

MASTER DRAINAGE REPORT

GREEN VALLEY MASTER PLAN AMENDMENT 4

JULY 18, 2023



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This electronic plan (or, report) is a facsimile of the signed and sealed pdf plan (or, report).

A handwritten signature in blue ink, appearing to read "Ken Cecil", written over a horizontal line.

(Original Signature)
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7/26/2023

(Date)

JOB NO. 50145755

APPROVED FOR ONE YEAR FROM THIS DATE

CITY ENGINEER

DATE

WATER DEPARTMENT

DATE

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A. INTRODUCTION

The purpose of this report is to provide a guide to the City of Aurora (COA), the Mile High Flood District (MHFD) and Oakwood Homes (Developer), for the planning, design, and construction of drainage facilities for the Green Valley Master Plan Amendment 4 project. This report is conceptual in nature and subject to change in the Preliminary Drainage Report and Final Drainage Report phases. This report provides a comprehensive description of the project, analysis methodology utilized, and design criteria used for the associated drainage facilities. This report adheres to the requirements of the City of Aurora Storm Drainage Design and Technical Criteria Manual (City of Aurora, October 11, 2010). The Green Valley Master Plan Amendment 4 development will be referred to as “Site”, “Parcel”, “Project”, and “Green Valley Master Plan Amendment 4” within the body of this Report.

1. Project Location

The Site is tributary to three major basins; Blue Grama Draw (a tributary to First Creek), First Creek Tributary T, and Second Creek within the City of Aurora. The Site is bounded on the north by East 56th Avenue; along the east by E-470, along the south by East 52nd Avenue and the future Windler development; and along the west by Piccadilly Road.

The entire Project is located within the City of Aurora and is approximately 289.1 acres in size. The Project is further described as being located within the north ½ of Section 13, Township 3 South, Range 66 West of the Sixth Principal Meridian, City of Aurora, County of Adams, and State of Colorado. The approximate latitude and longitude are 39°, 47' 11" North and 104°, 43' 37" West. A Vicinity Map has been provided as Figure 1 to depict the Project and the surrounding area. Additionally, the property is located approximately 3 miles south of the Denver International Airport (DIA). Due to current FAA design criteria, this proximity ultimately influences the proposed regional pond designs servicing the Site within the adjacent developments. Please refer to the Design Criteria section of this Report for more information.

The existing conditions for the Site are generally described as historic farmland. The existing conditions are estimated to be 2% impervious based on these land uses. The proposed and future tributary basin improvements are calculated to yield a weighted imperviousness of approximately 61.2% based upon the concept presented within Figure 2. According to the *FEMA Flood Insurance Rate Map (FIRM) No. 08005C0061L*, dated February 17, 2017 (Reference 3), the Site is a Zone X – Areas of Minimal Flood Hazard. A copy of the FIRM Panel can be found within Appendix A of this report for reference.

2. Proposed Development

The Green Valley Master Plan Amendment 4 Master Plan is a mixed-use development consisting of residential parcels with proposed single-family homes, multi-family homes, commercial parcels, community parks, open space and associated amenities; See Figure 1 – Vicinity Map for the two parcels that generate the Green Valley Master Plan Amendment 4 project. Those two parcels consist of and approximate total acreage of 307.1 acres, consisting of an approximately 289.1-acre parcel north of Green Valley Ranch East and the Windler Developments and the Brandenburg parcel, which is approximately 18 acres, and is located at the northeast corner of the Tibet Road and 48th Avenue intersection as seen in Figure 2 – Concept Plan. The southerly Brandenburg parcel is included within tributary Basin 520, as identified within the Green Valley – Amendment 3 Master Drainage Report, and was previously a portion of Basin 581 in prior studies/Amendments. We have reviewed the assumptions therein and note that the anticipated uses for the Brandenburg parcel is a 50/50 mix of residential and commercial with a resultant, anticipated composite imperviousness (Comp I) of 60%. The information within the prior GVRE Amendments do not



Figure 1- Vicinity Map

All regional roadways shall be developed consistent with the approved PIP for the Project. Generally, the following regional roadways will be developed either by the Site or via agreement with ARTA to support the development presented herein. The south ½ section of 56th Avenue, the east ½ section of Picadilly Avenue, the north ½ section of 52nd Avenue, and the full or ½ section of Tibet Road as discussed within the PIP.



B. HISTORIC DRAINAGE

1. Description of Property

The Site comprises an area of approximately 289.1 acres and is located approximately 3 miles south of the airport (DIA). The Parcel and surrounding areas are predominantly farms and open fields but are anticipated to develop into mixed uses such as single-family homes, multifamily housing, and commercial office spaces as growth continues in the area. As development occurs, it is anticipated that developers will provide stormwater detention and/or water quality for each individual site or utilize regional detention facilities farther downstream wherein developed detention is already planned, in conjunction with the City of Aurora and as outlined within the regional master plans for the area. Referenced and applicable master plans include First Creek (Upstream of Buckley Road) Major Drainageway Plan by Moser & Associates, Second Creek (Upstream of Denver International Airport) Major Drainageway Plan by Olsson Associates and Matrix Design Group, and Green Valley – Amendment 2 and 3 Master Drainage Report by Calibre Engineering, Inc.

The Site is divided into three major basins: Blue Grama Draw (a portion of the First Creek) Watershed, the First Creek Tributary T Watershed, and the Second Creek Watershed. An existing ridgeline separates the basins at the high point located near the center of the Site, and the ridgeline extends to the approximate midpoint of the north and west Site boundaries, which will be generally followed with the development of the Site.

Soils at the Site consist of primarily sandy loams, loams, and loamy sands as shown in the National Resources Conservation Service (NRCS) Web Soil Survey in Appendix A (USDA, 2017). Refer to Table 1 for more information regarding the soil classifications and hydrologic soil groups.

TABLE 1 – SOILS AND HYDROLOGIC SOIL GROUPS				
ID	NAME	HYDROLOGIC SOIL GROUP	ACRES	PERCENT OF AREA
ASB	ASCALON SANDY LOAM, 0 TO 3 PERCENT SLOPES	B	26.5	9.2%
AVC	ASCALON-VONA SANDY LOAMS, 1 TO 5 PERCENT SLOPES	B	21.9	7.6%
PIB	PLATNER LOAM, 0 TO 3 PERCENT SLOPES	C	46.8	16.2%
TTB	TRUCKTON LOAMY SAND, 0 TO 3 PERCENT SLOPES	A	81.2	28.1%
TTD	TRUCKTON LOAMY SAND, 3 TO 9 PERCENT SLOPES	A	112.7	39.0%

Based on the soil classifications, the on-Site and tributary off-Site areas have soils within Hydrologic Soil Groups (HSG) A, B, and C. Type 'A' soils are identified as having low runoff potential and high infiltration rates. Type 'B' soils are identified as having medium runoff, moderate infiltration rates and a moderate erosion hazard. Type 'C' soils are identified as having low infiltration rates when thoroughly wetted, moderate runoff, and moderate to severe erosion hazard.

No portion of the Site or off-Site area is located within a 100-year floodplain as determined by the FEMA Flood Insurance Rate Map for the area. Refer to Appendix A for the FEMA map (map panel number 08005C0061L) illustrating the location of the Site.

2. Overall Basin Description

The Site is divided into three major basins; 20% of the Site is tributary to Blue Grama Draw (a portion of the First Creek) Watershed, 31% of the Site is tributary to the First Creek Tributary T Watershed, and 49% of the Site is tributary to the Second Creek Watershed.

Blue Grama Draw (a portion of the First Creek) Watershed

The northwest portion of the Site is tributary to Blue Grama Draw, which is a portion of the First Creek watershed. This area's existing conditions comprise approximately 65.1 acres, delineated as Basin A in the existing conditions map. Runoff from basin drains to the northwest corner of the parcel where it collects and flows north and west to the Moffit parcel and then along East 56th Avenue to the Painted Prairie development, with an ultimate outfall into First Creek through the Blue Grama Draw. A Regional Pond (Pond 840) is planned downstream for the developed flows from this Site as detailed within the First Creek (Upstream of Buckley Road) Major Drainageway Plan.

First Creek Tributary T Watershed

The southwest portion of the Site is part of the First Creek Tributary T watershed. This area's existing conditions comprise approximately 115.7 acres, delineated as Basin B in the existing conditions map. Runoff from this basin drains to the southern boundary of the parcel where it collects and flows south through Green Valley Ranch East and Region Detention Pond 8503C, with an ultimate outfall to First Creek Tributary T. The Brandenburg parcel was previously modeled with prior Studies for the Green Valley Ranch East project. Most recently, Amendment 3 Master Drainage Report by Calibre Engineering, Inc., March 2020 (COA# 220095) corrected the map to depict the Brandenburg Parcel to be within the Tributary T watershed (not the Unnamed Tributary), which corrected the map to match the approved modeling.

Second Creek Watershed

The northeast portion of the Site is within the Second Creek Watershed. It flows directly to Possum Gully and then to Second Creek. This area's existing conditions comprise 108.3 acres, delineated as Basin C in the existing conditions map. Runoff from this basin flows to the northern boundary, across 56th Avenue, into Possum Gully, and ultimately into Second Creek. There is a Regional Pond, Pond PG2 planned within the Site as part of Second Creek MDP, which is anticipated to attenuate developed runoff from the Site.

C. DESIGN CRITERIA

1. List of References

The *City of Aurora Storm Drainage Design and Technical Criteria Manual (SDDTC)* and the *Mile-High Flood District (MHFD), Urban Storm Drainage Criteria Manuals (USDCM)* (References 1 and 2, respectively) were the major technical references used for this report. Additionally, the *Flood Insurance Rate Map No. 08005C0063L* (Reference 3) was utilized to understand the regulatory floodplains existing on Site. Referenced and applicable master plans include First Creek (Upstream of Buckley Road) Major Drainageway Plan by Moser & Associates and Second Creek Major Drainageway Plan by RESPEC (References 5 and 6, respectively). The original Master Drainage Report for the site was completed by Stantec Consulting, Inc. in March 2006. (Reference 7). This report was superseded by Green Valley –Master Drainage Report Addendum by Stantec Consulting, Inc. in September 2008 (Reference 8). This Addendum revised the detention concept for the area by increasing the allowable discharge for the proposed ponds. Green Valley – Amendment 1 Master Drainage Report by Calibre Engineering, Inc. in January 2018 (Reference 9) further amended the MDR to change the limits associated with the report by removing the Aurora

Highlands development. Green Valley – Amendment 2 Master Drainage Report by Calibre Engineering, Inc. in March 2020 (Reference 10) further amended the MDR by utilizing more refined basin delineation, revising the regional detention pond scheme, and proposing a geomorphic design for Tributary T. Finally, Green Valley – Amendment 3 Master Drainage Report by Calibre Engineering, Inc. in August 2021 (Reference 11) corrected the MDR maps by portions of Basins 520 and 581 to match the previously approved modeling.

2. Hydrologic Criteria

Hydrologic criteria and calculations are in conformance with Section 5.0 of the City of Aurora's Drainage Criteria Manual (City of Aurora, October 11, 2010). The Colorado Urban Hydrograph Procedure (CUHP) is an acceptable method for calculating peak flows and runoff volumes according to the Urban Storm Drainage Criteria Manual (USDCM) for basins up to 3,000 acres (Urban Drainage and Flood Control District, 2016).

The Colorado Urban Hydrograph Procedure (CUHP) version 2.0.0 was used to determine existing and proposed peak runoff rates for Site drainage areas. The storm hydrographs developed by CUHP for each sub-catchment are used as the 'inflows' for the routing analysis performed using the Environmental Protection Agency (EPA) Stormwater Management Model (SWMM). EPA SWMM version 5.1.013 was used to determine peak discharge rates at each node and the required volume for each proposed pond.

Due to the Site's proximity to the Denver International Airport (DIA), the FAA design criteria per FAA Advisory Circular 150/5200-33B Hazardous Wildlife Attractants on or Near Airports is applicable. This requires detention ponds to drain within 48 hours. It is assumed that off-Site, regional ponds servicing the Site will be, or were designed to provide water quality and the 10-year and 100-year design volumes for those events and drain within 48 hours. Any temporary detention and water quality facilities required to service the Site due to downstream phasing will meet this requirement. Those temporary pond volume(s), if applicable, will be the 100-year volume as calculated by the EPA-SWMM model plus the water quality capture volume as determined by the UD-Detention workbook, $V_{Total} = V_{100-SWMM} + \frac{1}{2} WQCVUD-DET$.

For this report, the design frequencies analyzed were the 2-year (minor), and the 100-year (major) storm events. The 1-hour rainfall depths from NOAA 14 are identified in Table 2 below.

TABLE 2 – 1 HOUR POINT RAINFALL DEPTHS, NOAA 14	
STORM EVENT	1-HOUR RAINFALL DEPTH
2-YEAR	0.85
5-YEAR	1.13
10-YEAR	1.39
25-YEAR	1.78
50-YEAR	2.12
100-YEAR	2.49

Proposed sub-basin characteristics were developed and used for the computation of peak flow rates implemented within the hydraulic evaluation. CUHP and SWMM model inputs and outputs are presented within Appendix B. The procedures and methodology follow the City of Aurora and MHFD Criteria outlined in References 1 and 2, respectively.

3. Hydraulic Criteria

The hydraulic criteria and calculations used for this analysis conform to Section 6.0 Hydraulic Criteria of the City of Aurora's Drainage Criteria Manual (City of Aurora, October 11, 2010) and the UDFCD Drainage Criteria Manuals (Urban Drainage and Flood Control District, 2016).

On-Site and downstream regional drainage infrastructure is planned to receive runoff from this Site. This includes the existing Regional Detention Pond 8503C for the First Creek Watershed and then two planned ponds for Blue Grama Draw and Second Creek: namely Pond 840 and Pond PG2, respectively. As it relates to these three ponds, two options or design constraints are contemplated, as follows.

Development Option 1

- Presumes that Ponds 840 which attenuates runoff for the First Creek Watershed/Blue Grama Draw (Basin A) **WILL** be constructed in advance of the Mixed-Use development within the individual tributary basins within the Green Valley Ranch East Amendment area.
- This option recognizes and confirms that runoff from the Blue Grama (a portion of First Creek) watershed has been anticipated within the master planned Pond 840. Based on the information provided in the Moffit and Sky Dance Master Drainage Report, the anticipated tributary area of Blue Grama was 64 acres and had an imperviousness value of 73%. The development planned herein that is tributary to the Blue Grama watershed, is approximately 56.2 acres with an anticipated developed composite imperviousness of 71.6%. Both values are below the Sky Dance Master Drainage Report assumptions. Furthermore, the Sky Dance Master Drainage Report states that it isn't providing water quality volume for our Site, however; the downstream regional pond 816 does. The Green Valley Ranch East design team will work with the downstream developers, City, and MHFD as Pond 840 undergoes final design and construction. In the event that the portions of the Green Valley Ranch East development precede the construction of Pond 840, Option 2 will be triggered, as discussed below.
- This option recognizes and confirms developed runoff from the Site within the Second Creek Watershed (Basin C) has been anticipated within the master planned Pond PG2, which will be constructed on-Site with the proposed development activities. This project's design team will work with the downstream developers, City, and MHFD as Pond PG2 undergoes design and construction to coordinate the Pond PG2 outfall off-Site to Possum Gully. Since the PG2 pond will be on-Site, only the Pond's release rate was considered as a design constraint. The maximum release rate from Pond PG2 shall meet the approved RESPEC master plan for the area of 368.8 cfs for a 100-year storm.
- This option recognizes and confirms that runoff from First Creek Tributary T Watershed (Basin B) has been anticipated within the previously constructed Pond 8503C. Pond 8503C was designed per the Green Valley Ranch East Regional Drainage Improvement Plans, which anticipated a 46% impervious value for the 137-acre watershed. The proposed Basin within this Study updates the anticipated composite imperviousness to 44.5% and the overall area to 89.6 acres. These updates are due to the proposed Site have been confirmed and accounted for in the design on Pond 8503C.
- The 18.9-acre parcel located at the northeast corner of 48th Avenue and Tibet Road, known as the Brandenburg Parcel, was previously modeled within the Green Valley Ranch East Master Drainage Study(s), by others. The Brandenburg Parcel is within the First Creek Tributary and is portion of the previously modeled Basin 520. Basin 520 was modeled as being 185 acres and with a composite imperviousness of 64%. The Brandenburg Parcel is anticipated to be developed consistent with the previously modeled assumptions.

Development Option 2

- This option recognizes and confirms that runoff from First Creek Tributary T watershed (Basin B) has been anticipated within the previously constructed Pond 8503C. The 89.6-acres and 44.5% Comp I are confirmed and accounted for within design of Pond 8503C. This Pond was designed within Green Valley Ranch East Regional Drainage Improvement Plans, Calibre Engineering, Inc., June 2019 (COA #217031).
- Presumes that Ponds 840 which attenuates runoff for the First Creek Watershed/Blue Grama Draw (Basin A) **WILL NOT** be constructed in advance of the mixed use development within these individual tributary basins and therefore, construction of a corresponding temporary pond on-Site will be needed, or an agreement reached allowing the Green Valley Ranch East Developer to construct Pond 840.

- In the event a temporary on-Site pond is needed, then the temporary on-Site pond will be designed and constructed at the time of the first parcel within the tributary. The temporary pond will be removed once regional Pond 840 is constructed.
- Temporary pond calculations are provided within this report and assume the full tributary development in advance of the downstream pond, however; phasing of the temporary pond may occur with updated volumes provided within subsequent Preliminary and Final Drainage Report, at the discretion of the Developer.
- This option recognizes and confirms that developed runoff from the Site within the Second Creek Watershed (Basin C) has been anticipated within the master planned Pond PG2, which will be constructed on-Site with the proposed development activities. This project's design team will work with the downstream developers, City, and MHFD as Pond PG2 undergoes design and construction to coordinate the Pond PG2 outfall off-Site to Possum Gully. Since the PG2 pond will be on-Site, only the Pond's release rate was considered as a design constraint. The maximum release rate from Pond PG2 shall meet the approved RESPEC master plan for the area of 368.8 cfs for a 100-year storm.
- On-site ponds will meet Urban Drainage and City of Aurora, FAA requirements for water quality and 100-year design while draining in 48 hours and in not less than 24-hours for the water quality volume. The total pond volume provides sufficient capacity for: Water Quality Capture Volume (WQCV), Excess Urban Runoff Volume (EURV), and detention for the 100-year storm event under proposed conditions.
- Sheet flow routed directly to the ponds is modeled in EPA SWMM as a dummy conduit with a Manning's roughness coefficient of 0.05. Detention ponds are modeled as a storage node with tabular storage and rating curves. Curves for the ponds are determined per the UDFCD UD-Detention Workbook version 4.00. Refer to Appendix B for calculated pond sizes as determined by the UD-Detention workbook.

Existing conditions were modeled for the 2-year and 100-year flood event using a free outfall for each watershed, totaling three (3) outfalls. Future conditions were modeled yielding important results for two alternate conditions: A) to provide peak flow rates to the outfall locations to the downstream regional facilities and B) to determine the potential sizing of the temporary facilities on-Site, should the downstream regional facilities not be completed at the time of development within the tributary. Any temporary ponds proposed will be removed with the development of the downstream facilities. All on-site ponds will meet Urban Drainage and City of Aurora, FAA requirements for water quality and 100-year (full spectrum detention) design while draining within 48 hours. The total pond volume provides sufficient capacity for: Water Quality Capture Volume (WQCV), Excess Urban Runoff Volume (EURV), and detention for the 100-year storm event under proposed conditions. Sheet flow routed directly to the ponds is modeled in EPA SWMM as a dummy conduit with a Manning's roughness coefficient of 0.05. Detention ponds are modeled as a storage node with tabular storage and rating curves. Curves for the ponds are determined per the UDFCD UD-Detention Workbook version 4.00. Refer to Appendix B for calculated pond sizes as determined by the UD-Detention workbook.

The temporary pond calculations within this Report assume the full tributary development in advance of the downstream ponds, however; phasing of the temporary ponds may occur with volume provided within subsequent Preliminary and Final Drainage Reports. An amendment to this Report may be required if flows are not ultimately routed to Pond 840.

Variances Required

1. One variance will be required to meet the FAA requirements for 10-year and 100-year design draining in 48 hours. The Site is within the DIA influence zone and the ponds must drain within 48 hours. The water quality drain time will not be less than 24 hours and the total drain time no greater than 48 hours.

D. DRAINAGE PLAN

1. General Concept

This proposed drainage plan analyzes the proposed development and estimates the developed runoff within the Project. Developed runoff is generally anticipated to flow overland to streets for conveyance to inlets and a proposed

storm sewer system. The storm sewer system will either discharge off-Site in the case of the tributary to Blue Grama Draw (First Creek) and Possum Gully (Second Creek) for conveyance to future, regional detention facilities. The storm sewer system within the Tributary T, First Creek tributary will discharge to an open channel for conveyance under 52nd Avenue and into the drainage channel system within Green Valley Ranch East. In the event the downstream, regional detention ponds within the Blue Grama Draw (Pond 840) is not completed at the time of development within the Site's tributary areas to those facilities, the Project will construct an on-Site, temporary detention Pond A for First Creek (Basin A)¹¹. An on-Site regional Detention Pond PG2 will be constructed within the Second Creek basin (Basin C). First Creek Tributary T watershed (Basin B) has a proposed regional pond (8503C) and will collect developed flows from Basin B. Refer to Table 5 for a summary of potential pond volumes. Generally, drainage patterns will follow historic patterns and impacts to the major basin delineations will be minimized. This Master Drainage Report utilizes concept, mass grading to estimate the anticipated major basins. Minor adjustments to the grading presented herein may occur with the advancement of the individual planning areas, so long as the intent and the release rates presented herein are maintained for the three major basins.

2. Specific Details

As indicated previously, the Site is located within three major watersheds; the Blue Grama Draw (a portion of First Creek) Watershed (Basin A), the First Creek Tributary T Watershed (Basin B), and the Second Creek Watershed (Basin C). As shown by the basin map in Appendix B, one temporary on-Site pond (Pond A) and one permanent pond (Pond PG2) are proposed to provide detention before routing further downstream. These detention ponds are sized to match historic runoff flow rates. The ponds will be located near the low-lying points on-Site. To prevent spending unnecessary capital, it is hopeful that downstream regional ponds and infrastructure will be constructed prior to the residential or commercial development within these individual tributary basins and therefore, construction of the temporary Pond A will not occur. Refer to Appendices for applicable inputs to the CUHP and EPA SWMM models. First Creek Tributary T watershed (Basin B) has a proposed regional pond (8503C) and will collect developed flows from Basin B. All proposed detention ponds have a 1-foot minimum freeboard requirement from the 100-year water surface elevation to the spillway crest. City of Aurora considers the required pond volume to be 100yr+1/2EURV for full spectrum ponds, 100yr+1.2WQCV for detention and water quality ponds. The MHFD requirement is 1-foot minimum freeboard from the 100-year water surface elevation over the emergency weir up to the top of embankment. All pond release rates will be designed per COA 6.33 or as permitted by the previous master plans. Discharge point will be coordinated with adjacent property owners as the design progresses. The specific drainage basin details pertaining to the Site are provided below.

Basin A: First Creek

The proposed layout for Basin A is broken into 4 sub-basins (A1-A3) and corresponds to the northwestern portion of the Site tributary to Blue Grama Draw and First Creek. It has a total contributing area of 56.2 acres. It was modeled with a composite imperviousness of 71.6% in the proposed condition. On-site runoff will be conveyed via overland flow, curb and gutter, and storm sewer to the proposed E. 56th Avenue crossing for attenuation within regional Pond 840. These flows will outfall ultimately into First Creek from Design Point A1 at the outfall of temporary Pond A. If Pond 840 is constructed and therefore the temporary Pond A is not required, the discharge into Pond 840 would be the inflow hydrograph shown going into the temporary Pond A. See Tables 3 – 5 below for details of the proposed pond volume, flows, and tributary area. The proposed design of the pond is in conformance with the associated Major Drainageway Plan.

Basin B: First Creek Tributary T

The proposed layout for Basin B is broken into 8 sub-basins (B1-B8) and corresponds to the southwestern portion of the Site tributary to First Creek Tributary T. It has a total contributing area of 89.6 acres. It is comprised of the equivalent of basin 580 and approximately 21 acres from basin 503 from the report by Moser, 2010. It was modeled with a composite imperviousness of 44.5% in the proposed condition. Runoff in the proposed condition will be conveyed via overland flow, curb and gutter and storm sewer to the proposed open space tract in Sub-Basin B1. This runoff will flow through a reinforce concrete box culvert under East 52nd Avenue into the proposed North Channel at Design Point B_Out as a part of the ongoing East Green Valley Ranch development to the south. Sub-basin B6 does

not discharge to design point B_Out but does enter East Green Valley Ranch along Piccadilly. These flows will outfall into Regional Detention Pond 8503C and ultimately into First Creek Tributary T. See Tables 3 – 5 below for details of the proposed pond volume, flows, and tributary area. The proposed design of the pond is in conformance with the associated Major Drainageway Plan.

Basin C: Second Creek

The proposed layout for Basin C is broken into 4 sub-basins (C1-C7) and corresponds to the northeastern portion of the Site tributary to Possum Gully and ultimately to Second Creek. It has a total contributing area of 139.7 acres. It was modeled with a composite imperviousness of 64.8% in the proposed condition. Runoff in the proposed condition will be conveyed via overland flow, curb and gutter and storm sewer to the proposed permanent regional Pond PG2. Pond PG2 will outfall to a proposed E. 56th Avenue crossing. See Tables 3 – 5 below for details of the proposed pond volume, flows, and tributary area. The proposed design of the pond is in conformance with the 2019 Second Creek Major Drainageway Plan by RESPEC which states the peak flows at the boundary are 368.8 cfs for a 100-year storm.

Possum Gully is an ephemeral stream and runoff flows along grades ranging from one to 20 percent towards Second Creek, with slopes primarily between 1 and 3%. Possum Gully is a well-defined drainageway with a 25-ft bottom width, 15:1 and 35:1 side slope, a 25-foot depth, and longitudinal slope of 1.3% (Second Creek (Upstream of Denver International Airport) Major Drainageway Plan, September 2011). According to the 2011 Second Creek MDP, Possum Gully is in good condition with no signs of erosion. The need for grade control structures will be assessed once the conceptual plan provided herein has been preliminarily approved. All work within Possum Gully is anticipated to be by others and is beyond the scope of the development of the Site.

Summary of Flows

A map that illustrates these sub-basins designations, acreages, and directions of flow is included in the Appendix of this report. Also included within the Appendix are applicable supporting documentation, calculations, and tabular summary of CUHP and SWMM inputs and results. Tables 3 – 6 below contain a summary of hydrologic parameters and calculated flows at critical design points within the Site for the 2-year and 100-year storm events.

TABLE 3– WEIGHTED COMPOSITE IMPERVIOUSNESS							
BASIN		EXISTING AREA (AC)	MDP AREA (AC)	PROPOSED AREA (AC)	HISTORIC COMPOSITE IMPERVIOUSNESS (%)	MDP COMPOSITE IMPERVIOUSNESS (%)	PROPOSED COMPOSITE IMPERVIOUSNESS (%)
A – FIRST CREEK		65.1	55	56.2	2.0	73	71.6
B – FIRST CREEK TRIBUTARY T		115.7	89	89.6	2.0	54	44.5
C – SECOND CREEK		108.3	145	139.7	2.0	70	64.8
TOTAL WEIGHTED COMPOSITE IMPERVIOUSNESS		289.1	289	285.5	2.0	-	59.7
D – BRANDENBURG PARCEL		18.0	18	18.0	2.0	54	54

*MDPs: A-First Creek – Moser & Associates, 2010; B-First Creek Tributary T – Calibre, 2021; C-Second Creek – RESPEC, 2019

TABLE 4 – SUMMARY OF FLOWS LEAVING SITE											
DESIGN POINT	TRIBUTARY BASINS	DESCRIPTION	MDP FLOWS		EXISTING CONDITION		PROPOSED INFLOWS	PROPOSED OUTFLOW CONDITION W/OUT PONDS		PROPOSED OUTFLOW CONDITION W/PONDS	
			2-YEAR (CFS)	100-YEAR (CFS)	2-YEAR (CFS)	100-YEAR (CFS)	100-YEAR (CFS)	2-YEAR (CFS)	100-YEAR (CFS)	2-YEAR (CFS)	100-YEAR (CFS)
A	A1-A3	FIRST CREEK	68	232	0	68	149	38*	149	1*	29*
B	B1-B8	FIRST CREEK TRIBUTARY T	69	331	0	138	123	24	123	24	123
C	C1-C7	SECOND CREEK	89.3	368.8	1	129	336	77	182	2*	92*

*Ultimate condition flows are shown; assumes Pond PG2 (Basin C) and a temporary Pond A (Basin A) until Pond 840 is built. Maximum release rate at Design Point A may be 164.11 cfs per the approved Sky Dance Master Drainage Report.

TABLE 5 – POTENTIAL TEMPORARY POND VOLUME FOR PROPOSED CONDITION				
POND	WATER QUALITY CAPTURE VOLUME (AF)	100-YR DETENTION VOLUME (AF)	TOTAL VOLUME (AF)	OWNERSHIP
A	1.2	7.3	7.39	PRIVATE

TABLE 6 – REGIONAL POND VOLUME FOR PROPOSED CONDITION				
POND	WATER QUALITY CAPTURE VOLUME (AF)	100-YR DETENTION VOLUME (AF)	TOTAL VOLUME (AF)	OWNERSHIP
PG2	3.2	17.3	18.9	REGIONAL

The potential, temporary on-Site pond (Pond A) will be located within a proposed drainage easement as required per the City's SDC Manual, which would be vacated to allow for development once the downstream, regional facilities were constructed. Ownership (private) and maintenance of the temporary on-Site pond has been determined based on City criteria and is provided in Table 5. Further discussion and coordination with the city on this matter will be ongoing, should the temporary pond be required. Maintenance access will be provided by access roads within the temporary pond drainage easements designed per City criteria. As shown in Tables 5 and 6, each of the outfall culverts from the proposed ponds will traverse an arterial roadway and will therefore be drainageway public improvements. These culverts have been included and identified in the FDP and PIP documents for the development. Enhanced stormwater quality for each of the proposed on-Site ponds, if needed, will be provided by the Water Quality Capture Volume (WQCV) that has been incorporated into the total pond volumes.

E. CONCLUSION

1. Compliance with Standards

The drainage plan provided in this report is in general compliance with the *City of Aurora Storm Drainage Design and Technical Criteria Manual* and the *Mile High Flood District, Urban Storm Drainage Criteria Manuals* (References 1 and 2, respectively), and FAA regulations. This proposed drainage plan provides recommended drainage systems that control flows to be consistent with First Creek (Upstream of Buckley Road) Major Drainageway Plan (Moser & Associates, August 2010) and Second Creek Major Drainageway Plan (RESPEC, January 2019). Additionally, design for the potential temporary detention pond has been provided, which will be implemented should the downstream, regional detention ponds not be completed at the time of development within the associated tributary.

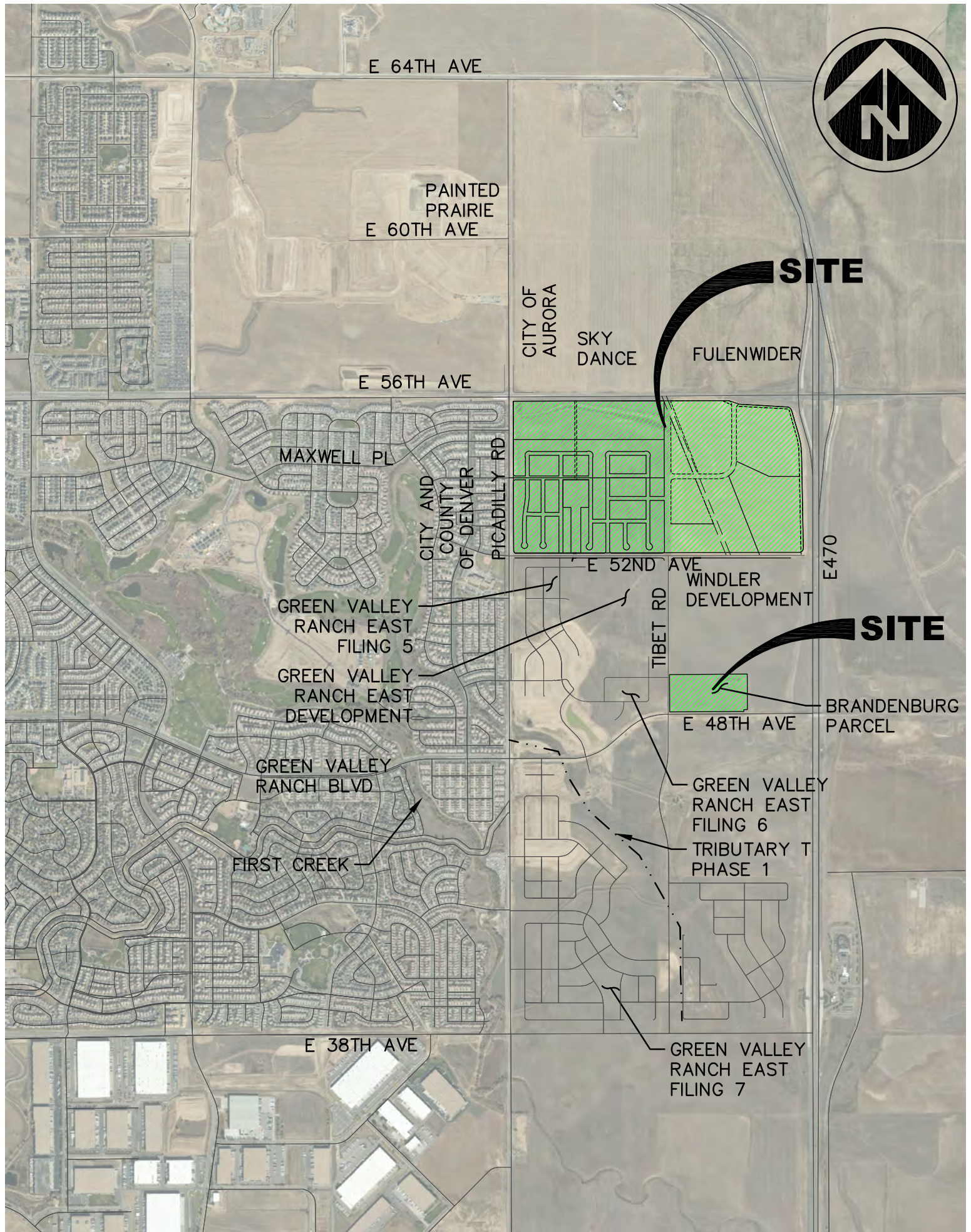
2. Summary of Concept

The recommended drainage plan for the Green Valley Master Plan Amendment 4 development include the following main components: one (1) temporary on-Site detention pond (Pond A) for basins draining to First Creek (Basin A) until downstream detention and improvements are in place, one regional detention pond (Pond PG2) for basins draining to Second Creek – Possum Gully (Basin C), and routing of Basin B to Region Detention Pond 8503 C and ultimately First Creek Tributary T through the ongoing East Green Valley Ranch development. The proposed plan will provide water quality and mitigate flooding impacts to the Site and downstream properties. Dewberry Engineers looks forward to future collaboration with the City of Aurora and MHFD on development of the proposed Green Valley Master Plan Amendment 4 Development.

G. REFERENCES

1. *The City of Aurora Storm Drainage Design and Technical Criteria*, City of Aurora; Revised, 2010.
2. *Urban Storm Drainage Criteria Manuals, Volumes 1, 2, and 3, Mile High Flood District*; August 2018.
3. *Flood Insurance Rate Map (FIRM) Map No. 08005C0061L, National Flood Insurance Program, Federal Emergency Management Agency (FEMA)*, February 17, 2017.
4. *Custom Soil Resource Report for Adams County Area, Parts of Adams and Denver Counties, Colorado, Natural Resources Conservation Service (NRCS)*, May 2020.
5. *First Creek (Upstream of Buckley Road) Major Drainageway Plan*, Moser & Associates, August 2010
6. *Second Creek Major Drainageway Plan*, RESPEC, January 2019
7. *Master Drainage Report for Green Valley Ranch East*, Stantec Consulting, Inc., March 2006 (COA# 206069)
8. *Green Valley –Master Drainage Report Addendum*, Stantec Consulting, Inc., September 2008 (COA# 208106)
9. *Green Valley – Amendment 1 Master Drainage Report*, Calibre Engineering, Inc., January 2018 (COA# 218019)
10. *Green Valley – Amendment 2 Master Drainage Report*, Calibre Engineering, Inc., March 2020 (COA# 220095)
11. *Green Valley – Amendment 3 Master Drainage Report*, Calibre Engineering, Inc., August 2021 (COA# 220095)
12. *Green Valley Ranch East Regional Drainage Improvement Plans*, Calibre Engineering, Inc., June, 2019 (COA #217031)

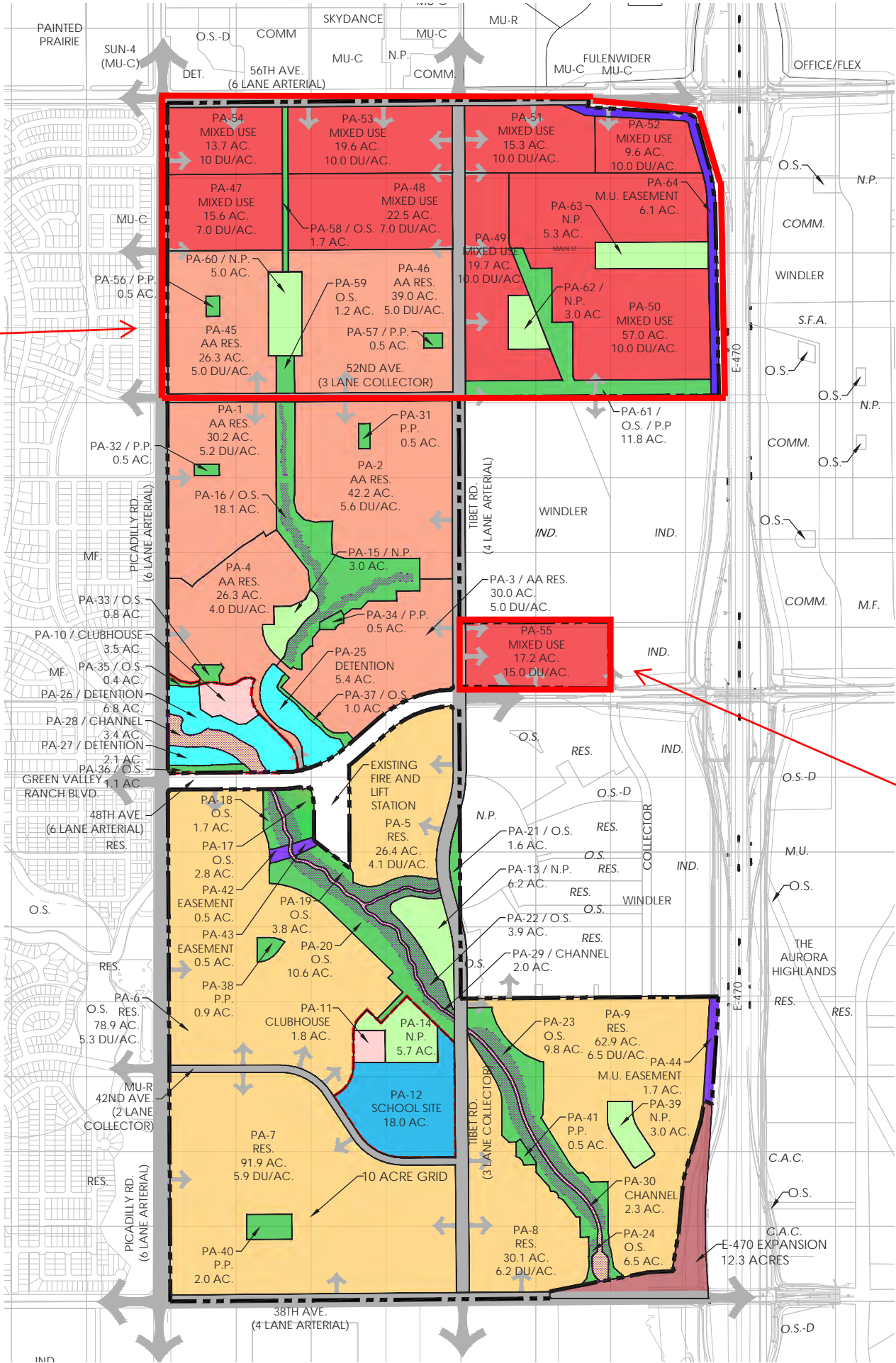
APPENDIX A – FIGURES AND SUPPORTING DOCUMENTS



VICINITY MAP

SCALE: 1"=2000'

PROJECT AREA



LEGEND

- | | |
|----------------------|------------------------------------|
| SINGLE FAMILY RES. | SCHOOL SITE |
| ACTIVE ADULT RES. | ROAD RIGHT OF WAY |
| OPEN SPACE | EASEMENT |
| DETENTION POND | COMMERCIAL |
| FLOODWAY CHANNEL | MIXED USE |
| CLUBHOUSE | NAC BOUNDARY |
| NEIGHBORHOOD PARK | IND = INDUSTRIAL |
| 100 YEAR FLOOD PLAIN | COMM. = COMMERCIAL |
| | C.A.C. = COMMUNITY ACTIVITY CENTER |
| | MU-C = MULTI USE COMMERCIAL |
- O.S. = OPEN SPACE
N.P. = NEIGHBORHOOD PARK
P.P. = POCKET PARK
RES. = RESIDENTIAL
M.F. = MULTI FAMILY
S.F.A. = SINGLE FAMILY ATTACHED
S.F.D. = SINGLE FAMILY DETACHED

PROJECT AREA



Sheet Title:

LAND USE PLAN OVERALL

Land Use Map, Matrix and
Standard Notes
Master Plan

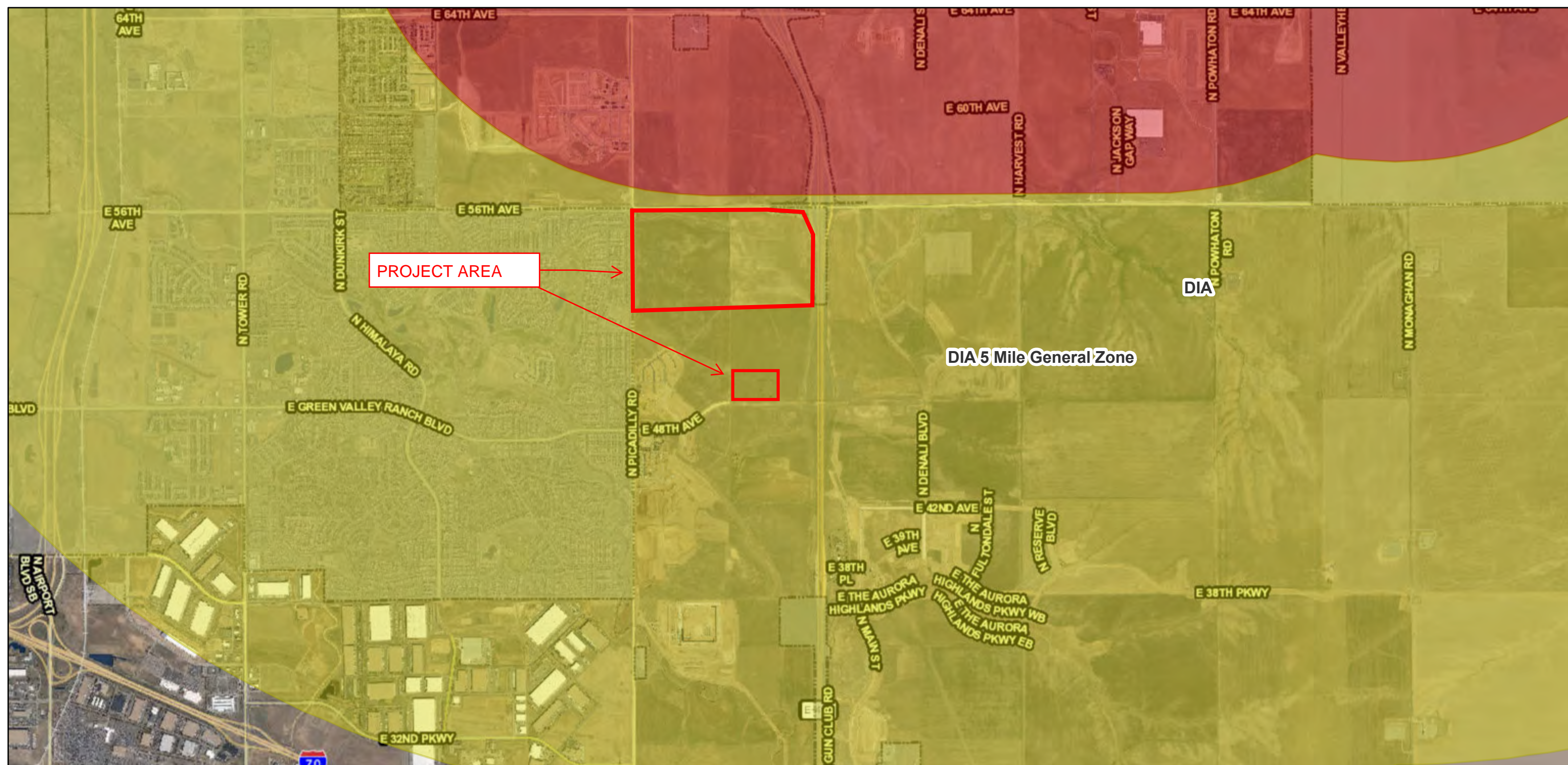
Project Title:

Green Valley Ranch Master Plan Amendment 2

Aurora, Colorado

GREEN VALLEY
RANCH

Green Valley Amendment 4



5/20/2022, 8:39:38 AM

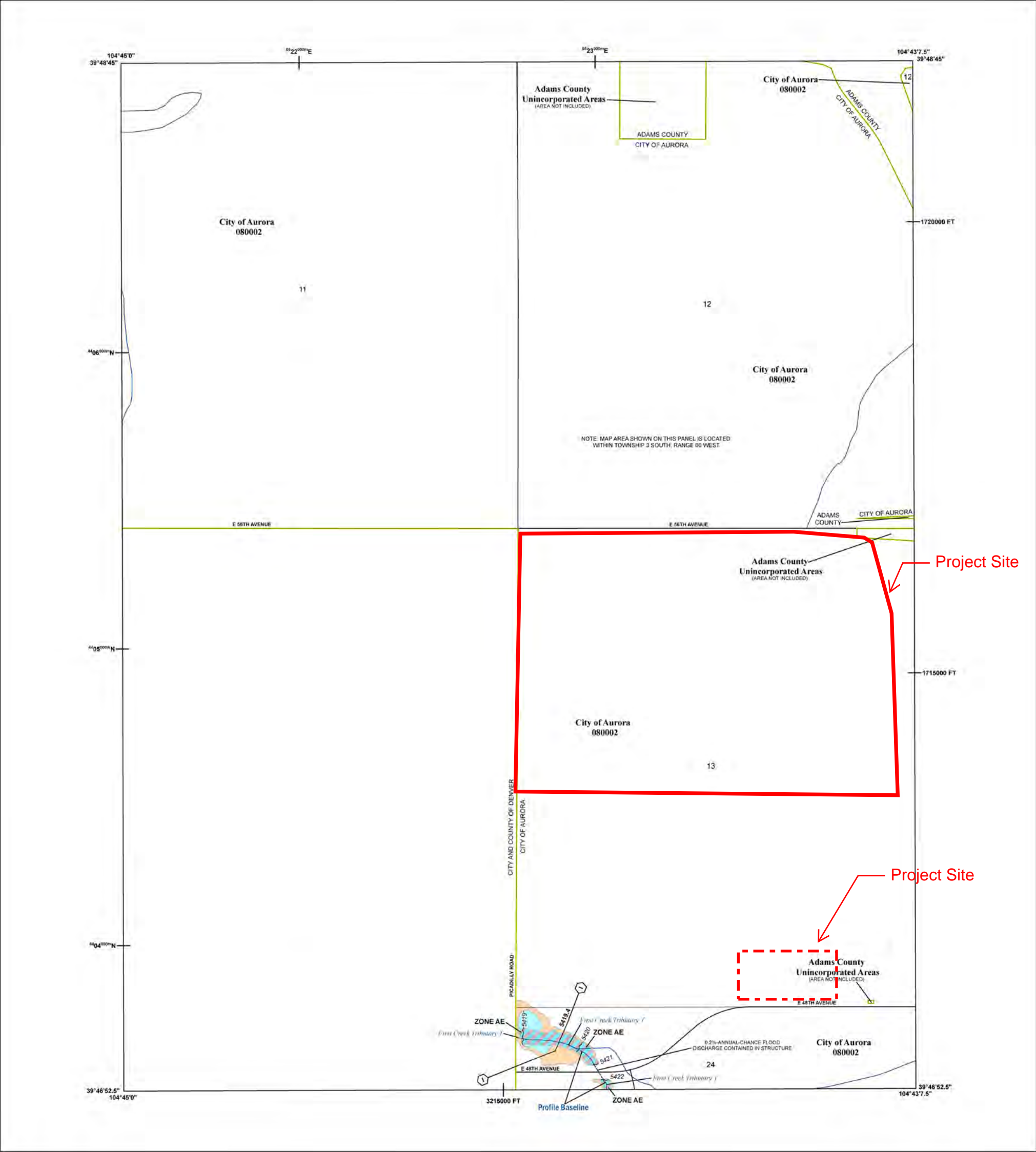
DIA - Airport Detention Pond Buffers

 10,000 Foot Critical Zone

 5 Mile General Zone

Airport Detention Pond Label

1:32,000



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING
DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
[HTTP://MSC.FEMA.GOV](http://MSC.FEMA.GOV)

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zones AE, AD, AH, VE, AR
	With BFE or Depth Zones AE, AD, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD	Regulatory Floodway
	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
OTHER AREAS	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee See Notes, Zone X
GENERAL STRUCTURES	NO SCREEN Areas of Minimal Flood Hazard Zone X
	Area of Undetermined Flood Hazard Zone X
OTHER FEATURES	Channel, Culvert, or Storm Sewer Accredited or Provisionally Accredited Levee, Dike, or Floodwall
	Non-accredited Levee, Dike, or Floodwall
OTHER FEATURES	Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
	Coastal Transect
OTHER FEATURES	Coastal Transect Baseline
	Profile Baseline
OTHER FEATURES	Hydrographic Feature
	Base Flood Elevation Line (BFE)
OTHER FEATURES	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

Communities acquiring land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction. To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6629.

Base map information shown on this FIRM was provided by the Arapahoe County and Cities of Aurora and Littleton GIS Dept. The coordinate system used for production of the digital FIRM is Universal Transverse Mercator, Zone 13N, referenced to the North American Datum of 1983 and the GRS 1980 spheroid, Western Hemisphere.

SCALE

Map Projection:
NAD83 UTM Zone 13N
Western Hemisphere, Vertical Datum: NAVD83

1 inch = 500 feet 1:6,000

0 1,000 2,000 Feet

0 250 500 Meters

PANEL LOCATOR

FEMA
National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

ARAPAHOE COUNTY, COLORADO
And Incorporated Areas


PANEL 61 OF 725

Panel Contains:
COMMUNITY NUMBER PANEL SUFFIX
AURORA, CITY OF 080002 0061 L

VERSION NUMBER
2.3.3.2
MAP NUMBER
08005C0061L
MAP REVISED
FEBRUARY 17, 2017


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 1:20,000.

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.

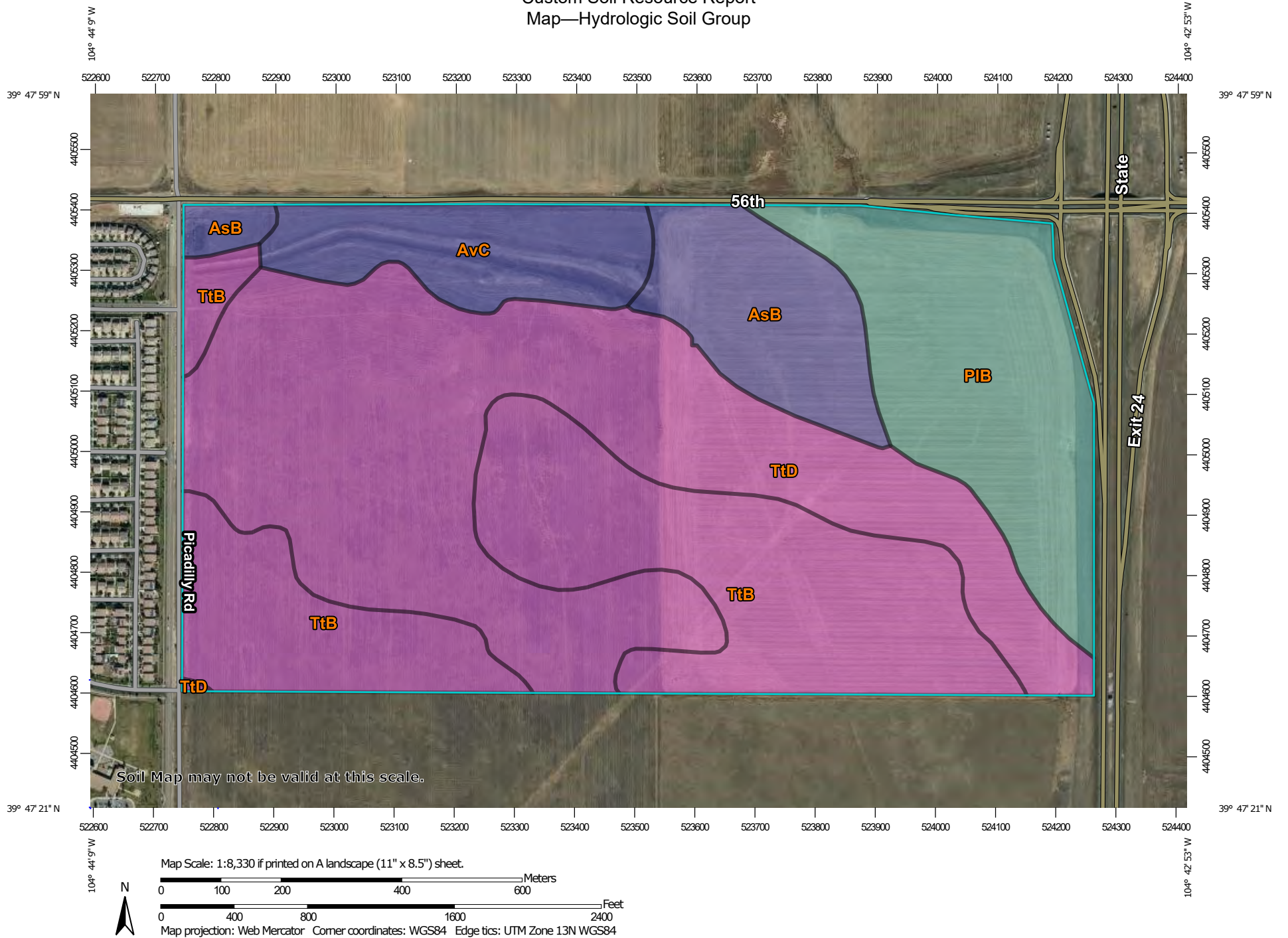
Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
 Survey Area Data: Version 18, Aug 31, 2021

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

Date(s) aerial images were photographed: Oct 3, 2018—Dec 4, 2018

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.

Custom Soil Resource Report Map—Hydrologic Soil Group

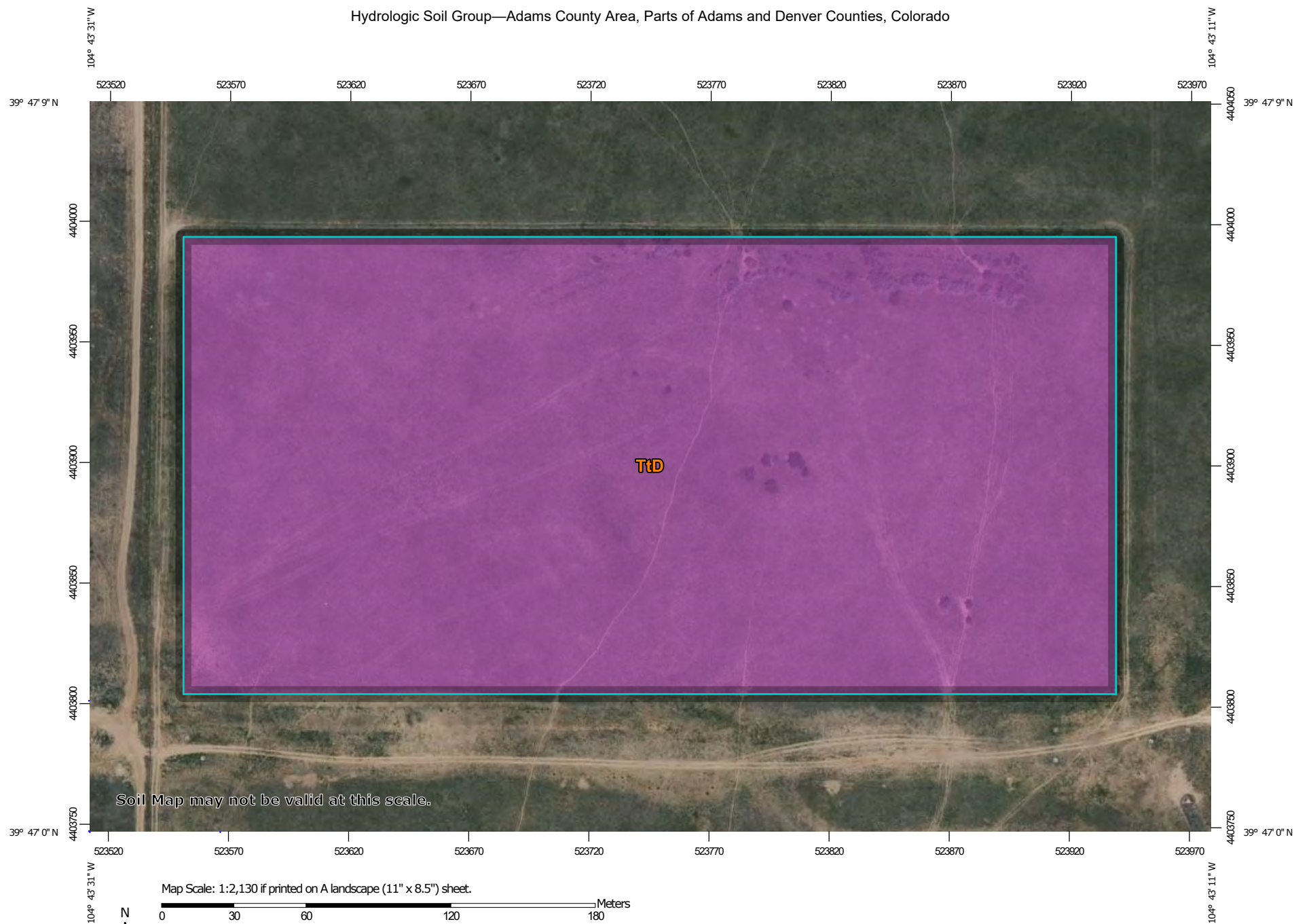


Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AsB	Ascalon sandy loam, 0 to 3 percent slopes	B	27.1	9.1%
AvC	Ascalon-Vona sandy loams, 1 to 5 percent slopes	B	22.9	7.6%
PIB	Platner loam, 0 to 3 percent slopes	C	48.6	16.2%
TtB	Truckton loamy sand, 0 to 3 percent slopes	A	84.1	28.1%
TtD	Truckton loamy sand, 3 to 9 percent slopes	A	116.8	39.0%
Totals for Area of Interest			299.4	100.0%

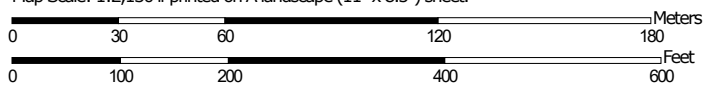
Rating Options—Hydrologic Soil Group*Aggregation Method: Dominant Condition**Component Percent Cutoff: None Specified**Tie-break Rule: Higher*

Hydrologic Soil Group—Adams County Area, Parts of Adams and Denver Counties, Colorado



Soil Map may not be valid at this scale.

Map Scale: 1:2,130 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

7/21/2023
Page 1 of 4

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
TtD	Truckton loamy sand, 3 to 9 percent slopes	A	18.3	100.0%
Totals for Area of Interest			18.3	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



NOAA Atlas 14, Volume 8, Version 2
Location name: Aurora, Colorado, USA*
Latitude: 39.7946°, Longitude: -104.725°
Elevation: 5468.93 ft**
 * source: ESRI Maps
 ** source: USGS



**FOR REFERENCE
 ONLY: Utilizing MHFD
 DIA data due to close
 proximity and more
 conservative values**

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aeriels](#)

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	0.226 (0.181-0.285)	0.279 (0.223-0.351)	0.374 (0.298-0.472)	0.462 (0.365-0.585)	0.596 (0.461-0.795)	0.709 (0.533-0.953)	0.831 (0.602-1.14)	0.964 (0.669-1.36)	1.15 (0.769-1.67)	1.31 (0.845-1.90)
10-min	0.332 (0.265-0.417)	0.409 (0.326-0.514)	0.548 (0.436-0.692)	0.677 (0.535-0.857)	0.872 (0.674-1.16)	1.04 (0.780-1.40)	1.22 (0.882-1.67)	1.41 (0.980-1.99)	1.69 (1.13-2.44)	1.91 (1.24-2.78)
15-min	0.404 (0.323-0.508)	0.498 (0.398-0.627)	0.669 (0.532-0.843)	0.825 (0.652-1.05)	1.06 (0.822-1.42)	1.27 (0.951-1.70)	1.48 (1.08-2.04)	1.72 (1.20-2.43)	2.06 (1.37-2.98)	2.33 (1.51-3.39)
30-min	0.561 (0.448-0.705)	0.687 (0.548-0.864)	0.916 (0.728-1.16)	1.13 (0.891-1.43)	1.45 (1.12-1.93)	1.72 (1.29-2.32)	2.02 (1.46-2.78)	2.34 (1.63-3.30)	2.80 (1.87-4.04)	3.17 (2.05-4.61)
60-min	0.698 (0.557-0.877)	0.850 (0.678-1.07)	1.13 (0.898-1.42)	1.39 (1.10-1.76)	1.78 (1.38-2.38)	2.12 (1.59-2.85)	2.49 (1.80-3.42)	2.88 (2.01-4.07)	3.46 (2.31-5.00)	3.92 (2.54-5.70)
2-hr	0.834 (0.671-1.04)	1.01 (0.814-1.26)	1.34 (1.07-1.68)	1.65 (1.31-2.07)	2.12 (1.65-2.81)	2.52 (1.91-3.36)	2.95 (2.16-4.03)	3.43 (2.40-4.80)	4.11 (2.77-5.89)	4.67 (3.05-6.72)
3-hr	0.913 (0.737-1.13)	1.10 (0.891-1.37)	1.46 (1.17-1.81)	1.78 (1.43-2.23)	2.29 (1.79-3.02)	2.72 (2.07-3.61)	3.19 (2.34-4.33)	3.70 (2.61-5.14)	4.43 (3.00-6.32)	5.04 (3.30-7.20)
6-hr	1.09 (0.886-1.34)	1.31 (1.06-1.61)	1.71 (1.38-2.11)	2.07 (1.67-2.57)	2.64 (2.08-3.44)	3.12 (2.39-4.09)	3.63 (2.69-4.88)	4.20 (2.98-5.77)	5.01 (3.41-7.05)	5.66 (3.74-8.02)
12-hr	1.34 (1.10-1.63)	1.60 (1.31-1.95)	2.05 (1.67-2.51)	2.47 (2.00-3.03)	3.09 (2.45-3.98)	3.61 (2.79-4.69)	4.17 (3.11-5.53)	4.77 (3.41-6.49)	5.63 (3.87-7.84)	6.32 (4.22-8.86)
24-hr	1.62 (1.34-1.96)	1.93 (1.59-2.34)	2.46 (2.02-2.99)	2.93 (2.39-3.57)	3.61 (2.87-4.58)	4.17 (3.23-5.34)	4.75 (3.56-6.23)	5.38 (3.87-7.21)	6.24 (4.32-8.58)	6.93 (4.66-9.61)
2-day	1.89 (1.57-2.27)	2.25 (1.87-2.71)	2.86 (2.37-3.44)	3.38 (2.78-4.08)	4.11 (3.28-5.14)	4.70 (3.66-5.94)	5.30 (4.00-6.85)	5.92 (4.29-7.84)	6.77 (4.72-9.19)	7.43 (5.05-10.2)
3-day	2.06 (1.72-2.46)	2.43 (2.02-2.90)	3.05 (2.54-3.66)	3.58 (2.96-4.31)	4.34 (3.48-5.39)	4.94 (3.87-6.21)	5.56 (4.21-7.14)	6.20 (4.51-8.16)	7.07 (4.96-9.54)	7.75 (5.29-10.6)
4-day	2.19 (1.83-2.60)	2.56 (2.14-3.05)	3.20 (2.66-3.82)	3.74 (3.10-4.48)	4.51 (3.62-5.58)	5.12 (4.02-6.41)	5.75 (4.37-7.36)	6.41 (4.68-8.40)	7.30 (5.14-9.81)	8.00 (5.49-10.9)
7-day	2.49 (2.09-2.94)	2.90 (2.43-3.43)	3.58 (3.00-4.24)	4.15 (3.46-4.94)	4.97 (4.02-6.10)	5.62 (4.44-6.97)	6.28 (4.80-7.96)	6.96 (5.12-9.04)	7.89 (5.59-10.5)	8.60 (5.94-11.6)
10-day	2.76 (2.33-3.25)	3.19 (2.69-3.76)	3.91 (3.29-4.62)	4.52 (3.78-5.36)	5.37 (4.36-6.55)	6.04 (4.79-7.46)	6.72 (5.16-8.48)	7.42 (5.48-9.58)	8.36 (5.95-11.1)	9.09 (6.31-12.2)
20-day	3.55 (3.02-4.14)	4.05 (3.44-4.73)	4.87 (4.13-5.70)	5.55 (4.68-6.52)	6.49 (5.30-7.83)	7.22 (5.77-8.81)	7.95 (6.15-9.91)	8.69 (6.47-11.1)	9.67 (6.94-12.6)	10.4 (7.29-13.8)
30-day	4.18 (3.58-4.86)	4.76 (4.07-5.53)	5.69 (4.84-6.63)	6.45 (5.47-7.54)	7.49 (6.14-8.96)	8.29 (6.65-10.0)	9.07 (7.05-11.2)	9.86 (7.37-12.5)	10.9 (7.84-14.1)	11.6 (8.20-15.4)
45-day	4.95 (4.25-5.72)	5.65 (4.85-6.53)	6.76 (5.78-7.83)	7.66 (6.52-8.90)	8.86 (7.28-10.5)	9.76 (7.86-11.7)	10.6 (8.30-13.1)	11.5 (8.63-14.5)	12.6 (9.13-16.2)	13.4 (9.50-17.6)
60-day	5.58 (4.81-6.42)	6.40 (5.51-7.37)	7.70 (6.60-8.88)	8.73 (7.45-10.1)	10.1 (8.32-11.9)	11.1 (8.97-13.3)	12.1 (9.45-14.8)	13.0 (9.81-16.3)	14.2 (10.3-18.2)	15.1 (10.7-19.7)

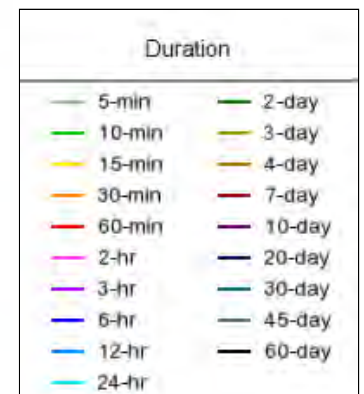
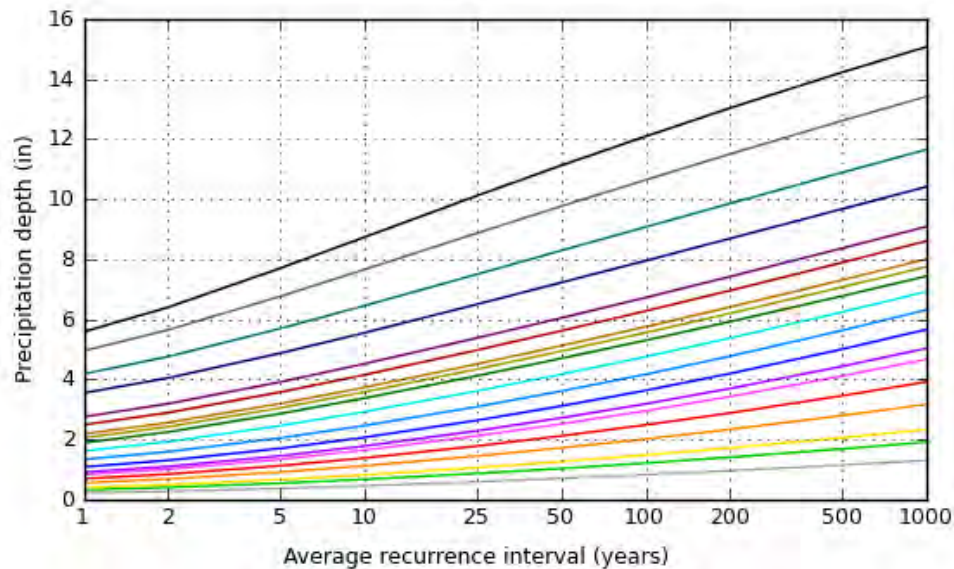
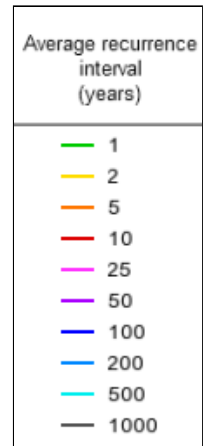
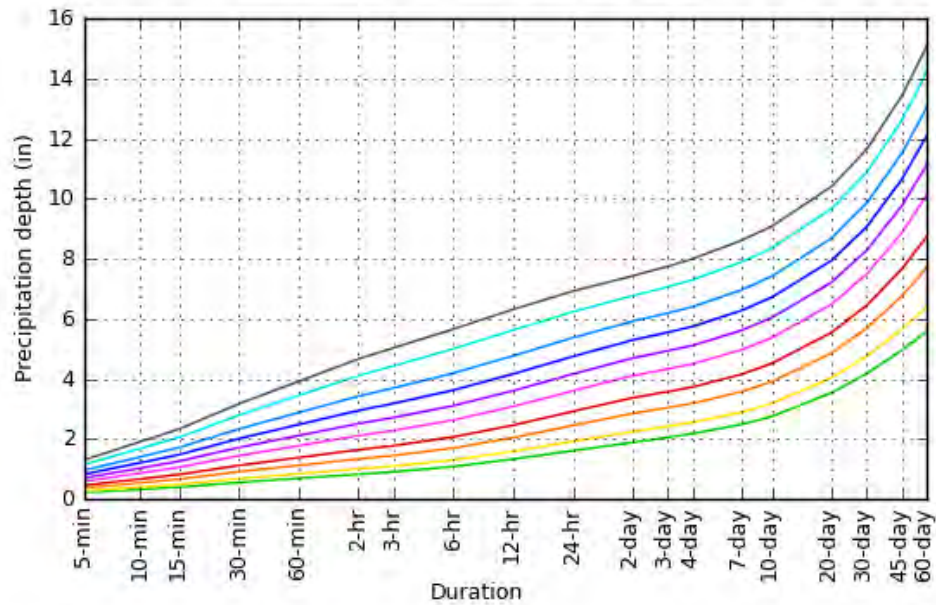
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves

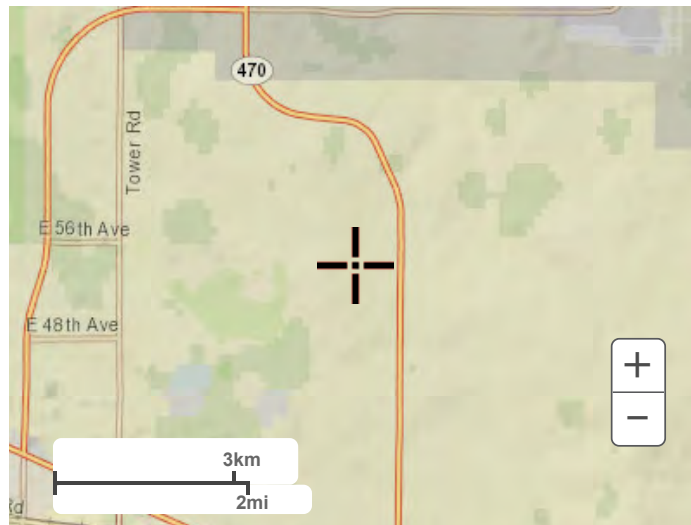
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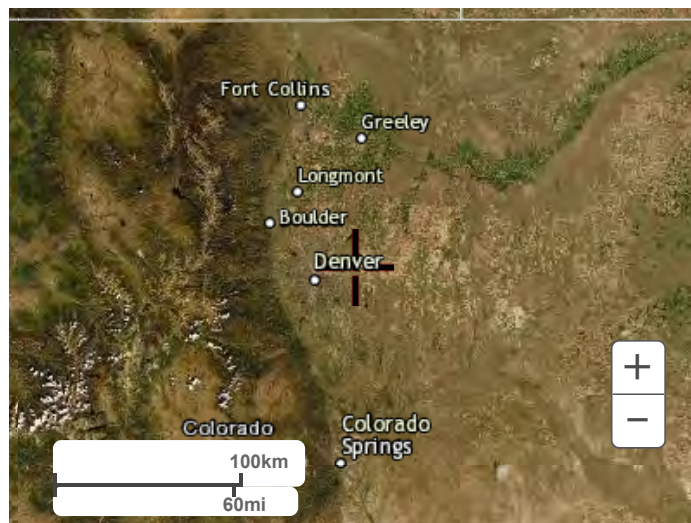


NOAA Atlas 14, Volume 8, Version 2

Created (GMT): Thu May 5 19:57:52 2022

[Back to Top](#)**Maps & arials****Small scale terrain**

**Large scale terrain****Large scale map****Large scale aerial**



[Back to Top](#)

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[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

[Disclaimer](#)

APPENDIX B – HYDROLOGIC COMPUTATIONS

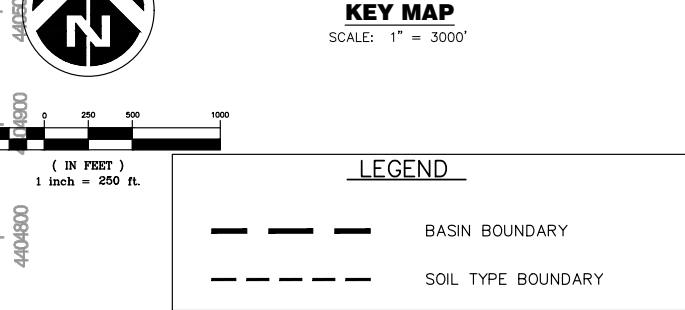
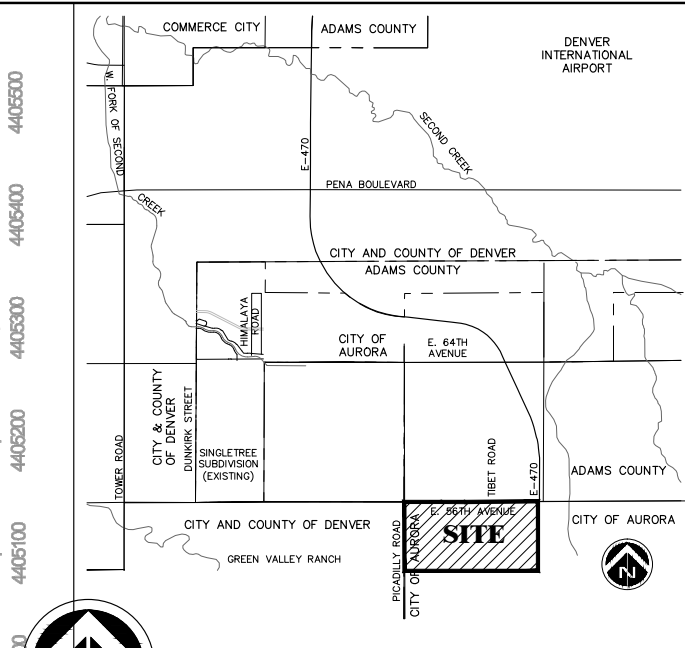
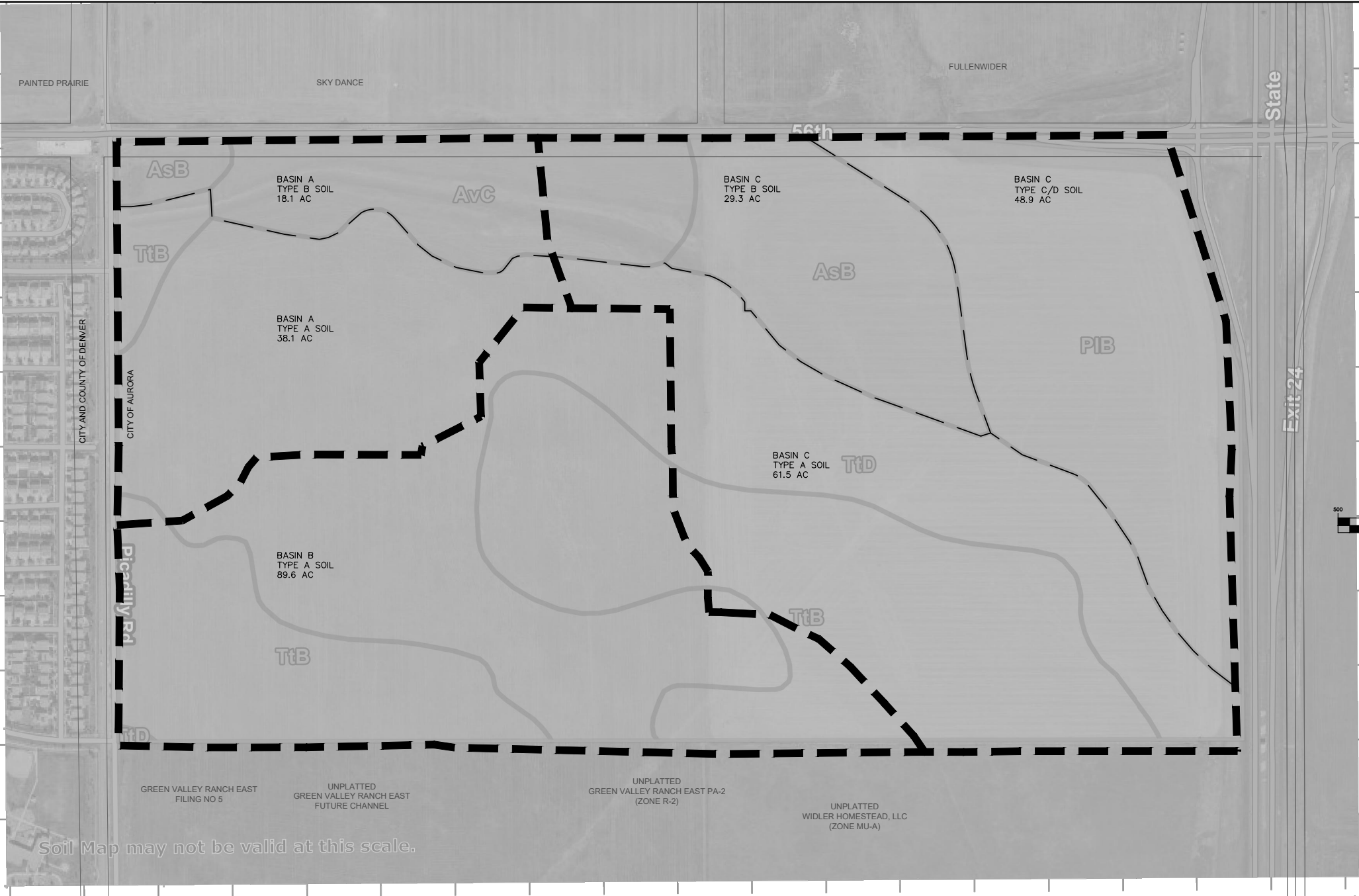
Green Valley Amendment 4 Proposed Impervious Calculations

	%	A1	A2	A3	C1	C2	C3	C4	C5	C6	C7
Park (ac)	10	1.0	0.5		0.2	4.6		4.5	4.6	7.0	
Residential (ac)	45		0.8	2.4							2.3
Mixed-Use (ac)	75	41.0	10.5	0.1	27.7	26.3	6.1	9.8	8.4	23.0	15.2
TOTAL AREA		42.0	11.9	2.5	27.9	31.0	6.1	14.3	13.1	29.9	17.5
COMP I		73.5	70.2	46.8	74.6	65.3	75.0	54.5	51.9	59.9	71.1

	%	B1	B2	B3	B4	B5	B6	B7	B8	TOTAL
Park (ac)	10	6.4		0.5	0.2	0.3		2.5		
Residential (ac)	45	7.7	19.1	15.8	5.7	9.0	4.9			
Mixed-Use (ac)	75		0.7					5.8	11.1	
TOTAL AREA		14.2	19.8	16.3	5.9	9.3	4.9	8.3	11.1	285.8
COMP I		12.9	46.1	43.9	44.0	43.7	45.0	55.7	75.0	59.7

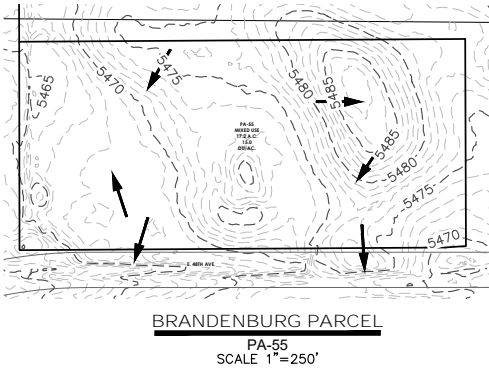
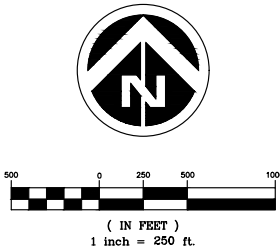
	Area	%
A	56.2	71.6
B	89.6	44.5
C	139.7	64.8
Total	285.4	59.7

I:\JOBS\DEWBERRY\OAKWOOD HOMES\310 PARCEL\VR\CAD\DRN-P-310PARCEL.DWG 7/20/2023 4:52 PM FISHER, ELDON



Basin A	Acres	%
Type A Soil	18.1	32.2%
Type B Soil	38.1	67.8%
Type C/D Soil	0	0.0%
Total	56.2	100.0%

Basin C	Acres	%
Type A Soil	61.5	44.0%
Type B Soil	29.3	21.0%
Type C/D Soil	48.9	35.0%
Total	139.7	100.0%



NOTES:

- THIS MASTER DRAINAGE PLAN UTILIZES CONCEPT, MASS GRADING TO ESTIMATE THE ANTICIPATED MAJOR BASINS. MINOR ADJUSTMENTS TO THE GRADING PRESENTED HEREIN MAY OCCUR WITH THE ADVANCEMENT OF THE INDIVIDUAL PLANNING AREAS, SO LONG AS THE INTENT AND THE RELEASE RATES PRESENTED HEREIN ARE MAINTAINED FOR THE THREE MAJOR BASINS.
- PONDS SHOWN ARE SCHEMATIC ONLY, ACTUAL SIZE, SHAPE, AND LOCATION WILL VARY AS THE SITE DESIGN PROGRESSES.
- IN THE CONSTRUCTED CONDITION, INTERIM PONDS WOULD BE PRIVATE. PERMANENT PONDS AND STORM SEWER IN THE ROW WOULD BE PUBLIC
- AN AMENDMENT TO THIS PLAN MAY BE REQUIRED IF FLOWS ARE NOT ROUTED TO POND 840.
- ASSUMES THAT BASINS 503 AND 501 ARE DEVELOPED PRIOR TO THIS SITE AND FLOWS ARE CONVEYED SOUTH TO POND 8503C.
- IF AT THE TIME OF THE PD THE INFRASTRUCTURE DOWNSTREAM OF BASIN B IS NOT CONSTRUCTED, THE ADJACENT WNER WILL NEED TO PROVIDE A SIGNED LETTER OF ACCEPTANCE OF THE FLOWS.

NOTE:

CITY OF AURORA PLAN REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH CITY OF AURORA DESIGN CRITERIA AND THE CITY CODE. THE CITY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND ELEVATIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE. THE CITY OF AURORA, THROUGH THE APPROVAL OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

ENSURE THAT THE POVISIONS OF CRS 37-92-602, AS AMENDED BY SENATE BILL 15-212, REGARDING NOTIFICATION OF DOWNSTREAM WATER RIGHTS HOLDERS ARE UPHOLD.

To request marking of underground facilities

811

Know what's below.
Call before you dig.
Call 811 or visit call811.com for more information

It is the contractor's responsibility to contact UNCC a minimum of 2 days prior to the start of construction operations.
J3 Engineering Consultants, Inc claims no responsibility for the underground facilities depicted in this plan set.

SITE BENCHMARK:
NATIONAL GEODETIC SURVEY CONTROL MONUMENT, DESIGNATION DVX H, BEING A STAINLESS STEEL ROD IN SLEEVE IN MONUMENT BOX STAMPED "DVX H 1995", LOCATED IN THE NORTHWEST QUARTER OF SECTION 2, TOWNSHIP 3 NORTH, RANGE 66 WEST OF THE 6TH P.M., COUNTY OF ADAMS, LYING APPROXIMATELY 623 FEET NORTH AND 6 FEET EAST OF THE WEST QUARTER CORNER OF SAID SECTION 2. ELEVATION = 5425.25 (NAVD 88)

COA BENCHMARK:
CITY OF AURORA BENCH MARK, COA ID 356611NW002 (OLD BENCH MARK ID AD-075A), BEING A 3" BRASS DISK ON 30" STEEL PIPE IN CONCRETE, SET ON SOUTH SIDE OF 64TH AVE. IN E-W 3/STRAND BARBED WIRE FENCE, 3' WEST OF BENCH MARK IS 4' HIGH 2 1/2" YELLOW COLORED PIPE, IN THE VICINITY OF THE N 1/4 CORNER OF SECTION 11, T3S, R66W. ELEVATION = 5424.588 (NAVD 88)

Dewberry
Dewberry Engineers Inc.
8100 East Maplewood Avenue, Suite 150
Greenwood Village, CO 80111
Contact: Jason A. Montforton, PE
Email: jmontforton@dewberry.com

**GREEN VALLEY MASTER PLAN AMENDMENT 4
MASTER DRAINAGE REPORT**

**OVERALL BASIN MAP
PROPOSED**

OAKWOOD HOMES
18655 Green Valley Ranch Blvd.
Denver, CO 80249
Ph: 303-486-8734
Contact: Dave Carro

No.	Date	Description
4	07/20/2023	4TH SUBMITTAL
3	12/23/2022	3RD SUBMITTAL
2	05/23/2022	2ND SUBMITTAL
1	10/29/2021	1ST SUBMITTAL

DOCUMENT AMENDMENTS

**PRELIMINARY
NOT FOR
CONSTRUCTION**

Project Number: **50145755**

Designed By: **DLM**
Drawn By: **JAD**
Checked By: **JDM**
Sheet Number:

Summary of CUHP Input Parameters (Version 2.0.0)

2-yr Runoff Generation (Inflows)

Catchment Name/ID	SWMM Node/ID	Raingage Name/ID	Area (sq.mi.)	Dist. to Centroid (miles)	Length (miles)	Slope (ft./ft.)	Percent Imperv.	Depression Storage		Horton's Infiltration Parameters			DCIA Level and Fractions			Percent Eff. Imperv.
								Pervious (inches)	Imperv. (inches)	Initial Rate (in./hr.)	Final Rate (in./hr.)	Decay Coeff. (1/sec.)	DCIA Level	Dir. Con'ct Imperv. Fraction	Receiv. Perv. Fraction	
A1	A1	2-YR	0.066	0.174	0.424	0.009	73.5	0.40	0.10	4.80	0.84	0.0011	0.00	0.93	0.31	71.08
A2	A2	2-YR	0.018	0.103	0.217	0.015	70.2	0.40	0.10	5.00	1.00	0.0007	0.00	0.92	0.30	67.64
A3	A3	2-YR	0.004	0.052	0.084	0.034	46.8	0.40	0.10	5.00	1.00	0.0007	0.00	0.83	0.22	43.26
B1	B1	2-YR	0.022	0.122	0.244	0.003	12.9	0.40	0.10	5.00	1.00	0.0007	0.00	0.26	0.11	9.11
B2	B2	2-YR	0.031	0.138	0.259	0.012	46.1	0.40	0.10	5.00	1.00	0.0007	0.00	0.83	0.22	42.54
B3	B3	2-YR	0.025	0.166	0.292	0.011	43.9	0.40	0.10	5.00	1.00	0.0007	0.00	0.82	0.21	40.36
B4	B4	2-YR	0.009	0.043	0.118	0.013	44.1	0.40	0.10	5.00	1.00	0.0007	0.00	0.82	0.21	40.48
B5	B5	2-YR	0.015	0.045	0.169	0.013	43.7	0.40	0.10	5.00	1.00	0.0007	0.00	0.82	0.21	40.14
B6	B6	2-YR	0.008	0.091	0.220	0.016	45.0	0.40	0.10	5.00	1.00	0.0007	0.00	0.83	0.22	41.45
B7	B7	2-YR	0.013	0.066	0.160	0.008	55.7	0.40	0.10	5.00	1.00	0.0007	0.00	0.88	0.25	52.51
B8	B8	2-YR	0.017	0.141	0.239	0.004	75.0	0.40	0.10	5.00	1.00	0.0007	0.00	0.93	0.32	72.63
C1	C1	2-YR	0.044	0.138	0.284	0.018	74.6	0.40	0.10	4.32	0.63	0.0017	0.00	0.93	0.31	72.32
C2	C2	2-YR	0.048	0.210	0.373	0.015	65.3	0.40	0.10	3.02	0.50	0.0018	0.00	0.91	0.29	63.34
C3	C3	2-YR	0.010	0.160	0.270	0.014	75.0	0.40	0.10	4.88	0.91	0.0010	0.00	0.93	0.32	72.63
C4	C4	2-YR	0.022	0.164	0.315	0.007	54.5	0.40	0.10	5.00	1.00	0.0007	0.00	0.87	0.25	51.29
C5	C5	2-YR	0.020	0.106	0.260	0.019	51.9	0.40	0.10	5.00	1.00	0.0007	0.00	0.86	0.24	48.55
C6	C6	2-YR	0.047	0.210	0.355	0.019	59.9	0.40	0.10	4.39	0.85	0.0010	0.00	0.90	0.27	57.02
C7	C7	2-YR	0.027	0.119	0.343	0.011	71.1	0.40	0.10	4.72	0.78	0.0013	0.00	0.92	0.30	68.51

Summary of CUHP Input Parameters (Version 2.0.0)

100-yr Runoff Generation (Inflows)

Catchment Name/ID	SWMM Node/ID	Raingage Name/ID	Area (sq.mi.)	Dist. to Centroid (miles)	Length (miles)	Slope (ft./ft.)	Percent Imperv.	Depression Storage		Horton's Infiltration Parameters			DCIA Level and Fractions			Percent Eff. Imperv.
								Pervious (inches)	Imperv. (inches)	Initial Rate (in./hr.)	Final Rate (in./hr.)	Decay Coeff. (1/sec.)	DCIA Level	Dir. Con'ct Imperv. Fraction	Receiv. Perv. Fraction	
A1	A1	100-YR	0.066	0.174	0.424	0.009	73.5	0.40	0.10	4.80	0.84	0.0011	0.00	0.93	0.31	72.33
A2	A2	100-YR	0.018	0.103	0.217	0.015	70.2	0.40	0.10	5.00	1.00	0.0007	0.00	0.92	0.30	68.59
A3	A3	100-YR	0.004	0.052	0.084	0.034	46.8	0.40	0.10	5.00	1.00	0.0007	0.00	0.83	0.22	44.55
B1	B1	100-YR	0.022	0.122	0.244	0.003	12.9	0.40	0.10	5.00	1.00	0.0007	0.00	0.26	0.11	10.44
B2	B2	100-YR	0.031	0.138	0.259	0.012	46.1	0.40	0.10	5.00	1.00	0.0007	0.00	0.83	0.22	43.84
B3	B3	100-YR	0.025	0.166	0.292	0.011	43.9	0.40	0.10	5.00	1.00	0.0007	0.00	0.82	0.21	41.67
B4	B4	100-YR	0.009	0.043	0.118	0.013	44.0	0.40	0.10	5.00	1.00	0.0007	0.00	0.82	0.21	41.79
B5	B5	100-YR	0.015	0.045	0.169	0.013	43.7	0.40	0.10	5.00	1.00	0.0007	0.00	0.82	0.21	41.46
B6	B6	100-YR	0.008	0.091	0.220	0.016	45.0	0.40	0.10	5.00	1.00	0.0007	0.00	0.83	0.22	42.76
B7	B7	100-YR	0.013	0.066	0.160	0.008	55.7	0.40	0.10	5.00	1.00	0.0007	0.00	0.88	0.25	53.68
B8	B8	100-YR	0.017	0.141	0.239	0.004	75.0	0.40	0.10	5.00	1.00	0.0007	0.00	0.93	0.32	73.50
C1	C1	100-YR	0.044	0.138	0.284	0.018	74.6	0.40	0.10	4.32	0.63	0.0017	0.00	0.93	0.31	73.71
C2	C2	100-YR	0.048	0.210	0.373	0.015	65.3	0.40	0.10	3.02	0.50	0.0018	0.00	0.91	0.29	64.50
C3	C3	100-YR	0.010	0.160	0.270	0.014	75.0	0.40	0.10	4.88	0.91	0.0010	0.00	0.93	0.32	73.72
C4	C4	100-YR	0.022	0.164	0.315	0.007	54.5	0.40	0.10	5.00	1.00	0.0007	0.00	0.87	0.25	52.48
C5	C5	100-YR	0.020	0.106	0.260	0.019	51.9	0.40	0.10	5.00	1.00	0.0007	0.00	0.86	0.24	49.78
C6	C6	100-YR	0.047	0.210	0.355	0.019	59.9	0.40	0.10	4.39	0.85	0.0010	0.00	0.90	0.27	58.49
C7	C7	100-YR	0.027	0.119	0.343	0.011	71.1	0.40	0.10	4.72	0.78	0.0013	0.00	0.92	0.30	69.91

Summary of Unit Hydrograph Parameters Used By Program and Calculated Results (Version 2.0.0)

Proposed 2-yr

Catchment Name/ID	User Comment for Catchment	Unit Hydrograph Parameters and Results									Excess Precip.		Storm Hydrograph			
		CT	Cp	W50 (min.)	W50 Before Peak	W75 (min.)	W75 Before Peak	Time to Peak (min.)	Peak (cfs)	Volume (c.f.)	Excess (inches)	Excess (c.f.)	Time to Peak (min.)	Peak Flow (cfs)	Total Volume (c.f.)	Runoff per Unit Area (cfs/acre)
A1		0.080	0.183	18.0	4.02	9.3	2.84	6.7	110	152,509	0.57	87,238	30.0	29	86,797	0.70
A2		0.081	0.102	16.5	2.79	8.6	1.97	4.6	34	42,842	0.54	23,236	30.0	8	22,700	0.68
A3		0.092	0.042	17.0	2.05	8.8	1.45	3.4	7	9,139	0.33	2,991	30.0	1	2,847	0.39
B1		0.129	0.071	64.2	4.99	33.4	3.53	8.3	10	51,029	0.03	1,417	45.0	0	1,415	0.01
B2		0.092	0.105	24.1	3.44	12.5	2.43	5.7	39	71,984	0.32	23,111	30.0	6	22,963	0.31
B3		0.093	0.093	32.3	3.82	16.8	2.70	6.4	24	59,051	0.30	17,845	35.0	4	17,771	0.24
B4		0.093	0.059	16.3	2.24	8.5	1.59	3.7	17	21,548	0.30	6,534	30.0	2	6,255	0.37
B5		0.093	0.072	16.3	2.41	8.5	1.70	4.0	27	33,726	0.30	10,130	30.0	3	9,759	0.37
B6		0.092	0.055	32.7	2.89	17.0	2.04	4.8	7	17,772	0.31	5,538	35.0	1	5,470	0.24
B7		0.087	0.079	18.8	2.63	9.8	1.86	4.4	21	30,060	0.41	12,333	30.0	4	12,023	0.47
B8		0.079	0.101	27.3	3.61	14.2	2.55	6.0	19	40,163	0.59	23,512	35.0	6	23,401	0.52
C1		0.079	0.153	13.5	3.09	7.0	2.18	5.1	97	101,424	0.59	60,034	30.0	24	58,436	0.84
C2		0.083	0.154	20.4	3.90	10.6	2.76	6.5	71	112,380	0.52	58,234	30.0	18	57,877	0.58
C3		0.079	0.077	29.5	3.25	15.3	2.30	5.4	10	22,142	0.59	12,962	35.0	3	12,879	0.49
C4		0.088	0.099	32.6	3.99	17.0	2.82	6.6	20	51,698	0.40	20,632	35.0	4	20,554	0.31
C5		0.089	0.093	20.6	2.98	10.7	2.10	5.0	30	47,400	0.37	17,737	30.0	5	17,477	0.41
C6		0.085	0.145	20.4	3.78	10.6	2.67	6.3	69	108,763	0.45	49,161	30.0	15	48,853	0.50
C7		0.081	0.122	19.5	3.33	10.2	2.35	5.5	42	63,377	0.55	34,848	30.0	11	34,538	0.63

Summary of Unit Hydrograph Parameters Used By Program and Calculated Results (Version 2.0.0)

Proposed 100-yr

Catchment Name/ID	User Comment for Catchment	Unit Hydrograph Parameters and Results									Excess Precip.		Storm Hydrograph			
		CT	Cp	W50 (min.)	W50 Before Peak	W75 (min.)	W75 Before Peak	Time to Peak (min.)	Peak (cfs)	Volume (c.f.)	Excess (inches)	Excess (c.f.)	Time to Peak (min.)	Peak Flow (cfs)	Total Volume (c.f.)	Runoff per Unit Area (cfs/acre)
A1		0.079	0.184	17.8	4.01	9.3	2.83	6.7	111	152,509	2.15	327,206	35.0	116	325,446	2.75
A2		0.081	0.102	16.4	2.78	8.5	1.97	4.6	34	42,842	1.94	83,173	35.0	31	81,221	2.60
A3		0.091	0.043	16.6	2.04	8.6	1.44	3.4	7	9,139	1.41	12,851	35.0	5	12,220	1.95
B1		0.125	0.069	63.7	4.88	33.1	3.45	8.1	10	51,029	0.64	32,854	45.0	6	32,815	0.41
B2		0.091	0.107	23.5	3.43	12.2	2.42	5.7	40	71,984	1.39	100,077	40.0	31	99,317	1.58
B3		0.092	0.095	31.5	3.80	16.4	2.68	6.3	24	59,051	1.34	79,243	40.0	21	78,888	1.27
B4		0.092	0.060	15.9	2.24	8.3	1.58	3.7	18	21,548	1.34	28,974	35.0	12	27,645	1.95
B5		0.092	0.074	15.9	2.40	8.3	1.70	4.0	27	33,726	1.34	45,099	35.0	18	43,322	1.96
B6		0.092	0.056	31.9	2.87	16.6	2.03	4.8	7	17,772	1.37	24,278	40.0	6	23,991	1.26
B7		0.087	0.080	18.5	2.63	9.6	1.86	4.4	21	30,060	1.61	48,379	35.0	17	47,086	2.07
B8		0.079	0.101	27.1	3.61	14.1	2.55	6.0	19	40,163	2.05	82,364	40.0	22	81,999	1.97
C1		0.079	0.154	13.4	3.08	7.0	2.18	5.1	98	101,424	2.27	229,847	35.0	93	223,467	3.32
C2		0.082	0.155	20.2	3.89	10.5	2.75	6.5	72	112,380	2.21	248,227	35.0	81	246,643	2.61
C3		0.079	0.077	29.3	3.24	15.2	2.29	5.4	10	22,142	2.12	47,038	40.0	12	46,732	1.93
C4		0.087	0.100	32.1	3.97	16.7	2.81	6.6	21	51,698	1.58	81,821	40.0	20	81,512	1.42
C5		0.088	0.094	20.2	2.97	10.5	2.10	4.9	30	47,400	1.52	72,168	35.0	25	71,054	1.89
C6		0.084	0.147	20.0	3.76	10.4	2.66	6.3	70	108,763	1.89	205,209	35.0	68	203,816	2.28
C7		0.080	0.122	19.3	3.32	10.0	2.34	5.5	42	63,377	2.14	135,532	35.0	45	134,378	2.59

2-YR PROPOSED CONDITION WITHOUT PONDS

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit 10
WARNING 08: elevation drop exceeds length for Conduit 14

Element Count

Number of rain gages 0
Number of subcatchments ... 0
Number of nodes 26
Number of links 22
Number of pollutants 0
Number of land uses 0

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
1	JUNCTION	5447.00	5.00	0.0	
17	JUNCTION	5445.00	4.00	0.0	
18	JUNCTION	5448.25	4.00	0.0	
A1	JUNCTION	5457.47	4.00	0.0	
A2	JUNCTION	5462.00	4.00	0.0	
A3	JUNCTION	5461.50	4.00	0.0	
B1	JUNCTION	5442.00	5.00	0.0	
B2	JUNCTION	5464.35	0.00	0.0	
B3	JUNCTION	5465.13	4.00	0.0	
B4	JUNCTION	5461.54	4.00	0.0	
B5	JUNCTION	5461.54	4.00	0.0	
B6	JUNCTION	5461.54	0.00	0.0	
B7	JUNCTION	5471.63	4.00	0.0	
B8	JUNCTION	5459.62	4.00	0.0	
C1	JUNCTION	5453.08	4.00	0.0	
C2	JUNCTION	5465.99	0.00	0.0	
C3	JUNCTION	5464.25	4.00	0.0	

C4	JUNCTION	5471.63	4.00	0.0
C5	JUNCTION	5476.80	4.00	0.0
C6	JUNCTION	5486.20	4.00	0.0
C7	JUNCTION	5466.04	0.00	0.0
POND_A	JUNCTION	5436.55	6.00	0.0
POND_C	JUNCTION	5438.43	5.00	0.0
A_OUT	OUTFALL	5434.00	0.00	0.0
B_OUT	OUTFALL	5442.00	4.00	0.0
C_OUT	OUTFALL	54.36	1.00	0.0

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
1	18	1	CONDUIT	200.0	0.6250	0.0100
10	B1	B_OUT	CONDUIT	1288.4	0.0001	0.0100
13	C1	POND_C	CONDUIT	400.0	3.6650	0.0100
14	POND_C	C_OUT	CONDUIT	400.0	1346.0175	0.0100
15	A1	POND_A	CONDUIT	400.0	5.2372	0.0100
16	A2	A1	CONDUIT	935.0	0.4845	0.0100
17	POND_A	A_OUT	CONDUIT	400.0	0.6375	0.0100
18	C4	C3	CONDUIT	1427.8	0.5169	0.0100
19	C3	17	CONDUIT	400.0	4.8181	0.0100
20	C7	17	CONDUIT	400.0	5.2673	0.0100
21	C5	C1	CONDUIT	1370.0	1.7316	0.0100
22	C6	C1	CONDUIT	1370.0	2.4182	0.0100
23	C2	POND_C	CONDUIT	400.0	6.9064	0.0100
24	17	POND_C	CONDUIT	990.0	0.6637	0.0100
25	B7	B3	CONDUIT	1541.0	0.4218	0.0100
26	B3	18	CONDUIT	1541.0	1.0955	0.0100
27	B2	18	CONDUIT	1365.7	1.1790	0.0100
28	B8	1	CONDUIT	780.0	1.6182	0.0100
29	B4	1	CONDUIT	220.0	6.6236	0.0100
30	B5	B_OUT	CONDUIT	600.0	3.2584	0.0100
32	1	B1	CONDUIT	800.0	0.6250	0.0350
6	A3	A1	CONDUIT	1300.0	0.3100	0.0100

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
1	CIRCULAR	4.00	12.57	1.00	4.00	1	147.63
10	DUMMY	0.00	0.00	0.00	0.00	1	0.00
13	DUMMY	0.00	0.00	0.00	0.00	1	0.00
14	CIRCULAR	1.00	0.79	0.25	1.00	1	169.93
15	DUMMY	0.00	0.00	0.00	0.00	1	0.00
16	CIRCULAR	4.00	12.57	1.00	4.00	1	129.98
17	DUMMY	0.00	0.00	0.00	0.00	1	0.00
18	CIRCULAR	4.00	12.57	1.00	4.00	1	134.26
19	DUMMY	0.00	0.00	0.00	0.00	1	0.00
20	DUMMY	0.00	0.00	0.00	0.00	1	0.00
21	CIRCULAR	4.00	12.57	1.00	4.00	1	245.73
22	CIRCULAR	4.00	12.57	1.00	4.00	1	290.39
23	DUMMY	0.00	0.00	0.00	0.00	1	0.00
24	CIRCULAR	4.00	12.57	1.00	4.00	1	152.12
25	CIRCULAR	4.00	12.57	1.00	4.00	1	121.28
26	DUMMY	0.00	0.00	0.00	0.00	1	0.00
27	DUMMY	0.00	0.00	0.00	0.00	1	0.00
28	CIRCULAR	4.00	12.57	1.00	4.00	1	237.54
29	CIRCULAR	4.00	12.57	1.00	4.00	1	480.59
30	CIRCULAR	4.00	12.57	1.00	4.00	1	337.08
32	TRAPEZOIDAL	5.00	75.00	3.11	20.00	1	535.98
6	CIRCULAR	4.00	12.57	1.00	4.00	1	103.97

NOTE: The summary statistics displayed in this report are based on results found at every computational time step, not just on results from each reporting time step.

Analysis Options

Flow Units CFS

Process Models:

Rainfall/Runoff NO
 RDII NO
 Snowmelt NO
 Groundwater NO
 Flow Routing YES
 Ponding Allowed NO
 Water Quality NO
 Flow Routing Method KINWAVE
 Starting Date 01/01/2005 00:00:00
 Ending Date 01/02/2005 06:00:00
 Antecedent Dry Days 0.0
 Report Time Step 00:15:00
 Routing Time Step 30.00 sec

	Volume acre-feet	Volume 10^6 gal
*****	-----	-----
Flow Routing Continuity		

Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	10.606	3.456
External Outflow	10.611	3.458
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	-0.043	

 Highest Flow Instability Indexes

 All links are stable.

 Routing Time Step Summary

Minimum Time Step : 30.00 sec
 Average Time Step : 30.00 sec
 Maximum Time Step : 30.00 sec
 Percent in Steady State : 0.00
 Average Iterations per Step : 1.01
 Percent Not Converging : 0.00

 Node Depth Summary

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
1	JUNCTION	0.05	0.82	5447.82	0 00:36	0.78
17	JUNCTION	0.05	0.92	5445.92	0 00:35	0.90
18	JUNCTION	0.05	0.82	5449.07	0 00:35	0.79
A1	JUNCTION	0.03	0.67	5458.14	0 00:32	0.65
A2	JUNCTION	0.03	0.67	5462.67	0 00:30	0.67
A3	JUNCTION	0.01	0.27	5461.77	0 00:30	0.27
B1	JUNCTION	0.04	0.76	5442.76	0 00:38	0.74
B2	JUNCTION	0.00	0.00	5464.35	0 00:00	0.00
B3	JUNCTION	0.02	0.48	5465.61	0 00:36	0.45
B4	JUNCTION	0.01	0.20	5461.74	0 00:30	0.20
B5	JUNCTION	0.01	0.29	5461.83	0 00:30	0.28
B6	JUNCTION	0.00	0.00	5461.54	0 00:00	0.00
B7	JUNCTION	0.02	0.49	5472.12	0 00:30	0.49
B8	JUNCTION	0.02	0.43	5460.05	0 00:35	0.42
C1	JUNCTION	0.03	0.61	5453.69	0 00:32	0.59
C2	JUNCTION	0.00	0.00	5465.99	0 00:00	0.00
C3	JUNCTION	0.03	0.49	5464.74	0 00:41	0.49
C4	JUNCTION	0.03	0.50	5472.13	0 00:35	0.48
C5	JUNCTION	0.02	0.40	5477.20	0 00:30	0.40
C6	JUNCTION	0.03	0.62	5486.82	0 00:30	0.61
C7	JUNCTION	0.00	0.00	5466.04	0 00:00	0.00
POND_A	JUNCTION	0.00	0.00	5436.55	0 00:00	0.00
POND_C	JUNCTION	0.05	0.92	5439.35	0 00:36	0.87
A_OUT	OUTFALL	0.00	0.00	5434.00	0 00:00	0.00

B_OUT	OUTFALL	0.01	0.28	5442.28	0	00:31	0.28
C_OUT	OUTFALL	0.02	0.47	54.83	0	00:32	0.46

Node Inflow Summary

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
1	JUNCTION	0.00	21.38	0 00:35	0	0.616	0.000
17	JUNCTION	0.00	17.50	0 00:35	0	0.508	0.000
18	JUNCTION	0.00	13.63	0 00:35	0	0.395	0.000
A1	JUNCTION	29.27	37.57	0 00:31	0.649	0.84	0.000
A2	JUNCTION	8.05	8.05	0 00:30	0.17	0.17	-0.000
A3	JUNCTION	0.98	0.98	0 00:30	0.0213	0.0213	0.000
B1	JUNCTION	0.18	21.34	0 00:38	0.0106	0.63	0.000
B2	JUNCTION	6.19	6.19	0 00:30	0.172	0.172	0.000
B3	JUNCTION	3.87	7.54	0 00:36	0.133	0.223	0.000
B4	JUNCTION	2.22	2.22	0 00:30	0.0468	0.0468	0.000
B5	JUNCTION	3.46	3.46	0 00:30	0.073	0.073	0.000
B6	JUNCTION	1.17	1.17	0 00:35	0.0409	0.0409	0.000
B7	JUNCTION	3.91	3.91	0 00:30	0.0899	0.0899	0.000
B8	JUNCTION	5.75	5.75	0 00:35	0.175	0.175	0.000
C1	JUNCTION	23.59	42.68	0 00:31	0.437	0.933	0.000
C2	JUNCTION	17.98	17.98	0 00:30	0.433	0.433	0.000
C3	JUNCTION	2.98	7.30	0 00:38	0.0963	0.25	0.000
C4	JUNCTION	4.45	4.45	0 00:35	0.154	0.154	0.000
C5	JUNCTION	5.32	5.32	0 00:30	0.131	0.131	0.000
C6	JUNCTION	14.97	14.97	0 00:30	0.365	0.365	0.000
C7	JUNCTION	10.96	10.96	0 00:30	0.258	0.258	0.000
POND_A	JUNCTION	0.00	37.57	0 00:31	0	0.84	0.000
POND_C	JUNCTION	0.00	77.36	0 00:32	0	1.87	0.000
A_OUT	OUTFALL	0.00	37.57	0 00:31	0	0.84	0.000
B_OUT	OUTFALL	0.00	24.35	0 00:38	0	0.703	0.000
C_OUT	OUTFALL	0.00	77.48	0 00:32	0	1.87	0.000

Node Flooding Summary

No nodes were flooded.

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
A_OUT	12.78	8.14	37.57	0.840
B_OUT	24.28	3.58	24.35	0.703
C_OUT	17.17	13.51	77.48	1.873
System	18.07	25.23	77.48	3.416

Link Flow Summary

Link	Type	Maximum Flow CFS	Time of Max Occurrence days hr:min	Maximum Veloc ft/sec	Max/ Full Flow	Max/ Full Depth
1	CONDUIT	13.62	0 00:36	7.35	0.09	0.21
10	DUMMY	21.34	0 00:38			
13	DUMMY	42.68	0 00:31			
14	CONDUIT	77.48	0 00:32	>50.00	0.46	0.47
15	DUMMY	37.57	0 00:31			
16	CONDUIT	7.91	0 00:32	5.77	0.06	0.17
17	DUMMY	37.57	0 00:31			
18	CONDUIT	4.39	0 00:41	4.98	0.03	0.12

19	DUMMY	7.30	0	00:38			
20	DUMMY	10.96	0	00:30			
21	CONDUIT	5.18	0	00:34	8.00	0.02	0.10
22	CONDUIT	14.79	0	00:32	12.15	0.05	0.15
23	DUMMY	17.98	0	00:30			
24	CONDUIT	17.50	0	00:36	8.09	0.12	0.23
25	CONDUIT	3.68	0	00:36	4.42	0.03	0.12
26	DUMMY	7.54	0	00:36			
27	DUMMY	6.19	0	00:30			
28	CONDUIT	5.75	0	00:36	7.96	0.02	0.11
29	CONDUIT	2.21	0	00:31	9.59	0.00	0.05
30	CONDUIT	3.44	0	00:31	8.65	0.01	0.07
32	CONDUIT	21.17	0	00:38	2.60	0.04	0.15
6	CONDUIT	0.90	0	00:37	2.63	0.01	0.07

Conduit Surcharge Summary

No conduits were surcharged.

Analysis begun on: Wed Apr 5 11:30:16 2023

Analysis ended on: Wed Apr 5 11:30:16 2023

Total elapsed time: < 1 sec

2-YR PROPOSED CONDITION WITH PONDS

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit 10

Element Count

Number of rain gages 0
Number of subcatchments ... 0
Number of nodes 26
Number of links 22
Number of pollutants 0
Number of land uses 0

Node Summary

Name	Type	Invert Elev.	Max. Pondered Depth	External Area Inflow
1	JUNCTION	5447.00	5.00	0.0
17	JUNCTION	5445.00	4.00	0.0
18	JUNCTION	5448.25	4.00	0.0
A1	JUNCTION	5457.47	4.00	0.0
A2	JUNCTION	5462.00	4.00	0.0
A3	JUNCTION	5461.50	4.00	0.0
B1	JUNCTION	5442.00	5.00	0.0
B2	JUNCTION	5464.35	0.00	0.0
B3	JUNCTION	5465.13	4.00	0.0
B4	JUNCTION	5461.54	4.00	0.0

B5	JUNCTION	5461.54	4.00	0.0
B6	JUNCTION	5461.54	0.00	0.0
B7	JUNCTION	5471.63	4.00	0.0
B8	JUNCTION	5459.62	4.00	0.0
C1	JUNCTION	5453.08	4.00	0.0
C2	JUNCTION	5465.99	0.00	0.0
C3	JUNCTION	5464.25	4.00	0.0
C4	JUNCTION	5471.63	4.00	0.0
C5	JUNCTION	5476.80	4.00	0.0
C6	JUNCTION	5486.20	4.00	0.0
C7	JUNCTION	5466.04	0.00	0.0
A_OUT	OUTFALL	5434.00	0.00	0.0
B_OUT	OUTFALL	5442.00	4.00	0.0
C_OUT	OUTFALL	54.36	0.00	0.0
POND_A	STORAGE	5436.55	6.00	0.0
POND_PG2	STORAGE	5438.43	7.00	0.0

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
1	18	1	CONDUIT	200.0	0.6250	0.0100
10	B1	B_OUT	CONDUIT	1288.4	0.0001	0.0100
13	C1	POND_PG2	CONDUIT	400.0	3.6650	0.0100
15	A1	POND_A	CONDUIT	400.0	5.2372	0.0100
16	A2	A1	CONDUIT	935.0	0.4845	0.0100
18	C4	C3	CONDUIT	1427.8	0.5169	0.0100
19	C3	17	CONDUIT	400.0	4.8181	0.0100
20	C7	17	CONDUIT	400.0	5.2673	0.0100
21	C5	C1	CONDUIT	1370.0	1.7316	0.0100
22	C6	C1	CONDUIT	1370.0	2.4182	0.0100

23	C2	POND_PG2	CONDUIT	400.0	6.9064	0.0100
24	17	POND_PG2	CONDUIT	990.0	0.6637	0.0100
25	B7	B3	CONDUIT	1541.0	0.4218	0.0100
26	B3	18	CONDUIT	1541.0	1.0955	0.0100
27	B2	18	CONDUIT	1365.7	1.1790	0.0100
28	B8	1	CONDUIT	780.0	1.6182	0.0100
29	B4	1	CONDUIT	220.0	6.6236	0.0100
30	B5	B_OUT	CONDUIT	600.0	3.2584	0.0100
32	1	B1	CONDUIT	800.0	0.6250	0.0350
6	A3	A1	CONDUIT	1300.0	0.3100	0.0100
14	POND_PG2	C_OUT	OUTLET			
17	POND_A	A_OUT	OUTLET			

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Area	Max. Rad.	No. of Width	Full Barrels	Flow
1	CIRCULAR	4.00	12.57	1.00	4.00	1	147.63	
10	DUMMY	0.00	0.00	0.00	0.00	1	0.00	
13	DUMMY	0.00	0.00	0.00	0.00	1	0.00	
15	DUMMY	0.00	0.00	0.00	0.00	1	0.00	
16	CIRCULAR	4.00	12.57	1.00	4.00	1	129.98	
18	CIRCULAR	4.00	12.57	1.00	4.00	1	134.26	
19	DUMMY	0.00	0.00	0.00	0.00	1	0.00	
20	DUMMY	0.00	0.00	0.00	0.00	1	0.00	
21	CIRCULAR	4.00	12.57	1.00	4.00	1	245.73	
22	CIRCULAR	4.00	12.57	1.00	4.00	1	290.39	
23	DUMMY	0.00	0.00	0.00	0.00	1	0.00	
24	CIRCULAR	4.00	12.57	1.00	4.00	1	152.12	
25	CIRCULAR	4.00	12.57	1.00	4.00	1	121.28	

26	DUMMY	0.00	0.00	0.00	0.00	1	0.00
27	DUMMY	0.00	0.00	0.00	0.00	1	0.00
28	CIRCULAR	4.00	12.57	1.00	4.00	1	237.54
29	CIRCULAR	4.00	12.57	1.00	4.00	1	480.59
30	CIRCULAR	4.00	12.57	1.00	4.00	1	337.08
32	TRAPEZOIDAL	5.00	75.00	3.11	20.00	1	535.98
6	CIRCULAR	4.00	12.57	1.00	4.00	1	103.97

NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.

Analysis Options

Flow Units CFS

Process Models:

Rainfall/Runoff NO

RDII NO

Snowmelt NO

Groundwater NO

Flow Routing YES

Ponding Allowed NO

Water Quality NO

Flow Routing Method KINWAVE

Starting Date 01/01/2005 00:00:00

Ending Date 01/02/2005 06:00:00

Antecedent Dry Days 0.0

Report Time Step 00:15:00

Routing Time Step 30.00 sec

	Volume	Volume
Flow Routing Continuity	acre-feet	10 ⁶ gal
	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	10.606	3.456
External Outflow	7.384	2.406
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	3.228	1.052
Continuity Error (%)	-0.061	

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step	:	30.00 sec
Average Time Step	:	30.00 sec
Maximum Time Step	:	30.00 sec
Percent in Steady State	:	0.00

Average Iterations per Step : 1.01
 Percent Not Converging : 0.00

 Node Depth Summary

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Max Depth Feet	Reported Max Depth Feet
1	JUNCTION	0.05	0.82	5447.82	0 00:36	0.78	
17	JUNCTION	0.05	0.92	5445.92	0 00:35	0.90	
18	JUNCTION	0.05	0.82	5449.07	0 00:35	0.79	
A1	JUNCTION	0.03	0.67	5458.14	0 00:32	0.65	
A2	JUNCTION	0.03	0.67	5462.67	0 00:30	0.67	
A3	JUNCTION	0.01	0.27	5461.77	0 00:30	0.27	
B1	JUNCTION	0.04	0.76	5442.76	0 00:38	0.74	
B2	JUNCTION	0.00	0.00	5464.35	0 00:00	0.00	
B3	JUNCTION	0.02	0.48	5465.61	0 00:36	0.45	
B4	JUNCTION	0.01	0.20	5461.74	0 00:30	0.20	
B5	JUNCTION	0.01	0.29	5461.83	0 00:30	0.28	
B6	JUNCTION	0.00	0.00	5461.54	0 00:00	0.00	
B7	JUNCTION	0.02	0.49	5472.12	0 00:30	0.49	
B8	JUNCTION	0.02	0.43	5460.05	0 00:35	0.42	
C1	JUNCTION	0.03	0.61	5453.69	0 00:32	0.59	
C2	JUNCTION	0.00	0.00	5465.99	0 00:00	0.00	
C3	JUNCTION	0.03	0.49	5464.74	0 00:41	0.49	
C4	JUNCTION	0.03	0.50	5472.13	0 00:35	0.48	
C5	JUNCTION	0.02	0.40	5477.20	0 00:30	0.40	
C6	JUNCTION	0.03	0.62	5486.82	0 00:30	0.61	

C7	JUNCTION	0.00	0.00	5466.04	0 00:00	0.00
A_OUT	OUTFALL	0.00	0.00	5434.00	0 00:00	0.00
B_OUT	OUTFALL	0.01	0.28	5442.28	0 00:31	0.28
C_OUT	OUTFALL	0.00	0.00	54.36	0 00:00	0.00
POND_A	STORAGE	2.21	2.55	5439.10	0 02:38	2.55
POND_PG2	STORAGE	3.99	4.54	5442.97	0 02:42	4.54

Node Inflow Summary

Node	Type	Max. Lateral Inflow CFS	Max. Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
1	JUNCTION	0.00	21.38	0 00:35	0	0.616	0.000
17	JUNCTION	0.00	17.50	0 00:35	0	0.508	0.000
18	JUNCTION	0.00	13.63	0 00:35	0	0.395	0.000
A1	JUNCTION	29.27	37.57	0 00:31	0.649	0.84	0.000
A2	JUNCTION	8.05	8.05	0 00:30	0.17	0.17	0.000
A3	JUNCTION	0.98	0.98	0 00:30	0.0213	0.0213	0.000
B1	JUNCTION	0.18	21.34	0 00:38	0.0106	0.63	0.000
B2	JUNCTION	6.19	6.19	0 00:30	0.172	0.172	0.000
B3	JUNCTION	3.87	7.54	0 00:36	0.133	0.223	0.000
B4	JUNCTION	2.22	2.22	0 00:30	0.0468	0.0468	0.000
B5	JUNCTION	3.46	3.46	0 00:30	0.073	0.073	0.000
B6	JUNCTION	1.17	1.17	0 00:35	0.0409	0.0409	0.000
B7	JUNCTION	3.91	3.91	0 00:30	0.0899	0.0899	0.000
B8	JUNCTION	5.75	5.75	0 00:35	0.175	0.175	0.000
C1	JUNCTION	23.59	42.68	0 00:31	0.437	0.933	0.000

C2	JUNCTION	17.98	17.98	0	00:30	0.433	0.433	0.000
C3	JUNCTION	2.98	7.30	0	00:38	0.0963	0.25	0.000
C4	JUNCTION	4.45	4.45	0	00:35	0.154	0.154	0.000
C5	JUNCTION	5.32	5.32	0	00:30	0.131	0.131	0.000
C6	JUNCTION	14.97	14.97	0	00:30	0.365	0.365	0.000
C7	JUNCTION	10.96	10.96	0	00:30	0.258	0.258	0.000
A_OUT	OUTFALL	0.00	0.61	0	02:38	0	0.414	0.000
B_OUT	OUTFALL	0.00	24.35	0	00:38	0	0.703	0.000
C_OUT	OUTFALL	0.00	1.77	0	02:42	0	1.25	0.000
POND_A	STORAGE	0.00	37.57	0	00:31	0	0.84	-0.000
POND_PG2	STORAGE	0.00	77.36	0	00:32	0	1.87	0.001

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit	Average Volume 1000 ft3	Avg Pent	Evap Pent	Exfil Pent	Maximum Volume 1000 ft3	Max Pent	Time of Max Occurrence days hr:min	Maximum Outflow CFS
POND_A	80.004	19	0	0	107.674	25	0 02:38	0.61
POND_PG2	155.622	19	0	0	235.104	28	0 02:42	1.77

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
A_OUT	99.42	0.52	0.61	0.414
B_OUT	24.28	3.58	24.35	0.703
C_OUT	99.42	1.55	1.77	1.249
System	74.37	5.65	1.77	2.365

Link Flow Summary

Link	Type	Maximum Flow CFS	Time of Max Occurrence days hr:min	Max/ Veloc ft/sec	Max/ Full Flow	Max/ Full Depth
1	CONDUIT	13.62	0 00:36	7.35	0.09	0.21
10	DUMMY	21.34	0 00:38			
13	DUMMY	42.68	0 00:31			
15	DUMMY	37.57	0 00:31			
16	CONDUIT	7.91	0 00:32	5.77	0.06	0.17
18	CONDUIT	4.39	0 00:41	4.98	0.03	0.12
19	DUMMY	7.30	0 00:38			
20	DUMMY	10.96	0 00:30			

21	CONDUIT	5.18	0 00:34	8.00	0.02	0.10
22	CONDUIT	14.79	0 00:32	12.15	0.05	0.15
23	DUMMY	17.98	0 00:30			
24	CONDUIT	17.50	0 00:36	8.09	0.12	0.23
25	CONDUIT	3.68	0 00:36	4.42	0.03	0.12
26	DUMMY	7.54	0 00:36			
27	DUMMY	6.19	0 00:30			
28	CONDUIT	5.75	0 00:36	7.96	0.02	0.11
29	CONDUIT	2.21	0 00:31	9.59	0.00	0.05
30	CONDUIT	3.44	0 00:31	8.65	0.01	0.07
32	CONDUIT	21.17	0 00:38	2.60	0.04	0.15
6	CONDUIT	0.90	0 00:37	2.63	0.01	0.07
14	DUMMY	1.77	0 02:42			
17	DUMMY	0.61	0 02:38			

 Conduit Surcharge Summary

No conduits were surcharged.

Analysis begun on: Wed Apr 5 11:36:29 2023
 Analysis ended on: Wed Apr 5 11:36:29 2023
 Total elapsed time: < 1 sec

100-YR PROPOSED CONDITION WITHOUT PONDS

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit 10
WARNING 08: elevation drop exceeds length for Conduit 14

Element Count

Number of rain gages 0
Number of subcatchments ... 0
Number of nodes 25
Number of links 22
Number of pollutants 0
Number of land uses 0

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
1	JUNCTION	5447.00	5.00	0.0	
17	JUNCTION	5445.00	4.00	0.0	
18	JUNCTION	5448.25	4.00	0.0	
A1	JUNCTION	5457.47	4.00	0.0	
A2	JUNCTION	5462.00	4.00	0.0	
A3	JUNCTION	5461.50	4.00	0.0	
B1	JUNCTION	5442.00	5.00	0.0	
B2	JUNCTION	5464.35	0.00	0.0	
B3	JUNCTION	5465.13	4.00	0.0	
B4	JUNCTION	5461.54	4.00	0.0	
B5	JUNCTION	5461.54	4.00	0.0	
B7	JUNCTION	5471.63	4.00	0.0	
B8	JUNCTION	5459.62	4.00	0.0	
C1	JUNCTION	5453.08	4.00	0.0	
C2	JUNCTION	5465.99	0.00	0.0	
C3	JUNCTION	5464.25	4.00	0.0	

C4	JUNCTION	5471.63	4.00	0.0
C5	JUNCTION	5476.80	4.00	0.0
C6	JUNCTION	5486.20	4.00	0.0
C7	JUNCTION	5466.04	0.00	0.0
POND_A	JUNCTION	5436.55	6.00	0.0
POND_PG2	JUNCTION	5438.43	5.00	0.0
A_OUT	OUTFALL	5434.00	0.00	0.0
B_OUT	OUTFALL	5442.00	4.00	0.0
C_OUT	OUTFALL	54.36	1.00	0.0

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
1	18	1	CONDUIT	200.0	0.6250	0.0100
10	B1	B_OUT	CONDUIT	1288.4	0.0001	0.0100
13	C1	POND_PG2	CONDUIT	400.0	3.6650	0.0100
14	POND_PG2	C_OUT	CONDUIT	400.0	1346.0175	0.0100
15	A1	POND_A	CONDUIT	400.0	5.2372	0.0100
16	A2	A1	CONDUIT	935.0	0.4845	0.0100
17	POND_A	A_OUT	CONDUIT	400.0	0.6375	0.0100
18	C4	C3	CONDUIT	1427.8	0.5169	0.0100
19	C3	17	CONDUIT	400.0	4.8181	0.0100
20	C7	17	CONDUIT	400.0	5.2673	0.0100
21	C5	C1	CONDUIT	1370.0	1.7316	0.0100
22	C6	C1	CONDUIT	1370.0	2.4182	0.0100
23	C2	POND_PG2	CONDUIT	400.0	6.9064	0.0100
24	17	POND_PG2	CONDUIT	990.0	0.6637	0.0100
25	B7	B3	CONDUIT	1541.0	0.4218	0.0100
26	B3	18	CONDUIT	1541.0	1.0955	0.0100
27	B2	18	CONDUIT	1365.7	1.1790	0.0100
28	B8	1	CONDUIT	780.0	1.6182	0.0100
29	B4	1	CONDUIT	220.0	6.6236	0.0100
30	B5	B_OUT	CONDUIT	600.0	3.2584	0.0100
32	1	B1	CONDUIT	800.0	0.6250	0.0350
6	A3	A1	CONDUIT	1300.0	0.3100	0.0100

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
1	CIRCULAR	4.00	12.57	1.00	4.00	1	147.63
10	DUMMY	0.00	0.00	0.00	0.00	1	0.00
13	DUMMY	0.00	0.00	0.00	0.00	1	0.00
14	CIRCULAR	1.00	0.79	0.25	1.00	1	169.93
15	DUMMY	0.00	0.00	0.00	0.00	1	0.00
16	CIRCULAR	4.00	12.57	1.00	4.00	1	129.98
17	DUMMY	0.00	0.00	0.00	0.00	1	0.00
18	CIRCULAR	4.00	12.57	1.00	4.00	1	134.26
19	DUMMY	0.00	0.00	0.00	0.00	1	0.00
20	DUMMY	0.00	0.00	0.00	0.00	1	0.00
21	CIRCULAR	4.00	12.57	1.00	4.00	1	245.73
22	CIRCULAR	4.00	12.57	1.00	4.00	1	290.39
23	DUMMY	0.00	0.00	0.00	0.00	1	0.00
24	CIRCULAR	4.00	12.57	1.00	4.00	1	152.12
25	CIRCULAR	4.00	12.57	1.00	4.00	1	121.28
26	DUMMY	0.00	0.00	0.00	0.00	1	0.00
27	DUMMY	0.00	0.00	0.00	0.00	1	0.00
28	CIRCULAR	4.00	12.57	1.00	4.00	1	237.54
29	CIRCULAR	4.00	12.57	1.00	4.00	1	480.59
30	CIRCULAR	4.00	12.57	1.00	4.00	1	337.08
32	TRAPEZOIDAL	5.00	75.00	3.11	20.00	1	535.98
6	CIRCULAR	4.00	12.57	1.00	4.00	1	103.97

NOTE: The summary statistics displayed in this report are based on results found at every computational time step, not just on results from each reporting time step.

Analysis Options

Flow Units CFS

Process Models:

Rainfall/Runoff NO
 RDII NO
 Snowmelt NO
 Groundwater NO
 Flow Routing YES
 Ponding Allowed NO
 Water Quality NO
 Flow Routing Method KINWAVE
 Starting Date 01/01/2005 00:00:00
 Ending Date 01/02/2005 06:00:00
 Antecedent Dry Days 0.0
 Report Time Step 00:15:00
 Routing Time Step 30.00 sec

	Volume acre-feet	Volume 10^6 gal
*****	-----	-----
Flow Routing Continuity		

Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	42.734	13.925
External Outflow	37.255	12.140
Flooding Loss	5.450	1.776
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.066	

 Highest Flow Instability Indexes

 All links are stable.

 Routing Time Step Summary

Minimum Time Step : 30.00 sec
 Average Time Step : 30.00 sec
 Maximum Time Step : 30.00 sec
 Percent in Steady State : 0.00
 Average Iterations per Step : 1.07
 Percent Not Converging : 0.00

 Node Depth Summary

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
1	JUNCTION	0.09	1.93	5448.93	0 00:40	1.88
17	JUNCTION	0.10	1.99	5446.99	0 00:40	1.94
18	JUNCTION	0.09	1.92	5450.17	0 00:40	1.86
A1	JUNCTION	0.05	1.31	5458.78	0 00:37	1.23
A2	JUNCTION	0.05	1.32	5463.32	0 00:35	1.21
A3	JUNCTION	0.02	0.59	5462.09	0 00:35	0.54
B1	JUNCTION	0.08	1.93	5443.93	0 00:42	1.91
B2	JUNCTION	0.00	0.00	5464.35	0 00:00	0.00
B3	JUNCTION	0.04	1.00	5466.13	0 00:40	0.97
B4	JUNCTION	0.02	0.43	5461.97	0 00:35	0.39
B5	JUNCTION	0.02	0.63	5462.17	0 00:35	0.57
B7	JUNCTION	0.04	1.02	5472.65	0 00:35	0.95
B8	JUNCTION	0.04	0.82	5460.44	0 00:40	0.81
C1	JUNCTION	0.06	1.32	5454.40	0 00:37	1.27
C2	JUNCTION	0.00	0.00	5465.99	0 00:00	0.00
C3	JUNCTION	0.06	1.05	5465.30	0 00:43	1.04
C4	JUNCTION	0.06	1.05	5472.68	0 00:40	1.04
C5	JUNCTION	0.04	0.85	5477.65	0 00:35	0.81
C6	JUNCTION	0.06	1.32	5487.52	0 00:35	1.27
C7	JUNCTION	0.00	0.00	5466.04	0 00:00	0.00
POND_A	JUNCTION	0.00	0.00	5436.55	0 00:00	0.00
POND_PG2	JUNCTION	0.17	5.00	5443.43	0 00:28	5.00
A_OUT	OUTFALL	0.00	0.00	5434.00	0 00:00	0.00

B_OUT	OUTFALL	0.02	0.63	5442.63	0	00:36	0.58
C_OUT	OUTFALL	0.05	1.00	55.36	0	00:28	1.00

Node Inflow Summary

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
1	JUNCTION	0.00	101.08	0 00:40	0	2.5	0.000
17	JUNCTION	0.00	75.22	0 00:40	0	1.96	0.000
18	JUNCTION	0.00	68.62	0 00:40	0	1.68	0.000
A1	JUNCTION	115.53	149.29	0 00:36	2.43	3.13	0.000
A2	JUNCTION	30.68	30.68	0 00:35	0.608	0.608	0.000
A3	JUNCTION	4.91	4.91	0 00:35	0.0914	0.0914	0.000
B1	JUNCTION	5.81	106.51	0 00:42	0.245	2.75	0.000
B2	JUNCTION	31.36	31.36	0 00:40	0.743	0.743	0.000
B3	JUNCTION	20.63	37.26	0 00:40	0.59	0.94	0.000
B4	JUNCTION	11.59	11.59	0 00:35	0.207	0.207	0.000
B5	JUNCTION	18.21	18.21	0 00:35	0.324	0.324	0.000
B7	JUNCTION	17.15	17.15	0 00:35	0.352	0.352	0.000
B8	JUNCTION	21.83	21.83	0 00:40	0.613	0.613	0.000
C1	JUNCTION	92.86	183.12	0 00:36	1.67	3.72	0.000
C2	JUNCTION	80.82	80.82	0 00:35	1.84	1.84	0.000
C3	JUNCTION	11.77	31.68	0 00:43	0.35	0.958	0.000
C4	JUNCTION	20.28	20.28	0 00:40	0.61	0.61	0.000
C5	JUNCTION	24.62	24.62	0 00:35	0.531	0.531	0.000
C6	JUNCTION	68.42	68.42	0 00:35	1.52	1.52	0.000
C7	JUNCTION	45.24	45.24	0 00:35	1.01	1.01	0.000
POND_A	JUNCTION	0.00	149.29	0 00:36	0	3.13	0.000
POND_PG2	JUNCTION	0.00	336.45	0 00:37	0	7.53	0.000
A_OUT	OUTFALL	0.00	149.29	0 00:36	0	3.13	0.000
B_OUT	OUTFALL	0.00	123.03	0 00:41	0	3.07	0.000
C_OUT	OUTFALL	0.00	181.57	0 01:08	0	5.76	0.000

Node Flooding Summary

Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CFS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 gal	Maximum Ponded Volume 1000 ft3
POND_PG2	0.71	166.39	0 00:37	1.776	0.000

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
A_OUT	13.11	29.56	149.29	3.131
B_OUT	24.64	15.44	123.03	3.073
C_OUT	17.44	40.84	181.57	5.756
System	18.40	85.84	181.57	11.960

Link Flow Summary

Link	Type	Maximum Flow CFS	Time of Max Occurrence days hr:min	Maximum Veloc ft/sec	Max/ Full Flow	Max/ Full Depth
1	CONDUIT	68.57	0 00:40	11.54	0.46	0.48

10	DUMMY	106.51	0	00:42			
13	DUMMY	183.12	0	00:36			
14	CONDUIT	181.57	0	01:08	>50.00	1.07	1.00
15	DUMMY	149.29	0	00:36			
16	CONDUIT	30.27	0	00:37	8.46	0.23	0.33
17	DUMMY	149.29	0	00:36			
18	CONDUIT	20.08	0	00:43	7.71	0.15	0.26
19	DUMMY	31.68	0	00:43			
20	DUMMY	45.24	0	00:35			
21	CONDUIT	24.37	0	00:37	12.50	0.10	0.21
22	CONDUIT	68.16	0	00:37	18.89	0.23	0.33
23	DUMMY	80.82	0	00:35			
24	CONDUIT	75.16	0	00:41	12.09	0.49	0.50
25	CONDUIT	16.65	0	00:40	6.85	0.14	0.25
26	DUMMY	37.26	0	00:40			
27	DUMMY	31.36	0	00:40			
28	CONDUIT	21.80	0	00:41	11.81	0.09	0.20
29	CONDUIT	11.56	0	00:36	16.07	0.02	0.11
30	CONDUIT	18.09	0	00:36	14.30	0.05	0.16
32	CONDUIT	100.90	0	00:42	4.40	0.19	0.39
6	CONDUIT	4.68	0	00:41	4.27	0.05	0.14

 Conduit Surcharge Summary

Conduit	----- Both Ends	Hours Full Upstream	----- Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
14	0.70	0.70	0.70	0.05	0.70

Analysis begun on: Wed Apr 5 11:33:34 2023
 Analysis ended on: Wed Apr 5 11:33:34 2023
 Total elapsed time: < 1 sec

21	CONDUIT	24.37	0	00:37	12.50	0.10	0.21
22	CONDUIT	68.16	0	00:37	18.89	0.23	0.33
23	DUMMY	80.82	0	00:35			
24	CONDUIT	75.16	0	00:41	12.09	0.49	0.50
25	CONDUIT	16.65	0	00:40	6.85	0.14	0.25
26	DUMMY	37.26	0	00:40			
27	DUMMY	31.36	0	00:40			
28	CONDUIT	21.80	0	00:41	11.81	0.09	0.20
29	CONDUIT	11.56	0	00:36	16.07	0.02	0.11
30	CONDUIT	18.09	0	00:36	14.30	0.05	0.16
32	CONDUIT	100.90	0	00:42	4.40	0.19	0.39
6	CONDUIT	4.68	0	00:41	4.27	0.05	0.14
14	DUMMY	91.87	0	01:27			
17	DUMMY	29.43	0	01:30			

Conduit Surcharge Summary

No conduits were surcharged.

Analysis begun on: Wed Apr 5 11:38:25 2023

Analysis ended on: Wed Apr 5 11:38:25 2023

Total elapsed time: < 1 sec

100-YR PROPOSED CONDITION WITH PONDS

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit 10

Element Count

Number of rain gages 0
Number of subcatchments ... 0
Number of nodes 25
Number of links 22
Number of pollutants 0
Number of land uses 0

Node Summary

Name	Type	Invert Elev.	Max. Pondered Depth	External Area Inflow
1	JUNCTION	5447.00	5.00	0.0
17	JUNCTION	5445.00	4.00	0.0
18	JUNCTION	5448.25	4.00	0.0
A1	JUNCTION	5457.47	4.00	0.0
A2	JUNCTION	5462.00	4.00	0.0
A3	JUNCTION	5461.50	4.00	0.0
B1	JUNCTION	5442.00	5.00	0.0
B2	JUNCTION	5464.35	0.00	0.0
B3	JUNCTION	5465.13	4.00	0.0
B4	JUNCTION	5461.54	4.00	0.0

B5	JUNCTION	5461.54	4.00	0.0
B7	JUNCTION	5471.63	4.00	0.0
B8	JUNCTION	5459.62	4.00	0.0
C1	JUNCTION	5453.08	4.00	0.0
C2	JUNCTION	5465.99	0.00	0.0
C3	JUNCTION	5464.25	4.00	0.0
C4	JUNCTION	5471.63	4.00	0.0
C5	JUNCTION	5476.80	4.00	0.0
C6	JUNCTION	5486.20	4.00	0.0
C7	JUNCTION	5466.04	0.00	0.0
A_OUT	OUTFALL	5434.00	0.00	0.0
B_OUT	OUTFALL	5442.00	4.00	0.0
C_OUT	OUTFALL	54.36	0.00	0.0
POND_A	STORAGE	5436.55	6.00	0.0
POND_PG2	STORAGE	5438.43	7.00	0.0

Link Summary

Name	From Node	To Node	Type	Length	%Slope	Roughness
1	18	1	CONDUIT	200.0	0.6250	0.0100
10	B1	B_OUT	CONDUIT	1288.4	0.0001	0.0100
13	C1	POND_PG2	CONDUIT	400.0	3.6650	0.0100
15	A1	POND_A	CONDUIT	400.0	5.2372	0.0100
16	A2	A1	CONDUIT	935.0	0.4845	0.0100
18	C4	C3	CONDUIT	1427.8	0.5169	0.0100
19	C3	17	CONDUIT	400.0	4.8181	0.0100
20	C7	17	CONDUIT	400.0	5.2673	0.0100
21	C5	C1	CONDUIT	1370.0	1.7316	0.0100
22	C6	C1	CONDUIT	1370.0	2.4182	0.0100

23	C2	POND_PG2	CONDUIT	400.0	6.9064	0.0100
24	17	POND_PG2	CONDUIT	990.0	0.6637	0.0100
25	B7	B3	CONDUIT	1541.0	0.4218	0.0100
26	B3	18	CONDUIT	1541.0	1.0955	0.0100
27	B2	18	CONDUIT	1365.7	1.1790	0.0100
28	B8	1	CONDUIT	780.0	1.6182	0.0100
29	B4	1	CONDUIT	220.0	6.6236	0.0100
30	B5	B_OUT	CONDUIT	600.0	3.2584	0.0100
32	1	B1	CONDUIT	800.0	0.6250	0.0350
6	A3	A1	CONDUIT	1300.0	0.3100	0.0100
14	POND_PG2	C_OUT	OUTLET			
17	POND_A	A_OUT	OUTLET			

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Area	Max. Rad.	No. of Width	Full Barrels	Flow
1	CIRCULAR	4.00	12.57	1.00	4.00	1	147.63	
10	DUMMY	0.00	0.00	0.00	0.00	1	0.00	
13	DUMMY	0.00	0.00	0.00	0.00	1	0.00	
15	DUMMY	0.00	0.00	0.00	0.00	1	0.00	
16	CIRCULAR	4.00	12.57	1.00	4.00	1	129.98	
18	CIRCULAR	4.00	12.57	1.00	4.00	1	134.26	
19	DUMMY	0.00	0.00	0.00	0.00	1	0.00	
20	DUMMY	0.00	0.00	0.00	0.00	1	0.00	
21	CIRCULAR	4.00	12.57	1.00	4.00	1	245.73	
22	CIRCULAR	4.00	12.57	1.00	4.00	1	290.39	
23	DUMMY	0.00	0.00	0.00	0.00	1	0.00	
24	CIRCULAR	4.00	12.57	1.00	4.00	1	152.12	
25	CIRCULAR	4.00	12.57	1.00	4.00	1	121.28	

26	DUMMY	0.00	0.00	0.00	0.00	1	0.00
27	DUMMY	0.00	0.00	0.00	0.00	1	0.00
28	CIRCULAR	4.00	12.57	1.00	4.00	1	237.54
29	CIRCULAR	4.00	12.57	1.00	4.00	1	480.59
30	CIRCULAR	4.00	12.57	1.00	4.00	1	337.08
32	TRAPEZOIDAL	5.00	75.00	3.11	20.00	1	535.98
6	CIRCULAR	4.00	12.57	1.00	4.00	1	103.97

NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.

Analysis Options

Flow Units CFS

Process Models:

Rainfall/Runoff NO

RDII NO

Snowmelt NO

Groundwater NO

Flow Routing YES

Ponding Allowed NO

Water Quality NO

Flow Routing Method KINWAVE

Starting Date 01/01/2005 00:00:00

Ending Date 01/02/2005 06:00:00

Antecedent Dry Days 0.0

Report Time Step 00:15:00

Routing Time Step 30.00 sec

	Volume	Volume
Flow Routing Continuity	acre-feet	10^6 gal
	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	42.734	13.925
External Outflow	31.796	10.361
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	10.863	3.540
Continuity Error (%)	0.173	

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step	:	30.00 sec
Average Time Step	:	30.00 sec
Maximum Time Step	:	30.00 sec
Percent in Steady State	:	0.00

Average Iterations per Step : 1.06
 Percent Not Converging : 0.00

 Node Depth Summary

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Max Depth Feet	Reported Max Depth Feet
1	JUNCTION	0.09	1.93	5448.93	0 00:40	1.88	
17	JUNCTION	0.10	1.99	5446.99	0 00:40	1.94	
18	JUNCTION	0.09	1.92	5450.17	0 00:40	1.86	
A1	JUNCTION	0.05	1.31	5458.78	0 00:37	1.23	
A2	JUNCTION	0.05	1.32	5463.32	0 00:35	1.21	
A3	JUNCTION	0.02	0.59	5462.09	0 00:35	0.54	
B1	JUNCTION	0.08	1.93	5443.93	0 00:42	1.91	
B2	JUNCTION	0.00	0.00	5464.35	0 00:00	0.00	
B3	JUNCTION	0.04	1.00	5466.13	0 00:40	0.97	
B4	JUNCTION	0.02	0.43	5461.97	0 00:35	0.39	
B5	JUNCTION	0.02	0.63	5462.17	0 00:35	0.57	
B7	JUNCTION	0.04	1.02	5472.65	0 00:35	0.95	
B8	JUNCTION	0.04	0.82	5460.44	0 00:40	0.81	
C1	JUNCTION	0.06	1.32	5454.40	0 00:37	1.27	
C2	JUNCTION	0.00	0.00	5465.99	0 00:00	0.00	
C3	JUNCTION	0.06	1.05	5465.30	0 00:43	1.04	
C4	JUNCTION	0.06	1.05	5472.68	0 00:40	1.04	
C5	JUNCTION	0.04	0.85	5477.65	0 00:35	0.81	
C6	JUNCTION	0.06	1.32	5487.52	0 00:35	1.27	

C7	JUNCTION	0.00	0.00	5466.04	0	00:00	0.00
A_OUT	OUTFALL	0.00	0.00	5434.00	0	00:00	0.00
B_OUT	OUTFALL	0.02	0.63	5442.63	0	00:36	0.58
C_OUT	OUTFALL	0.00	0.00	54.36	0	00:00	0.00
POND_A	STORAGE	2.94	4.87	5441.42	0	01:30	4.87
POND_PG2	STORAGE	5.57	6.65	5445.08	0	01:27	6.64

Node Inflow Summary

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Maximum Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
1	JUNCTION	0.00	101.08	0 00:40	0	2.5	0.000
17	JUNCTION	0.00	75.22	0 00:40	0	1.96	0.000
18	JUNCTION	0.00	68.62	0 00:40	0	1.68	0.000
A1	JUNCTION	115.53	149.29	0 00:36	2.43	3.13	0.000
A2	JUNCTION	30.68	30.68	0 00:35	0.608	0.608	0.000
A3	JUNCTION	4.91	4.91	0 00:35	0.0914	0.0914	0.000
B1	JUNCTION	5.81	106.51	0 00:42	0.245	2.75	0.000
B2	JUNCTION	31.36	31.36	0 00:40	0.743	0.743	0.000
B3	JUNCTION	20.63	37.26	0 00:40	0.59	0.94	0.000
B4	JUNCTION	11.59	11.59	0 00:35	0.207	0.207	0.000
B5	JUNCTION	18.21	18.21	0 00:35	0.324	0.324	0.000
B7	JUNCTION	17.15	17.15	0 00:35	0.352	0.352	0.000
B8	JUNCTION	21.83	21.83	0 00:40	0.613	0.613	0.000
C1	JUNCTION	92.86	183.12	0 00:36	1.67	3.72	0.000

C2	JUNCTION	80.82	80.82	0	00:35	1.84	1.84	0.000
C3	JUNCTION	11.77	31.68	0	00:43	0.35	0.958	0.000
C4	JUNCTION	20.28	20.28	0	00:40	0.61	0.61	0.000
C5	JUNCTION	24.62	24.62	0	00:35	0.531	0.531	0.000
C6	JUNCTION	68.42	68.42	0	00:35	1.52	1.52	0.000
C7	JUNCTION	45.24	45.24	0	00:35	1.01	1.01	0.000
A_OUT	OUTFALL	0.00	29.43	0	01:30	0	2.39	0.000
B_OUT	OUTFALL	0.00	123.03	0	00:41	0	3.07	0.000
C_OUT	OUTFALL	0.00	91.87	0	01:27	0	4.71	0.000
POND_A	STORAGE	0.00	149.29	0	00:36	0	3.13	0.075
POND_PG2	STORAGE	0.00	336.45	0	00:37	0	7.53	0.096

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit	Average Volume 1000 ft3	Avg Evap Pent Full	Exfil Pent Loss	Maximum Volume 1000 ft3	Max Pent Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
POND_A	142.843	34	0 0	316.835	74	0 01:29	29.43
POND_PG2	480.591	58	0 0	736.847	89	0 01:27	91.87

Outfall Loading Summary

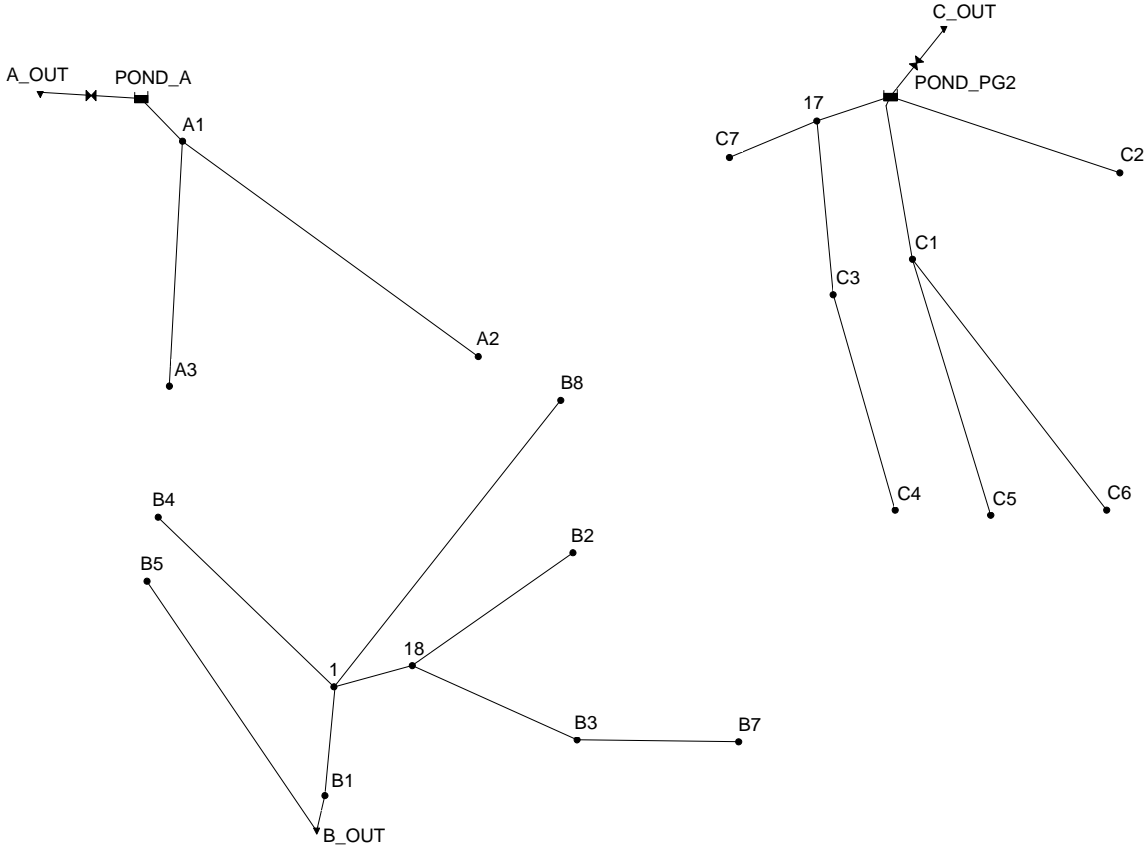
Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
A_OUT	99.42	2.98	29.43	2.393
B_OUT	24.64	15.44	123.03	3.073
C_OUT	99.42	5.87	91.87	4.715
System	74.49	24.29	91.87	10.181

Link Flow Summary

Link	Type	Maximum Flow CFS	Time of Max Occurrence days hr:min	Max Veloc ft/sec	Maximum Full Flow	Max/ Full Depth
1	CONDUIT	68.57	0 00:40	11.54	0.46	0.48
10	DUMMY	106.51	0 00:42			
13	DUMMY	183.12	0 00:36			
15	DUMMY	149.29	0 00:36			
16	CONDUIT	30.27	0 00:37	8.46	0.23	0.33
18	CONDUIT	20.08	0 00:43	7.71	0.15	0.26
19	DUMMY	31.68	0 00:43			
20	DUMMY	45.24	0 00:35			

GREEN VALLEY MASTER PLAN AMENDMENT #4 PROPOSED SWMM SCHEMATIC

01/01/2005 00:15:00

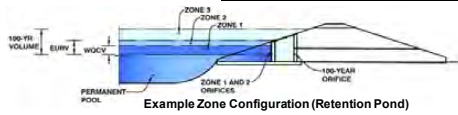


DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.00 (December 2019)

Project: GREEN VALLEY MASTER PLAN AMENDMENT #4

Basin ID: A (POND A)



Watershed Information

Selected BMP Type =	EDB	
Watershed Area =	56.20	acres
Watershed Length =	3,476	ft
Watershed Length to Centroid =	1,319	ft
Watershed Slope =	0.010	ft/ft
Watershed Imperviousness =	71.60%	percent
Percentage Hydrologic Soil Group A =	67.8%	percent
Percentage Hydrologic Soil Group B =	32.2%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	D.I.A.	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

Water Quality Capture Volume (WQCV) =	1.323	acre-feet
Excess Urban Runoff Volume (EURV) =	4.904	acre-feet
2-yr Runoff Volume (P1 = 0.85 in.) =	2.584	acre-feet
5-yr Runoff Volume (P1 = 1.13 in.) =	3.606	acre-feet
10-yr Runoff Volume (P1 = 1.39 in.) =	4.571	acre-feet
25-yr Runoff Volume (P1 = 1.8 in.) =	6.456	acre-feet
50-yr Runoff Volume (P1 = 2.15 in.) =	8.069	acre-feet
100-yr Runoff Volume (P1 = 2.53 in.) =	10.018	acre-feet
500-yr Runoff Volume (P1 = 3.55 in.) =	15.000	acre-feet
Approximate 2-yr Detention Volume =	2.412	acre-feet
Approximate 5-yr Detention Volume =	3.351	acre-feet
Approximate 10-yr Detention Volume =	4.309	acre-feet
Approximate 25-yr Detention Volume =	5.634	acre-feet
Approximate 50-yr Detention Volume =	6.454	acre-feet
Approximate 100-yr Detention Volume =	7.333	acre-feet

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	1.323	acre-feet
Zone 2 Volume (EURV - Zone 1) =	3.581	acre-feet
Zone 3 (100yr + 1 / 2 WQCV - Zones 1 & 2) =	3.090	acre-feet
Total Detention Basin Volume =	7.994	acre-feet
Initial Surge Volume (ISV) =	1	ft ³
Initial Surge Depth (ISD) =	0.50	ft
Total Available Detention Depth (H _{total}) =	5.00	ft
Depth of Trickle Channel (H _{TC}) =	0.50	ft
Slope of Trickle Channel (S _{TC}) =	0.001	ft/ft
Slopes of Main Basin Sides (S _{main}) =	3	H:V
Basin Length-to-Width Ratio (R _{L/W}) =	3	

Initial Surge Area (A _{ISV}) =	1	ft ²
Surge Volume Length (L _{SV}) =	1.0	ft
Surge Volume Width (W _{SV}) =	1.0	ft
Depth of Basin Floor (H _{FLOOR}) =	0.49	ft
Length of Basin Floor (L _{FLOOR}) =	492.5	ft
Width of Basin Floor (W _{FLOOR}) =	164.3	ft
Area of Basin Floor (A _{FLOOR}) =	80,929	ft ²
Volume of Basin Floor (V _{FLOOR}) =	13,265	ft ³
Depth of Main Basin (H _{MAIN}) =	3.51	ft
Length of Main Basin (L _{MAIN}) =	513.5	ft
Width of Main Basin (W _{MAIN}) =	185.4	ft
Area of Main Basin (A _{MAIN}) =	95,205	ft ²
Volume of Main Basin (V _{MAIN}) =	308,777	ft ³
Calculated Total Basin Volume (V _{total}) =	7.393	acre-feet

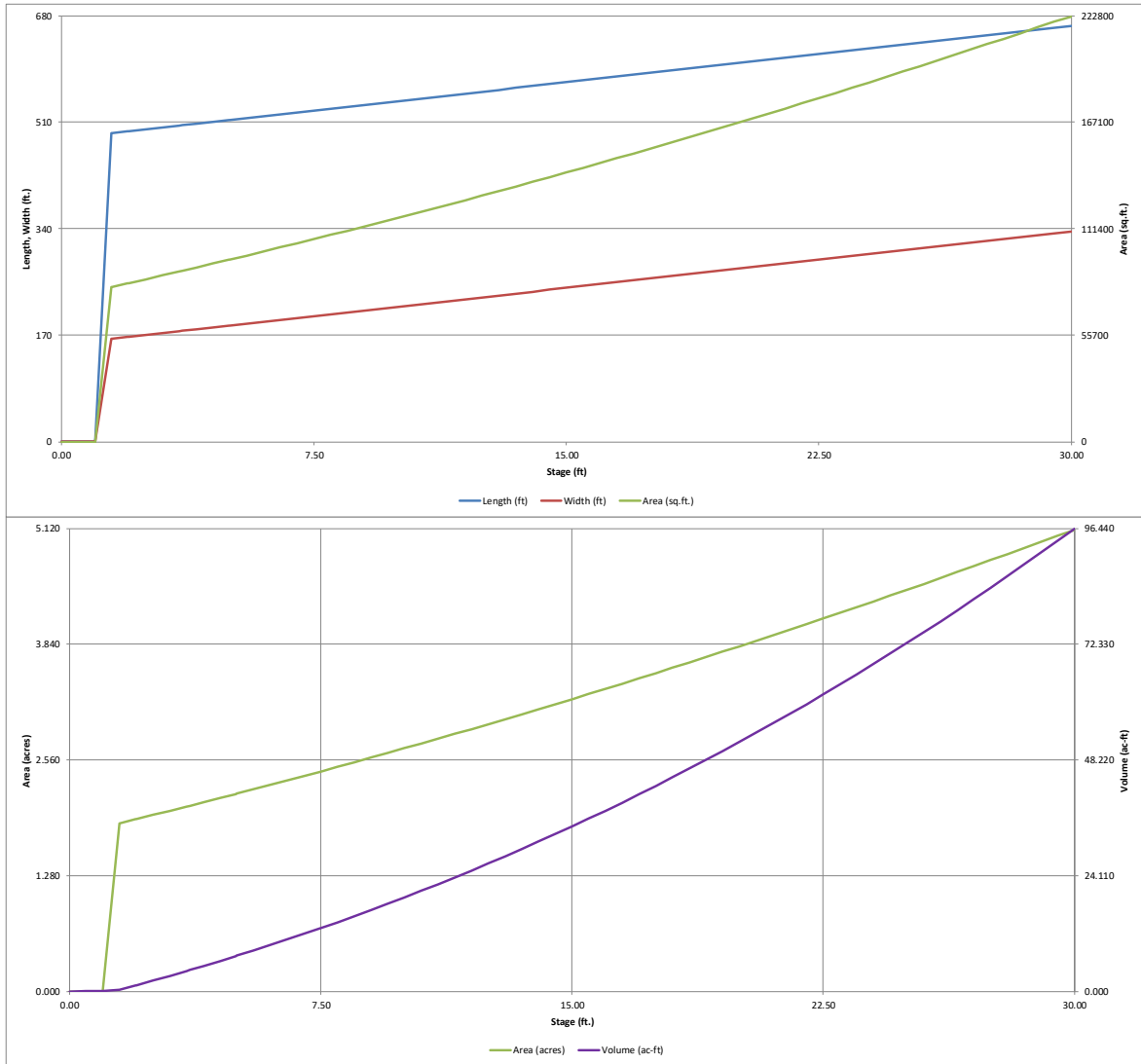
Optional User Overrides

	acre-feet
	acre-feet
	inches
	inches
	inches
	inches
	inches
	inches

Depth Increment =	0.50	ft							
Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft ²)	Optional Override Area (ft ²)	Area (acre)	Volume (ft ³)	Volume (ac-ft)
Top of Micropool	0.00		1.0	1.0	1		0.000		
ISV	0.50		1.0	1.0	1		0.000	1	0.000
	1.00		1.0	1.0	1		0.000	1	0.000
Floor	1.49		492.5	164.3	80,929		1.858	13,273	0.305
	1.50		492.5	164.4	80,969		1.859	14,083	0.323
Zone 1 (WQCV)	1.97		495.4	167.2	82,829		1.901	52,575	1.207
	2.00		495.5	167.4	82,948		1.904	55,061	1.264
	2.50		498.5	170.4	84,946		1.950	97,034	2.228
	3.00		501.5	173.4	86,962		1.996	140,010	3.214
	3.50		504.5	176.4	88,996		2.043	183,999	4.224
Zone 2 (EURV)	3.59		505.1	176.9	89,364		2.052	192,025	4.408
	4.00		507.5	179.4	91,047		2.090	229,009	5.257
	4.50		510.5	182.4	93,117		2.138	275,050	6.314
Z3 (100+1/2WQCV)	4.98		513.4	185.3	95,121		2.184	320,226	7.351
	5.00		513.5	185.4	95,205		2.186	322,129	7.395
	5.50		516.5	188.4	97,311		2.234	370,258	8.500
	6.00		519.5	191.4	99,435		2.283	419,443	9.629
	6.50		522.5	194.4	101,576		2.332	469,695	10.783
	7.00		525.5	197.4	103,736		2.381	521,023	11.961
	7.50		528.5	200.4	105,914		2.431	573,434	13.164
	8.00		531.5	203.4	108,110		2.482	626,939	14.393
	8.50		534.5	206.4	110,323		2.533	681,547	15.646
	9.00		537.5	209.4	112,555		2.584	737,266	16.925
	9.50		540.5	212.4	114,805		2.636	794,105	18.230
	10.00		543.5	215.4	117,073		2.688	852,074	19.561
	10.50		546.5	218.4	119,359		2.740	911,181	20.918
	11.00		549.5	221.4	121,662		2.793	971,435	22.301
	11.50		552.5	224.4	123,984		2.846	1,032,846	23.711
	12.00		555.5	227.4	126,324		2.900	1,095,422	25.147
	12.50		558.5	230.4	128,682		2.954	1,159,173	26.611
	13.00		561.5	233.4	131,057		3.009	1,224,107	28.102
	13.50		564.5	236.4	133,451		3.064	1,290,233	29.620
	14.00		567.5	239.4	135,863		3.119	1,357,561	31.165
	14.50		570.5	242.4	138,293		3.175	1,426,099	32.739
	15.00		573.5	245.4	140,740		3.231	1,495,857	34.340
	15.50		576.5	248.4	143,206		3.288	1,566,843	35.970
	16.00		579.5	251.4	145,690		3.345	1,639,066	37.628
	16.50		582.5	254.4	148,192		3.402	1,712,536	39.314
	17.00		585.5	257.4	150,712		3.460	1,787,261	41.030
	17.50		588.5	260.4	153,249		3.518	1,863,250	42.774
	18.00		591.5	263.4	155,805		3.577	1,940,513	44.548
	18.50		594.5	266.4	158,379		3.636	2,019,058	46.351
	19.00		597.5	269.4	160,971		3.695	2,098,895	48.184
	19.50		600.5	272.4	163,580		3.755	2,180,032	50.047
	20.00		603.5	275.4	166,208		3.816	2,262,478	51.939
	20.50		606.5	278.4	168,854		3.876	2,346,243	53.862
	21.00		609.5	281.4	171,518		3.938	2,431,335	55.816
	21.50		612.5	284.4	174,199		3.999	2,517,764	57.800
	22.00		615.5	287.4	176,899		4.061	2,605,538	59.815
	22.50		618.5	290.4	179,617		4.123	2,694,666	61.861
	23.00		621.5	293.4	182,353		4.186	2,785,158	63.938
	23.50		624.5	296.4	185,107		4.249	2,877,022	66.047
	24.00		627.5	299.4	187,878		4.313	2,970,267	68.188
	24.50		630.5	302.4	190,668		4.377	3,064,903	70.360
	25.00		633.5	305.4	193,476		4.442	3,160,938	72.565
	25.50		636.5	308.4	196,302		4.506	3,258,382	74.802
	26.00		639.5	311.4	199,145		4.572	3,357,243	77.072
	26.50		642.5	314.4	202,007		4.637	3,457,530	79.374
	27.00		645.5	317.4	204,887		4.704	3,559,253	81.709
	27.50		648.5	320.4	207,785		4.770	3,662,420	84.078
	28.00		651.5	323.4	210,700		4.837	3,767,041	86.479
	28.50		654.5	326.4	213,634		4.904	3,873,124	88.915
	29.00		657.5	329.4	216,586		4.972	3,980,678	91.384
	29.50		660.5	332.4	219,556		5.040	4,089,713	93.887
	30.00		663.5	335.4	222,544		5.109	4,200,237	96.424
	</								

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.00 (December 2019)

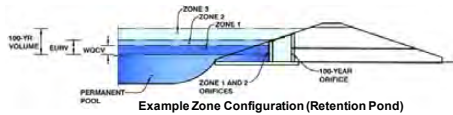


DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.00 (December 2019)

Project: GREEN VALLEY MASTER PLAN AMENDMENT #4

Basin ID: C (Pond PG2)



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	EDB
Watershed Area =	139.68 acres
Watershed Length =	3,508 ft
Watershed Length to Centroid =	1,573 ft
Watershed Slope =	0.015 ft/ft
Watershed Imperviousness =	70.30% percent
Percentage Hydrologic Soil Group A =	44.0% percent
Percentage Hydrologic Soil Group B =	21.0% percent
Percentage Hydrologic Soil Groups C/D =	35.0% percent
Target WQCV Drain Time =	40.0 hours
Location for 1-hr Rainfall Depths =	D.I.A.

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

Water Quality Capture Volume (WQCV) =	3.217	acre-feet
Excess Urban Runoff Volume (EURV) =	11.087	acre-feet
2-yr Runoff Volume (P1 = 0.85 in.) =	6.326	acre-feet
5-yr Runoff Volume (P1 = 1.13 in.) =	8.909	acre-feet
10-yr Runoff Volume (P1 = 1.39 in.) =	11.413	acre-feet
25-yr Runoff Volume (P1 = 1.8 in.) =	16.494	acre-feet
50-yr Runoff Volume (P1 = 2.15 in.) =	20.598	acre-feet
100-yr Runoff Volume (P1 = 2.53 in.) =	25.570	acre-feet
500-yr Runoff Volume (P1 = 3.55 in.) =	38.045	acre-feet
Approximate 2-yr Detention Volume =	5.945	acre-feet
Approximate 5-yr Detention Volume =	8.449	acre-feet
Approximate 10-yr Detention Volume =	10.629	acre-feet
Approximate 25-yr Detention Volume =	13.514	acre-feet
Approximate 50-yr Detention Volume =	15.233	acre-feet
Approximate 100-yr Detention Volume =	17.315	acre-feet

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	3.217	acre-feet
Zone 2 Volume (EURV - Zone 1) =	7.870	acre-feet
Zone 3 (100yr + 1 / 2 WQCV - Zones 1 & 2) =	7.836	acre-feet
Total Detention Basin Volume =	18.923	acre-feet
Initial Surge Volume (ISV) =	1	ft ³
Initial Surge Depth (ISD) =	0.33	ft
Total Available Detention Depth (H _{total}) =	7.00	ft
Depth of Trickle Channel (H _{TC}) =	0.50	ft
Slope of Trickle Channel (S _{TC}) =	0.005	ft/ft
Slopes of Main Basin Sides (S _{main}) =	3	H:V
Basin Length-to-Width Ratio (R _{L/W}) =	3	
Initial Surge Area (A _{ISV}) =	3	ft ²
Surge Volume Length (L _{ISV}) =	1.7	ft
Surge Volume Width (W _{ISV}) =	1.7	ft
Depth of Basin Floor (H _{FLOOR}) =	4.19	ft
Length of Basin Floor (L _{FLOOR}) =	852.3	ft
Width of Basin Floor (W _{FLOOR}) =	281.1	ft
Area of Basin Floor (A _{FLOOR}) =	239,562	ft ²
Volume of Basin Floor (V _{FLOOR}) =	335,783	ft ³
Depth of Main Basin (H _{MAIN}) =	1.98	ft
Length of Main Basin (L _{MAIN}) =	864.2	ft
Width of Main Basin (W _{MAIN}) =	293.0	ft
Area of Main Basin (A _{MAIN}) =	253,168	ft ²
Volume of Main Basin (V _{MAIN}) =	487,741	ft ³
Calculated Total Basin Volume (V _{total}) =	18,906	acre-feet

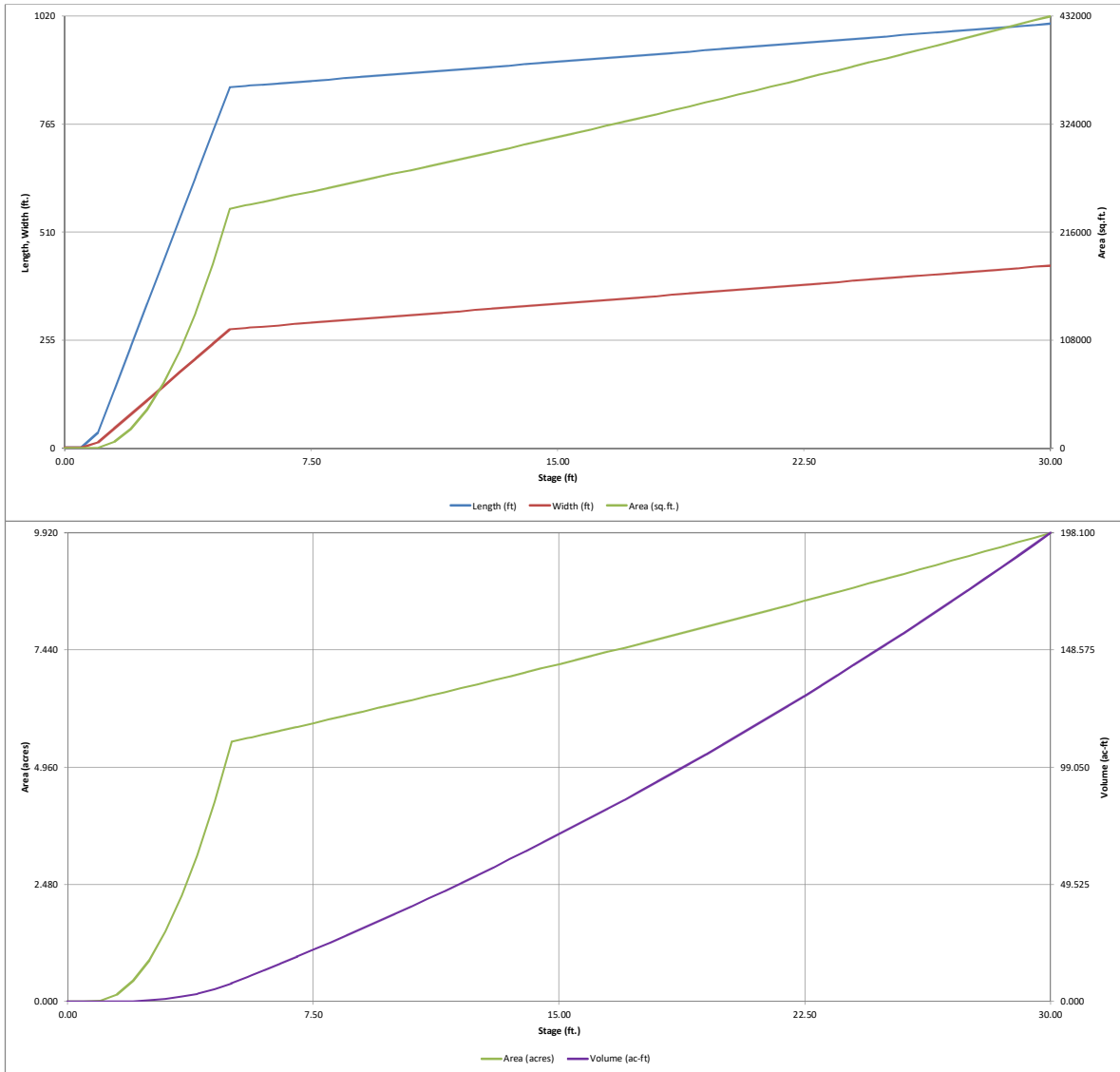
Optional User Overrides

	acre-feet
	acre-feet
	inches
	inches
	inches
	inches
	inches
	inches

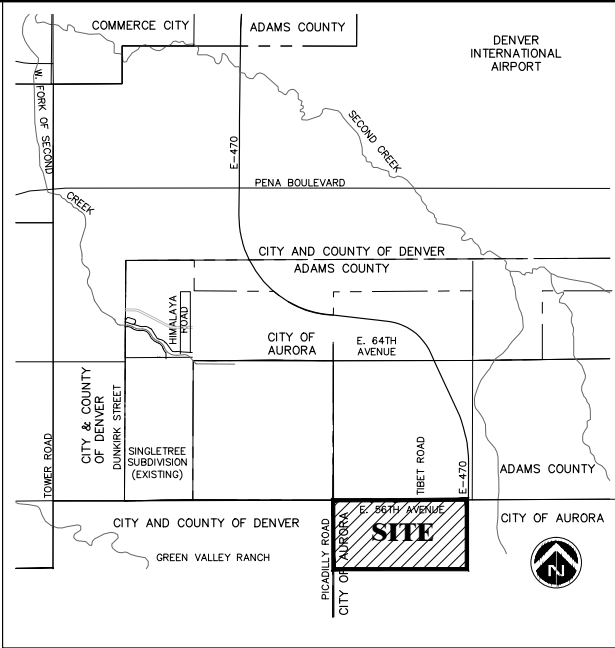
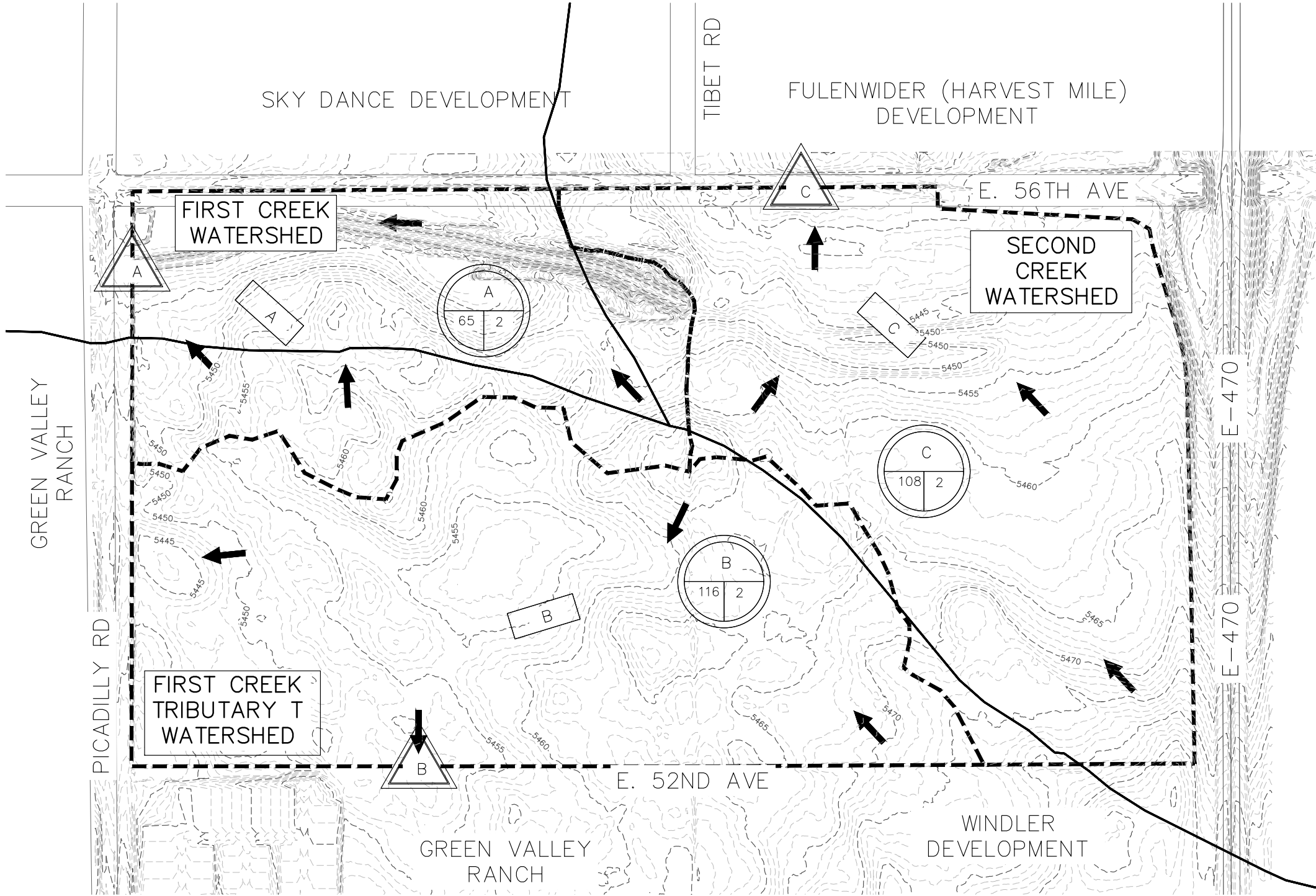
Depth Increment =	0.50	ft							
Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft ²)	Optional Override Area (ft ²)	Area (acre)	Volume (ft ³)	Volume (ac-ft)
Top of Micropool	0.00		1.7	1.7	3		0.000		
ISV	0.33		1.7	1.7	3		0.000	1	0.000
	0.50		1.7	1.7	3		0.000	2	0.000
	1.00		36.3	13.1	474		0.011	32	0.001
	1.50		137.8	46.4	6,393		0.147	1,467	0.034
	2.00		239.3	79.7	19,078		0.438	7,552	0.173
	2.50		340.8	113.1	38,530		0.885	21,673	0.498
	3.00		442.3	146.4	64,749		1.486	47,210	1.084
	3.50		543.8	179.7	97,734		2.244	87,549	2.010
Zone 1 (WQCV)	3.96		637.1	210.4	134,057		3.078	140,642	3.229
	4.00		645.3	213.1	137,486		3.156	146,072	3.353
	4.50		746.8	246.4	184,005		4.224	226,163	5.192
	5.00		848.3	279.7	237,290		5.447	331,205	7.603
Floor	5.02		852.3	281.1	239,562		5.500	335,973	7.713
	5.50		855.2	284.0	242,835		5.575	451,748	10.371
Zone 2 (EURV)	5.63		856.0	284.7	243,724		5.595	483,375	11.097
	6.00		858.2	287.0	246,261		5.653	574,022	13.178
	6.50		861.2	290.0	249,706		5.732	698,013	16.024
	7.00		864.2	293.0	253,168		5.812	823,730	18.910
3 (100+1/2WQCV)	7.01		864.3	293.0	253,238		5.814	826,262	18.968
	7.50		867.2	296.0	256,649		5.892	951,184	21.836
	8.00		870.2	299.0	260,147		5.972	1,080,382	24.802
	8.50		873.2	302.0	263,664		6.053	1,211,334	27.808
	9.00		876.2	305.0	267,198		6.134	1,344,049	30.855
	9.50		879.2	308.0	270,750		6.216	1,478,535	33.942
	10.00		882.2	311.0	274,321		6.298	1,614,802	37.071
	10.50		885.2	314.0	277,909		6.380	1,752,859	40.240
	11.00		888.2	317.0	281,516		6.463	1,892,714	43.451
	11.50		891.2	320.0	285,140		6.546	2,034,377	46.703
12.00		894.2	323.0	288,783		6.630	2,177,857	49.997	
12.50		897.2	326.0	292,443		6.714	2,323,163	53.332	
13.00		900.2	329.0	296,121		6.798	2,470,303	56.710	
13.50		903.2	332.0	299,818		6.883	2,619,288	60.131	
14.00		906.2	335.0	303,532		6.968	2,770,124	63.593	
14.50		909.2	338.0	307,265		7.054	2,922,823	67.099	
15.00		912.2	341.0	311,015		7.140	3,077,392	70.647	
15.50		915.2	344.0	314,784		7.226	3,233,841	74.239	
16.00		918.2	347.0	318,570		7.313	3,392,179	77.874	
16.50		921.2	350.0	322,374		7.401	3,552,414	81.552	
17.00		924.2	353.0	326,197		7.488	3,714,556	85.274	
17.50		927.2	356.0	330,037		7.577	3,878,614	89.041	
18.00		930.2	359.0	333,896		7.665	4,044,597	92.851	
18.50		933.2	362.0	337,772		7.754	4,212,513	96.706	
19.00		936.2	365.0	341,667		7.844	4,382,372	100.605	
19.50		939.2	368.0	345,579		7.933	4,554,182	104.550	
20.00		942.2	371.0	349,510		8.024	4,727,954	108.539	
20.50		945.2	374.0	353,458		8.114	4,903,695	112.573	
21.00		948.2	377.0	357,424		8.205	5,081,415	116.653	
21.50		951.2	380.0	361,409		8.297	5,261,122	120.779	
22.00		954.2	383.0	365,411		8.389	5,442,827	124.950	
22.50		957.2	386.0	369,432		8.481	5,626,537	129.168	
23.00		960.2	389.0	373,470		8.574	5,812,261	133.431	
23.50		963.2	392.0	377,527		8.667	6,000,010	137.741	
24.00		966.2	395.0	381,601		8.760	6,189,791	142.098	
24.50		969.2	398.0	385,693		8.854	6,381,614	146.502	
25.00		972.2	401.0	389,804		8.949	6,575,487	150.952	
25.50		975.2	404.0	393,932		9.043	6,771,421	155.450	
26.00		978.2	407.0	398,079		9.139	6,969,423	159.996	
26.50		981.2	410.0	402,243		9.234	7,169,503	164.589	
27.00		984.2	413.0	406,426		9.330	7,371,669	169.230	
27.50		987.2	416.0	410,626		9.427	7,575,931	173.919	
28.00		990.2	419.0	414,844		9.524	7,782,298	178.657	
28.50		993.2	422.0	419,081		9.621	7,990,779	183.443	
29.00		996.2	425.0	423,335		9.718	8,201,382	188.278	
29.50		999.2	428.0	427,608		9.817	8,414,117	193.162	
30.00			1,002.2	431.0	431,898		9.915	8,628,993	198.094

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.00 (December 2019)



I:\JOBS\DEWBERRY\OAKWOOD HOMES\310 PARCEL\VR\CAD\DRN-EX-310PARCEL.DWG 7/20/2023 4:46 PM FISHER, ELTON



KEY MAP
SCALE: 1" = 3000'

LEGEND

- WATERSHED BOUNDARY
- SUBWATERSHED BOUNDARY
- MHFD MAJOR BASIN BOUNDARY
- JUNCTION (NON-BASINS) OR DESIGN POINT
- FLOW DIRECTION
- BASIN DESIGNATION AREA (ACRES) IMPERVIOUS (%)

To request marking of underground facilities

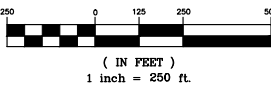
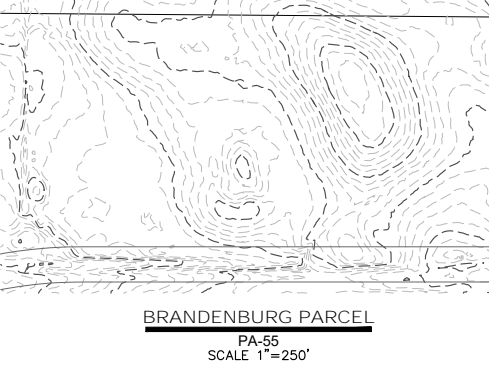
811

Know what's below.
Call before you dig.
Call 811 or visit call811.com for more information

It is the contractor's responsibility to contact UNCC a minimum of 2 days prior to the start of construction operations.
J3 Engineering Consultants, Inc. claims no responsibility for the underground facilities depicted in this plan set.

SITE BENCHMARK:
NATIONAL GEODETIC SURVEY CONTROL MONUMENT, DESIGNATION DVX H, BEING A STAINLESS STEEL ROD IN SLEEVE IN MONUMENT BOX STAMPED "DVX H 1995", LOCATED IN THE NORTHWEST QUARTER OF SECTION 2, TOWNSHIP 3 NORTH, RANGE 66 WEST OF THE 6TH P.M., COUNTY OF ADAMS, LYING APPROXIMATELY 623 FEET NORTH AND 6 FEET EAST OF THE WEST QUARTER CORNER OF SAID SECTION 2. ELEVATION = 5425.25 (NAVD 88)

COA BENCHMARK:
CITY OF AURORA BENCH MARK, COA ID 356611NW002 (OLD BENCH MARK ID AD-075A), BEING A 3" BRASS DISK ON 30" STEEL PIPE IN CONCRETE, SET ON SOUTH SIDE OF 64TH AVE. IN E-W 3/STRAND BARBED WIRE FENCE, 3' WEST OF BENCH MARK IS 4" HIGH 2 1/2" YELLOW COLORED PIPE, IN THE VICINITY OF THE N 1/4 CORNER OF SECTION 11, T3S, R66W. ELEVATION = 5424.588 (NAVD 88)



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ENSURE THAT THE POVISIONS OF CRS 37-92-602, AS AMENDED BY SENATE BILL 15-212, REGARDING NOTIFICATION OF DOWNSTREAM WATER RIGHTS HOLDERS ARE UPHOLD.

APPROVED FOR ONE YEAR FROM THIS DATE

CITY ENGINEER	DATE
WATER DEPARTMENT	DATE

BASIS OF BEARINGS:
SOUTHWEST QUARTER CORNER OF SECTION 2 T3S, R66W OF 6TH PM BEARING S89°36'23"W A DISTANCE OF 2645.55'

Dewberry
Dewberry Engineers Inc.
8100 East Maplewood Avenue, Suite 150
Greenwood Village, CO 80111
303.968.5601
Contact: Jason A. Morford, PE
Email: jmorford@dewberry.com

**GREEN VALLEY MASTER PLAN AMENDMENT 4
MASTER DRAINAGE REPORT
OVERALL BASIN MAP
EXISTING**

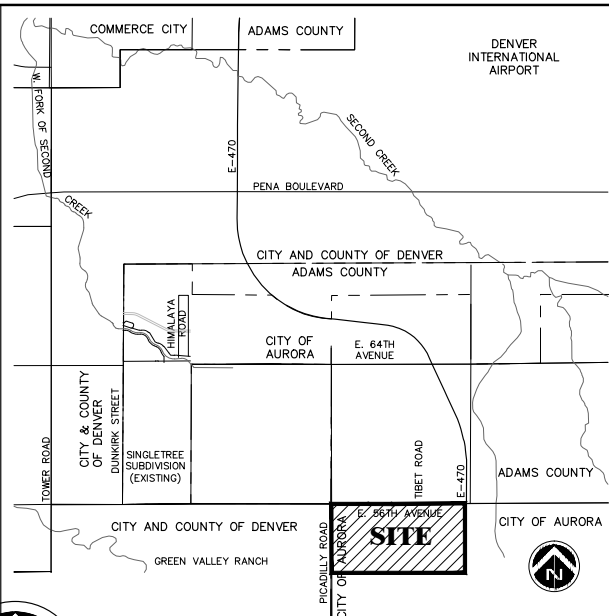
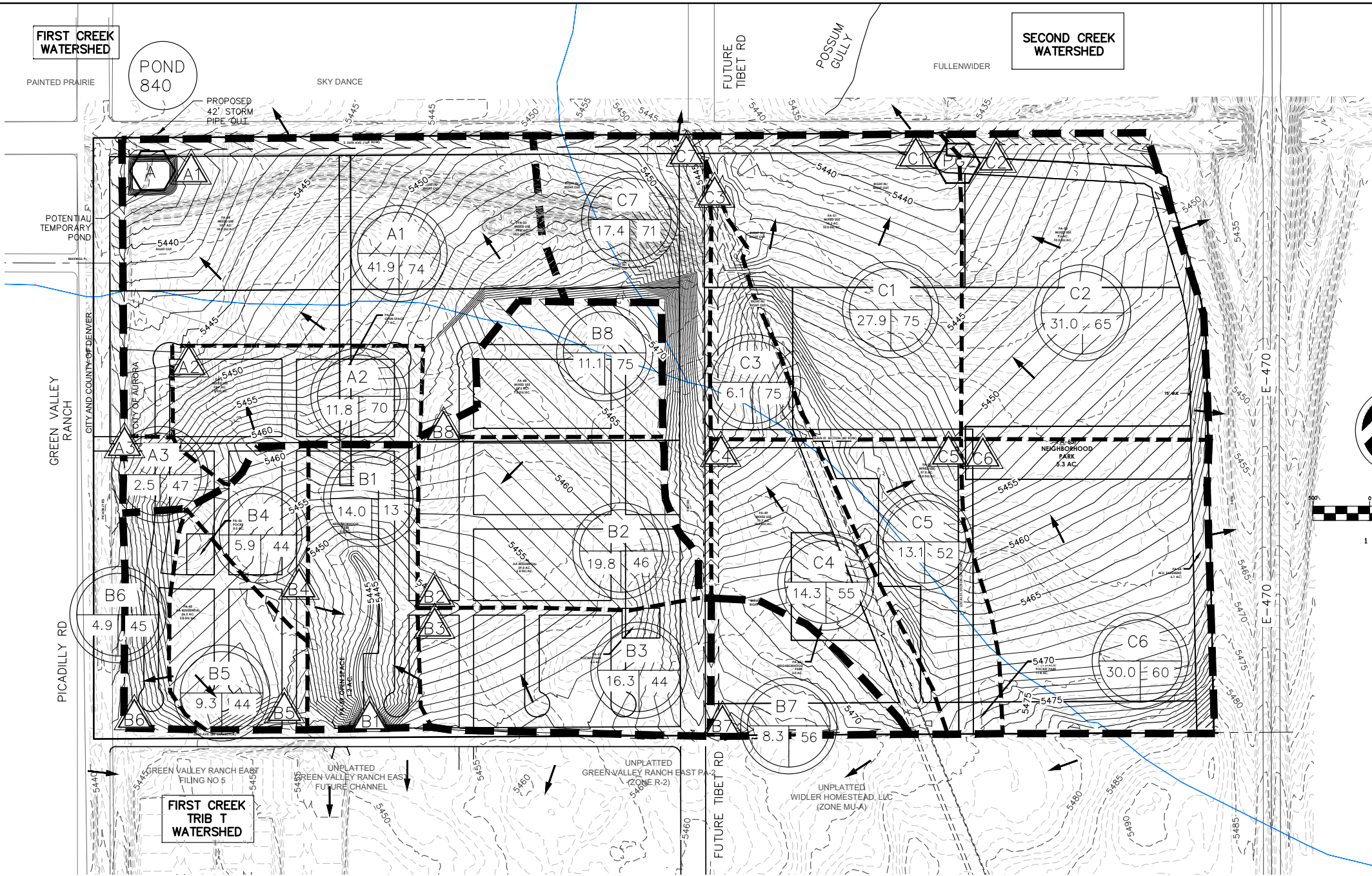
OAKWOOD HOMES
18655 Green Valley Ranch Blvd.
Denver, CO 80249
Ph: 303-486-8734
Contact: Dave Carro

ID	Description
4	4TH SUBMITTAL
3	3RD SUBMITTAL
2	2ND SUBMITTAL
1	1ST SUBMITTAL
No.	Date

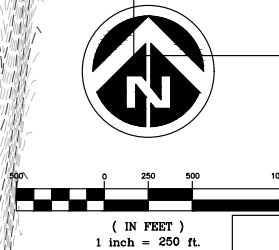
**PRELIMINARY
NOT FOR
CONSTRUCTION**

Project Number: 50145755
Designed By: DLM
Drawn By: JAD
Checked By: JDM
Sheet Number: JDM

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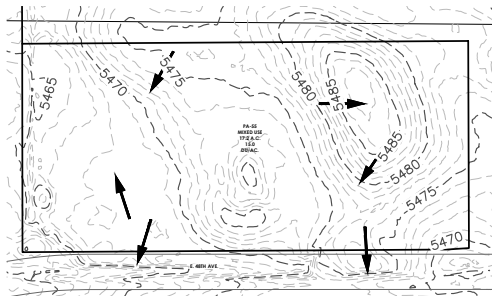
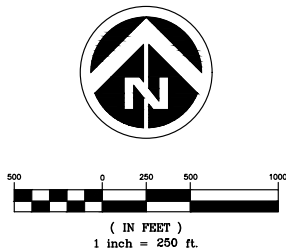
KEY MAP
SCALE: 1" = 3000'



LEGEND	
	MAJOR BASIN BOUNDARY
	WATERSHED BOUNDARY
	SUBWATERSHED BOUNDARY
	JUNCTION (NON-BASINS) OR DESIGN POINT
	FLOW DIRECTION
	CHANNELIZED FLOW CONVEYANCE ELEMENT
	SHEET FLOW CONVEYANCE ELEMENT
	OVERFLOW CONVEYANCE ELEMENT
	OUTFALL
	BASIN DESIGNATION AREA (ACRES) IMPERVIOUS (%)

FLOW SUMMARY				
BASIN	AREA	IMPERVIOUS VALUE	Q2 (CFS)	Q100 (CFS)
A1	42	74%	29	116
A2	12	70%	8	31
A3	3	47%	1	5
A_OUT			0	29
B1	14	13%	0	6
B2	20	46%	6	31
B3	16	44%	4	21
B4	6	44%	2	12
B5	9	44%	3	18
B6	5	45%	1	6
B7	8	56%	4	17
B8	11	75%	6	22
B_OUT			0	123
C1	28	75%	24	93
C2	31	65%	18	81
C3	6	75%	3	12
C4	14	55%	4	20
C5	13	52%	5	25
C6	30	60%	15	68
C7	17	71%	11	45
C_OUT			0	182

POND SUMMARY							
POND ID	TRIBUTARY AREA	WCQV (AC-FT)	EURV (AC-FT)	V100 (AC-FT)	VTOTAL (AC-FT)	Q100-IN (CFS)	Q100-OUT (CFS)
A	56.2	1.2	4.4	7.3	7.3	135.6	25.9
PG2	139.7	3.2	11.1	17.3	18.9	362.0	104.0



BRANDENBURG PARCEL
PA-55
SCALE 1"=250'

NOTES:

- THIS MASTER DRAINAGE PLAN UTILIZES CONCEPT, MASS GRADING TO ESTIMATE THE ANTICIPATED MAJOR BASINS. MINOR ADJUSTMENTS TO THE GRADING PRESENTED HEREIN MAY OCCUR WITH THE ADVANCEMENT OF THE INDIVIDUAL PLANNING AREAS, SO LONG AS THE INTENT AND THE RELEASE RATES PRESENTED HEREIN ARE MAINTAINED FOR THE THREE MAJOR BASINS.
- PONDS SHOWN ARE SCHEMATIC ONLY, ACTUAL SIZE, SHAPE, AND LOCATION WILL VARY AS THE SITE DESIGN PROGRESSES.
- IN THE CONSTRUCTED CONDITION, INTERIM PONDS WOULD BE PRIVATE. PERMANENT PONDS AND STORM SEWER IN THE ROW WOULD BE PUBLIC.
- AN AMENDMENT TO THIS PLAN MAY BE REQUIRED IF FLOWS ARE NOT ROUTED TO POND 840.
- ASSUMES THAT BASINS 503 AND 501 ARE DEVELOPED PRIOR TO THIS SITE AND FLOWS ARE CONVEYED SOUTH TO POND 8503C.
- IF AT THE TIME OF THE PD THE INFRASTRUCTURE DOWNSTREAM OF BASIN B IS NOT CONSTRUCTED, THE ADJACENT WNER WILL NEED TO PROVIDE A SIGNED LETTER OF ACCEPTANCE OF THE FLOWS.

NOTE:

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CITY OF AURORA BENCH MARK, COA ID 356611NW002 (OLD BENCH MARK ID AD-075A), BEING A 3" BRASS DISK ON 30" STEEL PIPE IN CONCRETE, SET ON SOUTH SIDE OF 64TH AVE. IN E-W 3/STRAND BARBED WIRE FENCE, 3' WEST OF BENCH MARK IS 4' HIGH 2 1/2" YELLOW COLORED PIPE, IN THE VICINITY OF THE N 1/4 CORNER OF SECTION 11, T3S, R66W. ELEVATION = 5424.588 (NAVD 88)

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Dewberry
Dewberry Engineers Inc.
8100 East Maplewood Avenue, Suite 150
Greenwood Village, CO 80111
Contact: Jason A. Montforton, PE
Email: jmontforton@dewberry.com

**GREEN VALLEY MASTER PLAN AMENDMENT 4
MASTER DRAINAGE REPORT**

OAKWOOD HOMES
18655 Green Valley Ranch Blvd.
Denver, CO 80249
Ph: 303-486-8734
Contact: Dave Carro

**OVERALL BASIN MAP
PROPOSED**

Project Number:	50145755
Designed By:	DLM
Drawn By:	JAD
Checked By:	JDM
Sheet Number:	

**PRELIMINARY
NOT FOR
CONSTRUCTION**

DOCUMENT AMENDMENTS

No.	Date	Description
4	07/20/2023	4TH SUBMITTAL
3	12/23/2022	3RD SUBMITTAL
2	05/23/2022	2ND SUBMITTAL
1	10/29/2021	1ST SUBMITTAL

APPENDIX C – REFERENCE MATERIAL

Table 3.6-1 (continued)
Upper First Creek Major Drainageway Planning Study
Baseline Hydrology Peak Flow Summary

Station	Design Point	Location			100- Year	2-Year		5-Year		10-Year		25-Year		50-Year		100-Year		500-Year	
			Drainage Area		Runoff Volume	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
			(acres)	(sq. mi.)	FuLU (ac-ft)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
	2310		301	0.5	50	190	270	330	420	430	530	660	780	780	900	980	1,130	1,250	1,420
	2400		653	1.0	100	100	220	200	380	280	490	580	830	710	1,000	970	1,310	1,320	1,730
	2410		96	0.2	20	33	75	71	120	97	160	170	250	200	300	260	360	340	470
	2500		390	0.6	50	8	74	73	140	130	190	290	380	370	470	510	640	690	850
	2510		224	0.3	30	0	0	46	46	79	79	170	170	210	210	290	290	390	390
	2511		224	0.3	30	0	0	45	44	78	78	170	170	210	210	290	290	390	390
	2600		858	1.3	110	7	9	100	100	190	190	440	430	550	540	780	760	1,070	1,050
	2610		314	0.5	40	0	0	49	49	89	89	210	210	260	260	360	360	500	500
	3000		1638	2.6	210	2	2	97	97	210	210	550	550	730	730	1,100	1,100	1,570	1,570
	3020		883	1.4	120	4	4	83	83	160	160	380	380	480	480	710	710	990	990
	3030		691	1.1	90	5	5	67	67	130	130	300	300	380	380	550	550	770	770
	3040		301	0.5	40	1	1	39	39	69	69	150	150	190	190	270	270	370	370
	3100		1224	1.9	160	2	4	100	100	200	210	500	510	650	660	950	970	1,330	1,350
	3110		648	1.0	80	2	2	71	71	140	140	330	330	420	420	600	600	830	830
	3111		987	1.5	130	2	5	94	97	180	190	440	450	560	580	820	830	1,130	1,150
	3120		501	0.8	70	3	3	64	64	120	120	270	270	340	340	480	480	650	650
	3130		410	0.6	50	4	4	60	61	100	100	230	230	290	290	410	410	550	550
	3150		90	0.1	10	0	1	8	9	15	16	35	35	44	44	64	63	87	85
	3200		339	0.5	50	1	2	28	29	50	54	120	120	150	160	210	230	300	320
	3210		115	0.2	10	0	4	11	18	22	29	57	67	72	83	100	110	140	150
	3300		736	1.2	90	0	0	65	65	130	130	370	370	470	470	690	690	960	960
	3310		563	0.9	70	0	0	77	77	140	140	360	360	450	450	620	620	850	850
	4000	Blue Grama Draw, Before Confluence	2242	3.5	400	180	630	360	1,020	530	1,300	1,060	2,470	1,300	3,000	1,930	4,120	2,940	5,500
	4010		1620	2.5	290	180	510	340	780	480	980	910	1,830	1,090	2,230	1,480	3,120	2,250	4,220
	4020		1352	2.1	230	190	420	320	650	420	820	740	1,750	860	2,150	1,220	2,980	1,930	3,980
	4040		987	1.5	170	120	500	230	820	320	1,050	570	1,690	690	1,990	960	2,540	1,320	3,280
	4060		654	1.0	120	2	390	68	630	130	790	320	1,220	410	1,420	590	1,790	810	2,290
	4080		190	0.3	40	0	230	30	330	55	400	130	550	160	640	230	790	310	980
	4100		480	0.8	80	0	180	36	300	78	390	230	670	300	800	450	1,050	640	1,380
	4110		340	0.5	60	0	240	36	370	75	470	200	720	260	850	370	1,070	510	1,370
	4120		212	0.3	40	0	210	23	310	47	380	120	550	160	640	230	800	310	1,010
	4130		90	0.1	20	0	91	13	140	24	170	60	250	76	290	110	360	140	450
	4400		486	0.8	70	250	250	350	350	470	470	830	830	1,010	1,010	1,340	1,340	1,760	1,770
	4410		358	0.6	60	200	200	300	300	390	390	680	680	820	820	1,080	1,080	1,410	1,410
	4420		186	0.3	30	130	130	190	190	260	260	410	410	490	490	650	650	830	830
	4421		186	0.3	30	110	110	170	170	220	230	380	380	450	450	590	590	770	770
2000+00	5000	Tributary T: Upstream of First Creek Confluence	5639	8.8	1050	170	790	320	1,440	470	1,740	1,310	2,840	1,680	3,410	2,440	5,650	3,900	8,260
	5010		160	0.3	30	88	130	160	210	220	280	370	450	450	540	570	670	740	850
2014+00	5011		5536	8.7	1030	140	790	280	1,440	460	1,740	1,320	2,820	1,680	3,390	2,430	5,640	3,910	8,250
2020+00	5020		5376	8.7	1010	110	800	210	1,440	440	1,740	1,320	2,800	1,680	3,350	2,420	5,630	3,910	8,240
2073+00	5030		394	0.6	70	0	290	52	450	100	570	260	870	320	1,020	450	1,290	610	1,630
2073+00	5031	Tributary T: Picadilly Road	5178	8.1	960	16	910	260	1,550	530	2,030	1,380	3,400	1,770	4,060	2,530	6,100	4,030	8,720
2073+00	5032		5178	8.1	960	16	840	250	1,470	510	1,890	1,350	3,210	1,720	3,830	2,460	5,920	3,980	8,470
2080+00	5040		4784	7.5	890	16	820	220	1,420	450	1,670	1,300	2,620	1,630	3,130	2,240	5,860	3,820	8,080
2109+00	5050		3683	7.5	710	17	740	130	1,260	350	1,440	1,180	1,830	1,380	2,690	1,750	5,250	3,340	7,950
2109+00	5051		3736	5.8	860	16	820	210	1,400	420	1,650	1,290	2,460	1,610	2,980	2,180	5,880	3,790	9,300
2144+00	5060		3489	5.5	670	16	720	130	1,230	350	1,410	1,160	1,790	1,340	2,650	1,700	5,190	3,250	8,830
2144+00	5061		3489	5.5	670	16	720	130	1,230	350	1,410	1,150	1,790	1,340	2,640	1,700	5,140	3,220	7,650
2160+00	5070		3375	5.3	660	23	1,830	460	2,990	940	3,850	2,240	6,200	2,880	7,360	4,190	9,510	5,810	11,800
2181+00	5080		2102	3.3	400	16	1,160	300	1,910	610	2,480	1,490	4,020	1,920	4,780	2,790	6,180	3,890	7,490

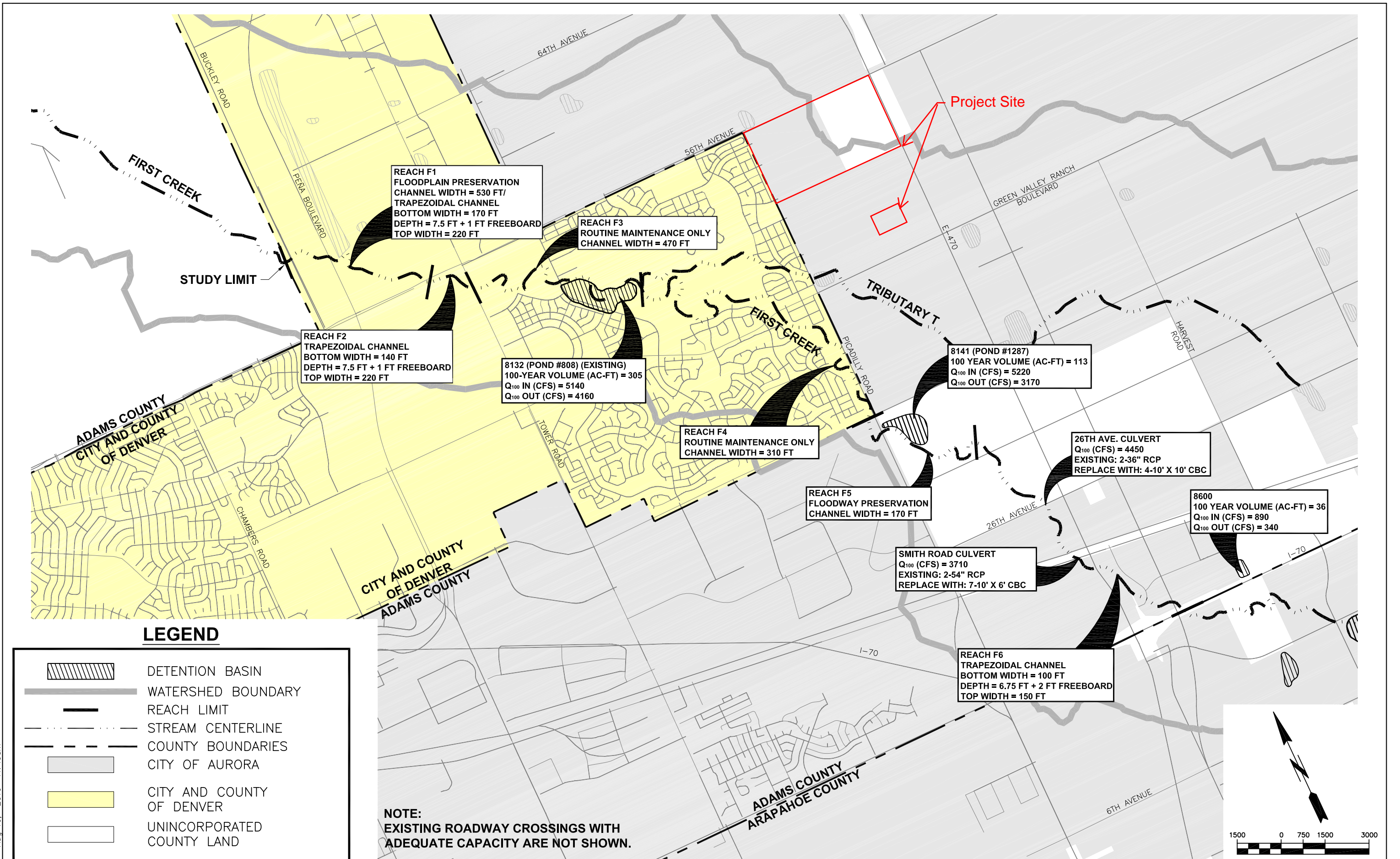
Note: See Figures 3-3 and 3-4 for EPA SWMM Routing Maps

Table 3.6-1 (continued)
Upper First Creek Major Drainageway Planning Study
Baseline Hydrology Peak Flow Summary

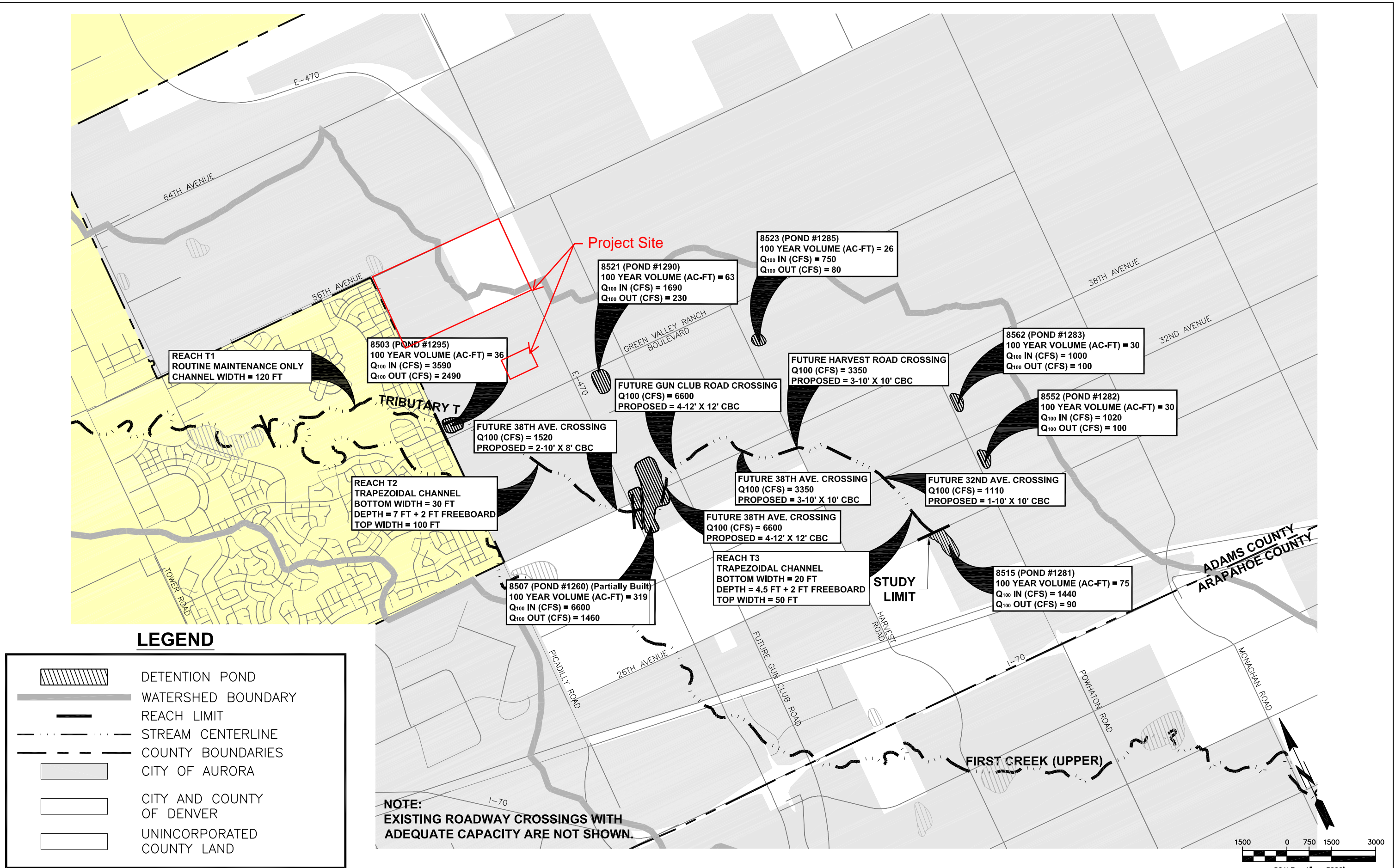
Station	Design Point	Location	Drainage Area		100- Year	2-Year		5-Year		10-Year		25-Year		50-Year		100-Year		500-Year	
					Runoff Volume	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
			(acres)	(sq. mi.)	FuLU (ac-ft)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
2195+00	5090	Tributary T: Harvest Road	1996	3.1	380	17	1,220	300	1,990	610	2,550	1,470	4,060	1,870	4,810	2,700	6,180	3,740	8,030
2226+50	5100		1752	2.7	340	21	1,440	330	2,250	610	2,830	1,420	4,210	1,790	4,910	2,510	6,160	3,440	7,860
2242+00	5110		1365	2.1	260	8	1,180	240	1,810	450	2,260	1,080	3,300	1,370	3,850	1,920	4,810	2,630	6,130
2251+00	5120		1325	2.1	260	6	1,170	230	1,780	440	2,220	1,040	3,230	1,320	3,770	1,850	4,700	2,540	5,990
2262+00	5130		936	1.5	180	5	800	150	1,220	290	1,520	680	2,220	870	2,590	1,220	3,230	1,680	4,120
2286+00	5140	Tributary T: 26th Avenue	465	0.7	100	4	390	56	590	110	730	270	1,060	350	1,240	510	1,570	720	2,010
2291+00	5150		421	0.7	90	4	360	52	540	100	670	250	980	320	1,140	470	1,440	650	1,840
	5160		286	0.4	60	5	280	42	410	72	500	170	710	220	820	310	1,030	430	1,320
	5170		107	0.2	20	0	150	21	210	36	260	78	350	98	410	130	490	180	600
	5200		891	1.4	150	0	470	120	780	260	1,020	710	1,710	910	2,040	1,300	2,640	1,800	3,460
	5210		706	1.1	120	0	390	99	650	210	860	580	1,420	750	1,700	1,060	2,200	1,460	2,870
	5220		457	0.7	70	0	280	79	460	160	610	400	1,000	510	1,190	710	1,530	970	1,980
	5230		212	0.3	30	0	130	33	220	70	300	180	480	240	580	330	740	450	950
	5240		90	0.1	20	0	150	9	200	22	250	61	330	77	380	110	450	150	560
	5250		83	0.4	10	0	47	29	88	48	110	100	180	130	210	170	270	230	340
	5300		1171	1.8	240	9	670	150	1,060	300	1,340	690	2,090	890	2,460	1,290	3,150	1,780	4,060
	5310		924	1.4	130	9	440	83	670	160	830	370	1,250	470	1,460	680	1,840	940	2,350
	5311		1242	1.9	190	10	640	130	990	250	1,220	580	1,860	750	2,180	1,070	2,750	1,470	3,510
	5320		371	0.6	80	13	380	77	550	130	670	290	950	360	1,090	500	1,350	670	1,700
	5330		138	0.2	30	2	190	27	270	45	320	96	430	120	500	160	610	220	760
	5340		140	0.2	30	13	140	39	200	63	240	130	350	160	400	220	490	300	620
	5350		93	0.1	20	3	99	23	140	38	170	83	240	100	280	140	350	200	440
	5360		39	0.1	10	4	49	11	70	17	84	33	110	40	130	54	160	71	200
	5400		317	0.5	60	1	210	59	330	100	420	230	630	290	730	400	920	550	1,180
	5410		131	0.2	30	3	140	40	210	66	260	130	360	170	410	230	500	310	630
	5500		348	0.5	60	0	390	74	570	140	710	340	990	430	1,140	590	1,410	800	1,760
	5510		267	0.4	50	0	350	61	500	120	610	260	830	330	960	460	1,170	620	1,460
	5520		204	0.3	40	0	320	47	440	88	540	200	720	250	830	350	1,020	480	1,260
	5600		362	0.6	70	3	410	72	620	140	760	340	1,080	430	1,250	600	1,550	820	1,950
	5610		334	0.5	60	0	400	64	590	130	730	310	1,030	390	1,200	550	1,470	750	1,850
	5620		202	0.3	40	0	320	40	430	81	520	200	710	250	810	350	1,000	480	1,240
	5700		321	0.5	60	14	280	83	450	140	570	290	840	360	990	490	1,240	660	1,580
	5710		160	0.3	30	2	190	43	280	73	370	150	530	190	620	250	740	340	940
	5800		68	0.1	10	0	61	18	95	33	120	79	180	100	210	140	260	180	320
	5801		182	0.3	30	0	140	33	230	64	290	160	450	210	530	280	670	390	850
	5810		114	0.2	20	0	93	20	150	38	190	93	290	120	340	160	430	220	540
	5820		54	0.1	10	1	39	18	66	29	83	60	120	75	150	100	180	130	230
	6000		316	0.5	70	6	200	33	310	67	380	150	590	200	690	300	890	410	1,150
	6010		141	0.2	30	0	190	27	270	47	320	100	440	130	500	180	620	240	770
	6011		141	0.2	30	0	160	23	230	43	280	96	390	120	460	170	560	230	700
	6012		141	0.2	30	0	140	20	210	39	250	91	360	120	420	170	520	230	660
	6100		218	0.3	40	0	270	51	390	89	510	190	730	240	860	330	1,040	450	1,300
	7000		737	1.2	130	110	350	260	510	350	650	630	1,060	780	1,270	1,050	1,680	1,410	2,180
	7010		0	0.0	20	3	66	18	110	31	140	65	210	81	250	110	320	150	400
	7020		461	0.7	80	120	200	260	330	340	440	560	720	670	860	880	1,130	1,170	1,470
	7030		269	0.4	50	73	140	150	250	200	330	330	500	400	590	530	750	680	970
	7040		102	0.2	20	0	79	16	130	30	170	70	250	89	290	120	370	170	470
	7110		1139	1.8	200	47	420	130	690	250	920	530	1,550	680	1,860	1,010	2,450	1,410	3,210
	7120		858	1.3	150	0	360	78	590	170	780	410	1,290	520	1,530	770	1,990	1,070	2,610
	7130		717	1.1	120	0	360	70	570	150	750	360	1,210	460	1,430	660	1,840	920	2,380
	7150		442	0.7	80	0	280	51	450	100	580	250	890	310	1,040	440	1,320	600	1,680
	7200		224	0.4	40	1	130	32	220	61	290	150	460	190	550	260	700	360	910
	7210		96	0.2	20	1	76	19	130	33	160	70	240	87	280	120	360	160	450
	7310		102	0.2	20	0	59	10	97	21	120	51	190	64	230	91	290	130	370
	7400		256	0.4	70	0	270	76	460	140	600	310	920	390	1,090	540	1,390	730	1,790

Note: See Figures 3-3 and 3-4 for EPA SWMM Routing Maps

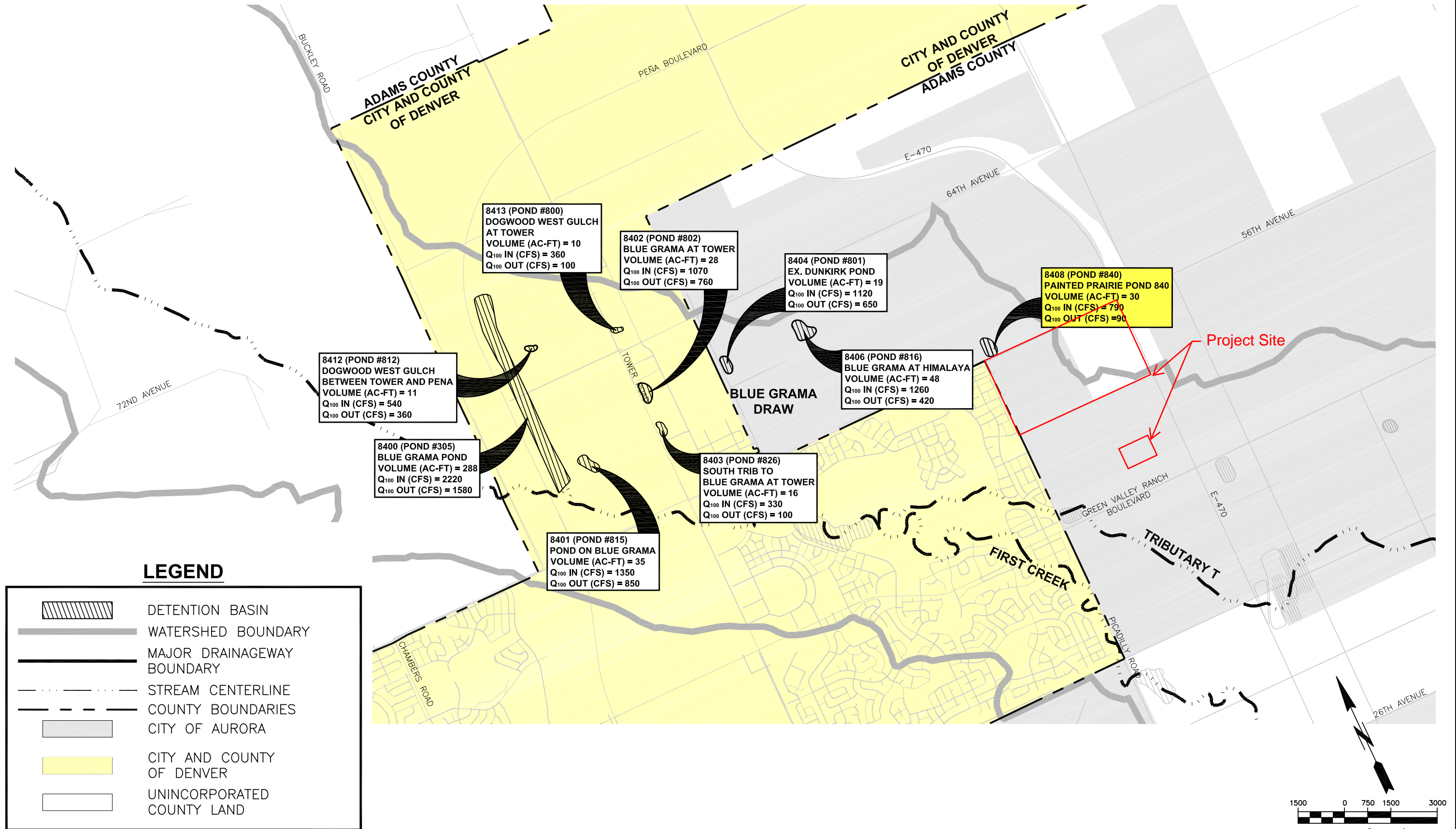
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MOSER
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720 S. COLORADO BLVD.
SUITE 410 S
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PHONE: 303-757-3655
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DESIGNED AGC
DRAWN AGC
CHECKED TLP
REVISED

DATE 5/28/09
DATE 5/28/09
DATE 7/10/09
DATE

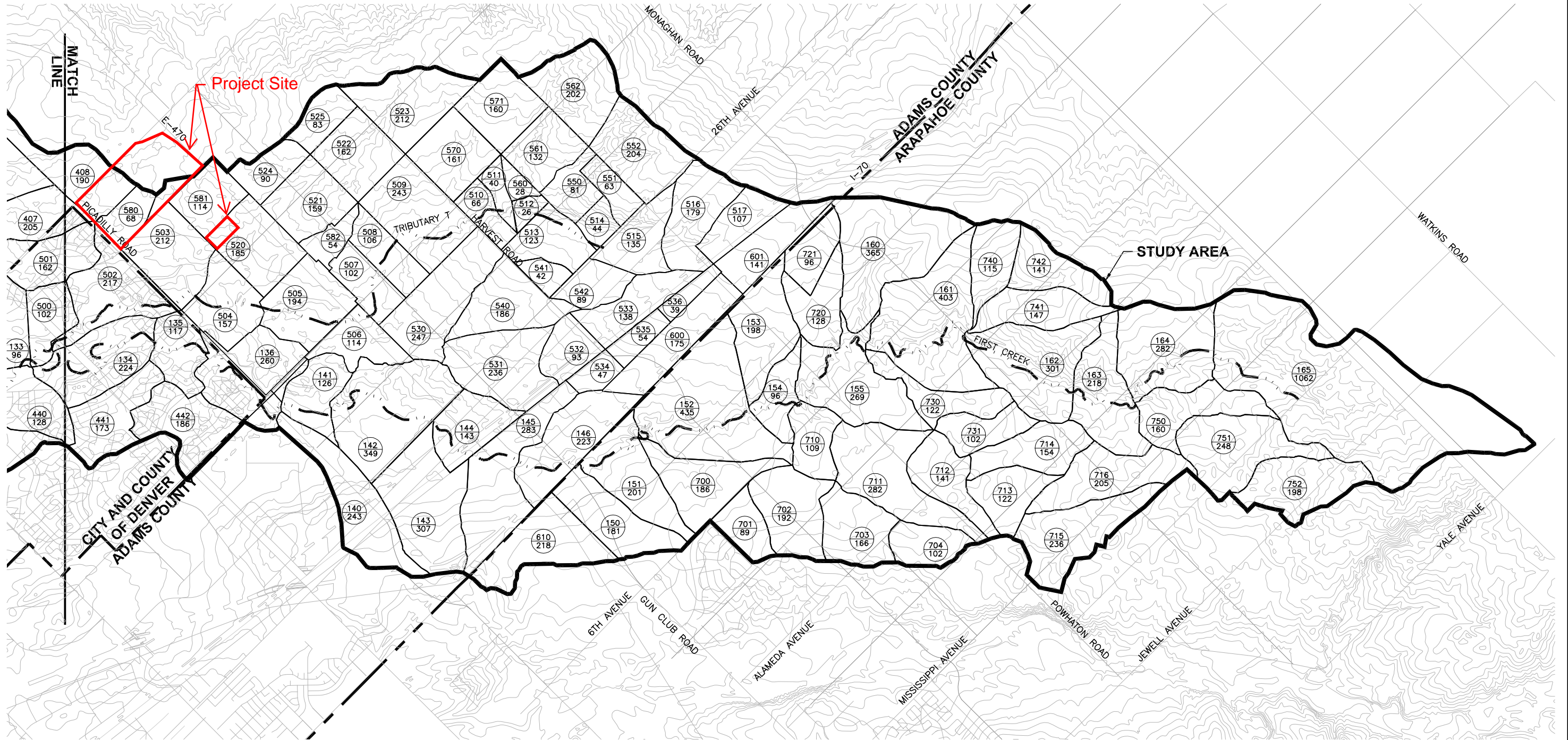
CITY AND COUNTY OF DENVER
CITY OF AURORA
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FIRST CREEK (UPPER)
MAJOR DRAINAGEWAY
PLANNING STUDY

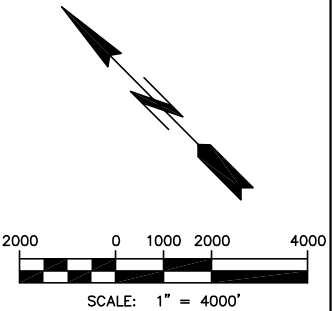
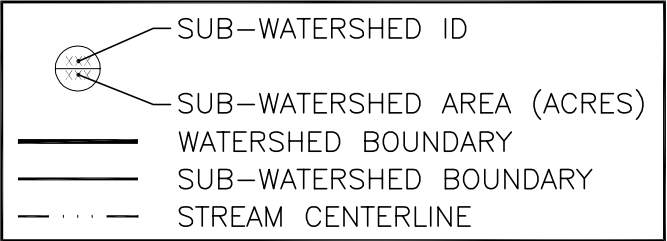
CONCEPTUAL DESIGN
BLUE GRAMA DRAW

FIGURE ES-5

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PLOT DATE: Oct 05, 2009 3:52pm



LEGEND



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720 S. COLORADO BLVD.
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DESIGNED	AGC	DATE	5/28/09
DRAWN	AGC	DATE	5/28/09
CHECKED	TLP	DATE	7/10/09
REVISED		DATE	

CITY AND COUNTY OF DENVER
CITY OF AURORA
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FIRST CREEK (UPPER)
MAJOR DRAINAGEWAY
PLANNING STUDY

SUB-WATERSHED
BOUNDARIES

FIGURE 3-2

Table 3.3-2(continued)
CUHP Subwatershed Characteristics

Subwatershed	Area (sq. mi.)	Distance to Centroid (miles)	Length (miles)	Slope (ft./ft.)	Percent Imperviousness		Depression Storage		Horton's Infiltration Parameters		
					Existing	Future	Pervious (inches)	Impervious (inches)	Initial Rate (in/hr)	Horton's Decay Coefficient (1/seconds)	Final Rate (in/hr)
231	0.24	0.46	0.90	0.009	52.32	62.87	0.35	0.10	3.96	0.0018	0.56
232	0.23	0.44	0.59	0.007	44.36	55.70	0.35	0.10	3.04	0.0018	0.50
240	0.26	0.64	0.76	0.004	47.72	65.36	0.35	0.10	3.84	0.0018	0.56
241	0.15	0.28	0.64	0.014	35.58	51.70	0.35	0.10	4.17	0.0018	0.58
250	0.26	0.36	0.75	0.010	16.67	39.15	0.35	0.10	4.35	0.0018	0.59
251	0.35	0.47	0.85	0.014	2.00	2.09	0.35	0.10	3.57	0.0018	0.54
260	0.85	0.72	1.63	0.009	2.74	6.63	0.35	0.10	3.27	0.0018	0.52
261	0.49	0.53	1.17	0.016	2.00	2.00	0.35	0.10	4.00	0.0018	0.56
300	0.49	0.78	1.04	0.013	2.00	2.00	0.35	0.10	3.70	0.0016	0.60
301	0.69	0.93	1.67	0.014	2.00	2.00	0.35	0.10	3.90	0.0018	0.56
302	0.30	0.27	0.70	0.005	2.00	2.00	0.35	0.10	3.73	0.0017	0.58
303	0.61	0.68	1.31	0.011	2.00	2.00	0.35	0.10	3.31	0.0018	0.52
304	0.47	0.85	1.04	0.007	2.00	2.00	0.35	0.10	3.50	0.0017	0.52
310	0.37	0.72	1.29	0.009	2.00	2.00	0.35	0.10	4.01	0.0018	0.57
311	0.23	0.44	0.81	0.008	2.00	2.00	0.35	0.10	3.83	0.0018	0.56
312	0.14	0.47	0.70	0.006	2.00	2.00	0.35	0.10	3.42	0.0018	0.53
313	0.14	0.23	0.47	0.009	2.00	4.00	0.35	0.10	3.30	0.0018	0.51
314	0.36	0.46	1.08	0.006	2.00	2.00	0.35	0.10	3.36	0.0018	0.52
315	0.14	0.72	1.10	0.008	2.00	7.00	0.35	0.10	3.69	0.0018	0.55
320	0.35	0.81	1.21	0.008	2.00	2.00	0.35	0.10	3.52	0.0018	0.53
321	0.18	0.49	0.86	0.005	2.00	17.00	0.35	0.10	4.33	0.0017	0.58
330	0.27	0.57	1.02	0.009	2.00	2.00	0.35	0.10	4.13	0.0018	0.58
331	0.88	0.49	1.14	0.007	2.00	2.00	0.35	0.10	4.14	0.0018	0.58
400	0.22	0.34	0.65	0.010	2.00	64.00	0.35	0.10	4.51	0.0018	0.61
401	0.42	0.25	0.84	0.009	2.48	71.67	0.35	0.10	4.50	0.0017	0.62
402	0.34	0.21	0.85	0.014	14.81	57.04	0.35	0.10	4.43	0.0017	0.61
403	0.23	1.46	1.16	0.012	62.44	51.96	0.35	0.10	4.51	0.0018	0.61
404	0.17	0.36	0.64	0.013	44.69	50.22	0.35	0.10	4.50	0.0017	0.63
405	0.35	0.49	1.06	0.013	34.53	53.01	0.35	0.10	4.50	0.0018	0.60
406	0.38	0.63	1.36	0.010	2.00	54.98	0.35	0.10	3.42	0.0018	0.53
407	0.32	0.82	1.30	0.011	6.22	54.23	0.35	0.10	4.41	0.0018	0.59
408	0.30	0.41	1.02	0.010	2.00	75.92	0.35	0.10	9.99	0.0018	0.57
410	0.22	0.27	0.58	0.006	2.00	16.00	0.35	0.10	4.50	0.0018	0.60
411	0.20	0.21	0.97	0.006	2.00	32.00	0.35	0.10	4.05	0.0018	0.57
412	0.19	0.52	0.54	0.006	2.00	79.46	0.35	0.10	4.50	0.0018	0.60
413	0.14	0.32	0.72	0.013	2.00	63.32	0.35	0.10	4.50	0.0018	0.60
440	0.20	0.27	0.47	0.025	50.00	50.02	0.35	0.10	4.68	0.0014	0.74
441	0.27	0.35	0.79	0.006	49.99	49.99	0.35	0.10	4.68	0.0014	0.74
442	0.29	0.41	0.77	0.014	50.00	50.00	0.35	0.10	4.66	0.0014	0.73
500	0.16	0.40	0.64	0.016	50.00	50.00	0.35	0.10	4.64	0.0015	0.71
501	0.25	0.17	0.66	0.007	38.67	50.99	0.35	0.10	4.50	0.0018	0.60
502	0.31	0.40	1.03	0.014	46.93	50.00	0.35	0.10	4.54	0.0017	0.63
503	0.25	0.26	0.60	0.009	2.00	59.58	0.35	0.10	4.44	0.0018	0.60
504	0.38	0.24	1.15	0.009	2.00	69.85	0.35	0.10	4.21	0.0017	0.62
505	0.19	0.22	0.37	0.010	2.00	54.96	0.40	0.10	4.16	0.0018	0.59
506	0.16	0.34	0.72	0.020	2.00	62.39	0.35	0.10	3.80	0.0018	0.55
507	0.17	0.24	0.75	0.020	2.00	50.01	0.35	0.10	3.41	0.0018	0.53
508	0.38	0.41	0.91	0.020	2.00	50.10	0.35	0.10	3.68	0.0018	0.55
509	0.25	0.27	0.64	0.020	2.00	50.00	0.35	0.10	3.63	0.0017	0.53
510	0.27	0.27	0.72	0.020	2.00	55.00	0.35	0.10	3.69	0.0018	0.54

Table 3.3-2 (continued)
CUHP Subwatershed Characteristics

Subwatershed	Area (sq. mi.)	Distance to Centroid (miles)	Length (miles)	Slope (ft./ft.)	Percent Imperviousness		Depression Storage		Horton's Infiltration Parameters		
					Existing	Future	Pervious (inches)	Impervious (inches)	Initial Rate (in/hr)	Horton's Decay Coefficient (1/seconds)	Final Rate (in/hr)
511	0.22	0.40	0.80	0.022	5.00	76.96	0.40	0.10	3.41	0.0018	0.53
512	0.29	0.45	0.85	0.018	11.69	79.15	0.40	0.10	3.01	0.0018	0.50
513	0.16	0.42	0.80	0.014	2.00	78.77	0.40	0.10	3.00	0.0018	0.50
520	0.47	0.40	1.03	0.011	2.00	60.91	0.35	0.10	4.50	0.0018	0.60
521	0.18	0.37	0.77	0.020	2.00	77.76	0.35	0.10	4.49	0.0018	0.60
530	0.29	0.31	0.84	0.020	2.00	69.33	0.35	0.10	3.97	0.0018	0.56
531	0.27	0.20	0.66	0.020	2.00	84.57	0.35	0.10	3.86	0.0018	0.56
532	0.14	0.46	0.63	0.020	2.00	84.21	0.40	0.10	4.03	0.0018	0.57
533	0.38	0.24	0.65	0.017	2.00	49.89	0.37	0.10	3.27	0.0018	0.52
534	0.32	0.33	0.85	0.016	2.00	44.25	0.40	0.10	3.23	0.0018	0.52
540	0.39	0.55	1.10	0.015	2.00	54.13	0.40	0.10	3.19	0.0018	0.51
541	0.42	0.64	1.12	0.008	2.00	72.59	0.40	0.10	3.32	0.0018	0.52
542	0.22	0.24	0.50	0.011	17.11	80.00	0.40	0.10	3.01	0.0018	0.50
543	0.37	0.37	1.09	0.012	10.77	80.00	0.40	0.10	3.00	0.0018	0.50
550	0.30	0.62	1.14	0.015	2.00	58.74	0.40	0.10	3.07	0.0018	0.50
551	0.21	0.08	0.69	0.017	2.00	70.40	0.38	0.10	3.01	0.0018	0.50
560	0.25	0.41	0.70	0.020	2.00	59.95	0.35	0.10	3.00	0.0018	0.50
561	0.26	0.46	0.59	0.020	2.00	59.71	0.35	0.10	3.06	0.0018	0.50
570	0.21	0.36	0.72	0.020	2.00	50.09	0.35	0.10	3.71	0.0018	0.55
571	0.31	0.28	0.59	0.024	2.00	78.74	0.40	0.10	3.58	0.0018	0.54
580	0.23	0.28	0.72	0.020	2.00	53.97	0.35	0.10	3.73	0.0018	0.55
581	0.34	0.28	0.69	0.026	2.00	78.24	0.40	0.10	3.58	0.0018	0.54
600	0.27	0.69	1.30	0.012	17.19	79.86	0.40	0.10	3.00	0.0018	0.50
601	0.24	0.38	1.00	0.008	2.05	79.27	0.40	0.10	3.00	0.0018	0.50
610	0.34	0.27	0.83	0.011	2.00	66.02	0.40	0.10	3.09	0.0018	0.51
700	0.29	0.71	1.28	0.012	4.70	81.85	0.40	0.10	3.01	0.0018	0.50
701	0.14	0.38	0.64	0.012	14.30	53.80	0.40	0.10	3.32	0.0018	0.52
702	0.30	0.38	0.93	0.010	38.86	46.77	0.40	0.10	3.06	0.0018	0.50
703	0.26	0.30	0.80	0.012	38.42	47.25	0.40	0.10	3.15	0.0018	0.51
704	0.16	0.36	0.68	0.011	2.00	54.92	0.40	0.10	3.39	0.0018	0.53
710	0.17	0.32	0.64	0.015	41.28	49.27	0.40	0.10	3.58	0.0018	0.54
711	0.44	0.59	1.76	0.008	31.48	51.17	0.40	0.10	3.38	0.0018	0.53
712	0.22	0.34	0.91	0.008	3.39	52.87	0.40	0.10	3.54	0.0018	0.54
713	0.19	0.49	0.83	0.008	2.00	55.00	0.40	0.10	3.44	0.0018	0.53
714	0.24	0.64	1.00	0.010	2.00	54.92	0.40	0.10	3.90	0.0018	0.56
715	0.37	0.47	1.13	0.011	2.00	55.00	0.40	0.10	3.76	0.0018	0.55
716	0.32	0.64	1.47	0.012	2.00	55.00	0.40	0.10	3.33	0.0018	0.52
717	0.18	0.38	0.76	0.015	2.00	54.85	0.40	0.10	3.62	0.0018	0.54
720	0.20	0.31	0.87	0.017	5.36	55.00	0.40	0.10	3.40	0.0018	0.53
721	0.15	0.36	0.68	0.015	8.73	55.10	0.40	0.10	3.11	0.0018	0.51
730	0.19	0.71	1.28	0.012	2.00	51.63	0.40	0.10	3.63	0.0018	0.54
731	0.16	0.38	1.61	0.014	2.00	52.96	0.40	0.10	3.59	0.0018	0.54
740	0.18	0.42	0.85	0.018	2.00	54.50	0.40	0.10	3.00	0.0018	0.50
741	0.23	0.47	0.90	0.019	2.00	54.18	0.40	0.10	3.01	0.0018	0.50
742	0.22	0.34	0.57	0.021	2.00	52.72	0.40	0.10	3.00	0.0018	0.50
750	0.25	0.45	1.14	0.018	2.00	47.24	0.40	0.10	3.73	0.0018	0.55
751	0.39	0.57	1.23	0.019	2.00	47.70	0.40	0.10	3.69	0.0018	0.55
752	0.31	0.43	0.95	0.018	2.00	38.20	0.40	0.10	4.36	0.0018	0.59



GREEN VALLEY RANCH EAST

EPA SWMM ROUTING RESULTS - EXISTING CONDITION 100-YR EVENT - NODE INFLOW

DATE: 3/7/2019

Node	Type	Maximum Lateral Inflow (CFS)	Maximum Total Inflow (CFS)	Day of Maximum Inflow	Hour of Maximum Inflow	Lateral Inflow Vol (10 ⁶ gal)	Total Inflow Volume (10 ⁶ gal)	Flow Balance Error Percent
313	JUNCTION	137.1	137.1	0	0:50	3.86	3.86	0
314	JUNCTION	243.48	243.48	0	1:00	9.84	9.84	0
315	JUNCTION	63.55	63.55	0	1:15	3.75	3.75	0
320	JUNCTION	191.89	191.89	0	1:10	9.46	9.46	0
321	JUNCTION	102.15	102.15	0	1:05	4.59	4.59	0
330	JUNCTION	170.84	170.84	0	1:00	6.98	6.98	0
331	JUNCTION	624.8	624.8	0	1:00	22.6	22.6	0
400	JUNCTION	187.38	187.38	0	0:50	5.51	5.51	0
401	JUNCTION	385.65	385.65	0	0:50	10.3	10.3	0
402	JUNCTION	367.38	367.38	0	0:40	8.15	8.15	0
403	JUNCTION	392.69	392.69	0	0:50	8.66	8.66	0
404	JUNCTION	346.03	346.03	0	0:40	5.44	5.44	0
405	JUNCTION	501.37	501.37	0	0:45	10.1	10.1	0
406	JUNCTION	234.66	234.66	0	1:05	10.4	10.4	0
407	JUNCTION	164.82	164.82	0	1:10	7.92	7.92	0
408	JUNCTION	225.3	225.3	0	0:55	7.75	7.75	0
410	JUNCTION	194.29	194.29	0	0:50	5.55	5.55	0
411	JUNCTION	158.1	158.1	0	0:55	5.19	5.19	0
412	JUNCTION	128.35	128.35	0	1:00	4.8	4.8	0
413	JUNCTION	105.87	105.87	0	0:55	3.55	3.55	0
440	JUNCTION	514.02	514.02	0	0:35	6.02	6.02	0
441	JUNCTION	561.59	561.59	0	0:40	8.68	8.68	0
442	JUNCTION	647.43	647.43	0	0:40	9.41	9.41	0
500	JUNCTION	341.66	341.66	0	0:40	5.2	5.2	0
501	JUNCTION	571.13	571.13	0	0:35	7.76	7.76	0
502	JUNCTION	638.82	638.82	0	0:40	9.91	9.91	0
503	JUNCTION	183.44	183.44	0	1:10	8.43	8.43	0
504	JUNCTION	265.22	265.22	0	0:45	6.77	6.77	0
505	JUNCTION	325.92	325.92	0	0:50	9	9	0
506	JUNCTION	229.05	229.05	0	0:40	4.84	4.84	0
507	JUNCTION	161.06	161.06	0	0:50	4.55	4.55	0
508	JUNCTION	195.7	195.7	0	0:45	4.95	4.95	0
509	JUNCTION	407.78	407.78	0	0:50	11	11	0



GREEN VALLEY RANCH EAST

EPA SWMM ROUTING RESULTS - EXISTING CONDITION 100-YR EVENT - NODE INFLOW

DATE: 3/7/2019

Node	Type	Maximum Lateral Inflow (CFS)	Maximum Total Inflow (CFS)	Day of Maximum Inflow	Hour of Maximum Inflow	Lateral Inflow Vol (10 ⁶ gal)	Total Inflow Volume (10 ⁶ gal)	Flow Balance Error Percent
510	JUNCTION	160.08	160.08	0	0:40	3.08	3.08	0
511	JUNCTION	87.56	87.56	0	0:40	1.87	1.87	0
512	JUNCTION	53.2	53.2	0	0:40	1.21	1.21	0
513	JUNCTION	188.33	188.33	0	0:50	5.34	5.34	0
514	JUNCTION	123.38	123.38	0	0:35	1.81	1.81	0
515	JUNCTION	210.91	210.91	0	0:45	5.43	5.43	0
516	JUNCTION	239.12	239.12	0	0:50	7.32	7.32	0
517	JUNCTION	134.58	134.58	0	0:55	4.55	4.55	0
520	JUNCTION	295.89	295.89	0	0:45	7.57	7.57	0
521	JUNCTION	335.8	335.8	0	0:40	6.49	6.49	0
522	JUNCTION	247.68	247.68	0	0:45	6.38	6.38	0
523	JUNCTION	328.61	328.61	0	0:45	8.23	8.23	0
524	JUNCTION	109.62	109.62	0	0:55	3.45	3.45	0
525	JUNCTION	170.24	170.24	0	0:40	3.55	3.55	0
530	JUNCTION	299.49	299.49	0	1:00	11.1	11.1	0
531	JUNCTION	240.65	240.65	0	1:00	9.82	9.82	0
532	JUNCTION	127.44	127.44	0	0:50	3.91	3.91	0
533	JUNCTION	163.64	163.64	0	0:55	5.65	5.65	0
534	JUNCTION	107.78	107.78	0	0:40	2.24	2.24	0
535	JUNCTION	118.42	118.42	0	0:40	2.29	2.29	0
536	JUNCTION	53.6	53.6	0	0:50	1.66	1.66	0
540	JUNCTION	208.66	208.66	0	1:00	8.07	8.07	0
541	JUNCTION	90.51	90.51	0	0:40	1.86	1.86	0
542	JUNCTION	141.7	141.7	0	0:45	3.78	3.78	0
550	JUNCTION	146.89	146.89	0	0:45	3.34	3.34	0
551	JUNCTION	109.3	109.3	0	0:45	2.6	2.6	0
552	JUNCTION	352.72	352.72	0	0:45	8.31	8.31	0
560	JUNCTION	61.98	61.98	0	0:40	1.31	1.31	0
561	JUNCTION	211.87	211.87	0	0:45	5.54	5.54	0
562	JUNCTION	351.04	351.04	0	0:45	7.95	7.95	0
570	JUNCTION	267.58	267.58	0	0:50	7.46	7.46	0
571	JUNCTION	254.52	254.52	0	0:45	6.79	6.79	0
580	JUNCTION	135.7	135.7	0	0:40	2.69	2.69	0



GREEN VALLEY RANCH EAST

EPA SWMM ROUTING RESULTS - EXISTING CONDITION 100-YR EVENT - NODE INFLOW

DATE: 3/7/2019

Node	Type	Maximum Lateral Inflow (CFS)	Maximum Total Inflow (CFS)	Day of Maximum Inflow	Hour of Maximum Inflow	Lateral Inflow Vol (10 ⁶ gal)	Total Inflow Volume (10 ⁶ gal)	Flow Balance Error Percent
581	JUNCTION	162.81	162.81	0	0:50	4.49	4.49	0
582	JUNCTION	100.29	100.29	0	0:45	2.28	2.28	0
600	JUNCTION	177.06	177.06	0	1:00	7.11	7.11	0
601	JUNCTION	175.82	175.82	0	1:00	6.54	6.54	0
610	JUNCTION	332.51	332.51	0	0:50	9.2	9.2	0
700	JUNCTION	169.73	169.73	0	1:05	7.75	7.75	0
701	JUNCTION	110.88	110.88	0	0:50	3.59	3.59	0
702	JUNCTION	553.76	553.76	0	0:40	9.67	9.67	0
703	JUNCTION	515.63	515.63	0	0:40	8.19	8.19	0
704	JUNCTION	123.45	123.45	0	0:55	4.23	4.23	0
710	JUNCTION	346.29	346.29	0	0:40	5.46	5.46	0
711	JUNCTION	448.12	448.12	0	0:50	12.7	12.7	0
712	JUNCTION	161.49	161.49	0	0:55	5.69	5.69	0
713	JUNCTION	121.87	121.87	0	1:00	5	5	0
714	JUNCTION	143.75	143.75	0	1:05	6.09	6.09	0
715	JUNCTION	257.97	257.97	0	1:00	9.5	9.5	0
716	JUNCTION	186.45	186.45	0	1:10	8.5	8.5	0
720	JUNCTION	170.49	170.49	0	0:50	5.17	5.17	0
721	JUNCTION	119.69	119.69	0	0:50	3.91	3.91	0
730	JUNCTION	96.36	96.36	0	1:10	4.93	4.93	0
731	JUNCTION	91.4	91.4	0	1:05	4.17	4.17	0
740	JUNCTION	141.63	141.63	0	0:55	4.9	4.9	0
741	JUNCTION	187.06	187.06	0	0:55	6.26	6.26	0
742	JUNCTION	235.16	235.16	0	0:45	5.99	5.99	0
750	JUNCTION	185.02	185.02	0	0:55	6.44	6.44	0
751	JUNCTION	275.12	275.12	0	1:00	10.1	10.1	0
752	JUNCTION	245.27	245.27	0	0:55	7.64	7.64	0
1000	JUNCTION	0	6228.82	0	2:55	0	1.23E+03	0
1010	JUNCTION	0	6130.42	0	2:47	0	1.22E+03	0
1020	JUNCTION	0	6088.82	0	2:44	0	1.21E+03	0
1030	JUNCTION	0	5809.93	0	2:45	0	1.10E+03	0
1040	JUNCTION	0	5807.04	0	2:39	0	1.10E+03	0
1100	JUNCTION	0	5378.85	0	2:37	0	1.06E+03	0

MHFD-Detention, Version 4.04 (February 2021)

Basin ID: FIRST CREEK POND 840a - IMP 82%



Drain Time Too Short

Optional User Overrides

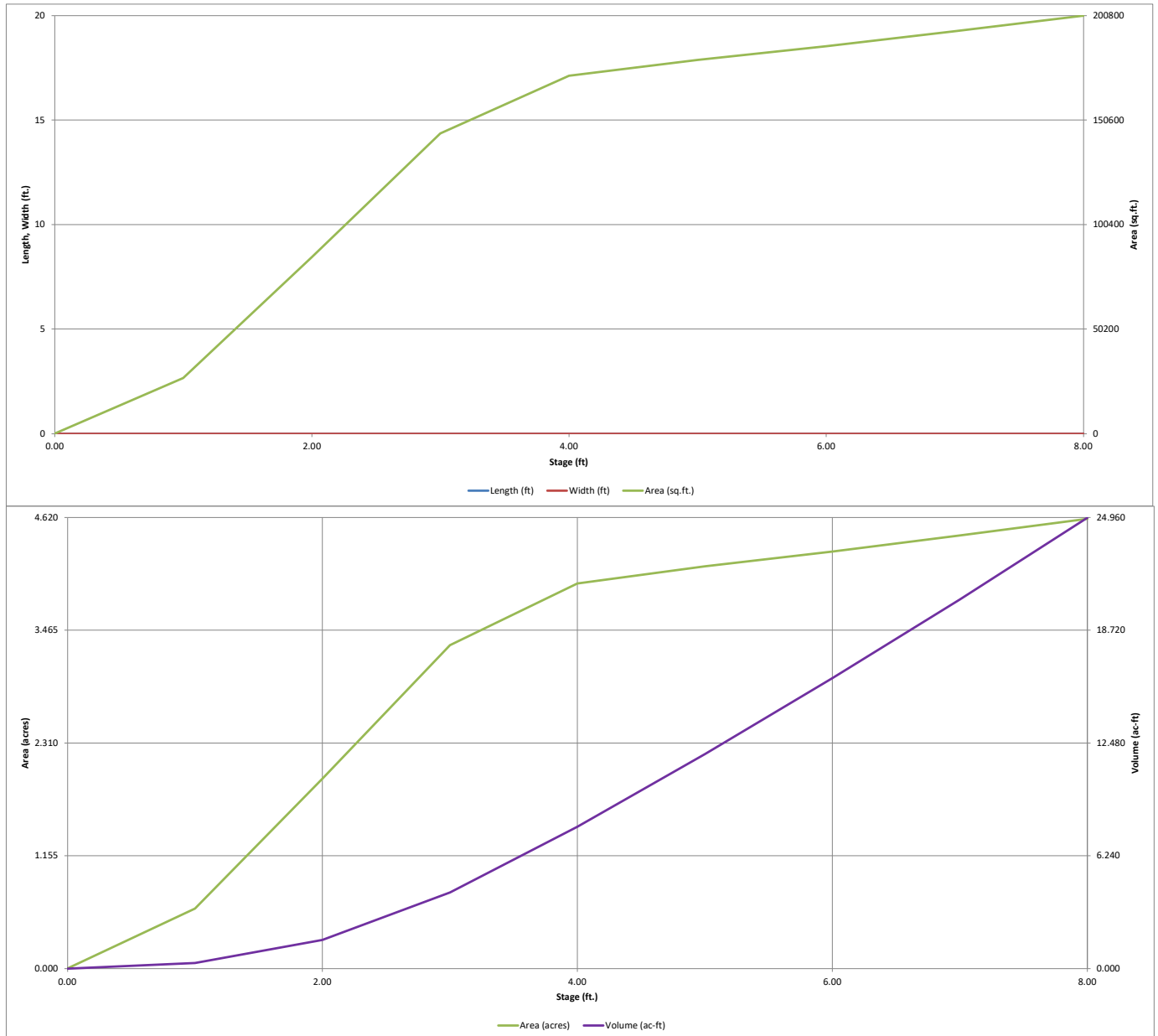
2.330	acre-feet
7.424	acre-feet
0.85	inches
1.13	inches
1.39	inches
1.78	inches
2.12	inches
2.49	inches
3.46	inches

100-YR VOLUME
DETERMINED BY SWMM

[illegible]

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.04 (February 2021)



GREEN VALLEY RANCH EAST

Pond 8503C Worksheet



DATE: 3/8/2019

Calibre Design Values for SWMM

Event		Stage /		Pond	Notes		Event		Stage /	Pond	Notes
Stage	Elevation	Depth	Area	Storage ¹			Stage	Elevation	Depth	Release ²	
(ft)	(ft)	(ft)	(ft2)	(ac-ft)			(ft)	(ft)	(ft)	(cfs)	
	5416.75	0.00	0.0	0.0	Stage-Storage			5416.75	0	0.0	Stage-Discharge
	5417.00	0.25	1369.0	0.0	Values used for			5419.24	2.49	186.0	Values used for
	5417.50	0.75	4495.4	0.0	SWMM node			5419.98	3.23	251.0	SWMM node
	5418.00	1.25	15699.6	0.2	8503Cstor			5420.56	3.81	274.0	8503Cdis
	5418.50	1.75	36735.3	0.5				5422.16	5.41	489.0	
	5419.00	2.25	67849.0	1.1				5423.01	6.26	624.0	
	5419.50	2.75	105371.0	2.1				5423.22	6.47	665.0	
	5420.00	3.25	144817.0	3.5							
10-Year	5420.50	3.75	179874.0	5.4							
	5421.00	4.25	205989.0	7.6							
	5421.50	4.75	223651.0	10.0							
	5422.00	5.25	234293.0	12.7							
	5422.50	5.75	238775.0	15.4							
100-Year	5423.00	6.25	243292.0	18.1							
	5423.50	6.75	248145.0	21.0							
EM Overflow	5424.00	7.25	252722.0	23.8							
	5424.50	7.75	257161.0	26.8							
	5425.00	8.25	261627.0	29.7							
	5425.10	8.35	262527.0	30.35							
	5425.20	8.45	263429.0	30.95							
	5425.30	8.55	264333.0	31.56							
SWMM Output Storage Volume 8503C_IN ²							SWMM Output Maximum Outflow 8503C_DIS				
10-Year	5420.55	3.80	243260	5.58			10-Year	5420.56	3.81	274	1
100-Year	5423.01	6.26	791769	18.2			100-Year	5423.00	6.25	623	1

The following HY8 and Flowmaster weir calculations show how each point on the Pond C discharge curve were created. The tailwater elevation for the Consplan culvert is the WSE from Pond B for that particular storm. That tailwater is used to calculate the culvert headwater elevation which then becomes the tailwater elevation for the discharge weir.

Notes:

1. The pond storage volume is pasted in from the UD Detention worksheet.
2. The volume is taken from the routed SWMM model and the elevation is interpolated from the calculated volume.

Notes:

1. The WSE for each event is interpolated from the routed SWMM pond release rate and the discharge curve above. This is compared to the volume interpolated elevation.
2. The discharge curve is based on submerged weir calculations from the Pond C Weir sheet.

Interactive Map Controls:

- [Study Area](#)
- Subcatchment Boundaries**
- [Soils](#)
- [Existing Land Use](#)
- [Future Land Use](#)
- [Change in Land Use](#)
- [EPA SWMM Routing](#)

General

- Watershed
- Subcatchment
- 10-ft Contour
- Railroad
- Denver International Airport Boundary
- Subcatchment Label

SWMM Routing

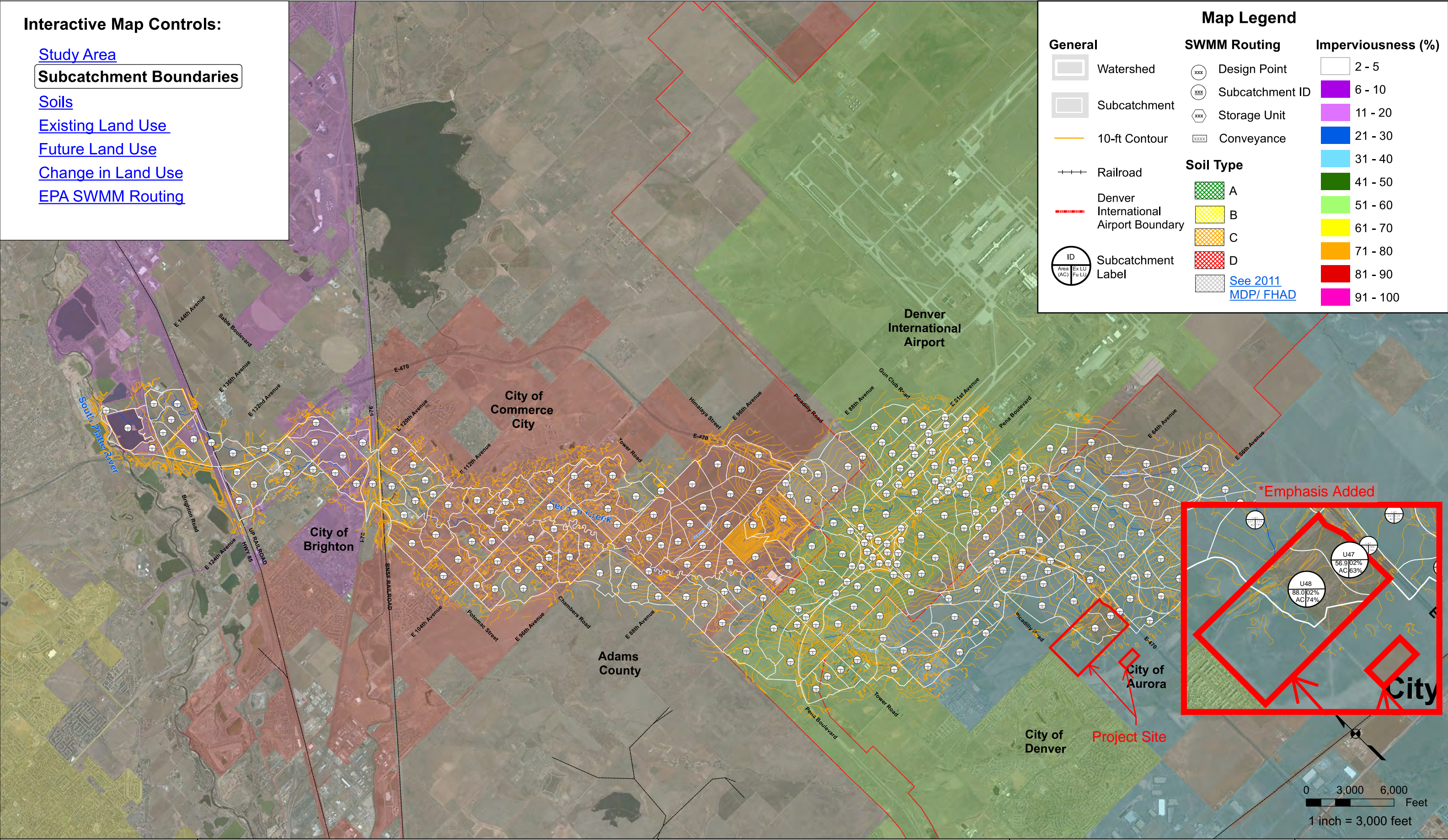
- Design Point
- Subcatchment ID
- Storage Unit
- Conveyance

Soil Type

- A
- B
- C
- D
- See 2011 MDP/ FHAD

Imperviousness (%)

- 2 - 5
- 6 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41 - 50
- 51 - 60
- 61 - 70
- 71 - 80
- 81 - 90
- 91 - 100



CUHP INPUT PARAMETERS

Subcatchment	Area (ac)	Distance to Centroid (mi)	Length (mi)	Slope (ft/ft)	Percent Imperviousness		Depression Storage		Horton's Infiltration Parameters		Final Rate (in/hr)
					Existing	Future	Pervious	Impervious	Initial Rate (in/hr)	Decay Coefficient (1/seconds)	
U27	98.1	0.26	0.777	0.0115	2.00	71.45	0.40	0.1	3.00	0.00180	0.50
U28	69.7	0.25	0.459	0.0156	2.00	65.00	0.40	0.1	3.79	0.00180	0.55
U29	129.9	0.32	0.673	0.0150	2.00	77.18	0.40	0.1	3.99	0.00180	0.57
U30	93.6	0.53	0.936	0.0193	2.00	74.23	0.40	0.1	3.19	0.00180	0.51
U31	98.4	0.61	1.041	0.0128	2.76	84.99	0.40	0.1	3.00	0.00180	0.50
U32	77.3	0.38	0.761	0.0236	2.00	71.97	0.40	0.1	3.06	0.00180	0.50
U33	90.7	0.26	0.555	0.0131	3.03	84.37	0.40	0.1	3.00	0.00180	0.50
U34	124.3	0.24	0.941	0.0097	5.84	85.00	0.40	0.1	3.00	0.00180	0.50
U35	85.7	0.31	0.700	0.0154	41.70	46.93	0.40	0.1	3.00	0.00180	0.50
U36	67.8	0.58	0.913	0.0121	2.00	65.51	0.40	0.1	3.00	0.00180	0.50
U37	63.5	0.50	0.797	0.0152	2.74	3.58	0.40	0.1	3.00	0.00180	0.50
U38	111.0	0.37	0.713	0.0176	2.78	29.64	0.40	0.1	3.01	0.00180	0.50
U39	45.3	0.38	0.848	0.0041	2.00	4.75	0.40	0.1	3.77	0.00180	0.55
U40	27.9	0.25	0.604	0.0073	2.00	5.02	0.40	0.1	3.00	0.00180	0.50
U41	96.7	0.21	0.636	0.0246	2.00	60.18	0.40	0.1	3.03	0.00180	0.50
U42	31.9	0.21	0.503	0.0143	2.00	67.26	0.40	0.1	3.08	0.00180	0.51
U43	111.0	0.29	0.627	0.0197	2.00	62.63	0.40	0.1	3.00	0.00180	0.50
U44	86.5	0.27	0.701	0.0157	2.00	79.47	0.40	0.1	3.00	0.00180	0.50
U45	35.3	0.34	0.722	0.0164	58.10	58.10	0.40	0.1	3.23	0.00180	0.52
U46	48.4	0.27	0.565	0.0031	39.35	42.40	0.40	0.1	3.00	0.00180	0.50
U47	56.9	0.32	0.596	0.0146	2.00	65.00	0.40	0.1	3.39	0.00180	0.53
U48	88.0	0.39	0.624	0.0137	2.00	74.09	0.40	0.1	4.31	0.00180	0.59
U49	114.9	0.30	0.734	0.0135	2.00	78.07	0.40	0.1	3.10	0.00180	0.51
U50	116.7	0.81	1.177	0.0146	2.00	84.97	0.40	0.1	3.00	0.00180	0.50
U51	96.7	0.48	0.949	0.0208	2.00	79.57	0.40	0.1	3.00	0.00180	0.50
U52	30.7	0.24	0.448	0.0228	2.00	79.18	0.40	0.1	3.00	0.00180	0.50
U53	23.7	0.23	0.458	0.0149	50.21	50.21	0.40	0.1	3.00	0.00180	0.50
U54	62.5	0.21	0.515	0.0213	2.00	81.37	0.40	0.1	3.00	0.00180	0.50
U55	71.1	0.19	0.508	0.0241	2.00	75.51	0.40	0.1	3.00	0.00180	0.50
U56	78.2	0.47	0.795	0.0184	2.00	82.26	0.40	0.1	3.00	0.00180	0.50
U57	16.3	0.10	0.274	0.0228	2.00	63.58	0.40	0.1	3.00	0.00180	0.50
U58	81.5	0.17	0.516	0.0152	2.00	10.54	0.40	0.1	3.00	0.00180	0.50
U59	69.2	0.22	0.585	0.0205	2.00	3.36	0.40	0.1	3.00	0.00180	0.50
U60	59.8	0.31	0.618	0.0237	2.00	48.51	0.40	0.1	3.00	0.00180	0.50
U61	26.7	0.17	0.428	0.0256	2.00	50.25	0.40	0.1	3.00	0.00180	0.50
U62	22.0	0.05	0.259	0.0010	43.63	43.63	0.40	0.1	3.00	0.00180	0.50
U63	94.5	0.25	0.537	0.0221	2.00	68.03	0.40	0.1	3.00	0.00180	0.50
U64	81.3	0.16	0.479	0.0267	2.00	2.99	0.40	0.1	3.00	0.00180	0.50
U65	56.7	0.44	0.609	0.0237	2.00	72.55	0.40	0.1	3.00	0.00180	0.50
U66	9.7	0.08	0.264	0.0030	52.08	52.08	0.40	0.1	3.00	0.00180	0.50
U67	63.0	0.19	0.230	0.0214	2.00	73.33	0.40	0.1	3.00	0.00180	0.50

EPA SWMM MODEL Existing Land Use, 100-Year Return Period, No Area Correction Second Creek

Node	Type	Maximum	Maximum	Time of Max days hr:min	Lateral	Total	Flow	
		Lateral	Total		Inflow	Inflow	Balance	
		Inflow	Inflow		Occurrence	Volume	Volume	Error
		CFS	CFS		10^6 gal	10^6 gal	Percent	
U111	JUNCTION	91.47	91.47	0 00:45	2.48	2.48	0.000	
U111T	JUNCTION	0.00	224.46	0 00:45	0	5.77	0.000	
U112	JUNCTION	109.02	109.02	0 00:50	3.29	3.29	0.000	
U112T	JUNCTION	0.00	356.39	0 00:50	0	11	0.000	
U113	JUNCTION	169.11	988.59	0 01:10	4.56	37.9	0.000	
U114	JUNCTION	125.65	125.65	0 00:40	2.85	2.85	0.000	
U115	JUNCTION	96.33	214.98	0 00:51	3.24	6.14	0.000	
U116	JUNCTION	149.66	149.66	0 00:50	4.74	4.74	0.000	
U117	JUNCTION	41.91	41.91	0 00:55	1.69	1.69	0.000	
U117T	JUNCTION	0.00	1126.19	0 01:16	0	44.6	0.000	
U118	JUNCTION	66.80	1336.15	0 01:18	2.4	53.2	0.000	
U119	JUNCTION	131.43	1388.61	0 01:22	3.23	56.6	0.000	
U120	JUNCTION	76.28	76.28	0 00:45	2.32	2.32	0.000	
U121	JUNCTION	23.43	23.43	0 00:45	0.712	0.712	0.000	
U122	JUNCTION	100.66	184.43	0 00:55	2.83	5.95	0.000	
U123	JUNCTION	138.06	138.06	0 00:55	4.98	4.98	0.000	
U124	JUNCTION	96.73	96.73	0 00:50	3.4	3.4	0.000	
U125	JUNCTION	52.62	52.62	0 01:00	2.28	2.28	-0.000	
U125T	JUNCTION	0.00	1718.38	0 01:29	0	73.8	0.000	
U126	JUNCTION	56.07	1751.60	0 01:32	2.19	76.1	0.000	
U127	JUNCTION	105.96	1766.49	0 01:43	3.82	80.4	0.000	
U128	JUNCTION	82.25	82.25	0 00:50	2.54	2.54	0.000	
U129	JUNCTION	146.39	203.71	0 01:02	4.68	7.36	0.000	
U130	JUNCTION	78.17	250.35	0 01:22	3.59	11.3	0.000	
U131	JUNCTION	72.00	72.00	0 01:10	3.86	3.86	0.000	
U132	JUNCTION	76.47	76.47	0 00:55	3	3	0.000	
U133	JUNCTION	111.38	111.38	0 00:50	3.56	3.56	0.000	
U133T	JUNCTION	0.00	439.36	0 01:25	0	22	0.000	
U134	JUNCTION	137.84	516.61	0 01:32	4.98	27.1	0.000	
U135	JUNCTION	162.90	573.57	0 01:33	4.42	31.6	0.000	
U136	JUNCTION	45.46	45.46	0 01:10	2.64	2.64	0.000	
U137	JUNCTION	48.48	48.48	0 01:05	2.49	2.49	0.000	
U137T	JUNCTION	0.00	641.67	0 01:40	0	36.9	0.000	
U138	JUNCTION	122.81	122.81	0 00:55	4.35	4.35	0.000	
U138T	JUNCTION	0.00	2469.51	0 01:42	0	121	0.000	
U139	JUNCTION	23.90	23.90	0 01:15	1.66	1.66	0.000	
U140	JUNCTION	19.59	1284.08	0 01:23	1.09	54.2	0.000	
U141	JUNCTION	136.76	136.76	0 00:45	3.76	3.76	0.000	
U142	JUNCTION	30.50	30.50	0 00:55	1.24	1.24	0.000	
U143	JUNCTION	142.77	288.36	0 00:56	4.33	9.45	0.000	
U144	JUNCTION	96.15	368.10	0 01:06	3.37	12.9	0.000	
U146	JUNCTION	63.14	63.14	0 00:50	2.47	2.47	0.000	
U147	JUNCTION	52.61	52.61	0 00:55	2.15	2.15	0.000	
U148	JUNCTION	81.49	81.49	0 00:55	3.1	3.1	0.000	
U148T	JUNCTION	0.00	134.09	0 00:55	0	5.24	0.000	
U150	JUNCTION	79.19	79.19	0 01:10	4.55	4.55	0.000	
U151	JUNCTION	86.08	86.08	0 01:00	3.77	3.77	0.000	
U153	JUNCTION	42.71	42.71	0 00:40	1.28	1.28	0.000	
U153T	JUNCTION	0.00	578.70	0 01:05	0	25.1	0.000	
U154	JUNCTION	79.74	1006.36	0 01:09	2.44	40.5	0.000	
U155	JUNCTION	101.20	101.20	0 00:45	2.77	2.77	0.000	
U156	JUNCTION	67.98	67.98	0 01:00	3.05	3.05	0.000	
U157	JUNCTION	21.66	21.66	0 00:45	0.634	0.634	0.000	
U157T	JUNCTION	0.00	1153.87	0 01:12	0	47.1	0.000	
U158	JUNCTION	116.86	1221.72	0 01:17	3.18	50.3	0.000	
U159	JUNCTION	86.34	1266.73	0 01:23	2.7	53.1	0.000	
U159T	JUNCTION	0.00	3441.96	0 01:49	0	178	0.000	
U160	JUNCTION	63.04	63.04	0 00:50	2.33	2.33	0.000	

U161	JUNCTION	30.51	93.15	0 00:51	1.04	3.37	0.000
U162	JUNCTION	45.78	133.80	0 00:50	1.14	4.51	0.000
U163	JUNCTION	130.73	251.57	0 00:55	3.68	8.24	0.000
U164	JUNCTION	133.33	355.53	0 00:58	3.16	11.5	0.000
U166	JUNCTION	17.45	67.28	0 00:55	0.53	2.74	0.000
U167	JUNCTION	109.93	136.42	0 01:03	2.45	5.31	0.000
U168	JUNCTION	290.36	294.62	0 00:35	3.25	8.74	0.000
1010	OUTFALL	0.00	5909.83	0 06:11	0	725	0.000
M1210	DIVIDER	0.00	3857.56	0 02:07	0	225	0.000
M1236	DIVIDER	0.00	3850.14	0 02:06	0	223	0.000
M3500	DIVIDER	0.00	511.93	0 00:59	0	17.4	0.000
M4020	DIVIDER	0.00	154.18	0 00:40	0	3.3	0.000
M4030	DIVIDER	0.00	101.79	0 00:39	0	2.22	0.000
M5250	DIVIDER	0.00	23.12	0 00:50	0	0.93	0.000
M5252	DIVIDER	0.00	48.43	0 00:57	0	1.91	0.000
M5254	DIVIDER	0.00	106.85	0 00:46	0	3.91	0.000
U152	DIVIDER	31.07	31.07	0 00:50	1.2	1.2	0.000
U149	DIVIDER	130.64	455.53	0 01:05	4.44	20.2	0.000
U165	DIVIDER	51.58	51.58	0 00:55	2.21	2.21	0.000
U145	DIVIDER	62.45	62.45	0 00:45	2	2	0.000
M4018_STOR	STORAGE	0.00	269.90	0 00:50	0	9.77	0.027
M6108_STOR	STORAGE	0.00	1135.29	0 01:10	0	45.1	0.057

Node Surcharge Summary

Surcharging occurs when water rises above the top of the highest conduit.

			Max. Height	Min. Depth
Node	Type	Hours	Above Crown	Below Rim
		Surcharged	Feet	Feet
101	JUNCTION	24.00	0.000	10.000
102	JUNCTION	24.00	0.000	10.000
103	JUNCTION	24.00	0.000	10.000
104	JUNCTION	24.00	0.000	10.000
105	JUNCTION	24.00	0.000	10.000
106	JUNCTION	24.00	0.000	10.000
107	JUNCTION	24.00	0.000	10.000
108	JUNCTION	24.00	0.000	10.000
109	JUNCTION	24.00	0.000	10.000
110	JUNCTION	24.00	0.000	10.000
111	JUNCTION	24.00	0.000	10.000
112	JUNCTION	24.00	0.000	10.000
113	JUNCTION	24.00	0.000	10.000
114	JUNCTION	24.00	0.000	10.000
115	JUNCTION	24.00	0.000	10.000
116	JUNCTION	24.00	0.000	10.000
117	JUNCTION	24.00	0.000	10.000
118	JUNCTION	24.00	0.000	10.000
119	JUNCTION	24.00	0.000	10.000
120	JUNCTION	24.00	0.000	10.000
121	JUNCTION	24.00	0.000	10.000
123	JUNCTION	24.00	0.000	10.000
122	JUNCTION	24.00	0.000	10.000
124	JUNCTION	24.00	0.000	10.000
125	JUNCTION	24.00	0.000	10.000
126	JUNCTION	24.00	0.000	10.000
127	JUNCTION	24.00	0.000	10.000
128	JUNCTION	24.00	0.000	10.000
129	JUNCTION	24.00	0.000	10.000
130	JUNCTION	24.00	0.000	10.000
131	JUNCTION	24.00	0.000	10.000

EPA SWMM MODEL Existing Land Use, 100-Year Return Period, No Area Correction Second Creek

M601l	CONDUIT	1405.44	0	01:19	8.89	0.10	0.38	<div>----- LinkTypeMaximum Flow CFSTime of Max Occurrence days hr:minMaximum Veloc ft/secMax/ Full FlowMax/ Full Depth -----</div>
M601n	DUMMY	183.23	0	00:50				
M602l	CONDUIT	1150.75	0	01:18	3.96	0.00	0.11	
M602n	DUMMY	119.40	0	00:55				
M603l	CONDUIT	901.08	0	01:15	10.01	0.00	0.07	U224CONDUIT90.35001:122.500.000.09
M603n	DUMMY	253.94	0	00:35				
M605l	CONDUIT	705.36	0	01:42	7.07	0.13	0.39	
M6053	CONDUIT	840.04	0	01:16	4.57	0.01	0.17	
M605n	DUMMY	183.73	0	00:40				U225TCONDUIT1714.91001:322.990.010.07
M610l	CONDUIT	800.91	0	01:12	11.65	0.01	0.13	U226CONDUIT1711.81001:434.020.010.11
M6108n	DUMMY	668.20	0	01:50				U228CONDUIT73.39001:122.200.000.03
M610n	DUMMY	162.53	0	00:50				U229CONDUIT183.97001:261.740.040.27
M611l	CONDUIT	669.25	0	01:14	5.69	0.01	0.14	U230CONDUIT245.65001:342.590.030.20
M611n	DUMMY	113.73	0	00:45				U232CONDUIT70.16001:191.680.010.15
M612l	CONDUIT	586.57	0	01:07	5.50	0.00	0.09	U233TCONDUIT433.46001:362.790.000.09
M612n	DUMMY	103.82	0	00:50				U234CONDUIT515.57001:372.240.010.09
M613n	DUMMY	128.41	0	00:50				U235CONDUIT570.71001:422.830.000.05
M614l	CONDUIT	376.54	0	01:06	4.57	0.01	0.07	U238TCONDUIT2418.03001:544.070.010.14
M614n	DUMMY	41.48	0	01:05				U240CONDUIT1282.04001:263.490.000.10
M615n	DUMMY	64.22	0	00:50				U241CONDUIT129.46000:572.960.000.05
M616l	CONDUIT	78.93	0	01:00	3.96	0.00	0.04	U242CONDUIT28.85001:142.930.090.34
M616n	DUMMY	87.00	0	00:45				U243CONDUIT279.95001:083.820.000.09
M617l	CONDUIT	23.74	0	01:06	2.88	0.00	0.02	U244CONDUIT365.75001:123.440.000.07
M617n	DUMMY	24.57	0	00:50				U245CONDUIT61.89000:4810.580.650.59
M620l	CONDUIT	156.62	0	00:53	5.67	0.01	0.13	U248TCONDUIT125.80001:152.720.010.11
M620n	DUMMY	158.13	0	00:50				U249CONDUIT455.52001:0613.530.540.53
M625n	DUMMY	123.68	0	01:05				U250CONDUIT79.22001:152.650.000.08
M630n	DUMMY	29.76	0	00:45				U252CONDUIT31.06000:516.380.110.23
M631l	CONDUIT	45.57	0	00:43	3.90	0.00	0.03	U253TCONDUIT577.99001:074.110.010.16
M6313	CONDUIT	61.50	0	00:49	3.39	0.00	0.02	U254CONDUIT1001.77001:143.890.010.14
M631n	DUMMY	45.87	0	00:40				U257CONDUIT21.44000:483.540.200.50
M6320n	DUMMY	16.84	0	00:45				U257TCONDUIT1147.27001:183.850.000.09
M632n	DUMMY	16.84	0	00:45				U258CONDUIT1211.80001:244.000.000.10
M635l	CONDUIT	61.72	0	00:46	5.09	0.01	0.07	U260CONDUIT63.01000:555.110.110.37
M635n	DUMMY	61.83	0	00:45				U261CONDUIT93.14000:5212.470.060.12
M6400n	DUMMY	82.26	0	00:50				U262CONDUIT130.48000:593.090.010.13
M640l	CONDUIT	82.25	0	00:51	5.03	0.00	0.03	U263CONDUIT247.96001:022.620.000.07
M6403	CONDUIT	75.75	0	01:09	3.05	0.00	0.03	U265CONDUIT51.57000:568.370.160.27
M6404n	DUMMY	82.25	0	00:51				U266CONDUIT62.60001:160.780.000.04
M640n	DUMMY	82.26	0	00:50				U267CONDUIT134.34001:121.200.010.06
M6410n	DUMMY	54.65	0	00:50				U601CONDUIT107.29001:056.180.000.04
M641l	CONDUIT	195.39	0	00:45	6.12	0.00	0.04	U602CONDUIT136.54000:556.570.000.04
M641n	DUMMY	54.65	0	00:50				U603CONDUIT68.95000:505.520.000.03
M6420n	DUMMY	148.55	0	00:40				U604CONDUIT54.69000:505.200.000.03
M642n	DUMMY	148.55	0	00:40				U607CONDUIT50.52000:502.620.000.01
M645l	CONDUIT	97.51	0	00:50	4.03	0.00	0.03	U608CONDUIT58.18000:552.770.000.01
M645n	DUMMY	99.28	0	00:45				U610CONDUIT133.00000:456.430.000.09
M650l	CONDUIT	266.61	0	01:01	4.45	0.00	0.03	U611CONDUIT91.47000:455.820.000.07
M650n	DUMMY	185.19	0	01:00				U612CONDUIT109.02000:506.100.000.08
M651l	CONDUIT	81.76	0	00:59	1.13	0.00	0.03	U616CONDUIT149.66000:504.010.000.02
M651n	DUMMY	82.30	0	00:55				U617CONDUIT41.91000:552.450.000.01
M660n	DUMMY	50.82	0	00:45				U623CONDUIT138.06000:552.910.000.01
M665n	DUMMY	133.91	0	00:55				U625CONDUIT52.62001:001.990.000.01
MUS_IN_LINK	CONDUIT	3441.05	0	01:50	2.49	0.01	0.14	U627CONDUIT1766.49001:4310.980.000.07
U203T	CONDUIT	201.42	0	01:00	3.63	0.00	0.08	U631CONDUIT72.00001:104.420.000.02
U204T	CONDUIT	357.55	0	01:06	2.62	0.00	0.04	U633CONDUIT111.38000:505.010.000.02
U205	CONDUIT	470.19	0	01:09	3.10	0.00	0.04	U636CONDUIT45.46001:104.210.000.01
U206	CONDUIT	51.95	0	00:58	3.39	0.00	0.07	U637CONDUIT48.48001:054.290.000.01
U208T	CONDUIT	559.65	0	01:16	3.40	0.00	0.05	U637TCONDUIT641.67001:406.380.000.03
U209	CONDUIT	46.31	0	01:11	3.21	0.00	0.07	U638CONDUIT122.81000:555.520.000.02
U211T	CONDUIT	224.25	0	00:45	5.05	0.01	0.14	U639CONDUIT23.90001:153.490.000.01
U212T	CONDUIT	353.96	0	00:54	4.17	0.01	0.14	U646CONDUIT63.14000:504.190.000.05
U213	CONDUIT	977.54	0	01:17	3.83	0.01	0.11	U647CONDUIT52.61000:553.970.000.05
U214	CONDUIT	119.17	0	00:52	3.64	0.00	0.09	U648CONDUIT81.49000:554.510.000.06
U215	CONDUIT	213.87	0	00:55	3.03	0.00	0.03	U651CONDUIT86.08001:004.580.000.06
								U653CONDUIT42.70000:403.730.000.04

EPA SWMM MODEL

Future Land Use, 100-Year Return Period, No Area Correction

Second Creek

Node	Type	Maximum	Maximum	Time of Max		Lateral	Total	Flow
		Lateral	Total			Inflow	Inflow	Balance
		Inflow	Inflow	Occurrence	Volume	Volume	Error	
		CFS	CFS	days	hr:min	10^6 gal	10^6 gal	Percent
U111	JUNCTION	211.69	211.69	0	00:35	3.81	3.81	0.000
U111T	JUNCTION	0.00	500.70	0	00:35	0	8.66	0.000
U112	JUNCTION	254.38	254.38	0	00:35	5.02	5.02	0.000
U112T	JUNCTION	0.00	789.34	0	00:36	0	16.6	0.000
U113	JUNCTION	410.04	2192.20	0	00:52	7.21	58.2	0.000
U114	JUNCTION	268.47	268.47	0	00:35	4.22	4.22	0.000
U115	JUNCTION	217.09	461.68	0	00:40	4.76	9.02	0.000
U116	JUNCTION	356.43	356.43	0	00:35	7.23	7.23	0.000
U117	JUNCTION	107.12	107.12	0	00:40	2.65	2.65	0.000
U117T	JUNCTION	0.00	2471.00	0	00:57	0	68.3	0.000
U118	JUNCTION	190.84	2890.18	0	00:59	4.01	81.4	0.000
U119	JUNCTION	326.57	2972.82	0	01:03	5.22	86.7	0.000
U120	JUNCTION	175.27	175.27	0	00:35	3.42	3.42	0.000
U121	JUNCTION	57.33	57.33	0	00:35	1.08	1.08	0.000
U122	JUNCTION	254.96	411.44	0	00:42	4.49	9.06	0.000
U123	JUNCTION	363.42	363.42	0	00:40	7.98	7.98	0.000
U124	JUNCTION	276.10	276.10	0	00:35	5.66	5.66	0.000
U125	JUNCTION	154.07	154.07	0	00:40	3.78	3.78	0.000
U125T	JUNCTION	0.00	3665.41	0	01:08	0	114	0.000
U126	JUNCTION	149.84	3736.48	0	01:11	3.5	118	0.000
U127	JUNCTION	270.79	3736.03	0	01:19	6	124	0.000
U128	JUNCTION	205.75	205.75	0	00:35	4.05	4.05	0.000
U129	JUNCTION	412.09	502.82	0	00:43	8.1	12.3	0.000
U130	JUNCTION	219.40	601.41	0	01:00	5.81	18.7	0.000
U131	JUNCTION	221.75	221.75	0	00:45	6.49	6.49	0.000
U132	JUNCTION	203.11	203.11	0	00:40	4.75	4.75	0.000
U133	JUNCTION	314.18	314.18	0	00:35	5.95	5.95	0.000
U133T	JUNCTION	0.00	1060.38	0	01:03	0	36.2	0.000
U134	JUNCTION	384.61	1229.22	0	01:08	8.16	44.5	0.000
U135	JUNCTION	179.19	1341.00	0	01:10	4.57	49.2	0.000
U136	JUNCTION	119.59	119.59	0	00:45	4.03	4.03	0.000
U137	JUNCTION	48.73	48.73	0	01:05	2.51	2.51	-0.000
U137T	JUNCTION	0.00	1468.73	0	01:15	0	55.9	0.000
U138	JUNCTION	168.62	168.62	0	00:45	5.29	5.29	0.000
U138T	JUNCTION	0.00	5310.50	0	01:18	0	185	0.000
U139	JUNCTION	24.42	24.42	0	01:10	1.69	1.69	0.000
U140	JUNCTION	19.98	2714.83	0	01:05	1.11	79.6	0.000
U141	JUNCTION	308.75	308.75	0	00:35	5.55	5.55	0.000
U142	JUNCTION	77.56	77.56	0	00:40	1.9	1.9	0.000
U143	JUNCTION	331.96	636.40	0	00:42	6.47	14	0.000
U144	JUNCTION	265.31	808.15	0	00:49	5.51	19.6	0.000
U146	JUNCTION	66.94	66.94	0	00:50	2.51	2.51	0.000
U147	JUNCTION	134.74	134.74	0	00:40	3.34	3.34	0.000
U148	JUNCTION	234.10	234.10	0	00:40	5.37	5.37	0.000
U148T	JUNCTION	0.00	368.83	0	00:40	0	8.72	0.000
U150	JUNCTION	249.42	249.42	0	00:45	7.68	7.68	0.000
U151	JUNCTION	250.07	250.07	0	00:40	6.22	6.22	0.000
U153	JUNCTION	42.71	42.71	0	00:40	1.28	1.28	0.000
U153T	JUNCTION	0.00	1324.67	0	00:47	0	38	0.000
U154	JUNCTION	218.76	2242.52	0	00:51	4.02	61.7	0.000
U155	JUNCTION	251.89	251.89	0	00:35	4.37	4.37	0.000
U156	JUNCTION	202.04	202.04	0	00:40	5.1	5.1	0.000
U157	JUNCTION	49.84	49.84	0	00:35	0.93	0.93	0.000
U157T	JUNCTION	0.00	2556.87	0	00:54	0	72.2	0.000
U158	JUNCTION	122.73	2641.33	0	00:59	3.39	75.6	0.000
U159	JUNCTION	86.91	2694.86	0	01:05	2.73	78.6	0.000
U159T	JUNCTION	0.00	7347.85	0	01:24	0	267	0.000
U160	JUNCTION	127.64	127.64	0	00:40	3.21	3.21	0.000

U161	JUNCTION	61.34	187.82	0	00:41	1.44	4.66	0.000
U162	JUNCTION	45.78	233.17	0	00:41	1.14	5.8	0.000
U163	JUNCTION	319.16	471.78	0	00:43	5.68	11.5	0.000
U164	JUNCTION	134.09	591.03	0	00:48	3.18	14.8	0.000
U166	JUNCTION	17.45	157.60	0	00:40	0.53	4.03	0.000
U167	JUNCTION	250.72	272.35	0	00:43	3.82	8	0.000
U168	JUNCTION	290.36	437.43	0	00:40	3.25	11.4	0.000
1010	OUTFALL	0.00	9976.18	0	05:29	0	936	0.000
M1210	DIVIDER	0.00	8073.29	0	01:40	0	325	0.000
M1236	DIVIDER	0.00	8059.67	0	01:39	0	323	0.000
M3500	DIVIDER	0.00	824.83	0	00:47	0	22.2	-0.000
M4020	DIVIDER	0.00	156.35	0	00:40	0	3.32	0.000
M4030	DIVIDER	0.00	103.73	0	00:39	0	2.23	0.000
M5250	DIVIDER	0.00	63.60	0	00:35	0	1.46	0.000
M5252	DIVIDER	0.00	88.34	0	00:45	0	2.45	0.000
M5254	DIVIDER	0.00	147.12	0	00:47	0	4.44	0.000
U152	DIVIDER	87.16	87.16	0	00:35	1.96	1.96	0.000
U149	DIVIDER	354.94	1140.46	0	00:46	7.26	32	0.000
U165	DIVIDER	140.29	140.29	0	00:40	3.5	3.5	0.000
U145	DIVIDER	62.45	62.45	0	00:45	2	2	0.000
M4018_STOR	STORAGE	0.00	271.59	0	00:50	0	9.8	0.027
M6108_STOR	STORAGE	0.00	2582.53	0	00:52	0	68.3	0.023

Node Surcharge Summary								

Surcharging occurs when water rises above the top of the highest conduit.								

			Max. Height	Min. Depth				
		Hours	Above Crown	Below Rim				
Node	Type	Surcharged	Feet	Feet				

101	JUNCTION	24.00	0.000	10.000				
102	JUNCTION	24.00	0.000	10.000				
103	JUNCTION	24.00	0.000	10.000				
104	JUNCTION	24.00	0.000	10.000				
105	JUNCTION	24.00	0.000	10.000				
106	JUNCTION	24.00	0.000	10.000				
107	JUNCTION	24.00	0.000	10.000				
108	JUNCTION	24.00	0.000	10.000				
109	JUNCTION	24.00	0.000	10.000				
110	JUNCTION	24.00	0.000	10.000				
111	JUNCTION	24.00	0.000	10.000				
112	JUNCTION	24.00	0.000	10.000				
113	JUNCTION	24.00	0.000	10.000				
114	JUNCTION	24.00	0.000	10.000				
115	JUNCTION	24.00	0.000	10.000				
116	JUNCTION	24.00	0.000	10.000				
117	JUNCTION	24.00	0.000	10.000				
118	JUNCTION	24.00	0.000	10.000				
119	JUNCTION	24.00	0.000	10.000				
120	JUNCTION	24.00	0.000	10.000				
121	JUNCTION	24.00	0.000	10.000				
123	JUNCTION	24.00	0.000	10.000				
122	JUNCTION	24.00	0.000	10.000				
124	JUNCTION	24.00	0.000	10.000				
125	JUNCTION	24.00	0.000	10.000				
126	JUNCTION	24.00	0.000	10.000				
127	JUNCTION	24.00	0.000	10.000				
128	JUNCTION	24.00	0.000	10.000				
129	JUNCTION	24.00	0.000	10.000				
130	JUNCTION	24.00	0.000	10.000				
131	JUNCTION	24.00	0.000	10.000				

EPA SWMM MODEL **Future Land Use, 100-Year Return Period, No Area Correction Second Creek**

M601l	CONDUIT	2016.59	0	01:05	9.70	0.14	0.44	U217T	CONDUIT	2458.45	0	01:00	5.15	0.05	0.31
M601n	DUMMY	183.24	0	00:50				U218	CONDUIT	2866.34	0	01:03	4.66	0.02	0.16
M602l	CONDUIT	1727.44	0	00:59	4.38	0.01	0.14	U219	CONDUIT	2910.36	0	01:10	4.35	0.02	0.12
M602n	DUMMY	123.17	0	00:55				U220	CONDUIT	158.92	0	00:45	3.45	0.02	0.19
M603l	CONDUIT	1395.60	0	00:51	11.19	0.00	0.09	U221	CONDUIT	47.68	0	00:49	2.40	0.00	0.08
M603n	DUMMY	258.33	0	00:35				U222	CONDUIT	373.62	0	00:54	3.74	0.01	0.12
M605l	CONDUIT	1051.47	0	01:30	6.61	0.20	0.47	U224	CONDUIT	237.84	0	00:49	3.28	0.01	0.14
M6053	CONDUIT	1257.28	0	01:07	5.06	0.02	0.21	U225T	CONDUIT	3657.09	0	01:11	3.85	0.01	0.11
M605n	DUMMY	392.32	0	00:35				U226	CONDUIT	3635.81	0	01:20	5.00	0.02	0.17
M610l	CONDUIT	1793.20	0	00:54	14.69	0.03	0.20	U228	CONDUIT	168.06	0	00:53	2.83	0.00	0.05
M6108n	DUMMY	1020.79	0	01:32				U229	CONDUIT	430.32	0	01:02	2.28	0.08	0.38
M610n	DUMMY	341.22	0	00:40				U230	CONDUIT	586.97	0	01:09	3.29	0.06	0.30
M611l	CONDUIT	1534.34	0	00:55	7.10	0.02	0.21	U232	CONDUIT	171.59	0	00:57	2.15	0.03	0.23
M611n	DUMMY	309.71	0	00:35				U233T	CONDUIT	1046.22	0	01:11	3.52	0.01	0.13
M612l	CONDUIT	1367.25	0	00:49	6.94	0.01	0.14	U234	CONDUIT	1226.48	0	01:12	2.94	0.02	0.14
M612n	DUMMY	272.68	0	00:35				U235	CONDUIT	1332.76	0	01:16	3.75	0.01	0.08
M613n	DUMMY	201.73	0	00:45				U238T	CONDUIT	5176.37	0	01:28	4.96	0.01	0.18
M614l	CONDUIT	959.05	0	00:47	6.32	0.01	0.12	U240	CONDUIT	2706.14	0	01:07	4.22	0.01	0.14
M614n	DUMMY	120.05	0	00:45				U241	CONDUIT	281.09	0	00:44	3.87	0.00	0.08
M615n	DUMMY	181.12	0	00:35				U242	CONDUIT	69.11	0	00:54	3.71	0.23	0.51
M616l	CONDUIT	188.64	0	00:45	5.19	0.00	0.06	U243	CONDUIT	602.81	0	00:51	4.75	0.01	0.13
M616n	DUMMY	221.28	0	00:35				U244	CONDUIT	798.53	0	00:54	4.32	0.01	0.10
M617l	CONDUIT	65.21	0	00:45	3.91	0.00	0.03	U245	CONDUIT	61.89	0	00:48	10.58	0.65	0.59
M617n	DUMMY	70.28	0	00:35				U248T	CONDUIT	325.81	0	00:54	3.49	0.01	0.17
M620l	CONDUIT	156.62	0	00:53	5.67	0.01	0.13	U249	CONDUIT	991.39	0	01:02	16.19	1.16	1.00
M620n	DUMMY	158.13	0	00:50				U250	CONDUIT	248.42	0	00:46	3.60	0.01	0.14
M625n	DUMMY	124.14	0	01:05				U252	CONDUIT	86.98	0	00:35	8.53	0.32	0.39
M630n	DUMMY	29.76	0	00:45				U253T	CONDUIT	1320.17	0	00:49	5.10	0.03	0.23
M631l	CONDUIT	46.68	0	00:42	3.92	0.00	0.03	U254	CONDUIT	2225.15	0	00:56	4.90	0.02	0.19
M6313	CONDUIT	62.58	0	00:49	3.42	0.00	0.02	U257	CONDUIT	48.46	0	00:38	4.39	0.46	0.72
M631n	DUMMY	46.99	0	00:40				U257T	CONDUIT	2534.33	0	00:59	4.74	0.01	0.13
M6320n	DUMMY	16.84	0	00:45				U258	CONDUIT	2617.54	0	01:05	4.89	0.01	0.14
M632n	DUMMY	16.84	0	00:45				U260	CONDUIT	127.05	0	00:41	6.13	0.22	0.51
M635l	CONDUIT	61.72	0	00:46	5.09	0.01	0.07	U261	CONDUIT	187.76	0	00:41	15.82	0.12	0.19
M635n	DUMMY	61.83	0	00:45				U262	CONDUIT	222.99	0	00:50	3.58	0.01	0.16
M6400n	DUMMY	155.59	0	00:40				U263	CONDUIT	462.97	0	00:49	3.25	0.01	0.10
M640l	CONDUIT	154.95	0	00:41	6.24	0.00	0.05	U265	CONDUIT	140.16	0	00:40	11.04	0.43	0.46
M6403	CONDUIT	138.23	0	00:55	3.59	0.00	0.04	U266	CONDUIT	138.62	0	00:55	1.07	0.01	0.07
M6404n	DUMMY	154.95	0	00:41				U267	CONDUIT	265.66	0	00:53	1.57	0.02	0.09
M640n	DUMMY	155.59	0	00:40				U601	CONDUIT	273.88	0	00:40	7.83	0.00	0.06
M6410n	DUMMY	153.72	0	00:35				U602	CONDUIT	344.32	0	00:40	8.29	0.00	0.06
M641l	CONDUIT	306.79	0	00:41	6.91	0.00	0.05	U603	CONDUIT	168.22	0	00:40	6.92	0.00	0.05
M641n	DUMMY	153.72	0	00:35				U604	CONDUIT	134.18	0	00:35	6.54	0.00	0.04
M6420n	DUMMY	155.70	0	00:40				U607	CONDUIT	116.78	0	00:35	3.63	0.00	0.01
M642n	DUMMY	155.70	0	00:40				U608	CONDUIT	150.68	0	00:40	4.00	0.00	0.01
M645l	CONDUIT	198.39	0	00:40	5.08	0.00	0.04	U610	CONDUIT	289.03	0	00:35	7.87	0.01	0.13
M645n	DUMMY	207.08	0	00:35				U611	CONDUIT	211.67	0	00:35	7.26	0.00	0.11
M650l	CONDUIT	733.02	0	00:42	6.13	0.00	0.05	U612	CONDUIT	254.36	0	00:35	7.62	0.01	0.12
M650n	DUMMY	512.12	0	00:40				U616	CONDUIT	356.41	0	00:35	5.57	0.00	0.03
M651l	CONDUIT	228.25	0	00:41	1.58	0.00	0.05	U617	CONDUIT	107.11	0	00:40	3.52	0.00	0.01
M651n	DUMMY	229.64	0	00:40				U623	CONDUIT	363.41	0	00:40	4.25	0.00	0.02
M660n	DUMMY	131.04	0	00:35				U625	CONDUIT	154.07	0	00:40	3.04	0.00	0.01
M665n	DUMMY	352.08	0	00:40				U627	CONDUIT	3736.03	0	01:19	13.26	0.00	0.09
MUS_IN_LINK	CONDUIT	7345.22	0	01:25	3.01	0.01	0.19	U631	CONDUIT	221.75	0	00:45	6.06	0.00	0.03
U203T	CONDUIT	493.66	0	00:45	4.45	0.00	0.11	U633	CONDUIT	314.16	0	00:35	6.66	0.00	0.04
U204T	CONDUIT	877.16	0	00:48	3.58	0.00	0.07	U636	CONDUIT	119.59	0	00:45	5.49	0.00	0.02
U205	CONDUIT	1126.63	0	00:50	4.16	0.00	0.07	U637	CONDUIT	48.73	0	01:05	4.29	0.00	0.01
U206	CONDUIT	124.17	0	00:43	4.29	0.00	0.11	U637T	CONDUIT	1468.73	0	01:15	8.54	0.00	0.04
U208T	CONDUIT	1321.23	0	00:56	4.55	0.01	0.08	U638	CONDUIT	168.62	0	00:45	6.01	0.00	0.02
U209	CONDUIT	105.98	0	00:52	3.99	0.00	0.11	U639	CONDUIT	24.42	0	01:10	3.51	0.00	0.01
U211T	CONDUIT	498.58	0	00:35	6.19	0.02	0.20	U646	CONDUIT	66.94	0	00:50	4.26	0.00	0.05
U212T	CONDUIT	775.02	0	00:42	5.15	0.02	0.20	U647	CONDUIT	134.74	0	00:40	5.20	0.00	0.07
U213	CONDUIT	2157.61	0	00:58	4.94	0.03	0.16	U648	CONDUIT	234.09	0	00:40	6.05	0.00	0.10
U214	CONDUIT	245.57	0	00:41	4.48	0.01	0.12	U651	CONDUIT	250.06	0	00:40	6.16	0.00	0.10
U215	CONDUIT	457.24	0	00:43	3.91	0.00	0.05	U653	CONDUIT	42.70	0	00:40	3.73	0.00	0.04

Second Creek Baseline Hydrology: Peak Flow Summary

Design Point	Drainage Area		2-Year			5-Year			10-Year			25-Year			50-Year			100-Year			500-Year		
			Existing	Future	Natural	Existing	Future	Natural	Existing	Future	Natural	Existing	Future	Natural	Existing	Future	Natural	Existing	Future	Natural	Existing	Future	Natural
	(acres)	(sq. mi)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
U142	31.9	0.05	0.2	17.9	0.2	1.5	25.6	1.5	5.7	33.9	5.7	15.8	51.6	15.8	22.3	63.7	22.3	30.5	77.6	30.5	48.8	111.0	48.8
U143	239.7	0.37	1.2	123.8	1.2	11.9	185.0	11.9	49.4	253.4	49.4	146.5	407.7	146.5	209.2	514.1	209.2	288.4	636.4	288.4	466.8	933.1	466.8
U144	326.2	0.51	1.3	155.2	1.3	13.6	232.9	13.6	59.0	316.2	59.0	181.6	514.5	181.6	262.4	648.5	262.4	368.1	808.2	368.1	599.9	1189.5	599.9
U145	35.3	0.06	12.5	12.5	0.2	18.2	18.2	1.1	24.8	24.8	4.4	40.2	40.2	13.1	50.2	50.2	18.5	62.5	62.5	26.0	90.7	90.7	42.0
U146	48.4	0.08	8.7	10.0	0.2	14.1	15.7	1.8	21.2	22.2	6.4	28.4	41.1	18.0	40.6	52.7	25.4	62.1	66.0	25.6	84.5	88.5	57.2
U147	56.9	0.09	0.4	30.3	0.4	1.9	43.1	1.9	8.8	57.2	8.8	27.0	88.9	27.0	38.1	110.2	38.1	52.6	134.7	52.6	85.0	193.9	85.0
U148	88.0	0.14	0.5	59.0	0.5	1.0	81.2	1.0	10.1	104.1	10.1	39.9	156.9	39.9	58.1	192.6	58.1	81.5	234.1	81.5	133.5	333.2	133.5
U148T	144.9	0.23	0.9	89.3	0.9	2.9	124.3	2.9	18.9	161.3	18.9	67.0	245.8	67.0	96.2	302.9	96.2	134.1	368.8	134.1	218.5	527.0	218.5
U149	508.5	0.79	14.0	273.8	2.2	31.6	385.7	15.8	83.1	496.3	66.2	230.8	757.1	209.8	326.3	932.5	302.3	455.5	1140.5	427.5	734.8	1638.1	697.9
U150	116.7	0.18	0.5	69.0	0.5	4.0	94.6	4.0	14.1	118.1	14.1	39.8	171.6	39.8	56.6	207.7	56.6	79.2	249.4	79.2	127.8	349.6	127.8
U151	96.7	0.15	0.6	66.7	0.6	4.6	92.7	4.6	16.0	117.5	16.0	44.3	170.8	44.3	62.4	208.1	62.4	86.1	250.1	86.1	137.9	352.5	137.9
U152	30.7	0.05	0.2	23.5	0.2	1.7	32.9	1.7	6.0	41.8	6.0	16.3	59.4	16.3	22.9	72.5	22.9	31.1	87.2	31.1	49.7	123.1	49.7
U153	23.7	0.04	7.6	7.6	0.2	11.6	11.6	1.1	16.4	16.4	3.8	27.2	27.2	10.6	34.6	34.6	14.9	42.7	42.7	20.4	62.9	62.9	32.7
U153T	611.3	0.96	30.1	311.1	2.7	57.6	440.1	20.2	122.3	569.8	81.3	302.5	875.9	252.2	420.1	1128.7	362.4	578.7	1324.7	512.0	921.9	1906.7	834.0
U154	999.9	1.56	29.7	472.7	3.5	63.4	688.6	32.1	180.2	911.4	145.0	505.3	1450.0	458.2	719.6	1855.5	664.2	1006.4	2242.5	940.3	1626.6	3268.6	1536.5
U155	71.1	0.11	0.8	66.5	0.8	6.0	93.1	6.0	20.3	119.4	20.3	53.3	168.8	53.3	74.9	206.4	74.9	101.2	251.9	101.2	160.6	355.2	160.6
U156	78.2	0.12	0.5	55.3	0.5	3.6	76.4	3.6	12.7	96.1	12.7	34.9	138.8	34.9	49.3	168.5	49.3	68.0	202.0	68.0	108.9	283.9	108.9
U157	16.3	0.03	0.2	11.3	0.2	1.3	16.3	1.3	4.3	21.9	4.3	11.4	32.5	11.4	15.9	40.4	15.9	21.7	49.8	21.7	34.4	71.5	34.4
U157T	1165.5	1.82	27.8	536.5	3.4	68.9	784.4	36.0	201.9	1035.6	165.2	572.3	1647.7	522.8	820.5	2116.3	762.9	1153.9	2556.9	1085.0	1876.9	3735.4	1782.7
U158	1247.0	1.95	26.4	532.0	3.3	70.0	784.2	36.9	209.9	1045.3	171.6	599.6	1685.6	548.2	865.1	2155.3	805.2	1221.7	2641.3	1150.2	1999.4	3876.0	1902.4
U159	1316.2	2.06	24.7	521.1	3.1	69.6	773.4	36.9	214.2	1040.2	174.7	616.4	1699.4	563.5	893.7	2179.1	832.1	1266.7	2694.9	1193.4	2085.2	3959.4	1985.7
U159T	4450.5	6.95	31.1	981.2	0.0	54.5	1542.5	8.5	165.4	2113.9	114.8	1503.9	4375.3	1462.4	2316.3	5640.3	2268.9	3442.0	7347.9	3391.6	6014.6	11159.1	5944.2
U160	59.8	0.09	0.5	22.2	0.5	3.6	34.0	3.6	12.2	48.6	12.2	33.1	80.8	33.1	46.5	102.8	46.5	63.0	127.6	63.0	100.9	187.7	100.9
U161	86.5	0.14	0.7	32.8	0.7	5.2	50.2	5.2	18.0	71.5	18.0	48.8	118.9	48.8	68.6	151.2	68.6	93.2	187.8	93.2	148.9	276.1	148.9
U162	108.5	0.17	7.4	39.9	0.8	15.0	61.4	6.5	32.4	87.9	22.7	73.9	147.1	61.6	100.6	187.4	86.6	133.8	233.2	117.7	209.0	343.3	188.0
U163	203.0	0.32	6.9	87.1	1.0	19.4	130.5	10.1	51.4	180.0	40.3	132.9	297.3	118.0	185.6	377.4	168.6	251.6	471.8	232.3	400.8	697.4	375.5
U164	284.3	0.44	6.1	83.8	1.0	20.7	132.8	11.7	63.9	198.9	52.7	180.3	357.6	164.4	257.0	463.4	238.0	355.5	591.0	334.4	574.6	891.3	545.8
U165	56.7	0.09	0.4	34.6	0.4	2.8	48.8	2.8	9.7	63.0	9.7	26.8	94.4	26.8	37.8	115.9	37.8	51.6	140.3	51.6	82.7	199.4	82.7
U166	66.3	0.10	3.5	37.7	0.4	7.2	53.6	3.2	15.8	69.8	11.2	36.7	105.5	31.0	50.1	129.9	43.6	67.3	157.6	59.6	105.6	224.8	95.6
U167	129.4	0.20	2.3	66.2	0.9	7.0	92.7	6.7	22.7	120.5	22.7	64.8	174.1	58.5	94.6	218.2	85.9	136.4	272.4	126.4	225.4	409.5	211.3
U168	216.1	0.34	2.5	48.2	2.5	18.5	77.6	18.5	71.4	126.6	71.4	153.3	251.6	153.3	218.8	338.3	218.8	294.6	437.4	294.6	462.0	686.3	462.2

Second Creek Baseline Hydrology: Peak Volume Summary

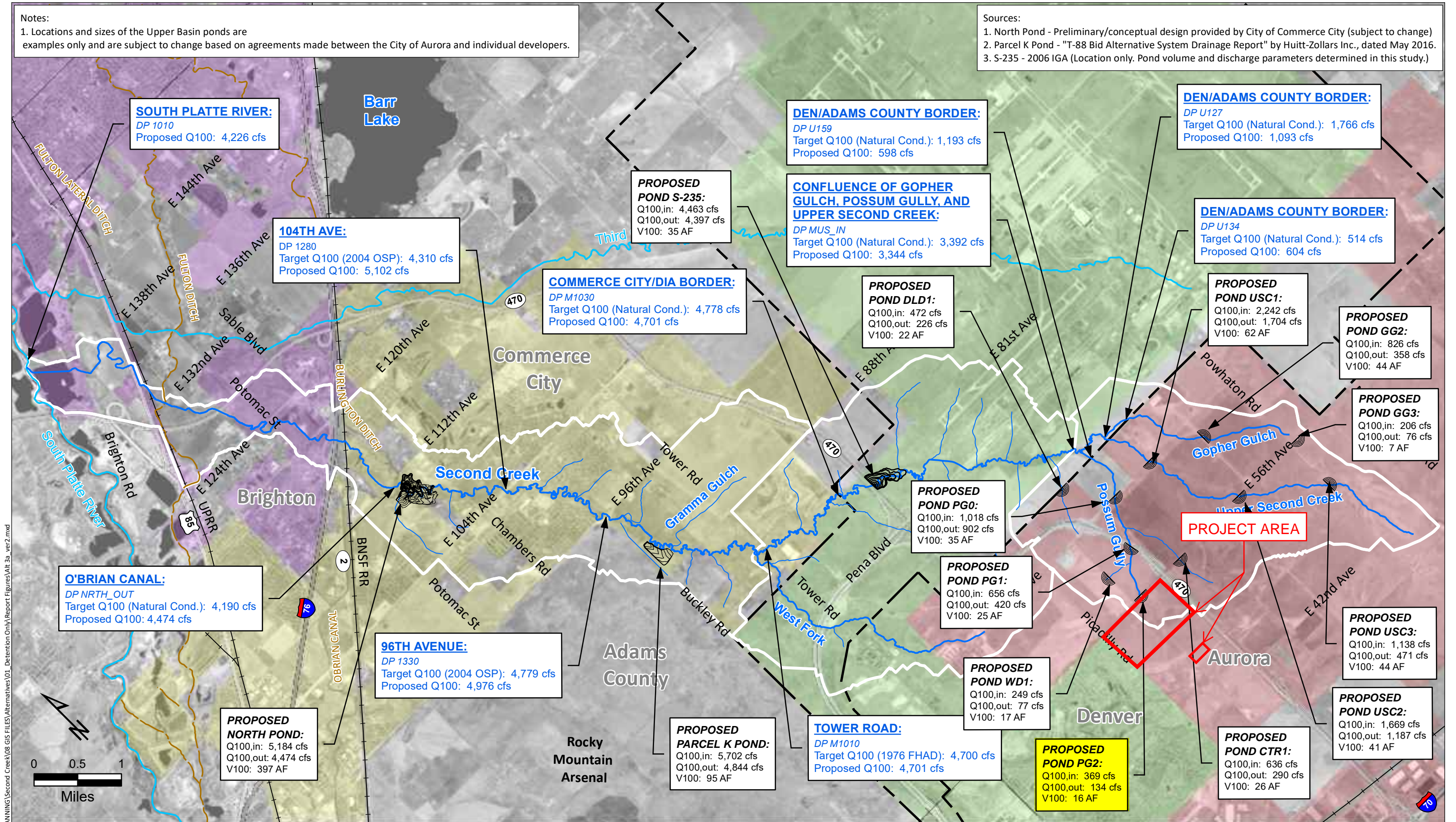
Design Point	Drainage Area		2-Year			5-Year			10-Year			25-Year			50-Year			100-Year			500-Year		
			Existing	Future	Natural	Existing	Future	Natural	Existing	Future	Natural	Existing	Future	Natural	Existing	Future	Natural	Existing	Future	Natural	Existing	Future	Natural
	(acres)	(sq. mi)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
U130	293.2	0.46	0.2	15.9	0.2	0.9	22.2	0.9	5.1	28.7	5.1	16.8	39.3	16.8	24.5	47.9	24.5	34.7	57.4	34.7	57.7	81.6	57.7
U131	98.4	0.15	0.1	5.8	0.1	0.6	8.1	0.6	2.2	10.4	2.1	5.9	13.9	5.8	8.4	16.8	8.4	11.8	19.9	11.8	19.4	28.0	19.3
U132	77.3	0.12	0.1	3.8	0.1	0.4	5.4	0.4	1.6	7.1	1.6	4.5	9.9	4.5	6.5	12.1	6.5	9.2	14.6	9.2	15.1	20.9	15.1
U133	90.7	0.14	0.1	5.3	0.1	0.6	7.4	0.5	2.0	9.5	2.0	5.4	12.7	5.3	7.8	15.4	7.7	10.9	18.3	10.8	17.9	25.7	17.8
U133T	559.6	0.87	0.4	31.3	0.3	2.6	43.9	2.4	11.2	56.5	11.1	33.1	76.4	32.8	47.9	93.0	47.6	67.5	111.1	67.2	110.8	157.1	110.5
U134	683.9	1.07	0.7	39.0	0.4	3.7	54.6	3.2	14.5	70.0	13.9	41.1	94.5	40.5	59.2	114.8	58.6	83.2	136.6	82.6	136.3	193.0	135.6
U135	769.6	1.20	3.0	41.7	0.5	7.3	58.9	3.8	19.8	75.8	15.9	49.4	103.4	45.7	70.3	126.1	66.0	97.0	151.0	93.0	156.8	213.9	152.5
U136	67.8	0.11	0.1	3.0	0.1	0.4	4.4	0.4	1.5	5.8	1.5	4.0	8.2	4.0	5.8	10.2	5.8	8.1	12.4	8.1	13.3	17.9	13.3
U137	63.5	0.10	0.1	0.1	0.1	0.4	0.4	0.4	1.4	1.5	1.4	3.8	3.8	3.7	5.5	5.5	5.4	7.6	7.7	7.6	12.5	12.6	12.5
U137T	901.0	1.41	3.3	45.1	0.5	8.0	63.8	4.1	22.7	83.5	18.5	57.7	116.0	53.7	81.9	142.4	77.6	113.2	171.6	109.3	183.2	245.2	178.9
U138	111.0	0.17	0.1	1.9	0.1	0.7	3.3	0.6	2.5	5.4	2.4	6.6	9.5	6.5	9.5	12.6	9.4	13.3	16.2	13.3	21.9	25.0	21.8
U138T	3061.2	4.78	2.7	135.6	0.0	7.3	191.8	3.2	46.6	252.3	42.4	185.1	380.5	180.8	266.1	469.5	261.5	371.3	567.7	368.3	607.6	816.3	604.6
U139	45.3	0.07	0.0	0.1	0.0	0.1	0.2	0.1	0.7	0.8	0.7	2.4	2.5	2.4	3.6	3.7	3.6	5.1	5.2	5.1	8.5	8.7	8.5
U140	1344.1	2.10	4.2	58.9	0.6	11.8	85.0	7.3	33.5	113.2	28.4	84.1	161.4	79.2	119.7	201.0	114.8	166.3	244.3	161.4	269.8	352.9	264.5
U141	96.7	0.15	0.1	3.9	0.1	0.5	5.7	0.5	2.1	7.7	2.1	5.7	11.2	5.7	8.2	13.9	8.2	11.5	17.0	11.5	19.0	24.9	19.0
U142	31.9	0.05	0.0	1.4	0.0	0.2	2.1	0.2	0.7	2.8	0.7	1.9	3.9	1.9	2.7	4.8	2.7	3.8	5.8	3.8	6.2	8.4	6.2
U143	239.7	0.37	0.2	10.2	0.2	1.5	14.8	1.5	5.3	19.9	5.3	14.3	28.4	14.3	20.7	35.3	20.7	29.0	43.0	29.0	47.6	62.6	47.6
U144	326.2	0.51	0.3	15.1	0.3	2.0	21.7	2.0	7.3	28.7	7.3	19.7	40.2	19.7	28.3	49.7	28.3	39.6	60.2	39.6	64.8	86.8	64.8
U145	35.3	0.06	1.4	1.4	0.0	2.0	2.0	0.2	2.7	2.7	0.7	4.0	4.0	2.0	5.0	5.0	2.9	6.1	6.1	4.1	9.0	9.0	6.8
U146	48.4	0.08	1.2	1.3	0.0	1.9	2.0	0.3	2.8	3.0	1.0	4.6	4.8	2.9	6.0	6.1	4.1	7.6	7.7	5.8	11.4	11.6	9.5
U147	56.9	0.09	0.0	2.5	0.0	0.2	3.6	0.2	1.0	4.7	1.0	3.2	6.8	3.2	4.6	8.4	4.6	6.6	10.3	6.6	11.0	14.9	11.0
U148	88.0	0.14	0.1	4.4	0.1	0.1	6.2	0.1	1.0	8.0	1.0	4.4	11.2	4.4	6.5	13.7	6.5	9.5	16.5	9.5	16.1	23.7	16.1
U148T	144.9	0.23	0.1	6.8	0.1	0.3	9.7	0.3	2.1	12.7	2.1	7.5	18.0	7.5	11.1	22.1	11.1	16.1	26.8	16.1	27.1	38.7	27.1
U149	508.5	0.79	1.7	26.9	0.4	4.2	38.1	2.4	11.9	49.1	9.9	31.0	67.2	29.1	44.5	82.2	42.4	62.0	98.2	59.8	101.0	139.9	98.8
U150	116.7	0.18	0.1	6.8	0.1	0.7	9.6	0.7	2.5	12.3	2.5	6.9	16.4	6.9	9.9	19.9	9.9	14.0	23.6	14.0	22.9	33.1	22.9
U151	96.7	0.15	0.1	5.3	0.1	0.6	7.5	0.6	2.1	9.7	2.1	5.7	13.1	5.7	8.2	16.0	8.2	11.6	19.1	11.6	19.0	27.1	19.0
U152	30.7	0.05	0.0	1.7	0.0	0.2	2.4	0.2	0.7	3.0	0.7	1.8	4.1	1.8	2.6	5.0	2.6	3.7	6.0	3.7	6.0	8.5	6.0
U153	23.7	0.04	0.8	0.8	0.0	1.2	1.2	0.1	1.6	1.6	0.5	2.5	2.5	1.4	3.2	3.2	2.0	3.9	3.9	2.8	5.8	5.8	4.6
U153T	611.3	0.96	3.7	30.6	0.5	7.5	43.6	3.0	17.0	56.8	12.1	39.9	78.6	35.3	56.2	97.3	50.9	77.0	116.6	72.1	124.3	166.3	119.1
U154	999.9	1.56	4.1	49.4	0.8	9.9	70.3	5.4	25.8	92.1	20.9	63.5	127.7	58.6	89.9	157.7	85.0	124.3	189.4	119.7	201.6	270.7	196.4
U155	71.1	0.11	0.1	3.6	0.1	0.4	5.1	0.4	1.5	6.7	1.5	4.2	9.1	4.2	6.0	11.2	6.0	8.5	13.4	8.5	14.0	19.1	14.0
U156	78.2	0.12	0.1	4.4	0.1	0.5	6.3	0.5	1.7	8.0	1.7	4.6	10.8	4.6	6.7	13.2	6.7	9.4	15.7	9.4	15.3	22.1	15.3
U157	16.3	0.03	0.0	0.7	0.0	0.1	1.0	0.1	0.3	1.3	0.3	1.0	1.9	1.0	1.4	2.3	1.4	1.9	2.9	1.9	3.2	4.1	3.2
U157T	1165.5	1.82	4.2	58.3	0.9	11.0	82.9	6.4	29.5	108.3	24.5	73.3	149.8	68.4	104.3	184.4	99.1	144.5	221.6	139.6	234.5	316.1	228.9
U158	1247.0	1.95	4.3	58.9	0.9	11.5	84.1	6.9	31.3	110.8	26.3	78.3	155.3	73.7	111.4	192.4	106.5	154.4	232.0	149.5	250.7	334.5	245.5
U159	1316.2	2.06	4.5	59.2	1.0	11.9	85.0	7.4	32.8	112.9	28.0	82.6	159.9	77.9	117.5	198.9	112.6	163.0	241.2	158.4	264.5	346.8	259.3
U159T	4450.5	6.95	5.9	179.2	0.0	12.3	255.3	3.9	44.2	331.4	34.4	272.5	546.3	263.3	389.7	675.2	380.5	546.3	819.4	537.1	890.0	1181.5	880.8
U160	59.8	0.09	0.0	1.9	0.0	0.3	2.9	0.3	1.3	4.1	1.3	3.5	6.2	3.5	5.1	7.9	5.1	7.2	9.9	7.2	11.7	14.7	11.7
U161	86.5	0.14	0.1	2.7	0.1	0.5	4.2	0.5	1.9	5.9	1.9	5.1	9.0	5.1	7.4	11.5	7.4	10.3	14.3	10.3	17.0	21.2	17.0
U162	108.5	0.17	0.7	3.3	0.1	1.5	5.1	0.6	3.3	7.3	2.3	7.3	11.2	6.4	10.2	14.3	9.2	13.8	17.8	13.0	22.2	26.5	21.3
U163	203.0	0.32	0.8	7.8	0.2	2.1	11.5	1.2	5.3	15.7	4.4	12.9	23.0	12.1	18.3	28.8	17.4	25.3	35.3	24.5	40.8	51.9	39.9
U164	284.3	0.44	0.9	8.1	0.3	2.6	12.2	1.8	7.2	17.7	6.3	17.9	28.0	17.0	25.4	35.9	24.6	35.3	45.4	34.4	57.1	67.8	56.2
U165	56.7	0.09	0.0	2.8	0.0	0.3	4.0	0.3	1.2	5.2	1.2	3.3	7.3	3.3	4.8	8.9	4.8	6.8	10.7	6.8	11.1	15.4	11.1
U166	66.3	0.10	0.4	3.1	0.1	0.8	4.5	0.4	1.9	5.9	1.4	4.4	8.3	3.9	6.1	10.3	5.6	8.4	12.4	7.9	13.5	17.8	13.0
U167	129.4	0.20	0.5	6.5	0.1	1.3	9.3	0.9	3.5	12.1	3.0	8.3	16.7	7.9	11.8	20.4	11.4	16.3	24.6	15.8	26.3	35.0	25.8
U168	216.1	0.34	0.6	7.0	0.2	2.0	10.2	1.5	5.6	14.3	5.1	13.7	22.0	13.2	19.4	27.9	18.9	26.8	35.0	26.4	43.3	51.9	42.7

Area Correction Summary

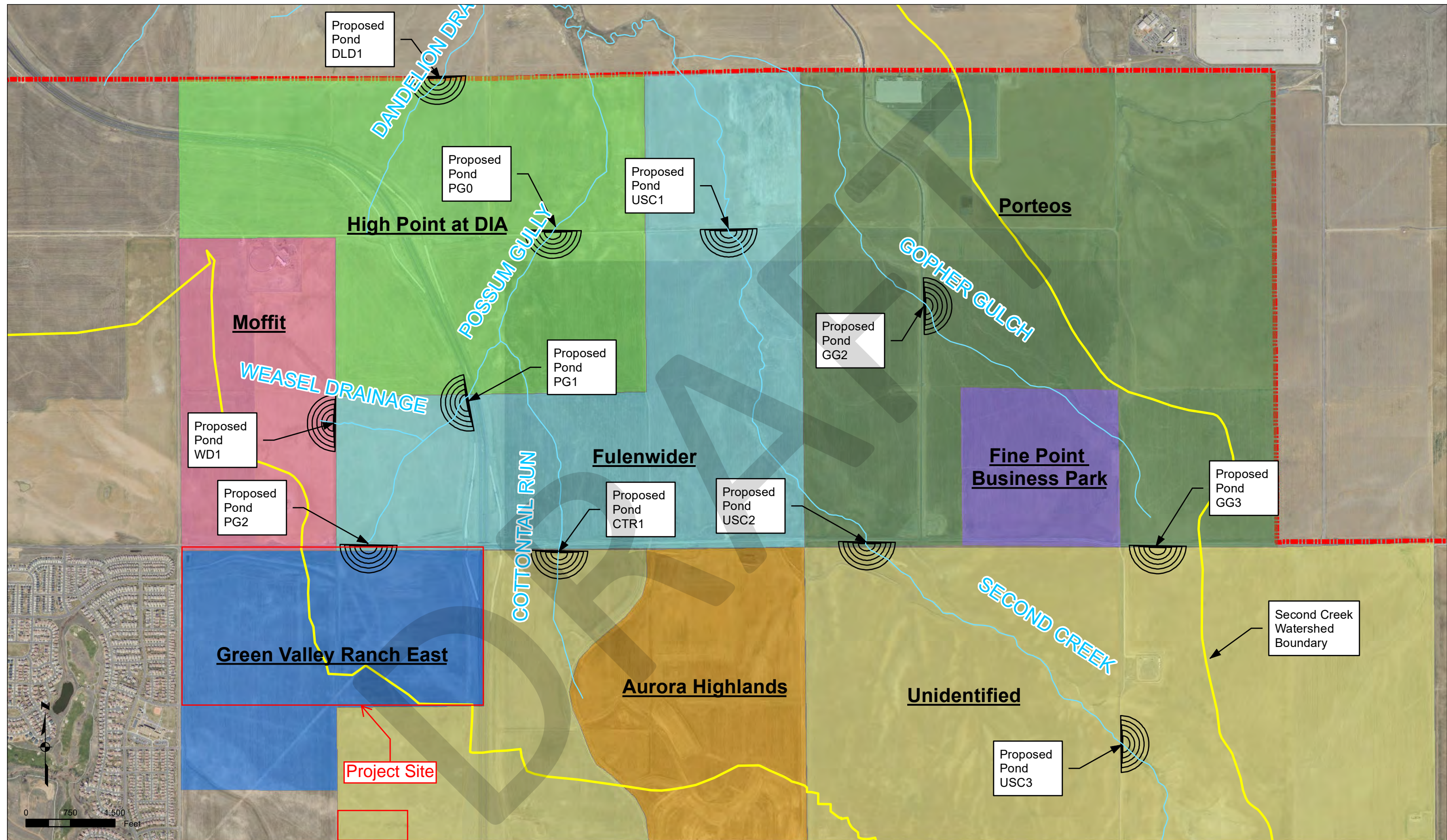
Design Point	Location	Drainage Area		Area Correction	Area Correction
		(acres)	(sq. mi)	Minor Storms	Major Storms
				2-year, 5-year, 10-year	25-year, 50-year, 100-year, 500-year
U145		35.3	0.06	0	0
U146		48.4	0.08	0	0
U147		56.9	0.09	0	0
U148		88.0	0.14	0	0
U148T		144.9	0.23	0	0
U149		508.5	0.79	0	0
U150		116.7	0.18	0	0
U151		96.7	0.15	0	0
U152		30.7	0.05	0	0
U153		23.7	0.04	0	0
U153T		611.3	0.96	0	0
U154		999.9	1.56	0	0
U155		71.1	0.11	0	0
U156		78.2	0.12	0	0
U157		16.3	0.03	0	0
U157T		1165.5	1.82	0	0
U158		1247.0	1.95	0	0
U159		1316.2	2.06	0	0
U159T	Confluence with Possum Gully	4450.5	6.95	7	0
U160		59.8	0.09	0	0
U161		86.5	0.14	0	0
U162		108.5	0.17	0	0
U163		203.0	0.32	0	0
U164		284.3	0.44	0	0
U165		56.7	0.09	0	0
U166		66.3	0.10	0	0
U167		129.4	0.20	0	0
U168		216.1	0.34	0	0

Notes:
1. Locations and sizes of the Upper Basin ponds are examples only and are subject to change based on agreements made between the City of Aurora and individual developers.

Sources:
1. North Pond - Preliminary/conceptual design provided by City of Commerce City (subject to change)
2. Parcel K Pond - "T-88 Bid Alternative System Drainage Report" by Huitt-Zollars Inc., dated May 2016.
3. S-235 - 2006 IGA (Location only. Pond volume and discharge parameters determined in this study.)



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Urban Drainage and Flood Control District,
Adams County, City of Aurora, City of Brighton,
City of Commerce City, Denver International Airport

Second Creek Major Drainageway Plan

Proposed Ponds
Upper Basin

Figure F-1