



Alexander Place

PDP Amendment 1

Phase I Drainage Report PDP26-0001

IMEG #20002764.00

Prepared for:

Alexander Place Investors LLC
c/o Lenn Haffeman
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Prepared by:

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May 2026
June 2026

ENGINEERS CERTIFICATION

I affirm that this report and plan for the Phase I drainage design of Alexander Place PDP Amendment 1 was prepared by me (or under my direct supervision) in accordance with the provisions of the Town of Castle Rock Drainage Design and Technical Criteria for the owners thereof. I understand that the Town of Castle Rock does not and will not assume liability for drainage facilities designed by others.

Rick Rome P.E.
Registered Professional Engineer State
Of Colorado No. 35103
(Affix Seal)

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Alexander Place PDP Amendment 1 Phase 1 Drainage Report

GENERAL LOCATION AND DESCRIPTION

A. Site Location

The project is located in the south half of the north half of Section 26 T7S R67W 6th PM and includes a combination of platted and unplatted lands. The northern part of the site is Lot 4 of the Cooperhook Mainplace subdivision. The south half is unplatted lands at 382 Alexander Place. The property is bounded on the east by unplatted land addressed at 604 Alexander Place. The Diamond Ridge subdivision is located approximately 1400 lf west of the property. The Monta Vista Subdivision is located immediately adjacent to the property on the west. Town of Castle Rock Open space is located immediately south of the property. IMEG is the consultant providing civil engineering services.

B. Description of Property and Land Use

The property encompasses approximately 15.82 acres that generally slopes from east to west at grades ranging from 2% to 20% in the buildable areas. The proposed development plan calls for medium density single family residential lots.

Ground cover for the property includes scrub oaks, native grasses, and rock outcroppings. Site development will include over lot grading activities to optimize the use of available space and views from the subdivision. The site development is provided in coordination with the Soleana Subdivision located north of the property and includes road and utility connections that offer reciprocal access and services for both developments.

Soils on site are Kutch Sandy Loams. These soils are generally consistent with hydrologic soil group D.

The project area is historically tributary to East Plum Creek along the path identified as Plum Creek Tributary C. This path crosses the property draining from the southeast corner of the site to the northeast corner of the property. The outfall drains through the Cooper Hook development through a 72" storm sewer that is part of the Tributary C to Plum Creek as modeled in the Flood Hazard Area Delineation and Master plan prepared for the Town of Castle Rock.

The site is in zone X as noted on FIRM Panel 08035C0186G Revised March 16, 2016. There are no irrigation ditches or canals adjacent to or impacted by this project. There is a designated FEMA floodplain that begins approximately 2500 feet west of the project boundary. The FHAD for Tributary C identifies flood limits along the southern boundary of the property.

Development of the project includes 50 single-family medium density detached lots. These sites are planned to coordinate with the access utilities and drainage facilities proposed with the Soleana subdivision to the north of the property. For this analysis, we have assumed impervious coverage with the development based on this anticipated use.

Access and circulation for the project includes connections to the road and utility network at the intersection of Via Soleana and Alexander Place with a planned connection to Soleana at Luminera Court. The subdivision is tributary to a shared extended dry basin located at the west end of the property that will be constructed with the Soleana subdivision.

DRAINAGE BASIN AND SUB-BASINS

A. Major Drainage Basins

The project area is located in the Plum Creek watershed. The project area is described in the Tributary C and D Watershed Masterplan prepared by Respec Dated October 2014. The property itself is a part of sub-Basin 106. Basin 106 was estimated with approximately 97.5 acres at an approximate historic impervious coverage of 6.0%. This total includes the 15.52 acres of the proposed Alexander Place PDP Amendment 1 development. The site development takes into consideration adjacent and downstream developments associated with the Cooperhook Mainplace subdivision and the Monta Vista subdivision.

Sub Basin 106 receives stormwater runoff from Sub basin 107. Sub Basin 107 represents the upper reach of the tributary area and is defined by a local ridgeline along the eastern and southern limits of the watershed. Ownership in the basin includes a combination of the following:

- 21.2 and 7.5 acres open space owned by the Town of Castle Rock
- approximately 15 acres of unincorporated lands under private ownership
- 7.9 acres of the Soleana Filing 1 development which is proposed as dedicated open space.
- 2.1 acres of existing large lot development from Diamond Ridge

The combined area for Basin 107 is 53.7 acres with a 5% impervious coverage. There are no changes proposed in this watershed resulting from the Alexander Place Amendment 1 development.

The watershed considered in this report includes the project area and surrounding regions that extends from Cooperhook lots 1 and 2 on the west to the ridgeline with Diamond Ridge Estates to the east. The southern boundary of the site is generally located along the property line with the Town of Castle Rock for the Metzler Ranch open space. The southern limit of the watershed is the existing ridgeline located between 800 and 1300 feet south of the property. The north boundary of the site is contiguous with the Soleana Subdivision boundary. The



northern limit of the water shed is the includes Basins B, C and D as described in the Phase III Drainage report for the Soleana Subdivision. (Ref 4) The watershed generally discharges to the west concentrating at a proposed extended dry basin serving the upper reaches of the Plum Creek Tributary C watershed for Basins 106 and 107,

This analysis takes into consideration lands adjacent to the property that include dedicated open space, existing commercial properties and existing residential developments.as incorporated into the Town of Castle Rock.

The development area is located in the regional basin that is the upper reaches of the Tributary C to Plum Creek (Respec Basin 106). The development area includes Cooperhook Lot 4 as platted and the property at Cooperhook property that is immediately adjacent to the Soleana subdivision to the south, the unplatted 8.4 acres immediately south of Cooperhook referred to in this report as the Martinez property in reference to the ownership (Martinez Real Estate Company LLC). The Thornton Property is located south and east of the property which is unincorporated and unplatted lands. In addition, the Town of Castle Rock owns Tract D of Metzler Ranch which includes 49.8 acres of open space trails in the uppermost limits of the watershed.

Basins A generally represents the site development being subdivided into 11 sub basins anticipated for storm sewer collection. Lot areas are calculated based on a 55% impervious coverage with parks and native areas evaluated with a 5% impervious coverage.

The grading concept generally includes slopes to the west where stormwater runoff is directed to Pond 2 which had been sized with the Soleana development to accommodate these developed impervious coverages.

Basin E roughly represents the FHAD Basin 107 that is tributary to the Alexander Place Amendment 1 area at design point 1. These flows will be collected at a proposed flared end section to allow for flows of the undeveloped tributary area to pass through.

Basins B and C represent the Soleana development that is tributary to Pond 2 through a common forebay structure. These basins are designed in the Phase III Drainage report for the Soleana subdivision.

There are no surface irrigation features that are impacted by the local drainage patterns described in this analysis. Stormwater runoff from this area drains west to Plum Creek located approximately 1 mile west of the project area.

This design of the major drainage features is based on assumptions related to the design of the Soleana Subdivision final Drainage report for Pond 2.



These basins are located within Sub Basin 106 as described in the Town FHAD and Master Plan Studies for Tributary C. Basin E is a historic hill side that will not be modified with this development and is part of sub-basin 107 in the Tributary C FHAD and Masterplan. In addition, offsite flows from the Diamond Ridge subdivision are treated as pass through flows.

The final design of the watershed impervious coverage will be refined with the Phase 3 reports prepared through the Town of Castle Rock entitlement process. This will include but not be limited to updated impervious values based on the current MHFD published impervious chart 6-2. For this Phase I report, we have assumed a composite impervious coverage that includes the following.

- Open Space 5%
- Custom Lot Drainage 35%
- Semi Custom Areas 55%
- Commercial Areas 85%

B. Minor Drainage Basins

Basin A

The Basin A watershed represents the development area. Basin A is divided into eleven sub basins. These basins include design points where inlets are expected for the Phase 2 and Phase 3 designs to collect and convey stormwater to Pond 2.

There are two offsite tributary areas that are anticipated with the development of the project. These are described below

Basin E

These include Basin E representing a refinement to the Tributary C basin modeled with the FHAD and Masterplan and confirmed with the Soleana Phase III Final Drainage study.

Basin M

The second offsite tributary area is identified as Basin M1 being a part of the Metzler Ranch improvements that is a sloped area tributary to the project.

Basin M includes two other sub basins that were defined with the Monta Vista Drainage report. These areas include the undeveloped open space (Basin M2) and the commercial lot which included a storm sewer that connected directly to the Plum Creek Outfall bypassing the potential detention area. These basins are considered non tributary offsite basins.



Basins B and C

Basins B and C represent developed basins that are part of the Soleana subdivision. These basins are directly tributary to Pond 2 which is shared with the proposed Alexander Place improvements. The basin parameters and related calculations are presented in the Phase III Drainage Study for Soleana.

Existing Stormwater Conveyance and Detention

Stormwater Runoff in the upper reaches of tributary C is captured in the existing channel and drains to the proposed location for Pond 2. This pond is located in regional basins 106 and serves both basins 106 and 107 and includes approximately 162 acres at a composite impervious coverage of 19% (assuming capacity for future development). The pond design assumes that developed tributary flows are provided from the Soleana property, the Cooperhook property, and the Martinez Property. There is also approximately 6.8 acres of semicustom density reserved in the pond capacity calculation. The remainder of the watershed is treated as undeveloped. This pond is proposed as an extended detention basin serving the upper reaches of Tributary C to Plum Creek. The outfall will connect to an existing 72" RCP draining to the west through the existing commercial development.

Pond 2 Summary Detention Table

EVENT	VOLUME	RELEASE	DEPTH
WQCV	1.0505 ac-ft	40 hour/0.80 cfs	3.08 ft
EURV	1.116 ac-ft	59 hour/1.3 cfs	4.69 ft
V 100+1/2wqcv	9.212 ac-ft	222.8 cfs	10.85t

DRAINAGE DESIGN CRITERIA

A. Regulations

This analysis is prepared in accordance with the Town of Castle Rock Storm Drainage Design and Technical Criteria Manual and The Town of Castle Rock Temporary Erosion and Sediment Control Manual. Supplemental data is developed using the Mile High Flood District Criteria Manuals Volumes 1 2 and 3 together with published worksheets for stormwater detention and inlet capacity sizing.

B. Drainage Studies, Master Plans, Site Constraints

Design for this site also takes into consideration the Regional Basin Tributary C and D Masterplan and the Tributary C & D Flood Hazard area delineation reports addressing the regional flows crossing the Alexander Place PDP Amendment 1

This analysis builds on the Phase III Drainage report for the Soleana Subdivision (Ref 3).



Previous reports in the area include the Phase III Drainage report for Monta Vista Lot 7, Cooperhook/Mainplace Filing No. 1 (Ref 5)

C. Hydrology

Hydrology for the site is evaluated using the Rational Method for storm sewer sizing and conveyance. Given the relative size of the overall basin, the validity of the rational method was compared to a CUHP evaluation for the full watershed. This analysis was used to evaluate a major event time of concentration routing for sizing of the major event storm sewer capacity. Street and inlet sizing are estimated using peak factors from the local calculations.

D. Hydraulics

Hydraulics for the storm sewer system was evaluated at a conceptual level for the 5 year and 100 year rainfall events. Hydraulic analysis shall be provided using the Bently StormCAD software with subsequent phases of the design. Inlet Capacity will be evaluated using the MHFD inlet worksheet with subsequent phases of the design.

E. Water Quality Enhancement

Water quality mitigation for volume is managed through recommendations for impervious coverage that minimize directly connected impervious areas, suggest alternatives for impervious paving, and support drought tolerant green spaces that optimize water usage for the site. In addition to source control, water quality enhancements can occur as part of the area detention proposed for the site and adjoining developments. This approach has the benefit of mitigating various particulate as sedimentation at fore bay structures and at the micro pool for the pond outlet.

The slope areas receiving stormwater runoff from the Metzler Ranch open space area may include isolated improvements for channelized areas where runoff is currently conveyed. This may include grass buffers, rock check structures, or formal channelization in localized areas for runoff management that control offsite tributary runoff prior to conveyance across the site using surface and piped conveyance solutions.

Water quality mitigation can be addressed through a series of techniques that may include minimizing directly connected impervious areas, identifying areas where grass buffers and infiltration can be encouraged, and source controls including community education for strategies as presented in the Water Efficiency Plan. This plan does not propose structural elements for source control.



STORMWATER MANAGEMENT FACILITY DESIGN

A. Regulations:

This project is proposed in conformance with the Town of Castle Rock's Storm Drainage Design and Technical Criteria Manual and Stormwater Quality Regulations and supporting information from the Mile High Flood District Drainage Criteria Manuals Volumes 1, 2 and 3.

B. Stormwater Conveyance Facilities

Stormwater conveyance is accommodated through a combination of curb and gutter flow together with inlets and storm sewer directed to local detention facilities. Inlet and storm sewer spacing is positioned to collect minor event runoff for pipe conveyance. Major event runoff is allowed to bypass a percentage of stormwater runoff in the street to the next downstream facility.

The existing ponds 2 is presented as Extended Detention Basins to include staged detention and release of water quality capture volume for a 40 hour detention time frame, EURV addressing an approximate 70 hour attenuation process, and 100 year stormwater detention for peak flow attenuation. Water entering the pond is managed through a combination of forebays and release structured design in conformance with the Mile High Flood District criterion for sediment control and energy dissipation. Access and maintenance paths is presented with Phase III design for Soleana incorporating the final configuration for the outlet structure and design parameters.

Pond 2 discharges to the existing 72" RCP that was designed and installed in conjunction with the commercial development. This location serves as the regional connection for the upper limits of Basin 106 and is combined with developed flows from the commercial area. Emergency overflow is provided in the immediate vicinity of the outfall structure and is directly tributary to the existing outfall flow path for Tributary C. The flow path includes overflow through the parking lot area for the commercial development with intermittent areas collecting and redirecting overflows to the storm sewer outfall through a combination of inlets and storm sewers.

C. Stormwater Storage Facilities

Stormwater detention for the Phase 2 evaluation was accomplished by evaluating the full regional basins tributary to each pond. This includes the assumed development for the Cooperhook property and the Martinez properties at an assumed development rate together with the offsite tributary watershed described as Basin 107 in the Tributary C FHAD.



D. Water Quality Enhancement Best Management Practices

This analysis includes five primary watersheds as part of the analysis identified as Basins A, B, C, E and M.

Basins A, B, C, and E drain through proposed Pond 2 and are attenuated for Peak Flow and water quality. The historic flow path for Basins A through E is generally through the Tributary C to Plum Creek and the storm sewer crossing the Cooperhook Mainplace filing 1 subdivision.

To mitigate flow through these systems, we are proposing that these flows be directed south to combine with release flow from proposed Pond 2. Sufficient detention is provided to account for the additional tributary area, and design release is restricted to maintain predevelopment release from consistent with the original tributary areas. This approach is intended to minimize impact to the existing open channel system.

The water quality facilities for the development are sized in accordance with Town of Castle Rock Criteria. In as much as possible, the improvements associated with this project will adhere to the four-step process for water quality mitigation described below. It is noteworthy that the scope of the improvements for this project are specific to the conveyance and attenuation infrastructure proposed with the public improvements. The finished lots will be sold as custom lots with site specific development improvements will be more clearly defined and are beyond the scope of this analysis.

Step 1 Reduce Runoff Volume.

Where possible, home builders are encouraged to employ strategies to limit the amount of directly connected impervious flow paths. Some solutions that have been successful for this goal include

This includes directing runoff from roof drainage to naturalized flow paths to encourage infiltration prior to discharge to the street and storm sewer system. Additional strategies may include

- Discharge roof drains and downspouts to a graded section on the lot. This may include turf, mulch or softscape material to encourage infiltration prior to discharge of runoff to the streets.
- Employ the use of pervious or partially pervious surfaces for hardscape on the lot such as patios or driveways. This solution will likely require underdrain or foundation protection in accordance with the geotechnical requirements identified for the site.
- Homeowners may consider rain gardens or low impact development strategies that are incorporated into the landscape package at the time of permitting and design of the individual lots.

Step 2 Provide Water quality Capture Volume and Flood control via full spectrum detention.



Both ponds proposed on this site employ a strategy of WQCV, EURV and 100 year peak flow attenuation. The ponds incorporate a weir plate and overflow structure intended to provide adequate pond staging time for dissolution of suspended solids as well as time to release flows at a reduced rate to approximate an equivalent urban runoff volume. These criteria are proposed in conformance with the Mike High Flood District recommendations.

Step 3: Utilize Stream channel stabilization techniques.

This project includes receiving discharge from the south Basin E. (tributary B) through an existing channelized system. This outfall in significant areas drains along rear lot property lines across drainage easements through an established path. As such, there is little opportunity to provide physical improvements on the private lots, however part of the strategy is to reduce the volume of runoff by diverting options of the developed basin to the south as described in this report.

The south outfall for Tributary C is connected directly to the existing 72" piped outfall that conveys locally generated runoff from the developed basin across Interstate 25 before discharging to a surface channel as a tributary to Plum Creek.

Stormwater runoff in the upper reaches of Basin 106 will be collected and conveyed to Pond 2 being a shared facility.

Step 4 Source Control

As a residential development, pollutants and sources of illicit discharge will be consistent with residential waste. This will include sources such as vehicles, fertilizers and pesticides for yard maintenance.

During the construction phase, the project will employ strategies consistent with the Town of Castle Rock Temporary Erosion and Sediment Control program being prepared under a separate cover.

There are no wetlands associated with the Soleana Development.

Public storm sewer facilities are proposed in public right of way. As such, maintenance and inspection access is provided through the public road system proposed in accordance with Town of Castle Rock criteria. Pond 2 maintenance access is provided from the Right of way for Alexander Place and Via Soleana with a graded access tract that was designed with the Phase III construction plans for Soleana.

D. Floodplain Modification

This development includes a piped and overflow system to convey tributary runoff from the upstream basins which will contain the channelized floodway documented with the Plum Creek Tributary C FHAD. The upstream areas tributary to this development (Basin 107) are not



mapped by published reports, however the flows analysis considers the existing swale as the collection point for design event runoff.

E. Additional Permitting Requirements

The project is not located on or adjacent to a FEMA designated Floodplain. The project does not impact designated wetlands or waters of the US. Therefore, there are no State or Federal permitting requirements related to storm water that are required for this project. The site will be subject to Stormwater discharge permits for construction activities together with compliance with the Town of Castle Rock requirements for sediment control and stormwater discharge.

A copy of the Critical Habitat for Preble's Meadow Jumping Mouse for Unit 9 West Plum Creek is provided in appendix D for reference demonstrating that designated Riparian Conservation zones are not impacted with any portion of the development.

CONCLUSIONS

A. Compliance with Standards

This analysis was developed in compliance with the Town of Castle Rock Stormwater criteria and includes site-specific revisions proposed for the improvement of offsite drainage conditions. The approach for stormwater detention is to regionalize the improvements to optimize the use of space in the overall watershed and to make the expenditure of resources as efficient as possible.

B. Variances

This report does not include variance requests,



REFERENCES

1. Storm Drainage Design and Technical Criteria Manual, Town of Castle Rock, June 2019
2. Mile High Flood District Urban Storm Drainage Criteria Manual Volumes 1, 2 and 3
3. Phase III Drainage Report for Cooper Hook/Main Place Filing No. 1, Galloway Romero & Associates, August 2001
4. Phase III Drainage Report Soleana Subdivision, IMEG May 2026
5. Phase III Drainage Report for Monta Vista Lot 7, Cooperhook/Mainplace Filing No. 1 David Archer & Associates February 2014
6. FIRM Panel number 08035C0186G Douglas County Colorado Dated March 16, 2016.
7. Flood Hazard Area Delineation Tributary C and D Watersheds – Respec, October 2014

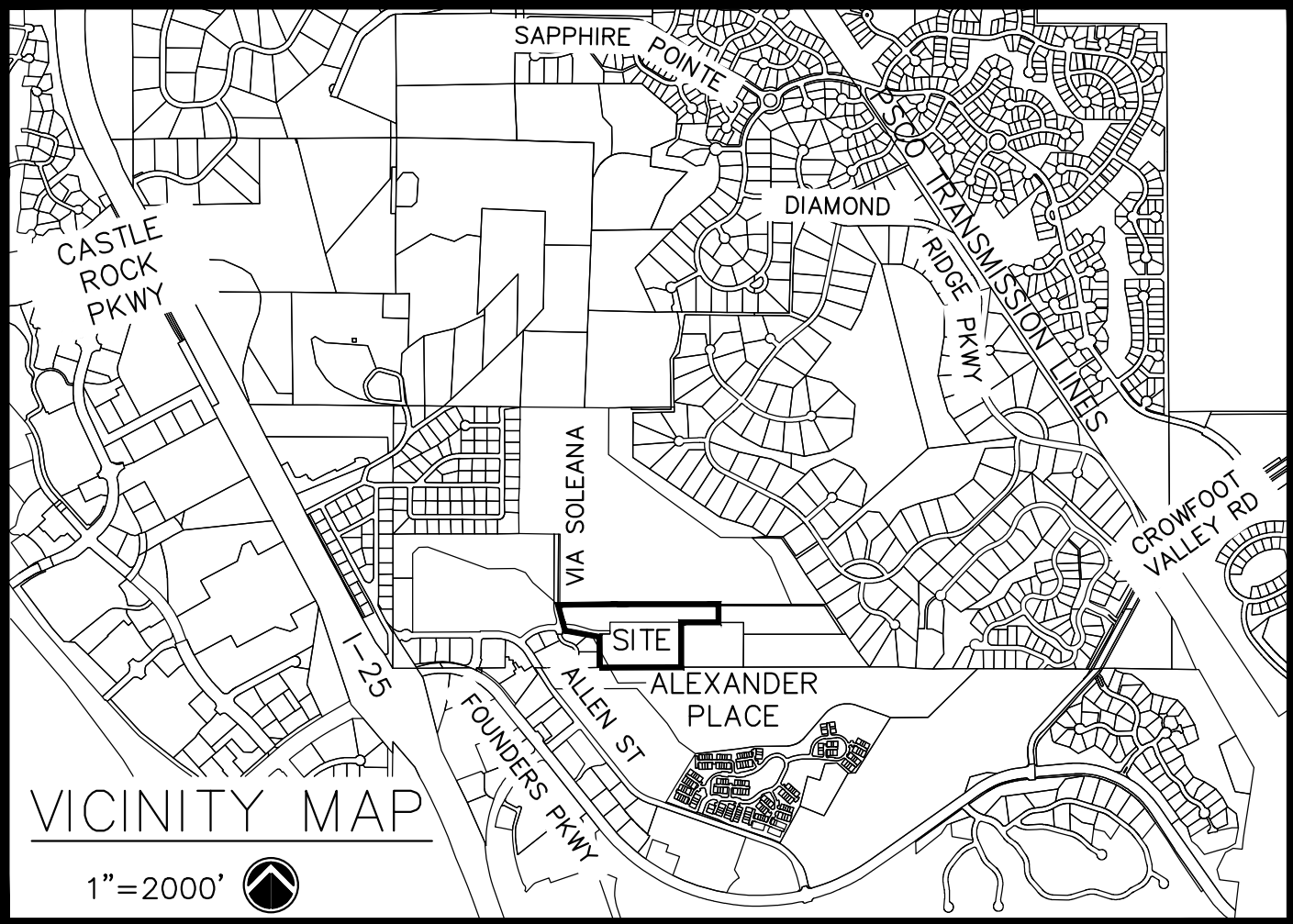


Appendix A

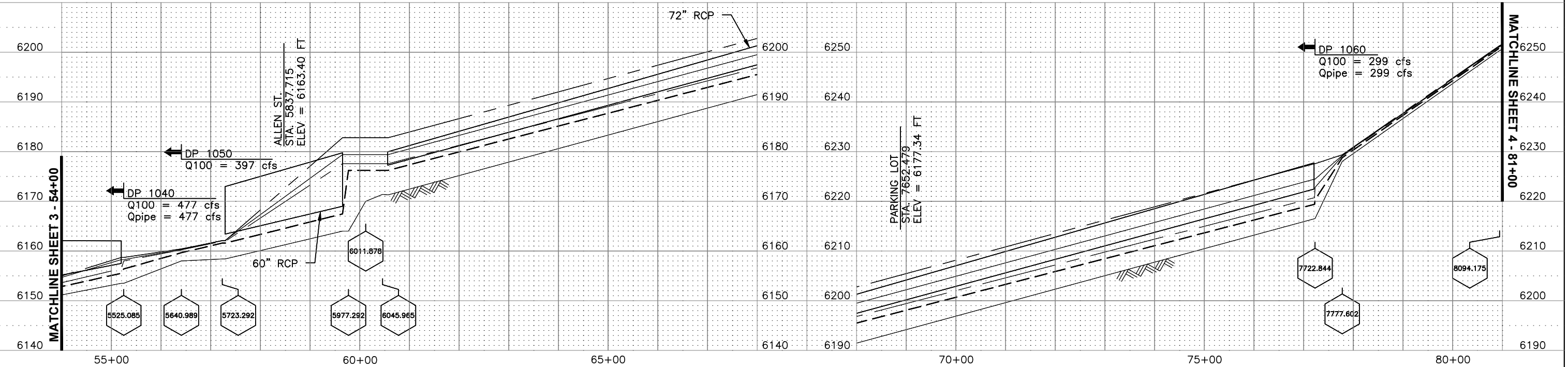
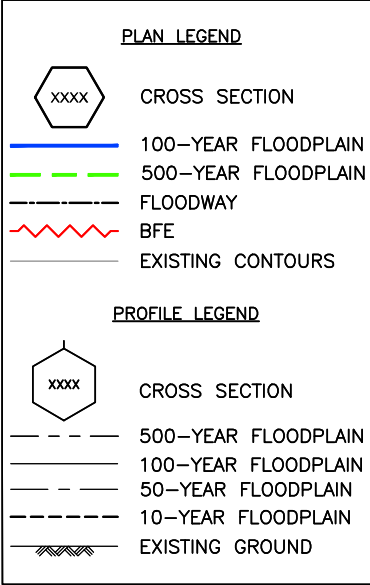
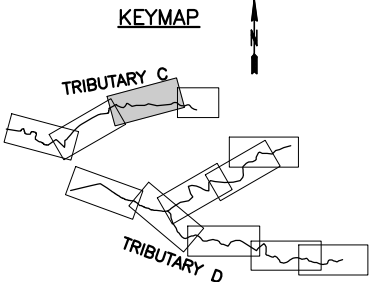
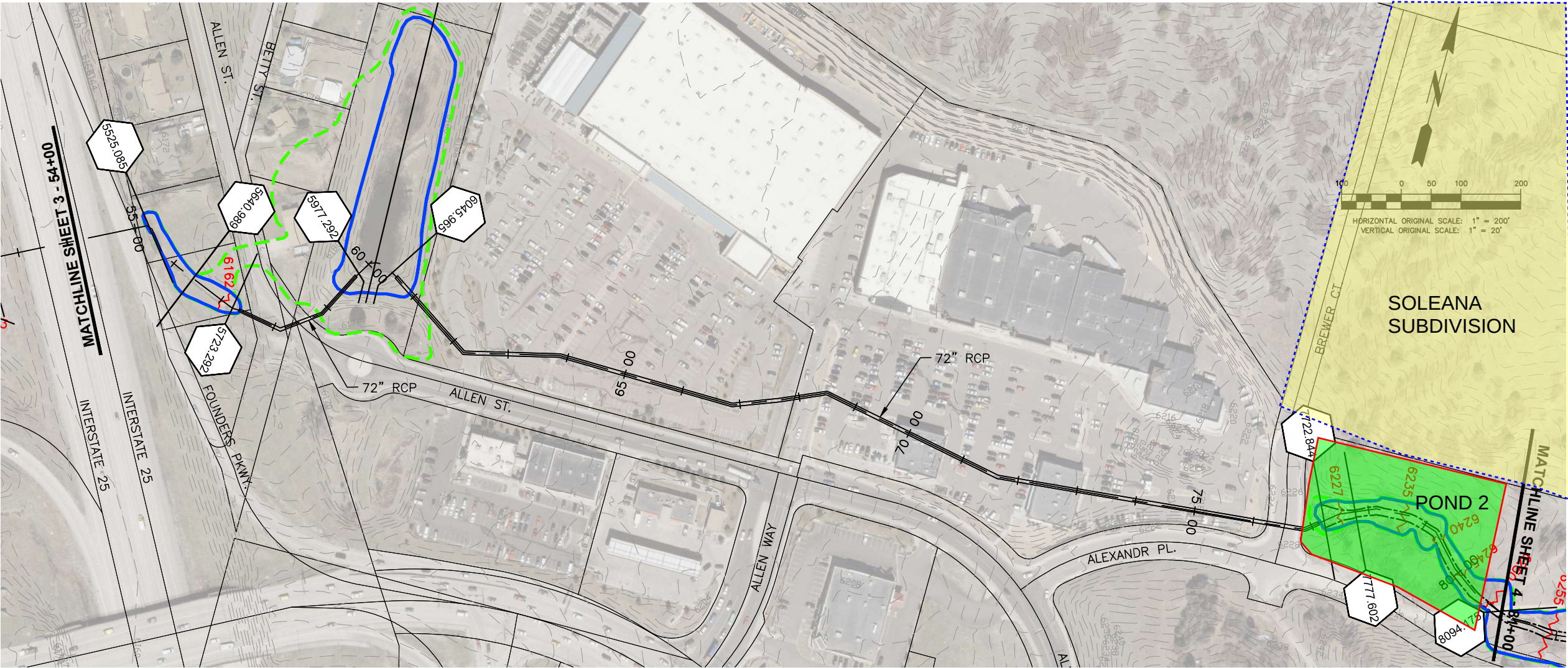
Related Graphs Figures and Tables

- Vicinity Map
- FIRM Pannel
- FHAD Excerpts
- SCS soil survey





NAME: Z:\Castle Rock\TCR Planning Studies\CAD\Draw-Flood\Tributary C FHAD P & P.dwg
PLOT DATE: Jul 25, 2014 9:26am



NO.	DATE	DESCRIPTION	BY

DESIGNED	WPF	DATE	7/8/13
DRAWN	ACT	DATE	7/8/13
CHECKED	RCO	DATE	7/8/13

RESPEC WATER & NATURAL RESOURCES
720 S. COLORADO BLVD. SUITE 4105
DENVER, CO 80246
PH: (303) 757-3655

PROJECT NO. _____

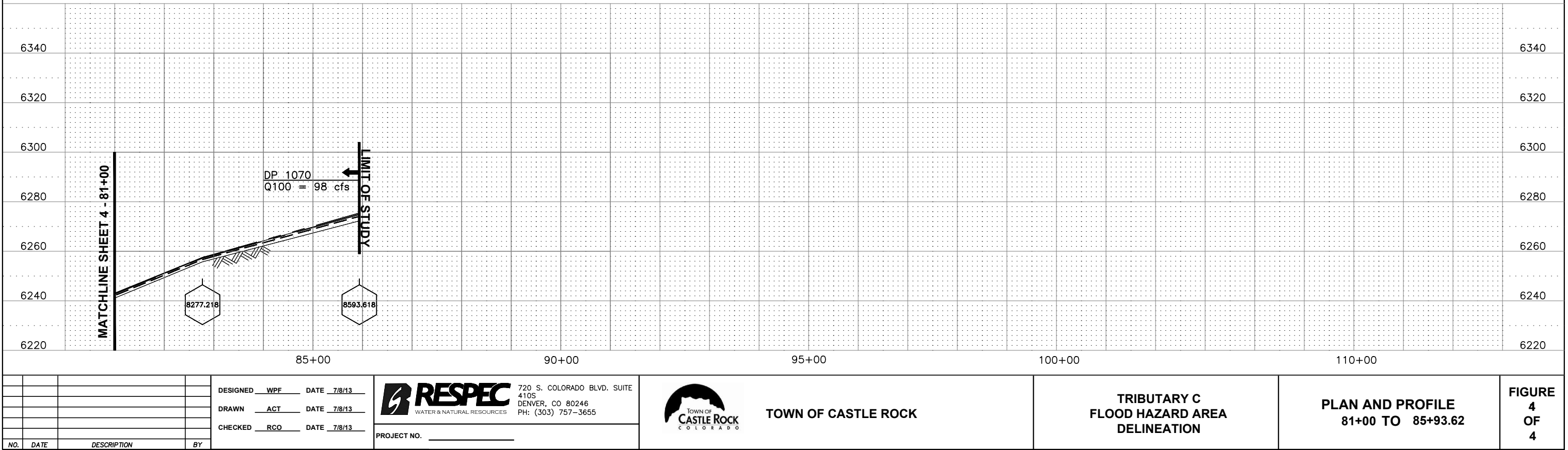
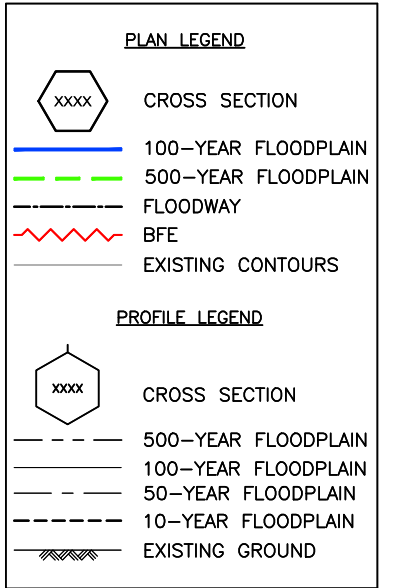
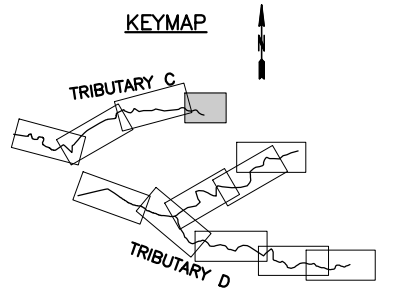
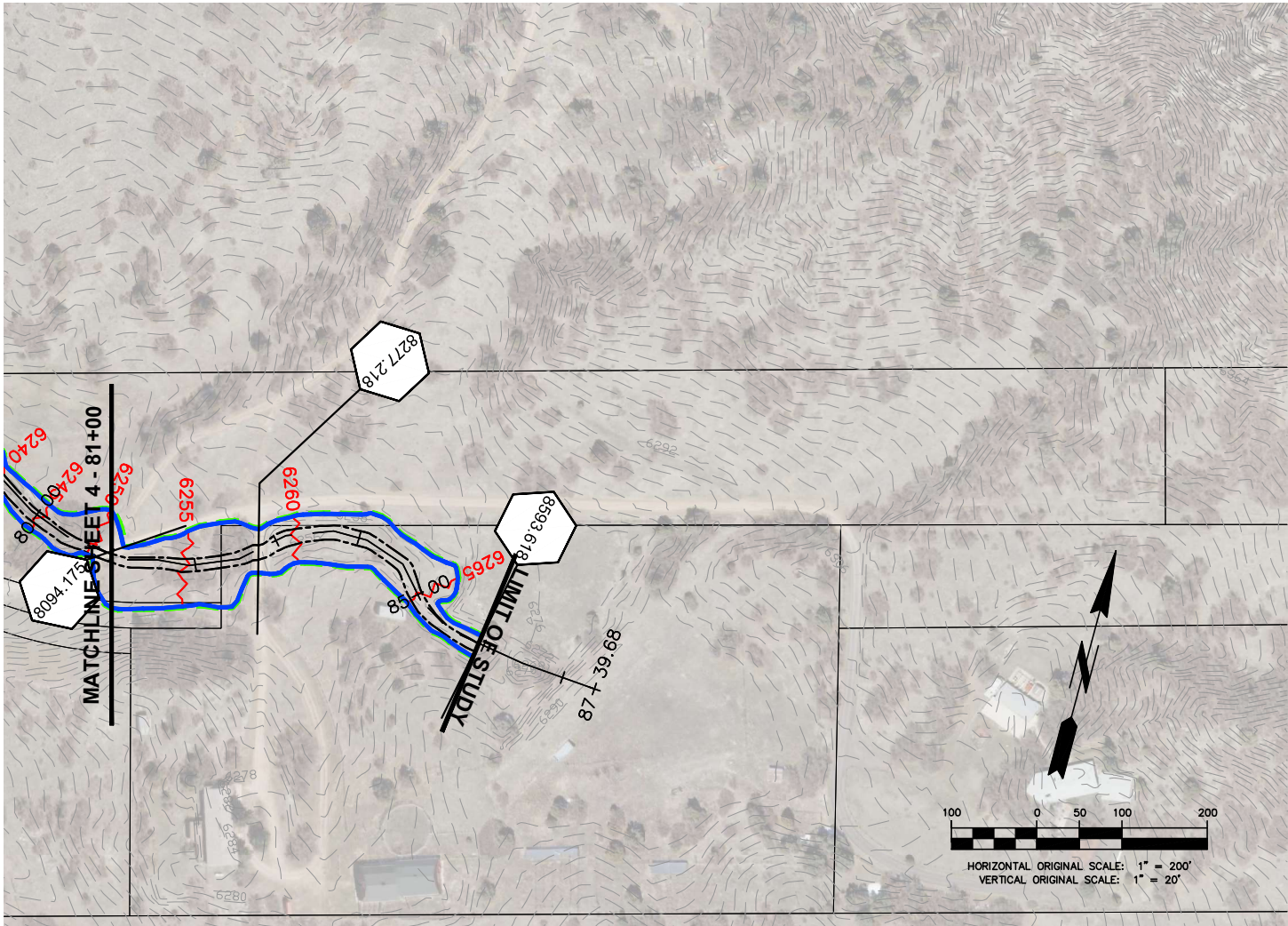


TOWN OF CASTLE ROCK

TRIBUTARY C
FLOOD HAZARD AREA
DELINEATION

PLAN AND PROFILE
54+00 TO 81+00

FIGURE
3
OF
4

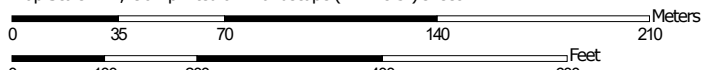


Soil Map—Castle Rock Area, Colorado



Soil Map may not be valid at this scale.

Map Scale: 1:2,490 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

3/2/2026
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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Castle Rock Area, Colorado

Survey Area Data: Version 18, Aug 29, 2025

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

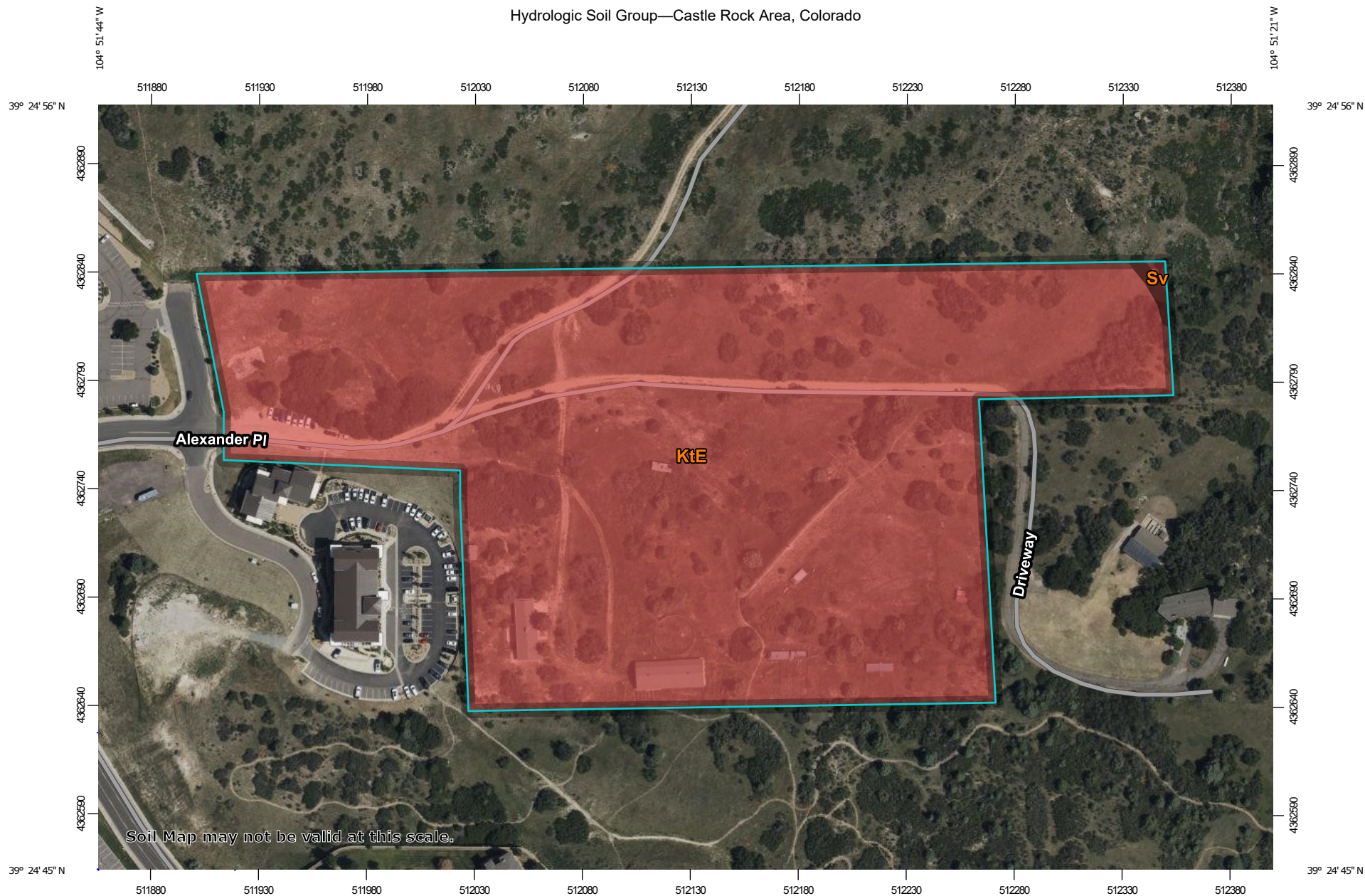
Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

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

Map Unit Legend

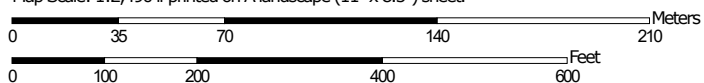
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KtE	Kutch sandy loam, 5 to 20 percent slopes	16.0	99.8%
Sv	Stony steep land	0.0	0.2%
Totals for Area of Interest		16.1	100.0%

Hydrologic Soil Group—Castle Rock Area, Colorado



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Map Scale: 1:2,490 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

3/2/2026
Page 1 of 4

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.

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

Soil Survey Area: Castle Rock Area, Colorado
 Survey Area Data: Version 18, Aug 29, 2025

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

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
KtE	Kutch sandy loam, 5 to 20 percent slopes	D	16.0	99.8%
Sv	Stony steep land	D	0.0	0.2%
Totals for Area of Interest			16.1	100.0%

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix B

Hydrologic Calculations

- Historic Basins
- Phase 1 Rational Calculations



Soleana
Phase III Drainage Report



Percent Impervious Calculations

Runoff Calculations

		5%	35%	85%	55%		
DESIGN POINT	DRAIN BASIN	Open Space	SFH 0-3	Impervious	SFH 3-5	Total Area ac.	Composite I
1	E	2182871			302418	57.05	11.1%
2	A1				82286	1.89	55.0%
3	A2				20037	0.46	55.0%
4	A3				62486	1.43	55.0%
5	A4	4225			18927	0.53	45.9%
6	M1	79376				1.82	5.0%
7	A5				93652	2.15	55.0%
8	A6	29215			119065	3.40	45.1%
9	A7				86384	1.98	55.0%
10	A8	5114			41007	1.06	49.5%
11	A9				29737	0.68	55.0%
15	A10			20647		0.47	85.0%
15	A11	87022		15104	6632	2.50	19.2%
12	B	311556	683463	0	250370	28.59	31.5%
13	C	1423761	870176		34601	53.46	17.0%
14	M2	343614				7.89	5.0%
15	M3			159853		3.67	85.0%

Alexander Place
Phase I Drainage Report Historic Conditions

**STANDARD FORM SF-2**

REFERENCE MHFD TABLE 6-2

Watercourse Coefficient

Runoff Calculations

Heavy Meadow 2.5

Short Grass Pasture & Lawns 7.0

Grassed Waterway 15.0

Time of Concentration

Tillage/field 5.0

Nearly Bare Ground 10.0

Paved Area & Shallow Gutter 20.0

	SUB-BASIN DATA				INITIAL / OVERLAND TIME			TRAVEL TIME T(t)					T(c) CHECK (URBANIZED BASINS)			FINAL T(c)
DESIGN POINT	DRAIN BASIN	AREA ac.	% I	C(5)	Length ft.	Slope %	T(i) min	Length ft.	Slope %	Coeff.	Velocity fps	T(t) min.	COMP. T(c)	TOTAL LENGTH	EQ 6-5	min.
h1	E	57.05	11.1%	0.13												40.0
h2	HA	13.80	13.0%	0.14	100	2.0	13.9	530	6.0	20.0	4.9	1.8	15.7	630	24.2	15.7
h3	B	28.59	31.5%	0.29	100	2.0	11.7	530	6.0	20.0	4.9	1.8	13.5	630	21.0	43.1
h4	C	53.46	17.0%	0.17	100	2.0	13.5	530	6.0	20.0	4.9	1.8	15.3	630	23.5	43.1
h5	M1	1.82	5.0%	0.08	100	2.0	14.9	530	6.0	20.0	4.9	1.8	16.7	630	25.6	16.7
h6	M2	7.89	5.0%	0.08	100	2.0	14.9	1220	4.0	2.5	0.5	40.7	55.6	1320	26.3	26.3
h7	M3	3.67	85.0%	0.73	50	4.0	3.0	457	3.0	20.0	3.5	2.2	5.2	507	11.8	5.2

Alexander Place
Phase I Drainage Report Historic Conditions

**STANDARD FORM SF-3***REFERENCE: MHFD Volume 1***Runoff Calculations**

Rainfall Depth-Duration-Frequency (1-hr) = 1.43

*(Rational Method Procedure)***Design Storm 5 Year**

BASIN INFORMATION				DIRECT RUNOFF				TOTAL RUNOFF				REMARKS
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	SUM C x A	I in/hr	Q cfs	
h1	E	57.05	0.13	40.0	7.15	1.88	13.5					
h2	HA	13.80	0.14	15.7	1.95	3.18	6.2					
h3	B	28.59	0.29	43.1	8.34	1.80	15.0					
h4	C	53.46	0.17	43.1	9.26	1.80	16.6					
h5	M1	1.82	0.08	16.7	0.14	3.08	0.4					
h6	M2	7.89	0.08	26.3	0.60	2.42	1.4					
h7	M3	3.67	0.73	5.2	2.67	4.80	12.8					

Alexander Place
Phase I Drainage Report Historic Conditions

**STANDARD FORM SF-3***REFERENCE: MHFD Volume 1***Runoff Calculations**

Rainfall Depth-Duration-Frequency (1-hr) = 2.60

*(Rational Method Procedure)***Design Storm 100 Year**

BASIN INFORMATION				DIRECT RUNOFF				TOTAL RUNOFF				REMARKS
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	SUM C x A	I in/hr	Q cfs	
h1	E	57.05	0.53	40.0	30.20	3.42	103.4					
h2	HA	13.80	0.54	15.7	7.41	5.78	42.8					
h3	B	28.59	0.61	43.1	17.52	3.27	57.2					
h4	C	53.46	0.55	43.1	29.58	3.27	96.6					
h5	M1	1.82	0.50	16.7	0.92	5.60	5.2					
h6	M2	7.89	0.50	26.3	3.98	4.40	17.5					
h7	M3	3.67	0.83	5.2	3.05	8.73	26.6					

Alexander Place
Phase I Drainage Report

**STANDARD FORM SF-2**

REFERENCE MHFD TABLE 6-2

Watercourse Coefficient

Runoff Calculations

Heavy Meadow 2.5

Short Grass Pasture & Lawns 7.0

Grassed Waterway 15.0

Time of Concentration

Tillage/field 5.0

Nearly Bare Ground 10.0

Paved Area & Shallow Gutter 20.0

DESIGN POINT	SUB-BASIN DATA				INITIAL / OVERLAND TIME			TRAVEL TIME T(t)				T(t) min.	T(c) CHECK (URBANIZED BASINS)			FINAL T(c) min.
	DRAIN BASIN	AREA ac.	% I	C(5)	Length ft.	Slope %	T(i) min	Length ft.	Slope %	Coeff.	Velocity fps		COMP. T(c)	TOTAL LENGTH	EQ 6-5	
1	E	57.05	11.1%	0.13												40.0
2	A1	1.89	55.0%	0.48	100	2.0	9.0	530	6.0	20.0	4.9	1.8	10.8	630	16.9	10.8
3	A2	0.46	55.0%	0.48	50	2.0	6.3	150	4.0	20.0	4.0	0.6	6.9	200	16.7	6.9
4	A3	1.43	55.0%	0.48	100	10.0	5.2	330	2.0	20.0	2.8	1.9	7.1	430	17.0	7.1
5	A4	0.53	45.9%	0.41	50	2.0	7.1	330	2.0	20.0	2.8	1.9	9.0	380	18.5	9.0
6	M1	1.82	5.0%	0.08	100	2.0	14.9	340	6.0	2.5	0.6	9.3	24.2	440	25.5	24.2
7	A5	2.15	55.0%	0.48	100	7.0	5.9	590	2.0	20.0	2.8	3.5	9.4	690	17.1	9.4
8	A6	3.40	45.1%	0.40	100	20.0	4.7	470	6.0	20.0	4.9	1.6	6.3	570	18.6	6.3
9	A7	1.98	55.0%	0.48	100	2.0	9.0	790	2.0	20.0	2.8	4.7	13.7	890	17.3	13.7
10	A8	1.06	49.5%	0.44	100	2.0	9.6	420	2.0	20.0	2.8	2.5	12.1	520	18.0	12.1
11	A9	0.68	55.0%	0.48	100	2.0	9.0	160	6.0	20.0	4.9	0.5	9.5	260	16.8	9.5
15	A10	0.47	85.0%	0.73	100	2.0	5.4	470	6.0	20.0	4.9	1.6	7.0	570	11.7	7.0
15	A11	2.50	19.2%	0.19	100	2.0	13.2	350	6.0	15.0	3.7	1.6	14.8	450	23.0	14.8
12	B	28.59	31.5%	0.29												43.1
13	C	53.46	17.0%	0.17												43.1
14	M2	7.89	5.0%	0.08	100	2.0	14.9	1220	4.0	2.5	0.5	40.7	55.6	1320	26.3	26.3
15	M3	3.67	85.0%	0.73	50	4.0	3.0	457	3.0	20.0	3.5	2.2	5.2	507	11.8	5.2

Alexander Place
Phase I Drainage Report

**STANDARD FORM SF-3**

REFERENCE: MHFD Volume 1

Runoff Calculations

Rainfall Depth-Duration-Frequency (1-hr) = 1.43

(Rational Method Procedure)

Design Storm 5 Year

BASIN INFORMATION				DIRECT RUNOFF				TOTAL RUNOFF				REMARKS
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	SUM C x A	I in/hr	Q cfs	
1	E	57.05	0.13	40.0	7.15	1.88	13.5					
2	A1	1.89	0.48	10.8	0.91	3.75	3.4					
3	A2	0.46	0.48	6.9	0.22	4.41	1.0	10.8	1.14	4.41	5.0	A1 & A2
4	A3	1.43	0.48	7.1	0.69	4.37	3.0					
5	A4	0.53	0.41	9.0	0.22	4.02	0.9	10.8	2.05	3.75	7.7	A1 thru A4
6	M1	1.82	0.08	24.2	0.14	2.54	0.4					
7	A5	2.15	0.48	9.4	1.04	3.97	4.1	24.2	1.18	2.54	3.0	M1 & A5
								40.0	10.37	1.88	19.5	E thru A5
8	A6	3.40	0.40	6.3	1.37	4.54	6.2					
9	A7	1.98	0.48	13.7	0.96	3.39	3.2					
10	A8	1.06	0.44	12.1	0.46	3.58	1.7	40.0	13.17	1.88	24.8	E thru A8
11	A9	0.68	0.48	9.5	0.33	3.94	1.3	40.0	13.50	1.88	25.4	E thru A9
15	A10	0.47	0.73	7.0	0.34	4.40	1.5	40.0	13.84	1.88	26.1	E thru A10
15	A11	2.50	0.19	14.8	0.48	3.27	1.6	40.0	14.32	1.88	27.0	E thru A11
12	B	28.59	0.29	43.1	8.34	1.80	15.0					Soleana
13	C	53.46	0.17	43.1	9.26	1.80	16.6					Soleana
14	M2	7.89	0.08	26.3	0.60	2.42	1.4					Offsite Not Tributary
15	M3	3.67	0.73	5.2	2.67	4.80	12.8	26.3	3.27	2.42	7.9	M2, M3 Offsite Not Tributary

Alexander Place
Phase I Drainage Report

**STANDARD FORM SF-3**REFERENCE: MHFD Volume 1**Runoff Calculations**

Rainfall Depth-Duration-Frequency (1-hr) = 2.60

(Rational Method Procedure)

Design Storm 100 Year

BASIN INFORMATION				DIRECT RUNOFF				TOTAL RUNOFF				REMARKS
DESIGN POINT	DRAIN BASIN	AREA ac.	RUNOFF COEFF	T(c) min	C x A	I in/hr	Q cfs	T(c) min	SUM C x A	I in/hr	Q cfs	
1	E	57.05	0.53	40.0	30.20	3.42	103.4					
2	A1	1.89	0.71	10.8	1.34	6.82	9.1					
3	A2	0.46	0.71	6.9	0.33	8.02	2.6	10.8	1.67	6.82	11.4	A1 & A2
4	A3	1.43	0.71	7.1	1.02	7.94	8.1					
5	A4	0.53	0.67	9.0	0.36	7.31	2.6	10.8	3.04	6.82	20.7	A1 thru A4
6	M1	1.82	0.50	24.2	0.92	4.62	4.2					
7	A5	2.15	0.71	9.4	0.73	7.21	5.2	24.2	1.65	4.62	7.6	M1 & A5
								40.0	34.88	3.42	119.4	E thru A5
8	A6	3.40	0.67	6.3	2.28	8.26	18.8					
9	A7	1.98	0.71	13.7	1.41	6.16	8.7					
10	A8	1.06	0.69	12.1	0.73	6.51	4.7	40.0	39.29	3.42	134.5	E thru A8
11	A9	0.68	0.71	9.5	0.48	7.16	3.5	40.0	39.78	3.42	136.2	E thru A9
15	A10	0.47	0.83	7.0	0.39	7.99	3.2	40.0	40.17	3.42	137.5	E thru A10
15	A11	2.50	0.56	14.8	1.40	5.94	8.3	40.0	41.57	3.42	142.3	E thru A11
12	B	28.59	0.61	43.1	17.52	3.27	57.2					Soleana
13	C	53.46	0.55	43.1	29.58	3.27	96.6					Soleana
14	M2	7.89	0.50	26.3	3.98	4.40	17.5					Offsite Not Tributary
15	M3	3.67	0.83	5.2	3.05	8.73	26.6	26.3	7.03	4.40	31.0	M2, M3 Offsite Not Tributary

Appendix C

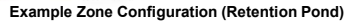
Hydraulic Calculations

- Pond 2 Calculations



MHFD-Detention, Version 4.04 (February 2021)

Basin ID: Pond 2 Sub Basins 106 and 107 Masterplan adjusted for Future Development sites



Location for 1-hr Rainfall Depths = User Input

Optional User Overrides

	acre-feet
	acre-feet
1.06	inches
1.43	inches
1.66	inches
	inches
2.26	inches
2.60	inches
	inches

Zone 1 Volume (V_{QCV1}) =	1.505	acre-feet
Zone 2 Volume ($E_{URV} - \text{Zone 1}$) =	1.190	acre-feet
Zone 3 ($100yr + 1/2$) ($Q_{URV} - \text{Zones 1 \& 2}$) =	6.517	acre-feet
Total Detention Basin Volume =	9.212	acre-feet
Initial Surge Volume (ISV) =	user	ft ³
Initial Surge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	

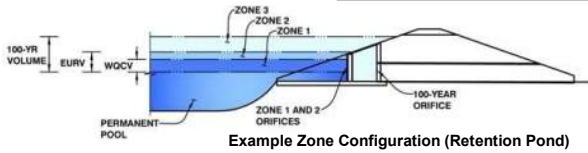
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DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.04 (February 2021)

Project: Soleana Subdivision

Basin ID: Pond 2 Sub Basins 106 and 107 Masterplan adjusted for Future Development sites



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	3.08	1.505	Orifice Plate
Zone 2 (EURV)	4.69	1.190	Orifice Plate
3 (100+1/2WQCV)	10.85	6.517	Weir&Pipe (Restrict)
Total (all zones)		9.212	

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

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

Calculated Parameters for Underdrain

Underdrain Orifice Area = N/A ft²
Underdrain Orifice Centroid = N/A 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)

Invert of Lowest Orifice = 0.00 ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate = 4.45 ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing = 18.00 inches
Orifice Plate: Orifice Area per Row = 7.56 sq. inches (use rectangular openings)

Calculated Parameters for Plate

WQ Orifice Area per Row = 5.250E-02 ft²
Elliptical Half-Width = N/A feet
Elliptical Slot Centroid = N/A feet
Elliptical Slot Area = N/A ft²

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

	Row 1 (required)	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)	0.00	1.50	3.00					
Orifice Area (sq. inches)	7.56	7.56	7.56					

	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)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

Invert of Vertical Orifice = N/A ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice = N/A ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter = N/A inches

Calculated Parameters for Vertical Orifice

Vertical Orifice Area = N/A ft²
Vertical Orifice Centroid = N/A feet

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

Calculated Parameters for Overflow Weir

	Zone 3 Weir	Not Selected		Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, H _o =	5.19	N/A	ft (relative to basin bottom at Stage = 0 ft)	5.19	N/A	feet
Overflow Weir Front Edge Length =	15.00	N/A	feet	15.00	N/A	feet
Overflow Weir Grate Slope =	0.00	N/A	H:V		N/A	
Horiz. Length of Weir Sides =	15.00	N/A	feet		N/A	
Overflow Grate Type =	Type C Grate	N/A			N/A	
Debris Clogging % =	50%	N/A	%		N/A	
				Overflow Weir Slope Length =		
				Grate Open Area / 100-yr Orifice Area =		
				Overflow Grate Open Area w/o Debris =		
				Overflow Grate Open Area w/ Debris =		

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

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

	Zone 3 Restrictor	Not Selected			Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	1.00	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	15.90	N/A	ft ²
Outlet Pipe Diameter =	54.00	N/A	inches	Outlet Orifice Centroid =	2.25	N/A	feet
Restrictor Plate Height Above Pipe Invert =	54.00		inches	Half-Central Angle of Restrictor Plate on Pipe =	3.14	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Calculated Parameters for Spillway

Spillway Invert Stage =	10.50	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth =	1.68	feet
Spillway Crest Length =	45.00	feet	Stage at Top of Freeboard =	13.18	feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	1.34	acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	9.42	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 AF).

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period =	N/A	N/A	1.06	1.43	1.66	1.69	2.26	2.60	3.14
One-Hour Rainfall Depth (in) =	1.505	2.695	3.144	7.100	9.967	11.219	18.825	24.335	31.841
CUHP Runoff Volume (acre-ft) =	N/A	N/A	3.144	7.100	9.967	11.219	18.825	24.335	31.841
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	22.1	80.2	112.9	138.5	242.3	309.8	407.1
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A							
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.14	0.49	0.70	0.86	1.50	1.91	2.51
Peak Inflow Q (cfs) =	N/A	N/A	48.8	110.8	143.9	171.6	278.3	348.7	449.3
Peak Outflow Q (cfs) =	0.8	1.3	1.4	61.7	98.1	135.7	196.7	222.8	288.5
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.8	0.9	1.0	0.8	0.7	0.7
Structure Controlling Flow =	Plate	Plate	Plate	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1	N/A
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	0.4	0.6	0.9	1.2	1.4	1.5
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	44	55	59	54	50	48	39	35	30
Time to Drain 99% of Inflow Volume (hours) =	47	59	63	62	61	60	56	53	49
Maximum Ponding Depth (ft) =	3.08	4.69	4.98	5.92	6.19	6.43	7.85	9.72	11.00
Area at Maximum Ponding Depth (acres) =	0.68	0.80	0.82	0.90	0.92	0.94	1.06	1.23	1.34
Maximum Volume Stored (acre-ft) =	1.508	2.698	2.926	3.735	3.981	4.214	5.626	7.763	9.421

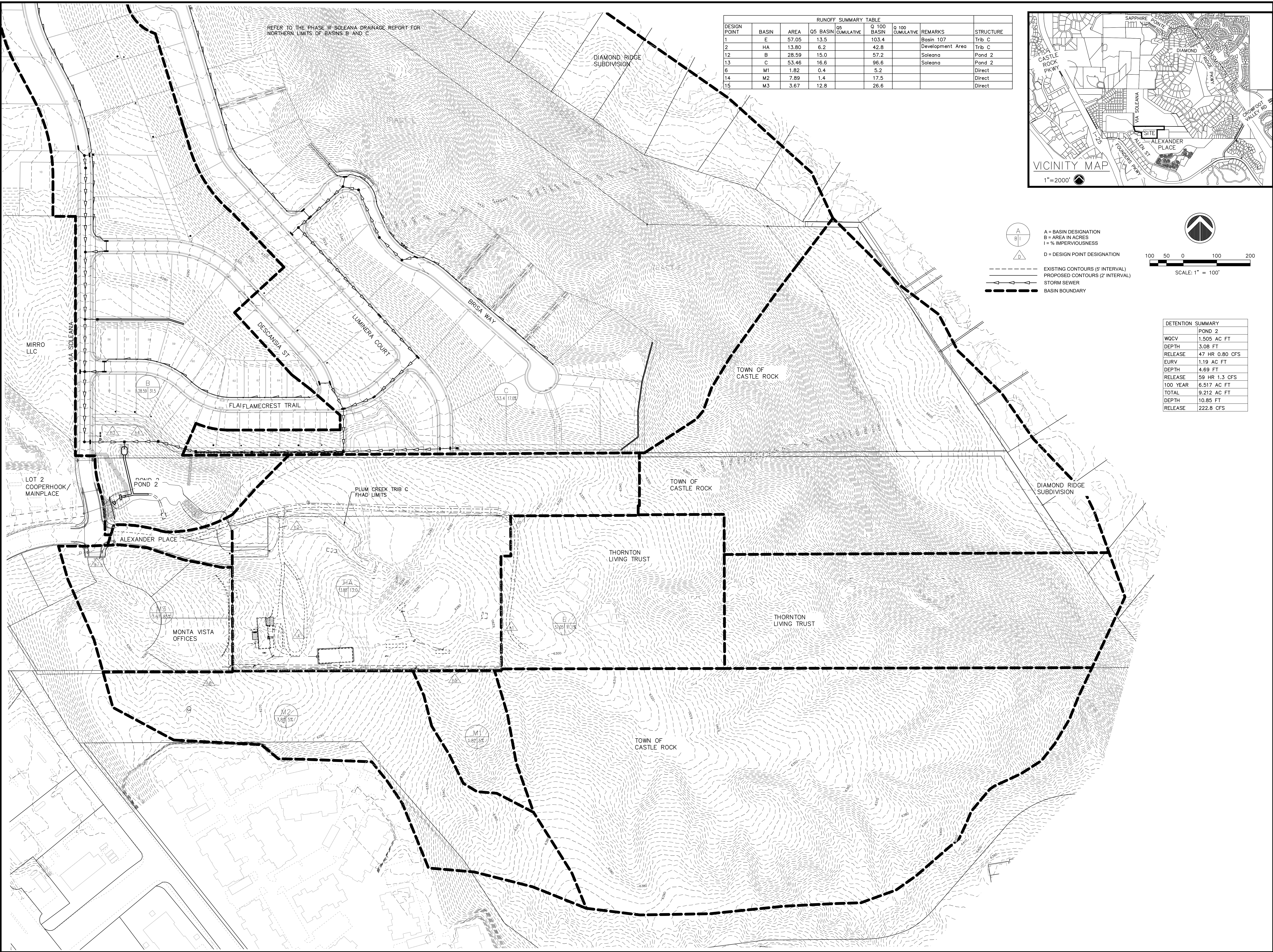
Appendix D

Exhibits

- TCR Checklist
- Critical Habitat Exhibit
- Phase I Drainage Map
- Historic Basin Map

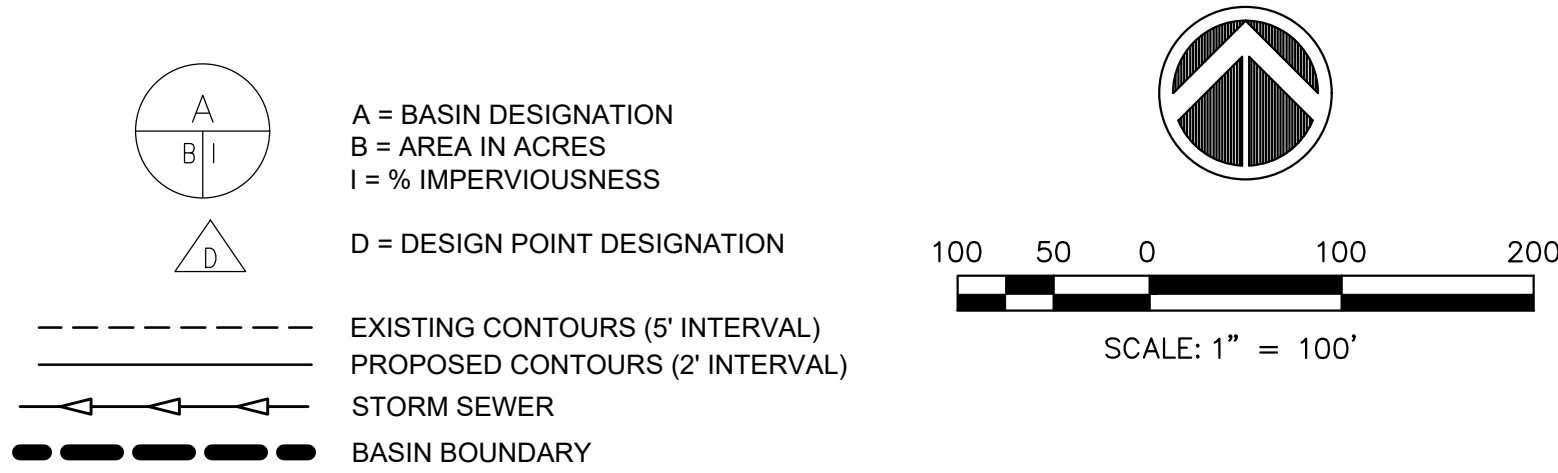
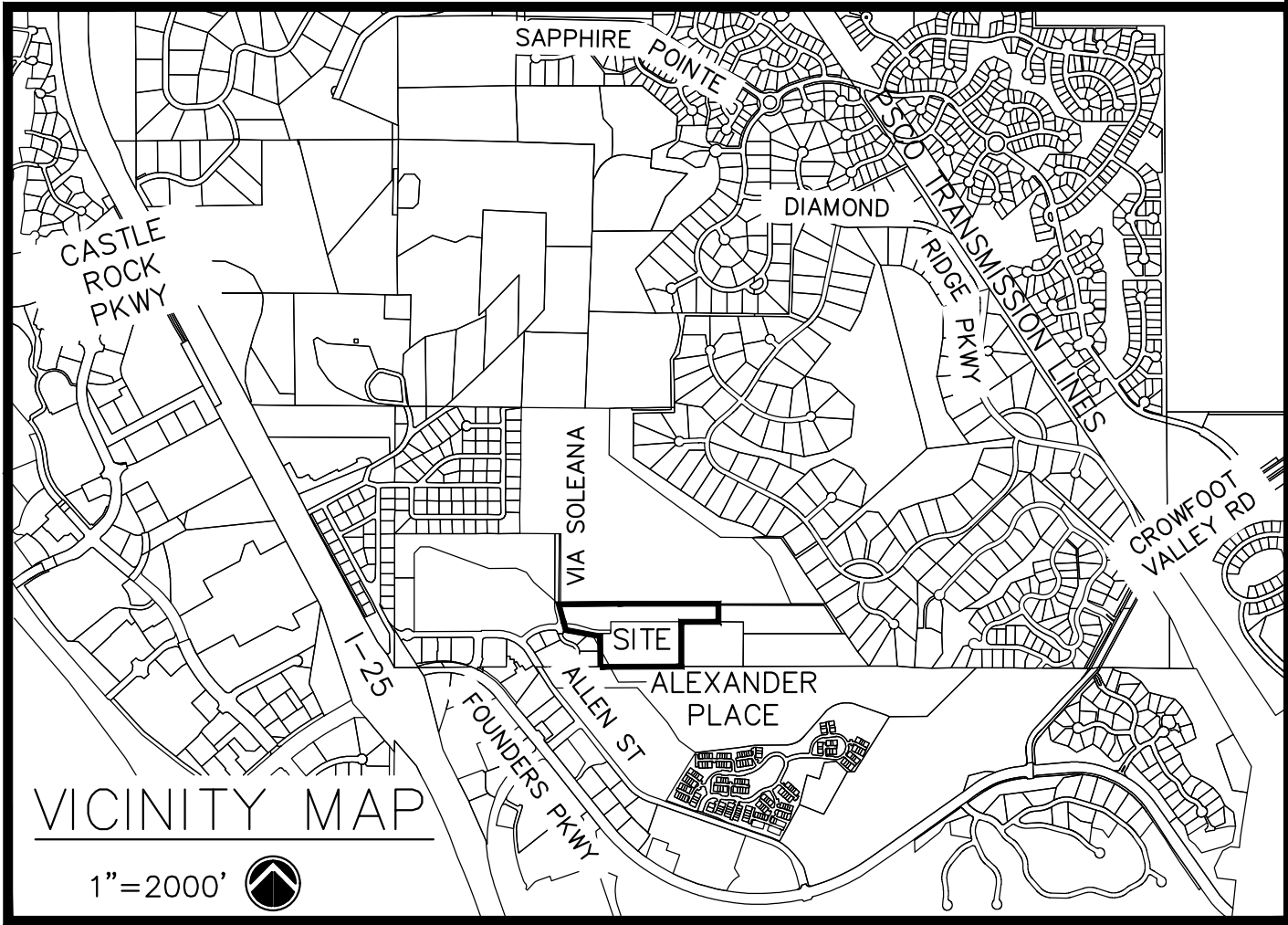


Monday, May 11, 2026 11:40:51 AM
C:\2025\2002764-00\DESIGN\PHASE1\CD\EXHIBIT\CONCEPT\2002764-00_P1UNG_2 PHASE - HISTORIC DRAINAGE EXHIBIT.DWG



REFER TO THE 'PHASE III' SOLEANA DRAINAGE REPORT FOR
NORTHERN LIMITS OF BASINS B AND C

RUNOFF SUMMARY TABLE							STRUCTURE
DESIGN POINT	BASIN	AREA	Q5 BASIN	Q5 CUMULATIVE	Q 100 BASIN	Q 100 CUMULATIVE	
1	E	57.05	13.5		103.4		Trib C
2	HA	13.80	6.2		42.8		Basin 107
12	B	28.59	15.0		57.2		Soleana
13	C	53.46	16.6		96.6		Soleana
6	M1	1.82	0.4		5.2		Pond 2
14	M2	7.89	1.4		17.5		Direct
15	M3	3.67	12.8		26.6		Direct



DETENTION SUMMARY	
	POND 2
WQCV	1.505 AC FT
DEPTH	3.08 FT
RELEASE	47 HR 0.80 CFS
EURV	1.19 AC FT
DEPTH	4.69 FT
RELEASE	59 HR 1.3 CFS
100 YEAR	6.517 AC FT
TOTAL	9.212 AC FT
DEPTH	10.85 FT
RELEASE	222.8 CFS

DATE

NO

REVISIONS

DESCRIPTION

ALEXANDER PLACE PDP AMENDMENT 1

CASTLE ROCK, CO

PHASE 1 HISTORIC DRAINAGE MAP

IMEG Project No:
2002764.00

File Name:
2002764.00 Filing 2 Phase 1
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Field Book No:

Drawn By: RAR

Checked By: TCG

Date: 5/8/26

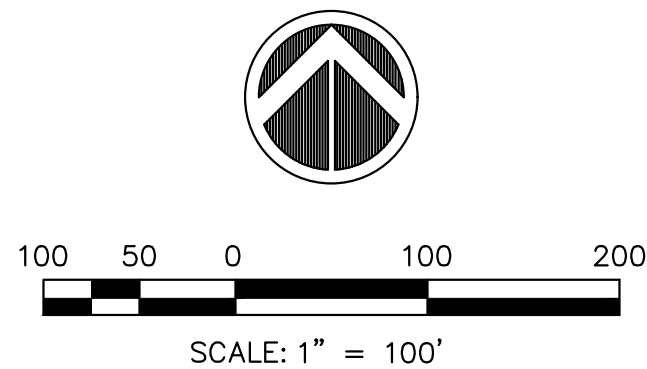
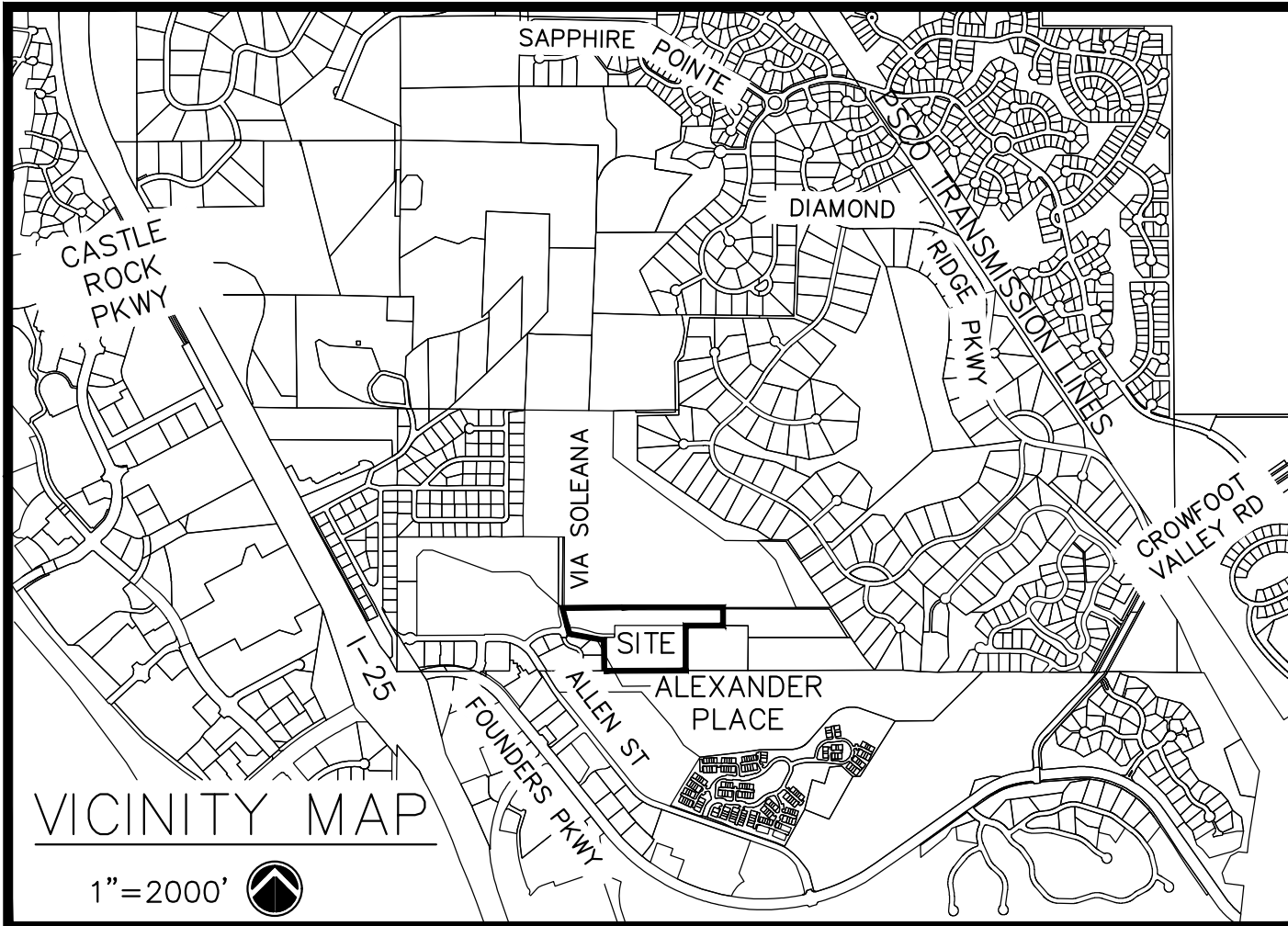
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Sheet 1 of 1

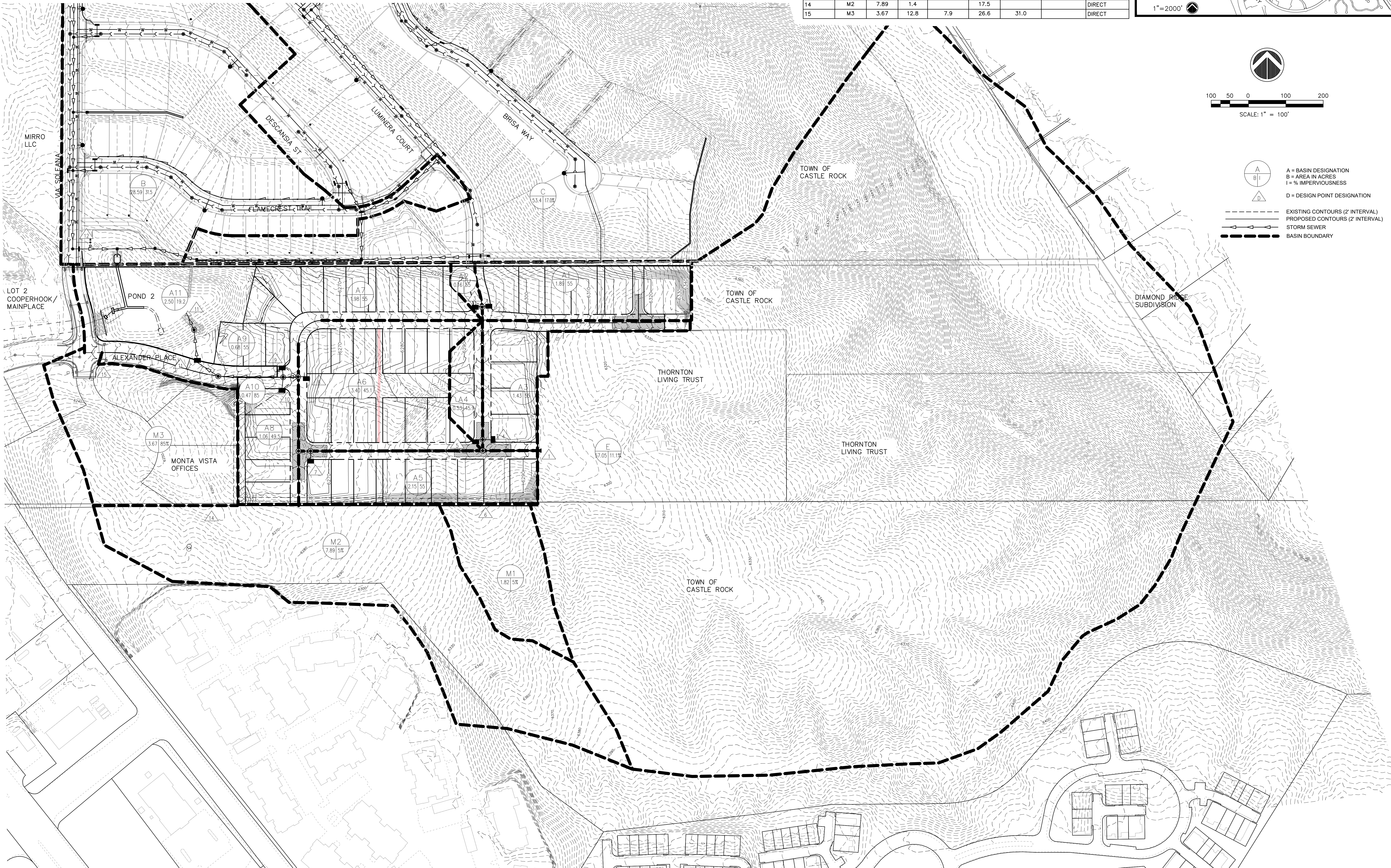
NOTE:
STORM SEWER DESIGN WILL BE REVIEWED WITH THE SDP SUBMITTAL
ACCESS FOR DETENTION POND MAINTENANCE WILL BE PROVIDED
PER SECTION 13.6.1 OF THE STORM WATER CRITERIA MANUAL
A STABLE WORKING BENCH MUST BE PROVIDED TO THE TOP OF
THE OUTLET STRUCTURE AND SPILLWAY; A WORKING BENCH, NOT
EXCEEDING 10%, SHOULD ALSO BE PROVIDED TO THE BOTTOM OF
THE OUTLET STRUCTURE AND FOREBAY(S).

DETENTION SUMMARY					
WQCV	1.505 AC FT	POND 2			
DEPTH	3.08 FT				
RELEASE	47 HR 0.80 CFS				
EURV	1.19 AC FT				
DEPTH	4.69 FT				
RELEASE	59 HR 1.3 CFS				
100 YEAR	6.517 AC FT				
TOTAL	9.212 AC FT				
DEPTH	10.85 FT				
RELEASE	222.8 CFS				

RUNOFF SUMMARY TABLE							REMARKS	STRUCTURE
DESIGN POINT	BASIN	AREA	Q5 BASIN	Q5 CUMULATIVE	Q 100 BASIN	Q 100 CUMULATIVE		
1	E	57.05	13.5		103.4			Culvert
2	A1	1.89	3.4		9.1			Inlet
3	A2	0.46	1.0	5.0	2.6	11.4		Inlet
4	A3	1.43	3.0		8.1			Inlet
5	A4	0.53	0.9	7.7	2.6	20.7		Inlet
6	M1	1.82	0.4		4.2			Direct
7	A5	2.15	4.1	3.0	5.2	7.6		Inlet
				19.5	0.0	119.4		
8	A6	3.40	6.2		18.8			Inlet
9	A7	1.98	3.2		8.7			Inlet
10	A8	1.06	1.7	24.8	4.7	134.5		Inlet
11	A9	0.68	1.3	25.4	3.5	136.2		Inlet
15	A10	0.47	1.5	26.1	3.2	137.5		Inlet
15	A11	2.50	1.6	27.0	8.3	142.3		Inlet
12	B	28.59	15.0		57.2			Pond 2
13	C	53.46	16.6		96.6			Pond 2
14	M2	7.89	1.4		17.5			DIRECT
15	M3	3.67	12.8	7.9	26.6	31.0		DIRECT



- A = BASIN DESIGNATION
B = AREA IN ACRES
I = % IMPERVIOUSNESS
D = DESIGN POINT DESIGNATION
- EXISTING CONTOURS (2' INTERVAL)
--- PROPOSED CONTOURS (2' INTERVAL)
--- STORM SEWER
--- BASIN BOUNDARY



REVISIONS

No.	DESCRIPTION	DATE

ALEXANDER PLACE PDP AMENDMENT 1

CASTLE ROCK, CO

PHASE 1 DRAINAGE MAP

IMEG Project No:
2002764.00

File Name:
2002764.00 Filing 2 Phase 1
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Field Book No:
Drawn By: RAR
Checked By: TCG
Date: 8/12/2022

1

Sheet 1 of 1



Castle Rock Water
175 Kellogg Court
Castle Rock, CO 80109
720-733-6000

Phase I Drainage Report Checklist

The Phase I Drainage Report must be in conformance with the latest Town of Castle Rock Storm Drainage Design and Technical Criteria Manual available on the Town's website.

The Phase I Drainage Report must be signed and sealed by a Professional Engineer licensed in the State of Colorado. The purpose of the Phase I Drainage Report is to describe, at a conceptual level, the feasibility and design characteristics of stormwater management facilities within the proposed development.

The preparer should contact and work with the Town Stormwater Engineering Staff regarding any design, master planning and existing system questions (720-733-6000). The following outline sets forth the **required minimum** content to be provided in the Phase I Drainage Report that shall be submitted with the Planned Development Plan or Straight Zoning documents. A copy of this checklist must be submitted with the Phase I Drainage Report.

Please see Chapter 4 of the Town of Castle Rock Storm Drainage Design and Technical Criteria Manual for additional details and information. Please check off the following items to assure your report is complete. Appropriate notations shall be provided with the checklist. For example, if a specific item is not addressed or not applicable, an explanation needs to be provided.

Included	N/A	
		I. COVER SHEET
X		A. Name of Project, including legal name of development
X		B. Address
X		C. Owner
X		D. Developer
X		E. Engineer
X		F. Submittal date and revision dates as applicable
		II. GENERAL LOCATION AND DESCRIPTION
X		A. Site Location
		B. Description of Property and Land Use
		III. DRAINAGE BASIN AND SUB-BASINS
X		A. Major Drainage Basins
X		B. Minor Drainage Basins
		IV. EXISTING STORMWATER CONVEYANCE OR STORAGE FACILITIES
X		A. Existing Stormwater Conveyance Facilities
X		B. Existing Stormwater Storage Facilities
		V. PROPOSED STORMWATER CONVEYANCE OR STORAGE FACILITIES
X		A. Proposed Stormwater Conveyance Facilities
X		B. Proposed Stormwater Storage Facilities

Phase I Drainage Report Checklist

Included	N/A	
		VI. WATER QUALITY ENHANCEMENT BEST MANAGEMENT PRACTICES
X		A. Non-structural Best Management Practices
X		B. Structural Best Management Practices
		VII. FLOODPLAIN MODIFICATIONS
X		A. Major Drainageway—Undesignated Floodplain
X		B. Major Drainageway—Designated Floodplain
X		VIII. POTENTIAL PERMITTING REQUIREMENTS
X		IX. REFERENCES
X		X. APPENDICES
X		OVERALL DRAINAGE PLAN (IN POCKET)
X		DETAILED DRAINAGE PLANS (IN POCKET)

Notes/Comments: