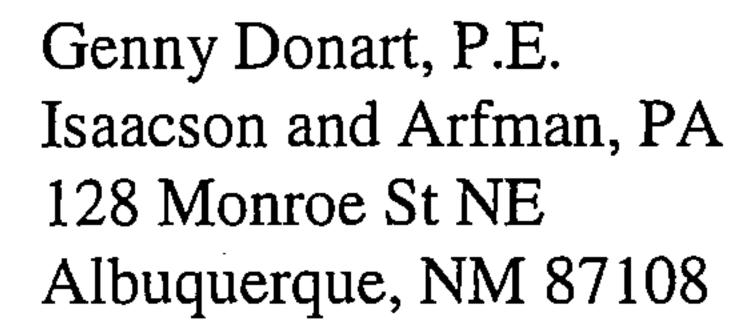
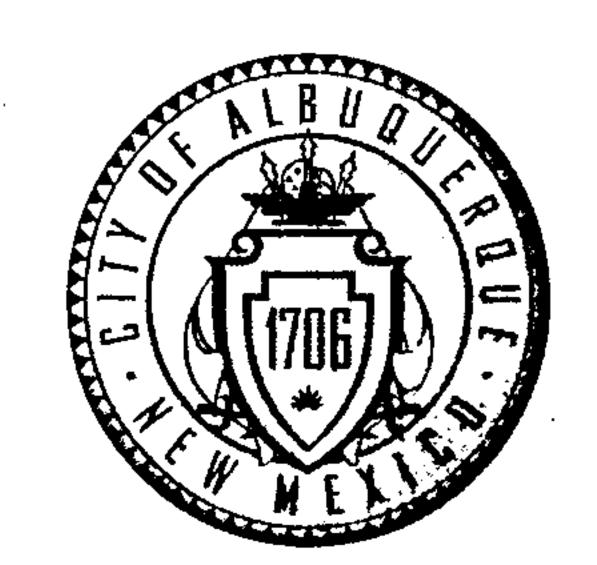
## CITY OF ALBUQUERQUE

July 2, 2015





Re:

Winrock Town Center DMP Engineer's Stamp Date 6-26-15 Drainage file number (J19D058)

Dear Ms. Donart,

Based upon the information provided in your submittal received 6-30-15, the above referenced report is approved for Drainage Master Plan with the following note:

ROW as shown on the Basin Map has not been established on site. Public storm drain alignments may need to be adjusted to fit in acceptable ROW or easement.

If you have any questions, you can contact me at 924-3420.

PO Box 1293

Sincerely,

Albuquerque

Curtis Cherne, P.E.

Principal Engineer, Stormwater Quality for Hydrology

Planning Dept.

New Mexico 87103

www.cabq.gov

e-mail



## City of Albuquerque

## Planning Department

### Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Winrock Town Center	Building Permit #:	City Drainage #: J19/D058	
DRB#: EPC#:		Work Order#:	
Legal Description: Parcels A-1-A-1, A-1-A-2, A-2, A-3, B, C-2A, D-1-A, E-1, Winrock Center Addition		and Tract B, Hunt-Spectrum Development Site	
City Address:			
Engineering Firms   leggeon & Arfman D A		O-4-4- O-5-4	
Engineering Firm: Isaacson & Arfman, P.A.	27100	Contact: Genny Donart	
Address: 128 Monroe Street NE - Albuquerque, NM 8	07 100		
Phone#: (505) 268-8828 Fax#:		E-mail: gennyd@iacivil.com	
Owner: Winrock Partners, LLC c/o Goodman Realty	Group	Contact: Darin Sand	
Address: 100 Sun Ave NE, Ste 210, Albuquerque, NI	VI 87109		
Phone#: 881-0100 ext 111 Fax#:		E-mail: sand@goodmanrealty.com	
Architect: Modulus Architects		Contact: Stephen Dunbar	
Address: 2325 San Pedro NE, Ste 2B, Albuquerque,	NM 87110		
Phone#: 338-1499 ext 106 Fax#:		E-mail: sdunbar@modulusarchitects.com	
Surveyor: Surv-Tek, Inc.		Contact: Russ Hugg	
Address:	···		
Phone#: 897-3366 Fax#:		E-mail:	
Contractor:		Contact:	
Address:			
Phone#: Fax#:		E-mail:	
TYPE OF SUBMITTAL:	CHECK TYPE OF APPROVA	L/ACCEPTANCE SOUGHT:	
DRAINAGE REPORT	SIA/FINANCIAL GUARANT		
DRAINAGE PLAN 1st SUBMITTAL	PRELIMINARY PLAT APPR		
DRAINAGE PLAN RESUBMITTAL	X S. DEV. PLAN FOR SUB'D A		
CONCEPTUAL G & D PLAN	X S. DEV. FOR BLDG. PERMIT		
GRADING PLAN	SECTOR PLAN APPROVAL	~ (	
EROSION & SEDIMENT CONTROL PLAN (ESC)	X FINAL PLAT APPROVAL	Pier	
ENGINEER'S CERT (HYDROLOGY)	CERTIFICATE OF OCCUPAT	NCY (PERM) ( -30~ して	
CLOMR/LOMR	CERTIFICATE OF OCCUPA	、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、	
TRAFFIC CIRCULATION LAYOUT (TCL)	FOUNDATION PERMIT APP	PROVAL	
ENGINEER'S CERT (TCL)	BUILDING PERMIT APPRO		
ENGINEER'S CERT (DRB SITE PLAN)	GRADING PERMIT APPROV	VAL SO-19 APPROVAL	
ENGINEER'S CERT (ESC)	PAVING PERMIT APPROVA	L ESC PERMIT APPROVAL	
SO-19	WORK ORDER APPROVAL	ESC CERT. ACCEPTANCE	
X OTHER (SPECIFY) Drainage Master Plan Resubmittal	GRADING CERTIFICATION		
WAS A PRE-DESIGN CONFERENCE ATTENDED:	X Yes No Cor	oy Provided	
DATE SUBMITTED: June 26, 2015	By: Genevieve Donart		
Requests for approvals of Site Development Plans and/or Subdivisio	Isaacson & Afrman, P.A.  n Plats shall be accompanied by a drainage	submittal. The particular nature location and	

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

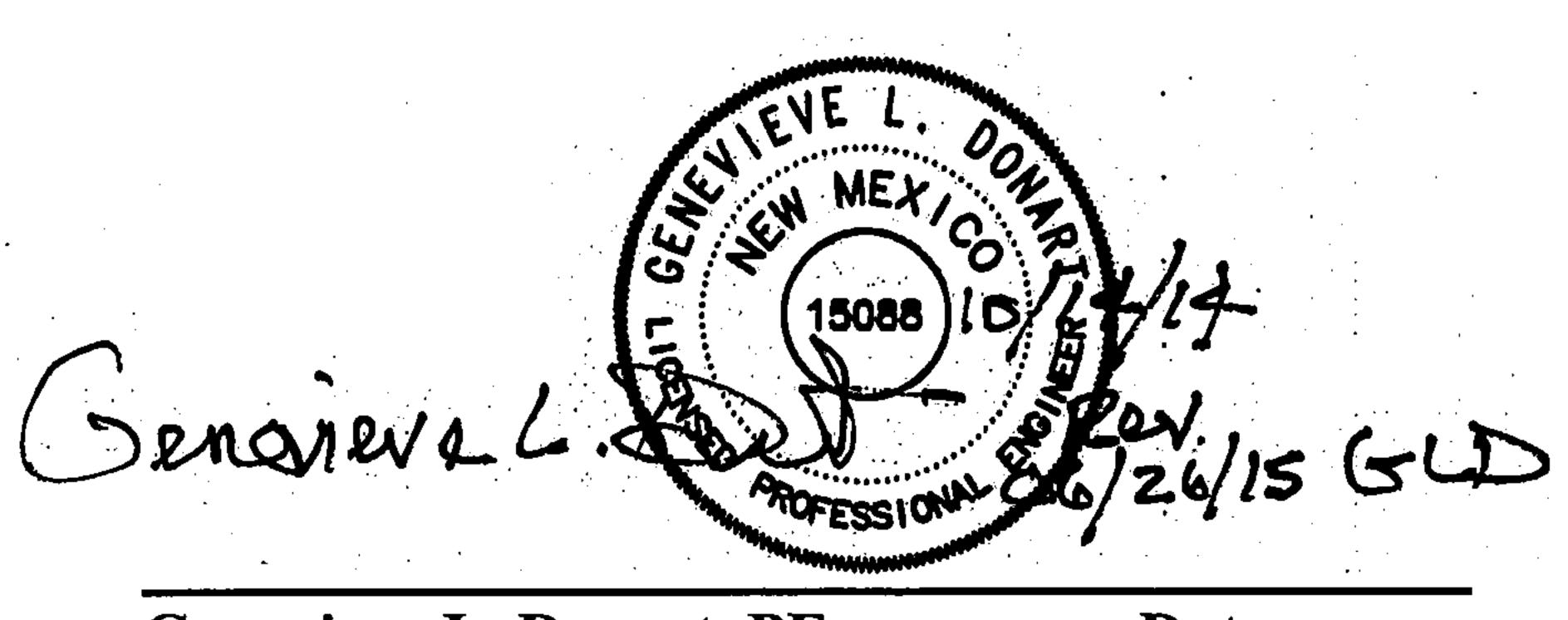
## DRAINAGE MASTER PLAN

FOR

## WINROCK TOWN CENTER

ALBUQUERQUE, NEW MEXICO

OCTOBER 14, 2014 REVISED JUNE 26, 2015



Genevieve L. Donart, PE

Date

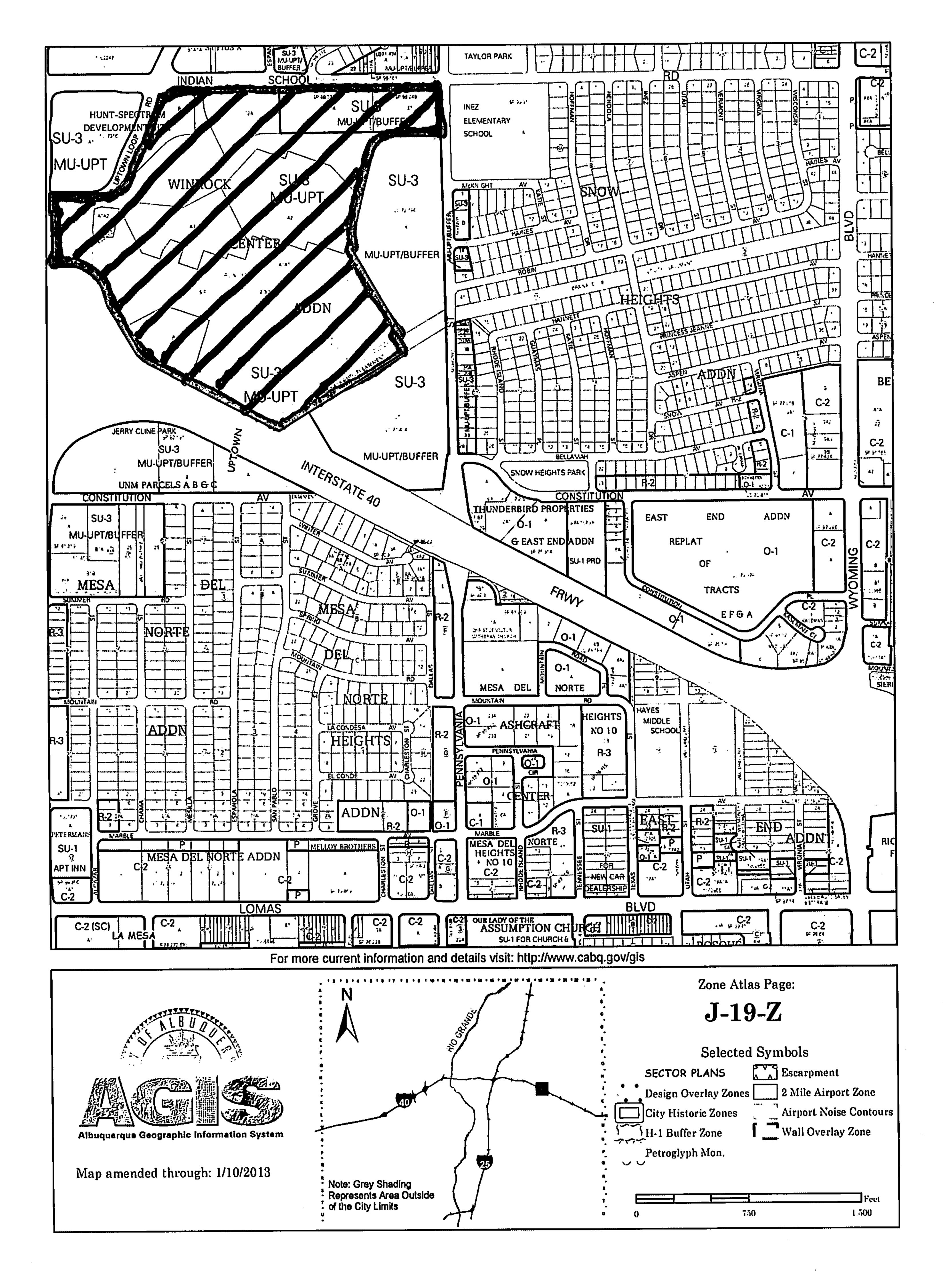
BY

ISAACSON & ARFMAN, P.A.

Consulting Engineering Associates

Thomas O. Isaacson, PE(RET.) & LS(RET.)
Fred C. Arfman, PE
Åsa Nilsson-Weber, PE

I&A Project No. 1823
M: PROJECT DOCUMENTS 1800-1899 1883 REPORTS & EXHIBITS



1490000 FT -35° 05' 37.5" 106° 33' 45" <sup>3</sup>58<sup>000m</sup> E

MAP SCALE 1" = 500'

50 0 500 1000 FEET

#### PANEL 0356H

## **FIRM**

FLOOD INSURANCE RATE MAP
BERNALILLO COUNTY,
NEW MEXICO

AND INCORPORATED AREAS

PANEL 356 OF 825

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

**CONTAINS**:

COMMUNITY NUMBER PANE

ALBUQUERQUE, CITY OF 350002 0356 H

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



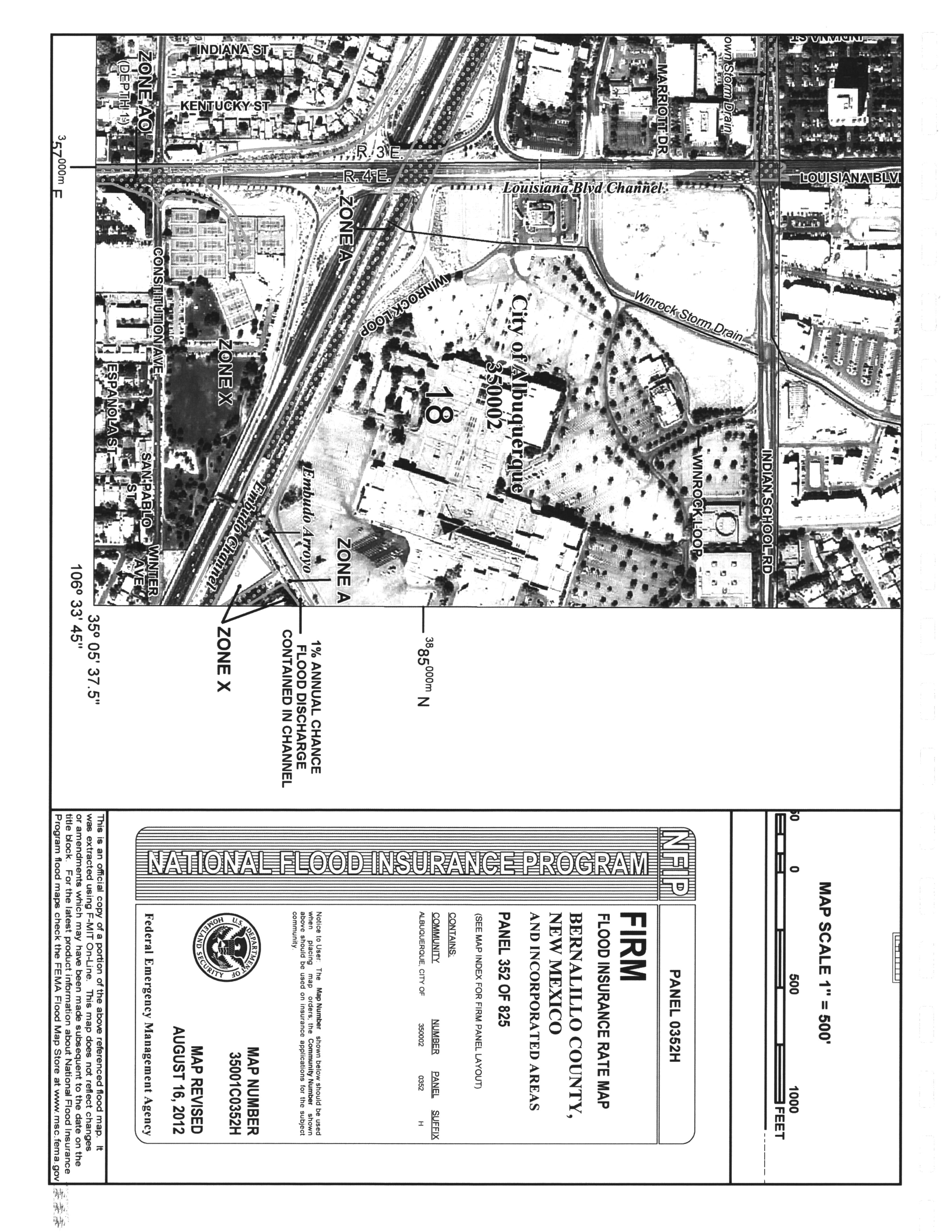
**MAP NUMBER** 35001C0356H

SUFFIX

MAP REVISED AUGUST 16, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



#### TABLE OF CONTENTS

#### VICINITY MAP FEMA FIRMETTES

I.	PROJECT INFO	ORMATIONPage 1
II.	INTRODUCTIO	ONPage 2
III.	EXISTING CO	NDITIONSPage 2
IV.	PROPOSED CO	ONDITIONSPage 6
APPE	NDICES	
	APPENDIX A:	Maps Basin Map Existing Conditions Exhibit Existing Drainage at AP-H
	APPENDIX B:	Excerpts from Previous Studies
	APPENDIX C:	Hydrology Calculations

APPENDIX D: Storm Drain Calculations

#### I. PROJECT INFORMATION

PROPOSED LEGAL DESCRIPTION:

Tracts A through P, Winrock Town Center

EXISTING LEGAL DESCRIPTION:

Parcels A-1-A-1, A-1-A-2, A-2, A-3, B, C-2A, D-1-A, and E-1, Winrock Center Addition, and Tract B, Hunt-Spectrum Development Site

ENGINEER:

Isaacson & Arfman, P.A. 128 Monroe Street NE Albuquerque, NM 87108

(505) 268-8828

Attn: Genevieve Donart

SURVEYOR:

Surv-Tek, Inc. (505) 897-3366

Attn: Russ Hugg, NMPLS No. 9750

DEVELOPER:

Winrock Partners, LLC. c/o Goodman Realty Group

100 Sun Ave NE Suite 100, Albuquerque NM 87109 4659

(505) 881-0100

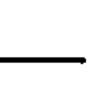
TOTAL AREA:

80.1 Acres

FLOODPLAIN:

This site lies outside flood hazard areas as shown on National Flood Insurance Program Flood Insurance Rate Maps 35001C0352H and

35001C0356H, revised August 16, 2012.



#### II. INTRODUCTION

The purpose of this Drainage Master Plan (DMP) is to provide an overall understanding of the drainage patterns in the proposed Winrock Town Center project, and to provide a drainage framework for upcoming development within the project.

The Winrock Town Center is a proposed "open-air" mall at the site of the Winrock Mall. Existing and proposed buildings will be mixed with pedestrian-friendly roads and parking areas. The rights-of-way between buildings will have utility corridors, including storm drains as needed.

The quantity of storm water generated by the site is not affected by the proposed changes, since the site is already fully developed at a high percentage of impervious area. All hydrology calculations are for the 100-year, 6-hour storm.

Every new project within the site will be required to submit a Grading & Drainage Plan to the City of Albuquerque Hydrology Department that complies with this Drainage Master Plan.

#### III. EXISTING CONDITIONS

(See APPENDIX A for a Basin Map and Existing Conditions Exhibit. See APPENDIX C for the Hydrology Calculations.)

The Winrock site is a complex of buildings that includes the main mall, a number of outlying restaurants, the Toys 'R' Us, and a recently completed movie theater. The existing mall building is composed of a number of individual buildings that were enclosed by an overall structure.

The site is bounded by Indian School Road to the north, America's Parkway (aka Uptown Loop) to the northwest, Louisiana Blvd to the west, I-40 and the Embudo Arroyo to the south, the Winrock Villas Condo complex to the east, and Pennsylvania Ave to the northeast.

The site generally slopes from the east towards the southwest corner. Existing drainage patterns direct storm water towards one of the existing storm drains, or to the surrounding roads. The site is completely developed with about 88% impervious area.

There are a number of previous reports that relate to this site. The most recent are:

• "Final Drainage Study for Winrock Redevelopment Winrock Market Center" by Huitt-Zollars, Inc. dated 03/13/2006 (J19D058) (H-Z Drainage Study) See Excerpts in APPENDIX B.





• "Phase 1 Amendment to the Final Drainage Study for Winrock Redevelopment" by Huitt-Zollars, Inc. dated 09/07/2011 (J19D058) (H-Z Amendment) See Excerpts in APPENDIX B.

These reports address the existing basins, and provide for new storm drains based on the proposed layout at that time.

The NMDOT park & ride lot adjacent to the site, south of Macaroni Grill, has existing inlets in the lot that capture flows before they enter Winrock. It does not generate offsite flows.

There are existing offsite contributing basins to the east. They include:

#### BASIN 101a

This basin makes up the north half of the Winrock Villas Condo complex. The entire basin drains to a concrete rundown on the southwest corner of the basin. A storm inlet at the bottom of the rundown captures the flows, and directs them into the existing 36" storm drain within the outer loop road that discharges to the Embudo Arroyo at AP-A.

#### Basin 101b

This basin includes the portion of Winrock Dr. that approaches Pennsylvania Ave. It surface discharges to the outer loop road, and is eventually captured by the existing 36" storm drain that discharges at AP-A.

#### BASIN 101c

Basin 101c is located along the west side of Basin 151. It consists of a landscaped slope with a pond at the base. A storm inlet at the northwestern corner drains the pond to the existing 36" storm drain in the outer loop road that discharges at AP-A.

#### **BASIN 151**

This basin makes up the south half of the Winrock Villas Condo complex. The entire basin drains to the gated emergency access road on the northwest corner of the basin. It then surface discharges across the outer loop road at AP-H, and is captured by inlets within the Winrock parking



lot. These inlets drain to the existing storm drain that discharges at AP-B. See the Existing Drainage at AP-H exhibit in APPENDIX B.

In the existing condition the site is fully developed and doesn't provide any onsite detention, resulting in a historic free-discharge from the overall Winrock site. Downstream drainage infrastructure is sized to accept the existing flows from each existing discharge point. Those points are:

#### AP-A

This 36" storm drain was built by the Regal Cinema. It discharges 45.9 cfs to the Embudo Arroyo. See excerpt from the H-Z Amendment in APPENDIX B.

#### AP-B

This 42" storm drain discharges 135.6 cfs into a pipe under I-40, that outlets at the I-40 channel. See excerpt from the H-Z Amendment in APPENDIX B.

#### AP-C

Surface flows of 15.5 cfs from Basin 400 discharge to the I-40 slip ramp at AP-C. At the base of the ramp are 2 NMDOT inlets that capture the combined storm water from Winrock Basin 400 and the contributing NMDOT infrastructure. See Excerpt from the H-Z Drainage Study in APPENDIX B.

#### AP-D

The central and western portion of the site is captured in a series of storm drains, and discharge 120.4 cfs at AP-D to the existing City of Albuquerque 84" storm drain that crosses the western side of the property. See Excerpt from the H-Z Drainage Study in APPENDIX B.

#### AP-E & AP-F

The western edge of Winrock where it is adjacent to Uptown Loop Road has storm water either surface discharge to Uptown Loop Rd, where it is captured in existing inlets in the road, or piped

#### WINROCK TOWN CENTER



directly into the storm drain. The combined AP-E and AP-F discharges 18.5 cfs. This corresponds to Basin 600 in the H-Z Drainage Study. See excerpt from the H-Z Drainage Study in APPENDIX B.

The northern half of the Macaroni Grill parking lot drains towards an existing inlet at AP-E. This inlet discharges to the storm drain in Uptown Loop Rd.

The western portion north of Macaroni Grill surface discharges to Uptown Loop Road. This area is not a true single point, but is generally labeled as AP-F

#### AP-G

The northern edge of Winrock where it is adjacent to Indian School Rd has storm water either surface discharge to Indian School Rd, where it is captured in existing inlets in the road, or piped directly into the storm drain. Overall AP-G discharges 82.2 cfs. This corresponds to Basin 200 in the H-Z Drainage Study. See excerpt from the H-Z Drainage Study in APPENDIX B.

Areas west of Dave & Buster's surface discharge to Indian School Rd at AP-G.1.

The recently completed Dave & Buster's drains its building and the adjacent parking lot to a storm drain that discharges at AP-G.2.

Toys 'R' Us and areas to the east discharge at AP-G.3 through an 18" storm drain. Toys 'R' Us has 3 - 60" diameter pipes used for underground detention on the west side of the store. The 18" storm drain outlets from the detention pipes.

#### AP-H

This analysis point shows where offsite storm water from Basin 151 enters the Winrock parking lot. It first surface discharges across the outer loop road at AP-H, and then passes AP-H. It is then captured by inlets in the Winrock parking lot north of the existing building. These inlets drain to the existing storm drain that discharges at AP-B. See marked up aerial photo from AGIS site in APPENDIX B.



#### IV. PROPOSED CONDITIONS

(See APPENDIX A for a Basin Map and APPENDIX C for the Hydrology Calculations.)

The Winrock Town Center is a proposed "open-air" mall at the site of the Winrock Mall.

There are existing buildings on the site that are to remain, including restaurants on the perimeter of the site, Toys 'R' Us, the new theater, and some of the buildings that were part of the main mall building. The paving directly adjacent to these improvements is likely to remain.

There are rights-of-way in a grid-like pattern that run between existing and proposed buildings. (See the Basin Map in APPENDIX A.) A plaza/park central to the project has a water feature that will collect roof flows from adjoining buildings. An overflow for this water feature must be sized to allow free discharge of the incoming 100-year flow.

The site is allowed free-discharge overall, but each basin has been sized to maintain 100-year, 6-hour flows at existing discharge analysis points (AP's) that are at or below the existing quantities (per the H-Z Drainage Study and as revised in the H-Z Amendment). Proposed Basin boundaries in this DMP are modified from the previous studies. The new basins must be honored to maintain the historic discharge rates.

Free discharge is based on the land treatments for each basin in the Hydrology Calculations.

The proposed storm drains shown in this plan are the minimum requirement. Other storm drains may be designed by individual grading plans to pick up storm water as needed. So long as discharge rates at the Analysis points are honored.

The proposed basins are as follows:

#### **BASIN 100**

Basin 100 consists of the Regal Theater and areas to the east and south. There is an existing storm drain that runs behind and to the south of the theater, and discharges with a 36" pipe to the Embudo Arroyo at AP-A. It also captures offsite Basins 101a, 101b, & 101c.

Storm water quantities and flow paths within this basin are not intended to change with this new layout, since the theater was only recently completed. No new infrastructure is required.

The total flows from Basin 100 are at or below existing discharge rates.



#### **BASIN 110**

Basin 110 includes the area south and west of the theater. Storm water from this basin will be captured by inlets at locations determined by future drainage plans, and directed to the existing 36" storm drain from Basin 100 that discharges at AP-A. The existing storm drain has the capacity to handle this additional flow. (See Basin 100 - proposed Storm Drain calculations in APPENDIX D for storm drain sizing.)

#### BASIN 200

Basin 200 includes the northern portion of the site. As in the historic condition, sheet flows discharge to Indian School Road, or are directed to the storm drain in Indian School at AP-G. The existing 18" storm drain west of Toys 'R' Us carries storm water from that building and its parking lot. Tract Q discharges towards Indian School. New connections to the Indian School storm drain are allowable.

The total flows at AP-G are at or below the previous discharge rates to Indian School Road.

#### **BASIN 300**

This basin is the largest within the site. The area excludes the total area of Basin 300 Rooftops. Basin 300 discharges to the existing 84" storm drain that runs along the western side of the site at AP-D.

A new storm drain system will need to be installed in this basin in order to collect all of the flows. (See Basin 300 Storm Drain calculations in APPENDIX D for storm drain sizing.) The existing storm drains in this area will need to be removed or abandoned in place, with the exception of a stretch that currently picks up discharge from the BJ's Restaurant.

A total of 103,820 sf of rooftops from this basin drains to the water feature in Basin 500P.

The proposed total flows to the 84" storm drain at AP-D (Basin 300 Rooftops excluded) are at or below the previous discharge rates.

#### **BASIN 400**

This is a basin that partially surface drains towards the top of the I-40 on-ramp at AP-C. The remainder uses existing storm drains to pick up flows from the roof of the proposed building, and

#### WINROCK TOWN CENTER



direct them to the 84" storm drain. The top of the ramp is the existing discharge point for surface flows. Once in the NMDOT right-of-way the storm water is then collected in 2 existing NMDOT inlets at the base of the ramp, which discharge directly to the I-40 channel.

The proposed flow to the on-ramp at AP-C is at or below the previous discharge rates.

#### BASIN 500

This basin includes the southern portion of the site. The area excludes Basin 500 Rooftops. The basin discharges to the existing 42" pipe at AP-B. (See Basin 500 Storm Drain calculations in APPENDIX D for storm drain sizing.) That pipe ultimately discharges under I-40 to the I-40 channel.

A total of 229,679 sf of rooftops from this basin drains to the water feature in Basin 500P.

#### BASIN 500P

Basin 500P includes the park/plaza. A water feature is planned within this basin that captures the flows from this basin. Basins 300 Rooftops, 500 Rooftops, and 510 Rooftops also contribute storm water to the water feature.

The water feature is planned to have a surface pond or stream in the park/plaza, with a possibility of waterfall components.

Each of the projects that contain "Rooftop" basins are required to provide infrastructure that can deliver the rooftop flow to the water feature upon its completion.

The storm water directed to this basin is intended strictly as supply for the water feature. Because no detention is needed to reduce 100-year discharge from the overall site, there is no minimum storage requirement. The water feature must have an overflow with a capacity of 59.1 cfs (the total 100-year flow from contributing basin and rooftops) that directs the overflow to the Basin 500 storm drain. (See Basin 500 Storm Drain calculations in APPENDIX D for storm drain sizing.)

The total contributing basins generate 100,120 cu. ft. in the 100-year, 6-hour storm. If the water feature's surface ponding cannot hold the entire volume, an underground cistern may be installed, or the contributing storm water beyond the provided volume must be directed to the Basin 500 storm drain.



If the water feature is not built at the time of construction of the contributing basins, the contributing flows must be directed to the Basin 500 storm drain. A storm drain extension to the water feature must be designed for the ultimate condition.

The water feature may serve as first flush treatment for all of the contributing basins, providing the first flush stormwater is used for landscape irrigation, where it will infiltrate or evapotranspirate, or if an equivalent portion of stored water is allowed to infiltrate directly from the bottom of water storage areas. Evaporation losses from waterfall, river, or ponding features also count towards the quantity of treated water.

#### Basin 510

This is a basin between the proposed park and the theater. The area excludes Basin 510 Rooftops. Flows from this basin enter the Basin 500 storm drain.

Offsite flows from Basin 151 enter Basin 510 at the northern tip of the basin by crossing the Outer Loop Rd. Two inlets must be installed at AP-H to divert 9.5 cfs of this flow to the existing 36" storm drain that runs behind the theater and discharges at AP-A. The remaining 18 cfs shall be directed by grading and/or a storm drain extension to the 42" storm drain that discharges at AP-B by the future Grading & Drainage Plans for the development within Basin 510.

A total of 78,686 sf of rooftops from this basin drains to the water feature in Basin 500P.

#### BASIN 520

This basin includes the area north and west of the theater. Offsite flows from Basin 151 are directed through Basin 520. The combined flows drain through Basin 510, and enter the Basin 500 storm drain.

#### Basin 600

Basin 600 is adjacent to Uptown Loop, and surface discharges to the road. The flow to Uptown Loop is at or below the previous discharges.



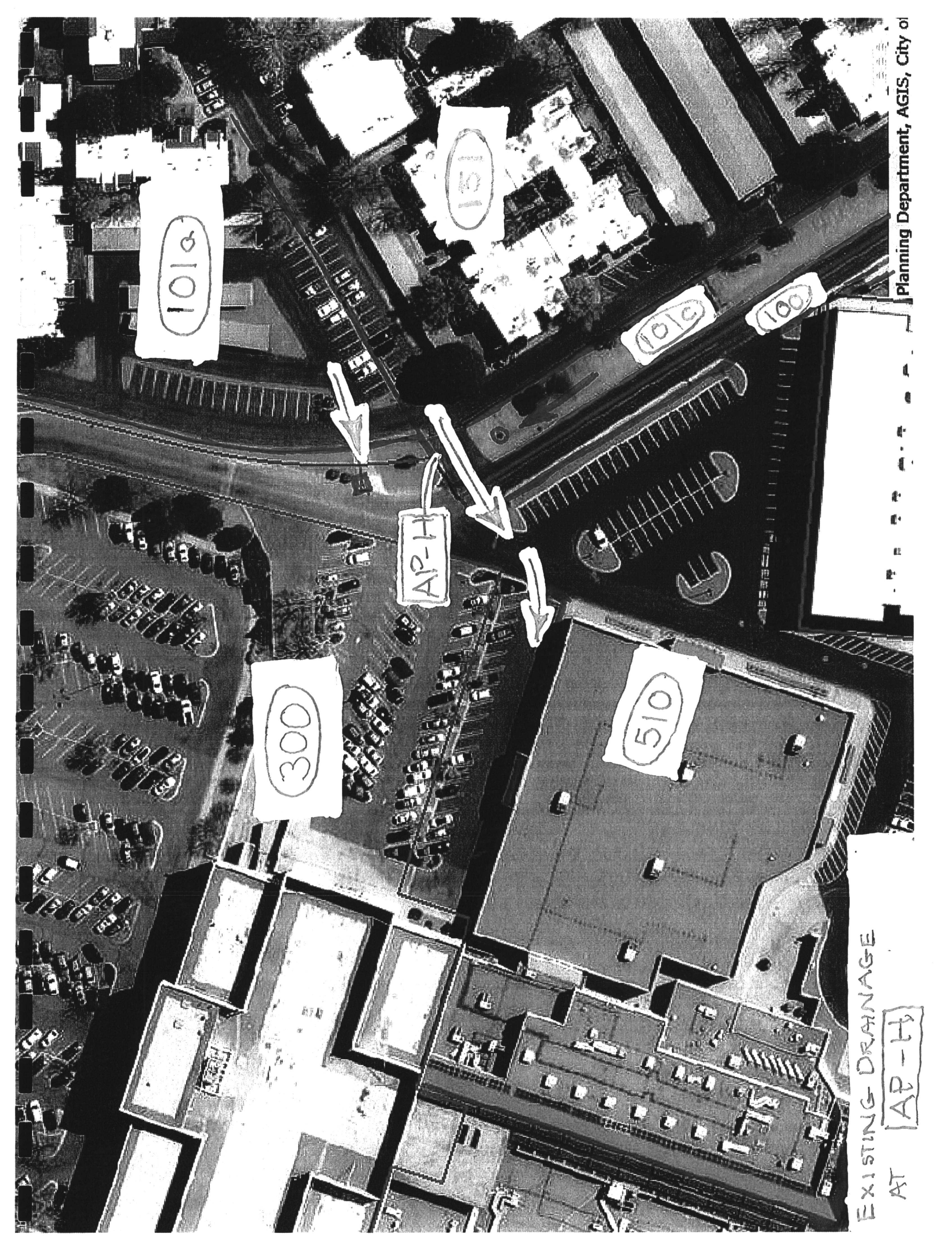
#### OVERALL REQUIREMENTS

- Design each project using the land treatments called out for each basin in the Hydrology Calculations in Appendix C.
- Every new development is required to build downstream storm drains that are shown in this DMP. The improvements must meet City of Albuquerque standards.
- The developments are also required to design how flows are directed to that infrastructure. Examples include number and location of storm inlets, roof drain connections, sidewalk culverts, street flow capacity, etc.
- Once storm water becomes "public" by entering the rights-of-way, they may not discharge across private property without an easement.
- As part of the individual grading & drainage plans, the interim storm water discharge at analysis points identified in this DMP must be addressed.
- Every new development within the project is required to treat "first flush" storm water per City of Albuquerque DPM requirements.
- "Rooftop" basins will be directed to the water feature in Basin 500P, which may be used to accommodate first flush treatment from all contributing basins providing the first flush stormwater is used for landscape irrigation, where it will infiltrate or evapotranspirate, or if an equivalent portion of stored water is allowed to infiltrate directly from the bottom of water storage areas. Evaporation losses from waterfall, river, or ponding features also count towards the quantity of treated water.
- Existing storm drains that are under proposed buildings must be removed. Other existing storm drains that are not to be used may be abandoned in-place.



## APPENDIXA

Maps



## APPENDIXB

Excerpts from Previous Studies

H-Z. Drainage Study

# FINAL. DRAINAGE STUDY

For

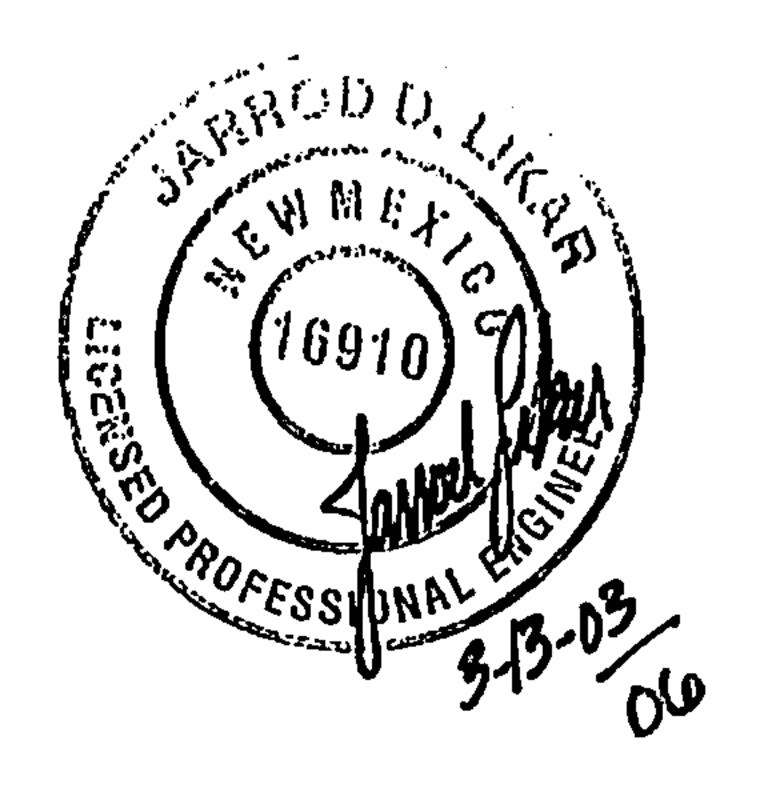
# Winrock Redevelopment Winrock MarketCenter

Southwest Intersection of Louisiana Boulevard and Indian School Road
Albuquerque, New Mexico

for

Pru Winrock, LLC 8 Campus Drive Parsipanny, NJ 07054

March 13, 2006



### Prepared By:

HUITT-ZOLLARS, Inc. 333 RIO RANCHO DRIVE NE, SUITE 101, RIO RANCHO, NEW MEXICO (505) 892-5141

# FINAL DRAINAGE STUDY FOR WINROCK MARKET CENTER

#### TABLE OF CONTENTS

<u>item</u>	<u>Description</u>	<u>Page</u> Number
•	Purpose	1
•	Project Location and Description	1
•	Zoning and Platting Status	1-2
•	Flood Hazard Zones	2
•	Related Reports	2
•	Jurisdictions of Public Agencies	2
•	Methodology	2
•	Precipitation	2
•	Land Treatments	2-3
•	Pre-Development Conditions	3
•	Ultimate Developed Conditions	3-6
•	Conclusion	6
	TABLES	
1	Precipitation Values	2
2	Land Treatment Classifications	3
3	Runoff Comparison at Indian School Road	4
4	Runoff Comparison at 84" RCP	5
5	Runoff Comparison at 42" RCP	5
6	Runoff Comparison at Americas Parkway	6

ltem	<u>Description</u>	<u>Page</u> <u>Number</u>
	EXHIBITS	
1	Vicinity Map	1
2	Existing Drainage Patterns	7
3	Embudo Channel Basin Map	8
4	Indian School Basin Map	9
5	84" RCP Pipeline Basin Map	10
6	I-40 On Ramp Basin Map	11
7	42" RCP Pipeline Basin Map	12
8	Americas Parkway Basin Map	13
	APPENDICES	•
Flood	Insurance Rate Map	A-1
AHYM	O Summary Output File	B-1-B-3
AHYM	10 Output File	B-4-B-20
Sidew	alk Culvert Calculations	C-1-C-3
Storm	Drain System #1 Headloss Calculations	D-1
Storm	Drain System #1 Storm CAD Output	D-2-D-5
Storm	Drain System #2 Headloss Calculations	E-1
Storm	Drain System #2 Storm CAD Output	E-2-E-4
<sub>≑</sub> Storm	n Drain System #3 Headloss Calculations	F-1
Storm	n Drain System #3 Storm CAD Output	F-2-F-3

# FINAL DRAINAGE STUDY FOR WINROCK MARKET CENTER

#### **PURPOSE**

This drainage report addresses the storm water runoff and proposed infrastructure needed to convey the runoff from the redevelopment of Winrock Mall to the Winrock Market Center. The report will exhibit compliance with the corresponding drainage studies for the Winrock area (See Related Reports).

#### PROJECT LOCATION AND DESCRIPTION

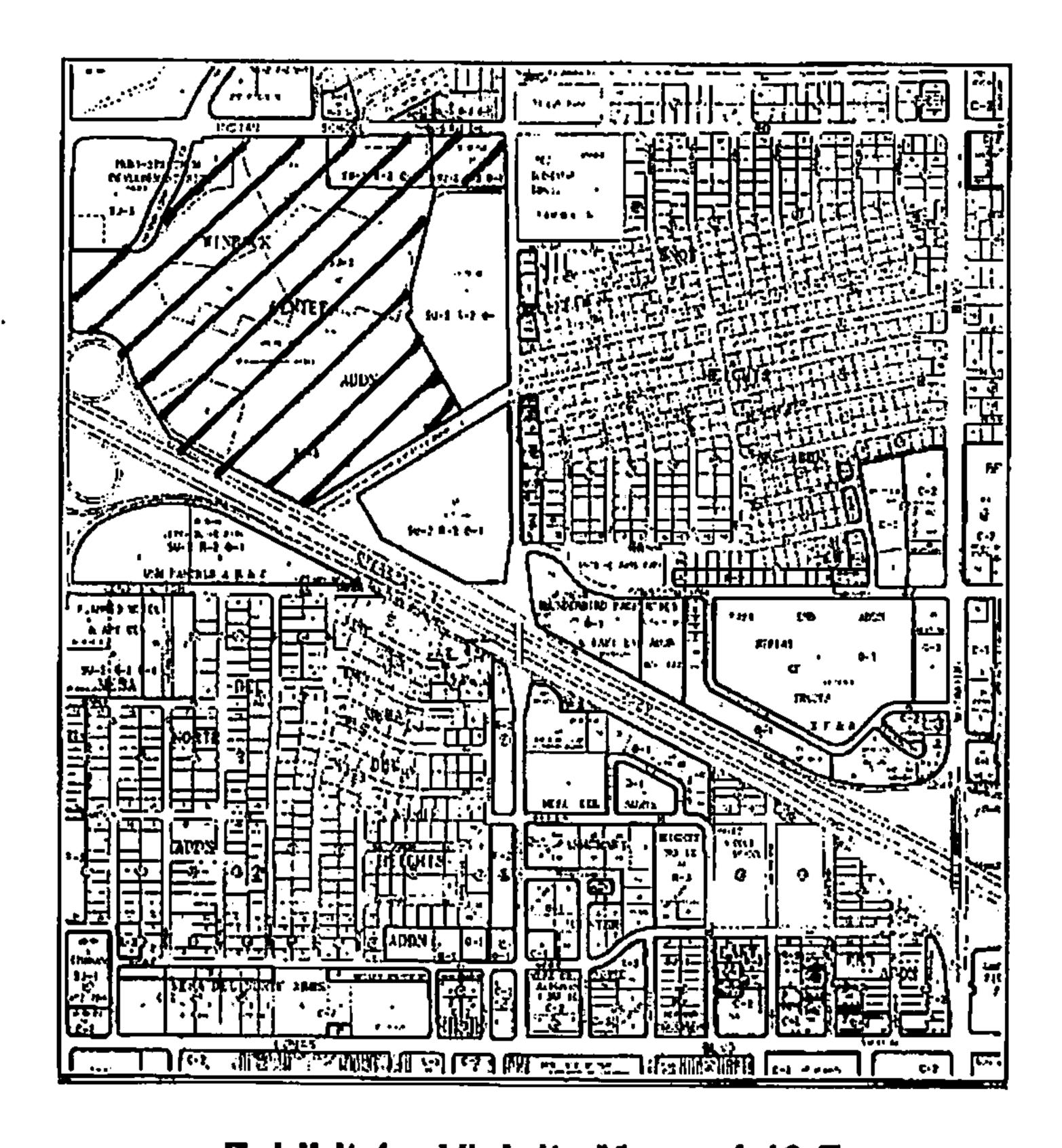


Exhibit 1 – Vicinity Map – J-19-Z

The project is located on the southeast corner of the intersection of Louisiana Boulevard and Indian School Road; see Exhibit 1. The site is currently developed as a mall with several outlining structures which include motels, restaurants and retail centers. The north side of Winrock Mall is bound by Indian School Road while the southwest section sits along Interstate 40. The western entrance to the mall is off of Louisiana Boulevard and Americas Parkway which runs along the northwest of the property. The east side of the property lies next to the Winrock Villas, a multi-family development. The southeast portion of the property runs along the Embudo Channel, a major storm drain facility.

#### **ZONING AND PLATTING STATUS**

The current zoning for this project is SU-3 and SU-2/R-2/C-2/O-1 (Tracts D1 and E1). The zoning for the project will remain unchanged. The current plat for Winrock Mall is comprised of

a total of eight tracts. The new Winrock Market Center may subdivide individual retail structures into their own lot at some time in the future.

#### **FLOOD HAZARD ZONES**

Per FEMA's Flood Insurance Rate Map (FIRM) 350002 0030 C, dated October 14, 1983 and the project site is not located within a FEMA 100-year Flood Hazard Zone. See Appendix A-1.

#### RELATED REPORTS

There are three existing drainage reports that have an impact on the drainage infrastructure within Winrock Market Center. These reports are <u>Drainage Study for the ABQ Uptown Area</u>, dated August 13, 2002 and prepared by Bohannan Huston, Inc., <u>Winrock Shopping Center master Drainage Plan</u>, dated July, 1993 and prepared by Avid Engineering, Inc. and <u>Drainage Study for Winrock Villas</u>, dated March 10, 2003 and prepared by Applied Engineering & Surveying, Inc. These reports outline allowable discharge rates, discharge affecting Winrock and storm drain infrastructure to be used by Winrock.

#### **JURISDICTIONS OF PUBLIC AGENCIES**

#### Local

This project is located entirely within the City of Albuquerque (CoA) Municipal Limits and is therefore within their jurisdiction and must comply with the City's development requirements. The storm drain system will remain private as it currently is.

#### **METHODOLOGY**

This drainage study is based on the procedures outlined in the City of Albuquerque's Development Process Manual Section 22.2, City of Albuquerque (CoA DPM), latest revision, or the AHYMO version of the ARS HYMO Computer Program. This drainage study follows the procedures outlined in both the CoA DPM Section 22.2 and the AHYMO Computer Program.

#### **PRECIPITATION**

The AHYMO Computer Program requires the 1, 6 and 24-hour precipitation values. These values were obtained from the <u>CoA DPM Chapter 22 Table A-2</u>, and are shown on **Table 1**.

Table 1
Precipitation Values

Return Period (yrs)	24 hr Rainfall (in)	6 hr Rainfall (in)	1 hr Rainfall (in)
100	3.10	2.60	2.14

#### LAND TREATMENTS

The land treatments used in the AHYMO Computer model are as described by Table A-4 of the CoA DPM Section 22.2, 1993 revision, and are summarized in **Table 2**.

#### Table 2 **Land Treatment Classifications**

Treatment	Land Condition
A	Soil uncompacted by human activity with 0 to 10 percent slopes. Native grasses, weeds and shrubs in typical densities with minimal disturbance to grading, groundcover and infiltration capacity. Croplands. Unlined Arroyos.
В	Irrigated lawns, parks and golf courses with 0 to 10 percent slopes. Soil uncompacted by human activity with slopes greater than 10 percent and less than 20 percent.
Ç	Soil compacted by human activity. Unpaved parking, roads and trail. Most vacant lots. Gravel or rock on plastic (desert landscaping)
D	Impervious areas, pavement and roofs.

The majority of the project is land treatment Type D. The only variation from a land treatment of 100% Type 'D' will come from landscaped areas within individual basins. The landscape treatment will vary within the individual basins and will be classified as treatment 'B",

#### PRE-DEVELOPMENT CONDITIONS

The current Winrock configuration allows for discharge to three distinct locations. First, free discharge was allowed to Indian School Road for northern portions of the Winrock property. Second, storm drain water was allowed to discharge through a 42" RCP culvert that penetrated the Interstate 40 channel on the south side of the property. This culvert drained the eastern portion of the Winrock property. The third location is into an existing storm drain pipeline running long the west side of the property. The current drainage patterns and storm water quantities are described in the Winrock Shopping Center Master Drainage Plan, dated July 1993, and prepared by Avid Engineering, Inc. Please refer to Exhibit #2 for the existing drainage basin map.

#### ULTIMATE DEVELOPED CONDITIONS

The new Winrock Market Center will discharge into five separate locations. The locations are as follows: 1. the Embudo Channel, 2. Indian School Road, 3. new 84" RCP Pipeline, 4. new I-40 no ramp, 5. existing 42" RCP and 6. Americas Parkway. The drainage patterns for each set of basins are described below.

#### Embudo Channel – Exhibit #3

Seven separate basins will discharge storm water into the Embudo Channel located along the southeast boundary of the Winrock Market Center. Basin 101 will drain the Winrock Villas. Storm water will enter Storm Drain System #1 through a trench grate at Analysis Point 1A. Basin 102 will surface flow water along loop roads to a sump inlet at Analysis Point 1B, where storm water will enter Storm Drain System #1. Basin 103 drains the loading dock for the east Dillard's. This inlet will collect water and pipe it to Analysis Point 1C where it will join with Points 1A and 1B in System #1. Basin 104 will surface drain onto Basin 106 at Analysis Point 1D. The combined storm water will be collected into four sump inlets within Basin 106 (Points 1E, 1F, 1G and 1H). All sump inlets will discharge into System #1. Basin 105 will surface flow to the southwest corner of the basin. Storm water will enter a sump inlet at Analysis Point 1J. Basin 107 will collect into a sump inlet at Analysis Point 1K. The total combined flow will enter the Embudo Channel at Analysis Point 1L with a total flow of 161.42 cfs.

THIS SCHOOL BY BY BY

54" MM 100 100 HZ 4553-11 145.88 per HZ 4553-11

#### Indian School Road - Exhibit #4

Five separate basins discharge storm water onto Indian School Road. Basin 201 will surface flow onto Basin 202 through driveway entrances at Analysis Point 2A. The combined flow will join Basin 203 which discharges through a sidewalk culvert at Analysis Point 2B. The three basins will surface flow through a parking lot along the west side of the existing Toys 'R' Us. The flow will drain onto Indian School Road via a sidewalk culvert at Analysis Point 2C. Basin 204 will sheet flow directly onto Indian School Road through the adjacent entrance road. Basin 205 will drain to the northwest side of the basin and discharge onto Indian School Road through a sidewalk culvert at Analysis Point 2D. Calculations for all sidewalk culverts can be viewed in Appendix C.

The total discharge that affects Indian School Road is 81.26 cfs. Table 3 compares the discharge onto Indian School Road for existing and redeveloped conditions.

Table 3 - Runoff Comparison at Indian School Road

Idalo	<u> </u>	1 companie	on at maian oone	701 120aa
Hydrograph ID	Basea (Y	Time to Peak (hr)	Punofi Puno Year (ac-ii)	100-Yr Peak Discharge (Ft³/s)
INDSCH.4 (HZI)	0.0269	1.50	3.233	82.18
AREA 101 (AVID)	0.0329	1.50	3.96	101.61
TOYS6 (BHI)	0.0329	1.50	3.71	82.30

AP-G

#### 84" Storm Drain Pipeline - Exhibit #5

Eighteen separate basins contribute to flows discharging into the existing 84" RCP pipeline. Basin 301 sheet flows to the southwest corner of the basin and into a sump inlet at Analysis Point 3A. This is the start of Storm Drain System #2. Basin 302 will collect portions of the loop road with curb inlets at Analysis Point 3B. Basin 303 is a large parking lot that drains runoff to the western edge of the basin boundary. The basin is collected into two inlets at Analysis Point 3C, where it enters Storm Drain System #2. Basin 304 drains to a sump inlet at the southeast corner of the basin (Analysis Point 3D) and directly into System #2. Basin 306 drains to a sump inlet located in the loading dock (Analysis Point 3E) of Dillard's. The inlet will pipe storm water through Basin 305 and combine with water collected at Analysis Point 3F from Basin 305. Basin 307 will flow to a dual battery of inlets at Analysis Points 3H and 3G. Basins 308 through 312 collect flow from ventilation areas for the underground parking structure. All basins will sheet flow along the bottom level of the parking garage to a trench grate at Analysis Point 3J. Basin 313 will flow to the same trench grate at 3J. Basin 314 will collect into an area drain at Analysis Point 3K where it will join with 3J and enter Storm Drain System #2 between Points 3G and 3H. Basin 315 will drain to an existing curb inlet at Analysis Point 3L. The inlet will be modified to a surface inlet that will drain directly into the existing 84" RCP pipeline. Basin 316 will drain the south side of the Macaroni Grill lot through an existing drop inlet and directly in the 84" RCP. Basin 317 will drain to an existing inlet at Analysis Point 3M. The inlet will be modified to accommodate the Storm Drain System #2 pipeline from Analysis Point 3H which will be connected to the existing 84" pipeline. Basin 318 will drain to an existing drop inlet that is connected to the 84" pipeline.

The total discharge to the 84" pipeline will be 118.93 cfs. Table 4 compares the discharge into the existing 84" RCP pipeline for existing and redeveloped conditions.

Table 4 – Runoff Comparison at 84" RCP

I abis 7 - Mailbir Coillpanach at 07 1701					
Hydrograph ID	Basin Area (Mi <sup>2</sup> )	Time to Peak (hr)	100-Yr Runoff Volume (ac-ft)	100-Yr Peak Discharge (Ft³/s)	
84".17 (HZI)	0.0398	1.50	4.72	120.39	
AREA 103 & 105 (AVID)	0.0349	1.50	4.21	141.01	
103.10 – 107.30 (BHI)	0.0447	1.50	5.05	138.55	

AP-D

#### 1-40 On Ramp - Exhibit #6

There is a single basin (Basin 401) that will sheet flow down the new I-40 on ramp and into two area drains at the bottom of the ramp (See Analysis Point 4A). The total discharge into the inlets is 15.50 cfs.

#### 42" Storm Drain Pipeline - Exhibit #7

Two basins will contribute storm water runoff to the existing 42" RCP. Basins 501 and 502 will combine to discharge through Storm Drain System #3 and into the existing 42" RCP(Analysis Point 5A). This pipeline penetrates the I-40 drainage channel.

The total discharge into the 42" pipeline is 44.01 cfs. Table 5 compares the discharge into the existing 42" RCP pipeline for existing and redeveloped conditions.

Table 5 - Runoff Comparison at 42" RCP

Hydrograph ID	Basin Area (M²)	Time to Peak (hr)	100-Yr Runoff Volume (ac-ft)	100-Yr Peak Discharge (Ft³/s)
T.36 (HZI)	0.0143	1.50	1.75	44.30
AREA 104 (AVID)	0.0523	1.50	11.21	174.49

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#### Americas Parkway - Exhibit #8

Basins 601 through 605 will sheet flow directly onto Americas Parkway. The combined runoff will flow to existing curb inlets at the intersection of Louisiana Boulevard and Americas Parkway.

The total discharge onto Americas Parkway will be 18.37 cfs. Table 6 compares the discharge onto Americas Parkway for existing and redeveloped conditions.

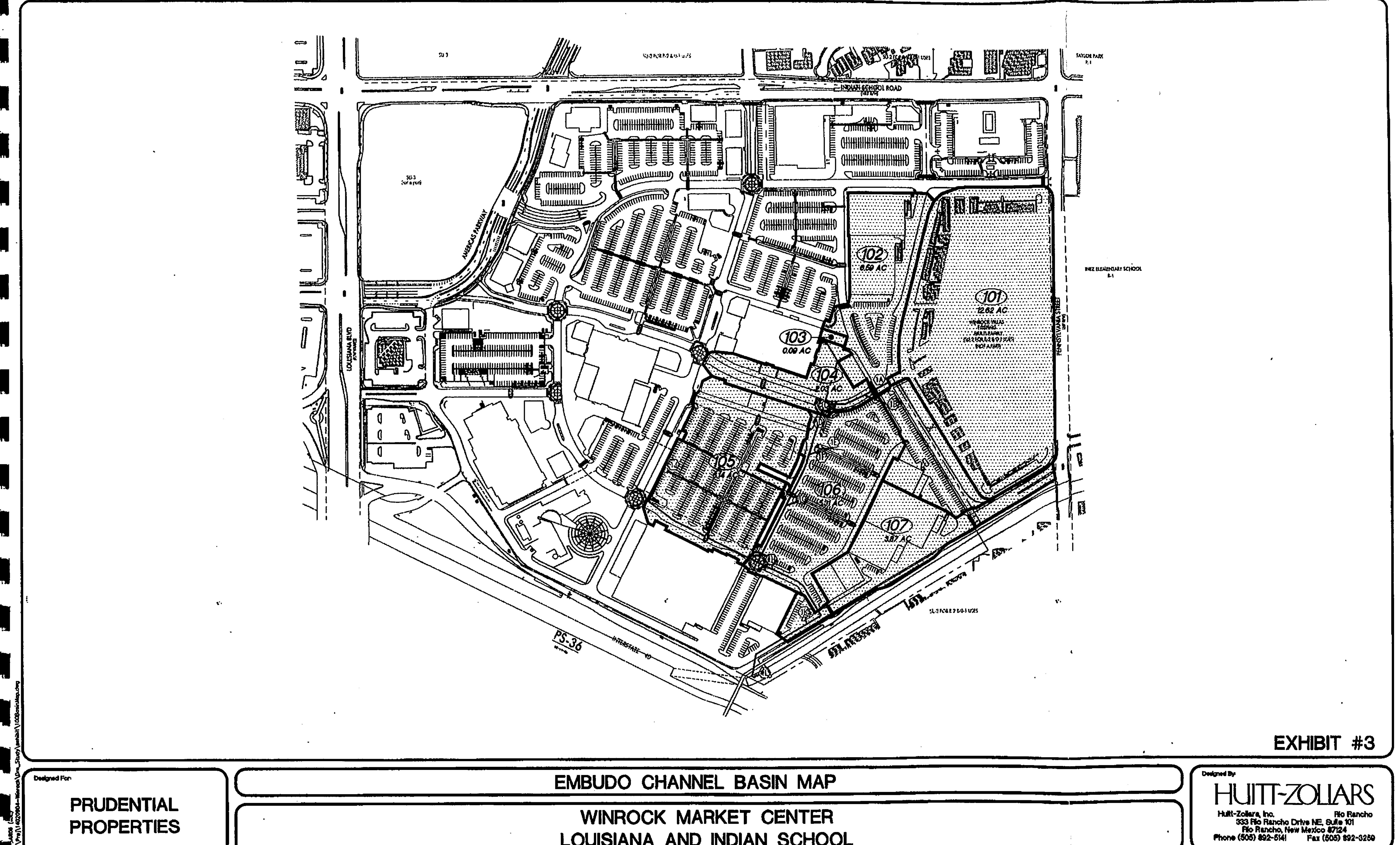
Table 6 - Runoff Comparison at Americas Parkway

	-		on acranicitous i	aritray
Hydrograph ID #	Basin Area (Mi <sup>2</sup> )	Time to Peak (hr)	100-Yr Runoff Volume (ac-ft)	100-Yr Peak Discharge (Ft <sup>3</sup> /s)
PRWY.4 (HZI)	0.006	1.50	0.729	C(18.53)
AREA 102 (AVID)	0.0078	1.50	0.93	24.01

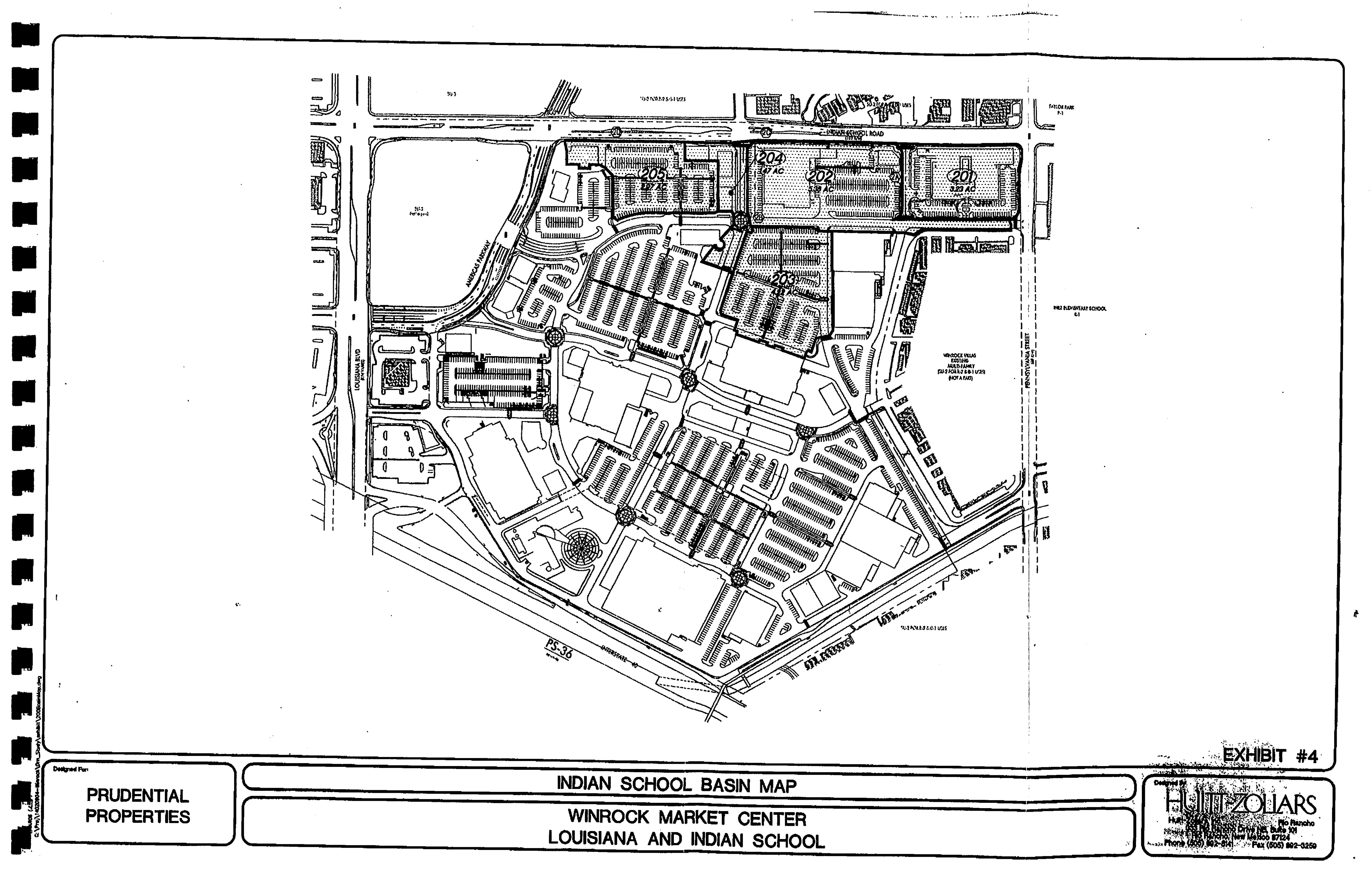
AP-F

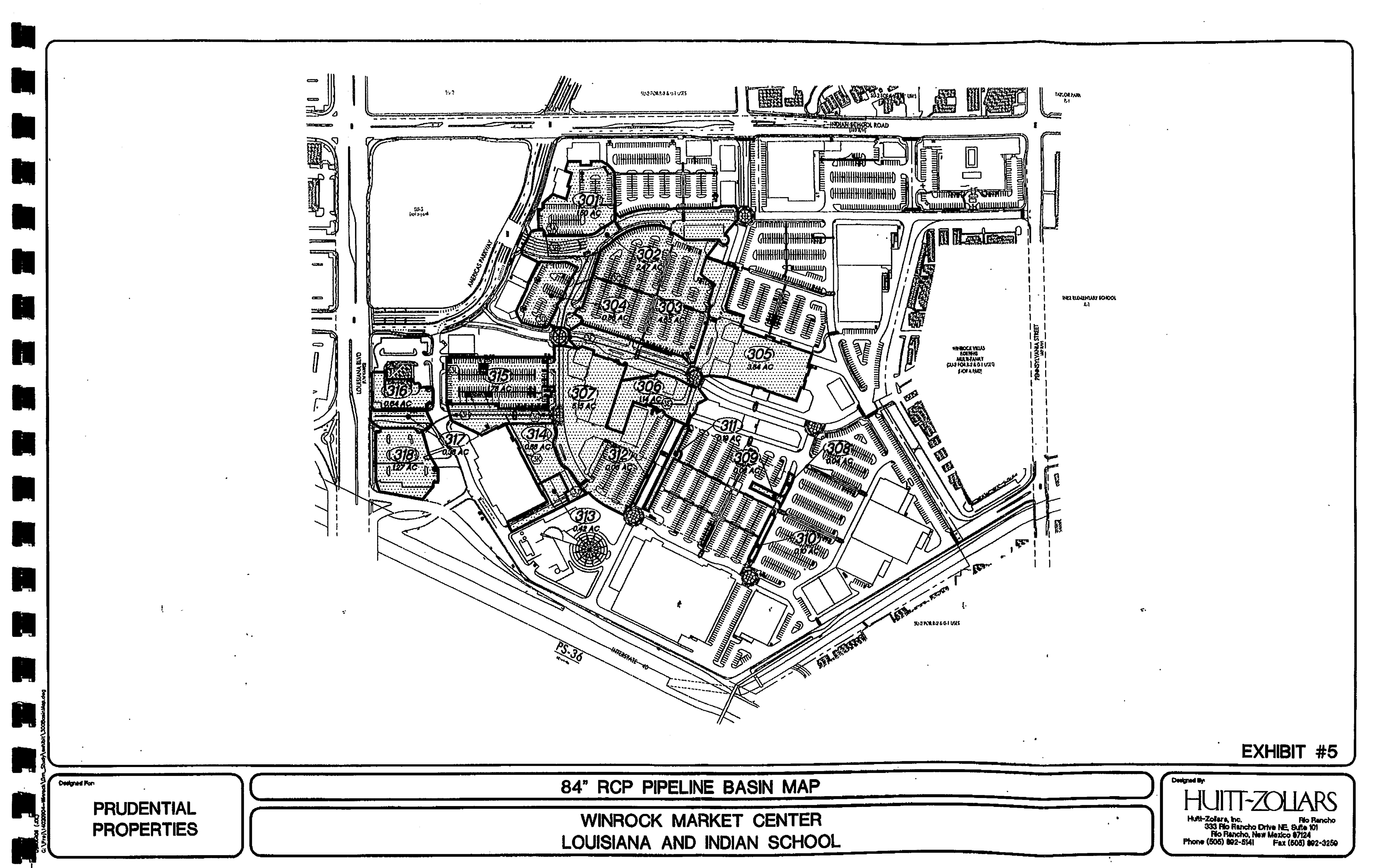
#### CONCLUSION

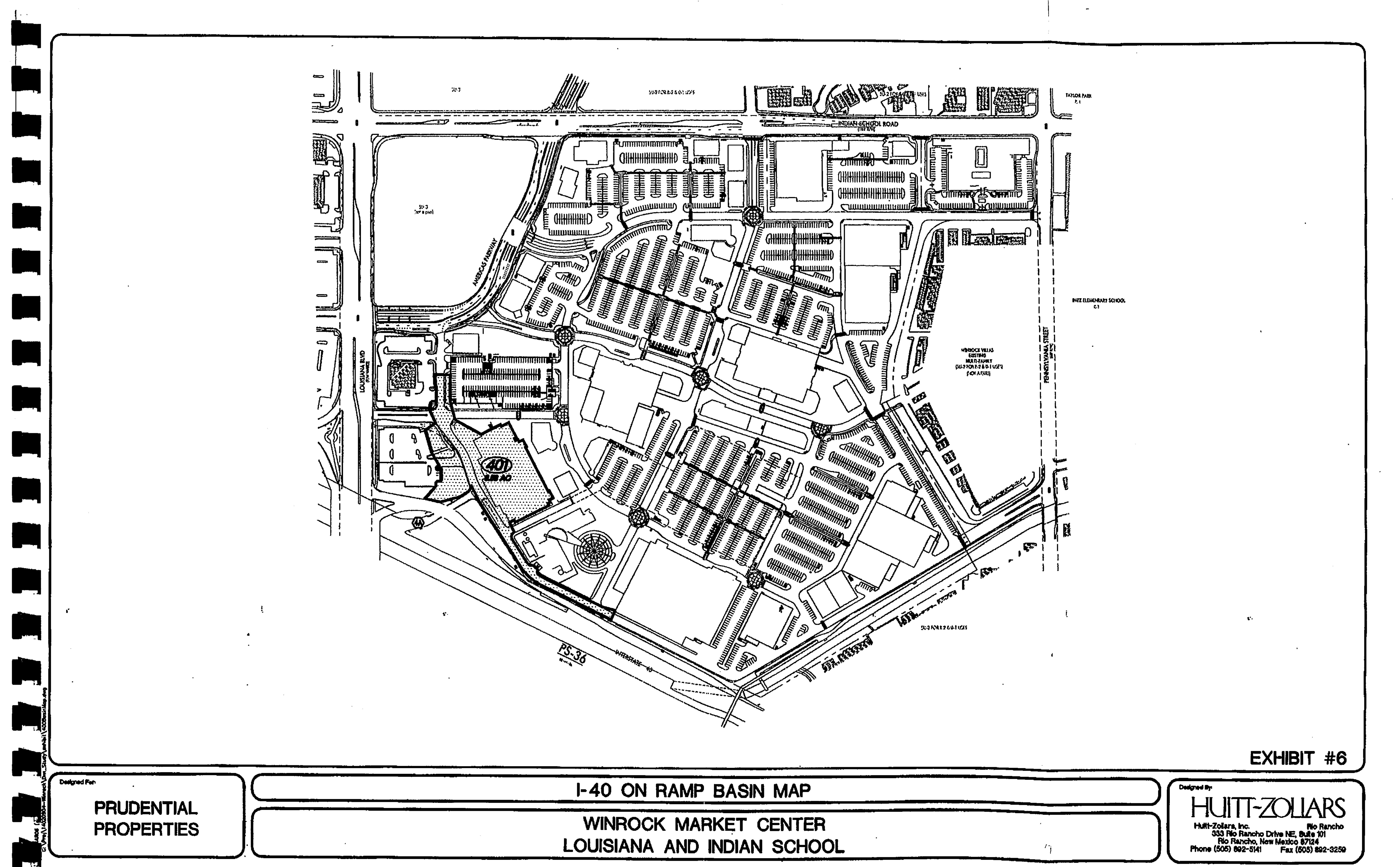
The new Winrock Market Center has improved drainage at every discharge location as shown above. The main reason for the drop in discharge rates throughout the site is the inclusion of direct discharge into the Embudo Channel along the southeast boundary of the development. The existing discharge from the site totals 441.12 cfs. The improvements to the site have lowered discharge rates at comparable locations to a total of 265.40 cfs. An additional 174.43 cfs discharges directly to the Embudo Channel.

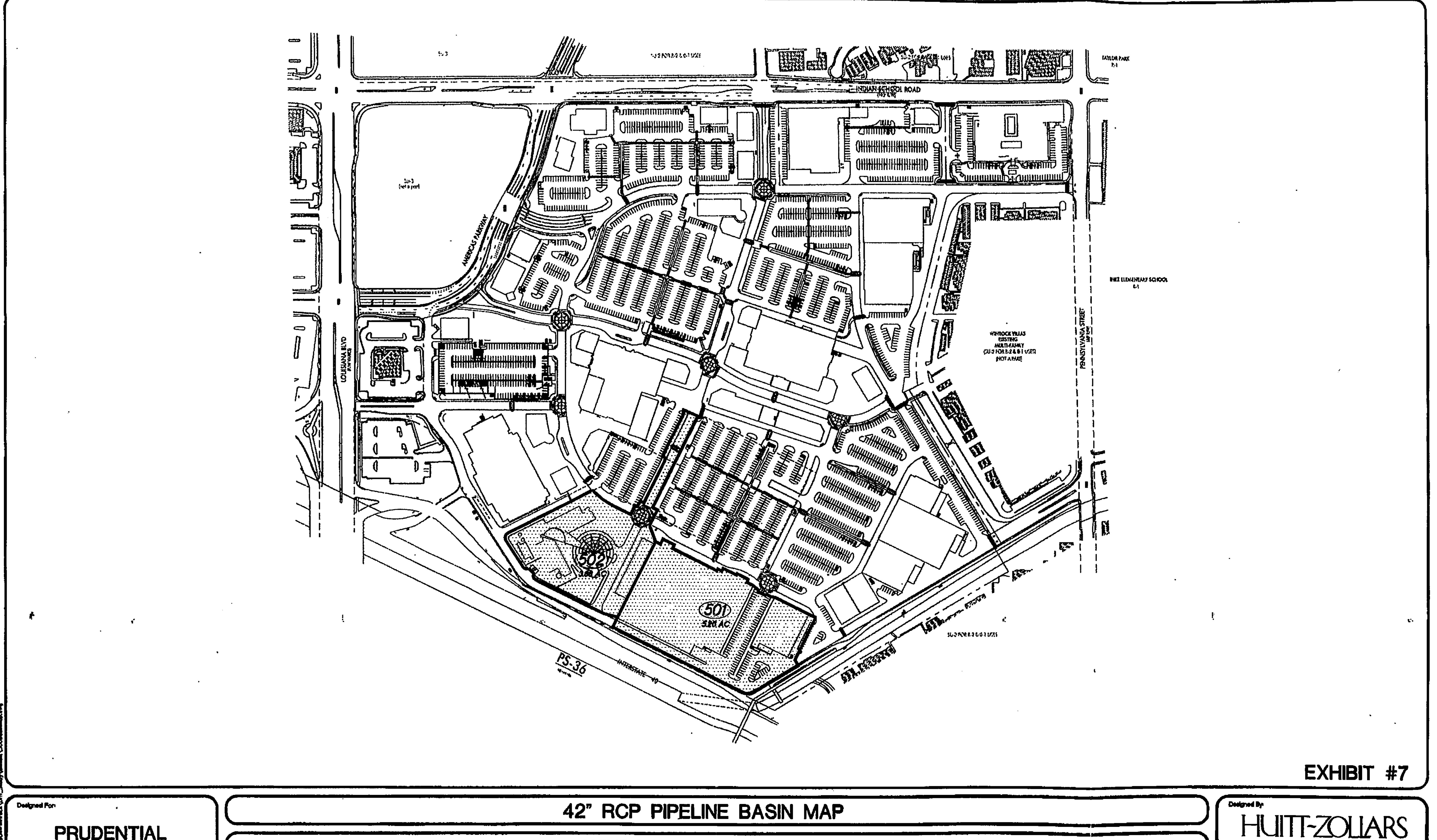


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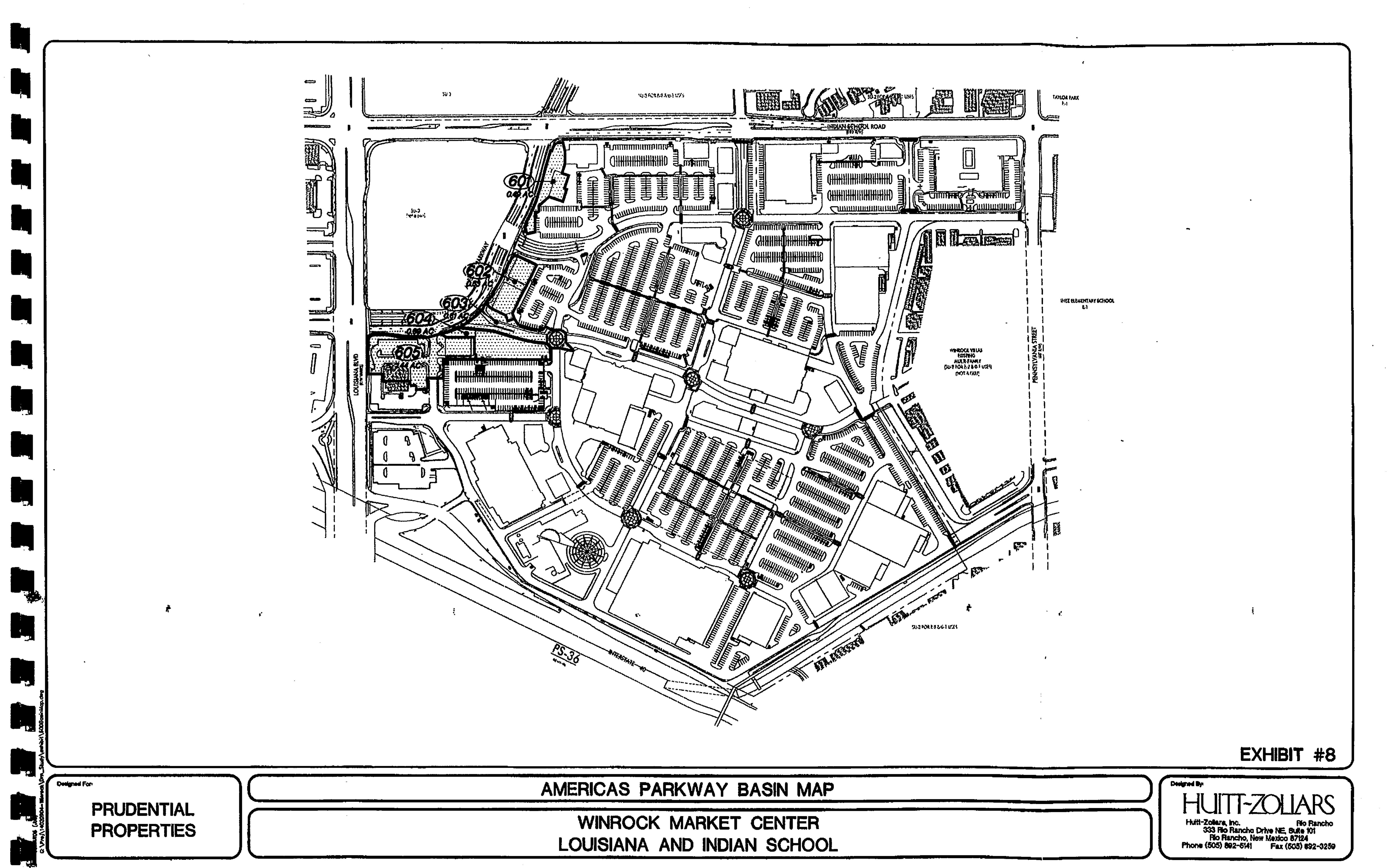






PRUDENTIAL PROPERTIES

WINROCK MARKET CENTER LOUISIANA AND INDIAN SCHOOL Huitt-Zollera, Inc.
333 No Rancho Drive NE, Bulte 101
Rio Rancho, New Mexico 87124
Phone (505) 892-8141
Fax (505) 892-3259

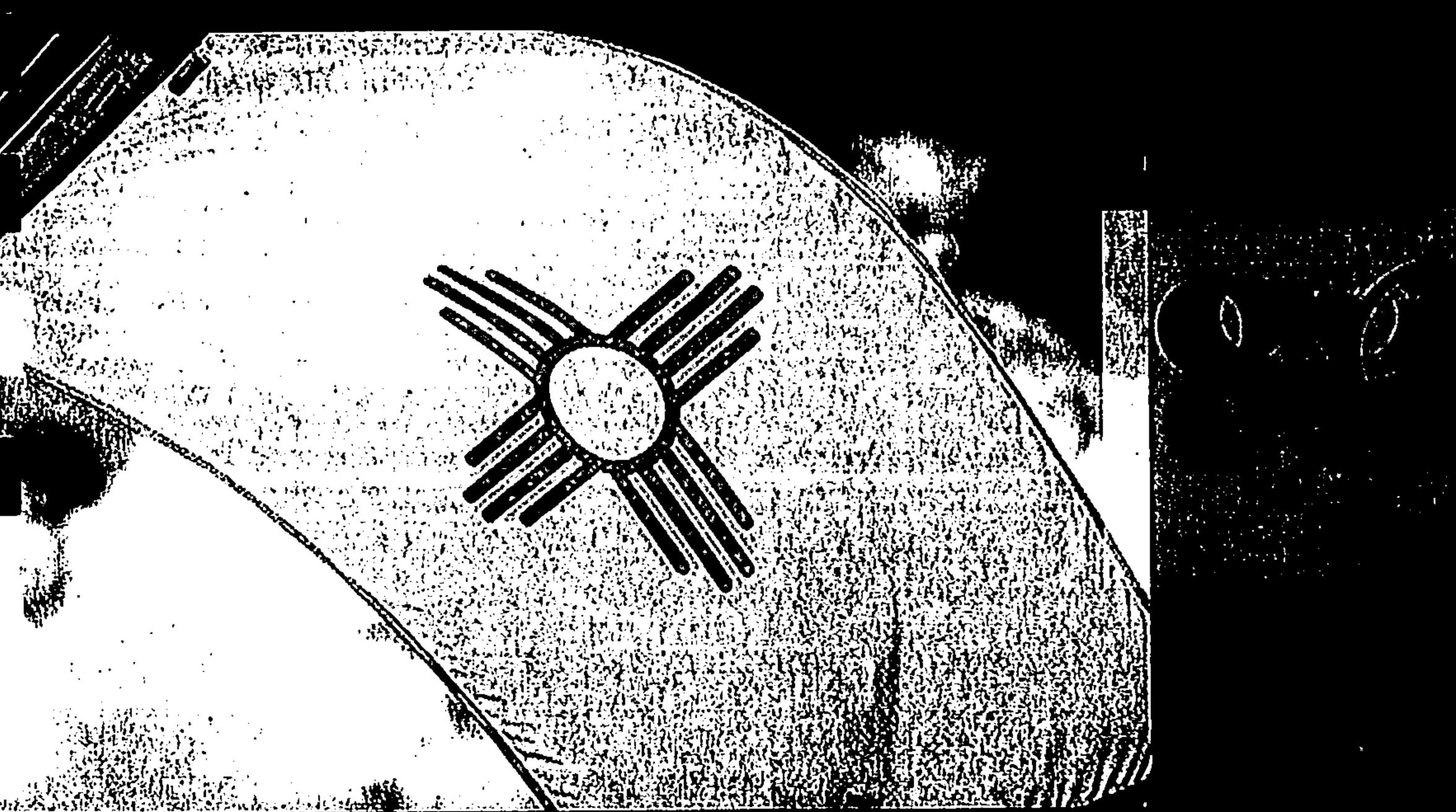


twandman.

Prepared For

WINROCK PARTNERS, LLC







Winrock Redevelopment Area Zone Atlas J-19-Z



MARCH 2011

Prepared By

HIII/OLAS

ENGINEERING

ARCHITECTURE

**CONSTRUCTION MANAGEMENT** 

SURVEY

333 Rio Rancho Blvd. NE Suite 101, Rio Rancho NM 87124 (505) 892-5141, Fax (505) 892-3259 www.huitt-zollars.com

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Appendix

### Memorandum

DATE:

March 1, 2011

TO:

Curtis Cherne, PE (City of Albuquerque)

FROM:

Jarrod Likar, PE

SUBJECT:

Phase 1 Amendment to the Final Drainage Study for Winrock Redevelopment

There is planned redevelopment of the existing Winrock Mall which is to be named the Winrock Town Center. The Winrock Town Center requires an amendment to the Final Drainage Study for Winrock Redevelopment because the site plan is being revised from the original Winrock redevelopment. This amendment only discusses the areas affected by Phase 1 of the Winrock Town Center which is located in the east corner of the site. Phase 1 includes a Movie Theatre, Plaza area, 3 new buildings (not including the theatre) and parking improvements. Drainage Basin lines, hydrologic model and the storm drain alignments and sizes have been revised.

The basin map, AHYMO output (Appendix B) and StormCAD output (Appendix D) that have been revised are attached. Also attached are new calculations for the storm drain inlets which are shown in Appendix G.

Basins 108 (roof), 111(roof), 112(roof), 113(plaza) and 114(roof) discharge into the proposed water feature located in the middle of the plaza. The storm drain starting at AP1.E is proposed to take emergency overflow from the water feature. The size of the storm drain is calculated using the 100-yr flow of the Basins listed above.

The existing storm drain that conveys the flow from Basin 502 is undersized. The analysis of the 502.I inlet shows that any over flow will discharge to the west and outside of the Phase 1 boundary. This inlet is unchanged with the Phase 1 improvements.

Revised Table 5 below is revised from the original Table 5 in the Final Drainage Study for Winrock Redevelopment and shows the discharge rate is within 10% for the Amendment. This existing 42" RCP discharges into the Embudo Channel section within the I-40 corridor (See Basin Map for location).

Revised Table 5 – Runoff Comparison at 42" RCP

Basin Area (Mi²)	100-Yr Peak Discharge (Ft <sup>3</sup> /s)
0.0143	44.30
0.0442	<b>§ 135.60</b>
	(Mi <sup>2</sup> ) 0.0143

AP-B

New Table 7 below is an additional Table to compare runoff at a proposed discharge point into the Embudo Channel. As shown in the table the discharge rate for the Amendment is well below that of the original report. The proposed tie in to the Embudo Channel is a 36" RCP and the location is shown on the Basin Map.

New Table 7- Runoff Comparison at AP1.K

Rio Rancho, NM 87124-1450

14644 Lanic	, , , (ditoi:	
Hydrograph ID#	Basin Area (Mi²)	100-Yr Peak Discharge (Ft <sup>3</sup> /s)
EMBU.6 (Original)	0.0572	161.42
AP1.J (Amendment)	0.0155	45.90

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As shown in Table 8 the Phase 1 redevelopment of the Winrock Mall will not increase the discharge rate to the downstream infrastructure.

## New Table 8– Runoff Comparison total flow off-site into Embudo Channel

Hydrograph ID#	Basin Area (Mi²)	100-Yr Peak Discharge (Ft <sup>3</sup> /s)
Total Flow into Embudo (Original)	0.0720	205.72
Total Flow into Embudo (Amendment)	0.0600	181.50

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# APPENDIX C

Hydrology Calculations

			CALC	ULATIONS: Winro	ck To	wn Center:			
Based on Drainag	ge Desi	ign Criteria for Ci	ity of A	Ibuquerque Section 22	2.2, DI	PM, Vol 2, dated	Jan., 19	993	
				ON-SITE	3				
AREA OF SITE:				3493574.825	SF	=	80.2	Acres	
				100-year, 6-hour					
UNDEVELOPE	D DIS	CHARGE:		FULLY-DEVELOP	ED F	LOWS:		<b>EXCESS PRECIP:</b>	
		Treatment SF	%	<b>-</b>		Treatment SF	%	Precip. Zone	3
Area A	=	0	100%	Area A	=	0	0%	$E_A = 0.66$	
Area B	=	0	0%	Area B	=	314422	9%	$E_{\rm B} = 0.92$	
Area C	=	0	0%	Area C	=	0	0%	$E_{\rm C} = 1.29$	
Area D	=	0	0%	Area D	=	3179153	91%	$E_{\rm D} = 2.36$	
Total Area	=	3493574.825	100%	Total Area	=	3493574.825	100%		
		T		C TT (C).					
On-Site Weighted	i Exces	•	100-Ye	ar, 6-Hour Storm)	. —	•			
		Weighted E =		$E_AA_A + E_BA_B + E_CA$	_	$A_{D}$			
	·	• · · • • • • • • • • • • • • • • • • •		$A_A + A_B + A_C$	+ A <sub>D</sub>			<b>1</b>	
Allowable E	=	0.66	in.	Developed E		2.23	in.		
On-Site Volume of	of Run	off: V360 =		E*A / 12					
Allowable V <sub>360</sub>	=	192147	CF	Developed V <sub>360</sub>	=	649339	CF		
On-Site Peak Dise For Precipitation		Rate: $Qp = Q_{pA}$	A <sub>A</sub> +Q <sub>pl</sub>	$_{3}A_{B}+Q_{pC}A_{C}+Q_{pD}A_{D}$	43,560				
$Q_{pA}$	=	1.87		$Q_{pC}$	=	3.45			
$Q_{pB}$	=	2.60		$Q_{pD}$	=	5.02			
Allowable Q <sub>p</sub>	=	150.0	CFS	Developed Q <sub>p</sub>	=	385.1	CFS		

.

				PROPOSED CO	NDIT]	IONS			•
BASIN NO.	100		:	DESCRIPTION	36" SD	to Embudo Arroy	o, inclu	des Regal Cinem	ıa
Area of basin fl	ows =	177670	SF		=	4.1	Ac.		
The following of	alculation	is are based on Tr	eatment	areas as shown in tab	le to the	right	LAND	TREATMENT	
		Sub-basin Weigh	ted Exce	ess Precipitation (see	formula	above)	A =	0%	
		Weighted E	,	2.29	,		B =	5%	
•				noff (see formula abov	ve)		C =	0%	
		V <sub>360</sub>	· · · · · ·	33876	,		D =	95%	
·			•	e Rate: (see formula a	<u> </u>	<b>1</b>			
		O <sub>D</sub>	=	20.0	1				•
BASIN NO.	101a	\CP				Basin-Winrock V	illas Co	ndos	
Area of basin fl		289083	SF	DESCRIPTION			_	luos	
				areas as shown in tab	le to the	right 6.6		TREATMENT	
The following c							_	<del></del>	
		Ť		ess Precipitation (see		abovej	A =	- ]	
		Weighted E		2.07	<u> </u>		B =		<del> </del>
		-		noff (see formula abov	1		C =		
<del></del>	_	$V_{360}$		49915			D =	80%	
		Sub-basin Peak D	Discharge	e Rate: (see formula a	·				-
		$Q_{P}$	=	30.1	cfs	•			
BASIN NO.	101b			DESCRIPTION	Offsite	Basin-Road			
Area of basin fl	ows =	16995	SF		=	0.4	Ac.		
The following c	alculation	is are based on Tr	eatment	areas as shown in tab	le to the	right	LAND	TREATMENT	
		Sub-basin Weigh	ted Exce	ess Precipitation (see	formula	above)	A =	0%	
		Weighted E	=	2.36	in.		B =	0%	
		Sub-basin Volum	e of Rur	off (see formula abov	ve)		C =	0%	
		V <sub>360</sub>	=	3342	CF		D =	100%	
			<u> </u>	Rate: (see formula a	bove)		<del></del>	]	<del></del>
	···	Q <sub>P</sub>	=	2.0					
BASIN NO.	101c	<u> </u>		DESCRIPTION	Offsite	Basin-Landscape	area dis	charges to 24" S	D
Area of basin fl		22004	SF		=	0.5	Ac.		
				areas as shown in tab	le to the	<u> </u>		TREATMENT	··· <u>·</u> ···· <u>·</u>
The following c	<del>_,</del> ,	·		ess Precipitation (see	<del></del>		A =		
 	<u> </u>	Weighted E		0.92			$\frac{A}{B} =$		
		<u> </u>	<u> </u>	noff (see formula above			C =		
		•		1687	·		D =	· ·	<del></del>
		Sub basin Basis F			<u> </u>	<u></u>	<u> </u>	t 0/0 1	
		Sub-basin Peak L	Ascharge	e Rate: (see formula a	· ·			<u> </u>	
D A CYNI NIC	110	ŲΡ		1.3	cfs				
BASIN NO.	110			DESCRIPTION	Southw	est of Regal Cine		[	
Area of basin flo		95252	<u> </u>	• • •	<u> </u>	2.2			
The following c			·	areas as shown in tab				TREATMENT	· · · · · ·
	<u> </u>	····		ess Precipitation (see		above)	<u>A</u> =	<u>{</u>	
		Weighted E		2.23	!	<u> </u>	<u>B</u> =	-	
	_			noff (see formula above	/e)		C =		
		V <sub>360</sub>	=	17704	CF		D =	91%	
	I	Sub basin Dook F	licoharae	e Rate: (see formula a	hove	<u> </u>			
· · · · · · · · · · · · · · · · · · ·	<del></del>	Sub-basili Feak L	rischarge	c Raic. (See Ioimula a	DOVE)			· [	

### 2031 DPM Calculations - 100 yr 6 hr.xlsm

BASIN NO.	151		·	DESCRIPTION	Offsite	Basin-Winrock V	'illas, su	rface drains to E	asin 520
Area of basin flo	ws =	264228	SF		=	6.1	Ac.		
The following ca	lculation	ns are based on Tr	eatment	t areas as shown in tab	le to the	right	LAND	TREATMENT	
		<del> </del>		ess Precipitation (see			A =	<del>1</del> 0%	
<del></del>		Weighted E		2.07	· · · · · · · · · · · · · · · · · · ·		B =	20%	
		Sub-basin Volum	e of Ru	noff (see formula abov	ve)		C =	0%	
		V360		45623	· -		D =	80%	
		Sub-basin Peak D	ischarg	ge Rate: (see formula a	bove)			· · · · · · · · · · · · · · · · · · ·	
		QP	=	27.5				<u> </u>	
BASIN NO.	200			DESCRIPTION	Drains	to Indian School I	Rd.		•
Area of basin flo	ws =	735252	SF		=	16.9	Ac.		
The following ca	lculation	ns are based on Tr	eatment	t areas as shown in tab	le to the	right	LAND	TREATMENT	
<del>-</del>	· · · · · · · · · · · · · · · · · · ·			ess Precipitation (see			A =	0%	
		Weighted E		2.23			B =	9%	·
······				noff (see formula abov	<u> </u>		C =	. <del>F</del>	·
		V360		136659	·····		D =	ፍ 'ቃ፡	
		Sub-basin Peak D	ischarg	e Rate: (see formula a	bove)				1
		QP	=	81.1	cfs				
BASIN NO.	300			DESCRIPTION	84" SD,	excludes Basin 30	0 Roofto	p discharge to wat	er feature
Area of basin flo	ws =	1135492	SF		=	26.1	Ac.		
The following ca	lculation	is are based on Tr	eatment	t areas as shown in tab	le to the	right	LAND	TREATMENT	
<del></del>		Sub-basin Weight	ted Exc	ess Precipitation (see	formula	above)	A =	0%	
		Weighted E		2.12	<del></del>		B =	17%	
		Sub-basin Volum	e of Ru	noff (see formula abov	/e)		C =	0%	
•		V360		200149	<del></del>		D =	83%	
		Sub-basin Peak D	ischarg	e Rate: (see formula a	bove)				
		QP	=	120.1	cfs			-	
BASIN NO.	300 RC	OFTOPS		DESCRIPTION	Basin 3	00 Rooftop disch	arge to v	vater feature	
Area of basin flo	ws =	125016	SF		=	2.9	Ac.		
The following ca	lculation	is are based on Tr	eatment	t areas as shown in tab	le to the	right	LAND	TREATMENT	
				ess Precipitation (see 1			A =	0%	• · <del>- · · · · · · · · · · · · · · · · · </del>
•		Weighted E		2.36	· · · · ·		B =	0%	
				noff (see formula abov			C =	0%	
		V360	=	24586	CF		D =	100%	
		Sub-basin Peak D	ischarg	e Rate: (see formula a	bove)				
		QP	=	14.4	cfs				
BASIN NO.	400			DESCRIPTION	I-40 Or	nramp			
Area of basin flo	ws =	140415	SF		=	3.2	Ac.		
The following ca	lculation	is are based on Tr	eatment	t areas as shown in tab	le to the	right	LAND	TREATMENT	
		Sub-basin Weight	ted Exc	ess Precipitation (see 1	formula	above)	A =	0%	
		Weighted E		2.23	in.		B =	9%	
		Sub-basin Volum	e of Ru	noff (see formula abov	/e)		C =	0%	
<del></del>		V360	=	26098	<del>,                                    </del>		D =	91%	
· 	1			_ <del>_</del>			_	······································	1
		Sub-basin Peak D	ischarg	e Rate: (see formula a	bove)				

### 2031 DPM Calculations - 100 yr 6 hr.xlsm

BASIN NO.	500			DESCRIPTION	42" SD,	excludes Basin 500	) Rooftop	& 500P discharg	e to water feature
Area of basin flo	ows =	354373	SF		=	8.1	Ac.		
The following c	alculation	is are based on Tr	eatment	areas as shown in tab	le to the	right	LAND	TREATMENT	
<u> </u>				ess Precipitation (see			A =	1 0%	
		Weighted E	· · · · · · · · · · · · · · · · · · ·	2.17		]	B =	.%. 	
			1	noff (see formula abov			C =		
<u> </u>		V360	1	64165	· · ·		D=		
			<u>.                                    </u>	e Rate: (see formula a				· · · · · · · · · · · · · · · · · · ·	`
		QP	=	38.3			<u> </u>		
BASIN NO.	500 RC	OFTOPS		DESCRIPTION	_	500 Rooftop disch	arge to	water feature	
Area of basin flo	!	147575	SF		=	3.4			
The following c	alculation	is are based on Tr	eatment	areas as shown in tab	le to the	right	LAND	TREATMENT	
		Sub-basin Weigh	ted Exc	ess Precipitation (see	formula	above)	A =	0%	
<u></u>		Weighted E		2.36			B =	0%	
	_	<u> </u>	f	noff (see formula above			C =		
<del> </del>		V360		29023		<u></u>	D=		
				e Rate: (see formula a		<b>!</b>		<u> </u>	;
	<del>- </del>	OP	=	17.0	cfs		<u> </u>		
BASIN NO.	500P			DESCRIPTION		laza discharges to	water fo	eature	
Area of basin flo		102923	ŠF		= =	2.4			
				areas as shown in tab	le to the	<u> </u>		TREATMENT	
The following co				ess Precipitation (see			A =	<u> </u>	
		Weighted E		1.93			B =		
	_	· ·		noff (see formula abov		<u> </u>	C =		
-	<u> </u>	V360					D =		
	<u></u>			2 Deter (200 formula e		<u> </u>	<u>D</u> =	1070	· · · · · · · · · · · · · · · · · · ·
			nscharg	e Rate: (see formula a					
D A CIPI NIC		QP		10.1	cfs		1 1 1	· 510 D 0	1. 1
BASIN NO.	510	r 		DESCRIPTION	West of	Regal Theaters, ex		asın 510 Rooftop	discharge to wate
Area of basin flo		142457			<del></del>	3.3			
The following ca				areas as shown in tab			_	TREATMENT	
				ess Precipitation (see	-	above)	A =		
	<u> </u>	Weighted E		2.10			B =		
				noff (see formula abov			C =		
		V360		24939			D =	82%	
		Sub-basin Peak D	ischarg	e Rate: (see formula a					
		QP	=	15.0	cfs				
BASIN NO.	510 R	OOFTOP		DESCRIPTION	Basin :	510 Rooftop disch	arge to	water feature	
Area of basin flo	ows =	78686	SF		=	1.8			
The following ca	alculation	s are based on Tr	eatment	areas as shown in tab	le to the	right	LAND	TREATMENT	
		Sub-basin Weigh	ted Exc	ess Precipitation (see 1	formula	above)	<b>A</b> =	0%	
		Weighted E		2.36			B =	0%	
		Sub-basin Volum	e of Ru	noff (see formula abov	/e)	`	C =	0%	
		V360		15475	CF		D =	100%	
		Sub-basin Peak D	ischarg	e Rate: (see formula a	bove)				
····		QP	=	. 9.1	cfs		<u> </u>		
	l.			•	-			Ţ	

### 2031 DPM Calculations - 100 yr 6 hr.xlsm

BASIN NO.	530			DESCRIPTION	East of	Bed Bath & Beyo	nd park	ing lot	
Area of basin flo	ows =	90687	SF		=	2.1	Ac.		
The following c	alculation	ns are based on Tr	eatment	areas as shown in tab	le to the	right	LAND	TREATMENT	
		Sub-basin Weigh	ted Exc	ess Precipitation (see	formula	above)	A =	0%	
		Weighted E	=	2.23	in.		B =	9%	
		Sub-basin Volum	e of Ru	noff (see formula abov	ve)		C =	0%	
		V360	=	16856	CF		D =	91%	
		Sub-basin Peak D	ischarg	e Rate: (see formula a	bove)				
		QP	=	10.0	cfs				
BASIN NO.	600			DESCRIPTION	Surface	drains to Uptowr	ı Loop		
Area of basin flo	ows =	117244	SF		=	2.7	Ac.		
The following c	alculation	ns are based on Tr	eatment	areas as shown in tab	le to the	right	LAND	TREATMENT	
		Sub-basin Weigh	ted Exce	ess Precipitation (see	formula	above)	A =	0%	
		Weighted E		2.23		-	B =	9%	
		Sub-basin Volum	e of Ru	noff (see formula abov	ve)		C =	0%	
		V360	=	21792	CF		D =	91%	
		Sub-basin Peak D	ischarg	e Rate: (see formula a	bove)				
		QP	=	12.9	cfs				
BASIN NO.	610			DESCRIPTION	Macaro	oni Grill drains to	Uptown	Loop SD	
Area of basin flo	ows =	50077	SF		=	1.1	Ac.		
The following ca	alculation	is are based on Tr	eatment	areas as shown in tab	le to the	right	LAND	TREATMENT	
		Sub-basin Weigh	ted Exce	ess Precipitation (see	formula	above)	A =	0%	
		Weighted E		2.23	in.		B =	9%	
<u> </u>		Sub-basin Volum	e of Rui	noff (see formula abov	/e)		C =	0%	_
		V360	#	9308	CF		D =	91%	
		Sub-basin Peak D	ischarg	e Rate: (see formula a	bove)				
		QP	=	5.5	cfs				
BASIN NO.	OVER	ALL -EXISTING	1	DESCRIPTION	Surface	drains to Uptown	Loop		
Area of basin flo	ows =	3493118	SF		=	80.2	Ac.		
The following ca	alculation	ns are based on Tr	eatment	areas as shown in tab	le to the	right	LAND	TREATMENT	
		Sub-basin Weight	ted Exce	ess Precipitation (see	formula	above)	A =	0%	
		Weighted E		2.19		-	B =	12%	
		Sub-basin Volum	e of Rui	noff (see formula abov	/e)		C =	0%	
		V360	=	636679	CF		D =	88%	
		Sub-basin Peak D	ischarg	e Rate: (see formula a	bove)				
		QP	=	379.3	cfs				
					-	- · · · · · · · · · · · · · · · · · · ·	1		

	BASI	N SUMMAR	Y					
Basin No.	Description	100-year Flow (cfs)	EX 36" SD (AP1) Contributing Basins (cfs)	42" SD (AP5) Contributing Basins (cfs)	Water Feature Contributing Basins (cfs)		Uptown Loop Road (AP6.0 & AP 6.1) Contributing Basins (cfs)	Previous Studies
100	36" SD to Embudo Arroyo, includes Regal Cinema	20.0	20.0			<u> </u>		
101a	Offsite Basin-Winrock Villas Condos	30.1	30.1			30.1	<del>                                     </del>	30.5
101b	Offsite Basin-Road	2.0	2.0			2.0		,
101c	Offsite Basin-Landscape area discharges to 24" SD	1.3	1.3			1.3		
110	Southwest of Regal Cinema	10.5	10.5					
151	Offsite Basin-Winrock Villas, surface drains to Basin 520	27.5	18.0	9.5		27.5		
200	Drains to Indian School Rd. (AP-G)	81.1						82.2
300	84" SD, excludes Basin 300 Rooftop discharge to water feature (AP-D)	120.1		<del></del>				120.4
300 ROOFTOPS	Basin 300 Rooftop discharge to water feature	14.4		14.4	14.4			
400	I-40 Onramp (AP-C)	15.5						15.5
- 500	42" SD, excludes Basin 500 Rooftop & 500P discharge to water feature	38.3		38.3	•			
500 ROOFTOPS	Basin 500 Rooftop discharge to water feature	17.0		17.0	17.0			
500P	Park/plaza discharges to water feature	10.1		10.1	10.1			
510	West of Regal Theaters, excludes Basin 510 Rooftop discharge to water feature	15.0		15.0				
510 ROOFTOP	Basin 510 Rooftop discharge to water feature	9.1		9.1	9.1			
530	East of Bed Bath & Beyond parking lot	10.0		10.0				
600	Surface drains to Uptown Loop (AP-E)	12.9					12.9	
610	Macaroni Grill drains to Uptown Loop SD (AP-F)	5.5					5.5	
- -	TOTAL EX 36" SD DISCH	HARGE (AP-A)	81.9	_			•	
	TOTAL 42" SD DISCH	IARGE (AP-B)		123.4				-
	TOTAL DISCHARGE TO EMBUDO ARROYO	(AP-A & AP-B)		205.3				205.7
<u> </u>	TOTAL WATER FEAT	TURE INFLOW			50.6			
	TOTAL TO UPTOWN LOOP ROAD	(AP-E & AP-F)					18.4	18.5
								•
<del></del>								- 
TOTAL DISCHA	RGE FROM ONSITE AND OFFSITE BASINS	440.4				60.9		441.1

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# APPENDIXD

Storm Drain Calculations

# WINKOUR TUWN CENIER (AP-A)

Project File: 2031 SD BASIN 100-proposed.stm

Number of lines: 9 Date: 4/27/2015

### GLU

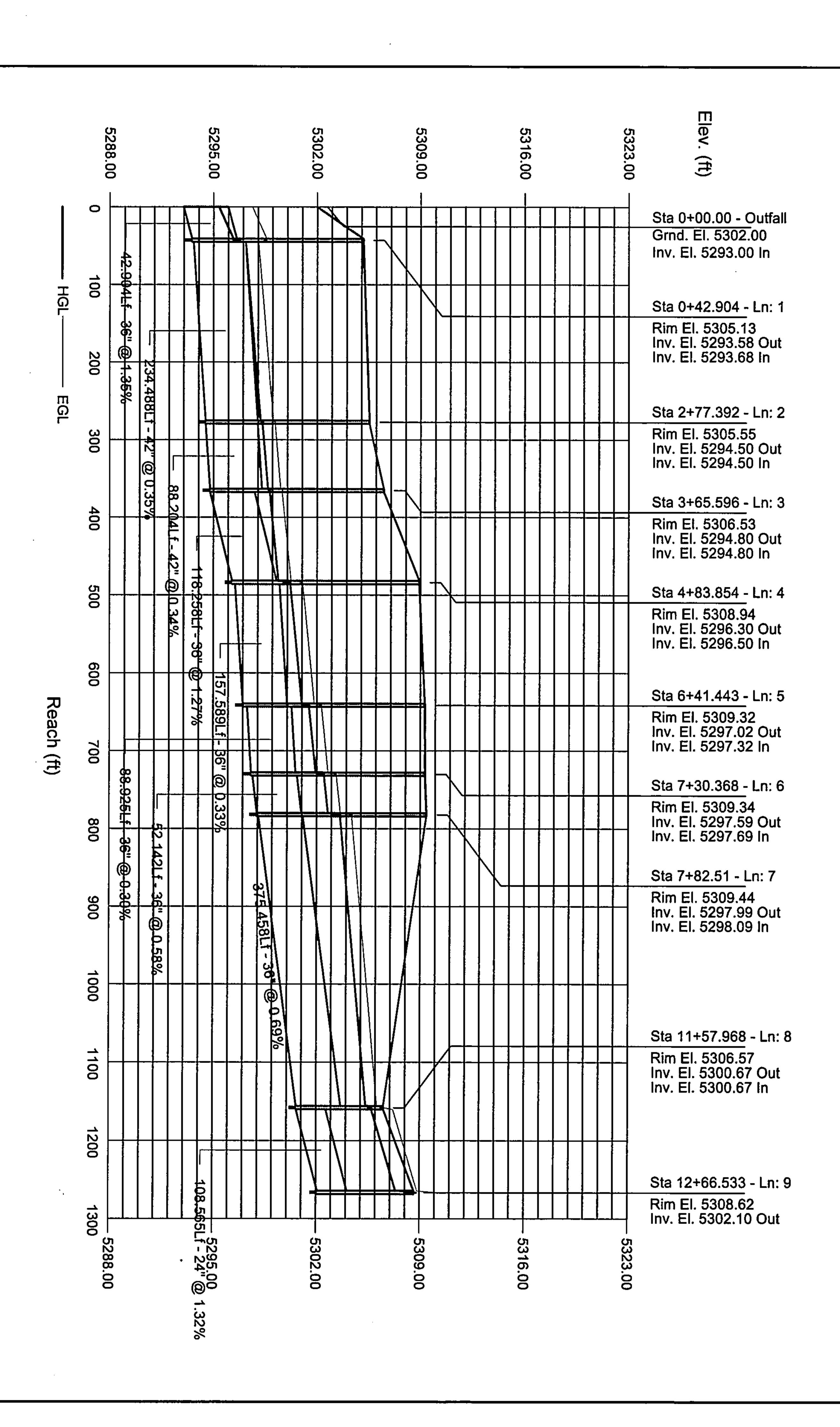
Company   Comp	Line No.	DnStm Ln No	Line Length	Known Q	Flow Rate	Capac Full	Vel Ave	Line Size	Line Slope	Invert Dn	Invert Up	HGL Dn	HGL Up	HGL Jnct	Gnd/Rim El Dn	Gnd/Rim El Up	
2       1       234.488       0.00       71.40       64.45       7.42       42       0.35       5293.68       5294.50       5298.19       5299.20       5299.33       5305.13       5305.55         3       2       88.204       20.00       71.40       63.54       7.42       42       0.34       5294.80       5294.80       5299.33       5299.71       5299.83       5305.55       5306.53         4       3       118.258       0.00       51.40       81.37       7.27       36       1.27       5294.80       5296.30       5299.83       5300.43       5301.23       5306.53       5308.94         5       4       157.589       0.00       51.40       41.50       7.27       36       0.33       5296.50       5297.02       5301.23       5302.03       5308.94       5309.32         6       5       88.925       0.00       51.40       39.81       7.27       36       0.58       5297.59       5302.50       5302.95       5309.32       5309.32       5309.34         7       6       52.142       2.00       51.40       54.83       7.27       36       0.58       5297.69       5297.99       5303.52       5303.79       5304.61 </th <th>;</th> <th></th> <th>(ft)</th> <th>(cfs)</th> <th>(cfs)</th> <th>(cfs)</th> <th>(ft/s)</th> <th>(in)</th> <th>(%)</th> <th>(ft)</th> <th>(ft)</th> <th>(ft)</th> <th>(ft)</th> <th>(ft)</th> <th>(ft)</th> <th>(ft)</th> <th></th>	;		(ft)	(cfs)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
3       2       88.204       20.00       71.40       63.54       7.42       42       0.34       5294.50       5294.80       5299.33       5299.71       5299.83       5305.55       5306.53         4       3       118.258       0.00       51.40       81.37       7.27       36       1.27       5294.80       5296.30       5299.83       5300.43       5301.23       5306.53       5308.94         5       4       157.589       0.00       51.40       41.50       7.27       36       0.33       5296.50       5297.02       5301.23       5302.03       5308.94       5309.32         6       5       88.925       0.00       51.40       39.81       7.27       36       0.30       5297.32       5297.59       5302.50       5303.52       5309.32       5309.34         7       6       52.142       2.00       51.40       54.83       7.27       36       0.58       5297.69       5297.99       5303.52       5303.79       5304.61       5309.34       5309.44         8       7       375.458       19.30       49.40       59.89       6.99       36       0.69       5298.09       5300.67       5304.61       5306.36       5306.77<	1	Outfall	42.904	10.50	81.90	84.01	12.75	36	1.35	5293.00	5293.58	5295.39	5296.37	5298.19	5302.00	5305.13	
4       3       118.258       0.00       51.40       81.37       7.27       36       1.27       5294.80       5296.30       5299.83       5300.43       5301.23       5306.53       5308.94         5       4       157.589       0.00       51.40       41.50       7.27       36       0.33       5296.50       5297.02       5301.23       5302.03       5302.50       5308.94       5309.32         6       5       88.925       0.00       51.40       39.81       7.27       36       0.30       5297.32       5297.59       5302.50       5302.95       5309.32       5309.32       5309.34         7       6       52.142       2.00       51.40       54.83       7.27       36       0.58       5297.69       5297.99       5303.52       5303.79       5304.61       5309.34       5309.44         8       7       375.458       19.30       49.40       59.89       6.99       36       0.69       5298.09       5300.67       5304.61       5306.36       5309.44       5306.57		1	234.488	0.00	71.40	64.45	7.42	42	0.35	5293.68	5294.50	5298.19	5299.20	5299.33	5305.13	5305.55	
5     4     157.589     0.00     51.40     41.50     7.27     36     0.33     5296.50     5297.02     5301.23     5302.03     5302.50     5308.94     5309.32       6     5     88.925     0.00     51.40     39.81     7.27     36     0.30     5297.32     5297.59     5302.50     5302.95     5303.52     5309.32     5309.34       7     6     52.142     2.00     51.40     54.83     7.27     36     0.58     5297.69     5297.99     5303.52     5303.79     5304.61     5309.34     5309.44       8     7     375.458     19.30     49.40     59.89     6.99     36     0.69     5298.09     5300.67     5304.61     5306.36     5306.77     5309.44     5306.57	3	2	88.204	20.00	71.40	63.54	7.42	42	0.34	5294.50	5294.80	5299.33	5299.71	5299.83	5305.55	5306.53	
6 5 88.925 0.00 51.40 39.81 7.27 36 0.30 5297.32 5297.59 5302.50 5302.95 5303.52 5309.32 5309.34 7 6 52.142 2.00 51.40 54.83 7.27 36 0.58 5297.69 5297.99 5303.52 5303.79 5304.61 5309.34 5309.44 7 375.458 19.30 49.40 59.89 6.99 36 0.69 5298.09 5300.67 5304.61 5306.36 5306.77 5309.44 5306.57	4	3	118.258	0.00	51.40	81.37	7.27	36	1.27	5294.80	5296.30	5299.83	5300.43	5301.23	5306.53	5308.94	
7 6 52.142 2.00 51.40 54.83 7.27 36 0.58 5297.69 5297.99 5303.52 5303.79 5304.61 5309.34 5309.44 8 7 375.458 19.30 49.40 59.89 6.99 36 0.69 5298.09 5300.67 5304.61 5306.36 5306.77 5309.44 5306.57	5	4	157.589	0.00	51.40	41.50	7.27	36	0.33	5296.50	5297.02	5301.23	5302.03	5302.50	5308.94	5309.32	
8 7 375.458 19.30 49.40 59.89 6.99 36 0.69 5298.09 5300.67 5304.61 5306.36 5306.77 5309.44 5306.57	6	5	88.925	0.00	51.40	39.81	7.27	36	0.30	5297.32	5297.59	5302.50	5302.95	5303.52	5309.32	5309.34	
	7	6	52.142	2.00	51.40	54.83	7.27	36	0.58	5297.69	5297.99	5303.52	5303.79	5304.61	5309.34	5309.44	
9 8 108.565 30.10 30.10 28.12 9.58 24 1.32 5300.67 5302.10 5306.77 5308.41 5309.84 5306.57 5308.62	8	7	375.458	19.30	49.40	59.89	6.99	36	0.69	5298.09	5300.67	5304.61	5306.36	5306.77	5309.44	5306.57	
	9	8	108.565	30.10	30.10	28.12	9.58	24	1.32	5300.67	5302.10	5306.77	5308.41	5309.84	5306.57	5308.62	

WINROCK TOWN CENTER (AP-A)

Number of lines: 9

Date: 4/27/2015

NOTES: \*\* Critical depth



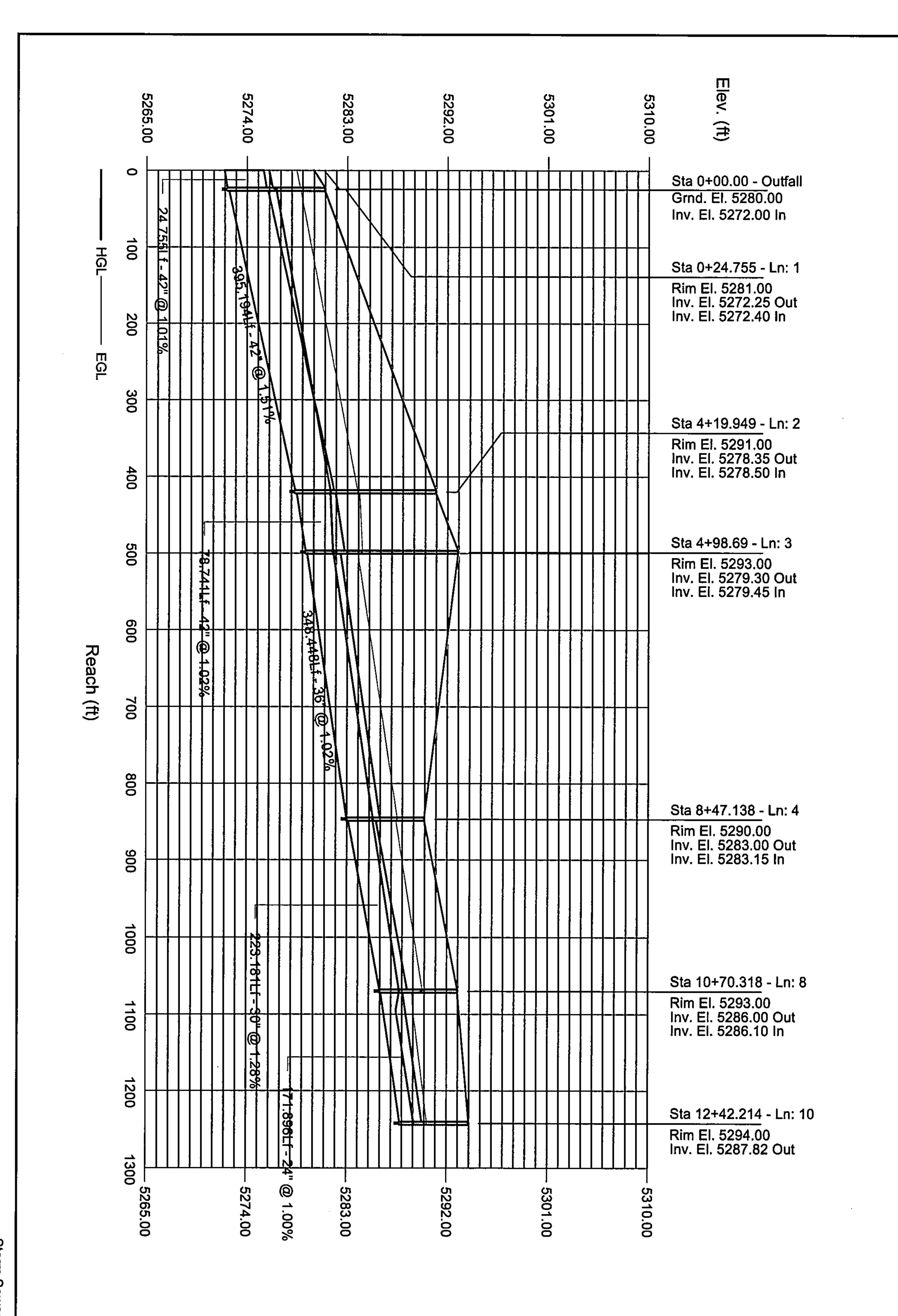
# Windows Jown CELLER (AP-D) Project File: 2031 SD BASIN 300.stm Number of lines: 10 Date: 4/27/2015

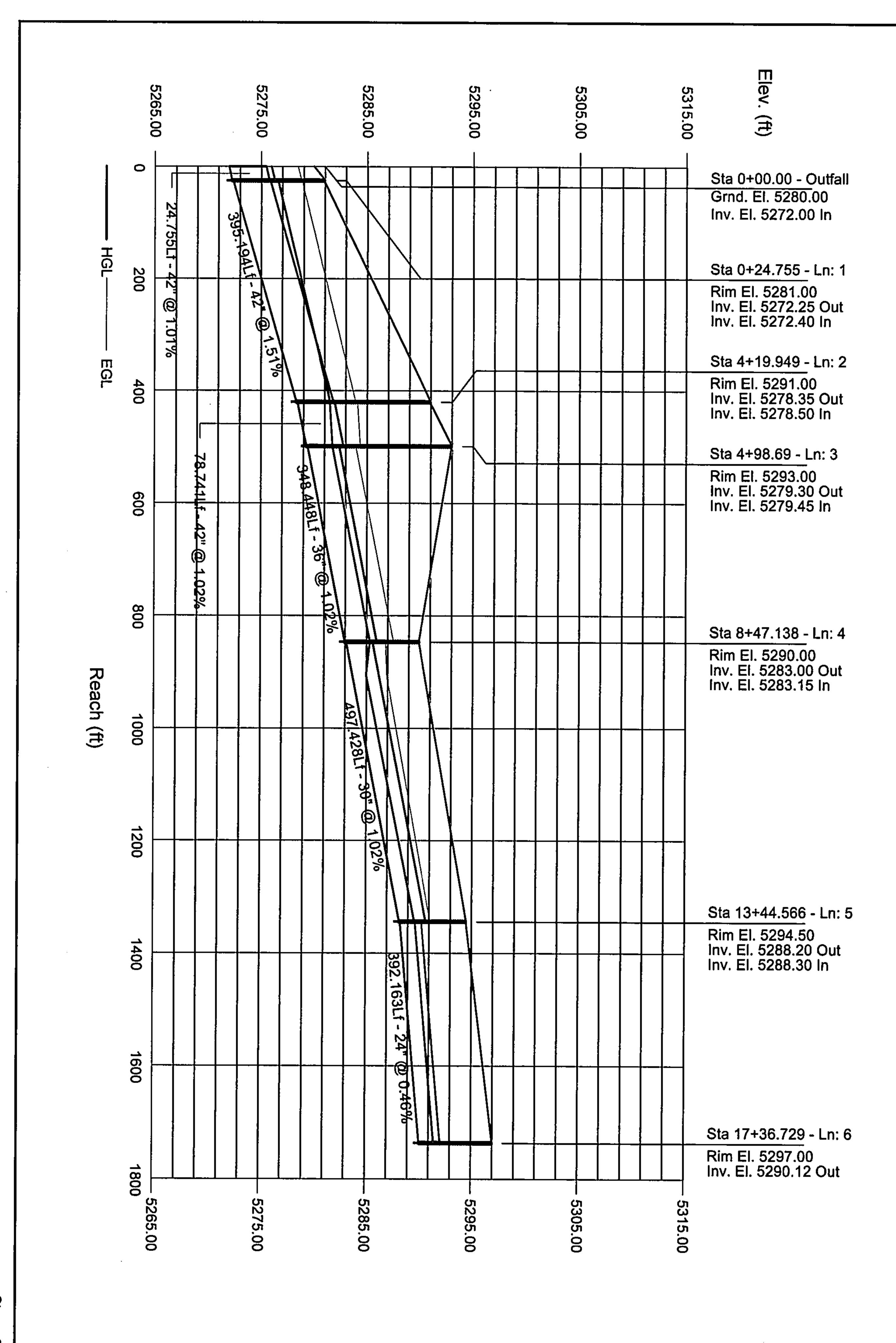
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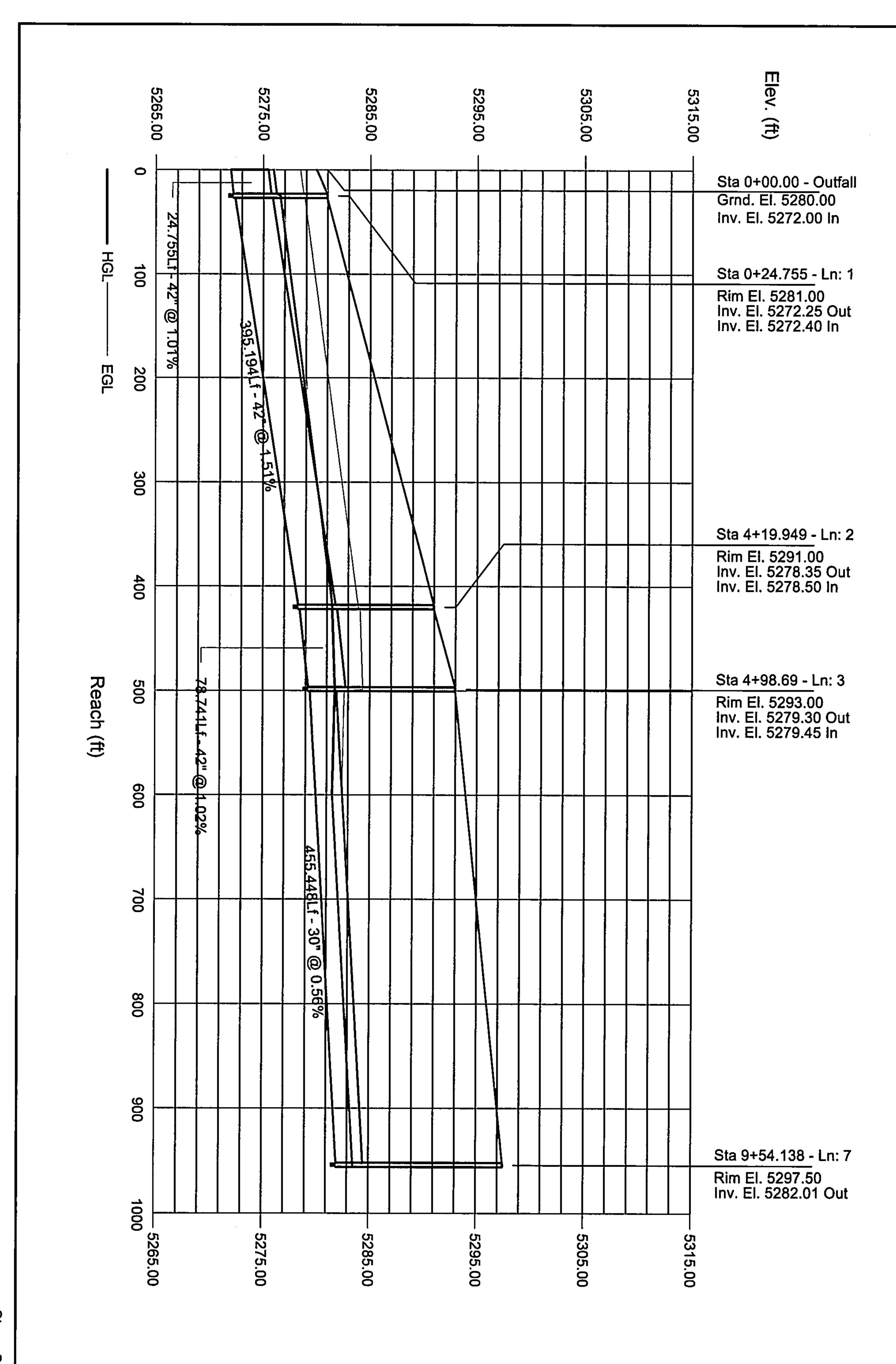
Line No.	DnStm Ln No	Line Length	Known Q	Flow Rate	Capac Full	Vel Ave	Line Size	Line Slope	Invert Dn	invert Up	HGL Dn	HGL Up	HGL Jnct	Gnd/Rim El Dn	Gnd/Rim El Up	•
		(ft)	(cfs)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
1	Outfall	24.755	6.70	120.10	109.53	12.48	42	1.01	5272.00	5272.25	5275.50	5275.75	5276.11	5280.00	5281.00	
2	1	395.194	19.60	113.40	133.74	12.05	42	1.51	5272.40	5278.35	5276.11	5281.55	5281.55	5281.00	5291.00	
3	2	78.741	0.00	93.80	109.85	10.63	42	1.02	5278.50	5279.30	5281.55	5282.29	5282.29	5291.00	5293.00	
4	3	348.448	0.00	70.30	72.93	10.38	36	1.02	5279.45	5283.00	5282.29	5285.66	5285.66	5293.00	5290.00	
5	4	497.428	0.00	28.00	44.77	6.55	30	1.02	5283.15	5288.20	5285.66	5290.00 j	5290.00	5290.00	5294.50	
6	5	392.163	14.00	14.00	16.69	5.57	24	0.46	5288.30	5290.12	5290.00	5291.47	5291.47	5294.50	5297.00	
7	3	455.448	23.50	23.50	33.31	5.80	30	0.56	5279.45	5282.01	5282.29	5283.67 j	5284.39	5293.00	5297.50	
8	4	223.181	24.30	42.30	50.21	8.98	30	1.28	5283.15	5286.00	5285.66	5288.18	5288.18	5290.00	5293.00	
9	5	385.286	14.00	14.00	30.19	5.42	24	1.52	5288.15	5294.00	5290.00	5295.35 j	5295.35	5294.50	5301.40	
10	8	171.896	18.00	18.00	24.51	6.36	24	1.00	5286.10	5287.82	5288.18	5289.35 j	5289.35	5293.00	5294.00	
WINR	OCK TOW	N CENTER	(AP-D)			<b>_</b>						Nu	mber of lines	: 10	l	Date: 4/27/2015

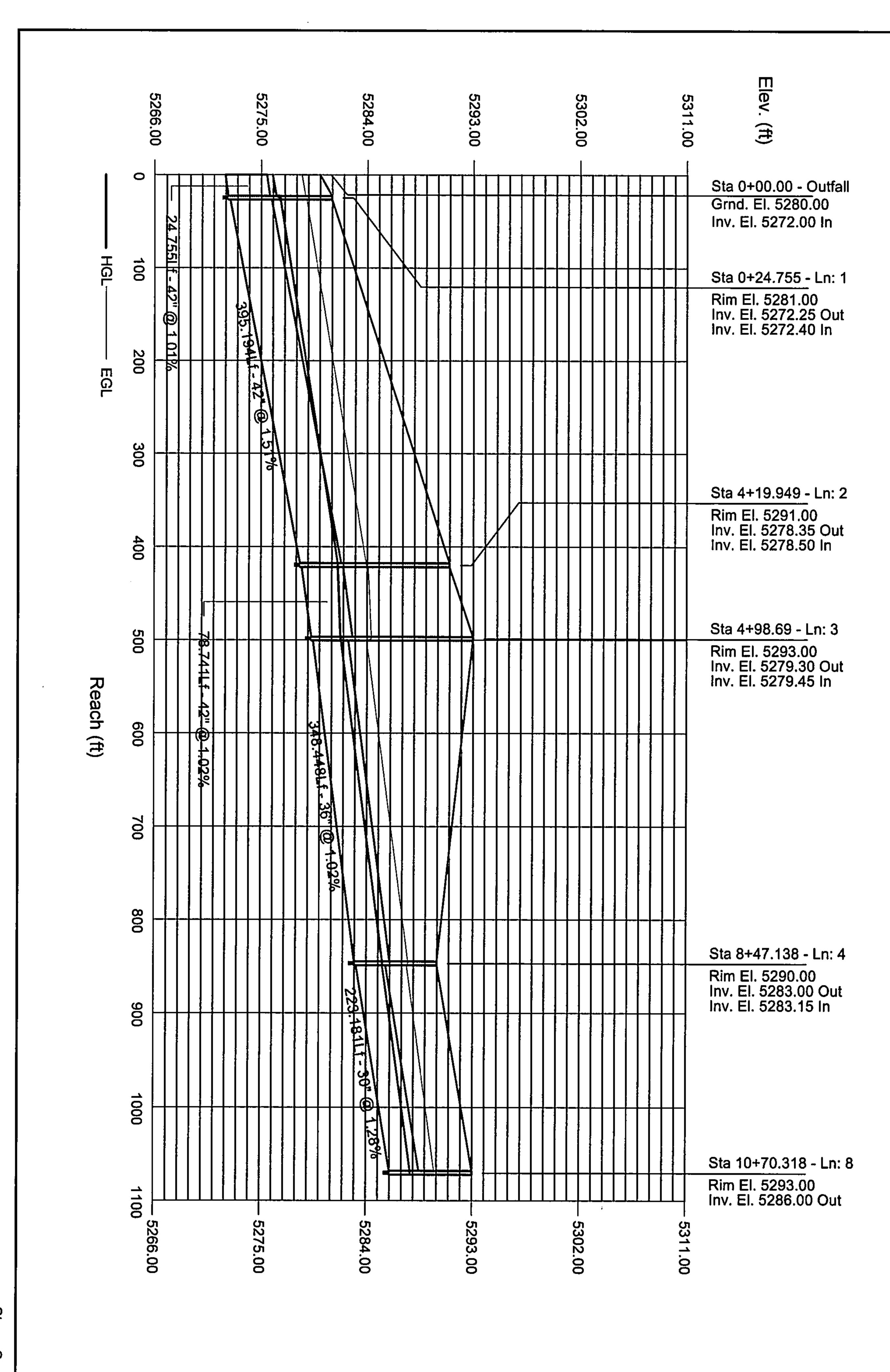
NOTES: \*\* Critical depth

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SD

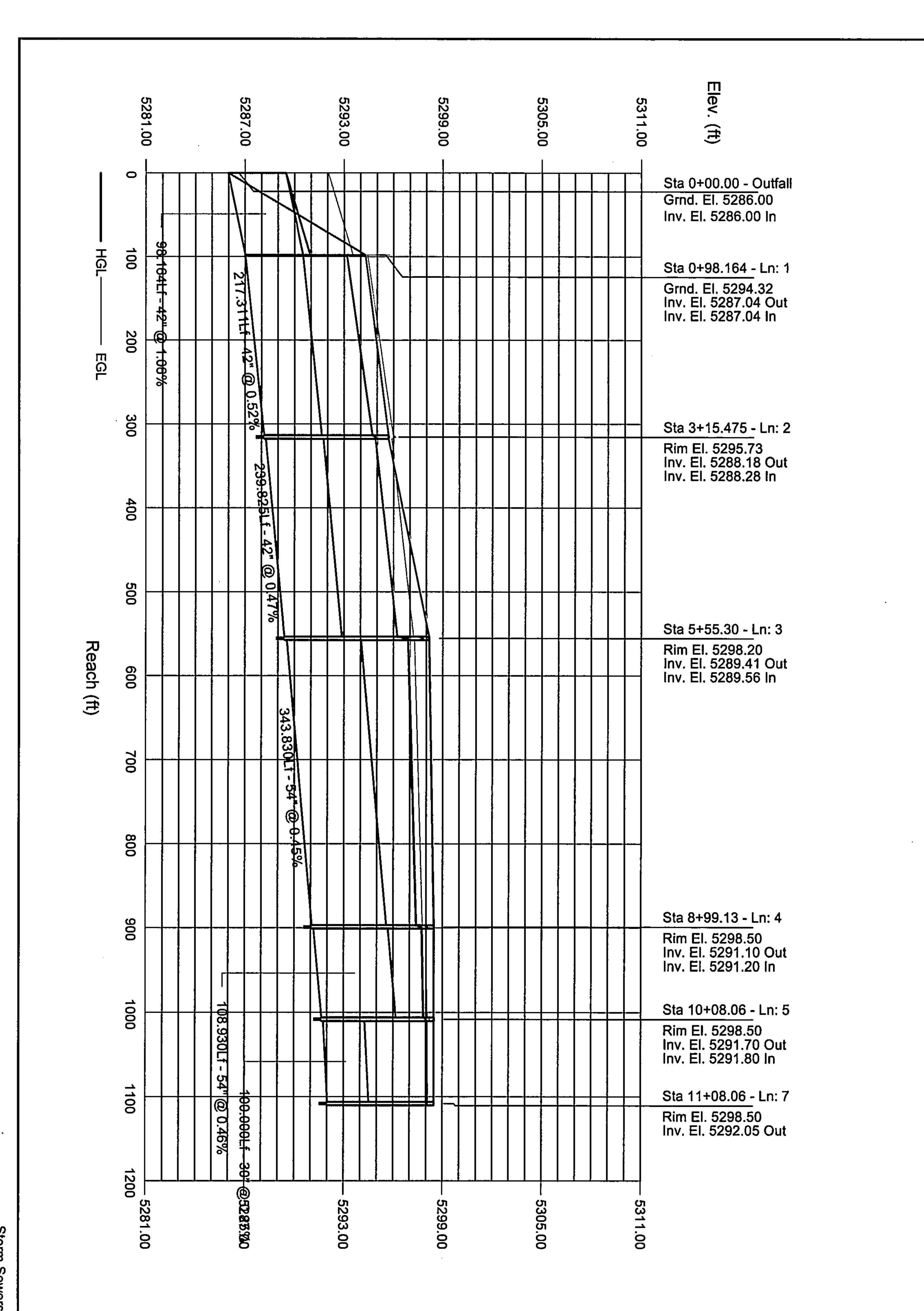
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# WINKOJ., JUWN CENIER (AP-L, Project File: 2031 SD BASIN 500.stm Number of lines: 9 Date: 6/26/2015

### GLu

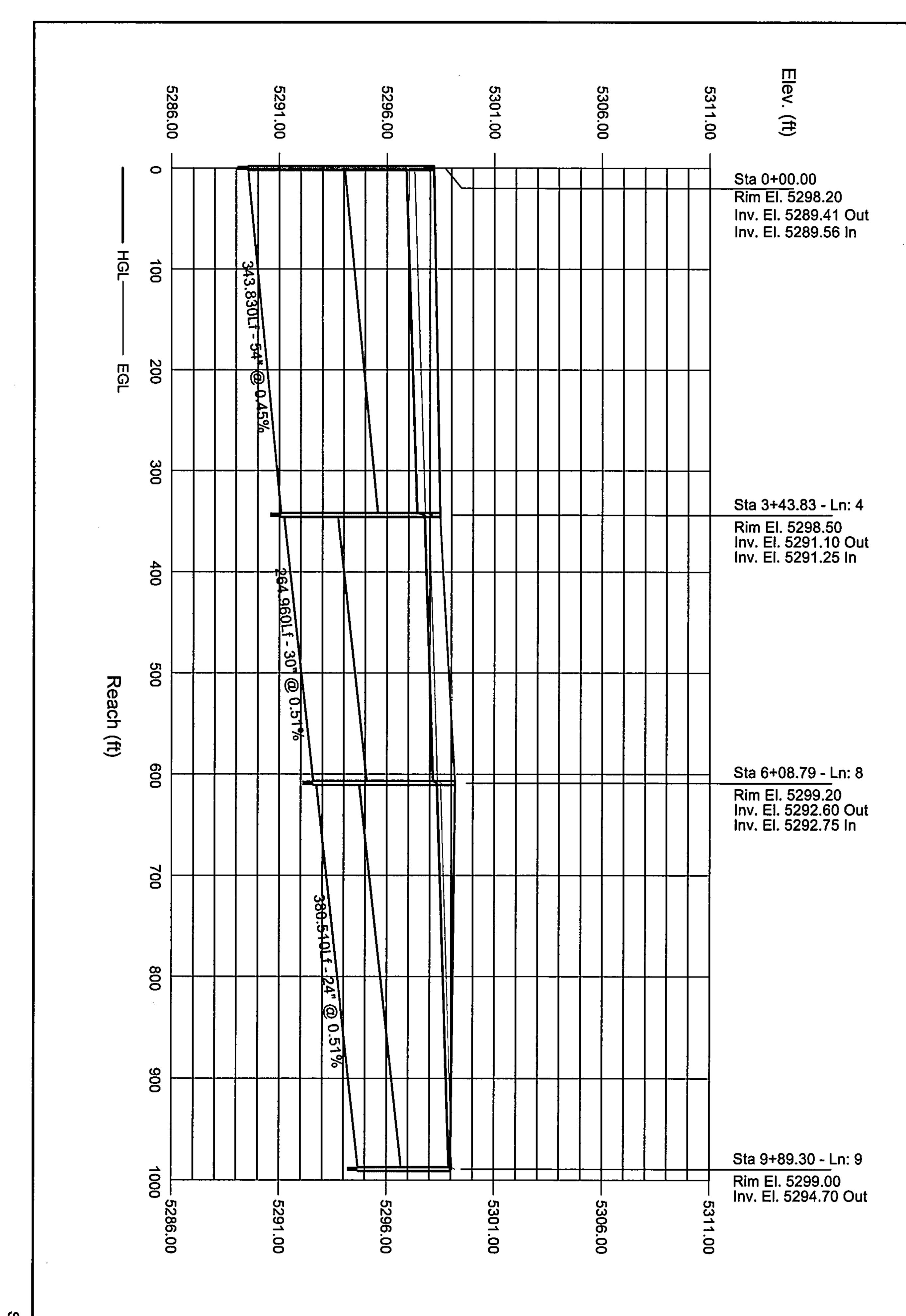
Line No.	DnStm Ln No	Line Length	Known Q	Flow Rate	Capac Full	Vel Ave	Line Size	Line Slope	Invert Dn	Invert Up	HGL Dn	HGL Up	HGL Jnct	Gnd/Rim El Dn	Gnd/Rim El Up	
		(ft)	(cfs)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
1	Outfall	98.164 ·	38.30	123.40	103.56	12.83	42	1.06	5286.00	5287.04	5289.50	5290.98	5293.20	5286.00	5294.32	
2	1	217.311	10.00	85.10	72.87	8.85	42	0.52	5287.04	5288.18	5293.20	5294.76	5294.94	5294.32	5295.73	
3	2	239.825	0.00	75.10	69.07	7.81	42	0.47	5288.28	5289.41	5294.94	5296.28	5296.93	5295.73	5298.20	
4	3	343.830	0.00	75.10	131.62	4.72	54	0.45	5289.56	5291.10	5296.93	5297.43	5297.78	5298.20	5298.50	
5	4	108.930	0.00	58.10	133.24	3.65	54	0.46	5291.20	5291.70	5297.78	5297.88	5298.04	5298.50	5298.50	
6	5	62.000	50.60	50.60	101.58	4.03	48	0.50	5291.85	5292.16	5298.04	5298.12	5298.37	5298.50	5298.00	
7	5	100.000	7.50	7.50	20.51	1.53	30	0.25	5291.80	5292.05	5298.04	5298.08	5298.11	5298.50	5298.50	
8	4	264.960	7.50	17.00	31.71	3.46	30	0.51	5291.25	5292.60	5297.78	5298.17	5298.36	5298.50	5299.20	
9	8	380.510	9.50	9.50	17.54	3.02	24	0.51	5292.75	5294.70	5298.36	5298.93	5299.07	5299.20	5299.00	
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WINR	OCK TOW	N CENTER	R (AP-B)	<u> </u>					<u>-</u>		<u>.</u>	Nur	nber of lines	s: 9	<u>I</u>	Date: 6/26/2015

NOTES: \*\* Critical depth



SD

 $\Omega$ 



Genny Donart, P.E. Isaacson and Arfman, PA 128 Monroe St NE Albuquerque, NM 87108 Cmm 2

Re: Winrock Town Center DMP

Engineer's Stamp Date 6-24-15 Drainage file number (J19D058)

Dear Ms. Donart,

6-24y

Based upon the information provided in your submittal received 4-29-15, the above referenced report cannot be approved for Drainage Master Plan until the following comments are approved:

- 1. Per the Easterling drainage Report for Toy's-R-Us and that the access road west of Tract Q may become ROW, Tract Q is to drain out the access road to Indian School Blvd at a rate to be determined at the time of development of Tract Q base on downstream and street capacity of Indian School Rd. Revise the narrative in Basin 200 and change the flow arrow on the basin map.
- 2. The first bullet on p. 10 refers to Appendix "B" when it appears it should refer to Appendix "C".
- 3. The storm drain network for AP-B should include the storm drains west of the theatre.
- 4. It appears there is an extra AP-B profile.
- 5. Pipe SD-7 and 5 for AP-D are analyzed as a 30", but shown as a 24" on the basin map.
- 6. The narrative for Basin 500 states that a new storm drain picks up flows and directs them to the 42", but the pipe is not shown on the basin map or in the storm drain network.

If you have any questions, you can contact me at 924-3420.

Sincerely,

Curtis Cherne, P.E.
Principal Engineer, Stormwater Quality for Hydrology.
Development Review Services

Genny Donart, P.E. Isaacson and Arfman, PA 128 Monroe St NE Albuquerque, NM 87108

Canot

Re: Winrock Town Center DMP

Engineer's Stamp Date 4-27-15 Drainage file number (J19D058)

Dear Ms. Donart,

Based upon the information provided in your submittal received 4-29-15, the above referenced report cannot be approved for Drainage Master Plan for DRB action or Work Order until the following comments are approved:

- 1. The basin map should be made clearer by removing parking islands and other surface features that are not necessary for drainage purposes.
- 2. Existing and proposed storm drains should be more clearly shown. This will be helpful to ensure a building does not end up on top of a storm drain or a storm drain has to be relocated later. This may happen when comment #1 is addressed. Corridors (easement or ROW) should be clearly defined for the proposed storm drains. The DPM has a formula for required easement width. Corridors narrower than the width specified in the DPM will have to be approved by DMD.
- 3. In numerous locations existing storm drain is proposed to be removed or abandoned, but it is not clear that adequate storm drain and inlets are proposed to take its place.
- 4. The report does not address the first flush.
- 5. First flush volumes are to infiltrate. How does recirculating the first flush in the water feature attain this goal?
- 6. Show the proposed roof drains to the water feature.
- 7. The 60" storm drain west the Toys-R-Us is an underground detention system with an 18" or 24" outfall. Please revise.
- 8. It may be possible to incorporate LID into the new streets to help with the first flush. Please discuss with the developer and the architect. Samples have been provided.

If you have any questions, you can contact me at 924-3420.

Sincerely,



# City of Albuquerque

	ning Department  Devilding Services Division	
	Building Services Division SPORTATION INFORMATION SHEET (REV 02/2013)	
Project Title: Winrock Town Center	Building Permit #: City Drainage #: 119/D058	
DDR#.	Work Order#:	
Legal Description: Parcels A-1-A-1, A-1-A-2, A-2, A-3, B, C-2A, D-	-1-A, and E-1, Winrock Center Addition, and Tract B, Hunt-Spectrum Development Site	
City Address:		
Engineering Firm: Isaacson & Arfman, P.A.	Contact: Genny Donart	
Address: 128 Monroe Street NE - Albuquerque, NM 871	108	
Phone#: (505) 268-8828 Fax#:	E-mail: gennyd@iacivil.com	
	Contact: Darin Sand	
Owner: Winrock Partners, LLC c/o Goodman Realty Gr		
Address: 100 Sun Ave. NE, Ste 210, Albuquerque, NM Phone#: 881-0100 ext 111 Fax#:	E-mail: sand@goodmanrealty.com	
PROBLEM: OO 1-0 100 OXL 1 11		
Architect: Modulus Architects	Contact: Stephen Dunbar	
Address: 2325 San Pedro N.E Suite 2B, Albuquerque, I	NM 8/110 E-mail: sdunbar@modulusarchitects.com	
Phone#: 338-1499 ext 106 Fax#:	E-Iliali, occinocioni,	
Surveyor:	Contact:	
Address:		
Phone#: Fax#:	E-mail:	
Contractor:	Contact:	
Address:		
Phone#: Fax#:	E-mail:	
	CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:	
TYPE OF SUBMITTAL:  X DRAINAGE REPORT	SIA/FINANCIAL GUARANTEE RELEASE	
DRAINAGE PLAN 1st SUBMITTAL	X PRELIMINARY PLAT APPROVAL	
DRAINAGE PLAN RESUBMITTAL	X S. DEV. PLAN FOR SUB'D APPROVAL	哥
CONCEPTUAL G & D PLAN	S. DEV. FOR BLDG. PERMIT APPROVAL  S. DEV. FOR BLDG. PERMIT APPROVAL  APR 2 9 2015	
GRADING PLAN	SECTOR PLAN APPROVAL	
EROSION & SEDIMENT CONTROL PLAN (ESC)	FINAL PLAT APPROVAL  CERTIFICATE OF OCCUPANCY (PERM)  LAND DEVELOPMENT SEC	 C1
ENGINEER'S CERT (HYDROLOGY)	CERTIFICATE OF OCCUPANCY (PERM)  LAND DEVELOPMENT SEC	
CŁOMR/LOMR	CERTIFICATE OF OCCUPANCY (TCI. TEMP)  FOUNDATION PERMIT APPROVAL	
TRAFFIC CIRCULATION LAYOUT (TCL)	BUILDING PERMIT APPROVAL	
ENGINEER'S CERT (TCL) ENGINEER'S CERT (DRB SITE PLAN)	GRADING PERMIT APPROVAL SO-19 APPROVAL	
ENGINEER'S CERT (ESC)	PAVING PERMIT APPROVAL ESC PERMIT APPROVAL	
SO-19	WORK ORDER APPROVAL ESC CERT. ACCEPTANCE	
OTHER (SPECIFY)	GRADING CERTIFICATION OTHER (SPECIFY)	
	Yes X No Copy Provided	
WAS A PRE-DESIGN CONFERENCE ATTENDED:	Yes X No Copy Provided  By: Genevieve Donart	
	Isaacson & Afrman, P.A.  In Plats shall be accompanied by a drainage submittal. The particular nature, location, and  on Plats shall be accompanied by a drainage submittal may be required based on the following	

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 the conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans

Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5) acres

Drainage Report: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more 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

### **Genny Donart**

From:

Genny Donart <gennyd@iacivil.com>

Sent:

Tuesday, April 28, 2015 2:21 PM

To:

--- PDF Submittals (PLNDRS@cabq.gov)

Cc:

rharmon@cabq.gov

**Subject:** 

Winrock Town Center DMP resubmittal

Please click on the link below to download the pdf files for the resubmittal of (J19D058) the Winrock Town Center DMP.

### Thanks!

### https://iacivil.sharefile.com/d-s43e01d47ec04e42b

Genny Donart, P.E. Registered Engineer



Isaacson & Arfman, P.A.

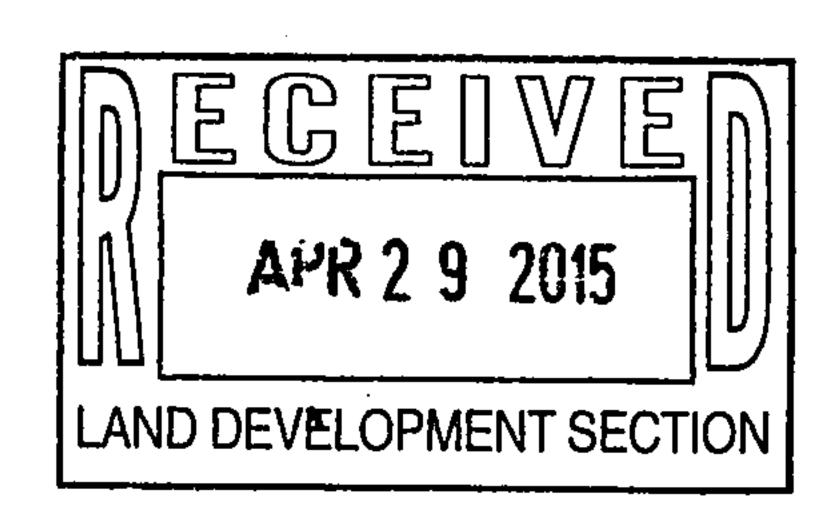
Consulting Engineering Associates 128 Monroe St. N.E. Albuquerque, NM 87108 Phone: (505)268-8828

Fax: (505)268-2632 gennyd@iacivil.com

**CONFIDENTIALITY STATEMENT and CONTENT NOTIFICATION**: This message and any accompanying attachment(s) contain information which may be confidential or privileged and is intended only for the individual or entity named above. It is prohibited to disclose, copy, or distribute the contents of this message. If you received this message in error, please notify us immediately.

Recipient acknowledges that any attached electronic files may not contain all of the information on the approved construction documents and are not intended to be relied upon as a replacement for the approved construction documents(s).

This information is provided to the user as a courtesy by I&A for this project only and shall not be used for any other purpose without the express written consent of Isaacson & Arfman, PA.



June 22, 2015

Genny Donart, P.E. Isaacson and Arfman, PA 128 Monroe St NE Albuquerque, NM 87108

Re: Winrock Town Center DMP

Engineer's Stamp Date 4-27-15 Drainage file number (J19D058)

Dear Ms. Donart,

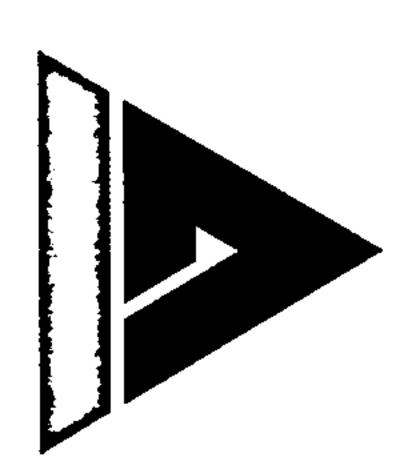
Based upon the information provided in your submittal received 4-29-15, the above referenced report cannot be approved for Drainage Master Plan for DRB action or Work Order until the following comments are approved:

- 1. The basin map should be made clearer by removing parking islands and other surface features that are not necessary for drainage purposes.
- 2. Existing and proposed storm drains should be more clearly shown. This will be helpful to ensure a building does not end up on top of a storm drain or a storm drain has to be relocated later. This may happen when comment #1 is addressed. Corridors (easement or ROW) should be clearly defined for the proposed storm drains. The DPM has a formula for required easement width. Corridors narrower than the width specified in the DPM will have to be approved by DMD.
- 3. In numerous locations existing storm drain is proposed to be removed or abandoned, but it is not clear that adequate storm drain and inlets are proposed to take its place.
- 4. The report does not address the first flush.
- 5. First flush volumes are to infiltrate. How does recirculating the first flush in the water feature attain this goal?
- 6. Show the proposed roof drains to the water feature.
- . 7. The 60" storm drain west the Toys-R-Us is an underground detention system with an 18" or 24" outfall. Please revise.
- 8. It may be possible to incorporate LID into the new streets to help with the first flush. Please discuss with the developer and the architect. Samples have been provided.

If you have any questions, you can contact me at 924-3420.

/(,

Sincerely,

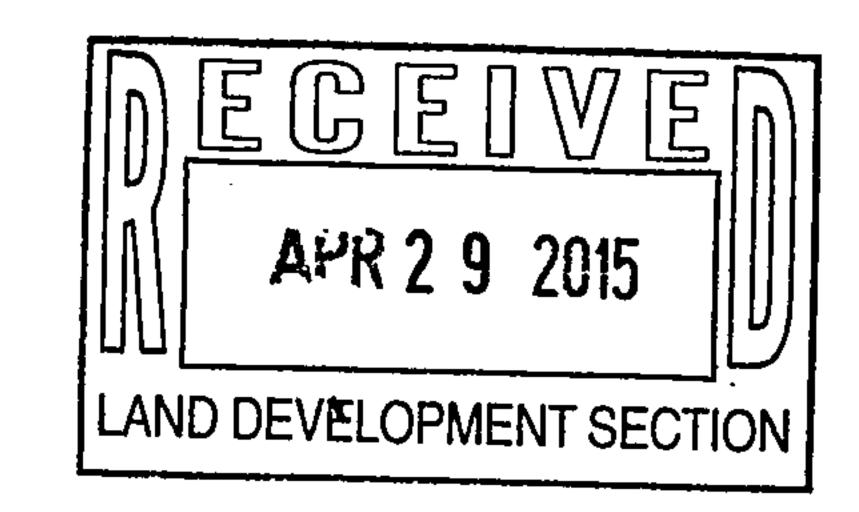


Thomas O. Isaacson, PE(RET.) & LS(RET.) . Fred C. Arfman, PE . Asa Nilsson-Weber, PE

April 27, 2015

Ms. Rita Harmon, PE Senior Engineer, Planning Dept. City of Albuquerque 600 2<sup>nd</sup> St NE Albuquerque, NM 87102

RE: Winrock Town Center
Drainage Master Plan (J19D058)
Response to Comments dated 04/01/15



Dear Ms. Harmon:

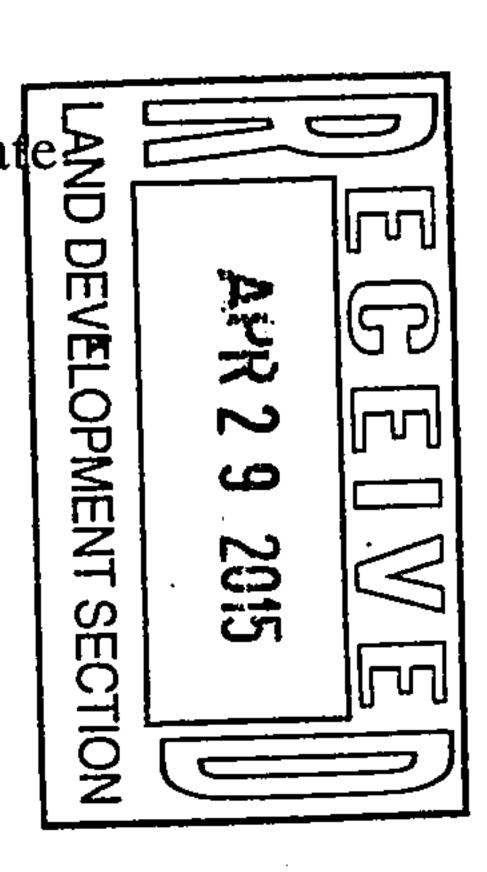
I have responded to your comments from 04/041/15 in the following manner:

- 1. I have provided a copy of the sketch plat in Appendix A.
- 2. Basin 510 is now incorporated in Basin 520.
- 3. The labels on the overall hydrology calculations are changed.
- 4. I added some larger sized labels on the contours.
- 5. I labeled the outfalls, but instead of Outfall #X called them Analysis Points (AP's). See the Basin Map. I agree that this helps immensely with clarity.
- 6. Inlet notes were added to the Basin Map
- 7. Existing offsite basin descriptions and descriptions of the AP's are included in the Existing Conditions portion.
  - a.— b. Descriptions of the offsite basins were added under the Proposed Conditions portion.
- 8. Proposed onsite basins descriptions were generally updated, and include an explanation of which AP directs the discharges offsite.
  - a. Appendix B includes excerpts from the previous Huitt-Zollars drainage studies. It includes the previous basin boundaries and discharge points.
  - b. Basin 600 was split into 2 basins. In front of BJ's Restaurant there was a portion of the parking lot that needed to drain towards the main entry road based on Huitt-Zollar's preliminary design. Descriptions of the flow discharge to Uptown Loop were also added.
  - c. I revised Basins 110 and 530 to make more sense in the interim. Huitt-Zollars will receive my updated files.
  - d. I added a conceptual storm drain layout on the Basin Map for Basin 110 to indicate that it will be necessary. The final configuration will depend on the final site plan for that area.

- e. I added the storm inlets on the Basin Map, and showed the discharge direction. Flow arrows were added throughout the Basin Map. Huitt-Zollars does intend to use the existing storm drain for a portion of the roof drainage in Basin 400. I showed those as to remain.
- f. The existing storm drain that picks up the storm inlets in Basin 400 is 24". Because these inlets already are capturing that water, they are assumed to be adequately sized.

g. I addressed that by showing the existing pipe as remaining.

- h. AP-C (your outfall #3) doesn't appear to connect to the 84" SD. Instead it seems to have its own 24" pipe penetration into the I-25 channel.
- i. The locations of the primary Basin 200 outfalls were shown as AP-G.1 through AP-G.3. The existing 60° adjacent to the Toys 'R' Us is more than sufficient to capture the entirety of Basin 200, but Dave & Buster's provided their own connection just west of the new building. That only drains the Dave & Buster's site, and was addressed in the individual grading plan for that site.
- j. I haven't found anything, but by evidence of survey information, the Toys 'R' Us building and parking lot drain to the 60" storm drain on the west side of the building. Other areas probably historically drained to that same storm drain, but the new plan is to only allow Basin 200 to connect to it. Practically speaking, inverts will probably only allow areas to the east of that existing storm drain to connect. Areas to the west of Dave & Busters will need to design separate discharges to Indian School Rd.
- 9. I provided the basin maps from the previous Huitt-Zollars reports in Appendix B as a reference. I don't have the old basin lines in CAD, and I don't have a comprehensive plan showing all the old basin boundaries on one sheet. It would be unwieldy to recreate the existing basins. In the end, all that really matters is how much was discharged to each outfall. Those quantities are addressed in the Existing Conditions portion, and come from the old Huitt-Zollars reports.
- 10. Excerpts from both of the referenced previous drainage reports are included in Appendix B.
- 11. See the fourth item under the Overall Requirements section on Page 9.
- 12. I agree that an entire re-study of the 84" storm drain system is both too involved, and not really needed.
- 13. Scott Eddings of Huitt-Zollars and I agreed that he would change his references to match my DMP.
- 14. The basin boundaries and the "Sections" don't really match up, and don't need to. The sections are essentially phase lines. I haven't included any phasing limits in my DMP intentionally, since they are very changeable.
- 15. My understanding of the infrastructure list is that each phase coming before the DRB will prepare a separate infrastructure list. Huitt-Zollars is preparing them for this initial phase. The "TIDD" infrastructure has been included on their list.
- 16. It is standard procedure that variations from the DMP need to addressed by incoming plans with an amendment. Roof drainage patterns are generally not a concern since, except in Basins 400 & 500, the new roofs will be entirely contained within basins as defined by the DMP. The direction of the flow as it comes off the roof doesn't matter, so long as it flows in the proper direction once it reaches the ground. The split roof flows on the Basins 400 & 500 roofs are matching between the first phase of design and the DMP.

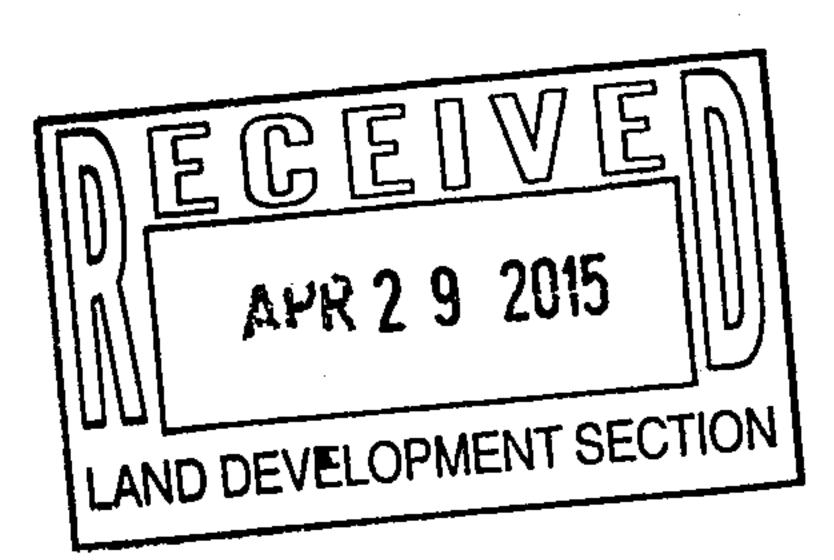


As before, if you have any questions, I will be happy to sit down with you and go through everything. You can reach me at 268-8828 or gennyd@iacivil.com.

Sincerely,

Isaacson & Arfman, P.A.

Genny Donart, RE GD/gld



# CITY OF ALBUQUERQUE

PLANNING DEPARTMENT - Development Review Services



Richard J. Berry, Mayor

April 1, 2015

Genevieve Donart, P.E.

Isaacson & Arfman, P.A.

128 Monroe Street N.E.

Albuquerque, NM 87108

RE: Winrock Town Center

Drainage Master Plan (DMP)

Engineer's Stamp Date 2-5-2015 (File: J19D058)

### Dear Ms. Donart:

Based upon the information provided in your submittal received 2-10-2015, the above referenced submittal cannot be approved until the following comments are addressed:

- 1. It is unclear what the limits of each Tract are. Please submit the proposed future plat.
- 2. Combine Basins 510 and 520.
- 3. In Appendix B, page 1, change labels to Undeveloped discharge and Proposed Discharge

PO Box 1293

- 4. Label contours or improve readability of labels
- 5. Label the outfalls as Outfall #1 (36"), Outfall #2(42"), Outfall #3 (size?), etc.
- 6. Indicate with a note all existing inlets that are to remain and all proposed inlets that would be required for this DMP to function.

Albuquerque

- 7. Provide a description of offsite basins, similar to the onsite basins.
  - a. Describe how Basin 101a discharges to the 36" SD. Was it thru an inlet or a rundown? Show inlet or rundown (indicate "existing inlet" with a note) on the Basin Map and a flow arrow.

New Mexico 87103

www.cabq.gov

- b. Describe how existing flows from Basin 151 cross Winrock Loop and are captured by inlets in the parking lot. A photo capture of this area would be helpful with flow arrows to describe existing flows. New storm drain thru Basin 510 and inlets will have to be constructed prior to any removals of the 24" SD system. State that 9.5 cfs is intended to be captured by the inlets at the access drive and discharge to Outfall #2 (42" SD). Show the proposed SD and the inlets on the plan (note the proposed inlets). State also that 18.0 cfs is intended to be captured by proposed inlets in Winrock Loop and discharge to Outfall #1 (again, show on plan and indicate "proposed inlets" with a note).
- c. Describe how Basin 101c is a pond that drains to an inlet and show inlet with a note and flow arrow on the Basin Map
- d. Describe the flows from the DOT Park and Ride in the report as you noted in your response letter.
- 8. Proposed On-site basins:

- a. For all basins state what the existing discharge is and how it was determined or the reference. Provide a copy of the reference in an appendix. Comment 9 below is similar, except that it refers to the Outfalls.
- b. Basin 600: Describe how basin boundaries were determined. Especially in front of BJ's parking. It appears B600 should be split into 2 separate basins. Indicate it discharges into Uptown loop.
- c. Basin 530 may need to be revised to match Huitt-Zollars recent submittal.
- d. Describe how Basin 110 is being redirected to Outfall #1, and how future infrastructure will be needed. Show a proposed SD and inlets on the plan and indicate with notes.
- e. Basin 400 discharges via surface flow to inlets on the ramp. Show inlets on plan and note as existing inlets. Show flow arrow to show that B400 does not discharge to the SD within its basin but is intended to maintain existing discharge.
- f. Show on the plan the size of Outfall #3 (discharge point outside of Basin 400)
- g. Huitt-Zollars Plan is ulilizing existing SD in B400 that is not shown on DMP, and removing a SD that is shown in that same basin.
- h. Show the connection of outfall #3 to the 84" SD.
- i. Basin 200 has at least 4 outfalls that should be indicated on the DMP. In addition the G&D plan for Dave & Buster's shows a SD that comes into the site on the west side of the building that should be shown on the plan. See Drainage File J19D038.
- j. You state in your response letter that no hydrology exists for the Toys R Us. Was this a part of an older master plan?

# Comments specific to how the proposed Drainage Master Plan relates to the existing conditions and future phasing:

- 9. In order to understand the existing flows and discharge rates, provide a plan that shows the Existing basins overlaying the Proposed Basins. Indicate the existing discharge rates from each existing basin. In the same plan, show what portions of the existing building structure are to remain.
- 10. Show the existing discharge rates to each of the outfalls and provide a copy of the supporting reference in an appendix. Please indicate the Drainage File # as well.
- 11. Indicate in the report how all future phasing or interim conditions are to be addressed.
- 12. It was originally proposed to determine the existing discharge to each of the outfalls, and also to determine the capacity of each of the outfalls. For interim phases, the discharge to any one outfall was to remain below its capacity, and the total discharge was to be less was less than or equal to the existing total. However, this does not seem to be a viable option since determining these values for the 84" SD is very involved. Instead it seems more reasonable to determine the existing discharge from this site only and limit all interim conditions to this value.

# In regards to the larger scope of this project and how localized Drainage Reports should relate to the Drainage Master Plan (DMP):

- 13. References to Outfalls in localized G&D plans should match that of the DMP
- 14. In submittals for the parking garage there are reference to "Section XX," yet there is no plan defining the sections, nor is it a term used in the Drainage Master Report (DMP).

# CITY OF ALBUQUERQUE

Terminology and boundary limits should be consistent between the desired drainage plans and reports, site plans, and plats.

15. The Infrastructure List needs to be addressed. How will the TIDD I. And the I.L. be handled? How will interim phases be handled in regards to the I.L. it

16. Localized Drainage Reports and Plans will need to adhere to the DMP, and if not, will have to amend the DMP. Basin Boundaries, roof discharge paths and flow patterns will need to be consistent with the DMP.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Rita Harmon, P.E.

Senior Engineer, Planning Dept. Development Review Services

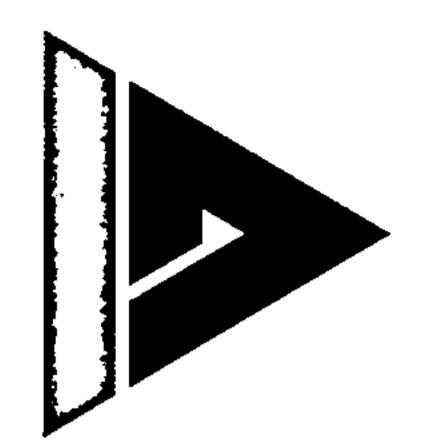
PO Box 1293

Orig: Drainage file

Albuquerque

New Mexico 87103

www.cabq.gov



Thomas O. Isaacson, PE(RET.) & LS(RET.) . Fred C. Arfman, PE . Asa Nilsson-Weber, PE

February 5, 2014

Amy L. D. Niese, P.E. Senior Engineer, Hydrology Planning Department City of Albuquerque 600 2<sup>nd</sup> St NW

RE: Winrock Town Center Drainage Master Plan (J19/D058)
Response to Comments

Dear Ms. Niese

Thank you for your comments from 11/07/14. I have responded to them in the following manner:

- 1. There seem to be some discrepancies in the Basin Summary Table.
  - A. For Basin 300, the flow in the Table is 120.3 cfs. The maximum flow for Basin 300 in Appendix C, Storm Drain Calculations is 81.40 cfs. Which is correct? Revise accordingly.

The correct flow is 120.2 cfs. The discharge from the H-Z Amendment is 120.4 cfs. It is slightly lower in this revision than in the reviewed DMP because the basin lines shifted some to allow the existing sotm drains to handle all of the flows. The storm drain calculations now have matching total flows.

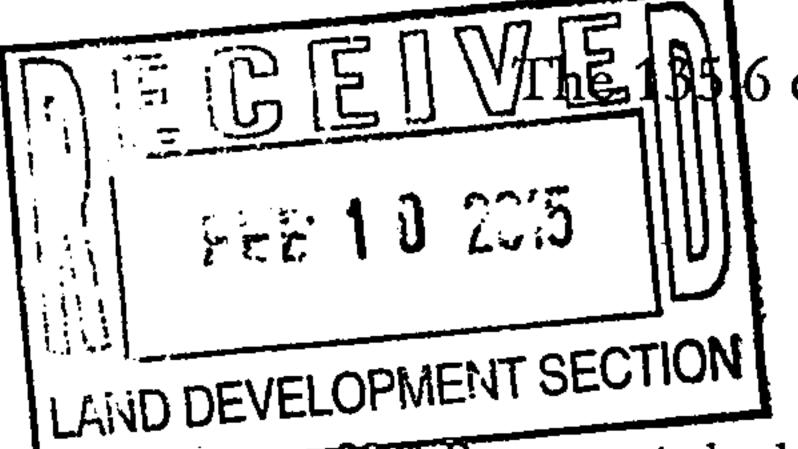
B. For Basin 150, the flow in the Table labeled "Total 36" Discharge (Basin 150)" is 69.6 cfs. The maximum flow for Basin 150 in Appendix A is 43.60 cfs. Which is correct? Revise accordingly.

There was no corresponding basin in the previous studies. But Basin 150 and the associated storm drain were removed in this revision.

C. In the Table (in three locations) and on the Basin Map, the Basin 100 discharge size is labeled as 24 inch. Previous reports describe this as 36 inch. Please revise.

Done.

D. For Basin 600 in the Table, the flow is 18.4 cfs. The Comparison Flow in the Table is 135.6. The Comparison Flow is closer to yours. Revise accordingly.



[] [] Wrhe 1時6 cfs number was wrong. It is actually 18.4 cfs. This was corrected in the table.

- 2. On the Basin map additional information is needed.
  - A. Provide contours on the Basin Map.

Done.

B. Show all existing storm drains, manholes, and inlets. Label the size of all lines. Storm drains are missing near the theater, BJ's, the demolished hotel, and Toys R. Us. Show the extents of what will be removed in the future.

I now have the current survey data. The existing storm drains that were identified are shown on the basin map. I have labeled storm drain sizes, and identified the lines that will be abandoned and/or removed.

C. If any existing storm drain will be below proposed development, the storm drain will be required to be removed ore relocated. Include a narrative regarding this.

I added a statement under the "Overall Requirements" catagory.

D. The Site Development Plan by Modulus Architects and a conceptual drainage plan by Huitt Zollars was submitted to the Uptown Review Team. Their site plan does not match Isaacson and Arfman's. Although the proposed development may be changing regularly, please include the most current layout in the report.

The area along the south side should now match the Huitt-Zollars and Modulus Architects plans.

(3. For the Report Section, address the following:

A) What is happening with the flows in the southwest corner of the site that is the Department of Transportation Park and Ride? Is any of that flow coming onto the Winrock site from that site? Is any flow coming onto the site from surrounding roads?

There are existing inlets in the northeast corner of the DOT Park and Ride that captures the storm water from that parking area. It is slightly highr than the Winrock loop road, so no onsite flows enter the Park and Ride area.

B. Not all flows by Toys R us is sheet flowing to Indian School. There is a 60 inch storm drain/underground detention that discharges through a smaller storm drain. Investigate further.

That was shown on the new topo. I've labeled it on the Basin Map. It appears to capture flows from the Toys 'R' Us. I couldn't find any other info in the Hydrology library.

C. What will be repaved which will allow for more control of the drainage?

I added a paragraph in the Proposed Conditions section.

D. The existing flow in the report is for the site without any development. Provide a flow for the existing site with its current development. The flow from the Huitt Zollar report form September of 2011 that is 441.12 cfs is acceptable to reference or provide any analysis of your own. Include the entire site's total discharge and demonstrate that it is less than the current existing discharge.

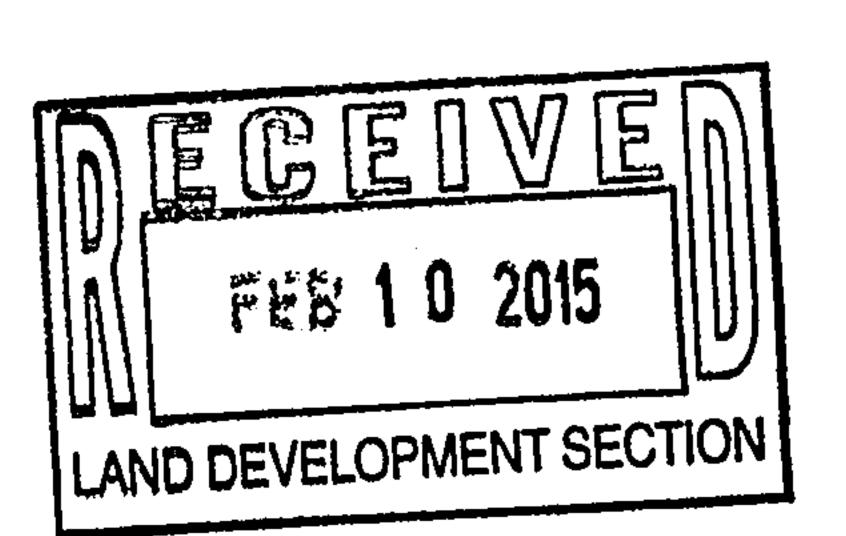
The combined flow in this report is 440.1. I added this number to the Basin Summary table.

Sincerely,

Isaacson & Arfman, P.A.

Genevieve L Donart, P.E.

GD/gld





# City of Albuquerque

### Planning Department

### Development & Building Services Division

# DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Winrock Town Center	Building Permit #:	City Drainage #: J19/D058
DRB#: EPC#:		Work Order#:
Legal Description: Parcels A-1-A-1, A-1-A-2, A-2, A-3, B, C-2A,	D-1-A, and E-1, Winrock Center Additio	n, and Tract B, Hunt-Spectrum Development Site
City Address:		
- 1 72 lesses Q Aufman D A		Contact: Genny Donart
Engineering Firm: Isaacson & Arfman, P.A.	71 <b>0</b> 0	Contact. Contry Donart
Address: 128 Monroe Street NE - Albuquerque, NM 8	7 TUO	E-mail: gennyd@iacivil.com
Phone#: (505) 268-8828 Fax#:		L-Illaii. gottiiya@aattii.com
Owner: Winrock Partners, LLC c/o Goodman Realty	Group	Contact: Darin Sand
Address: 100 Sun Ave. NE, Ste 210, Albuquerque, NI	M 87109	<u> </u>
Phone#: 881-0100 ext 111 Fax#:		E-mail: sand@goodmanrealty.com
t tt t handelten Arabitanta		Contact: Stephen Dunbar
Architect: Modulus Architects  Address: 2325 San Pedro N.E Suite 2B, Albuquerque	NIM 87110	Contact:
	, INIVI OF FIG	E-mail: sdunbar@modulusarchitects.com
Phone#: 338-1499 ext 106 Fax#:		
Surveyor:		Contact:
Address:		<u> </u>
Phone#: Fax#:		E-mail:
Comtunatory		Contact:
Contractor: Address:		
Phone#: Fax#:		E-mail:
TUDE OF CUDANTEAL.	CHECK TYPE OF APPROV	AL/ACCEPTANCE SOUGHT:
TYPE OF SUBMITTAL:  X DRAINAGE REPORT	SIA/FINANCIAL GUARAN	
DRAINAGE PLAN 1st SUBMITTAL	X PRELIMINARY PLAT APP	ROVAL NEDEDDOE
DRAINAGE PLAN RESUBMITTAL	X S. DEV. PLAN FOR SUB'D	APPROVAIULEUVEUVEU
CONCEPTUAL G & D PLAN	S. DEV. FOR BLDG. PERM	111 ILKUMAAN AN
GRADING PLAN	SECTOR PLAN APPROVA	L APPROVIDE FEB 1 0 2015
EROSION & SEDIMENT CONTROL PLAN (ESC)	FINAL PLAT APPROVAL	
ENGINEER'S CERT (HYDROLOGY)	CERTIFICATE OF OCCUPA	ANCY (PERMIND DEVELOPMENT SECTION
CLOMR/LOMR	CERTIFICATE OF OCCUPA	ANCY (ICL TEMP)
TRAFFIC CIRCULATION LAYOUT (TCL)	FOUNDATION PERMIT AI	
ENGINEER'S CERT (TCL)	BUILDING PERMIT APPRO	·
ENGINEER'S CERT (DRB SITE PLAN)	GRADING PERMIT APPRO	
ENGINEER'S CERT (ESC)	PAVING PERMIT APPROV	
SO-19 .	WORK ORDER APPROVA	
OTHER (SPECIFY)	GRADING CERTIFICATIO	OTHER (SPECIFY)
WAS A PRE-DESIGN CONFERENCE ATTENDED:	Yes X No C	Copy Provided
DATE SUBMITTED: 2/6/15	By: Genevieve Donart	
<del></del>	Teageron & Afrman PA	ge 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 followin

- Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
- Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5) acres Drainage Report: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
- 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

### **Genny Donart**

From:

Genny Donart <gennyd@iacivil.com>

Sent:

Friday, February 06, 2015 4:05 PM

To:

Ortiz, Monica; Curtis Cherne (CCherne@CABQ.gov)

**Subject:** 

Winrock Town Center - Drainage Master Plan revised

### Good afternoon Monica & Curtis,

Please click on the link below to download the pdf's for the Winrock Town Center DMP. We will be submitting on Monday.

### https://iacivil.sharefile.com/d/s00fc4d7394f4a36b

Genny Donart, P.E. Registered Engineer



Isaacson & Arfman, P.A.

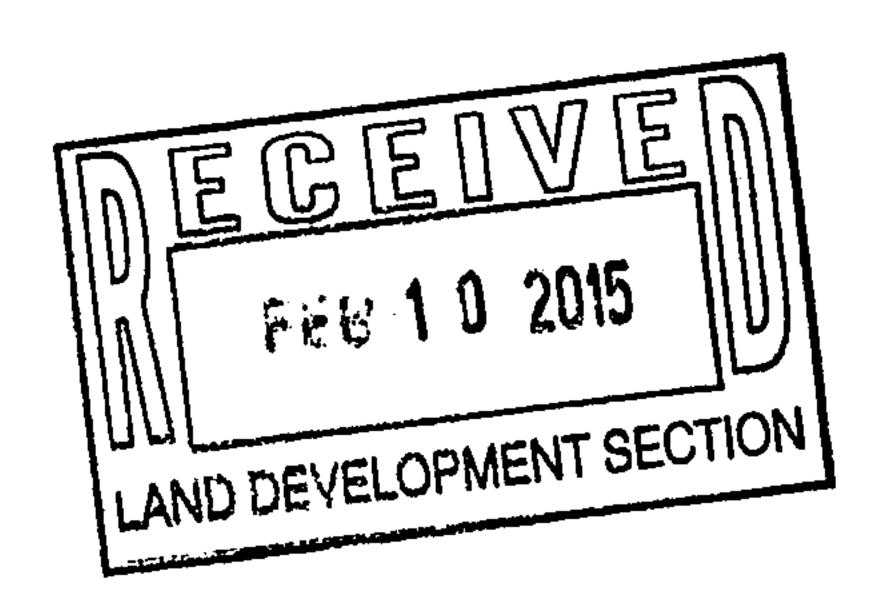
Consulting Engineering Associates 128 Monroe St. N.E. Albuquerque, NM 87108 Phone: (505)268-8828

Fax: (505)268-2632 gennyd@iacivil.com

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# CITY OF ALBUQUERQUE



November 7, 2014

Ms. Genevieve Donart, PE Isaacson & Arfman, PA 1287 Monroe Street NE Albuquerque, NM 87108

Winrock Town Center Drainage Master Plan Re: Engineer's Date 10/14/14 (J19D058)

Dear Ms. Donart,

Based upon the information provided in your submittal received 10-16-14, the above referenced plan is not approved for Site Development Plan for Subdivision action by DRB nor Preliminary Plat. Address the following comments:

1. There seem to be some discrepancies in the Basin Summary Table.

A. For Basin 300, the flow in the Table is 120.3 cfs. The maximum flow for Basin 300 in Appendix C, Storm Drain Calculations is 81.40 cfs. Which is correct? Revise accordingly. B. For Basin 150, the flow in the Table labeled "Total 36" Discharge (Basin 150)" is

69.6 cfs. The maximum flow for Basin 150 in Appendix A is 43.60 cfs. Which is // correct? Revise accordingly.

C. In the Table (in three locations) and on the Basin Map, the Basin 100 discharge size is labeled as 24 inch. Previous reports describe this as 36 inch. Please revise.

✓D. For Basin 600 in the Table, the flow is 18.4 cfs. The Comparison Flow in the Table is 135.6. The Comparison Flow is closer to yours. Revise accordingly.

2. On the Basin Map additional information is needed.

A. Provide contours on the Basin Map.

B. Show all existing storm drains, manholes, and inlets. Label the size of all lines. Storm drains are missing near the theatre, BJ's, the demolished hotel, and Toys R Us. Show the extents of what will be removed in the future.

C. If any existing storm drain will be below proposed development, the storm drain will be required to be removed or relocated. Include a narrative regarding this.

The Site Development Plan by Modulus Architects and a conceptual drainage plan by Huitt Zollars was submitted to the Uptown Review Team. Their site plan does not match Isaacson and Arfman's. Although the proposed development may be changing regularly, please include the most current layout in the report.

For the Report Section, address the following:

- What is happening with the flows in the southwest corner of the site that is the Department of Transportation Park and Ride? Is any of that flow coming onto the Winrock site from that site? Is any flow coming onto the site from surrounding roads?
- F. Not all flow by Toys R Us is sheet flowing to Indian School. There is a 60 inch storm drain/underground detention that discharges through a smaller storm drain. Investigate further.
- (G) What will be repayed which will allow for more control of the drainage?

what will remain what Albuquerque - Making History 1706-2006.

will be regraded.

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Albuquerque

New Mexico 87103

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# CITY OF ALBUQUERQUE



H. The existing flow in the report is for the site without any development. Provide a flow for the existing site with its current development. The flow from the Huitt Zollar report from September of 2011 that is 441.12 cfs is acceptable to reference or provide an analysis of your own. Include the entire site's total discharge and demonstrate that it is less than the current existing discharge.

If you have any questions, you can contact me at 924-3994.

Sincerely,

Amy L. D. Niese, P.E. Senior Engineer, Hydrology

Planning Department

C: e-mail file

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New Mexico 87103

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