CITY OF ALBUQUERQUE

Planning Department
David Campbell, Director

Mayor Timothy M. Keller

January 31, 2019

Mark Goodwin, P.E.
Mark Goodwin & Associates
PO Box 90606
Albuquerque, NM, 87199

RE: Defined Fitness at Unser Crossing
Grading and Drainage Plan
Engineer's Stamp Date: 01/23/19
Hydrology File: K10D045

Dear Mr. Goodwin:

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Based upon the information provided in your re-submittal received 01/30/2019, the Grading and Drainage Plan is approved for Building Permit, Foundation Permit, and Grading Permit.

Please attach a copy of this approved plan in the construction sets when submitting for a building permit. Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Curtis Cherne, PE, ccherne@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

The Payment in Lieu payment of $ 10,752.00 must be paid prior to Permanent Release of Occupancy approval. Please use the attached City of Albuquerque Treasury Deposit form. The Owner needs to bring three copies of this form to the cashier on the Building Permits side of the ground floor and pay the fee. Once paid, please provide Hydrology with one of the copies showing the receipt.

Upon reviewing the recorded "Easements Covenants, Conditions and Restrictions by and between Lowe's Home Centers, Inc, Armstrong Central Unser Blvd, LLC, and Sandia Plaza Partners, LLC", it is unclear to the maintenance responsibility for the private storm drain system. Therefore a cross lot drainage easement for the lots that drains to the existing inlet and which the proposed private storm drain will be connecting to the existing storm system to the south of the property needs to be recorded. This needs to include maintenance and beneficiary and provide new easement for the private storm drain prior to Permanent Release of Occupancy.

Please provide a Drainage Covenant per Chapter 17 of the DPM for Stormwater Quality ponds and the private storm drain prior to Permanent Release of Occupancy. Please submit this on the 4th floor of Plaza de Sol. A $25 fee will be required.

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

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: Defined Fitness at Unser Crossing Building Permit #: _____ Hydrology File #: K10D045

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

Legal Description: Tract 7 Plat of Unser Crossing

City Address: Central Blvd and Unser Blvd, Albuquerque, NM 87121

Applicant: Defined Fitness Corporation Contact: Reta Jones

Address: 5850 Eubank Blvd. Suite B-62 Albuquerque, NM 87111

Phone#: 275-0000 Fax#: _____ E-mail: reta@defined.com

Other Contact: Mark Goodwin & Associates, PA Contact: Cory Pierce

Address: PO BOX 90606, Albuquerque, NM 87199

Phone#: 828.2200 Fax#: _____ E-mail: cory@goodwinengineers.com

TYPE OF DEVELOPMENT: ____ PLAT (# of lots) _____ RESIDENCE _____ DRB SITE X ADMIN SITE

IS THIS A RESUBMITTAL? X Yes _____ No

DEPARTMENT _____ TRANSPORTATION X HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

____ ENGINEER/ARCHITECT CERTIFICATION
____ PAD CERTIFICATION
____ CONCEPTUAL G & D PLAN
____ GRADING PLAN
X DRAINAGE REPORT
____ DRAINAGE MASTER PLAN
____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
____ ELEVATION CERTIFICATE
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ STREET LIGHT LAYOUT
____ OTHER (SPECIFY) _____
____ PRE-DESIGN MEETING?

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
____ SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL

____ SIA/ RELEASE OF FINANCIAL GUARANTEE
X FOUNDATION PERMIT APPROVAL
X GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR
____ FLOODPLAIN DEVELOPMENT PERMIT
____ OTHER (SPECIFY) _____

DATE SUBMITTED: January 29, 2019 By: Cory Pierce

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

~ 2012 ACEC/NM Award Winner for Engineering Excellence ~
~ 2008 ACEC/NM Award Winner for Engineering Excellence ~
~ 2017 ENR Landscape/Urban Development Award of Merit~
~ 2018 ENR Residential/Hospitality Award of Merit~

January 30, 2018

Renee Brissette, PE
City of Albuquerque
600 2nd Street SW
Albuquerque, NM 87102

RE: Defined Fitness at Unser Crossing
Grading and Drainage Plan, and Drainage Analysis Report,
Engineers Stamp Dates 1/23/2019 and 1/28/2019
Hydrology File: K10D045

Dear Ms. Brissette,

In response to correspondence dated January 10, 2019, please find enclosed revised Sheet C1, C2, and bound Drainage Analysis Report. Sheet C1 includes revisions of the bottom elevations of the First Flush ponds. Sheet C2 is revised with the corresponding changes to the accountancy of First Flush. Also, the title blocks were changed.

The comments are addressed as follows:

1. Calculations are included bound in a report with engineer's stamp date 1-28-19.
2. Revised sheet C2 is included with this submittal.
3.-6. As there are ongoing negotiations between the Owner and the City over First Flush, the comments pertaining to First Flush are not addressed.
8. Cross lot drainage shall be addressed prior to Permanent Release of Occupancy.
9. A Drainage Covenant shall be addressed prior to Permanent Release of Occupancy

Please review and approve the submittal for Building Permit, Foundation Permit, and Grading Permit to continue the development of this site.

Sincerely,
MARK GOODWIN & ASSOCIATES, PA

Cory D. Pierce, PE

Cory D. Pierce, PE
Staff Engineer

Defined Fitness @ Unser Crossing
Drainage Analysis Report

Prepared For:

Defined Fitness Corporation
5850 Eubank NE, Suite B-20
Albuquerque, NM 87111

Prepared By:

Mark Goodwin & Associates, PA
PO BOX 90606
Albuquerque, NM 87199
(505) 828-2200

Table of Contents

Defined Fitness at Unser Crossing

Supplemental Information

I. Project Description:

The Defined Fitness at Unser Crossing is an in-fill project within the site partially completed in 2008. Curb and gutter, storm drain, and a detention/ surge pond were constructed around this site. An inlet and storm drain to the north of the site was constructed to discharge through a temporary swale through the site to an existing culvert storm drain, to a junction manhole equipped with an orifice plate, into storm drain to the main storm drain in Unser Blvd. The orifice plate in the manhole restricts discharge and backs flow up into an existing detention/ surge pond system on the adjacent property to the south and the temporary swale currently across the Defined Fitness site. It is unlikely that flow has ever backed up, as most of the area for which the existing pond serves is not developed yet.

The Defined Fitness at Unser Crossing includes completing the storm drain in-place of the temporary swale by connecting to the existing inlet and outlet to the north and south within the site. The purpose of this report is to evaluate the proposed storm drain to cross and intercept drainage from the site.

II. Design Criteria:

The storm drain was originally approved with the 2008 Drainage Management Plan (DMP) prepared by Bohannon Huston. The criteria was the 100 yr storm in accordance with section 22.2 of the Development Process Manual. Flows are taken from the study and proportioned to the basins surrounding each new inlet, within each first flush pond.

The required backwater volume provided on the Defined Fitness site was evaluated from the 2008 DPM Volume Required by prorating it to the proposed site storm drain flow (flow in pipe SD42 in the 2008 DMP) divided by the overall site peak flow.

Additionally, as the storm drain is submerged, the allowable discharge flow (flow through both orifice plates) is also prorated to the proposed site storm drain flow (flow in pipe SD42 in the 2008 DMP) divided by the overall site peak flow to evaluate needed flow within the submerged pipe (17.93 CFS).

III. Drainage conditions:

Existing conditions include the existing curb and gutter, existing temporary swale, existing inlet and outlet storm drain, detention pond, and downstream storm drain. The detention/surge pond backwaters flow in-part due to orifice plats installed on each discharge storm drain. The east/west storm drain equipped with an orifice plate, discharges from 7.97 feet of head, and flows to the storm drain in Unser Blvd. The north/south storm drain, equipped with an orifice plat, discharges from 1.65 feet of head, and flows to the storm drain in Bridge Blvd.

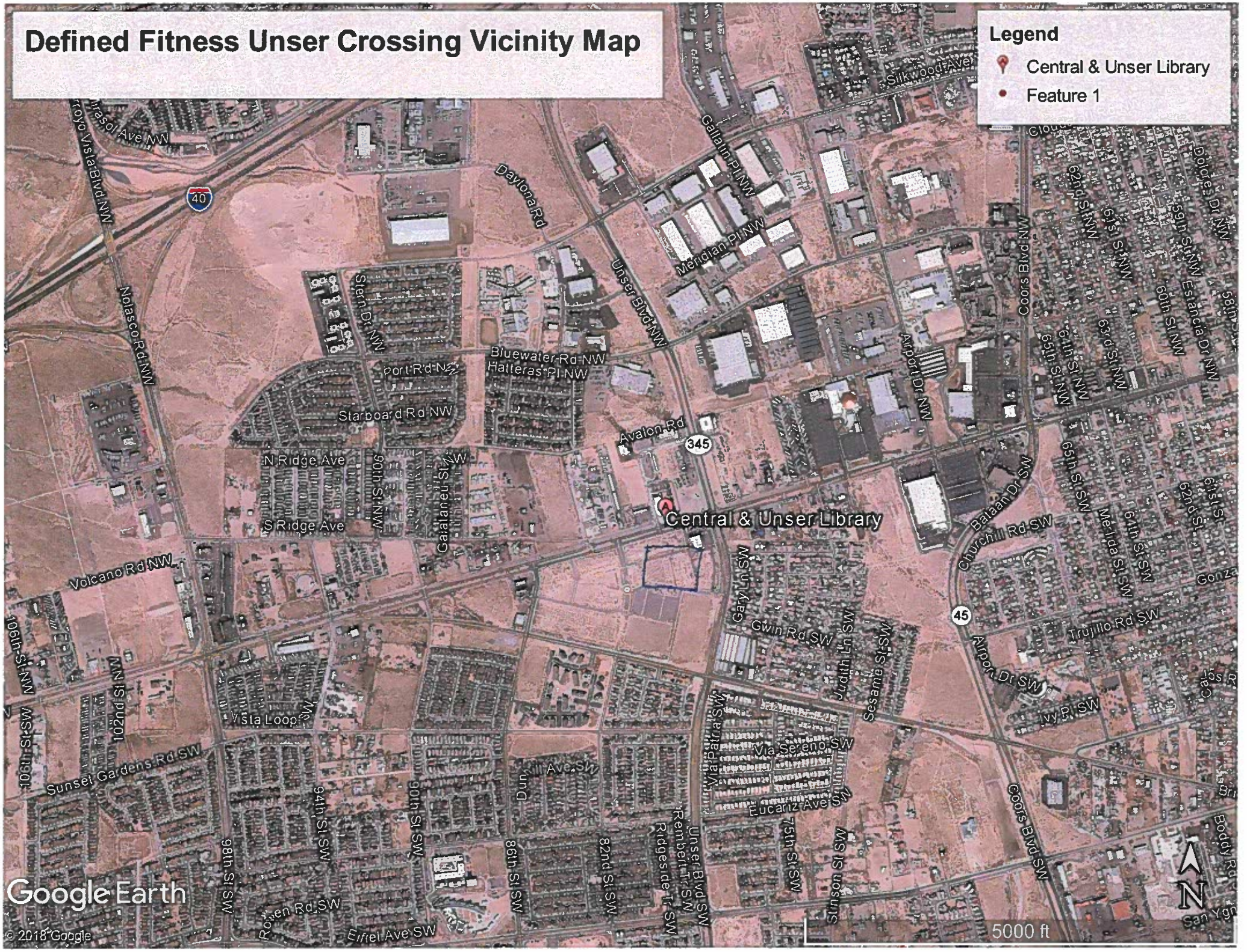
IV. The System

The parking lot is graded to not more than 8" lower than the water surface elevation put forth by the 2008 DMP. As the shape of the downstream and offsite hydrograph are the same, the required volume is evaluated by proration of the flow to the Defined fitness storm drain, to the peak flow to the pond. The required site backwater volume is evaluated at 2949 CF. The volume of pond #3, with the adjacent

parking lot area flooded to a depth of 8", alone is 5183 CF. The total of first flush ponds 1,2, and 3 with each adjacent parking lot area flooded to 8" is 12,001 CF and is therefore adequate in accordance with the DPM.

Additionally, the proposed storm drain replacing the temporary swale across the Defined Fitness site is to be a 24" diameter PVC or HDPE with a mannings "n" of 0.013 in accordance with the 2008 Drainage Management Plan. With backwatering from the orifice plates, the proposed storm drain across the Defined Fitness site becomes submerged under the first flush ponds and the parking lot. Also, the storm drain becomes submerged in accordance with the 2008 Drainage Management Plan. The allowable flow in submerged conditions, evaluated at 17.93 CFS, is provided with an approximate head differential of 4" from the storm drain junction for the parking lot and first flush pond #3 to the existing detention/ surge pond. With this, the storm drain does not pose significant resistance to flow to the orifice plates.

Defined Fitness Unser Crossing Vicinity Map



Required Parking Lot Pond Volume by Proration

Volume Required (2008 DMP) 17390 CF

Flow in Defined Fit Pipe (DMP) 21.24
Peak Inlfow (2008 DMP) 125.24

By proration, required volume: 2949 CF

POND 1	Area	Depth (FT):	Volume (CF)	cumulative
Bottom (SF)	427			
Top (SF)	1,562	1.24	1,233	
Parking Top	6,733	0.67	2,779	4,012

POND 2				
Bottom (SF)	427			
Top (SF)	1603	0.78	792	
Parking Top	4410	0.67	2,014	2,806
POND 3				
Bottom (SF)	2870			
Top (SF)	3820	0.38	1,271	
Parking Top	7857	0.67	3,912	5,183

Total 12,001

Flow by Proportion of Basin Q		
	Basin Q	SD42
Basin 1	60.98	
Basin 2	39.55	
Basin 4	22.87	
	123.4	21.24
SD42 Portion	0.172	
SD42 Flow (Portion of Discharge)		
Orifiace (Allowable) Flow	104.18	
SD42 Flow	17.93	

Hazen Williams (Flow in submerged pipe, from pond #3 to orifice)

Q(cfs)	17.93
C (typ 130)	130
D (ft)	2
L (ft)	93
Hf (ft)	0.38

Available Head

WSE	5095.4
Pipe invert	5087
Available head	10.4

Conclusion: .38 feet of head is needed to push 17.93 Cfs through the 24" dia pipe.

APPENDIX A

2008 Drainage Management Plan

Unser Crossing

Existing and Proposed Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone: 1

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)
ALLOWABLE FLOWS (AMOLE DEL NORTE STORM DIVERSION FACILITIES TIERRA BAYITA DRAINAGE PHASE III REPORT)										
17E	1169752	26.85	-	-	-	-	4.13	*110.80*	*0.00*	*0*
17W	1016757	23.34	-	-	-	-	3.37	*78.68*	*0.00*	*0*
PROPOSED										
1	635827.8	14.60	0.0%	5.0%	5.0%	90.0%	4.18	*60.98*	*1.86*	*98341*
2	412384.3	9.47	0.0%	5.0%	5.0%	90.0%	4.18	*39.55*	*1.86*	*63782*
3	271401.3	6.23	0.0%	10.0%	5.0%	85.0%	4.06	*25.30*	*1.79*	*40507*
4	236114.3	5.42	0.0%	0.0%	10.0%	90.0%	4.22	*22.87*	*1.87*	*36934*
5	18734.06	0.43	0.0%	0.0%	0.0%	100.0%	4.37	*1.88*	*1.97*	*3076*
6	18126.49	0.42	0.0%	0.0%	0.0%	100.0%	4.37	*1.82*	*1.97*	*2976*
7	5248.73	0.12	0.0%	0.0%	0.0%	100.0%	4.37	*0.53*	*1.97*	*862*
8	5174.885	0.12	0.0%	0.0%	0.0%	100.0%	4.37	*0.52*	*1.97*	*850*
9	31760	0.73	0.0%	0.0%	0.0%	100.0%	4.37	*3.19*	*1.97*	*5214*
10	81221	1.86	0.0%	0.0%	0.0%	100.0%	4.37	*8.15*	*1.97*	*13334*
11	64361.51	1.48	0.0%	20.0%	15.0%	65.0%	3.68	*5.43*	*1.56*	*8383*
11.1	99162.35	2.28	0.0%	20.0%	15.0%	65.0%	3.68	*8.37*	*1.56*	*12916*
12	29927.83	0.69	0.0%	10.0%	5.0%	85.0%	4.06	*2.79*	*1.79*	*4467*
12.1	58095.99	1.33	0.0%	10.0%	5.0%	85.0%	4.06	*5.42*	*1.79*	*8671*
13	217737	5.00	0.0%	0.0%	5.0%	95.0%	4.30	*21.47*	*1.92*	*34856*
TOTAL	**2185279**	**50.17**	-	-	-	-	-	*208.27*	-	*335067*

Orifice Plate Sizing Table

Required Q (cfs)	Water Level Elevation Before Orifice (Pond WSEL)	After Orifice (HGL)	Head (ft)	Area Req'd (ft^2)	Radius of pipe (ft)	Angle (radians)	d (ft)
84.9	5095.4	5087.49	7.97	6.25	2.00	3.13	1.99
19.3	5095.4	5093.75	1.65	3.12	1.25	3.57	1.51

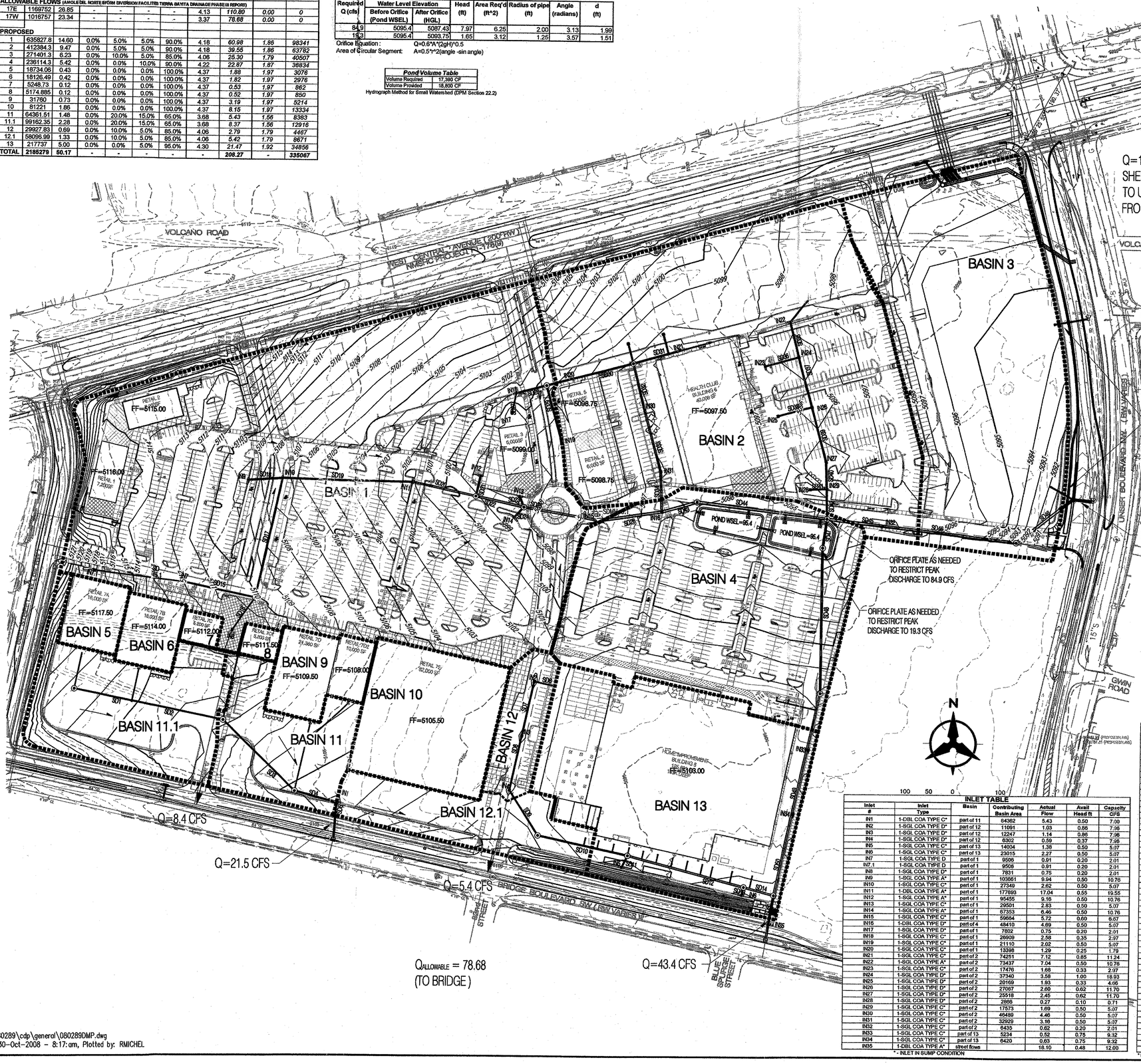
Orifice Equation: $Q=0.6*A*(2gH)^{0.5}$

Area of Circular Segment: $A=0.5*r^2(\text{angle} - \sin \text{angle})$

Pond Volume Table

Volume Required	17,390 CF
Volume Provided	18,800 CF

Hydrograph Method for Small Watershed (DPM Section 22.2)



INLET TABLE

Inlet #	Inlet Type	Basin	Contributing Basin Area	Actual Flow	Avail Head ft	Capacity CFS
IN1	1-DBL COA TYPE C*	part of 11	64362	5.43	0.50	7.00
IN2	1-SGL COA TYPE D*	part of 12	11091	1.03	0.86	7.96
IN3	1-SGL COA TYPE D*	part of 12	12247	1.14	0.86	7.96
IN4	1-SGL COA TYPE D*	part of 12	6302	0.59	0.37	7.96
IN5	1-SGL COA TYPE C*	part of 13	14004	1.38	0.50	5.07
IN6	1-SGL COA TYPE C*	part of 13	23015	2.27	0.50	5.07
IN7	1-SGL COA TYPE D	part of 1	9506	0.91	0.20	2.01
IN7.1	1-SGL COA TYPE D	part of 1	9506	0.91	0.20	2.01
IN8	1-SGL COA TYPE D*	part of 1	7831	0.75	0.20	2.01
IN9	1-SGL COA TYPE A*	part of 1	103661	9.94	0.50	10.70
IN10	1-SGL COA TYPE C*	part of 1	27349	2.62	0.50	5.07
IN11	1-DBL COA TYPE A*	part of 1	177893	17.04	0.55	19.55
IN12	1-SGL COA TYPE A*	part of 1	95455	9.16	0.50	10.76
IN13	1-SGL COA TYPE C*	part of 1	29501	2.83	0.50	5.07
IN14	1-SGL COA TYPE A*	part of 1	67353	6.46	0.50	10.76
IN15	1-SGL COA TYPE C*	part of 1	59564	5.72	0.60	6.07
IN16	1-DBL COA TYPE A*	part of 4	48410	4.89	0.50	5.07
IN17	1-SGL COA TYPE C*	part of 1	7802	0.75	0.20	2.01
IN18	1-SGL COA TYPE C*	part of 1	26909	2.58	0.35	2.97
IN19	1-SGL COA TYPE C*	part of 1	21110	2.02	0.50	5.07
IN20	1-SGL COA TYPE A*	part of 1	13398	1.29	0.25	1.79
IN21	1-SGL COA TYPE C*	part of 2	74251	7.12	0.85	11.24
IN22	1-SGL COA TYPE A*	part of 2	73437	7.04	0.50	10.76
IN23	1-SGL COA TYPE C*	part of 2	17476	1.68	0.33	2.97
IN24	1-SGL COA TYPE D*	part of 2	37340	3.58	1.00	18.93
IN25	1-SGL COA TYPE D*	part of 2	20169	1.93	0.33	4.66
IN26	1-SGL COA TYPE C*	part of 2	27087	2.60	0.62	11.70
IN27	1-SGL COA TYPE C*	part of 2	23518	2.45	0.62	11.70
IN28	1-SGL COA TYPE C*	part of 2	2866	0.27	0.10	0.71
IN29	1-SGL COA TYPE C*	part of 2	17573	1.69	0.50	5.07
IN30	1-SGL COA TYPE C*	part of 2	46489	4.46	0.50	5.07
IN51	1-SGL COA TYPE C*	part of 2	32929	3.16	0.50	5.07
IN52	1-SGL COA TYPE C*	part of 2	8435	0.62	0.20	2.01
IN53	1-SGL COA TYPE C*	part of 13	5234	0.52	0.75	9.32
IN54	1-SGL COA TYPE C*	part of 13	6420	0.63	0.75	9.32
IN55	1-DBL COA TYPE A*	street flows		18.10	0.48	12.00

* - INLET IN SUMP CONDITION

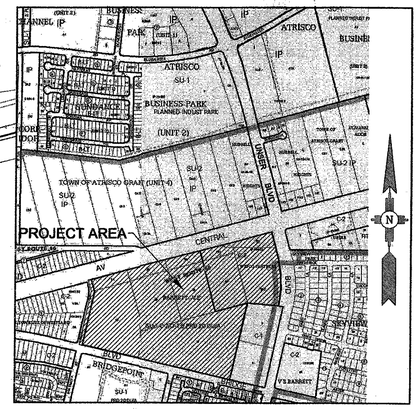
STORM DRAIN PIPE TABLE

PIPE #	BASIN/SD/INLET	Size in.	Slope	Capacity* cfs	ACTUAL FLOW cfs
SD1	Basin 5	18	2.00%	14.96	1.88
SD2	SD1, 6	18	2.00%	14.86	3.70
SD3	SD2, 7, 8	18	1.00%	10.50	4.74
SD4	SD3, 9	24	0.50%	16.00	7.33
SD5	SD4, 10, IN1	24	1.97%	31.75	21.51
SD6	part of 13	12	4.72%	7.74	3.16
SD7	SD6, IN2	18	1.00%	10.50	4.20
SD8	SD7, IN3	18	2.33%	16.21	5.34
SD9	SD8, IN4	18	3.50%	20.74	5.93
SD10	SD9, truck well	24	0.75%	19.59	6.37
SD11	IN5	18	8.00%	29.71	1.38
SD12	SD10, SD11, part of 13	30	0.75%	35.52	20.99
SD13	IN6	18	8.00%	29.71	2.27
SD14	SD12, SD13	30	0.75%	35.52	23.26
SD15	IN7, SD15.1	18	2.00%	14.88	1.82
SD15.1	IN7.1	18	3.72%	4.23	0.91
SD16	IN8	18	8.00%	29.71	0.75
SD17	SD15, SD16	18	2.00%	14.88	2.57
SD18	IN9	24	5.00%	50.74	9.94
SD19	IN10, SD17, SD18	24	7.10%	37.85	15.14
SD20	IN11,SD19	30	1.00%	41.02	32.18
SD21	IN12	24	3.66%	45.02	8.76
SD22	SD20, SD21	36	1.77%	88.74	41.34
SD23	IN13	24	3.60%	39.18	2.83
SD24	IN14	24	3.00%	39.18	6.46
SD25	SD22,SD23,SD24	36	2.50%	105.49	50.63
SD26	SD25, IN15	42	1.10%	100.61	58.35
SD27	IN17	12	1.00%	3.56	0.75
SD28	SD27, IN18	24	2.85%	39.62	3.33
SD29	IN19	24	1.10%	22.62	2.02
SD30	SD28, SD29	24	1.10%	22.62	5.35
SD31	IN21	24	0.52%	16.00	7.12
SD32	SD30, SD31	30	1.10%	41.02	12.48
SD33	SD32, IN20	30	1.10%	41.02	16.93
SD34	SD33, IN31	30	3.35%	76.07	20.09
SD35	IN22	24	1.60%	22.62	7.04
SD36	IN23	18	1.01%	10.56	1.68
SD37	SD35,SD36, IN24	24	1.09%	22.62	12.30
SD38	IN25	18	1.83%	14.21	1.93
SD39	SD38,SD37,IN26	24	1.09%	22.62	18.83
SD40	SD39, IN27	24	1.09%	22.62	19.28
SD41	IN28	18	6.85%	26.90	0.27
SD42	SD41, SD40, IN29	24	8.00%	63.99	21.24
SD43	SD34, SD26, IN16	48	0.50%	101.57	81.13
SD44	SD43	48	0.50%	101.57	81.13
SD45	orifice restricted	48	0.50%	101.57	84.88
SD46	SD45, IN32	48	0.50%	101.57	85.50
SD47	(SD42+ SD44)-SD45	30	0.50%	29.00	17.48
SD48	orifice restricted	30	0.50%	29.00	19.30
SD49	SD48, IN33	30	0.50%	29.00	19.82
SD50	SD49, IN34	30	0.50%	29.00	20.45
SD51	SD50, SD14	36	1.67%	86.19	43.71

* Flow restricted with orifice plate — Capacity Based on Manning's Eq w/ N=0.013

VICINITY MAP

ZONE ATLAS PAGES K-09-Z & K-10-Z



DRAINAGE NARRATIVE

I. INTRODUCTION

The purpose of this submittal is to present a grading and drainage plan for the proposed Unser Crossing development in SW Albuquerque. The project will include multiple retail buildings with pedestrian plazas, parking, and landscaping on approximately 50 acres. This Drainage Management plan is submitted for Building Permit approval.

II. SITE LOCATION

The site is located within zone atlas maps K-9-Z and K-10-Z. The site is bounded along the north by Central Ave., along the east by Unser Blvd., along the south by Bridge Blvd. and along the west by 86th St. In reference to the Federal Emergency Management Agency map #35001C0328E, there is a 1% annual chance flood zone adjacent to the site in Bridge Blvd.

III. EXISTING HYDROLOGIC CONDITIONS

The site encompasses approximately 50 acres and is undeveloped. Slopes for the site range between 1 to 3% to the east and there is sparse vegetation cover. Currently, the majority of the site drains via surface flow into inlets located in Bridge Blvd. and Unser Blvd. These flows discharge through storm drain to a concrete lined channel near the southeast corner of Bridge and Unser.

The drainage report titled Final Design Report, Amole Del Norte Storm Diversion Facilities, Tierra Bayita Phase III, dated March 1998 describes the master drainage plan for the area. According to the master plan, the existing storm drain lines in Bridge Blvd. and Unser Blvd. were designed to accept flow from the site in the developed condition. (Q=189.48cfs) The allowable flows for discharge from the site into the existing storm drain are based on the master drainage report. Please see the basin table for calculations.

IV OFFSITE DRAINAGE

There are currently five culverts that divert flow across Central Ave. to the northeast corner of the site. In existing conditions, the culvert flow travels across the site via a natural channel into an end section of the existing storm drain system along Unser Blvd. In developed conditions, the five culverts will be directly connected to the storm drain system in Unser with a junction box and storm drain pipe. There is no additional offsite flow that reaches the site.

IV. PROPOSED HYDROLOGIC CONDITIONS

The proposed site drains over surface and through a series of storm drains. Flows will then drain to either the 90" storm drain in Bridge Blvd. or the 96" storm drain in Unser Blvd. per the existing Drainage Management Plan. Basins 5 thru 13 outfall directly south to the 90" storm drain in Bridge Blvd. Basin 3 drains directly to the 96" storm drain in Unser Blvd. The rest of the site (Basins 1, 2, and 4) drains overland and into the on site storm drain which leads to the detention pond. The flow in to the pond is approx. Q=125.24cfs and the flow out of the pond is Q=104.18cfs. The outfall of the pond is controlled by orifice plates in two locations to ensure that the allowable flow is not exceeded.

V. CONCLUSION

The drainage management plan is capable of safely passing the 100 year storm and meets city requirements. The peak discharge for this site is lower then the allowable described in the approved drainage report. All analysis was completed in accordance with section 22.2 of the Development Process Manual.

LEGEND

- PROPERTY LINE
- 5301 — EXISTING CONTOURS
- X 5301.15 — EXISTING GROUND SPOT ELEVATION
- EXISTING ELECTRICAL POLE
- 65.23 — PROPOSED SPOT ELEVATION TC=TOP OF CURB, FL=FLOW LINE TW=TOP OF WALL, BW=BOTTOM OF WALL EX=EXISTING, TG=TOP OF GRATE
- S=2.0% — PROPOSED DIRECTION OF FLOW
- WATER BLOCK
- PROPOSED RETAINING WALL
- 5305 — PROPOSED INDEX CONTOURS
- PROPOSED INTER CONTOURS
- PROPOSED CURB & GUTTER
- EASEMENT
- EXISTING TREE
- SD — PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN INLET
- EXISTING STORM DRAIN MANHOLE

REVISIONS

PRE-BID SET ISSUE DATE — POST BID SET ISSUE DATE

DATE	DESCRIPTION

BRUCE J. STIDHAM, NEW MEXICO, 14523, REGISTERED PROFESSIONAL ENGINEER, 10/27/08

Bohannan ▲ Huston Inc.
Courtyard 1 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

ARMSTRONG DEVELOPMENT PROPERTIES, INC.

LOWE'S HOME CENTERS, INC.
1605 CURTIS BRIDGE ROAD
REED DOCK
WILKESBORO, NC 28697
336.658.4000(V) 336.658.3257(F)

LOWE'S

UNSER CROSSING
DRAINAGE MANAGEMENT PLAN
LOWE'S OF:
SW ALBUQUERQUE, NEW MEXICO
PROJECT No: 080289 DRAWN BY: RMC CHECKED BY: BJS

CRITERIA ISSUE DATE: 10.27.08
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:

DRAWING NUMBER:
DMP

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Thu, 30-Oct-2008 - 8:17:am, Plotted by: RMICHEL

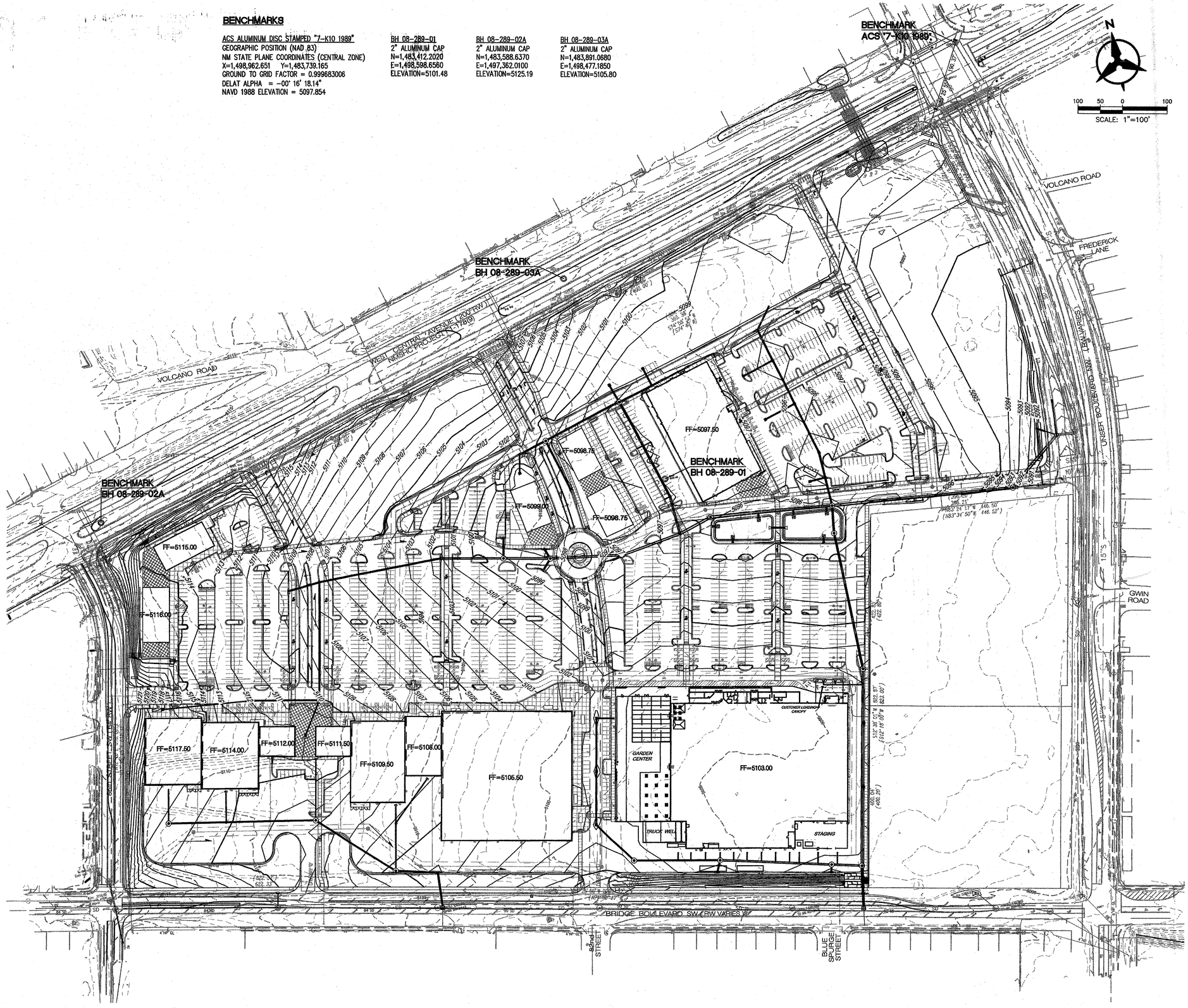
BENCHMARKS

ACS ALUMINUM DISC STAMPED "7-K10 1989"
GEOGRAPHIC POSITION (NAD 83)
NM STATE PLANE COORDINATES (CENTRAL ZONE)
X=1,498,962.651 Y=1,483,739.165
GROUND TO GRID FACTOR = 0.999683006
DELAT ALPHA = -00° 16' 18.14"
NAVD 1988 ELEVATION = 5097.854

BH 08-289-01
2" ALUMINUM CAP
N=1,483,412.2020
E=1,498,598.6560
ELEVATION=5101.48

BH 08-289-02A
2" ALUMINUM CAP
N=1,483,588.6370
E=1,497,362.0100
ELEVATION=5125.19

BH 08-289-03A
2" ALUMINUM CAP
N=1,483,891.0680
E=1,498,477.1850
ELEVATION=5105.80



GRADING NOTES

1. EXCEPT AS PROVIDED HEREIN, GRADING SHALL BE PERFORMED AT THE ELEVATIONS AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PLAN.

2. THE COST FOR REQUIRED CONSTRUCTION DUST AND EROSION CONTROL MEASURES SHALL BE INCIDENTAL TO THE PROJECT COST AND INCLUDED IN CONTRACTOR'S BID.

3. ALL WORK RELATIVE TO FOUNDATION CONSTRUCTION OVER EXCAVATION, SITE PREPARATION, AND PAVEMENT INSTALLATION, AS SHOWN ON THIS PLAN, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "GEOTECHNICAL INVESTIGATION," AS PROVIDED BY THE ARCHITECT OR OWNER. ALL OTHER WORK SHALL, UNLESS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT, (FIRST PRIORITY) SPECIFICATIONS, AND/OR THE CITY OF ALBUQUERQUE (COA) STANDARD SPECIFICATIONS FOR PUBLIC WORKS (SECOND PRIORITY).

4. EARTH SLOPES SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL UNLESS SHOWN OTHERWISE.

5. THE CONTRACTOR IS TO ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PROPERTY OR PUBLIC RIGHT-OF-WAY. THIS SHOULD BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS OR SILT FENCE AT THE PROPERTY LINES AND WETTING THE SOIL TO PROTECT IT FROM WIND EROSION.

6. A DISPOSAL SITE FOR ANY & ALL EXCESS EXCAVATION MATERIAL, AND UNSUITABLE MATERIAL AND/OR A BORROW SITE CONTAINING ACCEPTABLE FILL MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND APPROVED BY THE OBSERVER. ALL COSTS INCURRED IN OBTAINING A DISPOSAL OR BORROW SITE AND HAUL TO OR FROM SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.

7. ALL PROPOSED CONTOURS REFLECT TOP OF PAVEMENT ELEVATIONS IN THE PARKING AREA AND MUST BE ADJUSTED FOR MEDIANS AND ISLANDS.

8. VERIFY ALL ELEVATIONS SHOWN ON PLAN FROM BASIS OF ELEVATION CONTROL STATION PRIOR TO BEGINNING CONSTRUCTION.

9. ALL EXISTING STRUCTURES, UNLESS OTHERWISE NOTED TO REMAIN, FENCING, TREES, & ETC. WITHIN CONSTRUCTION AREA SHALL BE REMOVED AND DISPOSED OF OFF SITE. ANY BURNING ON SITE IS NOT ALLOWED.

10. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC (H20) LOADING AND BE INSTALLED PER CITY CODES AND SPECIFICATIONS..

11. GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES HAVING UNDERGROUND UTILITIES ON SITE OR IN RIGHT-OF-WAY PRIOR TO EXCAVATION. CONTRACTOR SHALL CONTACT UTILITY LOCATING COMPANY AND LOCATE ALL UTILITIES PRIOR TO GRADING START.

12. SITE GRADING SHALL NOT PROCEED UNTIL APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED.

13. AFTER PERMITS HAVE BEEN OBTAINED & EROSION CONTROL MEASURES INSTALLED, THE CONTRACTOR SHALL GRADE BUILDING PAD, GARDEN CENTER & APRONS TO 0" - 1/2" OF SUBGRADE AS PER SECTION 02300, DIVISION 2 OF LOWE'S STANDARD SITE SPECIFICATIONS.

14. IMMEDIATELY APPLY & COMPACT STONE BASE FOR BUILDING PAD TO +/- 1/2" PRIOR TO EXCAVATING INTERIOR & PERIMETER FOOTINGS.

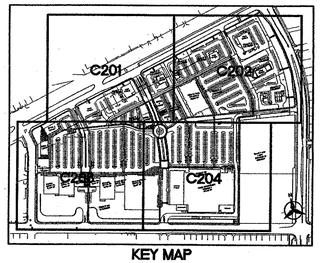
15. GENERAL CONTRACTOR SHALL PROVIDE 2' x 2' x 6" THICK CONCRETE APRON AT ALL CLEANOUTS OUTSIDE OF BUILDING.

16. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH DIVISION 2 OF LOWE'S STANDARD SITE SPECIFICATIONS.

17. ALL ROOF DRAINS TO BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AT THE END, WITH IDENTIFING MARKERS FOR FUTURE LOCATING.

LEGEND

- PROPERTY LINE
- 5301 EXISTING CONTOURS
- X 5301.15 EXISTING GROUND SPOT ELEVATION
- EXISTING ELECTRICAL POLE
- 65.23 PROPOSED SPOT ELEVATION TC=TOP OF CURB, FL=FLOW LINE TW=TOP OF WALL, BW=BOTTOM OF WALL EX=EXISTING, TC=TOP OF GRATE
- S=2.0% PROPOSED DIRECTION OF FLOW
- WATER BLOCK
- PROPOSED RETAINING WALL
- 5315 PROPOSED INDEX CONTOURS
- PROPOSED INTER CONTOURS
- PROPOSED CURB
- EASEMENT
- EXISTING TREE
- SD PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN INLET
- EXISTING STORM DRAIN MANHOLE



KEY MAP

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REVISIONS

◇ PRE-BID SET ISSUE DATE △ POST BID SET ISSUE DATE

DATE		DESCRIPTION

BRUCE J. STIDWORTHY NEW MEXICO 14523 REGISTERED PROFESSIONAL ENGINEER 10/27/08

Bohannan Huston Inc.
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING • SPATIAL DATA • ADVANCED TECHNOLOGIES

ARMSTRONG DEVELOPMENT PROPERTIES, INC.

LOWE'S HOME CENTERS, INC.
1605 CURTIS BRIDGE ROAD
REEC DOCK
WILKESBORO, NC 28697
336.658.4000(V) 336.658.3257(F)

LOWE'S

RECEIVED NOV 6 2008 HYDROLOGY SECTION

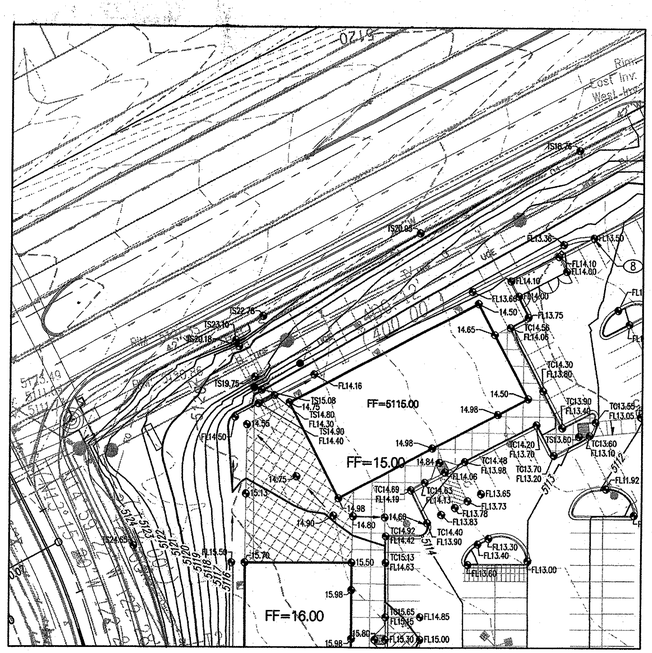
UNSER CROSSING
OVERALL GRADING PLAN

LOWE'S OF:
SW ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO
PROJECT No: 080289 DRAWN BY: RMI CHECKED BY: BJS

CRITERIA
ISSUE DATE: 10.27.08
PERMIT SET
ISSUE DATE:
CONSTRUCTION
SET ISSUE DATE:

DRAWING NUMBER:
C200



NW CORNER OF SITE
SCALE: 1"=40'

STRUCTURE TABLE NOTES

1. MANHOLES SHALL BE BUILT PER COA STD. DWG 2102 (TYPE "E") AND 2101 (TYPE "C").
2. ALL STORM DRAIN STUB-OUTS LABELED AS "CAPS" ABOVE SHALL BE PROVIDED WITH TEMPORARY PLUGS & IDENTIFYING MARKERS FOR FUTURE LOCATING.
3. ALL TYPE "A", "Double A" and TYPE "C" INLETS SHALL BE MODIFIED FROM THE COA STD DRAWINGS AS REQUIRED FOR A 6" CURB HEIGHT.
4. STRUCTURES IDENTIFIED AS TEE'S SHALL BE CONSTRUCTED FROM A PRE-MANUFACTURED TEE AND INSTALLED IN ACCORDANCE TO MANUFACTURERS RECOMENDATIONS OR WITH "INSERTA-TEE" BY ADS OR APPROVED EQUAL.
5. COA TYPE "C" INLETS PER COA STD DWG 2205 MAY BE SUBSTITUTED WITH NYOPLAST CURB INLET STRUCTURE WITH STANDARD 2'X2' (221.3 SQ. IN. APPROXIMATE DRAIN AREA INCLUDING HOOD) H-25 RATED GRATE (OR APPROVED EQUAL).
6. COA TYPE "D" INLETS PER COA STD DWG 2206 MAY BE SUBSTITUTED WITH NYOPLAST ROAD AND HIGHWAY DRAINAGE INLET STRUCTURE WITH 2'X3' STEEL BAR GRATE (261.2 SQ. IN. APPROXIMATE DRAIN AREA) H-25 RATED GRATE (OR APPROVED EQUAL).
7. COA TYPE DOUBLE "C" INLETS PER COA STD DWG 2205 MAY BE SUBSTITUTED WITH NYOPLAST CURB INLET STRUCTURE WITH 2-STANDARD 2'X2' (442.6 SQ. IN. APPROXIMATE DRAIN AREA INCLUDING HOOD) H-25 RATED GRATE (OR APPROVED EQUAL).

N

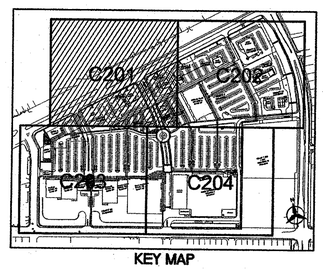
40 20 0 40
SCALE: 1"=40'

GRADING KEYED NOTES

1. 12" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5098.25
2. 10" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5100.15
3. 12" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5095.50
4. 10" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5099.25
5. 12" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5100.15
6. 10" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5099.75
7. INSTALL 10'x10' RIP RAP BLANKET PER DETAIL 6, SHEET C205.
8. INSTALL CURB OPENING PER DETAIL 8, SHEET C205.
9. INSTALL 4' CURB CUT WITH CONCRETE RUNDOWN PER DETAIL 5, SHEET C205.
10. INSTALL 24" SIDEWALK CULVERT PER COA STD DWG 2236.
11. SEE NOTE 4 UNDER STRUCTURE TABLE NOTES FOR CONNECTION TO MAIN. CONTRACTOR SHALL CONFIRM ROOF DRAIN TIE IN LOCATIONS WITH ARCHITECT PRIOR TO CONSTRUCTION.
12. WATER HARVESTING ISLAND PER DETAIL 8, SHEET C502.
13. INSTALL CURB CUT PER DETAIL 7, SHEET C205.
14. INSTALL ORIFICE PLATE IN SD MANHOLE AT 48" SD OPENING. SEE DETAIL 3, SHEET C205.
15. INSTALL ORIFICE PLATE IN SD AREA INLET AT 30" SD OPENING. SEE DETAIL 4, SHEET C205.

Structure Table

Structure Name	Structure Type	Northing	Easting	Rim\Grate	Invert
CAP 7	SD Cap	1483641.56	1498528.26		INV OUT=5090.56
IN 18	COA Type "C" SD Inlet	1483534.05	1498299.27	5100.43	INV IN=5093.70 INV OUT=5093.60
IN 20	COA Type "C" SD Inlet	1483564.85	1498414.07	5098.76	INV IN=5091.16 INV OUT=5091.06
SDMH 11	COA Type "E" SD Manhole	1483598.14	1498540.11	5096.89	INV IN (W)=5089.76 INV IN (E)=5089.76 INV IN (N)=5090.11 INV OUT=5089.66
IN 17	COA Type "D" SD Inlet	1483479.03	1498300.41	5098.00	INV OUT=5094.25
IN 19	COA Type "C" SD Inlet	1483434.76	1498393.22	5097.10	INV OUT=5093.00
SDMH 10	COA Type "E" SD Manhole	1483550.89	1498362.06	5099.43	INV IN (W)=5091.90 INV IN (S)=5091.80 INV OUT=5091.70



KEY MAP

REVISIONS		
◇ PRE-BID SET ISSUE DATE	△ POST BID SET ISSUE DATE	
DATE		DESCRIPTION

Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

ARMSTRONG DEVELOPMENT PROPERTIES, INC.

LOWE'S HOME CENTERS, INC.
1605 CURTIS BRIDGE ROAD
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WILKESBORO, NC 28697
336.658.4000(V) 336.658.3257(F)

LOWE'S

UNSER CROSSING
GRADING & DRAINAGE PLAN
LOWE'S OF:
SW ALBUQUERQUE
ALBUQUERQUE, NEW MEXICO
PROJECT No: 080289 | DRAWN BY: RMI | CHECKED BY: BJS

CRITERIA ISSUE DATE:	10.27.08
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CONSTRUCTION SET ISSUE DATE:	

DRAWING NUMBER:
C201

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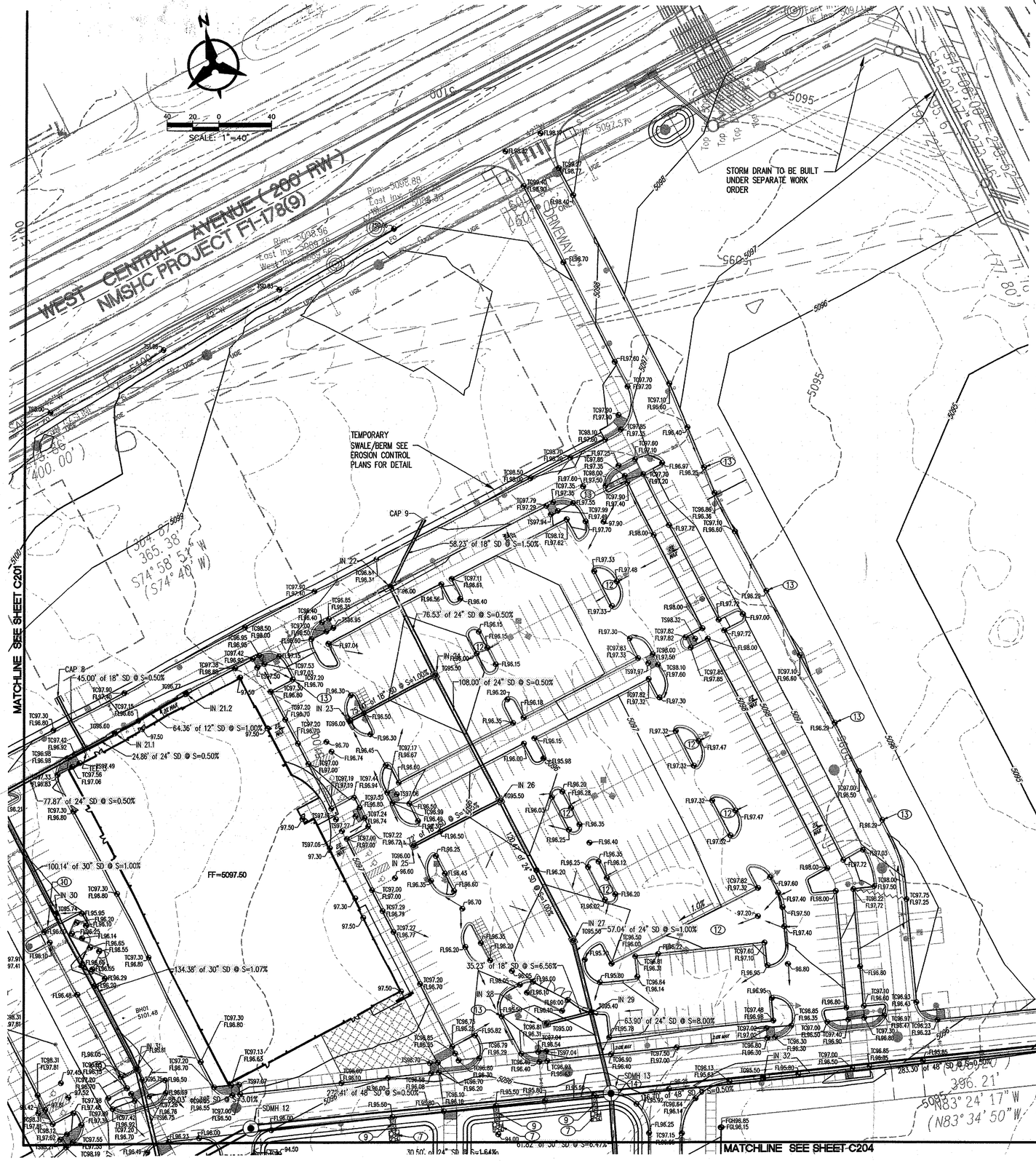

GRADING KEYED NOTES

1. 12" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5098.25
2. 10" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5100.15
3. 12" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5095.50
4. 10" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5099.25
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15. INSTALL ORIFICE PLATE IN SD AREA INLET AT 30" SD OPENING. SEE DETAIL 4, SHEET C205.

Structure Table

Structure Name	Structure Type	Northing	Easting	Rim\Grate	Invert
IN 21.1	COA Type "C" SD Inlet	1483625.25	1498639.20	5096.60	INV IN=5090.37 INV OUT=5090.27
IN 21.2	COA Type "C" SD Inlet	1483641.93	1498701.36	5096.77	INV OUT=5091.01
IN 22	COA Type "A" SD Inlet	1483687.84	1498872.51	5096.00	INV IN=5091.68 INV OUT=5091.58
IN 23	COA Type "C" SD Inlet	1483594.44	1498819.70	5096.00	INV OUT=5091.95
IN 24	COA Type "D" SD Inlet	1483613.87	1498892.14	5095.50	INV IN=5091.20 INV IN=5091.20 INV OUT=5091.10
IN 25	COA Type "D" SD Inlet	1483490.27	1498847.94	5096.00	INV OUT=5092.03
IN 26	COA Type "D" SD Inlet	1483509.56	1498920.13	5095.50	INV IN=5090.56 INV IN=5090.66 INV OUT=5090.46
IN 27	COA Type "D" SD Inlet	1483393.21	1498951.34	5095.50	INV IN=5089.26 INV OUT=5089.16
IN 28	COA Type "D" SD Inlet	1483335.16	1498917.80	5095.00	INV OUT=5091.00
IN 29	COA Type "C" SD Inlet	1483336.20	1498953.02	5095.40	INV IN=5088.59 INV IN=5088.69 INV OUT=5088.49
IN 30	COA Type "C" SD Inlet	1483501.42	1498566.06	5095.74	INV IN=5088.66 INV OUT=5088.56
IN 31	COA Type "C" SD Inlet	1483371.63	1498600.88	5095.80	INV IN=5087.12 INV OUT=5087.02
IN 32	COA Type "C" SD Inlet	1483258.92	1499070.82	5095.50	INV IN=5081.67 INV OUT=5081.57
SDMH 12	COA Type "E" SD Manhole	1483307.03	1498678.65	5096.06	INV IN=5083.84 INV OUT=5083.74
SDMH 13	COA Type "E" SD Manhole	1483272.33	1498954.89	5095.64	INV IN=5085.00 INV IN=5083.38 INV IN=5082.35 INV OUT=5082.25
SDMH 14	COA Type "E" SD Manhole, Connect to Existing 48" Stub	1483226.65	1499352.28	5092.35	INV IN=5080.15 INV OUT=5080.05
CAP 8	SD Cap	1483662.10	1498603.35	5097.90	INV OUT=5090.38
Cap 9	Null Structure	1483732.80	1498909.51	5095.35	INV OUT=5092.55

STRUCTURE TABLE NOTES

1. MANHOLES SHALL BE BUILT PER COA STD. DWG 2102 (TYPE "E") AND 2101 (TYPE "C").
2. ALL STORM DRAIN STUB-OUTS LABELED AS "CAPS" ABOVE SHALL BE PROVIDED WITH TEMPORARY PLUGS & IDENTIFYING MARKERS FOR FUTURE LOCATING.
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6. COA TYPE "D" INLETS PER COA STD DWG 2206 MAY BE SUBSTITUTED WITH NYOPLAST ROAD AND HIGHWAY DRAINAGE INLET STRUCTURE WITH 2'X3' STEEL BAR GRATE (261.2 SQ. IN. APPROXIMATE DRAIN AREA) H-25 RATED GRATE (OR APPROVED EQUAL).
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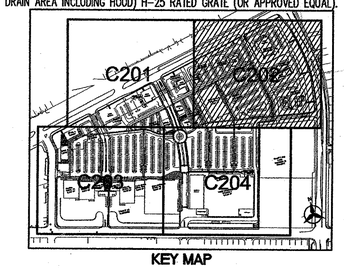

KEY MAP

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Wed, 5-Nov-2008 - 8:28:am, Plotted by: RMICHEL

REVISIONS
◇ PRE-BID SET ISSUE DATE △ POST BID SET ISSUE DATE

DATE		DESCRIPTION

BRUCE J. STIDWORTHY NEW MEXICO 14523 REGISTERED PROFESSIONAL ENGINEER 10/31/08

Bohannan Huston Inc. Courtyard I 7500 Jefferson St NE Albuquerque, NM 87109-4335 ENGINEERING + SPATIAL DATA + ADVANCED TECHNOLOGIES

ARMSTRONG DEVELOPMENT PROPERTIES, INC.

LOWE'S HOME CENTERS, INC.
1605 CURTIS BRIDGE ROAD
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LOWE'S

UNSER CROSSING
GRADING & DRAINAGE PLAN
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PROJECT No: 080289 | DRAWN BY: RML | CHECKED BY: BJS

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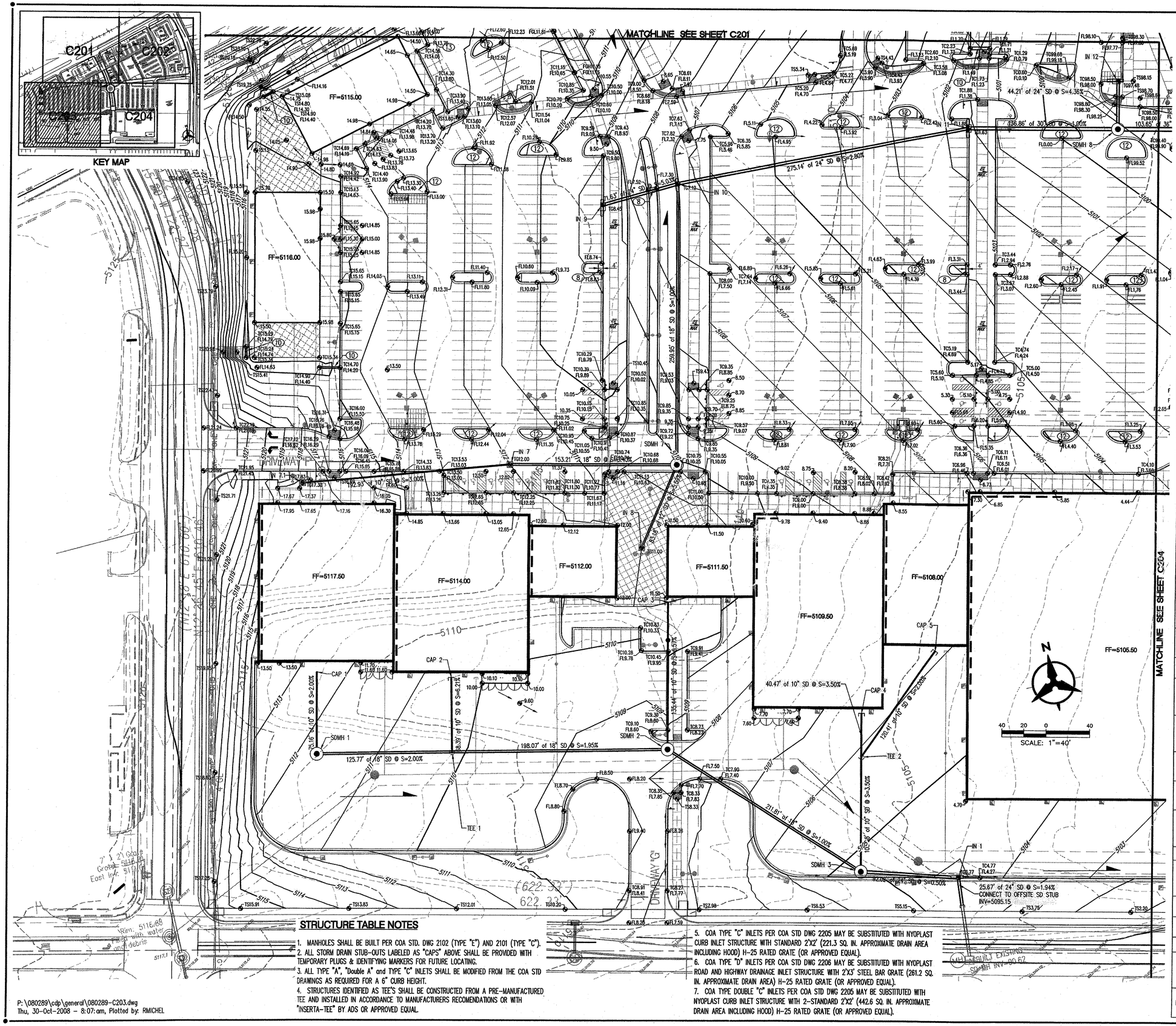

GRADING KEYED NOTES

1. 12" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5098.25
2. 10" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5100.15
3. 12" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5095.50
4. 10" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5099.25
5. 12" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5100.15
6. 10" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5099.75
7. INSTALL 10'x10' RIP RAP BLANKET PER DETAIL 6, SHEET C205.
8. INSTALL CURB OPENING PER DETAIL 8, SHEET C205.
9. INSTALL 4' CURB CUT WITH CONCRETE RUNDOWN PER DETAIL 5, SHEET C205.
10. INSTALL 24" SIDEWALK CULVERT PER COA STD DWG 2236.
11. SEE NOTE 4 UNDER STRUCTURE TABLE NOTES FOR CONNECTION TO MAIN. CONTRACTOR SHALL CONFIRM ROOF DRAIN TIE IN LOCATIONS WITH ARCHITECT PRIOR TO CONSTRUCTION.
12. WATER HARVESTING ISLAND PER DETAIL 8, SHEET C502.
13. INSTALL CURB CUT PER DETAIL 7, SHEET C205.
14. INSTALL ORIFICE PLATE IN SD MANHOLE AT 48" SD OPENING. SEE DETAIL 3, SHEET C205.
15. INSTALL ORIFICE PLATE IN SD AREA INLET AT 30" SD OPENING. SEE DETAIL 4, SHEET C205.

Structure Table

Structure Name	Structure Type	Northing	Easting	Rim\Grate	Invert
SDMH 2	COA Type "C" SD Manhole	1482843.88	1497687.41	5108.21	INV IN (W)=5098.53 INV IN (N)=5098.63 INV OUT=5098.43
IN 11	COA Type "Double A" SD Inlet	1483345.98	1498082.04	5101.58	INV IN=5093.00 INV OUT=5092.90
IN 10	COA Type "C" SD Inlet	1483352.73	1497806.98	5106.75	INV IN (S)=5100.80 INV IN (W)=5100.90 INV OUT=5100.70
IN 9	COA Type "A" SD Inlet	1483348.56	1497735.46	5108.45	INV OUT=5104.50
IN 7	COA Type "D" SD Inlet	1483131.80	1497601.46	5112.00	INV IN=5108.85 INV OUT=5108.75
SDMH 7	COA Type "C" SD Manhole	1483098.86	1497751.08	5110.05	INV IN (W)=5103.50 INV IN(SW)=5103.60 INV OUT=5103.40
IN 8	COA Type "D" SD Inlet	1483030.66	1497703.47	5111.00	INV OUT=5108.25
CAP 1	SD Cap	1482982.49	1497386.02		INV OUT=5106.51
SDMH 1	COA Type "C" SD Manhole	1482909.02	1497370.18	5111.76	INV IN=5105.01 INV OUT=5104.91
SDMH 3	COA Type "C" SD Manhole	1482695.55	1497838.62	5104.75	INV IN(NW)=5096.31 INV IN (N)=5096.41 INV OUT=5096.21
IN 1	COA Type "C" SD Inlet	1482671.08	1497927.32	5103.77	INV IN=5095.75 INV OUT=5095.65
IN 7.1	COA Type "D" SD Inlet	1483153.94	1497419.22	5116.75	INV OUT=5114.85
SDMH 8	COA Type "C" SD Manhole	1483316.31	1498215.65	5096.93	INV IN (W)=5091.53 INV IN (N)=5091.63 INV OUT=5091.43
CAP 2	SD CAP	1482950.71	1497507.14		INV OUT=5106.64
TEE 1	SD Tee	1482883.72	1497493.39		INV IN=5102.39 INV IN=5102.39 INV OUT=5102.39
CAP 3	SD CAP	1482976.15	1497716.50		INV OUT=5107.53
CAP 4	SD Cap	1482838.18	1497870.02		INV OUT=5101.52
CAP 5	SD Cap	1482879.52	1497950.54		INV OUT=5102.52
TEE 2	SD Wye	1482798.66	1497861.32		INV IN=5100.11 INV IN=5100.11 INV OUT=5100.11
IN 12	COA Type "A" SD Inlet	1483359.46	1498225.24	5097.60	INV OUT=5093.56

STRUCTURE TABLE NOTES

1. MANHOLES SHALL BE BUILT PER COA STD. DWG 2102 (TYPE "E") AND 2101 (TYPE "C").
2. ALL STORM DRAIN STUB-OUTS LABELED AS "CAPS" ABOVE SHALL BE PROVIDED WITH TEMPORARY PLUGS & IDENTIFYING MARKERS FOR FUTURE LOCATING.
3. ALL TYPE "A", "Double A" and TYPE "C" INLETS SHALL BE MODIFIED FROM THE COA STD DRAWINGS AS REQUIRED FOR A 6" CURB HEIGHT.
4. STRUCTURES IDENTIFIED AS TEE'S SHALL BE CONSTRUCTED FROM A PRE-MANUFACTURED TEE AND INSTALLED IN ACCORDANCE TO MANUFACTURERS RECOMENDATIONS OR WITH "INSERTA-TEE" BY ADS OR APPROVED EQUAL.
5. COA TYPE "C" INLETS PER COA STD DWG 2205 MAY BE SUBSTITUTED WITH NYOPLAST CURB INLET STRUCTURE WITH STANDARD 2'X2' (221.3 SQ. IN. APPROXIMATE DRAIN AREA INCLUDING HOOD) H-25 RATED GRATE (OR APPROVED EQUAL).
6. COA TYPE "D" INLETS PER COA STD DWG 2206 MAY BE SUBSTITUTED WITH NYOPLAST ROAD AND HIGHWAY DRAINAGE INLET STRUCTURE WITH 2'X3' STEEL BAR GRATE (261.2 SQ. IN. APPROXIMATE DRAIN AREA) H-25 RATED GRATE (OR APPROVED EQUAL).
7. COA TYPE DOUBLE "C" INLETS PER COA STD DWG 2205 MAY BE SUBSTITUTED WITH NYOPLAST CURB INLET STRUCTURE WITH 2-STANDARD 2'X2' (442.6 SQ. IN. APPROXIMATE DRAIN AREA INCLUDING HOOD) H-25 RATED GRATE (OR APPROVED EQUAL).

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Thu, 30-Oct-2008 - 8:07:am, Plotted by: RMICHEL

REVISIONS
◇ PDSE BID SET ISSUE DATE △ POST BID SET ISSUE DATE

DATE	DESCRIPTION

BRUCE J. STIDWORTHY
NEW MEXICO
14529
REGISTERED PROFESSIONAL ENGINEER
10/30/08

Bohannan ▲ Huston Inc.
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

ARMSTRONG DEVELOPMENT PROPERTIES, INC.

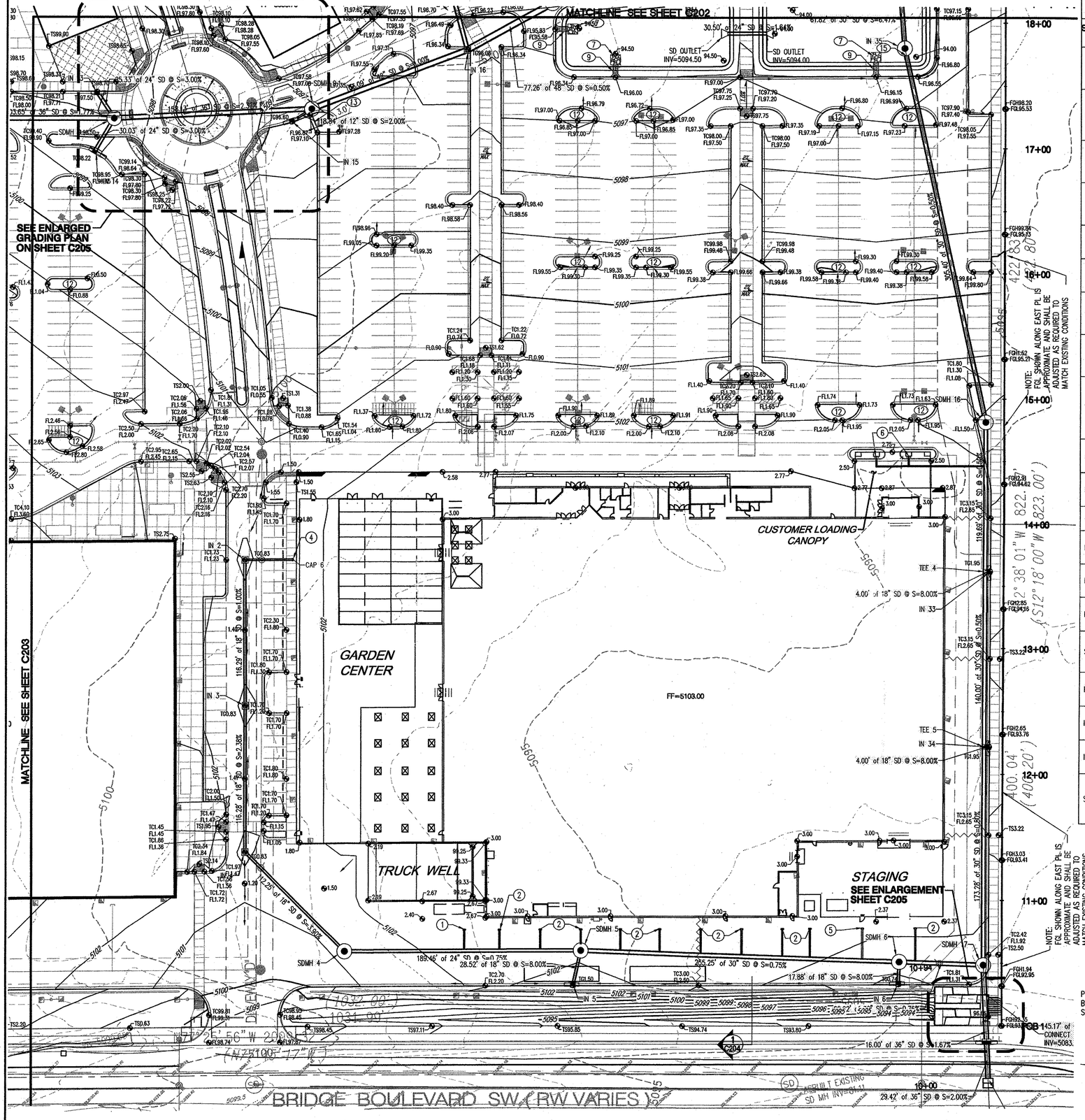
LOWE'S HOME CENTERS, INC.
1605 CURTIS BRIDGE ROAD
REEC DOCK
WILKESBORO, NC 28697
336.658.4000(V) 336.658.3257(F)

LOWE'S

UNSER CROSSING
GRADING & DRAINAGE PLAN
LOWE'S OF:
SW ALBUQUERQUE
ALBUQUERQUE, NEW MEXICO
PROJECT No: 080289 DRAWN BY: RML CHECKED BY: BJS

CRITERIA ISSUE DATE: 10.27.08
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:

DRAWING NUMBER:
C203



Structure Table

Structure Name	Structure Type	Northing	Easting	Rim\Grate	Invert
SDMH 9.1	COA Type "E" SD Manhole	1483266.88	1498472.65	5096.93	INV IN(SW)=5093.12 INV IN(NW)=5085.76 INV OUT=5085.66
IN 16	COA Type Double "D" SD Inlet	1483285.67	1498604.40	5096.09	INV IN (N)=5084.43 INV IN (W)=5084.33 INV OUT=5084.23
SDMH 17	COA Type "E" SD Manhole	1482483.27	1498849.87	5101.61	INV IN (N)=5086.00 INV IN (W)=5084.68 INV OUT=5084.58
SDMH 16	COA Type "E" SD Manhole	1482905.75	1498944.57	5102.08	INV IN=5088.47 INV OUT=5088.37
IN 2	COA Type "D" SD Inlet	1482927.23	1498342.75	5100.83	INV IN=5097.43 INV OUT=5097.33
IN 4	COA Type "D" SD Inlet	1482700.11	1498292.71	5100.83	INV IN=5093.30 INV OUT=5093.20
SDMH 4	COA Type "E" SD Manhole	1482605.52	1498353.16	5101.21	INV IN=5088.82 INV OUT=5088.72
SDMH 5	COA Type "E" SD Manhole	1482564.78	1498538.18	5102.26	INV IN (W)=5087.30 INV IN (S)=5094.72 INV OUT=5087.20
IN 35	SD Area Inlet (See Detail 9, Sheet C205)	1483211.15	1498946.02	5094.00	INV OUT(S)=5090.00 INV OUT(N)=5089.00
IN 13	COA Type "C" SD Inlet	1483317.51	1498307.80	5097.50	INV OUT=5093.50
IN 14	COA Type "A" SD Inlet	1483271.87	1498296.36	5098.22	INV OUT=5095.18
CAP 6	SD Cap	1482918.94	1498380.39		INV OUT=5099.25
IN 3	COA Type "D" SD Inlet	1482813.66	1498317.74	5100.83	INV IN=5096.17 INV OUT=5096.07
IN 5	COA Type "C" SD Inlet	1482538.98	1498526.02	5101.50	INV OUT=5097.00
IN 6	COA Type "C" SD Inlet	1482482.90	1498780.61	5100.74	INV OUT=5096.74
SDMH 6	COA Type "E" SD Manhole	1482500.20	1498785.13	5097.67	INV IN (W)=5085.29 INV IN (S)=5095.31 INV OUT=5085.19
IN 34	COA Type "C" SD Inlet	1482651.48	1498891.67	5101.95	INV OUT=5087.29
IN 33	COA Type "C" SD Inlet	1482788.09	1498922.29	5101.95	INV OUT=5088.09
IN 15	COA Type "C" SD Inlet	1483260.26	1498455.01	5096.60	INV OUT=5093.50
SDMH 9	COA Type "E" SD Manhole	1483293.84	1498316.83	5098.43	INV IN (W)=5089.60 INV IN(NW)=5092.74 INV IN(SW)=5094.28 INV OUT=5089.50

GRADING KEYED NOTES

1. 12" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5098.25
2. 10" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5100.15
3. 12" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5095.50
4. 10" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5099.25
5. 12" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5100.15
6. 10" DIA. HDPE OR PVC STORM DRAIN PIPE, INV ELEVATION AT 5' FROM FACE OF BUILDING =5099.75
7. INSTALL 10'x10' RIP RAP BLANKET PER DETAIL 6, SHEET C205.
8. INSTALL CURB OPENING PER DETAIL 8, SHEET C205.
9. INSTALL 4' CURB CUT WITH CONCRETE RUNDOWN PER DETAIL 5, SHEET C205.
10. INSTALL 24" SIDEWALK CULVERT PER COA STD DWG 2236.
11. SEE NOTE 4 UNDER STRUCTURE TABLE NOTES FOR CONNECTION TO MAIN. CONTRACTOR SHALL CONFIRM ROOF DRAIN TIE IN LOCATIONS WITH ARCHITECT PRIOR TO CONSTRUCTION.
12. WATER HARVESTING ISLAND PER DETAIL 8, SHEET C502.
13. INSTALL CURB CUT PER DETAIL 7, SHEET C205.
14. INSTALL ORIFICE PLATE IN SD MANHOLE AT 48" SD OPENING. SEE DETAIL 3, SHEET C205.
15. INSTALL ORIFICE PLATE IN SD AREA INLET AT 30" SD OPENING. SEE DETAIL 4, SHEET C205.

STRUCTURE TABLE NOTES

1. MANHOLES SHALL BE BUILT PER COA STD. DWG 2102 (TYPE "E") AND 2101 (TYPE "C").
2. ALL STORM DRAIN STUB-OUTS LABELED AS "CAPS" ABOVE SHALL BE PROVIDED WITH TEMPORARY PLUGS & IDENTIFYING MARKERS FOR FUTURE LOCATING.
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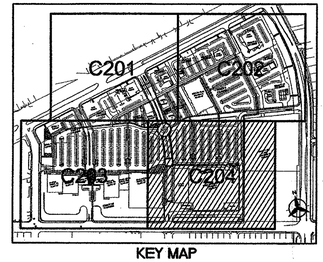
4. STRUCTURES IDENTIFIED AS TEE'S SHALL BE CONSTRUCTED FROM A PRE-MANUFACTURED TEE AND INSTALLED IN ACCORDANCE TO MANUFACTURERS RECOMENDATIONS OR WITH "INSERTA-TEE" BY ADS OR APPROVED EQUAL.
5. COA TYPE "C" INLETS PER COA STD DWG 2205 MAY BE SUBSTITUTED WITH NYOPLAST CURB INLET STRUCTURE WITH STANDARD 2'X2' (221.3 SQ. IN. APPROXIMATE DRAIN AREA INCLUDING HOOD) H-25 RATED GRATE (OR APPROVED EQUAL).
6. COA TYPE "D" INLETS PER COA STD DWG 2206 MAY BE SUBSTITUTED WITH NYOPLAST ROAD AND HIGHWAY DRAINAGE INLET STRUCTURE WITH 2'X3' STEEL BAR GRATE (261.2 SQ. IN. APPROXIMATE DRAIN AREA) H-25 RATED GRATE (OR APPROVED EQUAL).
7. COA TYPE DOUBLE "C" INLETS PER COA STD DWG 2205 MAY BE SUBSTITUTED WITH NYOPLAST CURB INLET STRUCTURE WITH 2-STANDARD 2'X2' (442.6 SQ. IN. APPROXIMATE DRAIN AREA INCLUDING HOOD) H-25 RATED GRATE (OR APPROVED EQUAL).

LANDSCAPING SWALE
NTS



KEY MAP

SCALE: 1"=40'

REVISIONS
◇ PRE-BID SET ISSUE DATE △ POST BID SET ISSUE DATE

DATE	DESCRIPTION

BRUCE J. STIDWORTHY
NEW MEXICO
14523
REGISTERED PROFESSIONAL ENGINEER
10/26/08

Bohannan Huston
Courtyard 1 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

ARMSTRONG DEVELOPMENT PROPERTIES, INC.

LOWE'S HOME CENTERS, INC.
1605 CURTIS BRIDGE ROAD
REC/ DOCK
WILKESBORO, NC 28697
336.658.4000(V) 336.658.3257(F)

LOWE'S®

UNSER CROSSING
GRADING & DRAINAGE PLAN
LOWE'S OF:
SW ALBUQUERQUE
ALBUQUERQUE, NEW MEXICO
PROJECT No: 080289 | DRAWN BY: RMC | CHECKED BY: BJS

CRITERIA ISSUE DATE: 10.27.08
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:

DRAWING NUMBER:
C204

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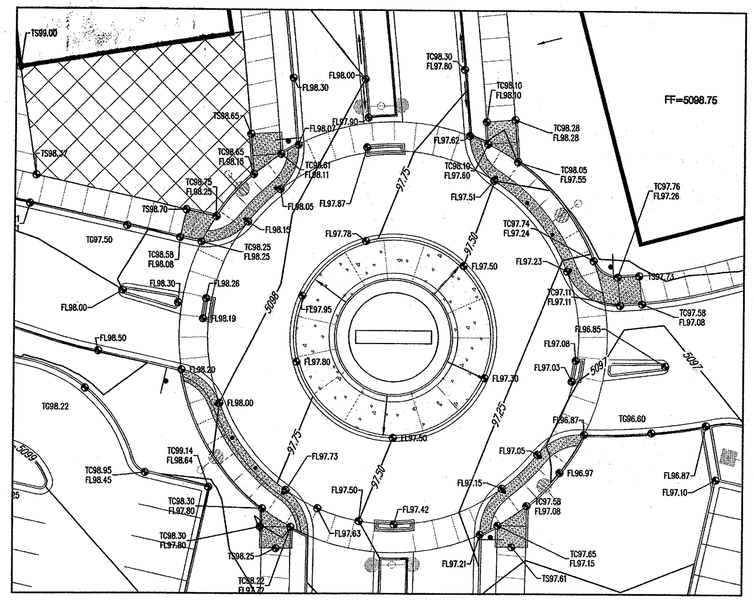
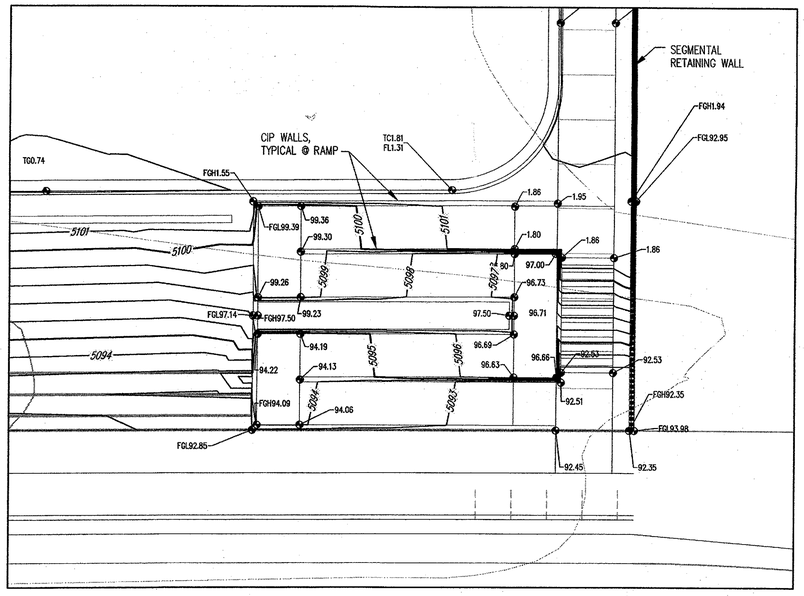
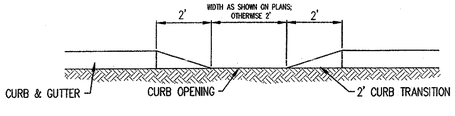


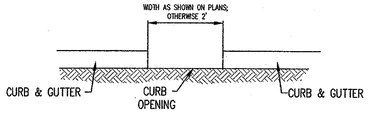
1 ROUNDABOUT DETAIL
SCALE: 1"=20'



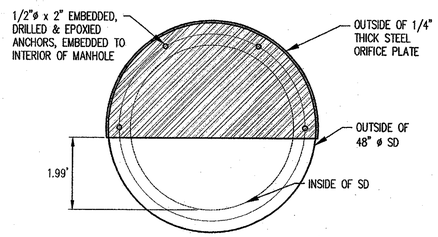
2 RAMP DETAIL
SCALE: 1"=10'



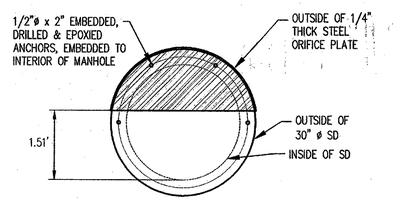
7 TYPICAL CURB CUT
NOT TO SCALE



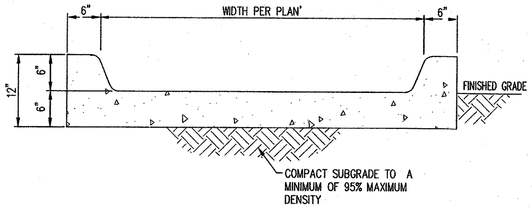
8 TYPICAL CURB OPENING
NOT TO SCALE



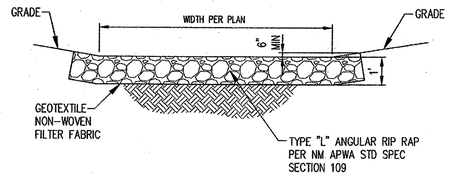
3 ORIFICE PLATE DETAIL FOR 48" SD
NOT TO SCALE



4 ORIFICE PLATE DETAIL FOR 30" SD
NOT TO SCALE



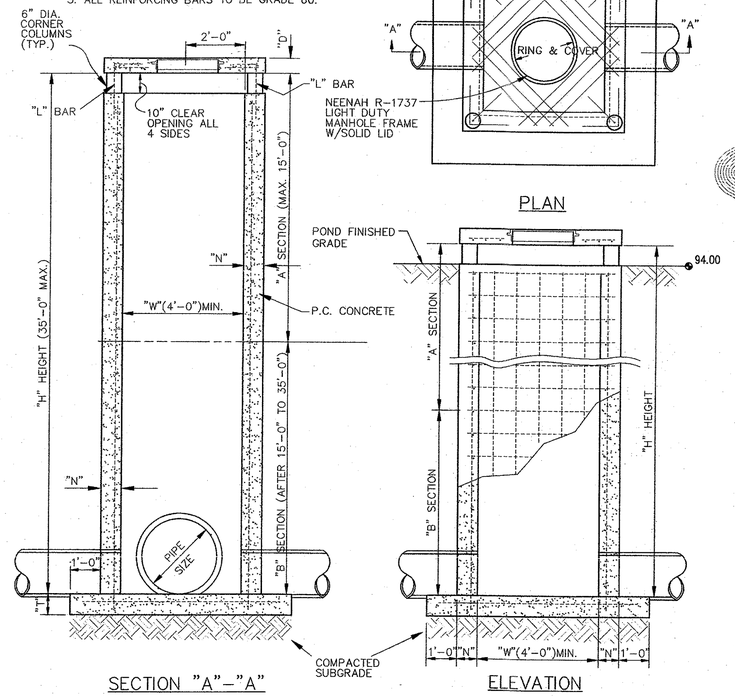
5 CONCRETE RUN DOWN
NOT TO SCALE

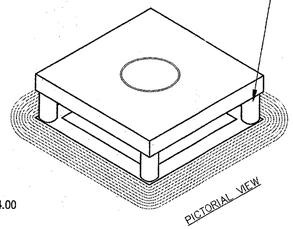


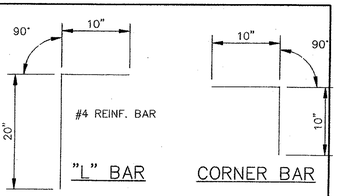
NOTE: TOP OF RIP RAP TO MATCH FINISHED (OR EXISTING) GRADES/CONTOURS SHOWN ON GRADING PLAN

6 RIP RAP BLANKET
NOT TO SCALE

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER
2. ALL #4 & #5 REINFORCING BARS TO HAVE 1-1/2" COVER, LARGER SIZES TO HAVE 2" COVER.
3. SEE GRADING AND DRAINAGE PLAN FOR PIPE SIZES, LOCATIONS, AND FLOW LINES.
4. PIPES SHALL CONNECT TO THE ENDS OR SIDES OF THE INLET. CONNECTION SHALL NOT BE MADE AT THE CORNERS OF THE INLET.
5. ALL REINFORCING BARS TO BE GRADE 60.







REINFORCEMENT SCHEDULE, BASE	
SECTION	
"A"	#4's @ 6" E.W.
"B"	#6's @ 6" E.W.

TABLE OF 'W' DIMENSIONS			
PIPE SIZE	SKEW OF CROSS DRAIN		
SINGLE	STRAIGHT	30°	45°
24"	4'-0"	4'-0"	4'-10"
30"	4'-0"	4'-7"	5'-8"
36"	4'-0"	5'-3"	6'-5"
42"	5'-3"	5'-11"	7'-3"
48"	5'-10"	6'-7"	8'-0"
60"	7'-0"	7'-10"	9'-8"
DOUBLE	FOR "A" SECTION ONLY		
24"	7'-0"	7'-10"	9'-5"
30"	8'-2"	9'-2"	11'-0"
36"	9'-4"	10'-6"	12'-6"
42"	10'-6"	11'-10"	14'-2"
48"	11'-8"	13'-2"	15'-10"

REINFORCEMENT SCHEDULE, WALLS			
SECTION	WIDTH ("W")	HOR.	VERT.
"A"	4'	#4's @ 9"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 9"	#4's @ 10"
	GREATER THAN 7'	#5's @ 4 1/2"	#4's @ 10"
"B"	4'	#4's @ 6"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 6"	#4's @ 10"

TABLE OF "T" & "N" DIMENSIONS				
SECTION	WIDTH ("W")	"T"	"N"	"D"
"A"	BETWEEN 4' & 7'	6" + PIPE THICKNESS	8"	6"
	GREATER THAN 7'	6" + PIPE THICKNESS	8"	8"
"B"	4'	6" + PIPE THICKNESS	8"	8"
	BETWEEN 4' & 7'	6" + PIPE THICKNESS	10"	8"

REINFORCEMENT SCHEDULE, TOP		
DIMENSIONS	STEEL	SPECIAL PATTERN
W1 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W2 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W1 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W2 = 7' OR GREATER	#4'S @ 6" E.W.	DIAGONAL @ COVER
W1 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER
W2 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER

9 AREA INLET
NOT TO SCALE

OCT 1 8 2008

REVISIONS
◇ PRE-BID SET ISSUE DATE △ POST BID SET ISSUE DATE

DATE	DESCRIPTION

BRUCE J. STOWERS NEW MEXICO 14523 REGISTERED PROFESSIONAL ENGINEER
10/30/08

Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

ARMSTRONG DEVELOPMENT PROPERTIES, INC.

LOWE'S HOME CENTERS, INC.
1605 CURTIS BRIDGE ROAD
REED DOCK
WILKESBORO, NC 28697
336.658.4000(V) 336.658.3257(F)

LOWE'S

UNSER CROSSING
GRADING DETAILS

LOWE'S OF:
SW ALBUQUERQUE
ALBUQUERQUE, NEW MEXICO

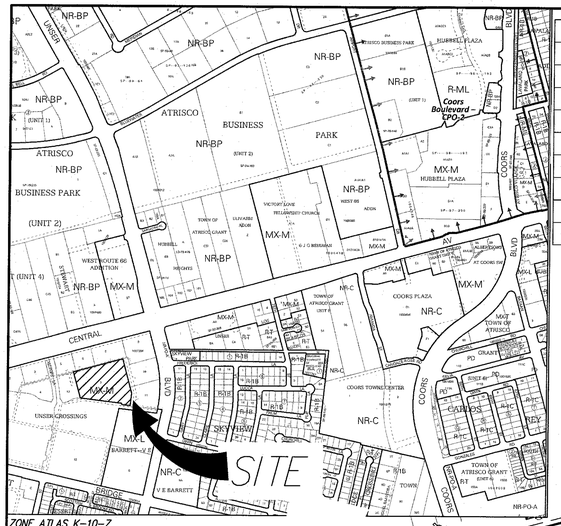
PROJECT No: 080289 DRAWN BY: RMI CHECKED BY: BJS

CRITERIA ISSUE DATE: 10.27.08
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:

DRAWING NUMBER:
C205

P:\080289\cdp\general\080289-C205.dwg
Thu, 30-Oct-2008 - 8:10:am, Plotted by: RMICHEL

BENCHMARKS
AGRS Aluminum Cap stamped "7–L10 2002"
From the intersection of Coors Boulevard and Bridge Boulevard SW, travel
west on Bridge Boulevard 0.6 miles to the station in the southeast
quadrant of the intersection of Bridge Boulevard and Unser Boulevard.
The station is set in the top of curb on the SSE return.
Geographic Position, in feet (NAD83)
N.M. State Plane Coordinates (Central Zone)
N=1481743.359, E=1498883.801, G–G=0.999683498, DA=–00°16'18.49"
Elevation, in feet (NAVD88) = 5088.067



ZONE ATLAS K–10–Z

THE PROJECT IS LOCATED IN AN AREA OF MINIMAL FLOOD HAZARD IN ACCORDANCE WITH FEMA MAP 35001C0328J, EFFECTIVE DATE 11/4/2016

TRACT 7 & PORTION OF TRACT 12
UNSER CROSSINGS
WITHIN THE
TOWN OF ATRISCO GRANT
PROJECTED SECTION 22
TOWNSHIP 10 NORTH, RANGE 2 EAST, NMPM
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
MAY, 2018

LEGEND

- –5565– CONTOUR (MAJOR)
- CONTOUR (MINOR)
- CURB – 6"
- CONCRETE
- WALL
- TC= / FL= TOP CURB / FLOW LINE
- X 65.00 SPOT ELEVATION
- (S) SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT
- (D) STORM DRAIN MANHOLE
- CATCH BASIN/DROP INLET
- CMP/PVC DRAIN PIPE
- [E] ELECTRIC TRANSFORMER/PEDESTAL
- ⋈8" WATER VALVE/SIZE
- FIRE HYDRANT
- HB HOTBOX
- P PULLBOX
- LIGHT POLE BASE
- SIGN
- TELEPHONE/FIBER OPTIC PEDESTAL
- CABLE TV PEDESTAL
- SIDE WALK CULVERT PER COA STD DETAIL 2236
- TYPE DOUBLE D INLET PER STD DETAIL 2206

GENERAL NOTES:

1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
2. CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION SHALL GOVERN ALL WORK.
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST CONTROL MEASURES AND 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 AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
5. NO WORK ALLOWED IN THE PUBLIC RIGHT OF WAY WITHOUT AN APPROVED WORK ORDER.

NOTE:

A. CONTRACTOR TO CONFIRM STORM DRAIN CONNECTION INVERTS PRIOR TO STORM DRAIN CONSTRUCTION AND NOTIFY ENGINEER.

B. FIRST FLUSH POND SLOPES TO BE SURFACED WITH 1" GRAVEL.

C. STORM DRAIN TO BE PVC OR HDPE PIPE (N=.013).

30' 15' 0 30' 60'
SCALE: 1" = 30'

DEFINED FITNESS UNSER CROSSING

GRADING AND DRAINAGE PLAN

dmg
MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828–2200, FAX (505)797–9539

Designed: CP	Drawn: DR, CP	Checked: DMG	Sheet C-1
Scale: 1"=30'	Date: 1–21–2019	Job: 15056	

NARRATIVE DESCRIPTION

OVERALL HYDROLOGY PLAN:

THE PROJECT IS THE GRADING OF DEFINED FITNESS, A HEALTH CLUB THAT WAS PART OF AN OVERALL PLAN FOR UNSER CROSSING FOR LOWE'S HOME CENTERS, INC. PREPARED BY BOHANAN HUSTON IN 2008. THE OVERALL SITE IS BOUNDED BY CENTRAL AVENUE, UNSER BLVD, BRIDGE BLVD, AND 88TH ST. PUBLIC INFRASTRUCTURE WAS CONSTRUCTED FOR UNSER CROSSING INCLUDING A DETENTION POND SYSTEM, ROADWAYS, CURB AND GUTTER WITH PORTIONS OF SIDEWALK AROUND THE DEFINED FITNESS SITE THAT MANAGE OFFISITE FLOWS IN ACCORDANCE WITH THE 2008 UNSER CROSSING DRAINAGE MANAGEMENT PLAN.

A PORTION OF THE DEFINED FITNESS SITE DRAINS TO THE WEST TO EXISTING STORM DRAIN CONSTRUCTED AS PART OF THE USER CROSSING PUBLIC INFRASTRUCTURE, AND THE LARGER PORTION TO PROPOSED ONSITE STORM DRAIN THAT CONNECTS THE OFFSITE FLOW FROM THE NORTH TO THE EXISTING DETENTION POND IN ACCORDANCE WITH THE 2008 DRAINAGE MANAGEMENT PLAN. THE PROPOSED ON SITE STORM DRAIN REPLACES AN EXISTING EARTHEN CHANNEL THAT CONVEYS OFFSITE FLOW FROM THE NORTH TO THE SOUTH OF THE DEFINED FITNESS SITE, INTO EXISTING STORM DRAIN, ULTIMATELY INTO THE EXISTING DETENTION POND SYSTEM TO THE SOUTH.

THOUGH THE SITE PLAN IS MOSTLY UNCHANGED FROM THE 2008 UNSER CROSSING PLANS, THE GRADING AND INLETS ARE NOW DESIGNED TO CAPTURE FIRST FLUSH WHICH WAS NOT REQUIRED IN 2008. THE PROPOSED DESIGN RELOCATES THE INLETS INTO THE ISLAND LANDSCAPE AREAS TO BE UTILIZED AS FIRST FLUSH CAPTURE PONDS.

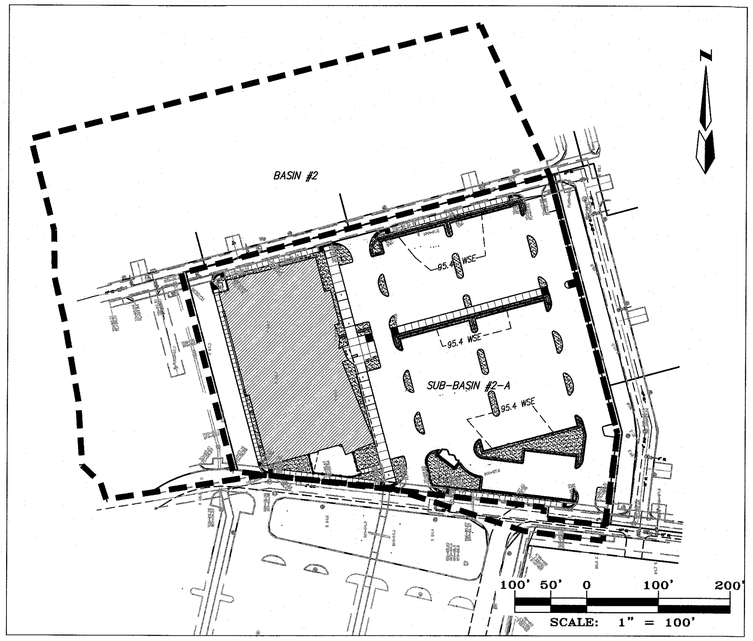
DRAINAGE REPORT

THE 2008 DRAINAGE MANAGEMENT PLAN PREPARED BY BOHANNAN HUSTON (BRUCE STIDWORTHY, PE, STAMP DATE 10/30/08) EVALUATED DISCHARGE FOR THE BASIN ENCOMPASSING THE SITE. THE DEFINED FITNESS SITE IS A PORTION OF BASIN #2 OF THE 2008 DRAINAGE MANAGEMENT PLAN. DISCHARGE FROM BASIN #2 WAS EVALUATED AT 39.55 CFS PER THE 2008 DRAINAGE MANAGEMENT PLAN AND AS CONFIRMED UTILIZING THE PROCEDURE FOR 40 ACRE AND SMALLER BASINS OUTLINED IN CHAPTER 22 OF THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL WITH DEVELOPED LAND TREATMENTS OF 0% A, 5% B, 5% C, AND 90% D. THE PROPOSED DEFINED FITNESS SITE HAS LAND TREATMENT PROPORTIONS OF 0% A, 5% B, 6% C, AND 89% D; ESSENTIALLY THE SAME AS THE 2008 SITE. WITH DEVELOPMENT OF THE DEFINED FITNESS SITE, ASSUMING NO OTHER PORTION OF BASIN #2 IS DEVELOPED TO THE LAND TREATMENTS PRESCRIBED IN THE 2008 DRAINAGE PLAN, THE DISCHARGE Q FROM BASIN #2 IS ESTIMATED AT 27.87 CFS. WITH ROUTING AND RETENTION EFFECTS OF FIRST FLUSH CAPTURE AS PROPOSED FOR THE DEFINED FITNESS SITE, AND FIRST FLUSH CAPTURE FROM THE FUTURE DEVELOPEMENT OF THE REMAINDER OF BASIN #2, THE DISCHARGE Q TO THE EXISTING POND IS ESTIMATED TO BE A LITTLE LESS THAN THE 39.55 CFS FOR WHICH THE EXISTING POND SYSTEM WAS DESIGNED TO.

THE EXISTING DETENTION/SURGE POND AND ORIFICE PLATES, APPROVED AND CONSTRUCTED IN 2008, REGULATE THE 100 YR DISCHARGE TO 104.18 CFS WITH A HIGH WATER SURFACE ELEVATION OF 5095.4 IN ACCORDANCE WITH THE 2008 UNSER CROSSING DRAINAGE MANAGEMENT PLAN.

THE PROPOSED PARKING LOT GRADE DESIGN IS LOWER THAN THE HIGH WATER SURFACE ELEVATION WITHIN THE AREAS OF THE FLOW ENTRANCES TO THE FIRST FLUSH PONDS. AS SUCH, THE STORM DRAIN AND AREAS LOWER THAN 95.4 CONTOURS OF THE PROPOSED PARKING LOT ARE AN EXPANSION OF THE EXISTING POND. THE PARKING LOT IS GRADED TO ELEVATIONS NOT MORE THAN 8" BELOW THE 95.4 WATER SURFACE ELEVATION WITHIN THESE LOW LAYING AREAS IN ACCORDANCE WITH THE DPM.

BASIN #2 AND SUB-BASIN #2-A



CALCULATIONS FOR BASIN #2, BASIN #2 WITH DEFINED FITNESS ONLY, AND THE SUB-BASIN 2-A FOR THE DEFINED FITNESS:

Typical Lot Run Off Volume:

	Area (Ac)	A	B	C	D	Runoff Volume	Q(100)
Sub-Basin 2-A	4.748	0%	5%	5%	90%	0.7343	**19.84**
Basin 2 (Developed per 2008 Report)	9.467	0%	5%	5%	90%	1.4642	**39.55**
Basin 2 (Defined Fitness Development)	9.467	26%	26%		48%	0.9676	**27.87**
Inlet #3 (First Flush Basin #3)	1.006		1%	1%	98%	0.1632	**4.36**

First Flush Basin #3 43814 (SF)

Flow by proportion to worst case curb opening

3.20 (C Wier Depth (FT)) **0.46**

Width	2
Weir Coeff	2.6
Wier Discharge	3.24 (CFS)

Inlet Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Oct 2 2018

BASIN #3 INLET

Drop Grate Inlet

Location	= Sag
Curb Length (ft)	= -0-
Throat Height (in)	= -0-
Grate Area (sqft)	= 9.66
Grate Width (ft)	= 2.15
Grate Length (ft)	= 6.42

Gutter

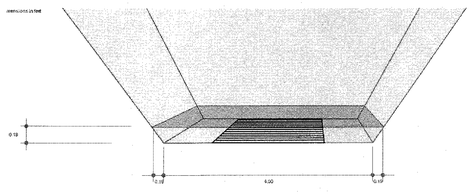
Slope, Sw (ft/ft)	= 1.000
Slope, Sx (ft/ft)	= 1.000
Local Depr (in)	= 12.00
Gutter Width (ft)	= 4.00
Gutter Slope (%)	= -0-
Gutter n-value	= -0-

Calculations

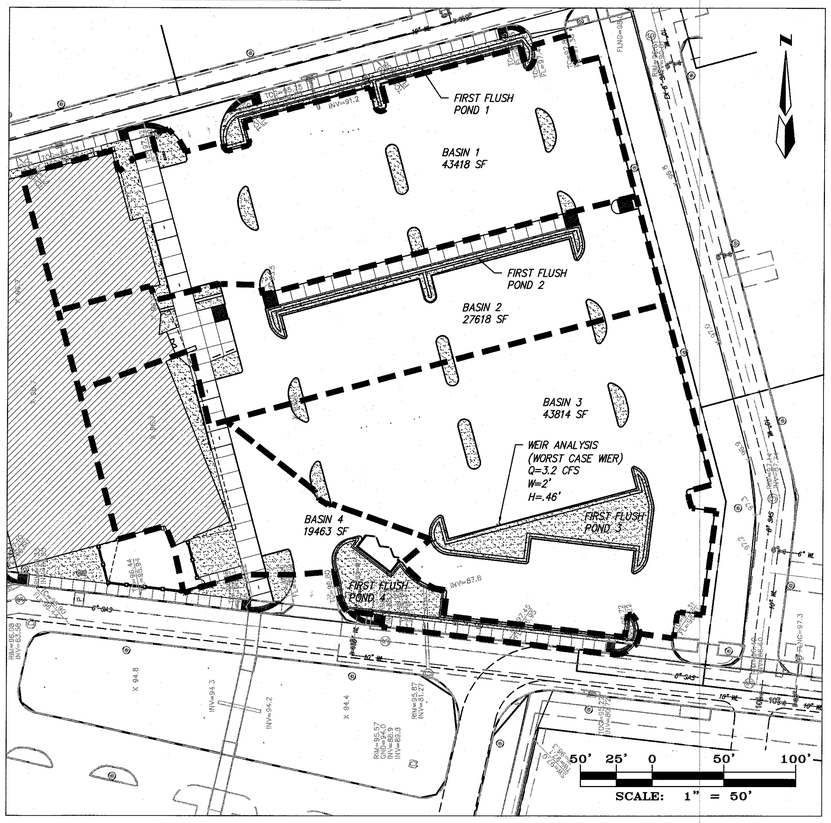
Compute by:	Known Q
Q (cfs)	= 4.36

Highlighted

Q Total (cfs)	= 4.36
Q Capt (cfs)	= 4.36
Q Bypass (cfs)	= -0-
Depth at Inlet (in)	= 2.31
Efficiency (%)	= 100
Gutter Spread (ft)	= 4.39
Gutter Vel (ft/s)	= -0-
Bypass Spread (ft)	= -0-
Bypass Depth (in)	= -0-



FIRST FLUSH BASINS



FIRST FLUSH NOTES

FIRST FLUSH RUNOFF IS CAPTURED BY PONDS #1, #2, #3, AND #4 AT SUMP LOCATIONS WITH INTERIOR INLETS TO THE STORM DRAIN. AS RUNOFF FROM THE WEST PORTION OF THE ROOF AND WEST SIDEWALK DISCHARGE TO INLETS TO THE WEST ON THE ADJACENT PROPERTY (IN ACCORDANCE WITH THE 2008 DRAINAGE MANAGEMENT PLAN), IT IS NOT AVAILABLE FOR CAPTURE. OFFSITE FLOW FROM HIGHER EXISTING IMPERVIOUS ELEVATIONS IS NOT AVAILABLE FOR SITE CAPTURE BECAUSE IT IS DIVERTED BY THE STORM DRAIN TO THE EXISTING POND AS DESIGNED AND CONSTRUCTED IN 2008. THE ON-SITE FIRST FLUSH PONDS CAN NOT CAPTURE ALL THE REQUIRED FIRST FLUSH VOLUME DUE TO THE SITE BEING IN-FILL CONSTRUCTION TO INFRASTRUCTURE DESIGNED PRIOR TO FIRST FLUSH REQUIREMENTS. THE FIRST FLUSH PONDS YEILD 1344 CF TO A VARIANCE REQUEST FOR COA PAY IN LIEU POLICY. 1,344 CF OF THE REQUIRED FIRST FLUSH VOLUME OF 5,198 CF IS BEING ASK FOR A WAIVER. THE FEE IN LIEU PAYMENT AMOUNT = 1,344CF x $8/CF = $10,752.00

	SF	AC	SQ MI
Area of Construction			
Basin 2-B	205569	4.7192	0.007374

Proposed (SF)	
Impervious	Landscape
183459	22110

Required First Flush	
First Flush depth: (inches)	0.34
Required First Flush Volume based on Design: (CF)	5198

Proposed Design First Flush Capacity

POND 1	
Depth (FT):	**1.24**
Bottom (SF)	427
Top (SF)	1,562
Volume (CF)	1,233
POND 2	
Depth (FT):	**0.78**
Bottom (SF)	427
Top (SF)	1603
Volume (CF)	792
POND 3	
Depth (FT):	**0.38**
Bottom (SF)	2870
Top (SF)	3820
Volume (CF)	1271
POND 4	
Depth (FT):	**0.24**
Bottom (SF)	2077
Top (SF)	2573
Volume (CF)	558
First Flush Capture (Sum of the lesser of Capacity and Available)	3,854
Pay in Lieu Volume:	1344

Available First Flush

First Flush Basin to Ponds #1	
Area	43418
Available First Flush	1230
Area	27618
Available First Flush	783
Area	43814
Available First Flush	1241
Area	19463
Available First Flush	551

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GRADING AND DRAINAGE PLAN

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