CITY OF ALBUQUERQUE

Planning Department
David Campbell, Director

Mayor Timothy M. Keller

October 11, 2018

Ron Bohannan, P.E.
Tierra West, LLC
5571 Midway Park Place, NE
Albuquerque, NM 87109

RE: **Behavioral Health Hospital**
1525 Renaissance Blvd NE
Grading Plan Stamp Date: 10/1/18
Drainage Report Stamp Date: 10/1/18
Hydrology File: F16D051A

Dear Mr. Bohannan,

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Based on the submittal received on 10/2/18, the grading plan and drainage report cannot be approved until the following are corrected and a complete resubmittal is made:

Prior to Building Permit:

1. Provide written permission from the owner of Tr 9A-1A (FritoLay) for the regrading of the pond on their property.
2. On the grading plan, add existing contour labels; increase the density of the proposed contour labels, especially around the ponds and when tying in at the property/ROW lines.
3. Land treatments need to be revisited. Many of the sloped areas are assumed as land treatment B. Per the DPM Ch22.1.A, table A-4, …*soil uncompacted by human activity with slopes at 20 percent or greater* should be land treatment C and …*irrigated lawns and parks with slopes greater than 10 percent* should be land treatment C.
4. If these sloped areas are to be landscaped (w/ gravel mulch) please state on plans; otherwise annotate that disturbed areas are to be reseeded per Std Specification Section 1012.
5. Call-out Std Dwg 2426 and 2420 for the drive entrance.
6. Include project benchmark and datum.
7. Provide sections through the ponds and across the property line onto FedEx. Show 100-yr water surface elevations, tops and bottoms of berms. What design considerations were made to ensure FedEx is protected by the proposed berms? Hydrology recommends following levee and berm criteria per DPM Ch22.3.F.

8. Provide emergency spillways for the ponds, sized for the 100-yr storm inflow, or provide 2x capacity in the discharge pipes. Show the 100-yr and first flush water surface elevations for the ponds.

Prior to Certificate of Occupancy (For Information):

9. Engineer's Certification, per the DPM Chapter 22.7: *Engineer's Certification Checklist For Non-Subdivision* is required.

10. A Bernalillo County Recorded Drainage Covenant (No Public Easement) is required for the stormwater control ponds and for the storm pipes and swale that convey flows from the upstream tracts. The pipes and swale should name Tr 9B, 9C, and 9D as beneficiaries. The original notarized form, exhibit A (legible on 8.5x11 paper), and recording fee ($25, payable to Bernalillo County) must be turned into DRC (4th, Plaza del Sol) for routing. Please contact Charlotte LaBadie (clabadie@cabq.gov, 924-3996) or Madeline Carruthers (mtafoya@cabq.gov, 924-3997) regarding the routing and recording process for covenants. The routing and recording process for covenants can take a month or longer; Hydrology recommends beginning this process as soon as possible as to not delay approval for certificate of occupancy.

If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

Sincerely,

Dana Peterson, P.E.
Senior Engineer, Planning Dept.
Development Review Services

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: Behavioral Health Hospital Building Permit #: _____ Hydrology File #: _____

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

Legal Description: Tract 9-A-1-B Plat of Tracts 9-A-1-A & 9-A-1-B Renaissance Center

City Address: 1525 Renaissance Blvd NE

Applicant: AS Realty Investors Contact: Avi Schlesinger

Address: 3710 S. Robertson Blvd. #201, Culver City CA 90232

Phone#: 310-936-9395 Fax#: _____ E-mail: avi@asrealtyinvestors.com

Other Contact: Tierra West, LLC Contact: Ron Bohannan

Address: 5571 Midway Park Pl NE, Albuquerque NM 87109

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

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

IS THIS A RESUBMITTAL? _____ Yes X No

DEPARTMENT _____ TRANSPORTATION X HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

____ ENGINEER/ARCHITECT CERTIFICATION
____ PAD CERTIFICATION
____ CONCEPTUAL G & D PLAN
X 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
____ FOUNDATION PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR
____ FLOODPLAIN DEVELOPMENT PERMIT
____ OTHER (SPECIFY) _____

DATE SUBMITTED: 10/02/2018 By: Vinny Perea

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

DRAINAGE REPORT

For

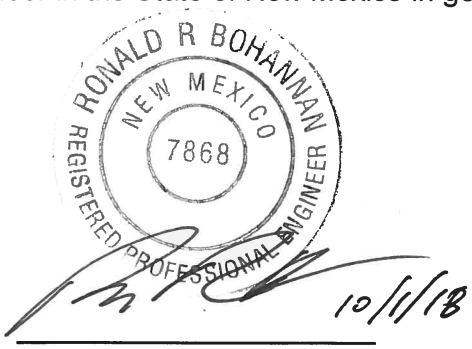
Behavioral Health Hospital
Tract 9A-1B Renaissance Center

Prepared by:

Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

October 1, 2018

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.



Ronald R. Bohannan
PE # 7868

Job No. 2017054

TABLE OF CONTENTS

Appendices

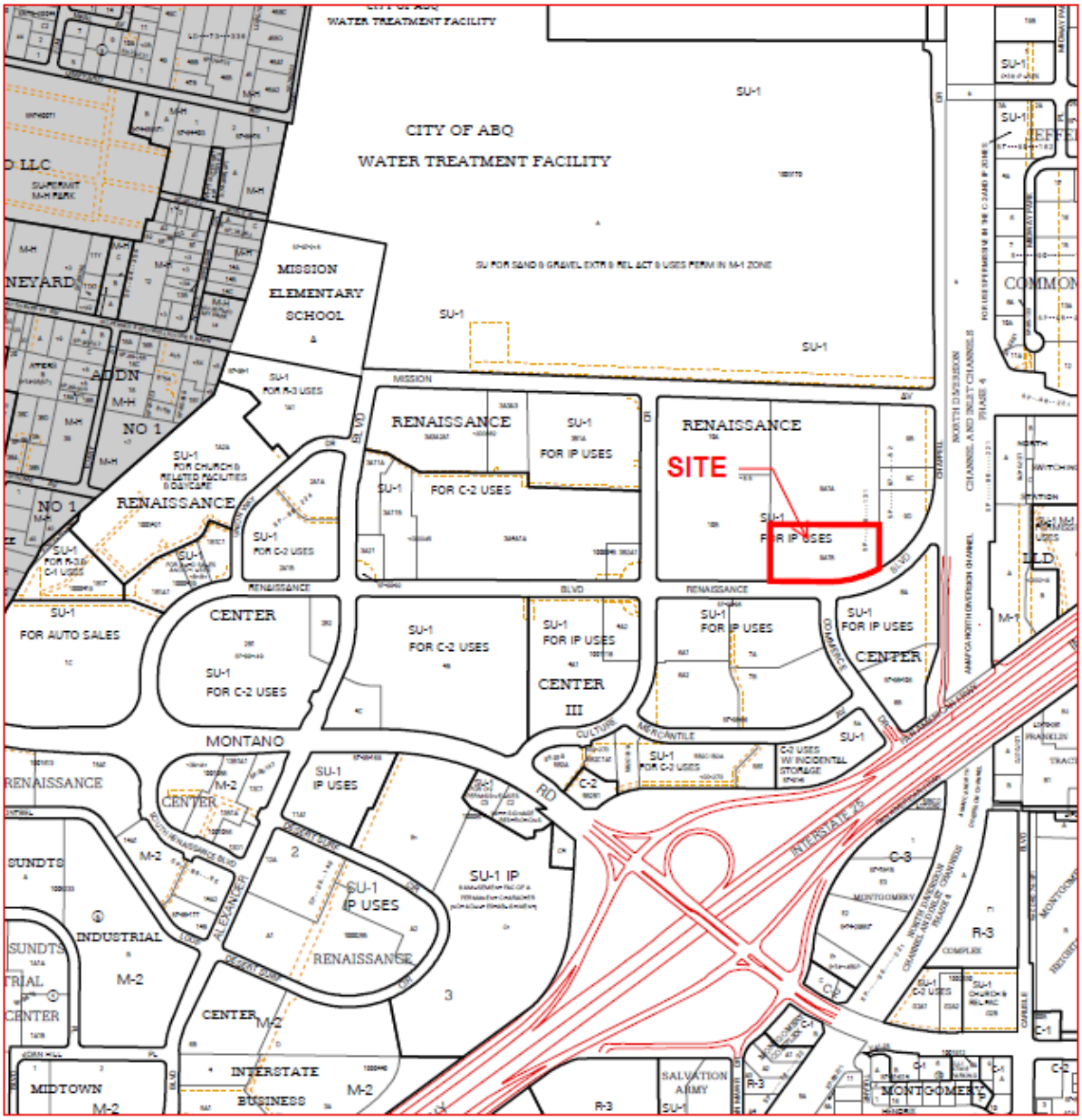
Purpose

The purpose of this report is to develop a Drainage Management Plan for developing a new behavioral health (psychiatric) hospital building on an undeveloped 3.75-acre parcel of land, entitled Tract 9A-1B of the Tracts 9A-1A & 9A-1B Renaissance Center Plat. The 3.75 acres will include an additional drainage inflow from three upland developed tracts (totaling 4.7-acres) directly east of the site, giving a total of 8.45 acres of drainage area.

Location

This site is located within the Renaissance Center directly north of the Renaissance Blvd./Commerce Dr. intersection. The site is bounded by Renaissance Blvd. to the south, FedEx Shipping Center to the west, Frito-Lay to the north, and Zenith American Solutions to the east. The site consists of 1 undeveloped lot which will be developed for a single-story hospital building with two exterior courtyards and a storage building.

Exhibit A – Vicinity Map



For more current information and more details visit: http://www.cabq.gov/gis

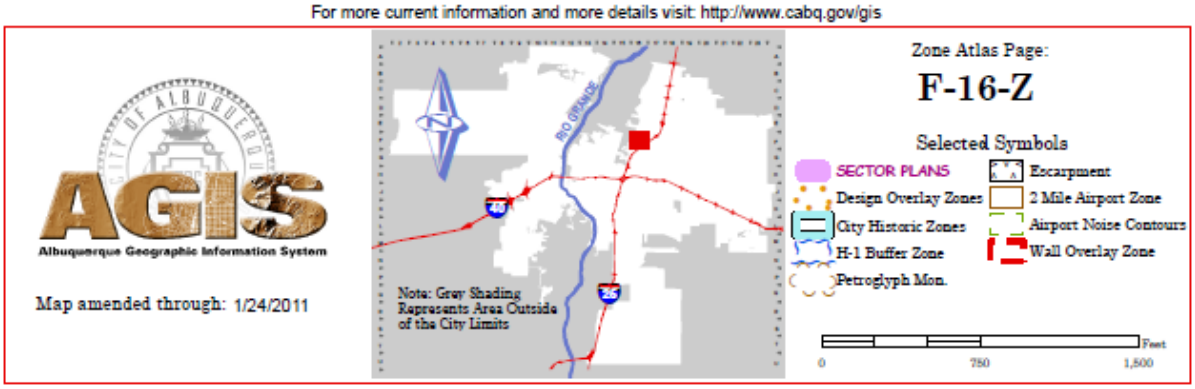
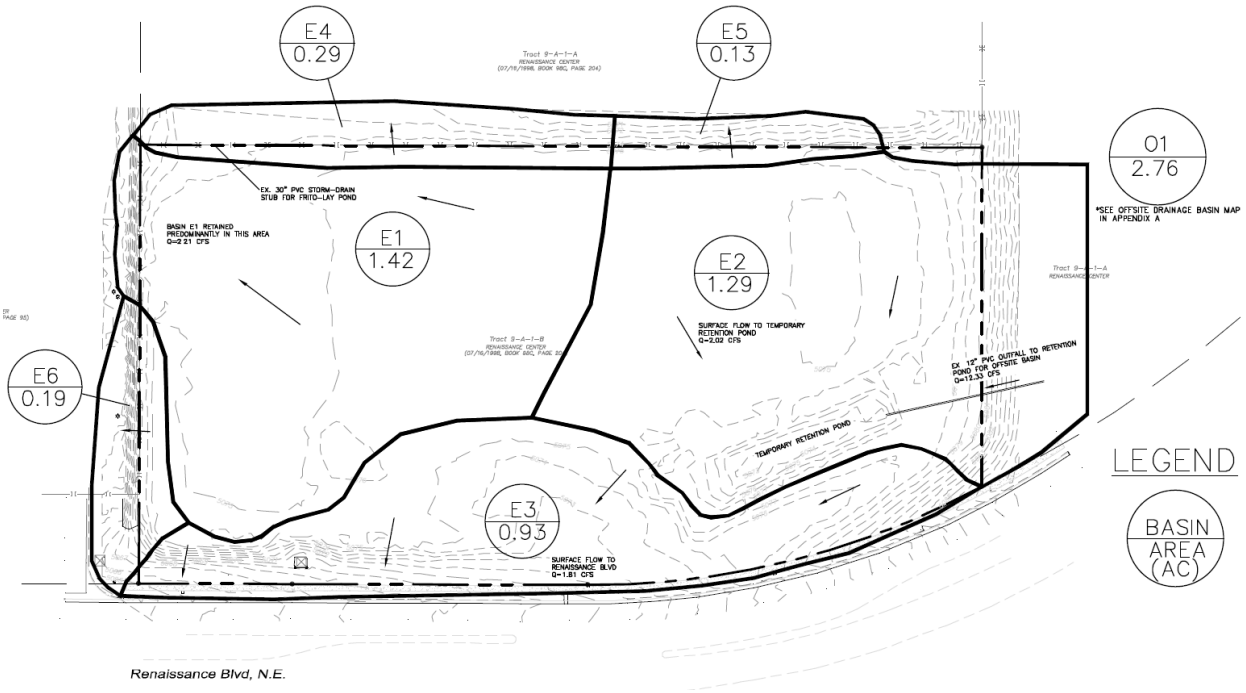


Exhibit B – Site Aerial Image

Exhibit C – Existing Basin Map



Existing Conditions

The site is undeveloped and predominantly retains runoff onsite. The site currently consists of three larger drainage basins, E1, E2, and E3. There are a few smaller drainage basins that send flow to other sites or public right-of-way based off of existing topography, basins E4, E5, and E6. There is also an offsite basin O1 that drains to the site.

Basin E1 consists of most of the northwest quadrant of the property with no impervious area, runoff from this basin flows from southeast to northwest and is retained onsite at the northwest corner of the property. There is an existing 30” RPC stub-out that leads to the Frito-Lay tract to the north where there is a drop inlet and detention pond in the southeast corner of the Frito-Lay property. The ultimate drainage plan is for this Frito-

Lay pond to accept all drainage flows from Tracts 9A-1B, 9B, 9C, and 9D. This drainage concept is explained further in the subsequent section of this report.

Basin E2 consists of predominantly the eastern half of the property, runoff flows from north to south towards an existing onsite retention pond. The retention pond receives flows from the offsite drainage basin to the east via a 12" pvc pipe.

Basin E3 consists of most of the southern frontage of the property, flows from this basin are directed from north to south via surface flow and free discharge into Renaissance Boulevard where the flows are collected in the Renaissance Boulevard storm drain system.

Basin E4 and E5 consist of small portions of onsite that are near the northern property line. These flows drain north via surface flow towards the Frito-Lay tract. Basin E6 consists of a portion of the southwest corner of the property, these flows drain via surface flow towards the FedEx property.

The offsite basin, O1, consists of the three developed MCA tracts (Tracts 9B, 9C, and 9D) to the east of the subject property. These flows are picked up through a series of drop inlets in the parking lot that are interconnected to a private storm drain system. This storm drain system outfalls via 12" pvc pipe towards the onsite retention pond that is located in Basin E2.

The total 100-year peak flow of these existing basins is 19.51 cfs, hydrology calculations and an enlarged drainage basin map can be found in Appendix A.

Drainage Concept for Overall Development

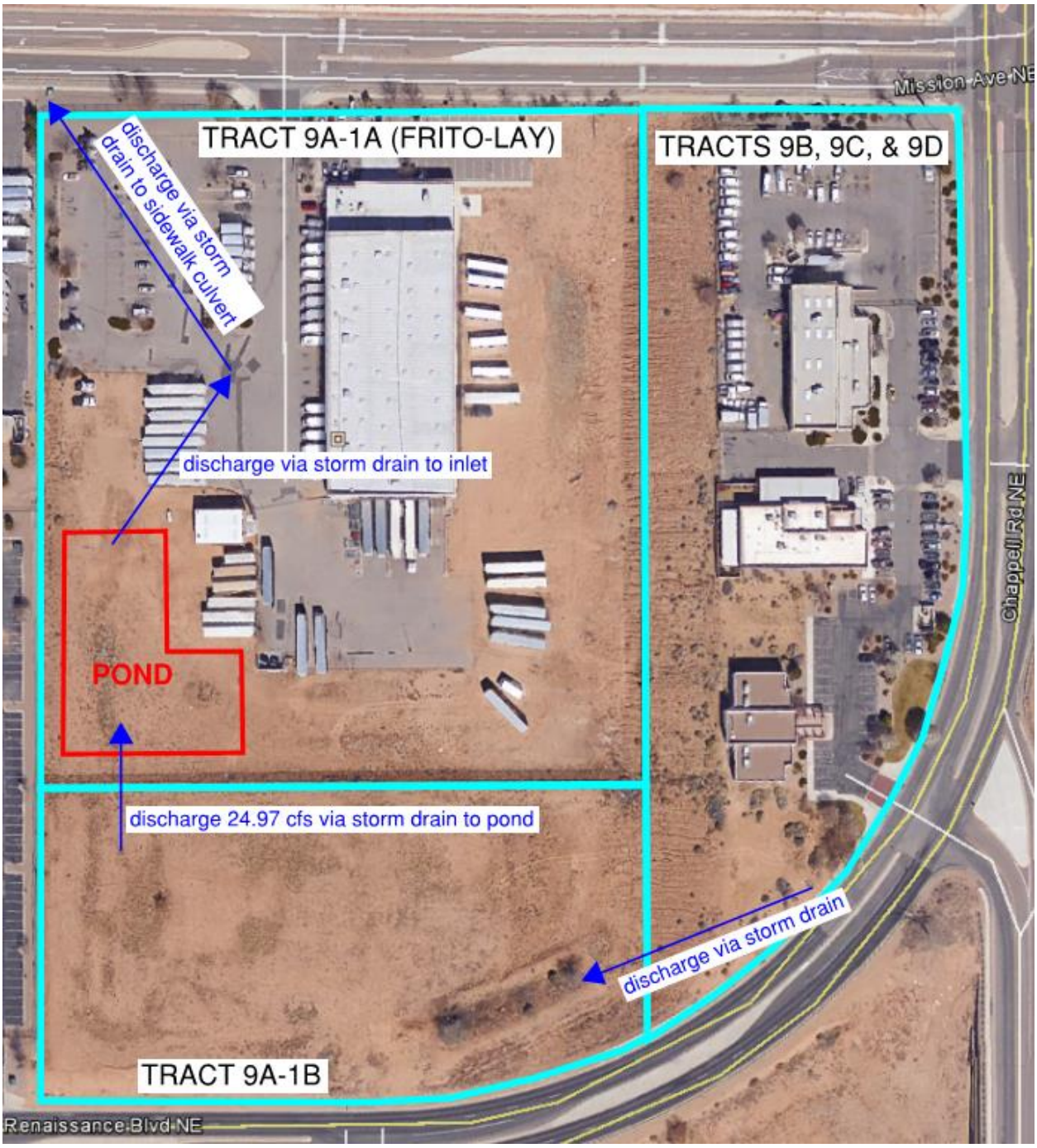
During the development and design of the Frito-Lay tract directly north of the subject property (Tract 9A-1A), a master drainage solution was submitted and approved by the City of Albuquerque on 9/10/1998 (F16D051). This drainage plan included ponding and hydrology analysis for Tracts 9A-1A, 9A-1B, 9B, 9C, and 9D. The Frito-Lay pond located in the southwest corner of the respective property was sized to accept and

detain flows from Tracts 9A-1B, 9B, 9C, and 9D. These 4 tracts are allowed to discharge to this pond at a rate of 24.97cfs, based on the current configuration and size of the pond. This would be the ultimate outfall rate needed to discharge from the NW corner of Tract 9A-1B. From the pond located on Frito-Lay, drainage would be conveyed through a storm drain and drop inlet with an orifice plate before being released into Mission Ave. at the allowable discharge rate per the Renaissance Master Plan.

The Plat of Tracts 9A-1A & 9A-1B Renaissance Center contains a drainage easement in the location of the Frito-Lay pond for the benefit of tracts 9A-1B, 9B, 9C, and 9D in order for this drainage concept to work. The development of Tract 9A-1B will require the contractor to assure that the Frito-Lay pond currently has the capacity as shown on the approved Frito-Lay grading and drainage plan with a stamp date of 9/10/1998 to assure that this drainage concept is acceptable for final drainage certification. If the pond has been filled in due to sediment accumulation then the contractor will have to re-grade the pond to the finished grades from the previously approved Frito-Lay grading and drainage plan.

The upland tracts of 9B, 9C, & 9D have been re-analyzed for hydrology and can be found in the hydrology tables for basin O1 found in Appendices A & B. Exhibit C shows an aerial of the drainage concept for all of the tracts involved. Appendix E and F contain excerpts of the drainage calculations from the approved Frito-Lay plan and plat with the drainage easement information, respectively.

Exhibit D – Overall Drainage Concept



Flood Plain

The site is located on FIRM Map 35001C0138H. The map indicates that the site does not lie within any flood hazard areas.

Exhibit D – FIRM Map

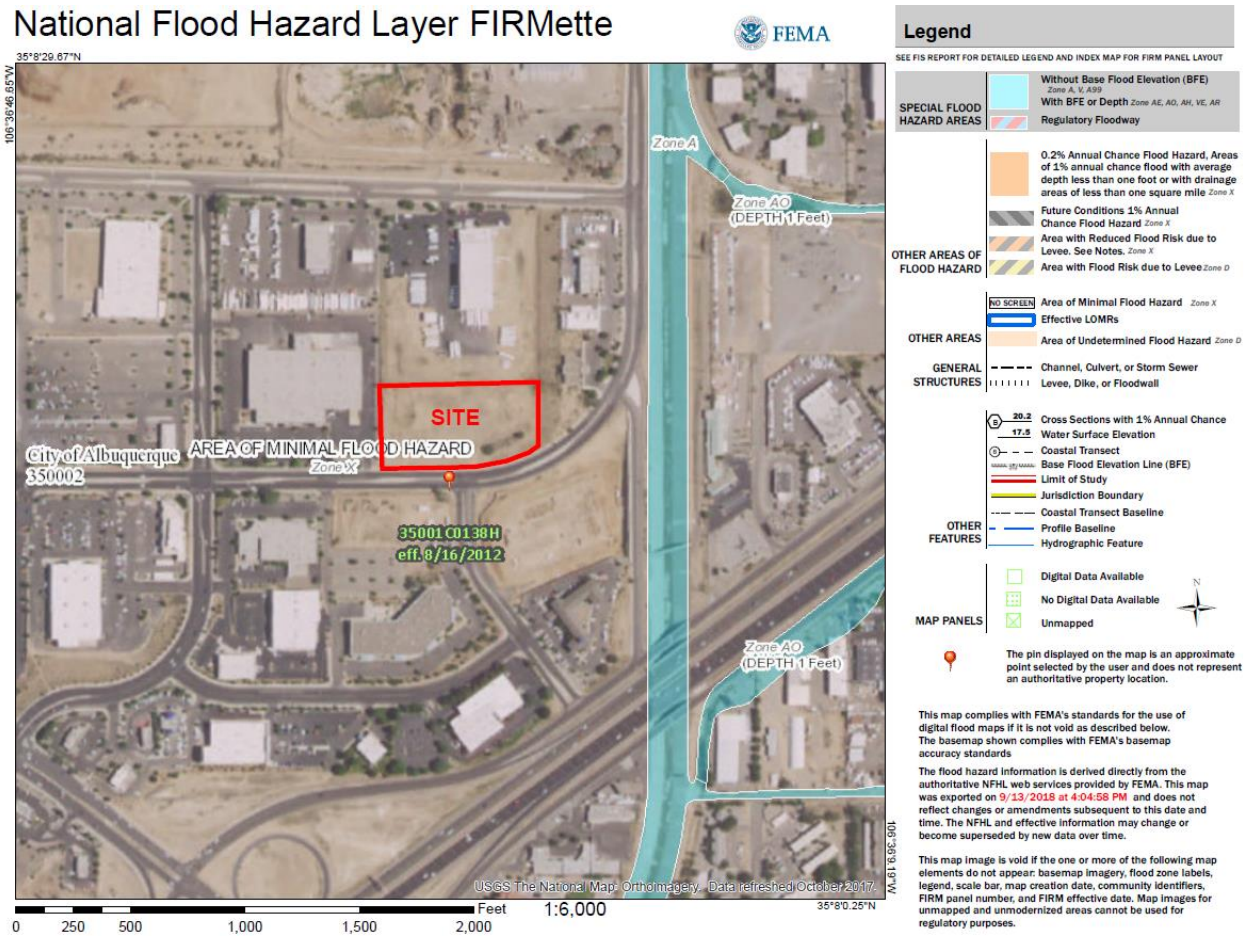
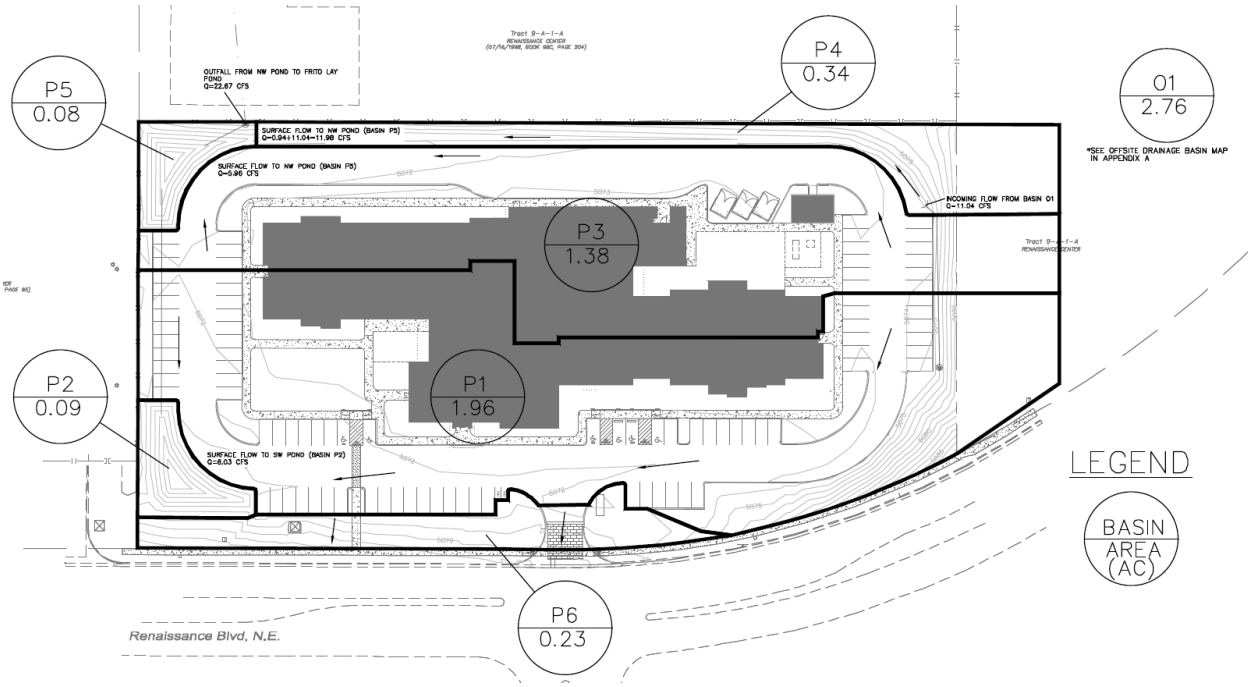


Exhibit E – Proposed Basin Map



Proposed Conditions

All improvements will be built out in their entirety. The grading and drainage design is configured to accommodate the proposed building and associated improvements plus the drainage received from the upland tracts 9B, 9C, and 9D (basin O1 on the provided drainage basin maps).

Basin P1 consists of primarily the southern half of the site, including a portion of the sloping terrain directly east of the site. Runoff will be directed from east to west via surface flow through the drive aisle in front of the proposed building. The basin will discharge through a 3’ curb cut and into the SW drainage pond located within Basin P2. Total flow rate from this basin is 8.03 cfs.

Basin P3 consists of primarily the northern half of the site, including a portion of the sloping terrain directly east of the site. Similar to Basin P1, Runoff in P3 will be directed

from east to west via surface flow and will discharge through a 2.5' curb cut and into the NW drainage pond located in basin P5. Total flow rate from this basin is 5.96 cfs.

Basin O1, which is the offsite basin, will convey flows via storm drain that will daylight into the northern onsite landscaped area, which is Basin P4. Basin P4 is the entire northern landscaped area that will convey runoff from O1 towards the NW pond (Basin P5) via a landscaped swale. Total flow rate from P4 and O1 is 11.98 cfs. Again, the offsite basin O1 has been re-analyzed for updated flow rates that enter tract 9A-1B.

Basins P2 and P5 are the onsite SW and NW detention ponds, respectively. These ponds will be interconnected with a 24-inch culvert to act as one single pond. The drainage outfall for the site is located in the NW corner pond, where the discharge for the site will be conveyed through an 18-inch storm drain that will connect to the existing 30" RCP stub-out in this area. The 18-inch outfall will have a 27-3/4" orifice plate where the discharge to the Frito-Lay pond is 22.67 cfs, which is less than the maximum allowable 24.97 cfs. The total flow rate that enters the NW and SW onsite ponds is 26.39 cfs. The Contractor responsible for grading the site will also be responsible for assuring that the Frito-Lay pond has the grades for the allowable capacity as shown on the grading plan. If not, then the contractor will need to re-grade the pond to its original and intended conditions.

Basin P6 is located along the southern landscaped portion of the site. Due to the slope-tying and grades, this basin is directed via sheet flow from north to south towards Renaissance Blvd. The proposed hydrology table and an enlarged proposed basin map can be found in Appendix B. Hydraulic calculations for the landscaped swale, curb cuts and storm drain culverts can be found in Appendix C. Calculations for the NW and SW onsite ponds can be found in Appendix D.

Water Quality Management

The management of water quality for this site intends to capture the 99th percentile storm event and retain onsite prior to any discharge off of the site. This volume was

calculated per the COA drainage ordinance as 0.44" (minus initial abstractions) over the developed impervious areas, giving a total of 3,061 cubic feet of runoff to retain. The water quality will be retained in the NW and SW onsite ponding areas. The ponds will have an outfall invert elevation that is 3 feet higher than the bottom of pond. The volume that is retained below this invert elevation exceeds the required first flush retention volume. The water quality volume calculations can be found on the proposed hydrology table in Appendix B.

Calculations

The Weighted E Method from the "City of Albuquerque Development Process Manual Volume I – Design Criteria, 2006 Revision" was used to calculate the runoff and volume for the site, the hydrology tables can be found in Appendix A and B. Drainage capacities for the landscaped swale, storm drain culverts, and curb cuts were determined through Bentley FlowMaster and results can be found in Appendix C.

Summary

The entire site will be graded and all of the surface improvements will be built out in their entirety. The enclosed grading plan shows the grades for the entire project.

The proposed development consists of development for a new hospital with 6 onsite basins and 1 offsite basin. All of the basins, except P6, will convey flow via surface flow towards the NW and SW onsite ponds and discharge towards the Frito-Lay pond to the north at an appropriate flow rate of 22.67 cfs. The contractor that will be grading the site will be responsible for assuring that the Frito-Lay pond has the capacity and depth of the original development of that pond. The top and bottom of pond elevations of this pond can be found on the grading plan.

APPENDIX A

EXISTING CONDITIONS HYDROLOGY TABLE AND DRAINAGE BASIN MAP

DPM Weighted E Method

Precipitation Zone 2
Renaissance Center
Behavioral Health Hospital - 1525 Renaissance Blvd NE
TWLLC **Date** 9/12/2018

Existing Conditions

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs
E1	61,801.05	1.419	0.00222	100%	1.419	0%	0.000	0%	0.000	0%	0.000	0.530	0.063	2.21	0.130	0.015	0.54
E2	56,325.55	1.293	0.00202	100%	1.293	0%	0.000	0%	0.000	0%	0.000	0.530	0.057	2.02	0.130	0.014	0.49
E3	40,592.75	0.932	0.00146	63%	0.587	32%	0.298	0%	0.000	5%	0.047	0.690	0.054	1.81	0.239	0.019	0.65
E4	12,662.62	0.291	0.00045	100%	0.291	0%	0.000	0%	0.000	0%	0.000	0.530	0.013	0.45	0.130	0.003	0.11
E5	5,762.09	0.132	0.00021	100%	0.132	0%	0.000	0%	0.000	0%	0.000	0.530	0.006	0.21	0.130	0.001	0.05
E6	8,286.76	0.190	0.00030	36%	0.068	44%	0.084	0%	0.000	20%	0.038	0.958	0.015	0.48	0.438	0.007	0.23
O1	120,249.01	2.761	0.00431	0%	0.000	18%	0.497	17%	0.469	65%	1.794	1.711	0.393	11.04	1.010	0.232	6.91
Total	**305,679.83**	**7.017**	**0.01096**		**3.790**		**0.879**		**0.469**		**1.879**		**0.601**	**18.22**		**0.292**	**8.98**

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted E * Total Area

Flow = Qa*Aa + Qb*Ab + Qc*Ac + Qd*Ad

Excess Precipitation, E (in.)		
Zone 2	100-Year	10-Year
Ea	0.44	0.08
Eb	0.67	0.22
Ec	0.99	0.44
Ed	1.97	1.24

Peak Discharge (cfs/acre)		
Zone 2	100-Year	10-Year
Qa	1.29	0.24
Qb	2.03	0.76
Qc	2.87	1.49
Qd	4.37	2.89

E4
0.29

E5
0.13

Tract 9-A-1-A
RENAISSANCE CENTER
(07/16/1998, BOOK 98C, PAGE 204)

01
2.76

*SEE OFFSITE DRAINAGE BASIN MAP IN APPENDIX A

EX. 30" PVC STORM-DRAIN STUB FOR FRITO-LAY POND

BASIN E1 RETAINED PREDOMINANTLY IN THIS AREA
Q=2.21 CFS

E1
1.42

E2
1.29

SURFACE FLOW TO TEMPORARY RETENTION POND
Q=2.02 CFS

Tract 9-A-1-A
RENAISSANCE CENTER

'0-B
NCE CENTER
IOK 97C, PAGE 95)

Tract 9-A-1-B
RENAISSANCE CENTER
(07/16/1998, BOOK 98C, PAGE 20

E6
0.19

EX. 12" PVC OUTFALL TO RETENTION POND FOR OFFSITE BASIN
Q=12.33 CFS

TEMPORARY RETENTION POND

E3
0.93

SURFACE FLOW TO RENAISSANCE BLVD
Q=1.81 CFS

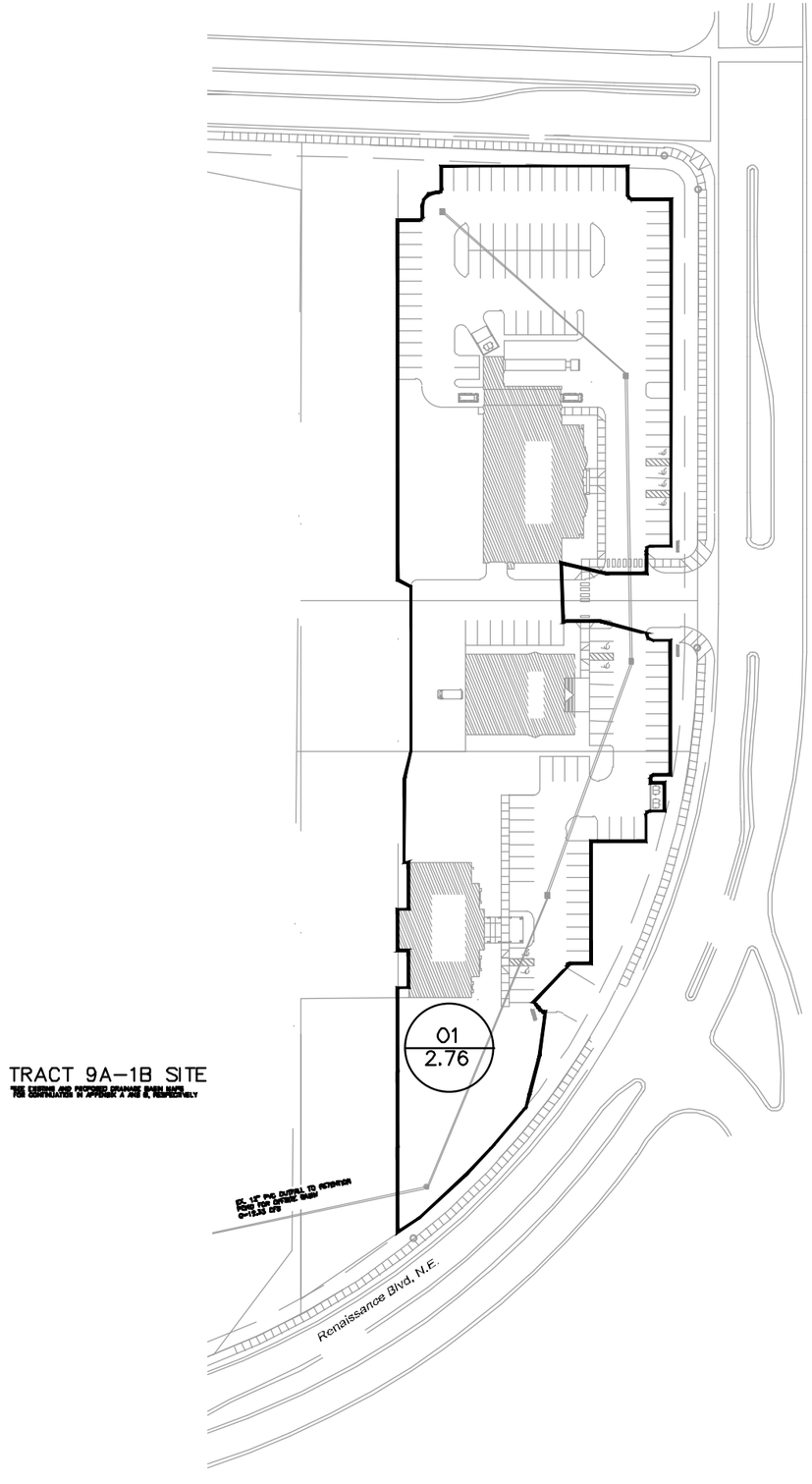
LEGEND

BASIN
AREA
(AC)

Renaissance Blvd, N.E.

Commerce Dr

EXISTING BASIN MAP



OFFSITE BASIN MAP

APPENDIX B

PROPOSED CONDITIONS HYDROLOGY TABLE AND DRAINAGE BASIN MAP

DPM Weighted E Method

Precipitation Zone 2
Renaissance Center
Behavioral Health Hospital - 1525 Renaissance Blvd NE
TWLLC **Date** 9/12/2018

Proposed Conditions

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs
P1	85,547.56	1.964	0.00307	0%	0.000	15%	0.295	16%	0.314	69%	1.355	1.761	0.288	8.03	1.050	0.172	5.07
P2	4,031.22	0.093	0.00014	0%	0.000	83%	0.077	17%	0.016	0%	0.000	0.840	0.006	0.22	0.321	0.002	0.10
P3	59,914.55	1.375	0.00215	0%	0.000	10%	0.138	8%	0.110	82%	1.128	1.907	0.219	5.96	1.168	0.134	3.86
P4	14,611.08	0.335	0.00052	0%	0.000	40%	0.134	60%	0.201	0%	0.000	0.990	0.028	0.94	0.424	0.012	0.47
P5	3,654.00	0.084	0.00013	0%	0.000	85%	0.071	15%	0.013	0%	0.000	0.833	0.006	0.20	0.316	0.002	0.09
P6	10,048.29	0.231	0.00036	0%	0.000	31%	0.072	60%	0.138	9%	0.021	1.111	0.021	0.70	0.519	0.010	0.37
O1	120,249.01	2.761	0.00431	0%	0.000	18%	0.497	17%	0.469	65%	1.794	1.711	0.393	11.04	1.010	0.232	6.91
Total	**298,055.71**	**6.842**	**0.01069**		**0.000**		**1.283**		**0.000**		**4.298**		**0.962**	**27.09**		**0.565**	**16.87**

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted E * Total Area

Flow = Qa*Aa + Qb*Ab + Qc*Ac + Qd*Ad

Excess Precipitation, E (in.)		
Zone 2	100-Year	10-Year
Ea	0.44	0.08
Eb	0.67	0.22
Ec	0.99	0.44
Ed	1.97	1.24

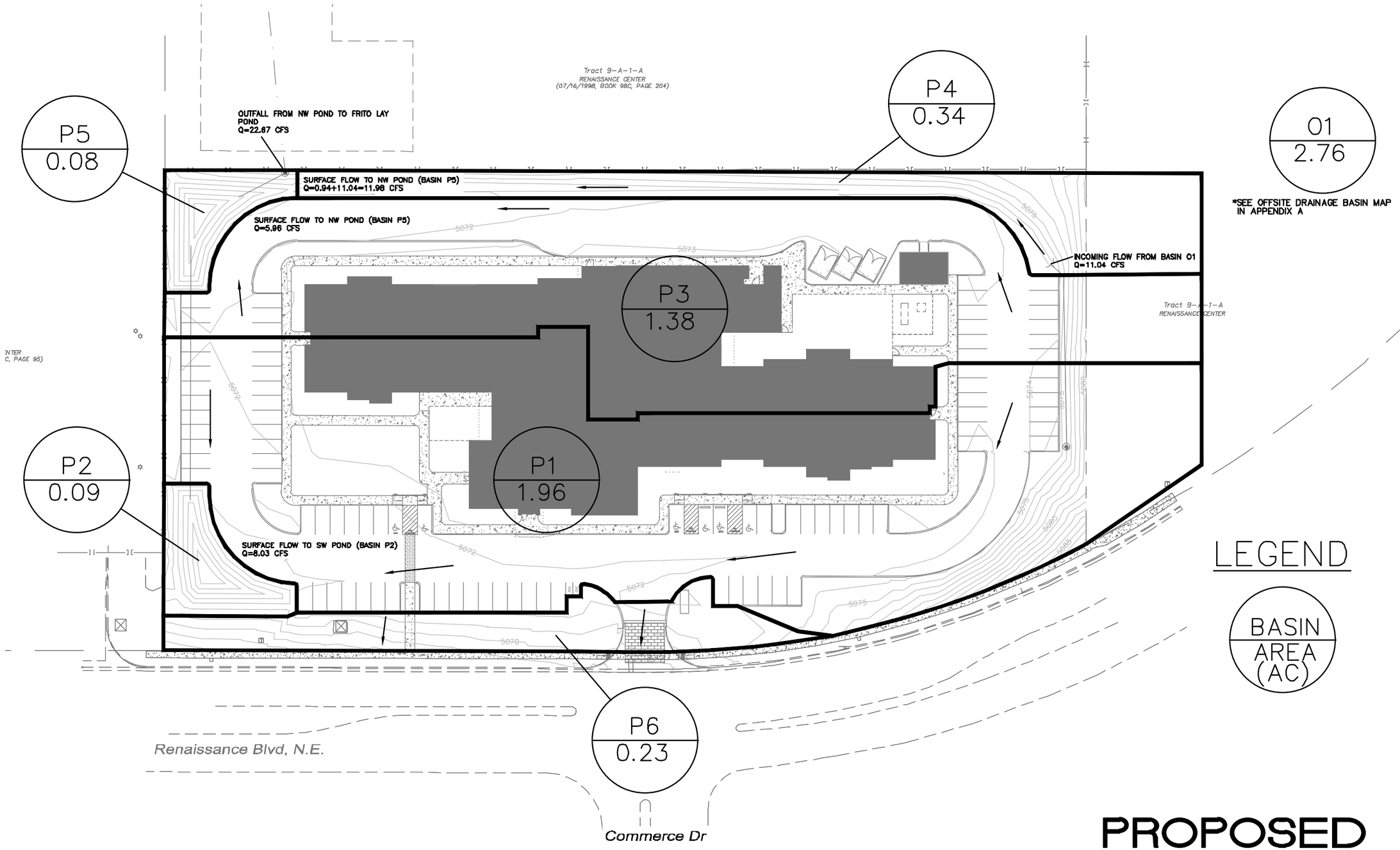
Peak Discharge (cfs/acre)		
Zone 2	100-Year	10-Year
Qa	1.29	0.24
Qb	2.03	0.76
Qc	2.87	1.49
Qd	4.37	2.89

Water Quality Volume (First Flush)

Total Impervious Area (Basins P1 & P3) = 2.483 acres = 108,159 SF

Retainage depth = 0.44"-0.1" = 0.34" = 0.0283'

Retention Volume = 0.0283' x 108,159 SF = **3,061 CF**



PROPOSED BASIN MAP

APPENDIX C

CALCULATION TABLES FOR CULVERTS, CURB CUTS, AND LANDSCAPE SWALE

Worksheet for 18" PVC for Offsite Outfall

Project Description

Friction Method	Manning Formula
Solve For	Channel Slope

Input Data

Roughness Coefficient	0.010	
Normal Depth	1.50	ft
Diameter	1.50	ft
Discharge	11.04	ft³/s

Discharge from Basin O1 and towards north landscape swale

Results

Channel Slope	0.00815	ft/ft
Flow Area	1.77	ft²
Wetted Perimeter	4.71	ft
Hydraulic Radius	0.38	ft
Top Width	0.00	ft
Critical Depth	1.33	ft
Percent Full	100.0	%
Critical Slope	0.00729	ft/ft
Velocity	6.98	ft/s
Velocity Head	0.76	ft
Specific Energy	2.26	ft
Froude Number	0.00	
Maximum Discharge	13.26	ft³/s
Discharge Full	12.33	ft³/s
Slope Full	0.00815	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

Worksheet for North Landscape Swale

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.033	
Channel Slope	0.00400	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Discharge	11.98	ft³/s

Discharge from Basins O1 and P4 towards NW Pond

Results

Normal Depth	1.37	ft
Flow Area	5.61	ft²
Wetted Perimeter	8.65	ft
Hydraulic Radius	0.65	ft
Top Width	8.21	ft
Critical Depth	1.00	ft
Critical Slope	0.02146	ft/ft
Velocity	2.13	ft/s
Velocity Head	0.07	ft
Specific Energy	1.44	ft
Froude Number	0.46	
Flow Type	Subcritical	

Min. depth used for landscape swale

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.37	ft
Critical Depth	1.00	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.02146	ft/ft

Worksheet for SW Corner Pond Curb Cut

Project Description

Friction Method	Manning Formula
Solve For	Bottom Width

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Normal Depth	0.50	ft
Discharge	8.03	ft³/s

Discharge from Basin P1 to SW Pond

Results

Bottom Width	2.74	ft
Flow Area	1.37	ft²
Wetted Perimeter	3.74	ft
Hydraulic Radius	0.37	ft
Top Width	2.74	ft
Critical Depth	0.64	ft
Critical Slope	0.00476	ft/ft
Velocity	5.85	ft/s
Velocity Head	0.53	ft
Specific Energy	1.03	ft
Froude Number	1.46	
Flow Type	Supercritical	

3' curb cut called out in plans

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	ft
Critical Depth	0.64	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00476	ft/ft

Worksheet for NW Corner Pond Curb Cut

Project Description

Friction Method	Manning Formula
Solve For	Bottom Width

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Normal Depth	0.50	ft
Discharge	5.96	ft³/s

Discharge from Basin P3 towards NW Pond

Results

Bottom Width	2.14	ft
Flow Area	1.07	ft²
Wetted Perimeter	3.14	ft
Hydraulic Radius	0.34	ft
Top Width	2.14	ft
Critical Depth	0.62	ft
Critical Slope	0.00532	ft/ft
Velocity	5.58	ft/s
Velocity Head	0.48	ft
Specific Energy	0.98	ft
Froude Number	1.39	
Flow Type	Supercritical	

2.5' Curb Cut called out in plans

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	ft
Critical Depth	0.62	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.00532	ft/ft

Worksheet for 24" PVC Pond Connection

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.010	
Channel Slope	0.00900	ft/ft
Diameter	2.00	ft
Discharge	26.39	ft³/s

Total discharge from all basins directed to both NW and SW ponds

Results

Normal Depth	1.55	ft
Flow Area	2.61	ft²
Wetted Perimeter	4.31	ft
Hydraulic Radius	0.61	ft
Top Width	1.67	ft
Critical Depth	1.80	ft
Percent Full	77.5	%
Critical Slope	0.00711	ft/ft
Velocity	10.10	ft/s
Velocity Head	1.59	ft
Specific Energy	3.14	ft
Froude Number	1.42	
Maximum Discharge	30.01	ft³/s
Discharge Full	27.90	ft³/s
Slope Full	0.00805	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	77.49	%
Downstream Velocity	Infinity	ft/s

APPENDIX D

ONSITE POND CALCULATIONS

NW & SW Ponds (Combined)
Volume Calculations

A_b - Bottom Of The Pond Surface Area

A_t - Top Of The Pond Surface Area

D - Water Depth

D_t - Total Pond Depth

C - Change In Surface Area / Water Depth

Volume = $A_b * D + 0.5 * C * D^2$

C = $(A_t - A_b) / D_t$

A_b = 94.58 ft^2

A_t = 4,740.15 ft^2

D_t = 5.00 ft

C = 929.11

ACTUAL ELEVATION	DEPTH (ft)	VOLUME (ac-ft)	Q (cfs)	Note
65.40	0.00	0.0000	0.0000	BOP
65.90	0.50	0.0038	0.0000	
66.40	1.00	0.0128	0.0000	
66.90	1.50	0.0273	0.0000	
67.40	2.00	0.0470	0.0000	
67.90	2.50	0.0721	0.0000	
68.40	3.00	0.1025	0.0000	Outfall Invert
68.90	3.50	0.1382	6.1920	
69.40	4.00	0.1793	12.3840	
69.90	4.50	0.2257	18.5760	
70.40	5.00	0.2775	24.7681	TOP

Orifice Equation

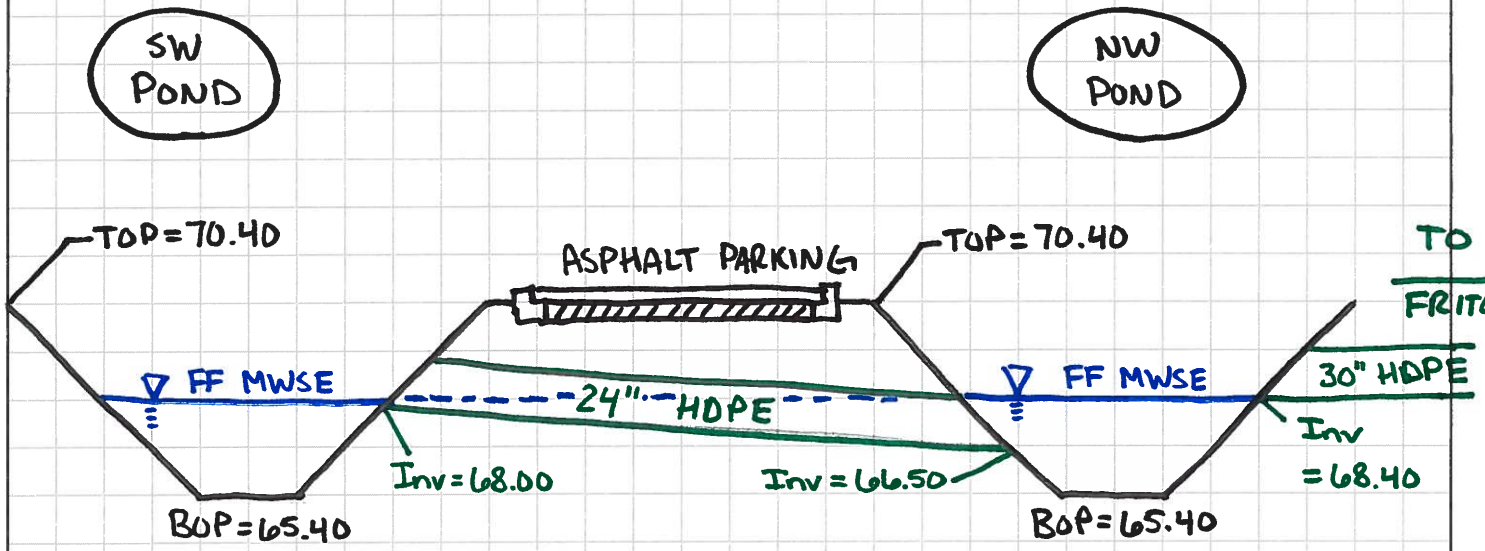
$Q = CA(2gH)^{1/2}$

C =	0.8	
Diameter (in)	27.75	2.3125
Area (ft^2)=	4.200	
g =	32.2	
H (ft) =	Depth of water above center of orifice	
Q (cfs)=	Flow	

TIERRA WEST, LLC
5571 Midway Park Place NE • Albuquerque, NM 87109 • (505) 858-3100 • (505) 858-1118 Fax • 1-800-245-3102 • twllc@tierrawestllc.com

Project _____ Date _____
Project No. _____
Meeting Purpose _____ Sheet No ___ of ___
Attendees _____

FIRST FLUSH POND SCHEMATIC



FF MWSE = 5068.40

FF Volume Required = 3,061 CF (Calcs under Proposed Hydrology Table)

FF Volume Provided = 3,398 CF

```
        AHYMO PROGRAM (AHYMO-S4)                    - Version: S4.01a - Rel: 01a
             RUN DATE (MON/DAY/YR) = 09/19/2018
             START TIME (HR:MIN:SEC) = 16:58:57     USER NO.=
AHYMO_Temp_User:20122010
             INPUT FILE = X:\2017\2017054 Tract 9A Hospital\Drainage\2017054 hymo
9-19-18.txt

    ************************************************************
    *         BEHAVIORAL HEALTH HOSPITAL, ALBUQUERQUE, NM      *
    ************************************************************
    *  100-YEAR 24-HR STORM (UNDER PROPOSED CONDITIONS) W/ ROUTING  *
    ************************************************************
    START               TIME=0.0
    *
    *
    RAINFALL            TYPE=2 RAIN QUARTER=0.0 IN
                        RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                        RAIN DAY=2.75 IN DT=0.05 HR

                   24-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE
AREAS (NM & AZ) - D1
                   DT =   0.050000 HOURS       END TIME =    24.000002 HOURS
                     0.0000  0.0023  0.0046  0.0071  0.0099  0.0127  0.0159
                     0.0203  0.0272  0.0347  0.0424  0.0509  0.0595  0.0684
                     0.0776  0.0870  0.0974  0.1084  0.1204  0.1437  0.1728
                     0.2117  0.2559  0.3104  0.3831  0.4649  0.6062  0.8258
                     1.2021  1.4666  1.6752  1.7800  1.8719  1.9379  1.9905
                     2.0362  2.0697  2.1005  2.1259  2.1418  2.1530  2.1629
                     2.1722  2.1803  2.1879  2.1953  2.2025  2.2084  2.2118
                     2.2152  2.2186  2.2217  2.2247  2.2278  2.2307  2.2336
                     2.2363  2.2391  2.2417  2.2443  2.2469  2.2494  2.2518
                     2.2542  2.2565  2.2588  2.2611  2.2633  2.2654  2.2676
                     2.2697  2.2717  2.2738  2.2758  2.2778  2.2798  2.2817
                     2.2837  2.2856  2.2874  2.2893  2.2911  2.2930  2.2948
                     2.2965  2.2983  2.3000  2.3017  2.3034  2.3051  2.3068
                     2.3084  2.3100  2.3117  2.3133  2.3148  2.3164  2.3180
                     2.3195  2.3210  2.3225  2.3240  2.3255  2.3269  2.3284
                     2.3298  2.3313  2.3327  2.3341  2.3355  2.3368  2.3382
                     2.3396  2.3409  2.3422  2.3436  2.3449  2.3462  2.3474
                     2.3487  2.3500  2.3513  2.3525  2.3538  2.3551  2.3563
                     2.3576  2.3589  2.3601  2.3614  2.3627  2.3639  2.3652
                     2.3665  2.3677  2.3690  2.3702  2.3715  2.3728  2.3740
                     2.3753  2.3765  2.3778  2.3790  2.3803  2.3815  2.3828
                     2.3840  2.3853  2.3865  2.3878  2.3890  2.3903  2.3915
                     2.3927  2.3940  2.3952  2.3965  2.3977  2.3989  2.4002
                     2.4014  2.4027  2.4039  2.4051  2.4064  2.4076  2.4088
                     2.4101  2.4113  2.4125  2.4137  2.4150  2.4162  2.4174
```

2.4186	2.4199	2.4211	2.4223	2.4235	2.4247	2.4260
2.4272	2.4284	2.4296	2.4308	2.4320	2.4333	2.4345
2.4357	2.4369	2.4381	2.4393	2.4405	2.4417	2.4429
2.4441	2.4453	2.4465	2.4478	2.4490	2.4502	2.4514
2.4526	2.4538	2.4550	2.4561	2.4573	2.4585	2.4597
2.4609	2.4621	2.4633	2.4645	2.4657	2.4669	2.4681
2.4692	2.4704	2.4716	2.4728	2.4740	2.4752	2.4764
2.4775	2.4787	2.4799	2.4811	2.4822	2.4834	2.4846
2.4858	2.4869	2.4881	2.4893	2.4905	2.4916	2.4928
2.4940	2.4951	2.4963	2.4975	2.4986	2.4998	2.5010
2.5021	2.5033	2.5044	2.5056	2.5068	2.5079	2.5091
2.5102	2.5114	2.5125	2.5137	2.5148	2.5160	2.5171
2.5183	2.5194	2.5206	2.5217	2.5229	2.5240	2.5252
2.5263	2.5274	2.5286	2.5297	2.5309	2.5320	2.5331
2.5343	2.5354	2.5365	2.5377	2.5388	2.5399	2.5411
2.5422	2.5433	2.5445	2.5456	2.5467	2.5478	2.5490
2.5501	2.5512	2.5523	2.5535	2.5546	2.5557	2.5568
2.5579	2.5590	2.5602	2.5613	2.5624	2.5635	2.5646
2.5657	2.5668	2.5679	2.5691	2.5702	2.5713	2.5724
2.5735	2.5746	2.5757	2.5768	2.5779	2.5790	2.5801
2.5812	2.5823	2.5834	2.5845	2.5856	2.5867	2.5878
2.5889	2.5899	2.5910	2.5921	2.5932	2.5943	2.5954
2.5965	2.5976	2.5986	2.5997	2.6008	2.6019	2.6030
2.6040	2.6051	2.6062	2.6073	2.6084	2.6094	2.6105
2.6116	2.6126	2.6137	2.6148	2.6159	2.6169	2.6180
2.6191	2.6201	2.6212	2.6223	2.6233	2.6244	2.6254
2.6265	2.6276	2.6286	2.6297	2.6307	2.6318	2.6328
2.6339	2.6350	2.6360	2.6371	2.6381	2.6392	2.6402
2.6413	2.6423	2.6433	2.6444	2.6454	2.6465	2.6475
2.6486	2.6496	2.6506	2.6517	2.6527	2.6538	2.6548
2.6558	2.6569	2.6579	2.6589	2.6600	2.6610	2.6620
2.6630	2.6641	2.6651	2.6661	2.6672	2.6682	2.6692
2.6702	2.6712	2.6723	2.6733	2.6743	2.6753	2.6763
2.6774	2.6784	2.6794	2.6804	2.6814	2.6824	2.6834
2.6844	2.6854	2.6865	2.6875	2.6885	2.6895	2.6905
2.6915	2.6925	2.6935	2.6945	2.6955	2.6965	2.6975
2.6985	2.6995	2.7005	2.7015	2.7025	2.7034	2.7044
2.7054	2.7064	2.7074	2.7084	2.7094	2.7104	2.7114
2.7123	2.7133	2.7143	2.7153	2.7163	2.7172	2.7182
2.7192	2.7202	2.7211	2.7221	2.7231	2.7241	2.7250
2.7260	2.7270	2.7280	2.7289	2.7299	2.7309	2.7318
2.7328	2.7338	2.7347	2.7357	2.7366	2.7376	2.7386
2.7395	2.7405	2.7414	2.7424	2.7433	2.7443	2.7452
2.7462	2.7472	2.7481	2.7491	2.7500		

*
*BASIN O1
*

```
    COMPUTE NM HYD      ID=10 HYD NO=110.1 AREA=0.00431 SQ MI
                        PER A=0.0 PER B=18.00 PER C=17.00 PER D=65.0
                        TP=-0.1333 HR MASS RAINFALL=-1

         K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE
CONSTANT, N =  7.106428
         UNIT PEAK =   11.060    CFS   UNIT VOLUME =   0.9981       B =   526.28
 P60 = 2.0100
         AREA =     0.002802 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000


         K =  0.120119HR    TP =  0.133300HR    K/TP RATIO =  0.901116     SHAPE
CONSTANT, N =  3.932522
         UNIT PEAK =   3.9682    CFS   UNIT VOLUME =   0.9980       B =   350.65
 P60 = 2.0100
         AREA =     0.001509 SQ MI    IA =   0.42714 INCHES    INF =   1.04600
INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

    PRINT HYD           ID=10 CODE=1

                                      PARTIAL HYDROGRAPH   110.10


        RUNOFF VOLUME =     2.00230 INCHES     =       0.4603 ACRE-FEET
        PEAK DISCHARGE RATE =      11.57 CFS  AT   1.500 HOURS   BASIN AREA =
0.0043 SQ. MI.



    *
    *
    *BASIN P1
    *
    COMPUTE NM HYD      ID=1 HYD NO=100.1 AREA=0.00307 SQ MI
                        PER A=0.0 PER B=15.00 PER C=16.00 PER D=69.0
                        TP=-0.1333 HR MASS RAINFALL=-1

         K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE
CONSTANT, N =  7.106428
         UNIT PEAK =   8.3632    CFS   UNIT VOLUME =   0.9978       B =   526.28
 P60 = 2.0100
         AREA =     0.002118 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
```

```
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000


         K =  0.119369HR    TP =  0.133300HR    K/TP RATIO =  0.895494     SHAPE
CONSTANT, N =  3.958796
         UNIT PEAK =   2.5161    CFS   UNIT VOLUME =   0.9959       B =   352.42
 P60 = 2.0100
         AREA =     0.000952 SQ MI    IA =   0.42258 INCHES    INF =   1.03323
INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

    PRINT HYD           ID=1 CODE=1

                                       PARTIAL HYDROGRAPH   100.10


        RUNOFF VOLUME =     2.06216 INCHES     =       0.3376 ACRE-FEET
        PEAK DISCHARGE RATE =       8.40 CFS  AT   1.500 HOURS   BASIN AREA =
0.0031 SQ. MI.



    *
    *
    *BASIN P2
    *
    COMPUTE NM HYD      ID=2 HYD NO=200.1 AREA=0.00014 SQ MI
                        PER A=0.0 PER B=83.00 PER C=17.00 PER D=0.0
                        TP=-0.1333 HR MASS RAINFALL=-1

         K =  0.127899HR    TP =  0.133300HR    K/TP RATIO =  0.959479     SHAPE
CONSTANT, N =  3.682448
         UNIT PEAK =  0.35018    CFS   UNIT VOLUME =   0.9636       B =   333.42
 P60 = 2.0100
         AREA =     0.000140 SQ MI    IA =   0.47450 INCHES    INF =   1.17860
INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

    PRINT HYD           ID=2 CODE=1

                                       PARTIAL HYDROGRAPH   200.10


        RUNOFF VOLUME =     0.99596 INCHES     =       0.0074 ACRE-FEET
        PEAK DISCHARGE RATE =       0.26 CFS  AT   1.500 HOURS   BASIN AREA =
```

0.0001 SQ. MI.

```
    *
    *
    *BASIN P3
    *
    COMPUTE NM HYD      ID=3 HYD NO=300.1 AREA=0.00215 SQ MI
                        PER A=0.0 PER B=10.00 PER C=8.00 PER D=82.0
                        TP=-0.1333 HR MASS RAINFALL=-1

         K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE
CONSTANT, N =  7.106428
         UNIT PEAK =   6.9604    CFS   UNIT VOLUME =   0.9975       B =   526.28
 P60 = 2.0100
         AREA =     0.001763 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000


         K =  0.121136HR    TP =  0.133300HR    K/TP RATIO =  0.908746     SHAPE
CONSTANT, N =  3.897525
         UNIT PEAK =   1.0111    CFS   UNIT VOLUME =   0.9886       B =   348.28
 P60 = 2.0100
         AREA =     0.000387 SQ MI    IA =   0.43333 INCHES    INF =   1.06333
INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

    PRINT HYD           ID=3 CODE=1

                                          HYDROGRAPH FROM AREA   300.10


        RUNOFF VOLUME =     2.24476 INCHES     =       0.2574 ACRE-FEET
        PEAK DISCHARGE RATE =       6.19 CFS  AT   1.500 HOURS   BASIN AREA =
0.0022 SQ. MI.



    *
    *
    *BASIN P4
    *
    COMPUTE NM HYD      ID=4 HYD NO=400.1 AREA=0.00052 SQ MI
                        PER A=0.0 PER B=40.00 PER C=60.00 PER D=0.0
```

TP=-0.1333 HR MASS RAINFALL=-1

K = 0.117303HR TP = 0.133300HR K/TP RATIO = 0.879990 SHAPE CONSTANT, N = 4.033584
UNIT PEAK = 1.3942 CFS UNIT VOLUME = 0.9916 B = 357.40 P60 = 2.0100
AREA = 0.000520 SQ MI IA = 0.41000 INCHES INF = 0.99800 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA 400.10

RUNOFF VOLUME = 1.09791 INCHES = 0.0304 ACRE-FEET
PEAK DISCHARGE RATE = 1.05 CFS AT 1.500 HOURS BASIN AREA = 0.0005 SQ. MI.

*
*
*BASIN P5
*
COMPUTE NM HYD ID=5 HYD NO=500.1 AREA=0.00013 SQ MI
PER A=0.0 PER B=85.00 PER C=15.00 PER D=0.0
TP=-0.1333 HR MASS RAINFALL=-1

K = 0.128391HR TP = 0.133300HR K/TP RATIO = 0.963176 SHAPE CONSTANT, N = 3.667883
UNIT PEAK = 0.32416 CFS UNIT VOLUME = 0.9632 B = 332.39 P60 = 2.0100
AREA = 0.000130 SQ MI IA = 0.47750 INCHES INF = 1.18700 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=5 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 500.10

RUNOFF VOLUME = 0.99089 INCHES = 0.0069 ACRE-FEET
PEAK DISCHARGE RATE = 0.24 CFS AT 1.500 HOURS BASIN AREA = 0.0001 SQ. MI.

```
    *
    *ADD BASIN O1 AND P4
    ADD HYD             ID=40 HYD NO=410.1 ID=10 ID=4
    PRINT HYD           ID=40 CODE=1

                                          HYDROGRAPH FROM AREA   410.10


        RUNOFF VOLUME =     1.90486 INCHES     =       0.4907 ACRE-FEET
        PEAK DISCHARGE RATE =      12.61 CFS  AT   1.500 HOURS   BASIN AREA =
0.0048 SQ. MI.



    *
    *ADD BASIN O1/P4 AND BASIN P3
    ADD HYD             ID=30 HYD NO=310.1 ID=40 ID=3
    PRINT HYD           ID=30 CODE=1

                                          HYDROGRAPH FROM AREA   310.10


        RUNOFF VOLUME =     2.00952 INCHES     =       0.7481 ACRE-FEET
        PEAK DISCHARGE RATE =      18.80 CFS  AT   1.500 HOURS   BASIN AREA =
0.0070 SQ. MI.



    *
    *ADD BASIN O1/P4/P3 AND BASIN P5
    ADD HYD             ID=50 HYD NO=510.1 ID=30 ID=5
    PRINT HYD           ID=50 CODE=1

                                    OUTFLOW HYDROGRAPH RESERVOIR   510.10


        RUNOFF VOLUME =     1.99088 INCHES     =       0.7549 ACRE-FEET
        PEAK DISCHARGE RATE =      19.05 CFS  AT   1.500 HOURS   BASIN AREA =
0.0071 SQ. MI.



    *
    *ADD BASIN P1 AND P2
    ADD HYD             ID=20 HYD NO=210.1 ID=2 ID=1
    PRINT HYD           ID=20 CODE=1
```

PARTIAL HYDROGRAPH 210.10

RUNOFF VOLUME = 2.01554 INCHES = 0.3451 ACRE-FEET
PEAK DISCHARGE RATE = 8.66 CFS AT 1.500 HOURS BASIN AREA = 0.0032 SQ. MI.

```
*
*ADD BASIN P1/P2 AND BASIN O1/P3/P4/P5
ADD HYD             ID=25 HYD NO=250.1 ID=20 ID=50
PRINT HYD           ID=25 CODE=1
```

PARTIAL HYDROGRAPH 250.10

RUNOFF VOLUME = 1.99855 INCHES = 1.1000 ACRE-FEET
PEAK DISCHARGE RATE = 27.71 CFS AT 1.500 HOURS BASIN AREA = 0.0103 SQ. MI.

```
*
*ROUTE NW/SW PONDS COMBINED
*
ROUTE RESERVOIR     ID=11 HYD NO=101.1 INFLOW ID=25 CODE=24
                    OUTFLOW(CFS) STORAGE(AC-FT) ELEVATION(FT)
                    00.0000      0.0000         5065.40
                    00.0100      0.0038         5065.90
                    00.0101      0.0128         5066.40
                    00.0102      0.0273         5066.90
                    00.0103      0.0470         5067.40
                    00.0104      0.0721         5067.90
                    00.0105      0.1025         5068.40
                    06.1920      0.1382         5068.90
                    12.3840      0.1793         5069.40
                    18.5760      0.2257         5069.90
                    24.7680      0.2775         5070.40
```

* * * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	5065.40	0.000	0.00
1.20	3.25	5067.16	0.038	0.01

2.40	0.89	5068.49	0.109	1.13
3.60	0.04	5068.40	0.103	0.04
4.80	0.06	5068.40	0.103	0.06
6.00	0.10	5068.41	0.103	0.10
7.20	0.11	5068.41	0.103	0.11
8.40	0.11	5068.41	0.103	0.11
9.60	0.10	5068.41	0.103	0.10
10.80	0.10	5068.41	0.103	0.10
12.00	0.10	5068.41	0.103	0.10
13.20	0.10	5068.41	0.103	0.10
14.40	0.10	5068.41	0.103	0.10
15.60	0.09	5068.41	0.103	0.10
16.80	0.09	5068.41	0.103	0.09
18.00	0.09	5068.41	0.103	0.09
19.20	0.09	5068.41	0.103	0.09
20.40	0.09	5068.41	0.103	0.09
21.60	0.09	5068.41	0.103	0.09
22.80	0.08	5068.41	0.103	0.08
24.00	0.08	5068.41	0.103	0.08
25.20	0.00	5068.39	0.102	0.01
26.40	0.00	5068.37	0.101	0.01
27.60	0.00	5068.36	0.100	0.01
28.80	0.00	5068.34	0.099	0.01
30.00	0.00	5068.32	0.098	0.01
31.20	0.00	5068.30	0.097	0.01
32.40	0.00	5068.29	0.096	0.01
33.60	0.00	5068.27	0.095	0.01
34.80	0.00	5068.25	0.094	0.01
36.00	0.00	5068.24	0.093	0.01
37.20	0.00	5068.22	0.091	0.01
38.40	0.00	5068.20	0.090	0.01
39.60	0.00	5068.18	0.089	0.01
40.80	0.00	5068.17	0.088	0.01
42.00	0.00	5068.15	0.087	0.01
43.20	0.00	5068.13	0.086	0.01
44.40	0.00	5068.12	0.085	0.01
45.60	0.00	5068.10	0.084	0.01
46.80	0.00	5068.08	0.083	0.01
48.00	0.00	5068.07	0.082	0.01
49.20	0.00	5068.05	0.081	0.01
50.40	0.00	5068.03	0.080	0.01
51.60	0.00	5068.01	0.079	0.01
52.80	0.00	5068.00	0.078	0.01
54.00	0.00	5067.98	0.077	0.01
55.20	0.00	5067.96	0.076	0.01
56.40	0.00	5067.95	0.075	0.01
57.60	0.00	5067.93	0.074	0.01
58.80	0.00	5067.91	0.073	0.01

60.00	0.00	5067.89	0.072	0.01
61.20	0.00	5067.87	0.071	0.01
62.40	0.00	5067.85	0.070	0.01
63.60	0.00	5067.83	0.069	0.01
64.80	0.00	5067.81	0.068	0.01
66.00	0.00	5067.79	0.067	0.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
67.20	0.00	5067.77	0.066	0.01
68.40	0.00	5067.75	0.065	0.01
69.60	0.00	5067.73	0.064	0.01
70.80	0.00	5067.71	0.063	0.01
72.00	0.00	5067.69	0.062	0.01
73.20	0.00	5067.67	0.061	0.01
74.40	0.00	5067.65	0.059	0.01
75.60	0.00	5067.63	0.058	0.01
76.80	0.00	5067.61	0.057	0.01
78.00	0.00	5067.59	0.056	0.01
79.20	0.00	5067.57	0.055	0.01
80.40	0.00	5067.55	0.054	0.01
81.60	0.00	5067.53	0.053	0.01
82.80	0.00	5067.51	0.052	0.01
84.00	0.00	5067.48	0.051	0.01
85.20	0.00	5067.46	0.050	0.01
86.40	0.00	5067.44	0.049	0.01
87.60	0.00	5067.42	0.048	0.01
88.80	0.00	5067.40	0.047	0.01
90.00	0.00	5067.38	0.046	0.01
91.20	0.00	5067.35	0.045	0.01
92.40	0.00	5067.33	0.044	0.01
93.60	0.00	5067.30	0.043	0.01
94.80	0.00	5067.28	0.042	0.01
96.00	0.00	5067.25	0.041	0.01
97.20	0.00	5067.22	0.040	0.01
98.40	0.00	5067.20	0.039	0.01
99.60	0.00	5067.17	0.038	0.01
100.80	0.00	5067.15	0.037	0.01
102.00	0.00	5067.12	0.036	0.01
103.20	0.00	5067.09	0.035	0.01
104.40	0.00	5067.07	0.034	0.01
105.60	0.00	5067.04	0.033	0.01
106.80	0.00	5067.02	0.032	0.01
108.00	0.00	5066.99	0.031	0.01
109.20	0.00	5066.97	0.030	0.01
110.40	0.00	5066.94	0.029	0.01
111.60	0.00	5066.91	0.028	0.01

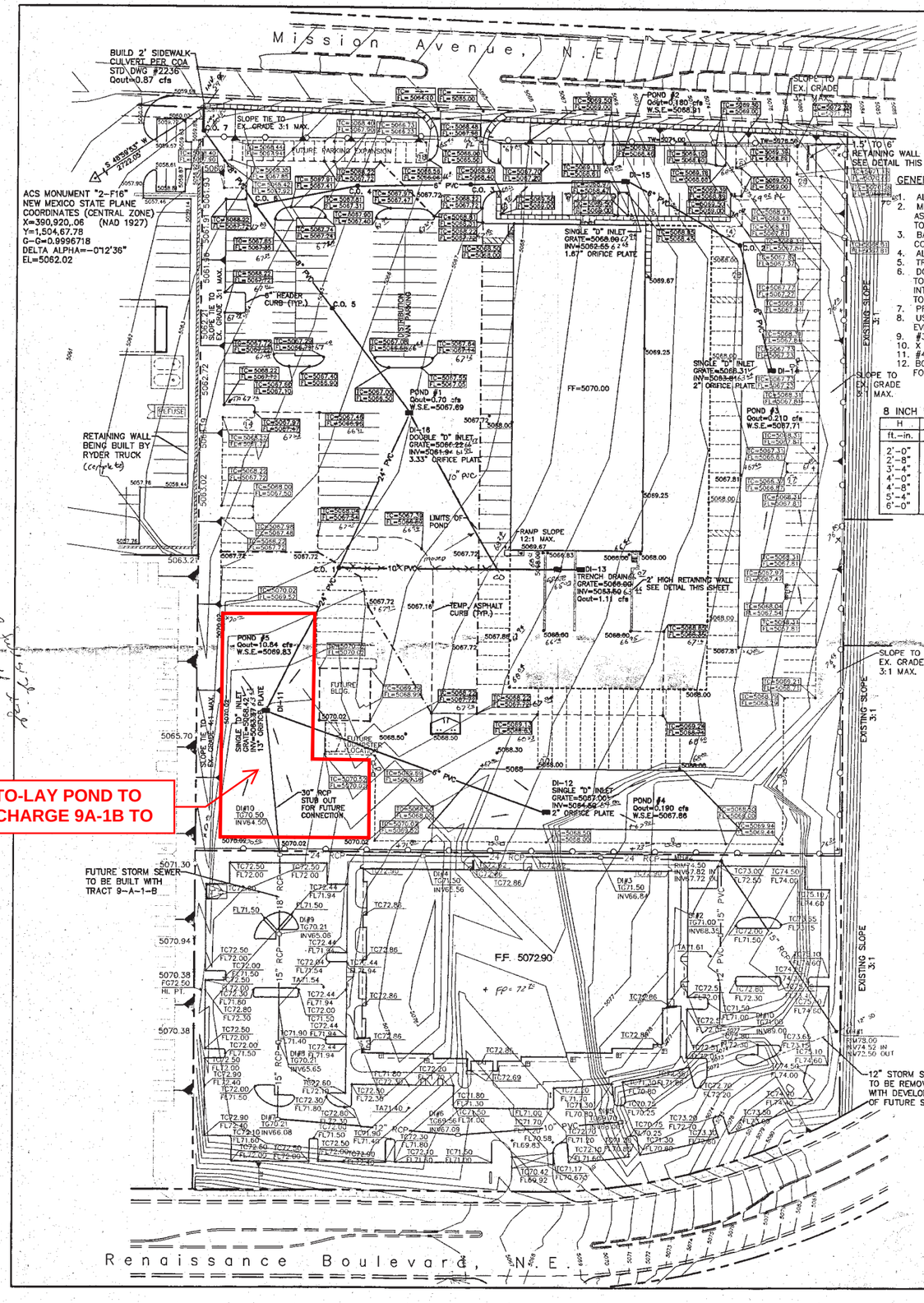
```
   112.80       0.00    5066.88       0.027       0.01
   114.00       0.00    5066.85       0.026       0.01
   115.20       0.00    5066.81       0.025       0.01
   116.40       0.00    5066.78       0.024       0.01
   117.60       0.00    5066.75       0.023       0.01
   118.80       0.00    5066.71       0.022       0.01
   120.00       0.00    5066.68       0.021       0.01
   121.20       0.00    5066.64       0.020       0.01
   122.40       0.00    5066.61       0.019       0.01
   123.60       0.00    5066.57       0.018       0.01
   124.80       0.00    5066.54       0.017       0.01
   126.00       0.00    5066.50       0.016       0.01
   127.20       0.00    5066.47       0.015       0.01
   128.40       0.00    5066.43       0.014       0.01
   129.60       0.00    5066.40       0.013       0.01
   130.80       0.00    5066.34       0.012       0.01
   132.00       0.00    5066.29       0.011       0.01
   133.20       0.00    5066.23       0.010       0.01

    TIME        INFLOW     ELEV       VOLUME     OUTFLOW
    (HRS)       (CFS)      (FEET)     (AC-FT)    (CFS)

   134.40       0.00    5066.18       0.009       0.01
   135.60       0.00    5066.12       0.008       0.01
   136.80       0.00    5066.07       0.007       0.01
   138.00       0.00    5066.01       0.006       0.01
   139.20       0.00    5065.96       0.005       0.01
   140.40       0.00    5065.90       0.004       0.01
   141.60       0.00    5065.78       0.003       0.01
   142.80       0.00    5065.70       0.002       0.01
   144.00       0.00    5065.63       0.002       0.00
 PEAK DISCHARGE =       22.665 CFS - PEAK OCCURS AT HOUR    1.60
 MAXIMUM WATER SURFACE ELEVATION =     5070.230
 MAXIMUM STORAGE =        0.2599 AC-FT      INCREMENTAL TIME=    0.050000HRS

 *
 PRINT HYD           ID=11 CODE=1

                                  PARTIAL HYDROGRAPH   101.10


      RUNOFF VOLUME =     1.99855 INCHES     =       1.1000 ACRE-FEET
      PEAK DISCHARGE RATE =      22.66 CFS  AT   1.600 HOURS   BASIN AREA =
0.0103 SQ. MI.


 *
```

Less than maximum discharge allowed towards Frito-Lay Pond (24.97 cfs)

Less than top of NW and SW pond elevations (5070.40)

APPENDIX E

EXCERPTS FROM APPROVED FRITO LAY GRADING PLAN AND DRAINAGE REPORT

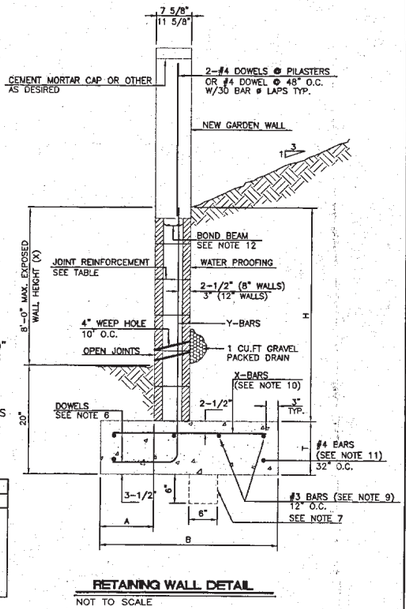


GENERAL NOTES:

1. ALL CONCRETE IS TO BE 4000 PSI @ 28 DAYS.
2. MINIMUM COMPACTION UNDER FOOTINGS IS TO BE 95% PER ASTM. D 1557 FOR A DEPTH OF 12" MOISTURE CONTENT IS TO BE ± 2.0%.
3. BACK FILL AGAINST WALLS IS TO BE HAND-PLACED AND COMPACTED.
4. ALL BARS ARE TO BE GRADE 60, ASTM 615.
5. TRUSS TYPE DUR-O-WALL EVERY OTHER COURSE.
6. DOWELS SHALL BE AT LEAST EQUAL IN SIZE AND SPACING TO V-BARS, SHALL PROJECT A MINIMUM OF 30 BAR DIA. INTO THE FILLED BLOCK CORES, AND SHALL EXTEND TO THE TOE OF THE FOOTING.
7. PROVIDE KEY FOR 8" AND 12" WALLS WHERE H EXCEEDS 6'-0"
8. USE EITHER EXPANSION JOINTS ON 20' CENTERS OR PILASTERS EVERY 16'.
9. #3 BARS TO BE USED ON WALLS EXCEEDING 2'-8" HEIGHT
10. X BARS TO BE USED ON WALLS EXCEEDING 2'-8" HEIGHT
11. #4 BARS TO BE USED ON WALLS SMALLER THAN 3'-4"
12. BOND BEAM, 1-#4 BARS FOR WALLS UNDER 3'-4", 2-#4 BARS FOR WALLS UNDER 5'-4", 2-#5 BARS FOR WALLS OVER 5'-4".

8 INCH REINFORCED CONCRETE MASONRY WALL

H	X	A	B	T	Y-BARS	X-BARS
ft.-in.	ft.-in.	in.	ft.-in.	in.		
2'-0"	1'-1"	8"	2'-4"	9"	#3 @32" O.C.	
2'-8"	1'-9"	8"	2'-9"	9"	#4 @32" O.C.	#3 @27" O.C.
3'-4"	2'-5"	8"	2'-4"	9"	#3 @32" O.C.	#3 @27" O.C.
4'-0"	3'-1"	10"	2'-9"	9"	#4 @32" O.C.	#3 @27" O.C.
4'-8"	3'-10"	12"	3'-4"	10"	#5 @32" O.C.	#3 @27" O.C.
5'-4"	4'-6"	14"	3'-8"	10"	#4 @16" O.C.	#4 @30" O.C.
6'-0"	5'-3"	16"	4'-2"	12"	#6 @24" O.C.	#4 @25" O.C.



RETAINING WALL DETAIL

NOT TO SCALE

NOTICE TO CONTRACTORS

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
2. 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.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO RESIDENTIAL STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

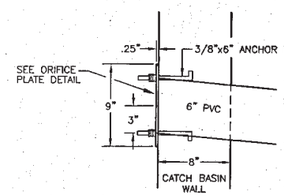
APPROVALS	NAME	DATE
A.C.E./DESIGN		
INSPECTOR		
A.C.E./FIELD		

GENERAL NOTES:

1. A DRAINAGE EASEMENT IS GRANTED TO TRACTS 9B, 9C, 9D OVERT AND ACROSS TRACT 9-1-1-B FOR THE BENEFIT OF 9B, 9C, 9D TO BE MAINTAINED BY TRACT 9-A-1-B.
2. A DRAINAGE EASEMENT IS GRANTED TO TRACTS 9B, 9C, 9D AND 9-1-1-B OVER AND ACROSS TRACT 9-A-1-A ALONG WITH A PERMANENT PONDING EASEMENT (PONDS #1 AND #5) FOR THE BENEFIT OF 9B, 9C, 9D AND 9-A-1-B TO BE MAINTAINED BY TRACT 9-A-1-A.

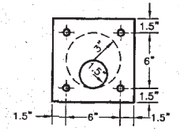
I certify that the grades shown on the plans have been built in substantial compliance with approved grading and drainage plan dated 9-10-99. Survey information was supplied by Wagner Land Surveying in accordance with normal surveying practices.

Ronald R. Bohannan 3/19/99 5-12-99 #7868 NEW MEXICO REGISTERED PROFESSIONAL ENGINEER



DETAIL A

TO BE INSTALLED @ THE OUTFLOW OF ALL CATCH BASINS



TYP. ORIFICE PLATE DETAIL

N.T.S.

CLEAN OUT DATA

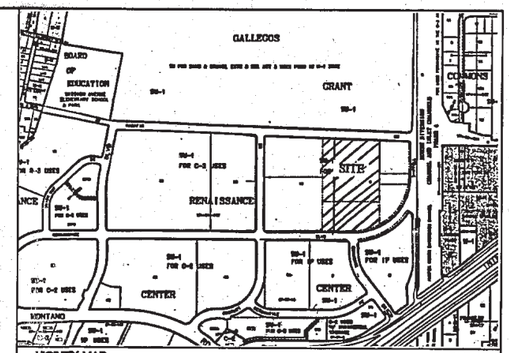
CO	RIM=	INV=
1	5067.81	5062.66
2	5067.81	5063.19
3	5067.53	5061.83
4	5067.55	5061.28
5	5066.94	5061.37
6	5067.60	5060.80
7	5062.24	5060.40

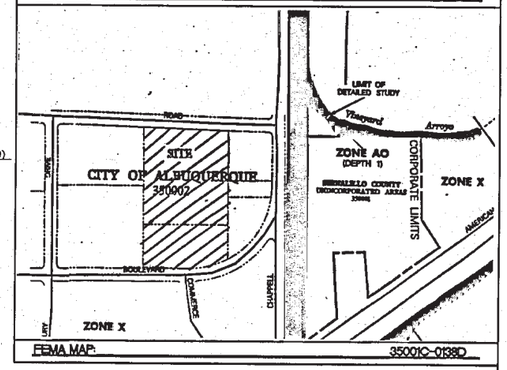
GRAPHIC SCALE

50 25 0 25 50

SCALE: 1"=50'

50/980044/9844OVGR.DWG/JDN/09-10-98





LEGAL DESCRIPTION:

TRACT 9-A-1-A AND 9-A-1-B OF NORTH RENAISSANCE CENTER

EROSION CONTROL PLAN NOTES

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT OUT OF EXISTING RIGHT-OF-WAY.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING UP ANY SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEAN-UP OF SEDIMENT ACCUMULATION 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 ACCEPTANCE OF ANY PROJECT.

LEGEND

- EXISTING CURB & GUTTER
- TEMPORARY ASPHALT CURB
- 5065 EXISTING CONTOUR (MAJOR)
- 5064 EXISTING CONTOUR (MINOR)
- BOUNDARY LINE
- EASEMENT
- PROPOSED SIDEWALK

RECEIVED MAY 12 1999 HYDROLOGY SECTION

ROUGH GRADING APPROVAL DATE

ENGINEER'S SEAL — RONALD R. BOHANNAN P.E. #7868

FRITO LAY

GRADING AND DRAINAGE PLAN

TIERRA WEST, LLC
4421 McLEOD ROAD, N.E., SUITE D
ALBUQUERQUE, NEW MEXICO 87109
(505)883-7592

DRAWN BY JDN
DATE 06-30-98
9844DVGR.DWG
SHEET # 3 OF 4
JOB # 980044

Pond 1 will drain to Mission Avenue at a rate of 0.70 cfs limited by 4.75" orifice plate.

Route 2

Basin 8 will drain to Pond 3 at a rate of 2.32 cfs.

Pond 3 will drain to Pond 2 at a rate of 0.21 cfs limited by a 2" orifice plate.

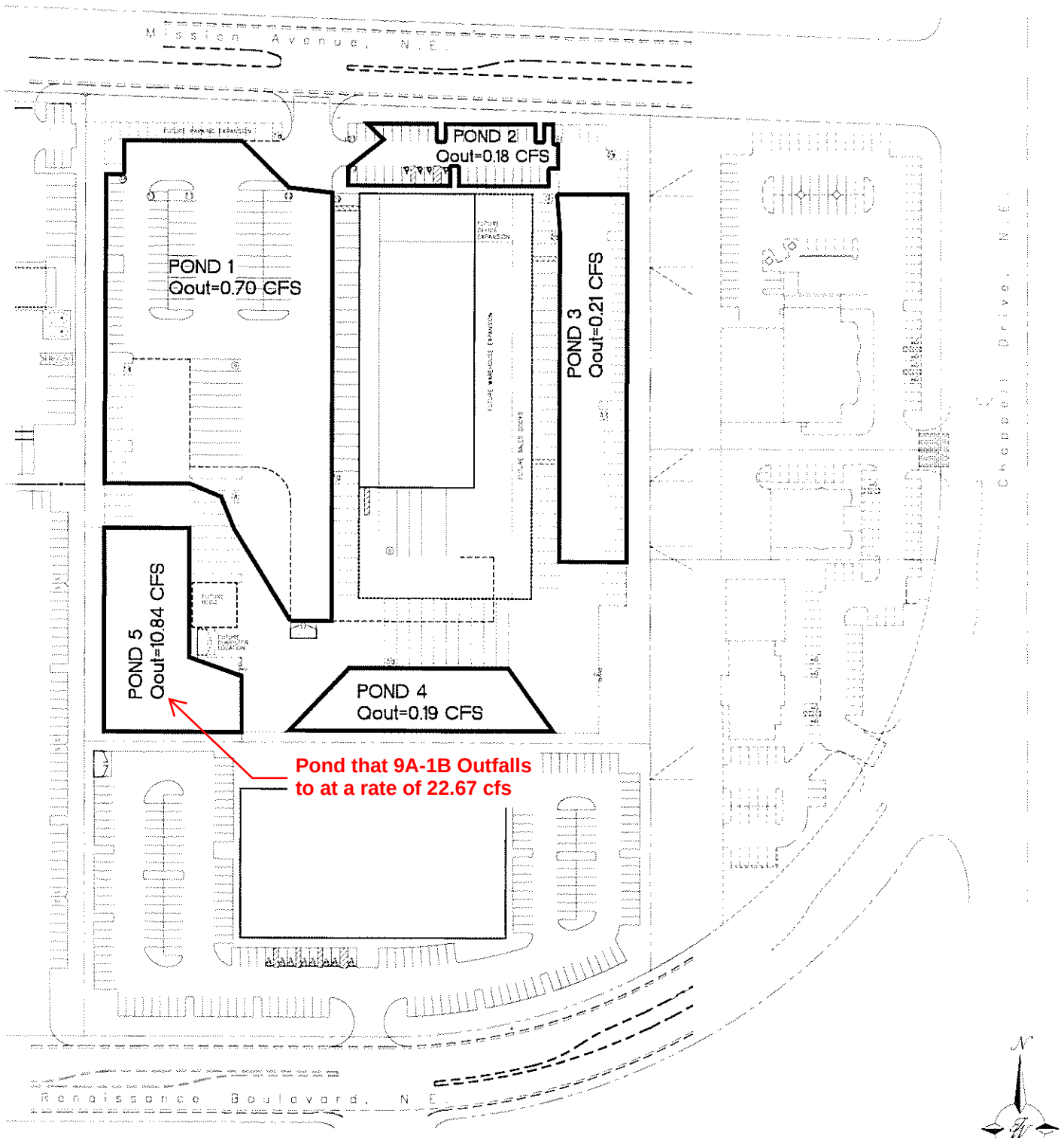
Pond 2 will drain to Mission Avenue at a rate of 0.18 cfs limited by 1-2/3" orifice plate.

The outflow from Pond 1 and Pond 2 will be combined for a total developed flow to Mission Avenue of 0.87 cfs.

The entrance northwest entrance to the FritoLay site will act as an emergency overflow in the event of a storm greater than 100 year. Pond 1 and Pond 2 are the final ponds in the series and will overflow out the entrance.

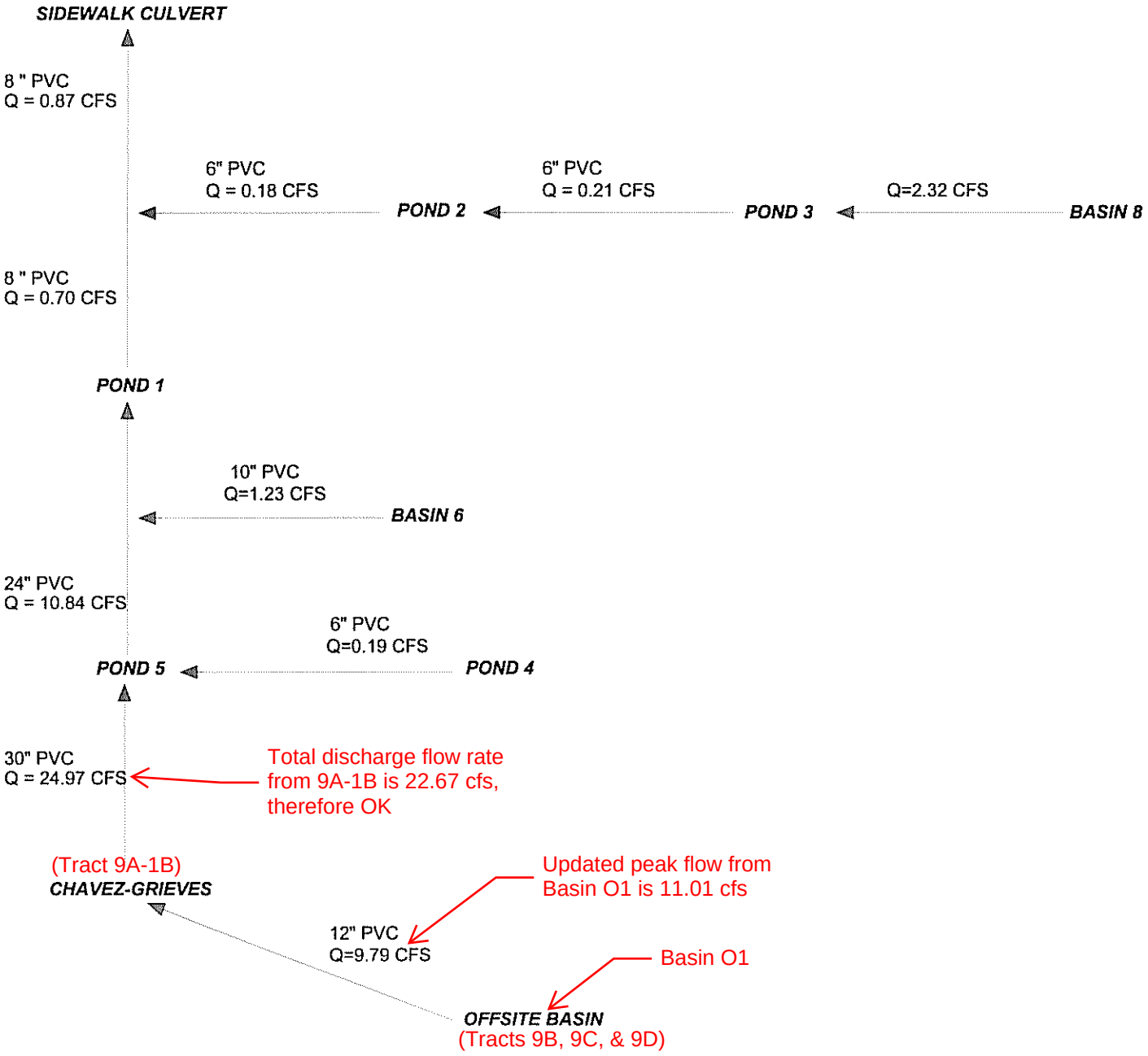
Summary

Tract 9-A-1-A consists of the proposed FritoLay site containing 8.38 acres, and Tract 9-A-1-B is the location of the proposed Chavez-Grieves office building containing 3.75 acres. The Frito Lay site is the outfall for four tracts that drain through a series of storm sewer to a central pond on site. Tracts 9B, 9C, and 9D drain to Tract 9-A-1-B (Chavez-Grieves) via a 12" pipe. These flows, along with the flows generated by Chavez-Grieves, are collected in a 30" storm sewer and discharged to Pond 1 on-site. Pond 1 and Pond 2 will discharge a combined flow of 0.87 cfs to Mission Avenue via a sidewalk culvert. Mission Avenue drains west per the approved Andrew, Asbury, and Roberts Master Drainage Plan to a central off-site pond.


POND 2
Qout=0.18 CFS
POND 1
Qout=0.70 CFS
POND 3
Qout=0.21 CFS
POND 5
Qout=10.84 CFS
POND 4
Qout=0.19 CFS
Pond that 9A-1B Outfalls
to at a rate of 22.67 cfs

POND LAYOUT

RUNOFF FLOW PATH

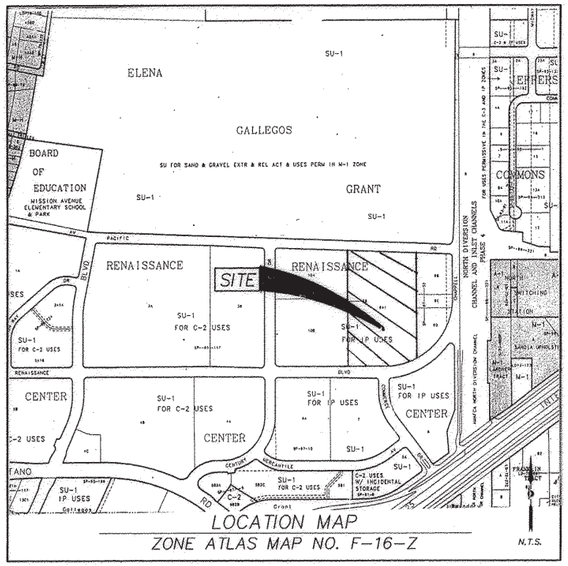


APPENDIX F

PLAT OF TRACTS 9A-1A & 9A-1B RENAISSANCE CENTER

PLAT OF
TRACTS 9-A-1-A AND 9-A-1-B
RENAISSANCE CENTER
ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO
MARCH 1998

1998093211
5678883
Page: 1 of 2
07/16/1998 11:19A
Judy D. Woodward Bern. Co. PLAT R 12.00 Bk-98C Pg-284



LEGAL DESCRIPTION

A TRACT OF LAND COMPRISING OF TRACT 9-A-1 OF RENAISSANCE CENTER AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT THEREOF FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON MARCH 31, 1997, IN VOLUME 97C, FOLIO 95, CONTAINING 12.127 ACRES (528,231 SQ. FT.) MORE OR LESS, NOW COMPRISING TRACTS 9-A-1-A AND 9-A-1-B, RENAISSANCE CENTER.

THIS IS TO CERTIFY THAT TAXES ARE CURRENT AND
PAID ON UPC #: 3 Supc Code #'s 0 see attached
PROPERTY OWNER OF RECORD: Limited NM Trust Co / trustee et
BERNALILLO COUNTY TREASURER'S OFFICE:
Pauline Rodriguez 7/16/98

APPROVALS

SP-98-131

CITY PLANNER, ALBUQUERQUE PLANNING DIVISION	DATE 7-16-98
CITY ENGINEER	DATE 7-10-98
A.M.A.F.C.A.	DATE 7-10-98
TRAFFIC ENGINEER	DATE 4-28-98
CITY SURVEYOR	DATE 031198
PROPERTY MANAGEMENT	DATE 7-10-98
WATER RESOURCES DEPARTMENT	DATE 4.28.98
DEVELOPMENT CIP	DATE 4-28-98
PNM ELECTRIC SERVICES	DATE 4-29-98
PNM GAS SERVICES	DATE 4-29-98
U.S. WEST COMMUNICATIONS	DATE 05-01-98
JONES INTERCABLE, INC.	DATE 4-2-98

By approving this plat, PNM Electric Services and Gas Services (PNM) did not conduct a Title Search of the properties shown hereon. Consequently, PNM does not waive nor release any easement or easement rights to which it may be entitled.

SUBDIVISION DATA:

GROSS SUBDIVISION ACREAGE: 12.127 ACRES±
ZONE ATLAS INDEX NO: F-16-Z
NO. OF TRACTS CREATED: 2
NO. OF LOTS CREATED: 0
MILES OF FULL-WIDTH STREETS CREATED: 0 MILES
DATE OF SURVEY: FEBRUARY 19, 1998

EASEMENTS

THIS PLAT SHOWS EXISTING RECORDED AND APPARENT EASEMENTS AS NOTED.

PUBLIC UTILITY EASEMENTS SHOWN ON THIS PLAT ARE GRANTED FOR THE COMMON AND JOINT USE OF:

1. PNM ELECTRIC SERVICES FOR THE INSTALLATION, MAINTENANCE, AND SERVICE OF OVERHEAD AND UNDERGROUND ELECTRICAL LINES, TRANSFORMERS, POLES AND ANY OTHER EQUIPMENT, FIXTURES, STRUCTURES AND RELATED FACILITIES REASONABLY NECESSARY TO PROVIDE ELECTRICAL SERVICE.
2. PNM GAS SERVICES FOR INSTALLATION, MAINTENANCE, AND SERVICE OF NATURAL GAS LINES, VALVES AND OTHER EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE NATURAL GAS.
3. U.S. WEST FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF ALL BURIED AND AERIAL COMMUNICATION LINES AND OTHER RELATED EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE COMMUNICATION SERVICES, INCLUDING BUT NOT LIMITED TO ABOVE GROUND PEDESTALS AND CLOSURES.
4. JONES INTERCABLE FOR THE INSTALLATION, MAINTENANCE, AND SERVICE OF SUCH LINES, CABLE, AND OTHER RELATED EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE CABLE TV SERVICE.

INCLUDED IS THE RIGHT TO BUILD, REBUILD, CONSTRUCT, RECONSTRUCT, LOCATE, RELOCATE. CHANGE, REMOVE, MODIFY, RENEW, OPERATE, AND MAINTAIN FACILITIES FOR THE PURPOSES DESCRIBED ABOVE, TOGETHER WITH FREE ACCESS TO, FROM, AND OVER SAID EASEMENTS, INCLUDING SUFFICIENT WORKING AREA SPACE FOR ELECTRIC TRANSFORMERS, WITH THE RIGHT AND PRIVILEGE TO TRIM AND REMOVE TREES, SHRUBS OR BUSHES WHICH INTERFER WITH THE PURPOSES SET FORTH HEREIN. NO BUILDING, SIGN, POOL (ABOVEGROUND OR SUBSURFACE), HOT TUB, CONCRETE OR WOOD POOL DECKING, OR OTHER STRUCTURE SHALL BE ERECTED OR CONSTRUCTED ON SAID EASEMENTS, NOR SHALL ANY WELL BE DRILLED OR OPERATED THEREON. PROPERTY OWNERS SHALL BE SOLELY RESPONSIBLE FOR CORRECTING ANY VIOLATIONS OF VIOLATIONS OF NATIONAL ELECTRICAL SAFETY CODE CAUSED BY CONSTRUCTION OR POOLS, DECKING, OR ANY STRUCTURES ADJACENT TO WITHIN OR NEAR EASEMENTS SHOWN ON THIS PLAT.

NOTES:

1. MISC. DATA: ZONING SU FOR IP USES
2. BEARINGS SHOWN ARE GRID BEARINGS (NM CENTRAL ZONE-NAD 1927).
3. ALL DISTANCES ARE GROUND DISTANCES.
4. THIS PROPERTY LIES WITHIN PROJECTED SECTION 34, TOWNSHIP 11 NORTH, RANGE 3 EAST, N.M.P.M., ELENA GALLEGOS GRANT, BERNALILLO COUNTY, NEW MEXICO.
5. THE PURPOSE OF THIS PLAT IS TO REPLAT THE EXISTING TRACT INTO TWO NEW TRACTS.
6. PLAT SHOWS ALL EASEMENTS OF RECORD.
7. SP NO. 980304104202295
8. A DRAINAGE EASEMENT IS GRANTED TO TRACTS 9B, 9C, 9D OVER AND ACROSS TRACT 9-A-1-B FOR THE BENEFIT OF 9B, 9C, 9D TO BE MAINTAINED BY TRACT 9-A-1-B.
9. A DRAINAGE EASEMENT IS GRANTED TO TRACTS 9B, 9C, 9D AND 9-A-1-B OVER AND ACROSS TRACT 9-A-1-A ALONG WITH A PERMANENT PONDING EASEMENT FOR THE BENEFIT OF 9B, 9C, 9D AND 9-A-1-B TO BE MAINTAINED BY TRACT 9-A-1-A.

FREE CONSENT AND DEDICATION

THE REPLAT SHOWN HEREON IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRES OF THE UNDERSIGNED OWNER AND/OR PROPRIETOR. EXISTING PUBLIC UTILITY EASEMENTS SHOWN HEREON FOR THE COMMON AND JOINT USE OF GAS, ELECTRICAL POWER AND COMMUNICATION SERVICES FOR BURIED DISTRIBUTION LINES, CONDUITS AND PIPES FOR UNDERGROUND UTILITIES WHERE SHOWN OR INDICATED, AND INCLUDING THE RIGHT OF INGRESS AND EGRESS FOR CONSTRUCTION AND MAINTENANCE, AND THE RIGHT TO TRIM INTERFERING TREES AND SHRUBS SAID OWNER AND/OR PROPRIETOR DOES HEREBY CERTIFY THAT THIS SUBDIVISION IS THEIR FREE ACT AND DEED.

GEORGE H. KUHN — DATE 3/3/98
SENIOR VICE PRESIDENT & SENIOR TRUST OFFICER
NORWEST BANK NEW MEXICO, N.A. TRUSTEE
UNION PENSION TRANSACTION TRUST 93-2, NM

KAREN LOFTUS — DATE 3/3/98
ASSISTANT VICE PRESIDENT
NORWEST BANK NEW MEXICO, N.A.
UNION PENSION TRANSACTION TRUST 93-2, NM

ACKNOWLEDGEMENT

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO)

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS 3rd DAY OF March, 1998 BY GEORGE H. KUHN, SENIOR VICE PRESIDENT & SENIOR TRUST OFFICER, NORWEST BANK NEW MEXICO, N.A. TRUSTEE, UNION PENSION TRANSACTION TRUST 93-2, NM

BY Donna J. Bohannan NOTARY PUBLIC — MY COMMISSION EXPIRES: 3-26-2000

OFFICIAL SEAL DONNA BOHANNAN NOTARY PUBLIC STATE OF NEW MEXICO My Commission Expires 3-26-2000

ACKNOWLEDGEMENT

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO)

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS 3rd DAY OF March, 1998 BY KAREN LOFTUS, ASSISTANT VICE PRESIDENT, NORWEST BANK NEW MEXICO, N.A.; UNION PENSION TRANSACTION TRUST 93-2, NM

BY Donna J. Bohannan NOTARY PUBLIC — MY COMMISSION EXPIRES: 3-26-2000

OFFICIAL SEAL DONNA BOHANNAN NOTARY PUBLIC STATE OF NEW MEXICO My Commission Expires 3-26-2000

SURVEYOR'S CERTIFICATE

I, LARRY W. MEDRANO, A REGISTERED PROFESSIONAL SURVEYOR UNDER THE LAWS OF THE STATE OF NEW MEXICO, HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY MEETING THE MINIMUM REQUIREMENTS FOR MONUMENTATION AND SURVEYS OF THE CITY OF ALBUQUERQUE SUBDIVISION ORDINANCE AND OF STANDARDS FOR LAND SURVEYS OF THE N.M. BOARD OF REGISTRATION FOR ENGINEERS AND SURVEYORS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT NO ENCROACHMENTS EXIST EXCEPT AS NOTED ABOVE AND THAT ALL IMPROVEMENTS ARE SHOWN IN THEIR CORRECT LOCATION RELATIVE TO RECORD BOUNDARIES AS LOCATED BY THIS SURVEY.

LARRY W. MEDRANO — DATE 3/2/98
N.M.P.S. No. 11993

LARRY W. MEDRANO NEW MEXICO 11993 REGISTERED PROFESSIONAL SURVEYOR

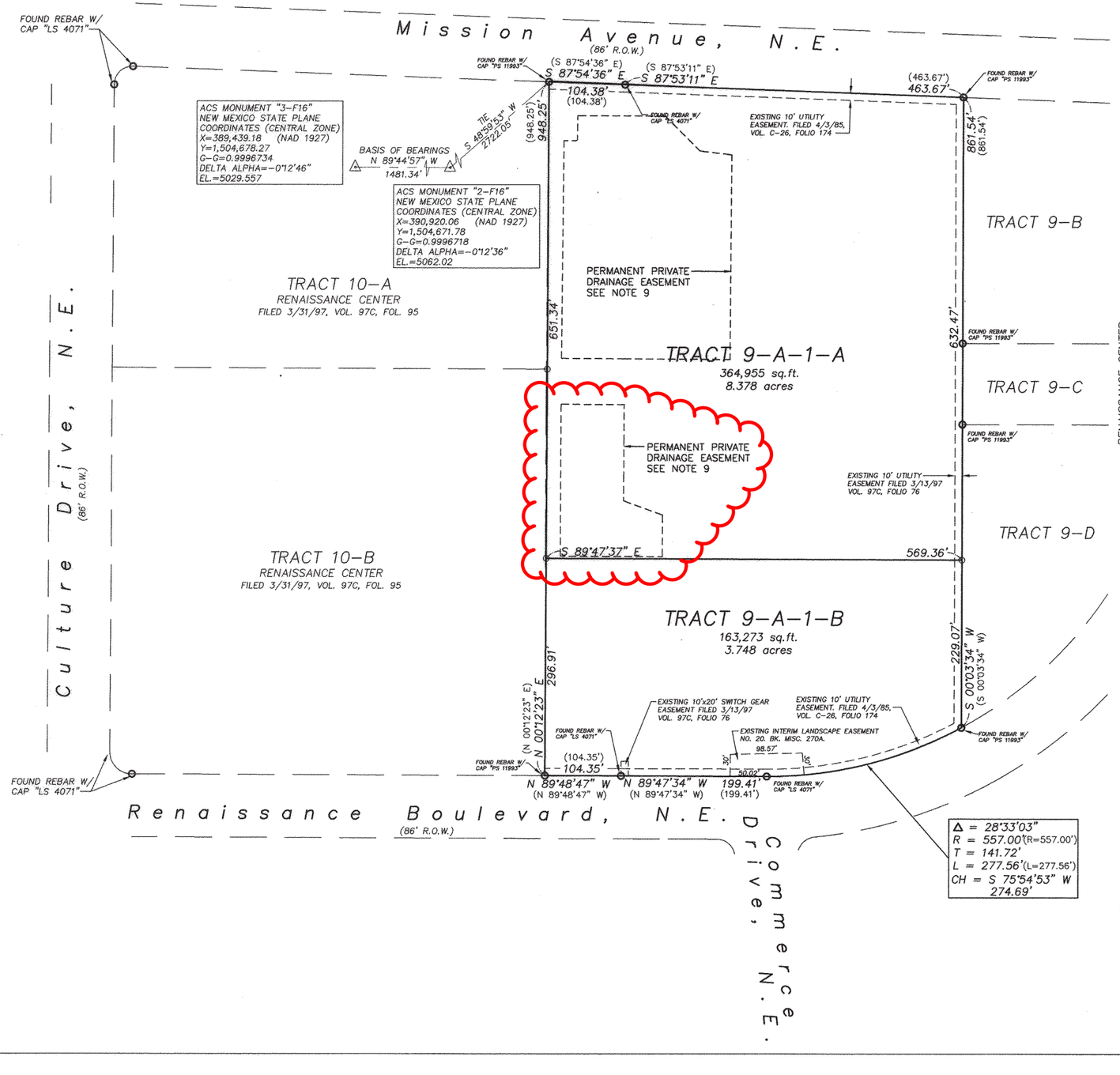
PRECISION SURVEYS, INC.
2929 COORS BLVD NW, SUITE 105 — PHONE 505 839 0569
ALBUQUERQUE, NEW MEXICO 87120 — FAX 505 839 4153

DRB CASE NO. 97-88
SHEET 1 OF 2
986060P

G:\PLATS\1998\986060P Mon Mar 2 08:11:08 1998

1998089211
5978963
Page: 2 of 2
07/16/1998 11:19A
Judy D. Woodward Bern. Co. PLAT R 12.00 BK-98C Pg-284

PLAT OF
TRACTS 9-A-1-A AND 9-A-1-B
RENAISSANCE CENTER
ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO
MARCH 1998



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

LEGEND

- O DENOTES POINT FOUND AND USED AS SHOWN
- O DENOTES POINT SET BY THIS SURVEY – REBAR WITH CAP "PS 11993"

PRECISION SURVEYS, INC.
2929 COORS BLVD NW, SUITE 105 PHONE 505 839 0569
ALBUQUERQUE, NEW MEXICO 87120 FAX 505 839 4153

DRB CASE NO. 97-88

SHEET 2 OF 2

986060P

G:\PLATS\1998\986060P Mon Mar 2 08:46:51 1998

EX. FRITO-LAY POND
CONTRACTOR IS RESPONSIBLE FOR ASSURING POND IS GRADED WITH PROPER TOP & BOTTOM ELEVATIONS
TOP=70.02
BOP=68.42
VOLUME=0.348 AC-FT

EXISTING SINGLE "D" INLET GRATE=5068.42 INV=5063.37 13" ORIFICE PLATE

CAUTION:

ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS, PRIOR TO STARTING THE WORK. ANY CHANGES FROM THIS PLAN SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.

FRITO-LAY POND NOTE:

CONTRACTOR WILL BE ALLOWED TO WORK IN THE FRITO-LAY POND DUE TO EXISTING PERMANENT PRIVATE DRAINAGE AND PONDING EASEMENT SHOWN ON THE PLAT OF TRACTS 9-A-1-A & 9-A-1-B RENAISSANCE CENTER.

KEYED NOTE:

(1) 2-FOOT VALLEY GUTTER PER COA STD DWG #2415A

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.

LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- BUILDING
- SIDEWALK
- SCREEN WALL
- 5010 CONTOUR MAJOR
- 5011 CONTOUR MINOR
- x 5048.25 SPOT ELEVATION
- FLOW ARROW
- EXISTING CURB & GUTTER
- EXISTING BOUNDARY LINE
- EXISTING CONTOUR MAJOR
- 5011 EXISTING CONTOUR MINOR
- x 5048.25 EXISTING SPOT ELEVATION
- ARTIFICIAL TURF

TRACT 9-A-1-A
RENAISSANCE CENTER
(07/16/1998, BOOK 98C, PAGE 204)

POND OUTFALL W/ END SECTION
SEE DETAIL SHEET C5
INV=5068.40

6" COBBLE RIPRPAP
4' WIDE, 1' DEEP

NW POND
TOP=5070.40
BOP=5065.40

24" HDPE END SECTION
INV=5066.50

4' DIA. MH
RIM=5073.27
INV IN (W)=5067.35
INV OUT (N)=5067.31
W/ 27-3/4" ORIFICE PLATE
(SEE DETAIL SHEET C5)

30" HDPE

2.5' CURB CUT

LANDSCAPE SWALE @ 0.40%

2' ALLEY GUTTER

FF=5072.85

FF=5073.95

OUTFALL W/ END SECTION
SEE DETAIL SHEET C5
ADD 6" COBBLE RIPRAP PAD
15'L x 4'W x 1'D
INV=5072.60
V=6.98 ft/s

45° FITTING
INV=5072.67

EX. 12" PVC

4' DIA. MH
RIM=5078.93
INV IN (E)=5077.93
INV OUT (N)=5073.50

REMOVE 54'± EX. 12" PVC

SEE DETAIL "B" SHEET C4

SEE DETAIL "C" SHEET C4

24" HDPE END SECTION
SEE DETAIL SHEET C5
INV=5068.00

3' CURB CUT

SW POND
TOP=5070.40
BOP=5065.40

2' ALLEY GUTTER

EX. SIDEWALK - NO REPAIRS NEEDED

6" COBBLE RIPRAP
4' WIDE, 1' DEEP

SEE DETAIL "D" SHEET C4

MONUMENT SIGN
BASE EL=5071.30

SEE DETAIL "A" SHEET C4

CONCRETE PAVERS W/ 1'-6" CONCRETE BAND PER COA STD DWG #2412

EX 16" WL

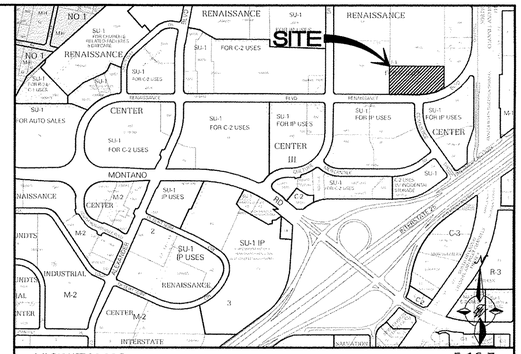
EX 8" SAS

Renaissance Blvd, N.E.

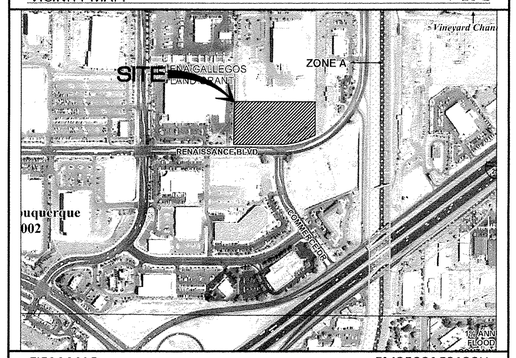
Commerce Dr

NOTE: ALL SPOT ELEVATIONS ARE FLOWLINE UNLESS OTHERWISE NOTED.

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



VICINITY MAP: F-16-Z



FIRM MAP: FM35001C0138H

NOTICE TO CONTRACTORS

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. 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.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED. 7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

APPROVAL	NAME	DATE
INSPECTOR		

ROUGH GRADING APPROVAL DATE

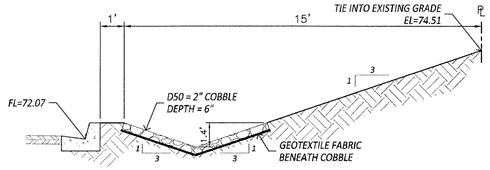
ENGINEER'S SEAL
RONALD R BOHANNAN NEW MEXICO 7868 REGISTERED PROFESSIONAL ENGINEER
RONALD R. BOHANNAN P.E. #7868

BEHAVIORAL HEALTH HOSPITAL
RENAISSANCE CENTER

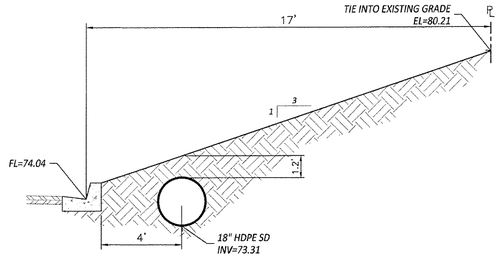
GRADING AND DRAINAGE PLAN

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

DRAWN BY DY
DATE 9/26/18
2017054-GR
SHEET # C3
JOB # 2017054



SECTION A-A
NTS



SECTION B-B
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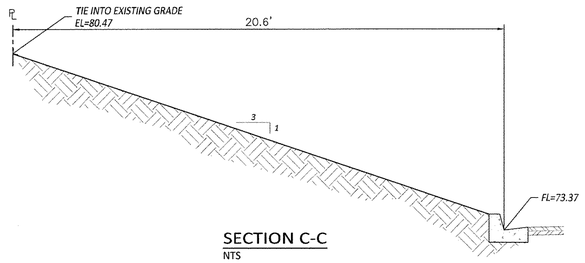

SECTION C-C
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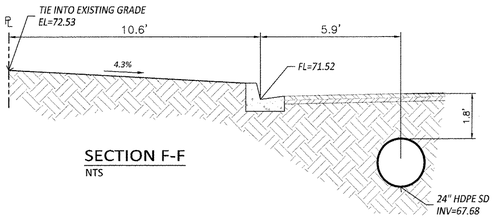

SECTION F-F
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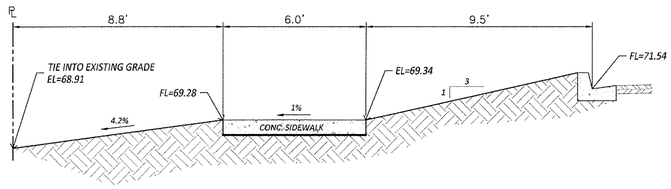

SECTION D-D
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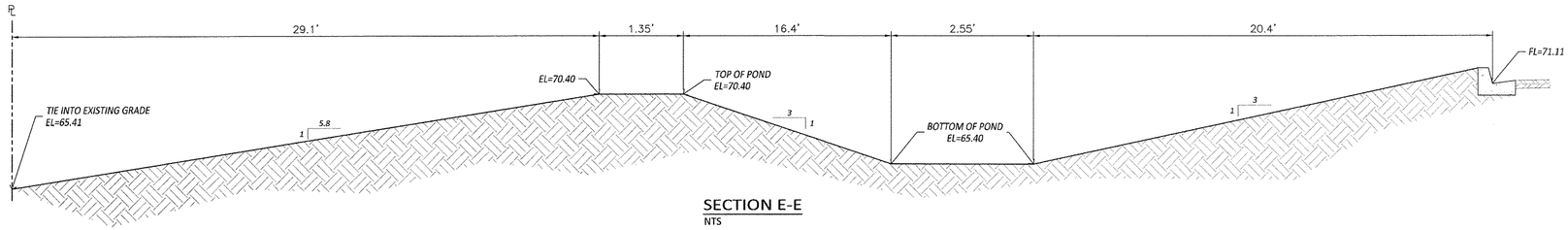

SECTION E-E
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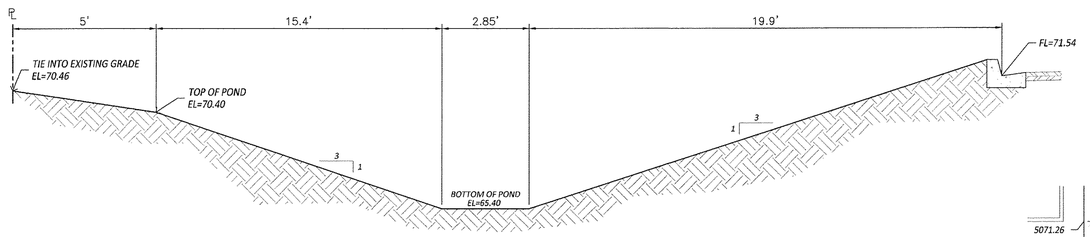
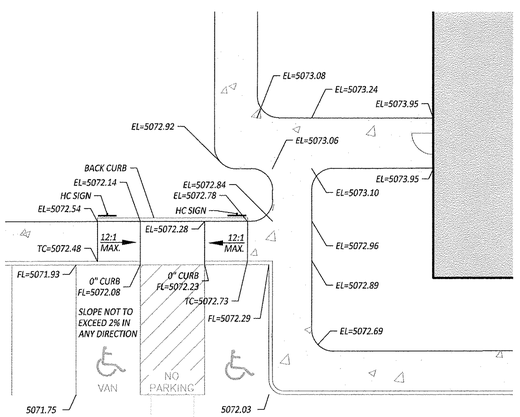
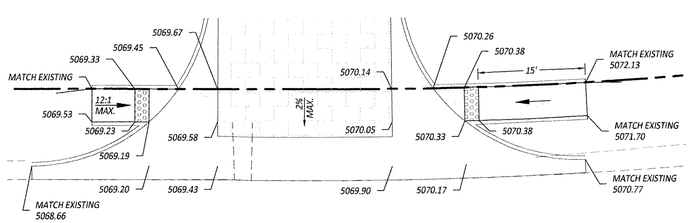


SECTION G-G
NTS



DETAIL "B"
SCALE: 1"=10'



DETAIL "A"
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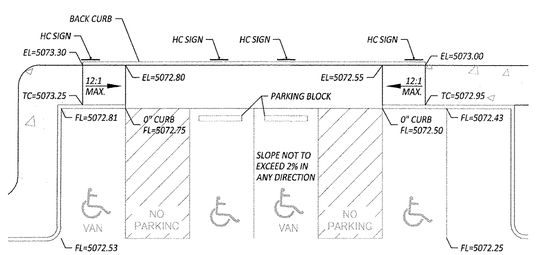

DETAIL "C"
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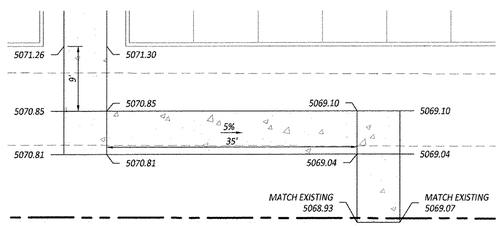

DETAIL "D"
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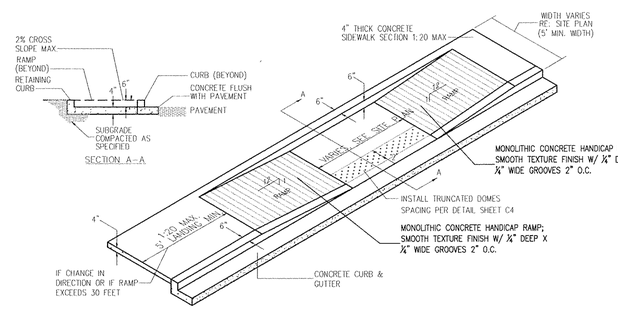


ADA RAMP DETAIL - SEE DETAIL "B" & "C" THIS SHEET
NTS

NOTES:

1) *International Symbol of Accessibility shall be painted on the pavement at rear of space, white symbol on blue background.*
2) *Parking space lines and diagonal striping to be painted blue.*
3) *Access aisle shall have the words "NO PARKING" in capital letters, each of which shall be at least one foot high and at least two inches wide, placed at the rear of the parking space so as to be close to where an adjacent vehicle's rear tires would be placed.*
4) *See sheet C5 for HC Parking Sign Detail.*

ENGINEER'S SEAL

RONALD R. BOHANNAN
NEW MEXICO
7868
REGISTERED PROFESSIONAL ENGINEER

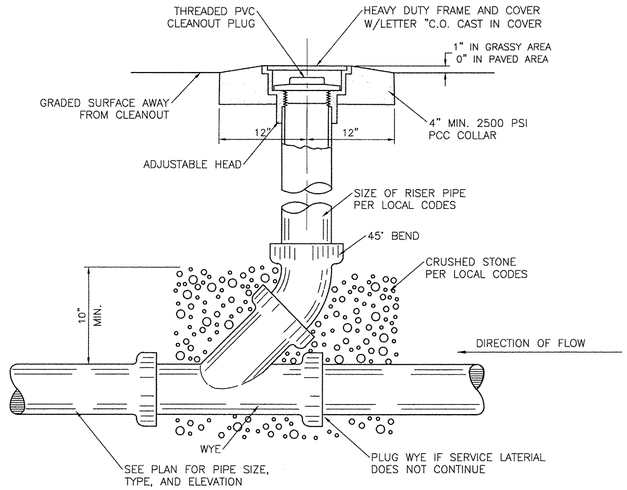
RONALD R. BOHANNAN
P.E. #7868

BEHAVIORAL HEALTH HOSPITAL RENAISSANCE CENTER

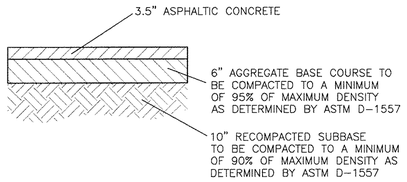
CROSS SECTIONS AND ADA DETAILS

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

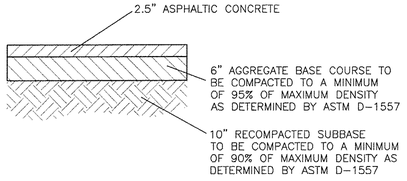
DRAWN BY: DY
DATE: 9/26/18
2017054-SECTIONS
SHEET # C4
JOB # 2017054



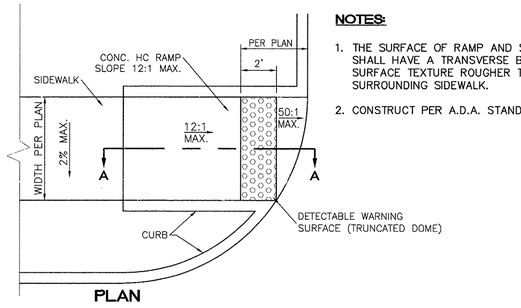
SANITARY SEWER CLEAN-OUT
NTS



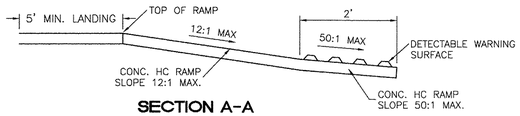
PAVING SECTION - MAIN DRIVE AISLES
NTS



PAVING SECTION - PARKING AREAS
NTS



PLAN

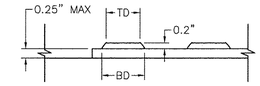


SECTION A-A

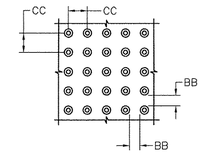
UNIDIRECTIONAL HC RAMP
NOT TO SCALE

NOTES:

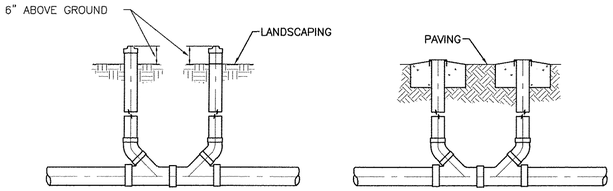
1. THE SURFACE OF RAMP AND SIDES SHALL HAVE A TRANSVERSE BROOMED SURFACE TEXTURE ROUGHER THAN THE SURROUNDING SIDEWALK.
2. CONSTRUCT PER A.D.A. STANDARDS.



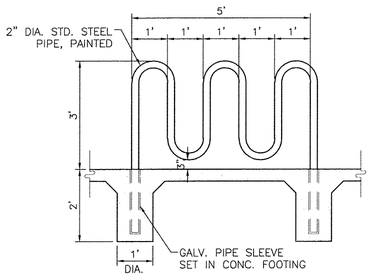
DOME SECTION
BD – BASE DIAMETER 0.9" MIN
TD – TOP DIAMETER 50% OF BD MIN TO 65% OF BD MAX



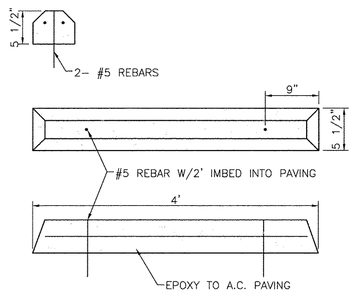
DOME SPACING
CC – CENTER TO CENTER SPACING 2.35"
BB – BASE TO BASE SPACING 1.48" MIN



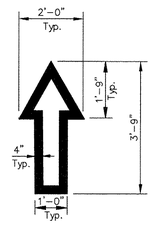
SANITARY SEWER DOUBLE CLEAN-OUTS
NTS



BIKE RACK DETAIL
SCALE: 1/2"=1'

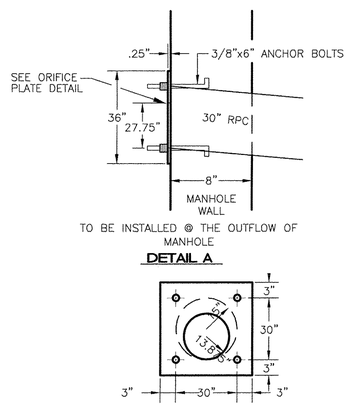


WHEEL BUMPER
NTS



NOTE: ALL TRAFFIC FLOW ARROWS TO BE REFLECTIVE WHITE PAINT PER SPECS.

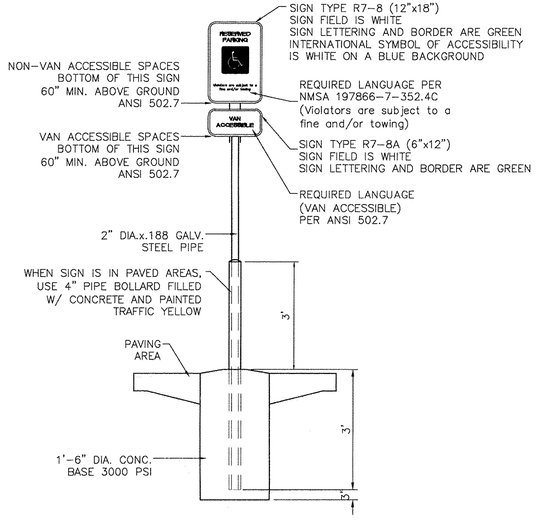
TRAFFIC FLOW ARROW
N.T.S.



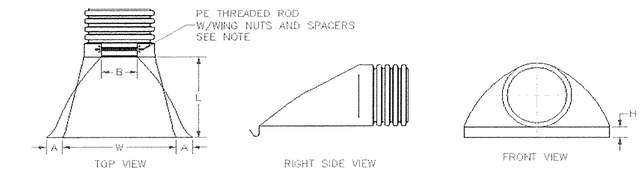
TO BE INSTALLED @ THE OUTFLOW OF MANHOLE

DETAIL A

27-3/4" ORIFICE PLATE DETAIL
NTS

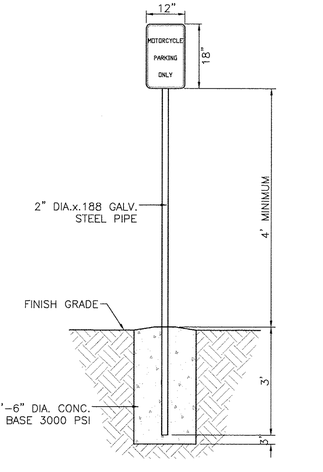


ACCESSIBLE PARKING SIGN
NTS

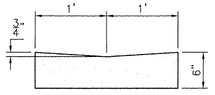


PART #	PIPE SIZE	A	B(MAX)	H	L	W
1015NP	10 in (250 mm)	3.8 in (95 mm)	10.0 in (254 mm)	6.5 in (165 mm)	28.0 in (711 mm)	34.5 in (876 mm)
1215NP	12 & 15 (300 & 375mm)	6.5 in (165 mm)	10.0 in (254 mm)	6.5 in (165 mm)	25.0 in (635 mm)	29.0 in (737 mm)
1810NP	18 in (450 mm)	7.5 in (191 mm)	15.0 in (381 mm)	6.5 in (165 mm)	32.0 in (813 mm)	35.0 in (889 mm)
2410NP	24 in (600 mm)	7.5 in (191 mm)	18.0 in (457 mm)	6.5 in (165 mm)	36.0 in (914 mm)	45.0 in (1143 mm)
3015NP	30 in (750 mm)	7.5 in (191 mm)	12.0 in (305 mm)	8.6 in (218 mm)	58.0 in (1473 mm)	63.0 in (1600 mm)
3615NP	36 in (900 mm)	7.5 in (191 mm)	25.0 in (635 mm)	8.6 in (218 mm)	58.0 in (1473 mm)	63.0 in (1600 mm)

HDPE END SECTION DETAIL
NTS



MOTORCYCLE PARKING SIGN
NTS



CONCRETE VALLEY GUTTER DETAIL
SCALE: 1"=1'

ENGINEER'S SEAL

RONALD R BOHANNAN NEW MEXICO 7868 REGISTERED PROFESSIONAL ENGINEER

RONALD R. BOHANNAN P.E. #7868

BEHAVIORAL HEALTH HOSPITAL
RENAISSANCE CENTER

DETAIL SHEET

DRAWN BY: DY

DATE: 9/13/18

2017054-DETAILS

SHEET # C5

JOB # 2017054

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