City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 30, 2003

Kevin Patton, P.E.
Bohannan Huston, Inc.
7500 Jefferson NE
Albuquerque, New Mexico 87109

RE: THE ENCLAVE AT OXBOW (G-11/D14F)
Engineers Certification – Submitted for Release of Financial Guaranty
Engineers Stamp dated 6/20/2002
Engineers Certification dated 4/17/2003

Dear Kevin:

Based upon the information provided in your Engineers Certification submittal dated 4/18/2003, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

If you have any questions, please call me at 924-3981.

Sincerely,

Teresa A. Martin
Hydrology Plan Checker
Development & Bldg. Ser. Division
BLB

c: Arlene Portillo, COA- Project # 691281
File

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 25, 2002

Kevin Patton, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Enclave at Oxbow Park Subdivision Drainage Report
Engineer Stamp dated 6-20-02 (G11/D14F)

Dear Mr. Patton,

Based upon the information provided in your submittal dated 6-20-02, the above referenced report is approved Preliminary Plat, Site Plan for Subdivision and Site Plan for Building Permit action by the DRB.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, PWD
Development and Building Services

C: file

DRAINAGE INFORMATION SHEET

G-11/D 14F

PROJECT TITLE: The Enclave at Oxbow ZONE MAP/DRG. FILE # G-11
DRB #: 1000296 EPC#: WORK ORDER#:

LEGAL DESCRIPTION: Tract B1 Oxbow Park
CITY ADDRESS:

ENGINEERING FIRM: Bohannan Huston, Inc. CONTACT: Kevin Patton
ADDRESS: 7500 Jefferson NE PHONE: 505-823-1000
CITY, STATE: Albuquerque ZIP CODE: 87109

OWNER: Altura West LTD CONTACT: Tom Keleher
ADDRESS: 201 3rd Street NW, 12th Floor PHONE: 346-4646
CITY, STATE : Albuquerque, NM 87103 ZIP CODE:

ARCHITECT: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CONTRACTOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

TYPE OF SUBMITTAL:
- X DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION
- ____ CLOMR/LOMR
- ____ OTHER

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- X YES
- ____ NO
- ____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:
- ____ SIA / FINANCIAL GUARANTEE RELEASE
- X PRELIMINARY PLAT APPROVAL
- X S. DEV. PLAN FOR SUB'D. APPROVAL
- X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- X FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY APPROVAL
- X GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

DATE SUBMITTED: June 20, 2002 BY: Kevin Patton

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of 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 subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

Bohannan ▲ Huston INC.

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

REVISED DRAINAGE REPORT FOR THE ENCLAVE AT OXBOW (TRACT B-1 OF OXBOW PARK SUBDIVISION)

APRIL 12, 2002
AMENDED MAY 3, 2002
REVISED JUNE 20, 2002

PREPARED FOR:

ALTURA WEST LTD
P.O. DRAWER AA
ALBUQUERQUE, NEW MEXICO 87107

G-11/D14F

REVISED DRAINAGE REPORT
FOR
THE ENCLAVE AT OXBOW SUBDIVISION
(TRACT B-1 OF OXBOW PARK)

APRIL 12, 2002
AMENDED MAY 3, 2002
REVISED JUNE 20, 2002

PREPARED BY:

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

PREPARED FOR:

ALTURA WEST LTD
P.O. DRAWER AA
ALBUQUERQUE, NM 87107

PREPARED BY:

6/20/02
Robert Lackey, E.I. **Date**

UNDER THE SUPERVISION OF:

KEVIN G. PATTON
NEW MEXICO
13685
REGISTERED PROFESSIONAL ENGINEER
6.20.02

Kevin Patton, P.E. **Date**

TABLE OF CONTENTS

APPENDICES

EXHIBITS

I. PURPOSE

The purpose of this report is to present historic and proposed drainage conditions for the area pertaining to this site, and to obtain work order, site plan approval, and preliminary and final plat approvals.

II. METHODOLOGIES

Site conditions will be analyzed for a 10-year and 100-year, 6-hour storm event in accordance with the City of Albuquerque Drainage Ordinance and the Development Process Manual (DPM) Volume 2, Design Criteria, Section 22.2, Hydrology, for the City of Albuquerque, January 1993.

This report will reference the *Master Drainage Plan for Altura West and Archdiocese of Santa Fe Properties* dated October, 1997 (hereafter referred to as the Master Plan), which was prepared for Altura West LTD. and Archdiocese of Santa Fe and approved by the City of Albuquerque. That report was prepared to support future drainage plans submitted for the development of individual land parcels within Altura West Development, and to provide design guidance for the installation of major drainage infrastructure to be constructed in advance of, or simultaneously with individual parcel development. In addition, it provides fully developed flow rates for basins within the Altura West and Archdiocese of Santa Fe Properties.

This report also references the *Drainage Report for Oxbow Park Subdivision (Tract B)* dated October 1, 1999, which was prepared for Altura West LTD and approved by the City of Albuquerque. This report establishes the downstream conditions and storm drain outfall for the Enclave at Oxbow.

III. SITE LOCATION AND CHARACTERISTICS

Please refer to the proposed Bulk Land Plat enclosed with this report and the A.G.I.S. vicinity map page G-11.

The Enclave at Oxbow, Tract B-1 of the Oxbow Park Subdivision, is bounded by the Oxbow Park Subdivision to the east, St. Pius High School and St. Joseph's Drive to the north, Coors Boulevard to the west, and Park Ridge Subdivision to the south. The 11.3-acre site is proposed to be developed into 71 single-family dwelling units. The main entrance is oriented east-west at the center of the site and will provide access to the subdivision from Coors Boulevard. A second access from St. Joseph's Drive is located at the northeast corner of the site.

Vegetation on the site consists primarily of Mesa Dropseed, Indian Ricegrass, Black Gramma and Sand Sagebrush. The soil at the site has been given the SCS soil classification of BKD (Bluepoint-Kokan association, hilly) and MWA (Madurez-wink Association, gently sloping). The BKD soils are in the hydrologic soil Group A, which have the highest rate of rainfall absorption. The MWA soils are in the hydrologic soil Group B, which also absorb more water than typical.

IV. EXISTING HYDRAULIC AND HYDROLOGIC CONDITIONS

The existing drainage basins and patterns are shown graphically on the Existing Drainage Conditions Map (Exhibit 4, which was taken from the Oxbow Park Drainage Report) located in the Exhibits section of this report.

The existing site is comprised of one existing drainage basin, labeled Basin B-1. The existing runoff from the on-site basin is approximately 15.23 cfs in the 100-year, 6-hour storm event. The runoff from this site temporarily discharges into a retention pond. This pond will be removed when the site is developed and the existing storm drain is extended from the Oxbow Park Subdivision to the east. St. Joseph's Drive has a high point just west of the first entrance to St. Pius High School. The flow east of the high point flows east down St. Joseph's Drive and is

collected by inlets at the intersection of Oxbow Drive and Mourning Dove Place. The flow west of the high point flows west on St. Joseph's Drive and is collected by an inlet at the intersection of Coors Boulevard. This inlet temporarily outlets the St. Joseph runoff into a ditch on the east side of Coors Boulevard. The runoff travels south at the western boundary of the Enclave at Oxbow adjacent to Coors Boulevard.

For additional information regarding the existing drainage conditions, please refer to the approved Master Plan (October 1997) or the Drainage Report for Oxbow Park Subdivision (October 1, 1999).

V. PROPOSED HYDRAULIC AND HYDROLOGIC CONDITIONS

Runoff generated by the Enclave at Oxbow will flow through internal streets to the center of the site and to the south end (Rock Dove Trail) where it will be collected into a storm drain system. An existing storm drain located at the center of the site at the east boundary discharges through the Oxbow Park Subdivision. This storm drain will be extended west across Coors Boulevard to serve future development. The existing storm drain was designed with the Oxbow Park Subdivision to accommodate 74.41 cfs. In order to limit the discharge, a portion of the flow generated by the Enclave at Oxbow will be collected in a private detention pond and released at a controlled rate.

The flow discharging into Rock Dove Trail and Fox Sparrow Trail will be collected by an inlet at the low-point of the road adjacent to a private detention pond. A 18" pipe will connect the inlet to a manhole at the center of the pond. During large storms the storm water will back up through the manhole fitted with a beehive grate into the pond. As the storm recedes, the water discharges through the 24" orifice into the 36" storm drain. In addition to the flow in Rock Dove Trail, the runoff from several lots will enter the detention pond. The lots in the interior of the subdivision will drain to a sidewalk and alley gutter located in an easement in the back yards. This alley gutter will convey the flow to the pond. The detention pond will be 2.5 feet deep and have side slopes of 5:1 maximum. The pond will store 0.13 Acre-feet of water and discharge 16.5 cfs.

The detention pond covers a 0.29-acre area, which will also serve as a private park for the Enclave at Oxbow. The remaining flow south to the high points on Rock Dove Trail and Fox Sparrow Trail will flow south and be collected by inlets at the lowpoint in Blue Jay Lane, which will then be carried via storm drain to the existing 48" storm drain. For Additional assistance throughout this section, please refer to the Grading and Drainage Plan (Exhibit 6) or the Proposed Conditions Basin Map (Exhibit 5) enclosed in the Exhibit section of this report.

A. On-Site Basins

The proposed site is broken into seven basins. Four of the seven basins have been divided into sub-basins for analysis reasons. The major basins will be discussed below in greater detail; sub-basins can be found in Appendix A of this report. The following paragraphs describe the locations of the proposed basins and their flow patterns.

Basin 1 (1.95ac, Q_{100}=7.2cfs) encompasses the northern portion of Fox Sparrow Trail from the High point just south of St. Joseph's Drive to the high point just south of Tract C (detention pond). Basin 1 has been divided into two sub-basins, 1 and 2 which can be found in Appendix A of this report. Basin 1 consists of ten (10) lots, lots 1 through 9 and 52. Runoff from Basin 1 will flow south in Fox Sparrow Trail to a sump condition where it will be collected by a type "A" single grate, double wing inlet. The runoff will then be conveyed to a manhole in Tract C via a 18" pipe ultimately discharging into the proposed 36" storm drain. The inlet will collect all of the flow generated within Basin 1.

Basin 2 (2.26ac, Q_{100}=8.2cfs) encompasses all of Hummingbird lane, Oxbow Enclave lane, and the northern portion of Rock Dove Trail from Hummingbird lane south to the high point located near Tract C. Basin 2 has been divided into two sub-basins, 1 and 2. Additional information for sub-basins 1 and 2 can be found in Appendix A of this report. Basin 2 consists of eight (8) lots, lots 34 through 45, and Tract 'A'. Runoff from Basin 2 will flow to the sump condition on Rock Dove Trail where it will be collected by a type "A" double wing, single grate inlet. The runoff collected by the inlet will discharge into the

proposed 36" storm drain via an 18" storm drain. The inlet will collect all of the runoff within basin 2.

Basin 3 (1.35ac, Q_{100}=4.9cfs) is bounded by basin 2 to the west and basin 1 to the east. Basin 3 consists of twelve (12) lots, 46 through 51, 66 through 71, and Tract C. Runoff from lots with Basin 3 will flow to the back yard and will be conveyed by an alley gutter adjacent to a sidewalk to the detention pond (Tract C). A manhole fitted with a beehive grate, located at the center of the pond, will collect the runoff and discharge into the proposed 36" storm drain.

Basin 4 (0.86ac, Q_{100}=3.1cfs) encompasses the remaining portion of Rock Dove Trail from the high point south of the sump condition to Blue Jay Lane. Basin 4 has been divided into two sub-basins, 1 and 2. Additional information for sub-basins 1 and 2 can be found in Appendix A of this report. Basin 4 consists of seven (7) lots numbered 27 to 33. Runoff generated within Basin 4 will flow south along Rock Dove Trail and discharge into Basin 7 where it will be collected by inlets , downstream of Blue Jay Lane, in a sump condition.

Basin 5 (0.76ac, Q_{100}=2.8cfs) is bounded by basin 4 to the west and basin 6 to the east. Basin 5 consists of seven (7) lots, 59 through 65. Runoff from lots within Basin 5 will flow to the back yard and will be conveyed by an alley gutter adjacent to a sidewalk and discharge into Basin 7 where it will be collected by inlets in a sump condition.

Basin 6 (2.0ac, Q_{100}=7.3cfs) encompasses the remaining portion of Fox Sparrow Trail. Basin 6 has been divided into two sub-basins, 1 and 2. Additional information for sub-basins 1 and 2 can be found in Appendix A of this report. Basin 6 consists of nine (9) lots numbered 10 to 18and 53 to 58. The runoff generated by Basin 6 will discharge into Basin 7 and will be collected by inlets in the sump condition.

Basin 7 (1.28ac, Q_{100}=2.94.60cfs) encompasses the entire length of Blue Jay Lane and consists of eight (8) lots, 19 through 26. Basin 7 also receives runoff generated

by Basins 4, 5, and 6. This combined flow (19.10 cfs) will be collected by one type "C" single grate inlet and one type "A" double grate, double wing inlet. Both inlets are located in the sump condition. The two percent (2%) cross-slope along the entire length of Blue Jay Lane will direct all flows to the inlets. Runoff collected by the inlets will discharge into the proposed 30" storm drain in Fox Sparrow Trail and ultimately to the existing 48" storm drain.

In summary, Basins 1 and 2 flow south to a sump condition adjacent to basin 3. The flow in basins 1 and 2 are collected by inlets, which will carry the flow to the proposed 36" storm drain. Basin 3 is conveyed into the private detention pond and discharges into the 36" storm drain through a manhole fitted with a beehive grate within the detention pond. Basins 4, 5, and 6 flow to the low-point on Blue Jay Lane (Basin 7) and are collected by two inlets in series. The runoff collected by these two inlets will discharge into the proposed 30" storm drain in Fox Sparrow Trail and ultimately to the existing 48" storm drain. These four basins bypass the detention pond.

B. Off-Site Basins

The Master Plan identifies two upstream developments that will contribute to the existing storm drain. They are called Basin A and Basin B in the Master Plan. Basin A will contribute 13.6 cfs and Basin B will contribute 31.5 cfs. The storm drain was designed to accommodate 74.4 cfs. The remaining capacity is available for runoff from the Enclave at Oxbow. The analysis of this storm drain can be found in the appendix of this report, see Appendix C.

In addition to the two-offsite developments that contribute flow, there are two street basins that also contribute flow to the Enclave at Oxbow. These two basins are called Coors and St. Joe. Flow on St. Joseph's Drive flows west and is collected in an inlet at Coors Boulevard. The Enclave at Oxbow will extend a storm drain to tie this inlet to the 36" storm drain on site. The flow in Coors Boulevard travels south and is collected in inlets

just north of the entrance to the Enclave at Oxbow. There is a high point in Coors Boulevard just north of St. Joseph's Drive that defines the extents of the flow contribution.

VI. CONCLUSION

This drainage plan conforms to the approved drainage patterns for the area as presented in the *Master Drainage Plan for Altura West and Archdiocese of Santa Fe Properties* dated October, 1997 and the *Drainage Report for Oxbow Park Subdivision (Tract B)* dated October 1, 1999. As instructed by these plans, the Enclave at Oxbow will extend a storm drain from the existing 48" in Oxbow Park, transition to a 36" storm drain and cross Coors Boulevard to accommodate future development. In addition, the Enclave at Oxbow will install a detention pond to decrease the peak discharge from the site. These concepts provide a plan that manages the developed runoff from the site in a responsible manner, provide for upstream development, and protect existing downstream development from harm. Therefore we believe this report supports the preliminary/final plat and grading plan submittals and should be approved as requested.

APPENDICES

APPENDIX A: BASIN ANALYSIS

APPENDIX B: SUMMARY OF STREET HYDRAULICS

APPENDIX C: STREET HYDRAULICS AND INLET ANALYSIS

APPENDIX D: STORM DRAIN HYDRAULIC ANALYSIS

APPENDIX A

BASIN ANALYSIS

THE ENCLAVE AT OXBOW
BASIN SUMMARY - FULLY DEVELOPED CONDITION
6/13/2002

BASIN I.D.	AREA (AC)	UNITS #	% LAND TREATMENT A	B	C	D	DISCHARGE (CFS) 10 YR	100YR	2X100YR
HYRDOLOGICAL VOLUMETRIC & DISCHARGE DATA (DEVELOPED-ONSITE BASINS)									
Basin 1-1	1.47	9	0.0%	19.5%	19.5%	61.1%	3.2	5.3	21.5
Basin 1-2	0.48	1	0.0%	10.0%	10.0%	80.0%	1.2	1.9	
Basin 2-1	0.92	4	0.0%	19.5%	19.5%	61.1%	2.0	3.3	
Basin 2-2	1.34	8	0.0%	19.5%	19.5%	61.1%	2.9	4.9	
Basin 3	1.35	12	0.0%	19.5%	19.5%	61.1%	3.0	4.9	
Basin 4-1	0.94	7	0.0%	19.5%	19.5%	61.1%	2.1	3.4	
Basin 4-2	0.25	0	0.0%	5.0%	5.0%	90.0%	0.7	1.0	
Basin 5	0.76	7	0.0%	19.5%	19.5%	61.1%	1.7	2.8	
Basin 6-1	0.74	6	0.0%	19.5%	19.5%	61.1%	1.6	2.7	
Basin 6-2	1.26	9	0.0%	19.5%	19.5%	61.1%	2.8	4.6	
Basin 7	1.28	8	0.0%	19.5%	19.5%	61.1%	2.8	4.6	
TOTAL	**10.79**	**71**					**18.4**	**30.2**	

NOTES:

N=UNITS/ACRES	=	6.6
%D = 7*SQRT((N*N)+(5*N))	=	61.1 %

A-1

APPENDIX B

SUMMARY OF STREET HYDRAULICS

SUMMARY OF THE ROADWAY CAPACITY ANALYSIS FOR TRAVILLA (TRACT 23) AT VENTANA RANCH

Fox Sparrow Trail (North)

Drainage Basins & Analysis Points	Roadway Grade (%)	Roadway Cross-Slope (%)	Q(100 YR) in Roadway (cfs)	Q(2x100 YR) in Roadway (cfs)	Curb Type	Depth of Water in Roadway (ft)	Velocity of Storm Water in Roadway(ft/s)	$V^2/2*g$	EGL	ROW Elevation (ft)	Comments
Basin 1-1	2.42	2.00 (Crown)	5.30	10.60	STD	0.21	2.21	0.08	0.29	0.85	OK
Basin 1-2	2.03	2.00 (Crown)	1.90	3.80	STD	0.15	2.65	0.11	0.25	0.85	OK
Analysis Point #1	2.42	2.00 (Cross-Slope)	7.2.	14.40	STD	0.29	3.70	0.21	0.50	0.85	OK

Rock Dove Trail (North)

Drainage Basins & Analysis Points	Roadway Grade (%)	Roadway Cross-Slope (%)	Q(100 YR) in Roadway (cfs) +	Q(2x100 YR) in Roadway (cfs) +	Curb Type	Depth of Water in Roadway (ft)	Velocity of Storm Water in Roadway(ft/s)	$V^2/2*g$	EGL	ROW Elevation (ft)	Comments
Basin 2-1	1.22	2.00 (Crown)	3.30	6.60	STD	0.20	1.96	0.06	0.26	0.87	OK
Basin 2-2	0.60	2.00 (Crown)	4.90	9.80	STD	0.26	1.64	0.04	0.30	0.87	OK
Analysis Point #2	0.60	2.00 (Cross-Slope)	8.20	16.40	STD	0.34	3.12	0.15	0.49	0.87	OK

Rock Dove Trail (South)

Drainage Basins & Analysis Points	Roadway Grade (%)	Roadway Cross-Slope (%)	Q(100 YR) in Roadway (cfs) +	Q(2x100 YR) in Roadway (cfs) +	Curb Type	Depth of Water in Roadway (ft)	Velocity of Storm Water in Roadway(ft/s)	$V^2/2*g$	EGL	ROW Elevation (ft)	Comments
Basin 4-1	0.60	2.00 (Crown)	3.40	6.80	STD	0.23	1.50	0.03	0.26	0.87	OK
Basin 4-2	0.60	2.00 (Crown)	1.00	2.00	STD	0.15	1.13	0.02	0.17	0.87	OK

Fox Sparrow Trail (South)

Drainage Basins & Analysis Points	Roadway Grade (%)	Roadway Cross-Slope (%)	Q(100 YR) in Roadway (cfs) +	Q(2x100 YR) in Roadway (cfs) +	Curb Type	Depth of Water in Roadway (ft)	Velocity of Storm Water in Roadway(ft/s)	$V^2/2*g$	EGL	ROW Elevation (ft)	Comments
Basin 6-1	0.60	2.00 (Crown)	2.70	5.40	STD	0.21	1.41	0.03	0.24	0.87	OK
Basin 6-2	0.60	2.00 (Crown)	4.60	9.20	STD	0.25	1.61	0.04	0.29	0.87	OK

Blue Jay Lane

Drainage Basins & Analysis Points	Roadway Grade (%)	Roadway Cross-Slope (%)	Q(100 YR) in Roadway (cfs)	Q(2x100 YR) in Roadway (cfs)	Curb Type	Depth of Water in Roadway (ft)	Velocity of Storm Water in Roadway(ft/s)	$V^2/2*g$	EGL	ROW Elevation (ft)	Comments
Basin 7	0.60	2.00 (Cross-Slope)	4.60	9.20	STD	0.32	1.92	0.06	0.38	0.87	OK
Analysis Point #3	0.60	2.00 (Cross-Slope)	19.10	38.20	STD	0.65	3.40	0.18	0.83	0.87	OK

Coors Blvd.

Drainage Basins & Analysis Points	Roadway Grade (%)	Roadway Cross-Slope (%)	Q(100 YR) in Roadway (cfs) +	Q(2x100 YR) in Roadway (cfs) +	Curb Type	Depth of Water in Roadway (ft)	Velocity of Storm Water in Roadway(ft/s)	$V^2/2*g$	EGL	ROW Elevation (ft)	Comments
Coors & St. Joseph's	0.80	2.00 (Crown)	10.80	N/A	STD	0.48	2.64	0.11	0.59	1.00	OK

B-1

B-1

APPENDIX C

STREET HYDRAULICS AND INLET ANALYSIS

OXBOW EXPLORE LANE

ROCK DOVE TRAIL

32

33

34

35

36

64

65

68

S=0.6%

S=0.6%

S=0.6%

S=1.22%

S=1.22%

S=0.6%

S=0.6%

HIGH POINT

SP 2.8'x2.8'x90°

SUMP CONDITION:

DESIGNED TO REMOVE 2x100 yr STORM EVENT.

$Q_{2x100yr}$ = 16.4 cfs

INLET TYPE: (1) - TYPE "A" SINGLE GRATE DOUBLE WING

$Q_{RESIDUAL}$ = ∅ cfs

- ALL RUNOFF GENERATED IN BASIN 2 IS COLLECTED BY THE INLET.

1"=30'
C-1

THE ENCLAVE AT OXBOW
6/13/2002

ANALYSIS OF AN INLET IN A SUMP CONDITION - **Rock Dove Trail**

INLET TYPE: Single Grate Type "A" with curb opening wings on both sides on inlet.

WEIR: Q=C*L*H^1.5

Wing opening
C= 3.0
L= 4.0 ft
Q=3.0(4.0')H**1.5= 12.0H**1.5

Grate opeining
C=3.0
L(single grate)=[(2.67')+2(1.8')]=6.27 ft
Q=3.0(6.27)H^1.5=18.81*H^1.5

ORIFICE: Q=C*A*(2*G*H)**0.5

Grate opening
C=0.6
A(single grate)=4.09 sf
Q=2.46*(64.4*H)^0.5

Wing opening
C=0.6
A=2.0 sf
Q=1.2*(64.4*H)^0.5

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR WING OPENING	Q (CFS) WEIR SINGLE GRATE	Q (CFS) ORIFICE SINGLE GRATE	TOTAL Q (CFS)	COMMENTS:
~FL @ INLET	0.00	0.00	0.00	0.00	0.00	0.00	Flow at single "A" inlet w/ two wing openings
	0.10	0.10	0.38	0.59	6.24	1.35	Weir controls on grate analysis
	0.20	0.20	1.07	1.68	8.82	3.83	
	0.30	0.30	1.97	3.09	10.80	7.03	
	0.40	0.40	3.04	4.76	12.47	10.83	Q(100 yr) = 8.2 cfs is provided at this depth.
	0.50	0.50	4.24	6.65	13.94	15.14	
	0.60	0.60	5.58	8.74	15.27	19.90	Q(2x100 yr) = 16.4 cfs/inlet is provided at this depth.
TOP OF CURB	0.70	0.70	7.03	11.02	16.50	25.07	
	0.80	0.80	8.59	13.46	17.64	30.63	
ROW LIMIT	0.87	0.87	9.74	15.26	18.39	34.74	
	0.90	0.90	10.25	16.06	18.71	36.55	
	1.00	1.00	12.00	18.81	19.72	42.81	

NOTE: The total runoff intercepted by the inlet at the low point in the road is:
Q(100) = 2*[(runoff of the wing opening) + (the lesser of the weir or orifice amount taken by the double grate)].
THE 100 YR STORM EVENT =8.2 CFS at the sump condition
THE 2 x 100 YR STORM EVENT = 16.4 CFS at the sump condition

C-2

C-2

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

Rock Dove Trail

MANNING'S N= .017 SLOPE= .0122

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.42	5	18.00	0.28	9	36.00	0.42
2	4.37	0.33	6	29.00	0.06	10	0.00	0.00
3	5.00	0.00	7	31.00	0.00	11	0.00	0.00
4	7.00	0.06	8	31.63	0.33	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.71	0.28	0.70	0.00	0.01
0.02	0.02	0.01	0.0	1.42	0.45	1.41	0.00	0.02
0.03	0.03	0.03	0.0	2.13	0.58	2.11	0.01	0.04
0.04	0.04	0.06	0.0	2.84	0.71	2.82	0.01	0.05
0.05	0.05	0.09	0.1	3.55	0.82	3.52	0.01	0.06
0.06	0.06	0.13	0.1	4.26	0.93	4.23	0.01	0.07
0.07	0.07	0.17	0.2	5.30	0.99	5.27	0.02	0.09
0.08	0.08	0.23	0.2	6.35	1.06	6.31	0.02	0.10
0.09	0.09	0.30	0.3	7.39	1.14	7.34	0.02	0.11
0.10	0.10	0.38	0.5	8.43	1.22	8.38	0.02	0.12
0.11	0.11	0.47	0.6	9.48	1.30	9.42	0.03	0.14
0.12	0.12	0.57	0.8	10.52	1.38	10.46	0.03	0.15
0.13	0.13	0.68	1.0	11.56	1.46	11.50	0.03	0.16
0.14	0.14	0.80	1.2	12.61	1.53	12.53	0.04	0.18
0.15	0.15	0.93	1.5	13.65	1.61	13.57	0.04	0.19
0.16	0.16	1.07	1.8	14.69	1.68	14.61	0.04	0.20
0.17	0.17	1.22	2.1	15.74	1.76	15.65	0.05	0.22
0.18	0.18	1.38	2.5	16.78	1.83	16.69	0.05	0.23
0.19	0.19	1.55	2.9	17.82	1.90	17.73	0.06	0.25
0.20	0.20	1.74	3.4	18.87	1.97	18.76	0.06	0.26
0.21	0.21	1.93	3.9	19.91	2.04	19.80	0.06	0.27
0.22	0.22	2.13	4.5	20.95	2.10	20.84	0.07	0.29
0.23	0.23	2.35	5.1	22.00	2.17	21.88	0.07	0.30
0.24	0.24	2.57	5.7	23.04	2.24	22.92	0.08	0.32
0.25	0.25	2.80	6.5	24.08	2.30	23.95	0.08	0.33
0.26	0.26	3.05	7.2	25.13	2.37	24.99	0.09	0.35
0.27	0.27	3.30	8.0	26.17	2.43	26.03	0.09	0.36
0.28	0.28	3.57	8.9	27.21	2.49	27.07	0.10	0.38
0.29	0.29	3.84	10.0	27.26	2.61	27.11	0.11	0.40
0.30	0.30	4.11	11.2	27.30	2.73	27.15	0.12	0.42
0.31	0.31	4.38	12.5	27.34	2.85	27.18	0.13	0.44
0.32	0.32	4.66	13.8	27.39	2.96	27.22	0.14	0.46
0.33	0.33	4.93	15.1	27.43	3.07	27.26	0.15	0.48
0.34	0.34	5.21	16.2	28.40	3.12	28.23	0.15	0.49
0.35	0.35	5.49	17.3	29.37	3.16	29.20	0.15	0.50
0.36	0.36	5.79	18.5	30.34	3.20	30.17	0.16	0.52
0.37	0.37	6.10	19.8	31.31	3.24	31.14	0.16	0.53
0.38	0.38	6.41	21.1	32.29	3.29	32.12	0.17	0.55
0.39	0.39	6.74	22.4	33.26	3.33	33.09	0.17	0.56
0.40	0.40	7.07	23.9	34.23	3.38	34.06	0.18	0.58
0.41	0.41	7.42	25.4	35.20	3.42	35.03	0.18	0.59
0.42	0.42	7.77	26.9	36.17	3.46	36.00	0.19	0.61

BASIN 2-1
Q_{100yr2} = 3.3 cfs
WSEL = 0.198
EGL = 0.258

BASIN 2-1
$Q_{2x100yr2}$ = 16.4
WSEL = 0.251 ft
EGL = 0.33 ft

ANALYSIS PT #2
$Q_{2x100-yr2}$ = 16.4(
WSEL = 0.341 f
EGL = 0.491 ft

$\Delta_{ELEVATION}$ (HIGH PT TO LOW PT) = 0.63 ft

$WSEL_{2x100-yr2}$ = 0.341 ft

0.289 ft = WSEL Available to be Collected.

$Q_{RESIDUAL} = Q$ c

C-3

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

Rock Dove Trail

MANNING'S N= .017 SLOPE= .006

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.42	5	18.00	0.28	9	36.00	0.42
2	4.37	0.33	6	29.00	0.06	10	0.00	0.00
3	5.00	0.00	7	31.00	0.00	11	0.00	0.00
4	7.00	0.06	8	31.63	0.33	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	VEL (FPS)	TOPWID (FT)	HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.71	0.20	0.70	0.00	0.01
0.02	0.02	0.01	0.0	1.42	0.31	1.41	0.00	0.02
0.03	0.03	0.03	0.0	2.13	0.41	2.11	0.00	0.03
0.04	0.04	0.06	0.0	2.84	0.50	2.82	0.00	0.04
0.05	0.05	0.09	0.1	3.55	0.58	3.52	0.01	0.06
0.06	0.06	0.13	0.1	4.26	0.65	4.23	0.01	0.07
0.07	0.07	0.17	0.1	5.30	0.69	5.27	0.01	0.08
0.08	0.08	0.23	0.2	6.35	0.75	6.31	0.01	0.09
0.09	0.09	0.30	0.2	7.39	0.80	7.34	0.01	0.10
0.10	0.10	0.38	0.3	8.43	0.86	8.38	0.01	0.11
0.11	0.11	0.47	0.4	9.48	0.91	9.42	0.01	0.12
0.12	0.12	0.57	0.5	10.52	0.97	10.46	0.01	0.13
0.13	0.13	0.68	0.7	11.56	1.02	11.50	0.02	0.15
0.14	0.14	0.80	0.9	12.61	1.07	12.53	0.02	0.16
0.15	0.15	0.93	1.0	13.65	1.13	13.57	0.02	0.17
0.16	0.16	1.07	1.3	14.69	1.18	14.61	0.02	0.18
0.17	0.17	1.22	1.5	15.74	1.23	15.65	0.02	0.19
0.18	0.18	1.38	1.8	16.78	1.28	16.69	0.03	0.21
0.19	0.19	1.55	2.1	17.82	1.33	17.73	0.03	0.22
0.20	0.20	1.74	2.4	18.87	1.38	18.76	0.03	0.23
0.21	0.21	1.93	2.8	19.91	1.43	19.80	0.03	0.24
0.22	0.22	2.13	3.1	20.95	1.48	20.84	0.03	0.25
0.23	0.23	2.35	3.6	22.00	1.52	21.88	0.04	0.27
0.24	0.24	2.57	4.0	23.04	1.57	22.92	0.04	0.28
0.25	0.25	2.80	4.5	24.08	1.61	23.95	0.04	0.29
0.26	0.26	3.05	5.1	25.13	1.66	24.99	0.04	0.30
0.27	0.27	3.30	5.6	26.17	1.70	26.03	0.05	0.32
0.28	0.28	3.57	6.2	27.21	1.75	27.07	0.05	0.33
0.29	0.29	3.84	7.0	27.26	1.83	27.11	0.05	0.34
0.30	0.30	4.11	7.9	27.30	1.92	27.15	0.06	0.36
0.31	0.31	4.38	8.8	27.34	2.00	27.18	0.06	0.37
0.32	0.32	4.66	9.7	27.39	2.08	27.22	0.07	0.39
0.33	0.33	4.93	10.6	27.43	2.16	27.26	0.07	0.40
0.34	0.34	5.21	11.4	28.40	2.18	28.23	0.07	0.41
0.35	0.35	5.49	12.2	29.37	2.21	29.20	0.08	0.43
0.36	0.36	5.79	13.0	30.34	2.24	30.17	0.08	0.44
0.37	0.37	6.10	13.9	31.31	2.27	31.14	0.08	0.45
0.38	0.38	6.41	14.8	32.29	2.30	32.12	0.08	0.46
0.39	0.39	6.74	15.7	33.26	2.34	33.09	0.08	0.47
0.40	0.40	7.07	16.7	34.23	2.37	34.06	0.09	0.49
0.41	0.41	7.42	17.8	35.20	2.40	35.03	0.09	0.50
0.42	0.42	7.77	18.9	36.17	2.43	36.00	0.09	0.51

BASIN 4-2

BASIN 4-1
Q_{100YR} = 3.4 cfs
WSEL = 0.226ft
EGL = 0.261

BASIN B-2:
Q_{100} = 4.9 cfs
WSEL = 0.256ft
EGL = 0.296 ft

BASIN B-2:
$Q_{2x100YR}$ = 9.8 cfs
WSEL = 0.321 ft
EGL = 0.391 ft

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

Hummingbird Lane

MANNING'S N= .017 SLOPE= .006

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.42	5	18.00	0.28	9	36.00	0.42
2	4.37	0.33	6	29.00	0.06	10	0.00	0.00
3	5.00	0.00	7	31.00	0.00	11	0.00	0.00
4	7.00	0.06	8	31.63	0.33	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.71	0.20	0.70	0.00	0.01
0.02	0.02	0.01	0.0	1.42	0.31	1.41	0.00	0.02
0.03	0.03	0.03	0.0	2.13	0.41	2.11	0.00	0.03
0.04	0.04	0.06	0.0	2.84	0.50	2.82	0.00	0.04
0.05	0.05	0.09	0.1	3.55	0.58	3.52	0.01	0.06
0.06	0.06	0.13	0.1	4.26	0.65	4.23	0.01	0.07
0.07	0.07	0.17	0.1	5.30	0.69	5.27	0.01	0.08
0.08	0.08	0.23	0.2	6.35	0.75	6.31	0.01	0.09
0.09	0.09	0.30	0.2	7.39	0.80	7.34	0.01	0.10
0.10	0.10	0.38	0.3	8.43	0.86	8.38	0.01	0.11
0.11	0.11	0.47	0.4	9.48	0.91	9.42	0.01	0.12
0.12	0.12	0.57	0.5	10.52	0.97	10.46	0.01	0.13
0.13	0.13	0.68	0.7	11.56	1.02	11.50	0.02	0.15
0.14	0.14	0.80	0.9	12.61	1.07	12.53	0.02	0.16
0.15	0.15	0.93	1.0	13.65	1.13	13.57	0.02	0.17
0.16	0.16	1.07	1.3	14.69	1.18	14.61	0.02	0.18
0.17	0.17	1.22	1.5	15.74	1.23	15.65	0.02	0.19
0.18	0.18	1.38	1.8	16.78	1.28	16.69	0.03	0.21
0.19	0.19	1.55	2.1	17.82	1.33	17.73	0.03	0.22
0.20	0.20	1.74	2.4	18.87	1.38	18.76	0.03	0.23
0.21	0.21	1.93	2.8	19.91	1.43	19.80	0.03	0.24
0.22	0.22	2.13	3.1	20.95	1.48	20.84	0.03	0.25
0.23	0.23	2.35	3.6	22.00	1.52	21.88	0.04	0.27
0.24	0.24	2.57	4.0	23.04	1.57	22.92	0.04	0.28
0.25	0.25	2.80	4.5	24.08	1.61	23.95	0.04	0.29
0.26	0.26	3.05	5.1	25.13	1.66	24.99	0.04	0.30
0.27	0.27	3.30	5.6	26.17	1.70	26.03	0.05	0.32
0.28	0.28	3.57	6.2	27.21	1.75	27.07	0.05	0.33
0.29	0.29	3.84	7.0	27.26	1.83	27.11	0.05	0.34
0.30	0.30	4.11	7.9	27.30	1.92	27.15	0.06	0.36
0.31	0.31	4.38	8.8	27.34	2.00	27.18	0.06	0.37
0.32	0.32	4.66	9.7	27.39	2.08	27.22	0.07	0.39
0.33	0.33	4.93	10.6	27.43	2.16	27.26	0.07	0.40
0.34	0.34	5.21	11.4	28.40	2.18	28.23	0.07	0.41
0.35	0.35	5.49	12.2	29.37	2.21	29.20	0.08	0.43
0.36	0.36	5.79	13.0	30.34	2.24	30.17	0.08	0.44
0.37	0.37	6.10	13.9	31.31	2.27	31.14	0.08	0.45
0.38	0.38	6.41	14.8	32.29	2.30	32.12	0.08	0.46
0.39	0.39	6.74	15.7	33.26	2.34	33.09	0.08	0.47
0.40	0.40	7.07	16.7	34.23	2.37	34.06	0.09	0.49
0.41	0.41	7.42	17.8	35.20	2.40	35.03	0.09	0.50
0.42	0.42	7.77	18.9	36.17	2.43	36.00	0.09	0.51

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

Hummingbird Lane

MANNING'S N= .017 SLOPE= .007

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.42	5	18.00	0.28	9	36.00	0.42
2	4.37	0.33	6	29.00	0.06	10	0.00	0.00
3	5.00	0.00	7	31.00	0.00	11	0.00	0.00
4	7.00	0.06	8	31.63	0.33	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.71	0.21	0.70	0.00	0.01
0.02	0.02	0.01	0.0	1.42	0.34	1.41	0.00	0.02
0.03	0.03	0.03	0.0	2.13	0.44	2.11	0.00	0.03
0.04	0.04	0.06	0.0	2.84	0.54	2.82	0.00	0.04
0.05	0.05	0.09	0.1	3.55	0.62	3.52	0.01	0.06
0.06	0.06	0.13	0.1	4.26	0.70	4.23	0.01	0.07
0.07	0.07	0.17	0.1	5.30	0.75	5.27	0.01	0.08
0.08	0.08	0.23	0.2	6.35	0.81	6.31	0.01	0.09
0.09	0.09	0.30	0.3	7.39	0.86	7.34	0.01	0.10
0.10	0.10	0.38	0.4	8.43	0.92	8.38	0.01	0.11
0.11	0.11	0.47	0.5	9.48	0.98	9.42	0.02	0.13
0.12	0.12	0.57	0.6	10.52	1.04	10.46	0.02	0.14
0.13	0.13	0.68	0.7	11.56	1.10	11.50	0.02	0.15
0.14	0.14	0.80	0.9	12.61	1.16	12.53	0.02	0.16
0.15	0.15	0.93	1.1	13.65	1.22	13.57	0.02	0.17
0.16	0.16	1.07	1.4	14.69	1.27	14.61	0.03	0.19
0.17	0.17	1.22	1.6	15.74	1.33	15.65	0.03	0.20
0.18	0.18	1.38	1.9	16.78	1.38	16.69	0.03	0.21
0.19	0.19	1.55	2.2	17.82	1.44	17.73	0.03	0.22
0.20	0.20	1.74	2.6	18.87	1.49	18.76	0.03	0.23
0.21	0.21	1.93	3.0	19.91	1.54	19.80	0.04	0.25
0.22	0.22	2.13	3.4	20.95	1.59	20.84	0.04	0.26
0.23	0.23	2.35	3.9	22.00	1.64	21.88	0.04	0.27
0.24	0.24	2.57	4.4	23.04	1.69	22.92	0.04	0.28
0.25	0.25	2.80	4.9	24.08	1.74	23.95	0.05	0.30
0.26	0.26	3.05	5.5	25.13	1.79	24.99	0.05	0.31
0.27	0.27	3.30	6.1	26.17	1.84	26.03	0.05	0.32
0.28	0.28	3.57	6.7	27.21	1.89	27.07	0.06	0.34
0.29	0.29	3.84	7.6	27.26	1.98	27.11	0.06	0.35
0.30	0.30	4.11	8.5	27.30	2.07	27.15	0.07	0.37
0.31	0.31	4.38	9.5	27.34	2.16	27.18	0.07	0.38
0.32	0.32	4.66	10.4	27.39	2.24	27.22	0.08	0.40
0.33	0.33	4.93	11.5	27.43	2.33	27.26	0.08	0.41
0.34	0.34	5.21	12.3	28.40	2.36	28.23	0.09	0.43
0.35	0.35	5.49	13.1	29.37	2.39	29.20	0.09	0.44
0.36	0.36	5.79	14.0	30.34	2.42	30.17	0.09	0.45
0.37	0.37	6.10	15.0	31.31	2.46	31.14	0.09	0.46
0.38	0.38	6.41	16.0	32.29	2.49	32.12	0.10	0.48
0.39	0.39	6.74	17.0	33.26	2.52	33.09	0.10	0.49
0.40	0.40	7.07	18.1	34.23	2.56	34.06	0.10	0.50
0.41	0.41	7.42	19.2	35.20	2.59	35.03	0.10	0.51
0.42	0.42	7.77	20.4	36.17	2.62	36.00	0.11	0.53

1"=40'

SUMP CONDITION:

INLETS DESIGNED TO REMOVE 2x100 STORM EVENT.

$Q_{2x100-4R}$ = 38.2 cfs

INLETS:

① TYPE "A" DOUBLE GRATE, DOUBLE WING
$Q_{REMOVAL}$ = 29.7 cfs at WSEL = 0.70'

② TYPE "C" SINGLE GRATE
$Q_{REMOVAL}$ = 11.02 cfs AT WSEL = 0.70'

$Q_{RESIDUAL}$ = 0 cfs.

Fox Sparrow Trail

S=0.6%

Q_{100-4R} = 7.3 cfs

S=0.6%

S=0.6%

Q_{100-4R} = 8.6 cfs

Blue Jay Lane

Q_{100-4R} = 44 cfs

Q_{100-4R} = 4.1 cfs @ Bottom of Hill

Rock Dove Trail

S=0.6%

S=0.6%

S=0.4%

19 20 21 22 23 24 25 26 27 28 29 59 60 61

THE ENCLAVE AT OXBOW
6/13/2002

ANALYSIS OF AN INLET IN A SUMP CONDITION - **Blue Jay Lane**

INLET TYPE: Double Grate Type "A" with curb opening wings on both sides on inlet.

WEIR: Q=C*L*H^1.5

Wing opening	Grate opeining
C= 3.0	C=3.0
L= 4.0 ft	L(double grate)=[2(2.67')+2(1.8')]=8.94 ft
Q=3.0(4.0')H**1.5= 12.0H**1.5	Q=3.0(8.94)H^1.5=26.82*H^1.5

ORIFICE: Q=C*A*(2*G*H)**0.5

Grate opening	Wing opening
C=0.6	C=0.6
A(double grate)=8.19 sf	A=2.0 sf
Q=4.194*(64.4*H)^0.5	Q=1.2*(64.4*H)^0.5

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR "A" OPENING	Q (CFS) WEIR DOUBLE GRATE	Q (CFS) ORIFICE DOUBLE GRATE	TOTAL Q (CFS)	COMMENTS:
~FL @ INLET	0.00	0.00	0.00	0.00	0.00	0.00	Flow at double "A" inlet w/ two wing openings
	0.10	0.10	0.38	0.85	12.47	1.61	Weir controls on grate analysis
	0.20	0.20	1.07	2.40	17.64	4.55	
	0.30	0.30	1.97	4.41	21.60	8.35	
	0.40	0.40	3.04	6.78	24.94	12.86	
	0.50	0.50	4.24	9.48	27.88	17.97	
	0.60	0.60	5.58	12.46	30.55	23.62	
TOP OF CURB	0.70	0.70	7.03	15.71	32.99	29.76	(2x100 yr)= 29.76 cfs is provided at this depth.
	0.80	0.80	8.59	19.19	35.27	36.36	
ROW LIMIT	0.83	0.83	9.07	20.28	35.93	38.43	
	0.90	0.90	10.25	22.90	37.41	43.39	
	1.00	1.00	12.00	26.82	39.43	50.82	

NOTE: The total runoff intercepted by the inlet at the low point in the road is:
Qr(100) = 2*[(runoff of the wing opening) + (the lesser of the weir or orifice amount taken by the double grate)].
THE 100 YR STORM EVENT =19.1 CFS at the sump condition
THE 2 x 100 YR STORM EVENT =38.2 at the sump condition

INLET REMOVAL BREAKDOWN:

* **(1) - TYPE "C" INLET REMOVES =11.02 CFS**
* **(1) - TYPE "A" DG, DW INLET REMOVES =29.76 CFS**

TOTAL FLOW REMOVED =40.78 CFS
TOTAL FLOW TO BE REMOVED =38.2 CFS (2X100 YR STORM EVENT)

C-8

ANALYSIS OF AN INLET IN A SUMP CONDITION - **Blue Jay Lane**

INLET TYPE: Single Grate Type "C"

WEIR: Q=C*L*H^1.5

Grate opeining

C=3.0

L(single grate)=[(2.67')+2(1.8')]=6.27 ft

Q=3.0(6.27)H^1.5=18.81*H^1.5

ORIFICE: Q=C*A*(2*G*H)**0.5

Grate opening

C=0.6

A(single grate)=4.09 sf

Q=2.46*(64.4*H)^0.5

Wing opening

C=0.6

A=2.0 sf

Q=1.2*(64.4*H)^0.5

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR WING OPENING	Q (CFS) WEIR SINGLE GRATE	Q (CFS) ORIFICE SINGLE GRATE	TOTAL Q (CFS)	COMMENTS:
~FL @ INLET	0.00	0.00	0.00	0.00	0.00	0.00	Flow at single "A" inlet w/ two wing openings
	0.10	0.10	0.00	0.59	6.24	0.59	Weir controls on grate analysis
	0.20	0.20	0.00	1.68	8.82	1.68	
	0.30	0.30	0.00	3.09	10.80	3.09	
	0.40	0.40	0.00	4.76	12.47	4.76	
	0.50	0.50	0.00	6.65	13.94	6.65	
	0.60	0.60	0.00	8.74	15.27	8.74	
TOP OF CURB	0.70	0.70	0.00	11.02	16.50	11.02	Q(2x100 yr)= 11.02 cfs is provided at this depth.
	0.80	0.80	0.00	13.46	17.64	13.46	
ROW LIMIT	0.83	0.83	1.00	14.22	17.96	16.22	
	0.90	0.90	0.00	16.06	18.71	16.06	
	1.00	1.00	0.00	18.81	19.72	18.81	

NOTE: The total runoff intercepted by the inlet at the low point in the road is:

Q(100) = 2*[(runoff of the wing opening) + (the lesser of the weir or orifice amount taken by the double grate)].

THE 100 YR STORM EVENT =19.1 CFS at the sump condition

THE 2 x 100 YR STORM EVENT = 38.2 CFS at the sump condition

INLET REMOVAL BREAKDOWN:

* **(1) - TYPE "C" INLET REMOVES =11.02 CFS**
* **(1) - TYPE "A" DG, DW INLET REMOVES =29.76 CFS**

TOTAL FLOW REMOVED =40.78 CFS

TOTAL FLOW TO BE REMOVED =38.2 CFS (2X100 YR STORM EVENT)

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

Blue Jay Lane (2.0% Cross-Slope)

MANNING'S N= .017 SLOPE= .006

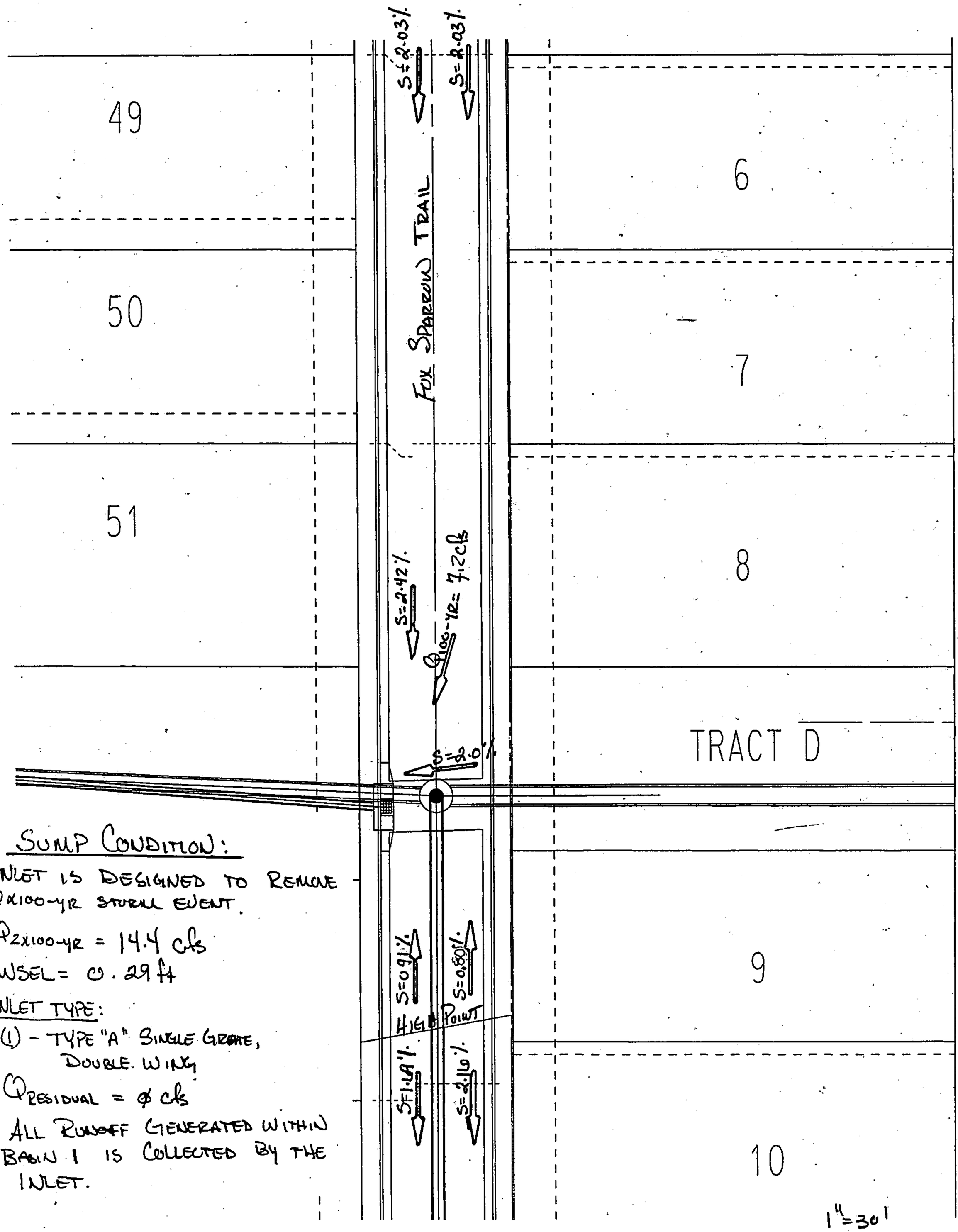
POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.42	4	7.00	0.06	7	31.63	0.77
2	4.37	0.33	5	29.00	0.50	8	36.00	0.86
3	5.00	0.00	6	31.00	0.44	9	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.36	0.20	0.35	0.00	0.01
0.02	0.02	0.01	0.0	0.71	0.31	0.70	0.00	0.02
0.03	0.03	0.02	0.0	1.07	0.41	1.06	0.00	0.03
0.04	0.04	0.03	0.0	1.42	0.50	1.41	0.00	0.04
0.05	0.05	0.04	0.0	1.78	0.58	1.76	0.01	0.06
0.06	0.06	0.06	0.0	2.13	0.65	2.11	0.01	0.07
0.07	0.07	0.09	0.1	2.65	0.69	2.63	0.01	0.08
0.08	0.08	0.12	0.1	3.17	0.75	3.15	0.01	0.09
0.09	0.09	0.15	0.1	3.70	0.80	3.67	0.01	0.10
0.10	0.10	0.19	0.2	4.22	0.86	4.19	0.01	0.11
0.11	0.11	0.23	0.2	4.74	0.91	4.71	0.01	0.12
0.12	0.12	0.28	0.3	5.26	0.97	5.23	0.01	0.13
0.13	0.13	0.34	0.3	5.78	1.02	5.75	0.02	0.15
0.14	0.14	0.40	0.4	6.30	1.07	6.27	0.02	0.16
0.15	0.15	0.46	0.5	6.83	1.13	6.79	0.02	0.17
0.16	0.16	0.53	0.6	7.35	1.18	7.31	0.02	0.18
0.17	0.17	0.61	0.8	7.87	1.23	7.82	0.02	0.19
0.18	0.18	0.69	0.9	8.39	1.28	8.34	0.03	0.21
0.19	0.19	0.78	1.0	8.91	1.33	8.86	0.03	0.22
0.20	0.20	0.87	1.2	9.43	1.38	9.38	0.03	0.23
0.21	0.21	0.96	1.4	9.95	1.43	9.90	0.03	0.24
0.22	0.22	1.07	1.6	10.48	1.48	10.42	0.03	0.25
0.23	0.23	1.17	1.8	11.00	1.52	10.94	0.04	0.27
0.24	0.24	1.28	2.0	11.52	1.57	11.46	0.04	0.28
0.25	0.25	1.40	2.3	12.04	1.61	11.98	0.04	0.29
0.26	0.26	1.52	2.5	12.56	1.66	12.50	0.04	0.30
0.27	0.27	1.65	2.8	13.08	1.70	13.02	0.05	0.32
0.28	0.28	1.78	3.1	13.61	1.75	13.53	0.05	0.33
0.29	0.29	1.92	3.4	14.13	1.79	14.05	0.05	0.34
0.30	0.30	2.07	3.8	14.65	1.83	14.57	0.05	0.35
0.31	0.31	2.21	4.2	15.17	1.88	15.09	0.05	0.36
0.32	0.32	2.37	4.5	15.69	1.92	15.61	0.06	0.38
0.33	0.33	2.53	5.0	16.21	1.96	16.13	0.06	0.39
0.34	0.34	2.69	5.3	17.20	1.97	17.12	0.06	0.40
0.35	0.35	2.87	5.7	18.19	1.98	18.10	0.06	0.41
0.36	0.36	3.05	6.1	19.17	1.99	19.09	0.06	0.42
0.37	0.37	3.25	6.5	20.16	2.01	20.07	0.06	0.43
0.38	0.38	3.46	7.0	21.14	2.02	21.06	0.06	0.44
0.39	0.39	3.67	7.5	22.13	2.04	22.04	0.06	0.45
0.40	0.40	3.90	8.1	23.12	2.07	23.03	0.07	0.47
0.41	0.41	4.13	8.6	24.10	2.09	24.01	0.07	0.48
0.42	0.42	4.38	9.3	25.09	2.11	25.00	0.07	0.49
0.43	0.43	4.63	10.0	25.59	2.17	25.50	0.07	0.50
0.44	0.44	4.89	10.8	26.09	2.22	26.00	0.08	0.52

BASIN #7
$Q_{100YR} = 4.6 cfs$
WSEL = 0.32ft.
EGL = 0.379ft

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.46	0.46	5.42	12.4	27.80	2.28	27.70	0.08	0.54
0.47	0.47	5.71	13.2	28.65	2.31	28.56	0.08	0.55
0.48	0.48	6.00	14.0	29.51	2.34	29.41	0.09	0.57
0.49	0.49	6.29	14.9	30.36	2.37	30.26	0.09	0.58
0.50	0.50	6.60	15.9	31.22	2.40	31.11	0.09	0.59
0.51	0.51	6.91	17.1	31.24	2.48	31.13	0.10	0.61
0.52	0.52	7.22	18.4	31.26	2.55	31.15	0.10	0.62
0.53	0.53	7.54	19.8	31.28	2.62	31.17	0.11	0.64
0.54	0.54	7.85	21.1	31.30	2.69	31.19	0.11	0.65
0.55	0.55	8.16	22.5	31.33	2.76	31.21	0.12	0.67
0.56	0.56	8.47	24.0	31.35	2.83	31.23	0.12	0.68
0.57	0.57	8.78	25.5	31.37	2.90	31.25	0.13	0.70
0.58	0.58	9.10	27.0	31.39	2.96	31.27	0.14	0.72
0.59	0.59	9.41	28.5	31.41	3.03	31.29	0.14	0.73
0.60	0.60	9.72	30.1	31.43	3.10	31.31	0.15	0.75
0.61	0.61	10.03	31.7	31.45	3.16	31.32	0.16	0.77
0.62	0.62	10.35	33.4	31.48	3.23	31.34	0.16	0.78
0.63	0.63	10.66	35.1	31.50	3.29	31.36	0.17	0.80
0.64	0.64	10.98	36.8	31.52	3.35	31.38	0.17	0.81
0.65	0.65	11.29	38.5	31.54	3.41	31.40	0.18	0.83
0.66	0.66	11.60	40.3	31.56	3.47	31.42	0.19	0.85
0.67	0.67	11.92	42.1	31.58	3.54	31.44	0.19	0.86
0.68	0.68	12.23	44.0	31.61	3.60	31.46	0.20	0.88
0.69	0.69	12.55	45.9	31.63	3.66	31.48	0.21	0.90
0.70	0.70	12.86	47.8	31.65	3.71	31.50	0.21	0.91
0.71	0.71	13.18	49.7	31.67	3.77	31.52	0.22	0.93
0.72	0.72	13.49	51.7	31.69	3.83	31.53	0.23	0.95
0.73	0.73	13.81	53.7	31.71	3.89	31.55	0.23	0.96
0.74	0.74	14.12	55.7	31.73	3.95	31.57	0.24	0.98
0.75	0.75	14.44	57.8	31.76	4.00	31.59	0.25	1.00
0.76	0.76	14.76	59.9	31.78	4.06	31.61	0.26	1.02
0.77	0.77	15.07	62.0	31.80	4.12	31.63	0.26	1.03
0.78	0.78	15.39	63.6	32.29	4.13	32.12	0.27	1.05
0.79	0.79	15.71	65.2	32.77	4.15	32.60	0.27	1.06
0.80	0.80	16.04	66.8	33.26	4.16	33.09	0.27	1.07
0.81	0.81	16.38	68.5	33.74	4.18	33.57	0.27	1.08
0.82	0.82	16.71	70.2	34.23	4.20	34.06	0.27	1.09
0.83	0.83	17.06	71.9	34.71	4.22	34.54	0.28	1.11
0.84	0.84	17.40	73.7	35.20	4.23	35.03	0.28	1.12
0.85	0.85	17.76	75.5	35.68	4.25	35.51	0.28	1.13
0.86	0.86	18.11	77.3	36.17	4.27	36.00	0.28	1.14

ANALYSIS PT #3
Q2x100yr = 38.2 c
WSEL = 0.648 ft
EGL = 0.826 ft



SUMP CONDITION:

INLET IS DESIGNED TO REMOVE 2x100-YR STORM EVENT.

$Q_{2x100\text{-}YR}$ = 14.4 cfs

WSEL = 0.29 ft

INLET TYPE:

(1) - TYPE "A" SINGLE GRATE, DOUBLE WING

$Q_{RESIDUAL}$ = 0 cfs

- ALL RUNOFF GENERATED WITHIN BASIN 1 IS COLLECTED BY THE INLET.

ANALYSIS OF AN INLET IN A SUMP CONDITION - **Fox Sparrow Trail**

INLET TYPE: Single Grate Type "A" with curb opening wings on both sides on inlet.

WEIR: Q=C*L*H^1.5

Wing opening	Grate opeining
C=3.0	C=3.0
L=4.0 ft	L(single grate)=[(2.67')+2(1.8')]=6.27 ft
Q=3.0(4.0')H**1.5= 12.0H**1.5	Q=3.0(6.27)H^1.5=18.81*H^1.5

ORIFICE: Q=C*A*(2*G*H)**0.5

Grate opening	Wing opening
C=0.6	C=0.6
A(single grate)=4.09 sf	A=2.0 sf
Q=2.46*(64.4*H)^0.5	Q=1.2*(64.4*H)^0.5

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR WING OPENING	Q (CFS) WEIR SINGLE GRATE	Q (CFS) ORIFICE SINGLE GRATE	TOTAL Q (CFS)	COMMENTS:
~FL @ INLET	0.00	0.00	0.00	0.00	0.00	0.00	Flow at single "A" inlet w/ two wing openings
	0.10	0.10	0.38	0.59	6.24	1.35	Weir controls on grate analysis
	0.20	0.20	1.07	1.68	8.82	3.83	
	0.30	0.30	1.97	3.09	10.80	7.03	
	0.40	0.40	3.04	4.76	12.47	10.83	Q(100 yr) = 7.2 cfs is provided at this depth.
	0.50	0.50	4.24	6.65	13.94	15.14	Q(2x100 yr) = 14.4 cfs is provided at this depth.
	0.60	0.60	5.58	8.74	15.27	19.90	
TOP OF CURB	0.70	0.70	7.03	11.02	16.50	25.07	
	0.80	0.80	8.59	13.46	17.64	30.63	
ROW LIMIT	0.87	0.87	9.74	15.26	18.39	34.74	
	0.90	0.90	10.25	16.06	18.71	36.55	
	1.00	1.00	12.00	18.81	19.72	42.81	

NOTE: The total runoff intercepted by the inlet at the low point in the road is:
Q(100) = 2*[(runoff of the wing opening) + (the lesser of the weir or orifice amount taken by the double grate)].
THE 100 YR STORM EVENT =7.2 CFS at the sump condition
THE 2 x 100 YR STORM EVENT = 14.4 CFS at the sump condition

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

Fox Sparrow Trail

MANNING'S N= .017 SLOPE= .0242

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.42	5	18.00	0.28	9	36.00	0.42
2	4.37	0.33	6	29.00	0.06	10	0.00	0.00
3	5.00	0.00	7	31.00	0.00	11	0.00	0.00
4	7.00	0.06	8	31.63	0.33	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.71	0.40	0.70	0.00	0.01
0.02	0.02	0.01	0.0	1.42	0.63	1.41	0.01	0.03
0.03	0.03	0.03	0.0	2.13	0.82	2.11	0.01	0.04
0.04	0.04	0.06	0.1	2.84	1.00	2.82	0.02	0.06
0.05	0.05	0.09	0.1	3.55	1.16	3.52	0.02	0.07
0.06	0.06	0.13	0.2	4.26	1.31	4.23	0.03	0.09
0.07	0.07	0.17	0.2	5.30	1.40	5.27	0.03	0.10
0.08	0.08	0.23	0.3	6.35	1.50	6.31	0.03	0.11
0.09	0.09	0.30	0.5	7.39	1.61	7.34	0.04	0.13
0.10	0.10	0.38	0.7	8.43	1.72	8.38	0.05	0.15
0.11	0.11	0.47	0.9	9.48	1.83	9.42	0.05	0.16
0.12	0.12	0.57	1.1	10.52	1.94	10.46	0.06	0.18
0.13	0.13	0.68	1.4	11.56	2.05	11.50	0.07	0.20
0.14	0.14	0.80	1.7	12.61	2.16	12.53	0.07	0.21
0.15	0.15	0.93	2.1	13.65	2.27	13.57	0.08	0.23
0.16	0.16	1.07	2.5	14.69	2.37	14.61	0.09	0.25
0.17	0.17	1.22	3.0	15.74	2.47	15.65	0.09	0.26
0.18	0.18	1.38	3.6	16.78	2.57	16.69	0.10	0.28
0.19	0.19	1.55	4.2	17.82	2.67	17.73	0.11	0.30
0.20	0.20	1.74	4.8	18.87	2.77	18.76	0.12	0.32
0.21	0.21	1.93	5.5	19.91	2.87	19.80	0.13	0.34
0.22	0.22	2.13	6.3	20.95	2.96	20.84	0.14	0.36
0.23	0.23	2.35	7.2	22.00	3.06	21.88	0.15	0.38
0.24	0.24	2.57	8.1	23.04	3.15	22.92	0.15	0.39
0.25	0.25	2.80	9.1	24.08	3.24	23.95	0.16	0.41
0.26	0.26	3.05	10.2	25.13	3.33	24.99	0.17	0.43
0.27	0.27	3.30	11.3	26.17	3.42	26.03	0.18	0.45
0.28	0.28	3.57	12.5	27.21	3.51	27.07	0.19	0.47
0.29	0.29	3.84	14.1	27.26	3.68	27.11	0.21	0.50
0.30	0.30	4.11	15.8	27.30	3.85	27.15	0.23	0.53
0.31	0.31	4.38	17.6	27.34	4.01	27.18	0.25	0.56
0.32	0.32	4.66	19.4	27.39	4.17	27.22	0.27	0.59
0.33	0.33	4.93	21.3	27.43	4.33	27.26	0.29	0.62
0.34	0.34	5.21	22.8	28.40	4.39	28.23	0.30	0.64
0.35	0.35	5.49	24.4	29.37	4.45	29.20	0.31	0.66
0.36	0.36	5.79	26.1	30.34	4.51	30.17	0.32	0.68
0.37	0.37	6.10	27.8	31.31	4.57	31.14	0.32	0.69
0.38	0.38	6.41	29.7	32.29	4.63	32.12	0.33	0.71
0.39	0.39	6.74	31.6	33.26	4.69	33.09	0.34	0.73
0.40	0.40	7.07	33.6	34.23	4.75	34.06	0.35	0.75
0.41	0.41	7.42	35.7	35.20	4.82	35.03	0.36	0.77
0.42	0.42	7.77	37.9	36.17	4.88	36.00	0.37	0.79

BASIN 1-2
$Q_{2x100\text{-}YR}$ = 1.9 cfs
WSEL = 0.145
EGL = 0.22 ft

BASIN 1-2
$Q_{2x100\text{-}YR}$ = 3.8 cfs
WSEL = 0.183 ft
EGL = 0.266 ft

ANALYSIS PT #1
$Q_{2x100YR}$ = 14.4 cfs
WSEL = 0.291 ft
EGL = 0.505 ft

Δ ELEVATION (HIGH PT TO LOW PT) = 0.350 ft
WSEL = 0.291 ft (ANALYSIS PT #1)
0.059 ft (AVAILABLE AMOUNT (IN FT) OF WATER TO BE COLLECTED)

NO RESIDUAL FLOW

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

Fox Sparrow Trail

MANNING'S N= .017 SLOPE= .0203

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.42	5	18.00	0.28	9	36.00	0.42
2	4.37	0.33	6	29.00	0.06	10	0.00	0.00
3	5.00	0.00	7	31.00	0.00	11	0.00	0.00
4	7.00	0.06	8	31.63	0.33	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.71	0.36	0.70	0.00	0.01
0.02	0.02	0.01	0.0	1.42	0.58	1.41	0.01	0.03
0.03	0.03	0.03	0.0	2.13	0.75	2.11	0.01	0.04
0.04	0.04	0.06	0.1	2.84	0.91	2.82	0.01	0.05
0.05	0.05	0.09	0.1	3.55	1.06	3.52	0.02	0.07
0.06	0.06	0.13	0.2	4.26	1.20	4.23	0.02	0.08
0.07	0.07	0.17	0.2	5.30	1.28	5.27	0.03	0.10
0.08	0.08	0.23	0.3	6.35	1.37	6.31	0.03	0.11
0.09	0.09	0.30	0.4	7.39	1.47	7.34	0.03	0.12
0.10	0.10	0.38	0.6	8.43	1.57	8.38	0.04	0.14
0.11	0.11	0.47	0.8	9.48	1.68	9.42	0.04	0.15
0.12	0.12	0.57	1.0	10.52	1.78	10.46	0.05	0.17
0.13	0.13	0.68	1.3	11.56	1.88	11.50	0.05	0.18
0.14	0.14	0.80	1.6	12.61	1.98	12.53	0.06	0.20
0.15	0.15	0.93	1.9	13.65	2.07	13.57	0.07	0.22
0.16	0.16	1.07	2.3	14.69	2.17	14.61	0.07	0.23
0.17	0.17	1.22	2.8	15.74	2.26	15.65	0.08	0.25
0.18	0.18	1.38	3.3	16.78	2.36	16.69	0.09	0.27
0.19	0.19	1.55	3.8	17.82	2.45	17.73	0.09	0.28
0.20	0.20	1.74	4.4	18.87	2.54	18.76	0.10	0.30
0.21	0.21	1.93	5.1	19.91	2.63	19.80	0.11	0.32
0.22	0.22	2.13	5.8	20.95	2.71	20.84	0.11	0.33
0.23	0.23	2.35	6.6	22.00	2.80	21.88	0.12	0.35
0.24	0.24	2.57	7.4	23.04	2.89	22.92	0.13	0.37
0.25	0.25	2.80	8.3	24.08	2.97	23.95	0.14	0.39
0.26	0.26	3.05	9.3	25.13	3.05	24.99	0.14	0.40
0.27	0.27	3.30	10.4	26.17	3.13	26.03	0.15	0.42
0.28	0.28	3.57	11.5	27.21	3.22	27.07	0.16	0.44
0.29	0.29	3.84	13.0	27.26	3.37	27.11	0.18	0.47
0.30	0.30	4.11	14.5	27.30	3.53	27.15	0.19	0.49
0.31	0.31	4.38	16.1	27.34	3.68	27.18	0.21	0.52
0.32	0.32	4.66	17.8	27.39	3.82	27.22	0.23	0.55
0.33	0.33	4.93	19.5	27.43	3.97	27.26	0.24	0.57
0.34	0.34	5.21	20.9	28.40	4.02	28.23	0.25	0.59
0.35	0.35	5.49	22.4	29.37	4.07	29.20	0.26	0.61
0.36	0.36	5.79	23.9	30.34	4.13	30.17	0.26	0.62
0.37	0.37	6.10	25.5	31.31	4.18	31.14	0.27	0.64
0.38	0.38	6.41	27.2	32.29	4.24	32.12	0.28	0.66
0.39	0.39	6.74	29.0	33.26	4.30	33.09	0.29	0.68
0.40	0.40	7.07	30.8	34.23	4.35	34.06	0.29	0.69
0.41	0.41	7.42	32.7	35.20	4.41	35.03	0.30	0.71
0.42	0.42	7.77	34.7	36.17	4.47	36.00	0.31	0.73

BASIN 1-1
$Q_{100\text{-}12}$ = 5.3 cf
WSEL = 0.212
EGL = 0.322 f

BASIN 1-1:
$Q_{EX100\text{-}12}$ = 10.0 C
WSEL = 0.271
EGL = 0.423 f

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

Fox Sparrow Trail

MANNING'S N= .017 SLOPE= .006

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.42	5	18.00	0.28	9	36.00	0.42
2	4.37	0.33	6	29.00	0.06	10	0.00	0.00
3	5.00	0.00	7	31.00	0.00	11	0.00	0.00
4	7.00	0.06	8	31.63	0.33	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.71	0.20	0.70	0.00	0.01
0.02	0.02	0.01	0.0	1.42	0.31	1.41	0.00	0.02
0.03	0.03	0.03	0.0	2.13	0.41	2.11	0.00	0.03
0.04	0.04	0.06	0.0	2.84	0.50	2.82	0.00	0.04
0.05	0.05	0.09	0.1	3.55	0.58	3.52	0.01	0.06
0.06	0.06	0.13	0.1	4.26	0.65	4.23	0.01	0.07
0.07	0.07	0.17	0.1	5.30	0.69	5.27	0.01	0.08
0.08	0.08	0.23	0.2	6.35	0.75	6.31	0.01	0.09
0.09	0.09	0.30	0.2	7.39	0.80	7.34	0.01	0.10
0.10	0.10	0.38	0.3	8.43	0.86	8.38	0.01	0.11
0.11	0.11	0.47	0.4	9.48	0.91	9.42	0.01	0.12
0.12	0.12	0.57	0.5	10.52	0.97	10.46	0.01	0.13
0.13	0.13	0.68	0.7	11.56	1.02	11.50	0.02	0.15
0.14	0.14	0.80	0.9	12.61	1.07	12.53	0.02	0.16
0.15	0.15	0.93	1.0	13.65	1.13	13.57	0.02	0.17
0.16	0.16	1.07	1.3	14.69	1.18	14.61	0.02	0.18
0.17	0.17	1.22	1.5	15.74	1.23	15.65	0.02	0.19
0.18	0.18	1.38	1.8	16.78	1.28	16.69	0.03	0.21
0.19	0.19	1.55	2.1	17.82	1.33	17.73	0.03	0.22
0.20	0.20	1.74	2.4	18.87	1.38	18.76	0.03	0.23
0.21	0.21	1.93	2.8	19.91	1.43	19.80	0.03	0.24
0.22	0.22	2.13	3.1	20.95	1.48	20.84	0.03	0.25
0.23	0.23	2.35	3.6	22.00	1.52	21.88	0.04	0.27
0.24	0.24	2.57	4.0	23.04	1.57	22.92	0.04	0.28
0.25	0.25	2.80	4.5	24.08	1.61	23.95	0.04	0.29
0.26	0.26	3.05	5.1	25.13	1.66	24.99	0.04	0.30
0.27	0.27	3.30	5.6	26.17	1.70	26.03	0.05	0.32
0.28	0.28	3.57	6.2	27.21	1.75	27.07	0.05	0.33
0.29	0.29	3.84	7.0	27.26	1.83	27.11	0.05	0.34
0.30	0.30	4.11	7.9	27.30	1.92	27.15	0.06	0.36
0.31	0.31	4.38	8.8	27.34	2.00	27.18	0.06	0.37
0.32	0.32	4.66	9.7	27.39	2.08	27.22	0.07	0.39
0.33	0.33	4.93	10.6	27.43	2.16	27.26	0.07	0.40
0.34	0.34	5.21	11.4	28.40	2.18	28.23	0.07	0.41
0.35	0.35	5.49	12.2	29.37	2.21	29.20	0.08	0.43
0.36	0.36	5.79	13.0	30.34	2.24	30.17	0.08	0.44
0.37	0.37	6.10	13.9	31.31	2.27	31.14	0.08	0.45
0.38	0.38	6.41	14.8	32.29	2.30	32.12	0.08	0.46
0.39	0.39	6.74	15.7	33.26	2.34	33.09	0.08	0.47
0.40	0.40	7.07	16.7	34.23	2.37	34.06	0.09	0.49
0.41	0.41	7.42	17.8	35.20	2.40	35.03	0.09	0.50
0.42	0.42	7.77	18.9	36.17	2.43	36.00	0.09	0.51

BASIN 1
Q_{100-12} = 2.7cfs
WSEL = 0.20ft
EGL = 0.23ft

BASIN 2
Q_{100-12} = 4.4cfs
WSEL = 0.25ft
EGL = 0.29ft

***** PC PROGRAM STREAM SEPTEMBER 1994 *****

Fox Sparrow Trail

MANNING'S N= .017 SLOPE= .0116

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.42	5	18.00	0.28	9	36.00	0.42
2	4.37	0.33	6	29.00	0.06	10	0.00	0.00
3	5.00	0.00	7	31.00	0.00	11	0.00	0.00
4	7.00	0.06	8	31.63	0.33	12	0.00	0.00

WSEL (FT)	DEPTH INC (FT)	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID (FT)	VEL HEAD (FT)	ENERGY HEAD (FT)
0.01	0.01	0.00	0.0	0.71	0.27	0.70	0.00	0.01
0.02	0.02	0.01	0.0	1.42	0.43	1.41	0.00	0.02
0.03	0.03	0.03	0.0	2.13	0.57	2.11	0.01	0.04
0.04	0.04	0.06	0.0	2.84	0.69	2.82	0.01	0.05
0.05	0.05	0.09	0.1	3.55	0.80	3.52	0.01	0.06
0.06	0.06	0.13	0.1	4.26	0.90	4.23	0.01	0.07
0.07	0.07	0.17	0.2	5.30	0.97	5.27	0.01	0.08
0.08	0.08	0.23	0.2	6.35	1.04	6.31	0.02	0.10
0.09	0.09	0.30	0.3	7.39	1.11	7.34	0.02	0.11
0.10	0.10	0.38	0.5	8.43	1.19	8.38	0.02	0.12
0.11	0.11	0.47	0.6	9.48	1.27	9.42	0.02	0.13
0.12	0.12	0.57	0.8	10.52	1.34	10.46	0.03	0.15
0.13	0.13	0.68	1.0	11.56	1.42	11.50	0.03	0.16
0.14	0.14	0.80	1.2	12.61	1.49	12.53	0.03	0.17
0.15	0.15	0.93	1.5	13.65	1.57	13.57	0.04	0.19
0.16	0.16	1.07	1.8	14.69	1.64	14.61	0.04	0.20
0.17	0.17	1.22	2.1	15.74	1.71	15.65	0.05	0.22
0.18	0.18	1.38	2.5	16.78	1.78	16.69	0.05	0.23
0.19	0.19	1.55	2.9	17.82	1.85	17.73	0.05	0.24
0.20	0.20	1.74	3.3	18.87	1.92	18.76	0.06	0.26
0.21	0.21	1.93	3.8	19.91	1.99	19.80	0.06	0.27
0.22	0.22	2.13	4.4	20.95	2.05	20.84	0.07	0.29
0.23	0.23	2.35	5.0	22.00	2.12	21.88	0.07	0.30
0.24	0.24	2.57	5.6	23.04	2.18	22.92	0.07	0.31
0.25	0.25	2.80	6.3	24.08	2.24	23.95	0.08	0.33
0.26	0.26	3.05	7.0	25.13	2.31	24.99	0.08	0.34
0.27	0.27	3.30	7.8	26.17	2.37	26.03	0.09	0.36
0.28	0.28	3.57	8.7	27.21	2.43	27.07	0.09	0.37
0.29	0.29	3.84	9.8	27.26	2.55	27.11	0.10	0.39
0.30	0.30	4.11	11.0	27.30	2.67	27.15	0.11	0.41
0.31	0.31	4.38	12.2	27.34	2.78	27.18	0.12	0.43
0.32	0.32	4.66	13.5	27.39	2.89	27.22	0.13	0.45
0.33	0.33	4.93	14.8	27.43	3.00	27.26	0.14	0.47
0.34	0.34	5.21	15.8	28.40	3.04	28.23	0.14	0.48
0.35	0.35	5.49	16.9	29.37	3.08	29.20	0.15	0.50
0.36	0.36	5.79	18.1	30.34	3.12	30.17	0.15	0.51
0.37	0.37	6.10	19.3	31.31	3.16	31.14	0.16	0.53
0.38	0.38	6.41	20.6	32.29	3.20	32.12	0.16	0.54
0.39	0.39	6.74	21.9	33.26	3.25	33.09	0.16	0.55
0.40	0.40	7.07	23.3	34.23	3.29	34.06	0.17	0.57
0.41	0.41	7.42	24.7	35.20	3.33	35.03	0.17	0.58
0.42	0.42	7.77	26.3	36.17	3.38	36.00	0.18	0.60

APPENDIX D

STORM DRAIN HYDRAULIC ANALYSIS

Analyzer Report

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Drainage Structure Analyzer

Pipe Hydraulic Analysis

Date: Friday, June 14, 2002 09:28:02 AM

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Coors Blvd. Storm Drain #1

Input Data		Output Results	
Shape	Circular	Flow Rate	5.4000 cfs
Material	RC C76-A	Slope	0.600%
Roughness	0.013000	d/D	0.59
Method	Manning	Capacity	8.1366 cfs
Flow Rate	5.4000 cfs	Velocity	4.93 ft/s
Slope	0.600%	Depth	0.89 ft
Size (W x T):	18.00 x 2.5000	Critical Depth	0.89 ft
		Size (W x T):	18.00 x 2.5000

Coors Blvd. Storm Drain #2

Input Data		Output Results	
Shape	Circular	Flow Rate	10.8000 cfs
Material	RC C76-A	Slope	20.000%
Roughness	0.013000	d/D	0.33
Method	Manning	Capacity	46.9768 cfs
Flow Rate	10.8000 cfs	Velocity	21.59 ft/s
Slope	20.000%	Depth	0.49 ft
Size (W x T):	18.00 x 2.5000	Critical Depth	1.26 ft
		Size (W x T):	18.00 x 2.500

Coors Blvd. Storm Drain #3

Input Data		Output Results	
Shape	Circular	Flow Rate	45.1000 cfs
Material	RC C76-A	Slope	0.600%
Roughness	0.013000	d/D	0.72
Method	Manning	Capacity	51.6644 cfs
Flow Rate	45.1000 cfs	Velocity	8.24 ft/s
Slope	0.600%	Depth	2.17 ft
Size (W x T):	36.00 x 4.7500	Critical Depth	2.18 ft
		Size (W x T):	36.00 x 4.7500

Analyzer Report

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Drainage Structure Analyzer

Pipe Hydraulic Analysis

Date: Friday, June 14, 2002 09:31:46 AM

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Oxbow Enclave Lane/Tract C Storm Drain

Input Data		Output Results	
Shape	Circular	Flow Rate	55.9000 cfs
Material	RC C76-A	Slope	1.000%
Roughness	0.013000	d/D	0.70
Method	Manning	Capacity	66.6984 cfs
Flow Rate	55.9000 cfs	Velocity	10.57 ft/s
Slope	1.000%	Depth	2.10 ft
Size (W x T):	36.00 x 4.7500	Critical Depth	2.42 ft
		Size (W x T):	36.00 x 4.7500

Rock Dove Inlet to Tract C Manhole

Input Data		Output Results	
Shape	Circular	Flow Rate	16.4000 cfs
Material	RC C76-A	Slope	16.013%
Roughness	0.013000	d/D	0.43
Method	Manning	Capacity	42.0344 cfs
Flow Rate	16.4000 cfs	Velocity	22.34 ft/s
Slope	16.013%	Depth	0.65 ft
Size (W x T):	18.00 x 2.5000	Critical Depth	1.43 ft
		Size (W x T):	18.00 x 2.5000

Fox Sparrow Inlet to Tract C Manhole

Input Data		Output Results	
Shape	Circular	Flow Rate	14.4000 cfs
Material	RC C76-A	Slope	14.836%
Roughness	0.013000	d/D	0.41
Method	Manning	Capacity	40.4605 cfs
Flow Rate	14.4000 cfs	Velocity	20.97 ft/s
Slope	14.836%	Depth	0.62 ft
Size (W x T):	18.00 x 2.5000	Critical Depth	1.39 ft
		Size (W x T):	18.00 x 2.5000

Analyzer Report

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Drainage Structure Analyzer

Pipe Hydraulic Analysis

Date: Friday, June 14, 2002 09:31:46 AM

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Tract C Main Line

Input Data		Output Results	
Shape	Circular	Flow Rate	86.7000 cfs
Material	RC C76-A	Slope	1.000%
Roughness	0.013000	d/D	1.00
Method	Manning	Capacity	66.6984 cfs
Flow Rate	86.7000 cfs	Velocity	12.27 ft/s
Slope	1.000%	Depth	3.00 ft
Size (W x T):	36.00 x 4.7500	Critical Depth	2.82 ft
		Size (W x T):	36.00 x 4.7500

Q_{excess} = Flow rate – Capacity = 86.70 cfs – 66.70 cfs = 20.0 cfs

The excess flow in the pipe will be detained in the detention pond.

Connection from Existing Storm Drain (Tract D) to Fox Sparrow Manhole

Input Data		Output Results	
Shape	Circular	Flow Rate	124.9000 cfs
Material	RC C76-A	Slope	1.000%
Roughness	0.013000	d/D	1.00
Method	Manning	Capacity	66.6984 cfs
Flow Rate	124.9000 cfs	Velocity	17.67 ft/s
Slope	1.000%	Depth	3.00 ft
Size (W x T):	36.00 x 4.7500	Critical Depth	2.95 ft
		Size (W x T):	36.00 x 4.7500

Q_{excess} = Flow rate – Capacity = 124.9 cfs – 66.70 cfs = 58.20 cfs

The excess flow in the pipe will be detained in the detention pond.

Analyzer Report

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Drainage Structure Analyzer

Pipe Hydraulic Analysis

Date: Friday, June 14, 2002 09:31:46 AM

Blue Jay Lane Storm Drain#1

Input Data		Output Results	
Shape	Circular	Flow Rate	8.4400 cfs
Material	RC C76-A	Slope	0.438%
Roughness	0.013000	d/D	1.00
Method	Manning	Capacity	6.9519 cfs
Flow Rate	8.4400 cfs	Velocity	4.78 ft/s
Slope	0.438%	Depth	1.50 ft
Size (W x T):	18.00 x 2.5000	Critical Depth	1.12 ft
		Size (W x T):	18.00 x 2.50

Blue Jay Lane Storm Drain #2

Input Data		Output Results	
Shape	Circular	Flow Rate	38.2000 cfs
Material	RC C76-A	Slope	1.279%
Roughness	0.013000	d/D	0.69
Method	Manning	Capacity	46.3875 cfs
Flow Rate	38.2000 cfs	Velocity	10.55 ft/s
Slope	1.279%	Depth	1.73 ft
Size (W x T):	30.00 x 3.5000	Critical Depth	2.08 ft
		Size (W x T):	30.00 x 3.5000

Fox Sparrow Trail Storm Drain

Input Data		Output Results	
Shape	Circular	Flow Rate	38.2000 cfs
Material	RC C76-A	Slope	1.207%
Roughness	0.013000	d/D	0.71
Method	Manning	Capacity	45.0629 cfs
Flow Rate	38.2000 cfs	Velocity	10.31 ft/s
Slope	1.207%	Depth	1.77 ft
Size (W x T):	30.00 x 3.5000	Critical Depth	2.08 ft
		Size (W x T):	30.00 x 3.50

EXHIBITS

EXHIBIT 1: FEMA FLOODPLAIN EXHIBIT

EXHIBIT 2: BULK LAND PLAT

EXHIBIT 3: PRELIMINARY PLAT

EXHIBIT 4: EXISTING CONDITIONS BASIN MAP

EXHIBIT 5: PROPOSED CONDITIONS BASIN MAP

EXHIBIT 6: GRADING AND DRAINAGE PLAN

EXHIBIT 1

FEMA FLOODPLAIN EXHIBIT

THE ENCLAVE AT OXBOW

FEMA FLOODPLAIN MAP

SCALE: 1"=500'

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 10 NORTH, RANGE 2 EAST, AND TOWNSHIP 11 NORTH, RANGE 2 EAST.

ZONE X

BOULEVARD

ATRISCO

ST

JOSEPHS

ROAD

DRIVE

COORS

ZONE X

ZONE X

ZONE X

RM34

YUCCA CIRCLE

ALAMOGORDO DRIVE

VISTA GRANDE DRIVE

BERNALILLO CO
UNINCORPORATED
350001

TUCSON

ROAD

ATRISCO

ROAD

SEQUOIA

A

ROAD

ZONE X

AVENUE

ACH AVENUE

AMATH AVENUE

KEPLER STREET

ANDRY AVENUE

ANDS ROAD

REDLANDS

DRIVE

BOULEVARD

DRIVE

ABBEY COURT

NOVA COURT

ALPHA COURT

DRIVE

CORONA

ARGUS AVENUE

STREET

ARGUS AVENUE

ORION AVENUE

POLARIS

ORION AVENUE

GRANDE

ROAD

EXHIBIT 1

EXHIBIT 2

BULK LAND PLAT

EXHIBIT 3

PRELIMINARY PLAT

EXHIBIT 4

EXISTING CONDITIONS BASIN MAP

EXHIBIT 5

PROPOSED CONDITIONS BASIN MAP

EXHIBIT 6

GRADING AND DRAINAGE PLAN

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

G-11 | D14F

PROJECT TITLE: Enclave at Oxbow ZONE MAP/DRG. FILE #: G-11
DRB #: 1000296 EPC#: WORK ORDER#:

LEGAL DESCRIPTION: The Enclave at Oxbow (Tract B1, Oxbow Park)
CITY ADDRESS: Coors Blvd & St. Joseph's Drive

ENGINEERING FIRM:	Bohannan Huston, Inc.	CONTACT:	Kevin Patton
ADDRESS:	7500 Jefferson NE – Courtyard I	PHONE:	823-1000
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87109
OWNER:	Altura West Ltd. Co.	CONTACT:	Tom Keleher
ADDRESS:	201 3rd Street NW - 12th Floor	PHONE:	346-4646
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87102
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- ____ DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- __X__ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- __X__ SIA / FINANCIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D. APPROVAL
- ____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM.)
- ____ CERTIFICATE OF OCCUPANCY (TEMP.)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- ____ NO
- ____ COPY PROVIDED

DATE SUBMITTED: 4/18/03 BY: Kevin Patton, P.E.

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope of 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 subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

Bohannan ▲ Huston INC.

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

April 17, 2003

Brad Bingham, P.E.
Hydrology Development Division
City of Albuquerque Planning Department
P. O. Box 1293
Albuquerque, NM 87103

Re: **The Enclave at Oxbow -** Tract B1, Oxbow Park; Drainage Certification Letter
DRB Project # 1000296

Dear Brad:

The purpose of this letter is to request your concurrence with the enclosed grading and drainage certification for the above referenced subdivision. This submittal requests approval of the certification for the release of financial guarantees. The enclosed certified plan is the grading plan (Engineers Stamp dated 6/20/02) approved by DRB on June 26, 2002.

It is my understanding that the SIA will expire the second week of May of this year (the first calling notice; the last calling notice is in July). If you have any questions, please give me a call at 823-1000.

Sincerely,

Kevin Patton, P.E.
Vice President
Community Development and Planning

KP/am
Enclosures

cc: Tom Keleher, Altura West (w/encls)
Jim Rogers, Commercial Investment (w/encls)
Bill Hooten, Charter Homes (w/encls)

P:\020199\cdp\corres\016-drng_cert\Grading Cert.doc

DRAINAGE INFORMATION SHEET

G-11/D14F

PROJECT TITLE: The Enclave at Oxbow ZONE MAP/DRG. FILE # G-11
DRB #: EPC#: WORK ORDER#:

LEGAL DESCRIPTION:
CITY ADDRESS:

ENGINEERING FIRM: Bohannan Huston, Inc. CONTACT: Kevin Patton
ADDRESS: 7500 Jefferson NE PHONE: 505-823-1000
CITY, STATE: Albuquerque ZIP CODE: 87109

OWNER: Altura West LTD CONTACT: Tom Keleher
ADDRESS: 201 3rd Street NW, 12th Floor PHONE: 346-4646
CITY, STATE : Albuquerque, NM 87103 ZIP CODE:

ARCHITECT: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CONTRACTOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

TYPE OF SUBMITTAL:
__X__ DRAINAGE REPORT
_____ DRAINAGE PLAN
_____ CONCEPTUAL GRADING & DRAINAGE PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERTIFICATION
_____ CLOMR/LOMR
_____ OTHER

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA / FINANCIAL GUARANTEE RELEASE
__X__ PRELIMINARY PLAT APPROVAL
__X__ S. DEV. PLAN FOR SUB'D. APPROVAL
__X__ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY APPROVAL
__X__ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
____ OTHER (SPECIFY)

DATE SUBMITTED: 5-6-02 BY: Elizabeth Smith

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of 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 subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

RECEIVED
MAY 07 2002
HYDROLOGY SECTION

RECEIVED
APR 24 2002
HYDROLOGY SECTION

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 8, 2002

Elizabeth Eddy Smith, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Enclave at Oxbow Park Subdivision Drainage Report
Engineer Stamp dated 5-6-02 (G11/D14F)

Dear Ms. Smith,

Based upon the information provided in your submittal dated 5-7-02, the above referenced report is approved Preliminary Plat, Site Plan for Subdivision or Site Plan for Building Permit action by the DRB.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, PWD
Development and Building Services

C: file

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 26, 2002

Elizabeth Eddy Smith, PE
Bohannan Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Enclave at Oxbow Park Subdivision Drainage Report
Engineer Stamp dated 4-12-02 (G11/D14F)

Dear Ms. Smith,

Based upon the information provided in your submittal dated 4-12-02, the above referenced report cannot be approved Preliminary Plat, Site Plan for Subdivision or Site Plan for Building Permit until the following comments are addressed.

- Offsite basins A & B from the "Master Plan" do not appear in your AHYMO or HGL analysis. The 24" storm drain required to cross Coors should be part of your grading plan exhibit.

- Grading to a private easement in the rear of the lots (Basins 4,5 & 8) is predicated on the sidewalk variance that you are seeking. When this report is approved, it will be on condition that the Transportation Development Engineer grants the variance. Sidewalk and alley gutter must appear on your Infrastructure List.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, PWD
Development and Building Services

C: file