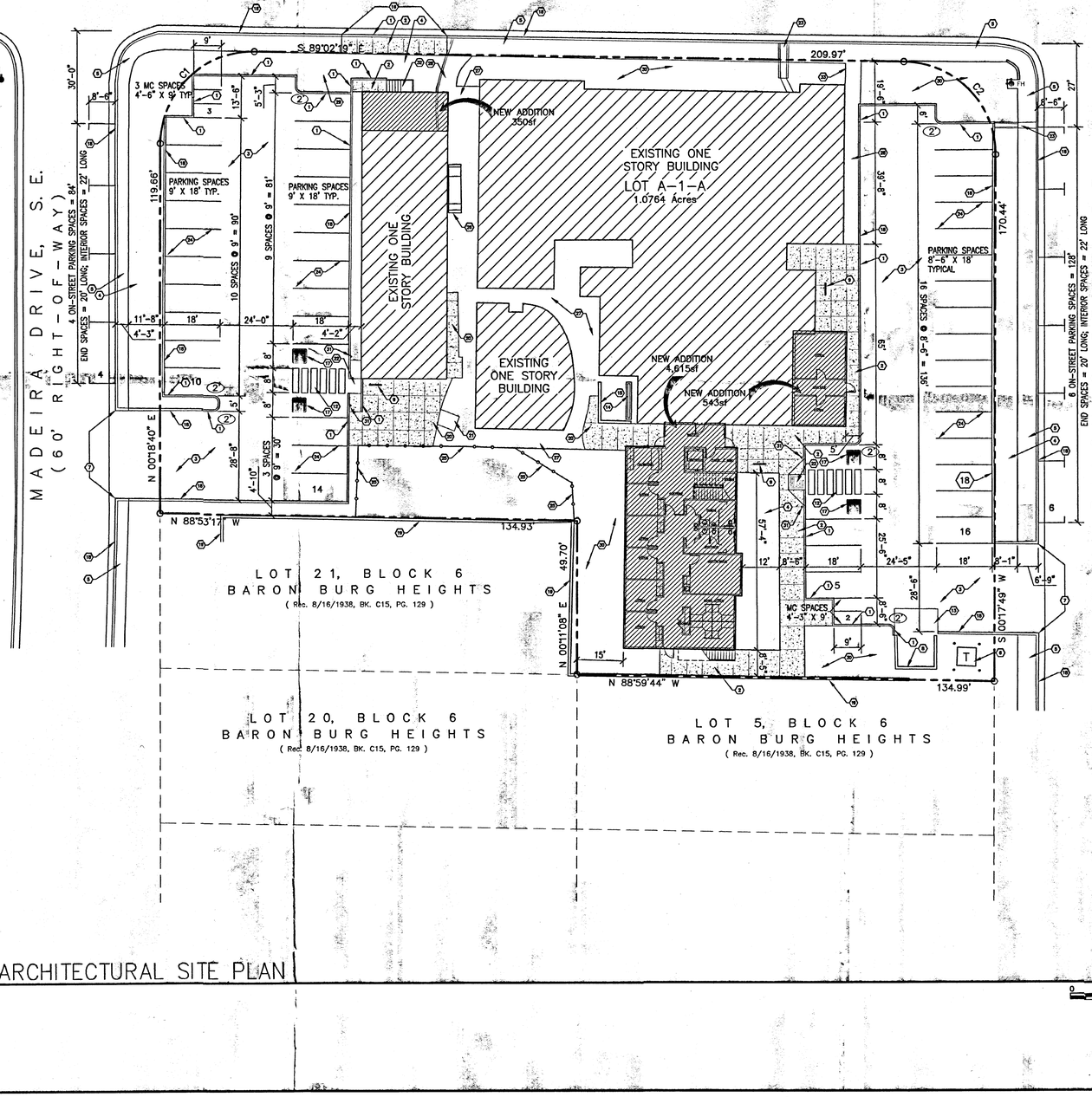


A1 ARCHITECTURAL SITE PLAN

GENERAL NOTES

A. PARKING LOT DIMENSIONS ARE FROM FACE OF CURB TO FACE OF CURB UNLESS OTHERWISE NOTED
B. REFER TO SHEET A-100 FOR ARCHITECTURAL SITE DEMOLITION NOTES.
C. REFER TO SHEET A-102 FOR ARCHITECTURAL SITE DETAILS.

KEYED NOTES

1. NEW 6" CONCRETE CURB.
2. NEW CONCRETE SIDEWALK.
3. NEW ASPHALT PAVING. SEE GEOTECHNICAL REPORT FOR PAVING SECTION.
4. NEW LANDSCAPE AREA.
5. EXISTING CITY OF ALBUQUERQUE SIDEWALK WITH EXISTING HANDICAP RAMPS TO REMAIN.
6. RELOCATED TRANSFORMER. REFER TO AS-100 FOR ORIGINAL LOCATION.
7. EXISTING CURB CUT TO REMAIN AS IS.
8. EXISTING DUMPSTER LOCATION TO REMAIN.
9. BICYCLE RACK. SEE XX/AS-102.
10. NOT USED.
11. EXISTING FIRE HYDRANT.
12. HANDICAP ACCESS AISLE STRIPING. SEE XX/AS-102
13. EXISTING DUMPSTER CONCRETE PAD TO REMAIN.
14. EXISTING EQUIPMENT TO REMAIN.
15. EXISTING SCREEN WALL TO REMAIN.
16. EXISTING CURB CUTS TO BE REMOVED AND INFILL TO BE FLUSH WITH ADJACENT CONCRETE C.O.A. SIDEWALK.
17. NEW PAVEMENT HANDICAP SIGN. SEE XX/AS-102.
18. EXISTING CONCRETE CURB TO REMAIN.
19. EXISTING 6' HIGH WALL TO REMAIN.
20. FILL IN CONCRETE FLAT WORK AS SHOWN TO MATCH EXISTING FINISH ELEVATION.
21. FILL IN EXISTING CONCRETE RAMP TO MATCH SURROUNDING CONCRETE FINISH ELEVATION.
22. NEW HC RAMP. REFER TO DETAIL XX/AS-102.
23. EXISTING CULVERT TO REMAIN.
24. NEW PARKING SPACE STRIPING.
25. EXISTING FENCING TO REMAIN.
26. EXISTING STAIRS TO REMAIN.
27. EXISTING CONCRETE FLATWORK TO REMAIN.
28. EXISTING CONCRETE SIDEWALK TO REMAIN.
29. INFILL AREA TO BRING UP LANDSCAPE ELEVATION TO MATCH ADJACENT AREA.
30. EXISTING LANDSCAPE AREA.
31. NEW POLE MOUNTED ACCESSIBLE PARKING SIGNAGE. SEE XX/AS-102.
32. NEW EGRESS STAIR FOR NEW ADDITION. REFER TO ARCHITECTURAL.
33. 6' WIDE ADA ACCESSIBLE PATHWAY.

RADIUS INFO

TURNING RADIUS @ EACH CURB LOCATION

CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD LENGTH
C1	47.40'	30.00'	42.62'
C2	46.81'	30.00'	42.21'

DESIGN CRITERIA

NEIGHBORHOOD ASSOCIATION: SOUTH SAN PEDRO
SECTOR PLANS: NONE
COMPREHENSIVE PLANS: NONE
AREA PLANS: NONE
METROPOLITAN REDEVELOPMENT PLAN: NEAR HEIGHTS

14-16-2-16 C-1 NEIGHBORHOOD COMMERCIAL ZONE
A. PERMISSIVE USES
3. OFFICE
10. SERVICES
K. MEDICAL/DENTAL

SIGNAGE: ALL SIGNAGE SHALL COMPLY WITH THE C-1 COMMERCIAL ZONE 14-16-2-16

MAXIMUM BUILDING HEIGHT: = 26' BUILDING HEIGHT
MINIMUM BUILDING SETBACKS:
14-16-2-15(E) FRONT = 5' PER COA
SIDE = 5' PER COA
REAR = 5' PER COA

OFF-STREET PARKING:
14-16-3-1
A.18 MEDICAL OR DENTAL OFFICE, CLINIC: FIVE SPACES PER DOCTOR: 7 DOCTORS MAXIMUM PER FIRST NATIONS: =35 SPACES
A.21 OFFICES: ONE SPACE PER 200SF GROUND FLOOR: =2,533sf / 200 = 13 SPACES REQUIRED
A.21 OFFICES: ONE SPACE PER 300SF ABOVE GROUND FLOOR: =2,082sf / 300 = 7 SPACES REQUIRED
TOTAL REQUIRED = 55 SPACES

PARKING REDUCTIONS:
THE PARKING REQUIREMENT OF A BUILDING OR USE SHALL BE REDUCED 10% IF IT IS WITHIN 300' OF A REGULAR ALBUQUERQUE TRANSIT SYSTEM ROUTE.

TOTAL REQUIRED =49 SPACES
=2 MOTORCYCLE SPACES
=3 ADA SPACES
=>3 BICYCLE SPACES

TOTAL PROVIDED =45 OFF-STREET SPACES
=5 ON-STREET SPACES
=4 ADA SPACES
=18 BICYCLE SPACES
=5 MOTORCYCLE SPACES

LANDSCAPE BUFFERS:
14-16-3-10(E) FRONT = 10' PER COA
SIDE = 6' PER COA

buffalodesign
architects
1113 rhode island ne
suite a
albuquerque, nm 87110

SEAL
NOT FOR CONSTRUCTION

PROJECT
FIRST NATIONS COMMUNITY HEALTHSOURCE ADDITIONS
5608 ZUNI RD SE
ALBUQUERQUE, NM 87108

REVISIONS		
MK	DATE	DESCRIPTION
0		

CLIENT PROJ #:	
ARCHT PROJ #:	A16.08
DRAWN BY:	MAG
CHECKED BY:	MAG
DATE	NOVEMBER 2016

SHEET TITLE
ARCHITECTURAL SITE PLAN

AS-101

SURVEY LEGAL DESCRIPTION

Lot "A-1-A" of Hollingberry's Replat of Block 6 of the Baron Burg Heights Addition, as the same is shown and designated on the plat thereof, filed in the Office of the County Clerk of Bernalillo County, New Mexico, on October 5, 1989, in Volume C40, Folio 4.

PLAT OF SURVEY

LOT A-1-A, BLOCK 6
BARON BURG HEIGHTS ADDITION

WITHIN SECTION 24, T. 10 N., R. 3 E., NMPM

ALBUQUERQUE, BERNALILLO COUNTY, NM

SEPTEMBER 2016

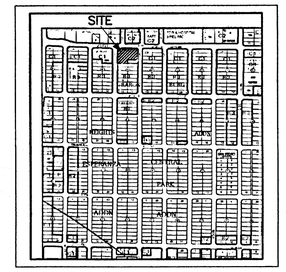
Ⓧ 7 FOOT P.N.M. & M.S.T.&T. CO. EASEMENT
Ⓔ 1.5 FOOT P.N.M & M.S.T.&T. CO. EASEMENT
Ⓧ 10 FOOT BY 10 FOOT TRANSFORMER EASEMENT

MONUMENT LEGEND:

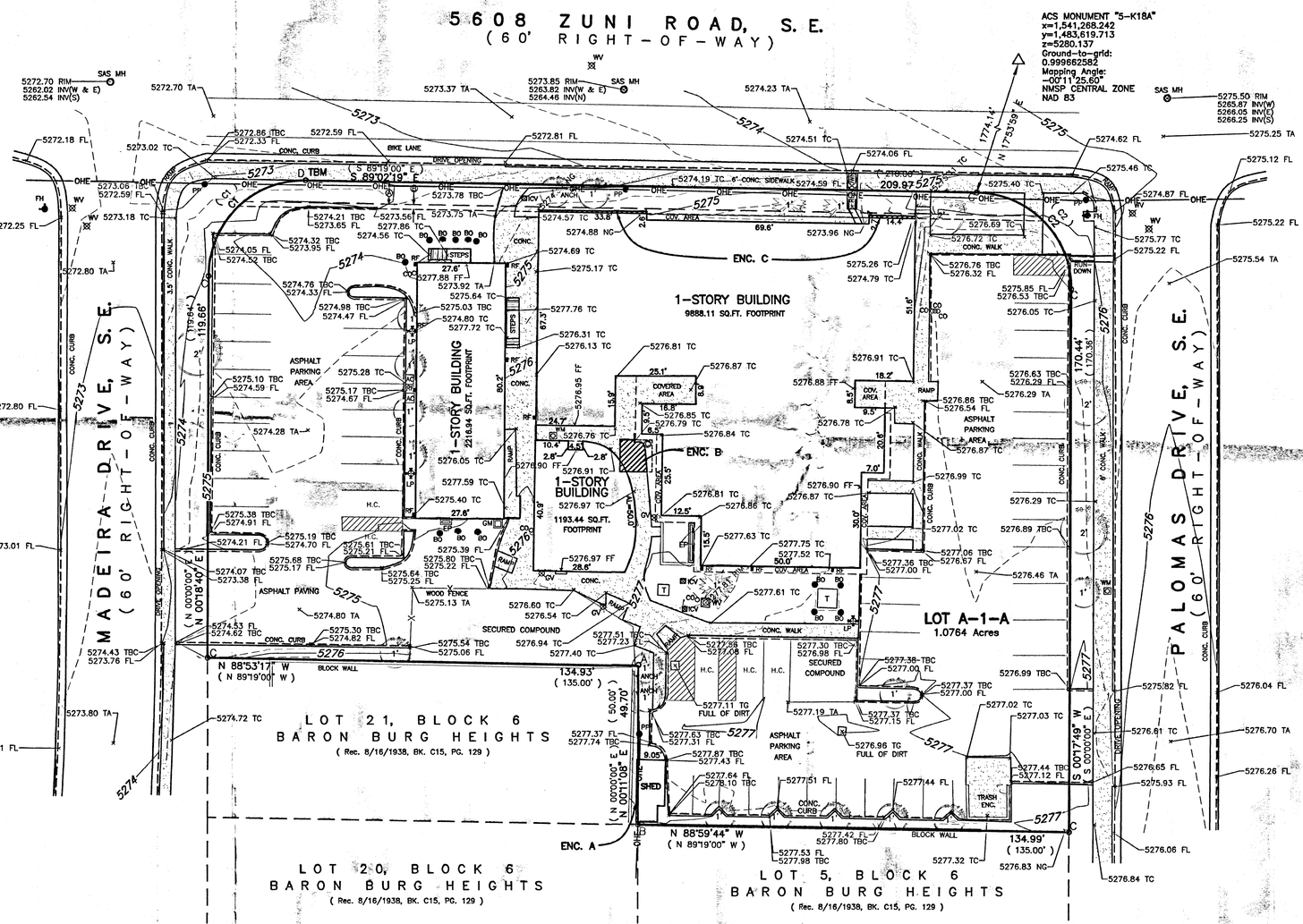
o = FOUND/SET MONUMENT AS NOTED:

A: FOUND #4 REBAR AND CAP "LS 7264"
B: SET NAIL AND DISK "WAYJOHN PS 14269"
C: SET #4 REBAR AND CAP "WAYJOHN PS 14269"
D: SET CHISELED "+" IN SIDEWALK

VICINITY MAP



N.T.S.



LEGEND:

MH	MANHOLE (TYPE)	PP	POWER POLE	GM	GAS METER
CO	SEWER CLEANOUT	ANCH	GUY ANCHOR	ICV	IRRIGATION CONTROL VALVE/BOX
WM	WATER METER	T	ELECTRIC TRANSFORMER	RF	ROOF DRAIN
WV	WATER VALVE	EP	ELECTRIC PANEL	BO	BOLLARD
FH	FIRE HYDRANT	AC	AIR CONDITIONING UNIT	OHE	OVERHEAD ELECTRIC LINES
LP	LIGHT POLE	GV	GAS VALVE		

DECIDUOUS TREE CALIPER AS NOTED
EVERGREEN TREE CALIPER AS NOTED
EXISTING CONTOURS @0.5 FT. INTERVALS
5430 INDEX CONTOURS @1 FT. INTERVALS
+5197.12 SPOT ELEVATION ELEVATIONS ARE TO ANNOTATED SPOTS

TBC	TOP BACK OF CURB
FL	FLOWLINE
TC	TOP OF CONCRETE
TA	TOP OF ASPHALT
FF	FINISHED FLOOR
RIM	TOP OF RIM COVER
NG	NATURAL GROUND
INV	INVERT OF PIPE

SCALE: 1 INCH = 20 FEET

PLAT NOTES

1. Bearings are New Mexico State Plane Grid, based upon City of Albuquerque Survey Control Monuments. All bearings and distances shown hereon are field measured. All distances shown in parenthesis are from the plat of record. All found and accepted monuments tagged with metal disk "PS 14269" where applicable.
2. All distances are ground.
3. Date of field survey: September 29, 2016.
4. This survey is a retracement survey based upon found monuments and the plat of record. No title information or documentation regarding this property was provided to Wayjohn Surveying by the client for use in the preparation of this survey.
5. It is hereby certified that this property is NOT located within a 100 year flood hazard boundary in accordance with current HUD Federal Administration Flood Hazard Boundary Maps. Zone X (no year hazard), Panel 350002 0354 H, with an effective date of August 16, 2012. Note: Zuni Road, S.E., lies within a 100 year flood hazard boundary (Zone A).
6. BENCH MARK ACS STA 5-K18A
   2 inch brass disc set in concrete sidewalk along the north side of Central Avenue, N.E., approximately midway between Alvarado Drive, N.E., and Valencia Drive, N.E.
   ELEV. 5280.137 (NAVD 1988)
   TBM : CHISELED "+" IN CONCRETE SIDEWALK (PROPERTY CORNER)
   ELEV. 5273.12
7. ENCROACHMENTS (SEE SKETCH)
   ENC. A: SHED ENCROACHES FROM LOT A-1-A INTO LOT 21 BY UP TO 0.68'.
   ENC. B: BUILDING AND CONCRETE ENCROACH INTO TRANSFORMER EASEMENT.
   ENC. C: BUIDLING AND CONCRETE ENCROACH INTO 1.5' PNM & M.S.T.&T EASEMENT.

CURVE TABLE

CURVE #	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	47.40	30.00	90°31'38"	S45°40'13"W	42.62
(C1)	47.48	30.00	90°41'00"	S45°20'30"W	42.68
C2	48.81	30.00	89°24'02"	N44°23'12"W	42.21
(C2)	46.77	30.00	89°19'00"	N44°39'30"W	42.17

I, Thomas D. Johnston, a Registered Professional Surveyor licensed under the laws of the State of New Mexico, do hereby certify that this survey was performed by me or under my direct supervision, that all buildings, structures, and improvements on the property are shown hereon, that all easements of record or made known to me by the owner of record or by the title company are shown hereon, and that this survey was performed to the Minimum Standards for Land Surveys in the State of New Mexico as adopted July 24, 2016, and is true and correct to the best of my knowledge and belief. I further certify that this survey and plat do not meet the requirements of the City of Albuquerque or Bernalillo County Subdivision Ordinance(s), and is not intended to subdivide any parcel.

10/05/2016
Thomas D. Johnston, PS 14269 — Date

THOMAS D. JOHNSTON NEW MEXICO 14269 REGISTERED LAND SURVEYOR

WAYJOHN SURVEYING INC
330 LOUISIANA BLVD., N.E.
ALBUQUERQUE, N.M. 87108
PHONE: (505) 255-2052 FAX: (505) 255-2887

DRAWN: T R J	SCALE:	FILE NO.	
CHECKED: T D J	1" = 20'	SC-9-04-16	
DRAWING NO. SC90416.DWG	10/05/2016	SHEET 1 OF 1	

DRAINAGE PLAN

I. INTRODUCTION AND EXECUTIVE SUMMARY

THIS PROJECT, LOCATED UPSTREAM OF THE ZUNI/SAN MATEO INTERSECTION IN THE SOUTHEAST HEIGHTS OF THE ALBUQUERQUE METROPOLITAN AREA, REPRESENTS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. THE PURPOSE OF THIS PROJECT IS TO CREATE AN ATTACHED BUILDING ADDITION ALONG WITH A DETACHED BUILDING ADDITION TO THIS HEALTHCARE FACILITY SITE.

THIS SUBMITTAL IS MADE IN SUPPORT OF A BUILDING PAVING PERMIT APPROVAL WITHIN THE JURISDICTION OF THE CITY OF ALBUQUERQUE.

II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF ZUNI ROAD SE AND PALOMAS DRIVE SE. THE CURRENT LEGAL DESCRIPTION IS PARCEL A1A, HOLLINGBERRY'S REPLAT OF BLOCK 6, BARON BURG HEIGHTS ADDITION. AS SHOWN BY PANEL 354 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, SEPTEMBER 26, 2008, THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE. THE SITE DOES, HOWEVER, LIE IMMEDIATELY ADJACENT TO A DESIGNATED FLOOD HAZARD ZONE (AO DEPTH 1) THAT COINCIDES WITH ZUNI ROAD SE. ALTHOUGH THE PROPOSED IMPROVEMENTS WILL GENERATE ADDITIONAL RUNOFF THAT WILL CONTRIBUTE TO THE DESIGNATED FLOOD HAZARD ZONE, THE INCREASE IS MINIMAL. IN ADDITION, THE SITE IS LOCATED AT THE BOTTOM OF THE WATERSHED CONTRIBUTING TO SAN MATEO BLVD SE. DETENTION ON A SITE THAT ALREADY HAS FREE DISCHARGE WOULD BE OF LITTLE TO NO BENEFIT.

III. BACKGROUND DOCUMENTS

THE PREPARATION OF THIS PLAN RELIED UPON THE FOLLOWING DOCUMENTS AND ACTIVITIES:

- RECORD GRADING AND DRAINAGE PLAN PREPARED BY THIS OFFICE (NMPE 8547) DATED 09-28-89 AND UPDATED 04-09-2002. THIS REFERENCED PLAN PROVIDES THE BASIS FOR THE EXISTING CONDITIONS OF THE PROJECT SITE AS WELL AS ESTABLISHING THE PRECEDENT FOR FREE DISCHARGE FROM THIS SITE.
- VISUAL SITE INSPECTION ON DECEMBER 20, 2010 TO VERIFY EXISTING CONDITIONS AND OBTAIN SUPPLEMENTAL SITE DATA.

IV. EXISTING CONDITIONS

THE SITE PRESENTLY CONSISTS OF AN EXISTING HEALTHCARE FACILITY. THE SITE IS CHARACTERIZED BY THREE (3) DRAINAGE BASINS. BASIN 1 LIES AT THE WEST SIDE OF THE SITE AND FREELY DISCHARGES ITS RUNOFF TO ZUNI ROAD SE VIA AN EXISTING DRIVEPAD. ZUNI ROAD SE DRAINS FROM EAST TO WEST AND FLOWS TO SAN MATEO BLVD SE. FROM THIS POINT, RUNOFF IS CARRIED WITHIN SAN MATEO BLVD SE TO THE NORTH BOTH IN PUBLIC STORM DRAIN IMPROVEMENTS AS WELL AS SURFACE FLOW. BASIN 2 LIES AT THE NORTHEAST CORNER OF THE SITE AND DISCHARGES ITS RUNOFF TO PALOMAS DRIVE SE VIA A SIDEWALK CULVERT. FROM THIS POINT, THE RUNOFF FLOWS NORTH TO ZUNI ROAD SE. BASIN 3 LIES AT THE SOUTHEAST CORNER OF THE SITE AND DRAINS TO PALOMAS BLVD SE VIA AN EXISTING DRIVEPAD. PORTIONS OF THE PARKING LOT WITHIN BASIN 3 ARE FLAT WITH LOCALIZED PONDING ADDRESSED BY EXISTING FRENCH DRAIN INLETS LOCATED IN SUMP CONDITIONS.

NO APPARENT OFFSITE FLOWS ENTER THE SITE CONSISTENT WITH THE 1989 DRAINAGE SUBMITTAL.

V. DEVELOPED CONDITIONS

THE PROPOSED CONSTRUCTION CONSISTS OF A STAND ALONE BUILDING ADDITION WITHIN BASIN 1 AND AN ATTACHED BUILDING ADDITION WITHIN BASIN 2. NO WORK IS PROPOSED WITHIN BASIN 3.

THE BASIN 1 BUILDING ADDITION WILL OCCUPY A PORTION OF THE SITE THAT PRESENTLY CONTAINS COMPACTED SOIL AND CONCRETE SIDEWALK. THE ROOF DRAINAGE FROM THE PROPOSED ADDITION WILL DISCHARGE TO THE SOUTH WHERE IT WILL BE DIRECTED BY SURFACE FLOW TO THE EXISTING PARKING LOT OF THE WEST SIDE OF THE SITE. FROM THIS POINT, THE RUNOFF WILL SURFACE DRAIN TO ZUNI ROAD SE DISCHARGING VIA AN EXISTING DRIVEPAD.

THE BASIN 2 ADDITION WILL OCCUPY A PORTION OF THE SITE THAT IS PRESENTLY LANDSCAPED. THE ROOF DRAINAGE FROM THE ADDITION WILL DISCHARGE TO THE EXISTING PARKING LOT AT THE EAST EDGE OF THE SITE. FROM THIS POINT, THE RUNOFF WILL DRAIN TO PALOMAS DRIVE SE VIA AN EXISTING SIDEWALK CULVERT. ROOF RUNOFF FROM THE EXISTING BUILDING WILL BE INTERCEPTED AND DIVERTED NORTH TO DISCHARGE TO AN EXISTING LANDSCAPED AREA ON THE NORTH SIDE OF THE BUILDING. TO AVOID THE DISCHARGE OF ROOF RUNOFF ACROSS THE SIDEWALK, THE ROOF DISCHARGE WILL BE COLLECTED IN A CONCRETE RUNDOWN THAT WILL DISCHARGE TO ZUNI ROAD VIA A NEW 24-INCH SIDEWALK CULVERT.

VI. GRADING PLAN

THE GRADING PLAN SHOWS THE PROPOSED AREAS OF MODIFICATION, CROSS REFERENCING ENLARGED DETAILS ON A SUBSEQUENT SHEET. THE GRADING PLAN DETAILS SHOW 1.) EXISTING CONDITIONS AS DOCUMENTED BY THE PREVIOUSLY APPROVED GRADING PLAN, 2.) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS, 3.) THE LIMIT AND CHARACTER OF THE EXISTING AND PROPOSED IMPROVEMENTS, AND 4.) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES. AS SHOWN BY THIS PLAN, THE PROPOSED GRADING WILL CONTINUE THE CURRENT DRAINAGE PATTERNS OF DISCHARGE TO THE ADJACENT CITY STREETS.

VII. CALCULATIONS

THE CALCULATIONS CONTAINED HEREON ANALYZE THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PROCEDURE FOR 40 ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY 1993, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. AS DEMONSTRATED BY THESE CALCULATIONS, THE PROPOSED PROJECT WILL RESULT IN A MINOR INCREASE IN THE RUNOFF GENERATED BY THE OVERALL SITE. THIS WILL HAVE A NEGLIGIBLE IMPACT ON THE DOWNSTREAM CONDITIONS DESCRIBED ABOVE.

VIII. CONCLUSIONS

THE FOLLOWING CONCLUSIONS HAVE BEEN ESTABLISHED AS A RESULT OF THE EVALUATIONS CONTAINED HEREIN:

1. THE PROPOSED IMPROVEMENTS REPRESENT MODIFICATIONS TO AN EXISTING SITE WITHIN AN INFILL AREA
2. THE PROPOSED IMPROVEMENTS WILL MAINTAIN EXISTING DRAINAGE PATTERNS
3. THE PROPOSED DRAINAGE PATTERNS ARE CONSISTENT WITH THE PREVIOUSLY APPROVED DRAINAGE PLANS FOR THIS SITE
4. THE PROPOSED IMPROVEMENTS WILL CREATE A NEGLIGIBLE INCREASE IN RUNOFF GENERATED BY THE SITE
5. THE PROPOSED IMPROVEMENTS WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OR DOWNSTREAM DRAINAGE CONDITIONS
6. THE FREE DISCHARGE OF DEVELOPED RUNOFF IS APPROPRIATE BASED UPON THE PRECEDENT ESTABLISHED BY PRIOR SUBMITTALS

CALCULATIONS

A. PRECIPITATION ZONE = 3

B. $P_{100,\,6\,HR} = P_{360} =$ 2.60

C. TOTAL PROJECT AREA (A_T) = 47,250 SF / 1.08 AC

1. BASIN 1: 18,850 SF / 0.43 AC
2. BASIN 2: 17,200 SF / 0.39 AC
3. BASIN 3: 11,200 SF / 0.26 AC

D. LAND TREATMENTS

1. EXISTING LAND TREATMENT

BASIN	TREATMENT	AREA (SF/AC)	%
a. BASIN 1	A	0 0.00	
	B	4,150 / 0.10	22
	C	0 0.00	
	D	14,700 / 0.34	78
b. BASIN 2	A	0 0.00	
	B	2,690 / 0.06	16
	C	0 0.00	
	D	14,510 / 0.33	84
c. BASIN 3	A	0 0.00	
	B	1,930 / 0.04	17
	C	0 0.00	
	D	9,270 / 0.21	83

2. DEVELOPED LAND TREATMENT

BASIN	TREATMENT	AREA (SF/AC)	%
a. BASIN 1	A	0 0.00	
	B	3,960 / 0.09	21
	C	0 0.00	
	D	14,900 / 0.34	79
b. BASIN 2	A	0 0.00	
	B	1,810 / 0.04	11
	C	0 0.00	
	D	15,390 / 0.35	89
c. BASIN 3	A	0 0.00	
	B	1,930 / 0.04	17
	C	0 0.00	
	D	9,270 / 0.21	83

II. HYDROLOGY

A. EXISTING CONDITION

1. BASIN 1

a. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W =$ (0.66*0.00) + (0.92*0.10)+ (1.29*0.00)+ (2.36*0.34)/0.43 = 2.04 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (2.04/12)0.43 = 0.0736 AC-FT = 3,200 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.87*0.00) + (2.60*0.10) + (3.45*0.00) + (5.02*0.34) = 1.9 CFS

2. BASIN 2

a. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W =$ (0.66*0.00) + (0.92*0.06)+ (1.29*0.00)+ (2.36*0.33)/0.39 = 2.13 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (2.13/12)0.39 = 0.0701 AC-FT = 3,050 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.87*0.00) + (2.60*0.06) + (3.45*0.00) + (5.02*0.33) = 1.8 CFS

3. BASIN 3

a. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W =$ (0.66*0.00) + (0.92*0.04)+ (1.29*0.00)+ (2.36*0.21)/0.26 = 2.11 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (2.11/12)0.26 = 0.0452 AC-FT = 1,970 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.87*0.00) + (2.60*0.04) + (3.45*0.00) + (5.02*0.21) = 1.2 CFS

B. DEVELOPED CONDITION

1. BASIN 1

a. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W =$ (0.66*0.00) + (0.92*0.09)+ (1.29*0.00)+ (2.36*0.34)/0.43 = 2.06 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (2.06/12)0.43 = 0.0743 AC-FT = 3,240 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.87*0.00) + (2.60*0.09) + (3.45*0.00) + (5.02*0.34) = 2.0 CFS

2. BASIN 2

a. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W =$ (0.66*0.00) + (0.92*0.04)+ (1.29*0.00)+ (2.36*0.35)/0.39 = 2.21 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (2.21/12)0.39 = 0.0727 AC-FT = 3,170 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.87*0.00) + (2.60*0.04) + (3.45*0.00) + (5.02*0.35) = 1.9 CFS

3. BASIN 3

a. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W =$ (0.66*0.00) + (0.92*0.04)+ (1.29*0.00)+ (2.36*0.21)/0.26 = 2.11 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (2.11/12)0.26 = 0.0452 AC-FT = 1,970 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.87*0.00) + (2.60*0.04) + (3.45*0.00) + (5.02*0.21) = 1.2 CFS

C. COMPARISON

1. VOLUME

a. BASIN 1
$\Delta V_{100,\,6\,HR} =$ 3,240 - 3,200 = 40 CF (INCREASE)

b. BASIN 2
$\Delta V_{100,\,6\,HR} =$ 3,170 - 3,050 = 120 CF (INCREASE)

c. BASIN 3
$\Delta V_{100,\,6\,HR} =$ 1,970 - 1,970 = 0 CF

2. PEAK DISCHARGE

a. BASIN 1
$\Delta Q_{100} =$ 2.0 - 1.9 = 0.1 CFS (INCREASE)

b. BASIN 2
$\Delta Q_{100} =$ 1.9 - 1.8 = 0.1 CFS (INCREASE)

c. BASIN 3
$\Delta Q_{100} =$ 1.2 - 1.2 = 0.0 CFS (NO CHANGE)

3

ENGINEER'S DRAINAGE CERTIFICATION

I, JEFFREY G. MORTENSEN, NMPE 8547, OF THE FIRM HIGH MESA CONSULTING GROUP, HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND DRAINED IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 12-23-2010 WITH EXCEPTIONS AS NOTED BELOW. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY THE UNDERSIGNED AS SUPPLEMENTAL SITE DATA, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED TO IN SUPPORT OF A REQUEST FOR ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

THE FOLLOWING EXCEPTION AS NOTED ABOVE IS LISTED BELOW:

- THE NEW SIDEWALK BETWEEN THE EXISTING BUILDING AND THE NEW STAND ALONE BUILDING ADDITION LACKS POSITIVE DRAINAGE TO THE WEST PARKING LOT AS INTENDED BY THE APPROVED PLAN. INSTEAD, THE SIDEWALK DRAINS TO AN EXISTING LANDSCAPED PLANTER WHERE NUISANCE FLOWS WILL BE CONTAINED. ROOF RUNOFF FROM THE EXISTING BUILDING HAS BEEN DIVERTED TO THE WEST AWAY FROM THIS AREA SO THAT THE RUNOFF EXPERIENCED BY THIS AREA WILL BE LIMITED TO WHAT FALLS UPON IT.

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. THIS CERTIFICATION DOES NOT ADDRESS ADA COMPLIANCE WHICH IS BEYOND THE SCOPE OF GRADING AND DRAINAGE. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

JEFFREY G. MORTENSEN, NMPE 8547

03-19-2012
DATE

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

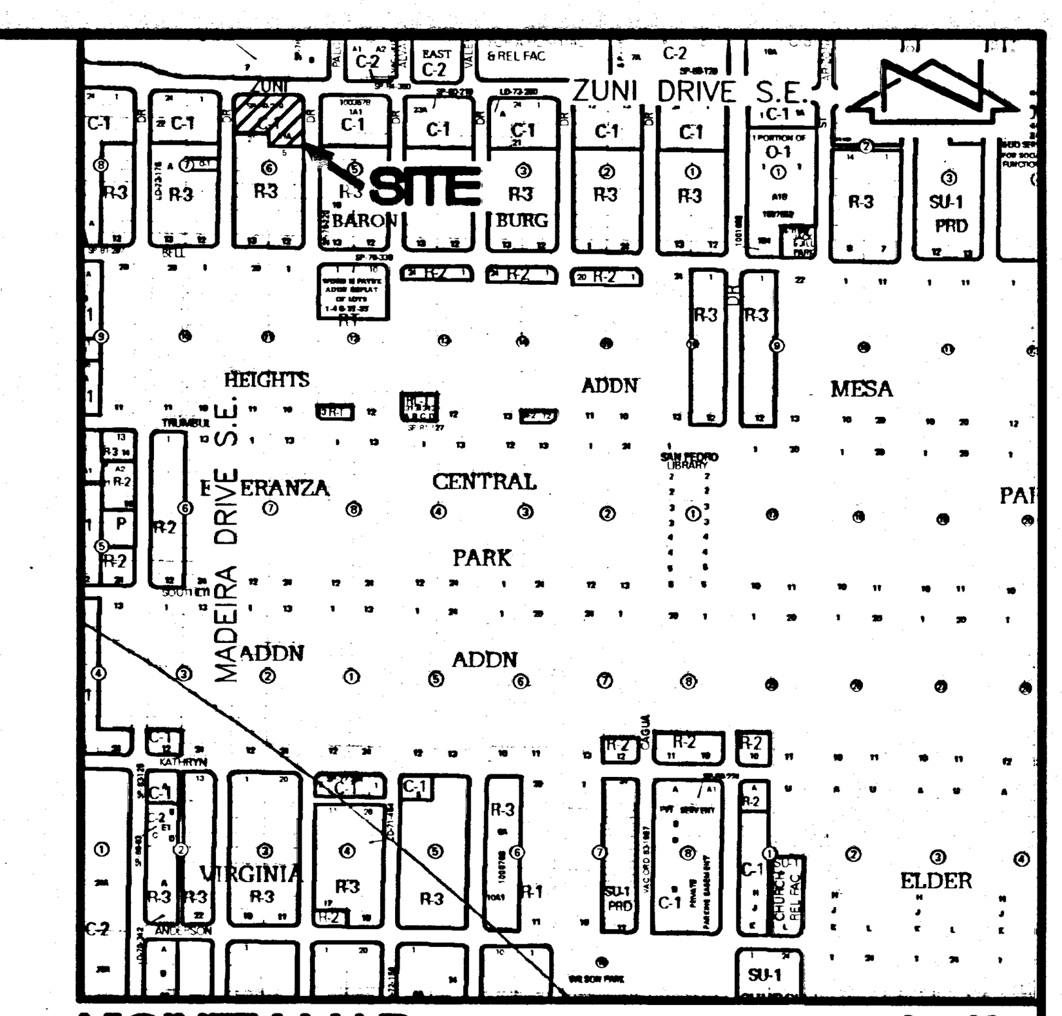
CONSTRUCTION NOTES

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION AS REVISED THROUGH UPDATE #7, AMENDMENT 1
5. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE, THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
6. THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.
7. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
8. BACKFILL COMPACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
9. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.

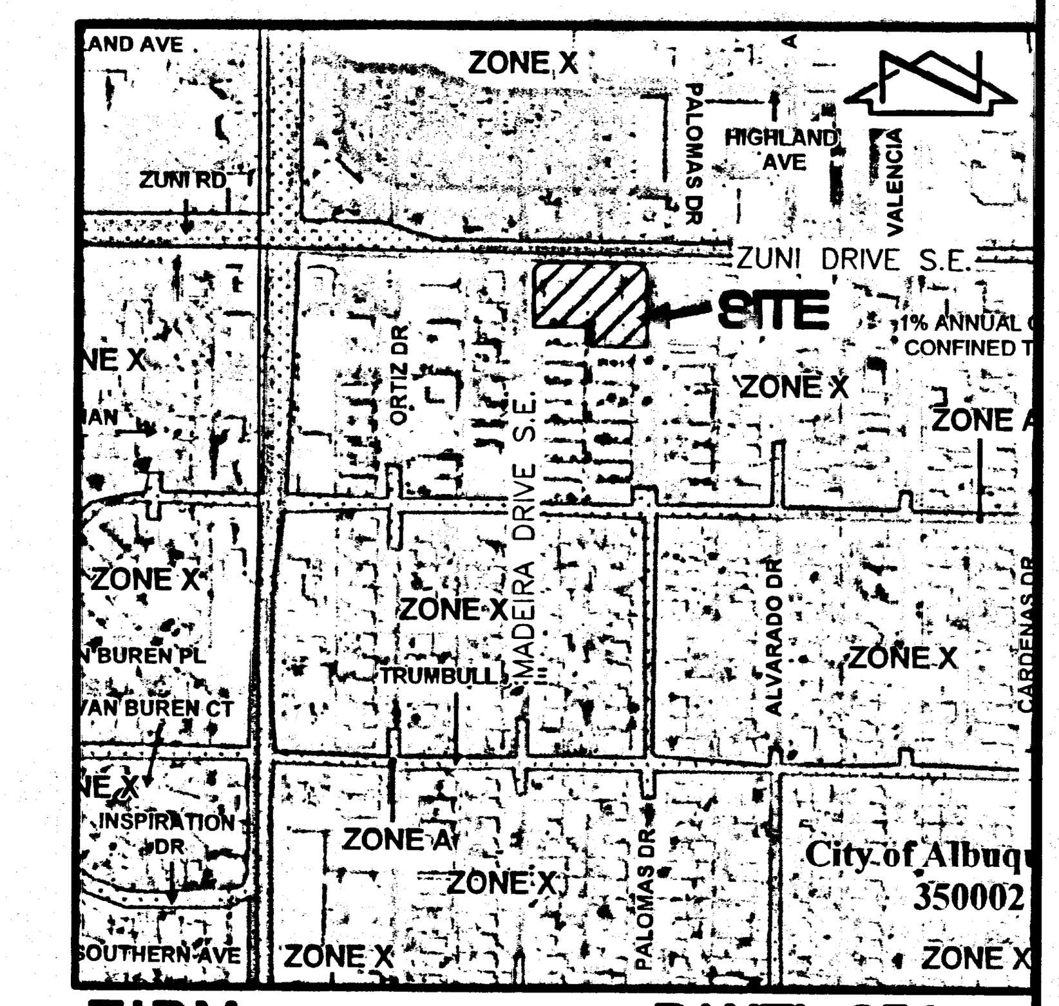
APPROVALS	NAME	DATE
HYDROLOGY		
SIDEWALK INSPECTOR		
STORM DRAIN MAINTENANCE	MARTIN PACHECO VIA E-MAIL	03/12/2012 (3)

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
3. WHEN APPLICABLE, CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" FROM THE CITY AND/OR FILE A NOTICE OF INTENT (N.O.I.) WITH THE EPA PRIOR TO BEGINNING CONSTRUCTION.



VICINITY MAP L-18
SCALE: 1" = 750'



F.I.R.M. PANEL 354 OF 825
SCALE: 1" = 750'
DATED: SEPTEMBER 26, 2008

LEGAL DESCRIPTION (FROM A.G.I.S.)

PARCEL A1A, HOLLINGBERRY'S REPLAT OF BLOCK 6, BARON BURG HEIGHTS ADDITION

PROJECT BENCHMARK (FROM 1989 PLAN)

ACS BM STA 8-K18, A SQUARE '□' CHISELED ON TOP OF CURB LOCATED AT THE SSE RETURN AT THE INTERSECTION OF COAL AVE. S.E. AND SAN MATEO BLVD S.E.
ELEVATION = 5262.15 FT (MSLD)

T.B.M.

FOR T.B.M.'S, SEE SHEET 2

INDEX OF DRAWINGS

SHEET	DESCRIPTION
1	DRAINAGE PLAN AND CALCULATIONS
2	GRADING AND DRAINAGE PLAN (ORIGINAL)
3	GRADING PLAN DETAILS (UPDATE)

(3) RECORD DRAWING LEGEND

CONSTRUCT	RECORD INFORMATION (VERIFIED BY ENGINEER)
✓	AS-CONSTRUCTED = AS-DESIGNED (VERIFIED BY ENGINEER)
36 42"	RECORD INFORMATION (VERIFIED BY ENGINEER)
+25.2	RECORD INFORMATION (VERIFIED BY ENGINEER)
⊕ 28.98.42	RECORD INFORMATION (VERIFIED BY ENGINEER)
✓°	AS-CONSTRUCTED = AS-DESIGNED (VERIFIED BY AS-BUILT SURVEY)
31 31.8	RECORD INFORMATION FROM AS-BUILT SURVEY
+26.9	RECORD INFORMATION FROM AS-BUILT SURVEY
⊕ 31.25.22	RECORD INFORMATION FROM AS-BUILT SURVEY

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER
12-23-2010

(3) RECORD DRAWING

HIGH MESA Consulting Group
6010-B MIDWAY PARK BLVD. NE • ALBUQUERQUE, NEW MEXICO 87109
PHONE: 505.345.4250 • FAX: 505.345.4254 • www.highmesacg.com

DRAINAGE PLAN AND CALCULATIONS
ADDITIONS AND ALTERATIONS TO EXISTING FACILITY
FIRST NATIONS COMMUNITY HEALTHSOURCE

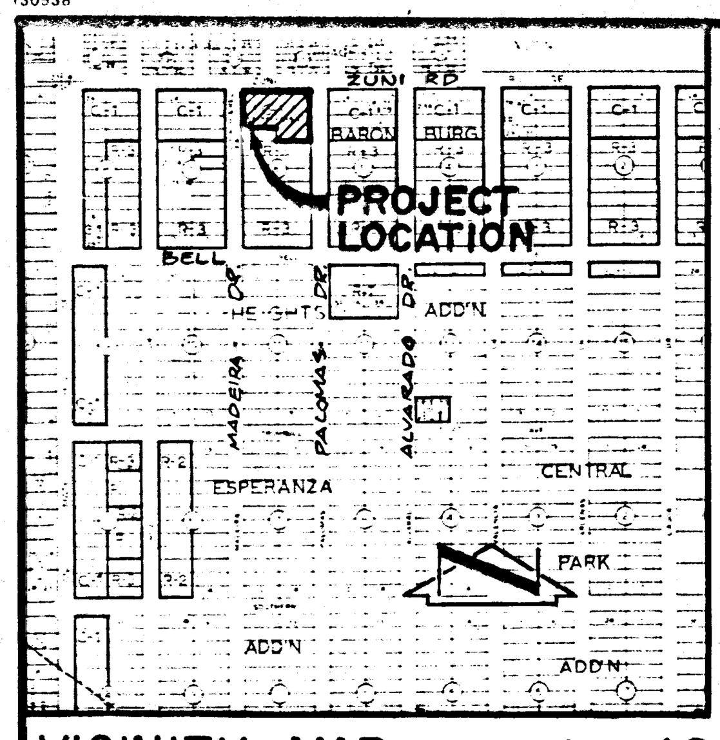
DESIGNED BY	J.G.M.
DRAWN BY	C.F.A./E.J.S.
APPROVED BY	J.G.M.

NO.	DATE	BY	REVISIONS
3	03/12	J.G.M.	RECORD DRAWING AND CERTIFICATION

JOB NO. 89.086.5 6
DATE 12-2007
SHEET 1 OF 3

File Path: P:\DATA\89.086.6\ENG
File Name: 890866_DC.DWG
Plot Date: 03-19-2012
Plot Time: 2:18 pm

130538



VICINITY MAP L-18

SCALE : 1"=800'

LEGAL DESCRIPTION

PARCELS A-1 & B-1, HOLLINGBERRY ADDITION, BLOCK 6 OF THE BARON BURG HEIGHTS ADDITION

PROJECT BENCHMARK

B.M. NO. 8-K18, A SQUARE, '□', CHISELED ON TOP OF THE CONC. CURB LOCATED AT THE SSE RETURN AT THE INTERSECTION OF COAL AVE.S.E. & SAN MATEO BLVD.S.E.
ELEVATION = 5262.149 FEET (M.S.L.D.)

SCALE: 1"=20'

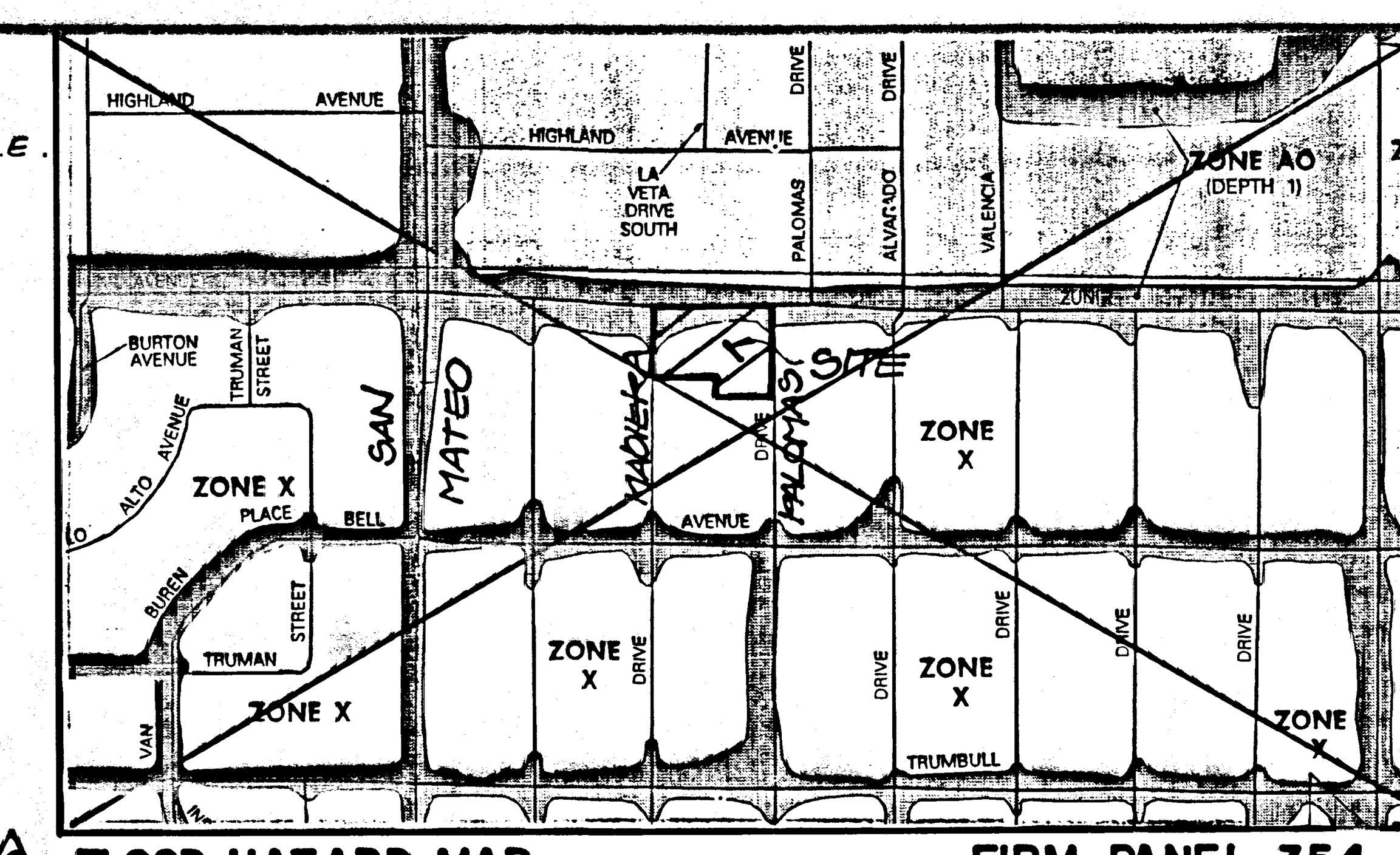
20' 10' 0 20'

T.B.M. # 1

A '+' ON TOP OF CONC. LOCATED @ THE PROJECTION OF THE EAST PROPERTY LINE ON TO THE SOUTH CURB OF ZUNI RD. S.E.
ELEVATION = 5278.68 FEET (M.S.L.D.)

T.B.M. # 2

A '+' ON TOP OF CONC. LOCATED @ THE PROJECTION OF THE WEST PROPERTY LINE ON TO THE SOUTH CURB OF ZUNI RD. S.E.
ELEVATION = 5281.20 FEET (M.S.L.D.)



△2 **FLOOD HAZARD MAP**
1" = 500'

FIRM PANEL 354
SEPT. 20, 1996 - OUT OF DATE, SEE SHEET 1

DRAINAGE PLAN

The following items concerning the F.H.P. Grading and Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, this site is located on the south side of Zuni Road S.E. between Madeira Drive S.E. and Palomas Drive S.E. At present, the site is developed. Much of the surrounding area is currently developed both residentially and commercially making this a modification to an existing site within an infill area. As shown by Plate L-18 of the Albuquerque Master Drainage Study, this site does not lie within a designated flood hazard zone. This site does lie adjacent to a designated flood zone in Zuni Road S.E. The proposed development will continue to discharge to this designated flood zone. This area is served, however, by the Fairgrounds stormwater relief system (AMDS System 205-01A) and the Highland Detention Pond which have alleviated the flooding in Zuni Road S.E. per the AMDS.

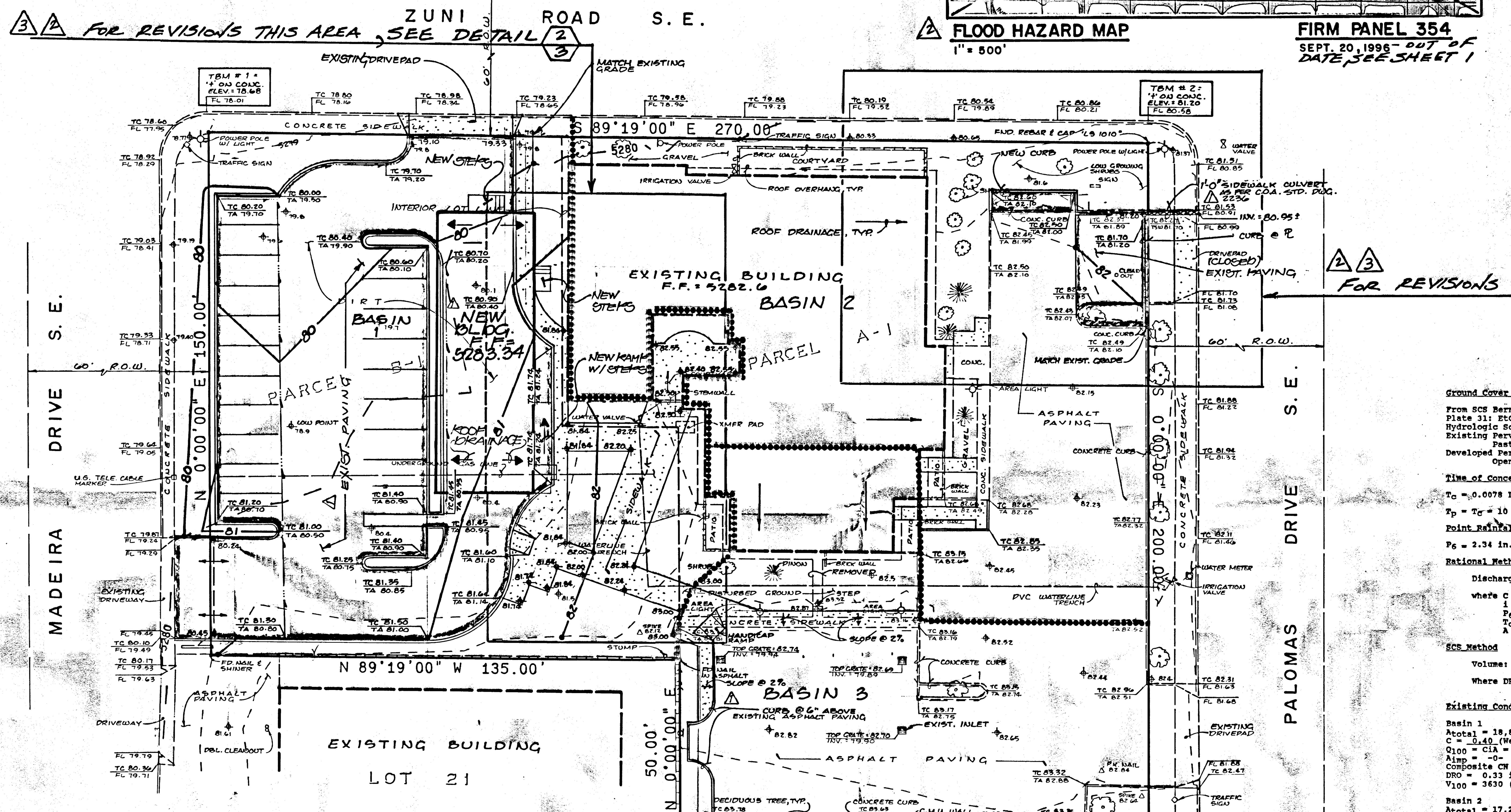
The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) the limit and character of the existing improvements, 3) the limit and character of the proposed improvements, and 4) continuity between existing and proposed grades. As shown by this plan, the proposed improvements consist of additional paving and landscaping. Runoff generated by Basin 1 will be routed from south to north onto Zuni Road S.E. From that point, runoff will flow to the west as discussed above. Runoff generated by Basin 2 will be routed from west to east onto Palomas Drive S.E. via a new sidewalk culvert. From that point, runoff will flow north to Zuni Road S.E. which drains to the west. Runoff generated by Basin 3 will continue to drain to Palomas Drive S.E. which drains to Zuni Road S.E. Minor puddles within the existing parking lot are relieved by a series of french drains. Based upon the fact that this site is a modification to an existing site within an infill area, the proximity of downstream facilities, and the minor increase in runoff anticipated, the free discharge of runoff from this site is appropriate. This pattern is also consistent with existing site drainage.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used to quantify the peak rate of discharge and the SCS Method has been used to quantify the volume of runoff. Both Methods have been used in accordance with the City of Albuquerque Development Process Manual, Volume II, and the Mayor's Emergency Rule adopted January 14, 1986. As shown by these calculations, the proposed improvements in Basin 1 will increase the peak discharge by approximately 0.8 cfs. The decrease in Basin 2 will be approximately 0.4 cfs. Basin 3 will result in no change in the peak discharge. The net increase in runoff will be approximately 0.4 cfs which will not affect the capacity of Zuni Road S.E.

Fully improved streets are located on the west, north and east sides of the site. The streets appear to contain the runoff entering the rights-of-way. A wall is situated on the south property line effectively blocking runoff from the south. In view of the above information, offsite flows do not impact this site.

LEGEND

- ⌖ EXISTING SPOT ELEVATION
- – – – – EXISTING CONTOUR
- TC TOP OF CURB
- FL FLOWLINE
- TA TOP OF ASPHALT
- TSW TOP OF SIDEWALK
- ◆ PROPOSED SPOT ELEVATION
- —80— PROPOSED CONTOUR
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- ●●●●●●●●●● BASIN BOUNDARY



EXISTING BUILDING
LOT 5

Construction Notes

1. Two (2) working days prior to any excavation, contractor must contact Line Locating Service 765-1234, for location of existing utilities.
2. Prior to construction, the contractor shall excavate and verify the horizontal and vertical location of all potential obstructions. Should a conflict exist, the contractor shall notify the engineer in writing so that the conflict can be resolved with a minimum amount of delay.
3. All work on this project shall be performed in accordance with applicable federal, state and local laws, rules and regulations concerning construction safety and health.
4. All construction within public right-of-way shall be performed in accordance with applicable City of Albuquerque Standards and Procedures.
5. If any utility lines, pipelines, or underground utility lines are shown on these drawings, they are shown in an approximate manner only, and such lines may exist where none are shown. If any such existing lines are shown, the location is based upon information provided by the owner of said utility, and the information may be incomplete, or may be obsolete by the time construction commences. The engineer has conducted only preliminary investigation of the location, depth, size, or type of existing utility lines, pipelines, or underground utility lines. This investigation is not conclusive, and may not be complete, therefore, makes no representation pertaining thereto, and assumes no responsibility or liability therefor. The contractor shall inform itself of the location of any utility line, pipeline, or underground utility line in or near the area of the work in advance of and during excavation work. The contractor is fully responsible for any and all damage caused by its failure to locate, identify and preserve any and all existing utilities, pipelines, and underground utility lines. In planning and conducting excavation, the contractor shall comply with state statutes, municipal and local ordinances, rules and regulations, if any, pertaining to the location of these lines and facilities.
6. An Excavation/Construction Permit will be required before beginning any work within City right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
7. Backfill compaction shall be according to **Residential** street use.
8. Maintenance of these facilities shall be the responsibility of the owner of the property served.
9. The design of planters and landscaped areas is not part of this plan. All planters and landscaped areas adjacent to the building(s) shall be provided with positive drainage to avoid any ponding adjacent to the structure. For construction details, refer to landscaping plan.

Erosion Control Measures

1. The contractor shall ensure that no soil erodes from the site into public right-of-way or onto private property. This can be achieved by constructing temporary berms at the property lines and wetting the soil to keep it from blowing.
2. The contractor shall promptly clean up any material excavated within the public right-of-way so that the excavated material is not susceptible to being washed down the street.
3. The contractor shall secure "Topsoil Disturbance Permit" prior to beginning construction.

APPROVALS	NAME	DATE
A.C.E. / DESIGN		
INSPECTOR		
A.C.E. / FIELD		

△1 DRAINAGE PLAN UPDATE

THIS SUBMITTAL REPRESENTS AN UPDATE TO A PREVIOUSLY APPROVED PLAN DATED 09-28-89 PREPARED BY THIS OFFICE. THE PROPOSED IMPROVEMENTS CONSIST OF THE CONSTRUCTION OF A MODULAR BUILDING WITHIN AN ALREADY PAVED PORTION OF THE SITE. THE NEW BUILDING WILL BE ELEVATED ABOVE CURRENT GRADE AND SUPPORTED BY PIERS. THE UNDERLYING ASPHALT PAVING WILL REMAIN AND THEREBY WILL CARRY SURFACE STORMWATER BENEATH THE ELEVATED STRUCTURE. THE PROPOSED FINISHED FLOOR ELEVATION OF THE MODULAR BUILDING IS 5283.34 WHICH IS APPROXIMATELY FOUR (4) FEET ABOVE THE CORRESPONDING TOP-OF-CURB ELEVATION IN ZUNI ROAD SE. THIS IS IMPORTANT TO NOT IN VIEW OF THE FACT THAT ZUNI ROAD SE IS CONSIDERED AN AO (DEPTH 1) FLOOD HAZARD ZONE AS DEPICTED ON FIRM PANEL 354 OF 825 PUBLISHED BY THE NATIONAL FLOOD INSURANCE PROGRAM, SEPTEMBER 20, 1996.

I, JEFFREY G. MORTENSEN, NMPE 8547, DO HEREBY CERTIFY THAT I HAVE PERSONALLY VISITED THE SUBJECT PROJECT SITE ON APRIL 05, 2002 TO VISUALLY OBSERVE THE CONDITION OF THE SITE SINCE THE PREPARATION AND APPROVAL OF THE ORIGINAL GRADING AND DRAINAGE PLAN DATED 09-28-89. BASED UPON MY VISUAL OBSERVATION, THERE HAVE BEEN NO SIGNIFICANT CHANGES TO THE SITE OR THE IMMEDIATE SURROUNDING AREA TO WARRANT A REVISION TO THE DESIGN OF THE PREVIOUSLY APPROVED PLAN, NOR ANY ADVERSE DRAINAGE CONDITIONS NOTED THAT WOULD REQUIRE CORRECTION.

JEFFREY G. MORTENSEN, NMPE 8547
04-09-2002
DATE

JEFFREY G. MORTENSEN · NEW MEXICO · 8547 · REGISTERED PROFESSIONAL ENGINEER

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey,
Plate 31: EtC - Embudo - Tijeras complex
Hydrologic Soil Group: B
Existing Pervious CN = 70 (DPM Plate 22.2 C-2 Pasture or Range Land: fair condition)
Developed Pervious CN = 61 (DPM Plate 22.2 C-2 Open Space: good condition)

Time of Concentration/Time to Peak

$T_c = 0.0078\ L^{0.77}/S^{0.385}$ (Kirpich Equation)

$T_p = T_c = 10$ min.

Point Rainfall

$P_6 = 2.34$ in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: $Q = CiA$

where C varies
$i = P_6\ (6.84)\ T_c^{-0.51} = 4.95$ in/hr
$P_6 = 2.34$ in (DPM Plate 22.2D-1)
$T_c = 10$ min (minimum)
A = area, acres

SCS Method

Volume: V = 3630(DRO) A

Where DRO = Direct runoff in inches
A = area, acres

Existing Condition

Basin 1
A_{total} = 18,850 sf = 0.43 Ac
C = 0.40 (Weighted average per Emergency Rule, 1/14/86)
Q_{100} = CiA = (0.40)(4.95)(0.43) = 0.9 cfs
A_{imp} = -0- sf; % impervious = -0-%
Composite CN = 70 (DPM Plate 22.2 C-2)
DRO = 0.33 in (DPM Plate 22.2 C-4)
V_{100} = 3630 (DRO)A = 515 cf

Basin 2
A_{total} = 17,200 sf = 0.39 Ac
Roof area = 7,380 sf (0.43)
Paved area = 6,720 sf (0.39)
Landscaped area = 3,100 sf (0.18)
C = 0.80 (Weighted average per Emergency Rule, 1/14/86)
Q_{100} = CiA = (0.80)(4.95)(0.39) = 1.5 cfs
A_{imp} = 14,100 sf; % impervious = 82%
Composite CN = 91 (DPM Plate 22.2 C-2)
DRO = 1.5 in (DPM Plate 22.2 C-4)
V_{100} = 3630 (DRO)A = 2,124 cf

Basin 3
A_{total} = 11,200 sf = 0.26 Ac
Roof area = 1,670 sf (0.15)
Paved area = 7,720 sf (0.69)
Landscaped area = 1,810 sf (0.16)
C = 0.83 (Weighted average per Emergency Rule, 1/14/86)
Q_{100} = CiA = (0.83)(4.95)(0.26) = 1.1 cfs
A_{imp} = 9,390 sf; % impervious = 84%
Composite CN = 92 (DPM Plate 22.2 C-2)
DRO = 1.6 in (DPM Plate 22.2 C-4)
V_{100} = 3630 (DRO)A = 1,510 cf

Developed Condition

Basin 1
A_{total} = 18,850 sf = 0.43 Ac
Paved area = 14,700 sf (0.78)
Landscaped area = 4,150 sf (0.22)
C = 0.80 (Weighted average per Emergency Rule, 1/14/86)
Q_{100} = CiA = (0.80)(4.95)(0.43) = 1.7 cfs
A_{imp} = 14,700 sf; % impervious = 78 %
Composite CN = 90 (DPM Plate 22.2 C-2)
DRO = 1.5 in (DPM Plate 22.2 C-4)
V_{100} = 3630 (DRO)A = 2,340 cf

Basin 2
A_{total} = 17,200 sf = 0.39 Ac
Roof area = 7,380 sf (0.43)
Paved area = 7,130 sf (0.41)
Landscaped area = 2,690 sf (0.16)
C = 0.82 (Weighted average per Emergency Rule, 1/14/86)
Q_{100} = CiA = (0.82)(4.95)(0.39) = 1.6 cfs
A_{imp} = 14,510 sf; % impervious = 84 %
Composite CN = 92 (DPM Plate 22.2 C-2)
DRO = 1.6 in (DPM Plate 22.2 C-4)
V_{100} = 3630 (DRO)A = 2,265 cf

Sidewalk Culvert Capacity (1'-0" Opening - Weir Equation)
Q_{10} = (0.657)(1.6) = 1.1 cfs
$Q = CLH^{3/2}$ = 1.1 cfs = Q_{10}
Where C = 3.09
L = 1'-0"
H = 0.5'

Basin 3
A_{total} = 11,200 sf = 0.26 Ac
Roof area = 1,670 sf (0.15)
Paved area = 7,600 sf (0.69)
Landscaped area = 1,930 sf (0.17)
C = 0.82 (Weighted average per Emergency Rule, 1/14/86)
Q_{100} = CiA = (0.82)(4.95)(0.26) = 1.1 cfs
A_{imp} = 9,270 sf; % impervious = 84 %
Composite CN = 92 (DPM Plate 22.2 C-2)
DRO = 1.6 in (DPM Plate 22.2 C-4)
V_{100} = 3630 (DRO)A = 1,510 cf

Comparison

Basin 1
ΔQ_{100} = 1.7 - 0.9 = 0.8 cfs (increase)
ΔV_{100} = 2,340 - 515 = 1,825 cf (increase)

Basin 2
ΔQ_{100} = 1.5 - 1.1 = 0.4 cfs (decrease)
ΔV_{100} = 2,265 - 2,124 = 141 cf (increase)

Basin 3
ΔQ_{100} = 1.1 - 1.1 = 0 cfs (no change)
ΔV_{100} = 1,510 - 1,510 = 0 cf (no change)

JEFFREY G. MORTENSEN · NEW MEXICO · 8547 · REGISTERED PROFESSIONAL ENGINEER
09-28-89
12-23-2010

△3 **RECORD DRAWING**

JEFF MORTENSEN & ASSOCIATES, INC.
811 DALLAS, N.E. □ ALBUQUERQUE, NM 87110
□ ENGINEERS □ TELEPHONE (505) 265-5611 □

GRADING AND DRAINAGE PLAN
FORMERLY FHP
FIRST NATIONS COMMUNITY HEALTH

DESIGNED BY J.G.M.
DRAWN BY S.G.H.
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS
△1	4/02	J.G.M.	ADD NEW BUILDING IN WEST PARKING LOT & FLOOD HAZARD MAP
△2	12-10	JGM	BUILDING ADDITIONS
△3	03/12	J.G.M.	RECORD DRAWING

JOB NO. 890864~~5~~6
DATE 8-89
SHEET 2 ~~1~~ OF ~~1~~3

CONSTRUCTION NOTES

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION AS REVISED THROUGH UPDATE #7, AMENDMENT 1
5. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE, THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
6. THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.
7. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
8. BACKFILL COMPACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
9. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.

APPROVALS	NAME	DATE
HYDROLOGY		
SIDEWALK INSPECTOR		
STORM DRAIN MAINTENANCE	MARTIN PACHECO VIA E-MAIL	3/12/2012

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
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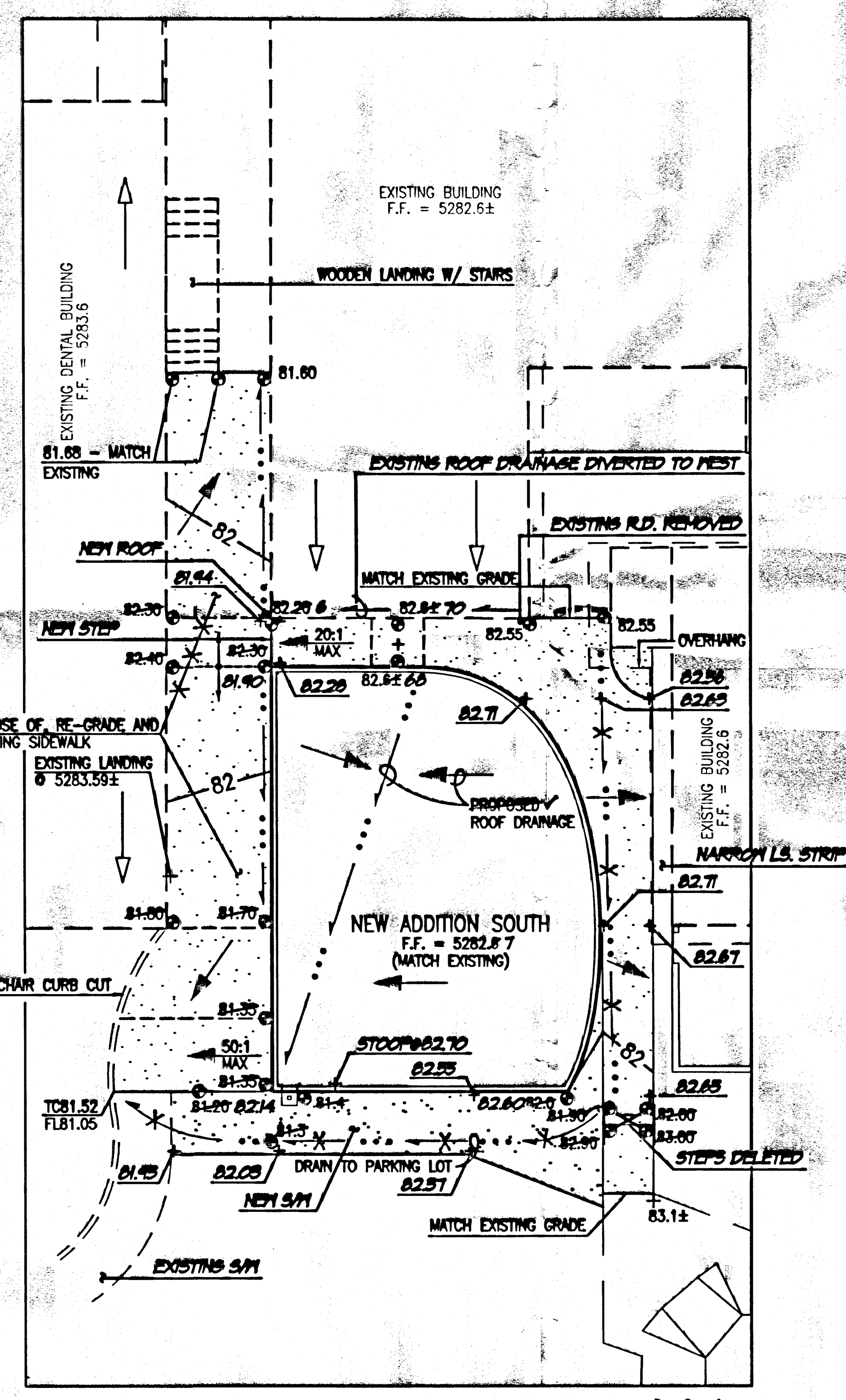
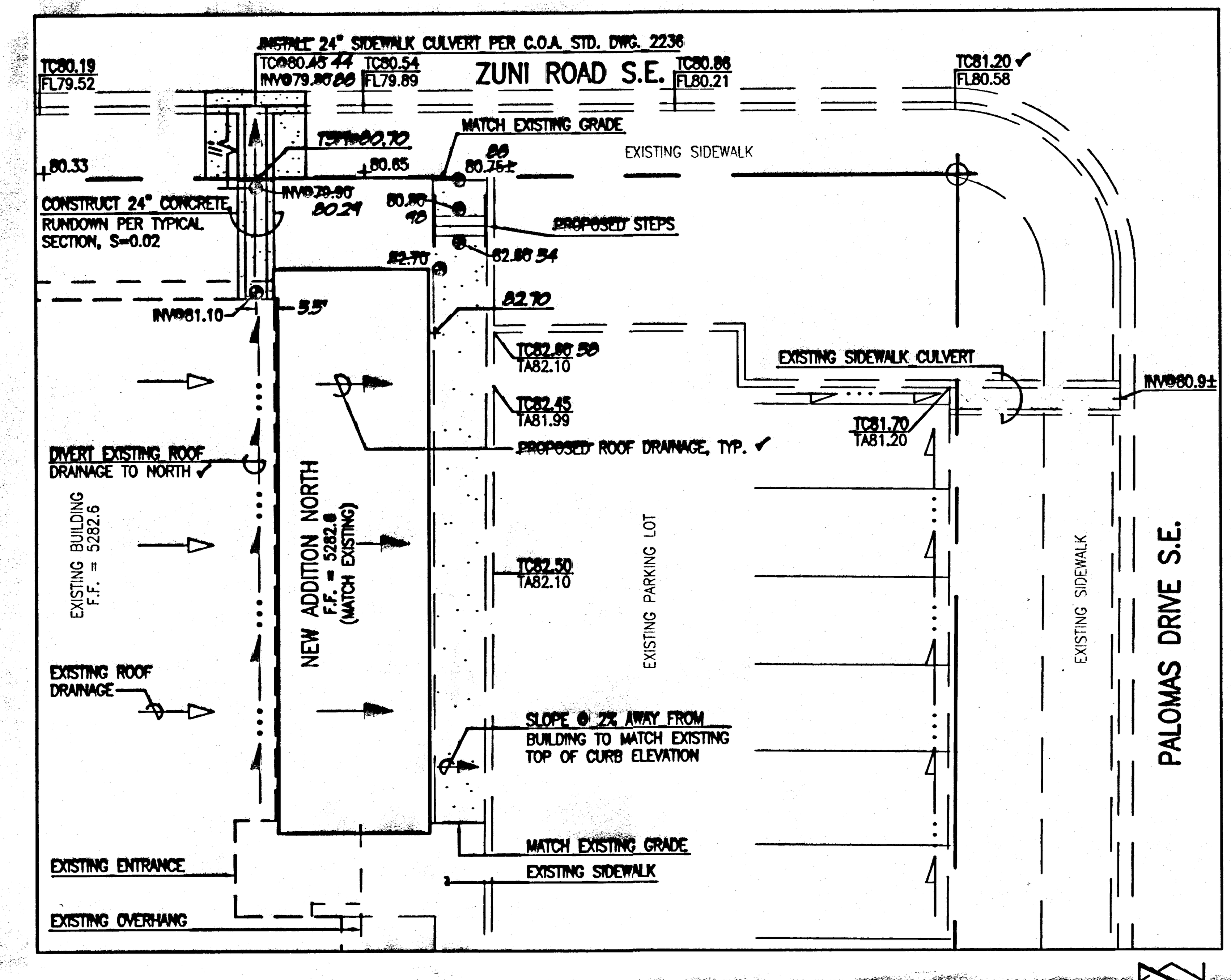


DETAIL 2/3

SCALE: 1" = 10' - 0"



DETAIL 1/3

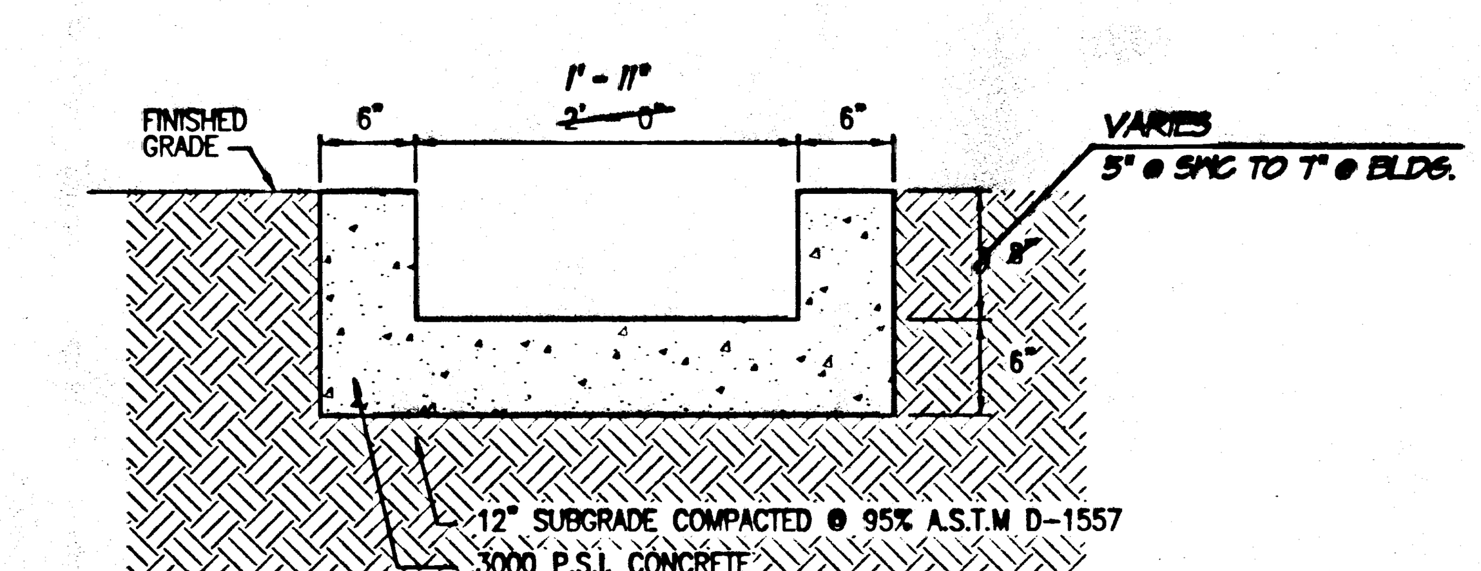
SCALE: 1" = 10' - 0"

RECORD DRAWING LEGEND

CONSTRUCT	RECORD INFORMATION (VERIFIED BY ENGINEER)
✓	AS-CONSTRUCTED = AS-DESIGNED (VERIFIED BY ENGINEER)
36 42"	RECORD INFORMATION (VERIFIED BY ENGINEER)
+25.2	RECORD INFORMATION (VERIFIED BY ENGINEER)
28.98.42	RECORD INFORMATION (VERIFIED BY ENGINEER)
✓	AS-CONSTRUCTED = AS-DESIGNED (VERIFIED BY AS-BUILT SURVEY)
31 31.8	RECORD INFORMATION FROM AS-BUILT SURVEY
+28.9	RECORD INFORMATION FROM AS-BUILT SURVEY
31.25.22	RECORD INFORMATION FROM AS-BUILT SURVEY

GRADING LEGEND

25.41	PROPOSED SPOT ELEVATION
+24.86	EXISTING FLOWLINE ELEVATION
	PROPOSED FLOWLINE
	PROPOSED DIRECTION OF FLOW
	EXISTING DIRECTION OF FLOW
	RIGHT OF WAY LINE
	PROPOSED ASPHALT PAVEMENT
	PROPOSED CONCRETE
	HIGH POINT
INV	INVERT
TA	TOP OF ASPHALT PAVEMENT
TC	TOP OF CURB
TG	TOP OF GRATE



TYPICAL RUNDOWN SECTION

SCALE: 1" = 1' - 0"

RECORD DRAWING
FOR CERTIFICATION, SEE SHEET 1

JEFFREY G. MORTENSEN, NEW MEXICO, 8547, REGISTERED PROFESSIONAL ENGINEER

12-23-2010
03-19-2012

File Path: P:\... | File Name: 890866_GD.DWG | Plot Date: 03-19-2012 | Plot Time: 2:16 pm

HIGH MESA Consulting Group
6010-B MIDWAY PARK BLVD. NE • ALBUQUERQUE, NEW MEXICO 87109
PHONE: 505.345.4250 • FAX: 505.345.4254 • www.highmesacg.com

GRADING PLAN DETAILS
ADDITIONS AND ALTERATIONS TO EXISTING FACILITY
FIRST NATIONS COMMUNITY HEALTHSOURCE

DESIGNED BY	J.G.M.
DRAWN BY	C.F.A./E.J.S.
APPROVED BY	J.G.M.

NO.	DATE	BY	REVISIONS
3	03/12	J.G.M.	RECORD DRAWINGS AND CERTIFICATION

JOB NO.	89.086.56
DATE	12-2010
SHEET	3 OF 3

DRAINAGE PLAN

I. INTRODUCTION AND EXECUTIVE SUMMARY

THIS PROJECT, LOCATED UPSTREAM OF THE ZUNI/SAN MATEO INTERSECTION IN THE SOUTHEAST HEIGHTS OF THE ALBUQUERQUE METROPOLITAN AREA, REPRESENTS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. THE PURPOSE OF THIS PROJECT IS TO CREATE AN ATTACHED BUILDING ADDITION ALONG WITH A DETACHED BUILDING ADDITION TO THIS HEALTHCARE FACILITY SITE.

THIS SUBMITTAL IS MADE IN SUPPORT OF A BUILDING PAVING PERMIT APPROVAL WITHIN THE JURISDICTION OF THE CITY OF ALBUQUERQUE.

II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF ZUNI ROAD SE AND PALOMAS DRIVE SE. THE CURRENT LEGAL DESCRIPTION IS PARCEL A1A, HOLLINGBERRY'S REPLAT OF BLOCK 6, BARON BURG HEIGHTS ADDITION. AS SHOWN BY PANEL 354 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, SEPTEMBER 26, 2008, THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE. THE SITE DOES, HOWEVER, LIE IMMEDIATELY ADJACENT TO A DESIGNATED FLOOD HAZARD ZONE (AO DEPTH 1) THAT COINCIDES WITH ZUNI ROAD SE. ALTHOUGH THE PROPOSED IMPROVEMENTS WILL GENERATE ADDITIONAL RUNOFF THAT WILL CONTRIBUTE TO THE DESIGNATED FLOOD HAZARD ZONE, THE INCREASE IS MINIMAL. IN ADDITION, THE SITE IS LOCATED AT THE BOTTOM OF THE WATERSHED CONTRIBUTING TO SAN MATEO BLVD SE. DETENTION ON A SITE THAT ALREADY HAS FREE DISCHARGE WOULD BE OF LITTLE TO NO BENEFIT.

III. BACKGROUND DOCUMENTS

THE PREPARATION OF THIS PLAN RELIED UPON THE FOLLOWING DOCUMENTS AND ACTIVITIES:

- RECORD GRADING AND DRAINAGE PLAN PREPARED BY THIS OFFICE (NMPE 8547) DATED 09-28-89 AND UPDATED 04-09-2002. THIS REFERENCED PLAN PROVIDES THE BASIS FOR THE EXISTING CONDITIONS OF THE PROJECT SITE AS WELL AS ESTABLISHING THE PRECEDENT FOR FREE DISCHARGE FROM THIS SITE.
- VISUAL SITE INSPECTION ON DECEMBER 20, 2010 TO VERIFY EXISTING CONDITIONS AND OBTAIN SUPPLEMENTAL SITE DATA.

IV. EXISTING CONDITIONS

THE SITE PRESENTLY CONSISTS OF AN EXISTING HEALTHCARE FACILITY. THE SITE IS CHARACTERIZED BY THREE (3) DRAINAGE BASINS. BASIN 1 LIES AT THE WEST SIDE OF THE SITE AND FREELY DISCHARGES ITS RUNOFF TO ZUNI ROAD SE VIA AN EXISTING DRIVEPAD. ZUNI ROAD SE DRAINS FROM EAST TO WEST AND FLOWS TO SAN MATEO BLVD SE. FROM THIS POINT, RUNOFF IS CARRIED WITHIN SAN MATEO BLVD SE TO THE NORTH BOTH IN PUBLIC STORM DRAIN IMPROVEMENTS AS WELL AS SURFACE FLOW. BASIN 2 LIES AT THE NORTHEAST CORNER OF THE SITE AND DISCHARGES ITS RUNOFF TO PALOMAS DRIVE SE VIA A SIDEWALK CULVERT. FROM THIS POINT, THE RUNOFF FLOWS NORTH TO ZUNI ROAD SE. BASIN 3 LIES AT THE SOUTHEAST CORNER OF THE SITE AND DRAINS TO PALOMAS BLVD SE VIA AN EXISTING DRIVEPAD. PORTIONS OF THE PARKING LOT WITHIN BASIN 3 ARE FLAT WITH LOCALIZED PONDING ADDRESSED BY EXISTING FRENCH DRAIN INLETS LOCATED IN SUMP CONDITIONS.

NO APPARENT OFFSITE FLOWS ENTER THE SITE CONSISTENT WITH THE 1989 DRAINAGE SUBMITTAL.

V. DEVELOPED CONDITIONS

THE PROPOSED CONSTRUCTION CONSISTS OF A STAND ALONE BUILDING ADDITION WITHIN BASIN 1 AND AN ATTACHED BUILDING ADDITION WITHIN BASIN 2. NO WORK IS PROPOSED WITHIN BASIN 3.

THE BASIN 1 BUILDING ADDITION WILL OCCUPY A PORTION OF THE SITE THAT PRESENTLY CONTAINS COMPACTED SOIL AND CONCRETE SIDEWALK. THE ROOF DRAINAGE FROM THE PROPOSED ADDITION WILL DISCHARGE TO THE SOUTH WHERE IT WILL BE DIRECTED BY SURFACE FLOW TO THE EXISTING PARKING LOT OF THE WEST SIDE OF THE SITE. FROM THIS POINT, THE RUNOFF WILL SURFACE DRAIN TO ZUNI ROAD SE DISCHARGING VIA AN EXISTING DRIVEPAD.

THE BASIN 2 ADDITION WILL OCCUPY A PORTION OF THE SITE THAT IS PRESENTLY LANDSCAPED. THE ROOF DRAINAGE FROM THE ADDITION WILL DISCHARGE TO THE EXISTING PARKING LOT AT THE EAST EDGE OF THE SITE. FROM THIS POINT, THE RUNOFF WILL DRAIN TO PALOMAS DRIVE SE VIA AN EXISTING SIDEWALK CULVERT. ROOF RUNOFF FROM THE EXISTING BUILDING WILL BE INTERCEPTED AND DIVERTED NORTH TO DISCHARGE TO AN EXISTING LANDSCAPED AREA ON THE NORTH SIDE OF THE BUILDING. TO AVOID THE DISCHARGE OF ROOF RUNOFF ACROSS THE SIDEWALK, THE ROOF DISCHARGE WILL BE COLLECTED IN A CONCRETE RUNDOWN THAT WILL DISCHARGE TO ZUNI ROAD VIA A NEW 24-INCH SIDEWALK CULVERT.

VI. GRADING PLAN

THE GRADING PLAN SHOWS THE PROPOSED AREAS OF MODIFICATION, CROSS REFERENCING ENLARGED DETAILS ON A SUBSEQUENT SHEET. THE GRADING PLAN DETAILS SHOW 1.) EXISTING CONDITIONS AS DOCUMENTED BY THE PREVIOUSLY APPROVED GRADING PLAN, 2.) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS, 3.) THE LIMIT AND CHARACTER OF THE EXISTING AND PROPOSED IMPROVEMENTS, AND 4.) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES. AS SHOWN BY THIS PLAN, THE PROPOSED GRADING WILL CONTINUE THE CURRENT DRAINAGE PATTERNS OF DISCHARGE TO THE ADJACENT CITY STREETS.

VII. CALCULATIONS

THE CALCULATIONS CONTAINED HEREON ANALYZE THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PROCEDURE FOR 40 ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY 1993, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. AS DEMONSTRATED BY THESE CALCULATIONS, THE PROPOSED PROJECT WILL RESULT IN A MINOR INCREASE IN THE RUNOFF GENERATED BY THE OVERALL SITE. THIS WILL HAVE A NEGLIGIBLE IMPACT ON THE DOWNSTREAM CONDITIONS DESCRIBED ABOVE.

VIII. CONCLUSIONS

THE FOLLOWING CONCLUSIONS HAVE BEEN ESTABLISHED AS A RESULT OF THE EVALUATIONS CONTAINED HEREIN:

1. THE PROPOSED IMPROVEMENTS REPRESENT MODIFICATIONS TO AN EXISTING SITE WITHIN AN INFILL AREA
2. THE PROPOSED IMPROVEMENTS WILL MAINTAIN EXISTING DRAINAGE PATTERNS
3. THE PROPOSED DRAINAGE PATTERNS ARE CONSISTENT WITH THE PREVIOUSLY APPROVED DRAINAGE PLANS FOR THIS SITE
4. THE PROPOSED IMPROVEMENTS WILL CREATE A NEGLIGIBLE INCREASE IN RUNOFF GENERATED BY THE SITE
5. THE PROPOSED IMPROVEMENTS WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OR DOWNSTREAM DRAINAGE CONDITIONS
6. THE FREE DISCHARGE OF DEVELOPED RUNOFF IS APPROPRIATE BASED UPON THE PRECEDENT ESTABLISHED BY PRIOR SUBMITTALS

CALCULATIONS

A. PRECIPITATION ZONE = 3

B. $P_{100,6\,HR} = P_{360} =$ 2.60

C. TOTAL PROJECT AREA (A_T) = 47,250 SF / 1.08 AC

1. BASIN 1 — 18,850 SF / 0.43 AC
2. BASIN 2 — 17,200 SF / 0.39 AC
3. BASIN 3 — 11,200 SF / 0.26 AC

D. LAND TREATMENTS

1. EXISTING LAND TREATMENT

a. BASIN 1

TREATMENT	AREA (SF/AC)	%
A	0 / 0.00	
B	4,150 / 0.10	22
C	0 / 0.00	
D	14,700 / 0.34	78

b. BASIN 2

TREATMENT	AREA (SF/AC)	%
A	0 / 0.00	
B	2,690 / 0.06	16
C	0 / 0.00	
D	14,510 / 0.33	84

c. BASIN 3

TREATMENT	AREA (SF/AC)	%
A	0 / 0.00	
B	1,930 / 0.04	17
C	0 / 0.00	
D	9,270 / 0.21	83

2. DEVELOPED LAND TREATMENT

a. BASIN 1

TREATMENT	AREA (SF/AC)	%
A	0 / 0.00	
B	3,960 / 0.09	21
C	0 / 0.00	
D	14,900 / 0.34	79

b. BASIN 2

TREATMENT	AREA (SF/AC)	%
A	0 / 0.00	
B	1,810 / 0.04	11
C	0 / 0.00	
D	15,390 / 0.35	89

c. BASIN 3

TREATMENT	AREA (SF/AC)	%
A	0 / 0.00	
B	1,930 / 0.04	17
C	0 / 0.00	
D	9,270 / 0.21	83

II. HYDROLOGY

A. EXISTING CONDITION

1. BASIN 1

a. VOLUME

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$

$E_W =$ (0.66*0.00) + (0.92*0.10)+ (1.29*0.00)+ (2.36*0.34)/0.43 = 2.04 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (2.04/12)0.43 = 0.0736 AC-FT = 3,200 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.87*0.00) + (2.60*0.10) + (3.45*0.00) + (5.02*0.34) = 1.9 CFS

2. BASIN 2

a. VOLUME

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$

$E_W =$ (0.66*0.00) + (0.92*0.06)+ (1.29*0.00)+ (2.36*0.33)/0.39 = 2.13 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (2.13/12)0.39 = 0.0701 AC-FT = 3,050 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.87*0.00) + (2.60*0.06) + (3.45*0.00) + (5.02*0.33) = 1.8 CFS

3. BASIN 3

a. VOLUME

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$

$E_W =$ (0.66*0.00) + (0.92*0.04)+ (1.29*0.00)+ (2.36*0.21)/0.26 = 2.11 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (2.11/12)0.26 = 0.0452 AC-FT = 1,970 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.87*0.00) + (2.60*0.04) + (3.45*0.00) + (5.02*0.21) = 1.2 CFS

B. DEVELOPED CONDITION

1. BASIN 1

a. VOLUME

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$

$E_W =$ (0.66*0.00) + (0.92*0.09)+ (1.29*0.00)+ (2.36*0.34)/0.43 = 2.05 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (2.06/12)0.43 = 0.0743 AC-FT = 3,240 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.87*0.00) + (2.60*0.09) + (3.45*0.00) + (5.02*0.34) = 2.0 CFS

2. BASIN 2

a. VOLUME

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$

$E_W =$ (0.66*0.00) + (0.92*0.04)+ (1.29*0.00)+ (2.36*0.35)/0.39 = 2.21 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (2.21/12)0.39 = 0.0727 AC-FT = 3,170 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.87*0.00) + (2.60*0.04) + (3.45*0.00) + (5.02*0.35) = 1.9 CFS

3. BASIN 3

a. VOLUME

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$

$E_W =$ (0.66*0.00) + (0.92*0.04)+ (1.29*0.00)+ (2.36*0.21)/0.26 = 2.11 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (2.11/12)0.26 = 0.0452 AC-FT = 1,970 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.87*0.00) + (2.60*0.04) + (3.45*0.00) + (5.02*0.21) = 1.2 CFS

C. COMPARISON

1. VOLUME

a. BASIN 1

$\Delta V_{100,6\,HR} =$ 3,240 - 3,200 = 40 CF (INCREASE)

b. BASIN 2

$\Delta V_{100,6\,HR} =$ 3,170 - 3,050 = 120 CF (INCREASE)

c. BASIN 3

$\Delta V_{100,6\,HR} =$ 1,970 - 1,970 = 0 CF

2. PEAK DISCHARGE

a. BASIN 1

$\Delta Q_{100} =$ 2.0 - 1.9 = 0.1 CFS (INCREASE)

b. BASIN 2

$\Delta Q_{100} =$ 1.9 - 1.8 = 0.1 CFS (INCREASE)

c. BASIN 3

$\Delta Q_{100} =$ 1.2 - 1.2 = 0.0 CFS (NO CHANGE)

CONSTRUCTION NOTES

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
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APPROVALS	NAME	DATE
HYDROLOGY		
SIDEWALK INSPECTOR		
STORM DRAIN MAINTENANCE		

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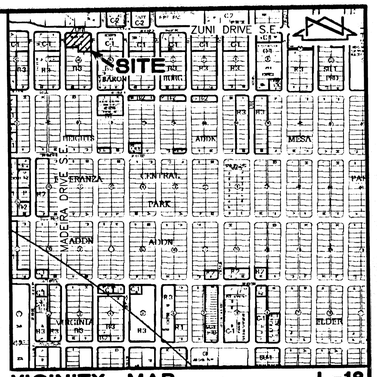
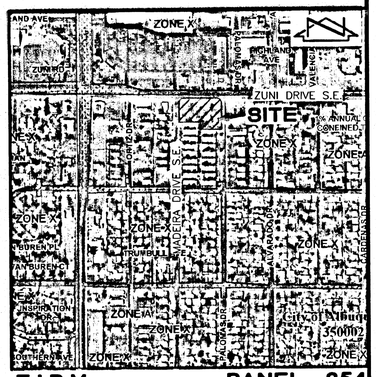


VICINITY MAP L-18
SCALE: 1" = 750'



F.I.R.M. PANEL 354 OF 825
SCALE: 1" = 750'
DATED: SEPTEMBER 26, 2008

LEGAL DESCRIPTION (FROM A.G.I.S.)

PARCEL A1A, HOLLINGBERRY'S REPLAT OF BLOCK 6, BARON BURG HEIGHTS ADDITION

PROJECT BENCHMARK (FROM 1989 PLAN)

ACS BM STA 8-K18, A SQUARE '□' CHISELED ON TOP OF CURB LOCATED AT THE SSE RETURN AT THE INTERSECTION OF COAL AVE. S.E. AND SAN MATEO BLVD S.E.
ELEVATION = 5262.15 FT (MSLD)

T.B.M.

FOR T.B.M.'S, SEE SHEET 2

INDEX OF DRAWINGS

JEFFREY G. MORTENSEN — NEW MEXICO — 8547 — REGISTERED PROFESSIONAL ENGINEER

12-23-2010

File Path: E:\WA\89.086.5\DRA
File Name: 890865_DC.DWG
Plot Date: 12-22-2010
Plot Time: 10:48 am

HIGH MESA Consulting Group
6010-B MIDWAY PARK BLVD. NE • ALBUQUERQUE, NEW MEXICO 87109
PHONE: 505.345.4250 • FAX: 505.345.4254 • www.highmesacg.com

DRAINAGE PLAN AND CALCULATIONS
ADDITIONS AND ALTERATIONS TO EXISTING FACILITY
FIRST NATIONS COMMUNITY HEALTHSOURCE

DESIGNED BY J.G.M.
DRAWN BY C.F.A.
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS

JOB NO. 89.086.5
DATE 12-2007
SHEET 1 OF 3

130538

LEGAL DESCRIPTION

PARCELS A-1 & B-1, HOLLINGBERRY ADDITION, BLOCK G OF THE BARON BURG HEIGHTS ADDITION

PROJECT BENCHMARK

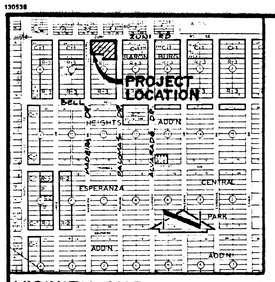
B.M. NO. B-K18, A SQUARE, "C", CHISELED ON TOP OF THE CONC. CURB LOCATED AT THE SSE RETURN AT THE INTERSECTION OF COAL AVE.S.E. & SAN MATEO BLVD.S.E.
ELEVATION = 5262.149 FEET (M.S.L.D.)

T.B.M. # 1

A "+" ON TOP OF CONC. LOCATED @ THE PROJECTION OF THE EAST PROPERTY LINE OU TO THE SOUTH CURB OF ZUNI RD. S.E.
ELEVATION = 5278.68 FEET (M.S.L.D.)

T.B.M. # 2

A "+" ON TOP OF CONC. LOCATED @ THE PROJECTION OF THE WEST PROPERTY LINE OU TO THE SOUTH CURB OF ZUNI RD. S.E.
ELEVATION = 5281.20 FEET (M.S.L.D.)

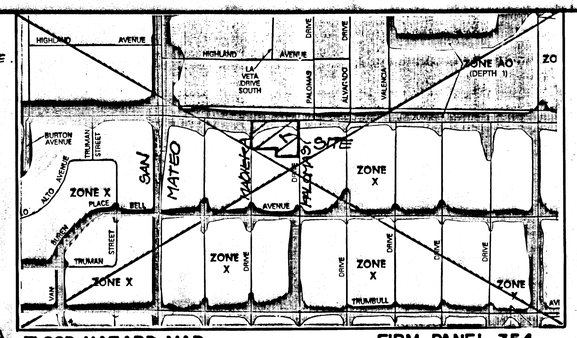


VICINITY MAP L-18

SCALE : 1"=800'

SCALE : 1"=20'

20' 10' 0 20'



FLOOD HAZARD MAP

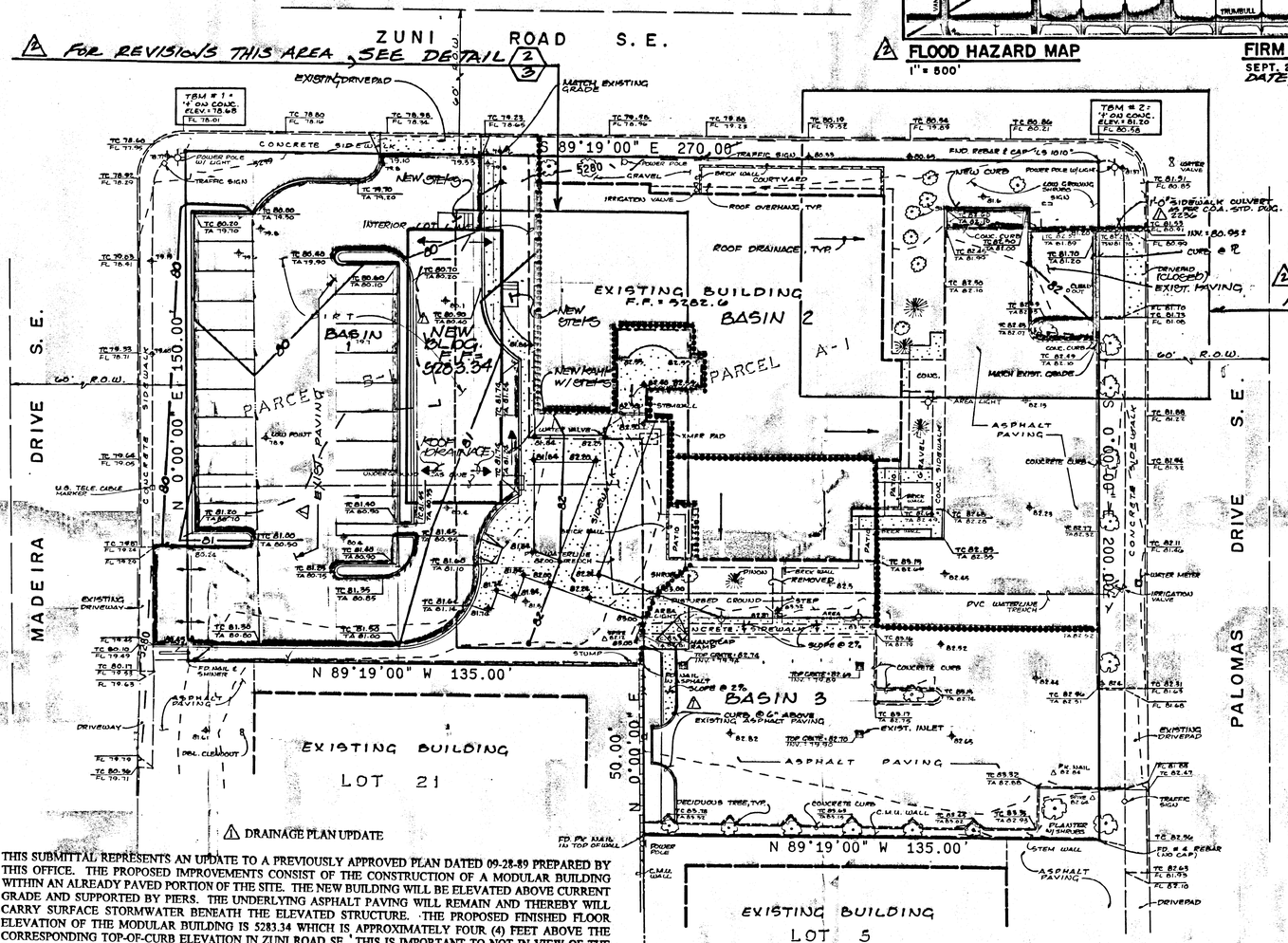
1" = 800'

FIRM PANEL 354

SEPT. 20, 1996 - OUT OF DATE, SEE SHEET 1

LEGEND

- EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- TC — TOP OF CURB
- FL — FLOWLINE
- TA — TOP OF ASPHALT
- TSW — TOP OF SIDEWALK
- PROPOSED SPOT ELEVATION
- PROPOSED CONTOUR
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- BASIN BOUNDARY



Construction Notes

1. Two (2) working days prior to any excavation, contractor must contact Line Locating Service 765-1234, for location of existing utilities.
2. Prior to construction, the contractor shall excavate and verify the horizontal and vertical location of all potential obstructions. Should a conflict exist, the contractor shall notify the engineer in writing so that the conflict can be resolved with a minimum amount of delay.
3. All work on this project shall be performed in accordance with applicable federal, state and local laws, rules and regulations concerning construction safety and health.
4. All construction within public right-of-way shall be performed in accordance with applicable City of Albuquerque Standards and Procedures.
5. If any utility lines, pipelines, or underground utility lines are shown on these drawings, they are shown in an approximate manner only, and such lines may exist where none are shown. If any such existing lines are shown, the location is based upon information provided by the owner of said utility, and the information may be incomplete, or may be obsolete by the time construction commences. The engineer has conducted only preliminary investigation of the location, depth, size, or type of existing utility lines, pipelines, or underground utility lines. This investigation is not conclusive, and may not be complete, therefore, makes no representation pertaining thereto, and assumes no responsibility or liability therefor. The contractor shall inform itself of the location of any utility line, pipeline, or underground utility line in or near the area of the work in advance of and during excavation work. The contractor is fully responsible for any and all damage caused by its failure to locate, identify and preserve any and all existing utilities, pipelines, and underground utility lines. In planning and conducting excavation, the contractor shall comply with state statutes, municipal and local ordinances, rules and regulations, if any, pertaining to the location of these lines and facilities.
6. An Excavation/Construction Permit will be required before beginning any work within City right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
7. Backfill compaction shall be according to Residential street use.
8. Maintenance of these facilities shall be the responsibility of the owner of the property served.
9. The design of planters and landscaped areas is not part of this plan. All planters and landscaped areas adjacent to the building(s) shall be provided with positive drainage to avoid any ponding adjacent to the structure. For construction details, refer to landscaping plan.

Erosion Control Measures

1. The contractor shall ensure that no soil erodes from the site into public right-of-way or onto private property. This can be achieved by constructing temporary berms at the property lines and wetting the soil to keep it from blowing.
2. The contractor shall promptly clean up any material excavated within the public right-of-way so that the excavated material is not susceptible to being washed down the street.
3. The contractor shall secure "Topsoil Disturbance Permit" prior to beginning construction.

APPROVALS	NAME	DATE
A.C.E. / DESIGN		
INSPECTOR		
A.C.E. / FIELD		

⚠ DRAINAGE PLAN UPDATE

THIS SUBMITTAL REPRESENTS AN UPDATE TO A PREVIOUSLY APPROVED PLAN DATED 09-28-89 PREPARED BY THIS OFFICE. THE PROPOSED IMPROVEMENTS CONSIST OF THE CONSTRUCTION OF A MODULAR BUILDING WITHIN AN ALREADY PAVED PORTION OF THE SITE. THE NEW BUILDING WILL BE ELEVATED ABOVE CURRENT GRADE AND SUPPORTED BY PIERS. THE UNDERLYING ASPHALT PAVING WILL REMAIN AND THEREBY WILL CARRY SURFACE STORMWATER BENEATH THE ELEVATED STRUCTURE. THE PROPOSED FINISHED FLOOR ELEVATION OF THE MODULAR BUILDING IS 5283.34 WHICH IS APPROXIMATELY FOUR (4) FEET ABOVE THE CORRESPONDING TOP-OF-CURB ELEVATION IN ZUNI ROAD SE. THIS IS IMPORTANT TO NOT IN VIEW OF THE FACT THAT ZUNI ROAD SE IS CONSIDERED AN AO (DEPTH 1) FLOOD HAZARD ZONE AS DEPICTED ON FIRM PANEL 354 OF 825 PUBLISHED BY THE NATIONAL FLOOD INSURANCE PROGRAM, SEPTEMBER 20, 1996.

I, JEFFREY G. MORTENSEN, NMPE 8547, DO HEREBY CERTIFY THAT I HAVE PERSONALLY VISITED THE SUBJECT PROJECT SITE ON APRIL 05, 2002 TO VISUALLY OBSERVE THE CONDITION OF THE SITE SINCE THE PREPARATION AND APPROVAL OF THE ORIGINAL GRADING AND DRAINAGE PLAN DATED 09-28-89. BASED UPON MY VISUAL OBSERVATION, THERE HAVE BEEN NO SIGNIFICANT CHANGES TO THE SITE OR THE IMMEDIATE SURROUNDING AREA TO WARRANT A REVISION TO THE DESIGN OF THE PREVIOUSLY APPROVED PLAN, NOR ANY ADVERSE DRAINAGE CONDITIONS NOTED THAT WOULD REQUIRE CORRECTION.

JEFFREY G. MORTENSEN, NMPE 8547

04-09-2002
DATE

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

DRAINAGE PLAN

The following items concerning the F.H.P. Grading and Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, this site is located on the south side of Zuni Road S.E. between Madeira Drive S.E. and Palomas Drive S.E. At present, the site is developed. Much of the surrounding area is currently developed both residentially and commercially making this a modification to an existing site within an infill area. As shown by Plate L-18 of the Albuquerque Master Drainage Study, this site does not lie within a designated flood hazard zone. This site does lie adjacent to a designated flood zone in Zuni Road S.E. The proposed development will continue to discharge to this designated flood zone. This area is served, however, by the Fairgrounds stormwater relief system (AMDS System 205-01A) and the Highland Detention Pond which have alleviated the flooding in Zuni Road S.E. per the AMDS.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) the limit and character of the existing improvements, 3) the limit and character of the proposed improvements, and 4) continuity between existing and proposed grades. As shown by this plan, the proposed improvements consist of additional paving and landscaping. Runoff generated by Basin 1 will be routed from south to north onto Zuni Road S.E. From that point, runoff will flow to the west as discussed above. Runoff generated by Basin 2 will be routed from west to east onto Palomas Drive S.E. via a new sidewalk culvert. From that point, runoff will flow north to Zuni Road S.E. which drains to the west. Runoff generated by Basin 3 will continue to drain to Palomas Drive S.E. which drains to Zuni Road S.E. Minor puddles within the existing parking lot are relieved by a series of french drains. Based upon the fact that this site is a modification to an existing site within an infill area, the proximity of downstream facilities, and the minor increase in runoff anticipated, the free discharge of runoff from this site is appropriate. This pattern is also consistent with existing site drainage.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used to quantify the peak rate of discharge and the SCS Method has been used to quantify the volume of runoff. Both Methods have been used in accordance with the City of Albuquerque Development Process Manual, Volume II, and the Mayor's Emergency Rule adopted January 14, 1986. As shown by these calculations, the proposed improvements in Basin 1 will increase the peak discharge by approximately 0.8 cfs. The decrease in Basin 2 will be approximately 0.4 cfs. Basin 3 will result in no change in the peak discharge. The net increase in runoff will be approximately 0.4 cfs which will not affect the capacity of Zuni Road S.E.

Fully improved streets are located on the west, north and east sides of the site. The streets appear to contain the runoff entering the rights-of-way. A wall is situated on the south property line effectively blocking runoff from the south. In view of the above information, offsite flows do not impact this site.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey,
Plate 31; STC = Embudo - Tijeras complex
Hydrologic Soil Group: B
Existing Pervious CN = 70 (DPM Plate 22.2 C-2
Pasture or Range Land (fair condition)
Developed Pervious CN = 61 (DPM Plate 22.2 C-2
Open Space: good condition)

Time of Concentration/Time to Peak

$T_C = 0.0078\ L^{0.77}/s^{0.385}$ (Kirpich Equation)

$T_P = T_C$ @ 10 min.

Point Rainfall

P_6 = 2.34 in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: $Q = CIA$

where C varies
I = P_6 (6.84) $T_C^{-0.51}$ = 4.95 in/hr
P_6 = 2.34 in (DPM Plate 22.2D-1)
T_C = 10 min (minimum)
A = area, acres

SCS Method

Volume: $V = 3630(DRO)\ A$

Where DRO = Direct runoff in inches
A = area, acres

Existing Condition

Basin 1
Atotal = 18,850 sf = 0.43 Ac
C = 0.40 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.40)(4.95)(0.43) = 0.9$ cfs
Aimp = -0- sf; % impervious = -0-%
Composite CN = 70 (DPM Plate 22.2 C-2)
DRO = 0.33 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 515$ cf

Basin 2
Atotal = 17,200 sf = 0.39 Ac
Roof area = 7,380 sf (0.43)
Paved area = 6,720 sf (0.39)
Landscaped area = 3,100 sf (0.18)
C = 0.89 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.89)(4.95)(0.39) = 1.5$ cfs
Aimp = 14,100 sf; % impervious = 82%
Composite CN = 91 (DPM Plate 22.2 C-2)
DRO = 1.5 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 2,124$ cf

Basin 3
Atotal = 11,200 sf = 0.26 Ac
Roof area = 1,670 sf (0.15)
Paved area = 7,720 sf (0.69)
Landscaped area = 1,810 sf (0.16)
C = 0.83 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.83)(4.95)(0.26) = 1.1$ cfs
Aimp = 9,390 sf; % impervious = 84%
Composite CN = 92 (DPM Plate 22.2 C-2)
DRO = 1.6 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 1,510$ cf

Developed Condition

Basin 1
Atotal = 18,850 sf = 0.43 Ac
Paved area = 14,700 sf (0.78)
Landscaped area = 4,150 sf (0.22)
C = 0.80 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.80)(4.95)(0.43) = 1.7$ cfs
Aimp = 14,700 sf; % impervious = 78 %
Composite CN = 90 (DPM Plate 22.2 C-2)
DRO = 1.5 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 2,340$ cf

Basin 2
Atotal = 17,200 sf = 0.39 Ac
Roof area = 7,380 sf (0.43)
Paved area = 7,130 sf (0.41)
Landscaped area = 2,690 sf (0.16)
C = 0.82 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.82)(4.95)(0.39) = 1.5$ cfs
Aimp = 14,510 sf; % impervious = 84 %
Composite CN = 92 (DPM Plate 22.2 C-2)
DRO = 1.6 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 2,265$ cf

Sidewalk Culvert Capacity (1'-0" Opening - Weir Equation)
$Q_{10} = (0.657)(1.6) = 1.1$ cfs
$Q = CLH^{3/2} = 1.1$ cfs $= Q_{10}$
Where C = 3.09
L = 1'-0"
H = 0.5'

Basin 3
Atotal = 11,200 sf = 0.26 Ac
Roof area = 1,670 sf (0.15)
Paved area = 7,600 sf (0.69)
Landscaped area = 1,930 sf (0.17)
C = 0.82 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.82)(4.95)(0.26) = 1.1$ cfs
Aimp = 9,270 sf; % impervious = 84 %
Composite CN = 92 (DPM Plate 22.2 C-2)
DRO = 1.6 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 1,510$ cf

Comparison

Basin 1
$\Delta Q_{100} = 1.7 - 0.9 = 0.8$ cfs (increase)
$\Delta V_{100} = 2,340 - 515 = 1,825$ cf (increase)

Basin 2
$\Delta Q_{100} = 1.5 - 1.1 = 0.4$ cfs (decrease)
$\Delta V_{100} = 2,265 - 2,124 = 141$ cf (increase)

Basin 3
$\Delta Q_{100} = 1.1 - 1.1 = 0$ cfs (no change)
$\Delta V_{100} = 1,510 - 1,510 = 0$ cf (no change)

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

09-28-89
12-23-2010

JEFF MORTENSEN & ASSOCIATES, INC.
811 DALLAS, N.E. ALBUQUERQUE, NM 87110
ENGINEERS TELEPHONE (505) 265-5611

GRADING AND DRAINAGE PLAN
FORMERLY FHP
FIRST NATIONS COMMUNITY HEALTH

DESIGNED BY J.G.M.
DRAWN BY S.G.H.
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS
⚠	4/02	J.G.M.	ADD NEW BUILDING IN WEST PARKING LOT & FLOOD HAZARD MAP.
⚠	12-10	J&M	BUILDING ADDITIONS

JOB NO. 8908645
DATE 8-89
SHEET 2 OF 13

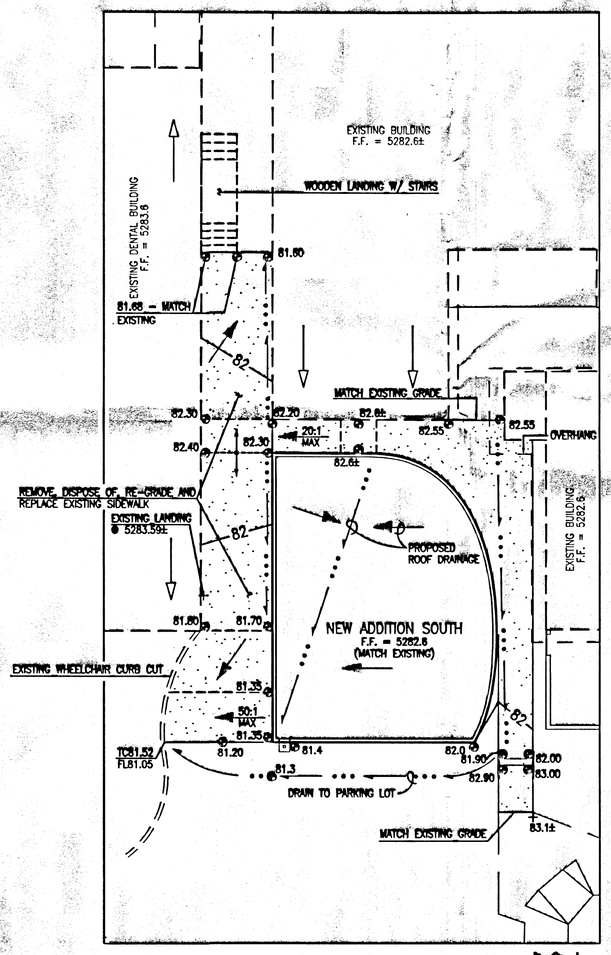
CONSTRUCTION NOTES

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION AS REVISED THROUGH UPDATE #7, AMENDMENT 1
5. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE. THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
6. THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.
7. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
8. BACKFILL COMPACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
9. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.

APPROVALS	NAME	DATE
HYDROLOGY		
SIDEWALK INSPECTOR		
STORM DRAIN MAINTENANCE		

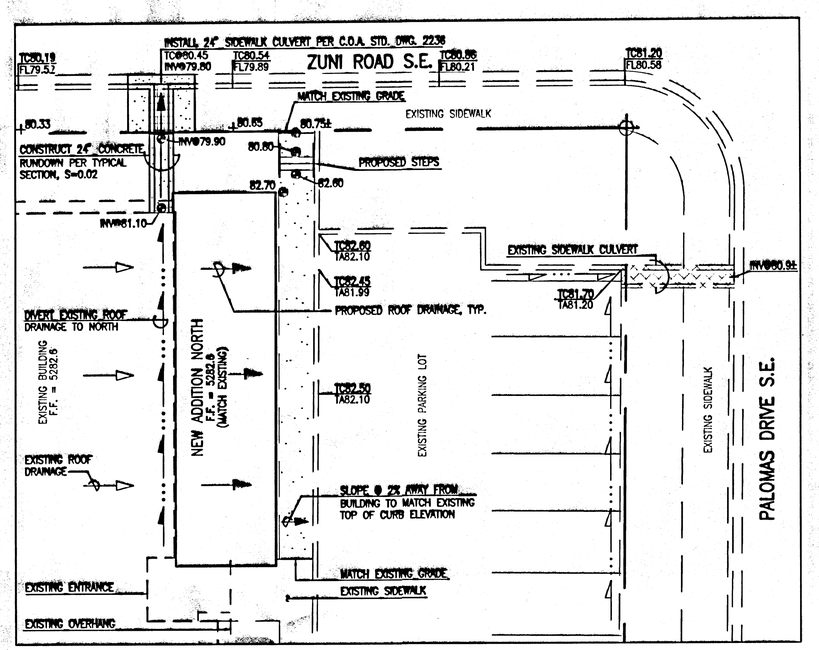
EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
3. WHEN APPLICABLE, CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" FROM THE CITY AND/OR FILE A NOTICE OF INTENT (N.O.I.) WITH THE EPA PRIOR TO BEGINNING CONSTRUCTION.



DETAIL 2/3

SCALE: 1" = 10' – 0"

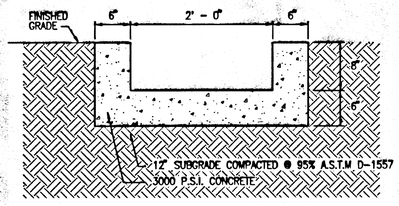


DETAIL 1/3

SCALE: 1" = 10' – 0"

GRADING LEGEND

● 25.41	PROPOSED SPOT ELEVATION
+24.86	EXISTING FLOWLINE ELEVATION
	PROPOSED FLOWLINE
	PROPOSED DIRECTION OF FLOW
	EXISTING DIRECTION OF FLOW
	RIGHT OF WAY LINE
	PROPOSED ASPHALT PAVEMENT
	PROPOSED CONCRETE
	HIGH POINT
INV	INVERT
TA	TOP OF ASPHALT PAVEMENT
TC	TOP OF CURB
TG	TOP OF GRATE



TYPICAL RUNDOWN SECTION

SCALE: 1" = 1' – 0"

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

12-23-2010

File Path: E:\MW\89.085\DWG
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HIGH MESA Consulting Group
6010-B MIDWAY PARK BLVD. NE • ALBUQUERQUE, NEW MEXICO 87109
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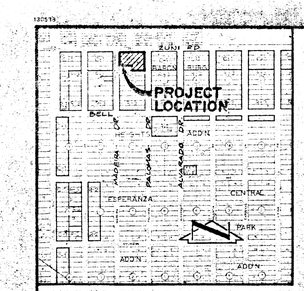
GRADING PLAN DETAILS
ADDITIONS AND ALTERATIONS TO EXISTING FACILITY
FIRST NATIONS COMMUNITY HEALTHSOURCE

DESIGNED BY J.G.M.
DRAWN BY C.F.A.
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS

JOB NO. 89.086.5
DATE 12-2010
SHEET 3 OF 3



VICINITY MAP L-18

SCALE : 1"=800'

LEGAL DESCRIPTION

PARCELS A-1 & B-1, HOLLINGBERRY ADDITION, BLOCK G OF THE BARON BURG HEIGHTS ADDITION

PROJECT BENCHMARK

B.M. NO. B-K18, A SQUARE, 'D', CHISELED ON TOP OF THE CONC. CURB LOCATED AT THE SSE RETURN AT THE INTERSECTION OF COAL AVE.S.E. & SAN MATEO BLVD.S.E.
ELEVATION = 5262. 149 FEET (M.S.L.D.)

SCALE : 1"=20'

20' 10' 0 20'

T.B.M. # 1

A '+' ON TOP OF CONC. LOCATED @ THE PROJECTION OF THE EAST PROPERTY LINE ON TO THE SOUTH CURB OF ZUNI RD. S.E.
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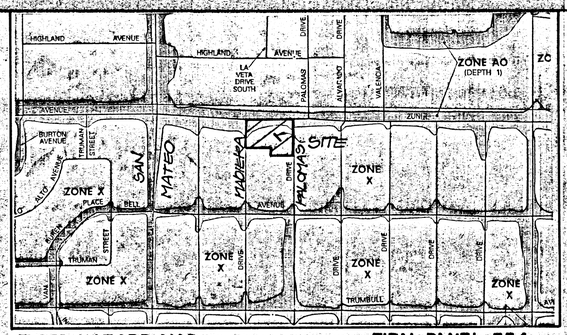
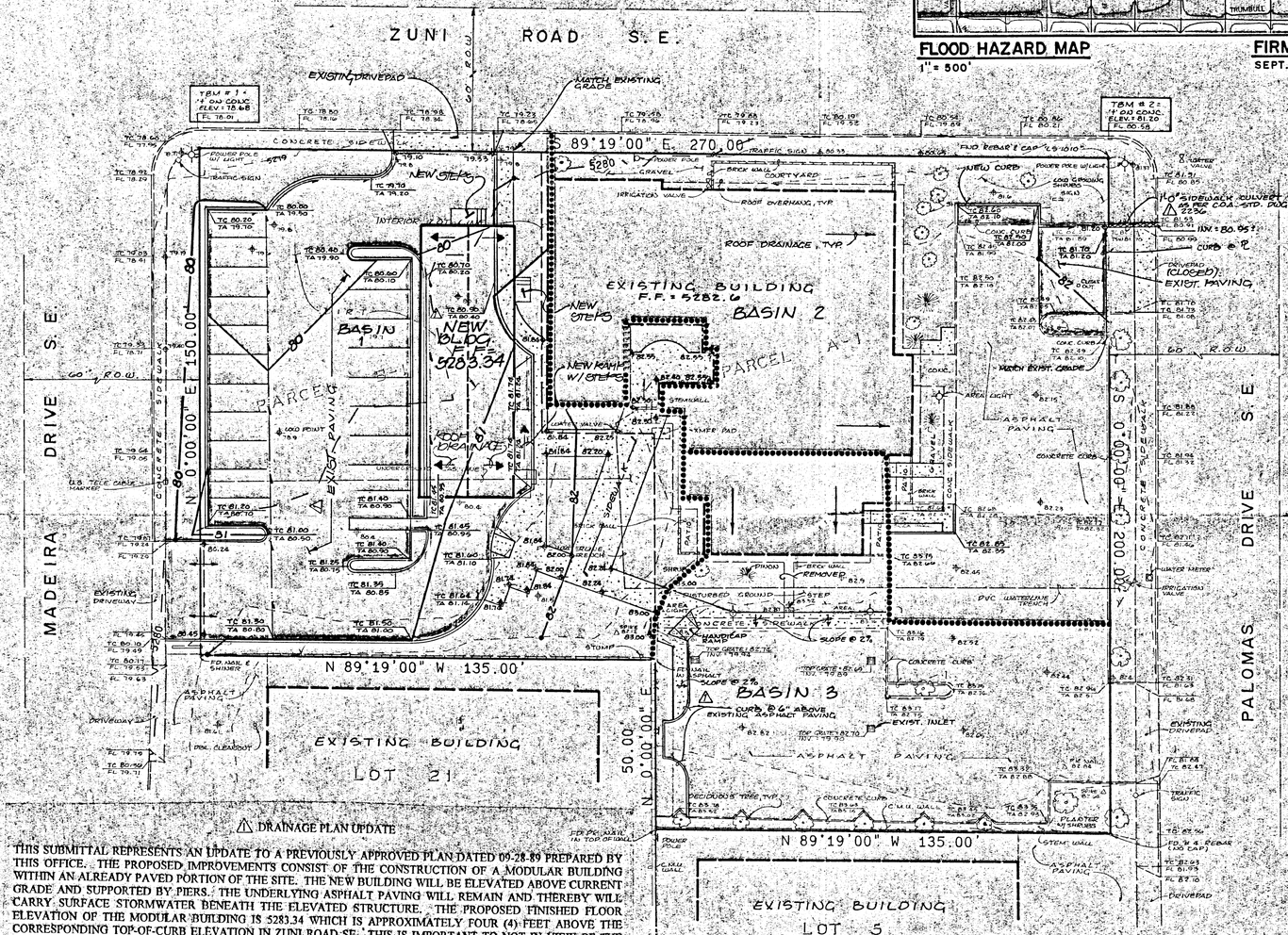


FLOOD HAZARD MAP
1" = 500'

FIRM PANEL 354
SEPT. 20, 1996

LEGEND

- EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- TC TOP OF CURB
- FL FLOW LINE
- TA TOP OF ASPHALT
- TSW TOP OF SIDEWALK
- PROPOSED SPOT ELEVATION
- PROPOSED CONTOUR
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- BASIN BOUNDARY



Construction Notes

1. Two (2) working days prior to any excavation, contractor must contact Line Locating Service 765-1234, for location of existing utilities.
2. Prior to construction, the contractor shall excavate and verify the horizontal and vertical location of all potential interfaces. Should a conflict exist, the contractor shall notify the engineer in writing so that the conflict can be resolved with a minimum amount of delay.
3. All work on this project shall be performed in accordance with applicable federal, state and local laws, rules and regulations concerning construction safety and health.
4. All construction within public right-of-way shall be performed in accordance with applicable City of Albuquerque Standards and Procedures.
5. If any utility lines, pipelines, or underground utility lines are shown on these drawings, they are shown in an approximate manner only, and such lines may exist where none are shown. If any such existing lines are shown, the location is based upon information provided by the owner of said utility, and the information may be incomplete, or may be obsolete by the time construction commences. The engineer has conducted only preliminary investigation of the location, depth, size, or type of existing utility lines, pipelines, or underground utility lines. This investigation is not conclusive, and may not be complete, therefore, makes no representation pertaining thereto, and assumes no responsibility or liability therefor. The contractor shall inform itself of the location of any utility line, pipeline, or underground utility line in or near the area of the work in advance of and during excavation work. The contractor is fully responsible for any and all damage caused by its failure to locate, identify and preserve any and all existing utilities, pipelines, and underground utility lines. In planning and conducting excavation, the contractor shall comply with state statutes, municipal and local ordinances, rules and regulations, if any, pertaining to the location of these lines and facilities.
6. An Excavation/Construction Permit will be required before beginning any work within city right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
7. Backfill compaction shall be according to Residential street use.
8. Maintenance of these facilities shall be the responsibility of the owner of the property served.
9. The design of planters and landscaped areas is not part of this plan. All planters and landscaped areas adjacent to the building(s) shall be provided with positive drainage to avoid any ponding adjacent to the structure. For construction details, refer to landscaping plan.

Erosion Control Measures

1. The contractor shall ensure that no soil erodes from the site into public right-of-way or onto private property. This can be achieved by constructing temporary berms at the property lines and wetting the soil to keep it from blowing.
2. The contractor shall promptly clean up any material excavated within the public right-of-way so that the excavated material is not susceptible to being washed down the street.
3. The contractor shall secure "Topsoil Disturbance Permit" prior to beginning construction.

APPROVALS	NAME	DATE
A.C.E. / DESIGN		
INSPECTOR		
A.C.E. / FIELD		

⚠ DRAINAGE PLAN UPDATE

THIS SUBMITTAL REPRESENTS AN UPDATE TO A PREVIOUSLY APPROVED PLAN DATED 09-28-89 PREPARED BY THIS OFFICE. THE PROPOSED IMPROVEMENTS CONSIST OF THE CONSTRUCTION OF A MODULAR BUILDING WITHIN AN ALREADY PAVED PORTION OF THE SITE. THE NEW BUILDING WILL BE ELEVATED ABOVE CURRENT GRADE AND SUPPORTED BY PIERS. THE UNDERLYING ASPHALT PAVING WILL REMAIN AND THEREBY WILL CARRY SURFACE STORMWATER BENEATH THE ELEVATED STRUCTURE. THE PROPOSED FINISHED FLOOR ELEVATION OF THE MODULAR BUILDING IS 5283.34 WHICH IS APPROXIMATELY FOUR (4) FEET ABOVE THE CORRESPONDING TOP-OF-CURB ELEVATION IN ZUNI ROAD SE. THIS IS IMPORTANT TO NOT IN VIEW OF THE FACT THAT ZUNI ROAD SE IS CONSIDERED AN AO (DEPTH 1) FLOOD HAZARD ZONE AS DEPICTED ON FIRM PANEL 354 OF 825 PUBLISHED BY THE NATIONAL FLOOD INSURANCE PROGRAM, SEPTEMBER 20, 1996.

I, JEFFREY G. MORTENSEN, NMPE 8547, DO HEREBY CERTIFY THAT I HAVE PERSONALLY VISITED THE SUBJECT PROJECT SITE ON APRIL 05, 2002 TO VISUALLY OBSERVE THE CONDITION OF THE SITE SINCE THE PREPARATION AND APPROVAL OF THE ORIGINAL GRADING AND DRAINAGE PLAN DATED 09-28-89. BASED UPON MY VISUAL OBSERVATION, THERE HAVE BEEN NO SIGNIFICANT CHANGES TO THE SITE OR THE IMMEDIATE SURROUNDING AREA TO WARRANT A REVISION TO THE DESIGN OF THE PREVIOUSLY APPROVED PLAN, NOR ANY ADVERSE DRAINAGE CONDITIONS NOTED THAT WOULD REQUIRE CORRECTION.

JEFFREY G. MORTENSEN, NMPE 8547

DATE 04-09-2002

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

DRAINAGE PLAN

The following items concerning the F.H.P. Grading and Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, this site is located on the south side of Zuni Road S.E. between Madeira Drive S.E. and Palomas Drive S.E. At present, the site is developed. Much of the surrounding area is currently developed both residentially and commercially making this a modification to an existing site within an infill area. As shown by Plate L-18 of the Albuquerque Master Drainage Study, this site does not lie within a designated flood hazard zone. This site does lie adjacent to a designated flood zone in Zuni Road S.E. The proposed development will continue to discharge to this designated flood zone. This area is served, however, by the Fairgrounds stormwater relief system (AMDS System 205-01A) and the Highland Detention Pond which have alleviated the flooding in Zuni Road S.E. per the AMDS.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) the limit and character of the existing improvements, 3) the limit and character of the proposed improvements, and 4) continuity between existing and proposed grades. As shown by this plan, the proposed improvements consist of additional paving and landscaping. Runoff generated by Basin 1 will be routed from south to north onto Zuni Road S.E. From that point, runoff will flow to the west as discussed above. Runoff generated by Basin 2 will be routed from west to east onto Palomas Drive S.E. via a new sidewalk culvert. From that point, runoff will flow north to Zuni Road S.E. which drains to the west. Runoff generated by Basin 3 will continue to drain to Palomas Drive S.E. which drains to Zuni Road S.E. Minor puddles within the existing parking lot are relieved by a series of french drains. Based upon the fact that this site is a modification to an existing site within an infill area, the proximity of downstream facilities, and the minor increase in runoff anticipated, the free discharge of runoff from this site is appropriate. This pattern is also consistent with existing site drainage.

The calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used to quantify the peak rate of discharge and the SCS Method has been used to quantify the volume of runoff. Both Methods have been used in accordance with the City of Albuquerque Development Process Manual, Volume II, and the Mayor's Emergency Rule adopted January 14, 1986. As shown by these calculations, the proposed improvements in Basin 1 will increase the peak discharge by approximately 0.8 cfs. The decrease in Basin 2 will be approximately 0.4 cfs. Basin 3 will result in no change in the peak discharge. The net increase in runoff will be approximately 0.4 cfs which will not affect the capacity of Zuni Road S.E.

Fully improved streets are located on the west, north and east sides of the site. The streets appear to contain the runoff entering the rights-of-way. A wall is situated on the south property line effectively blocking runoff from the south. In view of the above information, offsite flows do not impact this site.

RECEIVED APR 05 2002 HYDROLOGY SECTION

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 31: Etc - Embudo - Tijeras complex
Hydrologic Soil Group: B
Existing Pervious CN = 70 (DPM Plate 22.2 C-2)
Pasture or Range Land: fair condition)
Developed Pervious CN = 61 (DPM Plate 22.2 C-2
Open Space: good condition)

Time of Concentration/Time to Peak

$T_c = 0.0078\ L^{0.77}/s^{0.385}$ (Kirpich Equation)

$T_p = T_c \times 10$ min.

Point Rainfall

$P_6 = 2.34$ in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: $Q = CIA$

where C varies
I vs T_c (6.84) $T_c^{-0.51} = 4.95$ in/hr
$P_6 = 2.34$ in (DPM Plate 22.2D-1)
$T_c = 10$ min (minimum)
A = Area, acres

SCS Method

Volume: $V = 3630(DRO)\ A$

Where DRO = Direct runoff in Inches
A = area, acres

Existing Condition

Basin 1
Atotal = 18,850 sf = 0.43 Ac
C = .7140 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.40)(4.95)(0.43) = 0.9$ cfs
Aimp = -0- sf; % impervious = 0 %
Composite CN = 70 (DPM Plate 22.2 C-2)
DRO = 0.33 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 515$ cf

Basin 2
Atotal = 17,200 sf = 0.39 Ac
Roof area = 7,380 sf (0.43)
Paved area = 6,720 sf (0.39)
Landscaped area = 3,100 sf (0.18)
C = 0.40 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.80)(4.95)(0.39) = 1.5$ cfs
Aimp = 14,100 sf; % impervious = 82%
Composite CN = 91 (DPM Plate 22.2 C-2)
DRO = 1.5 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 2,124$ cf

Basin 3
Atotal = 11,200 sf = 0.26 Ac
Roof area = 1,670 sf (0.15)
Paved area = 7,720 sf (0.69)
Landscaped area = 1,810 sf (0.16)
C = 0.83 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.83)(4.95)(0.26) = 1.1$ cfs
Aimp = 9,390 sf; % impervious = 84%
Composite CN = 92 (DPM Plate 22.2 C-2)
DRO = 1.6 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 1,510$ cf

Developed Condition

Basin 1
Atotal = 18,850 sf = 0.43 Ac
Paved area = 14,700 sf (0.78)
Landscaped area = 4,150 sf (0.22)
C = 0.80 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.80)(4.95)(0.39) = 1.6$ cfs
Aimp = 14,510 sf; % impervious = 84 %
Composite CN = 92 (DPM Plate 22.2 C-2)
DRO = 1.6 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 2,285$ cf

Sidewalk Culvert Capacity (1'-0" Opening - Weir Equation)
$Q_{10} = (3.657)(1.6) = 1.1$ cfs
Q_{10} CHK'D = 1.1 cfs = Q_{10}
Where C = 3.09
L = 1'-0"
H = 0.6'

Basin 2
Atotal = 17,200 sf = 0.39 Ac
Roof area = 7,380 sf (0.43)
Paved area = 7,600 sf (0.69)
Landscaped area = 1,930 sf (0.17)
C = 0.82 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.82)(4.95)(0.26) = 1.1$ cfs
Aimp = 9,270 sf; % impervious = 84 %
Composite CN = 92 (DPM Plate 22.2 C-2)
DRO = 1.6; in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 1,510$ cf

Comparison

Basin 1
$\Delta Q_{100} = 1.7 - 0.9 = 0.8$ cfs (increase)
$\Delta V_{100} = 2,340 - 515 = 1,825$ cf (increase)

Basin 2
$\Delta Q_{100} = 1.5 - 1.1 = 0.4$ cfs (decrease)
$\Delta V_{100} = 2,265 - 2,124 = 141$ cf (increase)

Basin 3
$\Delta Q_{100} = 1.1 - 1.1 = 0$ cfs (no change)
$\Delta V_{100} = 1,510 - 1,510 = 0$ cf (no change)

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER
09-28-89

JEFF MORTENSEN & ASSOCIATES, INC.
311 DALLAS, N.E. ALBUQUERQUE, NM 87110
ENGINEERS TELEPHONE (505) 265-5611

GRADING AND DRAINAGE PLAN
FORMERLY FHP
FIRST NATIONS COMMUNITY HEALTH

DESIGNED BY J.G.M.
DRAWN BY S.G.H.
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS
⚠	4/02	J.G.M.	ADD NEW BUILDING IN WEST PARKING LOT & FLOOD HAZARD MAP

JOB NO. 890864
DATE 8-89
SHEET 1. OF 1