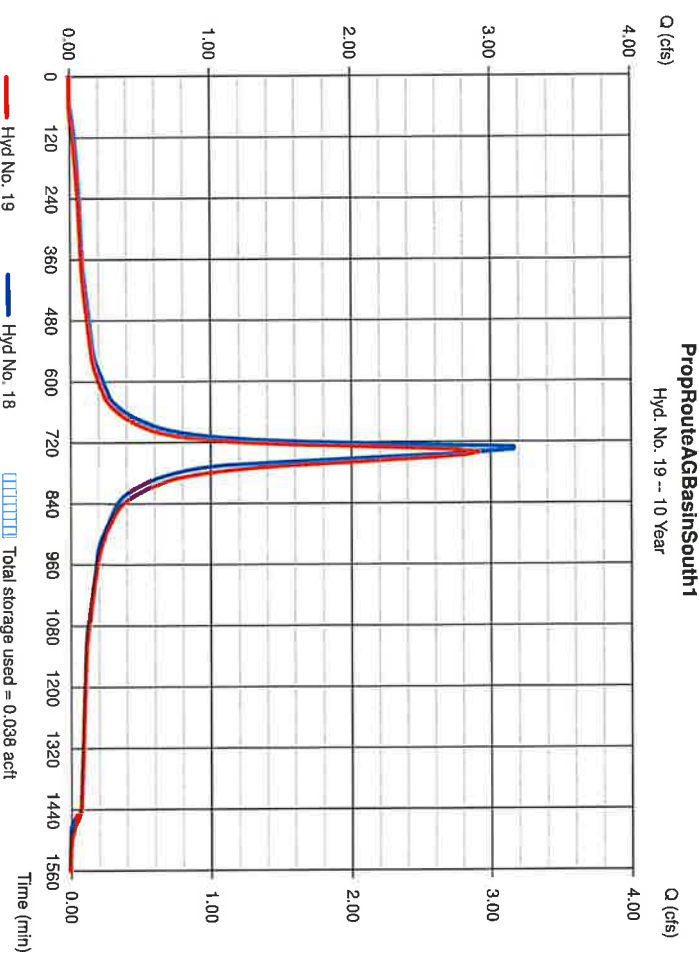
Thursday, Jun 24, 2021

72

Hyd. No. 19

PropRouteAGBasinSouth1

Hydrograph type	= Reservoir	Peak discharge	= 2.921 cfs
Storm frequency	= 10 yrs	Time to peak	= 740 min
Time interval	= 5 min	Hyd. volume	= 0.477 acft
Inflow hyd. No.	= 18 - Total To AG Basin South 1	Max. Elevation	= 124.88 ft
Reservoir name	= Prop AG Basin South 1	Max. Storage	= 0.038 acft



Storage indication method used.

Hydrograph Report

Hydralow Hydrographs by Intelliscive v9.1

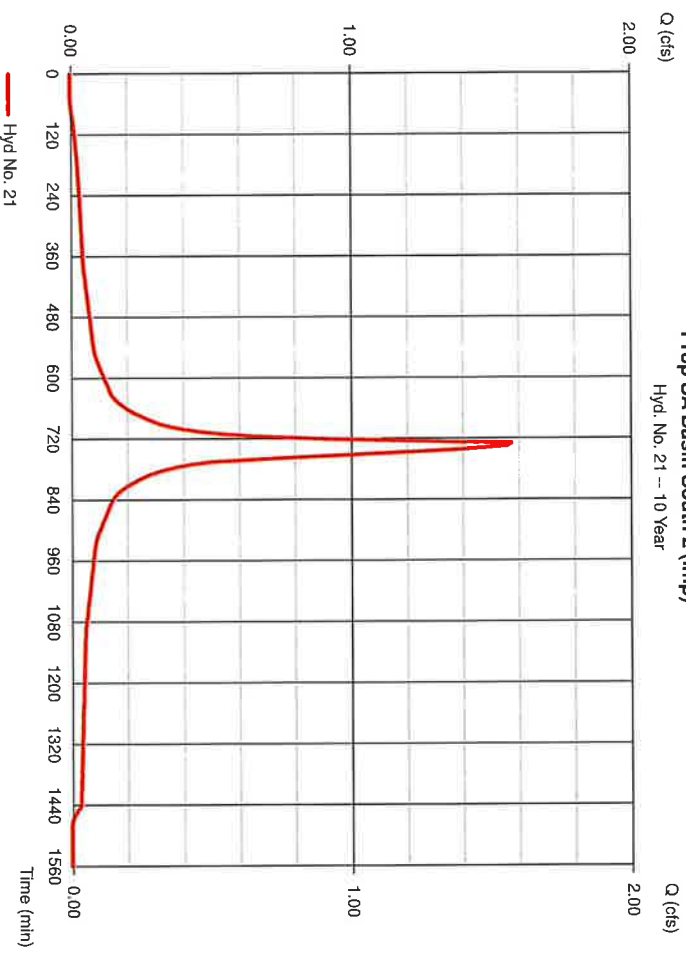
Thursday, Jun 24, 2021

73

Hyd. No. 21

Prop SA Basin South 2 (Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 1.577 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.227 acft
Drainage area	= 0.550 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydralow Hydrographs by Intelliscive v9.1

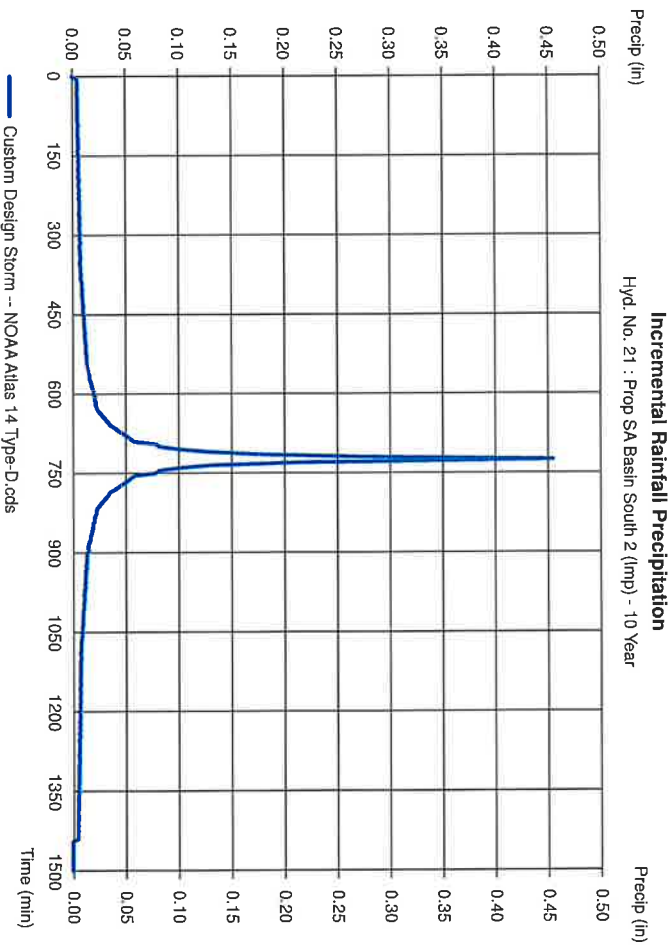
Thursday, Jun 24, 2021

74

Hyd. No. 21

Prop SA Basin South 2 (Imp)

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

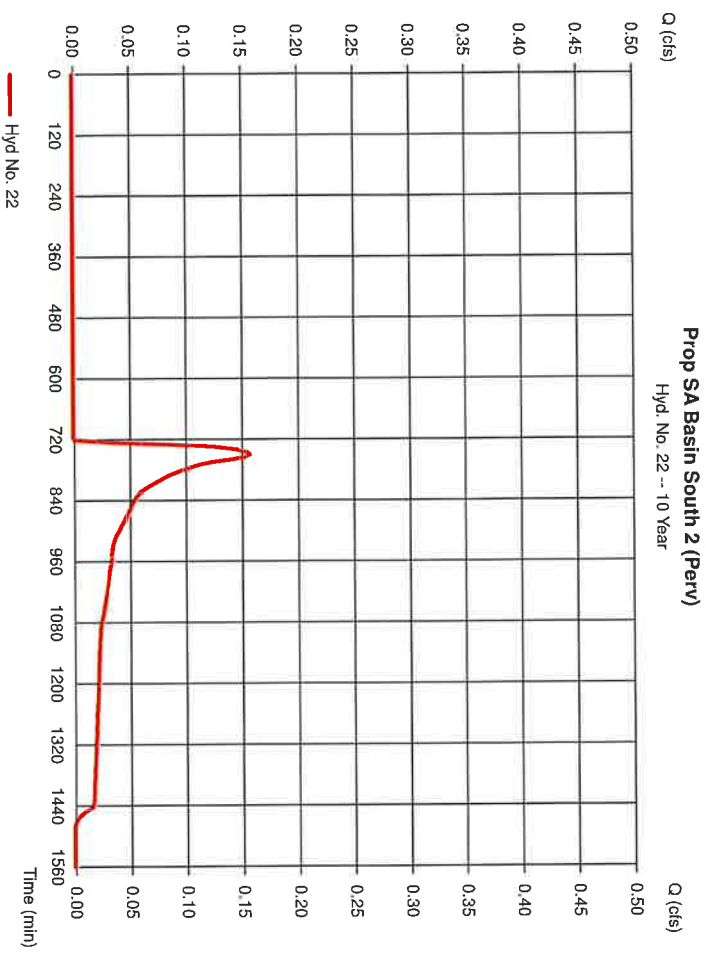
Hydratlow Hydrographs by InletSolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 22

Prop SA Basin South 2 (Perv)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.158 cfs
Storm frequency	= 10 yrs	Time to peak	= 750 min
Time interval	= 5 min	Hyd. volume	= 0.036 acft
Drainage area	= 0.810 ac	Curve number	= 46
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

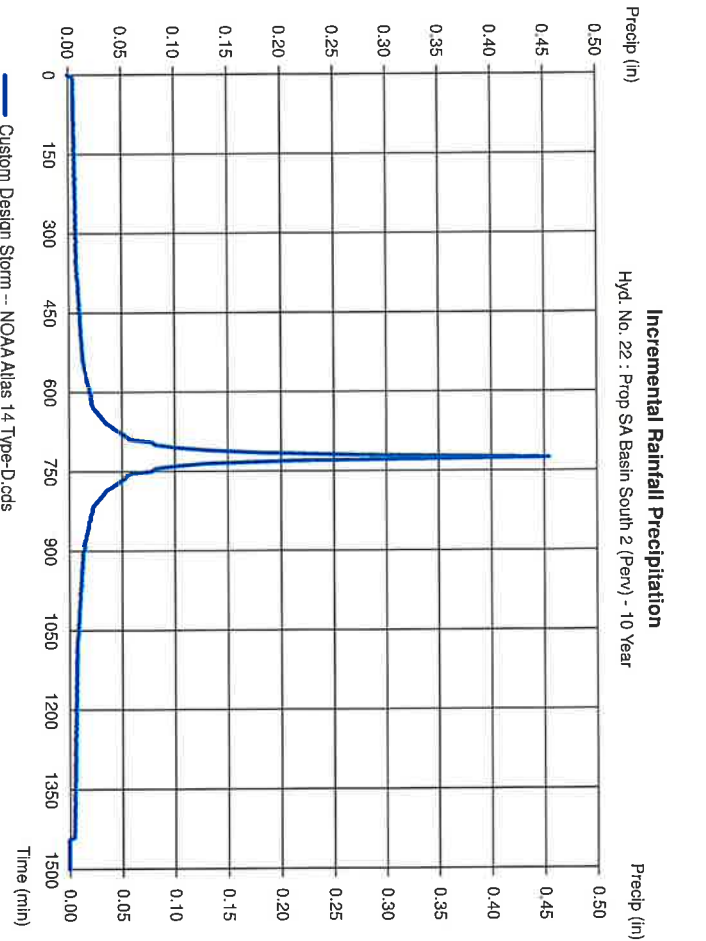
Hydratlow Hydrographs by InletSolve v9.1

Thursday, Jun 24, 2021

Hyd. No. 22

Prop SA Basin South 2 (Perv)

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydratlon Hydrographs by Intellisoive v9.1

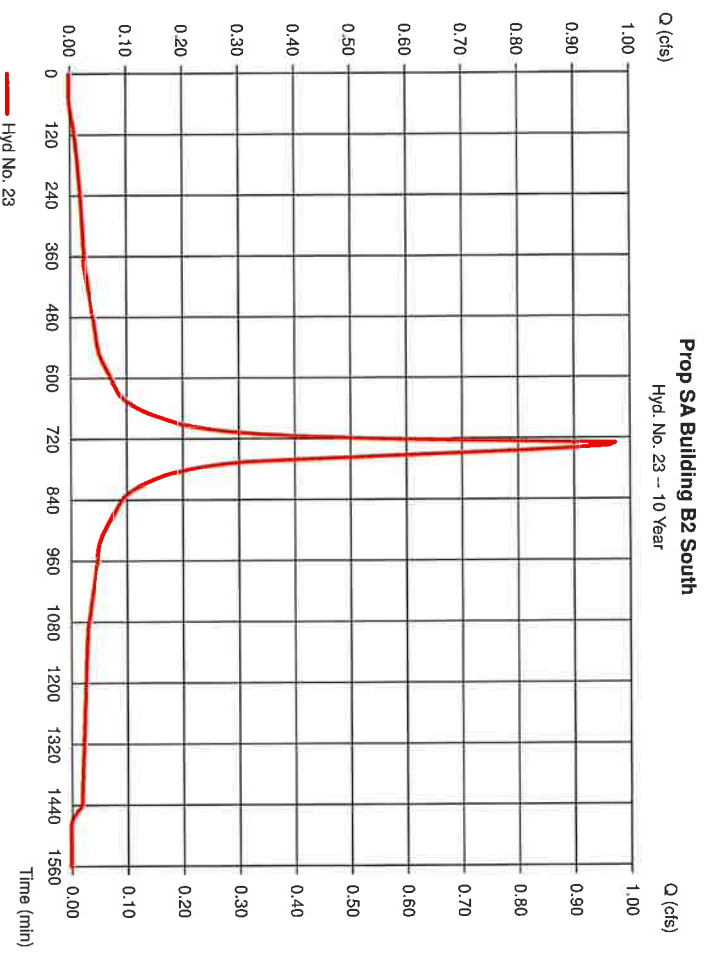
Thursday, Jun 24, 2021

77

Hyd. No. 23

Prop SA Building B2 South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.975 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 0.141 acft
Drainage area	= 0.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
To method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.23 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds	Shape factor	= 285



Precipitation Report

Hydratlon Hydrographs by Intellisoive v9.1

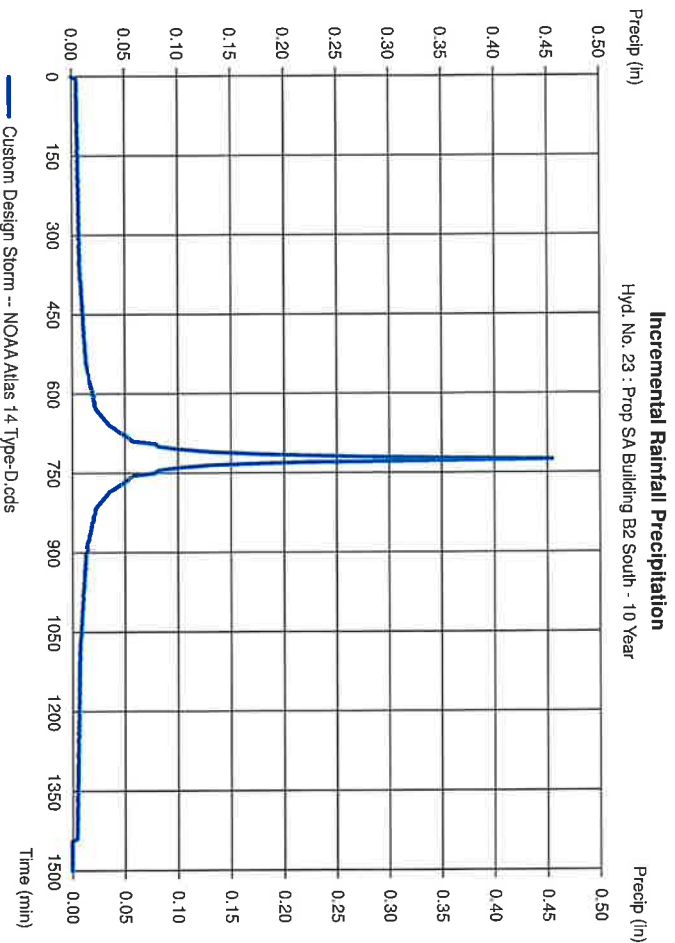
Thursday, Jun 24, 2021

78

Hyd. No. 23

Prop SA Building B2 South

Storm Frequency	= 10 yrs	Time interval	= 5 min
Total precip.	= 5.2300 in	Distribution	= Custom
Storm duration	= NOAA Atlas 14 Type-D.cds		



Hydrograph Report

Hydratlow Hydrographs by Intellisoive v9.1

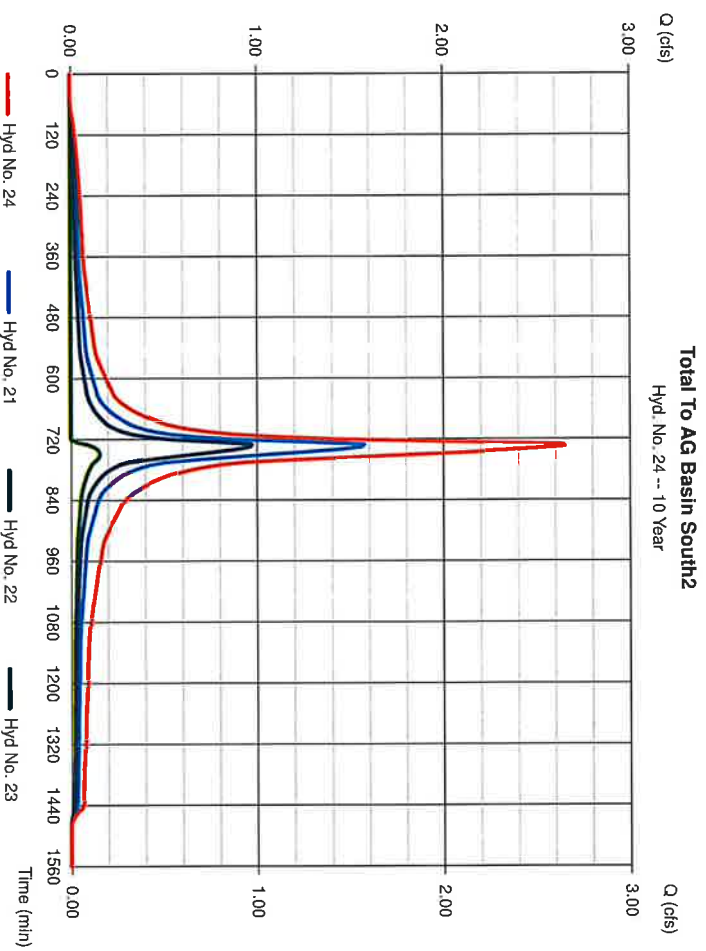
Thursday, Jun 24, 2021

Hyd. No. 24

Total To AG Basin South2

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyds. = 21, 22, 23

Peak discharge = 2.652 cfs
 Time to peak = 735 min
 Hyd. volume = 0.406 acft
 Contrib. drain. area = 1.700 ac



Hydrograph Report

Hydratlow Hydrographs by Intellisoive v9.1

Thursday, Jun 24, 2021

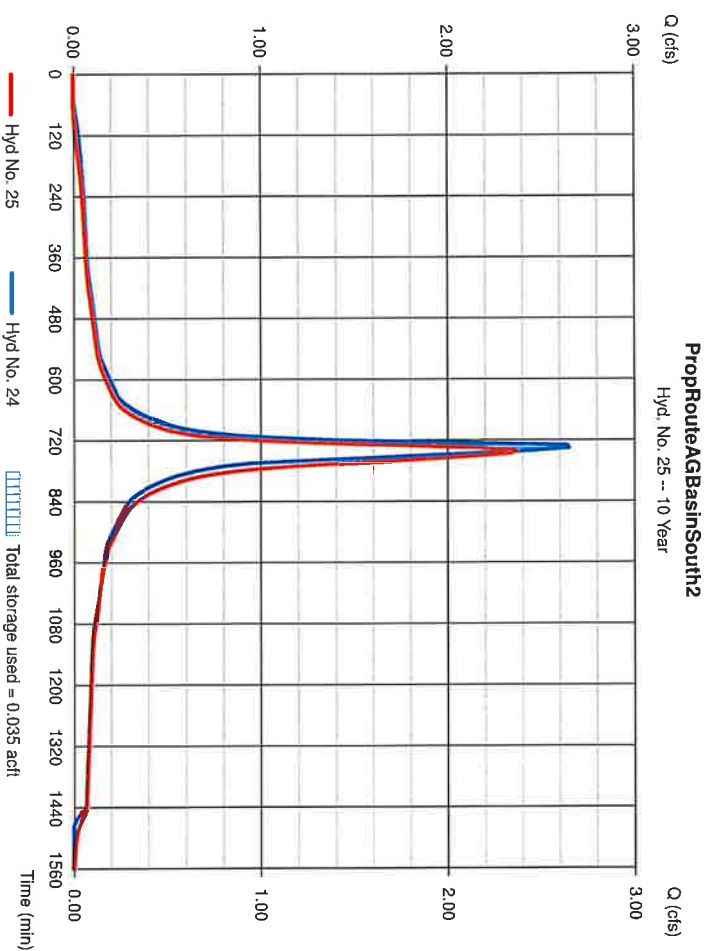
Hyd. No. 25

PropRouteAGBasinSouth2

Hydrograph type = Reservoir
 Storm frequency = 10 yrs
 Time interval = 5 min
 Inflow hyd. No. = 24 - Total To AG Basin South2
 Reservoir name = Prop. AG Basin South 2

Peak discharge = 2.373 cfs
 Time to peak = 740 min
 Hyd. volume = 0.406 acft
 Max. Elevation = 123.06 ft
 Max. Storage = 0.035 acft

Storage indication method used:



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Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)				
	B	D	E	(N/A)	
1	0.0000	0.0000	0.0000		
2	69.6709	13.1000	0.8658		
3	0.0000	0.0000	0.0000		
5	79.2597	14.6000	0.8369		
10	88.2351	15.5000	0.8279		
25	102.6072	16.5000	0.8217		
50	114.6193	17.2000	0.8199		
100	127.1596	17.8000	0.8186		

File name: SampleFHA.rtf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)														
	5 min	10	15	20	25	30	35	40	45	50	55	60	65	70	75
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70	1.60	1.50	1.40
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15	2.04	1.93	1.82
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46	2.34	2.22	2.10
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91	2.77	2.63	2.49
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25	3.09	2.94	2.78
100	9.63	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60	3.42	3.25	3.08

Tc = time in minutes. Values may exceed 60.

Precip. file name: Monmouth County.rpt

Storm Distribution	Rainfall Precipitation Table (in)									
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	200-yr	500-yr
SCS 24-hour	0.00	3.38	0.00	0.00	5.23	6.53	0.00	8.94	0.00	0.00
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	1.25	3.38	0.00	0.00	5.23	6.53	0.00	8.94	0.00	0.00

Watershed Model Schematic 1

Hydrograph Return Period Recap 2

2 - Year

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Hydrograph No. 25, Reservoir, PropRouteAGBasinSouth2 25

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10 - Year

**STORMWATER COLLECTION SYSTEM
CALCULATIONS (PIPE SIZING)**



Inlet Area Summary and Average Coefficient (C) Calculations

Project: Proposed Self-Storage Facility
 Job #: 3724-99-001
 Location: Marlboro

Computed By: TJB
 Checked By: RDM
 Date: 6/14/2021

Drainage Area	Impervious Area (sf)	Coefficient (C) Used	Open Space (SF)	Coefficient (C) Used	Average Coefficient (C) Used	Total Area (SF)	Total Area (acres)
INLET 10	14126	0.95	0	0.35	0.95	14126	0.32
INLET 11	2021	0.95	1867	0.35	0.66	3888	0.09
INLET 12	14330	0.95	0	0.35	0.95	14330	0.33
INLET 30	4578	0.95	1966	0.35	0.77	6544	0.15
INLET 42	4207	0.95	2175	0.35	0.75	6382	0.15
INLET 63	3476	0.95	0	0.35	0.95	3476	0.08
INLET 64	3569	0.95	0	0.35	0.95	3569	0.08
INLET 65	5338	0.95	5944	0.35	0.63	11282	0.26
INLET 76	5838	0.95	1046	0.35	0.86	6884	0.16
INLET 77	5264	0.95	1181	0.35	0.84	6445	0.15
INLET 79	3516	0.95	3674	0.35	0.64	7190	0.17
INLET 80	4141	0.95	5248	0.35	0.61	9389	0.22
INLET 81	5396	0.95	3628	0.35	0.71	9024	0.21
INLET 83	3351	0.95	3490	0.35	0.64	6841	0.16
INLET 84	5814	0.95	5180	0.35	0.67	10994	0.25
INLET 85	24472	0.95	965	0.35	0.93	25437	0.58
ROOF A NORTH	14950	0.95	0	0.35	0.95	14950	0.34
ROOF A SOUTH	14950	0.95	0	0.35	0.95	14950	0.34
ROOF B1 NORTH	14950	0.95	0	0.35	0.95	14950	0.34
ROOF B1 SOUTH	14950	0.95	0	0.35	0.95	14950	0.34
ROOF B2 NORTH	14950	0.95	0	0.35	0.95	14950	0.34
ROOF B2 SOUTH	14950	0.95	0	0.35	0.95	14950	0.34



DYNAMIC ENGINEERING

Stormwater Collection System Calculations

Project: Proposed Self-Storage Facility
 Job #: 3724-99-001
 Location: Marlboro
 Design Storm: 25 YR

Computed By: TJB
 Checked By: RDM
 Date: 6/14/2021

NOTES:
 1) Design method used is Rational Method, unless otherwise noted
 2) Refer to Weighted Runoff Coefficient table for calculation of incremental areas and C values

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man "n"	Slope (ft/R)	Pipe Capacity (cfs)	Pipe Velocity (fps)
INLET 80	INLET 81	0.22	0.61	0.13	0.13	10.00	0.88	10.00	6.80	0.88	0.88	15	165.0	0.013	0.0035	3.82	3.11
INLET 81	FES N11	0.21	0.71	0.15	0.28	10.00	0.42	10.88	6.68	1.00	1.87	15	79.0	0.013	0.0035	3.82	3.11
ROOF A NORTH	INLET 30	0.34	0.95	0.32	0.32	10.00	0.23	10.00	6.80	2.18	2.18	15	42.0	0.013	0.0035	3.82	3.11
INLET 30	FES N12	0.15	0.77	0.12	0.44	10.00	0.20	10.23	6.80	0.82	2.99	15	38.0	0.013	0.0035	3.82	3.11
INLET 12	INLET 10	0.33	0.95	0.31	0.31	10.00	0.60	10.00	6.80	2.11	2.11	15	112.0	0.013	0.0035	3.82	3.11
ROOF B1 North	INLET 10	0.34	0.95	0.32	0.32	10.00	0.31	10.00	6.80	2.18	2.18	15	57.0	0.013	0.0035	3.82	3.11
INLET 10	INLET 11	0.32	0.95	0.30	0.93	10.00	0.49	10.60	6.68	2.00	6.21	18	104.0	0.013	0.0035	6.21	3.52
Roof A South	Inlet 11	0.34	0.95	0.32	0.32	10.00	0.29	10.00	6.80	2.18	2.18	15	54.0	0.013	0.0035	3.82	3.11
INLET 42	INLET 11	0.15	0.75	0.11	0.11	10.00	0.62	10.00	6.80	0.75	0.75	15	116.0	0.013	0.0035	3.82	3.11
INLET 11	FES N21	0.09	0.66	0.06	1.10	10.00	0.12	11.09	6.56	0.39	7.22	24	31.0	0.013	0.0035	13.38	4.26
INLET 79	INLET 83	0.17	0.64	0.11	0.11	10.00	0.41	10.00	6.80	0.75	0.75	15	77.0	0.013	0.0035	3.82	3.11
INLET 83	INLET 65	0.16	0.64	0.10	0.21	10.00	0.69	10.41	6.80	0.68	1.43	15	129.0	0.013	0.0035	3.82	3.11
INLET 63	INLET 64	0.08	0.95	0.08	0.08	10.00	0.62	10.00	6.80	0.54	0.54	15	115.0	0.013	0.0035	3.82	3.11
ROOF B1 SOUTH	INLET 64	0.34	0.95	0.32	0.32	10.00	0.06	10.00	6.80	2.18	2.18	15	11.0	0.013	0.0035	3.82	3.11
ROOF B2 NORTH	INLET 64	0.34	0.95	0.32	0.32	10.00	0.06	10.00	6.80	2.18	2.18	15	11.0	0.013	0.0035	3.82	3.11
INLET 64	INLET 65	0.08	0.95	0.08	0.80	10.00	0.46	10.62	6.68	0.53	5.34	18	98.0	0.013	0.0035	6.21	3.52
INLET 65	INLET 84	0.26	0.63	0.16	1.17	10.00	0.95	11.10	6.56	1.05	7.68	24	243.0	0.013	0.0035	13.38	4.26
INLET 84	INLET 85	0.25	0.67	0.17	1.34	10.00	0.57	12.05	6.32	1.07	8.47	24	146.0	0.013	0.0035	13.38	4.26
INLET 85	FES S11	0.58	0.93	0.54	1.88	10.00	0.09	12.62	6.20	3.35	11.66	24	23.0	0.013	0.0035	13.38	4.26
INLET 77	INLET 76	0.15	0.84	0.13	0.13	10.00	1.30	10.00	6.80	0.88	0.88	15	243.0	0.013	0.0035	3.82	3.11
ROOF B2 SOUTH	INLET 76	0.34	0.95	0.32	0.32	10.00	0.57	10.00	6.80	2.18	2.18	15	107.0	0.013	0.0035	3.82	3.11
INLET 76	FES S21	0.16	0.86	0.14	0.59	10.00	0.16	11.30	6.56	0.92	3.87	18	33.0	0.013	0.0035	6.21	3.52

SCOUR HOLE DESIGN CALCULATIONS



DYNAMIC ENGINEERING

SCOUR HOLE DESIGN

Project: Privy Storage
Job #: 3724-99-001
Location: Marlboro
Design Storm: 25
Computed By: TJB
Checked By: RDM
Date: 6/14/2021

Discharge in Basin, Therefore Tailwater is greater than 0.5 x Do

Discharge Point	AGBasinN1-Inlet 81
Q (25-yr storm cfs)	1.87
Inside Height of Outlet Culvert, Do (in)	15
Inside Height of Outlet Culvert, Do (ft)	1.3
Tailwater (ft), Tw	1.600
Length of Apron, L (ft)	3.75
Width of Culvert, Wo(in)	15
Width of Culvert, Wo(ft)	1.3
Width of Apron, W(ft)	2.50
Where Y = 1/2 Do, Y(ft)	0.625
Median Stone Diameter, D50 (ft)	0.01
Where Y = Do, Y(ft)	1.250
Median Stone Diameter, D50 (ft)	0.01

Note: Use D50 of 6 inches minimum

Equations used:

$$L=3 \times Do$$
$$W=2 \times Wo$$
$$\text{Where } Y=1/2 \text{ Do}$$
$$D50=(0.0125/Tw)^{(q \wedge 1.33)}$$
$$\text{Where } Y=Do$$
$$D50=(0.0082/Tw)^{(q \wedge 1.33)}$$

Peak Water Surface Elevation for 2 Yr. Storm is

125.2

FES Invert:

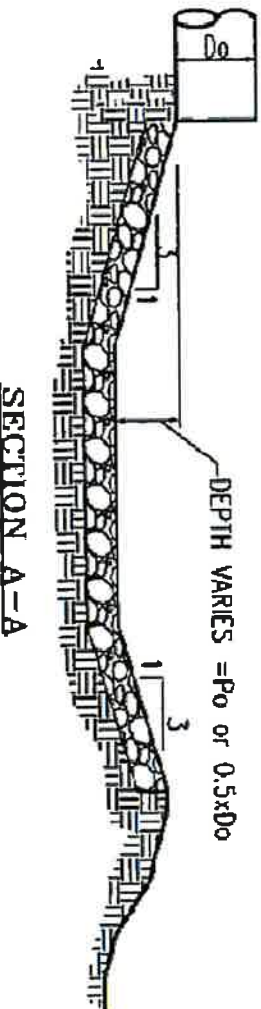
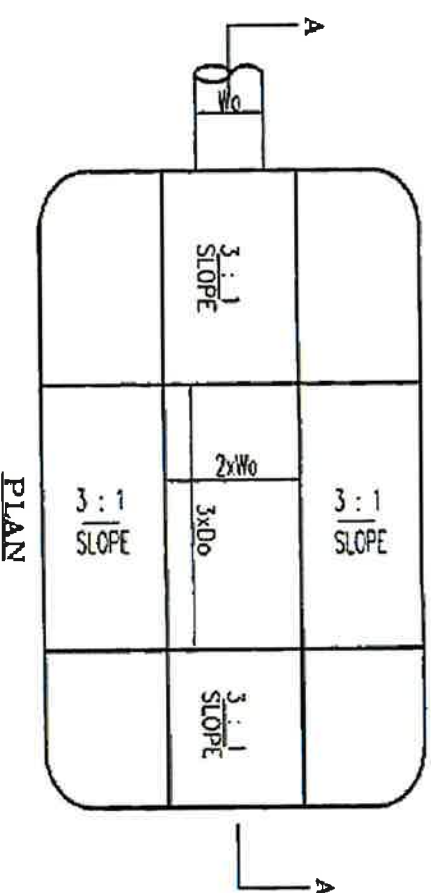
123.60

therefore Tailwater:

1.60

Notes:

1. The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to the possible problems with mosquito breeding.
2. No bends or curves at the intersection of the conduit and apron or scour hole will be permitted.
3. There shall be no over fall from the end of the apron to the receiving material.
4. The thickness of the riprap lining, filter, and quality shall meet the requirements in the Riprap Standard Section of the Standards for Soil Erosion Control in New Jersey.





DYNAMMIC ENGINEERING

SCOUR HOLE DESIGN

Project: Privy Storage
Job #: 3724-99-001
Location: Marlboro
Design Storm: 25
Computed By: TJB
Checked By: RDM
Date: 6/14/2021

Discharge in Basin, Therefore Tailwater is greater than 0.5 x Do

Discharge Point	AGBasinN1-Inlet30
Q (25-yr storm cfs)	2.99
Inside Height of Outlet Culvert, Do (in)	15
Inside Height of Outlet Culvert, Do (ft)	1.3
Tailwater (ft), Tw	1.600
Length of Apron, L (ft)	3.75
Width of Culvert, Wo(in)	15
Width of Culvert, Wo(ft)	1.3
Width of Apron, W(ft)	2.50
Where Y = 1/2 Do, Y(ft)	0.625
Median Stone Diameter, D50 (ft)	0.02
Where Y = Do, Y(ft)	1.250
Median Stone Diameter, D50 (ft)	0.02

Note: Use D50 of 6 inches minimum

Equations used:

$$L=3*Do$$

$$W=2*Wo$$

$$\text{Where } Y=1/2 \text{ Do}$$

$$D50=(0.0125/Tw)^*(q^4*1.33)$$

$$\text{Where } Y=Do$$

$$D50=(0.0082/Tw)^*(q^4*1.33)$$

Peak Water Surface Elevation for 2 Yr. Storm is

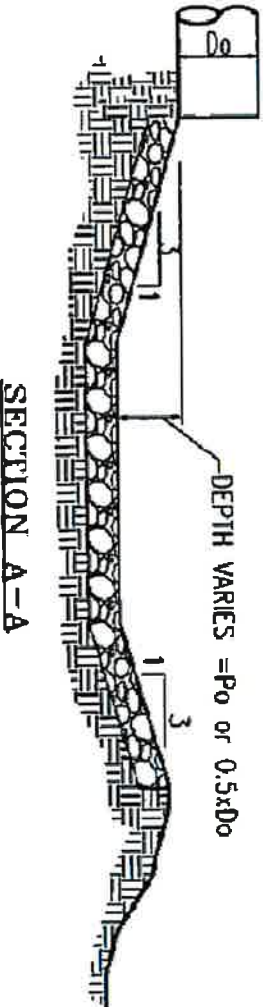
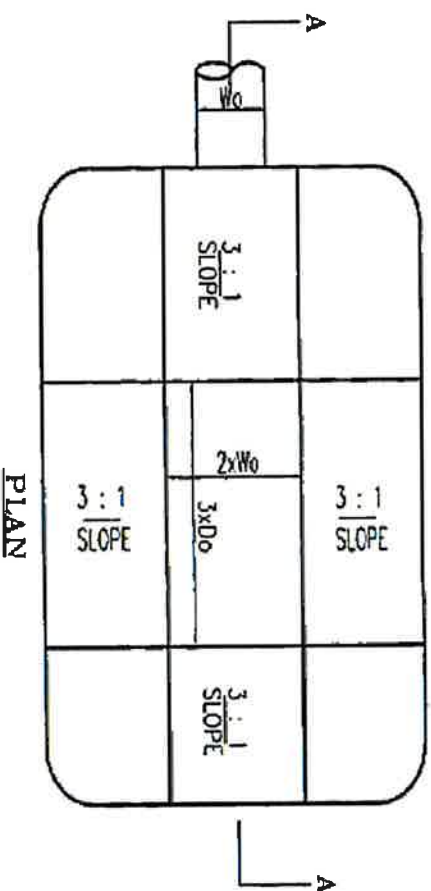
125.2

FES Invert:

123.60

therefore Tailwater:

1.60



- Notes:
1. The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to the possible problems with mosquito breeding.
 2. No bends or curves at the intersection of the conduit and apron or scour hole will be permitted.
 3. There shall be no cover fall from the end of the apron to the receiving material.
 4. The thickness of the riprap lining, filter, and quality shall meet the requirements in the Riprap Standard Section of the Standards for Soil Erosion Control in New Jersey.



DYNAMIC ENGINEERING

SCOUR HOLE DESIGN

Project: Privy Storage
 Job #: 3724-99-001
 Location: Marlboro
 Design Storm: 25
 Computed By: TJB
 Checked By: RDM
 Date: 6/14/2021

Discharge in Basin, Therefore Tailwater is greater than 0.5 x Do

Discharge Point	AG Basin N2
Q (25-yr storm cfs)	7.22
Inside Height of Outlet Culvert, Do (in)	24
Inside Height of Outlet Culvert, Do (ft)	2.0
Tailwater (ft), Tw	1.610
Length of Apron, L (ft)	6.00
Width of Culvert, Wo(in)	24
Width of Culvert, Wo(ft)	2.0
Width of Apron, W(ft)	4.00
Where Y = 1/2 Do, Y(ft)	1.000
Median Stone Diameter, D50 (ft)	0.04
Where Y = Do, Y(ft)	2.000
Median Stone Diameter, D50 (ft)	0.03

Note: Use D50 of 6 inches minimum

Equations used:

$L=3 \times Do$
 $W=2 \times Wo$
 Where $Y=1/2 Do$
 $D50=(0.0125/Tw)^{(q^4 \times 1.33)}$
 Where $Y=Do$
 $D50=(0.0082/Tw)^{(q^4 \times 1.33)}$

Peak Water Surface Elevation for 2 Yr. Storm is

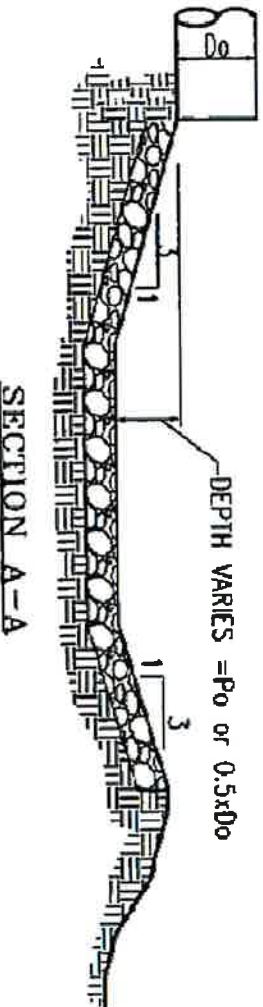
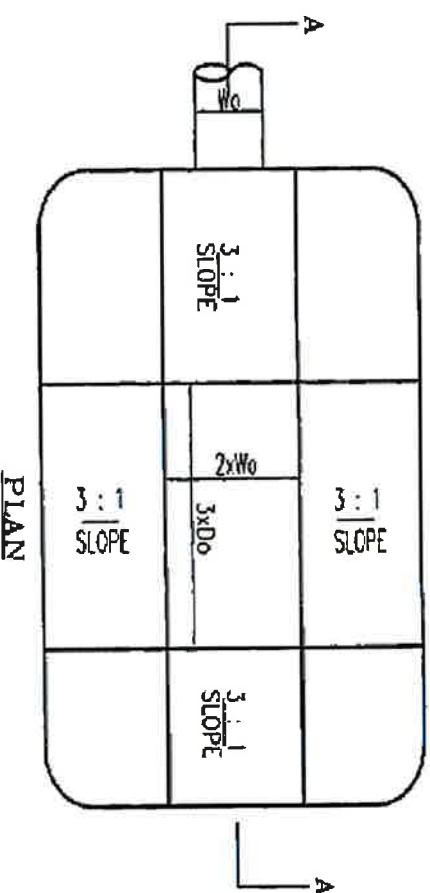
125.21

FES Invert:

123.60

therefore Tailwater:

1.61



- Notes:
1. The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to the possible problems with mosquito breeding.
 2. No bends or curves at the intersection of the conduit and apron or scour hole will be permitted.
 3. There shall be no over fall from the end of the apron to the receiving material.
 4. The thickness of the riprap lining, filter, and quality shall meet the requirements in the Riprap Standard Section of the Standards for Soil Erosion Control In New Jersey.



DYNAMMIC ENGINEERING

SCOUR HOLE DESIGN

Project: Privy Storage
Job #: 3724-99-001
Location: Marlboro
Design Storm: 25
Computed By: TJB
Checked By: RDM
Date: 6/14/2021

Discharge in Basin, Therefore Tailwater is greater than $0.5 \times Do$

Discharge Point	AG Basin S1
Q (25-yr storm cfs)	11.66
Inside Height of Outlet Culvert, Do (in)	24
Inside Height of Outlet Culvert, Do (ft)	2.0
Tailwater (ft), Tw	1.720
Length of Apron, L (ft)	6.00
Width of Culvert, Wo(in)	24
Width of Culvert, Wo(ft)	2.0
Width of Apron, W(ft)	4.00
Where Y = 1/2 Do, Y(ft)	1.000
Median Stone Diameter, D50 (ft)	0.08
Where Y = Do, Y(ft)	2.000
Median Stone Diameter, D50 (ft)	0.05

Note: Use D50 of 6 inches minimum

Equations used:

$L=3 \times Do$
 $W=2 \times Wo$
Where $Y=1/2 Do$
 $D50=(0.0125/Tw)^{(q \wedge 1.33)}$
Where $Y=Do$
 $D50=(0.0082/Tw)^{(q \wedge 1.33)}$

Peak Water Surface Elevation for 2 Yr. Storm is

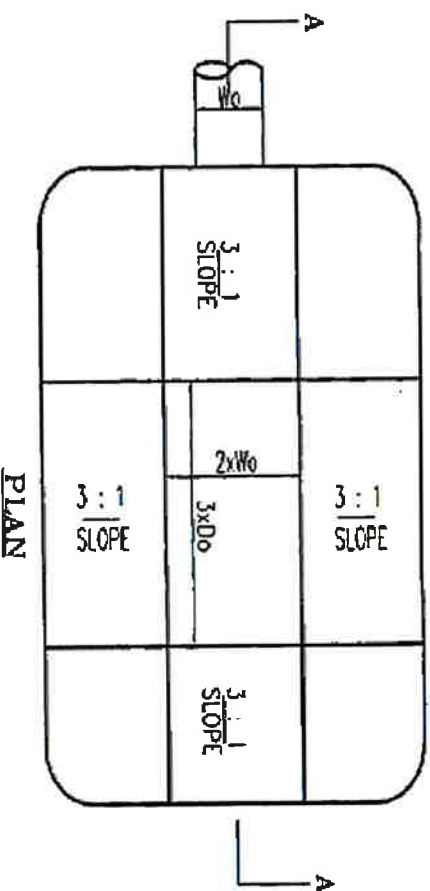
122.97

FES Invert:

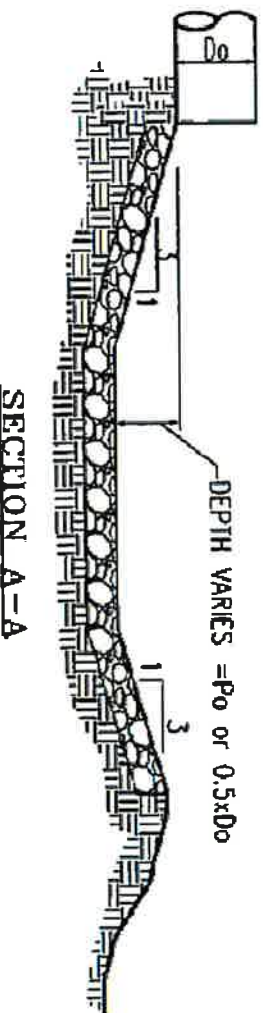
121.25

therefore Tailwater:

1.72



PLAN



SECTION A-A

- Notes:
1. The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to the possible problems with mosquito breeding.
 2. No bends or curves at the intersection of the conduit and apron or scour hole will be permitted.
 3. There shall be no over fall from the end of the apron to the receiving material.
 4. The thickness of the riprap lining, filter, and quality shall meet the requirements in the Riprap Standard Section of the Standards for Soil Erosion Control in New Jersey.



DYNAMMIC ENGINEERING

SCOUR HOLE DESIGN

Project: Privy Storage
Job #: 3724-99-001
Location: Marlboro
Design Storm: 25
Computed By: TJB
Checked By: RDM
Date: 6/14/2021

Discharge in Basin. Therefore Tailwater is greater than 0.5 x Do

Discharge Point	AG Basin S2
Q (25-yr storm cfs)	3.87
Inside Height of Outlet Culvert, Do (in)	18
Inside Height of Outlet Culvert, Do (ft)	1.5
Tailwater (ft), Tw	1.360
Length of Apron, L (ft)	4.50
Width of Culvert, Wo(in)	18
Width of Culvert, Wo(ft)	1.5
Width of Apron, W(ft)	3.00
Where Y = 1/2 Do, Y(ft)	0.750
Median Stone Diameter, D50 (ft)	0.03
Where Y = Do, Y(ft)	1.500
Median Stone Diameter, D50 (ft)	0.02

Note: Use D50 of 6 inches minimum

Equations used:

$$L=3*Do$$
$$W=2*Wo$$
$$\text{Where } Y=1/2 \text{ Do}$$
$$D50=(0.0125/Tw)^*(q^1.33)$$
$$\text{Where } Y=Do$$
$$D50=(0.0082/Tw)^*(q^1.33)$$

Peak Water Surface Elevation for 2 Yr. Storm is

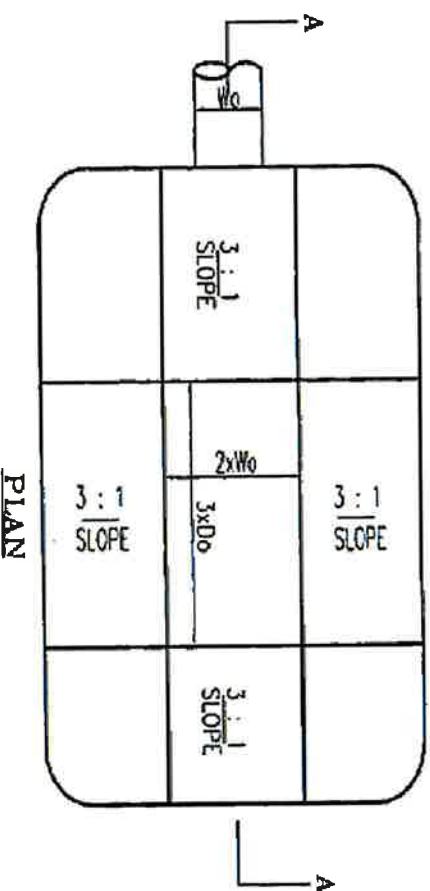
121.26

FES Invert:

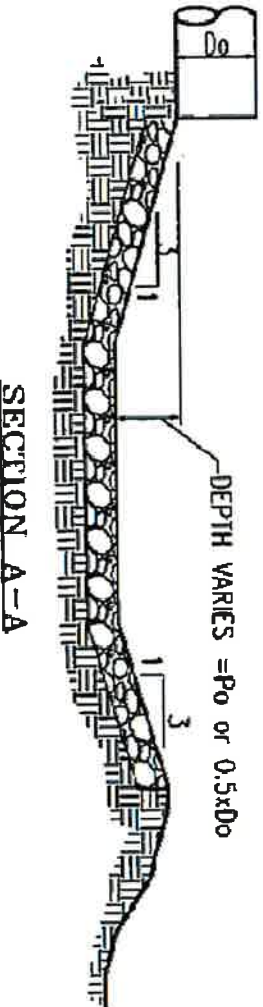
119.90

therefore Tailwater:

1.36



PLAN



SECTION A-A

- Notes:
1. The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to the possible problems with mosquito breeding.
 2. No bends or curves at the intersection of the conduit and apron or scour hole will be permitted.
 3. There shall be no over fall from the end of the apron to the receiving material.
 4. The thickness of the riprap lining, filter, and quality shall meet the requirements in the Riprap Standard Section of the Standards for Soil Erosion Control in New Jersey.

**GROUNDWATER RECHARGE
CALCULATIONS AND SPREADSHEET**

New Jersey
Groundwater
Recharge
Spreadsheet
Version 2.0
November 2003

Annual Groundwater Recharge Analysis (based on GSR-32)

Select Township ↓
MONMOUTH CO., MARLBORO TWP

Average Annual P (in) 44.9
Climatic Factor 1.44

Project Name: Stack Storage LLC
Description: Self-Storage Facility
Analysis Date: 06/21/21

Pre-Developed Conditions					
Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	3.35	Open space	Tinton	15.4	187,306
2	3.52	Woods-grass combination	Tinton	14.6	187,136
3	0.08	Open space	Shrewsbury	0.0	-
4	0.86	Woods-grass combination	Shrewsbury	0.0	-
5	0				
6	0				
7	0				
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
Total =	7.8			13.2	374,441

Procedure to fill the Pre-Development and Post-Development Conditions Tables

For each land segment, first enter the area, then select TR-55 Land Cover, then select Soil. Start from the top of the table and proceed downward. Don't leave blank rows (with A=0) in between your segment entries. Rows with A=0 will not be displayed or used in calculations. For impervious areas outside of standard lots select "Impervious Areas" as the Land Cover. Soil type for impervious areas are only required if an infiltration facility will be built within these areas.

Post-Developed Conditions					
Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	4.6	Impervious areas	Tinton	0.0	-
2	2.4	Open space	Tinton	15.4	134,189
3	0.19	Woods-grass combination	Tinton	14.6	10,101
4	0.57	Open space	Shrewsbury	0.0	-
5	0				
6	0				
7	0				
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
Total =	7.8	Warning: make total area equal to Pre-Developed Conditions		5.1	144,290

Annual Recharge Requirements Calculation

% of Pre-Developed Annual Recharge to Preserve = 100%

Post-Development Annual Recharge Deficit= 230,151 (cubic feet)

Recharge Efficiency Parameters Calculations (area averages)			
RWC= 1.68 (in)	DRWC= 0.06 (in)		
ERWC = 0.47 (in)	EDRWC= 0.02 (in)		

Project Name Stack Storage LLC **Description** Self-Storage Facility **Analysis Date** 06/21/21 **BMP or LID Type** AG Basin North 1

Recharge BMP Input Parameters			Root Zone Water Capacity Calculated Parameters			Recharge Design Parameters		
Parameter	Symbol	Value	Parameter	Symbol	Value	Parameter	Symbol	Value
BMP Area	ABMP	5550.0	Empty Portion of RWC under Post-D Natural Recharge	ERWC	0.47	Inches of Runoff to capture	Qdesign	0.22
BMP Effective Depth, this is the design variable	dBMP	7.9	ERWC Modified to consider dEXC	EDRWC	0.02	Inches of Rainfall to capture	Pdesign	0.30
Upper level of the BMP surface (negative if above ground)	dBMPu	11.3	Empty Portion of RWC under Infil. BMP	RERWC	0.01	Recharge Provided Avg. over Imp. Area		13.8
Depth of lower surface of BMP, must be >= dBMPu	dEXC	55.2				Runoff Captured Avg. over Imp. Area		13.8
Post-development Land Segment Location of BMP	SegBMP	0						

BMP Calculated Size Parameters			
ABMP/AImp	Ratio	0.03	unitless
BMP Volume	VBMP	3,644	cu.ft

System Performance Calculated Parameters			
Annual BMP Recharge Volume		230,151	cu.ft
Avg BMP Recharge Efficiency		99.8%	Represents % Infiltration Recharged
%Rainfall became Runoff		77.7%	%
%Runoff Infiltrated		39.5%	%
%Runoff Recharged		39.5%	%
%Rainfall Recharged		30.7%	%

Parameters from Annual Recharge Worksheet			
Post-D Deficit Recharge (or desired recharge volume)	Vdef	230,151	cu.ft
Post-D Impervious Area (or target Impervious Area)	AImp	200,376	sq.ft
Root Zone Water Capacity	RWC	1.68	in
RWC Modified to consider dEXC	DRWC	0.06	in
Climatic Factor	C-factor	1.44	no units
Average Annual P	Pavg	44.9	in
Recharge Requirement over Imp. Area	dr	13.8	in

OTHER NOTES

Design is accurate only after BMP dimensions are updated to make rech volumes= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP If you select "Impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

How to solve for different recharge volumes: By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "AImp" from the "Annual Recharge" sheet to "Vdef" and "AImp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP. To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and AImp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & AImp" button.

CALCULATION CHECK MESSAGES

Volume Balance--> **OK**
 dBMP Check--> **OK**
 dEXC Check--> **OK**

BMP Location--> **Location is selected as distributed or undetermined**

Groundwater Recharge Conclusion:

Four (4) infiltration basins are proposed to infiltrate the post development recharge deficit in order to satisfy the groundwater recharge standard at N.J.A.C. 7:8-5.4(a). The annual groundwater recharge spreadsheet has been utilized to calculate the BMP effective depth required to infiltrate 100 percent of the difference between the site's pre- and post-development recharge volumes. According to the spreadsheet a BMP effective depth of 7.9 inches is required. The effective depth for the proposed aboveground infiltration basin "North 1" is 83 inches, and therefore this basin alone will satisfy the groundwater recharge criteria set by N.J.A.C. 7:8-5.4(a).

**STORMWATER BASIN AREA INVESTIGATION
PREPARED BY DYNAMIC EARTH, LLC**

STORMWATER BASIN AREA INVESTIGATION REPORT

PROPOSED SELF-STORAGE FACILITY
Vanderburg Road (CR-4) & Boundary Road
Block 360, Lots 7 & 8
Township of Marlboro, Monmouth County, New Jersey

Prepared for:

Privy Storage
2801 N. Thanksgiving Way, Suite 100
Lehi, Utah 84043

Prepared by:



245 Main Street, Suite 110
Chester, New Jersey 07930

A handwritten signature in black ink, appearing to read 'P. Granitzki', written over a horizontal line.

Patrick J. Granitzki, P.E.

Principal

NJ PE License No. 24GE05355900

A handwritten signature in black ink, appearing to read 'Francis Van Cleve', written over a horizontal line.

Francis Van Cleve, P.E.

Project Manager

NJ PE License No. 24GE005534500

Project #3724-99-001E

May 27, 2021

STORMWATER BASIN AREA INVESTIGATION REPORT
Proposed Self-Storage Facility
Vanderburg Road (CR-4) & Boundary Road
Block 360, Lots 7 & 8
Township of Marlboro, Monmouth County, New Jersey

1.0 PROJECT DESCRIPTION 1

2.0 SCOPE OF SERVICES..... 1

3.0 UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) SOIL SURVEY 2

4.1 Subsurface Soil Profile 3

4.2 Seasonal High Groundwater 3

APPENDICES

Soil Profile Pit Location Plan
Records of Subsurface Exploration
Laboratory Test Results
USDA – NRCS Web Soil Survey Report – Monmouth County

1.0 PROJECT DESCRIPTION

Dynamic Earth, LLC (Dynamic Earth) has completed an exploration and evaluation of the subsurface conditions for the proposed stormwater management facilities located southwest of the intersection of Vanderburg Road (CR-4) and Boundary Road in the Township of Marlboro, Monmouth County, New Jersey. The site is further identified as Block 360, Lots 7 and 8. The site of the proposed construction is shown on the attached *Soil Profile Pit Location Plan* within the appendix of this report.

At the time of Dynamic Earth's investigation, the subject site was undeveloped with grass, brush, and trees at the surface. The proposed site development will include construction of three self-storage facility buildings with associated pavements, utilities, and stormwater management facilities. The proposed buildings will each occupy a footprint area of approximately 29,900 square feet. Site development details were provided on an April 21, 2021 (last revised) *Conceptual Site Plan* prepared by Dynamic Engineering Consultants, PC (Dynamic). Grading plans were not available at the time of this report; however, we preliminarily anticipate the majority of the site will be developed relatively close to existing site elevations.

Topographic information was provided on a May 14, 2021 *Preliminary Boundary and Topographic Survey* prepared by Dynamic Survey, LLC. Existing site elevations range between approximately 118 feet within the southeast portion of the site and 130 feet within to the northeastern portion of the site. The elevations included herein reference the North American Vertical Datum of 1988 (NAVD 88), unless otherwise noted.

The subject site is bound to the north by Vanderburg Road (CR-4); to the east by Boundary Road; to the south by industrial property (R. Baker & Son Industrial Services); and to the west by commercial property (Hillman Inc.) with Timber Lane beyond. The site of the proposed construction is shown on the attached *Soil Profile Pit Location Plan*.

Dynamic Earth previously completed a Phase I site assessment at the site and the results were issued under a separate cover in a May 21, 2021 *Phase I Environmental Site Assessment Report*.

2.0 SCOPE OF SERVICES

Dynamic Earth's scope of services pertaining to this report included evaluating the subsurface conditions at soil profile pit locations to estimate the apparent seasonal high groundwater level and collecting samples for laboratory permeability testing. Seven soil profile pits (identified as SPP-1 through SPP-7) were excavated at the site using track-mounted excavation equipment. Test

locations were located within the area of potential stormwater management facilities and were backfilled to the surface with excavated soils at completion of the investigation.

The soils encountered were classified in general conformance with the United States Department of Agriculture (USDA) Classification System. Observations were made for groundwater and/or redoximorphic features indicative of zones of saturation or seasonal high groundwater. Soil logs are included in the Appendix of this report.

Undisturbed tube permeameter tests were collected in general accordance with New Jersey Department of Environmental Protection (N.J.D.E.P.) *Stormwater Best Practices Manual – Chapter 12: Soil Testing Criteria* test methods on representative samples obtained from anticipated stormwater management facility infiltration depths. The results of the permeability testing are included in the Appendix of this report.

3.0 UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) SOIL SURVEY

Based on a review of the United States Department of Agriculture – Natural Resources Conservation Services (USDA-NRCS) soil survey, the soil resources mapped within the area of subject site are described below.

Tinton loamy sand, zero to five percent slopes, (ThgB): This soil series is mapped underlying the majority of the subject site. The typical soil profile (as reported in the survey) generally consists of sand to a depth of 26 inches; sandy loam to a depth of 38 inches; sand to a depth of 50 inches; underlain by sandy loam to a depth of 80 inches below the natural ground surface (limit of the report). Groundwater is reported to be deeper than 80 inches below the natural ground surface (limit of report).

Tinton loamy sand, five to 10 percent slopes, (ThgC): This soil series is mapped underlying a relatively small area within the central portion of the subject site and is reported to have a similar soil profile to ThgB, as detailed above.

Shrewsbury sandy loam, zero to two percent slopes, (ShrA): This soil series is mapped underlying a relatively small area within the southeastern portion of the subject site. The typical soil profile (as reported in the survey) generally consists of sandy loam to a depth of 14 inches; sandy clay loam to a depth of 32 inches; underlain by alternating strata of loamy sand and sandy loam to a depth of 80 inches below the natural ground surface (limit of the report). Groundwater is reported to be zero to 12 inches below the natural ground surface.

4.1 Subsurface Soil Profile

The soil profile pits were performed within undeveloped areas and encountered approximately five to 12 inches of topsoil at surface. Beneath the surface cover, natural coastal plain deposits were encountered that generally consisted of sand, loamy sand, and sandy loam with variable amounts of gravel. The natural coastal plain deposits were encountered to termination depths ranging between approximately 10.0 feet and 11.7 feet below the ground surface; corresponding to elevations ranging between 119.1 feet and 111.4 feet.

4.2 Seasonal High Groundwater


Evidence of seasonal high groundwater (based on soil mottling) was encountered at depths ranging between approximately 4.5 feet and 9.0 feet below the ground surface; corresponding to elevations ranging between approximately 122.3 feet and 117.3 feet. Groundwater levels are expected to fluctuate seasonally, and following significant periods of precipitation. A summary of the seasonal high groundwater levels and permeability test results are presented in the following table:

SEASONAL HIGH GROUNDWATER AND PERMEABILITY SUMMARY						
Location	Surface Elevation	Estimated Seasonal High Groundwater		Permeability Test Results		
		Depth (Feet)	Elevation	Depth (Inches)	Permeability (Inches/Hour)	
					Replicate A	Replicate B
SPP-1	127.3	5.7	121.6	48	--	--
SPP-2	126.9	6.4	120.5	48	--	--
SPP-3	128.2	8.0	120.2	80	>20.0	>20.0
SPP-4	130.1	9.0	121.1	78	15.3	>20.0
SPP-5	130.8	8.5	122.3	90	>20.0	>20.0
SPP-6	121.8	4.5	117.3	50	1.8	1.8
SPP-7	122.0	4.5	117.5	38	17.9	9.7

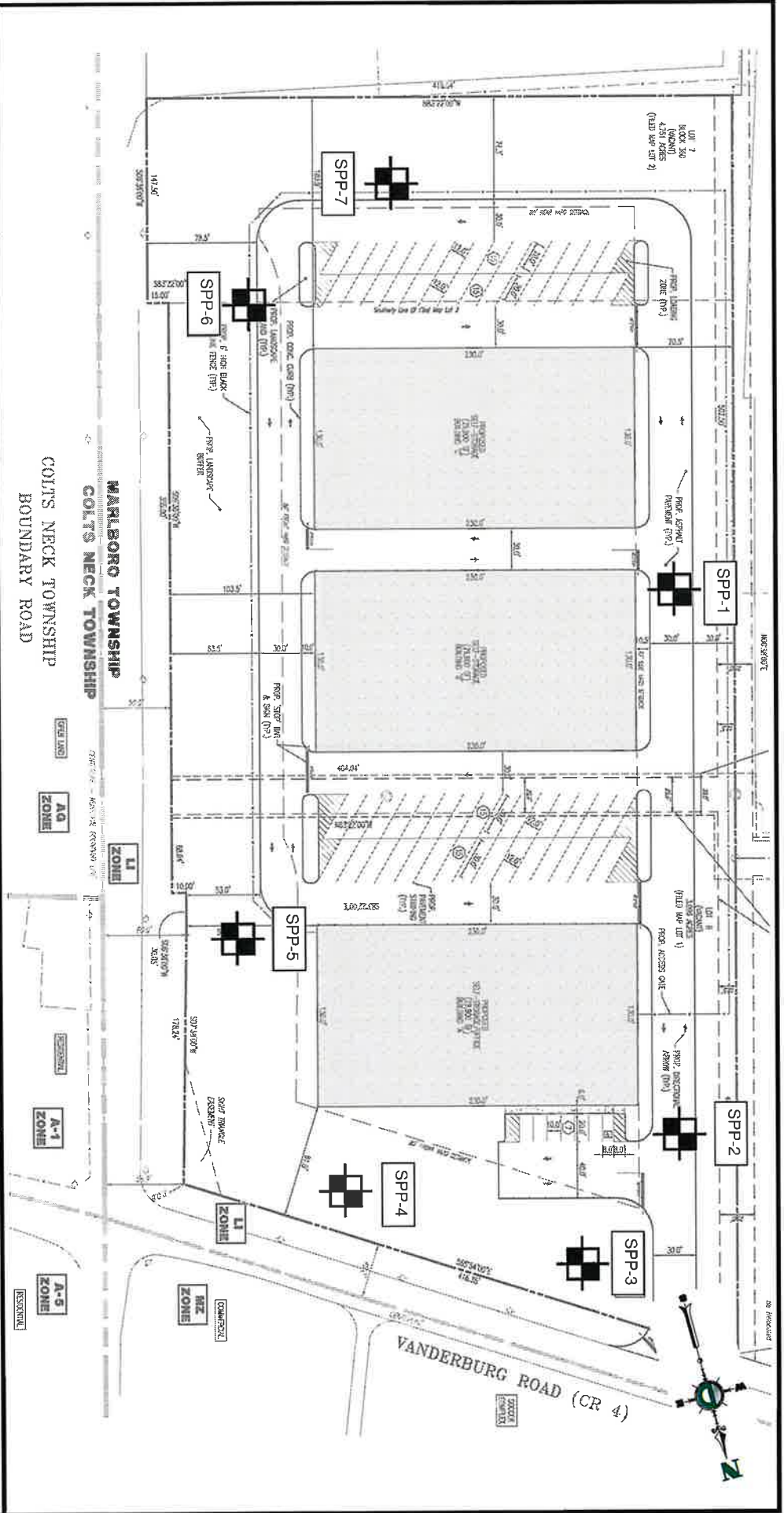
Soil Profile Pit Location Plan

SCALE: N.T.S.
 JOB No. 3724-99-001E
 SHEET No. 1 OF 1
 DRAWN BY: DR
 DESIGNED BY: DR
 CHECKED BY: PJG
 DATE: 06/11/21

TITLE:
SOIL PROFILE PIT LOCATION PLAN
 PROJECT: **PROPOSED SELF-STORAGE**
 BLOCK 380, LOTS 7 & 8
 VANDERBURG ROAD AND BOUNDARY ROAD
 MARLBORO TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY
 Rev. # 0 DEC Client Code: 3724

LEGEND:
 SPP-X
 APPROXIMATE LOCATION OF SOIL PROFILE PIT
 NOTES:
 1. THIS PLAN IS NOT FOR CONSTRUCTION AND WAS PREPARED TO ILLUSTRATE TEST LOCATIONS ONLY, AND MAY NOT REFLECT THE MOST CURRENT REVISION OF THE BASE PLAN.
 2. THIS PLAN HAS BEEN PREPARED BASED ON AN APRIL 21, 2021, LATEST REVISED CONCEPTUAL SITE PLAN PREPARED BY DYNAMIC ENGINEERING CONSULTANTS, PC.

DYNAMIC EARTH, LLC
 245 Main Street, Suite 110
 Chester, NJ 07930
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 www.dynamic-earth.com



Records of Subsurface Exploration



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SOIL PROFILE PIT LOG

Project: Proposed 54th Street Bridge

Location: 54th Street, San Francisco, CA

Date: 11/11/11

Drawn by: [Name]

Checked by: [Name]

Scale: 1:1

Sheet: 1 of 1

Remarks: (Optional) [Notes]

Comments: [Notes]

DEPTH (ft)	COLOR	SOIL TEXTURE	CONCRETE INCLUSIONS (ft)				STRUCTURE			WATER CONTENT	Resistance to Penetration	CONSISTENCY			BOUNDARY		ROOTS	Quantity	MOTTLING			SAMPLING		LAB RESULTS
			GRAVEL	COBBLES	STONES	BOULDERS	Shape	Grade	Size			Stiffness	Plasticity	Fracture	Discontinuity	Topography			None	Small	Medium	Large	Type		Depth (ft)	No.
0-12	TOSSOL Dark Brown (7.5R 2.5)	LOAM	0	0	0	0	IRREGULAR SPHERICAL	W/MS	FINE	MOIST	LOOSE	NONSTICKY	SLIGHTLY PLASTIC	ABRUPT 4"	SMOOTH	COMMON MAY	NONE	NONE			BAG	4	3-1	
12-30	Yellowish Brown (10YR 5/4)	SAND	<5	0	0	0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR 4.5"	WAVY	FEW (5% MAX)	VERY FINE	NONE			BAG TUBE	20 48	3-2 1-1	
30-60	Yellowish Brown (10YR 5/4)	SAND	<5	0	0	0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR 4.5"	WAVY	NONE	NONE				BAG	68	3-3	
60-125	Yellowish Brown (10YR 5/4)	SAND	<5	0	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE	CAN 25% 20%	FINE <5MM	DISTINCT		BAG	112	3-4	

Additional Remarks: Soil profile pit SPP-1 was terminated at 10.4 feet below the ground surface.



SOIL PROFILE PIT LOG

Project: Proposed Gas Storage Facility										Field No: 2243301E															
Location: Wundwin Road and Dandekar Road, Alibon, Lumbini, Nepal, Jhapa										Date: 12/20/2019															
Soil Survey: 12.2										Soil No: 5001															
Reference Station (N): 354										Date Started: 12/20/2019															
Reference Station (E): 354										Soil Scientist: [Blank]															
Reference Station (S): 1781										Lagged by: [Blank]															
Reference Station (W): 1781										Coast Land Development: Kucha KUB9															
Address: Vaidh Organics										Fig. Type: [Blank]															
DEPTH (m)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT (%)	Moisture to Bindings	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING		LAB RESULTS	
			GRAVEL	COBBLES	STONES	BOULDERS	Shape	Grade	Size			Swellness	Plasticity	Discontinuity	Topography	Quantity	Size	Context	Type	Depth (m)	No.				
0-5	2090L Dark Brown (7.5YR 3/2)	LOAM	0	0	0	0	GRAVULAR SERRICOLL	WEAK	FINE	MOST	LOOSE	NONSTICKY	SLIGHTLY PLASTIC	ABRUPT <1"	SMOOTH	CAN 10% MAY	MEDIUM	NONE	NONE	MEDIUM 5MM-15MM	DISTINCT	BAG	3	S-1	
5-96	Yellowish Brown (10YR 5/6)	SAND	<5	0	0	0	SINGLE GRAIN	STRUCTURELESS		MOST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	WAVY	NONE	NONE	NONE	NONE	MEDIUM 5MM-15MM	DISTINCT	BAG TUBE	60	S-2 T-1	A-2.0.9 IPI B-2.0.9 IPI
96-130	Yellowish Brown (10YR 5/6)	SAND	<5	0	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE	NONE	NONE	NONE	MEDIUM 5MM-15MM	DISTINCT	BAG	104	S-3	

Additional Remarks: Soil profile pit SPB-3 was terminated at 10.0 feet below the ground surface.



ERTH

SOIL PROFILE PIT LOG

Project: Proposed and Existing Facilities - 3124-91-001E

Location: Veldhoven Road and Roodendaal Road, Lurtoos, Lenoek, West Africa

Soil Profile: 100.1

Surface Elevation (m): 100.2

Remoteness Depth (m): 0

Excavation Method: 7.1m Visual Observation

Soil Type: Visual Observation

Soil Name: 100.1

Soil Description: 100.1

Soil Code: 100.1

Soil Class: 100.1

Soil Color: 100.1

Soil Texture: 100.1

Soil Structure: 100.1

Soil Consistency: 100.1

Soil Moisture: 100.1

Soil pH: 100.1

Soil Temperature: 100.1

Soil Density: 100.1

Soil Bulk Density: 100.1

Soil Porosity: 100.1

Soil Permeability: 100.1

Soil Shrinkage: 100.1

Soil Swell: 100.1

Soil Compressibility: 100.1

Soil Consolidation: 100.1

Soil Settlement: 100.1

Soil Creep: 100.1

Soil Frost Action: 100.1

Soil Thawing: 100.1

Soil Desiccation: 100.1

Soil Salinization: 100.1

Soil Sulfidation: 100.1

Soil Acidification: 100.1

Soil Alkalization: 100.1

Soil Nutrient Availability: 100.1

Soil Microbiology: 100.1

Soil Plant Growth: 100.1

Soil Animal Activity: 100.1

Soil Human Impact: 100.1

Soil Pollution: 100.1

Soil Remediation: 100.1

Soil Conservation: 100.1

Soil Restoration: 100.1

Soil Rehabilitation: 100.1

Soil Reclamation: 100.1

Soil Regeneration: 100.1

Soil Revitalization: 100.1

Soil Renewal: 100.1

Soil Revivification: 100.1

Soil Rejuvenation: 100.1

Soil Rejuvenation: 100.1

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Soil Rejuvenation: 100.1

Additional Remarks: Soil profile pit SPP-4 was terminated at 11.5 m below the ground surface.



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SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-5
Page 1 of 1

Project: Proposed 4th Street Extension - 117 Feet Below the Ground Surface

Location: 1338 S. 10th St, Phoenix, AZ 85001

Contractor: B. Robinson

Client: Coastal Land Development

Address: 1338 S. 10th St, Phoenix, AZ 85001

Survey Date: 11/17/2011

Soil Type: US 1010

Soil Name: US 1010

Soil Description: US 1010

Soil Color: 10YR 6/6

Soil Texture: LOAM

Soil Structure: WEAK FINE

Soil Consistency: NONSTICKY

Soil Plasticity: SLIGHTLY PLASTIC

Soil Abrupt: 4"

Soil Boundary: SMOOTH

Soil Roots: NONE

Soil Quantity: NONE

Soil Mottling: NONE

Soil Sampling: BAG 12 3-4

Soil LAM Results: 3-4

Soil Depth (ft): 0-5

Soil Color: TOPSOIL DARK BROWN (7.5YR 3/3)

Soil Texture: LOAM

Soil Structure: WEAK FINE

Soil Consistency: NONSTICKY

Soil Plasticity: SLIGHTLY PLASTIC

Soil Abrupt: 4"

Soil Boundary: SMOOTH

Soil Roots: NONE

Soil Quantity: NONE

Soil Mottling: NONE

Soil Sampling: BAG 12 3-4

Soil LAM Results: 3-4

Soil Depth (ft): 5-22

Soil Color: Very Dark Brown (10YR 2/2)

Soil Texture: SAND

Soil Structure: STRUCTURELESS

Soil Consistency: NONSTICKY

Soil Plasticity: NONPLASTIC

Soil Abrupt: 2.5"

Soil Boundary: WAVY

Soil Roots: NONE

Soil Quantity: NONE

Soil Mottling: NONE

Soil Sampling: BAG 12 3-4

Soil LAM Results: 3-4

Soil Depth (ft): 22-72

Soil Color: Light Olive Brown (2.5Y 5/3)

Soil Texture: SAND

Soil Structure: STRUCTURELESS

Soil Consistency: NONSTICKY

Soil Plasticity: NONPLASTIC

Soil Abrupt: 2.5"

Soil Boundary: WAVY

Soil Roots: NONE

Soil Quantity: NONE

Soil Mottling: NONE

Soil Sampling: BAG 12 3-4

Soil LAM Results: 3-4

Soil Depth (ft): 72-102

Soil Color: Olive Brown (2.5Y 4/4)

Soil Texture: SAND

Soil Structure: STRUCTURELESS

Soil Consistency: NONSTICKY

Soil Plasticity: NONPLASTIC

Soil Abrupt: 2.5"

Soil Boundary: WAVY

Soil Roots: NONE

Soil Quantity: NONE

Soil Mottling: NONE

Soil Sampling: BAG 12 3-4

Soil LAM Results: 3-4

Soil Depth (ft): 102-140

Soil Color: Light Olive Brown (2.5Y 5/3)

Soil Texture: SAND

Soil Structure: STRUCTURELESS

Soil Consistency: NONSTICKY

Soil Plasticity: NONPLASTIC

Soil Abrupt: 2.5"

Soil Boundary: WAVY

Soil Roots: NONE

Soil Quantity: NONE

Soil Mottling: NONE

Soil Sampling: BAG 12 3-4

Soil LAM Results: 3-4

Additional Remarks: Soil profile pit SPP-5 was terminated at 117 feet below the ground surface.



EXPERT-HI

SOIL PROFILE PIT LOG

Soil Profile Pit: SPR-6
Page 1 of 1

Project: Proposed Salt Storage Facility		Client: Doka Express		Project No: 272451021E		Drawn: E3		Checked: E3		Scale: 1:1		Date: 11/23		Revision: 1										
Location: Vandalia, Ohio and Dundee Road, Madison, Tennessee, Hwy 40/41		Site Status: 12.1 m		Elevation: 11.8 m		Depth: 4.5 m		Soil Type: 11.8 m		Soil Description: 11.8 m		Soil Color: 11.8 m		Soil Texture: 11.8 m										
Soil Name: 11.8 m		Soil Description: 11.8 m		Soil Color: 11.8 m		Soil Texture: 11.8 m		Soil Structure: 11.8 m		Soil Consistency: 11.8 m		Soil Plasticity: 11.8 m		Soil Boundaries: 11.8 m										
Soil Color: 11.8 m		Soil Texture: 11.8 m		Soil Structure: 11.8 m		Soil Consistency: 11.8 m		Soil Plasticity: 11.8 m		Soil Boundaries: 11.8 m		Soil Roots: 11.8 m		Soil Mottling: 11.8 m										
DEPTH (m)	COLOR	SOIL TEXTURE	CORNER FRAGMENT (%)				STRUCTURE		WATER CONTENT	MOISTURE %	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING		SAMPLING		LAB RESULTS			
			GRAVEL	COBBLES	STONES	BOULDERS	Shape	Grade			Size	Stickiness	Plasticity	Discontinuity	Topography		Quantity	Size	Context	Type		Depth (m)	No.	
0 - 10	TERRIBLE (7.5% 20)	LOAM	GRAVEL	COBBLES	STONES	BOULDERS	GRAVILLARY SPHEROIDAL	WEAK	FINE	MOIST	LOOSE	NONSTICKY	SLIGHTLY PLASTIC	ABRUPT <1"	SMOOTH	COMMON	MEDIUM	NONE	NONE	BAG	4	S-1	A=1.8 iph B=1.8 iph	
10 - 14	Dark Yellowish Brown (10YR 4/6)	SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	MEDIUM	MOIST	VERY FRAGILE	SLIGHTLY STICKY	NONPLASTIC	CLEAR <2.5"	WAVY	VERY FINE	VERY FINE	NONE	NONE	BAG	18	S-2		
14 - 17	Dark Yellowish (10YR 4/6)	SAND	GRAVEL	COBBLES	STONES	BOULDERS	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	WAVY	NONE	NONE	FEW 2%	MEDIUM 5MM-10MM	Faint	BAG	72	S-3	
17 - 23	Yellowish Brown (10YR 5/6)	SAND	GRAVEL	COBBLES	STONES	BOULDERS	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE	NONE	COMMON 2%-20%	FINE <5MM	DISTINCT	BAG	87	S-4	

Additional Remarks: Soil profile pit SPR-6 was terminated at 10.4 feet below the ground surface.



ERTH

SOIL PROFILE PIT LOG

Project: Prossard Soil Science Lab. Date: 2/24/2018

Location: Vandenberg Blvd and Boulder Road, Mariposa County, Hwy. 168

Accession: 122.0 Date Sampled: 2/20/18

Surface Elevation (ft): 3744.0 Date Collected: 2/20/18

Removal Location: 3744.0

Excavation Depth: 7.0 ft

Notes: Void Observation

Logged by: D. Anderson

Coast Land Development

Madera, CA 93699

Site Type: Residential

Vertical Scale: 1:1

Horizontal Scale: 1:1

Grid: 100

Depth (ft): 0

Moisture: 4.3

Consistency: 4.3

Plasticity: 11.3

Shrinkage: 11.3

Nonplastic: 11.3

Stiffness: 11.3

Moisture Content: 11.3

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Additional Remarks: Soil profile per SPT-7 was terminated at 10.0 feet below the ground surface.

Laboratory Test Results

Tube Permeameter Test Data

Job Number: 3724-99-001E
Project: Proposed Self- Storage Facility
Client: Privy Storage
Lab Tech: M. Mickley

Sample ID: Boring/Test Pit No.: SPP-3 **Sample No.:** T-1 **Depth:** 80"
MUNICIPALITY Township of Marlboro BLOCK 360 LOT 7 & 8

1. Test Number T-1 Replicate (letter) A Date Collected 5/6/2021
2. Material Tested: Fill x Test in Native Soil-Indicate Depth
3. Type of Sample: x Undisturbed Disturbed
4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 3.81
Length of Sample, L, in inches 4.00
5. Bulk Density Determination (Disturbed Samples Only): N/A
6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams
7. Sample Volume (L x 2.54 cm./inch x 3.14R²), cc. 463.0984
8. Bulk Density (Sample Wt./Sample Volume), grams/cc. > 1.2
9. Standpipe Used: x No Yes, Indicate Internal Radius, cm. N/A
10. Height of Water Level Above Rim of Test Basin, in inches:

At the Beginning of Each Test Interval, H1 5.00
At the End of Each Test Interval, H2 4.00

Wt. of Tube Containing Sample
Wt. of Empty Tube

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		2.5
		2.5
		2.5

12. Calculation of Permeability: $K, (in/hr) = 60 \text{ min/hr} \times r^2/R^2 \times L(in)/T(\text{min}) \times \ln(H1/H2)$ T= 2.5
K = > 20.0 **Classification:** K5

13. Defects in the Sample (Check appropriate items):
 x NONE
 Soil/Tube Contact Large Gravel Large Roots
 Dry Soil Smearing Compaction
 Other - Specify

Tube Permeameter Test Data

Job Number: 3724-99-001E
Project: Proposed Self- Storage Facility
Client: Privy Storage
Lab Tech: M. Mickley

Sample ID: Boring/Test Pit No.: SPP-3 **Sample No.:** T-1 **Depth:** 80"
MUNICIPALITY Township of Marlboro BLOCK 360 LOT 7 & 8

- 1. Test Number T-1 Replicate (letter) B Date Collected 5/6/2021
- 2. Material Tested: Fill x Test in Native Soil-Indicate Depth
- 3. Type of Sample: x Undisturbed Disturbed
- 4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 3.81
Length of Sample, L, in inches 4.00
- 5. Bulk Density Determination (Disturbed Samples Only): N/A
- 6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams
- 7. Sample Volume (L x 2.54 cm./inch x 3.14R²), cc. 463.0984
- 8. Bulk Density (Sample Wt./Sample Volume), grams/cc. > 1.2
- 9. Standpipe Used: x No Yes, Indicate Internal Radius, cm. N/A
- 10. Height of Water Level Above Rim of Test Basin, in inches:
At the Beginning of Each Test Interval, H1 5.00
At the End of Each Test Interval, H2 4.00

Wt. of Tube Containing Sample
Wt. of Empty Tube

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		2.5
		2.5
		2.5

12. Calculation of Permeability: $K, (in/hr) = 60 \text{ min/hr} \times r^2/R^2 \times L(in)/T(\text{min}) \times \ln(H1/H2)$ $T =$ 2.5

K = > 20.0 **Classification:** **K5**

13. Defects in the Sample (Check appropriate items):

- x NONE
- Soil/Tube Contact Large Gravel Large Roots
- Dry Soil Smearing Compaction
- Other - Specify

Tube Permeameter Test Data

Job Number: 3724-99-001E
Project: Proposed Self- Storage Facility
Client: Privy Storage
Lab Tech: M. Mickley

Sample ID: Boring/Test Pit No.: SPP-4 **Sample No.:** T-1 **Depth:** 78"
MUNICIPALITY Township of Marlboro BLOCK 360 LOT 7 & 8

- 1. Test Number T-1 Replicate (letter) A Date Collected 5/6/2021
- 2. Material Tested: Fill x Test in Native Soil-Indicate Depth
- 3. Type of Sample: x Undisturbed Disturbed
- 4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 3.81
Length of Sample, L, in inches 4.00
- 5. Bulk Density Determination (Disturbed Samples Only): N/A
- 6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams
- 7. Sample Volume (L x 2.54 cm./inch x 3.14R²), cc. 463.0984
- 8. Bulk Density (Sample Wt./Sample Volume), grams/cc. > 1.2
- 9. Standpipe Used: x No Yes, Indicate Internal Radius, cm. N/A
- 10. Height of Water Level Above Rim of Test Basin, in inches:
 At the Beginning of Each Test Interval, H1 5.00
 At the End of Each Test Interval, H2 4.00

Wt. of Tube Containing Sample
Wt. of Empty Tube

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		3.5
		3.5
		3.5

12. Calculation of Permeability: $K, (in/hr) = 60 \text{ min/hr} \times r^2/R^2 \times L(in)/T(\text{min}) \times \ln(H1/H2)$ T= 3.5
K = 15.3 **Classification:** K4

13. Defects in the Sample (Check appropriate items):
 x NONE
 Soil/Tube Contact Large Gravel Large Roots
 Dry Soil Smearing Compaction
 Other - Specify

Tube Permeameter Test Data

Job Number: 3724-99-001E
Project: Proposed Self- Storage Facility
Client: Privy Storage
Lab Tech: M. Mickley

Sample ID: Boring/Test Pit No.: SPP-4 **Sample No.:** T-1 **Depth:** 78"
MUNICIPALITY: Township of Marlboro **BLOCK:** 360 **LOT:** 7 & 8

1. Test Number T-1 Replicate (letter) B Date Collected 5/6/2021

2. Material Tested: Fill x Test in Native Soil-Indicate Depth

3. Type of Sample: x Undisturbed Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 3.81
 Length of Sample, L, in inches 4.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams --

Wt. of Tube Containing Sample --
 Wt. of Empty Tube --

7. Sample Volume (L x 2.54 cm./inch x 3.14R²), cc. 463.0984

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. -- > 1.2

9. Standpipe Used: x No Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:
 At the Beginning of Each Test Interval, H1 5.00
 At the End of Each Test Interval, H2 4.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		1.5
		1.5
		1.5

12. Calculation of Permeability: $K, (in/hr) = 60 \text{ min/hr} \times r^2/R^2 \times L(in)/T(\text{min}) \times \ln(H1/H2)$ T= 1.5

K = > 20.0 **Classification:** **K5**

13. Defects in the Sample (Check appropriate items):
 x NONE
 Soil/Tube Contact Large Gravel Large Roots
 Dry Soil Smearing Compaction
 Other - Specify _____

Tube Permeameter Test Data

Job Number: 3724-99-001E
Project: Proposed Self- Storage Facility
Client: Privy Storage
Lab Tech: M. Mickley

Sample ID: **Boring/Test Pit No.:** SPP-5 **Sample No.:** T-1 **Depth:** 90"
MUNICIPALITY Township of Marlboro **BLOCK** 360 **LOT** 7 & 8

1. Test Number T-1 Replicate (letter) A Date Collected 5/6/2021
2. Material Tested: Fill x Test in Native Soil-Indicate Depth
3. Type of Sample: x Undisturbed Disturbed
4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 3.81
 Length of Sample, L, in inches 4.00
5. Bulk Density Determination (Disturbed Samples Only): N/A
6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams --
7. Sample Volume (L x 2.54 cm./inch x 3.14R²), cc. 463.0984
8. Bulk Density (Sample Wt./Sample Volume), grams/cc. > 1.2
9. Standpipe Used: x No Yes, Indicate Internal Radius, cm. N/A
10. Height of Water Level Above Rim of Test Basin, in inches:

Wt. of Tube Containing Sample --
 Wt. of Empty Tube --

At the Beginning of Each Test Interval, H1 5.00
 At the End of Each Test Interval, H2 4.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		2.0
		2.0
		2.0

12. Calculation of Permeability: $K, (in/hr) = 60 \text{ min/hr} \times r^2/R^2 \times L(in)/T(\text{min}) \times \ln(H1/H2)$ T= 2.0

K = > 20.0 **Classification:** **K5**

13. Defects in the Sample (Check appropriate items):

- x NONE
- Soil/Tube Contact Large Gravel Large Roots
- Dry Soil Smearing Compaction
- Other - Specify

Tube Permeameter Test Data

Job Number: 3724-99-001E

Project: Proposed Self- Storage Facility

Client: Privy Storage

Lab Tech: M. Mickley

Sample ID: Boring/Test Pit No.: SPP-5 Sample No.: T-1 Depth: 90"
MUNICIPALITY Township of Marlboro BLOCK 360 LOT 7 & 8

1. Test Number T-1 Replicate (letter) B Date Collected 5/6/2021

2. Material Tested: Fill x Test in Native Soil-Indicate Depth

3. Type of Sample: x Undisturbed Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 3.81
Length of Sample, L, in inches 4.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams --

Wt. of Tube Containing Sample --
Wt. of Empty Tube --

7. Sample Volume (L x 2.54 cm./inch x 3.14R²), cc. 463.0984

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. -- > 1.2

9. Standpipe Used: x No Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

At the Beginning of Each Test Interval, H1 5.00
At the End of Each Test Interval, H2 4.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		2.5
		2.5
		2.5

12. Calculation of Permeability: $K, (in/hr) = 60 \text{ min/hr} \times r^2/R^2 \times L(in)/T(\text{min}) \times \ln(H1/H2)$ T= 2.5

K = > 20.0 Classification: K5

13. Defects in the Sample (Check appropriate items):

 x NONE
 Soil/Tube Contact Large Gravel Large Roots
 Dry Soil Smearing Compaction
 Other - Specify

Tube Permeameter Test Data

Job Number: 3724-99-001E
Project: Proposed Self-Storage Facility
Client: Privy Storage
Lab Tech: M. Mickley

Sample ID: Boring/Test Pit No.: SPP-6 **Sample No.:** T-1 **Depth:** 50"
MUNICIPALITY: Township of Marlboro **BLOCK:** 360 **LOT:** 7 & 8

1. Test Number T-1 Replicate (letter) A Date Collected 5/6/2021
 2. Material Tested: Fill x Test in Native Soil-Indicate Depth
 3. Type of Sample: x Undisturbed Disturbed
 4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 3.81
 Length of Sample, L, in inches 4.00
 5. Bulk Density Determination (Disturbed Samples Only): N/A
 6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams
 7. Sample Volume (L x 2.54 cm./inch x 3.14R²), cc. 463.0984
 8. Bulk Density (Sample Wt./Sample Volume), grams/cc. > 1.2
 9. Standpipe Used: x No Yes, Indicate Internal Radius, cm. N/A
 10. Height of Water Level Above Rim of Test Basin, in inches:

Wt. of Tube Containing Sample
 Wt. of Empty Tube

At the Beginning of Each Test Interval, H1 5.00
 At the End of Each Test Interval, H2 4.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		30.0
		30.0
		30.0

12. Calculation of Permeability: $K, (in/hr) = 60 \text{ min/hr} \times r^2/R^2 \times L(in)/T(\text{min}) \times \ln(H1/H2)$ $T =$ 30.0

$K =$ 1.8 **Classification:** K2

13. Defects in the Sample (Check appropriate items):

- x NONE
 Soil/Tube Contact Large Gravel Large Roots
 Dry Soil Smearing Compaction
 Other - Specify

Tube Permeameter Test Data

Job Number: 3724-99-001E
Project: Proposed Self- Storage Facility
Client: Privy Storage
Lab Tech: M. Mickley

Sample ID: **Boring/Test Pit No.:** SPP-6 **Sample No.:** T-1 **Depth:** 50"
MUNICIPALITY: Township of Marlboro **BLOCK:** 360 **LOT:** 7 & 8

1. Test Number T-1 Replicate (letter) B Date Collected 5/6/2021
2. Material Tested: Fill x Test in Native Soil-Indicate Depth
3. Type of Sample: x Undisturbed Disturbed
4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 3.81
 Length of Sample, L, in inches 4.00
5. Bulk Density Determination (Disturbed Samples Only): N/A
6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams
7. Sample Volume (L x 2.54 cm./inch x 3.14R²), cc. 463.0984
8. Bulk Density (Sample Wt./Sample Volume), grams/cc. > 1.2
9. Standpipe Used: x No Yes, Indicate Internal Radius, cm. N/A
10. Height of Water Level Above Rim of Test Basin, in inches:

Wt. of Tube Containing Sample
 Wt. of Empty Tube

At the Beginning of Each Test Interval, H1 5.00
 At the End of Each Test Interval, H2 4.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		30
		30
		30

12. Calculation of Permeability: $K, (in/hr) = 60 \text{ min/hr} \times r^2/R^2 \times L(in)/T(\text{min}) \times \ln(H1/H2)$ $T =$ 30.0
 K = 1.8 **Classification:** K2

13. Defects in the Sample (Check appropriate items):
- x NONE
- Soil/Tube Contact Large Gravel Large Roots
- Dry Soil Smearing Compaction
- Other - Specify

Tube Permeameter Test Data

Job Number: 3724-99-001E
 Project: Proposed Self- Storage Facility
 Client: Privy Storage
 Lab Tech: M. Mickley

Sample ID: Boring/Test Pit No.: SPP-7 Sample No.: T-1 Depth: 38"
 MUNICIPALITY Township of Marlboro BLOCK 360 LOT 7 & 8

1. Test Number T-1 Replicate (letter) A Date Collected 5/6/2021
 2. Material Tested: Fill x Test in Native Soil-Indicate Depth
 3. Type of Sample: x Undisturbed Disturbed
 4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 3.81
 Length of Sample, L, in inches 4.00
 5. Bulk Density Determination (Disturbed Samples Only): N/A
 6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams --
 7. Sample Volume (L x 2.54 cm./inch x 3.14R²), cc. 463.0984
 8. Bulk Density (Sample Wt./Sample Volume), grams/cc. -- > 1.2
 9. Standpipe Used: x No Yes, Indicate Internal Radius, cm. N/A
 10. Height of Water Level Above Rim of Test Basin, in inches:

Wt. of Tube Containing Sample --
 Wt. of Empty Tube --

At the Beginning of Each Test Interval, H1 5.00
 At the End of Each Test Interval, H2 4.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		3.0
		3.0
		3.0

12. Calculation of Permeability: $K, (in/hr) = 60 \text{ min/hr} \times r^2/R^2 \times L(in)/T(\text{min}) \times \ln(H1/H2)$ T= 3.0

K = 17.9 Classification: **K4**

13. Defects in the Sample (Check appropriate items):

- x NONE
 Soil/Tube Contact Large Gravel Large Roots
 Dry Soil Smearing Compaction
 Other - Specify _____

**USDA - NRCS Web Soil Survey
Report - Monmouth County**



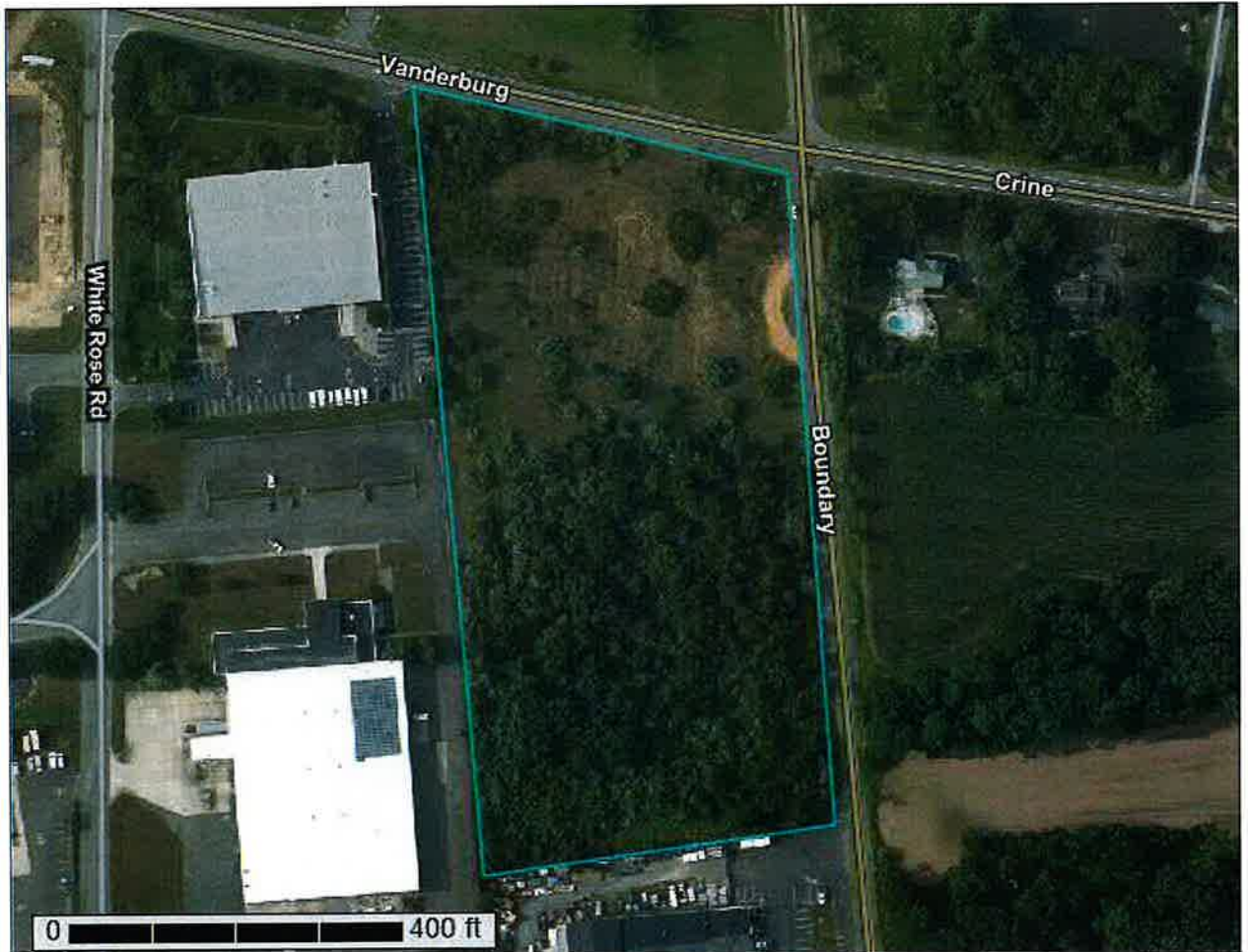
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Monmouth County, New Jersey**



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

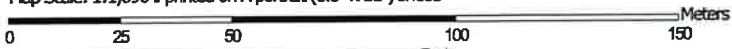
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map













































Map Scale: 1:1,690 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



MAP LEGEND

	Area of Interest (AOI)		Spill Area
	Area of Interest (AOI)		Stony Spot
	Soils		Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
	Special Point Features		Water Features
	Blowout		Streams and Canals
	Borrow Pit		Transportation
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow		Background
	Marsh or swamp		Aerial Photography
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Monmouth County, New Jersey
 Survey Area Data: Version 14, Jun 1, 2020

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

Date(s) aerial images were photographed: Jun 29, 2019—Jul 16, 2019

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ShrA	Shrewsbury sandy loam, 0 to 2 percent slopes	0.9	10.0%
ThgB	Tinton loamy sand, 0 to 5 percent slopes	6.2	72.3%
ThgC	Tinton loamy sand, 5 to 10 percent slopes	1.5	17.7%
Totals for Area of Interest		8.6	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

Custom Soil Resource Report

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Monmouth County, New Jersey

ShrA—Shrewsbury sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1j1jn

Elevation: 0 to 300 feet

Mean annual precipitation: 28 to 59 inches

Mean annual air temperature: 46 to 79 degrees F

Frost-free period: 161 to 231 days

Farmland classification: Farmland of statewide importance, if drained

Map Unit Composition

Shrewsbury and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Shrewsbury

Setting

Landform: Flats

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Fine-loamy marine deposits containing moderate amounts of glauconite

Typical profile

A - 0 to 8 inches: sandy loam

E - 8 to 12 inches: sandy loam

Btg1 - 12 to 21 inches: sandy clay loam

Btg2 - 21 to 30 inches: sandy clay loam

C1 - 30 to 42 inches: stratified loamy sand to sandy loam

C2 - 42 to 60 inches: stratified loamy sand to sandy loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: B/D

Hydric soil rating: Yes

Minor Components

Pemberton

Percent of map unit: 3 percent

Custom Soil Resource Report

Landform: Flats, low hills
Down-slope shape: Linear, convex
Across-slope shape: Linear
Hydric soil rating: No

Hammonton

Percent of map unit: 3 percent
Landform: Flats, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Fallsington

Percent of map unit: 3 percent
Landform: Flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Holmdel

Percent of map unit: 3 percent
Landform: Flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mullica

Percent of map unit: 3 percent
Landform: Flood plains, depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

ThgB—Tinton loamy sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 4j8w
Elevation: 0 to 360 feet
Mean annual precipitation: 28 to 59 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 161 to 231 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Tinton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tinton

Setting

Landform: Low hills

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy eolian deposits over glauconite bearing fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: loamy sand

E - 7 to 32 inches: loamy sand

Bt - 32 to 46 inches: sandy clay loam

2C - 46 to 60 inches: stratified sand to sandy loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Evesboro

Percent of map unit: 3 percent

Landform: Low hills

Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Holmdel

Percent of map unit: 3 percent

Landform: Flats

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Pemberton

Percent of map unit: 3 percent

Landform: Flats, low hills

Down-slope shape: Linear, convex

Across-slope shape: Linear

Hydric soil rating: No

Freehold

Percent of map unit: 3 percent
Landform: Knolls, low hills
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Collington

Percent of map unit: 3 percent
Landform: Low hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

ThgC—Tinton loamy sand, 5 to 10 percent slopes

Map Unit Setting

National map unit symbol: 4j8x
Elevation: 10 to 380 feet
Mean annual precipitation: 28 to 59 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 161 to 231 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Tinton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tinton

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy eolian deposits over glauconite bearing fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: loamy sand
E - 7 to 32 inches: loamy sand
Bt - 32 to 46 inches: sandy clay loam
2C - 46 to 60 inches: stratified sand to sandy loam

Properties and qualities

Slope: 5 to 10 percent
Depth to restrictive feature: More than 80 inches

Custom Soil Resource Report

Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Collington

Percent of map unit: 5 percent
Landform: Low hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Freehold

Percent of map unit: 5 percent
Landform: Low hills, knolls
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Evesboro

Percent of map unit: 5 percent
Landform: Low hills
Landform position (three-dimensional): Interfluvial, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

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Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

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**NJ STREAM STATS DRAINAGE AREAS OF
DOWNSTREAM COUNTY BRIDGES**

County Structure 5 – Drainage Area Map

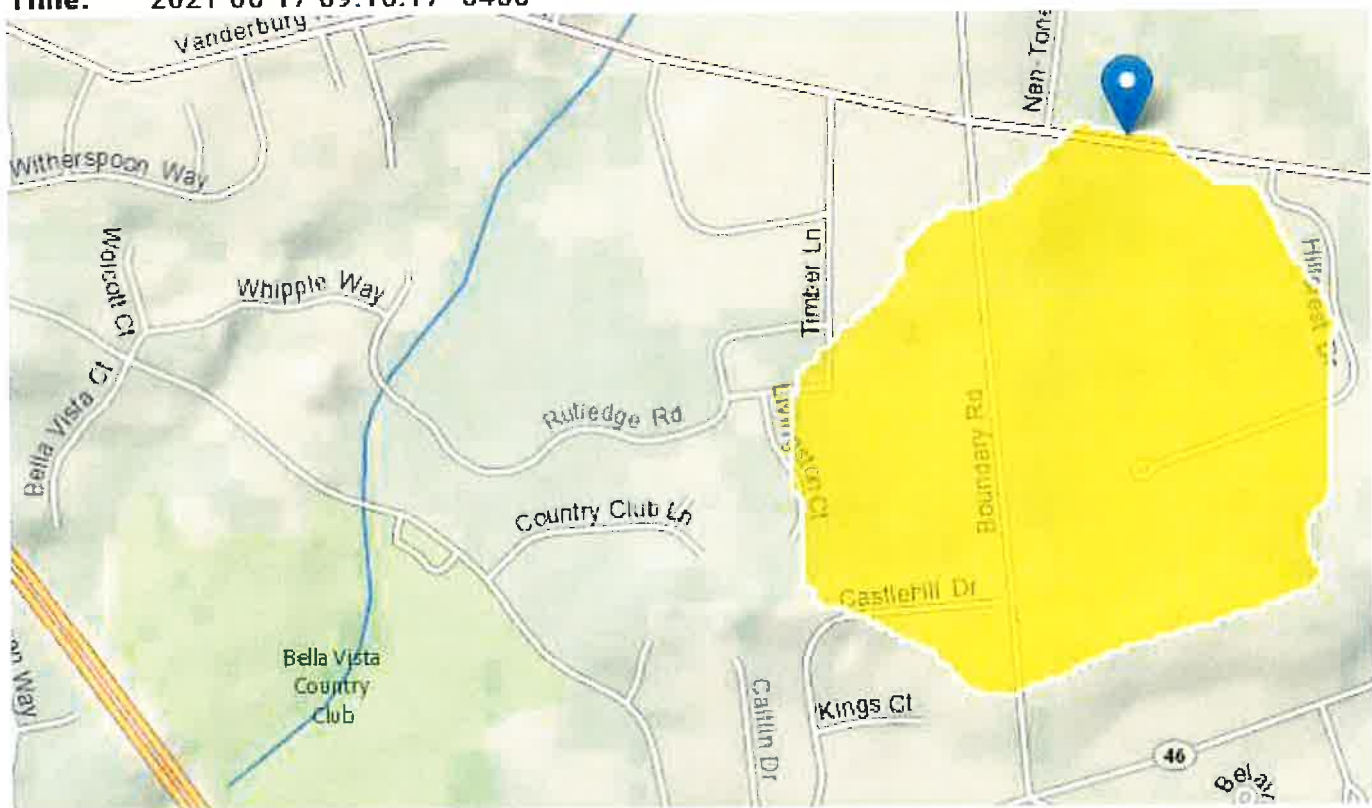
StreamStats Report

Region ID: NJ

Workspace ID: NJ20210617130958336000

Clicked Point (Latitude, Longitude): 40.31270, -74.21906

Time: 2021-06-17 09:10:17 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.29	square miles


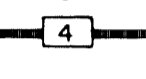

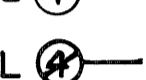

TO COUNTY BRIDGE STRUCTURE #5

- Drainage Area of Structure #5 = 0.29 square miles = 185.6 acres
- Area of development within County Structure Drainage Area = 7.8 acres (4.2%)

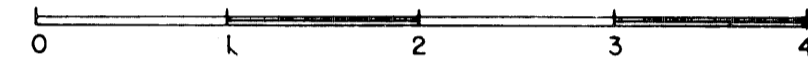
**BRIDGE MAP OF MONMOUTH COUNTY, NEW
JERSEY, DATED 01/01/1989**

BRIDGE MAP OF MONMOUTH COUNTY NEW JERSEY

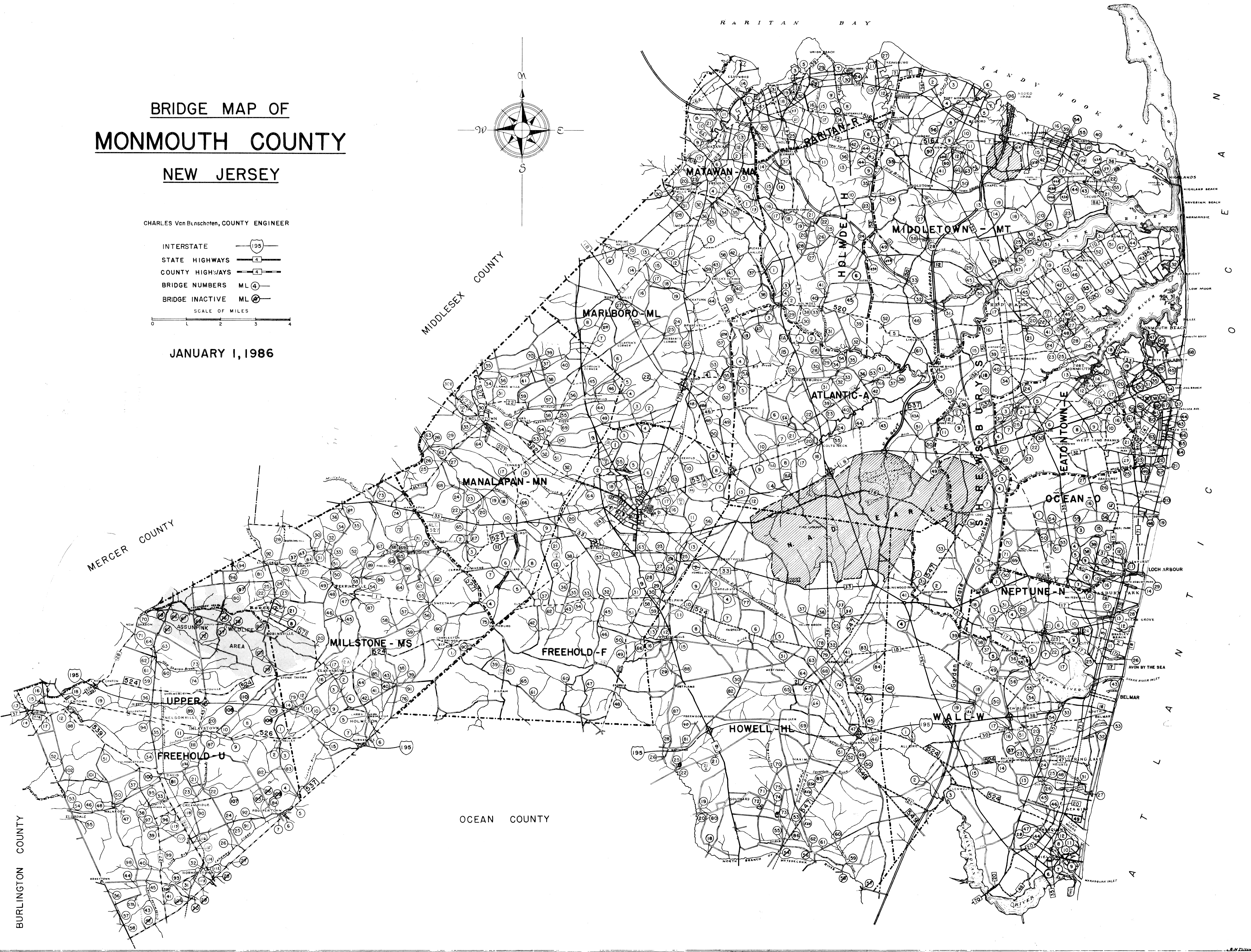
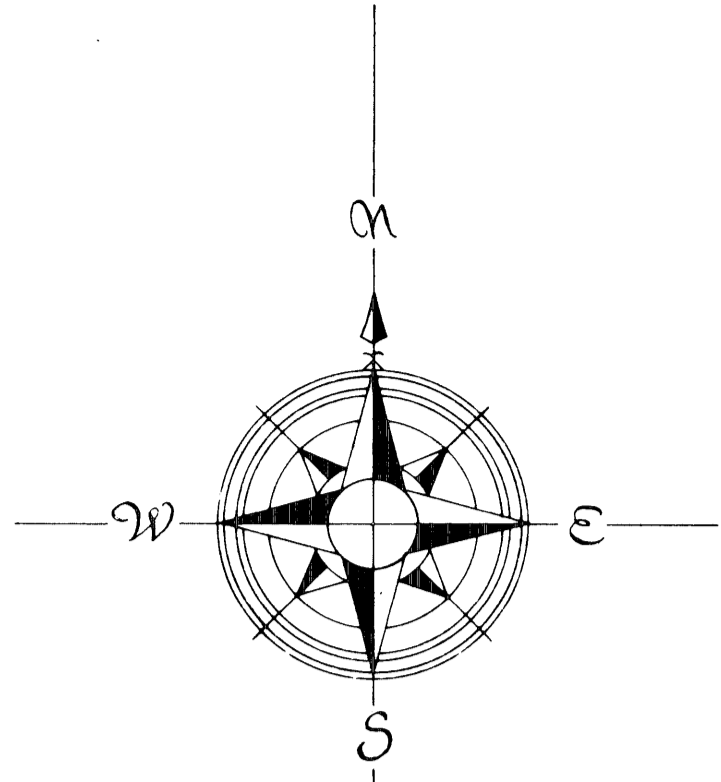
CHARLES Van Benschoten, COUNTY ENGINEER

- INTERSTATE  195
- STATE HIGHWAYS  4
- COUNTY HIGHWAYS  4
- BRIDGE NUMBERS ML  4
- BRIDGE INACTIVE ML  4

SCALE OF MILES



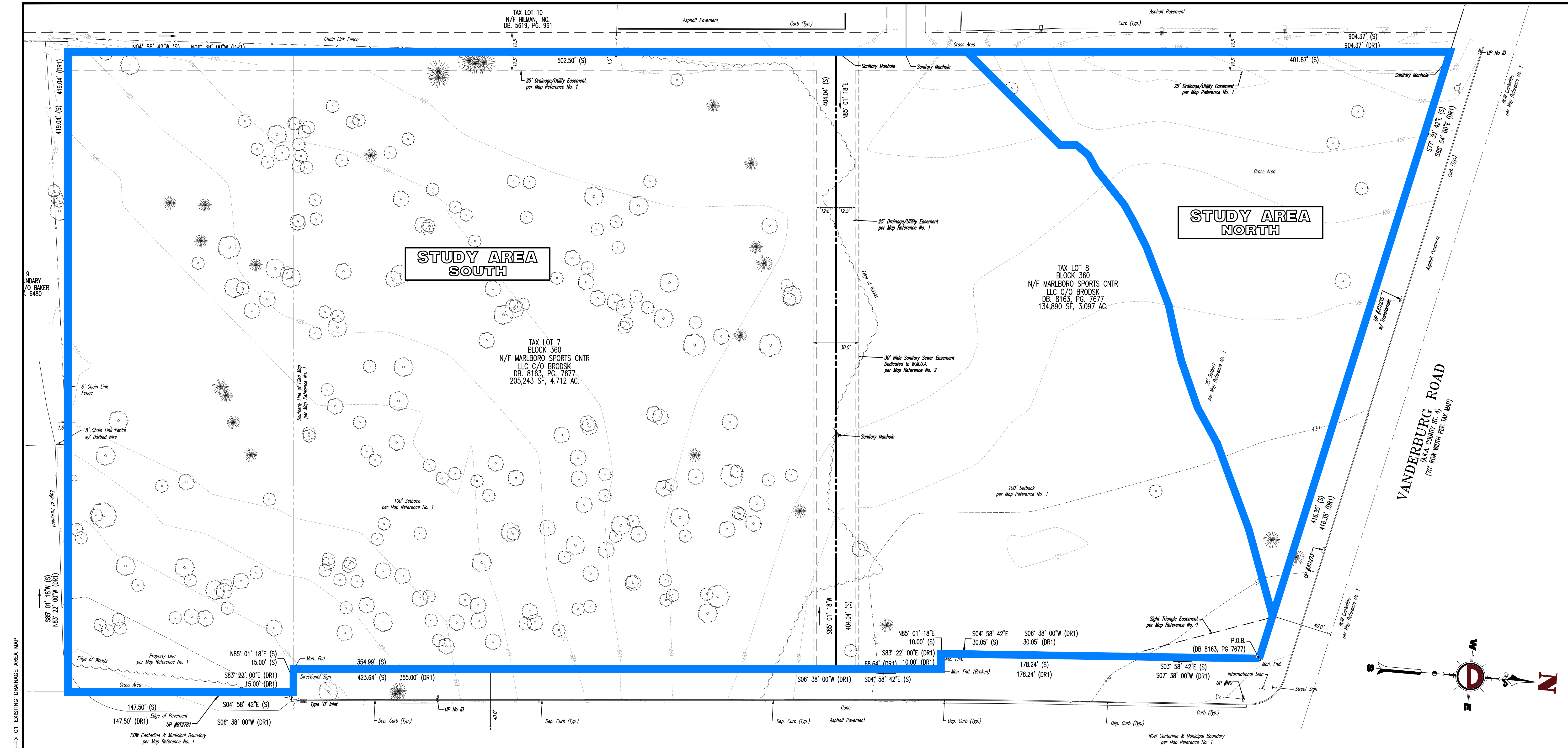
JANUARY 1, 1986



BURLINGTON COUNTY

OCEAN COUNTY

DRAINAGE AREA MAPS



BOUNDARY ROAD
(VARIABLE WIDTH ROW PER TAX MAP)

GRAPHIC SCALE
1 INCH = 30 FT.

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JOB No: 3724-99-001
SCALE: (H) 1"=30'
(V)
SHEET No: 1
OF 3

TITLE: EXISTING DRAINAGE AREA MAP

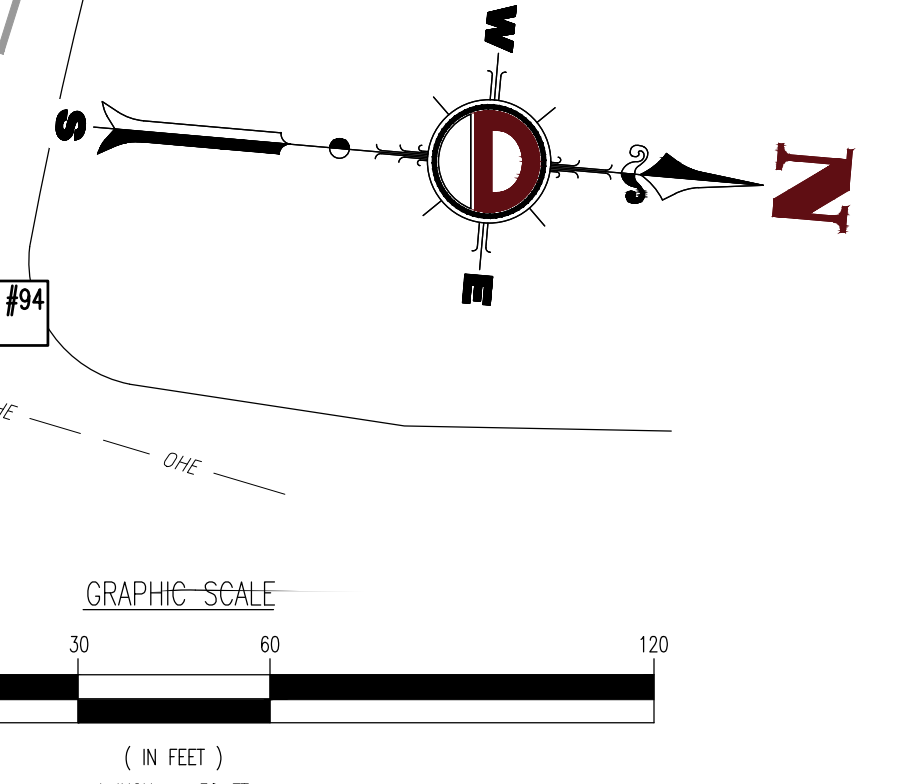
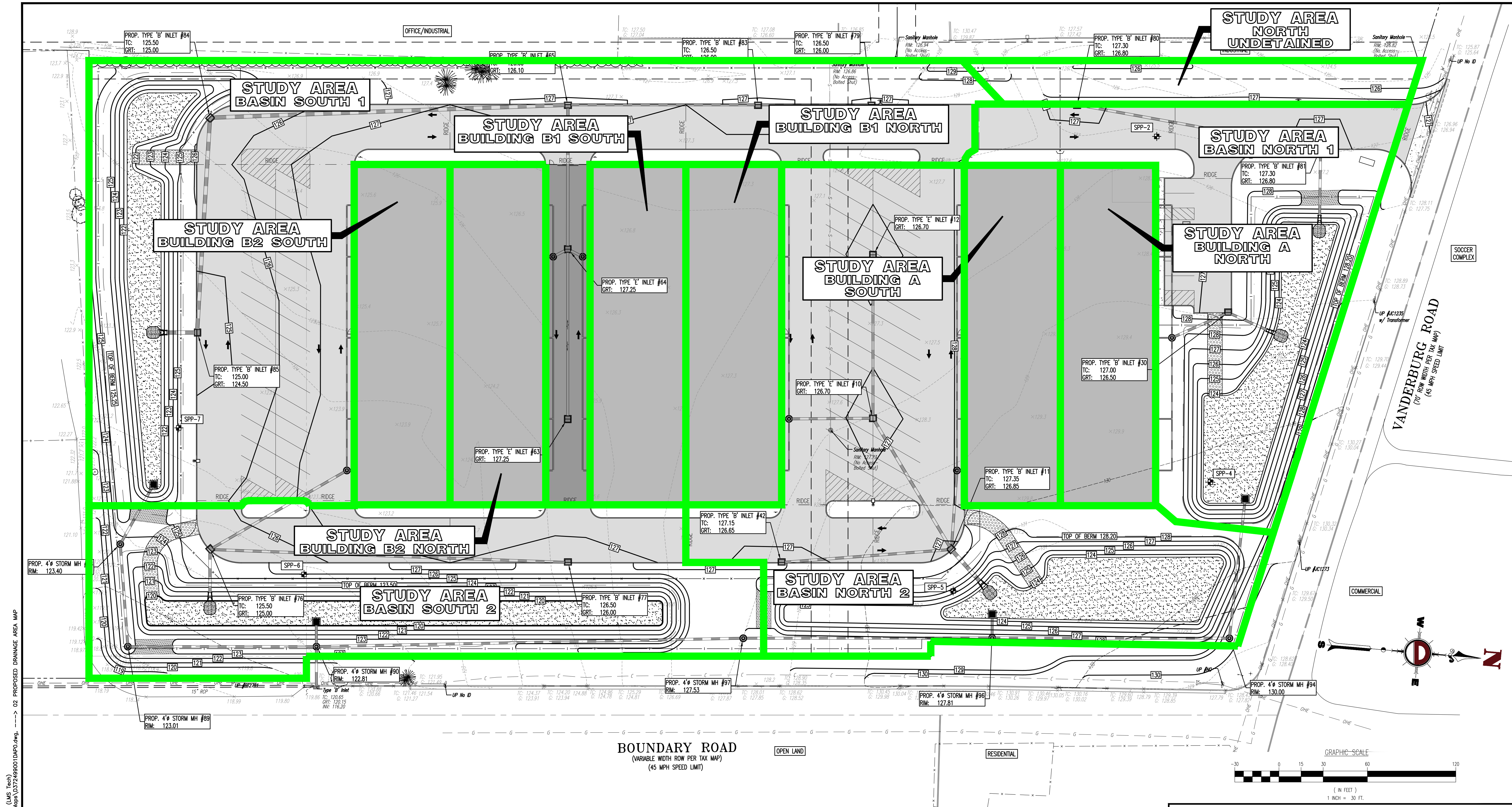
**PROJECT: STACK STORAGE, LLC
PROPOSED SELF STORAGE
BLOCK 360, LOTS 7 & 8
VANDERBURG ROAD & BOUNDARY ROAD
MARLBORO TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY**

DESIGNED BY: GMC
DRAWN BY: RDM
CHECKED BY: JAP
APPROVED BY: JAP

JOHN A. PALUS PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 41975

RYAN MCDERMOTT PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 56559

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TITLE: **PROPOSED DRAINAGE AREA MAP**

PROJECT: **STACK STORAGE, LLC
 PROPOSED SELF STORAGE
 BLOCK 360, LOTS 7 & 8
 VANDERBURG ROAD & BOUNDARY ROAD
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JOB No: 3724-99-001 DATE: 06/03/2021
 DRAWN BY: GMC SCALE: (H) 1"=30'
 DESIGNED BY: RDM (V)
 CHECKED BY: JAP SHEET No:
 CHECKED BY: -

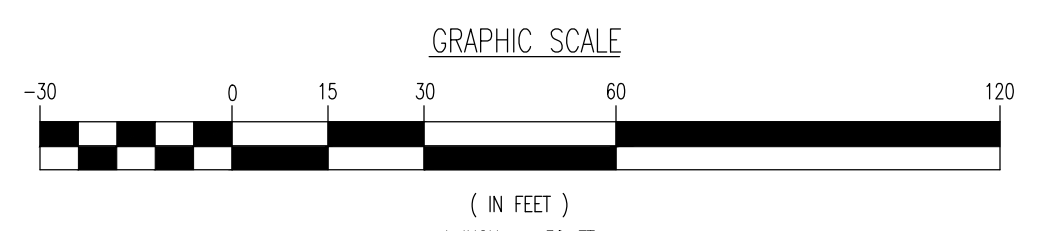
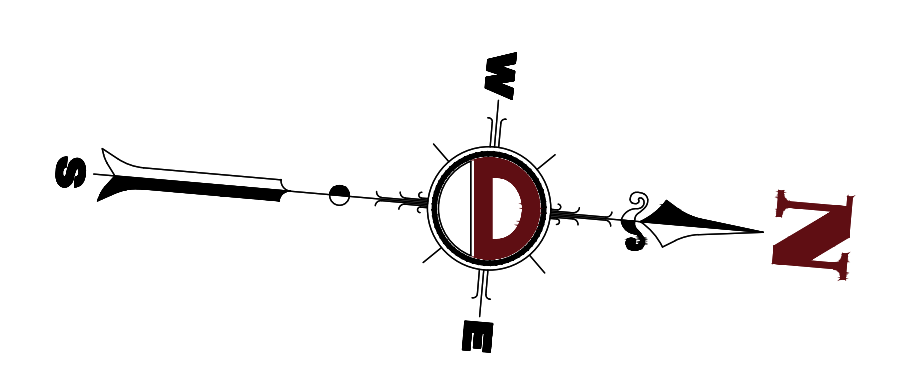
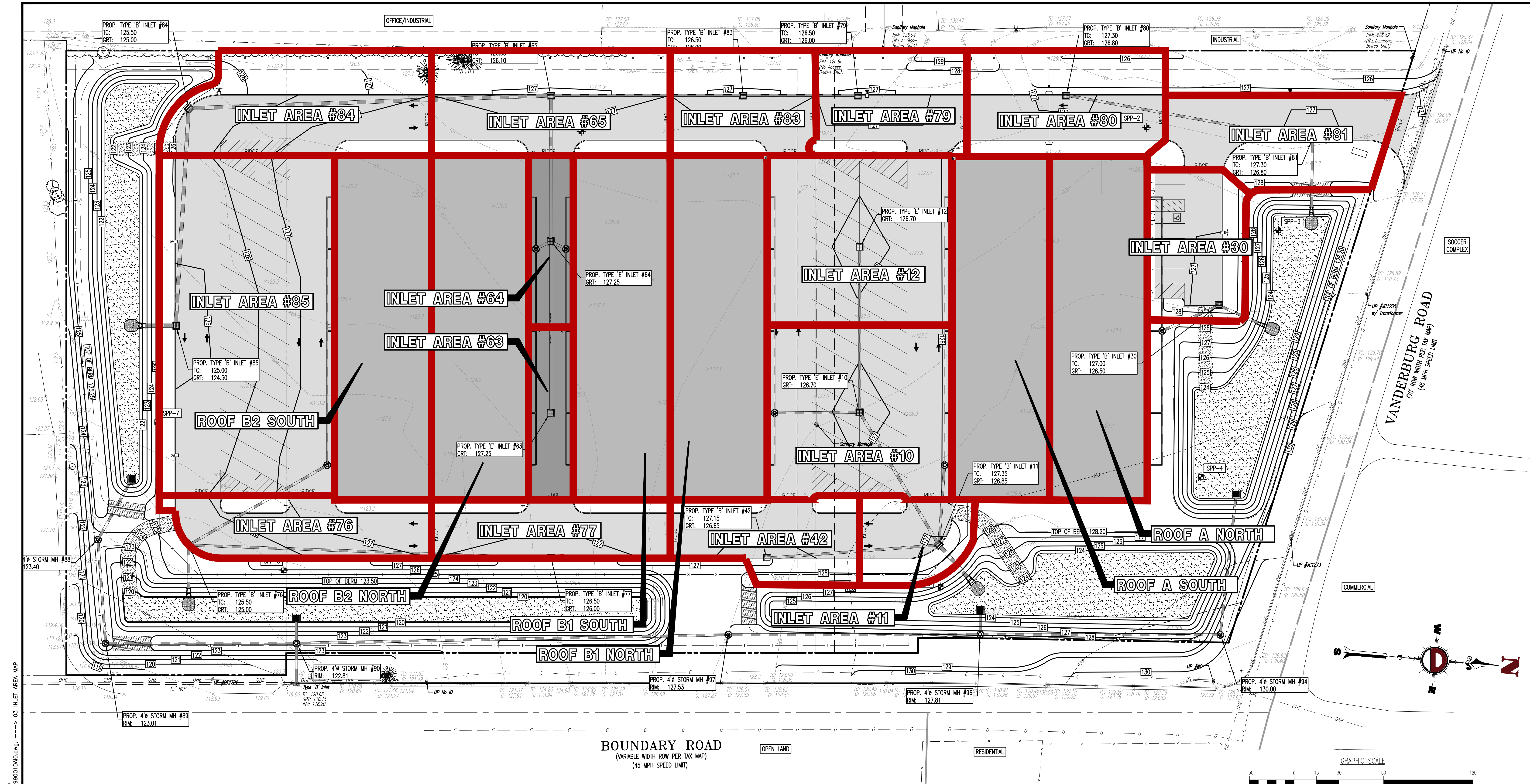
JOHN A. PALUS **RYAN MCDERMOTT**

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Plotted: 06/24/21 - 2:45 PM, By: gowdrick, Product: Ver: 24.0s (LMS Tech)
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Plotted: 06/24/21 - 2:45 PM, By: gowdrick, Product: Ver: 24.0a (LMS Tech)
 File: P:\BECPC PROJECTS\3724 - Private Storage\DWG\DA Map\3724.dwg, ---> 03 INLET AREA MAP

BOUNDARY ROAD
 (VARIABLE WIDTH ROW PER TAX MAP)
 (45 MPH SPEED LIMIT)

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TITLE: INLET AREA MAP

PROJECT: STACK STORAGE, LLC
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 BLOCK 360, LOTS 7 & 8
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