

CITY OF ALBUQUERQUE



August 5, 2015

Ronald R. Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Pl NE
Albuquerque, NM 87109

**Re: Dreamstyle Warehouse, 1525 Renaissance
Grading and Drainage Plan
Engineer's Stamp Date 7-21-2015 (F16-D051A)**

Dear Mr. Bohannon,

Based upon the information provided in your submittal July 23, 2015, the above referenced plan is approved for Building Permit based on the following condition:

- A recorded "Drainage Easement" for the conveyance of offsite runoff via storm drain pipe across this site will be required prior to Certification of Occupancy.

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

This project requires a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge for disturbing one acre or more and a Topsoil Disturbance Permit for disturbing $\frac{3}{4}$ of an acre or more. Since the site will be disturbing more than one acre An Erosion and Sediment Control plan will have to be approved prior to building permit approval.

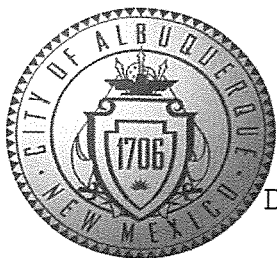
Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3999.

Sincerely,

Shahab Biazar, P.E.
City Engineer, Planning Dept.
Development Review Services

C: e-mail



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Broadstone Cottonwood Building 14 City Drainage #: _____

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

Legal Description: Tract B-9H-1B-1 Vista Del Parque Subdivision

City Address: 10800 Cibola Loop NE, Albuquerque

Engineering Firm: Tierra West, LLC Contact: Ronald R. Bohannon

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestllc.com

Owner: _____ Contact: _____

Address: _____

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

Architect: _____ Contact: _____

Address: _____

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

Surveyor: _____ Contact: _____

Address: _____

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

Contractor: _____ Contact: _____

Address: _____

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

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL G & D PLAN
- ☐ GRADING PLAN
- ☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ☒ ENGINEER'S CERT (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEER'S CERT (TCL)
- ☐ ENGINEER'S CERT (DRB SITE PLAN)
- ☐ ENGINEER'S CERT (ESC)
- ☐ SO-19
- ☐ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

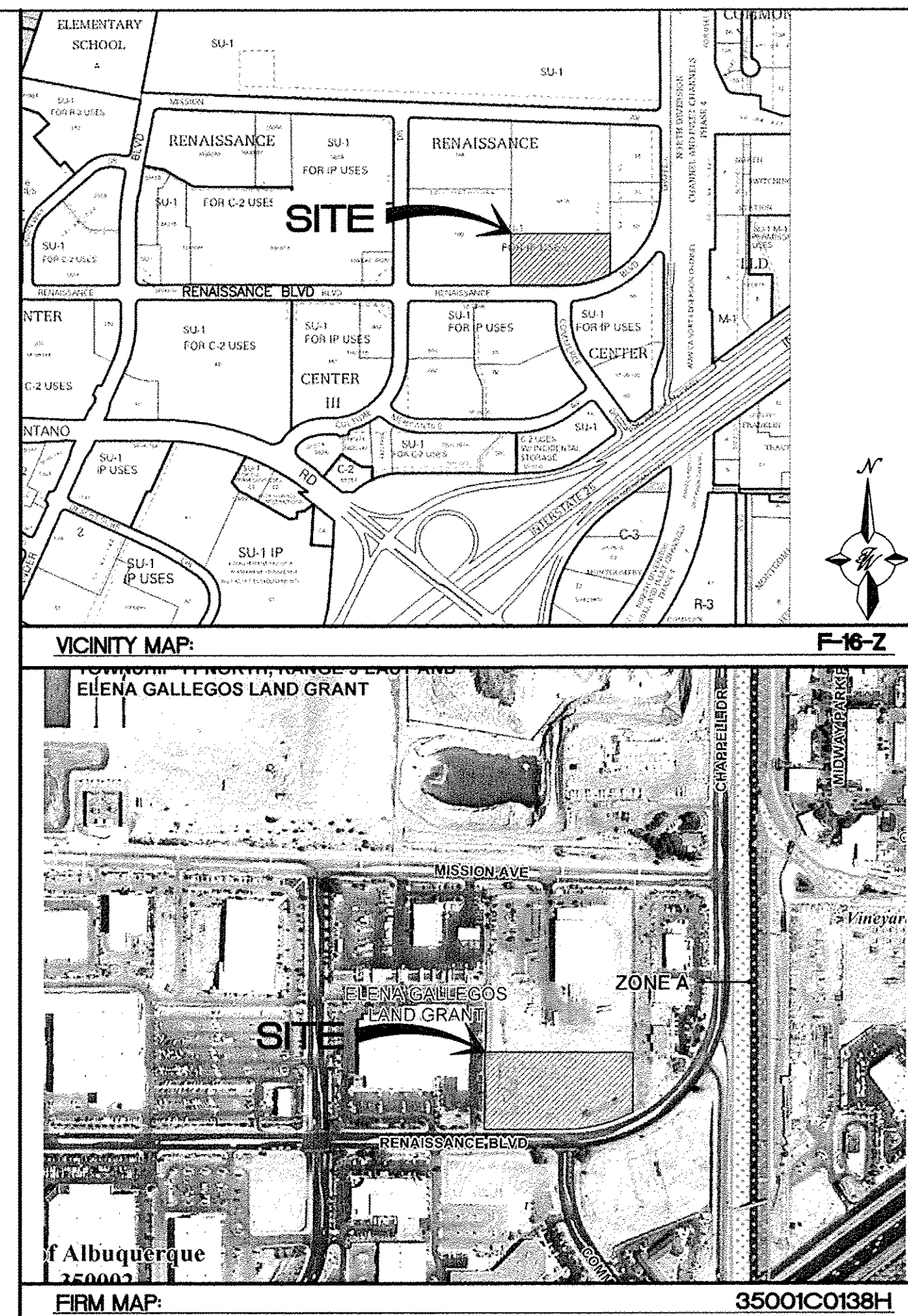
- ☐ SIA/FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D APPROVAL
- ☐ S. DEV. FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☒ CERTIFICATE OF OCCUPANCY (PERM)
- ☐ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ GRADING CERTIFICATION
- ☐ SO-19 APPROVAL
- ☐ ESC PERMIT APPROVAL
- ☐ ESC CERT. ACCEPTANCE
- ☐ OTHER (SPECIFY) _____

WAS A PRE-DESIGN CONFERENCE ATTENDED: _____ Yes _____ No _____ Copy Provided

DATE SUBMITTED: 7/16/15 By: Joel Hernandez

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development



NOTICE TO CONTRACTORS



1. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
2. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
3. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONNECTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
4. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.

EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) ACCEPTANCE OF ANY PROJECT.

NOTE:

UNLESS OTHERWISE NOTED ON THE PLAN, ALL SPOT ELEVATIONS ARE FLOW
LINE ELEVATIONS.

<p>ENGINEER'S SEAL</p> 	<p>TRACT 9A RENAISSANCE CENTER</p>	<p>DRAWN BY BJF</p>
	<p>GRADING AND DRAINAGE PLAN</p>	<p>DATE 7/20/15</p>
<p>RONALD R. BOHANNAN P.E. #7868</p>	<div style="text-align: center;">  <p><i>TIERRA WEST, LLC</i> 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com</p> </div>	<p>SHEET #</p> <p>D1</p> <p>JOB # 2015009</p>

Pipe Capacity							
Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft ²)		(cfs)	(cfs)	(ft/s)
1	18	0.60	1.77	0.375	10.61	9.79	5.54
2	18	0.60	1.77	0.375	10.61	9.79	5.54
3	18	0.61	1.77	0.375	10.69	10.67	6.04
4	24	0.60	3.14	0.500	22.84	20.46	6.51
5	6	0.72	0.20	0.125	0.62	0.35	1.78
6	24	0.60	3.14	0.500	22.84	20.81	6.62
7	18	0.60	1.77	0.375	10.61	4.68	2.65
8	10	0.60	0.55	0.208	2.21	2.05	3.76

Manning's Equation:
 $Q = 1.49/n * A * R^{(2/3)} * S^{(1/2)}$

A = Area
R = D/4
S = Slope
n = 0.01 HDPE/PVC

DESILTING POND CALCULATIONS:

3.08 ACRES OF IMPERVIOUS AREA = 134,165 SQ. FT
 $134,165 \text{ SQ. FT} \times (0.34"/12) = 3,801 \text{ CU. FT} = 0.087 \text{ AC}-\text{FT}$
 OF VOLUME REQUIRED TO BE RETAINED ON-SITE.

EXISTING DRAINAGE CONDITIONS

THIS SITE IS LOCATED IN THE RENAISSANCE CENTER MASTER PLAN AREA AND IS LOCATED AT THE INTERSECTION OF RENAISSANCE CENTER BLVD. AND COMMERCE DR. IT IS BOUNDED ON THE SOUTH BY RENAISSANCE CENTER BLVD, ON THE WEST BY FEDEX, ON THE NORTH BY FRITO LAY AND ON THE EAST BY AN OFFICE COMPLEX AND CONTAINS APPROXIMATELY 3.74 ACRES.

THE SITE CURRENTLY DRAINS TO A TEMPORARY RETENTION POND WITH SOME FLOWS GOING TO THE STREET. THIS SITE WAS INCLUDED IN THE FRITO LAY AND CHAVEZ-GRIEVES DRAINAGE REPORT (F16/D51) APPROVED ON SEPTEMBER 10, 1998 AND WILL CONTINUE TO FOLLOW THAT DRAINAGE SCHEME THAT ALLOWS ALL OF THE DRAINAGE TO FLOW TO FRITO LAY DETENTION POND #5.

THE SITE DOES ACCEPT OFF-SITE FLOWS (10.52 CFS) FROM THE OFFICE COMPLEX WHICH IS ALSO CONTAINED IN THE TEMPORARY RETENTION POND. NO OTHER OFF-SITE FLOWS ENTER THE SITE. AS SHOWN ON THE FIRM MAP THERE ARE NO FLOOD PLAINS ON THIS PROPERTY.

PROPOSED DRAINAGE CONDITIONS

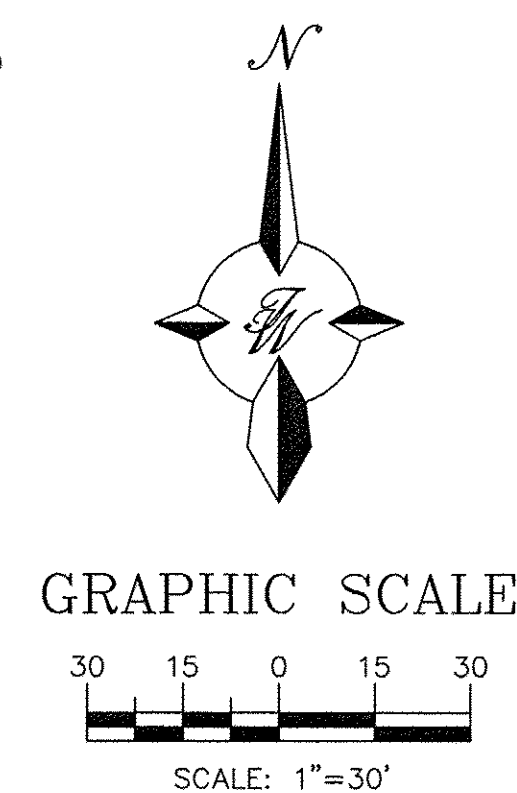
THIS SITE WILL CONTAIN SEVEN BASINS WITH FIVE OF THE BASINS DRAINING TO AN EXISTING STORM SEWER STUB THAT IS CONNECTED TO FRITO LAY POND #5. THE EXISTING STORM SEWER PIPE FROM THE OFFICE COMPLEX WILL BE INTERCEPTED WITH A NEW STORM SEWER AND ROUTED AROUND THE PERIMETER OF THE SITE AND CONNECT TO THE EXISTING STUB MENTIONED ABOVE.

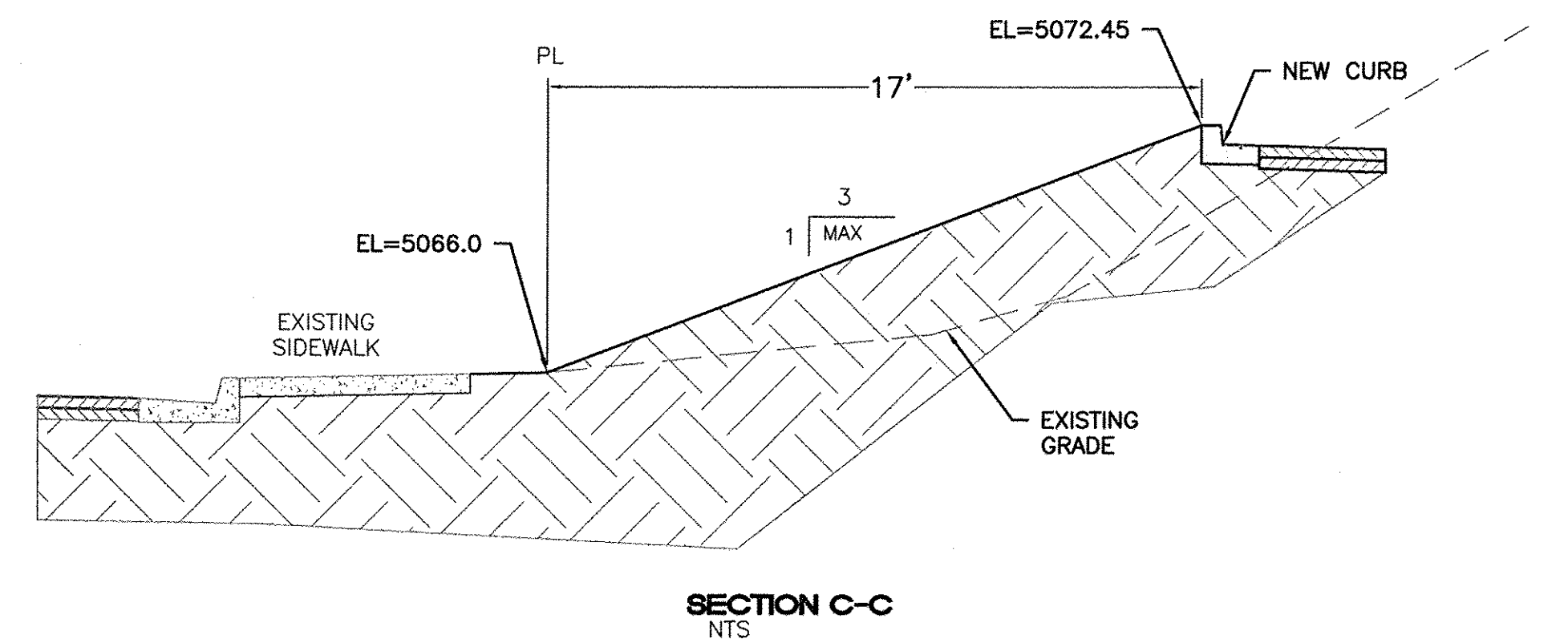
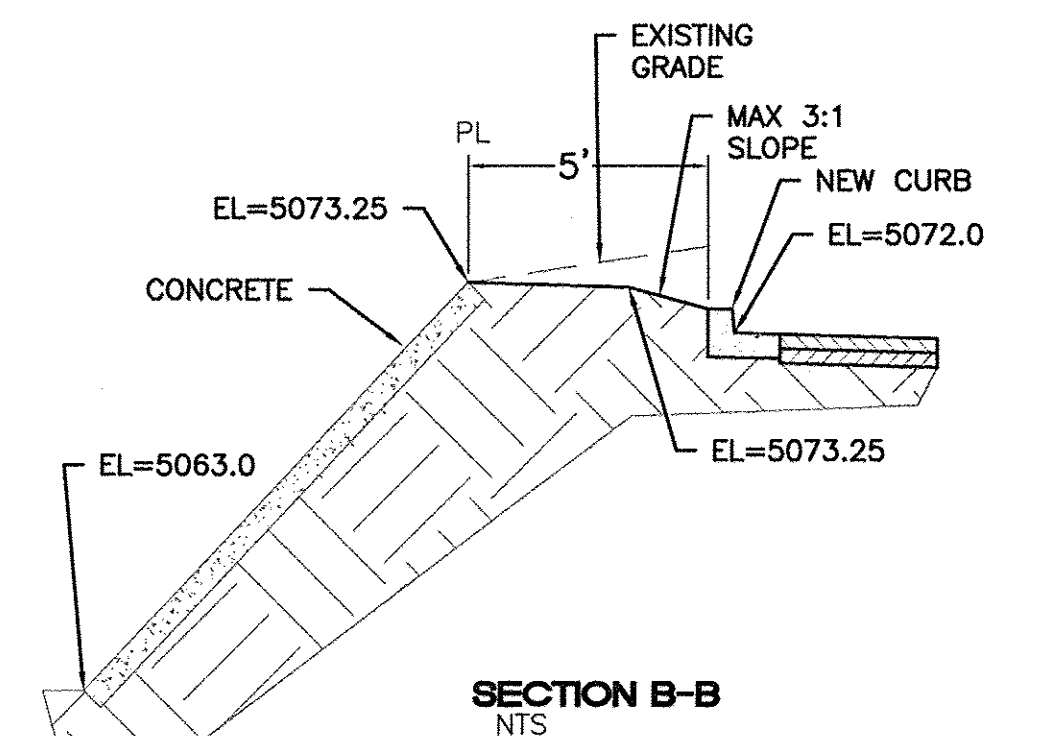
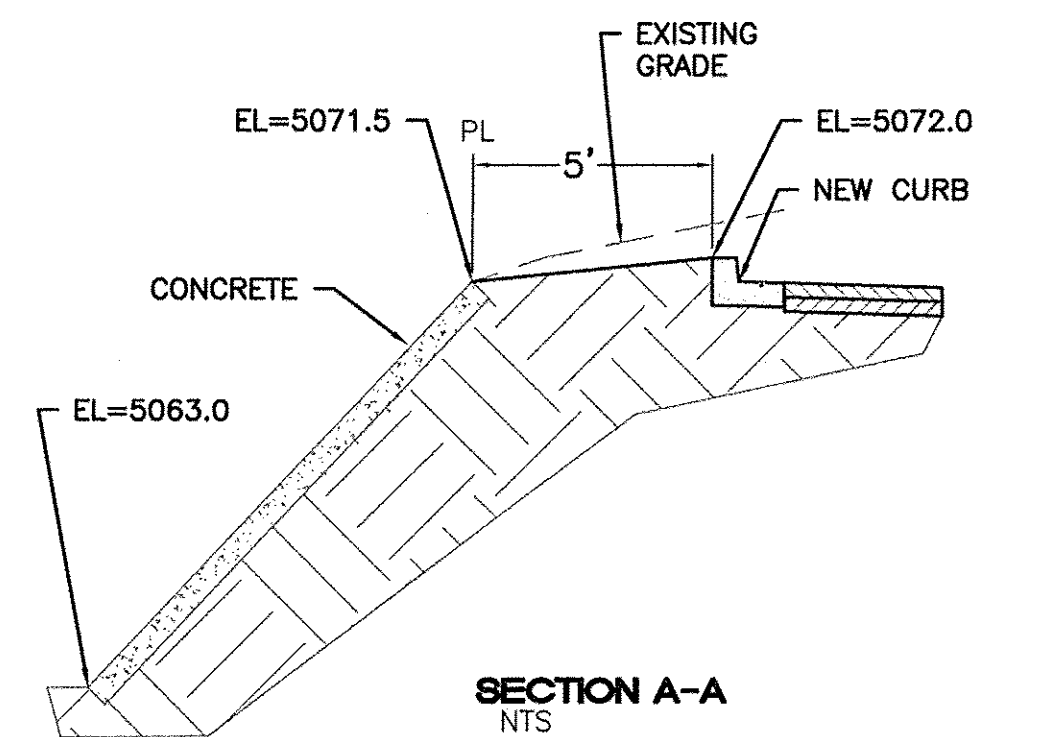
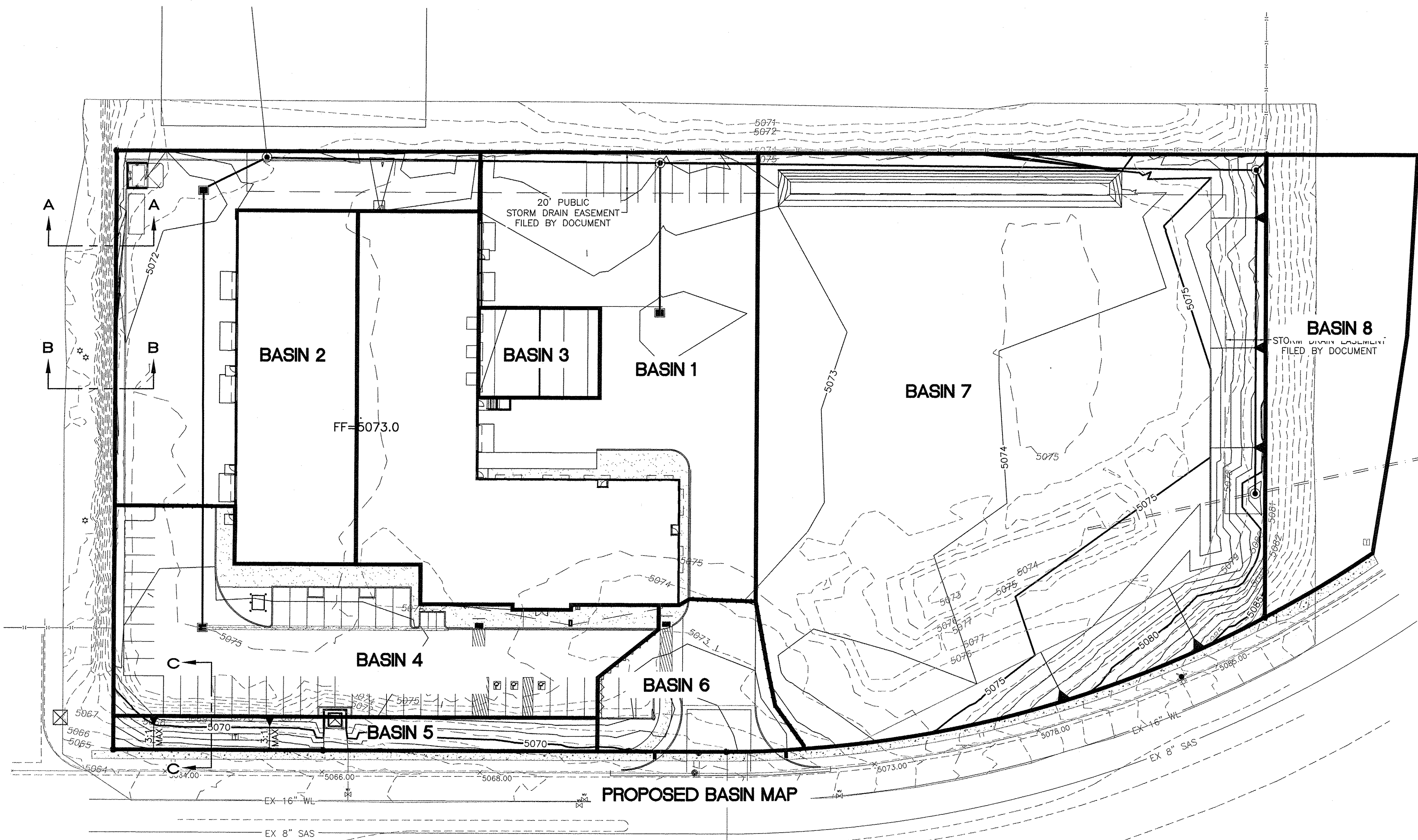
BASINS 1, 2 AND 4 WILL DRAIN TO AREA INLETS THAT ARE CONNECTED TO THE STORM SEWER. BASIN 3 WILL DRAIN THE TRUCK DOCK AREA THROUGH A STORM DRAIN OPENING ON THE NORTH SIDE OF THE DOCK.

BASINS 5 AND 6 WILL DRAIN TO THE STREET GENERATING 0.66 CFS. THE ORIGINAL FRITO LAY DRAINAGE PLAN ALLOWED FOR 0.66 CFS TO BE DISCHARGED TO THE STREET.

BASIN 7 WILL REMAIN UNDEVELOPED AT THIS TIME AND WILL DRAIN TO A DESILTING POND DESIGNED TO HOLD 4,008 CUBIC FEET OF WATER WHICH IS GREATER THAN THE 3,801 CUBIC FEET REQUIRED. THE POND WILL OVERFLOW TO THE AREA INLET LOCATED IN BASIN 1 NEAR THE TRUCK DOCK AND BE CONVEYED TO FRITO LAY DETENTION POND #5.

THIS SITE WILL DISCHARGE A TOTAL OF 24.89 CFS TO FRITO LAY POND #5 WHICH IS LESS THAN THE 24.97 ALLOWED IN THE APPROVED DRAINAGE PLAN. THAT TOTAL INCLUDES THE 10.52 CFS BEING PASSED THROUGH FROM THE ADJACENT OFFICE COMPLEX.





Weighted E Method													
On-Site Basins													
Basin	Area (sf)	Area (acres)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year Weighted E (ac-ft)	100-Year Volume (ac-ft)	100-Year Flow cfs
1	41,955	0.96	0%	0	2%	0.02	0%	0.00	98%	0.94	2.093	0.168	4.48
2	28,583	0.66	0%	0	8%	0.05	0%	0.00	92%	0.60	2.013	0.110	2.96
3	3,220	0.07	0%	0	0%	0.00	0%	0.00	100%	0.07	2.120	0.013	0.35
4	19,840	0.46	0%	0	8%	0.04	0%	0.00	92%	0.42	2.013	0.076	2.05
5	3,983	0.09	0%	0	100%	0.09	0%	0.00	0%	0.00	0.780	0.006	0.21
6	4,950	0.11	0%	0	30%	0.03	0%	0.00	70%	0.08	1.718	0.016	0.45
7	67,804	1.56	0%	0	30%	0.47	0%	0.00	70%	1.09	1.718	0.223	6.19
8	14,040	0.32	0%	0	100%	0.32	0%	0.00	0%	0.00	0.780	0.021	0.73
											16.68	0.280	0.008

Equations:

Weighted E = $E_a \cdot A_a + E_b \cdot A_b + E_c \cdot A_c + E_d \cdot A_d$ / (Total Area)

Volume = Weighted D * Total Area

Flow = $Q_a \cdot A_a + Q_b \cdot A_b + Q_c \cdot A_c + Q_d \cdot A_d$

Excess Precipitation, E (inches)			Peak Discharge (cfs/acre)		
Zone 2	100-Year	10 - Year	Zone 2	100-Year	10 - Year
E _a	0.53	0.13	Q _a	1.56	0.38
E _b	0.78	0.28	Q _b	2.28	0.95
E _c	1.13	0.52	Q _c	3.14	1.71
E _d	2.12	1.34	Q _d	4.70	3.14

Capacity of a Double 'D' Storm Drop Inlet

Capacity of the grate:

L = $80" - 2(2" \text{ nos}) - 14(1/2" \text{ nos}) - 6" \text{ center piece}$

= 65"

= 5.25'

W = $25" - 13(1/4" \text{ nos})$

= 18.5"

= 1.54'

Area = $5.25' \times 1.54'$

= 8.09 ft²

Effective Area = 8.09×0.5 (assuming factor)

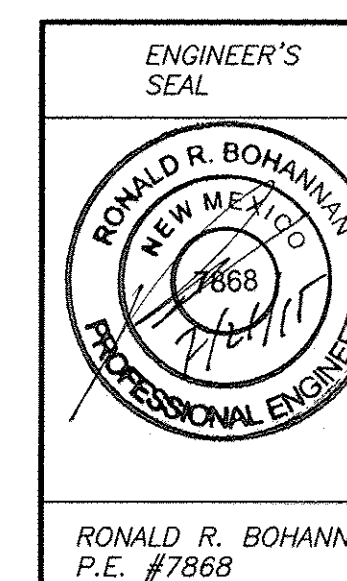
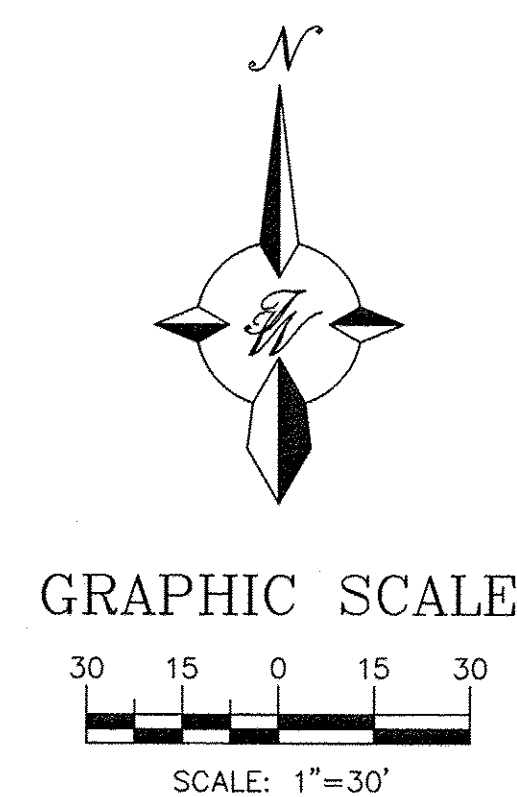
= 4.04 ft² at the grate

Orifice Equation

$Q = CA \sqrt{2gh}$

$Q = 0.6 \times 4.04 \sqrt{2 \times 32.2 \times 0.67}$

$Q = 15.93 \text{ cfs}$



**TRACT 9A
RENAISSANCE CENTER
GRADING AND
DRAINAGE PLAN**

TIERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrawestllc.com

DRAWN BY
BJF
DATE
06/20/15
2015009-GRB
SHEET #
D2
JOB #
2015009