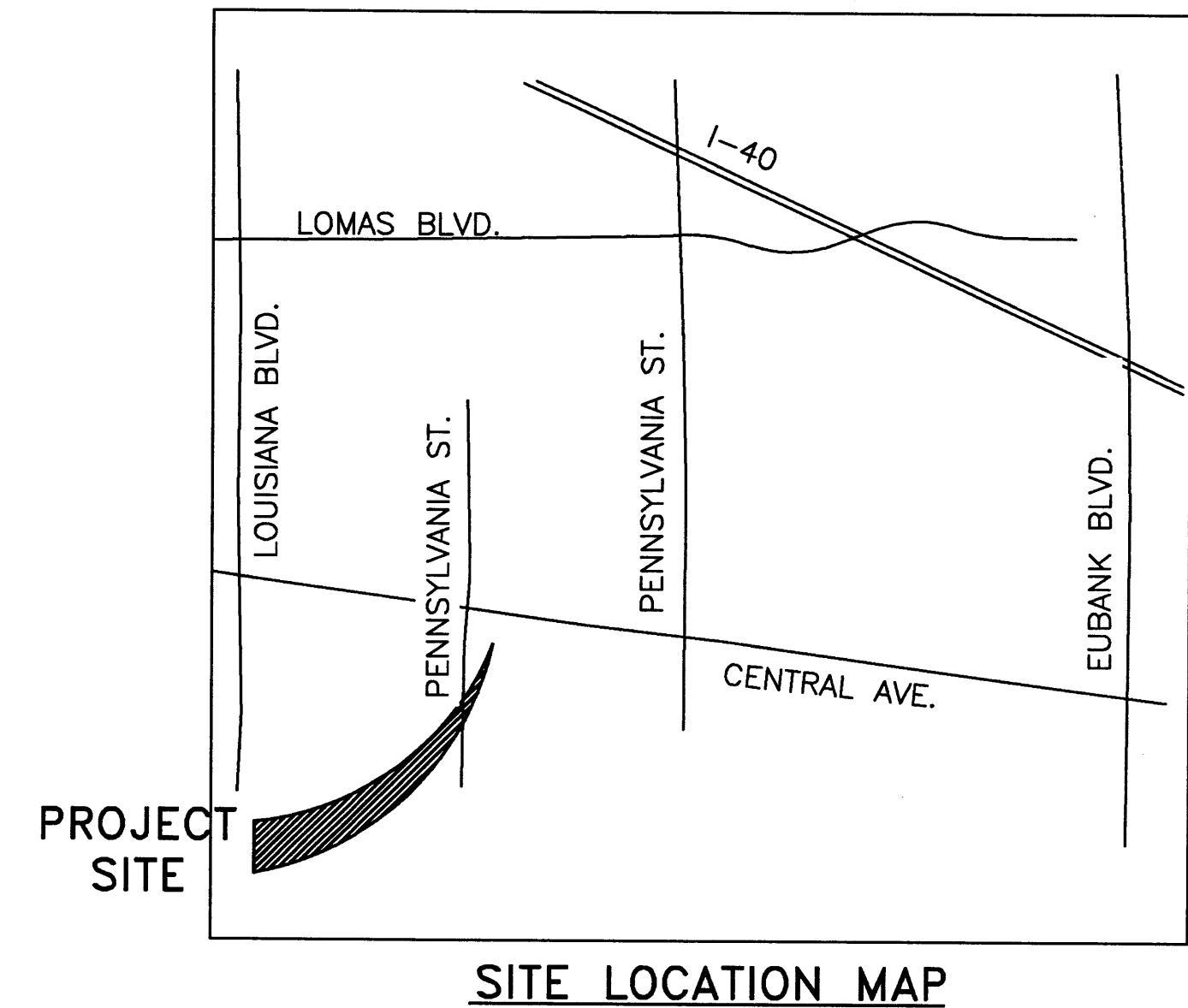


GRADING & DRAINAGE PLAN
FOR DEPENDABLE AUTO SALES



ALBUQUERQUE
BERNALILLO COUNTY
NEW MEXICO

LIST OF SHEETS

DESIGN CRITERIA:

2003 IBC
CITY OF ALBUQUERQUE

SHEET NUMBER	DISCIPLINE NUMBER	REVISION NUMBER	SHEET DESCRIPTION
1	G1	R0	TITLE SHEET, PROJECT LOCATION, AND APPLICABLE CODES
2	C1	R0	GRADING AND DRAINAGE CALCULATIONS, AND NOTES
3	C2	R0	GRADING AND DRAINAGE PLAN VIEW, AND NOTES
4	C3	R0	PROFILE VIEW, AND NOTES

GENERAL NOTES

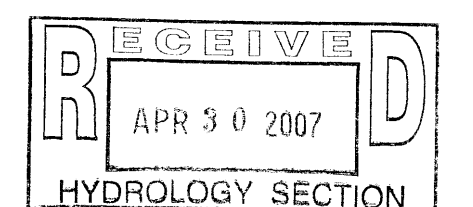
- THE PURPOSE OF THIS GRADING AND DRAINAGE PLAN IS TO DIVERT DRAINAGE AWAY FROM THE PROPOSED BUILDING.
- THE OBJECTIVE IS TO DIVERT THE DRAINAGE BLOCKED BY THE PROPOSED BUILDING TO THE EXISTING HISTORICAL FLOW PATTERN AND TO A PROPOSED ASPHALT PAVED CHANNEL/DRIVEWAY.
- THIS GRADING AND DRAINAGE PLAN IS BASED ON THE PREMISE THAT THE CITY OF ALBUQUERQUE WILL ACCEPT 100% OF THE DRAINAGE ONTO THE STREET STORM DRAIN COLLECTION SYSTEM.

I, MARIO MADRID, NMPE 16228, OF THE FIRM MADRID ENGINEERING, LLC, HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED _____. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY GARY GARDEY, NMPS 12642, OF THE FIRM GARDEY SURVEY. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 4/12/07 & 4/24/07 AND HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED IS REPRESENTATIVE OF THE ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR SITE DEVELOPMENT PLAN FOR BUILDING PERMIT, GRADING PERMIT, AND PAVING PERMIT.

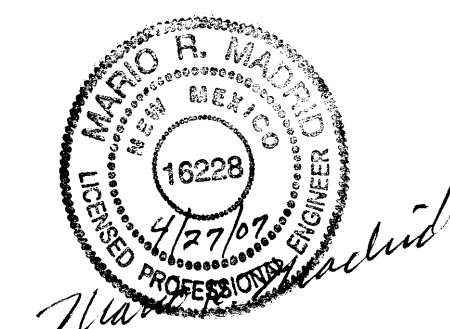
THE RECORD INFORMATION PRESENTED HEREIN IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

Mario R. Madrid
MARIO R. MADRID, NMPE 16228

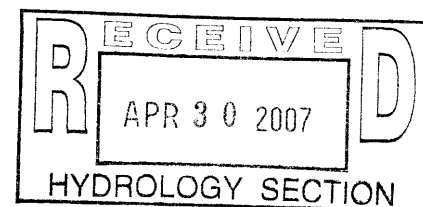
April 27, 2007
DATE



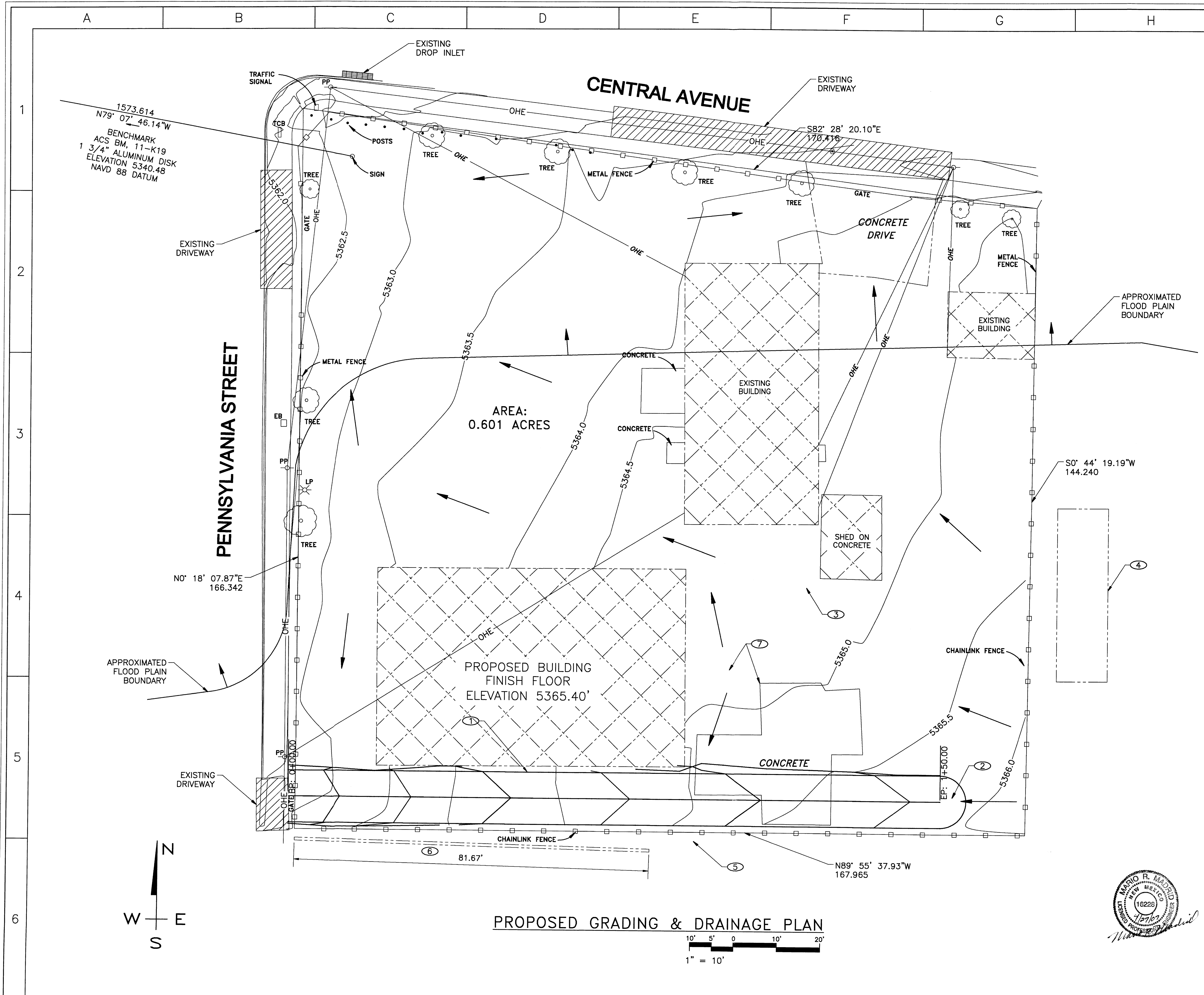
		MADRID ENGINEERING 2081 Valley View Dr. SW Los Lunas, NM 87031 505-859-2929 mrmadrid@madrid-engineering.com	
Submitted: Mario R. Madrid, P.E.		Checked: <u>MDM</u>	
Owner: Hue & Hien Hyue			
Location: Albuquerque, New Mexico			
Rev: 0	Date: April 27, 2007		
Discipline Number: G1		1 OF 4	



	A	B	C	D	E	F	G	H	I
1	DRAINAGE CALCULATION RATIONAL METHOD			EXECUTIVE SUMMARY					
2	1. DETERMINE RAINFALL INTENSITY POINT PRECIPITATION FREQUENCY ESTIMATE NOAA ATLAS 14 FOR AREA AT CENTRAL & PENNSYLVANIA, ALBUQUERQUE, NEW MEXICO 35.0747° LATITUDE, -106.5589° LONGITUDE 10 MINUTE DURATION, 100 YEAR FREQUENCY, I = 5.35 IN/HR			This project is located at the intersection of central ave. and Pennsylvania st. in Albuquerque, new Mexico. The site is an existing automobile sales business that is expanding and add a new building. The drainage concept for the site is route all the drainage to the driveways and onto central ave. or Pennsylvania st. where it will then enter the city's storm drainage system via drop inlets. There are two offsites flows that will be accepted on to the property at this time. Existing onsite flows will remain the same for the exception of slight drainage channel/driveway that will be placed behind the building along the south property line. This channel will route the drainage over an existing driveway.					
3	2. CALCULATE EXISTING RUNOFF VOLUME SELECT "C" VALUES FOR THE EXISTING CONDITION SEPARATE PROPERTY INTO TWO AREAS C1 = 0.98, FOR ASPHALT AND ROOFS C2 = 0.10, FOR LESS THAN 2% SLOPE, SANDY SOIL, UNIMPROVED			Downstream capacity is not know, but is impacted very slightly as shown be the drainage calculations. No other impacts to other jurisdictions are known.					
4	3. DETERMINE DRAINAGE AREAS A1 = 0.50 ACRES A2 = 0.101 ACRES Aexst = 0.601 ACRES			Approvals being requested by submittal of this grading and drainage plan set is for "Site Development Plan for Building Permit", "Grading Permit", and "Paving Permit".					
5	4. CALCULATE PROPERTY RUNOFF VOLUME RATIONAL METHOD, Q = CIA Q1 = 0.98*5.35*0.50 = 2.622 FT³/SEC Q2 = 0.10*5.35*0.101 = 0.054 9 FT³/SEC			INTRODUCTION The purpose of this project is to expand the used automobile dealership with a new building and make the necessary grading improvements to avoid problems with drainage and the new building. A paved channel/driveway will be added behind the building along the south property line to capture drainage and route it to the nearest drivepad on Pennsylvania St.. A typical cross section and the profile is provided on Sheet 4. The cross slope is very mild at 2% for 6 feet to either side of centerline with steeper "tie in" slopes. The building is offset from the property line by 15 feet.					
6	5. CALCULATE OFFSITE FLOWS Ar = 0.011 ACRES (PARTIAL ROOF FROM THE EAST) Ag = 0.06 ACRES (PARTIAL GROUND AREA FROM THE SOUTH) Cr = 1.0, Cg = 0.25 Qr = 1.0*5.35*0.011 = 0.059 FT³/SEC Qg = 0.25*5.35*0.06 = 0.080 FT³/SEC Qa = 0.059 + 0.080 = 0.139 FT³/SEC			The rational method of calculating drainage flow and volume is used. See the calculations to the left for flow and volume quantities of interest.					
7	6. CALCULATE EXISTING RUNOFF VOLUME Qexst = Q1 + Q2 + Qa = 2.622 + 0.054 + 0.139 = 2.815 FT³/SEC			The assumption made for downstream capacity is that the lot usage is not changing very much. The lot was nearly complete paved with a small area that was hard packed dirt and gravel where the new building is being placed. Therefore, with the addition of the new building the drainage volume is not increasing very much.					
8	7. CALCULATE PROPOSED RUNOFF VOLUME SELECT "C" VALUES FOR THE PROPOSED CONDITION C2 = 0.98, ROOFS AND ASPHALT PARKING LOT			The channel capacity is 0.66 FT³/SEC, which is more than enough capacity to handle the flow near the south property line.					
9	8. DETERMINE DRAINAGE AREAS Aprop= 0.601 ACRES			DEVELOPED CONDITIONS The proposed construction is for a new single story building of exterior dimensions, 70'-8" X 45'-4". The building will be of concrete masonry unit construction with a pitched truss roof. The building will impede existing flows if no grade changes were made. This grading and drainage plan will correct any of the would be problem areas by diverting the drainage away from the building edges.					
10	9. CALCULATE TOTAL PROPOSED RUNOFF FLOW Qprop = 0.98*5.35*0.601 = 3.151 FT³/SEC Qtotal = Qprop + Qa = 3.151 + 0.139 = 3.29 FT³/SEC			As the property exists, there are two offsite flows of concern. The first, comes from the roof of the neighboring property to the east. The second, comes from the neighboring property to the south. The elevations of these two areas are nearly the same on both properties. The flows are minimal and the velocities are slow enough that no damage is anticipated. However, the flow from the south property may be contaminated from leaking oil containers. This contaminated flow may be a concern as it enters the City's storm water system.					
11	10. CALCULATE THE DIFFERENCE IN FLOW Qadded = Qtotal - Qexst = 3.29 - 2.815 = 0.475 FT³/SEC			CALCULATIONS The drainage calculations are presented to the left on this sheet. The rainfall intensity value for the 100 year storm with 10 minute duration was obtained from the National Oceanic and Atmospheric Administration's National Weather Service's Point Frequency Data Server for the latitude and longitude of the property. Flow was determined for the existing property, offsite, and proposed conditions. The Chezy-Manning formula for channel flow was used to determine the minimum channel flow based on the flattest slope from the channel profile.					
12	11. CALCULATE THE ADDITIONAL RUNOFF VOLUME 10 MINUTE DURATION = 600 SECONDS Vadded = 0.475 FT³/SEC * 600 SEC = 285 FT³			CONCLUSION The addition of the new building is not creating very much additional flow and is not impacting onsite conditions either. The corrective measure of adding a lined channel and making minor grade changes on the east side of the new building will be sufficient to prevent any problems.					
13	12. CALCULATE THE TOTAL RUNOFF VOLUME Vtotal = 600*3.29 = 1,974 FT³								
6	13. CALCULATE THE CHANNEL CAPACITY A = 0.72 FT², THETA = 1.146°, d = 0.12 FT, R = 0.06 FT, Smin = 0.0145, n = 0.030 Q = (1.49/n)*A*R^(2/3)*S^(1/2) = 0.66 FT³/SEC								



		MADRID ENGINEERING 2081 Valley View Dr. SW Los Lunas, NM 87031 505-859-2929 mrmadrid@madrid-engineering.com	
Submitted: Mario R. Madrid, P.E.		Checked: <i>MRM</i>	
Owner: Hue & Hien Hyue		Location: Albuquerque, New Mexico	
Rev: 0		Date: April 27, 2007	
Discipline Number: C1		2 OF 4	



GENERAL NOTES


1. IF THIS SHEET IS NOT 24" x 36", THEN USE THE GRAPHIC SCALE.
2. EXISTING LOT IS NEARLY COMPLETELY PAVED WITH ASPHALT FOR THE EXCEPTION OF THE AREA NEAR THE SOUTH PROPERTY LINE AND THE AREA OF THE PARTIAL AREA OF THE PROPOSED BUILDING.
3. THE PROPOSED LOT WILL BE NEARLY 100% PAVED WITH ASPHALT.
4. REGRADE CERTAIN AREAS OF THE ASPHALT PAVING TO DIVERT DRAINAGE TO THE DRIVEWAYS AND NOT OVER THE SIDEWALKS.
5. ESTABLISH PROPOSED GRADING AROUND THE PERIMETER OF THE PROPOSED BUILDING, THEN SET THE FINISH FLOOR ELEVATION TO 6" HIGHER THAN THE HIGHEST PROPOSED SURFACE ELEVATION.

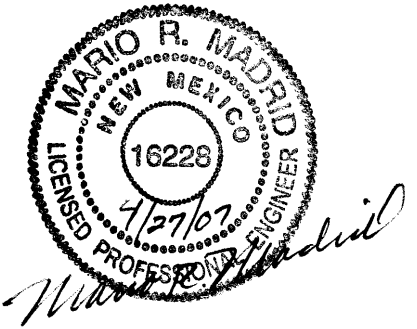
KEYED NOTES:

- ① ALIGNMENT -1, THE PURPOSE OF THIS ALIGNMENT IS TO CREATE A GRADING SCHEME TO DIVERT DRAINAGE AWAY FROM THE SOUTHEAST AND SOUTHWEST CORNERS ALONG WITH THE SOUTH SIDE OF THE BUILDING. THIS CHANNEL WILL DRAIN INTO PENNSYLVANIA ST.
- ② TIE IN ASPHALT PAVING TO EXISTING SURFACE ELEVATIONS.
- ③ CLEAN OUT ALL RUBBLE FROM HOLE. DETERMINE CAUSE OF HOLE. COMPACT BASE COURSE FILL IN 6" LIFTS. USE TACK COAT ALL EXISTING ASPHALT EDGES AND REPAVE.
- ④ NEIGHBORING PROPERTY ROOF (PARTIAL SHOWN) DOES NOT HAVE A GUTTER SYSTEM. GROUND ELEVATION IS NEARLY THE SAME AS THE EXISTING ASPHALT PAVING. THIS IS CONSIDERED AS OFFSITE DRAINAGE BECAUSE A CERTAIN AMOUNT WILL COME ON TO THE PROPERTY.
- ⑤ NEIGHBORING PROPERTY ELEVATION IS SLIGHTLY HIGHER. THIS IS CONSIDERED AS OFFSITE DRAINAGE BECAUSE A CERTAIN AMOUNT WILL COME ON TO THE PROPERTY. THIS AREA HAS LEAKING OIL CONTAINERS AND CONTAMINATED SOIL THAT SHOULD BE DISPOSED OF PROPERLY.
- ⑥ NEIGHBORING PROPERTY HAS RAILROAD TIE RETAINING WALL SYSTEM. AN AVERAGE OF THREE FEET OF WIDTH IS CONSIDERED AS OFFSITE DRAINAGE AREA.
- ⑦ REMOVE CONCRETE AND REPAVE AREA TO DRAIN AS INDICATED WITH THE FLOW ARROWS.

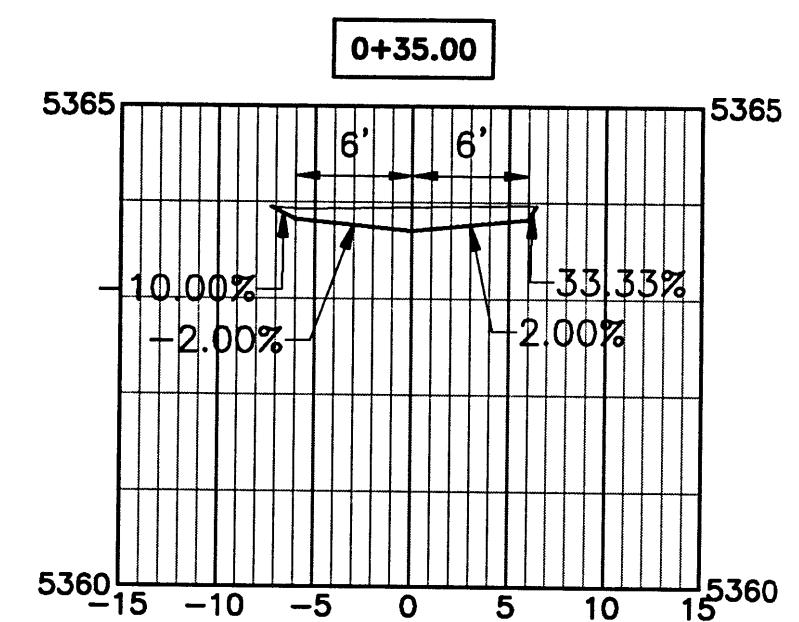
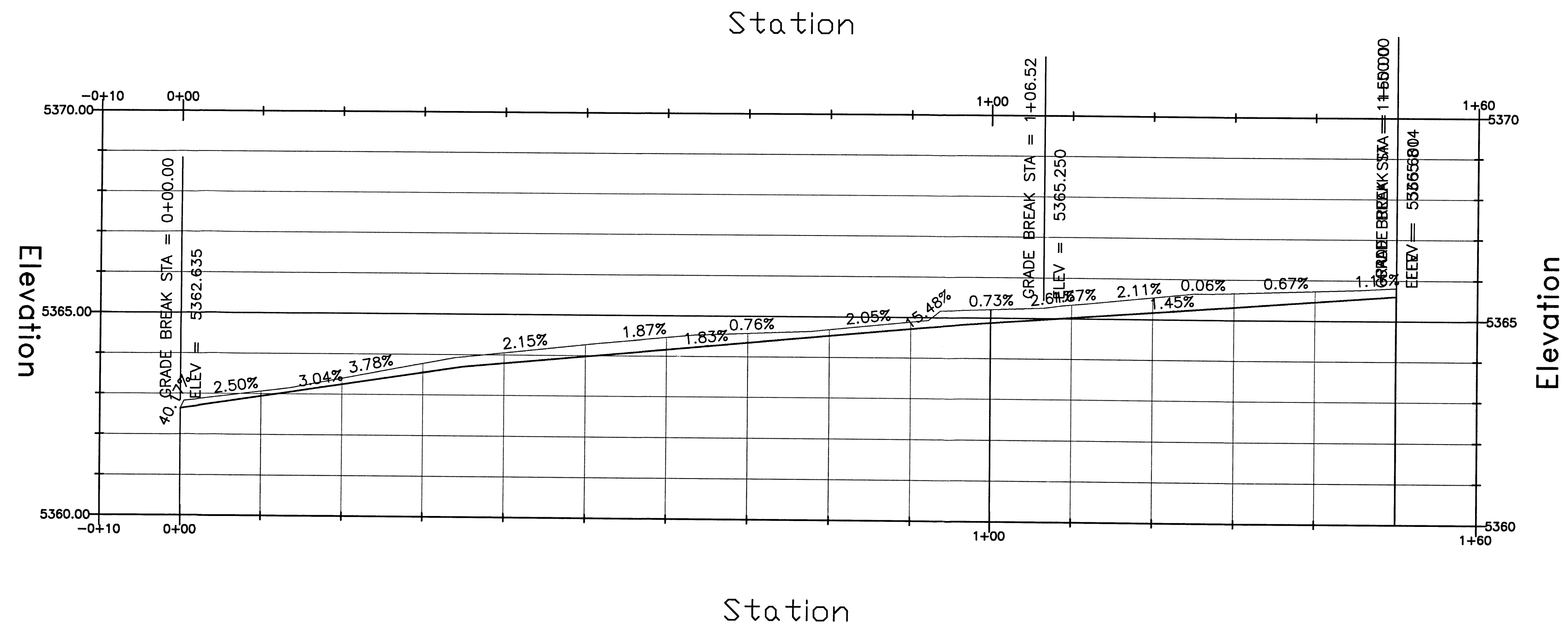
LEGEND:

MATCHLINES	---
EXISTING FEATURES	---
EXISTING FENCE	—□—□—□—□—
EXST 1 FOOT CONTOUR	---
EXST 0.5 FOOT CONTOUR	---
PROP 1 FOOT CONTOUR	---
PROP 0.5 FOOT CONTOUR	---
PROPOSED WORK	---
FLOW DIRECTIONAL ARROW	→

		MADRID ENGINEERING 2081 Valley View Dr. SW Los Lunas, NM 87031 505-869-2929 mrmadrid@madrid-engineering.com	
Submitted: Mario R. Madrid, P.E.		Checked: <i>mem</i>	
Owner: Hue & Hien Hyue	Location: Albuquerque, New Mexico		
Rev: 0	Date: April 27, 2007	Discipline Number: C2	
		3 OF 4	

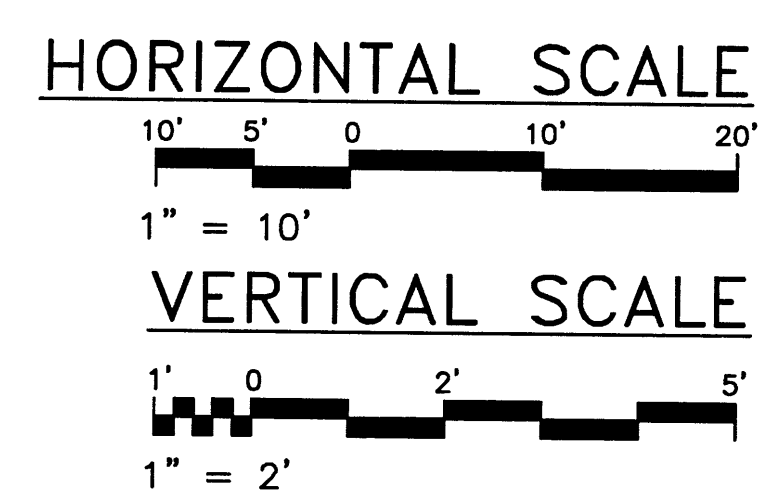


Profile View of Alignment – (1)

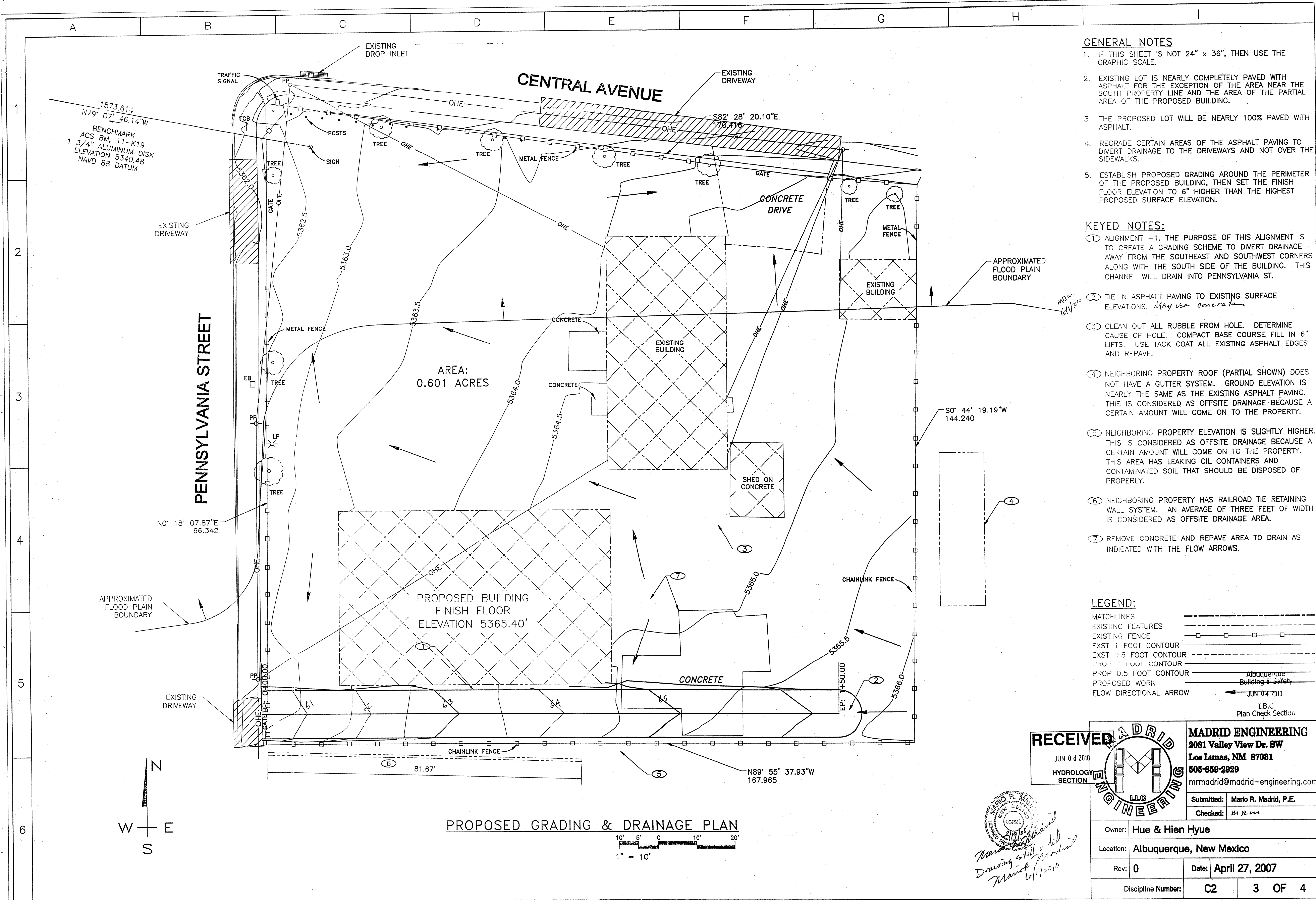


- GENERAL NOTES**
1. IF THIS SHEET IS NOT 24" x 36", THEN USE THE GRAPHIC SCALE.
 2. THIS IS THE PROPOSED PROFILE OF THE SOUTH END OF THE PROPERTY.
 3. THE PROPOSED SURFACE WILL BE 2" THICK ASPHALT PAVING.
 4. THE DRIVEWAY CROSS SLOPE IS 2% FOR 6' FROM CENTERLINE TO EITHER SIDE.
 5. THE TIE IN SLOPE AFTER 6' IS 10:1.

- LEGEND:**
- MATCHLINES
 - EXISTING SURFACE
 - PROPOSED SURFACE
 - MAJOR GRID LINE
 - MINOR GRID LINE



		MADRID ENGINEERING 2081 Valley View Dr. SW Los Lunas, NM 87031 505-859-2929 mrmadrid@madrid-engineering.com	
Submitted:		Mario R. Madrid, P.E.	
Checked:		M.R.M.	
Owner:		Hue & Hien Hyue	
Location:		Albuquerque, New Mexico	
Rev:		0	
Date:		April 27, 2007	
Discipline Number:		C3 4 OF 4	



- GENERAL NOTES**
- IF THIS SHEET IS NOT 24" x 36", THEN USE THE GRAPHIC SCALE.
 - EXISTING LOT IS NEARLY COMPLETELY PAVED WITH ASPHALT FOR THE EXCEPTION OF THE AREA NEAR THE SOUTH PROPERTY LINE AND THE AREA OF THE PARTIAL AREA OF THE PROPOSED BUILDING.
 - THE PROPOSED LOT WILL BE NEARLY 100% PAVED WITH ASPHALT.
 - REGRADE CERTAIN AREAS OF THE ASPHALT PAVING TO DIVERT DRAINAGE TO THE DRIVEWAYS AND NOT OVER THE SIDEWALKS.
 - ESTABLISH PROPOSED GRADING AROUND THE PERIMETER OF THE PROPOSED BUILDING, THEN SET THE FINISH FLOOR ELEVATION TO 6" HIGHER THAN THE HIGHEST PROPOSED SURFACE ELEVATION.

- KEYED NOTES:**
- ALIGNMENT -1, THE PURPOSE OF THIS ALIGNMENT IS TO CREATE A GRADING SCHEME TO DIVERT DRAINAGE AWAY FROM THE SOUTHEAST AND SOUTHWEST CORNERS ALONG WITH THE SOUTH SIDE OF THE BUILDING. THIS CHANNEL WILL DRAIN INTO PENNSYLVANIA ST.
 - TIE IN ASPHALT PAVING TO EXISTING SURFACE ELEVATIONS. *May use concrete*
 - CLEAN OUT ALL RUBBLE FROM HOLE. DETERMINE CAUSE OF HOLE. COMPACT BASE COURSE FILL IN 6" LIFTS. USE TACK COAT ALL EXISTING ASPHALT EDGES AND REPAVE.
 - NEIGHBORING PROPERTY ROOF (PARTIAL SHOWN) DOES NOT HAVE A GUTTER SYSTEM. GROUND ELEVATION IS NEARLY THE SAME AS THE EXISTING ASPHALT PAVING. THIS IS CONSIDERED AS OFFSITE DRAINAGE BECAUSE A CERTAIN AMOUNT WILL COME ON TO THE PROPERTY.
 - NEIGHBORING PROPERTY ELEVATION IS SLIGHTLY HIGHER. THIS IS CONSIDERED AS OFFSITE DRAINAGE BECAUSE A CERTAIN AMOUNT WILL COME ON TO THE PROPERTY. THIS AREA HAS LEAKING OIL CONTAINERS AND CONTAMINATED SOIL THAT SHOULD BE DISPOSED OF PROPERLY.
 - NEIGHBORING PROPERTY HAS RAILROAD TIE RETAINING WALL SYSTEM. AN AVERAGE OF THREE FEET OF WIDTH IS CONSIDERED AS OFFSITE DRAINAGE AREA.
 - REMOVE CONCRETE AND REPAVE AREA TO DRAIN AS INDICATED WITH THE FLOW ARROWS.

LEGEND:

MATCHLINES	---
EXISTING FEATURES	---
EXISTING FENCE	--- ---
EXST 1 FOOT CONTOUR	---
EXST 0.5 FOOT CONTOUR	---
PROJ 1 FOOT CONTOUR	---
PROP 0.5 FOOT CONTOUR	---
PROPOSED WORK	---
FLOW DIRECTIONAL ARROW	---

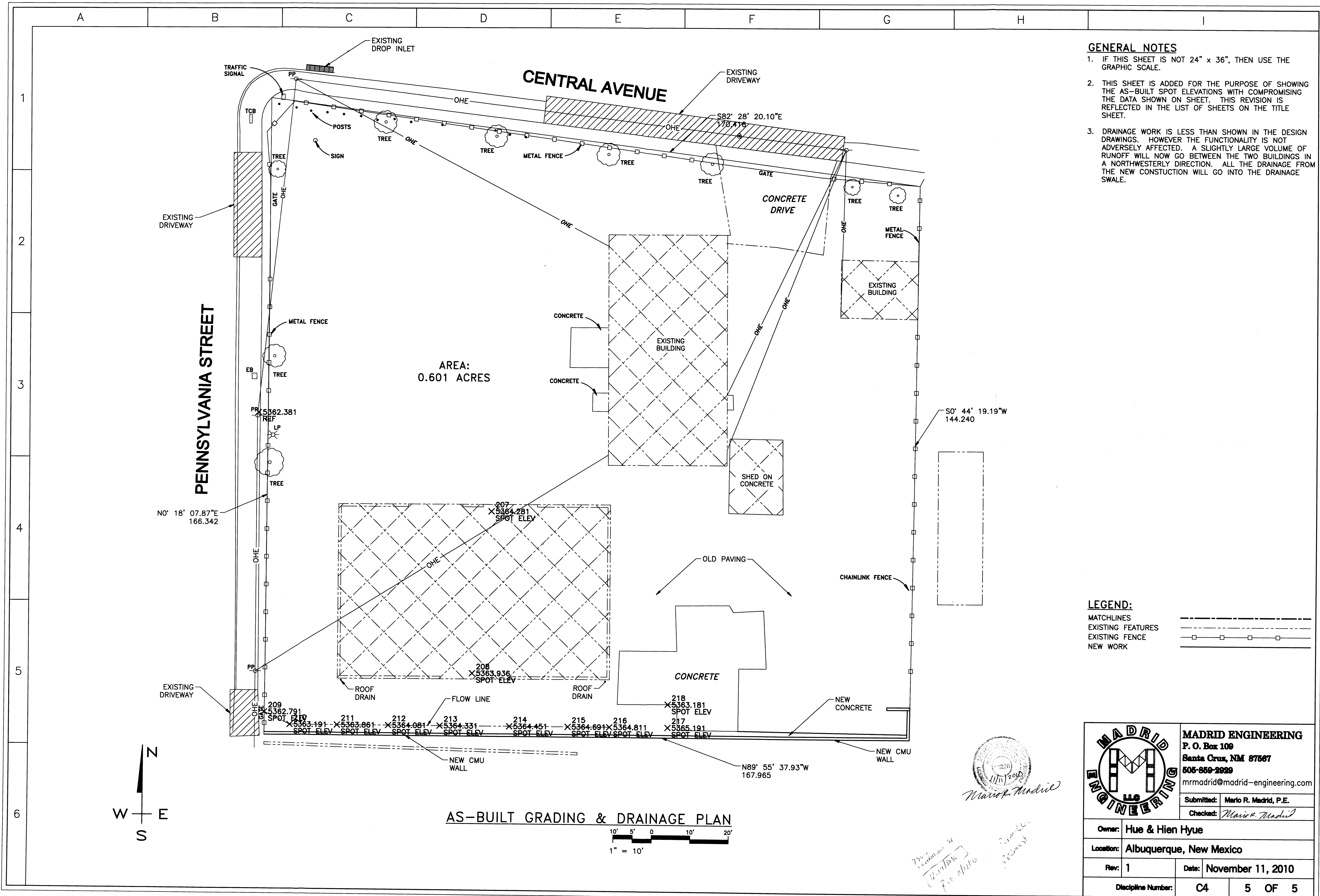
Albuquerque Building & Safety
JUN 04 2010
I.B.C.
Plan Check Section

RECEIVED JUN 04 2010 HYDROLOGY SECTION			MADRÍD ENGINEERING 2081 Valley View Dr. SW Los Lunas, NM 87081 505-859-2029 mrmadríd@madríd-engineering.com	
Submitted: Mario R. Madríd, P.E. Checked: <i>mrm</i>				
Owner: Hue & Hien Hyue		Location: Albuquerque, New Mexico		
Rev: 0		Date: April 27, 2007		
Discipline Number: C2		3 OF 4		

Madríd Engineering LLC
Drawing still valid
Madríd Madríd
6/1/2010

PROPOSED GRADING & DRAINAGE PLAN

1" = 10'



GENERAL NOTES

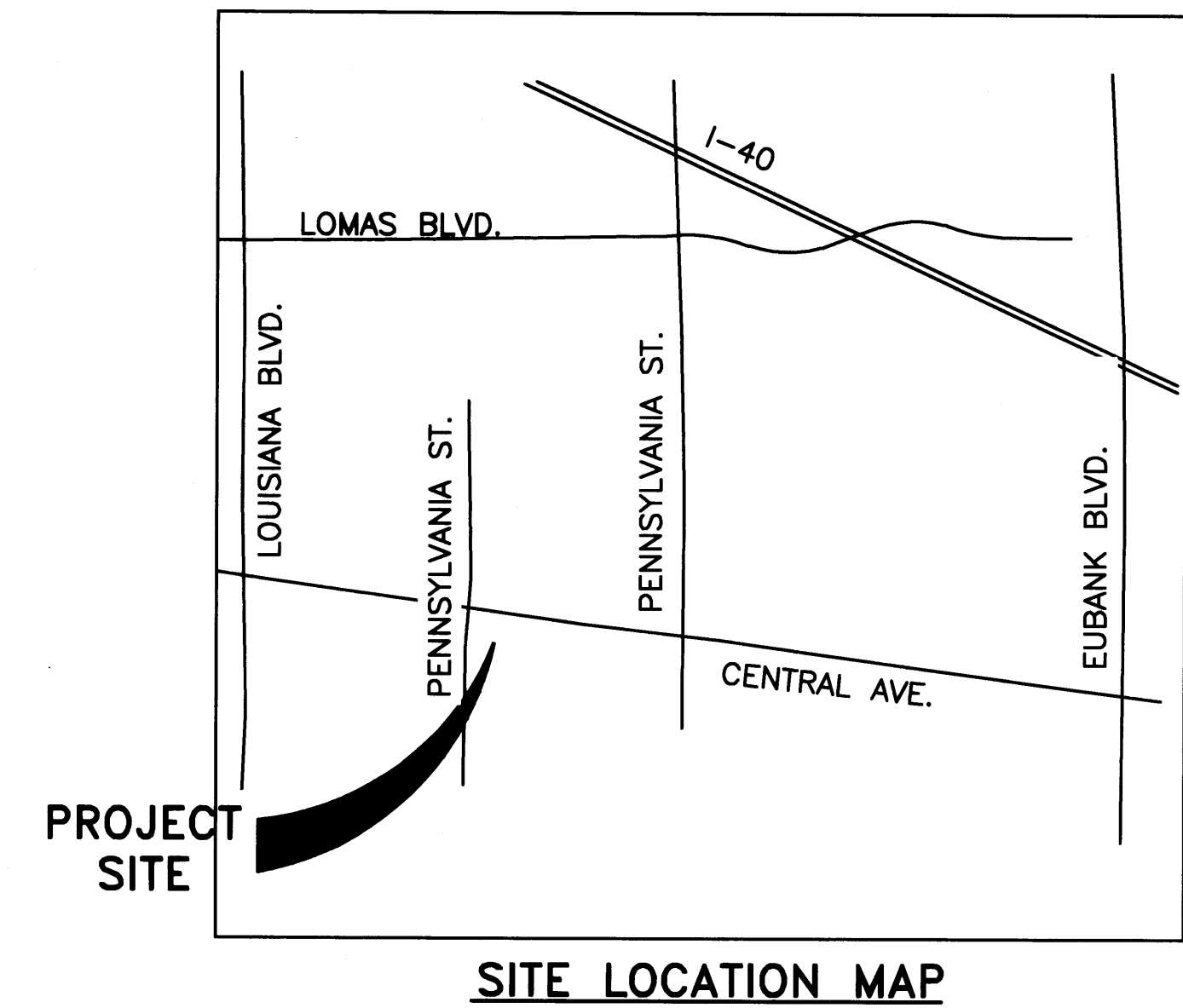
1. IF THIS SHEET IS NOT 24" x 36", THEN USE THE GRAPHIC SCALE.
2. THIS SHEET IS ADDED FOR THE PURPOSE OF SHOWING THE AS-BUILT SPOT ELEVATIONS WITH COMPROMISING THE DATA SHOWN ON SHEET. THIS REVISION IS REFLECTED IN THE LIST OF SHEETS ON THE TITLE SHEET.
3. DRAINAGE WORK IS LESS THAN SHOWN IN THE DESIGN DRAWINGS. HOWEVER THE FUNCTIONALITY IS NOT ADVERSELY AFFECTED. A SLIGHTLY LARGE VOLUME OF RUNOFF WILL NOW GO BETWEEN THE TWO BUILDINGS IN A NORTHWESTERLY DIRECTION. ALL THE DRAINAGE FROM THE NEW CONSTRUCTION WILL GO INTO THE DRAINAGE SWALE.

LEGEND:

MATCHLINES	---
EXISTING FEATURES	---
EXISTING FENCE	---
NEW WORK	---

MADRID ENGINEERING P. O. Box 109 Santa Cruz, NM 87507 505-859-2929 mrmadrid@madrid-engineering.com	
Submitted:	Mario R. Madrid, P.E.
Checked:	Mario R. Madrid
Owner:	Hue & Hien Hyue
Location:	Albuquerque, New Mexico
Rev:	1
Date:	November 11, 2010
Discipline Number:	C4
	5 OF 5

GRADING & DRAINAGE PLAN
FOR DEPENDABLE AUTO SALES



ALBUQUERQUE
BERNALILLO COUNTY
NEW MEXICO

LIST OF SHEETS

SHEET NUMBER	DISCIPLINE NUMBER	REVISION NUMBER	SHEET DESCRIPTION
1	G1	R1	DRAINAGE CERTIFICATION
1	G1	R0	TITLE SHEET, PROJECT LOCATION, AND APPLICABLE CODES
2	C1	R0	GRADING AND DRAINAGE CALCULATIONS, AND NOTES
3	C2	R0	GRADING AND DRAINAGE PLAN VIEW, AND NOTES
4	C3	R0	PROFILE VIEW, AND NOTES
5	C4	R1	AS-BUILT DRAINAGE PLAN

- GENERAL NOTES
- THE PURPOSE OF THIS REVISION IS TO INCORPORATE THE DRAINAGE CERTIFICATION. ALL OTHER SHEETS REMAIN PERTINENT TO THE PURPOSE THEY SERVE AT THE TIME THEY WERE SUBMITTED.

I, MARIO MADRID, NMPE 16228, OF THE FIRM MADRID ENGINEERING, LLC, HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED APRIL 27, 2007. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY ME OR UNDER MY DIRECT SUPERVISION AS SUPPLEMENTAL DATA TO THE ORIGINAL TOPOGRAPHIC SURVEY PREPARED BY GARY GARDEY, NMPS 12642, OF THE FIRM GARDEY SURVEY, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR CERTIFICATE OF OCCUPANCY.

NO EXCEPTIONS AND/OR QUALIFICATIONS


NO DEFICIENCIES AND/OR CORRECTIONS

THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

Mario R. Madrid
MARIO R. MADRID, NMPE 16228

Nov. 11, 2010
DATE



		MADRID ENGINEERING P. O. Box 109 Santa Cruz, NM 87567 505-859-2929 mrmadrid@madrid-engineering.com	
Submitted:		Mario R. Madrid, P.E.	
Checked:			
Owner:		Hue & Hien Hyue	
Location:		Albuquerque, New Mexico	
Rev:		1	Date: November 11, 2010
Discipline Number:		G1	1 OF 6