PRELIMINARY DRAINAGE REPORT
BLACK ROCK COFFEE OF PARKER
(UPDATE TO FINAL DRAINAGE REPORT PARKER POINTE)

for

BRC OF PARKER, COLORADO
SOUTH PARKER ROAD & STROH ROAD,
PARKER, CO 80134

Prepared for

BLACK ROCK
DEVELOPMENT
COMPANY, LLC
PARKER, CO

Submitted by: Atwell, LLC

Project Number: 24003198

Preliminary Drainage Report

Black Rock Coffee of Parker

Parker, Colorado

This report for the preliminary design of The Black Rock Coffee of Parker was prepared by me or under my direct supervision in accordance with the provisions of the Town of Parker Storm Drainage and Environmental Criteria Manual. I understand that the Town of Parker and its designated town authority do not and will not assume liability for drainage facilities designed by others.

_____

Signature

_____

Colorado P.E. License No.

_____

Seal and Date

Respectfully,

Carlos Casas

ATWELL, LLC

www.atwell.com

TABLE OF CONTENTS

INTRODUCTION

This report includes a hydrologic and hydraulic analysis for the proposed improvements for a Premium Coffee Shop with drive-thru and walk-up window. The project will include a one-story drive-thru building and associated pavement, utilities, and appurtenances, now referred to as the Site. The one-story drive-thru building will be located at the southeast corner of South Parker Road & Stroh Road. The total lot area is 0.73 acres, and the total disturbed area is 0.67 acres. This report provides calculations for stormwater runoff for the 100-year storm events. The requirements included in the Storm Drainage and Environmental Criteria Manual (Revised and Adopted February 2014) were used as the basis for this study.

This Site was previously addressed by that *Final Drainage Report for Parker Pointe Parker, Colorado*, Perception Design Group, Inc. Job#2015-015, dated November 28, 2018, now called the Master Drainage Study.

SOIL STUDY DESCRIPTION

The Site contains an approximate split of 60/40 with Bresser-Truckton sandy loams and Sampson Loam, both of which have a hydrologic rating of Class B. A full breakdown can be found in Figure 2 of this report. Soil ratings are consistent with those found in the master report and no change has occurred.

FEMA FLOOD ZONE

The Site is located within an area designated as Zone "X" (un-shaded), which is described by FEMA as areas outside of the 0.2% annual chance floodplain. The Site is located within the Flood Insurance Rate Map (FIRM) Community Panel Number 08035C0182G, effective date; March 16th, 2016. Please find attached the FIRMette as Figure 3.

HYDROLOGY

The Site's proposed drainage pattern is consistent with the approved Master Drainage Study and falls within basin L14 shown on the Drainage Plan West of the Master Drainage Study. The proposed grading in the Master Drainage Study flows east to west, with the intention that the developed drainage pattern will move west to east. The Master Drainage Study accommodates the Site's developed flows via a storm sewer stub on the eastern property line. This stub connects to the overall drainage system which outfalls to a detention pond in the southeast corner of the overall development.

The Site's peak runoff rates are below those found in the Master Drainage Study. This is due to an increased amount of pervious area than was assumed in the Master Drainage Study. Also, hydraulic analysis has been included in this report using the latest NOAA 14-point rainfall values. Also using the latest MHFD Table 6-2 for recommended imperviousness by land use value of "open space, undisturbed Native Grasses and Commercial – Medium – to – High -density" and utilizing the MHFD Inlet capacity workbook to provide inlet capacity/spread calculation showing the allowable capture and depth of flow for the initial and major runoff per Section 2.5.1 of SDECM for Town of Parker

found in Figure 6, 7 and 8. However, Interim and Post Runoff Rates can be found in Figures 4 and 5, along with their respective drainage areas.

Interim Conditions Peak Flows

PRE-DEVELOPED DRAINAGE SUMMARY BRC - PARKER, COLORADO								
DRAINAGE AREA	AREA (AC)	Tc (MIN)	C-VALUE	I (2 yr) (in/hr)	Q (2yr) (cfs)	I (100 yr) (in/hr)	Q (100 yr) (cfs)	REMARKS
E1	0.73	5.00	0.05	3.41	0.12	9.53	0.35	TO INTERIM SYSTEM
TOTALS	0.73						0.35	

Developed Conditions Peak Flow

PRE-DEVELOPED DRAINAGE SUMMARY BRC - PARKER, COLORADO										
DRAINAGE AREA	AREA (AC)	Tc (MIN)	C-VALUE	P (2 yr) One-hour point	I (2 yr) (in/hr)	Q (2 yr) (cfs)	P (100yr) One-hour point	I (100 yr) (in/hr)	Q (100 yr) (cfs)	REMARKS
D1	0.33	5.00	0.80	0.99	3.36	0.89	2.60	8.82	2.33	TO WEST CURB INLET
D2	0.11	5.00	0.80	0.99	3.36	0.30	2.60	8.82	0.78	TO EAST INLET
D3	0.12	5.00	0.05	0.99	3.36	0.02	2.60	8.82	0.05	BYPASS
D4	0.27	5.00	0.88	0.99	3.36	0.80	2.60	8.82	2.10	BYPASS ADJOINER
TOTALS	0.83					2.00			5.25	

The Site has reduced developed run-off as an increase to pervious area is included in the Site improvements. This increase in pervious area is shown above as D3. Area D4 represents off property developable area that is still within the L14 basin found in the Master Study. The engineer believes the developed flows should have no impact on the Master Drainage System and that it should operate as designed in the Master Study.

The Site's existing grading prior to the improvements included in the Master Drainage Study flowed towards Parker Road where it was intercepted by the existing roadside ditch and flowed to the south. The Site's proposed grading is directing approximately 70% of the Site's area away from Parker Road and into the overall development's storm sewer system. The area that is flowing towards Parker Road is approximately 0.08 acres and will be landscaped. The roadway will be protected from erosion impacts during Site construction by silt fence.

PIPE FLOW & CAPACITY

The hydraulic calculations have utilized Hydraflow Storm Sewers Extension for Civil 3D 2024 which take advantage of the Critical Depth, Junction Loss, and Orifice Equations. Such hydraulic calculations conducted for pipe sizing are detailed in the following sections of this report. Each pipe segment has been analyzed to determine its total flow capacity and the respective outfall location. The analysis also includes the total design flow conveyed through each pipe.

These calculations confirm that the total flow within each pipe is within the allowable capacity, ensuring compliance with hydraulic design standards. This assessment supports the adequacy of the proposed system to handle the expected flow conditions under the specified design criteria.

Please refer to the subsequent calculation table Figure 9.

FFE (FINISHED FLOOR ELEVATION) CONSIDERATIONS

The finished floor elevation is currently set 8.7 feet (5977.5) above the adjacent elevation of South Parker Road (5968.8'). The proposed pad for the Site has been designed such that a minimum of 2-feet has been provided above adjacent hydraulic grade lines of overland flow across the site.

WATER QUALITY CONSIDERATIONS

Water quality has been considered in the downstream portion of the Master Drainage Study. "Water Quality is achieved in an extended detention facility designed to EURV specifications using UDFCD ver 3.07 UD-Detention Spreadsheet." Final Drainage Report for Parker Pointe Parker, Colorado, Perception Design Group, INC. Job#2015-015.

CONCLUSION

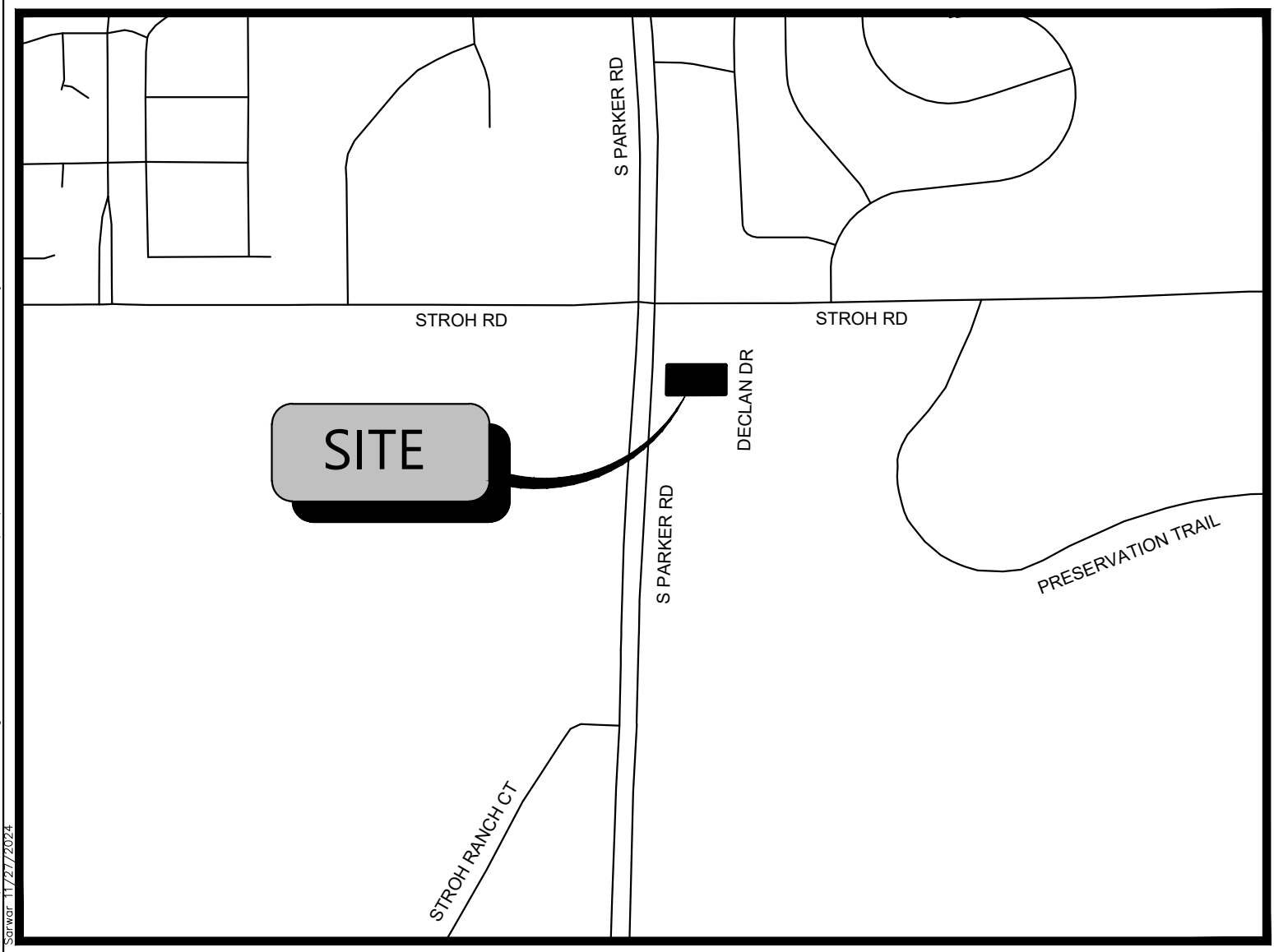
The Site's proposed grading and hydrology adhere to previous studies and calculations. It establishes the appropriate elevation of proposed pad and accommodates for all other criteria asked of the Final Drainage Report for Parker Pointe Parker, Colorado, Perception Design Group, INC. Job#2015-015.

TABLE OF CONTENTS

FIGURES

APPENDIX

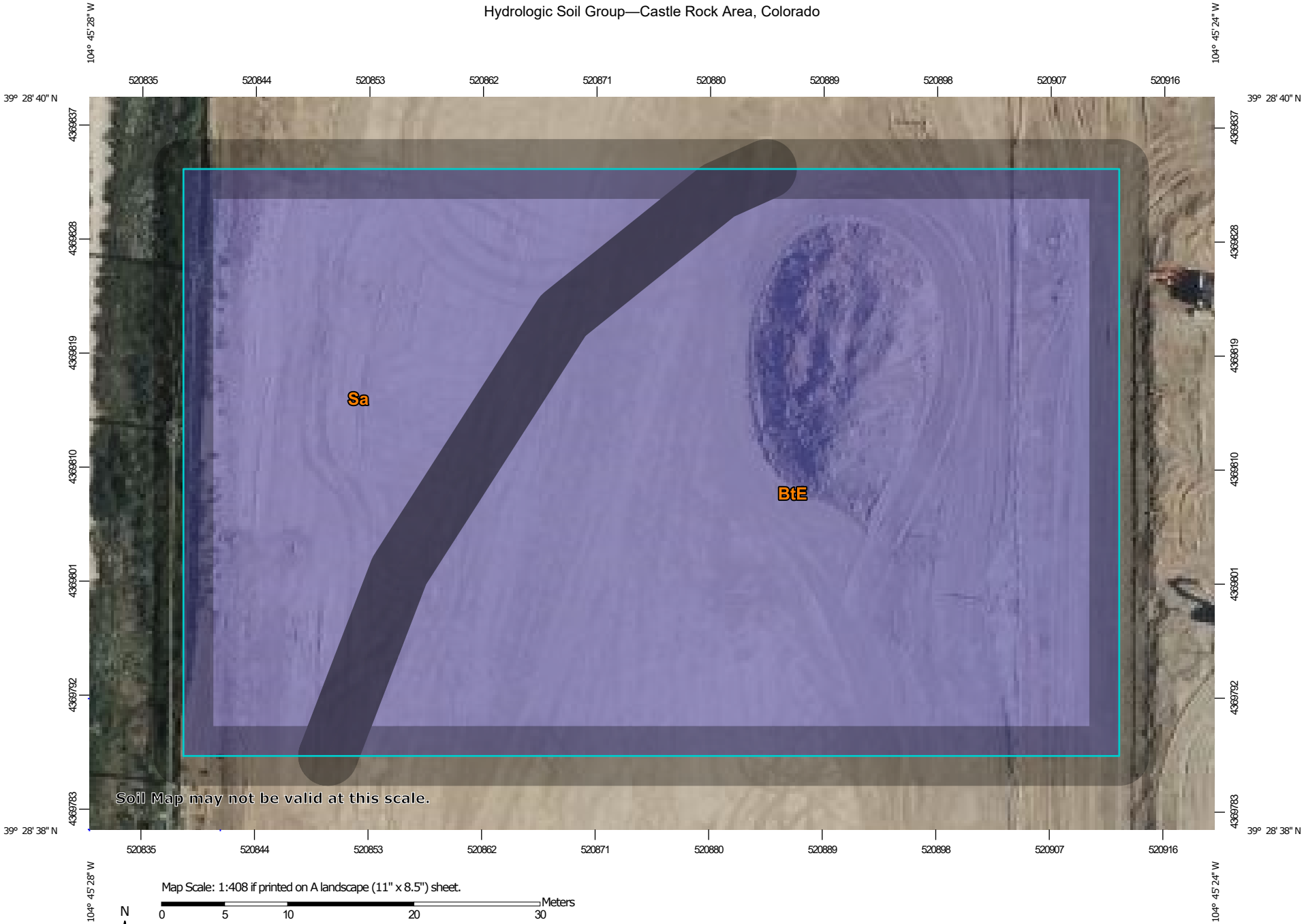
FIGURES



FILE NAME: \\TXDAL\Civil\24003198 - BRC - Parker & Stroh - Parker CO_LD\0 REFERENCE\VICINITY MAP - EXHIBIT.dwg LAST SAVED BY: ksarwar 11/27/2024 1:51 AM PLOTTED BY: Khadejo Sarwar 11/27/2024

ATWELL
866.850.4200 www.atwell-group.com
9001 AIRPORT FREEWAY, SUITE 660
NORTH RICHLAND HILLS, TX 76180
972.638.8860

VICINITY MAP



Map Scale: 1:408 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 15 30 60 90

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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 17, Aug 29, 2024

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
BtE	Bresser-Truckton sandy loams, 5 to 25 percent slopes	B	0.6	67.5%
Sa	Sampson loam	B	0.3	32.5%
Totals for Area of Interest			**0.9**	**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

National Flood Hazard Layer FIRMette

FEMA

104°45'44"W 39°28'53"N

104°45'7"W 39°28'25"N

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

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

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

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

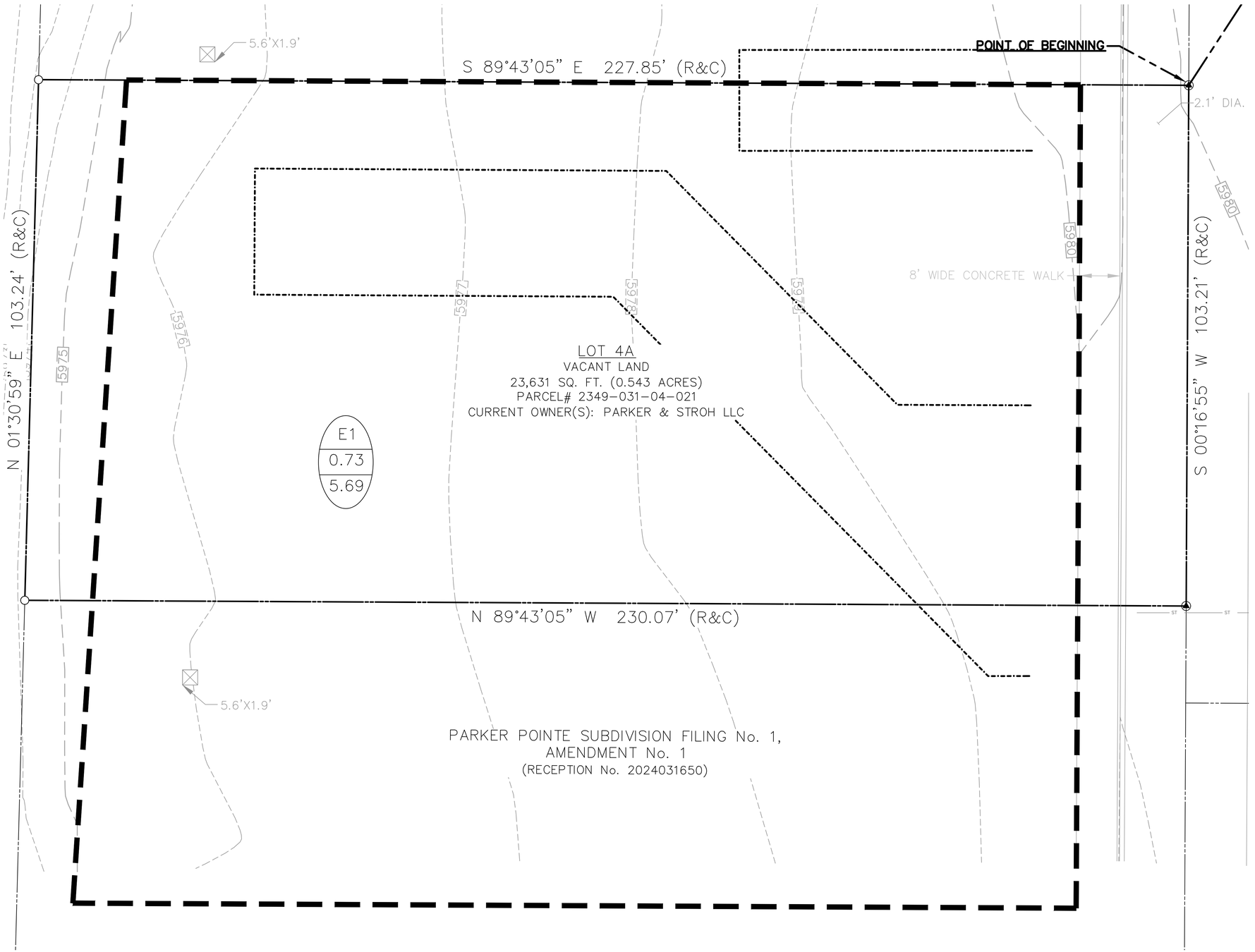
N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/21/2024 at 8:47 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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



DRAINAGE LEGEND:

H
0.79
6.22

SUBAREA
AREA – ACRES
FLOW – Q 100 (CFS)
DRAINAGE AREA LINE

DRAINAGE NOTES:

1. THE DEVELOPER, THROUGH HIS ENGINEER OR AUTHORIZED REPRESENTATIVE, SHALL ACQUIRE ALL REQUIRED NATIONWIDE PERMITS, SUCH AS CWA 401, 402 AND/OR 404 PERMITS, AS APPROPRIATE, FROM THE USEPA, AND/OR USACE.
2. TOPOGRAPHICAL INFORMATION IS PRESENTED FOR DRAINAGE ANALYSIS PURPOSES ONLY AND IS NOT TO BE USED FOR CONSTRUCTION.
3. TOPOGRAPHICAL INFORMATION PRESENTED HEREIN IS DERIVED FROM SURVEY AS PROVIDED BY BARRON LAND.

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

CAUTION: NOTICE TO CONTRACTOR THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

PRE-DEVELOPED DRAINAGE SUMMARY
BRC - PARKER, COLORADO

DRAINAGE AREA	AREA (AC)	Tc (MIN)	C-VALUE	I (2 yr) (in/hr)	Q (2yr) (cfs)	I (100 yr) (in/hr)	Q (100 yr) (cfs)	REMARKS
E1	0.73	5.00	0.05	3.41	0.12	9.53	0.35	TO INTERIM SYSTEM
TOTALS	0.73						0.35	

1. INTENSITY VALUES, TC, AND C VALUES UTILIED ARE THOSE FOUND IN THE MASTER DRAINAGE REPORT "MASTER DRAINAGE REPORT FOR PARKER POINTE JOB NO. 2015-015"

THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.

THIS REVIEW DOES NOT CONSTITUTE APPROVAL OF ANY PRIVATE ON-SITE IMPROVEMENTS WHICH MAY BE SHOWN. CONSTRUCTION CANNOT COMMENCE UNTIL ALL REQUIRED DRAINAGE/TRAFFIC REPORT(S), FINAL DEVELOPMENT PLAN(S), SPECIAL REVIEW(S), GRADING PERMIT, AND/OR OTHER PERMITS ARE COMPLETE APPROVED AND ON FILE WITH THE TOWN OF PARKER.

TOWN OF PARKER, DIRECTOR ENGINEERING DATE

811 Know what's **below.** **Call** before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

ATWELL
866.850.4200 www.atwell-group.com
9001 AIRPORT FREEWAY, SUITE 660
NORTH RICHLAND HILLS, TX 76180
972.638.8860

LOT 4A, PARKER POINTE SUBD. FILING NO. 1, AMEND. NO. 1
S. PARKER RD & STROH RD
PARKER
DOUGLAS COUNTY, COLORADO

BLACK ROCK COFFEE BAR
13135 DECLAN DRIVE
BLACK ROCK COFFEE BAR
INTERIM DAM

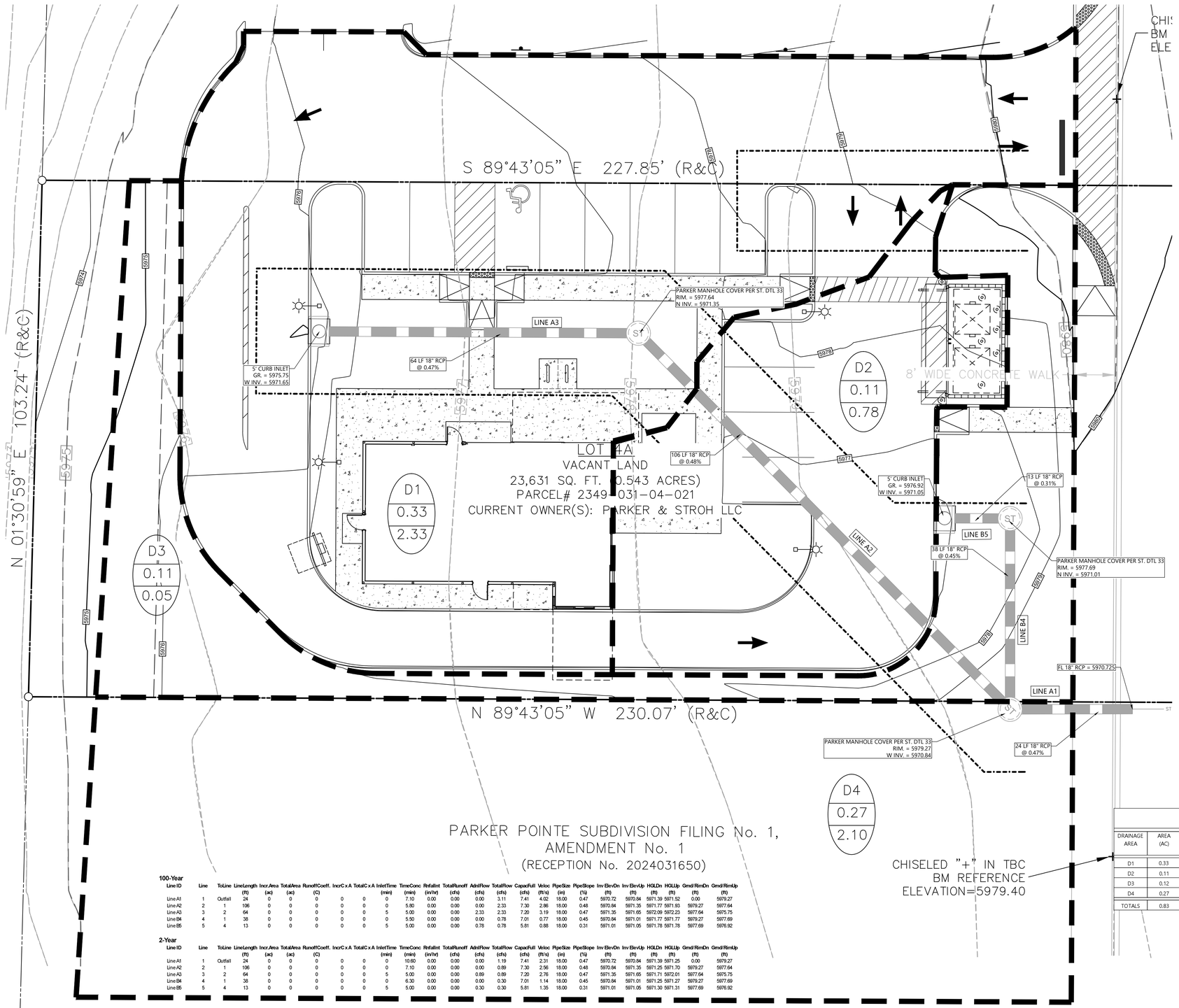
DATE 2025-08-25

REVISIONS

0 5' 10'
SCALE: 1"= 10'

DRAWN BY: K. SARWAR
CHECKED BY: N. SALAZAR
PROJECT MANAGER: N. SALAZAR
JOB #: 24003198
FILE CODE: ##
SHEET NO. C3.20

CAD FILE: 24003198 - C3.10 INTERIM DAM



100-Year

Line ID	Line	ToLine	LineLength (ft)	Incr.Area (ac)	TotalArea (ac)	RunoffCoeff. (C)	IncrC x A	TotalC x A	InletTime (min)	TimeConc (min)	RnfallInt (in/hr)	TotalRunoff (cfs)	AdnlFlow (cfs)	TotalFlow (cfs)	CapacFull (cfs)	Veloc (ft/s)	PipeSize (in)	PipeSlope (%)	Inv ElevDn (ft)	Inv ElevUp (ft)	HGLDn (ft)	HGLUp (ft)	Gmd/RimDn (ft)	Gmd/RimUp (ft)
Line A1	1	Outfall	24	0	0	0	0	0	0	7.10	0.00	0.00	0.00	3.11	7.41	4.02	18.00	0.47	5970.72	5970.84	5971.39	5971.52	0.00	5979.27
Line A2	2	1	106	0	0	0	0	0	0	5.80	0.00	0.00	0.00	2.33	7.30	2.86	18.00	0.48	5970.84	5971.35	5971.77	5971.93	5979.27	5977.64
Line A3	3	2	64	0	0	0	0	0	5	5.00	0.00	0.00	2.33	2.33	7.20	3.19	18.00	0.47	5971.35	5971.65	5972.09	5972.23	5977.64	5975.75
Line B4	4	1	38	0	0	0	0	0	0	5.50	0.00	0.00	0.00	0.78	7.01	0.77	18.00	0.45	5970.84	5971.01	5971.77	5971.77	5979.27	5977.69
Line B5	5	4	13	0	0	0	0	0	5	5.00	0.00	0.00	0.78	0.78	5.81	0.88	18.00	0.31	5971.01	5971.05	5971.78	5971.78	5977.69	5976.92

2-Year

Line ID	Line	ToLine	LineLength (ft)	Incr.Area (ac)	TotalArea (ac)	RunoffCoeff. (C)	IncrC x A	TotalC x A	InletTime (min)	TimeConc (min)	RnfallInt (in/hr)	TotalRunoff (cfs)	AdnlFlow (cfs)	TotalFlow (cfs)	CapacFull (cfs)	Veloc (ft/s)	PipeSize (in)	PipeSlope (%)	Inv ElevDn (ft)	Inv ElevUp (ft)	HGLDn (ft)	HGLUp (ft)	Gmd/RimDn (ft)	Gmd/RimUp (ft)
Line A1	1	Outfall	24	0	0	0	0	0	0	10.60	0.00	0.00	0.00	1.19	7.41	2.31	18.00	0.47	5970.72	5970.84	5971.39	5971.25	0.00	5979.27
Line A2	2	1	106	0	0	0	0	0	0	7.10	0.00	0.00	0.00	0.89	7.30	2.56	18.00	0.48	5970.84	5971.35	5971.25	5971.70	5979.27	5977.64
Line A3	3	2	64	0	0	0	0	0	5	5.00	0.00	0.00	0.89	0.89	7.20	2.76	18.00	0.47	5971.35	5971.65	5971.71	5972.01	5977.64	5975.75
Line B4	4	1	38	0	0	0	0	0	0	6.30	0.00	0.00	0.00	0.30	7.01	1.14	18.00	0.45	5970.84	5971.01	5971.25	5971.27	5979.27	5977.69
Line B5	5	4	13	0	0	0	0	0	5	5.00	0.00	0.00	0.30	0.30	5.81	1.35	18.00	0.31	5971.01	5971.05	5971.30	5971.31	5977.69	5976.92

DRAINAGE LEGEND:

- H / 0.79 / 6.22 — SUBAREA; AREA – ACRES; FLOW – Q 100 (CFS)
- DRAINAGE AREA LINE
- (ST) PROPOSED STORM MANHOLE
- PROPOSED 5' CURB INLET

DRAINAGE NOTES:

1. THE DEVELOPER, THROUGH HIS ENGINEER OR AUTHORIZED REPRESENTATIVE, SHALL ACQUIRE ALL REQUIRED NATIONWIDE PERMITS, SUCH AS CWA 401, 402 AND/OR 404 PERMITS, AS APPROPRIATE, FROM THE USEPA, AND/OR USACE.
2. TOPOGRAPHICAL INFORMATION IS PRESENTED FOR DRAINAGE ANALYSIS PURPOSES ONLY AND IS NOT TO BE USED FOR CONSTRUCTION.
3. TOPOGRAPHICAL INFORMATION PRESENTED HEREIN IS DERIVED FROM SURVEY AS PROVIDED BY BARRON LAND.

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

CAUTION: NOTICE TO CONTRACTOR THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

PRE-DEVELOPED DRAINAGE SUMMARY
BRC - PARKER, COLORADO

DRAINAGE AREA	AREA (AC)	Tc (MIN)	C-VALUE	P (2 yr) One-hour point rainfall	I (2 yr) (in/hr)	Q (2 yr) (cfs)	P (100yr) One-hour point rainfall	I (100 yr) (in/hr)	Q (100 yr) (cfs)	REMARKS
D1	0.33	5.00	0.80	0.99	3.36	0.89	2.60	8.82	2.33	TO WEST CURB INLET
D2	0.11	5.00	0.80	0.99	3.36	0.30	2.60	8.82	0.78	TO EAST INLET
D3	0.12	5.00	0.05	0.99	3.36	0.02	2.60	8.82	0.05	BYPASS
D4	0.27	5.00	0.88	0.99	3.36	0.80	2.60	8.82	2.10	BYPASS ADJOINER
TOTALS	0.83					2.00			5.25	

THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.

THIS REVIEW DOES NOT CONSTITUTE APPROVAL OF ANY PRIVATE ON-SITE IMPROVEMENTS WHICH MAY BE SHOWN. CONSTRUCTION CANNOT COMMENCE UNTIL ALL REQUIRED DRAINAGE/TRAFFIC REPORT(S), FINAL DEVELOPMENT PLAN(S), SPECIAL REVIEW(S), GRADING PERMIT, AND/OR OTHER PERMITS ARE COMPLETE APPROVED AND ON FILE WITH THE TOWN OF PARKER.

TOWN OF PARKER, DIRECTOR ENGINEERING — DATE

811 Know what's **below.** **Call** before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

ATWELL
866.850.4200 www.atwell-group.com
9001 AIRPORT FREEWAY, SUITE 660
NORTH RICHLAND HILLS, TX 76180
972.638.8860

LOT 4A, PARKER POINTE SUBD. FILING NO. 1, AMEND. NO. 1
S. PARKER RD & STROH RD
PARKER
DOUGLAS COUNTY, COLORADO

BLACK ROCK COFFEE BAR
13135 DECLAN DRIVE
BLACK ROCK COFFEE BAR
POST-DEV DAM

DATE 2025-08-25

REVISIONS

0 5' 10'
SCALE: 1"= 10'

DRAWN BY: K. SARWAR
CHECKED BY: N. SALAZAR
PROJECT MANAGER: N. SALAZAR
JOB #: 24003198
FILE CODE: ##
SHEET NO. C3.30

CAD FILE: 24003198 - C3D POST-DEV DAM

FILE NAME: \\TXDAL\Civil\24003198 - BRC - Parker & Stroh - Parker CO_LD\24 PRODUCTION\24003198 - C3D POST-DEV DAM.dwg LAST SAVED BY: mgo 8/5/2025 4:12 PM PLOTTED BY: Khaledp Server 8/25/2025 PAPER: ARCH FULL BLEED D (24.00 X 36.00 INCHES) DEVICE: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 PLOT STYLE: ATWELL.CTB

NOAA Atlas 14, Volume 8, Version 2
Location name: Parker, Colorado, USA*
Latitude: 39.4785°, Longitude: -104.7582°
Elevation: 5965 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**2.70** (2.23-3.31)	**3.41** (2.81-4.18)	**4.61** (3.78-5.65)	**5.63** (4.60-6.95)	**7.12** (5.62-9.11)	**8.30** (6.38-10.8)	**9.53** (7.06-12.6)	**10.8** (7.66-14.7)	**12.6** (8.54-17.5)	**14.0** (9.22-19.7)
10-min	**1.98** (1.63-2.42)	**2.50** (2.06-3.05)	**3.37** (2.77-4.13)	**4.12** (3.37-5.08)	**5.21** (4.11-6.67)	**6.08** (4.67-7.87)	**6.98** (5.17-9.24)	**7.93** (5.60-10.8)	**9.22** (6.26-12.8)	**10.2** (6.75-14.4)
15-min	**1.61** (1.33-1.97)	**2.03** (1.67-2.48)	**2.74** (2.25-3.36)	**3.35** (2.74-4.13)	**4.24** (3.34-5.42)	**4.94** (3.80-6.40)	**5.68** (4.20-7.51)	**6.44** (4.56-8.74)	**7.50** (5.09-10.4)	**8.32** (5.48-11.7)
30-min	**1.06** (0.874-1.30)	**1.34** (1.10-1.64)	**1.81** (1.49-2.22)	**2.21** (1.81-2.73)	**2.80** (2.20-3.58)	**3.26** (2.50-4.22)	**3.74** (2.77-4.95)	**4.25** (3.00-5.76)	**4.94** (3.35-6.87)	**5.48** (3.61-7.71)
60-min	**0.667** (0.551-0.816)	**0.827** (0.682-1.01)	**1.10** (0.907-1.36)	**1.35** (1.10-1.66)	**1.71** (1.35-2.20)	**2.00** (1.54-2.60)	**2.31** (1.71-3.06)	**2.64** (1.87-3.58)	**3.09** (2.10-4.31)	**3.45** (2.28-4.86)
2-hr	**0.402** (0.333-0.488)	**0.492** (0.408-0.599)	**0.652** (0.539-0.795)	**0.795** (0.653-0.974)	**1.01** (0.804-1.29)	**1.18** (0.919-1.53)	**1.37** (1.02-1.81)	**1.57** (1.12-2.13)	**1.86** (1.27-2.57)	**2.08** (1.38-2.91)
3-hr	**0.300** (0.250-0.363)	**0.362** (0.301-0.439)	**0.475** (0.393-0.576)	**0.577** (0.475-0.703)	**0.732** (0.587-0.936)	**0.862** (0.672-1.11)	**1.00** (0.752-1.32)	**1.15** (0.828-1.56)	**1.37** (0.942-1.89)	**1.54** (1.03-2.14)
6-hr	**0.183** (0.153-0.220)	**0.219** (0.183-0.263)	**0.283** (0.236-0.341)	**0.342** (0.283-0.414)	**0.432** (0.349-0.548)	**0.508** (0.398-0.650)	**0.589** (0.445-0.771)	**0.678** (0.490-0.908)	**0.804** (0.557-1.10)	**0.907** (0.608-1.25)
12-hr	**0.111** (0.093-0.132)	**0.133** (0.111-0.159)	**0.171** (0.143-0.205)	**0.205** (0.171-0.247)	**0.256** (0.207-0.322)	**0.299** (0.235-0.378)	**0.343** (0.261-0.444)	**0.391** (0.284-0.519)	**0.459** (0.320-0.623)	**0.513** (0.347-0.702)
24-hr	**0.067** (0.057-0.080)	**0.080** (0.068-0.095)	**0.102** (0.086-0.122)	**0.122** (0.102-0.145)	**0.150** (0.121-0.186)	**0.173** (0.136-0.216)	**0.196** (0.150-0.251)	**0.222** (0.162-0.291)	**0.257** (0.180-0.345)	**0.284** (0.193-0.386)
2-day	**0.040** (0.034-0.047)	**0.047** (0.040-0.055)	**0.059** (0.050-0.069)	**0.069** (0.058-0.082)	**0.084** (0.068-0.103)	**0.096** (0.076-0.119)	**0.108** (0.083-0.137)	**0.121** (0.089-0.158)	**0.139** (0.098-0.185)	**0.153** (0.105-0.207)
3-day	**0.029** (0.024-0.034)	**0.034** (0.029-0.040)	**0.042** (0.036-0.050)	**0.050** (0.042-0.059)	**0.060** (0.049-0.073)	**0.069** (0.055-0.085)	**0.077** (0.059-0.097)	**0.086** (0.063-0.111)	**0.098** (0.069-0.130)	**0.108** (0.074-0.145)
4-day	**0.023** (0.019-0.027)	**0.027** (0.023-0.031)	**0.034** (0.028-0.039)	**0.039** (0.033-0.046)	**0.048** (0.039-0.058)	**0.054** (0.043-0.067)	**0.061** (0.047-0.076)	**0.068** (0.050-0.087)	**0.077** (0.055-0.102)	**0.084** (0.058-0.113)
7-day	**0.015** (0.013-0.017)	**0.017** (0.015-0.020)	**0.021** (0.018-0.025)	**0.025** (0.021-0.029)	**0.030** (0.025-0.036)	**0.034** (0.027-0.042)	**0.038** (0.030-0.048)	**0.043** (0.032-0.055)	**0.048** (0.034-0.064)	**0.053** (0.037-0.070)
10-day	**0.011** (0.010-0.013)	**0.013** (0.011-0.015)	**0.016** (0.014-0.019)	**0.019** (0.016-0.022)	**0.023** (0.019-0.027)	**0.026** (0.021-0.031)	**0.029** (0.022-0.036)	**0.032** (0.024-0.041)	**0.036** (0.026-0.047)	**0.040** (0.027-0.052)
20-day	**0.007** (0.006-0.008)	**0.008** (0.007-0.010)	**0.010** (0.009-0.012)	**0.012** (0.010-0.013)	**0.014** (0.011-0.016)	**0.015** (0.012-0.019)	**0.017** (0.013-0.021)	**0.019** (0.014-0.024)	**0.021** (0.015-0.027)	**0.023** (0.016-0.030)
30-day	**0.006** (0.005-0.007)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.009** (0.008-0.010)	**0.011** (0.009-0.013)	**0.012** (0.009-0.014)	**0.013** (0.010-0.016)	**0.014** (0.011-0.018)	**0.016** (0.011-0.021)	**0.017** (0.012-0.022)
45-day	**0.005** (0.004-0.005)	**0.005** (0.004-0.006)	**0.006** (0.005-0.007)	**0.007** (0.006-0.008)	**0.008** (0.007-0.010)	**0.009** (0.008-0.011)	**0.010** (0.008-0.013)	**0.011** (0.008-0.014)	**0.012** (0.009-0.016)	**0.013** (0.009-0.017)
60-day	**0.004** (0.003-0.004)	**0.004** (0.004-0.005)	**0.005** (0.005-0.006)	**0.006** (0.005-0.007)	**0.007** (0.006-0.009)	**0.008** (0.007-0.010)	**0.009** (0.007-0.011)	**0.010** (0.007-0.012)	**0.010** (0.007-0.013)	**0.011** (0.008-0.015)

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

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

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

Site-specific conditions may vary from the representative values presented in this chapter. The engineer is responsible for assuring that the selected imperviousness values represent the imperviousness of the catchment or the proposed development. During master planning or in early stages of design, select imperviousness values that are unlikely to be exceeded as final design plans are developed to avoid the need to increase the size of infrastructure during later design stages.

TABLE 6-2. RECOMMENDED IMPERVIOUSNESS BY LAND USE

LAND USE/DENSITY	IMPERVIOUSNESS
Residential	
Single-family Housing (SFH) – Rural (0 – 3 du/ac)	35%
SFH – Low & Medium-density (3 – 5 du/ac)	55%
SFH – High-density (5 - 20 du/ac)	65%
Manufactured Housing (>= 10 du/ac)	65%
Multi-family Housing (MFH) – Medium-density (5 – 20 du/ac)	65%
MFH – High-density MFH (>20 du/ac)	70%
Commercial	
Commercial – Low-density	65%
Commercial – Medium- to High-density	80%
Commercial – Urban Core	90%
Industrial/Institutional	
Schools	55%
Office/institutional	65%
Industrial Areas	75%
Solar Fields, Gravel Cover[1,2]	60%
Solar Fields, Grass Cover[1,2]	45%
Parks and Open Space	
Open Space, Undisturbed Native Grasses	5%
Community Parks	25%
Neighborhood Parks	15%
Golf Courses	30%
Cemeteries	25%

Note: Recommended imperviousness values shown in the table are the minimum imperviousness values for a specific land use. It is the engineer's responsibility to select imperviousness values that appropriately reflect the actual density of the proposed development.

[1] Use these values at the master planning scale or when the specific layout of panels is not known. Use values from the surface type (Table 6-3) at the site planning and design stage when panel width, panel spacing, and panel orientation relative to contours are known.

[2] Assumes 1:1 ratio of panels to aisles. See MHFD's technical memorandum regarding *Determination of Solar Panel Field Runoff Coefficients and Imperviousness Values* for additional information on procedures to reflect other impervious areas such as roads and pads that may be part of a solar field and layouts with wider inter-panel spacing.

MHFD-Inlet, Version 5.03 (August 2023)

INLET MANAGEMENT

Worksheet Protected

INLET NAME	D1 Inlet	D2 Inlet
Site Type (Urban or Rural)		
Inlet Application (Street or Area)	STREET	STREET
Hydraulic Condition	In Sump	In Sump
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening

USER-DEFINED INPUT

User-Defined Design Flows

Minor Q_{Known} (cfs)	0.9	0.3
Major Q_{Known} (cfs)	2.3	0.8

Bypass (Carry-Over) Flow from Upstream Inlets must be organized from upstream (left) to downstream (right) in order for bypass

Receive Bypass Flow from:	No Bypass Flow Received	No Bypass Flow Received
Minor Bypass Flow Received, Q_b (cfs)	0.0	0.0
Major Bypass Flow Received, Q_b (cfs)	0.0	0.0

Watershed Characteristics

Subcatchment Area (acres)		
Percent Impervious		
NRCS Soil Type		

Watershed Profile

Overland Slope (ft/ft)		
Overland Length (ft)		
Channel Slope (ft/ft)		
Channel Length (ft)		

Minor Storm Rainfall Input

Design Storm Return Period, T_r (years)		
One-Hour Precipitation, P_1 (inches)		

Major Storm Rainfall Input

Design Storm Return Period, T_r (years)		
One-Hour Precipitation, P_1 (inches)		

CALCULATED OUTPUT

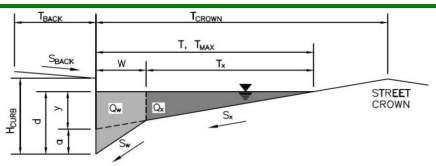
Minor Total Design Peak Flow, Q (cfs)	**0.9**	**0.3**
Major Total Design Peak Flow, Q (cfs)	**2.3**	**0.8**
Minor Flow Bypassed Downstream, Q_b (cfs)	N/A	N/A
Major Flow Bypassed Downstream, Q_b (cfs)	N/A	N/A

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Inlet ID: **D1 Inlet**



Gutter Geometry:

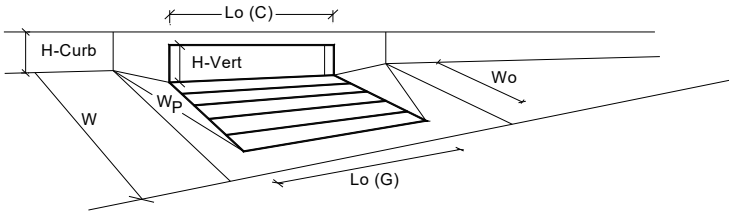
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	0.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.012	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	25.0	ft
Gutter Width	W =	0.00	ft
Street Transverse Slope	S_X =	0.040	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	6.0	7.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.03 (August 2023)



CDOT Type R Curb Opening

Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	2.9	3.4	☐ Override Depths
Grate Information		MINOR	MAJOR	
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	0.00	0.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.24	0.28	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.92	0.97	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**1.8**	**2.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	0.9	2.3	cfs

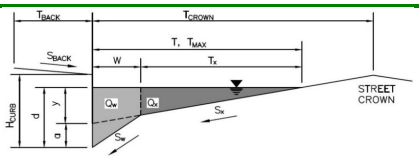
MHFD-Inlet, Version 5.03 (August 2023)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Inlet ID: **D2 Inlet**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	0.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.012	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	24.0	ft
Gutter Width	W =	0.00	ft
Street Transverse Slope	S_X =	0.030	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	6.0	6.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	6.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

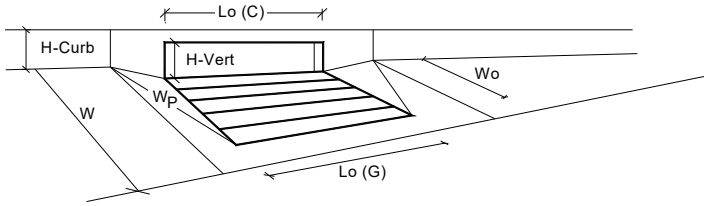
MINOR STORM Allowable Capacity is not applicable to Sump Condition

MAJOR STORM Allowable Capacity is not applicable to Sump Condition

	Minor Storm	Major Storm	
Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.03 (August 2023)



CDOT Type R Curb Opening

Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	2.2	2.2	☐ Override Depths
Grate Information		MINOR	MAJOR	
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	0.00	0.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.18	0.18	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.82	0.82	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**1.0**	**1.0**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	0.3	0.8	cfs

FIGURE 9 - HYDRAULIC CALCULATIONS FROM HYDRAFLOW STORM SEWERS EXTENSION FOR AUTODESK CIVIL 3D 2024 SOFTWARE

*** Refer to Appendix A of this Report for Drainage Plan and Profiles.**

100-Year

Line ID	Line	ToLine	LineLength	Incr.Area	TotalArea	RunoffCoeff.	IncrC x A	TotalC x A	InletTime	TimeConc	RnfallInt	TotalRunoff	AdnlFlow	TotalFlow	CapacFull	Veloc	PipeSize	PipeSlope	Inv ElevDn	Inv ElevUp	HGLDn	HGLUp	Grnd/RimDn	Grnd/RimUp
			(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
Line A1	1	Outfall	24	0	0	0	0	0	0	7.10	0.00	0.00	0.00	3.11	7.41	4.02	18.00	0.47	5970.72	5970.84	5971.39	5971.52	0.00	5979.27
Line A2	2	1	106	0	0	0	0	0	0	5.80	0.00	0.00	0.00	2.33	7.30	2.86	18.00	0.48	5970.84	5971.35	5971.77	5971.93	5979.27	5977.64
Line A3	3	2	64	0	0	0	0	0	5	5.00	0.00	0.00	2.33	2.33	7.20	3.19	18.00	0.47	5971.35	5971.65	5972.09	5972.23	5977.64	5975.75
Line B4	4	1	38	0	0	0	0	0	0	5.50	0.00	0.00	0.00	0.78	7.01	0.77	18.00	0.45	5970.84	5971.01	5971.77	5971.77	5979.27	5977.69
Line B5	5	4	13	0	0	0	0	0	5	5.00	0.00	0.00	0.78	0.78	5.81	0.88	18.00	0.31	5971.01	5971.05	5971.78	5971.78	5977.69	5976.92

2-Year

Line ID	Line	ToLine	LineLength	Incr.Area	TotalArea	RunoffCoeff.	IncrC x A	TotalC x A	InletTime	TimeConc	RnfallInt	TotalRunoff	AdnlFlow	TotalFlow	CapacFull	Veloc	PipeSize	PipeSlope	Inv ElevDn	Inv ElevUp	HGLDn	HGLUp	Grnd/RimDn	Grnd/RimUp
			(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
Line A1	1	Outfall	24	0	0	0	0	0	0	10.60	0.00	0.00	0.00	1.19	7.41	2.31	18.00	0.47	5970.72	5970.84	5971.39	5971.25	0.00	5979.27
Line A2	2	1	106	0	0	0	0	0	0	7.10	0.00	0.00	0.00	0.89	7.30	2.56	18.00	0.48	5970.84	5971.35	5971.25	5971.70	5979.27	5977.64
Line A3	3	2	64	0	0	0	0	0	5	5.00	0.00	0.00	0.89	0.89	7.20	2.76	18.00	0.47	5971.35	5971.65	5971.71	5972.01	5977.64	5975.75
Line B4	4	1	38	0	0	0	0	0	0	6.30	0.00	0.00	0.00	0.30	7.01	1.14	18.00	0.45	5970.84	5971.01	5971.25	5971.27	5979.27	5977.69
Line B5	5	4	13	0	0	0	0	0	5	5.00	0.00	0.00	0.30	0.30	5.81	1.35	18.00	0.31	5971.01	5971.05	5971.30	5971.31	5977.69	5976.92

APPENDIX A – APPROVED PLANS

LOT 4A, PARKER POINTE SUBDIVISION FILING NO. 1, AMENDMENT NO. 1
SITE PLAN FOR

ALL THE FIRE HYDRANTS SHALL BE INSTALLED ACCORDING TO WATER UTILITY STANDARDS. THE NUMBER AND LOCATIONS OF THE FIRE HYDRANTS AS SHOWN ON THE OVERALL UTILITY PLAN ARE CORRECT AS SPECIFIED BY THE TOWN OF PARKER, COMMUNITY DEVELOPMENT DEPARTMENT.

FIRE CODE OFFICIAL OR DESIGNATED REPRESENTATIVE — DATE

(NOTE - UNDERGROUND FILE LINE (UFL) SUBMITTAL DOCUMENTS MUST MEET THE REQUIREMENTS OF NFPA 24 WHEN SUBMITTING FOR REVIEW.)

BLACK ROCK COFFEE BAR™

LOCATED AT S. PARKER RD & STROH RD
CITY OF PARKER, DOUGLAS COUNTY, STATE OF COLORADO
TOTAL SITE ACREAGE: 0.60 AC

SITE AREA

TOTAL PROPERTY AREA:	0.60 AC. / 25,933 SF.
DISTURBED AREA:	0.67 AC. / 29,406 SF.
IMPERVIOUS AREA:	0.40 AC. / 17,639 SF
LANDSCAPED AREA:	0.19 AC. / 8,294 SF

ZONING CLASSIFICATION

JURISDICTION:	CITY OF PARKER
ZONING:	MIXED-USE COMMUNITY
ADJACENT ZONING:	PLANNED DEVELOPMENT
PROPOSED USE:	COMMERCIAL RESTAURANT WITH DRIVE THRU

BUILDING SETBACKS

REQUIRED BUILDING SETBACK

FRONT MIN BUILDING SETBACK	25'
FRONT MAX BUILDING SETBACK	NONE
SIDE MIN BUILDING SETBACK	5' (NONRESIDENTIAL)
SIDE MIN BUILDING SETBACK	10' (ADJACENT TO STREET)
REAR BUILDING SETBACK	5' MIN. WITH ALLEY
REAR BUILDING SETBACK	8' MIN. WITHOUT ALLEY

PROVIDED BUILDING SETBACK

FRONT (W) BUILDING SETBACK	65.2'
SIDE (S) BUILDING SETBACK	18'
SIDE (N) BUILDING SETBACK	51.5'
REAR (E) BUILDING SETBACK	113.5'

BUILDING SUMMARY

PROPOSED BUILDING AREA:	1,495 SF
REQUIRED BUILDING HEIGHT LIMIT:	45'
PROVIDED BUILDING HEIGHT:	±20'
PROPOSED NUMBER OF BUILDINGS:	1

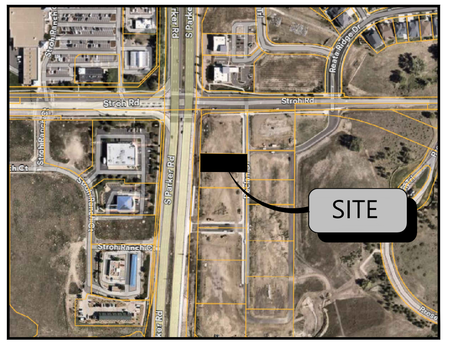
PARKING SUMMARY

PARKING REQUIREMENTS	1 SPACE PER EACH 4 PERSONS OF RATED CAPACITY OF 37 PEOPLE (EXCLUDING OUTDOOR SEATING)
TOTAL PARKING REQUIRED	10 SPACES
PARKING PROVIDED	12 SPACES (INCLUDING 1 ADA SPACE)
DRIVE-THROUGH STACKING PROVIDED	10 STACKING SPACES
BIKE SPACES REQUIREMENTS	1 REQUIRED - 10% OF VEHICLE SPACES PROVIDED
TOTAL BIKE PARKING PROVIDED	4 SPACES

VICINITY MAP
N.T.S.

FEMA MAP
N.T.S.

NOTE: BASED ON GRAPHIC DETERMINATION, THIS PROPERTY DOES NOT LIE IN A F.E.M.A./F.I.R.M.SPECIAL FLOOD HAZARD AREA PER COMMUNITY PANEL NO. 08035C0182G DATED MARCH, 16 2016.



AERIAL MAP
N.T.S.

BLACK ROCK COFFEE BAR
TOTAL SITE AREA: 0.60 AC. / 25,933 SF.
DISTURBED AREA: 0.67 AC./ 29,406 SF.
ZONING: MIXED-USE COMMUNITY (MC)

DEVELOPMENT TEAM

OWNER
DOUBLETREE VENTURES, LLC
P.O. BOX 40326
DENVER, CO 80204
CONTACT: BRIAN ZUREK
EMAIL: BRIAN@DOUBLETREEVENTURES.COM

CIVIL ENGINEER
ATWELL, LLC
9001 AIRPORT FREEWAY, SUITE 660
NORTH RICHLAND HILLS, TX 76180
PHONE: (###) ###-####
CONTACT: NICHOLAS SALAZAR
EMAIL: NSALAZAR@ATWELL.COM

SURVEYOR
BARRON LAND
2790 N. ACADEMY BLVD., SUITE 311
COLORADO SPRINGS, CO 80917
PHONE: (719) 360-6827
CONTACT: SPENCER BARRON

DEVELOPER
BLACK ROCK COFFEE BAR
16307 NE CAMERON BLVD
PORTLAND, OR 97230
PHONE: (541) 531-2149
CONTACT: TONY POLLOTTA

GOVERNING AGENCIES AND UTILITY CONTACTS

WATER & WASTEWATER
PARKER WATER AND SANITATION DISTRICT
13939 ANCESTRY DRIVE
PARKER, CO 80134
PHONE: (303) 841- 4627
EMAIL: RRAMSEY@PWSD.ORG
CONTACT: ROBERT RAMSEY

ENGINEERING DEPARTMENT
TOWN OF PARKER ENGINEERING & PUBLIC WORKS
20120 E. MAINSTREET
PARKER, CO 80134
PHONE: (303) 840- 9546
EMAIL: CKUDLAUSKAS@PARKERCO.GOV
CONTACT: CHARLES KUDLAUSKAS

FIRE PROTECTION
TOWN OF PARKER FIRE AND LIFE SAFETY
20120 E. MAINSTREET
PARKER, CO 80138
PHONE: (303) 805-3169
CONTACT: RANDY CAPRA
EMAIL: RCAPRA@PARKERONLINE.ORG

BUILDING PERMIT
TOWN OR PARKING BUILDING DIVISION
20120 E. MAINSTREET
PARKER, CO 80138
PHONE: (303) 841-1970
CONTACT: RANDY SALE
EMAIL: RSALE@PARKERONLINE.ORG

GAS PROVIDER
XCEL ENERGY
1123 WEST 3RD AVE,
DENVER, CO 80223
PHONE: (303) 571-3927
CONTACT: BUILDER'S CALL LINE
(800) 628-1212 X3

PHONE PROVIDER
CENTURYLINK
9750 EAST COSTILLA AVE.
ENGLEWOOD, CO 80112
PHONE: (720) 578-5142

ELECTRIC PROVIDER
CORE ELECTRIC COOPERATIVE
5496 NORTH U.S. HIGHWAY 85
SEDALIA, CO 80135
PHONE: (303) 332-9540
CONTACT: BRUFF SHEA

PROJECT NARRATIVE

BLACK ROCK COFFEE BAR IS OWNED BY BLACK ROCK DEVELOPMENT COMPANY, LLC. THEY ARE A PREMIUM CRAFT COFFEE SHOP WITH MULTIPLE LOCATIONS ACROSS THE COUNTRY. THE CONSIDER THEMSELVES A "PART OF LOCAL COMMUNITIES, EACH BLACK ROCK COFFEE BAR TEAM FINDS WAYS TO SERVE THEIR NEIGHBORHOODS. AND BY DOING SO WE HELP RAISE THE BAR FOR RELATIONSHIP AND COMPASSION." THEIR PROTOTYPE BUILDING IS ROUGHLY 600-700 SQUARE FEET IN SIZE, WITH STATE-OF-THE-ART DESIGN AND IDENTIFIABLE BRANDING ELEMENTS. THEY OFFER PATIO AND INDOOR SEATING WITH THE OPTION OF DRIVE-THRU AVAILABILITY.

A BUILDING WITH THE STANDARD DUAL-LANE ORDERING SINGLE LANE PICKUP IS BEING PROPOSED FOR THIS LOCATION. THIS PROJECT WOULD UTILIZE A PROPOSED ACCESS POINT TO DECLAN DRIVE.

LEGAL DESCRIPTION

LOT 4A, PARKER POINTE SUBDIVISION FILING NO. 1, AMENDMENT NO. 1 ACCORDING TO THE PLAT AS RECORDED JULY 31, 2024 AT RECEPTION NO. 2024031650, COUNTY OF DOUGLAS, STATE OF COLORADO

ADDRESS OF RECORD:
6940 STROH ROAD, PARKER, CO

BENCHMARK

ELEVATIONS ARE BASED UPON DOUGLAS COUNTY GIS SECONDARY CONTROL MONUMENT "1.060032" (ELEVATION - 5903.17 NADV88)

BASIS OF BEARINGS

BEARINGS ARE BASED UPON THE NORTH LINE OF THE NORTHEAST QUARTER OF SECTION 3, T7S, R66W OF THE 6TH PRINCIPAL MERIDIAN, MONUMENTED ON THE EAST WITH A #6 REBAR WITH 2" ALUMINUM CAP IN MONUMENT BOX STAMPED "PLS 22561" AND ON THE WEST WITH A #6 REBAR WITH A 3.25" ALUMINUM CAP IN MONUMENT BOX STAMPED "PLS 29761", AND IS ASSUMED TO BEAR S 89°59'29" W, A FIELD MEASURED DISTANCE OF 2648.43 FEET.

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

THE TYPE, SIZE, LOCATION, AND NUMBER OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ON THE SITE, AND OFFSITE IN WORK AREAS. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY CONTRACTOR PRIOR TO DATE OF CONSTRUCTION. FOR INFORMATION CONTACT: UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) – 1- 800-922-1987. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY SIZE AND HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING FACILITIES PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING IMPROVEMENTS AND UTILITIES AND SHALL REPAIR ANY DAMAGE AT HIS EXPENSE.

TOWN OF PARKER PLAN SET

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THE PROPOSED DEVELOPMENT, BLACK ROCK COFFEE OF PARKER, COLORADO, IS DESIGNED IN ACCORDANCE WITH THE TOWN OF PARKER SIGHT DISTANCE CRITERIA AND WITH AASHTO *POLICY ON GEOMETRIC DESIGN OF HIGHWAY & STREETS.*

PROFESSIONAL ENGINEER'S SIGNATURE — LICENCE NUMBER

PE STAMP:

THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.

THIS REVIEW DOES NOT CONSTITUTE APPROVAL OF ANY PRIVATE ON-SITE IMPROVEMENTS WHICH MAY BE SHOWN. CONSTRUCTION CANNOT COMMENCE UNTIL ALL REQUIRED DRAINAGE/TRAFFIC REPORT(S), FINAL DEVELOPMENT PLAN(S), SPECIAL REVIEW(S), GRADING PERMIT, AND/OR OTHER PERMITS ARE COMPLETE APPROVED AND ON FILE WITH THE TOWN OF PARKER.

TOWN OF PARKER, DIRECTOR ENGINEERING — DATE

811 Know what's **below.** **Call** before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

ATWELL
866.850.4200 www.atwell-group.com
9001 AIRPORT FREEWAY, SUITE 660
NORTH RICHLAND HILLS, TX 76180
972.638.8860

LOT 4A, PARKER POINTE SUBD. FILING NO. 1, AMEND. NO. 1
S. PARKER RD & STROH RD
PARKER
DOUGLAS COUNTY, COLORADO

BLACK ROCK COFFEE BAR
13135 DECLAN DRIVE
BLACK ROCK COFFEE BAR™
COVER SHEET

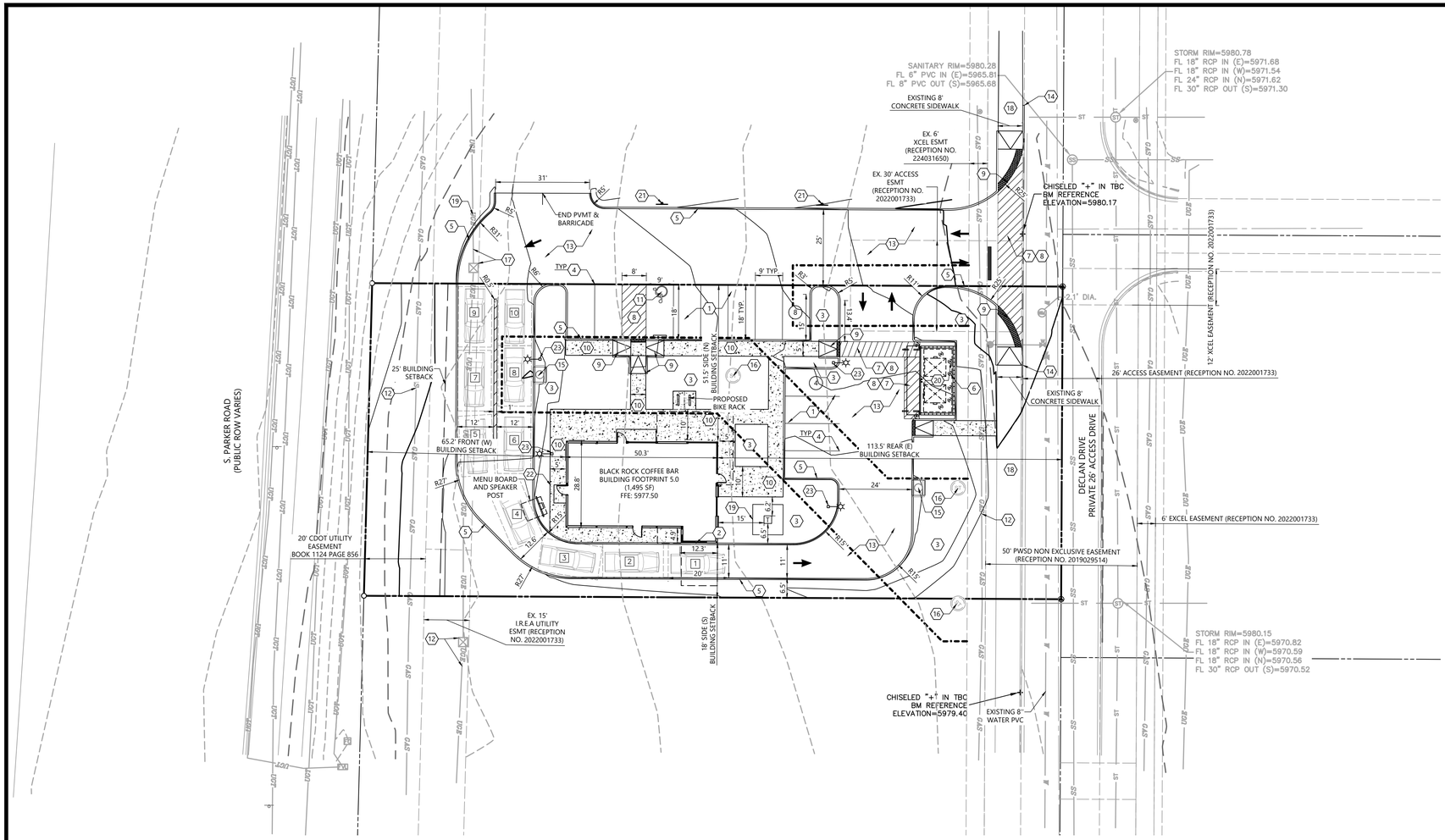
DATE 2025-08-25

REVISIONS

CAD FILE: 24003198 - C00 COVER - CIVIL CD SET

DRAWN BY: K. SARWAR
CHECKED BY: N. SALAZAR
PROJECT MANAGER: N. SALAZAR
JOB #: 24003198
FILE CODE: ##
SHEET NO. C0.00

FILE NAME: \\TXDAL\Civil\24003198 - BRC - Parker & Stroh - Parker CPL_LP\24 PRODUCTION\24003198 - C000 COVER - CIVIL CD SET.dwg LAST SAVED BY: ksarwar 8/25/2025 2:56 PM PLOTTED BY: Khaadeja Sarwar 8/25/2025 PAPER: ARCH FULL BLEED D (24.00 X 36.00 INCHES) DEVICE: DWG TO PDF.PC3 PLOT STYLE: ATWELL.CTB



SITE LEGEND

- EXISTING PROPERTY LINE
- EXISTING ROAD CENTERLINE
- EXISTING EASEMENT LINE
- 6" CURB
- HANDICAP STALL
- A.D.A. STD HANDICAP RAMP
- (16) PARKING SPACE COUNT
- (#) # OF STACKING
- VEHICLE STACKING SPACE
- SIGN

NOTE NUMBER		CORRESPONDING DETAIL NUMBER (SEE DETAIL SHEETS)
1	INSTALL 2" AC PAVEMENT OVER 10" AGGREGATE BASE (PER GEOTECH REPORT)	C700
2	PROPOSED PICK-UP WINDOW WITH COUNTER	SEE ARCHITECTURAL PLANS FOR DETAILS
3	PROPOSED LANDSCAPE	SEE LANDSCAPE PLANS FOR DETAILS
4	4" WIDE PAINTED WHITE TRAFFIC STRIPE (SEE LENGTH THIS SHEET).	-
5	CONSTRUCT 6" SINGLE CURB	-
6	DUMPSTER ENCLOSURE	-
7	INSTALL ADA CROSSWALK	-
8	4" WIDE PAINTED STRIPE @ 2' O.C. AND 45 DEGREES.	-
9	CONSTRUCT DIRECTIONAL CURB RAMP PER PARKER STANDARD DETAIL #18.	C700
10	CONSTRUCT SIDEWALK PER PARKER STANDARD DETAIL #4	C700
11	ADA PARKING STALL WITH ADA SYMBOL AND REQUIRED PAINT.	-
12	PROTECT EXISTING UTILITIES IN PLACE.	-
13	INSTALL 3 1/2" AC OVER 10" AGGREGATE BASE (PER GEOTECH REPORT)	C700
14	MATCH EXISTING ASPHALT ALONG DECLAN DRIVE PER PARKER STANDARD DETAIL #26	C700
15	INSTALL 5' CURB INLET	C700
16	PROPOSED STORM MANHOLE	C700
17	EXISTING UTILITIES TO BE RELOCATED	-
18	EXISTING 8' CONCRETE SIDEWALK	-
19	PROPOSED 10' X 10' TRANSFORMER PAD	-
20	7" PORTLAND CEMENT CONCRETE OVER 8" AGGREGATE BASE (PER GEOTECH REPORT)	C700
21	PROPOSED SIGN "NO PARKING - FIRE LANE"	-
22	PROPOSED SCREEN WALL	SEE ARCHITECTURAL PLANS FOR DETAILS
23	PROPOSED AREA LIGHT	SEE PHOTOMETRIC SITE PLAN FOR DETAILS

SITE GENERAL NOTES:

1. DIMENSIONS SHOWN ARE TO THE FACE OF CURB, UNLESS OTHERWISE INDICATED.
2. USE 3' RADII, UNLESS SHOWN OTHERWISE.
3. THE INFORMATION PERTAINING TO EXISTING CONDITIONS WAS TAKEN FROM A SURVEY PROVIDED BY: BARRON LAND. THE LOCATION OF ALL EXISTING UTILITIES WERE OBTAINED FROM AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY EXACT LOCATION AND DEPTH OF UTILITY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
4. ALL ACCESSIBLE PARKING SPACES AND TRAVEL ROUTES SHALL BE CONSTRUCTED IN ACCORDANCE WITH A.D.A. AND/OR STATE REQUIREMENTS.
5. ANY DISCREPANCIES IN THIS PLAN AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER AND ENGINEER PRIOR TO THE START OF CONSTRUCTION.
6. PRIOR TO STARTING CONSTRUCTION, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION SHALL BEGIN UNTIL ALL PERMITS HAVE BEEN RECEIVED.
7. CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKERS AND PUBLIC SHALL BE PROTECTED FROM INJURY, AND ADJOINING PROPERTY PROTECTED FROM DAMAGE. CONTRACTOR SHALL REPAIR ANY DAMAGE DONE TO PRIVATE OR PUBLIC PROPERTY.
8. ACCESS TO UTILITIES, FIRE HYDRANTS, ETC. SHALL REMAIN UNDISTURBED AT ALL TIMES, UNLESS COORDINATED OTHERWISE.
9. THE GENERAL CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE UPON COMPLETION OF THE PROJECT.
10. ALL SUBGRADE PREPARATION, PAVING, AND UTILITY TRENCHING MUST BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SOILS INVESTIGATION. IF THERE IS A CONFLICT BETWEEN THE SOILS REPORT AND THE PLANS, THE MORE PROHIBITIVE OF THE TWO SHALL TAKE PRECEDENCE.
11. CONTRACTOR TO ENSURE COMPLIANCE WITH ANY AND ALL LAND DISTURBANCE NOTIFICATIONS REQUIREMENTS, AND THAT ALL REQUIRED EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
12. FOR WORK IN, OR ADJACENT TO, STREET RIGHT OF WAYS, CONTRACTOR SHALL ENSURE APPROPRIATE PERMITS ARE OBTAINED PRIOR TO CONSTRUCTION. CONTRACTOR TO ERECT AND MAINTAIN TRAFFIC CONTROL SIGNS AND DEVICES IN CONFORMANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
13. ALL PARKING LOT LIGHTING MUST BE INSTALLED AND OPERATE SO AS NOT TO PRODUCE GLARE OR CAST DIRECT ILLUMINATION ACROSS THE BOUNDING PROPERTY LINE. LOW PRESSURE SODIUM LIGHTING IS PROHIBITED. ALL LIGHTING FIXTURES MUST BE RESTRICTED TO DOWN-LIGHT OR CUT-OFF TYPES.

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

811 Know what's **below.** **Call** before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

ATWELL
866.850.4200 www.atwell-group.com
9001 AIRPORT FREEWAY, SUITE 660
NORTH RICHLAND HILLS, TX 76180
972.638.8860

LOT 4A, PARKER POINTE SUBD. FILING NO. 1, AMEND. NO. 1
S. PARKER RD & STROH RD
PARKER
DOUGLAS COUNTY, COLORADO

BLACK ROCK COFFEE BAR
13135 DECLAN DRIVE
BLACK ROCK COFFEE BAR
SITE PLAN

DATE 2025-08-25

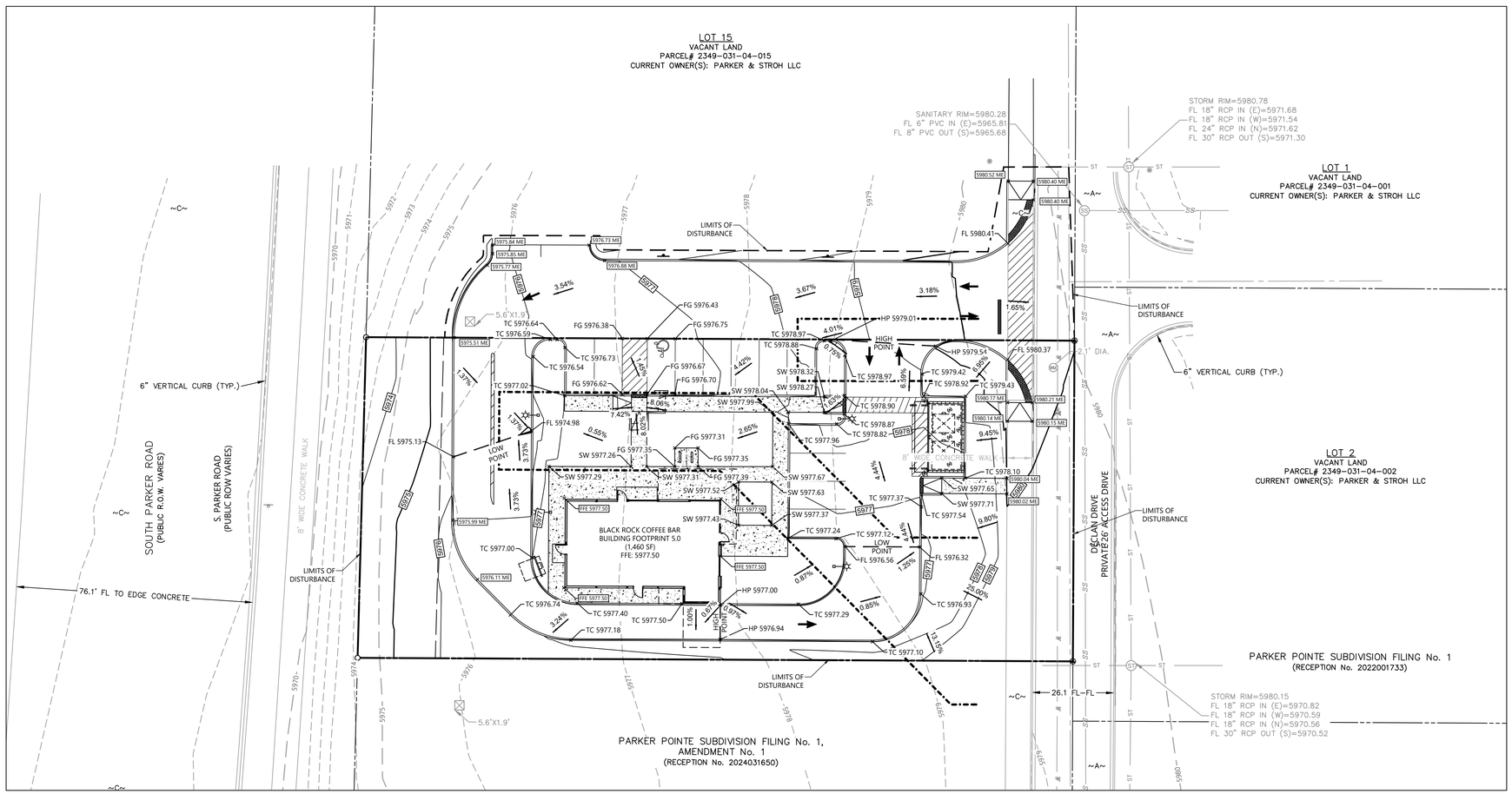
REVISIONS

0 10' 20'
SCALE: 1" = 20'

DRAWN BY: K. SARWAR
CHECKED BY: N. SALAZAR
PROJECT MANAGER: N. SALAZAR
JOB #: 24003198
FILE CODE: ##
SHEET NO. C2.00

CAD FILE: 24003198 - C200 SITE PLAN

FILE NAME: \\TXDAL\Civil\24003198 - BRC - Parker & Stroh - Parker CO_LP\24 PRODUCTION\24003198 - C200 SITE PLAN.dwg LAST SAVED BY: ksarwar 8/11/2025 4:53 PM PLOTTED BY: Khadeja Sarwar 8/28/2025 PAPER: ARCH FULL BLEED D (24.00 X 36.00 INCHES) DEVICE: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 PLOT STYLE: ATWELL.CTB



GRADING LEGEND

- EXISTING PROPERTY LINE
- EXISTING ROAD CENTERLINE
- PROPOSED SETBACK LINE
- 119 EXISTING MINOR CONTOURS
- 120 EXISTING MAJOR CONTOURS
- 119 PROPOSED MINOR CONTOUR
- 120 PROPOSED MAJOR CONTOUR
- ST EXISTING STORM LINE
- W EXISTING WATER LINE
- SS EXISTING SANITARY SEWER LINE
- FG 123.45 PROPOSED (PR.) SPOT ELEV
- ME 123.45 PR. SPOT ELEV - MATCH EX. GRADE
- TC: 123.45 PR. SPOT ELEV - TOP OF CURB GUTTER/BOTTOM OF CURB = TC - 0.5'
- SW: 123.45 PR. SPOT ELEV - SIDEWALK
- FL: 123.45 PR. SPOT ELEV - FLOWLINE
- FFE 123.45 FINISHED FLOOR ELEVATION
- HP: 123.45 PR. SPOT ELEV - HIGH POINT
- 2% PROPOSED SLOPE ARROW
- ST EXISTING STORM MANHOLE
- SS EXISTING SANITARY SEWER MANHOLE
- WM EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT

ABBREVIATION LIST

EG	EXISTING GRADE
TC	TOP OF CURB
FL	FLOW LINE
SW	SIDEWALK
ME	MATCH EXISTING
FG	FINISH GRADE
FFE	FINISH FLOOR ELEVATION
HP	HIGH POINT

EARTHWORK QUANTITIES

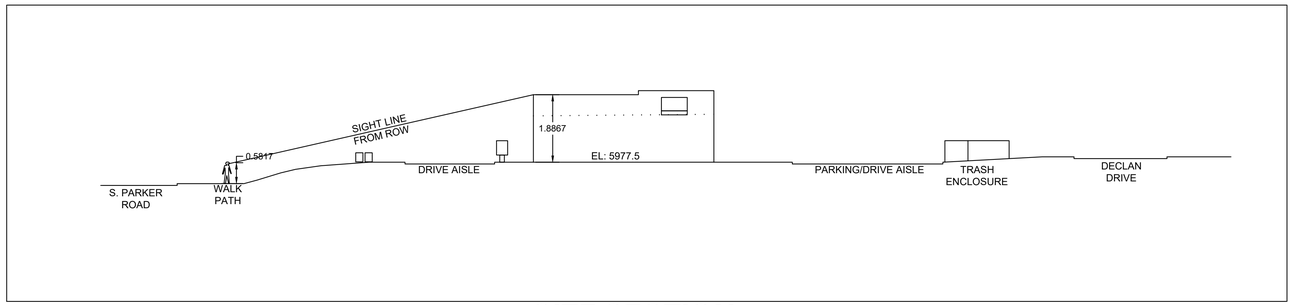
CUT	585
FILL	89
BALANCE (IMPORT)	495

GRADING NOTES:

1. GRADES SHOWN ARE PROPOSED FINISHED GRADES.
2. ALL PROPOSED GRADES AND SPOT ELEVATIONS INDICATE TOP OF PAVEMENT OR FACE/FLOWLINE OF CURB UNLESS OTHERWISE NOTED.
3. THE INFORMATION PERTAINING TO EXISTING CONDITIONS WAS TAKEN FROM A SURVEY PROVIDED BY BARRON LAND.
4. THE LOCATION OF ALL EXISTING UTILITIES WERE OBTAINED FROM AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY EXACT LOCATION AND DEPTH OF UTILITY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
5. ANY DISCREPANCIES IN THIS PLAN AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER AND ENGINEER PRIOR TO THE START OF CONSTRUCTION.
6. PRIOR TO STARTING CONSTRUCTION, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION SHALL BEGIN UNTIL ALL PERMITS HAVE BEEN RECEIVED.
7. CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKERS AND PUBLIC SHALL BE PROTECTED FROM INJURY, AND ADJOINING PROPERTY PROTECTED FROM DAMAGE. CONTRACTOR SHALL REPAIR ANY DAMAGE DONE TO PRIVATE OR PUBLIC PROPERTY.
8. ACCESS TO UTILITIES, FIRE HYDRANTS, ETC. SHALL REMAIN UNDISTURBED AT ALL TIMES, UNLESS COORDINATED OTHERWISE.
9. THE GENERAL CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE UPON COMPLETION OF THE PROJECT.
10. ALL SUBGRADE PREPARATION, PAVING, AND UTILITY TRENCHING MUST BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SOILS INVESTIGATION. IF THERE IS A CONFLICT BETWEEN THE SOILS REPORT AND THE PLANS, THE MORE PROHIBITIVE OF THE TWO SHALL TAKE PRECEDENCE.
11. CONTRACTOR TO ENSURE COMPLIANCE WITH ANY AND ALL LAND DISTURBANCE NOTIFICATIONS REQUIREMENTS, AND THAT ALL REQUIRED EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE STATE, LOCAL, OR FEDERAL REQUIREMENTS.
12. REMOVE EXISTING TOPSOIL IN ACCORDANCE WITH THE GEOTECHNICAL REPORT, PRIOR TO PLACEMENT OF ANY FILL MATERIAL.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY STANDARDS, NEVADA STATE LAW, AND O.S.H.A. STANDARDS FOR ALL EXCAVATION IN EXCESS OF FIVE FEET IN DEPTH.
14. DRAINAGE SHOULD BE MAINTAINED AWAY FROM THE FOUNDATIONS, BOTH DURING AND AFTER CONSTRUCTION.

BENCHMARK

ELEVATIONS ARE BASED UPON DOUGLAS COUNTY GIS SECONDARY CONTROL MONUMENT "1.060032" (ELEVATION - 5903.17 NADV88)



SITE SECTION

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

CAUTION: NOTICE TO CONTRACTOR THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

811
Know what's **below.**
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

ATWELL
866.850.4200 www.atwell-group.com
9001 AIRPORT FREEWAY, SUITE 660
NORTH RICHLAND HILLS, TX 76180
972.638.8860

LOT 4A, PARKER POINTE SUBD. FILING NO. 1, AMEND. NO. 1
S. PARKER RD & STROH RD
PARKER
DOUGLAS COUNTY, COLORADO

BLACK ROCK COFFEE BAR
13135 DECLAN DRIVE
BLACK ROCK COFFEE BAR
GRADING PLAN

DATE 2025-08-25

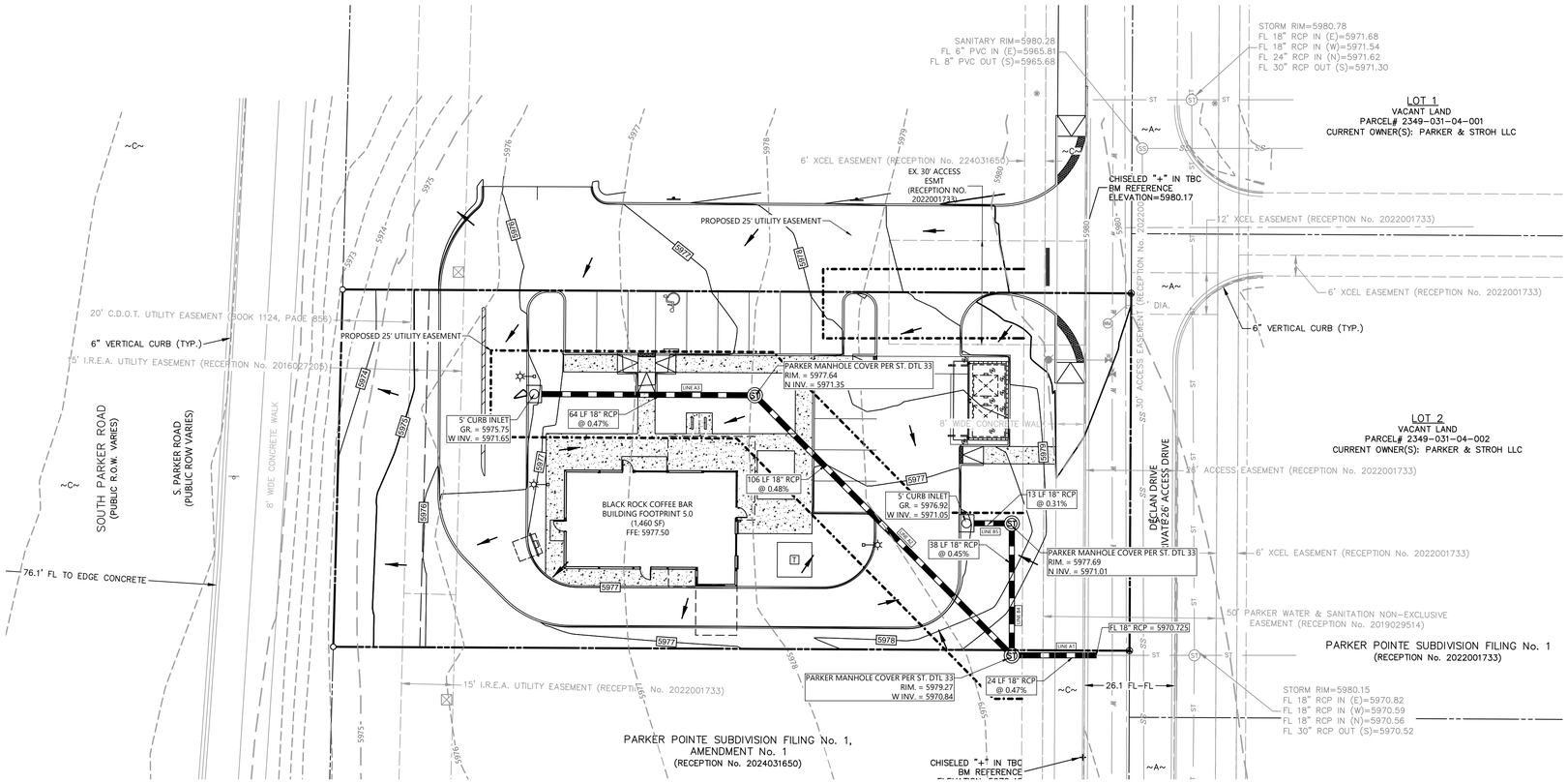
REVISIONS

0 10' 20'
SCALE: 1"=20'

DRAWN BY: K. SARWAR
CHECKED BY: N. SALAZAR
PROJECT MANAGER: N. SALAZAR
JOB #: 24003198
FILE CODE: ##
SHEET NO. C3.00

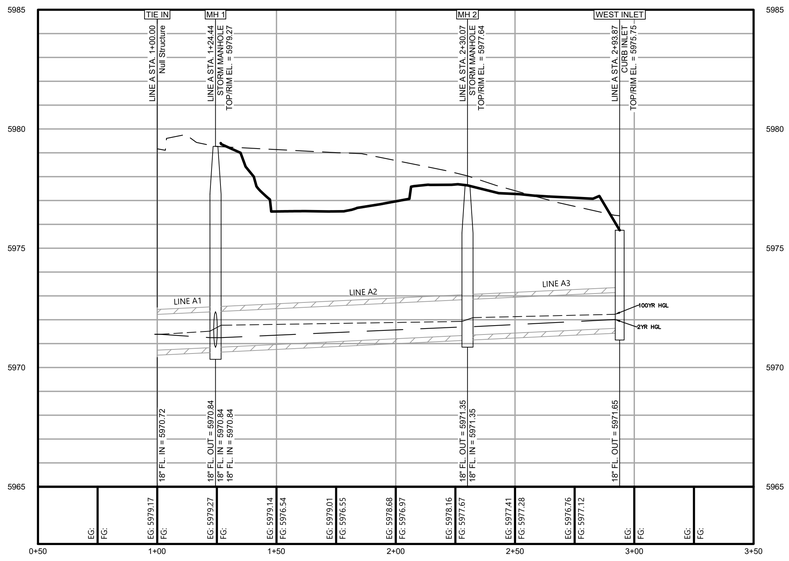
CAD FILE: 24003198 - C300 GRADING PLAN

FILE NAME: \\TXDAL\Civil\24003198 - BRC - Parker & Stroh - Parker CO_LD\24 PRODUCTION\24003198 - C300 GRADING PLAN.dwg LAST SAVED BY: ksarwar 8/1/2025 ACD PW PLOTTED BY: Rosado Servar 8/25/2025 PAPER: ARCH FULL BLEED D (24.00 X 36.00 INCHES) PLOT STYLE: ATWELL-CTB



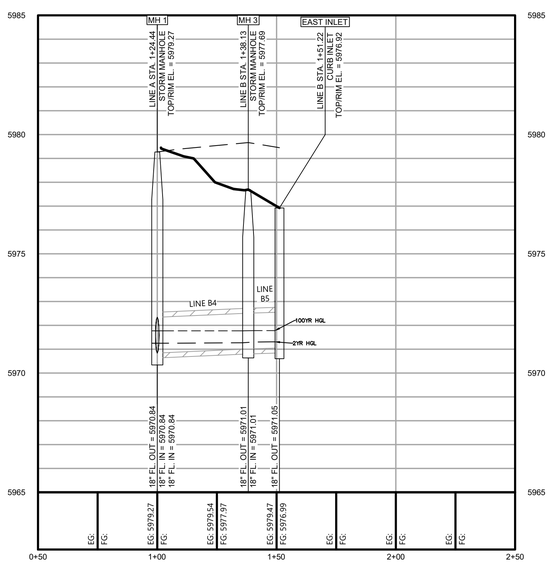
DRAINAGE PLAN LEGEND

- EXISTING PROPERTY LINE
- EXISTING ROAD CENTERLINE
- EXISTING EASEMENT
- PROPOSED SETBACK LINE
- 119 EXISTING MINOR CONTOURS
- 120 EXISTING MAJOR CONTOURS
- 119 PROPOSED MINOR CONTOUR
- 120 PROPOSED MAJOR CONTOUR
- ST EXISTING STORM LINE
- PROPOSED STORM LINE
- W EXISTING WATER LINE
- SS EXISTING SANITARY SEWER LINE
- 123.4 PROPOSED SPOT ELEV
- 2% SLOPE ARROW
- ST EXISTING STORM MANHOLE
- SS EXISTING SANITARY SEWER MANHOLE
- WM EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- FLOW DIRECTION ARROWS



LINE A PROFILE

HORZ SCALE: 1"=30'
VERT SCALE: 1"=3'



LINE B PROFILE

HORZ SCALE: 1"=30'
VERT SCALE: 1"=3'

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

CAUTION: NOTICE TO CONTRACTOR THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.

THIS REVIEW DOES NOT CONSTITUTE APPROVAL OF ANY PRIVATE ON-SITE IMPROVEMENTS WHICH MAY BE SHOWN. CONSTRUCTION CANNOT COMMENCE UNTIL ALL REQUIRED DRAINAGE/TRAFFIC REPORT(S), FINAL DEVELOPMENT PLAN(S), SPECIAL REVIEW(S), GRADING PERMIT, AND/OR OTHER PERMITS ARE COMPLETE APPROVED AND ON FILE WITH THE TOWN OF PARKER.

TOWN OF PARKER, DIRECTOR ENGINEERING — DATE

811 Know what's **below.** **Call** before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

ATWELL
866.850.4200 www.atwell-group.com
9001 AIRPORT FREEWAY, SUITE 660
NORTH RICHLAND HILLS, TX 76180
972.638.8860

LOT 4A, PARKER POINTE SUBD. FILING NO. 1, AMEND. NO. 1
S. PARKER RD & STROH RD
PARKER
DOUGLAS COUNTY, COLORADO

BLACK ROCK COFFEE BAR
13135 DECLAN DRIVE
BLACK ROCK COFFEE BAR
DRAINAGE PLAN

DATE 2025-08-25

REVISIONS

SCALE: 1"=20'

DRAWN BY: K. SARWAR
CHECKED BY: N. SALAZAR
PROJECT MANAGER: N. SALAZAR
JOB #: 24003198
FILE CODE: ##
SHEET NO. C3.10

CAD FILE: 24003198 - C130 DRAINAGE PLAN

FILE NAME: \\TXDAL\Civil\24003198 - BRC - Parker & Stroh - Parker CO_LD\24 PRODUCTION\24003198 - C130 DRAINAGE PLAN.dwg LAST SAVED BY: nnga 8/6/2025 1:43 PM PLOTTED BY: KhanhQ Sarwar 8/26/2025 PAPER: ARCH FULL BLEED D (24.00 X 36.00 INCHES) DEVICE: AUTODESK PDF (GENERAL DOCUMENTATION).PC3 PLOT STYLE: ATWELL.CTB

APPENDIX B – PREVIOUS STUDIES

FINAL DRAINAGE REPORT
PARKER POINTE
PARKER, COLORADO

PREPARED FOR:
PARKER & STROH, LLC
975 LINCOLN STREET, SUITE 204
DENVER, CO 80203

CONTACT: DAN YACOVETTA
303-699-3368

Perception design group, inc.

6901 SOUTH PIERCE STREET, SUITE 315
LITTLETON, CO 80128
CONTACT: JERRY DAVIDSON, P.E.
(303) 232-5255

JOB #2015-015

NOVEMBER 28, 2018

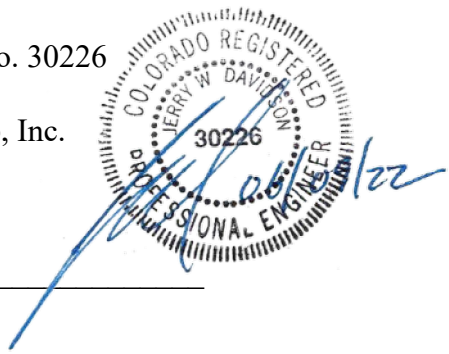
FINAL DRAINAGE REPORT
PARKER POINTE
PARKER, COLORADO

I. CERTIFICATION PAGE

This report for the final design of (Name of Development) was prepared by me or under my direct supervision in accordance with the provisions of the Town of Parker Storm Drainage and Environmental Criteria Manual. I understand that the Town of Parker and its designated town authority do not and will not assume liability for drainage facilities designed by others.

_____

Jerry W. Davidson, P.E.
Colorado P.E. License No. 30226
For and on Behalf of
Perception Design Group, Inc.



_____

Seal and Date

FINAL DRAINAGE REPORT
PARKER POINTE
PARKER, COLORADO

II GENERAL LOCATION AND DESCRIPTION

A. Site Location:

This Final Drainage Report is prepared by Perception Design Group, Inc. as part of the Construction Plan / Final Plat submittal process for the Parker Pointe project proposed in Parker, Colorado. Parker Pointe, (Project / Site) is located on an unplatted parcel of land situated at the southeast corner of South Parker Road and Stroh Road. See appendix for vicinity map. The Site lies within the southwest quarter of Section 3, Township 7 South, Range 66 West of the 6th Prime Meridian, Douglas County, State of Colorado. The site is bounded by South Parker Road to the west, and Stroh Road to the north. Adjacent developments include the Colorado Golf club in Douglas County to the east, new commercial and residential development in the Town of Parker on the north side of Stroh Road, Commercial development in Parker on the west side of Parker Road, and undeveloped open space in Douglas County south of the property.

B. Site Location:

The Site occupies approximately 14.7 acres. Ground cover consists of pasture grasses. Site topography generally slopes from a tall mound in the northerly portion of the site down to the southwest towards Kinney Creek. Runoff north of the mound flows northwesterly towards the intersection of Stroh Road and Parker Road. Slopes vary widely from 3:1 on the mound to 6% over flatter portions of the site.

Site soils as shown by the USDA Web Soil Survey indicate that primarily Sampson Loam and Bresser Truckton Sandy Loam soil is present. This soil is sandy clay loam in nature. It is a type B hydrologic soil. Additionally Loamy Alluvial Land soils are present to a lesser extent. This soil is also clay loam in nature. It is a type C hydrologic soil.

The site falls within the Cherry Creek basin. The Kinney Creek tributary lies along the southern border of the site. This tributary has a delineated floodplain which encroaches on the extreme southwest corner of the site.

There are no irrigation canals or ditches on site. Additionally, there are no significant geologic features on site.

The site is presently partially developed with a house and barns. These structures are to be removed as a part of the proposed development. As a part of this application, the site will be developed with graded pad sites for commercial and retail businesses, drives, and utilities.

FINAL DRAINAGE REPORT
PARKER POINTE
PARKER, COLORADO

III DRAINAGE BASINS AND SUB-BASINS

A. Major Drainage Basins:

The site falls within two major drainage basins. The southerly portion of the site is tributary to Kinney Creek. Areas from the peak of the aforementioned mound and to the north are tributary to Stroh Gulch. The southerly line of basin H1 defines the historic break between the two basins. Per the Town of Parker, the majority of this runoff to Stroh Gulch is captured and conveyed via storm sewer to the new detention pond and ultimately to Kinney Creek. A final drainage report was prepared for Stroh Crossing Filing No. 1 by Calibre Engineering. This is the development on the north side of Stroh Road. This report anticipated runoff from the Parker Pointe property and made allowance to handle the flow. Basin ST-2b from the Calibre report quantifies 18.9 cfs for the basin. Basin SR2 in this report indicates 4.1 cfs tributary to Stroh Road downstream of the newly placed inlet on Stroh Road for Basin SR1plus carryover from Inlet SR1 of 3.2 cfs for a total tributary to Stroh Gulch of 7.3 cfs.

Kinney Creek was studied by WRC Engineering Inc. in a report entitled “Flood Hazard Area Delineation for Kinney Creek Fonder Draw and Tributaries” date April 2004. Floodplain was determined along the southwest corner of the site. Minor grading is proposed in the floodplain along Parker Road. Roadway widening encroaches upon and places fill in the floodplain. To mitigate this the shoulder borrow ditch is shifted east in similar size to replace filled floodplain with like volume and shape.

B. Minor Drainage Basins:

To facilitate design, the site is divided into multiple sub-basins described as follows:

Basins L1 thru L15 are used to represent each of the proposed lots. As development conditions are not yet determined, an assumed 95% imperviousness is established for each basin. A storm sewer stub is provided for each lot to convey developed runoff to the extended detention basin at the southeast corner of the site providing both detention and water quality facilities. While Basins L10 thur L15 drain towards Parker road in the overlot condition, it is required that these lots convey site runoff to the mainline storm sewer down the center access drive. Due to the presence of the Magellan gas pipeline and it’s limited cover requirements as well as site visibility lines to the easterly lots, The west side of lots 10 thru 15 will remain below the center access drive. The storm sewer has been placed at maximum depth to accommodate these lots “bucking” grade with the storm sewer system.

Basins L1A thru L5A represents the easterly portion of Lots 1 thru 5. Runoff from these

basins flow overland to the east to the drainage swale along the east property line thence into the extended detention facility. As development conditions are not yet determined, an assumed 95% imperviousness is established for each basin.

Basins IN1 thru IN3 are established to quantify runoff collected in a series of inlets along the central north-south access drive. This runoff is piped to the extended detention basin at the southeast corner of the site providing both detention and water quality facilities.

Basin SR1 is used to quantify runoff to Stroh Road from the road itself as well as offsite areas to the east. Detention and water quality are provided for this basin. See additional discussion under Major Basins above.

Basin SR2 (along with basin U4) is used to quantify runoff to the new inlet at the intersection of Stroh Road and Parker Road. Detention and water quality are not provided for this basin.

Basin PR1 combines with Basins U2 and PR2 to define runoff to the new pair of inlets located at the low point of Parker Road. Basin PR1 is separated to quantify new paved area requiring water quality treatment. Treatment for Basin PR1 combined with Basin U2 is provided in a grass swale in the ROW of Parker Road leading down to Kinney Creek.

Basin PR2 is used to quantify runoff from existing Parker Road improvements to the new pair of inlets located at the low point of Parker Road. Water quality is not provided for this basin. Total flow to the inlets is a combination of Basins PR1, PR2, and U2.

Basin PR3 is not illustrated on the plan. This basin is used to quantify new paved areas in Parker Road north of Stroh Road. This basin encompasses the new left turn bay on Prker Road to Stroh Road. Runoff from this basin is treated for water quality in the existing grass buffer along the west side of Parker Road.

Basin U1 is on-site area that is not tributary to the detention / water quality facility. This basin encompasses Tracts A and B which are floodplain and mouse habitat areas. Detention and water quality are not provided for this basin.

Basin U2 is on-site area that is not tributary to the detention / water quality facility. This basin quantifies runoff escaping the site down the access road to Parker Road. Detention is not provided for this basin, however, water quality is provided in the grass swale referenced above in the PR1 basin description.

Basin U3 is on-site area that is not tributary to the detention / water quality facility. Runoff from this basin adjacent to Parker Road flows overland into Parker Road.

Detention and water quality are not provided for this basin.

Basin U4 is on-site area that is not tributary to the detention / water quality facility. Runoff from this basin enters Stroh Road and is collected in inlet SR2.

Basin H1 is a historic basin quantifying historic runoff to Stroh Road. It is used as a check for Calibre basin ST-2b. Basin H1 indicates runoff of 17.0 cfs while basin ST2-b indicates 18.9 cfs. Variance is due to more accurate topography available for the Parker Pointe site and better defined drainage basin as well as differences in time of concentration.

Basin OS1 quantifies flows entering the extended detention pond from offsite flows from the Colorado Golf Club property east of the Parker Pointe property. Detention and water quality are provided for this offsite flow area in its present condition.

IV DRAINAGE DESIGN CRITERIA

A. Regulations:

Design calculations and methodologies are based upon the Town of Parker Storm Drainage and Environmental Criteria Manual. Additionally, the Urban Drainage Storm Drainage Criteria Manual Volumes 1 thru 3 are utilized.

B. Drainage Studies, Outfall System Plans:

The Final Drainage Report for Stroh Crossing Filing No. 1 by Calibre Engineering is used to identify allowable site discharge to Stroh Gulch. The WRC Engineering Inc. report entitled “Flood Hazard Area Delineation for Kinney Creek Fonder Draw and Tributaries” date April 2004 was utilized to map the floodplain elevations along the south property line. This study has negligible impact on the design presented.

C. Hydrology:

Runoff is calculated for both the 5 year and 100 year storms using the rational method. On-site basins utilize a 5 minute time of concentration with 5 year intensity of 4.7 in/hr and 100 year at 8.85 in/hr. Detention storage volumes are calculated using the UDFCD ver 3.07 UD-Detention spreadsheet. This spreadsheet is also utilized to calculate allowable release rates.

D. Hydraulics:

Storm sewer capacities are calculated using Hydraflow Storm Sewers extension for AutoCAD Civil 3D ver 2017. The system is designed such to provide minimal surcharge for the 100 year event, and no surcharge for the 5 year event. The Hydraflow software is also used to calculate hydraulic grade lines for the storm sewer.

E. Water Quality Enhancement:

Water quality is achieved in an extended detention facility designed to EURV specifications using UDFCD ver 3.07 UD-Detention spreadsheet.

V STORMWATER MANAGEMENT FACILITY DESIGN

A. Stormwater Conveyance Facilities:

Developed stormwater is generally conveyed towards the central north south driveway where stubs are provided that connect to a storm sewer mainline. The storm main runs in a southerly then easterly direction to the proposed EDB detention facility. Total developed site runoff tributary to the EDB is 146.51 cfs. Storm sewer outfall into the EDB occurs at a concrete forebay. Outfall from the EDB is controlled to code levels and discharged via storm sewer pipe to Kinney Creek where riprap is provided to control erosion. Storm sewer is placed in an easement for perpetual maintenance. Do to the depth of the pond and invert of the adjacent Kinney Creek, outfall is piped westerly to discharge near the box culvert under Parker Road where more favorable elevations exist.

B. Stormwater Storage Facilities:

Stormwater storage on site is accomplished in an extended detention basin located offsite near the southeast corner of the site. Required pond design elements are summarized below:

Volume Element	Volume	Elevation	Release Rate
WQCV	0.566 Ac-Ft	5966.12	41 hours
EURV + WQCV	1.472 Ac-Ft	5968.03	70 hours
100 year	2.753 Ac-Ft	5970.05	36.7 cfs
Storage Provided	2.753 Ac-Ft	5970.05	

Outflow metering is accomplished in a concrete outlet structure. 2 orifices are used. One for WQ and EURV while a second is used covering the outfall pipe to limit the 100 year flow. A double type D inlet is proposed to provide sufficient weir flow to accommodate

the 100 year release rate. Micropool and trash racks are provided. Emergency overflow occurs directly into Kinney Creek via overflow weir and riprap embankment.

Allowable 100 year discharge must be reduced to allow for uncaptured basin U1 thru U4 and PR1. The combined 100 year un-detained flow from basins U1 thru U4 is 4.4 cfs. Basin PR1 is 3.2 cfs. Combined reduction in allowable discharge is 7.6 cfs. Allowable detention discharge as shown on the UDFCD spreadsheet is 44.5 cfs. The outlet structure design limits discharge to 36.7 cfs. Calculating the allowable discharge results in 44.5 – 7.6 = 36.9cfs. The design discharge is less than allowable therefore this provides adequate compensation for the uncaptured flows.

A maintenance access is provided entering at the northwest corner of the pond. Roadbase surfacing is provided and slopes not exceeding 10% are employed to enhance access for maintenance. An easement is provided over the pond should Town access, inspection, or repairs be required.

C. Water quality Enhancement Best Management Practices:

The EDB pond design includes water quality capture volume. Developed flows are conveyed via underground storm sewer to a single discharge point into the pond. At this point, a concrete forebay is provided to capture heavier particulate material.

Water quality treatment is also provided for the new paved areas of Parker Road. Basin PR1 is treated in a grass swale with discharge to Kinney Creek. Basin PR3 is treated in the existing grass buffer along the west side of Parker Road north of Stroh Road. UDFCD spreadsheets are provided for each treatment facility in the appendix.

D. Floodplain Modification:

Minor grading is proposed in the floodplain along Parker Road. Roadway widening encroaches upon and places fill in the floodplain. To mitigate this the shoulder borrow ditch is shifted east in similar size to replace filled floodplain with like volume and shape. A floodplain development permit will be required for this work as well as disturbances due to outfall construction. A no rise analysis has been performed and the results indicating compliance are included in the appendix.

E. Additional Permitting Requirements:

State stormwater permit for discharges during construction.
Town of Parker permits.
Douglas County permits.