Bowman

November 5, 2021

Jeff Rice
PCD – Engineering
2880 International Circle, Suite 110
Colorado Springs, CO 80910

RE: Super Star Car Wash – Falcon Marketplace – Lot 10, Drainage Conformance Letter

Dear: Ryan,

The purpose of this letter is to provide justification that the proposed development of Super Star Car Wash on Lot 10 of Falcon Marketplace conforms to the requirements of the "Final Drainage Report for Falcon Marketplace" prepared by Drexel, Barrell & Co. dated November 4, 2019, PCD filling number SF-19-001.

Drainage Conformance Letter
Based on the drainage report for the overall development of Falcon Marketplace prepared by Drexel, Barrel & Co. Lot 10 is part of drainage Basin B18 which contains the 2.18 acres of combined Lots 9 and 10 with an assumed imperviousness of 81%. Basin 18 as well as other basins that make up the majority of the overall development drain into Pond #2 which is a 3.5 ac-ft basin that will detain and release the WQCV generated by the site. Basin 18 has design release flows of 7.8 cfs for a 5-year storm and 15.0 cfs for a 100-year storm. Lot 10 makes up 48.6% (1.06 acres) of the total 2.18 acres, based on that the allowable release rates from lot 10 are 3.8 cfs for a 5-year storm and 7.3 cfs for a 100-year storm.

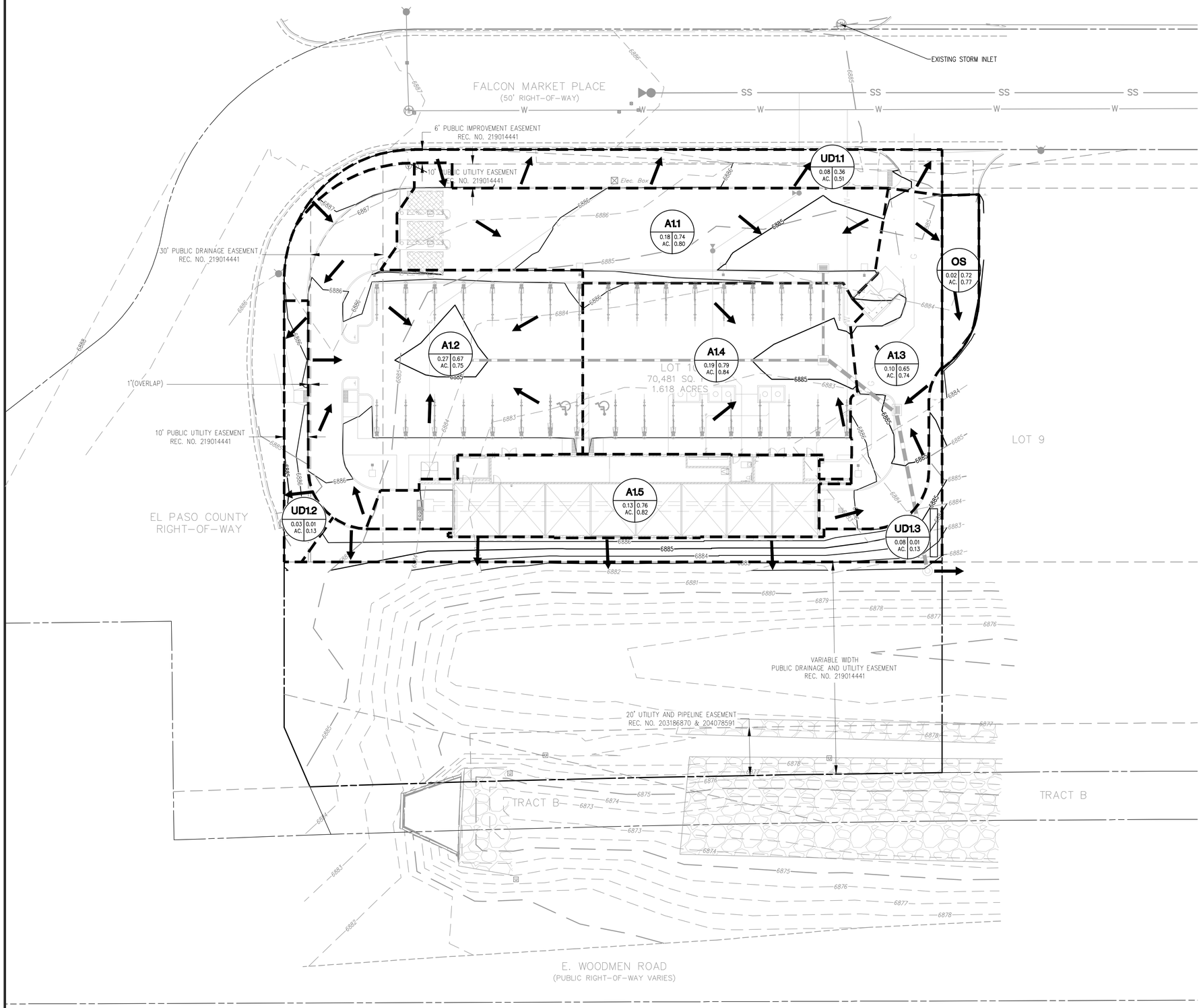
The actual design for lot 10 has an imperviousness of 73% with 0.19 acres flowing off site. Basin UD1.1 enters a storm inlet on the development road and then flows through the development sewers and into Pond #2. Basin UD1.2 enters a storm inlet on the development road and then flows frough the development sewers into Pond #3. Basin UD1.3 sheet flows offsite directly into Pond #2. All areas that flow offsite result in 0.1 cfs 5-year release rate and a 0.5 cfs 100-year release rate, all basins eventually entering one of the overall development water quality ponds. Removing the off-site flow rates from the allowable release rate of the site results in a 5-year allowable release rate of 3.7 CFS and and a 100-year release rate of 6.8 cfs. The rest of the on-site flow has a 5-year storm release rate of 3.3 cfs and a 100-year storm release rate of 5.9 cfs, both adhere to the requirements of the overall development drainage report. Because this site conforms to the requirements set forth by the drainage report prepared by Drexel, Barrel & Co. it has been determined than no additional onsite detention or water quality will be required.

Sincerely,

Thomas Pannell, P.E.
Sr. Project Manager
Bowman Consulting Group, Ltd.

1526 Cole Boulevard, Suite 100, Lakewood, Colorado 80401
P: 303.801.2900
bowmanconsulting.com

DRAINAGE BASIN MAP



Basin	Area (acres)	2-yr (cfs)	5-yr (cfs)	10-yr (cfs)	25-yr (cfs)	50-yr (cfs)	100-yr (cfs)
A1.1	0.18	0.53	0.68	0.81	0.9	1.1	1.2
A1.2	0.27	0.71	0.92	1.09	1.3	1.5	1.7
A1.3	0.10	0.26	0.33	0.40	0.5	0.5	0.6
A1.4	0.19	0.59	0.77	0.91	1.1	1.2	1.4
A1.5	0.13	0.39	0.50	0.60	0.7	0.8	0.9
UD1.1	0.08	0.11	0.15	0.18	0.2	0.3	0.3
UD1.2	0.03	0.00	0.00	0.00	0.0	0.0	0.0
UD1.3	0.08	0.00	0.00	0.00	0.0	0.0	0.1
OS	0.02	0.06	0.07	0.09	0.1	0.1	0.1

LEGEND:

- EXISTING GROUND MAJOR CONTOUR (5510)
- EXISTING GROUND MINOR CONTOUR (5512)
- PROPOSED GRADE MAJOR CONTOUR (5510)
- PROPOSED GRADE MINOR CONTOUR (5512)
- PROPERTY BOUNDARY
- DESIGN POINT
- BASIN BOUNDARY
- FLOW DIRECTION

BASIN DESIGNATION — 101 — 32.14 AC. .26 .36 — BASIN AREA
5-YEAR COEFFICIENT
100-YEAR COEFFICIENT

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

N

Know what's below. Call before you dig.

Bowman CONSULTING
1526 Cole Blvd, Suite 100
Lakewood, CO 80401
Phone: (303) 801-2500
www.bowmanconsulting.com

REVISIONS

REVISION	DESCRIPTION	DATE

DRAINAGE BASIN MAP

SUPER STAR CAR WASH - FALCON MARKETPLACE LOT 10
SITE DEVELOPMENT PLAN
EL PASO COUNTY COLORADO

SEAL
NOT FOR CONSTRUCTION

DESIGN	DRAWN	CHKD
SWK	SWK	TOP

SCALE H: 1" = XXX' V: 1" = 20'
JOB No. 020441-01-001
DATE : 02/09/2021
SHEET 1 OF 1

Cad file name: V:\020441 - Super Star Car Wash\020441-01-001 (ENG) - Super Star Car Wash- Falcon, CO\Engineering\Engineering Plans\Drainage\020441-01-001-DDM.dwg

FINAL DRAINAGE REPORT
for
FALCON MARKETPLACE

Rational Method Runoff Summary

BASIN	DP	Area (Ac.)	Q_5 (CFS)	Q_{100} (CFS)
A1	DP1	1.81	3.4	7.7
	DP2	1.81	3.4	7.7
A2		4.82	1.4	10.2
	DP3	6.63	4.6	17.3
B4	DP4	2.35	7.5	14.6
B5		0.63	2.8	5.1
	DP5	2.99	10.0	19.3
B6	DP6	3.19	12.8	23.6
B7		0.46	2.0	3.7
	DP7	6.63	23.8	28.0
B8	DP8	1.04	3.5	6.9
B9		0.30	1.4	2.5
	DP9	1.35	4.9	9.3
B10		0.18	0.8	1.4
	DP10	8.16	29.2	38.1
B11	DP11	2.01	7.8	14.6
B12		0.18	0.8	1.5
	DP12	10.35	36.4	51.9
B13		0.20	0.9	1.6
	DP13	10.55	37.1	53.2
B14	DP14	2.49	9.1	17.0
B15	DP15	5.73	20.3	38.0
B16		0.35	1.6	2.9
	DP16	8.56	30.6	57.1
B17		0.33	1.5	2.7

BASIN	DP	Area (Ac.)	Q_5 (CFS)	Q_{100} (CFS)
	DP17	8.89	31.9	59.3
	DP18	19.44	52.1	88.2
B18	DP19	2.18	7.8	15.0
B19	DP20	2.57	10.1	18.8
	DP21	24.19	67.6	117.5
B20	DP22	2.03	5.6	11.4
B21		1.62	0.5	4.0
	DP23	27.85	67.4	121.8
C1	DP24	0.35	1.3	2.6
C2		0.23	0.8	1.5
	DP25	0.59	2.0	3.8
C3		1.88	0.6	4.2
C4		2.19	6.9	13.8
	DP26	4.08	5.4	13.7
C5	DP27	0.64	0.5	1.9
C6		0.45	0.2	1.2
	DP28	5.31	7.4	18.3
C7	DP29	0.19	0.7	1.3
C8		1.14	2.5	5.5
	DP30	1.33	3.1	6.6
C9		3.43	7.3	16.2
D1		2.62	4.1	8.8
D2		0.07	0.3	0.6
D3		0.07	0.3	0.6
	DPO1	32.50	10.3	30.2

B-GROUP basins represent the bulk of the site, with flows generally travelling southwards via curb and gutter, and storm sewer towards Pond #2. Pond #2 has been designed as a 3.5 ac-ft basin, sufficient to detain and release the WQCV generated by the site.

Basin B4 covers proposed lots 3 and 4 at the northeast corner of the Falcon Marketplace site. Flows generated by this basin Q_5 =7.5 cfs, Q_{100} =14.6 cfs are intended to culminate at **Design Point 4** where a proposed private 24" RCP storm sewer stub is provided to allow for storm sewer connection as needed by the future lot developer(s). Design of the internal storm sewer/drainage configuration for lots 3 and 4 will be determined by the individual lot developer(s) at a later date.

Basin B5 covers a portion of the east side of Falcon Market Place adjacent to lots 3 and 4. Flows of Q_5 =2.8 cfs, Q_{100} =5.1 cfs are generated by this basin and will travel to the south towards a proposed public 10' Type R at-grade inlet (**Design Point 5**). Flows exit this proposed in let IB1 to the west via public 24" RCP storm sewer.

Basin B6 covers the northeast corner of lot 2. Flows generated by this basin Q_5 =12.8 cfs, Q_{100} =23.6 cfs are intended to culminate at **Design Point 6** where a proposed private 24" RCP storm sewer stub is provided to allow for storm sewer connection as needed by the

Q_{100} =17.0 cfs are intended to culminate at **Design Point 14** where a proposed private 30" RCP storm sewer stub is provided to allow for storm sewer connection as needed by the future lot developer. Design of the internal storm sewer/drainage configuration for lot 1 will be determined by the individual lot developer at a later date.

A private 24" RCP stub has been provided into proposed manhole MA1 on the 96" outfall from pond SR4, at the northwest corner of lot 2. However, in accordance with El Paso County water quality guidelines, any flow entering this 24" stub, will need to be treated for water quality prior to entering the storm system. Alternatively all flow from this basin may travel via internal storm system to the south, as designed by this drainage report.

Basin B15 covers the western side of lot 2 and a portion of lot 1. Flows generated by this basin Q_5 =20.3 cfs, Q_{100} =38.0 cfs are intended to culminate at **Design Point 15** where a proposed private 30" RCP storm sewer stub is provided to allow for storm sewer connection as needed by the future lot developer. Design of the internal storm sewer/drainage configuration for lots 1 and 2 will be determined by the individual lot developer(s) at a later date.

Basin B16 covers a portion of the north side of Falcon Market Place adjacent lot 1. Flows of Q_5 =1.6 cfs, Q_{100} =2.9 cfs are generated by this basin and will travel to the east towards a proposed public 10' Type R at-grade inlet IB7 and further on to low point and public 10' Type R sump inlet IB8 (**Design Point 16**). Flows exiting this inlet will travel to the south via proposed public 36" RCP storm sewer.

Basin B17 covers a portion of the south side of Falcon Market Place adjacent lots 9 and 10. Flows of Q_5 =1.5 cfs, Q_{100} =2.7 cfs are generated by this basin and will travel to the east towards a proposed low point and public 10' Type R sump inlet IB9 (**Design Point 17**). Flows exiting this inlet will travel to the southeast via proposed public 36" RCP storm sewer.

Design Point 18 represents the combining of flows from Design Points 13 and 17 at proposed manhole MB1. Flows at this point (Q_5 =52.1 cfs, Q_{100} =88.2 cfs) will travel to the south via proposed public 48" RCP storm sewer.

Basin B18/Design Point 19 covers lots 9 and 10. Flows generated by this basin Q_5 =7.8 cfs, Q_{100} =15.0 cfs are intended to enter a proposed private 24" RCP storm sewer stub that has been extended through lot 9 into lot 10. This stub is provided to allow for storm sewer connection as needed by the future lot developer(s). Design of the internal storm sewer/drainage configuration for lots 9 and 10 will be determined by the individual lot developer(s) at a later date.

Basin B19/Design Point 20 covers lots 7 and 8. Flows generated by this basin Q_5 =10.1 cfs, Q_{100} =18.8 cfs are intended to enter a proposed private 24" RCP storm sewer stub that has been extended through lot 8 into lot 7. This stub is provided to allow for storm sewer connection as needed by the future lot developer(s). Design of the internal storm sewer/drainage configuration for lots 7 and 8 will be determined by the individual lot developer(s) at a later date.

Design Point 21 represents the combining of flows from Design Points 18, 19 and 20 at proposed manhole MB2. Flows at this point (Q_5 =67.6 cfs, Q_{100} =117.5 cfs) will travel to the

PROJECT INFORMATION

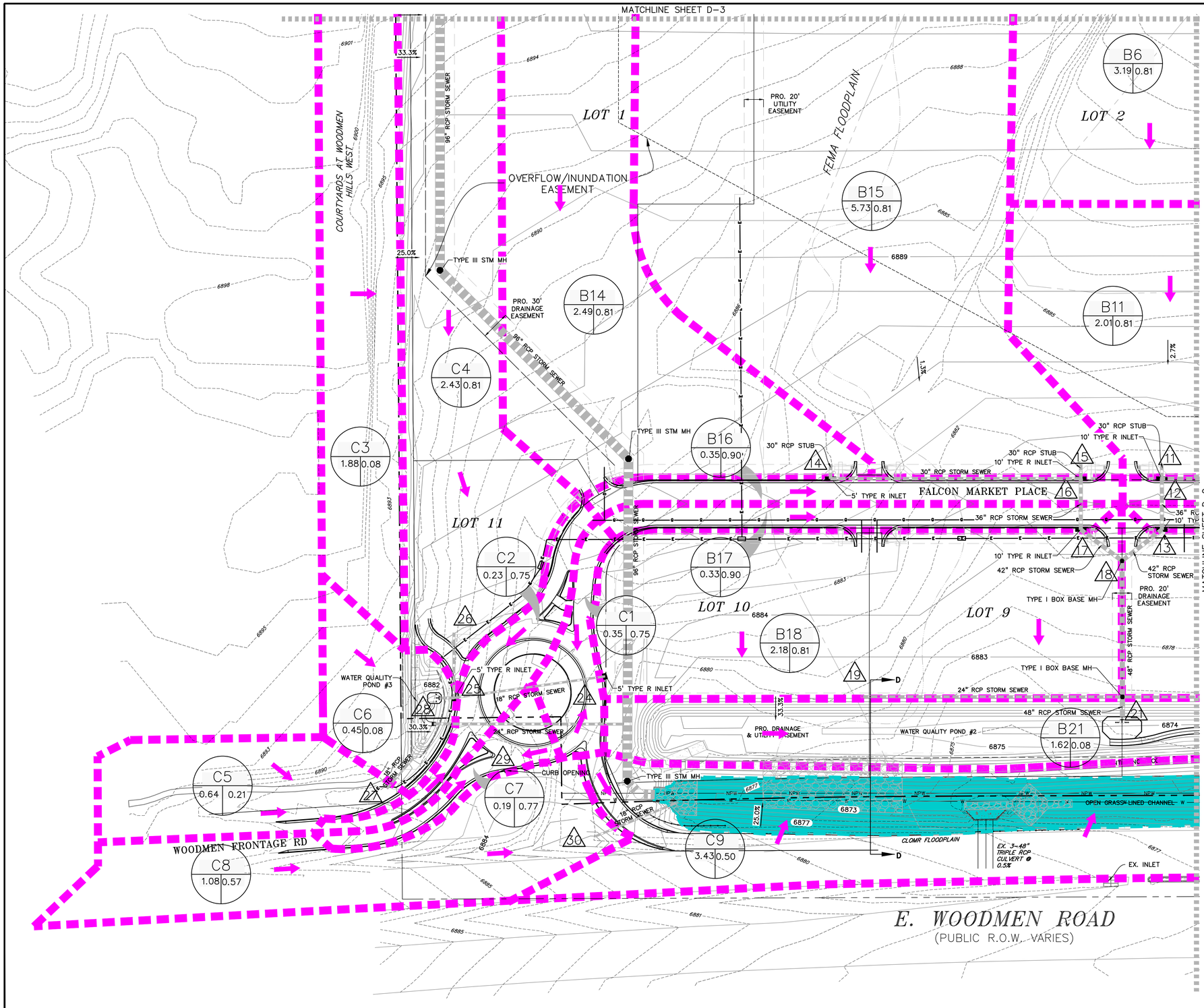
PROJECT:	Falcon Marketplace
PROJECT NO:	20988-00CSCV
DESIGN BY:	KGV
REV. BY:	TDM
AGENCY:	El Paso County
REPORT TYPE:	Final
DATE:	4/17/2019

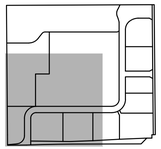
Drexel, Barrell & Co.

	C2*	C5*	C10*	C100*	% IMPERV
Commercial Development		0.81		0.88	95
Open Space		0.08		0.35	0
Asphalt Roadway		0.90		0.96	100

*C-Values and Basin Imperviousness based on Table 5-1, City of Colorado Springs and El Paso County "Drainage Criteria Manual"

B11	Commercial Development	82352	1.89		0.81		0.88	95
	Open Space	5276	0.12		0.08		0.35	0
	Asphalt Roadway	0	0.00		0.90		0.96	100
TOTAL	WEIGHTED AVERAGE	87628	2.01		0.77		0.85	89
B12	Commercial Development	0	0.00		0.81		0.88	95
	Open Space	0	0.00		0.08		0.35	0
	Asphalt Roadway	7868	0.18		0.90		0.96	100
TOTAL	WEIGHTED AVERAGE	7868	0.18		0.90		0.96	100
B13	Commercial Development	0	0.00		0.81		0.88	95
	Open Space	0	0.00		0.08		0.35	0
	Asphalt Roadway	8699	0.20		0.90		0.96	100
TOTAL	WEIGHTED AVERAGE	8699	0.20		0.90		0.96	100
B14	Commercial Development	100956	2.32		0.81		0.88	95
	Open Space	7304	0.17		0.08		0.35	0
	Asphalt Roadway	0	0.00		0.90		0.96	100
TOTAL	WEIGHTED AVERAGE	108260	2.49		0.76		0.84	89
B15	Commercial Development	230636	5.29		0.81		0.88	95
	Open Space	18865	0.43		0.08		0.35	0
	Asphalt Roadway	0	0.00		0.90		0.96	100
TOTAL	WEIGHTED AVERAGE	249501	5.73		0.75		0.84	88
B16	Commercial Development	0	0.00		0.81		0.88	95
	Open Space	0	0.00		0.08		0.35	0
	Asphalt Roadway	15279	0.35		0.90		0.96	100
TOTAL	WEIGHTED AVERAGE	15279	0.35		0.90		0.96	100
B17	Commercial Development	0	0.00		0.81		0.88	95
	Open Space	0	0.00		0.08		0.35	0
	Asphalt Roadway	14340	0.33		0.90		0.96	100
TOTAL	WEIGHTED AVERAGE	14340	0.33		0.90		0.96	100
B18	Commercial Development	81327	1.87		0.81		0.88	95
	Open Space	13537	0.31		0.08		0.35	0
	Asphalt Roadway	0	0.00		0.90		0.96	100
TOTAL	WEIGHTED AVERAGE	94864	2.18		0.71		0.80	81
B19	Commercial Development	106398	2.44		0.81		0.88	95
	O en S ace	5768	0.13		0.08		0.35	0
	Asphalt Roadway	0	0.00		0.90		0.96	100
TOTAL	WEIGHTED AVERAGE	112166	2.57		0.77		0.85	90
B20	Commercial Development	0	0.00		0.81		0.88	95
	Open Space	30159	0.69		0.08		0.35	0





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50 0 50 100

SCALE: 1"=50'

RUNOFF SUMMARY

BASIN	DP	Area (Ac.)	Q_5 (CFS)	Q_{100} (CFS)
A1	DP1	1.81	3.4	7.7
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	DP13	10.55	37.1	53.2
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B15	DP15	5.73	20.3	38.0
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	DP16	8.56	30.6	57.1
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D2		0.07	0.3	0.6
D3		0.07	0.3	0.6
	DPO1	32.50	10.3	30.2

PREPARED BY:

DREXEL, BARRELL & CO.
Engineers • Surveyors
3 SOUTH 7TH STREET
COLORADO SPGS, COLORADO 80905
CONTACT: TIM D. McCONNELL, P.E.
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BOULDER • COLORADO SPRINGS

CLIENT:

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8117 PRESTON ROAD, SUITE 120
DALLAS, TEXAS 75225
(214) 416-9820

DRAINAGE PLAN FOR FALCON MARKETPLACE

FALCON, COLORADO

ISSUE	DATE
INITIAL ISSUE	6-28-19
REVISED	7-19-19

DESIGNED BY:	TDM
DRAWN BY:	KGV
CHECKED BY:	TDM
FILE NAME:	

COLORADO REGISTERED PROFESSIONAL ENGINEER T. D. McCONNELL 37707 12-18-19

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF DREXEL, BARRELL & CO.

DRAWING SCALE:
HORIZONTAL: 1"=50'
VERTICAL: N/A

PROPOSED DRAINAGE CONDITIONS

PROJECT NO. 20988-00CSCV

DRAWING NO.

D-1

SHEET: 1 OF 5