CITY OF ALBUQUERQUE

Timothy M. Keller, Mayor

April 10, 2018

Scott Steffen, PE
Bohannan Huston, Inc.
7500 Jefferson St NE
Albuquerque, NM 87109

RE: Campo del Norte
Grading Plan
Engineer's Stamp Date: 04/10/18
Drainage Report
Engineer's Stamp Date: 03/22/18
Hydrology File: C18D102

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Dear Mr. Steffen:

Based upon the information provided in your resubmittal received 03/22/2018, the Drainage Report and Grading Plan is approved for action by the DRB for Preliminary Plat, Site Plan for Subdivision and Site Plan for Building Permit.

As a reminder, prior to obtaining Work Order approval, please pay the Payment in Lieu of $25,324.54. (4,220.76 CF x $6/CF) The first flush required is 4,220.76 cubic feet. The required first flush volume must be made using the attached City of Albuquerque Treasury Deposit form. The Owner needs to bring three copies to the Building Permits and pay the fee. Then provide Hydrology with one copy showing the receipt.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

Renée C. Brissette

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department

Orig: Drainage File

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Campo del Norte Building Permit #: _____ City Drainage #: _____

DRB#: 1011527 EPC#: _____ Work Order#: _____

Legal Description: Lots 7-10 and 23-26, Block 29, Tract A Unit B North Albuquerque Acres

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: SCOTT STEFFEN

Address: 7500 JEFFERSON ST NE COURTYARD I ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax#: _____ E-mail: SSTEFFEN@BHINC.COM

Owner: PULTE GROUP Contact: KEVIN PATTON

Address: 7601 JEFFERSON ST NE STE 320 ALBUQUERQUE NM 87109

Phone#: 505-761-9606 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Other Contact: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Check all that Apply:

DEPARTMENT:

__X__ HYDROLOGY/ DRAINAGE

_____ TRAFFIC/ TRANSPORTATION

_____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

_____ ENGINEER/ ARCHITECT CERTIFICATION

_____ CONCEPTUAL G & D PLAN

__X__ GRADING PLAN

_____ DRAINAGE MASTER PLAN

__X__ DRAINAGE REPORT

_____ CLOMR/LOMR

_____ TRAFFIC CIRCULATION LAYOUT (TCL)

_____ TRAFFIC IMPACT STUDY (TIS)

_____ EROSION & SEDIMENT CONTROL PLAN (ESC)

_____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

_____ BUILDING PERMIT APPROVAL

_____ CERTIFICATE OF OCCUPANCY

__X__ PRELIMINARY PLAT APPROVAL

_____ SITE PLAN FOR SUB'D APPROVAL

__X__ SITE PLAN FOR BLDG. PERMIT APPROVAL

_____ FINAL PLAT APPROVAL

_____ SIA/ RELEASE OF FINANCIAL GUARANTEE

_____ FOUNDATION PERMIT APPROVAL

_____ GRADING PERMIT APPROVAL

_____ SO-19 APPROVAL

_____ PAVING PERMIT APPROVAL

_____ GRADING/ PAD CERTIFICATION

_____ WORK ORDER APPROVAL

_____ CLOMR/LOMR

_____ PRE-DESIGN MEETING

_____ OTHER (SPECIFY) _____

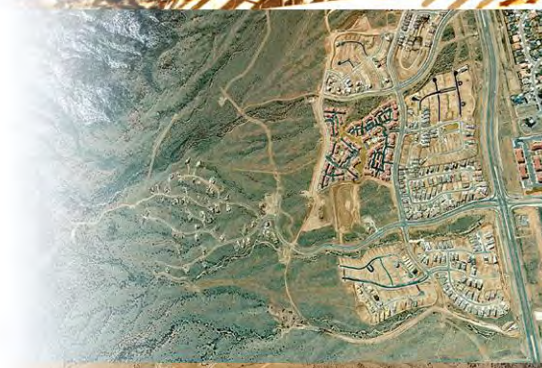
IS THIS A RESUBMITTAL?: _____ Yes __X__ No

DATE SUBMITTED: 3/23/18 By: SCOTT STEFFEN

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

DRAINAGE REPORT FOR CAMPO DEL NORTE SUBDIVISION



MARCH 2018

Prepared for:
Pulte Homes of New Mexico
7601 Jefferson Street NE, Suite 320
Albuquerque, NM 87109

Prepared by:

Bohannan Huston

Engineering
Spatial Data
Advanced Technologies

DRAINAGE REPORT
FOR
CAMPO DEL NORTE
SUBDIVISION

MARCH 22, 2018

Prepared for:

PULTE HOMES OF NEW MEXICO
7601 JEFFERSON STREET NE, SUITE 320
ALBUQUERQUE, NM 87109

Prepared by:

BOHANNAN HUSTON, INC.
COURTYARD I
7500 JEFFERSON STREET NE
ALBUQUERQUE, NM 87109

Prepared By:

3/22/18

Scott J. Steffen, P.E. Date
Vice President

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EXHIBITS

I. PURPOSE

This report establishes a drainage management plan for the Campo del Norte subdivision. The proposed development consists of 35 single family detached residential lots on approximately 6.6 acres. This project is located within the North I-25 Sector Development Plan, south of Alameda Boulevard and north of Signal Avenue, between Louisiana Boulevard and San Pedro Drive, in northeast Albuquerque. The site has free discharge of developed flows per the North Albuquerque Acres Drainage Master Plan. The north half of the site drains to the existing storm drain in Alameda Boulevard and the south half drains to the existing storm drain in Signal Avenue. This report is submitted in support of grading plan, preliminary plat, and site plan for building permit approval by the DRB.

II. CONCEPTS AND METHODOLOGIES

Drainage conditions were analyzed utilizing the City of Albuquerque DPM Procedure for 40 Acre and Smaller Watersheds. The site is within zone 3 per Table A-1 , Section 22-7 of the DPM. The 100-year, 6-hour storm event was utilized to determine peak flow rates for design of the storm drainage improvements within the project. The results are included in **Appendix A**. Street capacity and storm drain inlet calculations supporting this study are in **Appendix B**.

The following documents were referenced in the preparation of this report:

- *Final North Albuquerque Acres Master Drainage Plan*, prepared by Resource Technology, Inc., dated October 1998.
- *Drainage Letter Report for Alameda Boulevard San Pedro to Wyoming Project City Project No. 7663.91*, prepared by Thompson Engineering Consultants, dated January 2012.
- *Drainage Report for Sevano Place Subdivision*, prepared by THE Group, dated July 2014.
- *Grading and Drainage Plan for Offices and Warehouse Facility for Royal Plumbing and Heating*, prepared by Ken Hovey Architect, dated January 1998.

III. SITE LOCATION AND CHARACTERISTICS

Campo del Norte is currently undeveloped with grades ranging from one percent to three percent. The site generally slopes from east to west. It is bounded by Alameda Boulevard to the north, partially developed property to the east and west, and Signal Avenue to the south. Access to Campo del Norte will be from Signal Avenue NE.

IV. DEVELOPED HYDRAULIC AND HYDROLOGIC CONDITIONS

Campo del Norte is a proposed single-family residential development with 35 lots on 6.6 acres. Proposed street and lot configurations are shown on the *Preliminary Plat*, **Exhibit 1.** The site is within Basin 117.3 of the North Albuquerque Acres Drainage Management Plan (NAADMP). In addition, the northern half of Campo del Norte is represented by a portion of Basins 117.327 and 117.326, in the Alameda Boulevard Drainage Report. The Alameda Boulevard report allows for free discharge of developed flows from the site to the existing Alameda Boulevard storm drain. The Alameda Boulevard report divided basins based on existing inlets in Alameda Boulevard. The southern half of Campo del Norte is allowed free discharge to Signal Avenue per the NAADMP, and will discharge to the existing Signal Avenue storm drain.

The percent impervious land treatment for the proposed condition is determined from Table A-5 of the DPM, Section 22.2. Table 1 compares the land treatments from the NAADMP for Basin 117.3 and for the proposed Campo del Norte subdivision. The NAADMP and the Alameda Boulevard drainage report use the same land treatment percentages for the Campo del Norte site. The composite land treatment values for the Campo del Norte compare favorably to the NAADMP.

Table 1– Campo del Norte Land Treatments Proposed Conditions

Basin ID	Report	LAND TREATMENT			
		A	B	C	D
117.3	NAADMP	0.0%	34.0%	16.0%	50.0%
117.316	Campo	0.0%	32.0%	15.0%	53.0%
117.317a	Campo	0.0%	35.0%	17.0%	48.0%
117.317b	Campo	0.0%	30.0%	14.0%	56.0%
Composite	Campo	0.0%	32.8%	15.6%	51.7%

A. OFFSITE FLOWS

No offsite runoff reaches the Campo del Norte site. Campo del Norte is higher in elevation than Alameda Boulevard to the north, Signal Avenue to the south and the property to the west. The properties to the east of the site contain flow on site: the undeveloped site at the northeast corner has a temporary retention pond holds flow on site, the developed site at the southeast corner directs flows to retention pond that has an overflow to Signal Avenue.

B. ONSITE FLOWS

Developed flows from Campo del Norte will be directed to the existing Alameda Blvd and Signal Avenue storm drains utilizing the proposed street network and storm drain system (see Developed Conditions Basin Map, **Exhibit 3,** for basin locations and the Grading Plan, **Exhibit 4**, for storm drain and inlet locations).

The southern half of Campo del Norte, Basin 117.316 (13.9 cfs) drains to a low point at the south end of Sugarite Street. A Type A, single grate storm drain inlet will collect the flow and discharge it to the Signal Avenue storm drain. The northern half of Campo del Norte is divided into Basins 117.317a and 117.317b to match the basins in the Alameda Boulevard drainage report. Basin 117.317a (9.0 cfs) drains to a low point at the north end of Sugarite Street. A Type A, single grate storm drain inlet will collect the flow and discharge it to an existing storm drain inlet in Alameda Boulevard. Basin 117.317b (3.5 cfs) drains to a low point at the north end of La Pradera Street. A Type A, single grate storm drain inlet will collect the flow and discharge it to an existing storm drain inlet in Alameda Boulevard. The storm drain inlets at the low points are in a sump condition and have capacity that is greater than two times the one-hundred-year flow. See Appendix B for the road and inlet hydraulic analyses.

A summary of the developed onsite flows is presented in the table below.

Table 2 – Campo del Norte Proposed Conditions

100 Year – 6 Hour Storm						
Basin ID	**Area (AC.)**	**LAND TREATMENT**				**Q(100) (CFS)**
		A	**B**	**C**	**D**	
117.316	3.46	0.0%	32.0%	15.0%	53.0%	**13.9**
117.317a	2.30	0.0%	35.0%	17.0%	48.0%	**9.0**
117.317b	0.85	0.0%	30.0%	14.0%	56.0%	**3.5**
Total	6.61	0.0%	32.8%	15.6%	51.7%	**26.4**

The runoff from residential zoned drainage basins in the Alameda Boulevard drainage report is 3.82 cfs/acre. The runoff from the proposed Campo del Norte subdivision is 3.99 cfs. This results in an increase in the runoff from Campo del Norte compared to the Alameda drainage report of 1.1 cfs, with a 0.6 cfs increase in Signal Avenue and a 0.5 cfs increase in Alameda Boulevard.

C. FIRST FLUSH REQUIREMENTS

This project is required to meet the first flush requirements of the new City Drainage Ordinance. The first flush requirement will be met via a cash in-lieu payment and is calculated as 0.34 in. (0.44 in. - 0.1 in. initial abstraction) times the subdivision acreage times the percent impervious area times $6 per cubic foot of storage. The calculation is as follows: (0.34 in)/(12 in/ft) x 288139 sf x .52 x $6/cf = $25,324.54.

D. SIGNAL AVENUE

Runoff in Signal Avenue comes from properties to the north of Signal Avenue discharging surface flow directly to the street and from runoff generated from the Signal Avenue right-of-way. The developments to the south of Signal Avenue do not contribute surface flows to Signal Avenue, discharging flows to the existing storm drain in Signal Avenue. The Existing and Developed Conditions Basin Maps, show the flows that contribute to Signal Avenue and the resulting flow in Signal Avenue upstream of the Campo del Norte entrance from Signal Avenue. As noted above, the southern half of Campo del Norte will discharge directly to the Signal Avenue storm drain. Therefore, it will not contribute to surface flows in Signal Avenue and is not included in this analysis.

The flows in Signal Avenue under developed conditions are summarized in Table 3. Basin 117.311 represents the southern half of the Sevano Place subdivision. The approved Sevano Place drainage report allows for free discharge to Signal Avenue. The site has been graded but the infrastructure has not been constructed.

Table 3 – Signal Avenue Developed Conditions

100 Year – 6 Hour Storm						
Basin ID	**Area (AC.)**	**LAND TREATMENT**				**Q(100) (CFS)**
		A	**B**	**C**	**D**	
117.311	3.05	0.0%	30%	0.0%	70%	**13.1**
117.312	0.89	0.0%	7.5%	7.5%	85.0%	**4.2**
117.313	0.88	0.0%	7.5%	7.5%	85.0%	**4.2**
117.314	1.55	0.0%	0.0%	10.0%	90.0%	**7.5**
117.315	0.45	0.0%	0.0%	10.0%	90.0%	**2.2**

Basin 117.313 does not contribute flow to Signal Avenue. The site currently drains to a retention pond at the southwest corner of the site per the Royal Plumbing and Heating Drainage Plan. The plan calls for a future connection to the Signal Avenue storm drain to

remove the retention pond. It does not appear that this has occurred. The total flow in Signal Avenue for the developed condition at the Campo del Norte entrance is 24.8 cfs. Two storm drain inlets will be installed on Signal Avenue, one upstream of the proposed entrance and one where the proposed storm drain from Sugarite Street intercepts the Signal Avenue curb. These inlets will intercept 10.8 cfs, resulting in 16.2 cfs (14.0 cfs by-pass at the entrance plus flow from basin 117.315) of by-pass flow west of Campo del Norte.

Flow in Signal Avenue under existing conditions are summarized in Table 4. This analysis includes undeveloped flows from the southern half of Campo del Norte and the Sevano Place subdivision in its current condition. See the Existing Conditions Basin Map, **Exhibit 2**, for basin locations.

Table 4 – Signal Avenue Existing Conditions

100 Year – 6 Hour Storm						
Basin ID	**Area (AC.)**	**LAND TREATMENT**				**Q(100) (CFS)**
		A	**B**	**C**	**D**	
117.311	3.05	0.0%	0.0%	100.0%	0.0%	**10.5**
117.312	0.89	0.0%	7.5%	7.5%	85.0%	**4.2**
117.313	0.88	0.0%	7.5%	7.5%	85.0%	**4.2**
117.314	1.55	0.0%	0.0%	10.0%	90.0%	**7.5**
117.315	0.45	0.0%	0.0%	10.0%	90.0%	**2.2**
117.316	3.54	0.0%	0.0%	100.0%	0.0%	**12.2**

The existing flow in Signal Avenue at the Campo del Norte west boundary is 36.6 cfs. The Signal Avenue street capacity is 40.0 cfs (see Signal Avenue Street Hydraulic Graph, **Appendix** B). The proposed condition results in reduced flow (16.2 cfs) and an improved surface flow condition in Signal Avenue downstream of Campo del Norte.

V. CONCLUSION

This report provides a detailed study of the developed runoff and street capacities for the proposed Campo del Norte Subdivision. Included is the preliminary plat, existing and proposed conditions basin map, grading plan, and all necessary hydrologic and hydraulic analyses. The proposed drainage plan for Campo del Norte can be safely conveyed by the existing and proposed improvements in this drainage plan. This drainage plan maintains the overall drainage pattern of the area, and allows for the safe management of storm runoff in the fully developed condition.

APPENDICES

APPENDIX A: DEVELOPED AND EXISTING CONDITIONS HYDROLOGIC ANALYSIS

APPENDIX B: STREET HYDRAULICS AND STORM DRAIN INLET ANALYSIS

APPENDIX A

DEVELOPED AND EXISTING CONDITIONS HYDROLOGIC ANALYSIS

Bohannan Huston

CAMPO DEL NORTE SUBDIVISION

Existing Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone: 3

Basin ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (CFS)	V(100) (inches)	V(100) (CF)
117.311	132739.1	3.05	0.0%	0.0%	100.0%	0.0%	3.5	*10.5*	*1.3*	*14269.5*
117.312	38589	0.89	0.0%	7.5%	7.5%	85.0%	4.7	*4.2*	*2.2*	*6983.8*
117.313	38427	0.88	0.0%	7.5%	7.5%	85.0%	4.7	*4.2*	*2.2*	*6954.5*
117.314	67330	1.55	0.0%	0.0%	10.0%	90.0%	4.9	*7.5*	*2.3*	*12641.2*
117.315	19690	0.45	0.0%	0.0%	10.0%	90.0%	4.9	*2.2*	*2.3*	*3696.8*
117.316	154014	3.54	0.0%	0.0%	100.0%	0.0%	3.5	*12.2*	*1.3*	*16556.5*
117.317	134018	3.08	0.0%	0.0%	100.0%	0.0%	3.5	*10.6*	*1.3*	*14406.9*
TOTAL	584807.1	13.43	0.0%	1.0%	74.4%	24.6%	3.8	*51.4*	*1.5*	*75509.2*

19690

Peak Flow per Acre - DPM Section 22.2 Table A-9				
Zone	**A**	**B**	**C**	**D**
1	1.29	2.03	2.87	4.37
2	1.56	2.28	3.14	4.7
3	1.87	2.6	3.45	5.02
4	2.2	2.92	3.73	5.25

Excess Precipitation in inches - DPM Section 22.2 Table A-8				
Zone	**A**	**B**	**C**	**D**
1	0.44	0.67	0.99	1.97
2	0.53	0.78	1.13	2.12
3	0.66	0.92	1.29	2.36
4	0.8	1.08	1.46	2.64

CAMPO DEL NORTE SUBDIVISION

Developed Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone: 3

Basin ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (CFS)	V(100) (inches)	V(100) (CF)
117.311	132739	3.05	0.0%	30.0%	0.0%	70.0%	4.3	*13.1*	*1.9*	*21326.8*
117.312	38589	0.89	0.0%	7.5%	7.5%	85.0%	4.7	*4.2*	*2.2*	*6983.8*
117.313	38455	0.88	0.0%	7.5%	7.5%	85.0%	4.7	*4.2*	*2.2*	*6959.6*
117.314	67330	1.55	0.0%	0.0%	10.0%	90.0%	4.9	*7.5*	*2.3*	*12641.2*
117.315	19690	0.45	0.0%	0.0%	10.0%	90.0%	4.9	*2.2*	*2.3*	*3696.8*
117.316	150924	3.46	0.0%	32.0%	15.0%	53.0%	4.0	*13.9*	*1.7*	*21869.5*
117.317a	100051	2.30	0.0%	35.0%	17.0%	48.0%	3.9	*9.0*	*1.7*	*13957.9*
117.317b	37164	0.85	0.0%	30.0%	14.0%	56.0%	4.1	*3.5*	*1.8*	*5507.1*
TOTAL	584942	13.43	0.0%	23.9%	10.2%	65.9%	4.3	*57.5*	*1.9*	*92942.6*
Campo	288139	6.61	0.0%	32.8%	15.6%	51.7%	4.0	*26.3*	*1.7*	*41334.5*

Peak Flow per Acre - DPM Section 22.2 Table A-9

Zone	A	B	C	D
1	1.29	2.03	2.87	4.37
2	1.56	2.28	3.14	4.7
3	1.87	2.6	3.45	5.02
4	2.2	2.92	3.73	5.25

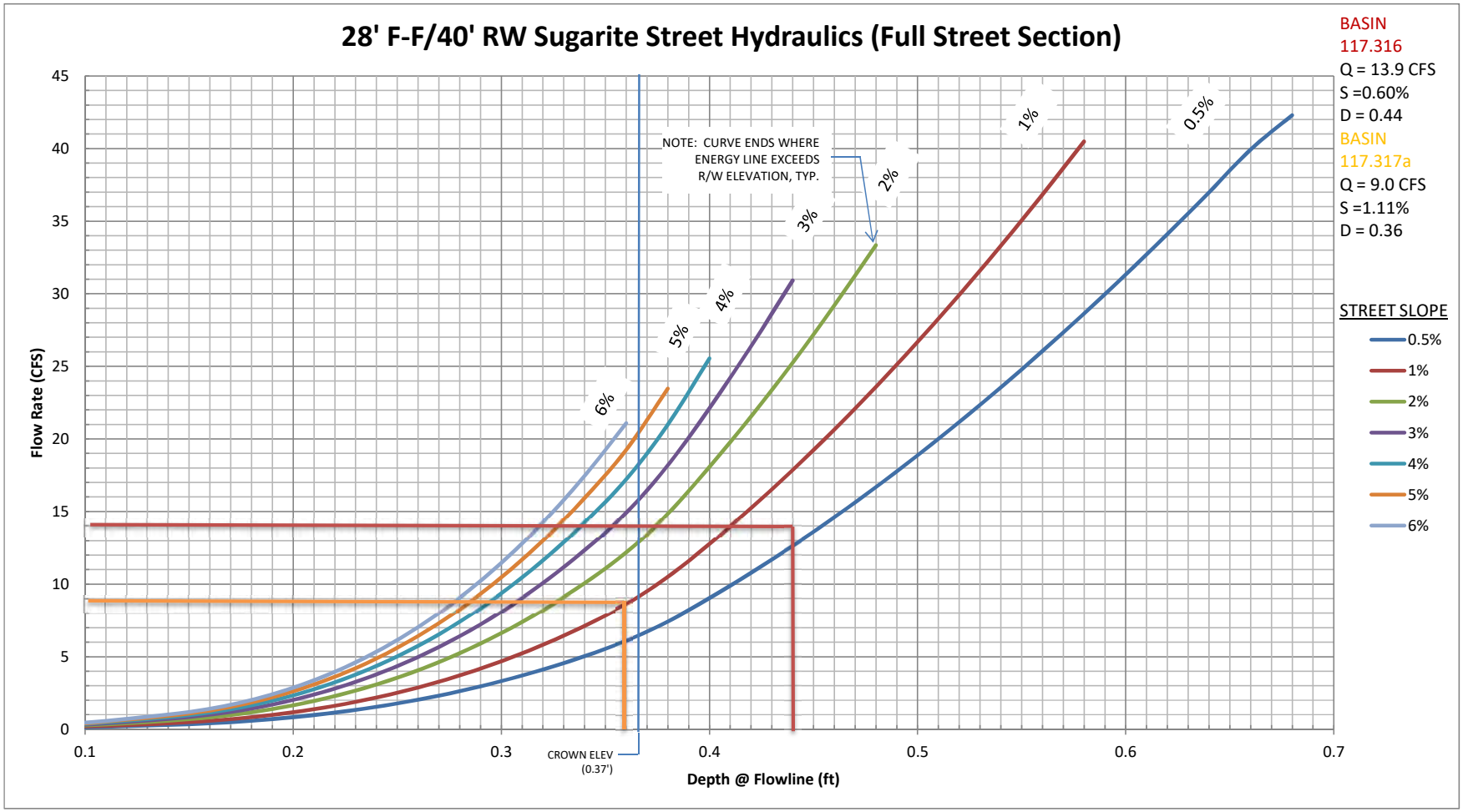
Excess Precipitation in inches - DPM Section 22.2 Table A-8

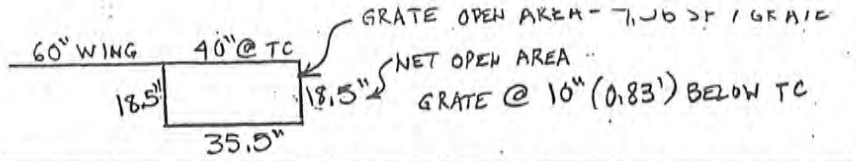
Zone	A	B	C	D
1	0.44	0.67	0.99	1.97
2	0.53	0.78	1.13	2.12
3	0.66	0.92	1.29	2.36
4	0.8	1.08	1.46	2.64

APPENDIX B

STREET HYDRAULICS AND STORM DRAIN INLET ANALYSIS

Bohannan Huston

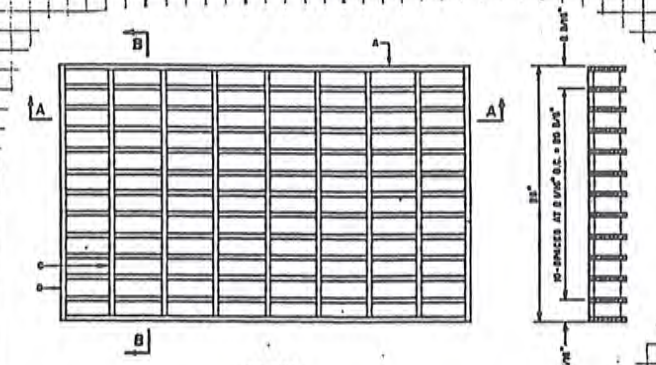

28' F-F/40' RW Sugarite Street Hydraulics (Full Street Section)
BASIN
117.316
Q = 13.9 CFS
S =0.60%
D = 0.44
BASIN
117.317a
Q = 9.0 CFS
S =1.11%
D = 0.36
STREET SLOPE
0.5%
1%
2%
3%
4%
5%
6%
NOTE: CURVE ENDS WHERE ENERGY LINE EXCEEDS R/W ELEVATION, TYP.
Flow Rate (CFS)
Depth @ Flowline (ft)
CROWN ELEV (0.37')
0
5
10
15
20
25
30
35
40
45
0.1
0.2
0.3
0.4
0.5
0.6
0.7



EQUATION	SGL A	DBL A	TRPL A	QDPL A
1) ORIFICE	$22.0\,h^{0.5}+16.5\,h^{1.5}$	$43.9\,h^{0.5}+16.5\,h^{1.5}$	$65.9\,h^{0.5}+16.5\,h^{1.5}$	$87.8\,h^{0.5}+16.5\,h^{1.5}$
2) 3-SIDED WEIR ($h \le 0.83'$)	$36.4\,h^{1.5}$	$46.2\,h^{1.5}$	$56.0\,h^{1.5}$	$65.7\,h^{1.5}$
3) 4-SIDED WEIR ($h > 0.83'$)	ADD TO 2): $11(h-.83)^{1.5}$	ADD TO 2): $22(h-.83)^{1.5}$	ADD TO 2): $33(h-.83)^{1.5}$	ADD TO 2): $44(h-.83)^{1.5}$

1) $Q = 0.6A\sqrt{2gh} + 3.3(5')\,h^{1.5}$

2) & 3) $Q = 3.3\,Ph^{1.5}$



GRATE CAPACITY (Q) IN CFS

TRIPLE GRATE

DOUBLE GRATE

SINGLE GRATE

Q(2x100)=18.0 cfs

Q=9.0 cfs

D=0.39'

D=0.62'

TC 0.83'

0.83'

HEAD (h) IN FEET

BOHANNAN-HUSTON INC.

B-2

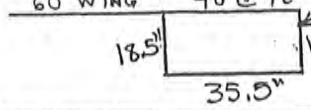
PROJECT NAME CAMPO DEL NORTE
SUGARITE ST SUMP INLET
BASIN 117.317a

SHEET _____ OF _____

PROJECT NO. _____ BY JPK DATE 4/9/92

SUBJECT RATING CURVE FOR TYPE K INLETS CHK'D _____ DATE _____

GRATE OPEN AREA = 7.06 SF / GRATE

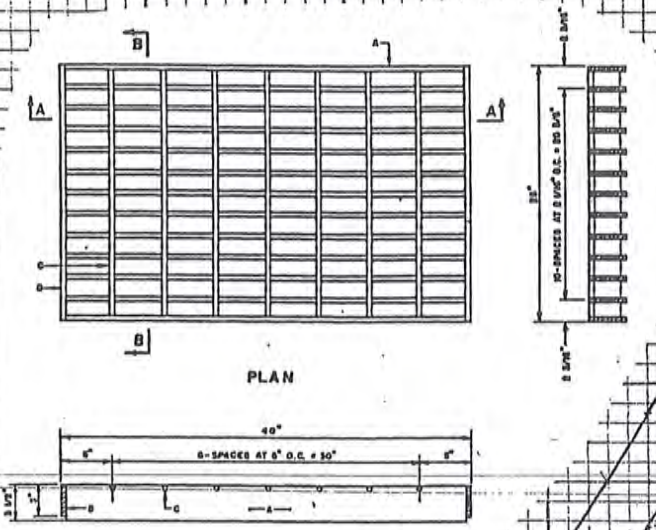


NET OPEN AREA
GRATE @ 10" (0.83') BELOW TC

EQUATION	SGL A	DBL A	TRPL A	QDPL A
1) ORIFICE	$22.0\,h^{0.5}+16.5\,h^{1.5}$	$43.9\,h^{0.5}+16.5\,h^{1.5}$	$65.9\,h^{0.5}+16.5\,h^{1.5}$	$87.8\,h^{0.5}+16.5\,h^{1.5}$
2) 3-SIDED WEIR ($h \le 0.83'$)	$36.4\,h^{1.5}$	$46.2\,h^{1.5}$	$56.0\,h^{1.5}$	$65.7\,h^{1.5}$
3) 4-SIDED WEIR ($h > 0.83'$)	ADD TO 2): $11(h-.83)^{1.5}$	ADD TO 2): $22(h-.83)^{1.5}$	ADD TO 2): $33(h-.83)^{1.5}$	ADD TO 2): $44(h-.83)^{1.5}$

1) $Q = 0.6A\sqrt{2gh} + 3.3(5')\,h^{1.5}$

2) & 3) $Q = 3.3\,Ph^{1.5}$



GRATE CAPACITY (Q) IN CFS

TRIPLE GRATE

DOUBLE GRATE

SINGLE GRATE

Q(2x100)=27.8 CFS

Q=13.9 CFS

D=0.52

TC 0.83'

0.83'

HEAD (h) IN FEET

BOHANNAN-HUSTON INC.

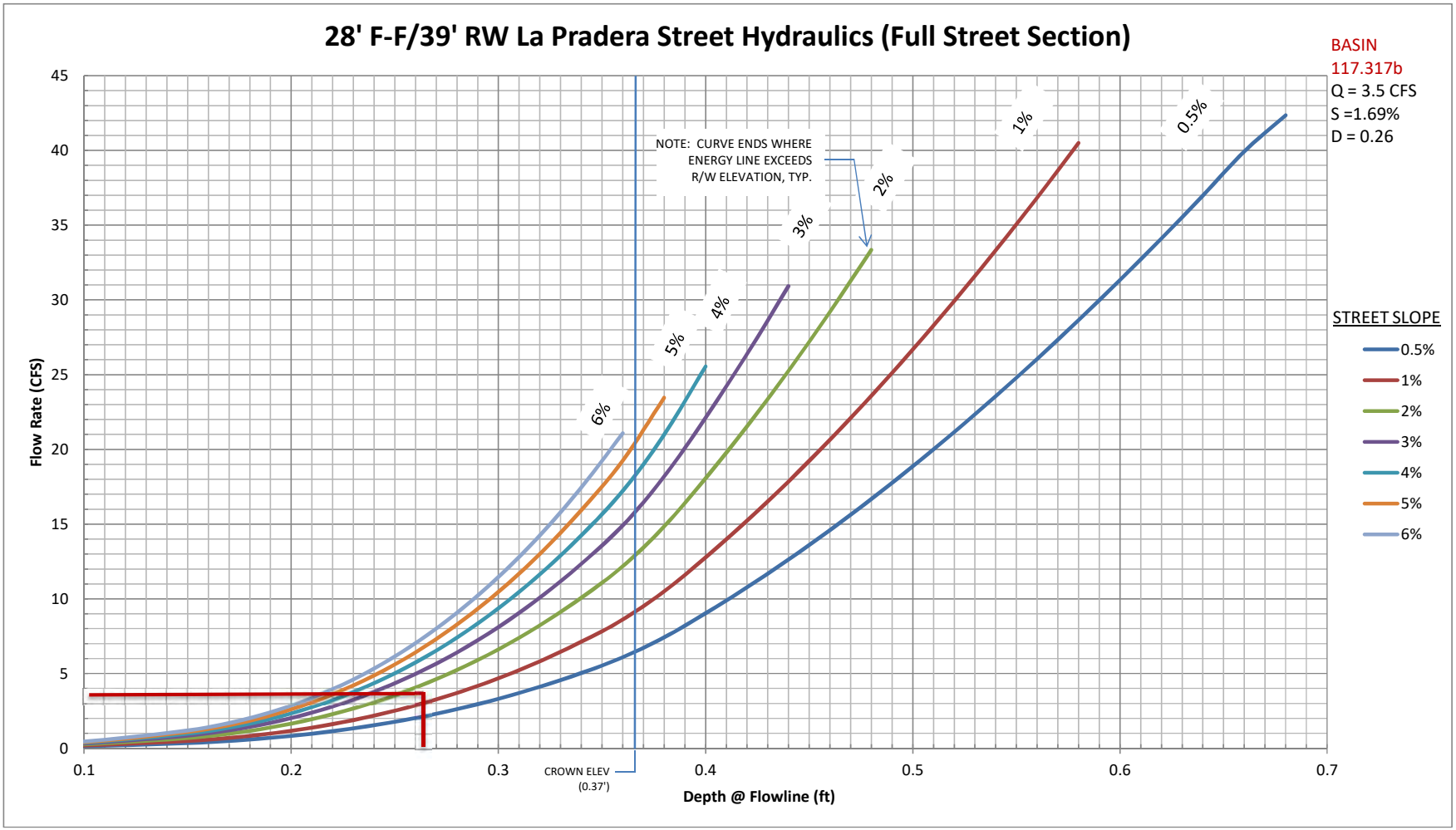
B-3

PROJECT NAME CAMPO DEL NORTE
SUGARITE ST SUMP INLET
BASIN 117.316

SHEET _____ OF _____

PROJECT NO. _____ BY JPK DATE 4/9/92

SUBJECT RATING CURVE FOR TYPE R INLETS CHK'D _____ DATE _____


28' F-F/39' RW La Pradera Street Hydraulics (Full Street Section)
BASIN
117.317b
Q = 3.5 CFS
S =1.69%
D = 0.26
NOTE: CURVE ENDS WHERE ENERGY LINE EXCEEDS R/W ELEVATION, TYP.
0.5%
1%
2%
3%
4%
5%
6%
STREET SLOPE
0.5%
1%
2%
3%
4%
5%
6%
Flow Rate (CFS)
0
5
10
15
20
25
30
35
40
45
0.1
0.2
0.3
0.4
0.5
0.6
0.7
CROWN ELEV (0.37')
Depth @ Flowline (ft)

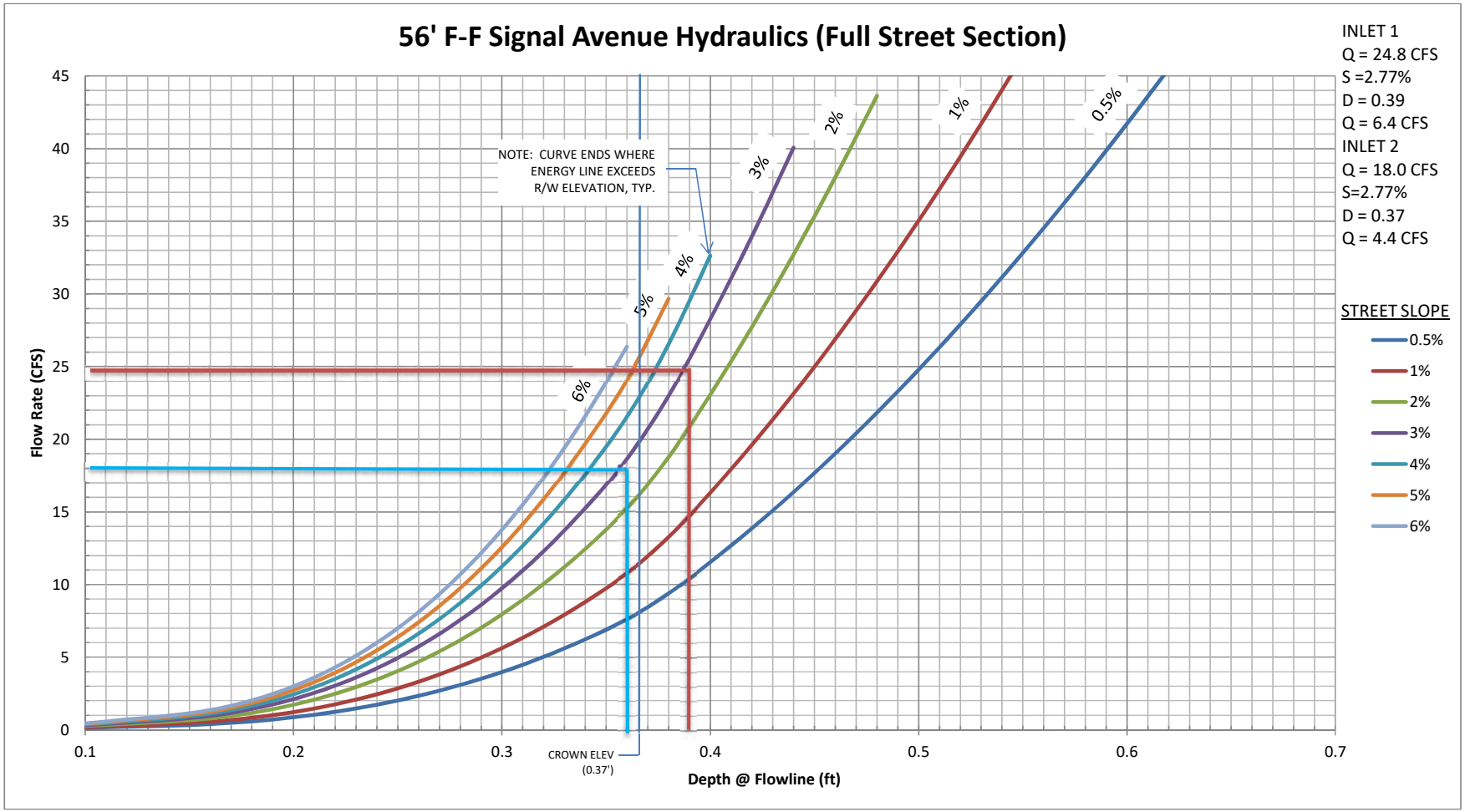
BOHANNAN-HUSTON INC.

PROJECT NAME CAMPO DEL NORTE
LA PRADERA ST SUMP INLET
BASIN 117.317b

SHEET _____ OF B-5

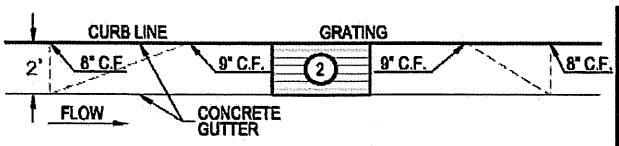
PROJECT NO. _____ BY JPK DATE 4/9/92

SUBJECT RATING CURVE FOR TYPE A INLETS CHK'D _____ DATE _____

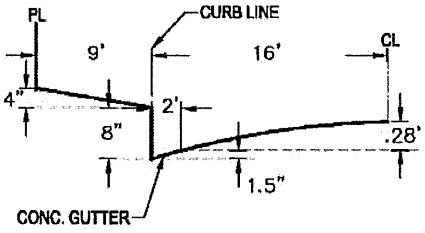

56' F-F Signal Avenue Hydraulics (Full Street Section)
INLET 1
Q = 24.8 CFS
S =2.77%
D = 0.39
Q = 6.4 CFS
INLET 2
Q = 18.0 CFS
S=2.77%
D = 0.37
Q = 4.4 CFS
STREET SLOPE
0.5%
1%
2%
3%
4%
5%
6%
NOTE: CURVE ENDS WHERE ENERGY LINE EXCEEDS R/W ELEVATION, TYP.
Flow Rate (CFS)
Depth @ Flowline (ft)
CROWN ELEV (0.37')
0
5
10
15
20
25
30
35
40
45
0.1
0.2
0.3
0.4
0.5
0.6
0.7

Campo del Norte
Signal Avenue

GRATING CAPACITIES FOR TYPE "A", "C" AND "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

PLATE 22.3 D-5

B-7

EXHIBITS

EXHIBIT 1: PRELIMINARY PLAT

EXHIBIT 2: EXISTING CONDITIONS BASIN MAP

EXHIBIT 3: DEVELOPED CONDITIONS BASIN MAP

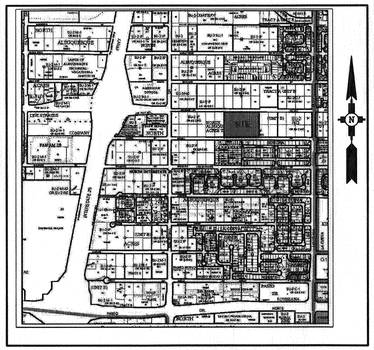
EXHIBIT 4: GRADING PLAN

EXHIBIT 1

PRELIMINARY PLAT

Bohannan Huston

PRELIMINARY PLAT FOR
CAMPO DEL NORTE
LOTS 1–35 AND TRACT A
WITHIN ELENA GALLEGOS LAND GRANT
IN PROJECTED SECTION 17,
TOWNSHIP 11 NORTH, RANGE 4 EAST
NEW MEXICO PRINCIPAL MERIDIAN
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
APRIL 2018



VICINITY MAP
NOT TO SCALE ZONE ATLAS C-18-Z

KEYED NOTES

(A) LOT LINE TO BE ELIMINATED BY THIS PLAT

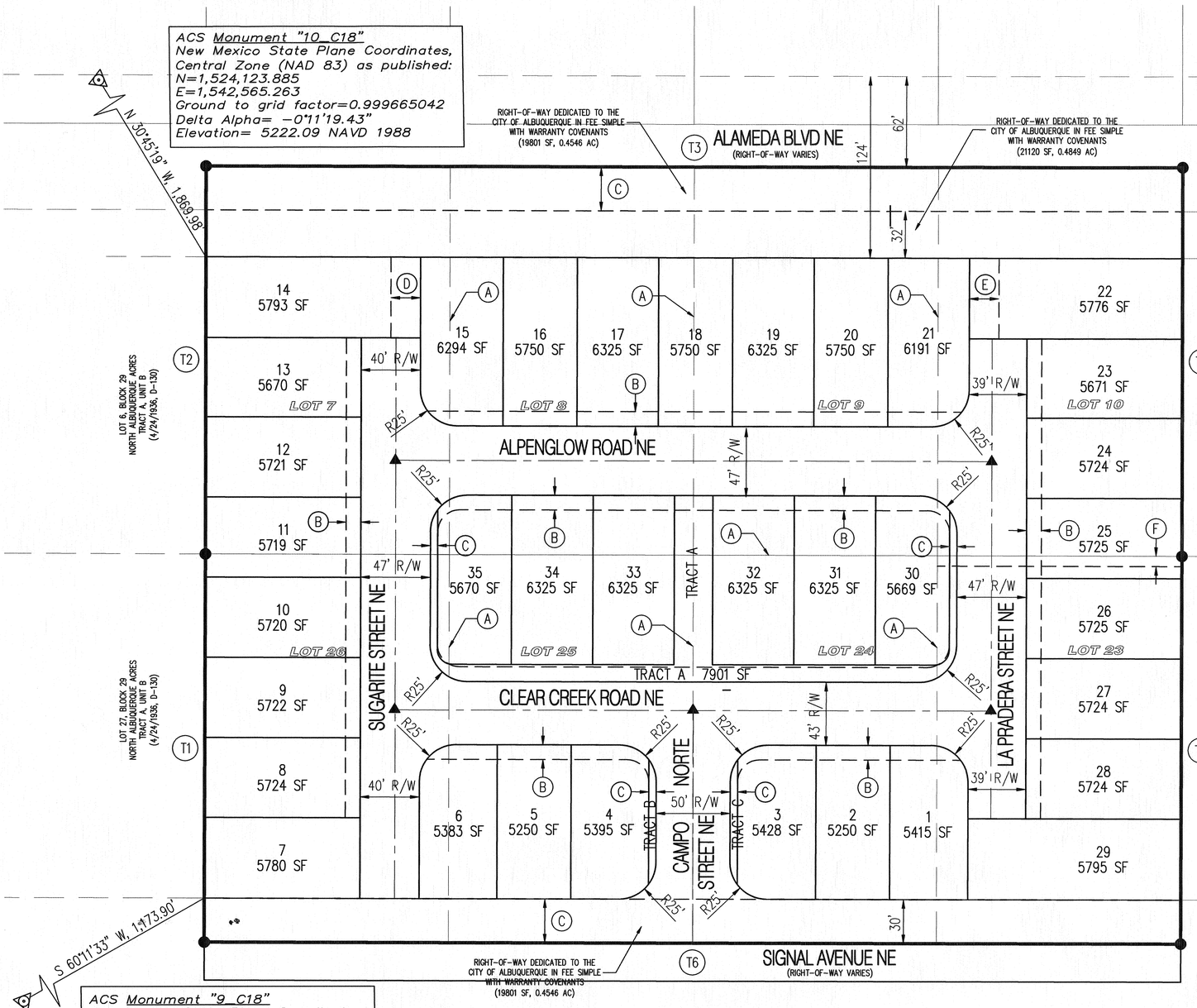
(B) 10' PUBLIC UTILITY EASEMENT, GRANTED BY PLAT.

(C) 5' PUBLIC UTILITY EASEMENT, GRANTED BY PLAT.

(D) 20' PUBLIC PEDESTRIAN AND STORM DRAIN EASEMENT GRANTED TO THE CITY OF ALBUQUERQUE BY THIS PLAT.

(E) 20' PUBLIC STORM DRAIN EASEMENT GRANTED TO THE CITY OF ALBUQUERQUE BY THIS PLAT.

(F) EXISTING 7' PNM AND MST&T EASEMENT (10/9/1979, BK. MISC. 723, PG 604) TO BE VACATED WITH THIS PLAT.



LEGEND

- SUBDIVISION BOUNDARY LINE
- NEW LOT LINE
- ADJOINING PROPERTY LINE
- ▲ CENTERLINE MONUMENT TO BE INSTALLED
- △ CITY OF ALBUQUERQUE SURVEY CONTROL MONUMENT

Tangent Table		
ID	BEARING	LENGTH
T1	N00°14'46"E	264.25'
T2	N00°10'22"E	264.41'
T3	S89°46'13"E	660.05'
T4	S00°13'23"W	264.76'
T5	S00°14'35"W	263.93'
T6	N89°46'03"W	659.83'

LEGAL DESCRIPTION

Lots 7–10 and 23–26, Block 29, Tract A, Unit B, North Albuquerque Acres, Bernalillo County, New Mexico, as the same is shown and designated on the map of said Subdivision, filed in the office of the County Clerk of Bernalillo County, New Mexico, on April 24, 1936, in Plat Book D, Folio 130.

GENERAL NOTES

1. EXISTING ZONING: SU-2, NC
   PROPOSED ZONING: SU-2, NC
2. GROSS ACREAGE: 8.0088 AC
   NET ACREAGE: 6.6755 AC
   NUMBER OF LOTS: 35
   NUMBER OF TRACTS: 1
   PROPOSED DENSITY: 5.24 DU/AC
3. MIN. LOT DIMENSIONS: 50' X 105'
   MINIMUM LOT AREA: 5,250 SQFT
4. STREETS AND STORM DRAIN IMPROVEMENTS ARE PUBLIC TO BE OWNED AND MAINTAINED BY THE CITY OF ALBUQUERQUE. SEWER AND WATER ARE PUBLIC TO BE OWNED AND MAINTAINED BY THE ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY.
5. LOT SETBACKS SHALL CONFORM TO THE SITE DEVELOPMENT PLAN.
6. NO LOTS SHALL HAVE DIRECT ACCESS TO ALAMEDA BLVD OR SIGNAL AVENUE.
7. TRACT A SHALL HAVE A BLANKET PEDESTRIAN ACCESS AND LANDSCAPE EASEMENT TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
8. TRACTS B AND C SHALL HAVE A BLANKET LANDSCAPE EASEMENT TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.

SITE DATA

ZONE ATLAS NO.	C-18-Z
ZONING	SU-2, NC
MILES OF FULL WIDTH STREETS CREATED	0.32 MILES
NO. OF EXISTING TRACTS	8
NO. OF LOTS CREATED	35
NO. OF HOA TRACTS CREATED	3

SURVEY NOTES:

1. ALL BOUNDARY CORNERS SHOWN (●) ARE FOUND REBAR W\CAP.
2. ALL STREET CENTERLINE MONUMENTATION SHALL BE INSTALLED AT ALL CENTERLINE PC'S, PTS, ANGLE POINTS, AND STREET INTERSECTIONS AND SHOWN THUS (▲) AND WILL BE MARKED BY (4") ALUMINUM CAP STAMPED "CITY OF ALBUQUERQUE CENTERLINE MONUMENTATION MARKED, DO NOT DISTURB PLS 14271".
3. THE SUBDIVISION BOUNDARY WILL BE TIED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM AS SHOWN.
4. BASIS OF BEARINGS WILL BE NEW MEXICO STATE PLANE BEARINGS.
5. DISTANCES SHALL BE GROUND DISTANCES.
6. MANHOLES WILL BE OFFSET AT ALL POINTS OF CURVATURE, TANGENCY STREET INTERSECTIONS, AND ALL OTHER ANGLE POINTS TO ALLOW USE OF CENTERLINE MONUMENTATION.

APPROVED

Soren N. Riechmann P.S. 3/22/18
CITY SURVEYOR DATE

Jabeen Vagh 3/20/18
JABEEN F. VAGH DATE
MANAGER, V_MOD, LLC

N

40 20 0 40
1" = 40'

Bohannan Huston
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P:\20180359\CDP\Plans\General\Preplat\20180359_PrePlat.dwg
March 20, 2018 - 10:04am

EXHIBIT 2

EXISTING CONDITIONS BASIN MAP

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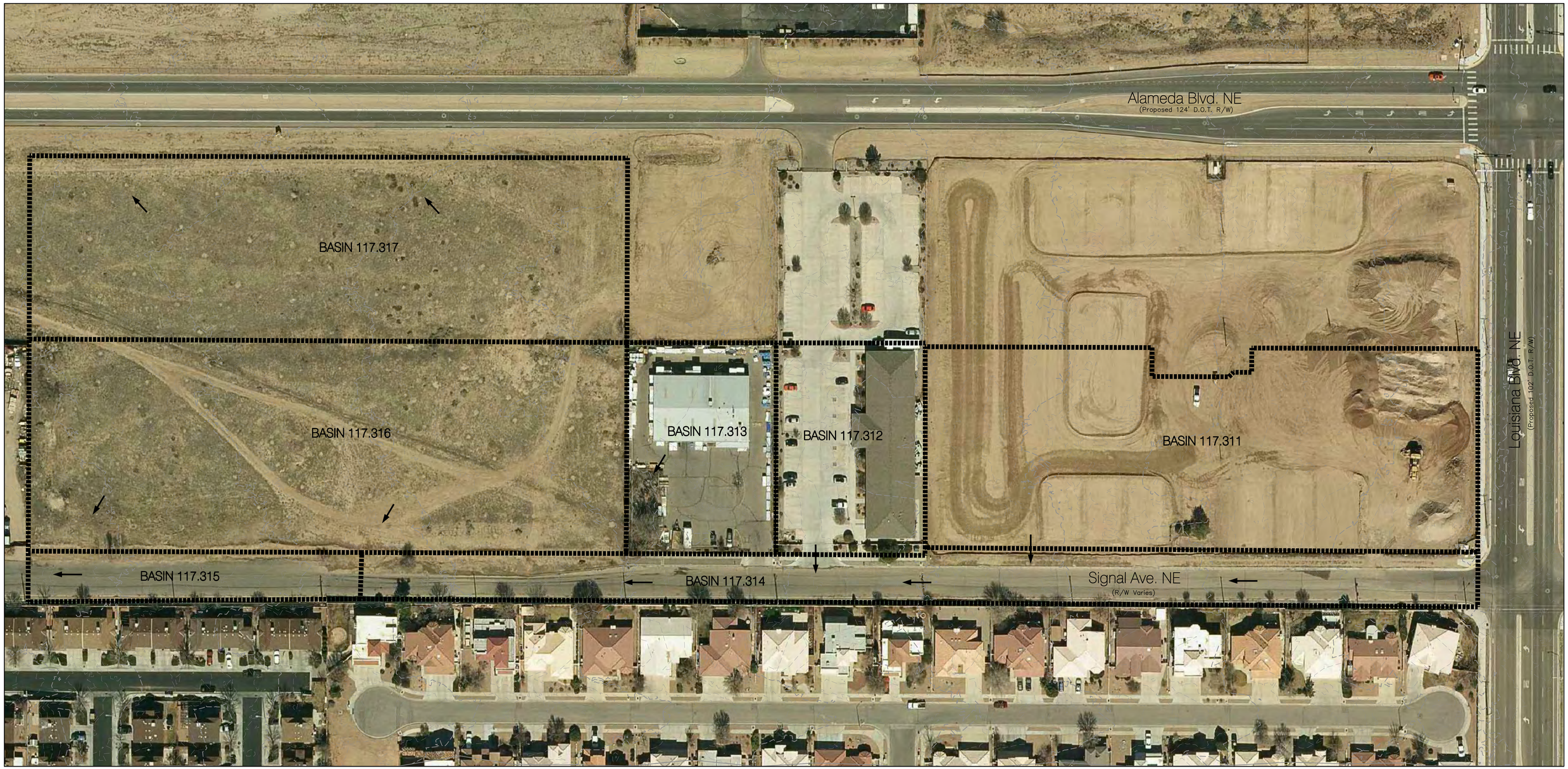
CAMPO DEL NORTE
EXISTING CONDITION BASIN MAP



CAMPO DEL NORTE SUBDIVISION

Existing Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone: 3

Basin ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (CFS)	V(100) (inches)	V(100) (CF)
117.311	132739.1	3.05	0.0%	0.0%	100.0%	0.0%	3.5	*10.5*	*1.3*	*14269.5*
117.312	38589	0.89	0.0%	7.5%	7.5%	85.0%	4.7	*4.2*	*2.2*	*6983.8*
117.313	38427	0.88	0.0%	7.5%	7.5%	85.0%	4.7	*4.2*	*2.2*	*6954.5*
117.314	67330	1.55	0.0%	0.0%	10.0%	90.0%	4.9	*7.5*	*2.3*	*12641.2*
117.315	19690	0.45	0.0%	0.0%	10.0%	90.0%	4.9	*2.2*	*2.3*	*3696.8*
117.316	154014	3.54	0.0%	0.0%	100.0%	0.0%	3.5	*12.2*	*1.3*	*16556.5*
117.317	134018	3.08	0.0%	0.0%	100.0%	0.0%	3.5	*10.6*	*1.3*	*14406.9*
TOTAL	584807.1	13.43	0.0%	1.0%	74.4%	24.6%	3.8	*51.4*	*1.5*	*75509.2*

LEGEND

BASIN BOUNDARY

FLOW ARROW

N

50 25 0 50

1"=50'

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Thu, 22-Mar-2018 - 6:26:pm, Plotted by: SSTEFFEN
P:\20180359\CDP\Plans\General\Exhibits\Drainage\20180359 Exist Condition Basin Map.dwg

EXHIBIT 3

DEVELOPED CONDITIONS BASIN MAP

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CAMPO DEL NORTE
DEVELOPED CONDITION BASIN MAP

CAMPO DEL NORTE SUBDIVISION

Developed Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone: 3

Basin ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (CFS)	V(100) (inches)	V(100) (CF)
117.311	132739	3.05	0.0%	30.0%	0.0%	70.0%	4.3	*13.1*	*1.9*	*21326.8*
117.312	38589	0.89	0.0%	7.5%	7.5%	85.0%	4.7	*4.2*	*2.2*	*6983.8*
117.313	38455	0.88	0.0%	7.5%	7.5%	85.0%	4.7	*4.2*	*2.2*	*6959.6*
117.314	67330	1.55	0.0%	0.0%	10.0%	90.0%	4.9	*7.5*	*2.3*	*12641.2*
117.315	19690	0.45	0.0%	0.0%	10.0%	90.0%	4.9	*2.2*	*2.3*	*3696.8*
117.316	150924	3.46	0.0%	32.0%	15.0%	53.0%	4.0	*13.9*	*1.7*	*21869.5*
117.317a	100051	2.30	0.0%	35.0%	17.0%	48.0%	3.9	*9.0*	*1.7*	*13957.9*
117.317b	37164	0.85	0.0%	30.0%	14.0%	56.0%	4.1	*3.5*	*1.8*	*5507.1*
TOTAL	584942	13.43	0.0%	23.9%	10.2%	65.9%	4.3	*57.5*	*1.9*	*92942.6*
Campo	288139	6.61	0.0%	32.8%	15.6%	51.7%	4.0	*26.3*	*1.7*	*41334.5*

LEGEND

BASIN BOUNDARY

FLOW ARROW

N

50 25 0 50

1"=50'

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Thu, 22-Mar-2018 – 6:25:pm, Plotted by: SSTEFFEN
P:\20180359\CDP\Plans\General\Exhibits\Drainage\20180359 Developed Conditions Basin Map.dwg

EXHIBIT 4

GRADING PLAN

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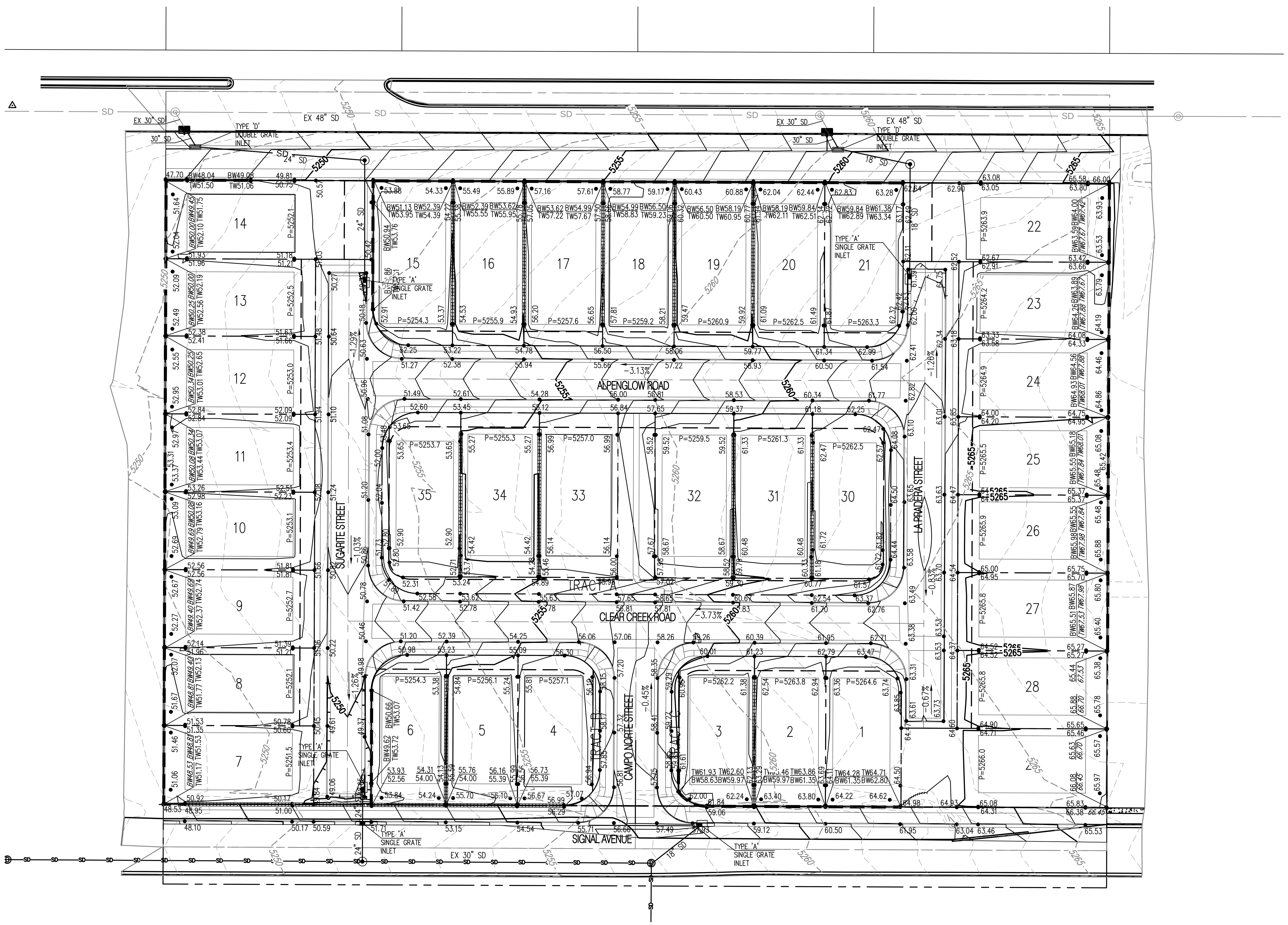

GENERAL NOTES

1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.

2. THE CONTRACTOR IS TO REFER TO EARTHWORK SPECIFICATION AS NOTED IN THE SOILS REPORT.

3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST CONTROL MEASURES & REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.

4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AS PER DETAIL, SHEET 3B, AND WETTING THE SOIL TO KEEP IT FROM BLOWING.

5. ALL SPOT ELEVATIONS ARE TO FLOWLINE UNLESS OTHERWISE NOTED.

6. BOULDERS GREATER THAN 3 FEET IN DIAMETER EXCAVATED DURING GRADING ACTIVITIES SHALL BE STOCKPILED AND DISPOSED OF AT THE DISCRETION OF THE OWNER.

7. ALL WALLS SHOWN ARE TO BE PLACED ALONG PROPERTY LINE. WALLS ARE SHOWN OFFSET FOR VISUAL PURPOSE ONLY.

LEGEND

• 91.62	PROPOSED SPOT ELEVATION
× 92.46	EXISTING SPOT ELEVATION (GRND & TC)
	EXISTING CURB & GUTTER
	PROPOSED MOUNTABLE CURB & GUTTER
	PROPOSED STANDARD CURB & GUTTER
5470	EXISTING CONTOUR W/ INDEX ELEVATION
	FLOW ARROW
	PROPOSED RETAINING WALL
	PROPOSED SLOPE
	PROPOSED STORM DRAIN
	PROPOSED STORM DRAIN MANHOLE
	PROPOSED STORM DRAIN INLET
	HIGH POINT

N

1"=40'

AS-BUILT INFORMATION

CONTRACTOR — DATE

WORK STAKED BY — DATE

INSPECTOR'S ACCEPTANCE BY — DATE

FIELD VERIFICATION BY — DATE

DRAWINGS CORRECTED BY — DATE

MICROFILM INFORMATION

RECORDED BY — DATE

NO.

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

NO. — BY — DATE

ENGINEER'S SEAL

No.	Date	REMARKS	By
		REVISIONS	
		DESIGN	

Designed By: SJS — DATE: 03/2018

Drawn By: SS — DATE: 03/2018

Checked By: SJS — DATE: 03/2018

Bohannan ▲ Huston
www.bhinc.com 800.877.5332

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

CAMPO DEL NORTE
GRADING PLAN

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of
XXXXXX	C-18-Z	1	2