

NEC OF 83RD AVENUE & HATCHER ROAD

PLANNED AREA DEVELOPMENT
Z-00-13

MAY 2001
JULY 2001
April 2002
May 2002
August 2003

MADISON ESTATES

STANDARDS AND GUIDELINES REPORT

Prepared For:

City of Peoria
Community Development Dept.
8401 West Monroe Street
Peoria, AZ 85345

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PLANNED AREA DEVELOPMENT
APPROVAL

P/Z Commission Date 8/19/03
City Council Approval Date _____


Planner



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LEGAL DESCRIPTION

A PORTION OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 26,
TOWNSHIP 3 NORTH, RANGE 1 EAST, OF THE GILA AND SALT RIVER BASE AND
MERIDIAN, CITY OF PEORIA, MARICOPA COUNTY, ARIZONA.

(SEE FOLLOWING TWO PAGES FOR FULL LEGAL DESCRIPTION)

LEGAL DESCRIPTION

PARCEL NO. 1

A portion of the Southwest quarter of Section 26, Township 3 North, Range 1 East, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, described as follows:

BEGINNING at the West quarter corner of said Section 26;

thence South along the West line of said Section 26, 332.00 feet to the TRUE POINT OF BEGINNING;

thence North 88 degrees 11 minutes 00 seconds East 233.00 feet;

thence South 100.00 feet;

thence South 88 degrees 11 minutes 00 seconds West 233.00 feet;

thence North along the West line of said Section 26, a distance of 100.00 feet, to the TRUE POINT OF BEGINNING;

EXCEPT the West 33.00 feet thereof.

PARCEL NO. 2

The North half of the Southwest quarter of Section 26, Township 3 North, Range 1 East, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona;

EXCEPT the West 33.00 feet thereof; and

EXCEPT the following described property;

Beginning at the West quarter corner of said Section 26;

thence South along the West line of said Section 26, 332.00 feet to the TRUE POINT OF BEGINNING;

PARCEL NO. 2 CONTINUED

thence North 88 degrees 11 minutes 00 seconds East 233.00 feet;

thence South 100.00 feet;

thence South 88 degrees 11 minutes 00 seconds West 233.00 feet;

thence North along the West line of said Section 26, a distance of 100.00 feet, to the TRUE POINT OF BEGINNING; and

EXCEPT that portion of the Southwest quarter of Section 26, Township 3 North, Range 1 East, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, more particularly described as follows;

COMMENCING at the Southwest corner of said Section 26;

thence North 00 degrees 00 minutes 00 seconds East along the West line of said Section 26, also being the centerline of 83rd Avenue, a distance of 2638.75 feet;

thence North 88 degrees 13 minutes 22 seconds East, a distance of 2653.74 feet to the center of Section 26, a point on the centerline of 79th Avenue and the POINT OF BEGINNING;

thence South 00 degrees 00 minutes 20 seconds East a distance of 1318.75 feet; thence North 00 degrees 00 minutes 10 seconds East a distance of 596.87 feet to a point on a tangent curve concave Southwesterly, having a radius of 700.00 feet;

thence Northwesterly along the arc of said curve through a central angle of 91 degrees 46 minutes 48 seconds an arc distance of 1121.30 feet to a point on a tangent line;

thence North 88 degrees 13 minutes 22 seconds East, a distance of 2048.96 feet to the POINT OF BEGINNING

OWNER OF RECORD

Principal Owners: Madison Diversified 883 Corporation
20707 24th Avenue
Langley, British Columbia
Canada V2Z 2B4

Interested Party: KB Home Phoenix, Inc.
432 N. 44th Street
Suite 200
Phoenix, AZ. 85009
Att: Chris Lindahl
W (602) 306-4000 ext. 309

OVERVIEW

Purpose

This Madison Estates Standards and Guidelines Report has been revised to amend two (2) of the P. A. D. standards originally prepared by Core Group Consultants for the property owner, and approved by City of Peoria Council for this project.

These proposed amendments to the P. A. D. are related to two (2) specific issues. The first proposed change is related to the ability for all homes within the development to incorporate a useable (approximately 80 S.F.) rear patio. The second proposed modification provide the ability for the project site to be improved in 2 phases, rather than the entire project site being developed in 1 phase.

Project Location

The project is located north of Hatcher Road and east of 83rd Avenue. 81st Avenue will be the east boundary of the property. Mountain View Road will be the northern boundary. A vicinity map is attached as Exhibit A-1.

Project Description

Madison Estate is a 36 acres parcel of land located at the north-east corner of 83rd Avenue and Hatcher Road in the City of Peoria. A location plan is attached. The proposed development consists of 33 cluster style and 21-single family lots designed in conformance with the proposed P.A.D. zoning on the property (City Case #Z-00-13).

The site is currently bound to the north by a 10-foot dirt ditch and a 12-foot dirt road (Mountain View Road) located on the south side of the ditch. The site is bound on the west side by a 6-foot to 10-foot dirt irrigation ditch and 83rd Avenue, which is currently paved to half road interim standard. It is bound on the east side by a 12-foot dirt road (81st Avenue), and a 5-foot concrete irrigation ditch located on the west side of the road. It is bound to the south by Hatcher Road, which is currently built to half paved to half road interim. The north, west, and east ditches will remain and be tiled off by SRP, with the north ditch intercepting flows from the north. The proposed development will complete both Hatcher Road and 83rd Avenue to full width construction with 81st Avenue and Mountain View Road completed to half road standard.

Zoning History

The existing zoning is AG. The proposed P.A.D. consists of single-family residential and the density is in conformance with the City of Peoria's Comprehensive Land Use Master Plan.

Phasing

With this P. A. D. Amendment, KB Home is proposing to include the ability to Phase the development as illustrated by the attached exhibit A-2. Please see attached project phasing exhibit. This phasing will meet all required standards of the City of Peoria Engineering Department for water, sewer, and other engineering requirements. The engineering improvement plans will also be revised to incorporate said phasing, and will be submitted to the City Engineering Staff for review and approval. The proposed phasing has addressed all issues related to traffic circulation and emergency vehicle access. Also, the proposed phasing has been designed to accommodate all planning and engineering requirements related to sanitary sewer and storm water retention volume. Prevention of sediment transportation in the storm drainage related to the development overall and its phasing has also been addressed.

Exhibit A-1 - Vicinity Map

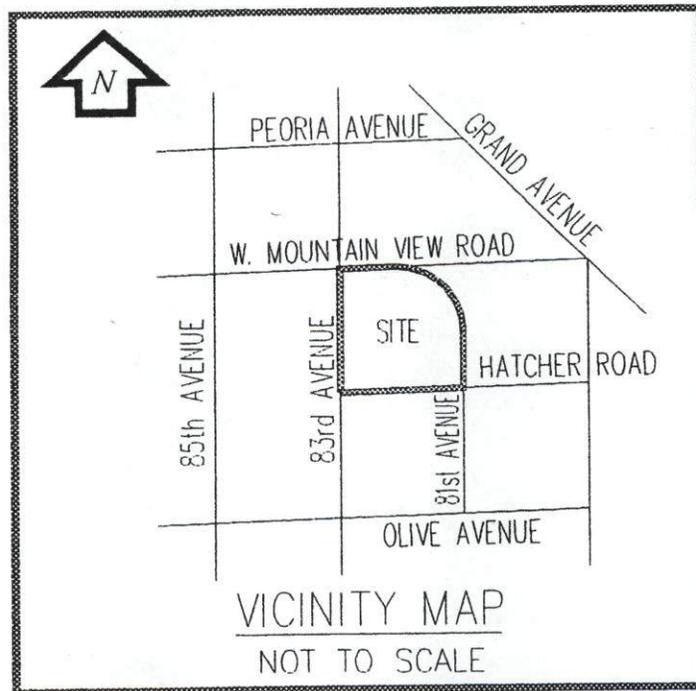
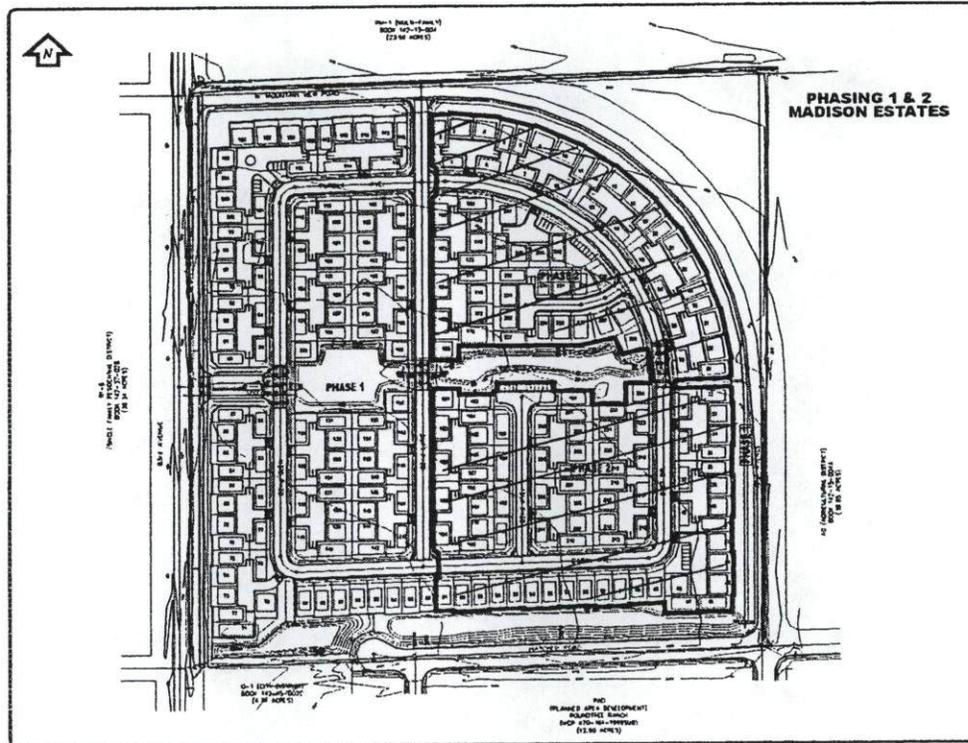


Exhibit A-2 - Phasing Plan



SITE CONDITONS

Surrounding Land Uses

Agriculture land use is adjacent to the property along the eastern boundary. Adjacent to the west is an R1-6 (single-family residential district) zoned parcel. Adjacent to the north is a RM-1 (multi-family residential district) zoned parcel. Adjacent to the south is an O-1 (office district) zoned parcel and a P.A.D. (planned area development) parcel. The adjacent Land Use Map is shown in Exhibit B.

Existing and Proposed Area Circulation

Primary transportation corridors in the area include 83rd Avenue running north-south and Hatcher Road running east-west. Regional transportation is provided by the Agua Fria Freeway (Loop 101) which runs north-south approximately one mile west of the site. 81st Avenue will extend to the north and allow access

to the east. Mountain View Road will extend from the west at 83rd Avenue and from the northern boundary of the site. The 81st Avenue alignment will connect Hatcher Road and Mountain View Road.

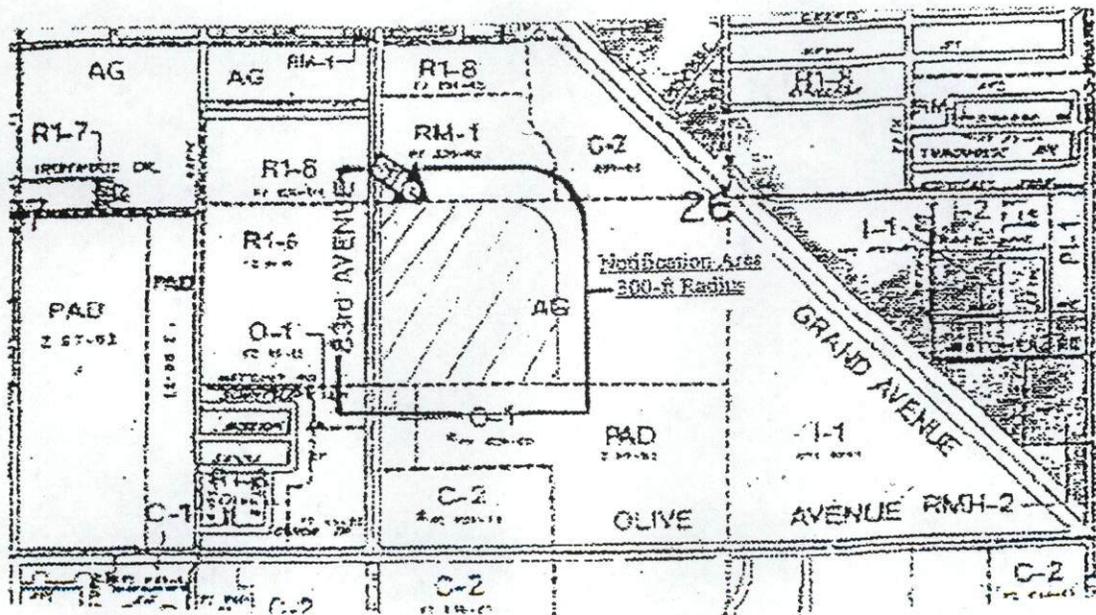
This particular site is slated for High Density Residential (10-15 du/acre) in the City of Peoria General Land Plan. Our proposal for this site does not entirely incorporate the High Density Residential land use criteria as we are illustrating a single-family detached community and a high density designation usually incorporates a multi-family community. We are proposing a development with a lower density than allotted for but in retrospect our proposal does reflect the City's main goals and objectives for residential land use by incorporating:

- Owner-occupied housing designed for small family units
- Residential uses
- Small lots with single family detached housing
- A gross density of approximately 6.67 du/acre

Our proposal for this site does not entirely incorporate the High Density Residential land use criteria as we are illustrating a single family detached community and high density would incorporate a multi-family community.

The existing land use designation does support and incorporate well with the surrounding neighborhood and associated land uses. Although, as we have stated above, the need and want for a single family residential subdivision for this parcel of land would greatly support a market for economic growth for this area of the City of Peoria.

Exhibit B - Adjacent Land Use



Community Services

Fire and police protection will be provided by the City of Peoria. Schools in the area are administered and operated by the Peoria Unified School District No. 11.

Drainage

The subject property is relatively flat, sloping southwesterly at approximately 0.41%. The subject property is categorized Zone X on the Flood Insurance Rate Maps. The majority of offsite water enters the site from the north and east primarily in an unconcentrated fashion. The property is currently cultivated farmland and is bordered on the north and west by farmland, industrial to the east, and a residential development to the south.

UTILITIES

Sanitary Sewer

There is an existing 15" sanitary sewer line in 83rd Avenue, an existing 8" sanitary sewer line in Hatcher Road, and an existing 10" sanitary sewer in 81st Avenue. The project will be serviced by a connection to the existing 15" sanitary sewer in 83rd Avenue.

Natural Gas

Natural Gas is available in Olive Avenue from a Southwest Gas line.

Water

There is an existing 8" water line in 83rd Avenue, an existing 12" water line in 81st Avenue, and an existing 8" water line in Hatcher Road. The project will be serviced by a connection to the existing 12" water line in 81st Avenue.

Telephone

Qwest communications will be supplying the telephone service to the area.

Electric Power

Electric power will be supplied by Arizona Public Service (APS). APS's main distribution power lines run along Olive Avenue. All overhead lines less than 69kv shall be installed underground. The project will be serviced by a connection on Hatcher Road.

LAND USE PLAN

The development plan for this P.A.D. is intended to provide uses and residential densities that are compatible with the requirements and demands of today's market place, while complying with the long-range goals of the city of Peoria's Comprehensive Master Plan.

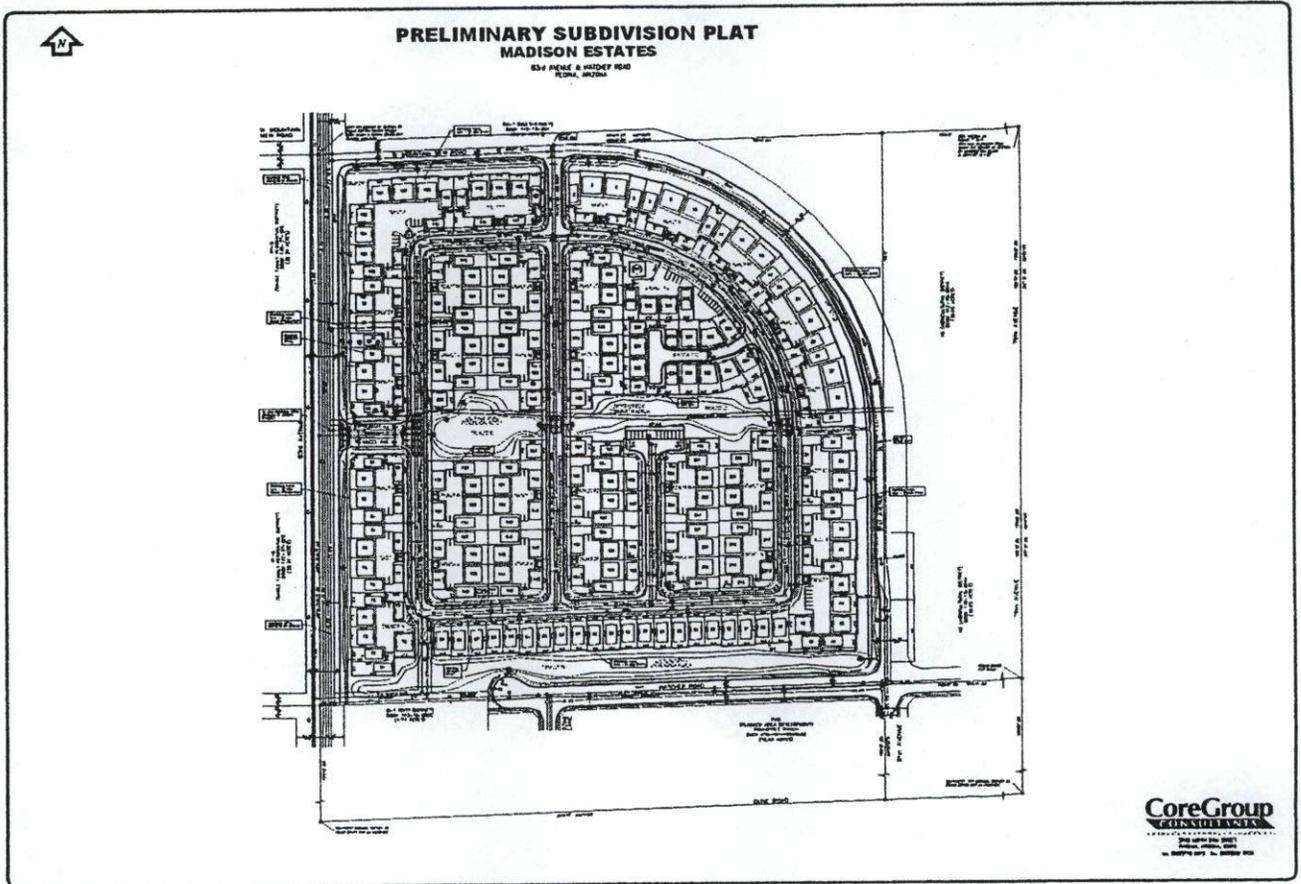
The P.A.D. has a total gross area of 36.56 acres. The Preliminary Development Plan can be found as Exhibits C. The project is proposed as a single-family residential development with open space amenities. Table 1, below, is a Land Use Summary. The table reflects the use, the acreage, and the total number of residential units by lot numbers.

TABLE 1 - LAND USE SUMMARY

# of Lots	Lot Square Footage		Acres	DU/Acre (Gross)
	Single Family	Cluster - Style		
10	3122		0.72	
10	3142		0.72	
1	3240		0.07	
6		2730	0.38	
109		2731 - 2798	6.88	
19		2800 - 2896	1.23	
9		2906 - 2997	0.63	
13		3005 - 3095	0.91	
11		3102 - 3195	0.78	
23		3207 - 3299	1.71	
10		3319 - 3375	0.80	
12		3443 - 3478	0.96	
2		3551 - 3553	0.16	
3		3647 - 3662	0.24	
1		3717	0.09	
1		3843	0.09	
2		3900 - 3912	0.18	
1		4023	0.09	
1		4942	0.11	
Interior streets			5.71	
Open Space			5.52	
Landscaped area/Walkway			0.61	
Cluster Common Area			4.69	
Off-site roads			3.28	
Gross Site Area			36.56	
Total Lots = 244				6.67

Average Lot Size - 2,985 ft²

EXHIBIT C - PRELIMINARY SITE PLAN



The amenities of the project include open space in the southwest corner, and two open space areas in the central location of the project.

Single-family parcels of varying lot sizes are proposed throughout the 83rd Ave. & Hatcher Road community to provide a choice of homes, with varying price for homeowner.

SINGLE FAMILY RESIDENTIAL DEVELOPMENT

Development Standards

Unless otherwise specified herein, all properties within this subdivision shall conform with all City of Peoria codes, ordinances and regulations for single-family residential districts. Table 2, below, represents the minimum development standards for single family residential lots.

	P.A.D.				R1-6 Requirements
Total Area	36.56 acres				
Percent of Total Site	100%				
	Single Family Lots	Cluster Lot			
		A	B	C	
Min. Lot Size	3120 SF	2730	2730	2730	6000 SF
Min. Lot Width	40 feet	35'	35'	35'	50 feet
Min. Lot Depth	78 feet	52'	52'	52'	100 feet
Front Setback	20 feet	5'	5'	5'	20 feet
Side Setback (Min.)	5 feet	3'	3'	3'	5 feet
Side Setback (Total)	13 feet	8'	10'	10'	13 feet
Rear Setback	15 feet	15' *	15' *	15' *	15 feet
Perimeter Setback	20 feet	20'	20'	20'	20 feet
Max. Bldg. Height	25 feet				25 feet
Number of Lots	244				n/a
DU/Acre	6.67				n/a
Open Space	11.2%				11%
Lot Coverage	60%				

* Denotes that patios may encroach into building setback by 5' maximum; therefore minimum rear setback from the property line to patio for cluster lots can be 10'.

Group Care Facilities or Community Residential Setting Facility subject to the following conditions. (Ord. No. 97-41)

1. No identification from a public street by signage, graphics, display or others visual means.
2. All vehicular access to the facility shall be from arterial or collector streets.
3. Compliance with the standards of this Chapter, and all building and fire codes.
4. Provide a six (6) foot high solid (opaque) fence or wall between all outdoor recreation areas and adjacent properties.
5. No such facility is located on a lot with a property line within One Thousand, Three Hundred Twenty (1,320) feet, measured in a straight line in any direction, of the lot line of another facility or group home.
6. In the event that the appropriate state licensing agency revokes or terminates an applicants license, the conditional use permit issued by the city shall be deemed to be revoked as of the date of the license revocation or termination.

The Auto Court

The Cluster concept, or auto court concept, places neighborhood enclaves consisting of 6 or more homes utilizing the auto court. This gives every homeowner a sense of living in a cul-de-sac environment, which is a desired living environment in all neighborhoods. Two out of the 6 homes within the cluster can park in front of the garages while 4 open parking spaces are provided within each cluster. The development provides on street and auto court open space parking as well as each home containing a two-car garage. A detail of a typical auto court cluster for this development is shown in Exhibit D-1,2 & 3.

An existing example of a development with an auto court design is the Casa Del Rockridge subdivision in Phoenix, Arizona as shown in Exhibit E. This development has been prosperous and is functioning well.

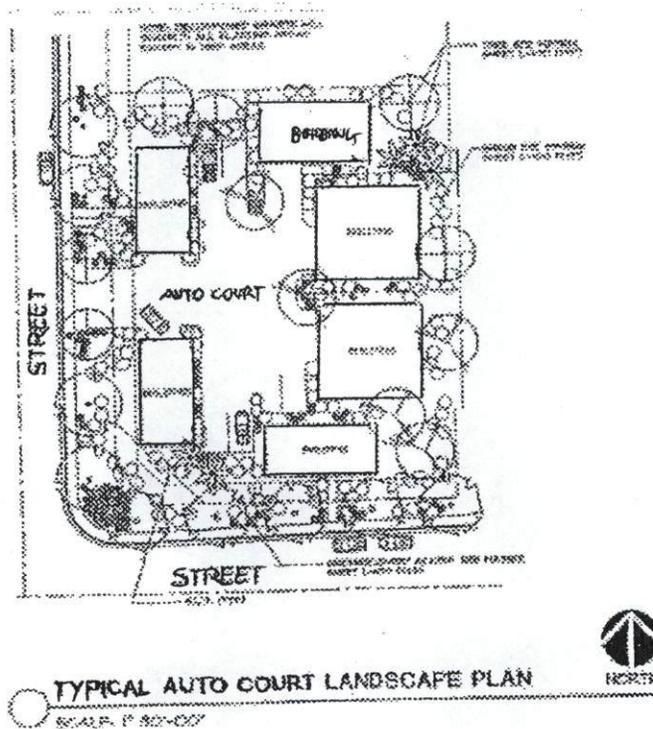
Architectural Character

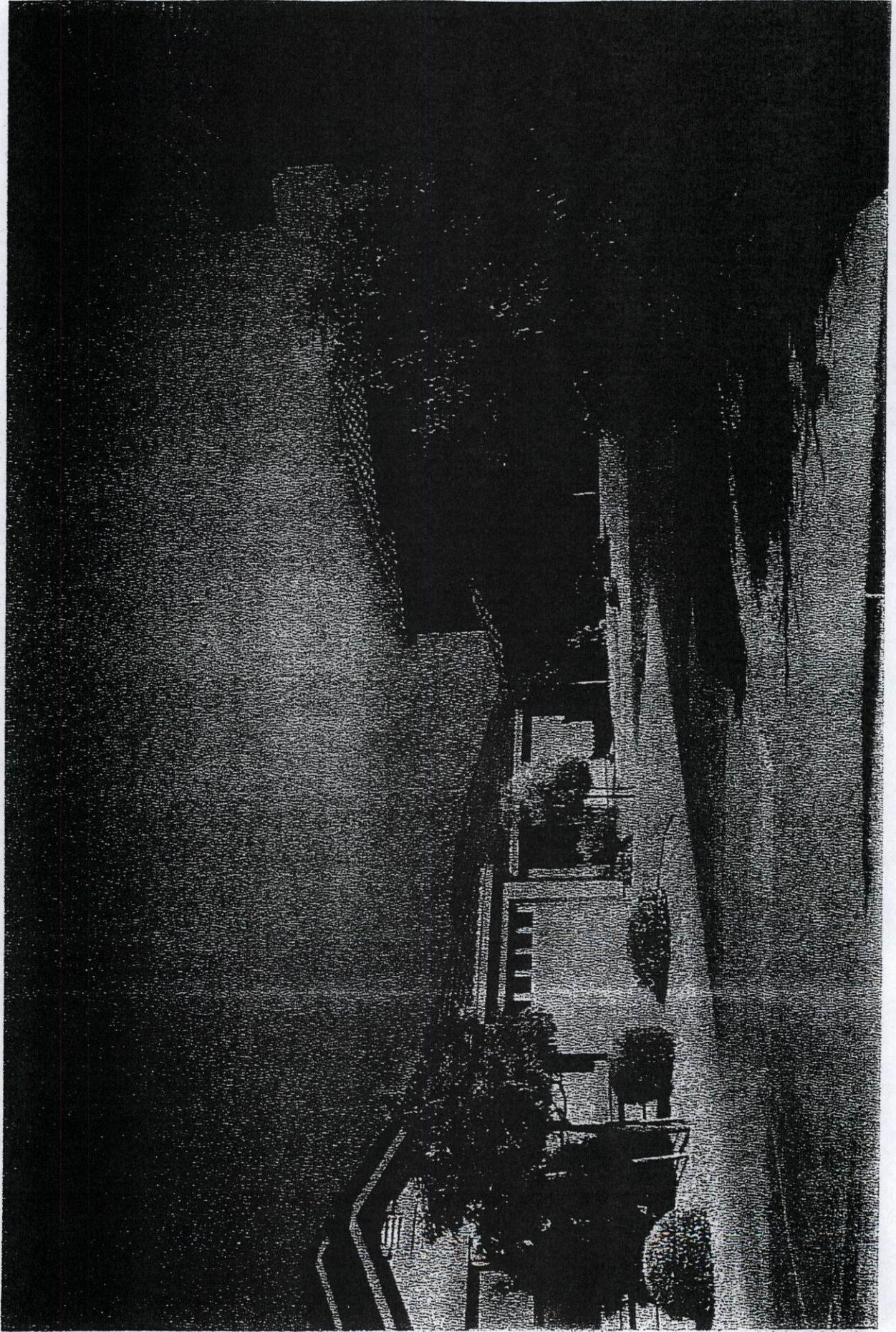
The architecture de-emphasizes attention to the garage and redirects the attention to the architecture of the home and the neighborhood street scene. The auto court concept places fewer driveway cuts on the internal streets, which enables an enhanced street scene and reveals more architecture verses garage doors. In a traditional subdivision with the garage doors facing the street, the garage door is more apparent than the architecture of the home. Therefore, by utilizing the auto-court concept, the variety in architecture, as well as the architectural details, are more prevalent in the street scene. This development will fully comply with the City of Peoria Design Review Manual.

KB Home is in the process of developing architectural plans for this project based on the floor plans that were originally submitted with the Madison Estates Standards and Guidelines Report. These building plans are being specifically developed for this project by KB Home Corporate Architecture Department.

The Housing product will range in overall size from approximately 1200 S.F. to 2300 S.F. The homes will incorporate external architectural enhancements such as "architecturally stylized" or "themed" elevations, aesthetically enhances entryways, varied rooflines, and other architecturally enhances external treatments, which reinforce the sense of community.

Exhibit D-1 - Typical Auto Court Cluster



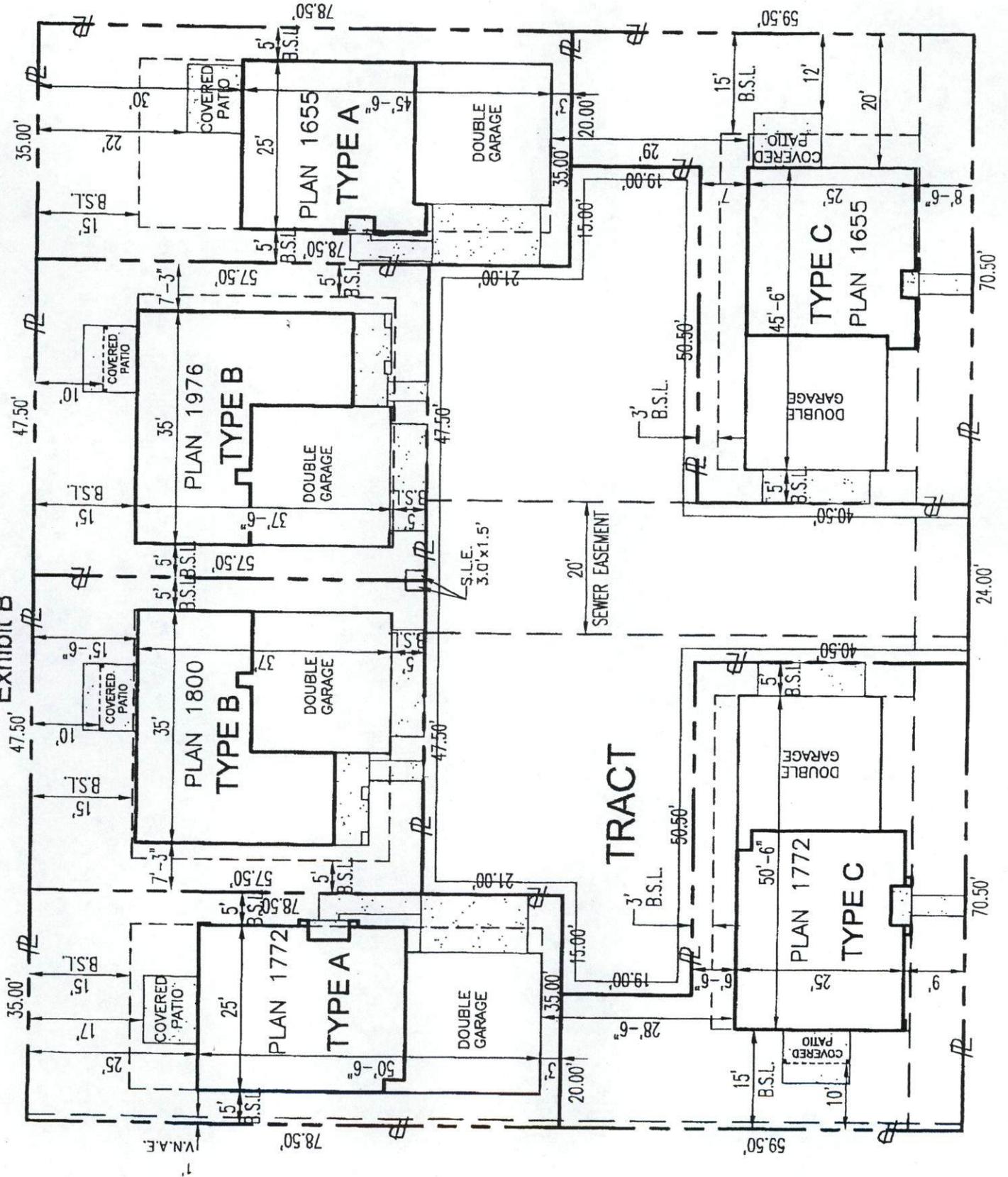


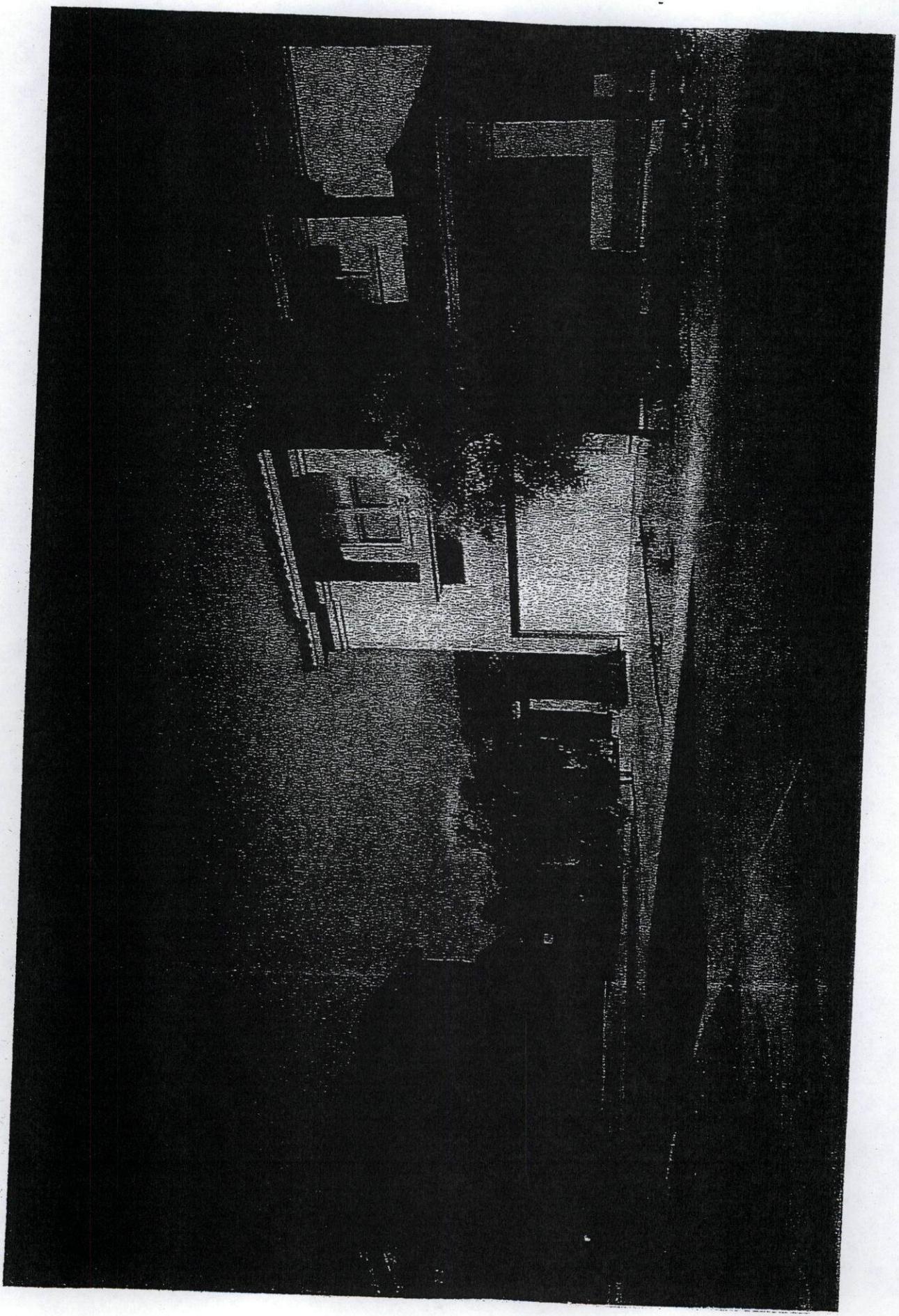
Auto Court Example

TYPICAL POD LAYOUT

PRELIMINARY

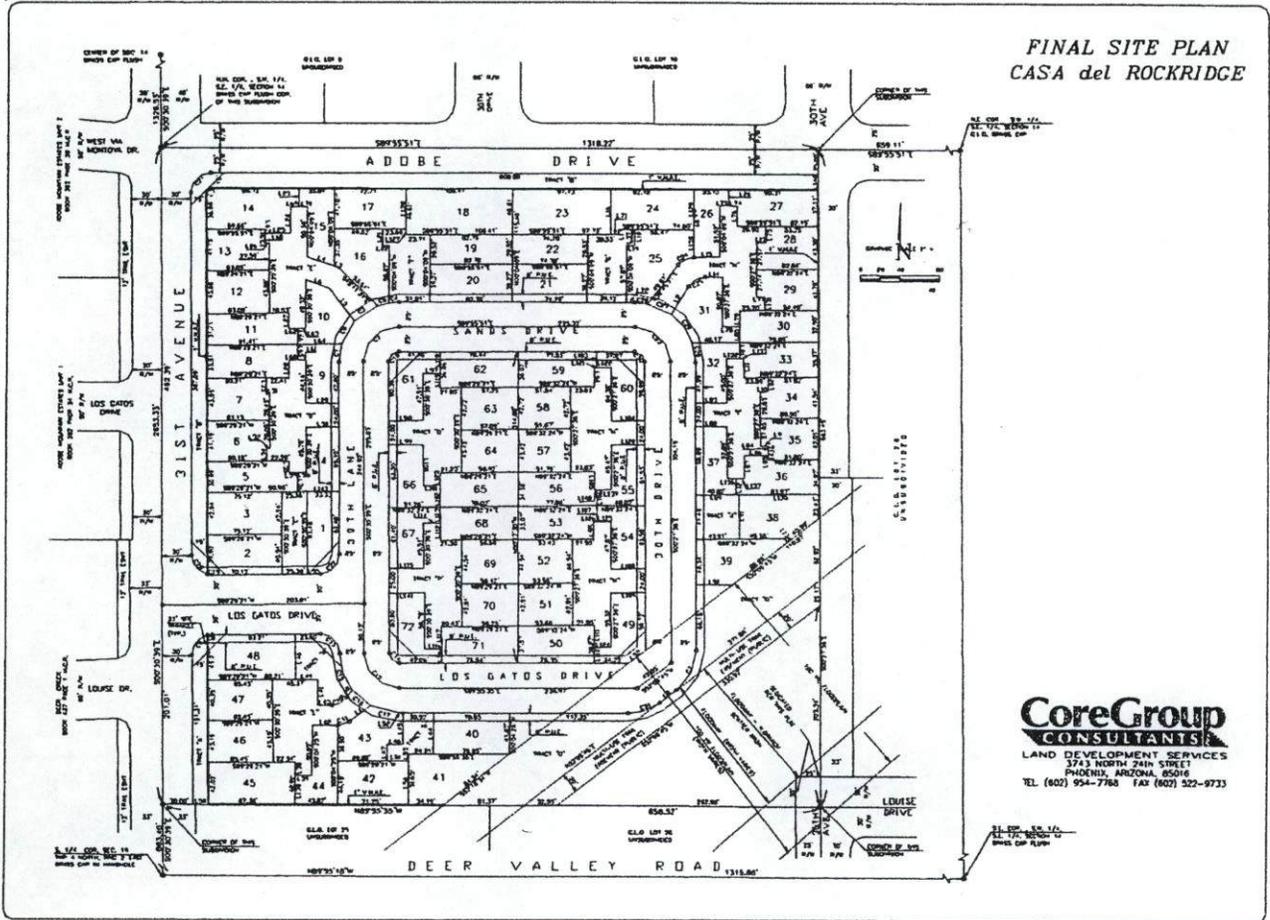
Exhibit B





Auto Court Example

EXHIBIT E - CASA DEL ROCKRIDGE SUBDIVISION



Architecture Styles

The 3 styles of architecture that are proposed are Spanish, Italianate, and Craftsman.

Spanish

Spanish architecture is primarily comprised of a combination of several unique elements. Spanish elements include: low-pitched S -tile roofs; stucco walls; bars or grilles of wood or wrought iron coverings on exterior window openings; and recessed windows.

Italianate

Italianate style architecture is similar to Spanish style in the low-pitched roofs, however, the Italianate style offers a different interpretation to the architecture. For instance, the eaves are corbeled with arabesque windows and shutters and elements projecting above normal plate line with pyramidal or polygonal hips are used to accentuate the architecture.

Craftsman

Unlike Spanish or Italianate, Craftsman style architecture includes gabled dormers; exposed rafter ends; and stone columns, stucco walls and flat concrete tiles.

Staggered Setbacks

The front yards setbacks will be varied as much as possible to create a staggered effect as required by the City of Peoria Design Review Manual. Exhibit E shows the cluster unit setbacks for each cluster.

LANDSCAPING

Design Specifications

The project will be developed under the design criteria contained in this document, which will be included in Covenants, Conditions, and Restrictions (CC&R's). The CC&R's will be utilized to control the type and quality of development, to require proper maintenance, to eliminate activities that may be objectionable to neighbors to protect values and enhance community appeal. A master homeowners's association will be established to administer the CC&R's and provide further maintenance and quality control throughout the development. All landscaping shall conform with the City of Peoria Landscape requirements.

Landscape Philosophy

The overall landscaping concept for the project advocates the use of a native desert and low water use plants into a planting scheme carefully blended with the responsible use of turf. It is the intent of the project to expand on the natural desert as a theme by augmenting common areas and streetscapes with similar desert plantings and low water use plants.

All proposed plants, with the exception of turf, are taken from the Arizona Department of Water Resources approved plant list. This applies to all streetscapes, paths, and entry treatment to the project. The remaining plant materials will adhere or exceed the City of Peoria's minimum requirements. A Variety of plants will be used including trees (such as acacia salicaina), shrubs (such as cassia nemophila), accents (such as aloe species) and ground covers (such as baccharis centennial).

General/Overall Character

The streetscape and landscape image for the project will play a major role in the aesthetics of the community. The theme of the project will be a sensitivity to the natural environment of the Sonoran Desert. Landscape will be used to soften architectural elements, enhance open space, provide continuity and create a distinct image for the project. See Appendix B.

Theme Elements

Theme Elements, including desert trees, project perimeter walls, rear yard walls, street light standards and entry monuments, will be developed with common materials and forms to reinforce the theme and project image. All developments within the P.A.D. shall conform with the provisions of the Peoria City Code walls/fences and screening requirements.

Amenities

The amenities for the open spaces for this development will include a tot lot, benches, barbecues, ramada and picnic tables. This open space will also be used for detention as shown on the Preliminary Landscape Plan.

Signage

Project signage will reflect the overall project theme and will occur as entry monuments and directional signage monuments. Vogel Avenue will be the main entry for this development and has been designed with a median, which will allow for a visually appealing landscaped entry. Subdivision signage shall utilize materials that enhance the rural or ranch character, such as wood, cast iron, and copper. All signage will be per the Peoria City Code and shall be reviewed under a separate permit.



Setback Example

Fences and Walls

The primary 6' screen wall shall consist of 6" thick CMU block and shall adhere to the project theme elements. Walls fronting 83rd Avenue shall be 8' sound attenuating and shall adhere to the theme elements. All perimeter walls shall undulate as required by the City Review Committee. A detail of the proposed theme wall elevation is shown in Appendix B.

Street Lights

Internal street light standards will characterize a rural or ranch theme. The Open Space lighting will not exceed 16-feet in height. A detail of the proposed streetlight is shown in Exhibit F.

Maintenance

A Homeowner's Association will be formed within the P.A.D. when there are a sufficient number of residents. Prior to the formation of the association and the land being deeded to the Association, the master developer will be responsible for the maintenance of the common areas. These maintenance areas include the open space, greenbelts, drainage channels and landscaping adjacent to the right-of-way and special entry features (i.e. signage and walls), and other common areas. Upon sufficient population, the master developer will deed the land and the maintenance responsibility to the Homeowner's Association.

Open Space

A total of 11.2% of usable open space will be provided within then subdivision, which meets the 11% required per 14-33-2 K.1. The community will include two large central and one large southern open space areas, which will be used for a variety of recreational activities. All open space described below will be maintained by the Homeowner's Association.

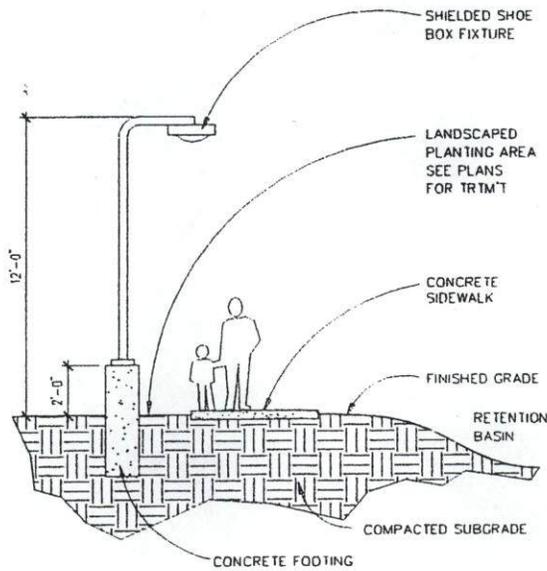
The two large central open space areas (.87-acres and 1.13-acres) will serve as a gathering place for active play and community recreational activities this subdivision. This open space will be landscaped, and will include a tot lot, barbecues, ramada and picnic tables. This open space will also be used for detention. The large open space (2.10-acres) which borders along the south property line of our development will be used for a common area as well as for detention.

The overall area of all open spaces is 4.10 acres. A 10-foot wide buffer strip will be located along the frontages of 81st Avenue and 83 Avenue which will serve to protect and separate the development for these roadways. Amenities will be lighted at a ratio not lower than 1 light for every 100' of street frontage. These amenities shall conform with the theme elements.

Summary

The development has been planned with a concerted effort to develop a community that is compatible with the neighborhood and conforms to the City of Peoria Master Plan, so that it will compliment and enhance the City.

EXHIBIT G - LIGHTING DETAILS



OPEN SPACE PATHWAY LIGHTING

APPENDIX A - HOUSE PRODUCT SERIES ELEVATIONS

APPENDIX B -PRELIMINARY LANDSCAPE & OPEN SPACE PLAN

APPENDIX C - WATER SYSTEM ANALYSIS REPORT

WATER SYSTEM ANALYSIS REPORT FOR MADISON ESTATES

Job # 1103

Date : April, 2002

The proposed Madison Estates development contains 244 single-family residential lots.

Location:

N ½ of the SW ¼ of Section 26, Township 3 North, Range 1 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona.

MADISON ESTATES WATER DEMAND CALCULATIONS

Average Daily Demand per Dwelling Unit:

1. The average daily demand is 200 gallons per day capita (200 gpcd)*
2. The lost and unaccounted water factor is 0.90*
3. The average population per dwelling unit is 2.8 persons*
4. The Average daily demand per dwelling unit is therefore:
$$[(200 \text{ gal/capita/day}) \times (2.8 \text{ persons/du})] / (0.90) = 622 \text{ gal/day/du}$$

Maximum Daily Demand per Dwelling Unit:

1. The maximum day demand is equal to 1.8 times the average day demand*
2. The maximum daily demand per dwelling -unit is therefore:
$$(622 \text{ gal/day/du}) \times (1.8) = 1120 \text{ gal/day/du}$$
3. The maximum daily demand for Madison Estates is therefore:
$$(244 \text{ du}) \times (1120 \text{ gal/day/du}) = 273,280 \text{ gal/day}$$

Peak Hour Demand per Dwelling Unit:

1. The peak hour demand is equal to 1.7 times the maximum day demand*
2. The peak hour demand per dwelling unit is therefore:
$$(1120 \text{ gal/day/du}) \times (\text{day}/24 \text{ hour}) \times (\text{hour}/60 \text{ min}) = 1.32 \text{ gal/min/du}$$

THE AVERAGE DAILY FLOW FOR MADISON ESTATES DEVELOPMENT IS THEREFORE:

$$(244 \text{ du}) \times (622 \text{ gal/day/du}) = 151,768 \text{ gal/day}$$

THE MAXIMUM HOUR WATER DEMAND FOR MADISON ESTATES DEVELOPMENT IS THEREFORE:

$$(244 \text{ du}) \times (1.32 \text{ gal/min/du}) = 322 \text{ gal/min}$$

* - Source: City of Peoria Waste Master Plan; September 2001; Table 10-1

APPENDIX D - WASTEWATER SYSTEM ANALYSIS REPORT

WASTEWATER SYSTEM ANALYSIS REPORT FOR MADISON ESTATES

Job # 1103

Date : April 1, 2002

- **SIZE:** Madison Estates contains 244 single-family residential lots.
- **LOCATION:** N ½ of the SW ¼ of Section 26, Township 3 North, Range 1 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona.
- **ZONING:** Zoning is currently PAD and has not changed since November, 2001.

DOMESTIC (RESIDENTIAL) WASTEWATER FLOW CALCULATIONS:

Average Daily Flow per Dwelling Unit:

1. The average daily flow is 100 gallons per day per capita (100 gpcd)*
2. The average population per dwelling unit is 2.8 persons*
3. The Average daily flow per dwelling unit is therefore:
 $(100 \text{ gal/capita/day}) \times (2.8 \text{ persons/du}) = 280 \text{ gal/day/du}$

*- Source: City of Peoria 2002 Wastewater Master Plan

Maximum Daily Flow per Dwelling Unit:

1. The maximum day is equal to 4.0 times the average day flow
2. The maximum daily flow dwelling unit is therefore:
 $(280 \text{ gal/day/du}) \times (4.0) = 1120 \text{ gal/day/du}$

TOTAL MAXIMUM DAILY FLOW FOR MADISON ESTATES:

$(244 \text{ du}) \times (1120 \text{ gal/day/du}) = 273,280 \text{ gal/day}$

APPENDIX E - PRELIMINARY DRAINAGE REPORT

MADISON ESTATES
PRELIMINARY DRAINAGE STUDY

December 14, 2001 Job #1130

SUMMARY:

Madison Estates is a 36 acres parcel of land located at the northeast corner of 83rd Avenue and Hatcher Road in the City of Peoria. The proposed development consists of 223 cluster lots and 21 single family lots designed in conformance with the City for the proposed PAD zoning on the property.

Storm water for this project will be detained in three detention basins located in Tract B,C and D). The detention basins will be sized to detain the 100yr 2-hour storm. The calculated detention volume required is 213,993 ft³.

The site falls within Zone 'X' of the Flood Insurance Rate Map (FIRM) map panel number 1630 dated December 3,1993.

The site terrain slopes gradually from the northeast corner to the southwest corner of the site with an average grade of 0.41%. The site is bound to the north ,west and east by irrigation ditches and dirt service roads. Hatcher Road fronts the site along the south boundary.

A "in depth" Drainage Report will be provided for this project at the detailed engineering design stage.

PRELIMINARY
DETENTION BASIN CALCULATION

a) Rational Method:

$$Q = C * I * A$$

Q = runoff flow rate (cfs)
C = Runoff coefficient
I = Rainfall intensity (in/hr)
A = Drainage Areas (Acres)

$$Q = 0.65 * 1.25 * 36.58 = \underline{29.72 \text{ cfs}}$$

b) Required Retention Volume:

$$V_r = 7200 * C * I * A$$

V_r = Volume required (ft³)
C = Rainfall coefficient
I = Rainfall intensity (in/hr)
A = Drainage Areas (acres)

$$V_r = 7200 * 0.65 * 1.25 * 36.58 = \underline{213,993 \text{ ft}^3}$$

c) Provided Retention Volume:

$$V_p = [\text{Area (top of detention basin)} + \text{Area (bottom of detention basin)}] * (\text{depth}/2)$$

$$V_p = 68,644\text{ft}^3(@2\text{ft}) + 77,104\text{ft}^3(@2\text{ft}) + 70,064\text{ft}^3(@1\text{ft}) = \underline{215,812 \text{ ft}^3}$$