AMENDED
DRAINAGE REPORT
FOR
PIÑON POINTE II AT VENTANA RANCH
(TRACT Y-1A-1C)

JANUARY 25, 2002

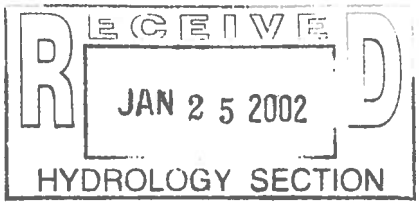
Prepared for:

LAS VENTANAS LIMITED PARTNERSHIP
#10 TRAMWAY LOOP NE
ALBUQUERQUE, NM 87122

SIVAGE THOMAS HOMES
7445 PAN AMERICAN FREEWAY
ALBUQUERQUE, NM 87109

Prepared by:

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



PREPARED BY:

Robert Lackey, E.I. **Date**

UNDER THE SUPERVISION OF:

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

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APPENDICES

EXHIBITS

I. PURPOSE

The purpose of this report is to present the drainage management plan for Piñon Pointe II at Ventana Ranch (Tract Y-1A-1C of the Ventana Ranch Master Plan) and to obtain approval of the preliminary/final plat and grading plan by the City of Albuquerque. The proposed development of Piñon Pointe consists of 82 single family detached residential lots on approximately 13.11 acres.

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.

The site, as described in the 'Site Location and Characteristics' section below, is approximately 13.11 acres. Therefore, Part A of the DPM, Section 22.2, which provides a simplified procedure for projects with sub-basins smaller than 40 acres was used.

The previous drainage report for Pinon Pointe II at Ventana Ranch dated September 19,2001, has already received approval. This amended report reflects the changes made to the lot layout and the drainage plan. The lots have been shifted and the portion of Shawna Street, between Button Quail Avenue and Woodstar Avenue, has been removed dividing the drainage plan into two separate regions. The flow generated by Woodstar Avenue will now be collected by type "A" double grate, double wing inlets and ultimately discharge into the Las Ventanas detention dam. All of the runoff generated by Shawna Street north of the highpoint will combine with the developed flow of Button Quail Avenue and be collected by inlets downstream of Button Quail Avenue.

The previously approved drainage report referenced in the preparation of this plan is the "Las Ventanas Subdivision Drainage Master Plan" (LVDMP) prepared by Bohannan Huston (originally dated April 1995 and updated October 1995). Additional information was provided in "Addendum #2 for the Design Analysis Report for Ventana Ranch Subdivision Drainage Facilities" prepared by Bohannan Huston dated December 1997. These reports identify downstream drainage improvements, including the AMAFCA North Branch Piedras Marcadas Diversion Channel, which was built in phases from 1995 to 1998 by Sandia Properties, to which developed flows from this tract will ultimately drain. Also referenced is "Drainage Report for Pinon Pointe at Ventana Ranch (Tract Y-1A-2)", dated December 22, 2000 prepared by Bohannan Huston.

III. SITE LOCATION AND CHARACTERISTICS

Ventana Ranch is a 940-acre development located west of Paradise Hills between Paseo del Norte and Irving Boulevards. Piñon Pointe is located in the northwestern quadrant of the Ventana Ranch Master Plan. The proposed subdivision is bounded by Ventana Ranch Open Space Tract (Tract Y-1A-1D) that is adjacent to the Ventana Ranch western boundary, Piñon Pointe Unit 1 Subdivision to the south, Tract Y-1A-1A to the north, and Las Ventanas Road West to the east. The site will be accessible from Las Ventanas Road.

IV. EXISTING HYDRAULIC AND HYDROLOGIC CONDITIONS

In its existing condition, the site consists of undulating terrain with slopes from 5% to less than 1%. The proposed subdivision is located within existing Basin 504W and Basin 503W. See Exhibit 3 for Existing Basin Map. Existing drainage patterns direct the runoff to the east. Basin 504W receives flow from Basin 501, which is directly west of Basin 504W. The flows conveyed from Basin 501 are carried via an existing natural arroyo, Tributary "A", through the proposed subdivision site. Basin 503W receives flow from Basin 502, which is directly west of Basin 503W. The flow from Basin 502 is carried via an existing natural arroyo, Reach 1, just north of the proposed subdivision site; see Offsite Basins for more information. There are no recognized FEMA Floodplains within the proposed development.

V. PROPOSED HYDRAULIC AND HYDROLOGIC CONDITIONS

Discharge generated by Piñon Pointe II will flow through the internal streets in an easterly direction when fully developed. There are three high points two located on Snowy Owl Drive. just north and south of Button Quail Avenue. The third high point is located at the south end of Shawna Street. Inlets will collect flow on Goshawk Avenue, Woodstar Avenue, and Button Quail Avenue. The flow collected by these inlets will be carried via storm drain to an existing 42" storm drain in Las Ventanas Road built with Piñon Pointe off sites and ultimately be carried to the North Piedras Marcadas Channel. Any residual flow will discharge onto Las Ventanas Road and be collected by inlets downstream.

A. On-Site Basins

The proposed site is broken into six (6) major basins. Three of the six basins have been divided into sub-basins for analysis reasons. Major basins are described below. For sub-basin data, see Appendix A at the back of this report.

Basin 1 (3.34ac, Q_{100}=13.9cfs) is the southern most basin. Basin 1 consists of Sub-basins 1-1 and 1-2; see Appendix A for more information. Basin 1 consists of twenty-five (25) lots, 1-25. The combined runoff of Basin A and Basin 1 will flow down Goshawk Avenue where 13.6cfs will be collected by two Type "A" double grate, single wing inlets placed on either side of the road. The remaining flow (0.3cfs) will discharge onto Shawna Street and be collected by inlets downstream.

Basin 2 (2.01ac, Q_{100}=7.3cfs) encompasses the entire length of Shawna Street as well as the entrance on Button Quail Avenue up to the intersection with Shawna Street and contains Sub-basins 2-1 and 2-2; see Appendix A for more information. Sub-Basin 2-1 consists of nine (9) lots, 1,25,48, and 75 through 80. Sub-Basin 2-2 contains one (1) lot, 81. All of the runoff generated by sub-basin 2-2 will flow into Pinon Pointe Unit I. The runoff generated by Sub-basin 2-1 will discharge into Button Quail and combine with the developed flow of Basin 3 (14.7cfs). At the entrance to the subdivision, Button Quail

Avenue has a three percent (3%) cross-slope up to the intersection with Shawna Street. This cross slope allows only a portion of the developed flow (6.1cfs) from Shawna Street will be collected (4.8cfs) by the type "A" double grate, double wing inlet located on the north side of Button Quail Avenue. The residual flow (1.3cfs) will discharge into Basin 6, which is discussed later in this report.

The developed flow (14.7cfs) from Basin 3 will combine with the remaining flow of basin 2 (1.2cfs) and the flow from Basin 5 (0.3cfs) resulting in a total flow of 16.2cfs. Two type "A" double grate; double wing inlets located downstream will collect 14.5 cfs. The residual flow (1.8cfs) will discharge into Basin 6.

Basin 3 (3.31ac, Q_{100}=14.7cfs) encompasses Button Quail Avenue up to the intersection with Shawna Street and contains Sub-basins 3-1, and 3-2; see Appendix A for details. Basin 3 consists of twenty-two (22) lots, 26 through 47. The developed flow from Basin 3 will discharge into Basin 2 and be collected as previously mentioned in Basin 2 analysis.

Basin 4 (4.37ac, Q_{100}=17.5cfs) encompasses the entire length of Woodstar Avenue and a portion of Snowy Owl Drive and contains Sub-basins 4-1 and 4-2; see Appendix A for details. Basin 4 consists of twenty-seven (27) lots, 49 through 75. Runoff generated by Sub-basins 4-1 and 4-2 (17.5cfs) will be collected (9.05cfs) by three-type "A" double grate, double wing inlets. The residual flow (8.45cfs) will discharge offsite and will eventually be collected by type "A" double grate, double wing inlets on Las Ventanas Rd downstream. Two type "A" double grate; double wing inlets will be built on either side of the returns on Wood Quail Drive and Griffon Drive. These inlets will collect any residual flow when the tract north of this subdivision is developed.

Basin 5 (0.08ac, Q_{100}=0.3cfs) consists of the parking lot for the park located just off the entrance to the subdivision on Button Quail Avenue. Runoff generated by Basin 5 (0.3cfs) will discharge into Basin 2 and be collected as previously mentioned in Basin 2 analysis.

Basin 6 (0.13ac, Q_{100}=0.5cfs) consists of the remaining portion of the entrance to the subdivision, from Las Ventanas Road to the second inlet on the north side of Button Quail Avenue. All of the developed flow within this basin will discharge into Las Ventanas Road and be collected by inlets downstream.

See Appendix C, Inlet Analysis, for flow distributions and Appendix F for temporary swale analysis.

B. Off-Site Basins

There are seven (7) offsite basins, Basins A – G and one basin offsite of Ventana Ranch, Basin 502; see Existing Condition Basin Map in the Exhibit section at the back of this report. All flows generated from these basins will remain offsite except for Basins A-C, which will discharge onsite.

Basin A (0.62ac, 1.80cfs) is located on the western boundary of Ventana Ranch and is the tieback slope from existing ground to this tract. The runoff from this basin discharges into Goshawk Avenue and is collected as mentioned in the previous section. For additional information, see Proposed Basin Map in the Exhibit section at the back of this report and Appendix C, Inlet Analysis, for distribution of flows.

Basin B (0.94ac, 2.70cfs) is located on the western boundary of Ventana Ranch and is the tieback slope from existing ground to this tract. The runoff from this basin discharges into Button Quail Avenue and is collected as mentioned in the previous section. For additional information, see Proposed Basin Map in the Exhibit section at the back of this report and Appendix C, Inlet Analysis, for distribution of flows.

Basin C (0.85ac, 1.70cfs) is located on the western boundary of Ventana Ranch and is the tieback slope from existing ground to this tract. The runoff from this basin discharges into Woodstar Avenue and is collected as mentioned in the previous section.

For additional information, see Proposed Basin Map in the Exhibit section at the back of this report and Appendix C, Inlet Analysis, for distribution of flows.

Basin D (1.92ac, 5.50cfs) is a proposed park located just west of Las Ventanas Road and north of Button Quail Avenue. The flow generated from this basin will flow directly to Las Ventanas Road and be collected downstream.

Basin E (0.19ac, 0.5cfs) is a non-vehicular right-of-way located west of Las Ventanas Road and south of Button Quail Avenue. This basin will discharge directly to Las Ventanas Road and be collected downstream.

Basin F (0.90ac, 3.90cfs) is the west half of Las Ventanas Road. The runoff generated will flow north and be collected downstream.

Addendum #2 discusses the design off all the storm drain and flows generated by this tract; see excerpts in Appendix E.

Basin 502 (`21.76ac, 20.0cfs) impacts this site only during the interim conditions. Hay bales will be placed at the subdivision boundary to keep silt from entering the site during flow conditions. During the interim conditions, all of the flow generated from this basin will flow along the boundary of the subdivision and discharge into Las Ventanas Road to be collected by inlets downstream. The future development to the north will build infrastructure that will collect all of the runoff generated by this basin and carried through a 36" storm drain to an existing 42" storm drain in Las Ventanas Road. Ultimately, the flow from Basin 502 will be carried to the North Piedras Marcadas Channel.

Basin G (6.44ac, 18.50cfs) contains a 20' temporary swale, within a 50' grading buffer and the tieback slope to existing ground. The 20' swale has 5:1 side slopes and is two feet deep. This allows the swale to have 1' of freeboard. The purpose of this swale is to discharge the existing basin offsite of Ventana Ranch, Basin 502 (20cfs). Currently, there is a natural depression between two ridges, which channels this runoff and runs just

north of the northern tract boundary. Due to the fact that there is a large cut in our site, a temporary swale is needed in order to discharge this basin in the interim. For the interim condition all of the runoff within this basin will combine with the runoff from Basin 502, and flow into the temporary swale and then into an existing swale built with West Pointe along Las Ventanas Road. This flow will eventually discharge into Las Ventanas Road to be collected by inlets downstream. The flow from this basin will not impact Pinon Pointe II. The future development to the north will build the infrastructure, similar to other developments in Ventana Ranch, necessary to discharge this flow. See Appendix F for swale analysis.

VI. CONCLUSION

The LVDMP governs the development of Tract Y-1A-1C of the Ventana Ranch Subdivision. Increases in runoff, depth and velocity due to proposed development are within parameters anticipated within the previously approved Master Drainage Plan for this area. These flows can be safely conveyed by the improvements proposed in this drainage plan to existing drainage facilities, which have adequate capacity to accept such runoff. Erosion and dust control, consisting of erosion control berms, snow fencing and sedimentation basins, are proposed to prevent soil washing or blowing into paved streets, storm drains, and existing development areas. Therefore, we believe this report supports the preliminary/final plat and grading plan submittals and should be approved as requested.

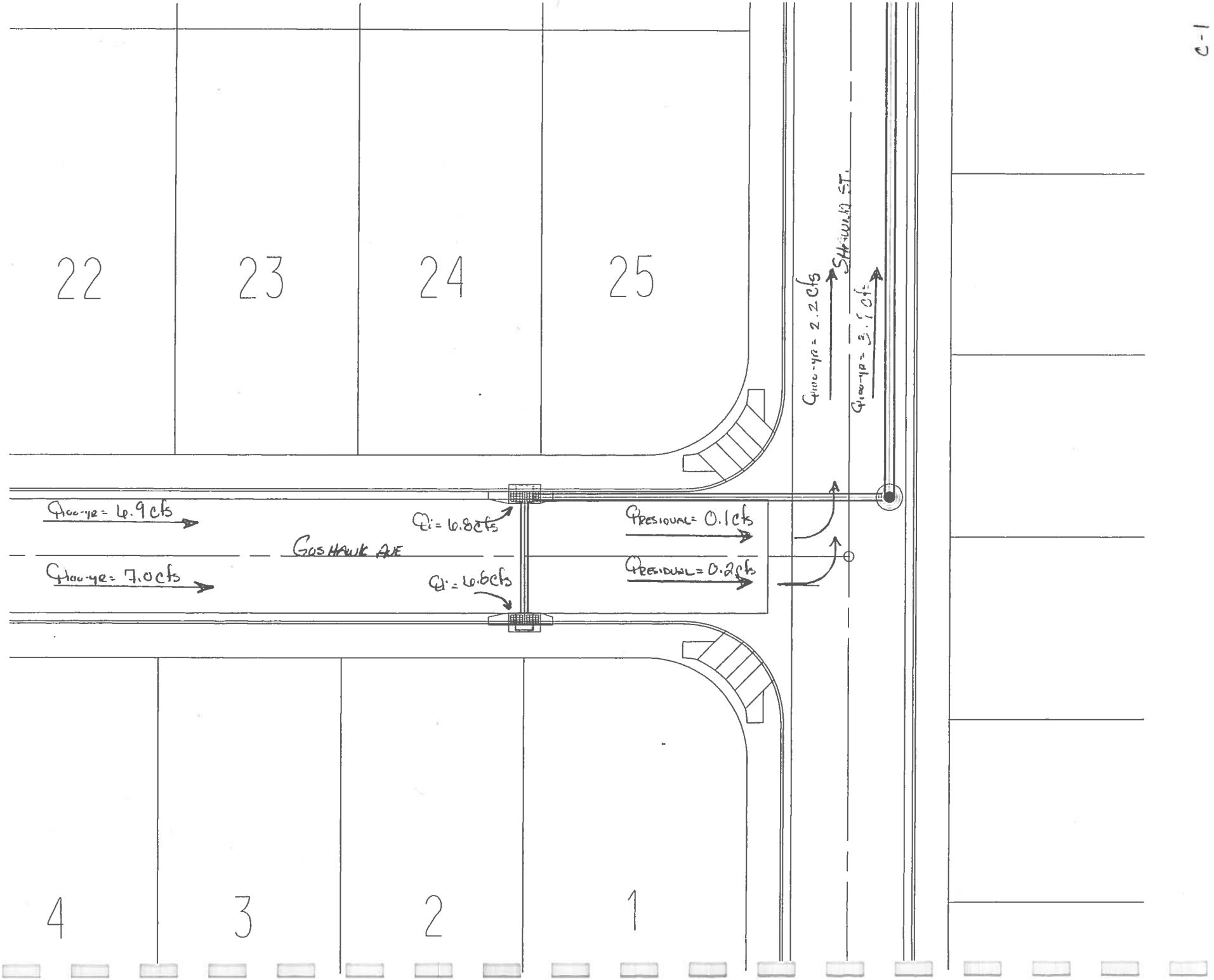
PINON POINTE UNIT 2 @ VENTANA RANCH

	BASIN I.D.	AREA (AC)	UNITS #	% LAND TREATMENT A	B	C	D	DISCHARGE (CFS) 10 YR	100YR
				HYRDOLOGICAL VOLUMETRIC & DISCHARGE DATA (DEVELOPED)					
	1-1	1.75	13	0.00%	21.57%	21.57%	58.70%	3.8	6.3
	1-2	1.59	10	0.00%	21.57%	21.57%	58.70%	3.5	5.8
	2-1	2.01	10	0.00%	21.57%	21.57%	58.70%	4.4	7.3
	2-2	0.17	1	0.00%	21.57%	21.57%	58.70%	0.4	0.6
	3-1	1.68	11	0.00%	21.57%	21.57%	58.70%	3.7	6.1
	3-2	1.63	11	0.00%	21.57%	21.57%	58.70%	3.5	5.9
	4-1	1.91	12	0.00%	21.57%	21.57%	58.70%	4.2	6.9
	4-2	2.46	15	0.00%	21.57%	21.57%	58.70%	5.4	8.9
	5	0.08	0	0.00%	0.00%	0.00%	100.00%	0.2	0.3
	6	0.13	0	0.00%	5.00%	5.00%	90.00%	0.4	0.5
SUBTOTAL		**13.28**	**83**					**28.73**	**47.78**
	A-1	0.23	0	0.00%	0.00%	100.00%	0.00%	0.3	0.7
	A-2	0.39	0	0.00%	0.00%	100.00%	0.00%	0.6	1.1
	B-1	0.45	0	0.00%	0.00%	100.00%	0.00%	0.7	1.3
	B-2	0.49	0	0.00%	0.00%	100.00%	0.00%	0.7	1.4
	C	0.85	0	0.00%	100.00%	0.00%	0.00%	0.6	1.7
	D	1.92	0	0.00%	0.00%	100.00%	0.00%	2.8	5.5
	E	0.19	0	0.00%	0.00%	100.00%	0.00%	0.3	0.5
	F	0.90	0	0.00%	0.00%	0.00%	100.00%	2.6	3.9
	G	6.44	0	0.00%	0.00%	100.00%	0.00%	9.5	18.5
SUBTOTAL		**11.86**	**0.00**					**8.66**	**16.17**
TOTAL		**25.14**						**37.4**	**64.0**

NOTES: 1) Impervious percentages were calculated from the DPM equation A-4, with the remaining percentages distributed to land treatment type B, due to the relatively flat terrain

N=UNITS/ACRES = 6.3
%D= 7*SQRT((N*N)+(5*N)) = 58.7 %

*Table A-4
**Table A-11


22
23
24
25
4
3
2
1
Q_{100-yr} = 4.9 cfs
Q_i = 6.8 cfs
GOSHAWK AVE
Q_{100-yr} = 7.0 cfs
Q_i = 6.6 cfs
$Q_{RESIDUAL}$ = 0.1 cfs
$Q_{RESIDUAL}$ = 0.2 cfs
Q_{100-yr} = 2.2 cfs
SHERMAN ST.
Q_{100-yr} = 3.1 cfs

Goshawk Ave:

Basin 1-1: (Slope = 2.19%)

$Q_{BASIN\ A-1}$ = 0.7 cfs

$Q_{BASIN\ 1-1}$ = 6.3 cfs

Q_{TOTAL} = 7.0 cfs ; WSEL = 0.29 ft ; Velocity = 2.95 fps

Energy - Grade Line (EGL) = WSEL + $\frac{(\text{Velocity})^2}{2(\text{Acceleration due to Gravity})}$

EGL = .29 ft + $\frac{(2.95\ \text{fps})^2}{2(32.2\ \text{ft/s}^2)}$

EGL = 0.42 ft < 0.67 ft (height of curb) okay

Basin 1-2: (Slope = 2.19%)

$Q_{BASIN\ A-2}$ = 1.1 cfs

$Q_{BASIN\ 1-2}$ = 5.8 cfs

Q_{TOTAL} = 6.9 cfs , WSEL = 0.288 ft , Velocity = 2.95 fps

EGL = 0.288 ft + $\frac{(2.95\ \text{fps})^2}{2(32.2\ \text{ft/s}^2)}$ = 0.42 < .67 (height of curb) okay

Referencing attached Nomograph:

Inlet Removal = 6.8 cfs

$Q_{RESIDUAL\ BASIN\ 1-1}$ = 7.0 cfs - 6.8 cfs = 0.2 cfs

$Q_{RESIDUAL\ BASIN\ 1-2}$ = 6.9 cfs - 6.8 cfs = 0.1 cfs

Bohannan ▲ Huston

PROJECT NAME Rio Pointe Unit II SHEET ___ OF ___
PROJECT NO. 5?00066 BY Kurt Lackey DATE 1/22/02
SUBJECT Street Hydraulics CH'D ___ DATE ___

SHAWNA ST:

BASIN 2 (Slope = 0.6%)

$Q_{SHAWNA} = 5.8\ cfs$

$Q_{RESIDUAL\ BASIN\ 1} = 0.2\ cfs$

$Q_{RESIDUAL\ BASIN\ 1\text{-}2} = 0.1\ cfs$

$Q_{TOTAL} = 6.1\ cfs$ WSEL = 0.339 ft ; VELOCITY = 1.75 fps

$$EGL = 0.339\ ft + \frac{(1.75\ fps)^2}{2(32.2\ ft/s^2)} = 0.39\ ft < 0.41\ ft$$

GIVEN: AT THE INTERSECTION OF BUTTON QUAIL AND SHAWNA ST. THE SLOPE ON BUTTON QUAIL CHANGES FROM A 3.19% TO A 3.00% CROSS-SLOPE.

ASSUMPTION: THE INLET ON THE UPSTREAM SIDE OF BUTTON QUAIL AVE. WILL ONLY COLLECT RUNOFF FROM SHAWNA ST. DUE TO THE 3.00% CROSS-SLOPE.

BUTTON QUAIL AVE (BASIN 2):

$Q_{APPROACH\ INLET} = 6.1\ cfs$; WSEL = 0.35 ft ; VELOCITY = 4.19 fps

REFERENCE NOMOGRAPH, INLET WILL REMOVE 4.6 cfs

$Q_{RESIDUAL} = 1.5\ cfs$

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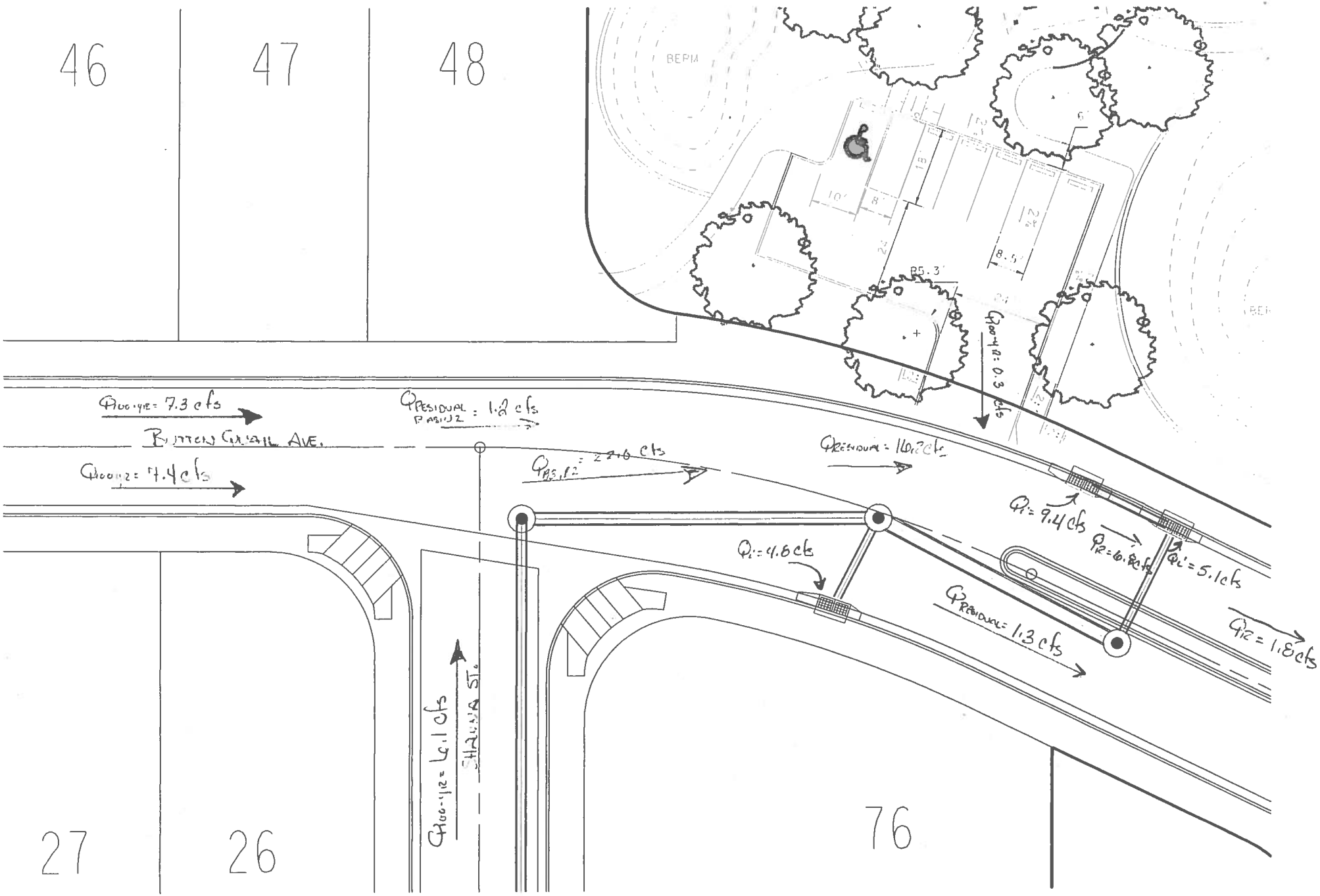
PROJECT NAME _____ SHEET _____ OF _____

PROJECT NO. _____ BY _____ DATE _____

SUBJECT _____ CH'D _____ DATE _____


46
47
48
BERM
Q100-YR = 7.3 cfs
Q RESIDUAL PAD #2 = 1.2 cfs
BUTTON GRAIL AVE.
Q100-YR = 7.4 cfs
Q PAD #2 = 2.6 cfs
Q RESIDUAL = 16.2 cfs
Q100-YR = 0.3 cfs
Q1 = 9.4 cfs
Q12 = 6.8 cfs
Q1' = 5.1 cfs
Q1 = 4.6 cfs
Q RESIDUAL = 1.3 cfs
Q12 = 1.8 cfs
Q100-YR = 6.1 cfs
SHASTA ST.
27
26
76

BUTTON QUAIL AVE.

BASIN 3-1: (SLOPE = 3.19%)

$Q_{BASIN\ B-1} = 1.3\ cfs$

$Q_{BASIN\ 3-1} = 6.1\ cfs$

$Q_{TOTAL} = 7.4\ cfs$; WSEL = 0.279 ft; VELOCITY = 3.45 fps

$EGL = .279\ ft + \frac{(3.45\ fps)^2}{2(32.2\ ft/s^2)} = 0.464\ ft < 0.67'$ (HEIGHT OF CURB) okay

BASIN 3-2 (SLOPE = 3.19%)

$Q_{BASIN\ B-2} = 1.4\ cfs$

$Q_{BASIN\ 3-2} = 5.9\ cfs$

$Q_{TOTAL} = 7.3\ cfs$; WSEL = 0.278 ft ; VELOCITY = 3.44 fps

$EGL = 0.278\ ft + \frac{(3.44\ fps)^2}{2(32.2\ ft/s^2)} = 0.462\ ft < 0.67\ ft$ okay

BASIN 2:

BUTTON QUAIL AVE: (3.00% CROSS-SLOPE)

$Q_{BASIN\ 3-1} = 7.4\ cfs$

$Q_{BASIN\ 3-2} = 7.3\ cfs$

$Q_{BASIN\ 2} = 1.2\ cfs$

$Q_{BASIN\ 5} = 0.3\ cfs$

$Q_{TOTAL} = 16.2\ cfs$, WSEL = 0.483 ft ; VELOCITY = 5.32 fps

$EGL = 0.483\ ft + (5.32\ ft/s)^2/64.4\ ft/s^2$

$EGL = 0.92\ ft > 0.83'$ (EIGHT OF WALL)

REFERENCE NCHO(BATH), 1st INLET WILL TAKE 9.4 cfs

$Q_{BYPASS} = 6.8\ cfs$,

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PROJECT NAME _____ SHEET _____ OF _____

PROJECT NO. _____ BY _____ DATE _____

SUBJECT _____ CHD _____ DATE _____

BUTTON QUAIL AVE (CONTINUED)

BASIN 2 (CONTINUED):

$Q_{RESIDUAL}$ = 6.8 cfs ; WSEL = 0.36 ft ; Velocity = 4.29 fps

EGL = 0.36 ft + $\frac{(4.29\ fps)^2}{2(32.2\ ft/s^2)}$ = 0.64 ft < 0.87ft (Row) okay

REFERENCE NOMOGRAPH, INLET "Z" WILL REMOVE 5.1 cfs

$Q_{RESIDUAL}$ = 1.8 cfs

BASIN 2 WILL DISCHARGE 2.6 cfs INTO BASIN E. THE COMBINED FLOW IN BASIN E OF 3.1 cfs WILL DISCHARGE INTO BASIN G (LAS VENTANAS DR.) AND WILL BE COLLECTED BY INLETS DOWNSTREAM.

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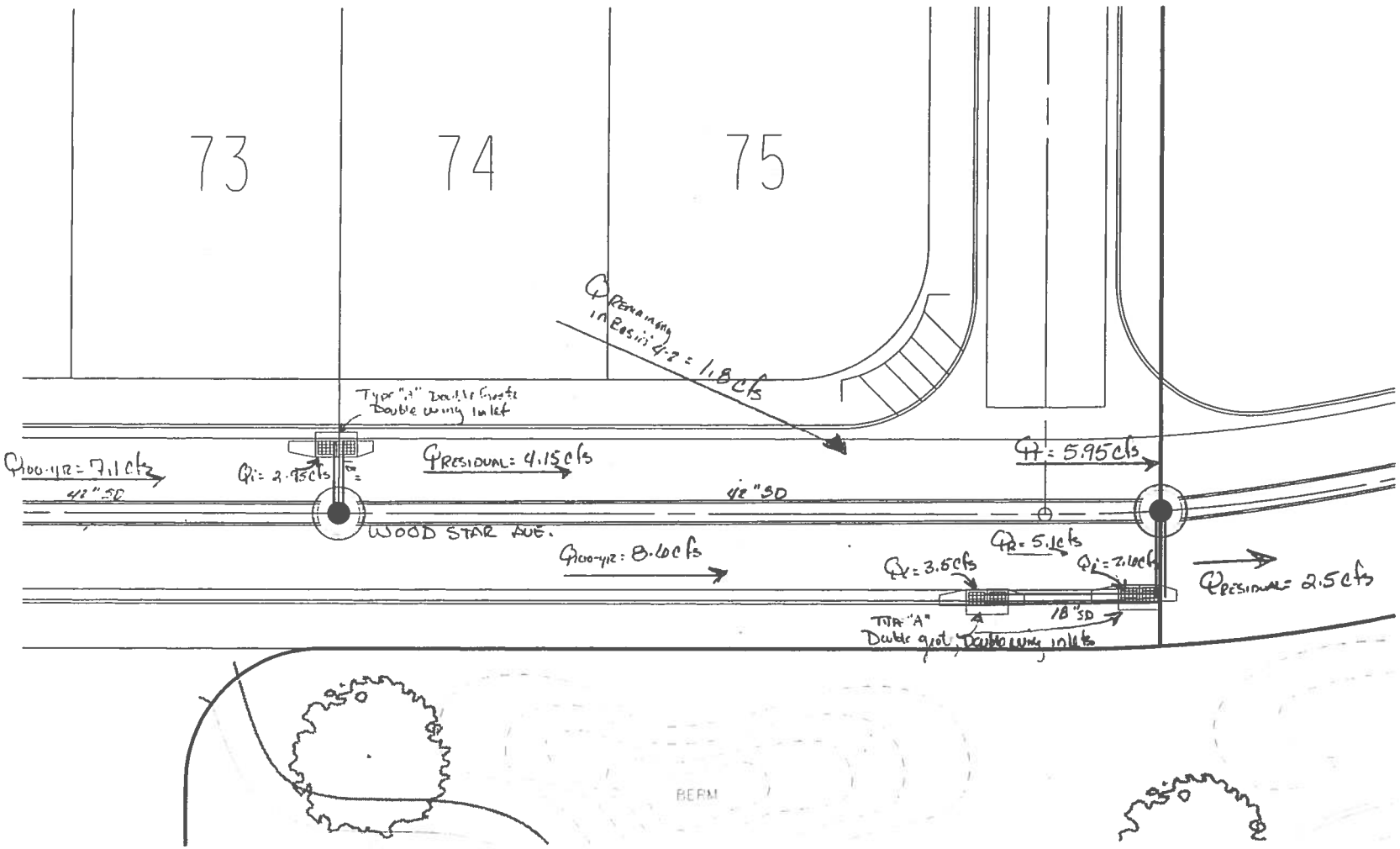
PROJECT NAME _____ SHEET _____ OF _____

PROJECT NO _____ BY _____ DATE _____

SUBJECT _____ CH'D _____ DATE _____


73
74
75
Q REMAINING IN BASIN 4-2 = 1.8 cfs
Type "A" Double Grate Double Curb Inlet
Q100-42 = 7.1 cfs
Qi = 2.95 cfs
QRESIDUAL = 4.15 cfs
42" SD
42" SD
WOOD STAR AVE.
Q = 5.95 cfs
Q100-42 = 8.60 cfs
Qi = 3.50 cfs
Qi = 2.10 cfs
QRESIDUAL = 2.5 cfs
18" SD
TYPE "A" Double grate, Double curb inlets
BERM

BASIN 4-1 : WOODSTAR AVE (SLOPE = 3.17%)

$Q_{BASIN\ C} = 1.7$ cfs

$Q_{BASIN\ 4-1} = 6.9$ cfs

$Q_{TOTAL} = 8.6$ cfs ; WSEL = 0.293 ft ; Velocity = 3.58 fps

$EGL = 0.293\text{ft} + \frac{(3.58\ fps)^2}{2(37.2\ ft/s^2)} = 0.49\text{ft} < 0.67\text{ft}$ (height of curb) okay

REFERENCE NOMOGRAPH, INLET WILL REMOVE 3.5 cfs

$Q_{RESIDUAL} = 5.1$ cfs ; WSEL = 0.25 ft ; Velocity = 3.17 fps

$EGL = 0.25\text{ft} + \frac{(3.17\ fps)^2}{64.4\ ft/s^2} = 0.406\text{ft} < 0.67\text{ft}$ (height of curb) okay

REFERENCE NOMOGRAPH, INLET WILL REMOVE 2.6 cfs

$Q_{RESIDUAL} = 2.5$ cfs

BASIN 4-2 : WOODSTAR AVE (SLOPE = 3.17%)

$Q = 7.1$ cfs , WSEL = 0.275ft ; Velocity = 3.4 fps

$EGL = 0.275\text{ft} + \frac{(3.4\ fps)^2}{2(64.4\ ft/s^2)} = 0.45\text{ft} < 0.67\text{ft}$ (height of curb) okay

REFERENCE NOMOGRAPH, INLET WILL REMOVE 2.95 cfs

$Q_{RESIDUAL} = 7.1 - 2.95 = 4.15$ cfs

$Q_{BASIN\ 4-2\ Remaining} = 1.8$ cfs

$Q_{DISCHARGE\ OFFSITE} = 5.95$ cfs

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