ANDERSON ENGINEERING
EMPLOYEE OWNED

STORMWATER DRAINAGE STUDY

FOR

Highland Meadows Phase 5&6

Lee's Summit Missouri

Prepared For:
Summit Homes
120 SE 30th Street
Lee's Summit MO 64082

11/10/2020

Prepared By:
Anderson Engineering, Inc.
941 W. 141st Ter., Ste. A
Kansas City, MO 64145

November 10, 2020

Table of Contents

Appendices

AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400

General Information

This drainage study addresses the quantity and quality of stormwater runoff from a proposed development to be located Southeast of the intersection of Sampson Road and SW Longview Rd. in Lee's Summit Missouri. The proposed development is 29.16 acres and consists of 2 platted areas to be known generally as the 5th & 6th Plats of Highland Meadows. The development consists of 77 Single Family Residential Lots. The proposed development is zoned R-1. The property is located within the SE ¼ of Section 10, Township 47N, Range 32 West in the City of Lee's Summit, Jackson County, Missouri.

This site is previously undeveloped and consists of sparsely covered grassland and portions of thick scrub brush and grass areas. The site is currently surrounded on all sides by similar residential developments except for the south, which is vacant land. Site topography is such that the site slopes gently from North to south. A detention basin the previous development to the east drains into the project area.

The proposed development is located entirely within an area of minimal flood hazard (Zone X) as depicted on FEMA Flood Insurance Rate Map (FIRM) 29095C0418G, effective date January 20, 2017, see **Appendix C** for FEMA information.

The Natural Resources Conservation Service (NRCS) Soil Survey Map classifies the soil type on site as Sharpsburg-Urban land complex with slopes between 2 and 5 percent (Hydrologic Soil Class C) and Greenton silty clay loam, 5 to 9 percent slopes (Hydrologic Soil Class C/D). Refer to **Appendix B** for a NRCS Web Soil Survey Map and associated data.

The purpose of this report is to determine the impact of the development of this property on the existing drainage infrastructure and to show that the proposed development is in compliance with City standards. This report also addresses the water quality impact of the proposed development meeting the comprehensive control requirements of the City of Lee's Summit.

AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400

Methodology

The proposed project was analyzed utilizing the American Public Works Association section 5600, comprehensive control strategy for control of stormwater. The analysis was conducted utilizing the PondPack Ver 8.0068. An SCS Type-II 24-hr. rainfall distribution was utilized in computing unit hydrographs for varying conditions. Refer to **Appendix F** for a watershed model schematic and modeling output. The City of Lee's Summit requirement to detain and slowly release the water quality event over 40 hours was also included in the design.

Existing Conditions Analysis

The predevelopment condition is normally not directly considered in the analysis of comprehensive control. Since the proposed detention basin has offsite flows that will flow through it, it is necessary to analyze the offsite areas that contribute flow to the proposed basin. To properly compare the maximum allowable release rates it was necessary to combine offsite areas that included detention under a comparison predevelopment runoff vs. post development runoff detention scenario. This offsite drainage from adjacent developments comes primarily from the development to the East (see blue and yellow areas depicted in **Figure 2**). The concept of analysis will include passing the offsite existing flows through the proposed basin.

AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400

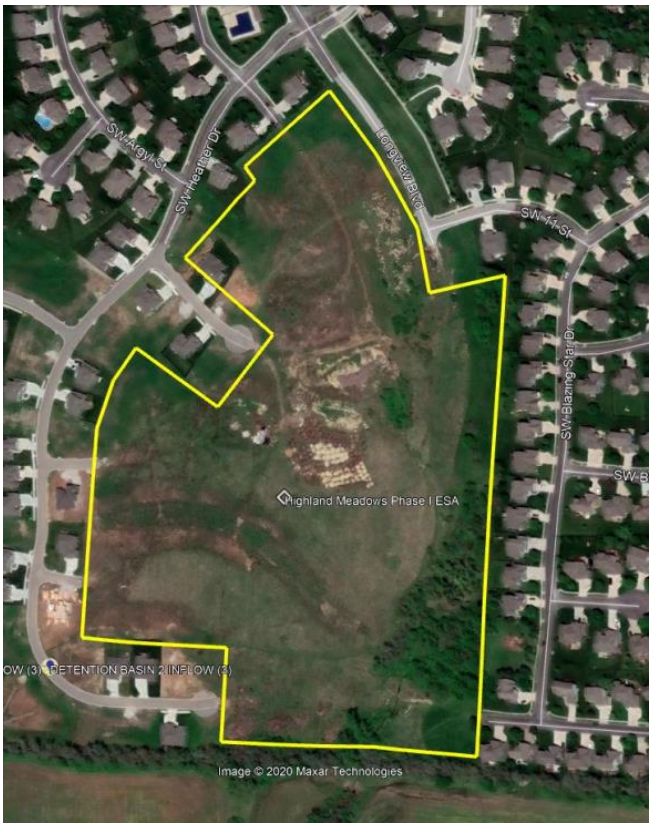


Fig 1. Existing Site

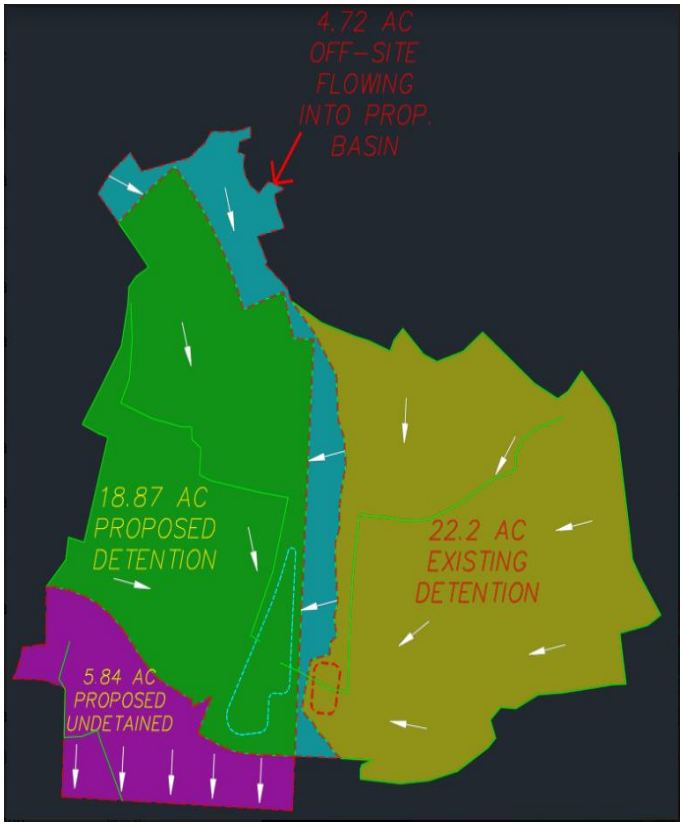


Fig 2. Offsite and Onsite runoff areas – Green and Purple areas are onsite, blue and yellow are offsite.

In the stormwater model produced, the existing offsite area were assumed to have a curve number of 74 and therefore mimic the stormwater detention and proposed conditions. This analysis should produce runoff rates from the existing developed areas equal to or greater than what is actually occurring in the design storm. The Peak rates of runoff from offsite areas are listed in **Table 1.**

TABLE 1: 2-yr, 10-yr, 100-yr Rainfall Event Existing Release Rates (Offsite Areas)				
	CN	2-yr Q_p (cfs)	10-yr Q_p (cfs)	100-yr Q_p (cfs)
22.2 AC Ex. Detention	74	16.99	54.51	112.38
4.72 Ac Flowing Into Prop. Basin	74	5.83	18.06	36.75

AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400

Proposed Conditions Analysis

The proposed 5th and 6th Plats include 77 Single Family Residential Lots and associated roads. While the proposed development is required to meet the comprehensive control strategy, the offsite runoff from the adjacent 26.92 acres to the East was assumed to control stormwater release rates though a strategy of reducing stormwater peak rates to below that of the pre-existing condition. This was assumed due to the development taking place circa 2006. There is an additional 4.45 acres that drains to the East that has been considered in the Phase 4 drainage study. See **Appendix A** for a proposed site plan.

Because the adjacent detention basin to the East flows through the proposed detention basin, the peak pre-existing stormwater runoff rate was determined for the offsite area. This peak rate was determined for the offsite flow based on the existing condition (CN=74). The concept is to pass the existing peak runoff from offsite through the proposed detention facility, without detaining it. Since a strategy of comprehensive control was required to combine with offsite flows a direct comparison of peak flow rates requires proper analysis of timing of those peaks for accurate determination of allowable release rates. The timing of the peak from the proposed 18.87 acre onsite drainage area determines this value. The peak was determined to occur at time of 721 minutes into the 24 hour storm event required by the APWA. Below are the calculated runoff rates from the existing offsite 22.2 Ac. Basin and the 4.72 acre basin at a time of 721 minutes.

TABLE 2: 2-yr, 10-yr, 100-yr Rainfall Event Existing Release Rates (Offsite Areas @ 721 Min)			
	2-yr Q_p (cfs)	10-yr Q_p (cfs)	100-yr Q_p (cfs)
22.2 AC Ex. Detention	10.17	37.60	81.78
4.72 Ac Flowing Into Prop. Basin	5.81	18.06	36.69

AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400

For the proposed basins the development has a curve number of 82 as determined by the APWA 5600 Table 5602-3. Comprehensive control will require additional detention to account for the undetained area (5.84 Ac area).

`TABLE 3: 2-yr, 10-yr, 100-yr Rainfall Event Comprehensive Control Limits (Offsite Areas @ 721 Min)			
	2-yr Q_p (cfs) 0.5 cfs/ac	10-yr Q_p (cfs) 2.0 cfs/ac	100-yr Q_p (cfs) 3.0 cfs/ac
18.87 AC Prop. Detention	9.44	37.74	56.61
5.84 Ac Prop. Undetained	2.92	11.68	17.52
Total Comp Control Allowable release without offsite pass through	12.36	49.42	74.13
Total Comprehensive Control allowable release with pass through from offsite	28.34	105.08	192.60

The stormwater model was built utilizing Pondpack software for which the output is included in the Appendix. Peak release rates from the model had to be determined at time step 721 min, to keep the results valid. Below is a summary of the model's output.

TABLE 4: 2-yr, 10-yr, 100-yr Allowable Release vs. Design Storm Release			
	2-yr Q_p (cfs)	10-yr Q_p (cfs)	100-yr Q_p (cfs)
Allowable Release	28.34	105.08	192.60
Design Storm Release Rate	10.34	88.88	183.98

Comprehensive control also requires the 40-hour extended detention of runoff from the local 90% mean annual event (1.37"/24-hour rainfall). This volume was calculated to be 55,912 cubic feet of water (per Chapter 6 of the Mid-America Regional Councils Manual for Best Management Practices, 2012 edition. This volume of water is detained within the basin and released over the required 40 hours. See **Appendix E** for Calculations.

AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400

The proposed release rates are below the allowable release rates per **Table 4** above. These release rates are accomplished via an outlet structure with varied inlet. A description of the outlet structure is included in Appendix E.

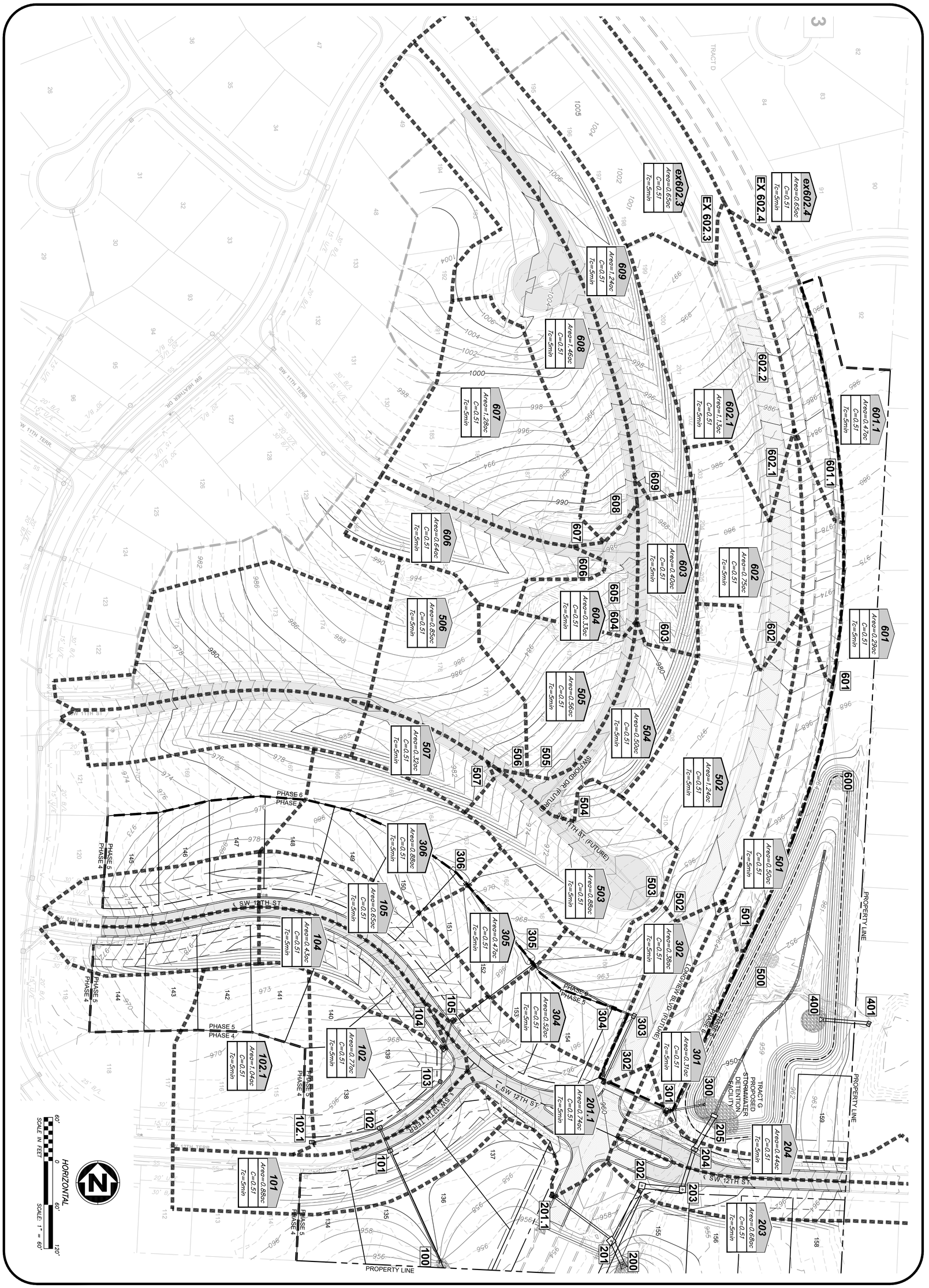
Conclusions and Recommendations

Stormwater runoff for the Highland Meadows phase 5&6, a single family housing development in Lee's Summit, MO, has been analyzed for release rate and water quality in this study. It has been shown that development of the site from its current condition to the proposed condition, if constructed as proposed with detention will not release runoff at a rate greater what is allowed by the APWA 5600, comprehensive control strategy. This will be accomplished with a single detention basin constructed on the site. This single detention basin will also release the water quality event as required by the City. It is concluded that the proposed improvements, if constructed as outlined in this study and associated plans, will meet the stormwater requirements and development criteria of the City of Lee's Summit.

AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400

Appendix A

AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400



SHEET NUMBER
C201
7 OF 24

SUMMIT HOMES KC
HIGHLAND MEADOWS - 5TH PLAT

DRAINAGE AREA PLAN

S10, T47N, R32W
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DRAWING INFO.	
DRAWN BY:	GC
CHECK BY:	ZM
LICENSE NO.	PE-2012003232
DATE:	11/11/2020
ISSUED FOR:	FOR REVIEW
JOB NUMBER:	20KC10057
MO COA NO.	000062

ANDERSON ENGINEERING
EMPLOYEE OWNED
ENGINEERS • SURVEYORS • LABORATORIES • DRILLING
811 E. THIRD STREET • JOPLIN, MISSOURI 64801 • PHONE (417) 782-7399
A LICENSED MISSOURI ENGINEERING & SURVEYING CORPORATION - LC 62

Appendix B

AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400

Map Scale: 1:2,750 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Jackson County, Missouri
Survey Area Data: Version 22, May 29, 2020

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

Date(s) aerial images were photographed: Sep 6, 2019—Nov 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
10026	Higginsville silt loam, 5 to 9 percent slopes	0.3	1.0%
10120	Sharpsburg silt loam, 2 to 5 percent slopes	8.6	35.2%
10128	Sharpsburg-Urban land complex, 2 to 5 percent slopes	0.2	0.7%
30080	Greenton silty clay loam, 5 to 9 percent slopes	15.3	63.0%
Totals for Area of Interest		**24.3**	**100.0%**


94° 26' 13" W
94° 25' 56" W
375440
375510
375580
375650
375720
375790
38° 54' 10" N
38° 53' 52" N
4306990
4306920
4306850
4306780
4306710
4306640
4306570
4306500
4306430
10120
10128
30080
10026
Soil Map may not be valid at this scale.
375370
Map Scale: 1:2,750 if printed on A portrait (8.5" x 11") sheet.
N
0
40
80
160
240
Meters
0
100
200
400
600
Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Jackson County, Missouri
Survey Area Data: Version 22, May 29, 2020

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

Date(s) aerial images were photographed: Sep 6, 2019—Nov 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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
10026	Higginsville silt loam, 5 to 9 percent slopes	C	0.3	1.0%
10120	Sharpsburg silt loam, 2 to 5 percent slopes	C	8.6	35.2%
10128	Sharpsburg-Urban land complex, 2 to 5 percent slopes	D	0.2	0.7%
30080	Greenton silty clay loam, 5 to 9 percent slopes	C/D	15.3	63.0%
Totals for Area of Interest			**24.3**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

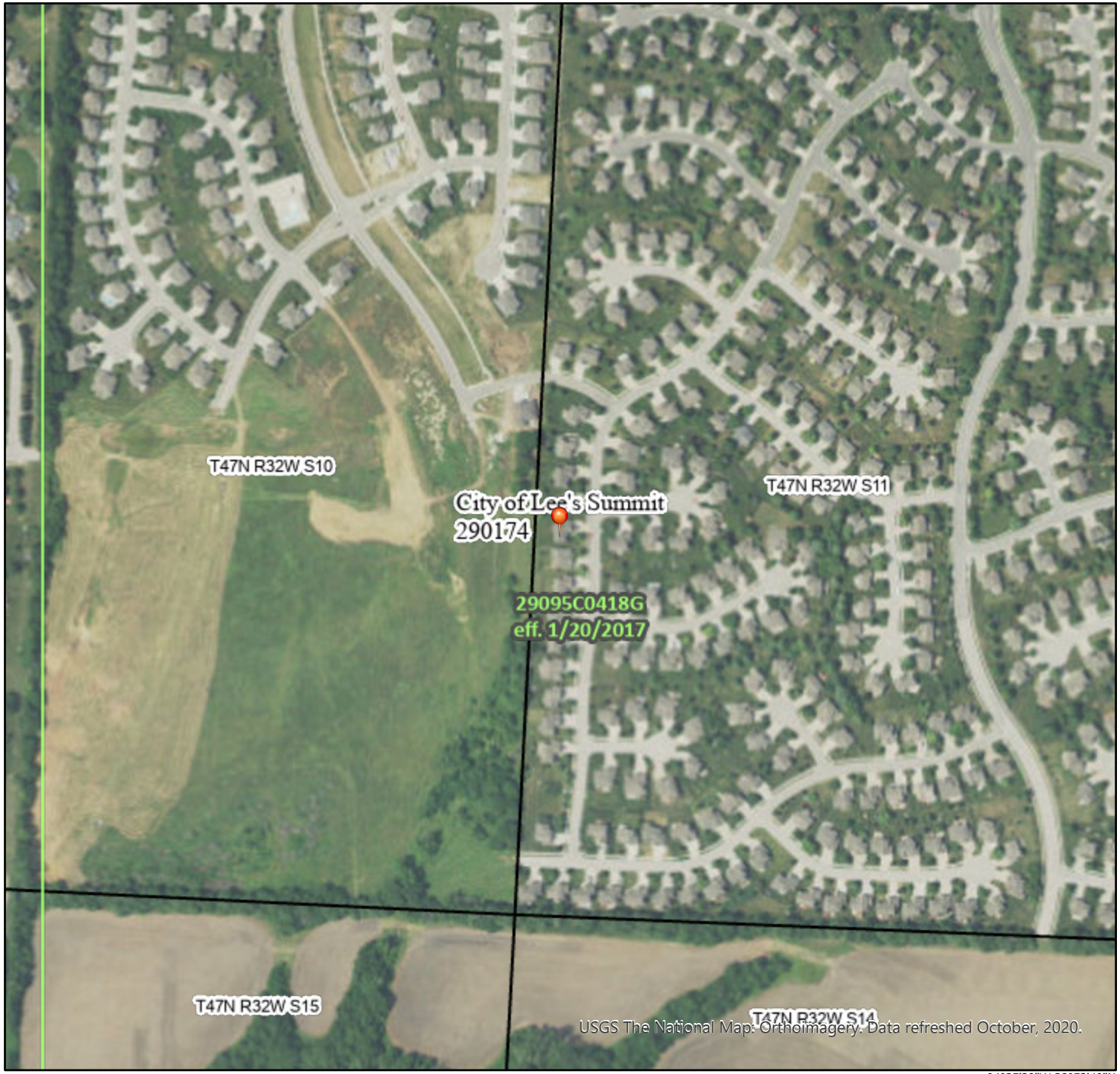
Tie-break Rule: Higher

Appendix C

AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400

National Flood Hazard Layer FIRMette

94°26'16"W 38°54'17"N



94°25'39"W 38°53'49"N

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

1:6,000

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/9/2020 at 6:46 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Appendix D

AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400

NOAA Atlas 14, Volume 8, Version 2
Location name: Lees Summit, Missouri, USA*
Latitude: 38.9034°, Longitude: -94.4391°
Elevation: 1004.85 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.414** (0.335-0.512)	**0.483** (0.391-0.598)	**0.599** (0.482-0.742)	**0.696** (0.558-0.866)	**0.833** (0.646-1.07)	**0.941** (0.712-1.22)	**1.05** (0.769-1.39)	**1.16** (0.817-1.58)	**1.32** (0.889-1.83)	**1.44** (0.943-2.02)
10-min	**0.606** (0.491-0.750)	**0.708** (0.572-0.875)	**0.876** (0.706-1.09)	**1.02** (0.817-1.27)	**1.22** (0.946-1.56)	**1.38** (1.04-1.79)	**1.54** (1.13-2.04)	**1.70** (1.20-2.31)	**1.93** (1.30-2.68)	**2.10** (1.38-2.95)
15-min	**0.740** (0.599-0.914)	**0.863** (0.698-1.07)	**1.07** (0.861-1.33)	**1.24** (0.996-1.55)	**1.49** (1.15-1.91)	**1.68** (1.27-2.18)	**1.88** (1.37-2.48)	**2.08** (1.46-2.82)	**2.35** (1.59-3.26)	**2.56** (1.69-3.60)
30-min	**1.02** (0.828-1.26)	**1.20** (0.972-1.49)	**1.50** (1.21-1.86)	**1.75** (1.40-2.17)	**2.09** (1.62-2.68)	**2.37** (1.79-3.07)	**2.64** (1.93-3.50)	**2.93** (2.05-3.96)	**3.31** (2.23-4.59)	**3.60** (2.37-5.06)
60-min	**1.34** (1.08-1.65)	**1.57** (1.27-1.94)	**1.96** (1.58-2.43)	**2.29** (1.84-2.85)	**2.76** (2.15-3.55)	**3.14** (2.38-4.07)	**3.52** (2.58-4.67)	**3.93** (2.76-5.32)	**4.47** (3.02-6.21)	**4.90** (3.22-6.88)
2-hr	**1.65** (1.35-2.03)	**1.94** (1.58-2.38)	**2.42** (1.96-2.98)	**2.84** (2.29-3.50)	**3.43** (2.68-4.38)	**3.91** (2.98-5.05)	**4.40** (3.25-5.80)	**4.92** (3.48-6.64)	**5.63** (3.83-7.78)	**6.19** (4.10-8.64)
3-hr	**1.87** (1.52-2.28)	**2.19** (1.79-2.68)	**2.74** (2.23-3.36)	**3.22** (2.60-3.96)	**3.92** (3.08-4.99)	**4.48** (3.43-5.77)	**5.07** (3.76-6.67)	**5.69** (4.05-7.66)	**6.55** (4.48-9.03)	**7.23** (4.81-10.1)
6-hr	**2.25** (1.85-2.73)	**2.65** (2.18-3.22)	**3.35** (2.74-4.08)	**3.97** (3.23-4.85)	**4.87** (3.85-6.17)	**5.60** (4.32-7.17)	**6.37** (4.75-8.33)	**7.19** (5.15-9.62)	**8.33** (5.73-11.4)	**9.23** (6.18-12.8)
12-hr	**2.65** (2.18-3.19)	**3.16** (2.61-3.81)	**4.05** (3.33-4.89)	**4.83** (3.95-5.86)	**5.96** (4.74-7.50)	**6.88** (5.34-8.75)	**7.84** (5.88-10.2)	**8.86** (6.38-11.8)	**10.3** (7.12-14.0)	**11.4** (7.68-15.6)
24-hr	**3.10** (2.57-3.71)	**3.71** (3.08-4.44)	**4.75** (3.93-5.70)	**5.67** (4.66-6.83)	**7.00** (5.59-8.74)	**8.07** (6.30-10.2)	**9.20** (6.95-11.9)	**10.4** (7.53-13.7)	**12.0** (8.40-16.3)	**13.4** (9.06-18.2)
2-day	**3.66** (3.05-4.34)	**4.30** (3.58-5.11)	**5.40** (4.49-6.43)	**6.37** (5.27-7.62)	**7.80** (6.28-9.68)	**8.96** (7.04-11.2)	**10.2** (7.74-13.0)	**11.5** (8.38-15.1)	**13.3** (9.34-17.8)	**14.7** (10.1-19.9)
3-day	**4.05** (3.40-4.79)	**4.69** (3.92-5.55)	**5.79** (4.83-6.87)	**6.77** (5.62-8.06)	**8.20** (6.63-10.1)	**9.38** (7.40-11.7)	**10.6** (8.10-13.5)	**11.9** (8.75-15.6)	**13.8** (9.73-18.4)	**15.2** (10.5-20.6)
4-day	**4.38** (3.68-5.16)	**5.01** (4.21-5.91)	**6.12** (5.11-7.23)	**7.09** (5.90-8.42)	**8.52** (6.90-10.5)	**9.69** (7.66-12.1)	**10.9** (8.35-13.9)	**12.2** (8.99-15.9)	**14.1** (9.95-18.7)	**15.5** (10.7-20.9)
7-day	**5.17** (4.36-6.06)	**5.84** (4.93-6.85)	**6.99** (5.87-8.22)	**7.98** (6.67-9.42)	**9.40** (7.64-11.5)	**10.6** (8.38-13.0)	**11.7** (9.02-14.8)	**13.0** (9.59-16.8)	**14.7** (10.5-19.5)	**16.1** (11.1-21.5)
10-day	**5.86** (4.96-6.84)	**6.60** (5.58-7.71)	**7.84** (6.61-9.18)	**8.89** (7.45-10.4)	**10.4** (8.43-12.5)	**11.5** (9.17-14.1)	**12.7** (9.79-15.9)	**13.9** (10.3-17.9)	**15.6** (11.1-20.5)	**16.9** (11.7-22.5)
20-day	**7.82** (6.66-9.06)	**8.82** (7.50-10.2)	**10.4** (8.85-12.1)	**11.8** (9.91-13.7)	**13.5** (11.0-16.2)	**14.9** (11.9-18.0)	**16.2** (12.5-20.0)	**17.5** (13.0-22.2)	**19.2** (13.7-24.9)	**20.4** (14.3-27.0)
30-day	**9.46** (8.08-10.9)	**10.7** (9.12-12.3)	**12.6** (10.7-14.6)	**14.2** (12.0-16.5)	**16.2** (13.2-19.2)	**17.7** (14.2-21.3)	**19.1** (14.8-23.5)	**20.5** (15.3-25.9)	**22.3** (16.0-28.8)	**23.5** (16.5-31.0)
45-day	**11.5** (9.90-13.3)	**13.0** (11.2-15.0)	**15.3** (13.1-17.7)	**17.1** (14.6-19.8)	**19.5** (15.9-22.9)	**21.1** (17.0-25.3)	**22.7** (17.6-27.7)	**24.2** (18.1-30.3)	**26.0** (18.7-33.4)	**27.2** (19.2-35.7)
60-day	**13.3** (11.5-15.3)	**15.0** (12.9-17.2)	**17.6** (15.1-20.2)	**19.6** (16.7-22.6)	**22.1** (18.1-26.0)	**23.9** (19.2-28.5)	**25.6** (19.9-31.1)	**27.1** (20.3-33.8)	**28.9** (20.9-37.0)	**30.0** (21.3-39.4)

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

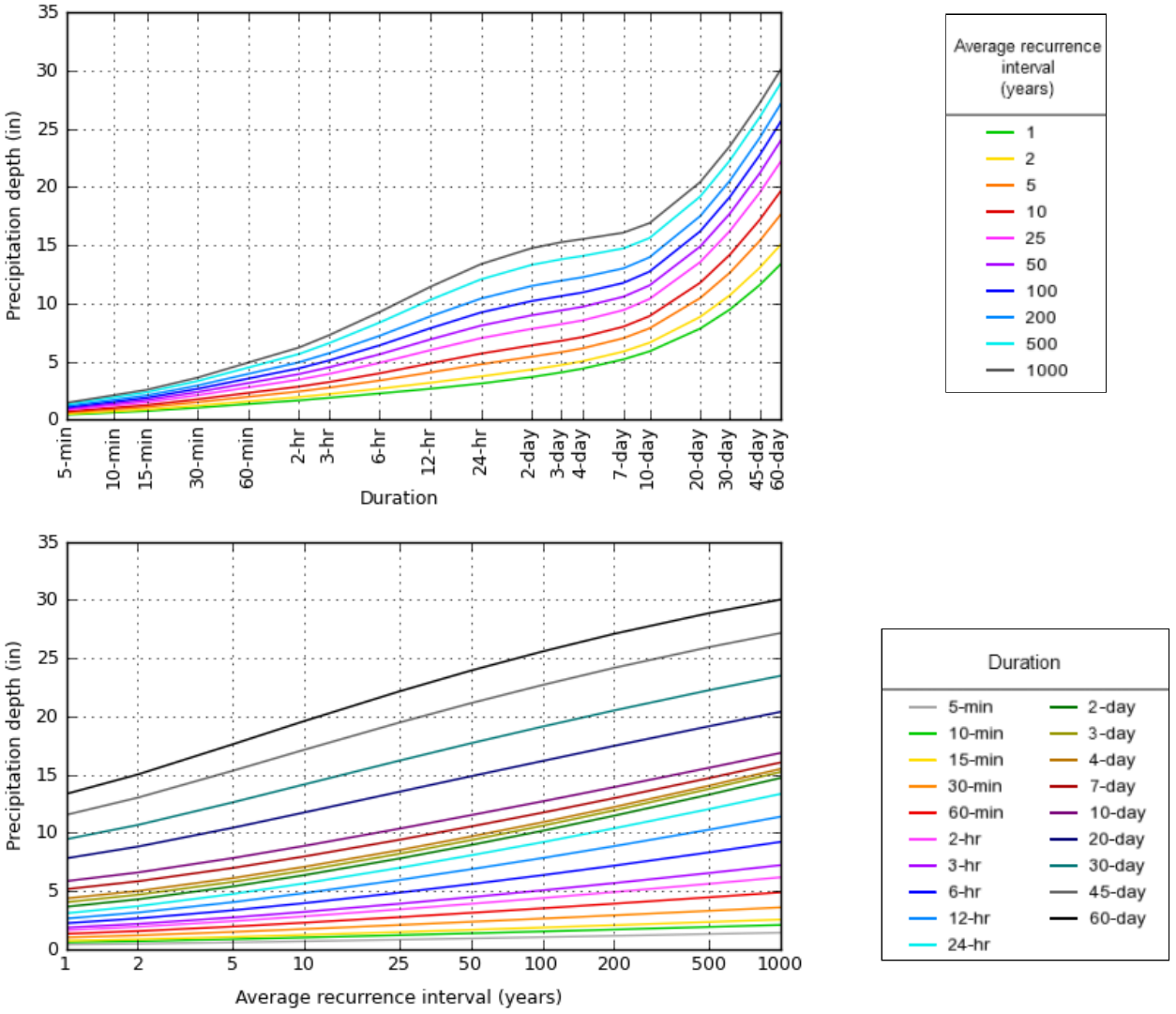
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper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

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 38.9034°, Longitude: -94.4391°



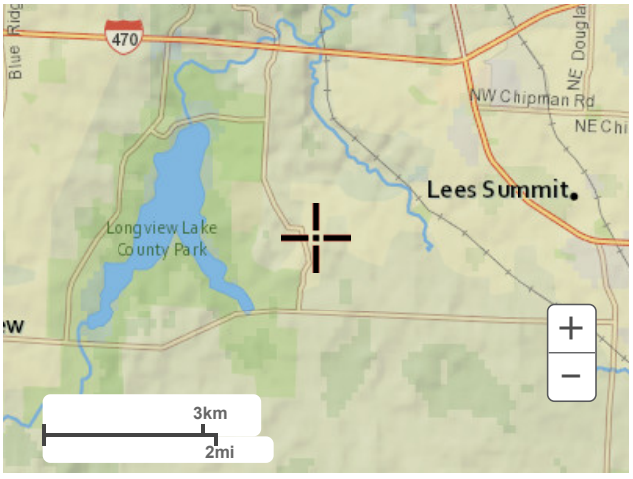
NOAA Atlas 14, Volume 8, Version 2

Created (GMT): Mon Nov 9 03:29:13 2020

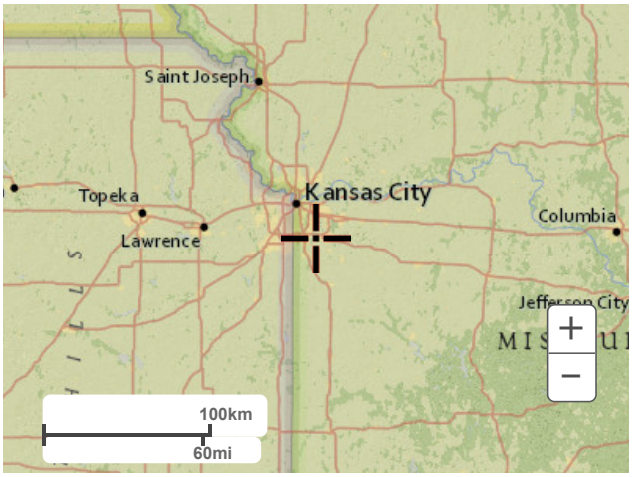
Back to Top

Maps & aerials

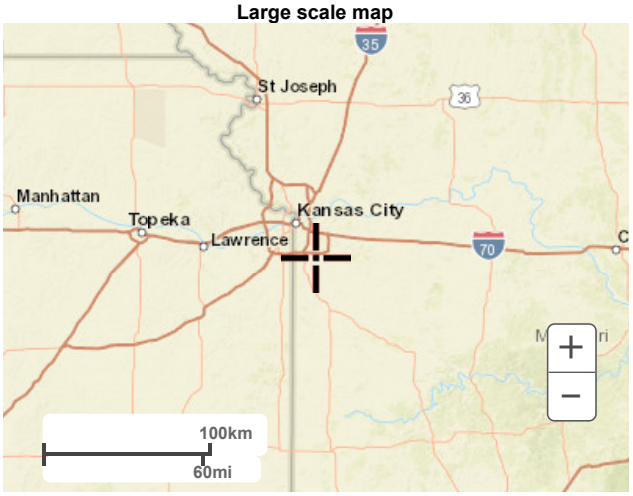
Small scale terrain



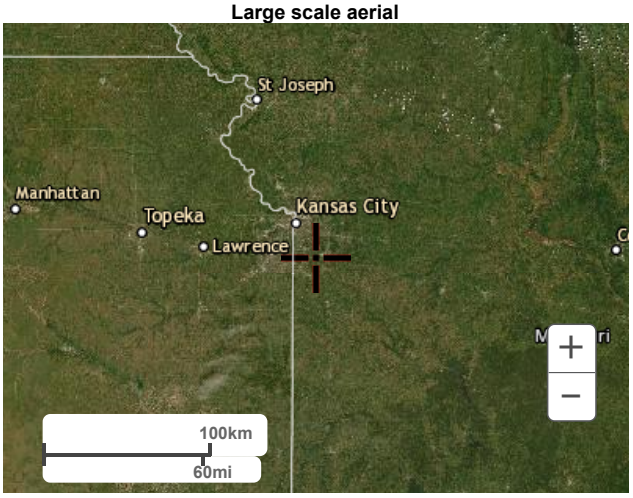
Large scale terrain



Large scale map



Large scale aerial



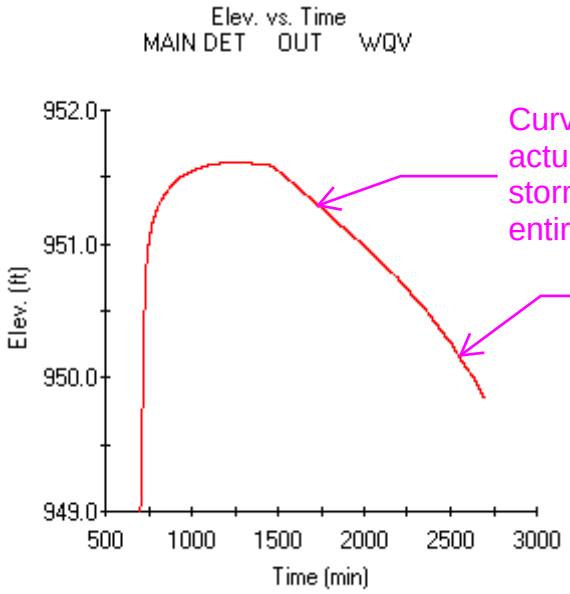
Back to Top

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

Appendix E

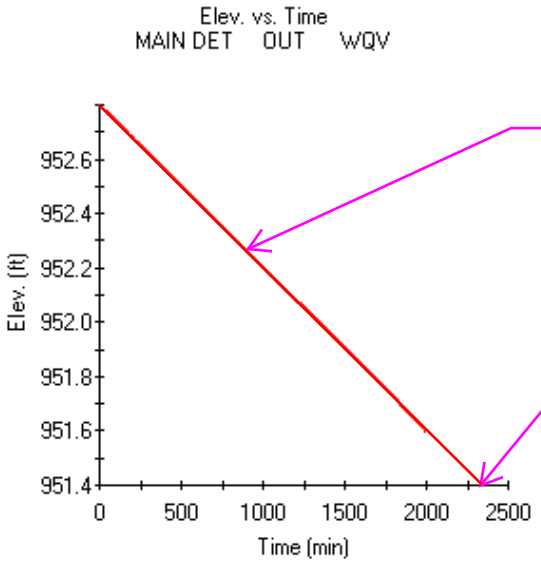
AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400

WATER QUALITY EVENT DISCHARGE OVER TIME



Curve represents actual 24 hour 90% storm event over entire basin

40 Hours (2400 Min)



Curve represents basin filling to water quality event and discharging through WQv plate only.

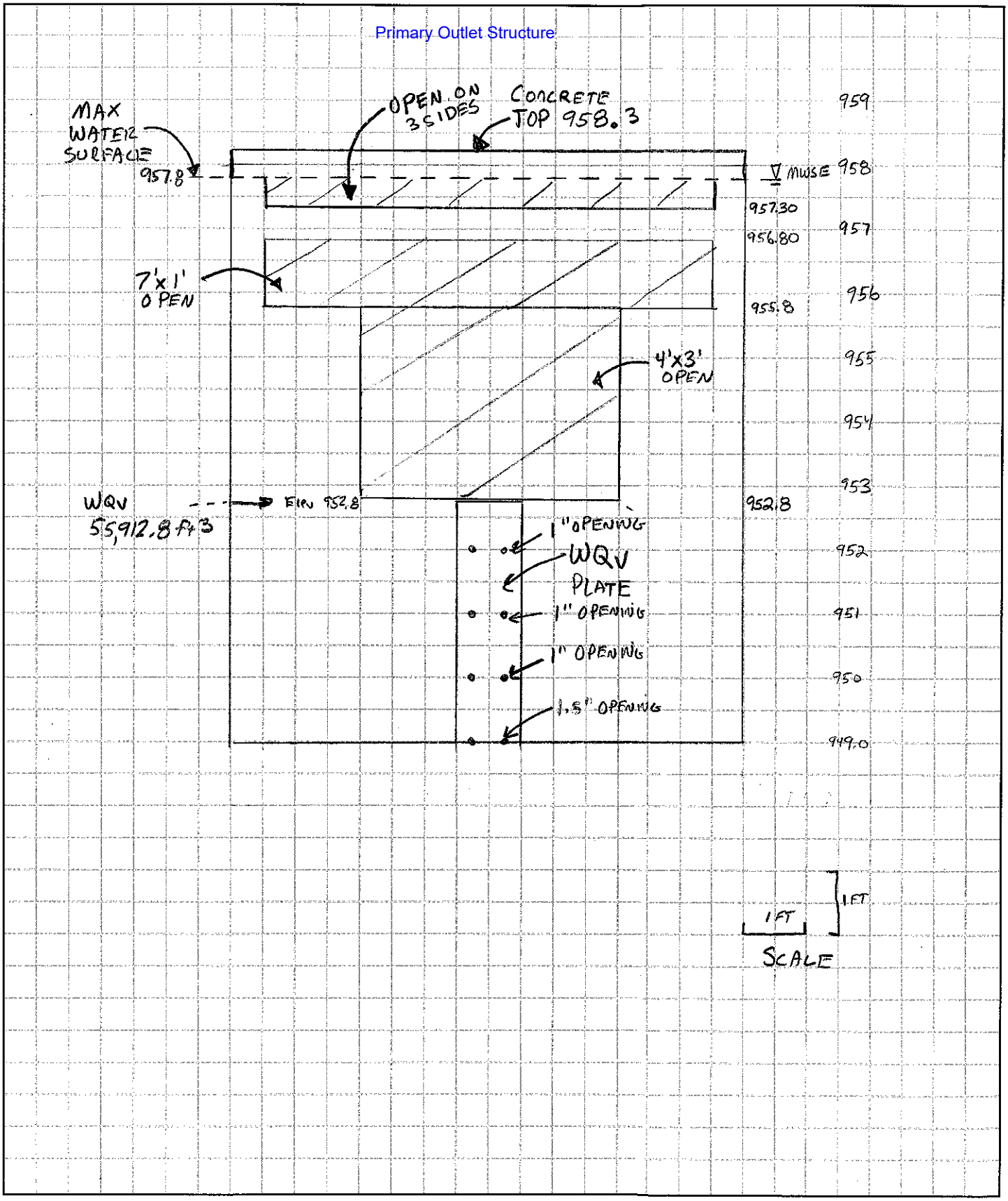
At time ~40 hours basin is ~24" deep

ANDERSON ENGINEERING
EMPLOYEE OWNED
www.AndersonEngineeringInc.com
Toll Free (866) 866-2741

CLIENT _____
CLIENT No. _____ SHEET No. _____ Of _____
CALCULATED By _____ DATE _____
CHECKED By _____ DATE _____
PROJECT Highland Meadows

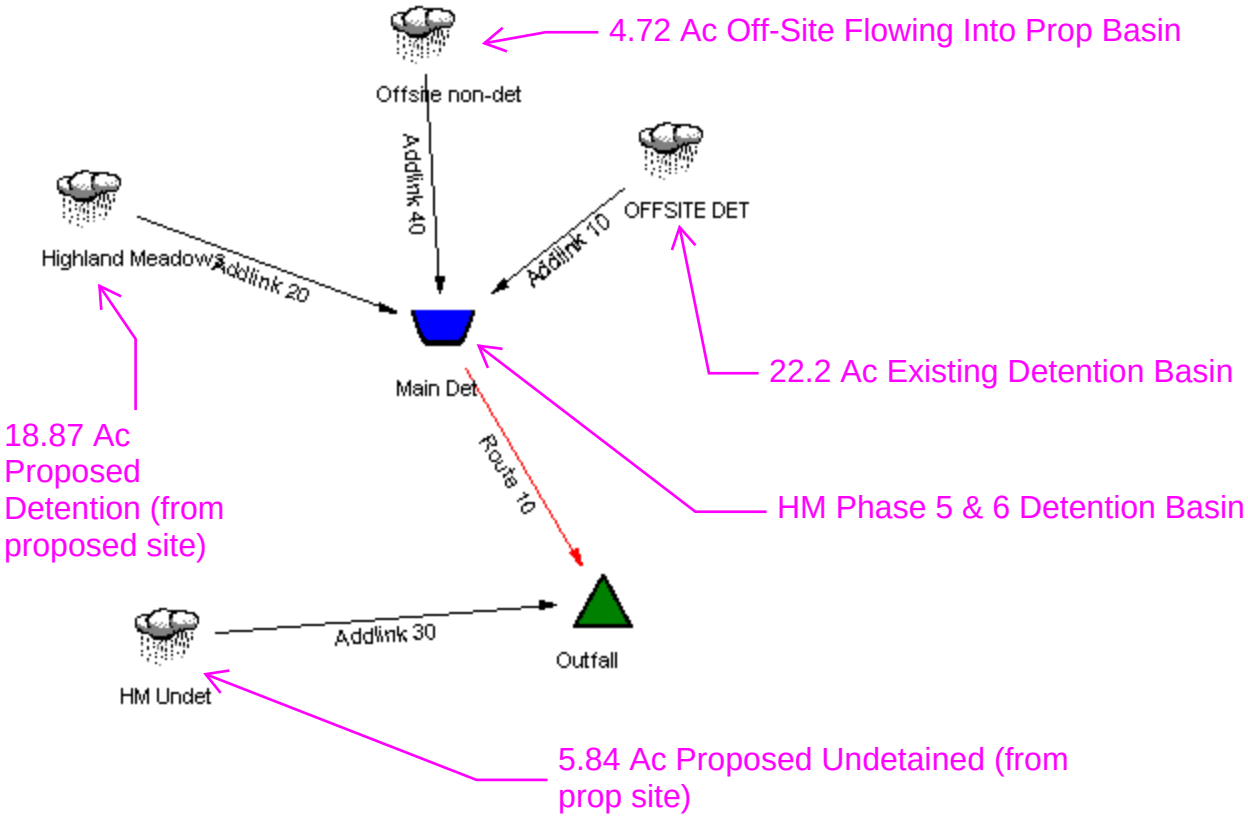
CALCULATIONS FOR:

Primary Outlet Structure



Appendix F

AndersonEngineeringInc.com
941 W. 141st Terrace, Suite A, Kansas City, Missouri 64145 • Phone: 816-777-0400


4.72 Ac Off-Site Flowing Into Prop Basin
Offsite non-det
Addlink 40
OFFSITE DET
Addlink 10
Highland Meadows
Addlink 20
22.2 Ac Existing Detention Basin
Main Det
18.87 Ac Proposed Detention (from proposed site)
Route 10
HM Phase 5 & 6 Detention Basin
Addlink 30
Outfall
HM Undet
5.84 Ac Proposed Undetained (from prop site)

MASTER DESIGN STORM SUMMARY

Network Storm Collection: SCS Lee's Summit

Return Event	Total Depth in	Rainfall Type	RNF ID
10 yr	5.6700	Synthetic Curve	TypeII 24hr
100 yr	9.2000	Synthetic Curve	TypeII 24hr
2	3.1000	Synthetic Curve	TypeII 24hr
WQV	1.3700	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak min	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
HIGHLAND MEADOWS	AREA	10	5.794		721.00	85.69		
HIGHLAND MEADOWS	AREA	100	11.017		721.00	158.97		
HIGHLAND MEADOWS	AREA	2	2.293		722.00	34.11		
HIGHLAND MEADOWS	AREA	1	.436		724.00	5.58		
HM UNDET	AREA	10	1.793		722.00	26.03		
HM UNDET	AREA	100	3.410		721.00	48.27		
HM UNDET	AREA	2	.710		723.00	10.43		
HM UNDET	AREA	1	.135		725.00	1.69		
MAIN DET	IN POND	10	12.273		723.00	144.86		
MAIN DET	IN POND	100	24.403		723.00	282.70		

MAIN DET	IN	POND	2	4.458	723.00	51.87
MAIN DET	IN	POND	1	.673	724.00	6.12

S/N: C21F01C070CE
PondPack Ver. 8.0068

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

	Return	HYG Vol		Qpeak	Qpeak	Max WSEL
Max						

Pond Storage

Node ID	Type	Event	ac-ft	Trun	min	cfs	ft	ac-ft
MAIN DET	OUT	POND	10	11.377	734.00	94.04	955.57	3.049
MAIN DET	OUT	POND	100	23.492	733.00	194.07	957.79	5.122
MAIN DET	OUT	POND	2	3.586	741.00	23.41	953.49	1.455
MAIN DET	OUT	POND	1	.221	1128.00	.08	952.06	.590
OFFSITE DET		AREA	10	5.334	732.00	54.51		
OFFSITE DET		AREA	100	11.021	732.00	112.38		
OFFSITE DET		AREA	2	1.783	732.00	16.99		
OFFSITE DET		AREA	1	.195	740.00	.78		
OFFSITE NON-DET		AREA	10	1.144	721.00	18.06		
OFFSITE NON-DET		AREA	100	2.365	720.00	36.75		
OFFSITE NON-DET		AREA	2	.382	722.00	5.83		
OFFSITE NON-DET		AREA	1	.042	725.00	.29		
*OUTFALL		JCT	10	13.171	729.00	108.65		
*OUTFALL		JCT	100	26.902	730.00	220.29		
*OUTFALL		JCT	2	4.296	739.00	26.31		
*OUTFALL		JCT	1	.356	725.00	1.75		

==========
JOB TITLE
==========

Project Date: 11/10/2020
Project Engineer: Patrick Joyce
Project Title: Highland Meadows
Project Comments:

Table of Contents

Table of Contents (continued)

MASTER DESIGN STORM SUMMARY

Network Storm Collection: SCS Lee's Summit

Return Event	Total Depth in	Rainfall Type	RNF ID
10 yr	5.6700	Synthetic Curve	TypeII 24hr
100 yr	9.2000	Synthetic Curve	TypeII 24hr
2	3.1000	Synthetic Curve	TypeII 24hr
WQV	1.3700	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak min	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
HIGHLAND MEADOWS	AREA	10	5.794		721.00	85.69		
HIGHLAND MEADOWS	AREA	100	11.017		721.00	158.97		
HIGHLAND MEADOWS	AREA	2	2.293		722.00	34.11		
HIGHLAND MEADOWS	AREA	1	.436		724.00	5.58		
HM UNDET	AREA	10	1.793		722.00	26.03		
HM UNDET	AREA	100	3.410		721.00	48.27		
HM UNDET	AREA	2	.710		723.00	10.43		
HM UNDET	AREA	1	.135		725.00	1.69		
MAIN DET	IN POND	10	12.273		723.00	144.86		
MAIN DET	IN POND	100	24.403		723.00	282.70		
MAIN DET	IN POND	2	4.458		723.00	51.87		
MAIN DET	IN POND	1	.673		724.00	6.12		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak min	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
MAIN DET	OUT POND	10	11.377		734.00	94.04	955.57	3.049
MAIN DET	OUT POND	100	23.492		733.00	194.07	957.79	5.122
MAIN DET	OUT POND	2	3.586		741.00	23.41	953.49	1.455
MAIN DET	OUT POND	1	.221		1128.00	.08	952.06	.590
OFFSITE DET	AREA	10	5.334		732.00	54.51		
OFFSITE DET	AREA	100	11.021		732.00	112.38		
OFFSITE DET	AREA	2	1.783		732.00	16.99		
OFFSITE DET	AREA	1	.195		740.00	.78		
OFFSITE NON-DET	AREA	10	1.144		721.00	18.06		
OFFSITE NON-DET	AREA	100	2.365		720.00	36.75		
OFFSITE NON-DET	AREA	2	.382		722.00	5.83		
OFFSITE NON-DET	AREA	1	.042		725.00	.29		
*OUTFALL	JCT	10	13.171		729.00	108.65		
*OUTFALL	JCT	100	26.902		730.00	220.29		
*OUTFALL	JCT	2	4.296		739.00	26.31		
*OUTFALL	JCT	1	.356		725.00	1.75		

File.... F:\
Title... Project Date: 11/10/2020
Project Engineer: Patrick Joyce
Project Title: Highland Meadows
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File,ID = SCS Lee's Summit

Storm Tag Name = 10 yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.6700 in
Duration Multiplier = 1
Resulting Duration = 1440.00 min
Resulting Start Time= .00 min Step= 6.00 min End= 1440.00 min

Storm Tag Name = 100 yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 9.2000 in
Duration Multiplier = 1
Resulting Duration = 1440.00 min
Resulting Start Time= .00 min Step= 6.00 min End= 1440.00 min

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.1000 in
Duration Multiplier = 1
Resulting Duration = 1440.00 min
Resulting Start Time= .00 min Step= 6.00 min End= 1440.00 min

Storm Tag Name = WQV

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 1 yr

Total Rainfall Depth= 1.3700 in
Duration Multiplier = 1
Resulting Duration = 1440.00 min
Resulting Start Time= .00 min Step= 6.00 min End= 1440.00 min

DESIGN STORMS SUMMARY

Design Storm File,ID = SCS Lee's Summit

Storm Tag Name = 10 yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.6700 in
Duration Multiplier = 1
Resulting Duration = 1440.00 min
Resulting Start Time= .00 min Step= 6.00 min End= 1440.00 min

Storm Tag Name = 100 yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 9.2000 in
Duration Multiplier = 1
Resulting Duration = 1440.00 min
Resulting Start Time= .00 min Step= 6.00 min End= 1440.00 min

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.1000 in
Duration Multiplier = 1
Resulting Duration = 1440.00 min
Resulting Start Time= .00 min Step= 6.00 min End= 1440.00 min

Storm Tag Name = WQV

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 1 yr
Total Rainfall Depth= 1.3700 in
Duration Multiplier = 1
Resulting Duration = 1440.00 min
Resulting Start Time= .00 min Step= 6.00 min End= 1440.00 min

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: User Defined

Segment #1 Time: 13.90 min

Total Tc: 13.90 min

Tc Equations used...

==== User Defined ====

Tc = Value entered by user

Where: Tc = Time of concentration

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: 14.50 min

Total Tc: 14.50 min

Tc Equations used...

==== User Defined ====

Tc = Value entered by user

Where: Tc = Time of concentration

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: 30.00 min

==========
Total Tc: 30.00 min
==========

Tc Equations used...

==== User Defined ==

Tc = Value entered by user

Where: Tc = Time of concentration

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: 11.70 min

==========
Total Tc: 11.70 min
==========

Tc Equations used...

==== User Defined ==

Tc = Value entered by user

Where: Tc = Time of concentration

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

DEFINITION OF TERMS: ----------

At = Total area (acres): At = Ai+Ap
Ai = Impervious area (acres)
Ap = Pervious area (acres)
CNi = Runoff curve number for impervious area
CNp = Runoff curve number for pervious area
fLoss = f loss constant infiltration (depth/time)
gKs = Saturated Hydraulic Conductivity (depth/time)
Md = Volumetric Moisture Deficit
Psi = Capillary Suction (length)
hK = Horton Infiltration Decay Rate (time^-1)
fo = Initial Infiltration Rate (depth/time)
fc = Ultimate(capacity)Infiltration Rate (depth/time)
Ia = Initial Abstraction (length)
dt = Computational increment (duration of unit excess rainfall)
Default dt is smallest value of 0.1333Tc, rtm, and th
(Smallest dt is then adjusted to match up with Tp)
UDdt = User specified override computational main time increment
(only used if UDdt is => .1333Tc)
D(t) = Point on distribution curve (fraction of P) for time step t

K = 2 / (1 + (Tr/Tp)): default K = 0.75: (for Tr/Tp = 1.67)
Ks = Hydrograph shape factor
= Unit Conversions * K:
= ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K
Default Ks = 645.333 * 0.75 = 484

Lag = Lag time from center of excess runoff (dt) to Tp: Lag = 0.6Tc
P = Total precipitation depth, inches
Pa(t) = Accumulated rainfall at time step t
Pi(t) = Incremental rainfall at time step t
qp = Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi.
= (Ks * A * Q) / Tp (where Q = 1in. runoff, A=sq.mi.)
Qu(t) = Unit hydrograph ordinate (cfs) at time step t
Q(t) = Final hydrograph ordinate (cfs) at time step t
Rai(t)= Accumulated runoff (inches) at time step t for impervious area
Rap(t)= Accumulated runoff (inches) at time step t for pervious area
Rii(t)= Incremental runoff (inches) at time step t for impervious area
Rip(t)= Incremental runoff (inches) at time step t for pervious area
R(t) = Incremental weighted total runoff (inches)
Rtm = Time increment for rainfall table
Si = S for impervious area: Si = (1000/CNi) - 10
Sp = S for pervious area: Sp = (1000/CNp) - 10
t = Time step (row) number
Tc = Time of concentration
Tb = Time (hrs) of entire unit hydrograph: Tb = Tp + Tr

Tp = Time (hrs) to peak of a unit hydrograph: Tp = (dt/2) + Lag
Tr = Time (hrs) of receding limb of unit hydrograph: Tr = ratio of Tp

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

PRECIPITATION: ----------
Column (1): Time for time step t
Column (2): D(t) = Point on distribution curve for time step t
Column (3): Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4): Pa(t) = D(t) x P: Col.(2) x P

PERVIOUS AREA RUNOFF (using SCS Runoff CN Method) ----------
Column (5): Rap(t) = Accumulated pervious runoff for time step t
If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
If (Pa(t) is > 0.2Sp) then use:

Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6): Rip(t) = Incremental pervious runoff for time step t
Rip(t) = Rap(t) - Rap(t-1)
Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

IMPERVIOUS AREA RUNOFF ----------
Column (7 & 8)... Did not specify to use impervious areas.

INCREMENTAL WEIGHTED RUNOFF: ----------
Column (9): R(t) = (Ap/At) x Rip(t) + (Ai/At) x Rii(t)
R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS UNIT HYDROGRAPH METHOD: ----------
Column (10): Q(t) is computed with the SCS unit hydrograph method
using R() and Qu().

File.... F:\HIGHLAND MEADOWS.PPW
Storm... TypeII 24hr   Tag: 2

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUTFALL

HYG Directory: F:\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 30	HM UNDET		HM UNDET	2
ROUTE 10	MAIN DET	IN	ROUTE 10	2

INFLOWS TO: OUTFALL

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time min	Peak Flow cfs
	HM UNDET	2	.710	723.00	10.43
	ROUTE 10	2	3.586	741.00	23.41

TOTAL FLOW INTO: OUTFALL

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time min	Peak Flow cfs
	OUTFALL	2	4.296	739.00	26.31

S/N: C21F01C070CE   Bowers Engineering Inc
PondPack Ver: Compute Time: Date:

TOTAL NODE INFLOW...
HYG file =
HYG ID   = OUTFALL
HYG Tag =   2

Peak Discharge = 26.31 cfs
Time to Peak   = 739.00 min
HYG Volume   = 4.296 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time min	Output Time increment = 1.00 min Time on left represents time for first value in each row.				
538.00	.00	.00	.00	.00	.00
543.00	.00	.01	.01	.01	.01
548.00	.01	.01	.01	.02	.02
553.00	.02	.02	.02	.03	.03
558.00	.03	.03	.04	.04	.04
563.00	.04	.04	.04	.04	.05
568.00	.05	.05	.05	.05	.05
573.00	.05	.05	.05	.06	.06
578.00	.06	.06	.06	.06	.06
583.00	.06	.07	.07	.07	.07
588.00	.07	.07	.08	.08	.08
593.00	.08	.08	.08	.09	.09
598.00	.09	.09	.09	.09	.10
603.00	.10	.10	.10	.10	.10
608.00	.11	.11	.11	.11	.11
613.00	.12	.12	.12	.12	.13
618.00	.13	.13	.13	.14	.14
623.00	.14	.14	.15	.15	.15
628.00	.15	.16	.16	.16	.16
633.00	.17	.17	.17	.18	.18
638.00	.18	.19	.19	.19	.20
643.00	.20	.20	.21	.21	.22
648.00	.22	.23	.23	.23	.24
653.00	.24	.25	.25	.26	.26
658.00	.27	.27	.28	.28	.29
663.00	.29	.30	.31	.31	.32
668.00	.33	.33	.34	.35	.36
673.00	.37	.38	.38	.39	.40
678.00	.42	.43	.44	.45	.46
683.00	.47	.48	.50	.51	.52
688.00	.54	.55	.56	.58	.60

HYDROGRAPH ORDINATES (cfs)

Time min	Output Time increment = 1.00 min Time on left represents time for first value in each row.				
693.00	.63	.67	.71	.77	.84
698.00	.92	1.03	1.15	1.30	1.46
703.00	1.67	1.88	2.13	2.39	2.70

708.00	3.03	3.42	3.85	4.33	4.89
713.00	5.52	6.21	6.94	7.66	8.38
718.00	9.00	9.58	9.98	10.34	10.45
723.00	10.52	10.30	12.17	15.07	17.53
728.00	19.50	21.14	22.46	23.46	24.27
733.00	24.88	25.36	25.71	26.00	26.18
738.00	26.29	26.31	26.28	26.18	26.02
743.00	25.81	25.55	25.25	24.92	24.55
748.00	24.15	23.73	23.30	22.84	22.38
753.00	21.90	21.42	20.94	20.46	19.98
758.00	19.50	19.03	18.57	18.11	17.67
763.00	17.23	16.81	16.39	15.98	15.58
768.00	15.20	14.82	14.46	14.11	13.77
773.00	13.44	13.12	12.82	12.52	12.23
778.00	11.95	11.69	11.43	11.18	10.94
783.00	10.71	10.48	10.27	10.06	9.86
788.00	9.67	9.48	9.31	9.13	8.97
793.00	8.80	8.65	8.50	8.35	8.21
798.00	8.08	7.95	7.82	7.70	7.58
803.00	7.47	7.36	7.25	7.14	7.04
808.00	6.94	6.85	6.76	6.67	6.58
813.00	6.50	6.42	6.34	6.26	6.19
818.00	6.12	6.05	5.98	5.92	5.85
823.00	5.79	5.73	5.67	5.61	5.56
828.00	5.50	5.45	5.39	5.34	5.29
833.00	5.24	5.20	5.15	5.10	5.06
838.00	5.01	4.97	4.93	4.88	4.84
843.00	4.80	4.76	4.72	4.68	4.64
848.00	4.61	4.57	4.54	4.50	4.47
853.00	4.44	4.41	4.37	4.34	4.31
858.00	4.29	4.26	4.23	4.20	4.18
863.00	4.15	4.13	4.10	4.08	4.05
868.00	4.03	4.01	3.99	3.97	3.95
873.00	3.93	3.91	3.89	3.87	3.86
878.00	3.84	3.82	3.81	3.79	3.78
883.00	3.76	3.75	3.74	3.72	3.71
888.00	3.70	3.68	3.67	3.66	3.65
893.00	3.63	3.62	3.61	3.59	3.58
898.00	3.57	3.56	3.54	3.53	3.52
903.00	3.50	3.49	3.48	3.47	3.45
908.00	3.44	3.43	3.42	3.41	3.39
913.00	3.38	3.37	3.36	3.35	3.34

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
918.00	3.32	3.31	3.30	3.29	3.27
923.00	3.26	3.25	3.23	3.22	3.21
928.00	3.20	3.18	3.17	3.16	3.15
933.00	3.13	3.12	3.11	3.10	3.09
938.00	3.08	3.06	3.05	3.04	3.03
943.00	3.02	3.01	3.00	2.99	2.98
948.00	2.97	2.96	2.95	2.94	2.93
953.00	2.92	2.90	2.89	2.88	2.87
958.00	2.86	2.85	2.83	2.82	2.81
963.00	2.79	2.78	2.77	2.76	2.75
968.00	2.73	2.72	2.71	2.70	2.69
973.00	2.68	2.67	2.66	2.64	2.63
978.00	2.63	2.62	2.61	2.60	2.59
983.00	2.59	2.58	2.57	2.56	2.56
988.00	2.55	2.54	2.54	2.53	2.52
993.00	2.52	2.51	2.51	2.50	2.50
998.00	2.49	2.49	2.48	2.48	2.47
1003.00	2.46	2.46	2.45	2.45	2.44
1008.00	2.43	2.43	2.42	2.42	2.41
1013.00	2.41	2.40	2.40	2.39	2.39
1018.00	2.38	2.38	2.38	2.37	2.37
1023.00	2.36	2.36	2.36	2.35	2.35
1028.00	2.34	2.34	2.33	2.33	2.32
1033.00	2.32	2.31	2.31	2.30	2.30
1038.00	2.29	2.29	2.28	2.28	2.28
1043.00	2.27	2.27	2.26	2.26	2.25
1048.00	2.25	2.24	2.24	2.23	2.23
1053.00	2.23	2.22	2.22	2.22	2.21
1058.00	2.21	2.20	2.20	2.20	2.19
1063.00	2.19	2.18	2.18	2.18	2.17
1068.00	2.17	2.16	2.16	2.15	2.15
1073.00	2.14	2.14	2.13	2.13	2.13
1078.00	2.12	2.12	2.12	2.11	2.11
1083.00	2.11	2.10	2.10	2.09	2.09
1088.00	2.09	2.08	2.08	2.07	2.07
1093.00	2.06	2.06	2.05	2.05	2.04
1098.00	2.04	2.03	2.03	2.03	2.02
1103.00	2.02	2.02	2.01	2.01	2.00
1108.00	2.00	2.00	1.99	1.99	1.98
1113.00	1.98	1.97	1.97	1.96	1.96
1118.00	1.95	1.95	1.94	1.94	1.93
1123.00	1.93	1.93	1.92	1.92	1.92
1128.00	1.91	1.91	1.90	1.90	1.90
1133.00	1.89	1.89	1.88	1.88	1.87
1138.00	1.87	1.86	1.86	1.85	1.85

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1143.00	1.84	1.84	1.83	1.83	1.82
1148.00	1.82	1.82	1.81	1.81	1.81
1153.00	1.80	1.80	1.79	1.79	1.79
1158.00	1.78	1.78	1.77	1.77	1.77
1163.00	1.76	1.76	1.75	1.75	1.75
1168.00	1.74	1.74	1.73	1.73	1.73
1173.00	1.72	1.71	1.71	1.70	1.70
1178.00	1.69	1.69	1.68	1.68	1.67
1183.00	1.67	1.66	1.66	1.65	1.65
1188.00	1.64	1.64	1.63	1.63	1.62
1193.00	1.62	1.61	1.61	1.60	1.60
1198.00	1.60	1.59	1.59	1.59	1.58
1203.00	1.58	1.57	1.57	1.57	1.56
1208.00	1.56	1.55	1.55	1.55	1.54
1213.00	1.54	1.53	1.53	1.53	1.53
1218.00	1.52	1.52	1.52	1.51	1.51
1223.00	1.51	1.51	1.51	1.50	1.50
1228.00	1.50	1.50	1.49	1.49	1.49
1233.00	1.48	1.48	1.48	1.47	1.47
1238.00	1.47	1.47	1.47	1.46	1.46
1243.00	1.46	1.46	1.46	1.46	1.46
1248.00	1.46	1.46	1.45	1.45	1.45
1253.00	1.45	1.45	1.45	1.44	1.44
1258.00	1.44	1.44	1.44	1.44	1.44
1263.00	1.44	1.44	1.43	1.43	1.43
1268.00	1.43	1.43	1.43	1.43	1.43
1273.00	1.43	1.43	1.43	1.43	1.43
1278.00	1.43	1.43	1.43	1.43	1.43
1283.00	1.43	1.43	1.43	1.42	1.42
1288.00	1.42	1.42	1.42	1.42	1.42
1293.00	1.41	1.41	1.41	1.41	1.41
1298.00	1.41	1.41	1.41	1.42	1.42
1303.00	1.42	1.41	1.41	1.41	1.41
1308.00	1.41	1.41	1.41	1.41	1.41
1313.00	1.40	1.40	1.40	1.40	1.40
1318.00	1.40	1.40	1.40	1.39	1.39
1323.00	1.39	1.39	1.39	1.39	1.39

1328.00	1.39	1.39	1.39	1.38	1.38
1333.00	1.38	1.38	1.38	1.38	1.38
1338.00	1.38	1.38	1.38	1.38	1.38
1343.00	1.38	1.38	1.38	1.38	1.38
1348.00	1.38	1.37	1.37	1.37	1.37
1353.00	1.37	1.36	1.36	1.36	1.36
1358.00	1.36	1.36	1.36	1.36	1.36
1363.00	1.36	1.36	1.36	1.35	1.35

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1368.00	1.35	1.35	1.35	1.35	1.35
1373.00	1.35	1.34	1.34	1.34	1.34
1378.00	1.34	1.34	1.34	1.34	1.34
1383.00	1.34	1.33	1.33	1.33	1.33
1388.00	1.33	1.33	1.33	1.33	1.33
1393.00	1.33	1.33	1.33	1.33	1.33
1398.00	1.33	1.33	1.33	1.33	1.33
1403.00	1.33	1.33	1.33	1.33	1.32
1408.00	1.32	1.32	1.32	1.32	1.32
1413.00	1.32	1.31	1.31	1.31	1.31
1418.00	1.31	1.31	1.32	1.32	1.32
1423.00	1.32	1.32	1.31	1.31	1.31
1428.00	1.31	1.31	1.31	1.31	1.31
1433.00	1.30	1.30	1.30	1.30	1.30
1438.00	1.30	1.30	1.29	1.29	1.29
1443.00	1.28	1.27	1.26	1.24	1.22
1448.00	1.19	1.16	1.13	1.09	1.05
1453.00	1.02	.98	.94	.90	.87
1458.00	.83	.80	.76	.73	.69
1463.00	.66	.63	.60	.57	.54
1468.00	.52	.49	.46	.44	.42
1473.00	.39	.37	.35	.33	.31
1478.00	.30	.28	.26	.25	.23
1483.00	.22	.21	.20	.18	.17
1488.00	.16	.15	.14	.14	.13
1493.00	.12	.11	.11	.10	.09
1498.00	.09	.09	.09	.09	.09
1503.00	.09	.09	.09	.09	.09
1508.00	.09	.09	.09	.09	.09

1513.00	.09	.09	.09	.09	.09
1518.00	.09	.09	.09	.09	.09
1523.00	.09	.09	.09	.09	.09
1528.00	.09	.09	.09	.09	.09
1533.00	.09	.09	.09	.09	.09
1538.00	.09	.09	.09	.09	.09
1543.00	.09	.09	.09	.09	.09
1548.00	.09	.09	.09	.09	.09
1553.00	.09	.09	.09	.09	.09
1558.00	.09	.09	.09	.09	.09
1563.00	.09	.09	.09	.09	.09
1568.00	.09	.09	.09	.09	.09
1573.00	.09	.09	.09	.09	.09
1578.00	.09	.09	.09	.09	.09
1583.00	.09	.09	.09	.09	.09
1588.00	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1593.00	.09	.09	.09	.09	.09
1598.00	.09	.09	.09	.09	.09
1603.00	.09	.09	.09	.09	.09
1608.00	.09	.09	.09	.09	.09
1613.00	.09	.09	.09	.09	.09
1618.00	.09	.09	.09	.09	.09
1623.00	.09	.09	.09	.09	.09
1628.00	.09	.09	.09	.09	.09
1633.00	.09	.09	.09	.09	.09
1638.00	.09	.09	.09	.09	.09
1643.00	.09	.09	.09	.09	.09
1648.00	.09	.09	.09	.09	.09
1653.00	.09	.09	.09	.09	.09
1658.00	.09	.09	.09	.09	.09
1663.00	.09	.09	.09	.09	.09
1668.00	.09	.09	.09	.09	.09
1673.00	.09	.09	.09	.09	.09
1678.00	.09	.09	.09	.09	.09
1683.00	.09	.09	.09	.09	.09
1688.00	.09	.09	.09	.09	.09
1693.00	.09	.09	.09	.09	.09

1698.00	.09	.09	.09	.09	.09
1703.00	.09	.09	.09	.09	.09
1708.00	.09	.09	.09	.09	.09
1713.00	.09	.09	.09	.09	.09
1718.00	.09	.09	.09	.09	.09
1723.00	.09	.09	.09	.09	.09
1728.00	.09	.09	.09	.09	.09
1733.00	.09	.09	.09	.09	.09
1738.00	.09	.09	.09	.09	.09
1743.00	.09	.09	.09	.09	.09
1748.00	.09	.09	.09	.09	.09
1753.00	.09	.09	.09	.09	.09
1758.00	.09	.09	.09	.09	.09
1763.00	.09	.09	.09	.09	.09
1768.00	.09	.09	.09	.09	.09
1773.00	.09	.09	.09	.09	.09
1778.00	.09	.09	.09	.09	.09
1783.00	.09	.09	.09	.09	.09
1788.00	.09	.09	.09	.09	.09
1793.00	.09	.09	.09	.09	.09
1798.00	.09	.09	.09	.09	.09
1803.00	.09	.09	.09	.09	.09
1808.00	.09	.09	.09	.09	.09
1813.00	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1818.00	.09	.09	.09	.09	.09
1823.00	.09	.09	.09	.09	.09
1828.00	.09	.09	.09	.09	.09
1833.00	.09	.09	.09	.09	.09
1838.00	.09	.09	.09	.09	.09
1843.00	.09	.09	.09	.09	.09
1848.00	.09	.09	.09	.09	.09
1853.00	.09	.09	.09	.09	.09
1858.00	.09	.09	.09	.09	.09
1863.00	.09	.09	.09	.09	.09
1868.00	.09	.09	.09	.09	.09
1873.00	.09	.09	.09	.09	.09
1878.00	.09	.09	.09	.09	.09

1883.00	.09	.09	.09	.09	.09
1888.00	.09	.09	.09	.09	.09
1893.00	.09	.09	.09	.09	.09
1898.00	.09	.09	.09	.09	.09
1903.00	.09	.09	.09	.09	.09
1908.00	.09	.09	.09	.09	.09
1913.00	.09	.09	.09	.09	.09
1918.00	.09	.09	.09	.09	.09
1923.00	.09	.09	.09	.09	.09
1928.00	.09	.09	.09	.09	.09
1933.00	.09	.09	.09	.09	.09
1938.00	.09	.09	.09	.09	.09
1943.00	.09	.09	.09	.09	.09
1948.00	.09	.09	.09	.09	.09
1953.00	.09	.09	.09	.09	.09
1958.00	.09	.09	.09	.09	.09
1963.00	.09	.09	.09	.09	.09
1968.00	.09	.09	.09	.09	.09
1973.00	.09	.09	.09	.09	.09
1978.00	.09	.09	.09	.09	.09
1983.00	.09	.09	.09	.09	.09
1988.00	.09	.09	.09	.09	.09
1993.00	.09	.09	.09	.09	.09
1998.00	.09	.09	.09	.09	.09
2003.00	.09	.09	.09	.09	.09
2008.00	.09	.09	.09	.09	.09
2013.00	.09	.09	.09	.09	.09
2018.00	.09	.09	.09	.09	.09
2023.00	.09	.09	.09	.09	.09
2028.00	.09	.09	.09	.09	.09
2033.00	.09	.09	.09	.09	.09
2038.00	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
2043.00	.09	.09	.09	.09	.09
2048.00	.09	.09	.09	.09	.09
2053.00	.09	.09	.09	.09	.09
2058.00	.09	.09	.09	.09	.09
2063.00	.09	.09	.09	.09	.09

2068.00	.09	.09	.09	.09	.09
2073.00	.09	.09	.09	.09	.09
2078.00	.09	.09	.09	.09	.09
2083.00	.09	.09	.09	.09	.09
2088.00	.09	.09	.09	.09	.09
2093.00	.09	.09	.09	.09	.09
2098.00	.09	.09	.09	.09	.09
2103.00	.09	.09	.09	.09	.09
2108.00	.09	.09	.09	.09	.09
2113.00	.09	.09	.09	.09	.09
2118.00	.09	.09	.09	.09	.09
2123.00	.09	.09	.09	.09	.09
2128.00	.09	.09	.09	.09	.09
2133.00	.09	.09	.09	.09	.09
2138.00	.09	.09	.09	.09	.09
2143.00	.09	.09	.09	.09	.09
2148.00	.09	.09	.09	.09	.09
2153.00	.09	.09	.09	.09	.09
2158.00	.09	.09	.09	.09	.09
2163.00	.09	.09	.09	.09	.09
2168.00	.09	.09	.09	.09	.09
2173.00	.09	.09	.09	.09	.09
2178.00	.09	.09	.09	.09	.09
2183.00	.09	.09	.09	.09	.09
2188.00	.09	.09	.09	.09	.09
2193.00	.09	.09	.09	.09	.09
2198.00	.09	.09	.09	.09	.09
2203.00	.09	.09	.09	.09	.09
2208.00	.09	.09	.09	.09	.09
2213.00	.09	.09	.09	.09	.09
2218.00	.09	.09	.09	.09	.09
2223.00	.09	.09	.09	.09	.09
2228.00	.09	.09	.09	.09	.09
2233.00	.09	.09	.09	.09	.09
2238.00	.09	.09	.09	.09	.09
2243.00	.09	.09	.09	.09	.09
2248.00	.09	.09	.09	.09	.09
2253.00	.09	.09	.09	.09	.09
2258.00	.09	.09	.09	.09	.09
2263.00	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)

Time min	Output Time increment = 1.00 min Time on left represents time for first value in each row.				
2268.00	.09	.09	.09	.09	.09
2273.00	.09	.09	.09	.09	.09
2278.00	.09	.09	.09	.09	.09
2283.00	.09	.09	.09	.09	.09
2288.00	.09	.09	.09	.09	.09
2293.00	.09	.09	.09	.09	.09
2298.00	.09	.09	.09	.09	.09
2303.00	.09	.09	.09	.09	.09
2308.00	.09	.09	.09	.09	.09
2313.00	.09	.09	.09	.09	.09
2318.00	.09	.09	.09	.09	.09
2323.00	.09	.09	.09	.09	.09
2328.00	.09	.09	.09	.09	.09
2333.00	.09	.09	.09	.09	.09
2338.00	.09	.09	.09	.09	.09
2343.00	.09	.09	.09	.09	.09
2348.01	.09	.09	.09	.09	.09
2353.00	.09	.09	.09	.09	.09
2358.00	.09	.09	.09	.09	.09
2363.01	.09	.09	.09	.09	.09
2368.00	.09	.09	.09	.09	.09
2373.00	.09	.09	.09	.09	.09
2378.01	.09	.09	.09	.09	.09
2383.00	.09	.09	.09	.09	.09
2388.01	.09	.09	.09	.09	.09
2393.01	.09	.09	.09	.09	.09
2398.00	.09	.09	.09	.09	.09
2403.01	.09	.09	.09	.09	.09
2408.01	.09	.09	.09	.09	.09
2413.00	.09	.09	.09	.09	.09
2418.01	.09	.09	.09	.09	.09
2423.01	.09	.09	.09	.09	.09
2428.01	.09	.09	.09	.09	.09
2433.01	.09	.09	.09	.09	.09
2438.01	.09	.09	.09	.09	.09
2443.01	.09	.09	.09	.09	.09
2448.01	.09	.09	.09	.09	.09
2453.01	.09	.09	.09	.09	.09
2458.01	.09	.09	.09	.09	.09
2463.01	.09	.09	.09	.09	.09
2468.01	.09	.09	.09	.09	.09
2473.01	.09	.09	.09	.09	.09
2478.01	.09	.09	.09	.09	.09
2483.01	.09	.09	.09	.09	.09
2488.01	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
2493.01	.09	.09	.09	.09	.09
2498.01	.09	.09	.09	.09	.09
2503.01	.09	.09	.09	.09	.09
2508.01	.09	.09	.09	.09	.09
2513.01	.09	.09	.09	.09	.09
2518.01	.09	.09	.09	.09	.09
2523.01	.09	.09	.09	.09	.09
2528.01	.09	.09	.09	.09	.09
2533.01	.09	.09	.09		

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUTFALL

HYG Directory: F:\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 30	HM UNDET		HM UNDET	WQV
ROUTE 10	MAIN DET	IN	ROUTE 10	WQV

INFLOWS TO: OUTFALL

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time min	Peak Flow cfs
	HM UNDET	WQV	.135	725.00	1.69
	ROUTE 10	WQV	.221	1128.00	.08

TOTAL FLOW INTO: OUTFALL

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time min	Peak Flow cfs
	OUTFALL	WQV	.356	725.00	1.75

TOTAL NODE INFLOW...
HYG file =
HYG ID = OUTFALL
HYG Tag = WQV

Peak Discharge = 1.75 cfs
Time to Peak = 725.00 min
HYG Volume = .356 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
700.00	.00	.00	.01	.01	.02
705.00	.04	.06	.09	.13	.17
710.00	.23	.30	.39	.49	.61
715.00	.75	.90	1.05	1.20	1.35
720.00	1.47	1.59	1.67	1.74	1.75
725.00	1.75	1.69	1.63	1.54	1.44
730.00	1.34	1.24	1.14	1.05	.97
735.00	.89	.84	.78	.74	.70
740.00	.67	.64	.61	.59	.57
745.00	.55	.53	.51	.50	.48
750.00	.47	.46	.44	.43	.42
755.00	.41	.40	.39	.38	.37
760.00	.36	.36	.35	.34	.34
765.00	.33	.33	.33	.32	.32
770.00	.32	.31	.31	.31	.31
775.00	.30	.30	.30	.30	.29
780.00	.29	.29	.29	.28	.28
785.00	.28	.28	.28	.27	.27
790.00	.27	.27	.27	.27	.26
795.00	.26	.26	.26	.26	.26
800.00	.26	.25	.25	.25	.25

805.00	.25	.25	.25	.25	.24
810.00	.24	.24	.24	.24	.24
815.00	.24	.24	.24	.23	.23
820.00	.23	.23	.23	.23	.23
825.00	.23	.23	.22	.22	.22
830.00	.22	.22	.22	.22	.22
835.00	.22	.22	.21	.21	.21
840.00	.21	.21	.21	.21	.21
845.00	.21	.21	.21	.21	.20
850.00	.20	.20	.20	.20	.20

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
855.00	.20	.20	.20	.20	.20
860.00	.20	.20	.20	.20	.20
865.00	.20	.20	.20	.20	.20
870.00	.19	.19	.19	.19	.19
875.00	.19	.19	.19	.19	.19
880.00	.19	.19	.19	.19	.19
885.00	.19	.19	.19	.19	.19
890.00	.19	.19	.19	.19	.19
895.00	.19	.19	.19	.19	.19
900.00	.19	.19	.19	.19	.19
905.00	.18	.18	.18	.18	.18
910.00	.18	.18	.18	.18	.18
915.00	.18	.18	.18	.18	.18
920.00	.18	.18	.18	.18	.18
925.00	.18	.18	.18	.18	.18
930.00	.18	.18	.18	.18	.18
935.00	.17	.17	.17	.17	.17
940.00	.17	.17	.17	.17	.17
945.00	.17	.17	.17	.17	.17
950.00	.17	.17	.17	.17	.17
955.00	.17	.17	.17	.17	.17
960.00	.17	.17	.17	.17	.16
965.00	.16	.16	.16	.16	.16
970.00	.16	.16	.16	.16	.16
975.00	.16	.16	.16	.16	.16
980.00	.16	.16	.16	.16	.16
985.00	.16	.16	.16	.16	.16

990.00	.16	.16	.16	.16	.16
995.00	.16	.16	.16	.16	.16
1000.00	.16	.16	.16	.16	.16
1005.00	.16	.16	.16	.16	.16
1010.00	.16	.16	.16	.16	.16
1015.00	.16	.16	.16	.16	.16
1020.00	.16	.16	.16	.16	.16
1025.00	.16	.16	.16	.16	.16
1030.00	.16	.16	.16	.16	.16
1035.00	.16	.16	.16	.16	.16
1040.00	.16	.15	.15	.15	.15
1045.00	.15	.15	.15	.15	.15
1050.00	.15	.15	.15	.15	.15
1055.00	.15	.15	.15	.15	.15
1060.00	.15	.15	.15	.15	.15
1065.00	.15	.15	.15	.15	.15
1070.00	.15	.15	.15	.15	.15
1075.00	.15	.15	.15	.15	.15

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1080.00	.15	.15	.15	.15	.15
1085.00	.15	.15	.15	.15	.15
1090.00	.15	.15	.15	.15	.15
1095.00	.15	.15	.15	.15	.15
1100.00	.15	.15	.15	.15	.15
1105.00	.15	.15	.15	.15	.15
1110.00	.15	.15	.15	.15	.15
1115.00	.15	.15	.15	.15	.15
1120.00	.14	.14	.14	.14	.14
1125.00	.14	.14	.14	.14	.14
1130.00	.14	.14	.14	.14	.14
1135.00	.14	.14	.14	.14	.14
1140.00	.14	.14	.14	.14	.14
1145.00	.14	.14	.14	.14	.14
1150.00	.14	.14	.14	.14	.14
1155.00	.14	.14	.14	.14	.14
1160.00	.14	.14	.14	.14	.14
1165.00	.14	.14	.14	.14	.14
1170.00	.14	.14	.14	.14	.14

1175.00	.14	.14	.14	.14	.14
1180.00	.14	.14	.14	.14	.14
1185.00	.14	.14	.14	.14	.14
1190.00	.14	.14	.14	.14	.14
1195.00	.14	.14	.14	.14	.14
1200.00	.14	.13	.13	.13	.13
1205.00	.13	.13	.13	.13	.13
1210.00	.13	.13	.13	.13	.13
1215.00	.13	.13	.13	.13	.13
1220.00	.13	.13	.13	.13	.13
1225.00	.13	.13	.13	.13	.13
1230.00	.13	.13	.13	.13	.13
1235.00	.13	.13	.13	.13	.13
1240.00	.13	.13	.13	.13	.13
1245.00	.13	.13	.13	.13	.13
1250.00	.13	.13	.13	.13	.13
1255.00	.13	.13	.13	.13	.13
1260.00	.13	.13	.13	.13	.13
1265.00	.13	.13	.13	.13	.13
1270.00	.13	.13	.13	.13	.13
1275.00	.13	.13	.13	.13	.13
1280.00	.13	.13	.13	.13	.13
1285.00	.13	.13	.13	.13	.13
1290.00	.13	.13	.13	.13	.13
1295.00	.13	.13	.13	.13	.13
1300.00	.13	.13	.13	.13	.13

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1305.00	.13	.13	.13	.13	.13
1310.00	.13	.13	.13	.13	.13
1315.00	.13	.13	.13	.13	.13
1320.00	.13	.13	.13	.13	.13
1325.00	.13	.13	.13	.13	.13
1330.00	.13	.13	.13	.13	.13
1335.00	.13	.13	.13	.13	.13
1340.00	.13	.13	.13	.13	.13
1345.00	.13	.13	.13	.13	.13
1350.00	.13	.13	.13	.13	.13
1355.00	.13	.13	.13	.13	.13

1360.00	.13	.13	.13	.13	.13
1365.00	.13	.13	.13	.13	.13
1370.00	.13	.13	.13	.13	.13
1375.00	.13	.13	.13	.13	.13
1380.00	.13	.13	.13	.13	.13
1385.00	.13	.13	.13	.13	.13
1390.00	.13	.13	.13	.13	.13
1395.00	.13	.13	.13	.13	.13
1400.00	.13	.13	.13	.13	.13
1405.00	.13	.13	.13	.13	.13
1410.00	.13	.13	.13	.13	.13
1415.00	.13	.13	.13	.13	.13
1420.00	.13	.13	.13	.13	.13
1425.00	.13	.13	.13	.13	.13
1430.00	.13	.13	.13	.13	.13
1435.00	.13	.13	.13	.13	.13
1440.00	.13	.13	.13	.13	.13
1445.00	.12	.12	.12	.11	.11
1450.00	.11	.10	.10	.10	.10
1455.00	.09	.09	.09	.09	.09
1460.00	.09	.09	.09	.09	.09
1465.00	.09	.09	.09	.09	.08
1470.00	.08	.08	.08	.08	.08
1475.00	.08	.08	.08	.08	.08
1480.00	.08	.08	.08	.08	.08
1485.00	.08	.08	.08	.08	.08
1490.00	.08	.08	.08	.08	.08
1495.00	.08	.08	.08	.08	.08
1500.00	.08	.08	.08	.08	.08
1505.00	.08	.08	.08	.08	.08
1510.00	.08	.08	.08	.08	.08
1515.00	.08	.08	.08	.08	.08
1520.00	.08	.08	.08	.08	.08
1525.00	.08	.08	.08	.08	.08

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1530.00	.08	.08	.08	.08	.08
1535.00	.08	.08	.08	.08	.08
1540.00	.08	.08	.08	.08	.08

1545.00	.08	.08	.08	.08	.08
1550.00	.08	.08	.08	.08	.08
1555.00	.08	.08	.08	.08	.08
1560.00	.08	.08	.08	.08	.08
1565.00	.08	.08	.08	.08	.08
1570.00	.08	.08	.08	.08	.08
1575.00	.08	.08	.08	.08	.08
1580.00	.08	.08	.08	.08	.08
1585.00	.08	.08	.08	.08	.08
1590.00	.08	.08	.08	.08	.08
1595.00	.08	.08	.08	.08	.08
1600.00	.08	.08	.08	.08	.08
1605.00	.08	.08	.08	.08	.08
1610.00	.08	.08	.08	.08	.08
1615.00	.08	.08	.08	.08	.08
1620.00	.08	.08	.08	.08	.08
1625.00	.08	.08	.08	.08	.08
1630.00	.08	.08	.08	.08	.08
1635.00	.08	.08	.08	.08	.08
1640.00	.08	.08	.08	.08	.08
1645.00	.08	.08	.08	.08	.08
1650.00	.08	.08	.08	.08	.08
1655.00	.08	.08	.08	.08	.08
1660.00	.08	.08	.08	.08	.08
1665.00	.08	.08	.08	.08	.08
1670.00	.08	.08	.08	.08	.08
1675.00	.08	.08	.08	.08	.08
1680.00	.08	.08	.08	.08	.08
1685.00	.08	.08	.08	.08	.08
1690.00	.08	.08	.08	.08	.08
1695.00	.08	.08	.08	.08	.08
1700.00	.08	.08	.08	.08	.08
1705.00	.08	.08	.08	.08	.08
1710.00	.08	.08	.08	.08	.08
1715.00	.08	.08	.08	.08	.08
1720.00	.08	.08	.08	.08	.08
1725.00	.08	.08	.08	.08	.08
1730.00	.08	.08	.08	.08	.08
1735.00	.08	.08	.08	.08	.08
1740.00	.08	.08	.08	.08	.08
1745.00	.08	.08	.08	.08	.08
1750.00	.08	.08	.08	.08	.08

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1755.00	.08	.08	.08	.08	.08
1760.00	.08	.08	.08	.08	.08
1765.00	.08	.08	.08	.08	.08
1770.00	.08	.08	.08	.08	.08
1775.00	.08	.08	.08	.08	.08
1780.00	.08	.08	.08	.08	.08
1785.00	.08	.08	.08	.08	.08
1790.00	.08	.08	.08	.08	.08
1795.00	.08	.08	.08	.08	.08
1800.00	.08	.08	.08	.08	.08
1805.00	.08	.08	.08	.08	.08
1810.00	.08	.08	.08	.08	.08
1815.00	.08	.08	.08	.08	.08
1820.00	.08	.08	.08	.08	.08
1825.00	.08	.08	.08	.08	.08
1830.00	.08	.08	.08	.08	.08
1835.00	.08	.08	.08	.08	.08
1840.00	.08	.08	.08	.08	.08
1845.00	.08	.08	.08	.08	.08
1850.00	.08	.08	.08	.08	.08
1855.00	.08	.08	.08	.08	.08
1860.00	.08	.08	.08	.08	.08
1865.00	.08	.08	.08	.08	.08
1870.00	.08	.08	.08	.08	.08
1875.00	.08	.08	.08	.08	.08
1880.00	.08	.08	.08	.08	.08
1885.00	.08	.08	.08	.08	.08
1890.00	.08	.08	.08	.08	.08
1895.00	.08	.08	.08	.08	.08
1900.00	.08	.08	.08	.08	.08
1905.00	.08	.08	.08	.08	.08
1910.00	.08	.08	.08	.08	.08
1915.00	.08	.08	.08	.08	.08
1920.00	.08	.08	.08	.08	.08
1925.00	.08	.08	.08	.08	.08
1930.00	.08	.08	.08	.08	.08
1935.00	.08	.08	.08	.08	.08
1940.00	.08	.08	.08	.08	.08
1945.00	.08	.08	.08	.08	.08
1950.00	.08	.08	.08	.08	.08
1955.00	.08	.08	.08	.08	.08
1960.00	.08	.08	.08	.08	.08
1965.00	.08	.08	.08	.08	.08
1970.00	.08	.08	.08	.08	.08
1975.00	.08	.08	.08	.08	.08

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1980.00	.08	.08	.08	.08	.08
1985.00	.08	.08	.08	.08	.08
1990.00	.08	.08	.08	.08	.08
1995.00	.08	.08	.08	.08	.08
2000.00	.08	.08	.08	.08	.08
2005.00	.08	.08	.08	.08	.08
2010.00	.08	.08	.08	.08	.08
2015.00	.08	.08	.08	.08	.08
2020.00	.08	.08	.08	.08	.08
2025.00	.08	.08	.08	.08	.08
2030.00	.08	.08	.08	.08	.08
2035.00	.08	.08	.08	.08	.08
2040.00	.08	.08	.08	.08	.08
2045.00	.08	.08	.08	.08	.08
2050.00	.08	.08	.08	.08	.08
2055.00	.08	.08	.08	.08	.08
2060.00	.08	.08	.08	.08	.08
2065.00	.08	.08	.08	.08	.08
2070.00	.08	.08	.08	.08	.08
2075.00	.08	.08	.08	.08	.08
2080.00	.08	.08	.08	.08	.08
2085.00	.08	.08	.08	.08	.08
2090.00	.08	.08	.08	.08	.08
2095.00	.08	.08	.08	.08	.08
2100.00	.08	.08	.08	.08	.08
2105.00	.08	.08	.08	.08	.08
2110.00	.08	.08	.08	.08	.08
2115.00	.08	.08	.08	.08	.08
2120.00	.08	.08	.08	.08	.08
2125.00	.08	.08	.08	.08	.08
2130.00	.08	.08	.08	.08	.08
2135.00	.08	.08	.08	.08	.08
2140.00	.08	.08	.08	.08	.08
2145.00	.08	.08	.08	.08	.08
2150.00	.08	.08	.08	.08	.08
2155.00	.08	.08	.08	.08	.08
2160.00	.08	.08	.08	.08	.08

2165.00	.08	.08	.08	.08	.08
2170.00	.08	.08	.08	.08	.08
2175.00	.08	.08	.08	.08	.08
2180.00	.08	.08	.08	.08	.08
2185.00	.08	.08	.08	.08	.08
2190.00	.08	.08	.08	.08	.08
2195.00	.08	.08	.08	.08	.08
2200.00	.08	.08	.08	.08	.08

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
2205.00	.08	.08	.08	.08	.08
2210.00	.08	.08	.08	.08	.08
2215.00	.08	.08	.08	.08	.08
2220.00	.08	.08	.08	.08	.08
2225.00	.08	.08	.08	.08	.08
2230.00	.08	.08	.08	.08	.08
2235.00	.08	.08	.08	.08	.08
2240.00	.08	.08	.08	.08	.08
2245.00	.08	.08	.08	.08	.08
2250.00	.08	.08	.08	.08	.08
2255.00	.08	.08	.08	.08	.08
2260.00	.08	.08	.08	.08	.08
2265.00	.08	.08	.08	.08	.08
2270.00	.08	.08	.08	.08	.08
2275.00	.08	.08	.08	.08	.08
2280.00	.08	.08	.08	.08	.08
2285.00	.08	.08	.08	.08	.08
2290.00	.08	.08	.08	.08	.08
2295.00	.08	.08	.08	.08	.08
2300.00	.08	.08	.08	.08	.08
2305.00	.08	.08	.08	.08	.08
2310.00	.08	.08	.08	.08	.08
2315.00	.08	.08	.08	.08	.08
2320.00	.08	.08	.08	.08	.08
2325.00	.08	.08	.08	.08	.08
2330.00	.08	.08	.08	.08	.08
2335.00	.08	.08	.08	.08	.08
2340.00	.08	.08	.08	.08	.08
2345.00	.08	.08	.08	.08	.08

2350.00	.08	.08	.08	.08	.08
2355.00	.08	.08	.08	.08	.08
2360.01	.08	.08	.08	.08	.08
2365.00	.08	.08	.08	.08	.08
2370.00	.08	.08	.08	.08	.08
2375.01	.08	.08	.08	.08	.08
2380.00	.08	.08	.08	.08	.08
2385.00	.08	.08	.08	.08	.08
2390.01	.08	.08	.08	.08	.08
2395.00	.08	.08	.08	.08	.08
2400.01	.08	.08	.08	.08	.08
2405.01	.08	.08	.08	.08	.08
2410.00	.08	.08	.08	.08	.08
2415.01	.08	.08	.08	.08	.08
2420.01	.08	.08	.08	.08	.08
2425.00	.08	.08	.08	.08	.08

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
2430.01	.08	.08	.08	.08	.08
2435.01	.08	.08	.08	.08	.08
2440.01	.08	.08	.08	.08	.08
2445.01	.08	.08	.08	.08	.08
2450.01	.08	.08	.08	.08	.08
2455.01	.08	.08	.08	.08	.08
2460.01	.08	.08	.08	.08	.08
2465.01	.08	.08	.08	.08	.08
2470.01	.08	.08	.08	.08	.08
2475.01	.08	.08	.08	.08	.08
2480.01	.08	.08	.08	.08	.08
2485.01	.08	.08	.08	.08	.08
2490.01	.08	.08	.08	.08	.08
2495.01	.08	.08	.08	.08	.08
2500.01	.08	.08	.08	.08	.08
2505.01	.08	.08	.08	.08	.08
2510.01	.08	.08	.08	.08	.08
2515.01	.08	.08	.08	.08	.08
2520.01	.08	.08	.08	.08	.08
2525.01	.08	.08	.08	.08	.08
2530.01	.08	.08	.08	.08	.08

2535.01	.08	.08	.08	.08	.08
2540.01	.08	.08	.08	.08	.08
2545.01	.08	.08	.08	.08	.08
2550.01	.08	.08	.08	.08	.08
2555.01	.08	.08	.08	.08	.08
2560.01	.08	.08	.08	.08	.08
2565.01	.08	.08	.08	.08	.08
2570.01	.08	.08	.08	.08	.08
2575.01	.08	.08	.08	.08	.08
2580.01	.08	.08	.08	.08	.08
2585.01	.08	.08	.08	.08	.08
2590.01	.08	.08	.08	.08	.08
2595.01	.08	.08	.08	.08	.08
2600.01	.08	.08	.08	.08	.08
2605.01	.08	.08	.08	.08	.08
2610.01	.08	.08	.08	.08	.08
2615.01	.08	.08	.08	.08	.08
2620.01	.08	.08	.08	.08	.08
2625.01	.08	.08	.08	.08	.08
2630.01	.08	.08	.08	.08	.08
2635.01	.08	.08	.08	.08	.08
2640.01	.08	.08	.08	.08	.08
2645.01	.08	.08	.08	.08	.08
2650.01	.08	.08	.08	.08	.08

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
2655.01	.08	.08	.08	.08	.08
2660.01	.08	.08	.08	.08	.08
2665.01	.08	.08	.08	.08	.08
2670.01	.08	.08	.08	.08	.08
2675.01	.08	.08	.08	.08	.08
2680.01	.08	.08	.08	.08	.08
2685.01	.08	.08	.08	.08	.08
2690.01	.08	.08	.08	.08	.08
2695.01	.08	.08	.08	.08	

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUTFALL

HYG Directory: F:\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 30	HM UNDET		HM UNDET	10 yr
ROUTE 10	MAIN DET	IN	ROUTE 10	10 yr

INFLOWS TO: OUTFALL

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time min	Peak Flow cfs
	HM UNDET	10 yr	1.793	722.00	26.03
	ROUTE 10	10 yr	11.377	734.00	94.04

TOTAL FLOW INTO: OUTFALL

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time min	Peak Flow cfs
	OUTFALL	10 yr	13.171	729.00	108.65

TOTAL NODE INFLOW...
HYG file =
HYG ID = OUTFALL
HYG Tag = 10 yr

Peak Discharge =	108.65 cfs
Time to Peak =	729.00 min
HYG Volume =	13.171 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time min	Output Time increment = 1.00 min Time on left represents time for first value in each row.				
360.00	.00	.00	.00	.00	.00
365.00	.01	.01	.01	.01	.01
370.00	.01	.01	.02	.02	.02
375.00	.02	.03	.03	.03	.03
380.00	.04	.04	.04	.04	.04
385.00	.04	.05	.05	.05	.05
390.00	.05	.05	.05	.05	.05
395.00	.06	.06	.06	.06	.06
400.00	.06	.06	.07	.07	.07
405.00	.07	.07	.07	.07	.08
410.00	.08	.08	.08	.08	.08
415.00	.08	.09	.09	.09	.09
420.00	.09	.09	.09	.09	.10
425.00	.10	.10	.10	.10	.10
430.00	.10	.10	.11	.11	.11
435.00	.11	.11	.11	.11	.12
440.00	.12	.12	.12	.12	.12
445.00	.13	.13	.13	.13	.13
450.00	.13	.13	.13	.14	.14
455.00	.14	.14	.14	.14	.14
460.00	.14	.15	.15	.15	.15
465.00	.15	.15	.15	.15	.15
470.00	.16	.16	.16	.16	.16
475.00	.16	.16	.17	.17	.17
480.00	.17	.17	.17	.18	.18
485.00	.18	.18	.18	.18	.18
490.00	.19	.19	.19	.19	.19
495.00	.20	.20	.20	.20	.20
500.00	.21	.21	.21	.21	.22
505.00	.22	.22	.22	.23	.23
510.00	.23	.23	.24	.24	.24

HYDROGRAPH ORDINATES (cfs)

Time min	Output Time increment = 1.00 min Time on left represents time for first value in each row.				
515.00	.25	.25	.25	.25	.26

520.00	.26	.26	.27	.27	.27
525.00	.28	.28	.28	.28	.29
530.00	.29	.29	.29	.30	.30
535.00	.30	.31	.31	.31	.32
540.00	.32	.32	.33	.33	.33
545.00	.34	.34	.34	.35	.35
550.00	.35	.36	.36	.36	.36
555.00	.36	.37	.37	.37	.37
560.00	.38	.38	.38	.38	.38
565.00	.39	.39	.39	.39	.39
570.00	.40	.40	.40	.40	.40
575.00	.41	.41	.41	.41	.42
580.00	.42	.42	.43	.43	.43
585.00	.44	.44	.45	.45	.45
590.00	.46	.46	.47	.47	.48
595.00	.49	.49	.50	.50	.51
600.00	.51	.52	.52	.53	.53
605.00	.54	.54	.55	.56	.56
610.00	.57	.58	.58	.59	.60
615.00	.61	.61	.62	.63	.64
620.00	.64	.65	.66	.67	.67
625.00	.68	.69	.70	.71	.71
630.00	.72	.73	.74	.75	.76
635.00	.77	.78	.79	.80	.81
640.00	.82	.83	.84	.86	.87
645.00	.88	.89	.91	.92	.93
650.00	.95	.96	.98	.99	1.00
655.00	1.02	1.03	1.05	1.06	1.08
660.00	1.09	1.11	1.12	1.14	1.16
665.00	1.18	1.20	1.22	1.24	1.26
670.00	1.28	1.31	1.33	1.36	1.39
675.00	1.41	1.44	1.47	1.51	1.54
680.00	1.57	1.61	1.64	1.68	1.71
685.00	1.75	1.78	1.82	1.86	1.90
690.00	1.94	1.99	2.05	2.15	2.24
695.00	2.40	2.56	2.80	3.05	3.39
700.00	3.74	4.20	5.85	8.19	10.64
705.00	13.28	16.01	18.96	22.14	25.61
710.00	29.32	33.38	37.86	42.72	48.06
715.00	53.76	59.69	65.80	71.84	77.86
720.00	83.47	88.88	93.57	97.93	101.32
725.00	104.27	106.19	107.60	108.35	108.65
730.00	108.51	107.98	107.25	106.26	105.18
735.00	103.94	102.70	101.34	99.93	98.41

File.... F:\HIGHLAND MEADOWS.PPW
Storm... TypeII 24hr   Tag: 10 yr

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
740.00	96.83	95.18	93.47	91.72	89.90
745.00	88.05	86.14	84.20	82.24	80.27
750.00	78.29	76.29	74.29	72.32	70.37
755.00	68.42	66.49	64.60	62.74	60.94
760.00	59.15	57.40	55.71	54.07	52.48
765.00	50.92	49.40	47.94	46.53	45.17
770.00	43.86	42.58	41.33	40.13	38.97
775.00	37.86	36.79	35.76	34.78	33.81
780.00	32.88	31.98	31.12	30.30	29.52
785.00	28.76	28.04	27.34	26.68	26.04
790.00	25.42	24.82	24.24	23.68	23.15
795.00	22.64	22.15	21.69	21.24	20.81
800.00	20.40	20.00	19.62	19.26	18.91
805.00	18.58	18.25	17.94	17.64	17.35
810.00	17.08	16.81	16.54	16.29	16.04
815.00	15.81	15.58	15.36	15.14	14.94
820.00	14.74	14.55	14.36	14.18	14.01
825.00	13.84	13.67	13.51	13.36	13.21
830.00	13.06	12.92	12.78	12.65	12.52
835.00	12.39	12.27	12.14	12.02	11.91
840.00	11.79	11.68	11.57	11.46	11.36
845.00	11.25	11.15	11.05	10.96	10.87
850.00	10.78	10.69	10.60	10.52	10.44
855.00	10.36	10.28	10.20	10.13	10.06
860.00	9.99	9.92	9.85	9.79	9.72
865.00	9.66	9.60	9.54	9.48	9.42
870.00	9.37	9.32	9.27	9.22	9.17
875.00	9.12	9.08	9.03	8.99	8.95
880.00	8.91	8.87	8.83	8.79	8.76
885.00	8.72	8.69	8.66	8.62	8.59
890.00	8.56	8.53	8.49	8.46	8.43
895.00	8.40	8.37	8.33	8.30	8.27
900.00	8.24	8.20	8.17	8.14	8.11
905.00	8.08	8.05	8.02	7.99	7.96
910.00	7.93	7.90	7.87	7.84	7.81
915.00	7.79	7.76	7.73	7.70	7.67
920.00	7.63	7.60	7.57	7.54	7.51
925.00	7.48	7.44	7.41	7.38	7.35
930.00	7.32	7.29	7.26	7.23	7.20
935.00	7.17	7.15	7.12	7.09	7.06
940.00	7.03	7.01	6.98	6.95	6.93
945.00	6.90	6.88	6.85	6.83	6.81
950.00	6.78	6.75	6.73	6.70	6.68

955.00	6.65	6.62	6.59	6.56	6.54
960.00	6.51	6.48	6.45	6.42	6.39

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
965.00	6.36	6.33	6.30	6.27	6.25
970.00	6.22	6.19	6.17	6.14	6.11
975.00	6.09	6.06	6.04	6.02	5.99
980.00	5.97	5.96	5.94	5.92	5.90
985.00	5.89	5.87	5.85	5.83	5.82
990.00	5.80	5.78	5.77	5.75	5.74
995.00	5.73	5.71	5.70	5.69	5.68
1000.00	5.66	5.65	5.64	5.62	5.61
1005.00	5.60	5.58	5.57	5.55	5.54
1010.00	5.53	5.51	5.50	5.49	5.48
1015.00	5.46	5.45	5.44	5.43	5.42
1020.00	5.41	5.40	5.39	5.38	5.37
1025.00	5.36	5.35	5.34	5.33	5.32
1030.00	5.31	5.30	5.28	5.27	5.26
1035.00	5.25	5.24	5.23	5.21	5.20
1040.00	5.19	5.18	5.17	5.16	5.15
1045.00	5.14	5.12	5.11	5.10	5.09
1050.00	5.08	5.07	5.06	5.05	5.04
1055.00	5.04	5.03	5.02	5.01	5.00
1060.00	4.99	4.98	4.97	4.96	4.95
1065.00	4.94	4.93	4.92	4.91	4.90
1070.00	4.89	4.88	4.87	4.85	4.84
1075.00	4.83	4.83	4.82	4.81	4.80
1080.00	4.79	4.79	4.78	4.77	4.76
1085.00	4.75	4.74	4.73	4.72	4.71
1090.00	4.70	4.69	4.68	4.66	4.65
1095.00	4.64	4.63	4.62	4.61	4.60
1100.00	4.59	4.58	4.57	4.56	4.56
1105.00	4.55	4.54	4.53	4.52	4.51
1110.00	4.50	4.49	4.48	4.47	4.46
1115.00	4.45	4.43	4.42	4.41	4.40
1120.00	4.39	4.37	4.36	4.35	4.35
1125.00	4.34	4.33	4.32	4.31	4.30
1130.00	4.29	4.29	4.28	4.27	4.26
1135.00	4.25	4.24	4.22	4.21	4.20

1140.00	4.19	4.18	4.17	4.15	4.14
1145.00	4.13	4.12	4.11	4.10	4.09
1150.00	4.09	4.08	4.07	4.06	4.05
1155.00	4.04	4.03	4.02	4.01	4.00
1160.00	3.99	3.98	3.97	3.96	3.96
1165.00	3.95	3.94	3.93	3.92	3.91
1170.00	3.90	3.89	3.88	3.87	3.86
1175.00	3.84	3.83	3.82	3.81	3.80
1180.00	3.78	3.77	3.76	3.75	3.74
1185.00	3.73	3.72	3.71	3.69	3.68

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1190.00	3.67	3.66	3.64	3.63	3.62
1195.00	3.61	3.60	3.59	3.59	3.58
1200.00	3.57	3.56	3.55	3.54	3.53
1205.00	3.52	3.51	3.50	3.49	3.48
1210.00	3.47	3.47	3.46	3.45	3.44
1215.00	3.43	3.43	3.42	3.41	3.41
1220.00	3.40	3.39	3.39	3.38	3.38
1225.00	3.37	3.37	3.36	3.36	3.35
1230.00	3.34	3.34	3.33	3.32	3.31
1235.00	3.30	3.30	3.29	3.29	3.28
1240.00	3.28	3.28	3.28	3.28	3.27
1245.00	3.27	3.27	3.27	3.26	3.26
1250.00	3.25	3.25	3.24	3.24	3.24
1255.00	3.23	3.23	3.23	3.23	3.22
1260.00	3.22	3.22	3.22	3.21	3.21
1265.00	3.21	3.20	3.20	3.20	3.20
1270.00	3.20	3.20	3.20	3.19	3.19
1275.00	3.19	3.19	3.19	3.19	3.18
1280.00	3.18	3.18	3.18	3.18	3.18
1285.00	3.18	3.18	3.18	3.17	3.17
1290.00	3.17	3.16	3.16	3.16	3.15
1295.00	3.15	3.15	3.15	3.15	3.15
1300.00	3.16	3.16	3.16	3.16	3.16
1305.00	3.15	3.15	3.15	3.15	3.14
1310.00	3.14	3.14	3.13	3.13	3.13
1315.00	3.12	3.12	3.12	3.11	3.11
1320.00	3.11	3.11	3.10	3.10	3.10

1325.00	3.10	3.09	3.09	3.09	3.09
1330.00	3.09	3.08	3.08	3.08	3.08
1335.00	3.08	3.08	3.07	3.07	3.07
1340.00	3.07	3.07	3.07	3.07	3.07
1345.00	3.07	3.06	3.06	3.06	3.06
1350.00	3.05	3.05	3.04	3.04	3.03
1355.00	3.03	3.02	3.02	3.02	3.02
1360.00	3.02	3.01	3.01	3.01	3.01
1365.00	3.01	3.01	3.01	3.01	3.00
1370.00	3.00	3.00	2.99	2.99	2.99
1375.00	2.98	2.98	2.98	2.98	2.98
1380.00	2.98	2.97	2.97	2.97	2.97
1385.00	2.96	2.96	2.96	2.96	2.96
1390.00	2.96	2.96	2.96	2.95	2.95
1395.00	2.95	2.95	2.95	2.95	2.94
1400.00	2.94	2.94	2.95	2.94	2.94
1405.00	2.94	2.94	2.94	2.94	2.93
1410.00	2.93	2.92	2.92	2.92	2.92

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1415.00	2.91	2.91	2.91	2.91	2.92
1420.00	2.92	2.92	2.92	2.92	2.92
1425.00	2.91	2.91	2.91	2.91	2.90
1430.00	2.90	2.90	2.89	2.89	2.89
1435.00	2.88	2.88	2.88	2.88	2.87
1440.00	2.87	2.86	2.86	2.84	2.82
1445.00	2.79	2.75	2.70	2.65	2.58
1450.00	2.51	2.43	2.35	2.27	2.19
1455.00	2.10	2.02	1.94	1.86	1.79
1460.00	1.71	1.64	1.56	1.49	1.42
1465.00	1.36	1.29	1.23	1.17	1.11
1470.00	1.05	1.00	.94	.89	.85
1475.00	.80	.76	.71	.67	.64
1480.00	.60	.57	.53	.50	.47
1485.00	.45	.42	.40	.37	.35
1490.00	.33	.31	.29	.27	.26
1495.00	.24	.23	.21	.20	.19
1500.00	.18	.16	.15	.14	.14
1505.00	.13	.12	.11	.10	.10

1510.00	.09	.09	.09	.09	.09
1515.00	.09	.09	.09	.09	.09
1520.00	.09	.09	.09	.09	.09
1525.00	.09	.09	.09	.09	.09
1530.00	.09	.09	.09	.09	.09
1535.00	.09	.09	.09	.09	.09
1540.00	.09	.09	.09	.09	.09
1545.00	.09	.09	.09	.09	.09
1550.00	.09	.09	.09	.09	.09
1555.00	.09	.09	.09	.09	.09
1560.00	.09	.09	.09	.09	.09
1565.00	.09	.09	.09	.09	.09
1570.00	.09	.09	.09	.09	.09
1575.00	.09	.09	.09	.09	.09
1580.00	.09	.09	.09	.09	.09
1585.00	.09	.09	.09	.09	.09
1590.00	.09	.09	.09	.09	.09
1595.00	.09	.09	.09	.09	.09
1600.00	.09	.09	.09	.09	.09
1605.00	.09	.09	.09	.09	.09
1610.00	.09	.09	.09	.09	.09
1615.00	.09	.09	.09	.09	.09
1620.00	.09	.09	.09	.09	.09
1625.00	.09	.09	.09	.09	.09
1630.00	.09	.09	.09	.09	.09
1635.00	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1640.00	.09	.09	.09	.09	.09
1645.00	.09	.09	.09	.09	.09
1650.00	.09	.09	.09	.09	.09
1655.00	.09	.09	.09	.09	.09
1660.00	.09	.09	.09	.09	.09
1665.00	.09	.09	.09	.09	.09
1670.00	.09	.09	.09	.09	.09
1675.00	.09	.09	.09	.09	.09
1680.00	.09	.09	.09	.09	.09
1685.00	.09	.09	.09	.09	.09
1690.00	.09	.09	.09	.09	.09

1695.00	.09	.09	.09	.09	.09
1700.00	.09	.09	.09	.09	.09
1705.00	.09	.09	.09	.09	.09
1710.00	.09	.09	.09	.09	.09
1715.00	.09	.09	.09	.09	.09
1720.00	.09	.09	.09	.09	.09
1725.00	.09	.09	.09	.09	.09
1730.00	.09	.09	.09	.09	.09
1735.00	.09	.09	.09	.09	.09
1740.00	.09	.09	.09	.09	.09
1745.00	.09	.09	.09	.09	.09
1750.00	.09	.09	.09	.09	.09
1755.00	.09	.09	.09	.09	.09
1760.00	.09	.09	.09	.09	.09
1765.00	.09	.09	.09	.09	.09
1770.00	.09	.09	.09	.09	.09
1775.00	.09	.09	.09	.09	.09
1780.00	.09	.09	.09	.09	.09
1785.00	.09	.09	.09	.09	.09
1790.00	.09	.09	.09	.09	.09
1795.00	.09	.09	.09	.09	.09
1800.00	.09	.09	.09	.09	.09
1805.00	.09	.09	.09	.09	.09
1810.00	.09	.09	.09	.09	.09
1815.00	.09	.09	.09	.09	.09
1820.00	.09	.09	.09	.09	.09
1825.00	.09	.09	.09	.09	.09
1830.00	.09	.09	.09	.09	.09
1835.00	.09	.09	.09	.09	.09
1840.00	.09	.09	.09	.09	.09
1845.00	.09	.09	.09	.09	.09
1850.00	.09	.09	.09	.09	.09
1855.00	.09	.09	.09	.09	.09
1860.00	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1865.00	.09	.09	.09	.09	.09
1870.00	.09	.09	.09	.09	.09
1875.00	.09	.09	.09	.09	.09

1880.00	.09	.09	.09	.09	.09
1885.00	.09	.09	.09	.09	.09
1890.00	.09	.09	.09	.09	.09
1895.00	.09	.09	.09	.09	.09
1900.00	.09	.09	.09	.09	.09
1905.00	.09	.09	.09	.09	.09
1910.00	.09	.09	.09	.09	.09
1915.00	.09	.09	.09	.09	.09
1920.00	.09	.09	.09	.09	.09
1925.00	.09	.09	.09	.09	.09
1930.00	.09	.09	.09	.09	.09
1935.00	.09	.09	.09	.09	.09
1940.00	.09	.09	.09	.09	.09
1945.00	.09	.09	.09	.09	.09
1950.00	.09	.09	.09	.09	.09
1955.00	.09	.09	.09	.09	.09
1960.00	.09	.09	.09	.09	.09
1965.00	.09	.09	.09	.09	.09
1970.00	.09	.09	.09	.09	.09
1975.00	.09	.09	.09	.09	.09
1980.00	.09	.09	.09	.09	.09
1985.00	.09	.09	.09	.09	.09
1990.00	.09	.09	.09	.09	.09
1995.00	.09	.09	.09	.09	.09
2000.00	.09	.09	.09	.09	.09
2005.00	.09	.09	.09	.09	.09
2010.00	.09	.09	.09	.09	.09
2015.00	.09	.09	.09	.09	.09
2020.00	.09	.09	.09	.09	.09
2025.00	.09	.09	.09	.09	.09
2030.00	.09	.09	.09	.09	.09
2035.00	.09	.09	.09	.09	.09
2040.00	.09	.09	.09	.09	.09
2045.00	.09	.09	.09	.09	.09
2050.00	.09	.09	.09	.09	.09
2055.00	.09	.09	.09	.09	.09
2060.00	.09	.09	.09	.09	.09
2065.00	.09	.09	.09	.09	.09
2070.00	.09	.09	.09	.09	.09
2075.00	.09	.09	.09	.09	.09
2080.00	.09	.09	.09	.09	.09
2085.00	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
2090.00	.09	.09	.09	.09	.09
2095.00	.09	.09	.09	.09	.09
2100.00	.09	.09	.09	.09	.09
2105.00	.09	.09	.09	.09	.09
2110.00	.09	.09	.09	.09	.09
2115.00	.09	.09	.09	.09	.09
2120.00	.09	.09	.09	.09	.09
2125.00	.09	.09	.09	.09	.09
2130.00	.09	.09	.09	.09	.09
2135.00	.09	.09	.09	.09	.09
2140.00	.09	.09	.09	.09	.09
2145.00	.09	.09	.09	.09	.09
2150.00	.09	.09	.09	.09	.09
2155.00	.09	.09	.09	.09	.09
2160.00	.09	.09	.09	.09	.09
2165.00	.09	.09	.09	.09	.09
2170.00	.09	.09	.09	.09	.09
2175.00	.09	.09	.09	.09	.09
2180.00	.09	.09	.09	.09	.09
2185.00	.09	.09	.09	.09	.09
2190.00	.09	.09	.09	.09	.09
2195.00	.09	.09	.09	.09	.09
2200.00	.09	.09	.09	.09	.09
2205.00	.09	.09	.09	.09	.09
2210.00	.09	.09	.09	.09	.09
2215.00	.09	.09	.09	.09	.09
2220.00	.09	.09	.09	.09	.09
2225.00	.09	.09	.09	.09	.09
2230.00	.09	.09	.09	.09	.09
2235.00	.09	.09	.09	.09	.09
2240.00	.09	.09	.09	.09	.09
2245.00	.09	.09	.09	.09	.09
2250.00	.09	.09	.09	.09	.09
2255.00	.09	.09	.09	.09	.09
2260.00	.09	.09	.09	.09	.09
2265.00	.09	.09	.09	.09	.09
2270.00	.09	.09	.09	.09	.09
2275.00	.09	.09	.09	.09	.09
2280.00	.09	.09	.09	.09	.09
2285.00	.09	.09	.09	.09	.09
2290.00	.09	.09	.09	.09	.09
2295.00	.09	.09	.09	.09	.09
2300.00	.09	.09	.09	.09	.09
2305.00	.09	.09	.09	.09	.09
2310.00	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
2315.00	.09	.09	.09	.09	.09
2320.00	.09	.09	.09	.09	.09
2325.00	.09	.09	.09	.09	.09
2330.00	.09	.09	.09	.09	.09
2335.00	.09	.09	.09	.09	.09
2340.00	.09	.09	.09	.09	.09
2345.00	.09	.09	.09	.09	.09
2350.00	.09	.09	.09	.09	.09
2355.00	.09	.09	.09		

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUTFALL

HYG Directory: F:\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 30	HM UNDET		HM UNDET	100 yr
ROUTE 10	MAIN DET	IN	ROUTE 10	100 yr

INFLOWS TO: OUTFALL

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time min	Peak Flow cfs
	HM UNDET	100 yr	3.410	721.00	48.27
	ROUTE 10	100 yr	23.492	733.00	194.07

TOTAL FLOW INTO: OUTFALL

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time min	Peak Flow cfs
	OUTFALL	100 yr	26.902	730.00	220.29

S/N: C21F01C070CE Bowers Engineering Inc
PondPack Ver: Compute Time: Date:

TOTAL NODE INFLOW...
HYG file =
HYG ID = OUTFALL
HYG Tag = 100 yr

Peak Discharge =	220.29 cfs
Time to Peak =	730.00 min
HYG Volume =	26.902 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
246.00	.00	.00	.00	.00	.00
251.00	.01	.01	.01	.01	.01
256.00	.02	.02	.02	.03	.03
261.00	.03	.04	.04	.04	.05
266.00	.05	.05	.05	.05	.06
271.00	.06	.06	.06	.06	.06
276.00	.07	.07	.07	.07	.08
281.00	.08	.08	.08	.08	.09
286.00	.09	.09	.09	.09	.10
291.00	.10	.10	.10	.10	.11
296.00	.11	.11	.11	.11	.12
301.00	.12	.12	.12	.13	.13
306.00	.13	.13	.13	.14	.14
311.00	.14	.14	.14	.15	.15
316.00	.15	.15	.15	.16	.16
321.00	.16	.16	.17	.17	.17
326.00	.17	.18	.18	.18	.18
331.00	.18	.18	.19	.19	.19
336.00	.19	.19	.20	.20	.20

341.00	.21	.21	.21	.21	.21
346.00	.22	.22	.22	.22	.22
351.00	.22	.23	.23	.23	.23
356.00	.24	.24	.24	.24	.25
361.00	.25	.25	.25	.26	.26
366.00	.26	.26	.26	.27	.27
371.00	.27	.27	.27	.28	.28
376.00	.28	.28	.29	.29	.29
381.00	.29	.30	.30	.30	.31
386.00	.31	.31	.31	.31	.31
391.00	.32	.32	.32	.32	.32
396.00	.33	.33	.33	.34	.34

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
401.00	.34	.34	.35	.35	.35
406.00	.35	.35	.36	.36	.36
411.00	.36	.36	.37	.37	.37
416.00	.37	.38	.38	.38	.39
421.00	.39	.39	.39	.40	.40
426.00	.40	.40	.41	.41	.41
431.00	.41	.41	.42	.42	.42
436.00	.42	.43	.43	.43	.43
441.00	.44	.44	.44	.45	.45
446.00	.45	.46	.46	.46	.46
451.00	.47	.47	.47	.47	.47
456.00	.48	.48	.48	.48	.48
461.00	.49	.49	.49	.49	.49
466.00	.50	.50	.50	.50	.50
471.00	.51	.51	.51	.51	.52
476.00	.52	.52	.53	.53	.53
481.00	.54	.54	.54	.55	.55
486.00	.55	.55	.56	.56	.56
491.00	.57	.57	.58	.58	.59
496.00	.59	.60	.60	.61	.61
501.00	.62	.62	.63	.64	.64
506.00	.65	.65	.66	.67	.67
511.00	.68	.68	.69	.70	.70
516.00	.71	.72	.72	.73	.74
521.00	.75	.75	.76	.77	.78

526.00	.78	.79	.79	.80	.80
531.00	.81	.81	.82	.82	.83
536.00	.84	.84	.85	.86	.87
541.00	.87	.88	.89	.90	.91
546.00	.91	.92	.93	.93	.94
551.00	.94	.95	.95	.95	.96
556.00	.96	.97	.97	.97	.98
561.00	.98	.98	.98	.99	.99
566.00	.99	1.00	1.00	1.00	1.00
571.00	1.01	1.01	1.01	1.02	1.02
576.00	1.03	1.03	1.04	1.04	1.05
581.00	1.05	1.06	1.07	1.07	1.08
586.00	1.09	1.10	1.11	1.12	1.13
591.00	1.14	1.15	1.16	1.17	1.18
596.00	1.20	1.21	1.22	1.23	1.24
601.00	1.25	1.26	1.27	1.46	1.95
606.00	2.42	2.86	3.28	3.67	4.04
611.00	4.40	4.74	5.06	5.36	5.66
616.00	5.94	6.21	6.46	6.71	6.95
621.00	7.18	7.40	7.61	7.82	8.02

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
626.00	8.21	8.40	8.58	8.75	8.93
631.00	9.10	9.27	9.43	9.60	9.76
636.00	9.92	10.09	10.25	10.41	10.57
641.00	10.74	10.90	11.07	11.24	11.40
646.00	11.57	11.75	11.92	12.10	12.28
651.00	12.46	12.64	12.82	13.01	13.20
656.00	13.39	13.58	13.77	13.97	14.17
661.00	14.37	14.57	14.78	14.99	15.21
666.00	15.43	15.66	15.90	16.14	16.39
671.00	16.65	16.92	17.20	17.48	17.78
676.00	18.08	18.40	18.72	19.05	19.39
681.00	19.74	20.09	20.46	20.84	21.23
686.00	21.63	22.04	22.46	22.88	23.32
691.00	23.81	24.33	24.95	25.63	26.50
696.00	27.45	28.68	30.06	31.73	33.60
701.00	35.89	38.47	41.51	44.85	48.58
706.00	52.72	57.35	62.39	68.03	74.22

711.00	81.04	88.57	96.89	105.96	115.69
716.00	125.72	136.04	146.26	159.89	172.31
721.00	183.98	193.90	201.16	205.49	208.64
726.00	211.38	214.55	217.82	219.74	220.29
731.00	219.78	218.52	216.26	213.37	209.84
736.00	206.33	202.50	198.45	194.15	189.69
741.00	185.52	181.73	177.85	174.55	171.79
746.00	168.94	166.04	162.59	159.05	155.21
751.00	150.24	145.34	140.48	135.68	131.02
756.00	126.36	121.84	117.47	113.16	109.00
761.00	105.55	102.82	100.16	97.54	94.97
766.00	92.44	89.98	87.59	85.22	82.91
771.00	80.67	78.50	76.35	74.27	72.26
776.00	70.32	68.41	66.56	64.78	63.06
781.00	61.40	59.78	58.21	56.71	55.26
786.00	53.87	52.53	51.21	49.95	48.73
791.00	47.57	46.45	45.37	44.33	43.32
796.00	42.34	41.40	40.50	39.64	38.81
801.00	38.02	37.25	36.52	35.82	35.14
806.00	34.47	33.82	33.21	32.61	32.04
811.00	31.49	30.96	30.45	29.97	29.49
816.00	29.04	28.60	28.17	27.77	27.37
821.00	26.99	26.62	26.26	25.91	25.56
826.00	25.23	24.91	24.60	24.30	24.01
831.00	23.73	23.45	23.19	22.93	22.67
836.00	22.43	22.19	21.95	21.73	21.50
841.00	21.28	21.07	20.86	20.66	20.46
846.00	20.27	20.08	19.90	19.72	19.54

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
851.00	19.38	19.21	19.05	18.90	18.74
856.00	18.60	18.45	18.31	18.18	18.04
861.00	17.91	17.78	17.66	17.54	17.42
866.00	17.30	17.19	17.08	16.97	16.87
871.00	16.77	16.67	16.58	16.48	16.40
876.00	16.31	16.22	16.14	16.06	15.98
881.00	15.91	15.84	15.77	15.70	15.63
886.00	15.57	15.50	15.44	15.38	15.32
891.00	15.26	15.20	15.14	15.08	15.02

896.00	14.96	14.90	14.84	14.78	14.72
901.00	14.66	14.60	14.54	14.48	14.43
906.00	14.37	14.31	14.26	14.21	14.15
911.00	14.10	14.05	14.00	13.95	13.89
916.00	13.84	13.79	13.73	13.68	13.62
921.00	13.57	13.51	13.46	13.40	13.34
926.00	13.28	13.23	13.17	13.12	13.06
931.00	13.01	12.96	12.90	12.85	12.80
936.00	12.75	12.70	12.65	12.60	12.55
941.00	12.50	12.45	12.40	12.36	12.31
946.00	12.27	12.22	12.18	12.13	12.09
951.00	12.04	11.99	11.95	11.90	11.85
956.00	11.80	11.75	11.70	11.65	11.59
961.00	11.54	11.49	11.43	11.38	11.33
966.00	11.28	11.23	11.18	11.13	11.08
971.00	11.03	10.98	10.93	10.89	10.84
976.00	10.79	10.75	10.71	10.67	10.64
981.00	10.60	10.57	10.53	10.50	10.47
986.00	10.44	10.41	10.38	10.35	10.32
991.00	10.29	10.26	10.23	10.20	10.18
996.00	10.15	10.13	10.11	10.09	10.06
1001.00	10.04	10.01	9.99	9.96	9.94
1006.00	9.91	9.89	9.86	9.84	9.81
1011.00	9.79	9.76	9.74	9.72	9.70
1016.00	9.68	9.66	9.64	9.62	9.60
1021.00	9.58	9.57	9.55	9.53	9.51
1026.00	9.49	9.47	9.45	9.43	9.41
1031.00	9.39	9.37	9.34	9.32	9.30
1036.00	9.28	9.26	9.24	9.22	9.20
1041.00	9.18	9.17	9.14	9.12	9.10
1046.00	9.08	9.06	9.04	9.02	9.00
1051.00	8.98	8.96	8.95	8.93	8.92
1056.00	8.90	8.89	8.87	8.86	8.84
1061.00	8.82	8.80	8.79	8.77	8.75
1066.00	8.73	8.71	8.69	8.67	8.65
1071.00	8.63	8.61	8.59	8.57	8.55

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time min | Time on left represents time for first value in each row.

1076.00	8.54	8.52	8.51	8.50	8.48

1081.00	8.46	8.45	8.43	8.41	8.40
1086.00	8.38	8.36	8.34	8.33	8.31
1091.00	8.29	8.27	8.25	8.22	8.20
1096.00	8.18	8.16	8.14	8.13	8.11
1101.00	8.09	8.08	8.07	8.05	8.03
1106.00	8.02	8.00	7.98	7.97	7.95
1111.00	7.93	7.91	7.89	7.87	7.85
1116.00	7.83	7.81	7.79	7.77	7.75
1121.00	7.73	7.71	7.69	7.67	7.66
1126.00	7.64	7.63	7.61	7.60	7.58
1131.00	7.56	7.54	7.53	7.51	7.49
1136.00	7.47	7.45	7.43	7.41	7.39
1141.00	7.37	7.35	7.33	7.30	7.28
1146.00	7.27	7.25	7.23	7.22	7.20
1151.00	7.19	7.17	7.16	7.14	7.12
1156.00	7.10	7.09	7.07	7.05	7.03
1161.00	7.02	7.00	6.98	6.97	6.95
1166.00	6.94	6.92	6.91	6.89	6.87
1171.00	6.85	6.83	6.81	6.79	6.77
1176.00	6.75	6.73	6.70	6.68	6.66
1181.00	6.64	6.62	6.61	6.59	6.57
1186.00	6.55	6.53	6.50	6.48	6.46
1191.00	6.44	6.42	6.40	6.38	6.36
1196.00	6.34	6.33	6.31	6.30	6.28
1201.00	6.27	6.25	6.23	6.22	6.20
1206.00	6.18	6.16	6.15	6.13	6.11
1211.00	6.10	6.08	6.07	6.06	6.04
1216.00	6.03	6.02	6.00	5.99	5.98
1221.00	5.97	5.96	5.95	5.94	5.93
1226.00	5.92	5.91	5.90	5.89	5.88
1231.00	5.86	5.85	5.84	5.82	5.81
1236.00	5.80	5.79	5.78	5.77	5.77
1241.00	5.76	5.76	5.76	5.75	5.75
1246.00	5.75	5.74	5.73	5.73	5.72
1251.00	5.71	5.70	5.69	5.69	5.68
1256.00	5.68	5.67	5.67	5.66	5.66
1261.00	5.65	5.65	5.64	5.64	5.63
1266.00	5.63	5.62	5.62	5.62	5.62
1271.00	5.62	5.61	5.61	5.61	5.60
1276.00	5.60	5.59	5.59	5.59	5.59
1281.00	5.59	5.59	5.59	5.59	5.59
1286.00	5.58	5.58	5.57	5.57	5.56
1291.00	5.55	5.55	5.54	5.54	5.53
1296.00	5.53	5.53	5.53	5.54	5.54

File.... F:\HIGHLAND MEADOWS.PPW
Storm... TypeII 24hr   Tag: 100 yr

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1301.00	5.54	5.54	5.54	5.54	5.53
1306.00	5.53	5.52	5.52	5.51	5.51
1311.00	5.50	5.50	5.49	5.49	5.48
1316.00	5.47	5.47	5.46	5.46	5.45
1321.00	5.45	5.44	5.44	5.44	5.43
1326.00	5.43	5.42	5.42	5.42	5.41
1331.00	5.41	5.40	5.40	5.40	5.40
1336.00	5.39	5.39	5.39	5.39	5.38
1341.00	5.38	5.38	5.38	5.38	5.37
1346.00	5.37	5.37	5.36	5.36	5.35
1351.00	5.34	5.33	5.33	5.32	5.31
1356.00	5.30	5.30	5.29	5.29	5.29
1361.00	5.28	5.28	5.28	5.28	5.28
1366.00	5.28	5.28	5.27	5.27	5.26
1371.00	5.25	5.25	5.24	5.23	5.23
1376.00	5.23	5.22	5.22	5.22	5.21
1381.00	5.21	5.21	5.20	5.19	5.19
1386.00	5.19	5.18	5.18	5.18	5.18
1391.00	5.18	5.18	5.17	5.17	5.17
1396.00	5.16	5.16	5.16	5.16	5.16
1401.00	5.16	5.16	5.16	5.16	5.15
1406.00	5.15	5.14	5.14	5.13	5.13
1411.00	5.12	5.11	5.11	5.10	5.10
1416.00	5.10	5.10	5.10	5.10	5.10
1421.00	5.11	5.11	5.11	5.10	5.10
1426.00	5.10	5.09	5.09	5.08	5.08
1431.00	5.07	5.06	5.06	5.05	5.05
1436.00	5.04	5.04	5.03	5.03	5.02
1441.00	5.01	5.00	4.97	4.94	4.89
1446.00	4.82	4.73	4.64	4.52	4.40
1451.00	4.26	4.13	3.98	3.84	3.70
1456.00	3.56	3.42	3.28	3.15	3.01
1461.00	2.89	2.76	2.63	2.51	2.40
1466.00	2.28	2.17	2.06	1.96	1.86
1471.00	1.76	1.67	1.58	1.50	1.42
1476.00	1.34	1.26	1.19	1.13	1.06
1481.00	1.00	.95	.89	.84	.79
1486.00	.75	.70	.66	.62	.58
1491.00	.55	.52	.49	.46	.43
1496.00	.40	.38	.35	.33	.31
1501.00	.29	.27	.26	.24	.23
1506.00	.21	.20	.19	.17	.16
1511.00	.15	.14	.13	.12	.12

1516.00	.11	.10	.10	.09	.09
1521.00	.09	.09	.09	.09	.09

S/N: C21F01C070CE Bowers Engineering Inc
PondPack Ver: Compute Time: Date:

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1526.00	.09	.09	.09	.09	.09
1531.00	.09	.09	.09	.09	.09
1536.00	.09	.09	.09	.09	.09
1541.00	.09	.09	.09	.09	.09
1546.00	.09	.09	.09	.09	.09
1551.00	.09	.09	.09	.09	.09
1556.00	.09	.09	.09	.09	.09
1561.00	.09	.09	.09	.09	.09
1566.00	.09	.09	.09	.09	.09
1571.00	.09	.09	.09	.09	.09
1576.00	.09	.09	.09	.09	.09
1581.00	.09	.09	.09	.09	.09
1586.00	.09	.09	.09	.09	.09
1591.00	.09	.09	.09	.09	.09
1596.00	.09	.09	.09	.09	.09
1601.00	.09	.09	.09	.09	.09
1606.00	.09	.09	.09	.09	.09
1611.00	.09	.09	.09	.09	.09
1616.00	.09	.09	.09	.09	.09
1621.00	.09	.09	.09	.09	.09
1626.00	.09	.09	.09	.09	.09
1631.00	.09	.09	.09	.09	.09
1636.00	.09	.09	.09	.09	.09
1641.00	.09	.09	.09	.09	.09
1646.00	.09	.09	.09	.09	.09
1651.00	.09	.09	.09	.09	.09
1656.00	.09	.09	.09	.09	.09
1661.00	.09	.09	.09	.09	.09
1666.00	.09	.09	.09	.09	.09
1671.00	.09	.09	.09	.09	.09
1676.00	.09	.09	.09	.09	.09
1681.00	.09	.09	.09	.09	.09
1686.00	.09	.09	.09	.09	.09
1691.00	.09	.09	.09	.09	.09
1696.00	.09	.09	.09	.09	.09

1701.00	.09	.09	.09	.09	.09
1706.00	.09	.09	.09	.09	.09
1711.00	.09	.09	.09	.09	.09
1716.00	.09	.09	.09	.09	.09
1721.00	.09	.09	.09	.09	.09
1726.00	.09	.09	.09	.09	.09
1731.00	.09	.09	.09	.09	.09
1736.00	.09	.09	.09	.09	.09
1741.00	.09	.09	.09	.09	.09
1746.00	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1751.00	.09	.09	.09	.09	.09
1756.00	.09	.09	.09	.09	.09
1761.00	.09	.09	.09	.09	.09
1766.00	.09	.09	.09	.09	.09
1771.00	.09	.09	.09	.09	.09
1776.00	.09	.09	.09	.09	.09
1781.00	.09	.09	.09	.09	.09
1786.00	.09	.09	.09	.09	.09
1791.00	.09	.09	.09	.09	.09
1796.00	.09	.09	.09	.09	.09
1801.00	.09	.09	.09	.09	.09
1806.00	.09	.09	.09	.09	.09
1811.00	.09	.09	.09	.09	.09
1816.00	.09	.09	.09	.09	.09
1821.00	.09	.09	.09	.09	.09
1826.00	.09	.09	.09	.09	.09
1831.00	.09	.09	.09	.09	.09
1836.00	.09	.09	.09	.09	.09
1841.00	.09	.09	.09	.09	.09
1846.00	.09	.09	.09	.09	.09
1851.00	.09	.09	.09	.09	.09
1856.00	.09	.09	.09	.09	.09
1861.00	.09	.09	.09	.09	.09
1866.00	.09	.09	.09	.09	.09
1871.00	.09	.09	.09	.09	.09
1876.00	.09	.09	.09	.09	.09
1881.00	.09	.09	.09	.09	.09

1886.00	.09	.09	.09	.09	.09
1891.00	.09	.09	.09	.09	.09
1896.00	.09	.09	.09	.09	.09
1901.00	.09	.09	.09	.09	.09
1906.00	.09	.09	.09	.09	.09
1911.00	.09	.09	.09	.09	.09
1916.00	.09	.09	.09	.09	.09
1921.00	.09	.09	.09	.09	.09
1926.00	.09	.09	.09	.09	.09
1931.00	.09	.09	.09	.09	.09
1936.00	.09	.09	.09	.09	.09
1941.00	.09	.09	.09	.09	.09
1946.00	.09	.09	.09	.09	.09
1951.00	.09	.09	.09	.09	.09
1956.00	.09	.09	.09	.09	.09
1961.00	.09	.09	.09	.09	.09
1966.00	.09	.09	.09	.09	.09
1971.00	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
1976.00	.09	.09	.09	.09	.09
1981.00	.09	.09	.09	.09	.09
1986.00	.09	.09	.09	.09	.09
1991.00	.09	.09	.09	.09	.09
1996.00	.09	.09	.09	.09	.09
2001.00	.09	.09	.09	.09	.09
2006.00	.09	.09	.09	.09	.09
2011.00	.09	.09	.09	.09	.09
2016.00	.09	.09	.09	.09	.09
2021.00	.09	.09	.09	.09	.09
2026.00	.09	.09	.09	.09	.09
2031.00	.09	.09	.09	.09	.09
2036.00	.09	.09	.09	.09	.09
2041.00	.09	.09	.09	.09	.09
2046.00	.09	.09	.09	.09	.09
2051.00	.09	.09	.09	.09	.09
2056.00	.09	.09	.09	.09	.09
2061.00	.09	.09	.09	.09	.09
2066.00	.09	.09	.09	.09	.09

2071.00	.09	.09	.09	.09	.09
2076.00	.09	.09	.09	.09	.09
2081.00	.09	.09	.09	.09	.09
2086.00	.09	.09	.09	.09	.09
2091.00	.09	.09	.09	.09	.09
2096.00	.09	.09	.09	.09	.09
2101.00	.09	.09	.09	.09	.09
2106.00	.09	.09	.09	.09	.09
2111.00	.09	.09	.09	.09	.09
2116.00	.09	.09	.09	.09	.09
2121.00	.09	.09	.09	.09	.09
2126.00	.09	.09	.09	.09	.09
2131.00	.09	.09	.09	.09	.09
2136.00	.09	.09	.09	.09	.09
2141.00	.09	.09	.09	.09	.09
2146.00	.09	.09	.09	.09	.09
2151.00	.09	.09	.09	.09	.09
2156.00	.09	.09	.09	.09	.09
2161.00	.09	.09	.09	.09	.09
2166.00	.09	.09	.09	.09	.09
2171.00	.09	.09	.09	.09	.09
2176.00	.09	.09	.09	.09	.09
2181.00	.09	.09	.09	.09	.09
2186.00	.09	.09	.09	.09	.09
2191.00	.09	.09	.09	.09	.09
2196.00	.09	.09	.09	.09	.09

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
2201.00	.09	.09	.09	.09	.09
2206.00	.09	.09	.09	.09	.09
2211.00	.09	.09	.09	.09	.09
2216.00	.09	.09	.09	.09	.09
2221.00	.09	.09	.09	.09	.09
2226.00	.09	.09	.09	.09	.09
2231.00	.09	.09	.09	.09	.09
2236.00	.09	.09	.09	.09	.09
2241.00	.09	.09	.09		

Type.... Vol: Elev-Area Page 6.01
Name.... MAIN DET

File.... F:\HIGHLAND MEADOWS.PPW

Elevation (ft)	Planimeter (sq.in)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	Volume (ac-ft)	Volume Sum (ac-ft)
949.00	-----	5	0	.000	.000
950.00	-----	3454	3590	.027	.027
951.00	-----	11395	21123	.162	.189
952.00	-----	21500	48547	.371	.561
953.00	-----	28246	74389	.569	1.130
954.00	-----	31693	89859	.688	1.817
955.00	-----	34829	99746	.763	2.581
956.00	-----	38299	109651	.839	3.420
957.00	-----	41907	120268	.920	4.340
958.00	-----	45690	131355	1.005	5.345
959.00	-----	49388	142581	1.091	6.436

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

S/N: C21F01C070CE Bowers Engineering Inc

Type.... Outlet Input Data Page 7.01
Name.... Outlet 1

File.... F:\HIGHLAND MEADOWS.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 949.00 ft
Increment = .25 ft
Max. Elev.= 959.00 ft