

FINAL DRAINAGE LETTER FOR LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO. 2 EL PASO COUNTY, COLORADO

Prepared for:

DTV Meadowbrook LLC
106 S. Kyrene Road #2
Chandler, AZ 85226
(480) 313-2724

PCD File # PPR2345

Prepared by:

M&S Civil Consultants
212 N. Wahsatch Avenue
Suite 305
Colorado Springs, CO 80903 (719) 955-5485

February 2023

Project #10-025
PCD Filing No.:



**FINAL DRAINAGE LETTER FOR LOT 2 CLAREMONT
BUSINESS PARK 2 FILING NO. 2
EL PASO COUNTY COLORADO**

DRAINAGE PLAN STATEMENTS

ENGINEERS STATEMENT

The attached drainage plan and report was prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the County for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.



Please provide signatures and stamp

Virgil A. Sanchez, P.E. #37160
For and on Behalf of M&S Civil Consultants, Inc

DEVELOPER'S STATEMENT

I, the developer(s) have read and will comply with all the requirements specified in this drainage report and plan.

BY: _____

TITLE: _____ DATE: _____

ADDRESS: Brian Zurek
106 S. Kryene Road
Chandler, AZ 85226

EL PASO COUNTY'S STATEMENT

Filed in accordance with the requirements of El Paso County Land Development Code, Drainage Criteria Manual Volumes 1 and 2, and the Engineering Manual, as amended.

BY: _____ DATE: _____

Joshua Palmer, P.E.
County Engineer / ECM Administrator

CONDITIONS:

**FINAL DRAINAGE LETTER FOR CLAREMONT
BUSINESS PARK 2 FILING NO. 2
EL PASO COUNTY COLORADO**

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FINAL DRAINAGE LETTER FOR LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO. 2 EL PASO COUNTY COLORADO

Purpose

This Final Drainage Letter for Lot 2 Claremont Business Park 2 Filing No. 2 is in support of the commercial layout for the south half of Lot 2 and Construction Drawings of the subject site and to show the general conformance with the drainage patterns established by the **Final Drainage Report for Claremont Business Park 2 Filing No. 2** prepared by M&S Civil Consultants, Inc. This letter functions to identify the existing and proposed runoff patterns and recommend proposed drainage improvements which are intended to safely convey runoff through the proposed development, while minimizing impacts to downstream facilities and adjacent properties. The analysis has been prepared in accordance with the requirements set forth by El Paso County and remains in compliance with the Final Drainage Report for Claremont Business Park 2 Filing No. 2 by M&S Civil Consultants.

General Location and Description

The Lot 2 Claremont Business Park 2 Filing No.2 is the commercial layout for the south half of Lot 2 of Claremont Business Park 2 Filing No.2. The site is located in the Northeast $\frac{1}{4}$ of the Northeast $\frac{1}{4}$ of Section 8, and the Southeast $\frac{1}{4}$ of the Southeast $\frac{1}{4}$ of Section 5, Township 14 South, Range 65 West of the 6th P.M. in El Paso County, Colorado. The site is bordered to the northeast by N. Marksheffel Road, to the northwest by Meadowbrook Parkway, and to the south by Claremont Business Park 2 Filing No. 1 (Lots 1-7). See Vicinity Map in Appendix for details.

The site consists of 1.808 acres which is currently vacant land. The development project will connect with the existing drive entrance and construct a commercial building, drive thru, drive aisles, parking, landscaping and utilities through the south half of the site. The Claremont Business Park 2 Filing 2 site is currently zoned "CS" and the proposed principal use for the site will be neighborhood commercial and light industrial.

In addition to the construction of the commercial building, drive aisles and utilities, an existing storm sewer system was constructed that will function to collect runoff from the Lot 2 and route to an existing sand filter basin water quality pond 3 that will be provided to treat runoff from aforementioned improvements. Modifications are to be provided to the existing storm sewer, such as install a proposed 5' Type R inlet and remove sections of existing storm sewer to route Lot 2 runoff into the pond 3. The existing pond 3 will tie into an existing system near Meadowbrook Parkway, which ultimately conveys runoff southwest into the East Fork of Sand Creek.

Per Resolution 16-426 of the BoCC, on-site WQCV is required but on-site stormwater detention is not required. (Refer to appendix).

Individual drainage letter and/or report shall be required with the development of the north half of Lot 2.

Soils

The Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey, indicates that the soils for this project are: Blakeland Loamy Sand (8), Blendon Sandy Loam (10) and Ellicott Loamy Coarse Sand (28). These soils have been characterized as having Hydrologic Soil Types "A" & "B". The soils classification used for this study is "B". Refer to the Soils Map located in the Appendix of this report

Previous Studies

The proposed site and surrounding existing drainage facilities have been included in multiple drainage letters and reports. The following is a list of existing documents that were pertinent to analyzing this site.

- Final Drainage Report for Claremont Business Park 2 Filing No. 1, by M&S Civil Consultants, approved 2/11/2021.
- Final Drainage Report for Claremont Business Park 2 Filing No. 2, by M&S Civil Consultants, approval pending.
- Final Drainage Letter for Lot 5 of Claremont Business Park 2 Filing No.1, by M&S Civil Consultants, approved 03/03/2021.
- Final Drainage Letter for Lot 6 of Claremont Business Park 2 Filing No.1, by M&S Civil Consultants, approved 07/08/2021.

Drainage Criteria

As required by El Paso County, Colorado, this report has been prepared in accordance to the criteria set forth in the El Paso County Drainage Criteria Manual Volume 1 & 2 (DCM), the El Paso County Engineering Criteria Manual (ECM), and El Paso County Resolutions 15-042 and 19-245.

Design Event Frequency

The 100-year storm event was used as the major storm for the project, and the 5-year storm event was used as the minor storm.

Method of Analysis

The rational method was used to calculate peak flows as the tributary areas are less than 100 acres.

Where: $Q=C*i*A$

Q = Maximum runoff rate in cubic feet per second (cfs)

C = Runoff coefficient

i = Average rainfall intensity (inches per hour)

A = Area of drainage sub-basin (acres)

Runoff Coefficient

Rational Method coefficients from Table 6-6 of the Drainage Criteria Manual for developed land were utilized in the Rational Method calculations. Composite percent impervious and C values were calculated using roofs, commercial areas, asphalt drives, landscaped areas and parks found within the aforementioned table.

Time of Concentration

The time of concentration consists of the initial time of overland flow and the travel time (street or channel, etc) to a downstream structure or point of interest. A minimum time of concentrations of 5 minutes is utilized for urban areas.

Rainfall Intensity

The hypothetical rainfall depths for the 1-hour storm duration were taken from Table 6-2 of the Drainage Criteria Manual.

Project 1-Hour Rainfall Depth Storm Recurrence Interval Rainfall Depth (inches)

5-year 1.50" 100-year 2.52"

The rainfall intensity equation for the Rational Method was taken from Drainage Criteria Manual Volume 1 Figure 6-5.

Hydraulic Grade Line Analysis

StormCAD was utilized to analyze the proposed storm sewer system and determine the Hydraulic Grade Line (HGL's) profiles for the major and minor storms. The standard method was used to calculate head loss in the system with K coefficients taken from Table 9-4 of the Colorado Springs DCM.

In addition to the DCM, The Mile High Flood District BMP Sizing (UD-BMPv.3.07) and Detention Design (MHFD Detention v4.06) worksheets were utilized for to check to verify the existing the water quality ponds still functions with the revised tributary areas and impervious values. These spreadsheets were also utilized for the design of the proposed and future on-site water quality ponds. The MFHD-Inlet v5.02 worksheet was utilized to calculate both the street capacities and evaluate inlet capacities.

Floodplain Statement

I doesn't appear that there are proposed or future on-site ponds. Please clarify or delete if this is carry-over text from a previous report.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel No. 08041C0756G, revised December 7, 2018. No portion of this site is located within the 100 year floodplain. See Appendix.

Existing Drainage Conditions

As the site has been graded previously with the development of Filing 1, the vegetation is sparse, consisting primarily of native grasses and weeds. Existing site terrain generally slopes from north to southwest at grade rates that vary between 1.2% and 2%. A soil retention wall runs along the eastside of the proposed site, next to U.S. Highway 24 and N. Marksheffel Road, and borders a large portion of the back of the proposed lot. An existing WQ Pond 3 has been constructed on the southwest corner and along the west edge of the site, which will serve as a singular water quality pond for Lot 2 and El Jefe Heights (private street). An existing 18"/24" ADS private storm drain has been constructed along the east side of Meadowbrook Parkway and into Claremont Business Park 2 Filing No.2 that extends to this existing WQ Pond 3.

The proposed project will construct a commercial building, drive thru, drive aisles, parking, landscaping and utilities through the south half of the site, the existing and proposed drainage analysis will be expanded to evaluate changes in drainage patterns to ensure no negative affects to downstream facilities. An existing conditions drainage map is included in the appendix of this report to accompany the following discussion.

Basins that have remained unchanged from the **Final Drainage Report for Claremont Business Park 2 Filing No. 2** prepared by M&S Civil Consultants, Inc., will herein be identified with ** within the report, rational sheets and drainage maps.

Existing Conditions Detailed Drainage Discussion

Design Point 1 (Q5 = 0.6 cfs, Q100 = 3.9 cfs) consists of runoff from undeveloped **Basins **C, **C1, D, and D1**. **Basins **C** and ****C1** are 0.12 and 0.17 acres of existing roadway embankment located generally between the subject site and existing Marksheffel Road. **Basins D** and **D1** are 0.77 and 0.63 acres of undeveloped portions of the subject site. Runoff from the four basins is conveyed to an existing 30" dome grate inline storm system, located south and west of the site at **DP1**. An existing 18" RCP (**Pipe Run 1 (PR1)**) will outfall the captured flows into an existing Water Quality Pond 3, located at the southwest corner of the site.

Design Point 2 (Q5 = 2.2 cfs, Q100 = 6.9 cfs) consists of runoff from **Basin D2, Basin**E1, **E2** and **Design Point 1 (DP1)**. **Basin D2** is 0.15 acres of existing WQ Pond 3, **Basins **E1** and ****E2** consists 0.27 and 0.21 acres of existing El Jefe Heights (asphalt paving, curb and gutter and landscaped areas) and **DP1**. Runoff from these basins flow into an existing WQ Pond 3 via existing 18" RCP pipes from El Jefe Heights and from **DP1**. Runoff will be routed via an existing outfall structure and into the existing storm system which ultimately conveys runoff southwest into the East Fork of Sand Creek.

Four Step Process

The development will follow the "Four Step Process" as outlined below:

Step 1 - Employ Runoff Reduction Practices

The proposed development uses Low Impact Development (LID) practices to reduce runoff. When possible, runoff is to be directed to pervious areas to promote infiltration and limit directly connected impervious areas.

Clarify that it will be existing via VR233 once this Lot 2 begins to be developed

Step 2 - Stabilize Drainageways

There are no drainageways on-site to stabilize. The site is upstream of an existing 42"/48" RCP storm sewer system that discharges directly into the Sand Creek Channel via an outlet structure with wingwalls (privately owned and maintained by the Central Marksheffel Metropolitan District). The Claremont Business Park 2 Filing No.2 site has proposed a Sand Filter Water Quality Facility that will treat runoff prior to discharging to the existing storm sewer system. There will be no adverse effects on downstream developments as a result of the development of this subdivision.

Step 3 - Provide Water Quality Capture Volume

One (1) Sand Filter Basin water quality facility is proposed to provide WQCV at the time of the writing of this report.

Step 4 - Consider Need for Industrial and Commercial BMP's

This submittal provides a Preliminary Grading and Erosion Control plan. A Final GEC plan with BMP's in place shall be required with final approval of this report, Grading Plan and construction drawings. The proposed project will use silt fence, a vehicle tracking control pad, a concrete washout area, mulching and reseedling to mitigate the potential for erosion across the site.

Proposed Drainage Characteristics

General Concept Drainage Discussion

The "Final Drainage Report for Claremont Business Park 2 Filing No. 2", dated February 2023, by M&S Civil Consultants, Inc. indicated that flows discharged from the subject site were to be collected and conveyed to the East Fork of Sand Creek Channel via a storm system that was to parallel Meadowbrook Parkway. As a portion of the construction of Claremont Business Park 2 Filing No.2 the existing storm sewer system was extended along the eastern side of Meadowbrook Parkway to collect runoff from the Lots 1, 2 & 3 of Claremont Business Park 2 Filing No.2 re-plat and thus remain in compliance with the previous drainage plans and studies.

(WQ Sand Filter Pond 3)

A permanent water quality pond has been constructed at the southwest corner of Lot 2 to provide treatment for the proposed roadway and Lot 2. An existing private 18" RCP has been installed to capture runoff from Lot 2 and outfalls into existing Pond 3.

WQ Sand Filter

An individual drainage letter and/or report shall be required with the development of Lot 2 not otherwise clearly analyzed by this report. A proposed conditions drainage map is included in the Appendix of this report to accompany the following discussion.

Isn't that what this document is? Please clarify/revise.

Basins that have remained unchanged from the **Final Drainage Report for Claremont Business Park 2 Filing No. 2** prepared by M&S Civil Consultants, Inc., will herein be identified with ** within the report, rational sheets and drainage maps. Basins that have changed from the **Final Drainage Report for Claremont Business Park 2 Filing No. 2** prepared by M&S Civil Consultants, Inc., will herein be identified with # within the report, rational sheets and drainage maps. Basins, Design Points and Pipe Runs that are describing the ultimate build out of Lot 2, will herein be identified with *** within the report, rational sheets and drainage maps.

This is the first mention of "ultimate build out" within this report. Please explain what this means. Is Lot 2 to be developed in two phases: "interim" and "ultimate," where "ultimate" represents the second phase?

Proposed Conditions Detailed Drainage Discussion

Design Point 1 (Q5 = 0.3 cfs, Q100 = 1.6 cfs) consists of runoff from undeveloped **Basins #C** and partially developed **Basin D**. **Basins #C** is 0.04 acres of existing roadway embankment located generally between the subject site and existing Marksheffel Road. **Basins D** is 0.47 acres of partially developed land with asphalt roadway, a 5' Type R Inlet and curb and gutter, the majority of this basin is undeveloped. Runoff from these basins is routed to a proposed 5' Type R sump inlet. Runoff to this inlet will be conveyed via a proposed 15" PP pipe (**Pipe Run 1 (PR1, Q5 = 0.3 cfs, Q100 = 1.6 cfs)**) to **Design Point 2 (DP2)** and eventually to existing Water Quality Pond 3.

Design Point 2 (Q5 = 3.1 cfs, Q100 = 6.5 cfs) consists of runoff from **Basin #C1** and developed **Basin D1**. **Basin #C1** is 0.26 acres of existing roadway embankment located generally between the subject site and existing Marksheffel Road. **Basins D1** is 0.93 acres of the developed portion of the subject site. Development includes connection with the existing drive entrance and construction of a commercial building, drive thru, drive aisles, parking, landscaping and utilities through the south half of the site. A small portion of the site is undeveloped. Runoff from these basins is routed to a proposed 5' Type R inlet. Removal of approximately 12' of existing 18" RCP will be required to install the proposed inlet. The inlet shall be installed with non-shrink cementitious grout to fill voids and fasten the inlet and pipe together. The remaining existing 18" RCP (**Pipe Run 2 (PR2, Q5 = 3.4 cfs, Q100 = 8.1 cfs)**) will route the combined captured flows from **DP1** and **DP2** and will outfall into an existing Water Quality Pond 3, located at the southwest corner of the site. The flows routed to existing WQ Pond 3 from Lot 2 are less than the flows cited in the Claremont Business Park 2 Filing No.2 Final Drainage Report (**PR6A, Q5 = 6.0 cfs, Q100 = 11.6 cfs**), hence there will be no negative impact on the downstream storm system.

Design Point 3 (Q5 = 5.5 cfs, Q100 = 12.2 cfs) consists of runoff from **Basin D2, Basin**E1, **E2** and **PR2**. **Basin D2** is 0.15 acres of existing WQ Pond 3, **Basins **E1** and ****E2** consists 0.27 and 0.21 acres of existing El Jefe Heights (asphalt paving, curb and gutter and landscaped areas) and **PR2**. Runoff from these basins flow into an existing WQ Pond 3 via existing 18" RCP pipes from El Jefe Heights and from **PR2**. Runoff will be treated and routed via an existing outfall structure and into the existing storm system which ultimately conveys runoff southwest into the East Fork of Sand Creek. The flows routed to existing WQ Pond 3 are less than the flows cited in the Claremont Business Park 2 Filing No.2 Final Drainage Report (**DP6, Q5 = 7.8 cfs, Q100 = 14.6 cfs**), hence there will be no negative impact on the existing WQ Pond 3 and the downstream storm system.

Design Point *1 (Ultimate Build Out)** (Q5 = 0.3 cfs, Q100 = 1.6 cfs) consists of runoff from undeveloped **Basins #C** and partially developed **Basin ***D**. **Basins #C** is 0.04 acres of existing roadway embankment located generally between the subject site and existing Marksheffel Road. **Basins ***D** has no current builder but has been assigned a commercial area runoff coefficient number (5-yr 0.81 and 100-yr 0.88) applied to it. **Basins ***D** is 0.47 acres of future developed land and will route flows to a 5' Type R sump inlet. Runoff to this inlet will be conveyed via a proposed 15" PP pipe (**Pipe Run 1 (PR1, Q5 = 1.8 cfs, Q100 = 3.4 cfs)**) to **Design Point 2 (DP2)** and eventually to existing Water Quality Pond 3.

Design Point*2 (Ultimate Build Out)** (Q5 = 3.9 cfs, Q100 = 7.2 cfs) consists of runoff from **Basin #C1** and developed **Basin ***D1**. **Basin #C1** is 0.26 acres of existing roadway embankment located generally between the subject site and existing Marksheffel Road. **Basins ***D1** is 0.93 acres of the fully developed portion of the subject site. Development includes connection with the existing drive entrance and construction of a commercial building, drive thru, drive aisles, parking, landscaping and utilities through the south half of the site. Runoff from these basins is routed to a proposed 5' Type R sump inlet. Removal of approximately 12' of existing 18" RCP will be required to install the proposed inlet. The inlet shall be installed with non-shrink cementitious grout to fill voids and fasten the inlet and pipe together. The remaining existing 18" RCP (**Pipe Run ***2 (PR***2, Q5 = 5.7 cfs, Q100 = 10.6 cfs)**) will route the combined captured flows from **DP1** and **DP2** and will outfall into an existing Water Quality Pond 3, located at the southwest corner of the site. The flows routed to existing WQ Pond 3 from Lot 2 are less than the flows cited in the Claremont Business Park 2 Filing No.2 Final Drainage Report (**PR6A, Q5 = 6.0 cfs, Q100 = 11.6 cfs**), hence there will be no negative impact on the downstream storm system.

Design Point*3** (Q5 = 7.8 cfs, Q100 = 14.6 cfs) consists of runoff from **Basin D2, Basin**E1, **E2** and **PR***2**. **Basin D2** is 0.15 acres of existing WQ Pond 3, **Basins **E1** and ****E2** consists 0.27 and 0.21 acres of existing El Jefe Heights (asphalt paving, curb and gutter and landscaped areas) and **PR***2**. Runoff from these basins flow into an existing WQ Pond 3 via existing 18" RCP pipes from El Jefe Heights and from **PR***2**. Runoff will be treated and routed via an existing outfall structure and into the existing storm system which ultimately conveys runoff southwest into the East Fork of Sand Creek. The flows routed to existing WQ Pond 3 are equivalent to the flows cited in the Claremont Business Park 2 Filing No.2 Final Drainage Report (**DP6, Q5 = 7.8 cfs, Q100 = 14.6 cfs**), hence there will be no negative impact on the existing WQ Pond 3 and the downstream storm system.

Water Quality Provision and Maintenance

The subject site was previously analyzed within the Final Drainage Report for Claremont Business Park 2 Filing No. 2 prepared by M&S Civil Consultants, Inc. Per Resolution 16-426 of the BoCC, on-site WQCV is required but on-site stormwater detention is not required per the FDR for Claremont Business Park Filing 2. The water quality volume required for the site has been determined using the MHFD UD-Detention workbook per the guidelines set forth in the City of Colorado Springs/El Paso County Drainage Criteria Manual - Volume II.

WQ Sand Filter

Under VR233, prior to development of Lot 2 under this PPR2345, correct? Please make this clarification.

Delete the "s." Only 1 SFB for Lot 2.

As previously discussed, water quality for the site will be provided by an existing Sand Filter Basins (SFB). Pond 3 is to be constructed initially and will function to treat runoff from the newly constructed improvements (roadway, sidewalks) and Lot 2 or approx 2.32 acres at 80.3% imperviousness. Pond 3 will provide 0.051 acre-feet of water quality storage and shall be maintained by the property owners (equal shares determined by size of lot 2). Flows tributary to the SFB (Pond 3) are released through outlet structure into an existing storm sewer system located along Meadowbrook Parkway. Access shall be granted to the owner and El Paso County for access and maintenance of the private WQCV facility. A private maintenance agreement document shall accompany the final drainage report(s) submittal(s) which construct the WQ pond (Pond 3).

Erosion Control

Please be consistent with the naming of this pond throughout this report and the other documents/drawings with this PPR. There are about 3 or 4 different nomenclatures in this report alone. I think using "WQ Sand Filter Pond 3" would be the most descriptive and consistent with VR233 docs.

It is the policy of the El Paso County that a grading and erosion control plan (GEC) with the drainage report. The GEC incorporates silt fence, vehicle traffic control, inlet and outlet controls, sediment basin and other best management practices (BMP's) as identified in the DCM Volume 2.

Construction Cost Opinion

Private Drainage Facilities (NON-Reimbursable) Including Sand Filter WQ Pond 3:

Item	Description	Quantity	Unit Cost	Cost
1.	Remove 18" RCP & 30" Grate inline strm	12 LF	\$50 /LF	\$600.00
2.	15" PP	66 LF	\$55 /LF	\$3,630.00
3.	Type R 5' Sump Inlet	1 EA	\$6,500 /EA	\$6,500.00
2.	Type R 5' Sump Inlet connect to Ex. RCP	1 EA	\$7,500 /EA	\$7,500.00
				\$18,230.00
Engineering Costs (10%)				\$1,823.00
Total				\$20,053.00

Please clarify what this means. I am not understanding and we need to know who to send future pond inspection reports to.

M & S Civil Consultants, Inc. (M & S) cannot and does not guarantee the construction cost will not vary from these opinions of probable costs. These opinions represent our best judgment as design professionals familiar with the construction industry and this development in particular. The above is only an estimate of the facility cost in 2023.

Drainage and Bridge Fees

This site is in the Sand Creek Drainage Basin. The site was previously subdivided into ten commercial lots as a portion of Claremont Business Park 2, Filing No.1. The proposed site has been re-platted as Claremont Business Park 2, Filing No.2.

Drainage fees were paid at the time of the previous platting as Tract C of Claremont Business Park Filing No. 2 (Reception No. 207712506), therefore no additional Drainage Bridge and/or Pond fees are required.



Summary

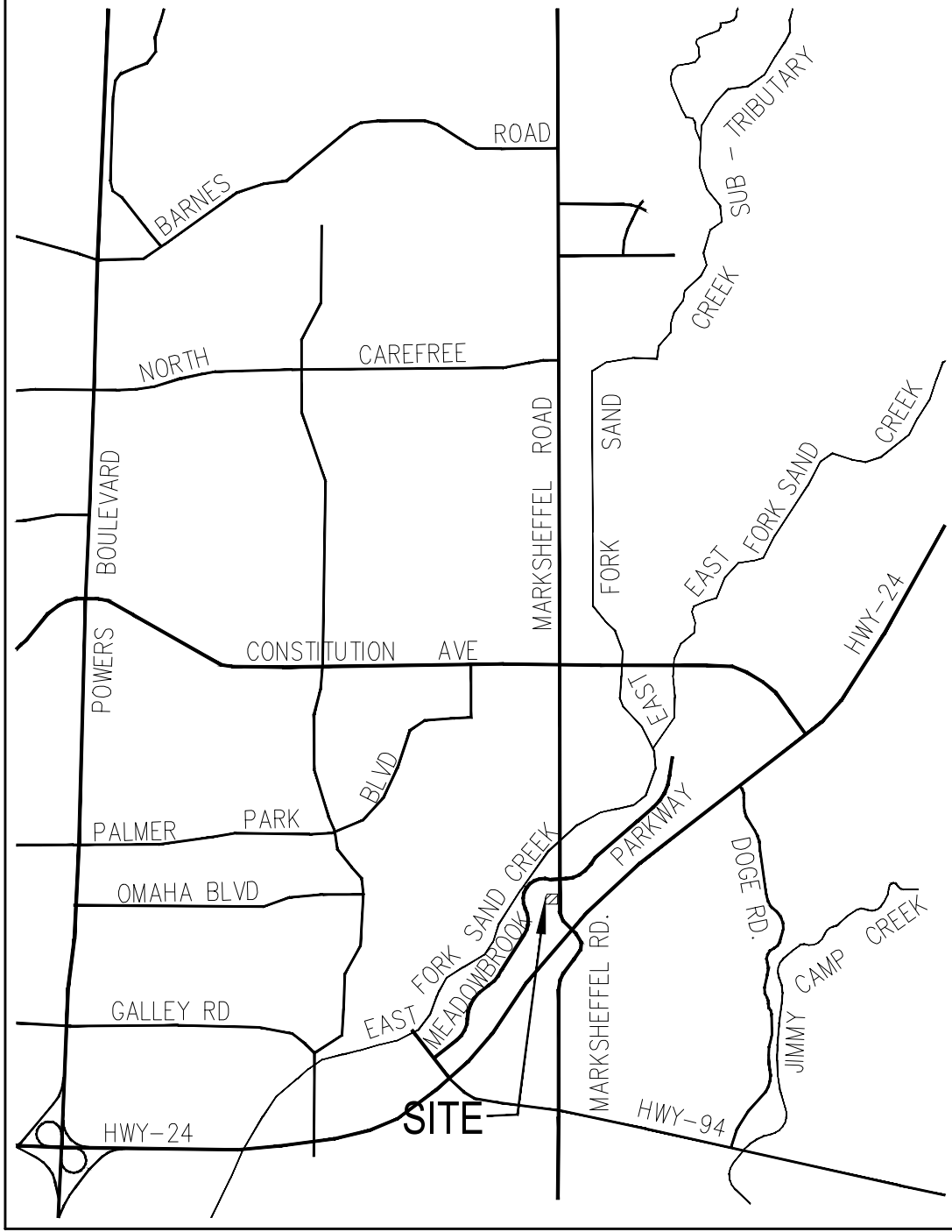
The proposed design meets the design assumptions utilized in the "Final Drainage Report for Claremont Business Park 2 Filing No. 2", by M&S Civil Consultants, Inc. The "Final Drainage Report for Claremont Business Park 2 Filing No. 2" calculated that DP 6 generated of (Q5=7.8 cfs and Q100=14.6). The proposed development (Lot 2, DP2) will generate Q5=2.9 cfs and Q100=9.5 which is less than what was anticipated by the Final Drainage Report for Claremont Business Park 2 Filing No. 2. Also the ultimate build out of the proposed development (Lot 2, DP***2) will generate Q5=4.8 cfs and Q100=12.8 which is less than what was anticipated by the Final Drainage Report for Claremont Business Park 2 Filing No. 2. Therefore the proposed development shall not have a negative impact on the downstream storm system and is adequately sized to convey the proposed generated flows. Thus, the development of Lot 2 Claremont Business Park 2 Filing No.2 shall not adversely affect the surrounding development. The proposed drainage facilities will adequately convey, detain and route runoff from the onsite & offsite flows to existing facilities. Owner/developer of the lot shall comply with this final drainage report that will be submitted. Care will be taken to accommodate overland emergency flow routes on site and temporary drainage conditions.

References

1. "El Paso County and City of Colorado Springs Drainage Criteria Manual".
2. "Urban Storm Drainage Criteria Manual"
3. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: <http://websoilsurvey.sc.egov.usda.gov/>. Accessed: February 02 , 2023.
4. Flood Insurance Rate Map (FIRM), Federal Emergency Management Agency, Effective dated December 7, 2018.
5. "Final Drainage Report for Claremont Business Park 2 Filing No. 1", by M&S Civil Consultants, approved 2/11/2021.
6. Final Drainage Report for Claremont Business Park 2 Filing No. 2, by M&S Civil Consultants, approval pending.
7. "Final Drainage Letter for Lot 5 of Claremont Business Park 2 Filing No.1", by M&S Civil Consultants, approved 03/03/2021.
8. "Final Drainage Letter for Lot 6 of Claremont Business Park 2 Filing No.1", by M&S Civil Consultants, approved 07/08/2021.

Appendix

Vicinity Map

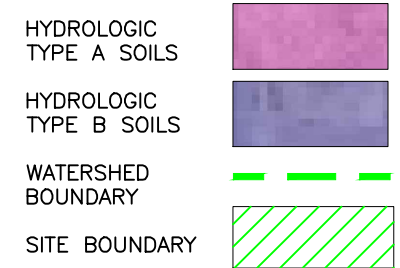
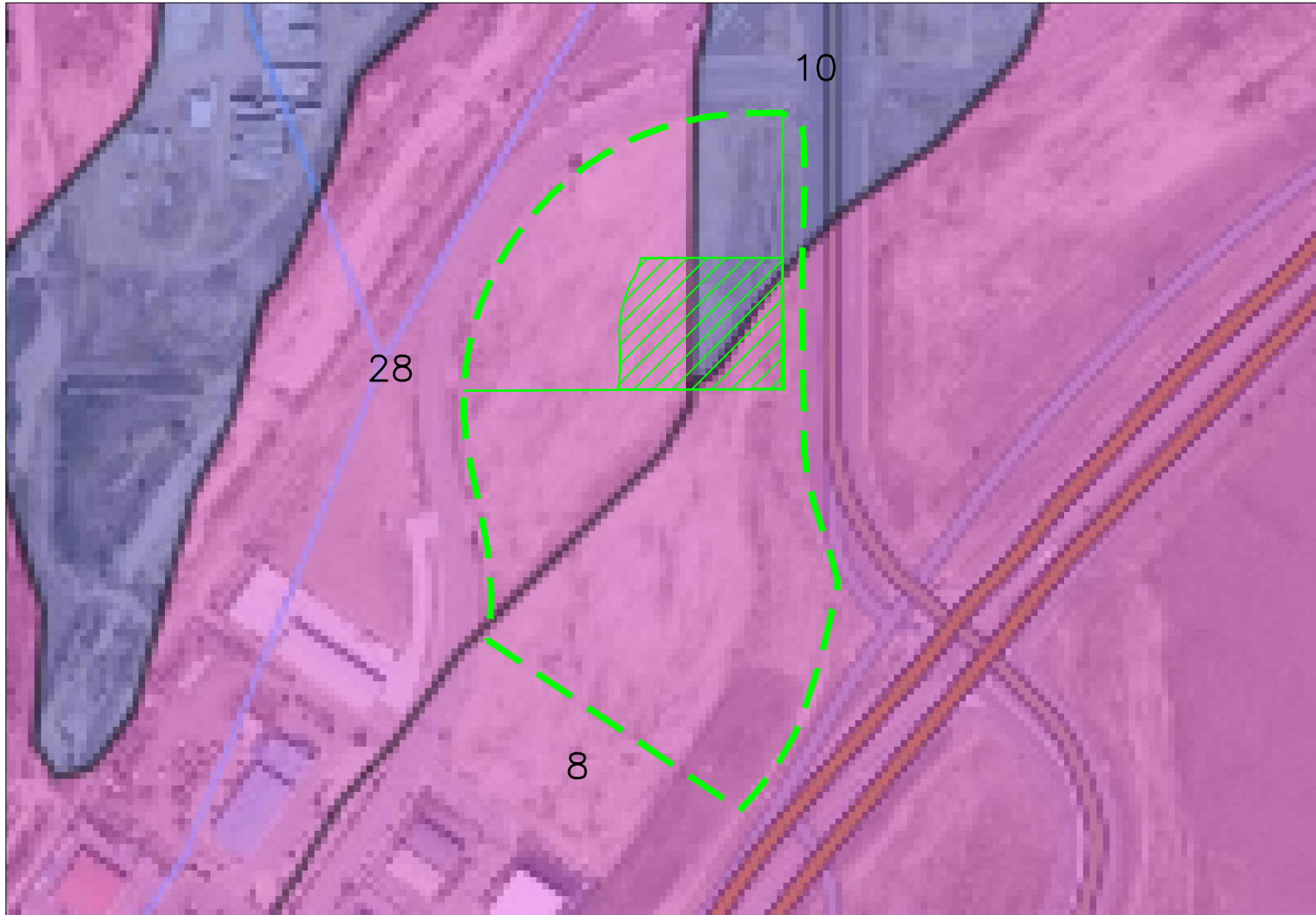


VICINITY MAP

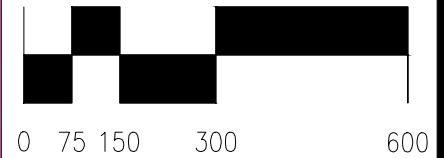
N.T.S.

Soils Map

LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO. 2



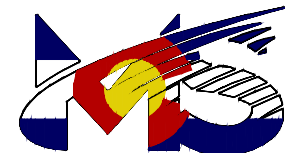
1" = 300'



Scale in Feet

Map unit symbol	Map unit name	Rating
8	Blakeland loamy sand, 1 to 9 percent slopes	A
10	Blendon sandy loam, 0 to 3 percent slopes	B
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	A

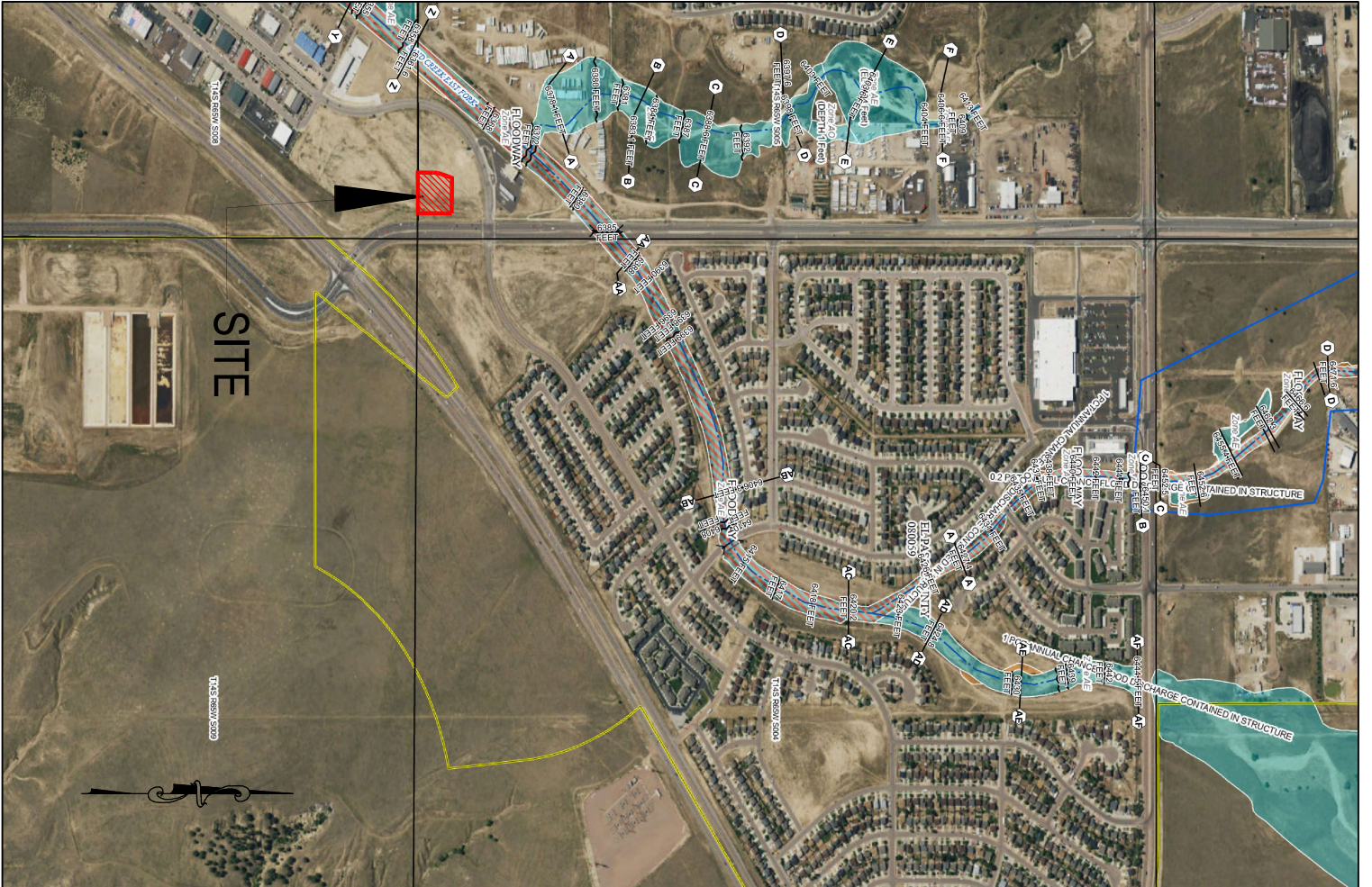
SOILS MAP



CIVIL CONSULTANTS, INC.

212 N. WAHSATCH AVE., STE 305
 COLORADO SPRINGS, CO 80903
 PHONE: 719.955.5485

FEMA FIRM Panel



FLOOD HAZARD INFORMATION

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

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE)
Zone A, V, AE, AH, VE, AP	With BFE or Depth, Zone AE, AO, AH, VE, AP
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
Future Conditions 1% Annual Chance Flood Hazard, Flood Risk due to Levee
Sea Wave, Zone X
Area with Flood Risk due to Levee Zone D
NO SCREEN Area of Minimal Flood Hazard, Zone X
Effective LowWays
Area of Undetermined Flood Hazard, Zone D

OTHER AREAS OF FLOOD HAZARD
Channel, Culvert, or Storm Sewer
Levee, Dike, or Floodwall
Other Areas
General Structures
Water Surface Elevation
Coastal Truncat Baseline
Hydrographic Feature
Base Flood Elevation Line (BFE)
Limit of Study
Jurisdiction Boundary

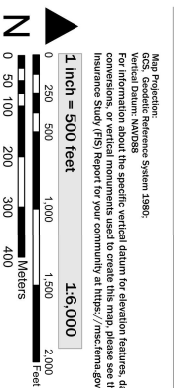
OTHER FEATURES
20.2
17.5
8

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to contact the FEMA Flood Insurance Service Center, or the FEMA Flood Map Service Center website at <https://msc.fema.gov>, call 1-877-FEMA-4347 or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov> and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Communications received from adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be obtained directly from the Flood Map Service Center at the number listed above.

For community and countywide map data, refer to the Flood Insurance Study Report for this jurisdiction. To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-458-8820. Besting information shown on this FIRM was provided in digital form by the United States Geological Survey (USGS) in the USGS National Map, (Omaha, NE) on 07/27/2023 3:44 PM and date change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Update Overview Fact Sheet at <https://www.fema.gov/media-library/asset/119418>. This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base of map shows contours with a 5-foot spacing accuracy. The map may include void areas where the base of map data is not available. The map may include void areas where the base of map data is not available. The map may include void areas where the base of map data is not available. The map may include void areas where the base of map data is not available.

SCALE



LEGEND

SITE BOUNDARY

FEMA
National Flood Insurance Program

Panel Contains:
COMMUNITY
EL PASO COUNTY
CITY OF COLORADO
SPRINGS

NUMBER PANEL
080059 0756
080060 0756

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
PANEL 756 OF 1275

MAD NUMBER
08041007566
EFFECTIVE DATE
December 07, 2018

Scale in Feet

0 250 500 1000

1" = 500'

FIRM MAP

LOT 2 CLAREMONT BUSINESS
PARK 2 FILING NO. 2



HYDROLOGIC CALCULATIONS

FINAL DRAINAGE REPORT FOR LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO.2
EXISTING DRAINAGE CALCULATIONS
(Area Runoff Coefficient Summary)

			<i>ROOFS 0.73-0.81 ASPHALT DRIVES 0.90-0.96</i>			<i>PARKS 0.12-0.39 GRAVEL STORAGE YARD 0.30-0.50 LIGHT INDUST AREAS 0.59-0.70 COMMERCIAL AREAS 0.81-0.88</i>			<i>GREENBELTS/AGRI. 0.09-0.36</i>			<i>WEIGHTED</i>	
BASIN	TOTAL AREA (SF)	TOTAL AREA (Acres)	AREA (Acres)	C₅	C₁₀₀	AREA (Acres)	C₅	C₁₀₀	AREA (Acres)	C₅	C₁₀₀	C₅	C₁₀₀
**C	5372.3	0.12	0.00	0.90	0.96	0.00	0.12	0.39	0.12	0.09	0.36	0.09	0.36
**CI	7457.3	0.17	0.00	0.90	0.96	0.00	0.12	0.39	0.17	0.09	0.36	0.09	0.36
D	33587.9	0.77	0.00	0.90	0.96	0.03	0.12	0.39	0.74	0.09	0.36	0.09	0.36
D1	27332.4	0.63	0.00	0.90	0.96	0.15	0.12	0.39	0.48	0.09	0.36	0.10	0.37
D2	6696.0	0.15	0.00	0.90	0.96	0.03	0.12	0.39	0.12	0.09	0.36	0.10	0.37
**E1	11683.7	0.27	0.22	0.90	0.96	0.05	0.81	0.88	0.00	0.09	0.36	0.88	0.95
**E2	9082.0	0.21	0.17	0.90	0.96	0.04	0.81	0.88	0.00	0.09	0.36	0.88	0.95

**~ Claremont Business Park 2 Filing No.2 FDR, prepared by MS Civil Consultants, Inc.

Calculated by: GT
Date: 8/2/2023
Checked by: VAS

FINAL DRAINAGE REPORT FOR LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO.2
EXISTING DRAINAGE CALCULATIONS
(Area Drainage Summary)

From Area Runoff Coefficient Summary				OVERLAND				STREET / CHANNEL FLOW				Time of Travel (T _t)		INTENSITY *		TOTAL FLOWS	
BASIN	AREA TOTAL (Acres)	C ₅	C ₁₀₀	C ₅	Length (ft)	Height (ft)	T _c (min)	Length (ft)	Slope (%)	Velocity (fps)	T _t (min)	*TOTAL (min)	CHECK (min)	I ₅ (in/hr)	I ₁₀₀ (in/hr)	Q ₅ (c.f.s.)	Q ₁₀₀ (c.f.s.)
		From DCM Table 5-1															
**C	0.12	0.09	0.36	0.09	40	16.0	3.4	0	0.0%	0.0	0.0	5.0	10.2	5.2	8.7	0.1	0.4
**C1	0.17	0.09	0.36	0.09	60	22.0	4.3	0	0.0%	0.0	0.0	5.0	10.3	5.2	8.7	0.1	0.5
D	0.77	0.09	0.36	0.09	60	1.2	11.2	250	1.6%	1.9	2.2	13.4	11.7	3.9	6.5	0.3	1.8
D1	0.63	0.10	0.37	0.10	60	1.2	11.2	250	1.6%	1.9	2.2	13.4	11.7	3.9	6.5	0.2	1.5
D2	0.15	0.10	0.37	0.10	15	6.0	2.1	63	0.5%	0.7	1.5	5.0	10.4	5.2	8.7	0.1	0.5
**E1	0.27	0.88	0.95	0.88	30	0.6	1.7	280	2.0%	2.8	1.6	5.0	11.7	5.2	8.7	1.2	2.2
**E2	0.21	0.88	0.95	0.88	30	0.6	1.7	280	2.0%	2.8	1.6	5.0	11.7	5.2	8.7	1.0	1.7

* Intensity equations assume a minimum travel time of 5 minutes.

**-- Claremont Business Park 2 Filing No.2 FDR, prepared by MS Civil Consultants, Inc.

Calculated by: GT

Date: 8/2/2023

Checked by: VAS

FINAL DRAINAGE REPORT FOR LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO.2
EXISTING DRAINAGE CALCULATIONS
(Basin Routing Summary)

<i>From Area Runoff Coefficient Summary</i>				OVERLAND				PIPE / CHANNEL FLOW				Time of Travel (T_t)	INTENSITY *		TOTAL FLOWS		COMMENTS
DESIGN POINT	CONTRIBUTING BASINS DPS AND/OR PIPES	CA₅	CA₁₀₀	C₅	Length (ft)	Height (ft)	T_c (min)	Length (ft)	Slope (%)	Velocity (fps)	T_t (min)	*TOTAL (min)	I₅ (in/hr)	I₁₀₀ (in/hr)	Q₅ (c.f.s.)	Q₁₀₀ (c.f.s.)	
1	**C, **C1, D, D1	0.16	0.61	Basin D Tc used + Basin D1 routing								12.3	3.8	6.4	0.6	3.9	Existing 30" Dome Grate
							11.7	56	1.0%	1.5	0.6						
2	D2, **E1, **E2, DP1	0.59	1.12	DP1 Tc used + Basin D2 routing								13.8	3.6	6.1	2.2	6.9	Existing WQ Pond 3
							12.3	63	0.5%	0.7	1.5						

* Intensity equations assume a minimum travel time of 5 minutes.

**-- Claremont Business Park 2 Filing No.2 FDR, prepared by MS Civil Consultants, Inc.

Calculated by: GT

Date: 8/2/2023

Checked by: VAS

FINAL DRAINAGE REPORT FOR LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO.2
EXISTING DRAINAGE CALCULATIONS
(Storm Sewer Routing Summary)

<i>PIPE RUN</i>	<i>Contributing Pipes/Design Points</i>	<i>Equivalent CA₅</i>	<i>Equivalent CA₁₀₀</i>	<i>Maximum T_C</i>	<i>Intensity*</i>		<i>Flow</i>		<i>Pipe Size</i>
					<i>I₅</i>	<i>I₁₀₀</i>	<i>Q₅</i>	<i>Q₁₀₀</i>	
1	DP1	0.16	0.61	12.3	3.8	6.4	0.6	3.9	EX 18" RCP

* Intensity equations assume a minimum travel time of 5 minutes.

DP - Design Point
 PR - Pipe Run

FB- Flow By from Design Point
 INT- Intercepted Flow from Design Point

Calculated by: GT
 Date: 8/2/2023
 Checked by: VAS

FINAL DRAINAGE REPORT FOR LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO.2
PROPOSED DRAINAGE CALCULATIONS
(Area Runoff Coefficient Summary)

			ROOFS 0.73-0.81 ASPHALT DRIVES 0.90-0.96			PARKS 0.12-0.39 LANDSCAPED AREAS 0.16-0.41 GRAVEL STORAGE YARD 0.30-0.50 LIGHT INDUST AREAS 0.59-0.70 COMMERCIAL AREAS 0.81-0.88			GREENBELTS/AGRI. 0.09-0.36			WEIGHTED	
BASIN	TOTAL AREA (SF)	TOTAL AREA (Acres)	AREA (Acres)	C ₅	C ₁₀₀	AREA (Acres)	C ₅	C ₁₀₀	AREA (Acres)	C ₅	C ₁₀₀	C ₅	C ₁₀₀
#C	1664.0	0.04	0.00	0.90	0.96	0.00	0.16	0.41	0.04	0.09	0.36	0.09	0.36
#C1	11176.5	0.26	0.00	0.90	0.96	0.00	0.16	0.41	0.26	0.09	0.36	0.09	0.36
D	20496.0	0.47	0.03	0.90	0.96	0.07	0.12	0.39	0.37	0.09	0.36	0.15	0.40
***D	20496.0	0.47	0.00	0.90	0.96	0.47	0.81	0.88	0.00	0.09	0.36	0.81	0.88
D1	40410.0	0.93	0.00	0.90	0.96	0.76	0.81	0.88	0.17	0.09	0.36	0.68	0.78
***D1	40410.0	0.93	0.00	0.90	0.96	0.93	0.81	0.88	0.00	0.09	0.36	0.81	0.88
D2	6696.0	0.15	0.00	0.90	0.96	0.15	0.12	0.39	0.00	0.09	0.36	0.12	0.39
**E1	11683.7	0.27	0.22	0.90	0.96	0.05	0.81	0.88	0.00	0.09	0.36	0.88	0.95
**E2	9082.0	0.21	0.17	0.90	0.96	0.04	0.81	0.88	0.00	0.09	0.36	0.88	0.95

**~ Claremont Business Park 2 Filing No.2 FDR Prepared by MS Civil Consultants, Inc.

#~ Basin area revised from Claremont Business Park 2 Filing No.2 FDR Prepared by MS Civil Consultants, Inc.

***~ Ultimate build out. Development of Lot 2 (North half)

Calculated by: GT

Date: 8/4/2023

Checked by: VAS

FINAL DRAINAGE REPORT FOR LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO.2
PROPOSED DRAINAGE CALCULATIONS
(Area Drainage Summary)

<i>From Area Runoff Coefficient Summary</i>				OVERLAND				STREET / CHANNEL FLOW				Time of Travel (T_t)		INTENSITY *		TOTAL FLOWS	
BASIN	AREA TOTAL (Acres)	C ₅	C ₁₀₀	C ₅	Length (ft)	Height (ft)	T _c (min)	Length (ft)	Slope (%)	Velocity (fps)	T _i (min)	*TOTAL (min)	CHECK (min)	I ₅ (in/hr)	I ₁₀₀ (in/hr)	Q ₅ (c.f.s.)	Q ₁₀₀ (c.f.s.)
		<i>From DCM Table 5-1</i>															
#C	0.04	0.09	0.36	0.09	40	16.0	3.4	0	0.0%	0.0	0.0	5.0	10.2	5.2	8.7	0.0	0.1
#C1	0.26	0.09	0.36	0.09	60	22.0	4.3	0	0.0%	0.0	0.0	5.0	10.3	5.2	8.7	0.1	0.8
D	0.47	0.15	0.40	0.15	60	2.0	9.0	215	3.0%	2.6	1.4	10.3	11.5	4.1	6.8	0.3	1.3
***D	0.47	0.81	0.88	0.81	40	1.5	2.1	268	2.6%	3.2	1.4	5.0	11.7	5.2	8.7	2.0	3.6
D1	0.93	0.68	0.78	0.68	30	2.0	2.2	250	1.4%	2.4	1.8	5.0	11.6	5.2	8.7	3.3	6.3
***D1	0.93	0.81	0.88	0.81	30	2.0	1.5	250	1.4%	2.4	1.8	5.0	11.6	5.2	8.7	3.9	7.1
D2	0.15	0.12	0.39	0.12	15	6.0	2.0	63	0.5%	0.7	1.5	5.0	10.4	5.2	8.7	0.1	0.5
**E1	0.27	0.88	0.95	0.88	30	0.6	1.7	280	2.0%	2.8	1.7	5.0	11.7	5.2	8.7	1.2	2.2
**E2	0.21	0.88	0.95	0.88	30	0.6	1.7	280	2.0%	2.8	1.7	5.0	11.7	5.2	8.7	1.0	1.7

* Intensity equations assume a minimum travel time of 5 minutes.

**~ Claremont Business Park 2 Filing No.2 FDR Prepared by MS Civil Consultants, Inc.

#~ Basin area revised from Claremont Business Park 2 Filing No.2 FDR Prepared by MS Civil Consultants, Inc.

***~ Ultimate build out. Development of Lot 2 (North half)

Calculated by: GT

Date: 8/4/2023

Checked by: VAS

FINAL DRAINAGE REPORT FOR LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO.2 PROPOSED DRAINAGE CALCULATIONS (Basin Routing Summary)

<i>From Area Runoff Coefficient Summary</i>				OVERLAND				PIPE / CHANNEL FLOW				Time of Travel (T_t)		INTENSITY *		TOTAL FLOWS		COMMENTS
DESIGN POINT	CONTRIBUTING BASINS <i>DPS AND/OR PIPES</i>	CA ₅	CA ₁₀₀	C ₅	Length (ft)	Height (ft)	T _c (min)	Length (ft)	Slope (%)	Velocity (fps)	T _t (min)	*TOTAL (min)	I ₅ (in/hr)	I ₁₀₀ (in/hr)	Q ₅ (c.f.s.)	Q ₁₀₀ (c.f.s.)		
1	#C, D	0.07	0.20	Basin #C Tc + Basin D routing used								6.4	4.8	8.1	0.3	1.6	Proposed 5' Type R Inlet	
							5.0	215	3.0%	2.6	1.4							
***1	#C, ***D	0.38	0.43	Basin #C Tc + Basin ***D routing used								6.4	4.8	8.1	1.8	3.4	Proposed 5' Type R Inlet	
							5.0	268	2.6%	3.2	1.4							
2	#C1, D1	0.65	0.82	Basin #C1 Tc used + Basin D1 routing								6.8	4.7	7.9	3.1	6.5	Proposed 5' Type R Inlet	
							5.0	250	1.4%	2.4	1.8							
***2	#C1, ***D1	0.82	0.91	Basin #C1 Tc + Basin ***D1 routing used								6.8	4.7	7.9	3.9	7.2	Proposed 5' Type R Inlet	
							5.0	250	1.4%	2.4	1.8							
3	D2, PR2, **E1, **E2	1.16	1.53	DP2 Tc used								6.8	4.7	7.9	5.5	12.2	Existing WQ Pond 3	
***3	D2, ***PR2, **E1, **E2	1.64	1.85	***DP2 Tc used								6.8	4.7	7.9	7.8	14.6	Existing WQ Pond 3	

* Intensity equations assume a minimum travel time of 5 minutes.

**~ Claremont Business Park 2 Filing No.2 FDR Prepared by MS Civil Consultants, Inc.

#~ Basin area revised from Claremont Business Park 2 Filing No.2 FDR Prepared by MS Civil Consultants, Inc.

***~ Ultimate build out. Development of Lot 2 (North half)

Calculated by: GT

Date: 8/4/2023

Checked by: VAS

FINAL DRAINAGE REPORT FOR LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO.2
PROPOSED DRAINAGE CALCULATIONS
(Storm Sewer Routing Summary)

PIPE RUN	Contributing Pipes/Design Points	Equivalent CA ₅	Equivalent CA ₁₀₀	Maximum T _C	Intensity*		Flow		Pipe Size
					I ₅	I ₁₀₀	Q ₅	Q ₁₀₀	
1	DP1	0.07	0.20	6.4	4.8	8.1	0.3	1.6	PROP 15" PP
***1	***DP1	0.38	0.43	6.4	4.8	8.1	1.8	3.4	PROP 15" PP
2	DP2, PR1	0.72	1.02	6.8	4.7	7.9	3.4	8.1	EX 18" RCP
***2	***DP2, ***PR1	1.20	1.34	6.8	4.7	7.9	5.7	10.6	EX 18" RCP

* Intensity equations assume a minimum travel time of 5 minutes.

DP - Design Point
 PR - Pipe Run

FB- Flow By from Design Point
 INT- Intercepted Flow from Design Point

Calculated by: GT
 Date: 8/4/2023
 Checked by: VAS

***Ultimate build out. Development of Lot 2 (north half)

HYDRAULIC CALCULATIONS / SFB WQCV CALCULATIONS

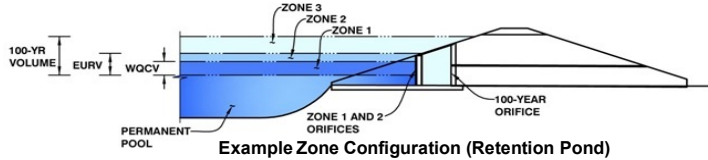
clarify that these calcs were previously reviewed/approved under V233, contrary to what the calc sheets say: "Pond 3 to be designed and constructed with this report."

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-*Detention, Version 4.06 (July 2022)*

Project: Claremont Business Park 2 Filing No. 2

Basin ID: Lot 2 - Pond 3 (POND 3 TO BE DESIGNED AND CONSTRUCTED WITH THIS REPORT)



Watershed Information

Selected BMP Type =	SF	
Watershed Area =	2.32	acres
Watershed Length =	383	ft
Watershed Length to Centroid =	150	ft
Watershed Slope =	0.036	ft/ft
Watershed Imperviousness =	80.30%	percent
Percentage Hydrologic Soil Group A =	70.0%	percent
Percentage Hydrologic Soil Group B =	30.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	12.0	hours
Location for 1-hr Rainfall Depths =	User Input	

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) =	0.051	acre-feet
Excess Urban Runoff Volume (EURV) =	0.234	acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	0.161	acre-feet
5-yr Runoff Volume (P1 = 1.5 in.) =	0.208	acre-feet
10-yr Runoff Volume (P1 = 1.75 in.) =	0.249	acre-feet
25-yr Runoff Volume (P1 = 2 in.) =	0.297	acre-feet
50-yr Runoff Volume (P1 = 2.25 in.) =	0.341	acre-feet
100-yr Runoff Volume (P1 = 2.52 in.) =	0.393	acre-feet
500-yr Runoff Volume (P1 = 3.14 in.) =	0.506	acre-feet
Approximate 2-yr Detention Volume =	0.162	acre-feet
Approximate 5-yr Detention Volume =	0.211	acre-feet
Approximate 10-yr Detention Volume =	0.255	acre-feet
Approximate 25-yr Detention Volume =	0.294	acre-feet
Approximate 50-yr Detention Volume =	0.316	acre-feet
Approximate 100-yr Detention Volume =	0.339	acre-feet

Optional User Overrides

	acre-feet
	acre-feet
1.19	inches
1.50	inches
1.75	inches
2.00	inches
2.25	inches
2.52	inches
	inches

Define Zones and Basin Geometry

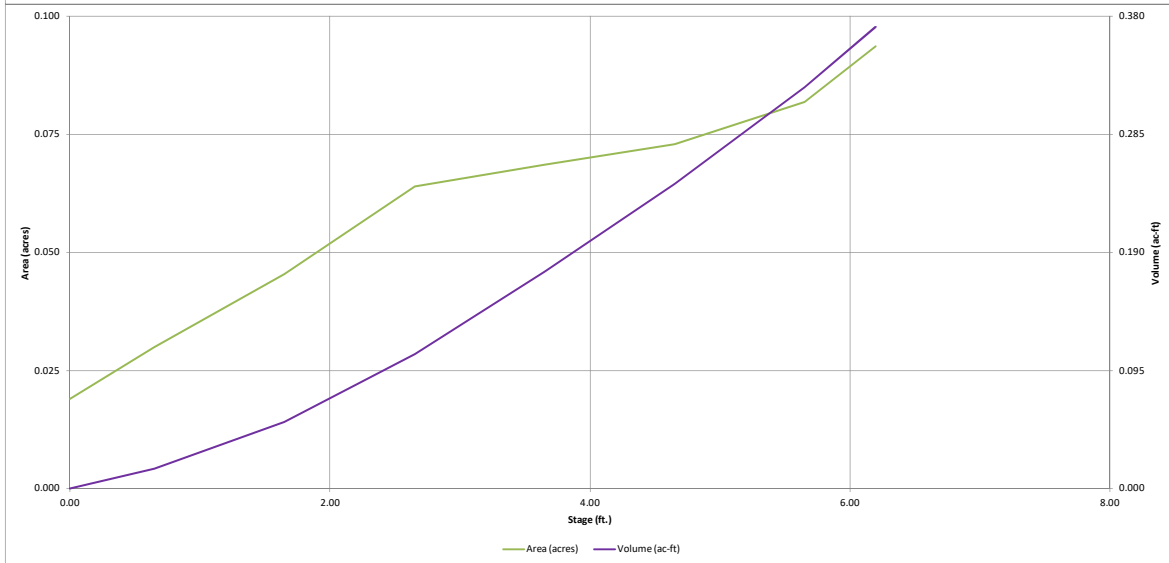
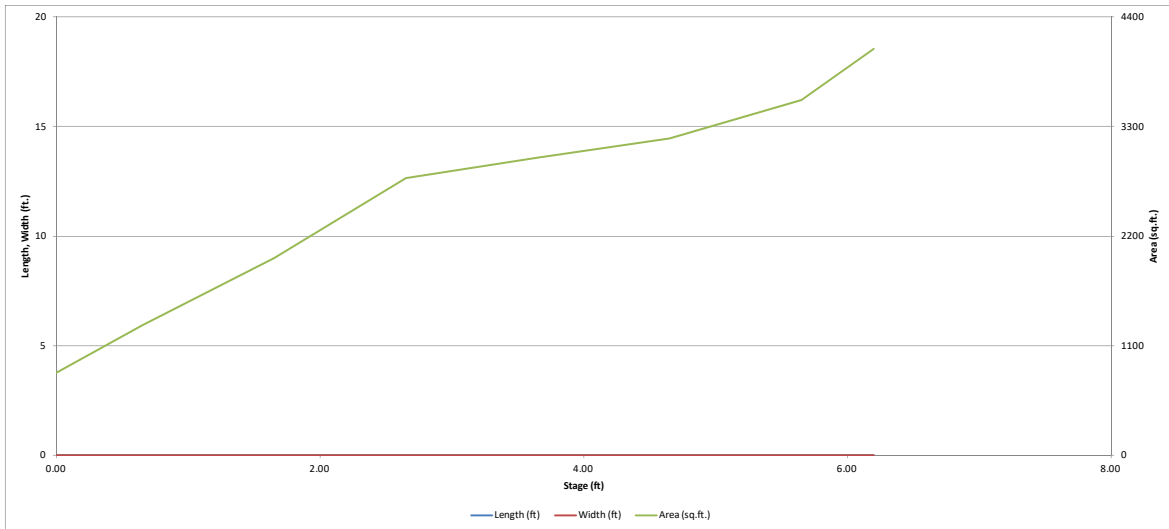
Zone 1 Volume (WQCV) =	0.051	acre-feet
Zone 2 Volume (100-year - Zone 1) =	0.288	acre-feet
Select Zone 3 Storage Volume (Optional) =		acre-feet
Total Detention Basin Volume =	0.339	acre-feet
Initial Surcharge Volume (ISV) =	N/A	ft ³
Initial Surcharge Depth (ISD) =	N/A	ft
Total Available Detention Depth (H _{total}) =	user	ft
Depth of Trickle Channel (H _{TC}) =	N/A	ft
Slope of Trickle Channel (S _{TC}) =	N/A	ft/ft
Slopes of Main Basin Sides (S _{main}) =	user	H:V
Basin Length-to-Width Ratio (R _{L/W}) =	user	

Depth Increment = [input] 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)
Media Surface	--	0.00	--	--	--	1,045	0.024		
	--	0.65	--	--	--	1,487	0.034	823	0.019
	--	1.65	--	--	--	2,280	0.052	2,706	0.062
	--	2.65	--	--	--	3,273	0.075	5,483	0.126
	--	3.65	--	--	--	3,616	0.083	8,927	0.205
	--	4.65	--	--	--	3,890	0.089	12,680	0.291
	--	5.65	--	--	--	4,175	0.096	16,713	0.384
	--	6.20	--	--	--	4,780	0.110	19,176	0.440

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

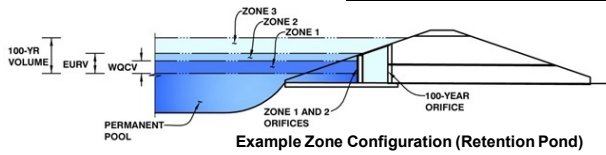


DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD- Detention, Version 4.06 (July 2022)

Project: Claremont Business Park 2 Filing No. 2

Basin ID: Lot 2 - Pond 3 (POND 3 TO BE DESIGNED AND CONSTRUCTED WITH THIS REPORT)



	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	1.44	0.051	Filtration Media
Zone 2 (100-year)	5.18	0.288	Weir&Pipe (Restrict)
Zone 3			
Total (all zones)		0.339	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth = ft (distance below the filtration media surface)
 Underdrain Orifice Diameter = inches

Calculated Parameters for Underdrain
 Underdrain Orifice Area = ft²
 Underdrain Orifice Centroid = feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Centroid of Lowest Orifice = ft (relative to basin bottom at Stage = 0 ft)
 Depth at top of Zone using Orifice Plate = ft (relative to basin bottom at Stage = 0 ft)
 Orifice Plate: Orifice Vertical Spacing = inches
 Orifice Plate: Orifice Area per Row = sq. inches

Calculated Parameters for Plate
 WQ Orifice Area per Row = ft²
 Elliptical Half-Width = feet
 Elliptical Slot Centroid = feet
 Elliptical Slot Area = ft²

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (optional)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Orifice Area (sq. inches)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Orifice Area (sq. inches)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected	
Invert of Vertical Orifice =	<input type="text" value="Not Selected"/>	<input type="text" value="Not Selected"/>	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	<input type="text" value="Not Selected"/>	<input type="text" value="Not Selected"/>	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	<input type="text" value="Not Selected"/>	<input type="text" value="Not Selected"/>	inches

Calculated Parameters for Vertical Orif
 Vertical Orifice Area =
 Vertical Orifice Centroid =

User Input: Overflow Weir (Dropbox with Flat or Sloped Gate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

	Zone 2 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	<input type="text" value="1.45"/>	<input type="text" value="Not Selected"/>	ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	<input type="text" value="3.00"/>	<input type="text" value="Not Selected"/>	feet
Overflow Weir Gate Slope =	<input type="text" value="0.00"/>	<input type="text" value="Not Selected"/>	H:V
Horiz. Length of Weir Sides =	<input type="text" value="3.00"/>	<input type="text" value="Not Selected"/>	feet
Overflow Gate Type =	<input type="text" value="Type C Gate"/>	<input type="text" value="Not Selected"/>	
Debris Clogging % =	<input type="text" value="70%"/>	<input type="text" value="Not Selected"/>	%

Calculated Parameters for Overflow W
 Height of Gate Upper Edge, H_t =
 Overflow Weir Slope Length =
 Gate Open Area / 100-yr Orifice Area =
 Overflow Gate Open Area w/o Debris =
 Overflow Gate Open Area w/ Debris =

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 2 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	<input type="text" value="2.75"/>	<input type="text" value="Not Selected"/>	ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter =	<input type="text" value="18.00"/>	<input type="text" value="Not Selected"/>	inches
Restrictor Plate Height Above Pipe Invert =	<input type="text" value="4.60"/>	<input type="text" value="Not Selected"/>	inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Pl
 Outlet Orifice Area =
 Outlet Orifice Centroid =
 Half-Central Angle of Restrictor Plate on Pipe = N/A

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage =	<input type="text" value="4.90"/>	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	<input type="text" value="18.00"/>	feet
Spillway End Slopes =	<input type="text" value="4.00"/>	H:V
Freeboard above Max Water Surface =	<input type="text" value="1.00"/>	feet

Calculated Parameters for Spillway
 Spillway Design Flow Depth = feet
 Stage at Top of Freeboard = feet
 Basin Area at Top of Freeboard = acres
 Basin Volume at Top of Freeboard = acre-ft

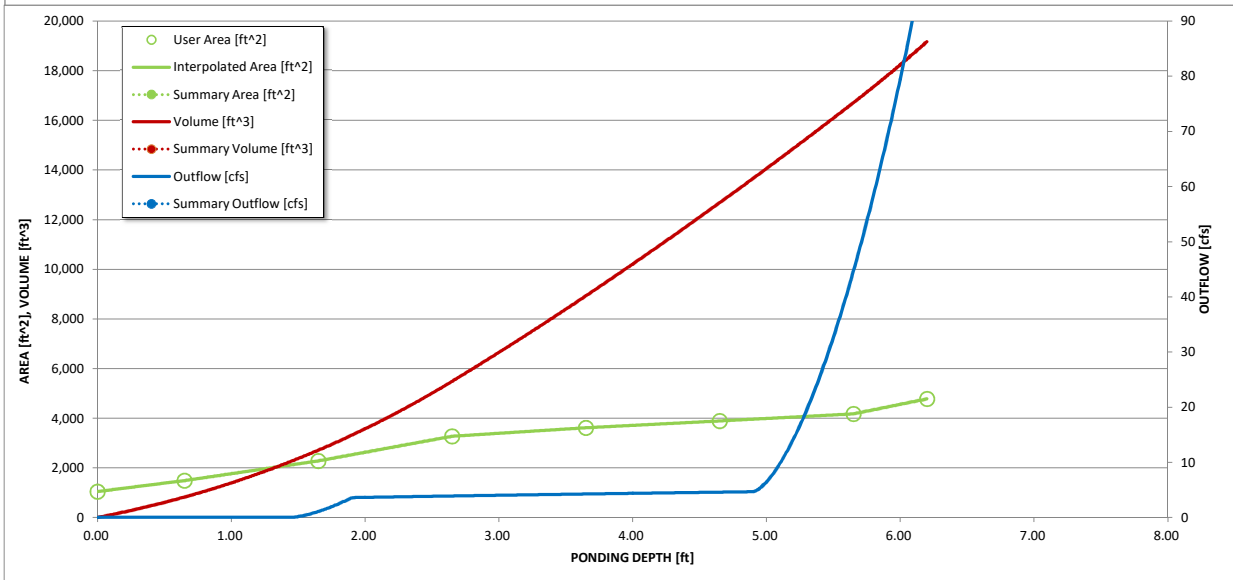
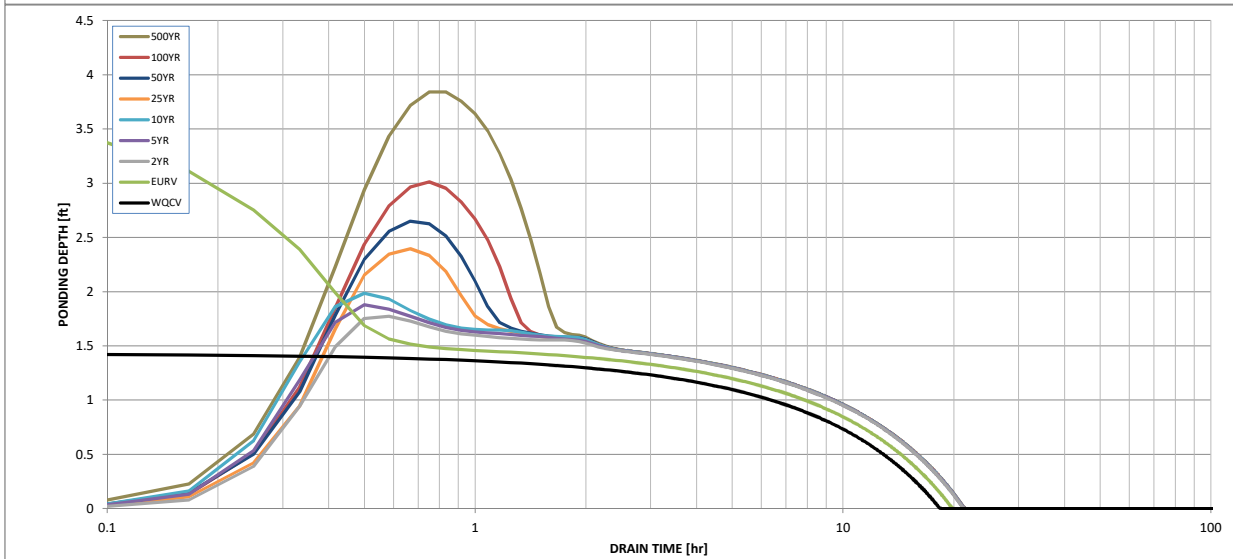
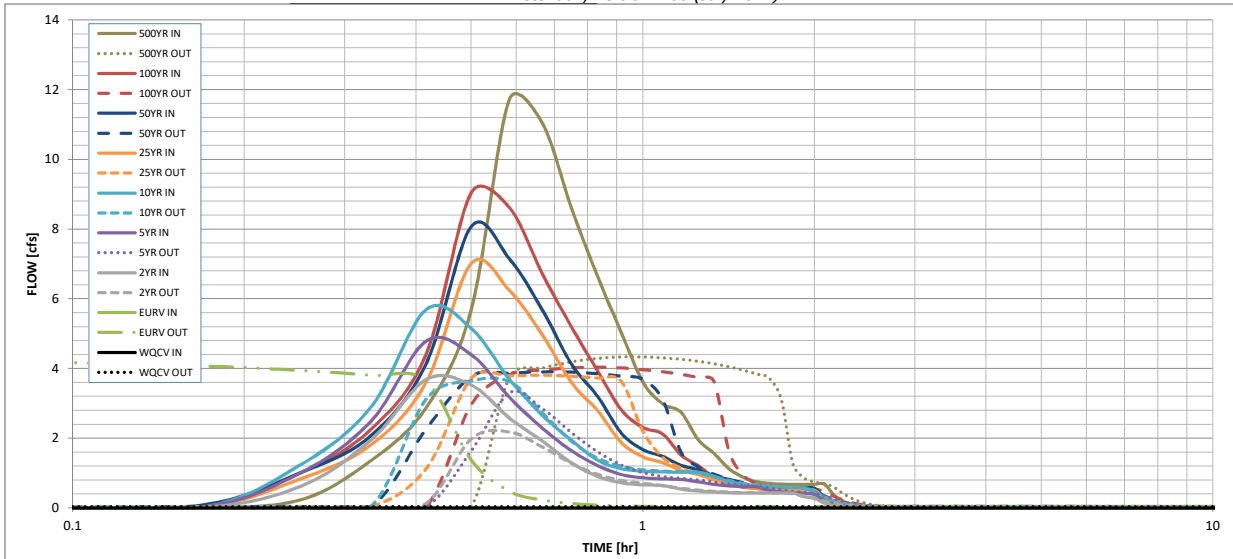
Routed Hydrograph Results

The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AI)

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
Design Storm Return Period =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52
One-Hour Rainfall Depth (in) =	N/A	N/A	0.161	0.208	0.249	0.297	0.341	0.393
CUHP Runoff Volume (acre-ft) =	0.051	0.234	0.161	0.208	0.249	0.297	0.341	0.393
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.161	0.208	0.249	0.297	0.341	0.393
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	0.0	0.1	0.5	1.4	2.0	2.8
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A						
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.02	0.03	0.20	0.61	0.86	1.20
Peak Inflow Q (cfs) =	N/A	N/A	3.7	4.8	5.7	7.0	8.1	9.0
Peak Outflow Q (cfs) =	0.0	4.3	2.2	3.3	3.6	3.8	3.9	4.0
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	49.0	7.8	2.7	2.0	1.4
Structure Controlling Flow =	Filtration Media	Outlet Plate 1	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1
Max Velocity through Gate 1 (fps) =	N/A	0.69	0.34	0.5	0.6	0.6	0.6	0.6
Max Velocity through Gate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	18	17	19	19	18	18	17	17
Time to Drain 99% of Inflow Volume (hours) =	18	19	21	21	20	20	20	20
Maximum Ponding Depth (ft) =	1.43	4.00	1.77	1.88	1.98	2.39	2.65	3.01
Area at Maximum Ponding Depth (acres) =	0.05	0.09	0.06	0.06	0.06	0.07	0.07	0.08
Maximum Volume Stored (acre-ft) =	0.051	0.234	0.069	0.074	0.081	0.107	0.125	0.153

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)



S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

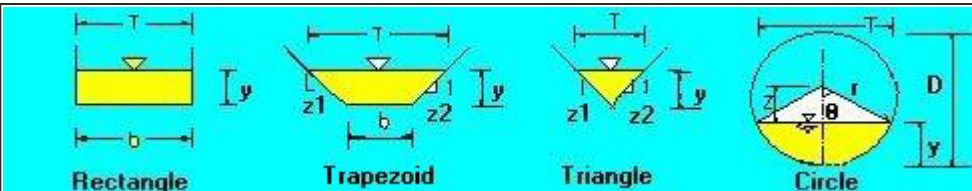
DETENTION BASIN OUTLET STRUCTURE DESIGN

Outflow Hydrograph Workbook Filename: _____

Inflow Hydrographs

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

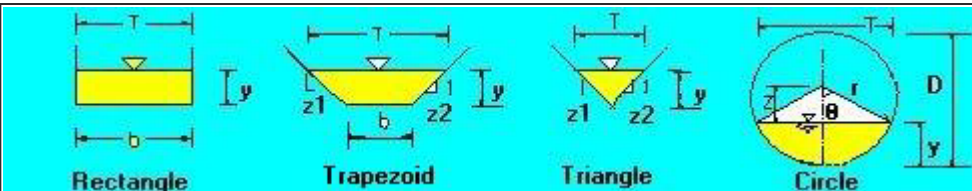
Time Interval	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.00 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.22
	0:15:00	0.00	0.00	0.61	0.99	1.22	0.82	1.00	0.99	1.35
	0:20:00	0.00	0.00	1.94	2.48	2.89	1.80	2.07	2.25	2.87
	0:25:00	0.00	0.00	3.68	4.78	5.69	3.59	4.13	4.41	5.68
	0:30:00	0.00	0.00	3.52	4.40	5.15	7.01	8.07	9.04	11.71
	0:35:00	0.00	0.00	2.58	3.17	3.69	6.24	7.15	8.62	11.03
	0:40:00	0.00	0.00	1.91	2.29	2.66	4.96	5.68	6.71	8.58
	0:45:00	0.00	0.00	1.29	1.64	1.94	3.59	4.12	5.18	6.63
	0:50:00	0.00	0.00	0.90	1.21	1.37	2.78	3.20	3.92	5.03
	0:55:00	0.00	0.00	0.72	0.95	1.13	1.87	2.14	2.81	3.61
	1:00:00	0.00	0.00	0.66	0.86	1.05	1.46	1.67	2.31	2.98
	1:05:00	0.00	0.00	0.64	0.83	1.03	1.29	1.47	2.12	2.74
	1:10:00	0.00	0.00	0.54	0.81	1.03	1.07	1.22	1.52	1.95
	1:15:00	0.00	0.00	0.48	0.74	1.03	0.96	1.09	1.21	1.56
	1:20:00	0.00	0.00	0.45	0.67	0.91	0.80	0.91	0.88	1.12
	1:25:00	0.00	0.00	0.44	0.63	0.76	0.72	0.81	0.69	0.88
	1:30:00	0.00	0.00	0.43	0.61	0.68	0.61	0.68	0.59	0.74
	1:35:00	0.00	0.00	0.43	0.60	0.63	0.55	0.62	0.56	0.70
	1:40:00	0.00	0.00	0.43	0.50	0.61	0.52	0.59	0.54	0.68
	1:45:00	0.00	0.00	0.43	0.45	0.60	0.51	0.57	0.54	0.67
	1:50:00	0.00	0.00	0.43	0.43	0.60	0.50	0.56	0.54	0.67
	1:55:00	0.00	0.00	0.33	0.41	0.57	0.50	0.56	0.54	0.67
	2:00:00	0.00	0.00	0.27	0.38	0.49	0.50	0.56	0.54	0.67
	2:05:00	0.00	0.00	0.14	0.20	0.26	0.26	0.29	0.28	0.35
	2:10:00	0.00	0.00	0.07	0.10	0.13	0.14	0.15	0.15	0.18
	2:15:00	0.00	0.00	0.03	0.05	0.06	0.06	0.07	0.07	0.09
	2:20:00	0.00	0.00	0.01	0.02	0.02	0.02	0.03	0.03	0.03
	2:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	2:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	3:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	4:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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5:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
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5:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
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5:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

The open channel flow calculator		
Select Channel Type: Triangle ▾		
Velocity(V)&Discharge(Q) ▾	Select unit system: Feet(ft) ▾	
Channel slope: 0.007 ft/ft	Water depth(y): 0.25 ft	Bottom W(b) 0 ft
Flow velocity 1.2004 ft/s	LeftSlope (Z1): 3 to 1 (H:V)	RightSlope (Z2): 3 to 1 (H:V)
Flow discharge 0.2251 ft ³ /s	Input n value 0.025 or select n	
Calculate!	Status: Calculation finished	Reset
Wetted perimeter 1.58 ft	Flow area 0.19 ft ²	Top width(T) 1.5 ft
Specific energy 0.27 ft	Froude number 0.6	Flow status Subcritical flow
Critical depth 0.2 ft	Critical slope 0.0203 ft/ft	Velocity head 0.02 ft

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EAST SWALE $Q_{100} = 0.2$ cfs

The open channel flow calculator

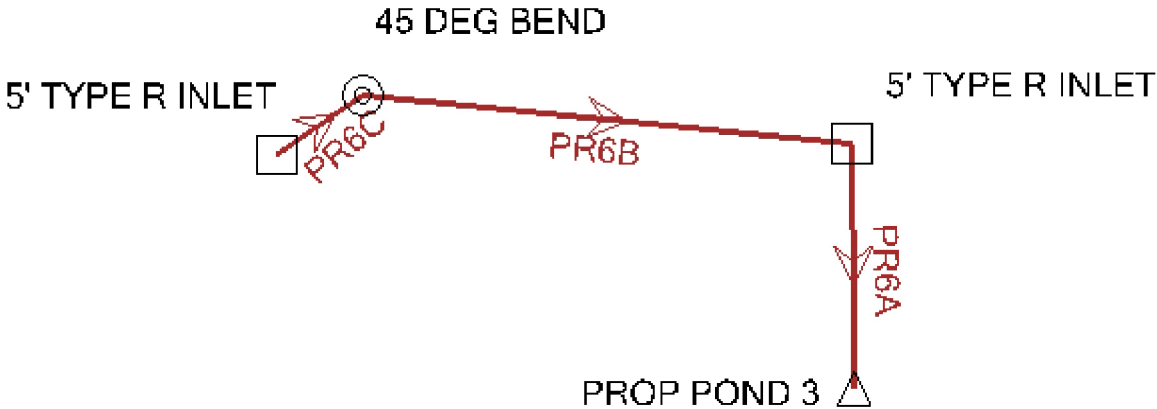
Select Channel Type: Triangle ▾			
Velocity(V)&Discharge(Q) ▾	Select unit system: Feet(ft) ▾		
Channel slope: <input type="text" value=".038"/> <small>ft/ft</small>	Water depth(y): <input type="text" value="0.175"/> <small>ft</small>	Bottom W(b) <input type="text" value="0"/> <small>ft</small>	
Flow velocity <input type="text" value="2.2049"/> <small>ft/s</small>	LeftSlope (Z1): <input type="text" value="3"/> <small>to 1 (H:V)</small>	RightSlope (Z2): <input type="text" value="3"/> <small>to 1 (H:V)</small>	
Flow discharge <input type="text" value="0.2026"/> <small>ft^3/s</small>	Input n value <input type="text" value="0.025"/> or select n		
<input type="button" value="Calculate!"/>	Status: Calculation finished		<input type="button" value="Reset"/>
Wetted perimeter <input type="text" value="1.11"/> <small>ft</small>	Flow area <input type="text" value="0.09"/> <small>ft^2</small>	Top width(T) <input type="text" value="1.05"/> <small>ft</small>	
Specific energy <input type="text" value="0.25"/> <small>ft</small>	 Froude number <input type="text" value="1.31"/> 		Flow status <input type="text" value="Supercritical flow"/>
Critical depth <input type="text" value="0.2"/> <small>ft</small>	Critical slope <input type="text" value="0.021"/> <small>ft/ft</small>	Velocity head <input type="text" value="0.08"/> <small>ft</small>	

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WEST SWALE $Q_{100} = 0.2$ cfs

high vs .9

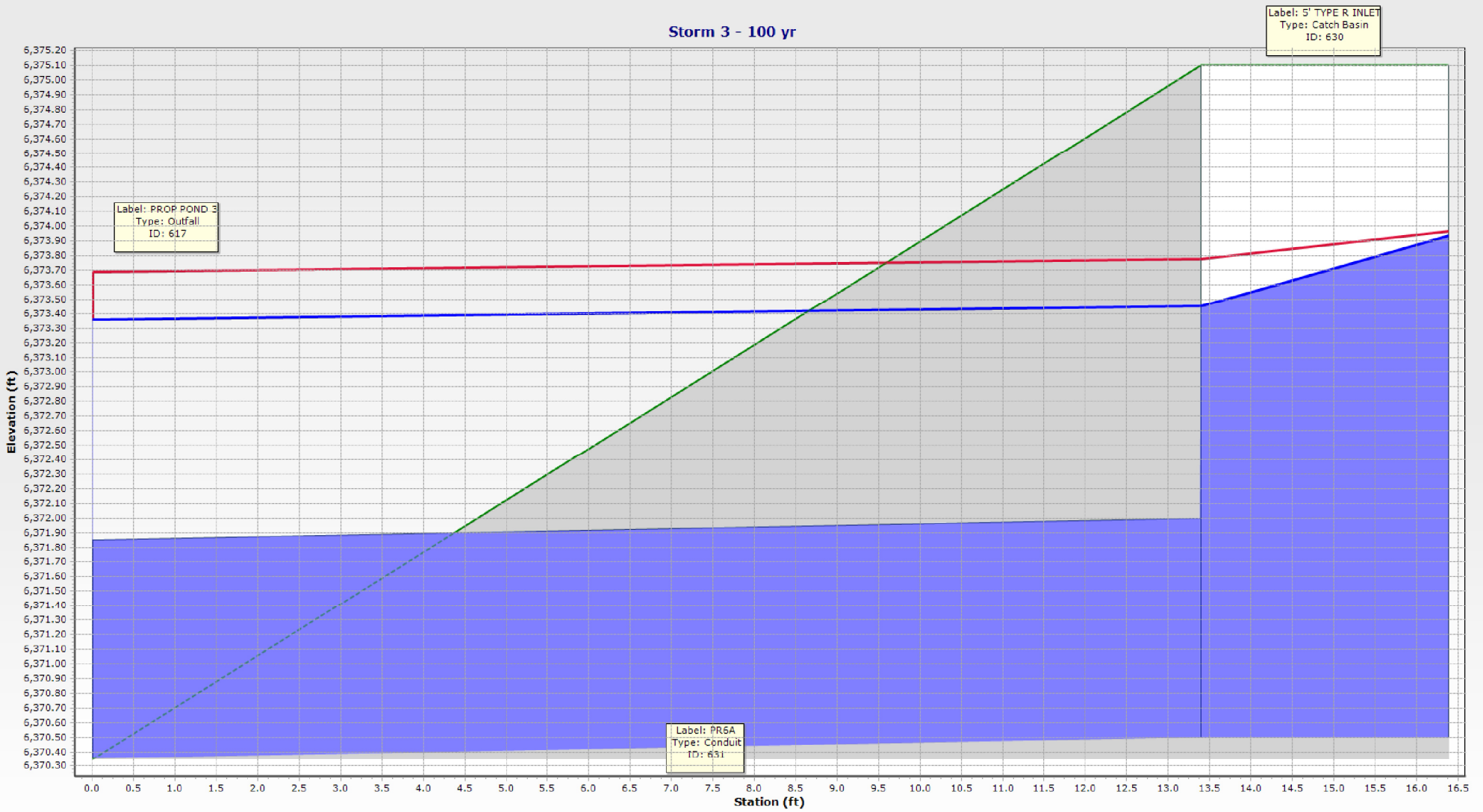
STORM 3 & LAT 1 INDEX MAP



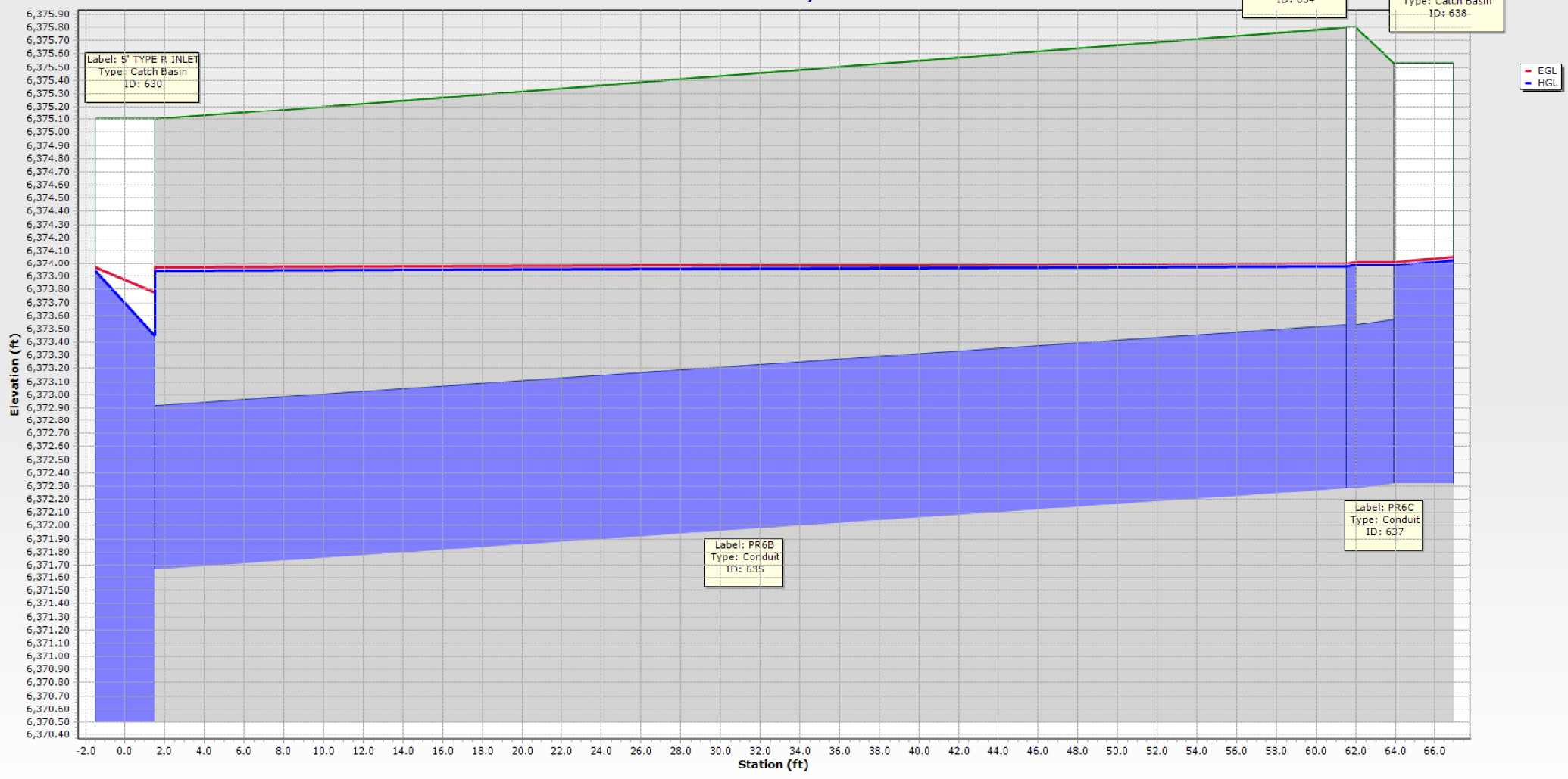
Conduit FlexTable: Table - 1

Label	Upstream Structure	Flow (cfs)	Length (Unified) (ft)	Velocity (ft/s)	Depth (Normal) (ft)	Depth (Critical) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Headloss (ft)	Upstream Structure Hydraulic Grade Line (In) (ft)	Upstream Structure Velocity (In-Governing) (ft/s)	Upstream Structure Headloss Coefficient	Upstream Structure Headloss (ft)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)
PR6A	5' TYPE R INLET	8.10	14.9	4.58	0.99	1.10	6,373.45	6,373.36	0.09	6,373.94	1.30	1.500	0.49	6,370.35	6,375.10
PR6B	45 DEG BEND	1.60	61.8	1.30	0.43	0.50	6,373.98	6,373.94	0.04	6,373.99	1.30	0.400	0.01	6,375.10	6,375.80
PR6C	5' TYPE R INLET	1.60	3.7	1.30	0.41	0.50	6,373.99	6,373.99	0.00	6,374.03	1.30	1.500	0.04	6,375.80	6,375.53
Invert (Start) (ft)	Invert (Stop) (ft)	Conduit Description	Manning's n	Slope (Calculated) (ft/ft)											
6,370.35	6,370.50	Circle - 18.0 in	0.013	-0.010											
6,371.67	6,372.28	Circle - 15.0 in	0.013	-0.010											
6,372.28	6,372.32	Circle - 15.0 in	0.013	-0.011											

Storm 3 - 100 yr



Storm 3 Lat 1 - 100 yr



EXISTING DRAINAGE MAP

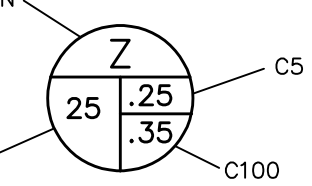

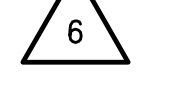







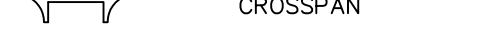





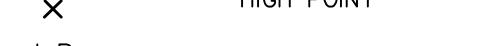
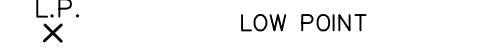
FINAL DRAINAGE REPORT FOR LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO.2

COUNTY OF EL PASO, STATE OF COLORADO

EXISTING CONDITIONS DRAINAGE MAP

AUGUST 2023

LEGEND

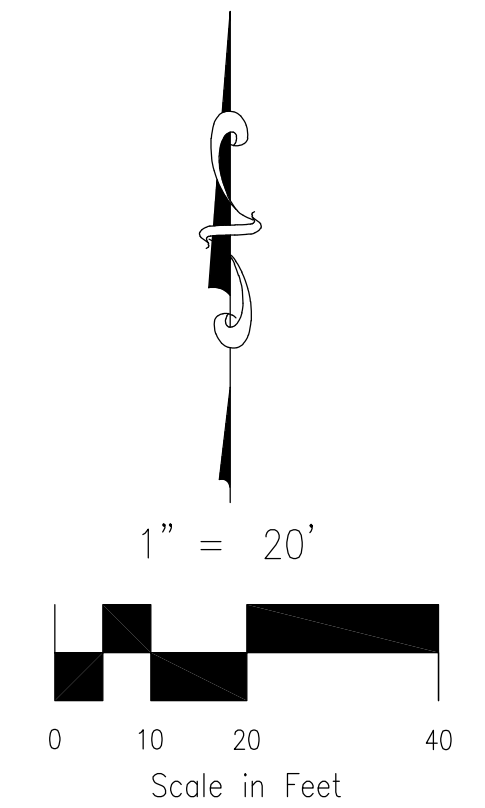
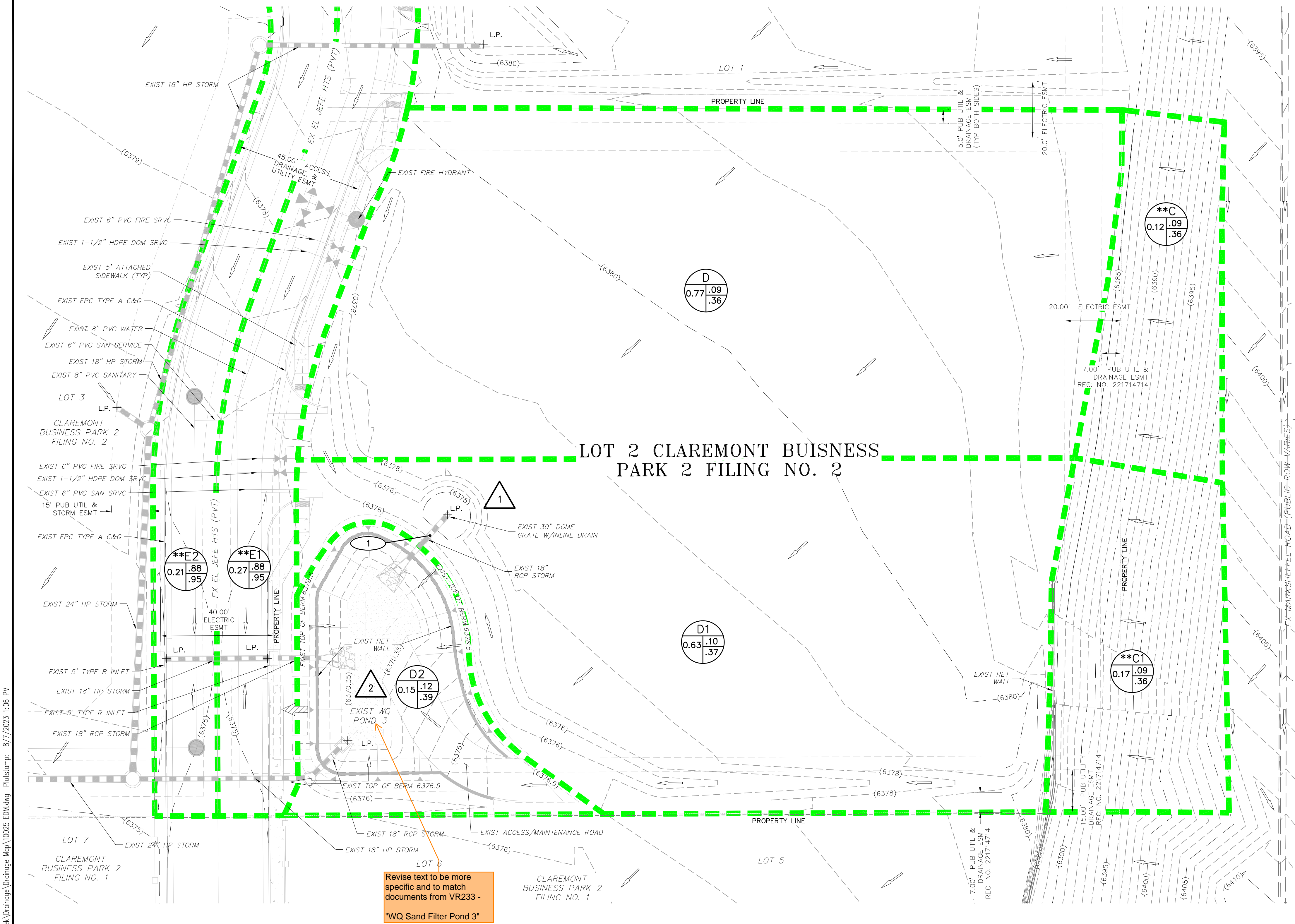
-  BASIN DESIGNATION
-  PIPE RUN REFERENCE LABEL
-  SURFACE DESIGN POINT
-  BASIN BOUNDARY
-  EXISTING CONTOUR
-  PROP CONTOUR
-  UNDERGROUND ELECTRICAL
-  EXISTING GAS LINE
-  STORM SEWER PIPE
-  EXISTING STORM SEWER PIPE
-  CROSSSPAN
-  INLET
-  EXISTING FLOW DIRECTION ARROW
-  EMERGENCY OVERFLOW DIRECTION
-  FLOW DIRECTION
-  FLARED END SECTION
-  HIGH POINT
-  LOW POINT

BASIN SUMMARY			
BASIN	AREA (ACRES)	Q ₅	Q ₁₀₀
**C	0.12	0.1	0.4
**C1	0.17	0.1	0.5
D	0.77	0.3	1.8
D1	0.63	0.2	1.5
D2	0.15	0.1	0.5
**E1	0.27	1.2	2.2
**E2	0.21	1.0	0.1

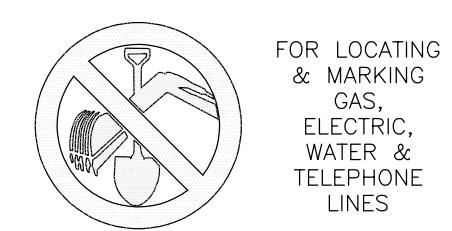
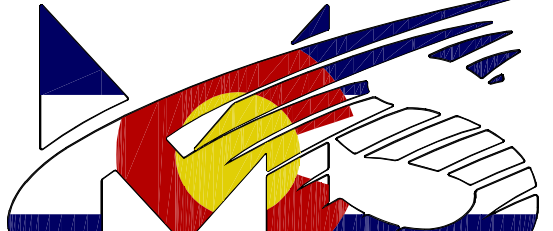
**~CLAREMONT BUSINESS PARK 2 FILING NO.2 FDR
PREPARED BY MS CIVIL CONSULTANTS, INC.

DESIGN POINT SUMMARY				
DESIGN POINT	Q ₅	Q ₁₀₀	BASIN	STRUCTURE
1	0.6	3.9	**C, **C1, D, D1	EX 30" DOME GRATE
2	2.2	6.9	D2, **E1, **E2, DP1	EX WQ POND 3

STORM SEWER SUMMARY				
PIPE RUN	Q ₅	Q ₁₀₀	PIPE SIZE	CONTRIBUTING DP/BASIN/PIPES
1	0.6	3.9	EX 18"	DP1



File: O:\10025A-CBP2 - Lot 2\Bran_Zurek\Drainage\Drainage Map\10025 EDM.dwg Plotstamp: 8/7/2023 1:06 PM

 <p>FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES</p> <p>FOR BURIED UTILITY INFORMATION 48 HRS BEFORE YOU DIG CALL 1-800-922-1987</p>	 <p>CIVIL CONSULTANTS, INC.</p>	<p>212 N. WAHSATCH AVE., STE 305 COLORADO SPRINGS, CO 80903 PHONE: 719.955.5485</p>	<p>LOT2 CLAREMONT BUSINESS PARK 2 FIL.NO.2</p> <p>EXISTING CONDITIONS DRAINAGE MAP</p> <p>PROJECT NO. 10-025A FILE: \dwg\Eng Exhibits\10025 EDM.dwg</p> <p>DESIGNED BY: GT SCALE DATE: 08-02-2023</p> <p>DRAWN BY: DLM HORIZ: 1"=20'</p> <p>CHECKED BY: VAS VERT: N/A SHEET 1 OF 1 EDM01</p>
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PROPOSED DRAINAGE MAP

FINAL DRAINAGE REPORT FOR LOT 2 CLAREMONT BUSINESS PARK 2 FILING NO.2

COUNTY OF EL PASO, STATE OF COLORADO

PROPOSED CONDITIONS DRAINAGE MAP

AUGUST 2023

LEGEND

- BASIN DESIGNATION
- PIPE RUN REFERENCE LABEL
- SURFACE DESIGN POINT
- BASIN BOUNDARY
- EXISTING CONTOUR
- PROP CONTOUR
- UNDERGROUND ELECTRICAL
- EXISTING GAS LINE
- STORM SEWER PIPE
- EXISTING STORM SEWER PIPE
- CROSSSPAN
- INLET
- EXISTING FLOW DIRECTION ARROW
- EMERGENCY OVERFLOW DIRECTION
- FLOW DIRECTION
- FLARED END SECTION
- HIGH POINT
- LOW POINT

BASIN SUMMARY				
BASIN	AREA (ACRES)	Q ₅	Q ₁₀₀	
#C	0.4	0.0	0.1	
#C1	0.26	0.1	0.8	
D	0.47	0.3	1.3	
**D	0.47	2.0	3.6	
D1	0.93	3.3	6.3	
***D1	0.93	3.9	7.1	
D2	0.15	0.1	0.5	
**E1	0.27	1.2	2.2	
**E2	0.27	1.0	1.7	

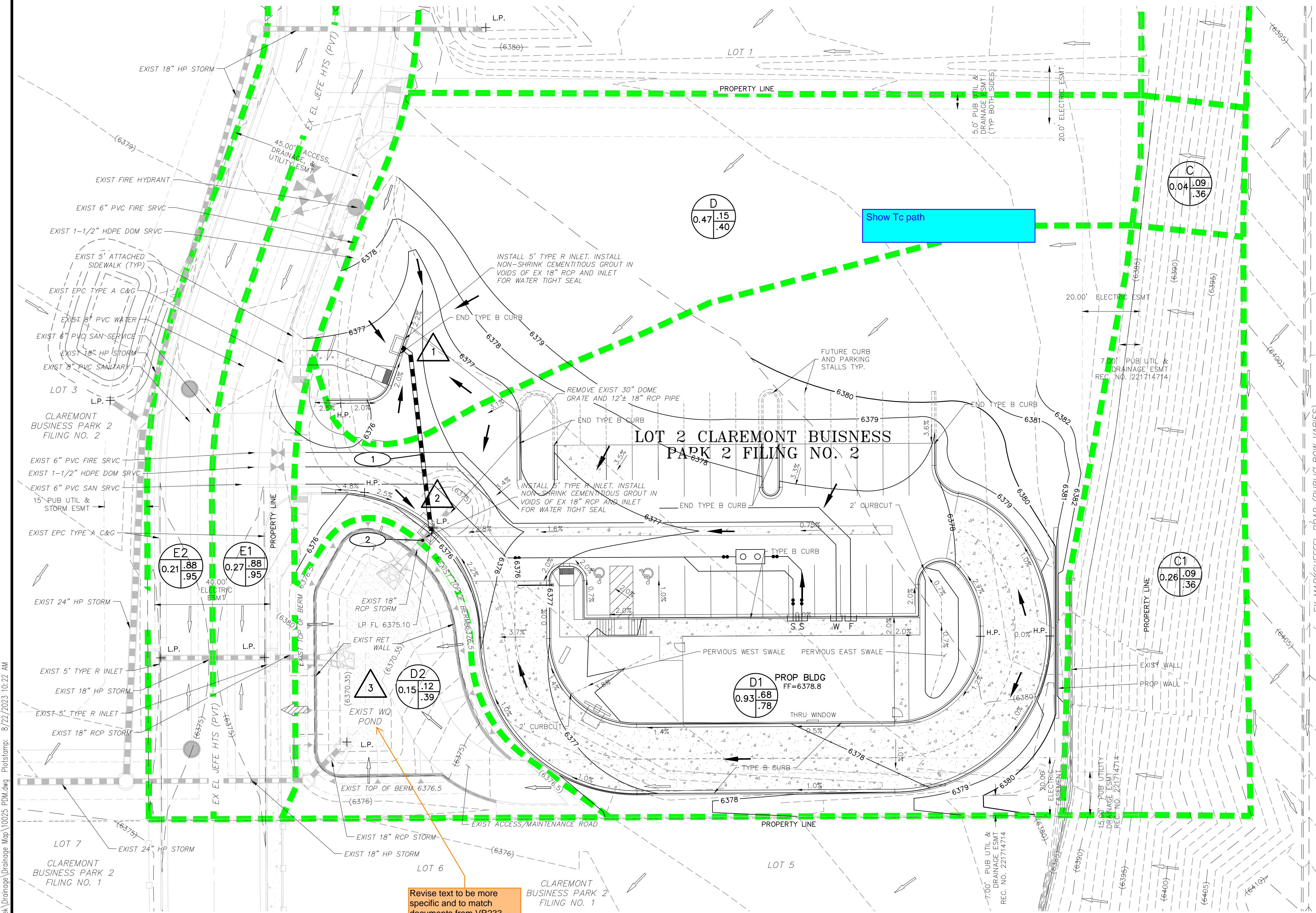
**~CLAREMONT BUSINESS PARK 2 FILING NO.2 FDR PREPARED BY MS CIVIL CONSULTANTS, INC.
 #~BASIN AREA REVISED FROM CLAREMONT BUSINESS PARK 2 FILING NO. 2 FDR PREPARED BY MS CIVIL CONSULTANTS, INC.
 ***~ULTIMATE BUILD OUT. DEVELOPMENT OF LOT 2 (NORTH HALF).

DESIGN POINT SUMMARY				
DESIGN POINT	Q ₅	Q ₁₀₀	BASIN	STRUCTURE
1	0.3	1.6	#C, D	PROP 5' TYPE R INLET
**1	1.8	3.4	#C, **D	PROP 5' TYPE R INLET
2	3.1	6.5	#C1, D1	PROP 5' TYPE R INLET
**2	3.9	7.2	#C1, **D1	PROP 5' TYPE R INLET
3	3.9	8.7	D2, PR2, **E1, **E2	EX WQ POND 3
***3	4.8	12.8	D2, **PR2, **E1, **E2	EX WQ POND 3

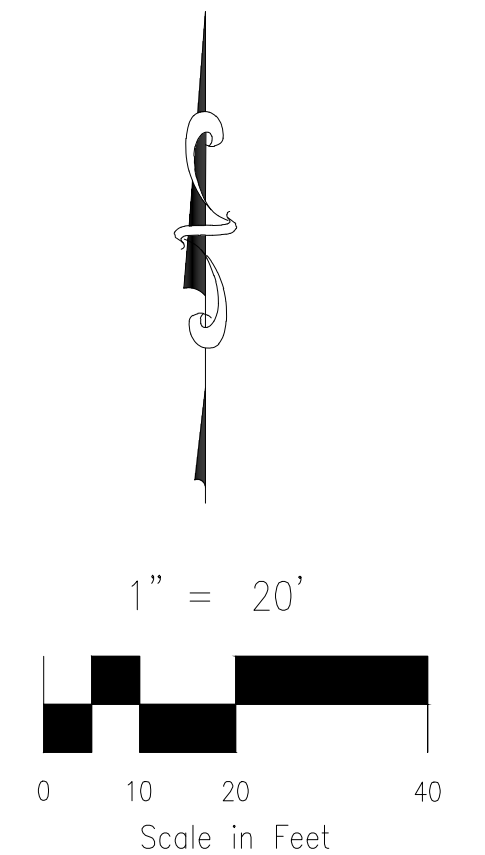
STORM SEWER SUMMARY				
PIPE RUN	Q ₅	Q ₁₀₀	PIPE SIZE	CONTRIBUTING DP/BASIN/PIPES
1	0.3	1.6	PROP 15" PP	DP1
***1	1.8	3.4	PROP 15" PP	**DP1
2	3.4	8.1	EX 18" RCP	DP2, PR1
**2	5.7	10.6	EX 18" RCP	**DP2, **PR1

POND 3 SAND FILTER DETENTION BASIN DATA

WQ WATER SURFACE EL = 6371.78
 WQ VOLUME=0.051 AC-FT
 100-YR WATER SURFACE EL=6373.36
 100-YR VOLUME=0.153 AC-FT
 SPILLWAY CREST EL=6375.30
 TOP OF EMBANKMENT EL=6376.55
 RATIONAL 100-YR INFLOW=14.8 CFS
 MHFD 100-YR INFLOW = 9.0 CFS
 MHFD 100-YR RELEASE = 4.0 CFS



Revise text to be more specific and to match documents from VR233 - "WQ Sand Filter Pond 3"



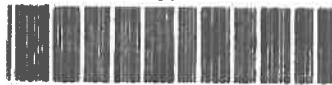
Files: G:\10025A-CBR2 - Lot 2\Bran_Zurek\Drainage\Drainage Map\10025 PDM.dwg Plotstamp: 8/22/2023 10:22 AM

<p>FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES</p> <p>FOR BURIED UTILITY INFORMATION 48 HRS BEFORE YOU DIG CALL 1-800-922-1987</p>	<p>212 N. WAHSATCH AVE., STE 305 COLORADO SPRINGS, CO 80903 PHONE: 719.955.5485</p>	<p style="text-align: center;">LOT2 CLAREMONT BUSINESS PARK 2 FIL.NO.2</p> <p style="text-align: center;">PROP. CONDITIONS DRAINAGE MAP</p> <table border="1" style="width: 100%; font-size: small;"> <tr> <td>PROJECT NO. 10-025A</td> <td>FILE: \dwg\Eng Exhibits\10025 PDM.dwg</td> <td>DATE: 06-03-2023</td> </tr> <tr> <td>DESIGNED BY: GT</td> <td>SCALE: HORIZ: 1"=20'</td> <td>VERT: N/A</td> </tr> <tr> <td>DRAWN BY: GT</td> <td></td> <td></td> </tr> <tr> <td>CHECKED BY: VAS</td> <td></td> <td></td> </tr> </table> <p style="text-align: right; font-weight: bold; font-size: small;">SHEET 1 OF 1 PDM01</p>	PROJECT NO. 10-025A	FILE: \dwg\Eng Exhibits\10025 PDM.dwg	DATE: 06-03-2023	DESIGNED BY: GT	SCALE: HORIZ: 1"=20'	VERT: N/A	DRAWN BY: GT			CHECKED BY: VAS		
PROJECT NO. 10-025A	FILE: \dwg\Eng Exhibits\10025 PDM.dwg	DATE: 06-03-2023												
DESIGNED BY: GT	SCALE: HORIZ: 1"=20'	VERT: N/A												
DRAWN BY: GT														
CHECKED BY: VAS														

BOCC RESOLUTION 16-426

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Rec \$0.00 Pages

EL PASO COUNTY, W



216137149

RESOLUTION NO. 16- 426

**BOARD OF COUNTY COMMISSIONERS
COUNTY OF EL PASO, STATE OF COLORADO**

Resolution Denying an Appeal by Hammers Construction LLC (APP-16-002) of the Administrative Determination made by the Planning and Community Development Department Executive Director regarding the requirement for permanent/post construction Water Quality (permanent stormwater quality best management practices or BMP's).

WHEREAS, pursuant to §§30-11-101(1)(e) and 30-11-107(1)(e), C.R.S., the Board of County Commissioners of El Paso County, Colorado (hereinafter "Board) has the legislative authority to manage the concerns of El Paso County when deemed by the Board to be in the best interests of the County and its inhabitants; and

WHEREAS, after consultation with the County Attorney's Office, the Executive Director of Planning and Community Development on August 4, 2016 issued an administrative determination finding made an administrative determination that all undeveloped lots within the Claremont Business Park are subject to installation of permanent stormwater management best management practices (BMP's) associated with development, and that the terms of a 2008 approved deviation relieving the developer of the requirements have not been met.; and

WHEREAS, an appeal of the administrative determination was filed by Hammers Construction on August 10, 2016, and a hearing date was set for September 27, 2016 to hear the appeal; and

WHEREAS, the hearing was continued to a date certain of November 22, 2016; and

WHEREAS, at the Applicant's appeal hearing on November 22, 2016, testimony from the Applicant and the Applicant's representatives was heard by the Board in favor of the appeal, testimony from representatives of Planning and Community Development Department and was presented, and such testimony and associated evidence was weighed by the Board; and

WHEREAS, the Board, having reviewed the testimony and evidence, hereby finds and determines that the requested appeal of the administrative determination by the Planning and Community Development Executive Director by the Applicant did not satisfy the criteria of approval to overturn the administrative determination.

NOW, THEREFORE, BE IT RESOLVED that the Board of County Commissioners of El Paso County, Colorado, hereby denies the appeal of the administrative determination by Hammers Construction and determines that permanent stormwater management best management practices (BMP's) are required with new development within the Claremont Business Park: and

BE IT FURTHER RESOLVED that Sallie Clark, duly elected, qualified member and Chair of the Board of County Commissioners, or Darryl Glenn, duly elected, qualified member and Vice Chair of the Board of County Commissioners, be and is hereby authorized on behalf of the Board to execute any and all documents necessary to carry out the intent of the Board as described herein.

DONE THIS 22nd day of November, 2016, at Colorado Springs Colorado.

**BOARD OF COUNTY COMMISSIONERS
EL PASO COUNTY, COLORADO**

ATTEST:  Richard D. Broerman
County Clerk & Recorder

By: Sallie Clark
Chair of the Board