L9/D18

DRAINAGE REPORT
&
GRADING PLAN

for

# VALLE DEL CANTO SUBDIVISION

ALBUQUERQUE, N.M.

Prepared by:

**Ryals Engineering & Construction Services**
**5301 Central NE - Suite 913**
**Albuquerque, N.M. 87108**

June 1997
Revised: July 1997
Revised: August 1997



Rev 8-13-97

Robert B. Ryals, P.E.

# DRAINAGE REPORT
# FOR
# VALLE DEL CANTO SUBDIVISION

CURRENT LEGAL DESCRIPTION: Lots 21-37, Block 12, Original Townsite of Westland.

FLOOD ZONE: Per FEMA FIRM Panel 328 the site is not in or adjacent to a 100-yr flood zone.

SIZE AND LOCATION: Approximately 170 single-family residences will be built on the 21.43 acre site, which extends from 86th St. west to 90th St. The northern boundary is an existing platted alley about half a block south of Bridge Blvd. The southern boundary is Sunset Gardens Rd. The site is located near the upper end of the Amole Del Norte / Hubbell Lake drainage system, which has been - and currently is being - extensively studied by others. See below. City of Albuquerque Map L-9.

REVISION OVERVIEW-AUG. 1997: Changed title of report, changed inlets at stub street back to double "C", changed plan sheets per review comments of 8/7/97.

REVISION OVERVIEW - JULY 1997: This revision includes a new section discussing the SGU (Sunset Gardens - Unser) storm drain. Both hydrology and hydraulics have been extended downstream from the site to provide the preliminary sizing for a storm drain outfall from the site. The storm drain will replace the offsite pond proposed for the short term. The storm drain will run in Unser Blvd. from the Amole Channel then up Sunset Gardens to 86th St. Preliminary sizes range from 42 inches to 78 inches.

Upstream hydrology has decreased for future conditions (and storm drain) analysis. Andrews, Asbury, and Robert Engineers have confirmed that the construction of 94th St. - from Sunset Gardens sloping down to the south at least to Eucariz - is under design and should happen within roughly a year. The construction will remove Basin M (apx 30.6 ac) from the developed conditions analysis. The design accords with the Tower/Sage Drainage Master Plan (1994) and Special Assessment District 222. The design differs from the assumptions used by Greiner Inc in the design of the proposed Tierra Bayita Storm Drain, and by others.

DRAINAGE OVERVIEW: Although major storm drains are being planned nearby - north in Bridge Blvd., and south and east in Sunset Gardens Rd. - none is currently under construction. Therefore most developed flows from Valle del Canto will be routed from the sub street in the southeast corner of the site to a temporary, offsite, retention pond just south of Sunset Gardens. Final outflow from that corner of the site will be to the future Sunset Gardens storm drain, probably by a short westward extension of that system. The present project does not propose any storm drain in Sunset Gardens upstream of the outlet from the site

Other nearby analyses have assumed that the area that lies south of Sunset Gardens and

between 86th St. and 98th St. has its flow outlet in its northeast corner, at the intersection on Sunset Gardens and 86th St. This will probably be true in the future, but only if 86th St. and associated drainage facilities are so constructed as to make it happen, which will require a considerable vertical realignment of 86th St. Currently much of the flow reaching 86th St. appears to cross the road and head overland to the east. (July '97 note: the area in question is between 86th and 94th for future conditions.)

Other nearby analyses disagree about flows from the area north of Sunset Gardens between 86th St. and 98th St., including the project site. The present project may be the first to closely consider (1) existing and approved future development; (2) existing grades and flow paths on the roads - particularly 90th St. and 94th St., both currently unpaved; and (3) the practicality of constructing paved roads in the existing platted alignments. One conclusion is that the existing trailer park between 94th and 98th Streets never contributes flows to the Sunset Gardens system. Another is that flows from west of 90th St. do not currently flow down Sunset Gardens between 90th and 86th. ***Valle del Canto proposed design will send flows from basins E, I, and G down Sunset Gardens from 90th St. to 86th St.***

For the short-term after Valle del Canto is developed, most flow from west of 90th and north of Sunset Gardens will go to the existing alley just north of the site, then east to 86th, then north to Bridge Blvd., i.e., approximately where it does now. The alley will be improved and paved with this project. When the Bridge Blvd. (a.k.a. Tierra Bayita) storm drain is built in the near future, design of that system will probably send at least some of these flows directly Bridge at 90th.. Flows originating south and west of the 90th - Sunset Gardens intersection will spill eastward either at the existing low spot approximately 500 ft south of Sunset Gardens or at some nearby new low spot determined in a design of 90th St. to City standards.

NEARBY DESIGN AND DEVELOPMENT: (1) Bridge Point Apts., mostly complete on the 82nd St. side, is located east of the site across 86th St. It extends from Sunset Gardens north to Bridge Blvd. Drainage design for the apartments analyzed and provided for existing offsite drainage, including runoff from the Valle Del Canto site in 2 separate directions: 1 southeast to Sunset Gardens and (according to the design report) into the apartment site; the other north along a berm east of 86th St. to a new swale adjacent to Bridge Blvd. Design included preliminary sizing of a future storm drain in Sunset Gardens Rd. Completed construction includes the berm along the east side of 86th St. from Bridge Blvd. south from the existing high point in 86 (approximately at the northern 1/3 point of Valle del Canto, i.e., just north of the proposed entrance road). Crawford Development Services. Drainage File L9/D11, referred to herein as the Crawford study or the Bridge Point study.

(2) Pointe West Subdivision is located on 82nd St. approximately half a block south of the apartment complex. Currently it extends west about half way to 86th St.; eventually it will extend all the way. It has been designed to accept some offsite flow, from south of Valle Del Canto. Interim discharge is to a retention pond; future discharge will be to the future storm drain in Sunset Gardens. Mark Goodwin & Assoc. Drainage file L9/D10.

(3) Mini-storage facility fronting on Bridge Blvd. Apparently design is underway for a self-storage complex located just north across the alley from Valle del Canto on currently undeveloped land. The facility will probably extend from 86th St. to 90th St.

(4) Tierra Bayita Storm Drain, a.k.a. Bridge Blvd. storm drain. Greiner Engineering is currently designing this major (diameter +/- 96 inches) extension to the Amole del Norte system In part, the storm drain will replace a temporary swale in Bridge Blvd. constructed with the Bridge Point Apartments. At Unser Blvd. the storm drain will outlet to the Amole Del Norte channel running adjacent to bridge Blvd.

(5) The "Boyle Study", 1984, largely forms the basis for Greiner's current study. Generally the basin boundaries are the same as Greiner's but some flow directions are different. Hydrologic methods are also slightly different. Full name: "Investigation Phase Report for the Re-evaluation Study of the Amole Del Norte Storm Diversion Facility", City of Albuquerque Project 1814, AMAFCA file no. 359.0.

(6) July '97 revision. Tower/Sage Drainage Master Plan and SAD 222 plans. Andrews, Asbury, and Robert, 1994. Flows south of project basin, generally include first lot (apx 200') north of Eucariz. This plan directs runoff from the area between 94th and 98, Sunset Gardens and Eucariz, southward to Eucariz. This differs from the analyses by Boyle, Greiner, and others. In a recent discussion, John Andrews confirmed that he expects the Master Plan's boundaries to be generally maintained under future development.

EXISTING CONDITIONS: The site is currently undeveloped except for an existing residence with outbuildings and a perimeter wall located in the northeast corner of the site. The residence will be removed prior to construction. The adjacent land to the north is also currently undeveloped. On the west side of 90th St. the only development between Bridge and Sunset Gardens consists of approximately 3 residences located on a single parcel whose northern boundary is opposite the northern boundary of Valle del Canto. On the south, Sunset Gardens Road is platted but does not exist on the ground even as a dirt track. West of 90th St. it is partly paved, partly not.

The recent Bridge Point Apts. project is on the east side of 86th. East of 86th Sunset Gardens has newly constructed sidewalk and curb and gutter on the north side (only), and paving has been designed, but actual paving is "future" and "by others". Immediately south of the site across Sunset Gardens is an old automobile wrecking yard which has recently come under the control of the owner of the Valle Del Canto site, and which will be used for the proposed temporary retention pond.

Eighty-sixth St. has a high point near the entrance to Valle del Canto. Road grade slopes adjacent to Valle del Canto meet City Standards. 86th St. between Bridge and Sunset Gardens, and on south at least to Eucariz Rd, is currently paved but only meets City pavement standards for its use category (Collector) on the east side near Sunset Gardens; this is as a result of Bridge Point Apts. construction.

90th St. is a different story. It remains an unpaved gravel road. Repeated grading over the years has incised it between berms on both sides. Topography prepared for the Valle del Canto project (contour interval 1 ft) shows that adjacent to the site 90th is nearly flat but

that there is an existing high point at roughly the southern 1/3rd or 1/4th point. The existing low point to the north, where flow has broken through the east berm, is approximately at the location of the existing platted but unimproved alley just north of the site. This is in line with the 2-ft contour phototopography used in the 1983 flood plain maps (panel 33); that topo was not detailed enough to show the high point. Runoff that passes around or through the existing development (apx 3 houses on 1 lot) on the west side of 90th St. flows in the road to the existing low spot just north of the project site.

Generally the Valle del Canto project site slopes from 90th St. east down to 86th St. at somewhat over 2 percent. Both current and previous photographs and topography show several swale areas on site. One enters the site across the north boundary slightly east of the northwest site corner, bringing flow that enters from 90th St. at approximately the location of the alley. After crossing most of the site, flow apparently splits around the perimeter wall of the existing residence, but both branches reach 86th north of the existing high point in the road and flow is toward Bridge Blvd., aided if necessary by the Bridge Point Apts. berm mentioned above. The northerly part of the Valle Del Canto site forms approximately 50 percent of the Bridge Point study's basin OS-4 (OffSite 4), for which that study calculated the existing conditions peak flow as 22.9 cfs. Thus Valle del Canto's "share" of that flow is 11.45 cfs.

The other "major" swale begins near the southwest corner of the site then heads east across the site. It is of considerable interest that the swale begins onsite and does not continue from the intersection of Sunset Gardens and 90th St.. Existing development associated with the junkyard south of Sunset Gardens occupies this corner of the site and some of the Sunset Gardens right of way. Site inspection, current and previous topography, and site photos show that 90th St. has been incised and bermed in this area, and that 90th St. slopes down to the south across Sunset Gardens. Similar evidence shows that there is not much flow in Sunset Gardens west of 90th. What flow there is turns south on 90th St. (rather than continuing east onto the project site) then spills east and overland somewhat south of the fenced part of the junkyard.

The Bridge Point study identified the southern portion of the Valle Del Canto site, including the outlet of the above-mentioned swale, as basin OS-3, with a calculated peak existing conditions flow of 28.9 cfs, and specifically included redirecting this flow through the apartment site.

PROPOSED DEVELOPMENT: Proposed development includes not only all drainage, paving and utilities within the site, but necessary also paving and utilities in the streets surrounding the site. This includes design and paving of adjacent halves of 86th St., 90th St., and Sunset Gardens Rd. as required. The alley north of the site will be paved to convey contributing project flows plus existing condition offsite flows. Storm drain as required for Sunset Gardens will be sized, but probably will be only financially guaranteed for now, rather than being constructed, since there is no downstream drain to connect to yet. This was also done with the Bridge Point Apartments project immediately downstream. (July '97: preliminary sizing for the storm drain is included in this report.)

DRAINAGE DESIGN - GENERAL: Drainage design is per the City of Albuquerque DPM (Development Process Manual). Section 22.2 (Jan, 1993 revision) governs hydrology, and

Section 22.3 governs hydraulics. The basic design storm is the 100-year, 6-hour storm as defined in the DPM. For areas which require ponding without relatively quick outfow (i.e., retention ponding areas) the 100-year 10-day volume as defined in the DPM governs.

Most hydrologic analysis was performed using the computer program AHYMO, as provided for in the DPM. DPM small area methods were used to estimate the 10-day 100-year volume for the offsite retention pond. For the AHYMO runs the appendix includes basin maps, basin parameter listings, routing schematics, and input, summary, and output files. The appendix also contains various maps and hydraulic calculations.

Hydraulic calculations in this report are preliminary and will be finalized for the DRC (Design Review Committee) review, as street grades become final. Several of the hydraulic calculations for flow from the site use a Qpeak of 81.3 cfs. This number is based on the entire site, and development at 30% landscaping and 70% impervious. Actual development is expected to be less than 65% impervious, and not all the site contributes to inlets and outflow pipes. Therefore the sizes shown for 81.3 cfs can be considered conservative estimates.

ONSITE FLOW: The site will be graded so that runoff from within the site will flow to the end of the stub street in the southeast corner of the site, except as noted directly below.

Lots along the northern boundary will have their rear yards discharge to the alley, but their combined flow (approximately 4 cfs) will be less than allowed for this project's portion of Bridge Point's basin OS-4, as mentioned above. The alley will also convey existing conditions offsite flow past the site. (Fully-developed-condition flows probably would exceed alley capacity. It is expected that design of the Bridge Blvd. (Tierra Bayita) storm drain will send all or part of the offsite flows north on 90th to Bridge.)

There is no water block at the main entrance on 86th St.. Flow in excess of the capacity (approximately 2.7 cfs at crown depth) of the west half of Calle Amarillo will flow out the entrance then head south on 86th and east on Sunset Gardens. Peak outflow from the Valle del Canto entrance is approximately 15 cfs. Including street flow from 86th St., approximately 17.6 cfs will flow east on Sunset Gardens from 86th St. north of Sunset Gardens. This is less than the 28.9 cfs analyzed by the Bridge Point study for its Basin OS-3 (the southern 2/3 or so ) of the Valle del Canto Site) under existing conditions.

Until the Sunset Gardens storm drain is built these flows will pass into the Bridge Point Apartment site, as specifically provided for by design of that project. In the future they will be conveyed as street or storm drain flow in the Sunset Gardens system.

Runoff will leave the southeast corner of the Valle del Canto site via a battery of inlets at the end of the stub street. Openings in the CMU (concrete block) wall will provide emergency relief in case the inlets are partly blocked. The combination of inlets and emergency flow openings will provide at least double the capacity required for the 100-year 6-hour storm.

(July '97 revision: The decision to allow some outflow to the main entrance came after most hydraulic calculations had been performed for the outlet from the stub street. The

calculations typically reflect flow from the entire site, either 81.43 cfs for the 30% landscape and 70% impervious land treatment mix assumed early on, or 76.35 cfs for the current 35-65 mix based on a more precise analysis for the project site. Pond, pipe, and inlet design based on the higher flows is adequate for the lesser "actual" flows.)

In the future, the inlets will discharge to a storm drain in Sunset Gardens. The storm drain will extend west of 86th St. only far enough to pick up flow from Valle del Canto. For the present, the discharge will be to a retention pond located at the southwest corner of Sunset Gardens and 86th St. This land is controlled by the same owner as Valle Del Canto. The pond is sized to retain 100 year 10-day developed-condition flow from both Valle Del Canto and the contributing portion of the tract on which the pond will be located. An emergency spillway will direct overflow from extraordinary storms in approximately the historical direction. A small amount of flow from west of the pond will be directed south of the pond, ending up at 86th St. in approximately the same location as if the pond weren't there, based on existing contours.

Preliminary sizing of these facilities (calculations in the appendix) indicates:

* 2 double "C" inlets at the end of the stub street
* Emergency spillway consisting of 30 lf of 8" high openings in wall (in 36 ft R.O.W.)
* 36" RCP from the inlets to the temporary pond or future storm drain
* 42" RCP future storm drain in Sunset Gardens from the stub street to 866h St.
* Inlets in Sunset Gardens as required to dry up +/- 44 cfs (all but +/- 20 cfs of street flow)
* (July '97 revision) 5.53 acre-ft (to crest of spillway) temporary retention pond

(July '97 revision: Preliminary sizes for Sunset Gardens - Unser storm drain. The sizes are based on roughly 18 ft of head loss from pipe friction and 14 feet of "minor' losses from junctions, manholes, bends, etc. See the calculations and the discussion under a separate heading.)

* 42" Sunset Gardens, site stub street to 86th St.
* 48" 86th St, Sunset Gardens to +/- 300 ft south of Sunset Gardens
* 60" Sunset Gardens, 1st 400 ft east of 86th St.
* 66" Sunset Gardens, remaining 700 ft to 82nd St.
* 72" Sunset Gardens, 82nd St to Unser Blvd. (apx 1100 ft)
* 78" Unser, Sunset Gardens to existing 72" stub from Amole Channel (apx 650 ft)

OFFSITE FLOW: Offsite flow analysis conducted for this project is generally in accord with the work Greiner has been doing in regard to the Tierra Bayita Storm drain for fully developed conditions. There are some differences, however. Primarily the basins are divided finer but there are flow path differences, too. South of Sunset Gardens, what was Greiner's single basin 20 becomes basins M, N, and O for future conditions and (approximately) P, Q, And R for existing conditions. North of Sunset Gardens, the existing trailer park between 98th and 94th and between Sunset Gardens and Central is not considered in regard to flow past Valle Del Canto, because it has a retention pond for existing conditions and an approved connection to a future storm drain in Central / Bridge for the future. (July, '97 revision: A previously discussed, per Tower/Sage DMP, Basin M does not contribute for future conditions.)

Valle Del Canto basin B, along Central / Bridge between 94th and 90th, is mostly included in Greiner Basin 16 North. In the future, Basin B may drain directly to the Tierra Bayita storm drain in Bridge, particularly if owners are willing to import fill dirt, but it currently drains toward the alley north of the site, and eventually to Bridge and 86th. That path is assumed and is conservative for the design of the alley for existing conditions offsite flow. For the present study, the rest of the area between 90th and 94th north of Sunset Gardens is divided into Basin G - which drains to the alley, and Basin H - which drains to Sunset Gardens. Basins G and H are within Greiner's basin 16 South, which Greiner shows draining to Sunset Gardens. The project site is also within 16 South. While the exact boundaries of basins B, G, and H may change as development proceeds there areas could easily remain approximately the same. Therefore the basin boundaries were not changed in the AHYMO runs between existing and future conditions.

90th St. will be regraded to have at least the minimum slope required by City standards (0.5% except through vertical curves) and the east side will be paved adjacent to the site (additional temporary pavement will make a total of 24 ft of paving). 90th St. will continue to divert flow past the site west property line, with the control being curb and gutter rather than earth berm. The alley north of the site will be graded and paved to convey the minor site flow plus existing conditions offsite flow as noted above.

Regrading on 90th St. will move the high point near the south end of the site approximately 150 feet north from its present location but the elevation will remain almost the same. The new location is reflected in the drainage analysis for this project. Since all but about the northern 300 feet of frontage on 90th St. opposite the site is within a single tract (current zoning SU-IP) offsite drainage will not be impaired. Regrading will also lower the low point at the alley somewhat. This will help to ensure drainage over the future curb from basins B and G.

South of the proposed crest vertical curve near the south end of the site, 90th St. will slope down to the south at 0.5% past the intersection with Sunset Gardens. Almost all flow from basins H and E+I will spill down Sunset Gardens toward 86th St.; a minor amount on the west side of 90th will continue in the historical direction, to a low point roughly 500 ft. south of Sunset Gardens. Future road design for 90th St. (which might be required in conjunction with development south of Sunset Gardens) might change the location of the low point slightly.

Flow heading east from the low point will have to be controlled by future development near the low point and passed to 86th St. In order for the flow then to get to the Sunset Gardens intersection (and the future Sunset Gardens storm drain as envisioned by all recent analyses in the area, 86th St. would have to be redesigned and rebuilt to accomplish that.

A preliminary analysis for this project indicated that it would not be feasible to use 90th St. to divert flows north to Sunset Gardens. A major part of the reasoning involved the existing development on the west side of 90th (which limits grade changes there) and the amount that the 90th - Sunset Gardens intersection would have to be lowered, given minimum allowable pavement slopes. Note that the area west of 94th and south of Sunset Gardens (basin M future or P existing) drains to an existing "road" that tees into 90th approximately 100 ft south of the existing low spot. Site inspection and photos show this drainage pattern

more clearly than does the 1983 flood map photo-topo, in part because the photo-topo does not indicate the incision or berming of 94th St., particularly the berm on the west side of the road. (July '97: Basin M does not contribute under future conditions.)

STORM DRAIN - SUNSET GARDENS/ UNSER (Section added July '97) Various plans in the area have envisioned a storm drain in heading east in Sunset Gardens then turning north in Unser to join the head of the Amole del Norte channel system on the south side of Bridge Blvd. There is an existing 72-inch pipe stub for the SGU drain and larger stubs for two other systems. When constructed, the drain will provide an outfall for several parcels ripe for development, including Valle del Canto and Canto III, the location of the temporary pond for Valle del Canto.

The appendix contains calculations for approximately 2850 lf of concrete storm drain between the Amole and the Sunset Gardens 86th St intersection. Pipe sizes were indicated above in a 'bulleted' paragraph. The calculations show enough capacity in the pipes to completely contain the 10-year flow. Then the only problem in keeping 1 lane clear in the 10-year storm for collectors and arterials (read 86th St. and Unser Blvd.) will be providing sufficient inlet capacity. Available head was based on "as-built" information obtained from the City of Albuquerque for the upstream end of the Amole channel and for Sunset Gardens between 82nd and 86th St. The hydraulic calculations assume a reasonable amount of street flow with the remainder conveyed in the pipes.

From 86th & Sunset Gardens intersection there will be a short westward extension (+/- 160 ft) to pick up flows from Valle del Canto and to (mostly) dry up street flow in Sunset Gardens. The hydrology included with this report shows that there is no need for a storm drain in Sunset Gardens west of the inflow from Valle del Canto.

The will be a somewhat larger and longer storm drain in 86th St south of Sunset Gardens. Most of the flow will come from the Canto III site. Given the possibility of splitting incoming offsite flow from 90th St (and routing it down two streets) it is possible that there will be only a short extension within Canto III, whose entrance will be roughly 300 ft south of Sunset Gardens. This became significantly more likely when it became clear that Basin M does not contribute flow in the future condition. (Or Basin 'existing' Basin P after construction of 94th St.) Any extension south of Canto III in 86th will be only as required for the "10-year 1-clear" criterion and probably will not exceed 400 feet south of the Canto III boundary.

The hydraulic calculations are based on an AHYMO analysis that is conservative. One aspect is that most areas to be developed as residential were assigned a land mix of 30% landscape and 70% impervious, whereas detailed analysis typically tends toward more landscaping and less impervious area. A second issue is the size of the contributing area, especially near the lower end. The Greiner analysis for the Tierra Bayita Storm Drain assumes that the northerly portion (roughly 200 ft) of the Bridge Blvd frontage between Unser and 82nd St will drain to the Tierra Bayita. It may, particularly if a good source of fill is handy, but the present report sends all that flow the SGU drain. Similarly, the land east of Unser is generally downhill from Unser, and may drain from the downhill side of the lots to the Amole or elsewhere. The present report assumes that a strip along Unser will drain to the SGU system.

END OF REPORT

CANTO III SUBDIVISION

5120

5120

5115

5115

1028.89

APX STOCKPILE LOC
ASSUME APX 20% SHRINKAGE

3H:1V

3H:1V

8'BERM @ 15.5

2H:1V

VOL PROVIDED: 240,701cf
VOL REQUIRED: 200,350cf
(100-YR, 10-DAY)

B

BERM
15.5 FG
39,001sf
45,341sf

SPILL
14.5 FG
37,479sf

BOTTOM
7 FG
26,864sf

TEMPORARY SPILLWAY
26' WIDE x 1' DEEP
C=2.7 => Q=70.2
Qreq'd = 63 cfs

RIPRAP APRON
12"-5" STONE
12x12x18"THK

3H:1V OR FLATTER

SW & HC RAMP

2H:1V

8'BERM @ 15.5

3H:1V OR FLATTER

8' MIN. PL TO BERM

C

526.46'

SUNSET GARDENS ROAD S.W.

VALLE DEL CANTO SUBDIVISION

ROW

NEW CMU WALL

B

NO CROWN AT END OF STREET

DOUBLE 'C' INLET, TYP OF 2

ROW, STUB STREET

APX LOCATION
36" RCP OUTLET
PIPE FROM VALLE
DEL CANTO

86TH STREET S.W.

SEE DRC INTERSECTION DESIGN FOR GRADES AT HC RAMP. DESIGN GRADES LOWER THAN EXISTING

12

CONCEPTUAL TEMPORARY OFFSITE RETENTION POND
FOR RUNOFF FROM VALLE DEL CANTO SUBDIVISION
SEE CONSTRUCTION PLANS FOR SECTIONS SHOWN (A,B,C)

0 20 50 100

DWG: C:\ACAD\VC\VCOFPD DATE: 07/25/97 TIME: 07:32 T. GREEN

R Y A L S engineering & construction services
5301 Central NE Ste 913 (505) 256-4701 Office
Albuquerque, NM 87108 (505) 239-4726 Mobile

REVISED 8-13-97

PLATE 1

# PRELIMINARY GRADING AND DRAINAGE PLAN
# VALLE DEL CANTO SUBDIVISION

JUN 30 1997
HYDROLOGY SECTION

BASIN III 3.75 cfs

BASIN II

BASIN I

52.6 cfs

VIA DEL ORO ( PRIVATE STREET )

CALLE DEL REY ( PRIVATE STREET )

SAN TOMAS LANE ( PRIVATE STREET )

VISTA DEL ANGEL ( PRIVATE STREET )

CALLE AMARILLO ( PRIVATE STREET )

LA VIDA AVENUE ( PRIVATE STREET )

SUNSET GARDENS ROAD

90TH STREET

86TH STREET

SU-2 IP CITY

BRIDGE POINT APARTMENTS
SU-1/PRD/20 DU/ACRE

A-1 SU PERMIT COUNTY WRECKING YARD AND MH

FUTURE POND

2' RETAINING WALL

PERIMETER WALL

5' LANDSCAPE STRIP

22' PRIVATE ACCESS EASEMENT

6' PEDESTRIAN GATE

6' PEDESTRIAN EASEMENT

6' LANDSCAPE EASEMENT

10' PEDESTRIAN ACCESS

TRACT A GRADING EASEMENT SEE NOTE NO.

SECURITY GATES SEE NOTE NO. 3

PROPOSED 24' F-CURB RES. PAVING C/G N. SIDE ONLY. 4' SIDEWALK

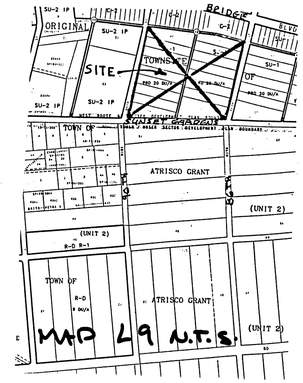
PROPOSED 24' F-CURB RES. PAVING SIDEWALK

EXISTING 60' ROW

PROPOSED 58' ROW

PROPOSED 28' ROW

EXISTING 80' ROW




SCALE:
HORIZ. 1"=50'

N

## LEGEND

- 5180 — 5' CONTOUR
- 5181 — 1' CONTOUR
- 0.00 X SPOT ELEVATION
- STORM DRAIN MANHOLE
- STORM DRAIN
- EXISTING SAS MH
- —E— OVERHEAD ELECTRIC
- POWER POLE
- POWER POLES
- TC=92.42 FL=91.89 EXISTING TOP OF CURB AND FLOWLINE ELEVATIONSAND
- PTC=92.42 PROPOSED TOP OF CURB
- A RETAINING WALL 18" OR LESS
- A RETAINING WALL 18" OR MORE
- BASIN BOUNDARY

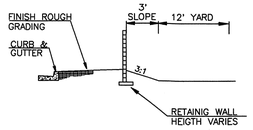
ROBERT RYALS
NEW MEXICO
9436
REGISTERED PROFESSIONAL ENGINEER
Date

DWG:F:\WORK\NICK\CANTO\DRB\REPORT DATE06/27/97 TIME:16:44 RYALS Engineering-B


RYALS engineering & construction services
5301 Central Ave. Albuquerque, NM 87108
(505) 256-4701 239-4726 mobile telephone

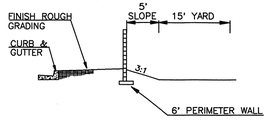

SHEET NO. 1 OF 1

COMPACT SLOPE TO 90% OF OPTIMUM USING PLACEMENT EQUIPMENT WHEELS AS REQUIRED




SECTION "A–A" NTS
(LOTS 9–17, BLOCK 6)

COMPACT SLOPE TO 90% OF OPTIMUM USING PLACEMENT EQUIPMENT WHEELS AS REQUIRED




SECTION "B–B" NTS
(LOTS 5–8, BLOCK 6)




FUTURE VALLE DEL CANTO UNIT III

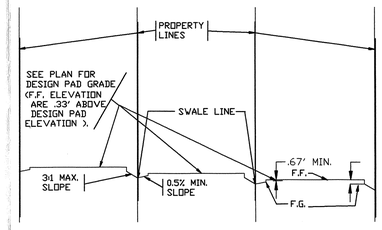
NOTE
MAXIMUM COMBINED HEIGHT OF GARDEN WALL PLUS RETAINING WALL MUST NOT EXCEED 8 FEET UNLESS A VARIANCE IS APPROVED THROUGH THE C.O.A. ZONING HEARING EXAMINER.

## GENERAL NOTES

1. THE CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS TO COMPLY WITH EARTHWORK SPECIFICATIONS AS NOTED IN THE SOILS REPORT SUPPLIED BY THE OWNER.
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST CONTROL MEASURES AND REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE CONSTRUCTION SITE. EROSION CONTROL MEASURES ARE INTENDED TO CONTROL MINOR FLOWS AND PROHIBIT THE RELEASE OF SEDIMENT INTO ADJACENT STREETS AND PROPERTY. TEMPORARY EROSION CONTROL BERMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAIL ON THIS GRADING PLAN AT LOCATIONS SHOWN.
5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TEMPORARY BERMS THROUGHOUT THE CONSTRUCTION PHASE. THE OWNER WILL MAINTAIN BERMS AFTER COMPLETION AND ACCEPTANCE OF CONSTRUCTION.
6. TEMPORARY EROSION CONTROL BERMS LOCATED ON INDIVIDUAL LOTS SHALL REMAIN IN PLACE UNTIL THE CONSTRUCTION OF EACH RESPECTIVE BUILDING IS COMPLETED ON A LOT BY LOT BASIS.
7. THE TOLERANCES FOR ROUGH GRADING SHALL CONFORM TO THE FOLLOWING:

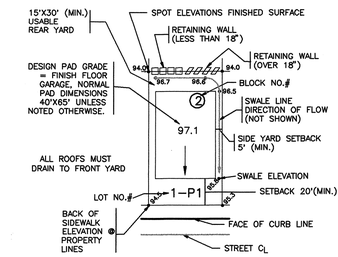
   PAD SUBGRADE: ± 0.1'
   STREET SUBGRADE: ± 0.1'
   ALL OTHER AREAS: ± 0.3'

8. THERE ARE EXISTING WALLS LOCATED ADJACENT TO THIS PROJECT. ANY WALLS DAMAGED OR REMOVED BY THE CONTRACTOR DURING THE CONSTRUCTION ACTIVITIES SHALL BE REINSTALLED OR REPLACED BY THE CONTRACTOR TO AN EQUAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE OWNER.
9. EARTH WORK OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE EARTHWORK SPECIFICATIONS CONTAINED IN THE SOIL AND FOUNDATION INVESTIGATION REPORT PREPARED BY FOXCONSULTING ENGINEERS & GEOLOGISTS DATED OCTOBER 14TH, 1980.
10. FOR ALL RETAINING WALLS GREATER THAN 18", A BUILDING PERMIT MUST BE OBTAINED FROM THE CITY OF ALBUQUERQUE CODE ADMINISTRATION DIVISION.




TYPICAL LOT SECTION

NTS




TYPICAL LOT DETAIL

SCALE–1"=50'
0 25 50

## LEGEND

- –5180– 5' CONTOUR
- –5181– 1' CONTOUR
- 0.00 X SPOT ELEVATION
- STORM DRAIN MANHOLE
- STORM DRAIN
- EXISTING SAS MH
- –E– OVERHEAD ELECTRIC
- POWER POLE
- POWER POLES
- TC=92.42 FL=91.89 EXISTING TOP OF CURB AND FLOWLINE ELEVATIONS AND
- PTC=92.42 PROPOSED TOP OF CURB
- RETAINING WALL
- COMBINATION RETAINING/GARDEN WALL
- 6' CEDAR FENCE
- 6' BLOCK WALL W/ STOCCO

AS BUILT INFORMATION

| | | DATE |
|---|---|---|
| CONTRACTOR | | |
| WORK STAKED BY | | |
| INSPECTION & ACCEPTANCE BY | | |
| FIELD VERIFICATION BY | | |
| DRAWINGS CORRECTED BY | | |
| RECORDED BY | | |

BENCH MARKS

CITY OF ALBUQUERQUE SURVEY MONUMENT

ACS CAP "7–K9"
ELEV. = 5137.36

SURVEY INFORMATION

FIELD NOTES

| NO. | BY | DATE |
|---|---|---|

ENGINEER'S SEAL

ROBERT RYALS NEW MEXICO 9436 REGISTERED PROFESSIONAL ENGINEER
7-25-97

| NO. | DATE | REMARKS | BY |
|---|---|---|---|
| | | REVISIONS | |
| | | DESIGN | |

DESIGNED BY RBR, HFB, CC DATE
DRAWN BY HFB, CC DATE
CHECKED BY DATE

DWG:F:\WORK\NICK\CANTO\DRC\DG2A DATE07/25/97 TIME:16:14 RYALS Engineering–HB


RYALS
engineering & construction services
5301 Central, N.E.
Albuquerque, NM 87108
(505) 256–4701
239–4726 mobile telephone

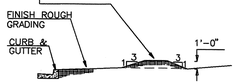

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: VILLA DEL CANTO SUBDIVISION
GRADING AND DRAINAGE PLAN
(WEST SIDE)

| Design Review Committee | City Engineer Approval | Last Design Update | Mo./Day/Yr. | Mo./Day/Yr. |
|---|---|---|---|---|
| | | | | |

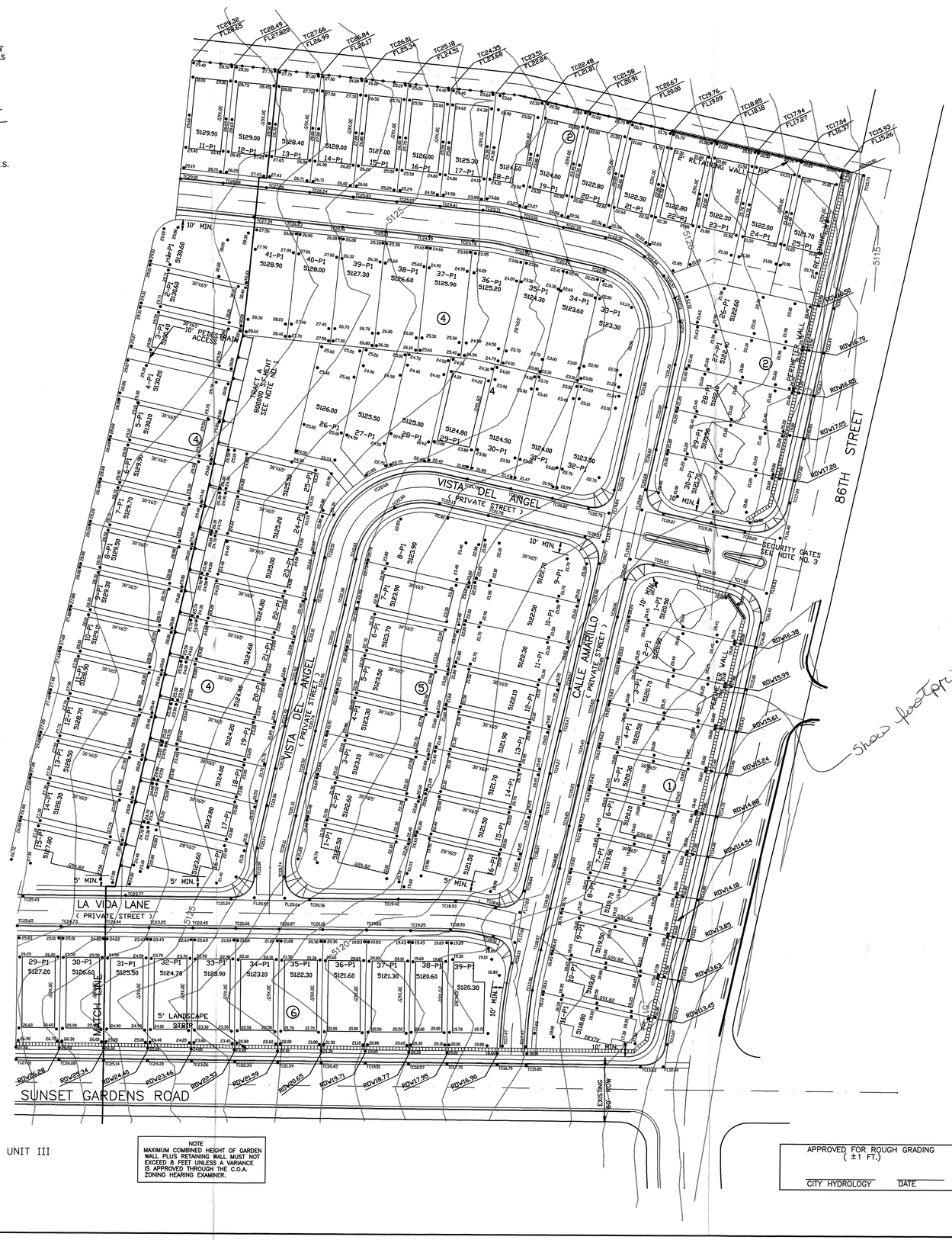
| City Project No. | Zone Map No. | Sheet | Of |
|---|---|---|---|
| XXXXXX | L–9 | 1 | 3 |

TEMPORARY EROSION CONTROL BERM
COMPACT BERM TO 90% OF OPTIMUM USING PLACEMENT EQUIPMENT WHEELS AS REQUIRED




EROSION CONTROL BERM
TYPICAL SECTION THROUGH BERM N.T.S.

EROSION CONTROL BERMS ARE TO BE INSTALLED ON ALL LOTS ADJACENT TO THE PROPOSED STREETS OF THIS PROJECT, AND FOR THE 1ST 25' BACK FROM THE CURB ON EVERY FIFTH LOT




FUTURE VALLE DEL CANTO UNIT III

NOTE
MAXIMUM COMBINED HEIGHT OF GARDEN WALL PLUS RETAINING WALL MUST NOT EXCEED 8 FEET UNLESS A VARIANCE IS APPROVED THROUGH THE C.O.A. ZONING HEARING EXAMINER.

APPROVED FOR ROUGH GRADING
( ±1 FT.)

CITY HYDROLOGY DATE

## CONSTRUCTION NOTES

1. BACKYARDS OF LOTS 1 THRU 25, BLOCK 2 DRAIN TO ALLEY AT LOW POINT OF BACKYARD.

## DRAINAGE BASIN NOTES

1. BASIN I INCLUDES BACKYARDS OF LOTS 1 THRU 25, BLOCK 2 TOTAL BASIN DISCHARGE IS 3.75 CFS TO THE ALLEY.
2. BASIN II DISCAHRGES 15 CFS TO 86TH STREET VIA VISTA DEL ANGEL, THE REMAINDER FLOWS TO BASIN I ON CALLE AMARILLO.
3. BASIN III DISCAHRGES 57.6 CFS TO SUNSET GARDENS VIA CALLE AMARILLO.

SURVEY INFORMATION
FIELD NOTES

| NO. | BY | DATE |
|---|---|---|

BENCH MARKS
CITY OF ALBUQUERQUE SURVEY MONUMENT "NM47-12" , LOCATED 1200' NORTH OF PHOENIX, ON MEDIAN OF 2ND STREET NW.
ELEV. = 4967.899

AS BUILT INFORMATION

| | |
|---|---|
| CONTRACTOR | DATE |
| WORK STAKED BY | DATE |
| FIELD CHECKS BY | DATE |
| ACCEPTANCE BY | DATE |
| FIELD LOCATION BY | DATE |
| DRAWINGS CORRECTED BY | DATE |

MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

ENGINEER'S SEAL
ROBERT RYALS NEW MEXICO 9436 REGISTERED PROFESSIONAL ENGINEER
7-25-97

| NO. | DATE | REMARKS | BY |
|---|---|---|---|
| | | REVISIONS | |
| | | DESIGN | |
| | | DESIGNED BY RBR, HFB, CC | DATE |
| | | DRAWN BY HFB, CC | DATE |
| | | CHECKED BY | DATE |

DWG:F:\WORK\NICK\CANTO\DRC\DG2B DATE07/25/97 TIME:16:25 RYALS Engineering-HB


RYALS
engineering & construction services
5301 Central, N.E.
Albuquerque, NM 87108
(505) 256-4701
239-4726 mobile telephone

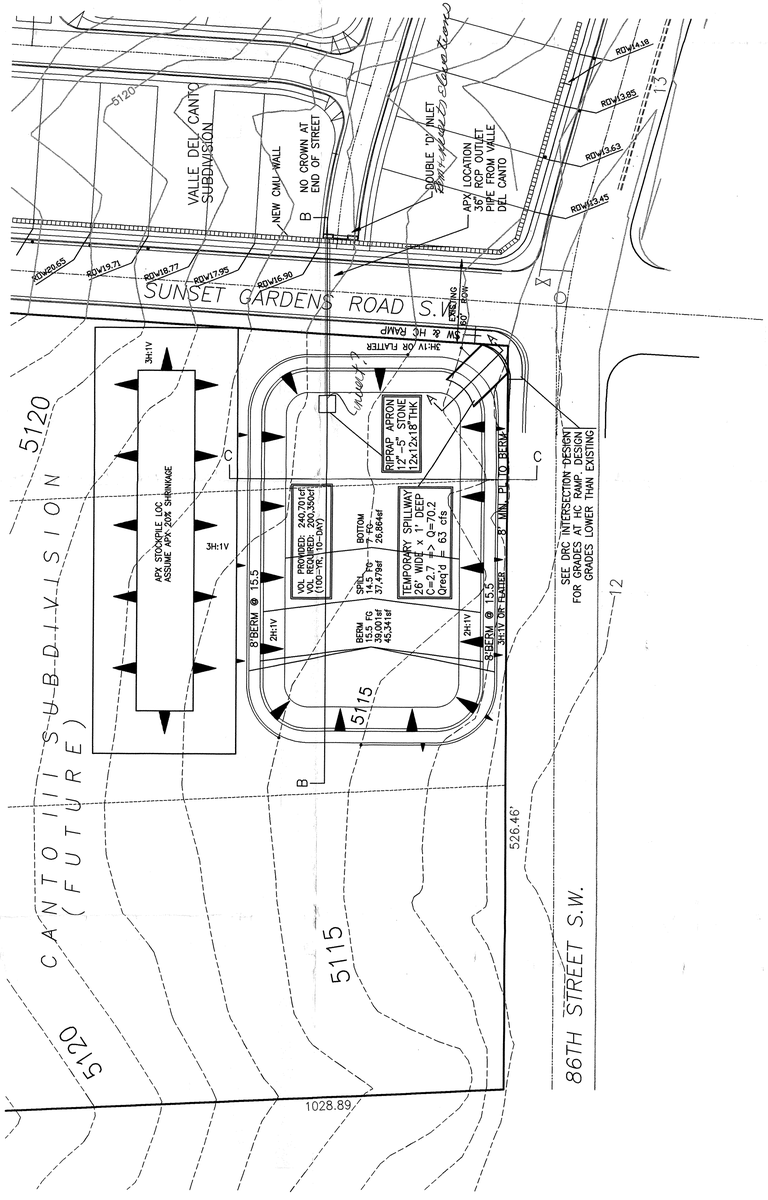

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

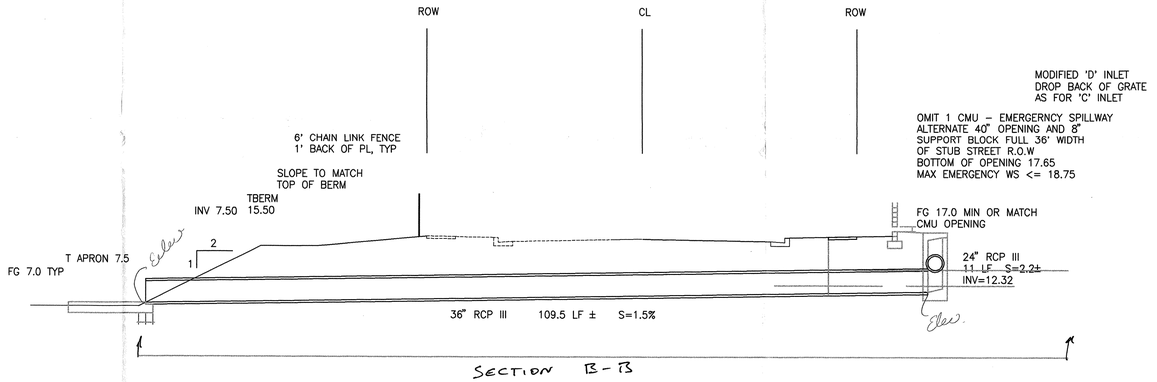
TITLE: VILLA DEL CANTO SUBDIVISION
GRADING AND DRAINAGE PLAN
(EAST SIDE)

| Design Review Committee | City Engineer Approval | Last Design Update | Mo./Day/Yr. | Mo./Day/Yr. |
|---|---|---|---|---|
| | | | | |

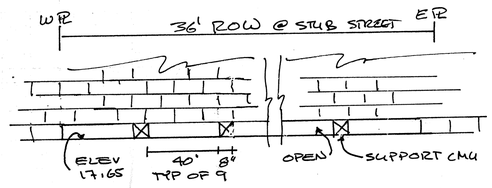
| City Project No. | Zone Map No. | Sheet | Of |
|---|---|---|---|
| XXXXXX | L-9 | 2 | 3 |

NOTE
MAXIMUM COMBINED HEIGHT OF GARDEN WALL PLUS RETAINING WALL MUST NOT EXCEED 8 FEET UNLESS A VARIANCE IS APPROVED THROUGH THE C.O.A. ZONING HEARING EXAMINER.




? install curb
type "C"




9 SETS OF 40" OPENING + 8" SUPPORT 36'
WALL BELOW OPENING & FENCING NOT SHOWN

EMERGENCY SPILLWAY
AT STUB STREET NTS

A-A?
Label

AS BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY
INSPECTED BY DATE
ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS
CITY OF ALBUQUERQUE SURVEY MONUMENT
"7-K9", LOCATED
ELEV. = 5137.36

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
ROBERT RYALS NEW MEXICO 9436 REGISTERED PROFESSIONAL ENGINEER
7-25-97

NO. DATE REMARKS BY
REVISIONS
DESIGNED BY RBR, HFB, MJC DATE
DRAWN BY HFB DATE
CHECKED BY DATE

RYALS
engineering & construction services
5301 Central, N.E.
(505) 256-4701
Albuquerque, NM 87108
239-4726 mobile telephone

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: VALLE DEL CANTO SUBDIVISION
DRAINAGE POND AND DETAILS

| Design Review Committee | City Engineer Approval | Last Design Update | Mo./Day/Yr. | Mo./Day/Yr. |
|---|---|---|---|---|
| | | | | |

| City Project No. | Zone Map No. | Sheet | Of |
|---|---|---|---|
| | K-9;L-9 | 3 | 3 |