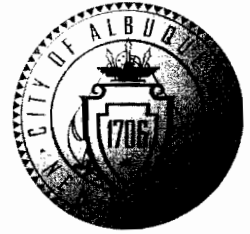


CITY OF ALBUQUERQUE



August 25, 2009

Bruce J. Stidworthy, P.E.
Bonannan Huston, Inc.
7500 Jefferson St. NE-Courtyard 1
Albuquerque, NM 87109

Re: Ventana Ranch Community Park- Phase 2 Recreation Fields Final Grading Plan

Engineer's Stamp date 8-18-09 (B10/D003)

Dear Mr. Stidworthy,

Based upon the information provided in your submittal received 8-18-09, the above referenced plan is approved for Grading Permit and Paving Permit.

PO Box 1293

If you have any questions, you can contact me at 924-3695.

Albuquerque

NM 87103

www.cabq.gov

Sincerely,

Curtis A. Cherne, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: file



STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Santa Fe

John R. D'Antonio, Jr., P.E.
State Engineer

BATAAN MEMORIAL BUILDING, ROOM 102
SANTA FE, NM 87504-5102
(505) 827-6120
Fax: (505) 827-6682

May 27, 2009

John P. Kelly, P.E.
Executive Engineer
AMAFCA
2600 Prospect N.E.
Albuquerque NM 87107

RE: Las Ventanas Dam Reservoir Regarding Proposal, OSE File No. D-591

Dear Mr. Kelly:

The Office of the State Engineer (OSE) has completed a review of your submittal dated May 14, 2009 concerning the city of Albuquerque proposal to bring fill material and regrade Tract F RTL located within the reservoir of Las Ventanas Dam. An "Application for Permit to Alter or Rehabilitate a Dam and Reservoir" was attached to the transmittal letter along with an application filing fee, AMAFCA review memo and supporting documentation. The OSE Dam Safety Bureau concurs with the conclusion that the development of Tract F RTL as proposed will not adversely affect the operation of Las Ventanas Dam.

Enclosed is the approved Permit to Alter or Rehabilitate Las Ventanas Dam and Reservoir subject to the attached conditions. The Order designating Craig Hoover as the Professional Engineer responsible for supervision of this project is also enclosed.

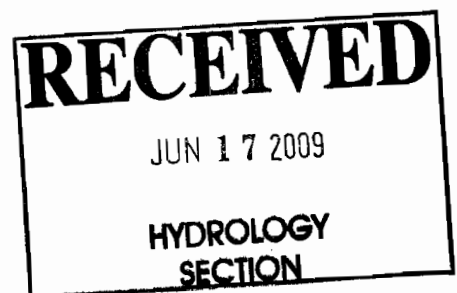
If further discussion would be helpful, please feel free to contact me at (505) 827-6111.

Sincerely,

Elaine C. Pacheco, P.E., Chief
Dam Safety Bureau

ECP

cc: Colleen K. Frenz, Deputy Director, Parks and Recreation, COA
Craig Hoover, PE, BHI



**NEW MEXICO OFFICE OF THE STATE ENGINEER
APPLICATION FOR PERMIT
TO ALTER OR REHABILITATE A DAM AND RESERVOIR**

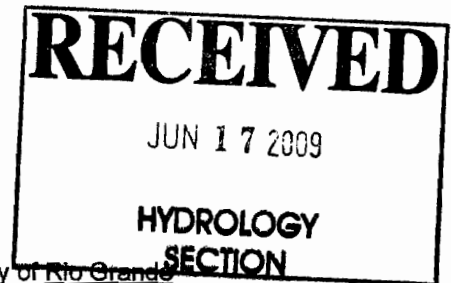
1. NAME OF DAM: Las Ventanas Detention Dam**2. DAM OWNER:** AMAFCAName: John P. Kelly P. E.Work Phone: (505) 884-2215Title: Executive EngineerHome Phone: 505-344-4353Address: 2600 Prospect NECity: AlbuquerqueState: NMZip: 87107**3. PURPOSE:** Flood Control**4. HAZARD POTENTIAL CLASSIFICATION:** High Hazard**5. LOCATION:**

A. NE1/4 NE1/4 SW1/4 Section: 10 Township: 11N Range: 2E N.M.P.M.
in Bernalillo County.

or X = _____ feet, Y = _____ feet, N.M. State Plane Coordinate System
_____ Zone Datum of _____ in the _____ Grant.

B. Latitude in decimal degrees: 35.195Longitude in decimal degrees: 106.723C. On land owned by: AMAFCA

D. Source of Water Supply:

a. Name of Surface Watercourse: Calabacillas Arroyo Tributary of Rio Grandeb. Name of Groundwater Basin: N/Ac. Name of Ditch or Spring (Off Channel Dams): N/AE. Distance to the nearest downstream City/Town (miles): 0**6. DRAINAGE AREA, PRECIPITATION DATA AND SPILLWAY DESIGN FLOOD RESULTS:**A. Drainage area: 1298 acres and 2.028 square milesB. 100-year, 24 hour precipitation: 2.66 inches (indicate critical storm)C. Probable maximum precipitation (PMP), 6 hour storm: 15.84 inches (indicate critical storm)D. Peak runoff into the reservoir from 50% of the 6-hour PMP: 12,730 cfsE. Volume of runoff into the reservoir from 50% of the 6-hour PMP: 755 acre-feetF. Maximum water surface elevation in the reservoir from 50% of the 6-hr PMP: 5409.83 ft.G. Routed peak outflow from the reservoir from 50% of the 6-hour PMP: 9662 cfs

**NEW MEXICO OFFICE OF THE STATE ENGINEER
APPLICATION FOR PERMIT
TO ALTER OR REHABILITATE AN EXISTING DAM**

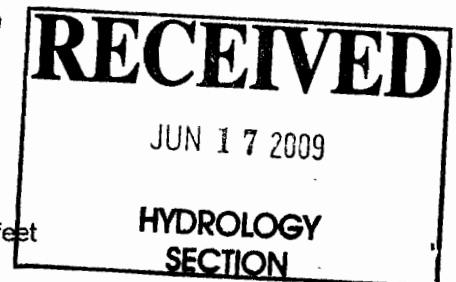
7. PROPERTIES OF DAM AND RESERVOIR:

- A. Dam length: 5925 feet
- B. Crest width: 15 feet
- C. Base width: 120 feet
- D. Dam height: 17 feet
- E. Structural height: 19.6 feet
- F. Elevation of the dam crest: 5410.83 feet
- G. Slope of upstream face: 3 horizontal to 1 vertical
- H. Slope of downstream face: 3 horizontal to 1 vertical
- I. Volume of dam: 262,000 cubic yards
- J. Type of dam: Earth
- K. Dead storage capacity: <10 acre-feet
- L. Reservoir storage capacity: 172 acre-feet
- M. Maximum storage capacity: 330 acre-feet
- N. Spillway design flood water level elevation: 5409.83 feet
- O. Reservoir surface area at reservoir storage capacity: 47.67 acres
- P. Stage/Area/Storage capacity (elevations at the outlet invert, spillway and dam crest plus others):

Elevation or depth above outlet (Feet)	Area of Water Surface, (Acres)	Storage Capacity (Acre Feet)
<u>5397.83</u>	<u>0</u>	<u>0.0</u>
<u>5400.83</u>	<u>10.66</u>	<u>9.6</u>
<u>5403.83</u>	<u>26.88</u>	<u>65.6</u>
<u>5407.58</u>	<u>47.67</u>	<u>208.9</u>
<u>5408.83</u>	<u>50.55</u>	<u>270.4</u>
<u>5410.83</u>	<u>53.52</u>	<u>374.6</u>

8. PROPERTIES OF OUTLET CONDUIT:

- A. Outlet conduit is: 42" Concrete Pipe Cyclinder (give size and material)
- B. Length of conduit: >700 feet
- C. Slope of conduit: 1.24 percent
- D. Manning coefficient: 0.013
- E. Maximum discharge capacity (at dam crest): 93.4 cubic feet/second
- F. Elevation of upstream end of the invert of the outlet conduit: 5397.83 feet
- G. Size, type and number of gates: 32" Steel orifice plate
- H. Time to empty the reservoir: < 96 hours or days



NEW MEXICO OFFICE OF THE STATE ENGINEER
APPLICATION FOR PERMIT
TO ALTER OR REHABILITATE AN EXISTING DAM

9. PROPERTIES OF SPILLWAY:

- A. Spillway is: Weir constructed of soil cement lifts (give type and material)
- B. Location: South Eastern portion of dam crest
- C. Spillway crest elevation: 5407.58 feet
- D. Freeboard: 3.25 feet
- E. Discharge coefficients: 2.63 (dependent on type)
- F. Effective length: 1420 feet
- G. Discharge capacity (at the spillway design flood elevation): 9,622 cubic feet/second
- H. Maximum discharge capacity (at the dam crest): 17,590 cubic feet/second
- I. Residual freeboard: 1 feet

10. ADDITIONAL STATEMENTS OR EXPLANATIONS:

Alteration involves minor earthwork and placement of fill in the upstream portion of the reservoir to accommodate a City of Albuquerque Park.

11. CONSTRUCTION DATES:

Estimated date to begin construction: August, 2009

Estimated date to complete construction: August, 2010

12. Dam will be constructed under the supervision of: Craig Hoover
Engineer

11848
License No.

13. ACKNOWLEDGEMENT FOR THE DAM OWNER

I, John P. Kelly affirm that the foregoing statements are true to the best of my knowledge and belief. I fully understand the responsibility and liability related to dam ownership.

(Signature) [Signature]

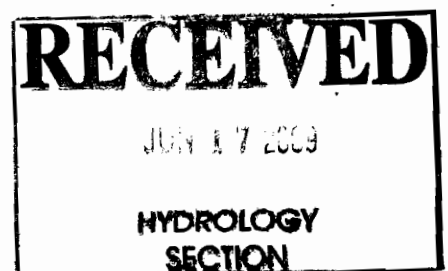
(Date) 5/15/09

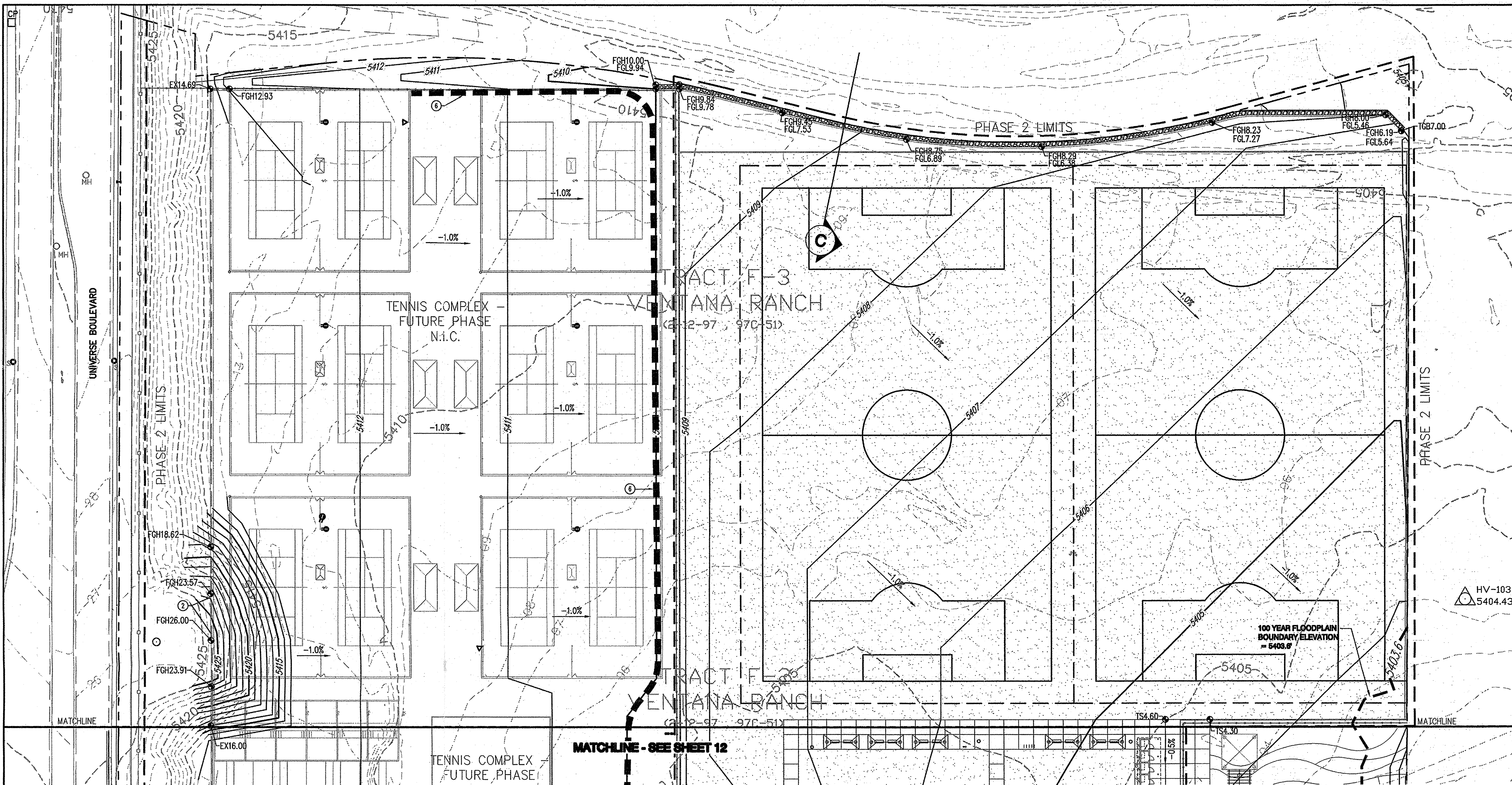
For Mr. Kelly

Subscribed and sworn to before me this 15th day of May, 2009.

[Signature]
Notary Public

My commission expires June 3, 2011 (SEAL)





GENERAL NOTES

- ALL WORK DETAILED ON THESE PLANS AND PERFORMED UNDER THIS CONTRACT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE PUBLIC WORKS STANDARDS.
- THE CONTRACTOR SHALL ABIDE BY ALL LOCAL, STATE, AND FEDERAL LAWS, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS, INCLUDING EPA REQUIREMENTS WITH RESPECT TO STORM WATER DISCHARGE.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL POTENTIAL OBSTRUCTIONS INCLUDING ALL UNDERGROUND UTILITIES. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION OBSERVER OR ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT LINE LOCATING SERVICE FOR LOCATION OF EXISTING UTILITIES.
- ALL ELECTRICAL, TELEPHONE, CABLE TV, GAS AND OTHER UTILITY LINES, CABLES, AND APPURTENANCES ENCOUNTERED DURING CONSTRUCTION THAT REQUIRE RELOCATION, SHALL BE COORDINATED WITH THAT UTILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL NECESSARY UTILITY ADJUSTMENTS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR DELAYS OR INCONVENIENCES CAUSED BY UTILITY COMPANY WORK CREWS. THE CONTRACTOR MAY BE REQUIRED TO RESCHEDULE HIS ACTIVITIES TO ALLOW UTILITY CREWS TO PERFORM THEIR REQUIRED WORK.
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- ALL BARRICADES AND CONSTRUCTION SIGNING SHALL CONFORM TO APPLICABLE SECTIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), US DEPARTMENT OF TRANSPORTATION, LATEST EDITION.
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GRADING NOTES

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- EARTH SLOPES SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL UNLESS SHOWN OTHERWISE.
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- PAVING AND ROADWAY GRADES SHALL BE +/- 0.1' FROM PLAN ELEVATIONS.
- ALL PROPOSED CONTOURS REFLECT TOP OF PAVEMENT ELEVATIONS IN THE PARKING AREA AND MUST BE ADJUSTED FOR MEDIANS AND ISLANDS.
- VERIFY ALL ELEVATIONS SHOWN ON PLAN FROM BASIS OF ELEVATION CONTROL STATION PRIOR TO BEGINNING CONSTRUCTION.

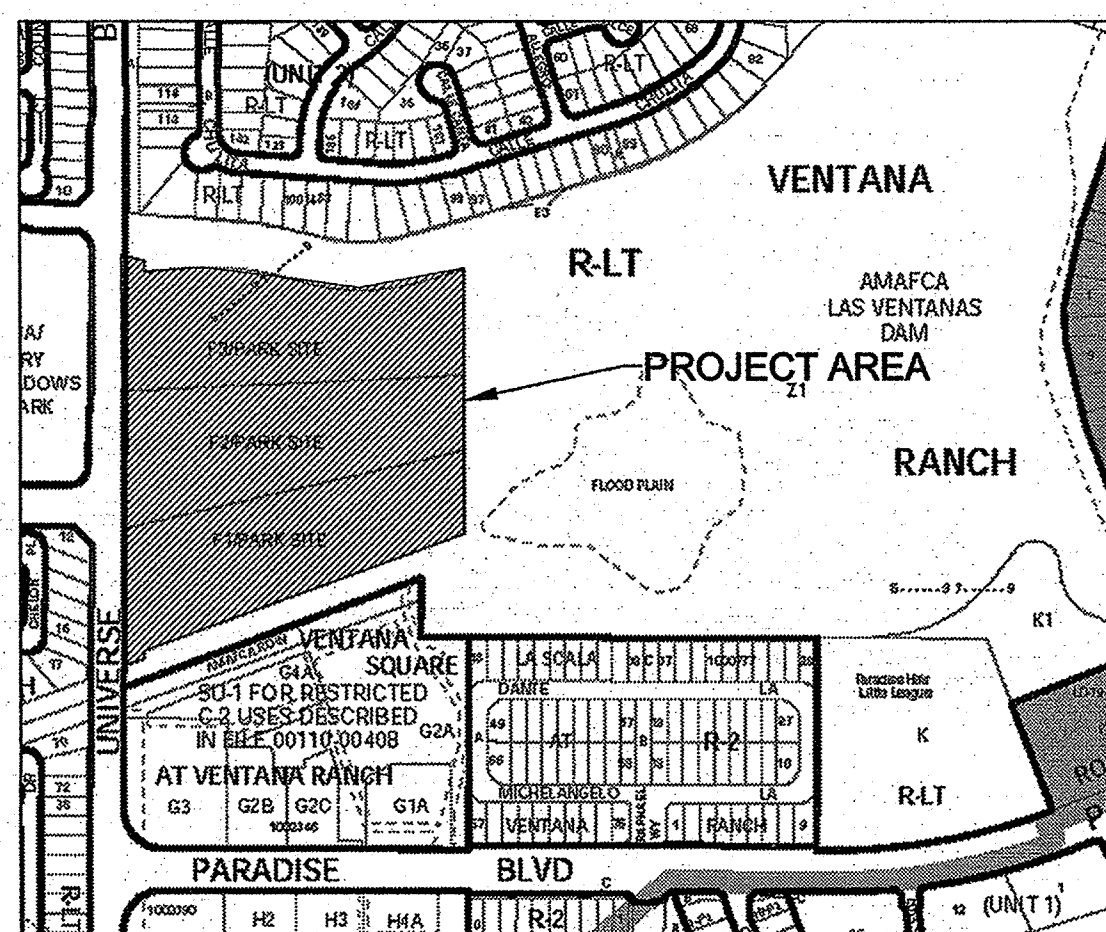
NOTE: ALL ROUGH GRADING ASSOCIATED WITH THIS PROJECT IS TO BE COMPLETED BY THE CITY'S ON-CALL CONTRACTOR. THE SCOPE OF WORK OF THE ON-CALL CONTRACTOR INCLUDES EARTHWORK OPERATIONS NECESSARY TO ESTABLISH THE GRADES SHOWN ON THIS SHEET. THE ON-CALL CONTRACTOR IS RESPONSIBLE FOR GRADING TO WITHIN 0.2' OF THE FINISHED SUBGRADE ELEVATIONS. IN ADDITION, THE ON-CALL CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ANY BASALT WHICH IS WITHIN 12" OF THE FINAL FINISHED GRADES. THIS CONTRACT INCLUDES FINE GRADING, SUBGRADE PREPARATION, AND FINAL BLUETOPPING. THIS CONTRACT ALSO INCLUDES BASALT REMOVAL WHICH MAY BE NECESSARY IN ORDER TO ACCOMMODATE UNDERGROUND UTILITY LINES AND FOOTINGS.

KEYED NOTES

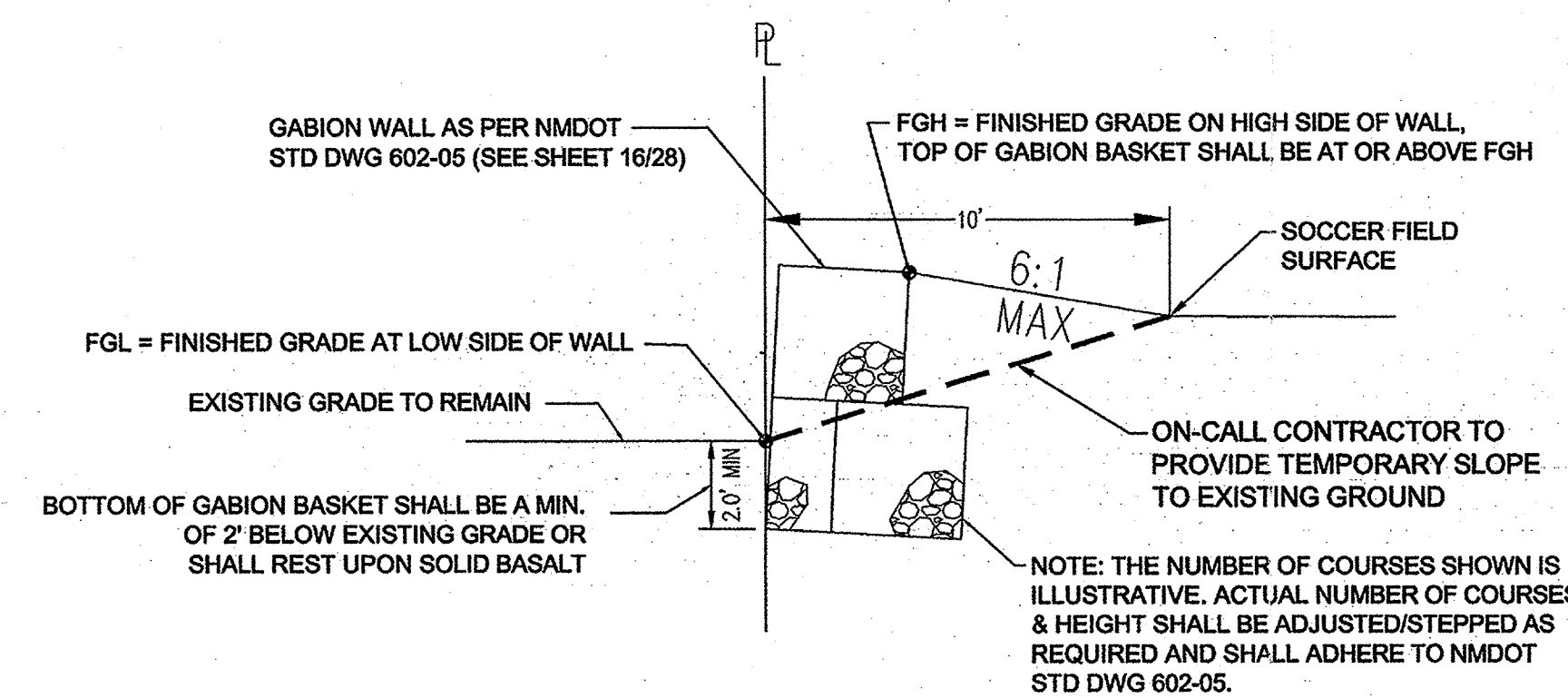
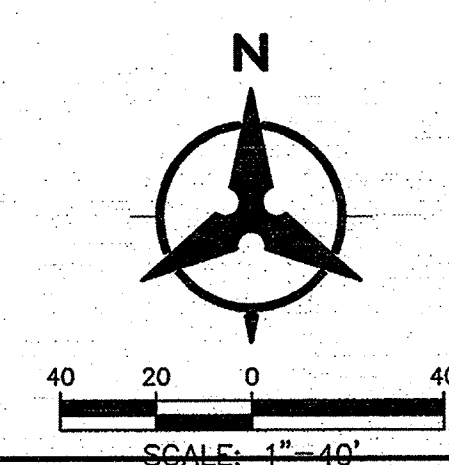
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- FUTURE RETAINING WALL. PROVIDE A TEMPORARY 4:1 SLOPE.
- 3' OPENING IN CURB FOR DRAINAGE.
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- CONSTRUCT COBBLE CHANNEL PER DETAIL ON SHEET 16 OF 28.
- CONSTRUCT SEDIMENT CONTROL BERM PER DETAIL ON SHEET 16 OF 28.
- 12" DEEP CONCRETE DRAINAGE RUNDOWN AS PER COA STD DWG 2260.
- CURB TRANSITION PER DETAIL ON SHEET 16 OF 28.

LEGEND

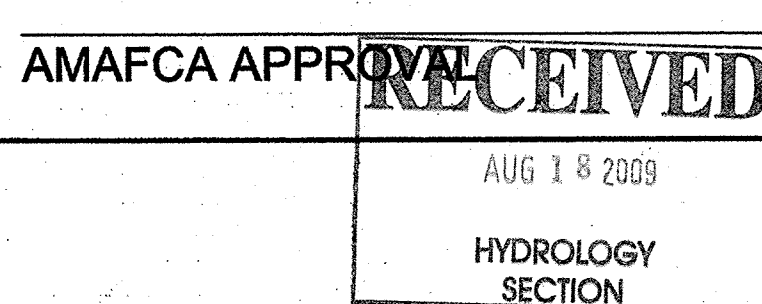
- PROPERTY LINE
- EXISTING INDEX CONTOURS
- EXISTING INTER CONTOURS
- PROPOSED INDEX CONTOURS
- PROPOSED INTER CONTOURS
- PROPOSED CURB & GUTTER
- PROPOSED RETAINING WALL
- EASEMENT
- PROPOSED STORM DRAIN
- TEMPORARY BERM
- PROPOSED STORM DRAIN INLET
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SPOT ELEVATION
- TC=TOP OF CURB, FL=FLOW LINE
- FGH=FINISHED GRADE HIGH
- FGL=FINISHED GRADE LOW
- FG=FINISHED GRADE, TG=TOP OF GRATE
- TA=TOP OF ASPHALT, TS=TOP OF SIDEWALK
- INV=INVERT, EX=EXISTING, HP=HIGH POINT



VICINITY MAP
ZONE ATLAS PAGE B-10-Z



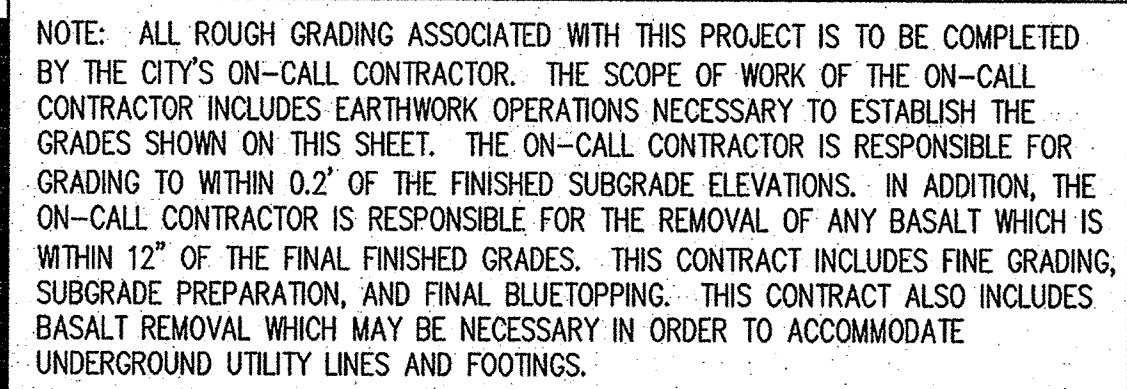
SECTION C
NTS



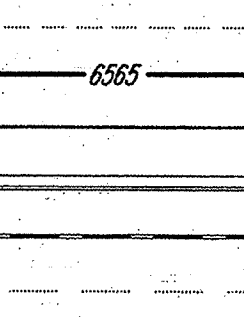
CITY OF ALBUQUERQUE DEPARTMENT OF MUNICIPAL DEVELOPMENT PARK DESIGN AND CONSTRUCTION DIVISION			
TITLE: VENTANA RANCH COMMUNITY PARK - PHASE 2 RECREATION FIELDS FINAL GRADING PLAN - NORTH			
Design Review Committee	City Engineer Approval	Last Design Update	
City Project No. 735203	Zone Map No. B-10	Sheet 11 of 28	

AS BUILT INFORMATION		BENCH MARKS		SURVEY INFORMATION		ENGINEERS SEAL	
CONTRACTOR	DATE	ACS CONTROL MONUMENT	DATE	FIELD NOTES	BY	NO.	BY
WORK SITES BY	DATE	3" BRASS CAP STAMPED "2-B10 1980" SET	DATE				
ACCEPTANCE BY	DATE	IN A CONCRETE POST 1 FOOT BELOW GRADE	DATE				
DRAWINGS BY	DATE	UNDER A 5 1/2" ACCESS COVER	DATE				
CORRECTED BY	DATE	LOCATED 0.45 MILES NORTH OF THE INTERSECTION	DATE				
MICRO-FILM INFORMATION	DATE	OF PARADISE BLVD AND UNIVERSE BLVD	DATE				
RECORDED BY	DATE	ELEVATION = 5432.173 FEET (NAVD 83)	DATE				
NO.							





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PROPERTY LINE
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CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
PARK DESIGN AND CONSTRUCTION DIVISION

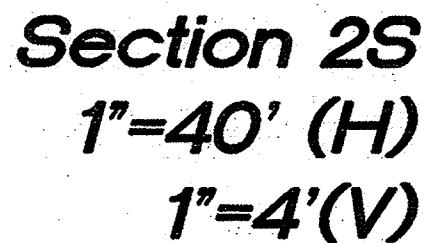
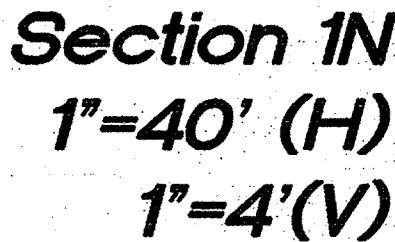
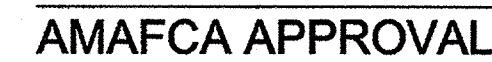
TITLE: VENTANA RANCH COMMUNITY PARK - PHASE 2 RECREATION FIELDS
FINAL GRADING PLAN - SOUTH

Design Review Committee	City Engineer Approval	Last Design Update	No. / Day / Yr.	No. / Day / Yr.
City Project No. 735203		Zone Map No. B-10	Sheet 12	Of 28

SURVEY INFORMATION			BENCH MARKS	AS BUILT INFORMATION	
FIELD NOTES				CONTRACTOR	
NO.	BY	DATE		WORK STARTED BY	DATE
			AS CONTROL MONUMENT	INSPECTOR'S FIELD CHANGE BY	DATE
			3" BRASS CAP STAMPED "2-B10 1980" SET IN A CONCRETE POST 1 FOOT BELOW GRADE	FIELD VERIFICATION BY	DATE
			UNDER A 5 1/2" ACCESS COVER	DOWNED BY	DATE
			LOCATED 0.45 MILES NORTH OF THE INTERSECTION OF PARADISE BLVD AND UNIVERSE BLVD	MICRO-FILM INFORMATION	
			ELEVATION = 5432.73 FEET (NAVD 88)	RECORDED BY	DATE
				NO.	

[illegible]

RECORD DRAWINGS



VENTANA RANCH COMMUNITY PARK - PHASE 2 RECREATION FIELDS
Proposed Conditions Basin Data Table

VENTANA RANCH COMMUNITY PARK - PHASE 2 RECREATION FIELDS
WEIR ANALYSIS FOR CONCRETE RUNDOWN



SITE LOCATION AND BACKGROUND

THE SITE IS LOCATED NORTH OF THE NORTHEAST CORNER OF UNIVERSE BLVD AND PARADISE BLVD, NORTH OF THE EXISTING WALGREENS. THE PROPOSED USE OF THIS SITE IS A COMMUNITY PARK, CONSISTING OF RECREATION FIELDS, A PARKING LOT, AND RELATED AMENITIES. THE SITE AREA IS APPROXIMATELY 16 ACRES. THE EXISTING LEGAL DESCRIPTION OF THE SITE IS VENTANA RANCH, TRACTS F-1, F-2, AND F-3. DRAINAGE ANALYSIS WAS PERFORMED PER SECTION 22.2 - HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL VOLUME 2, DESIGN CRITERIA. THE DESIGN STORM USED IN THE ANALYSIS WAS THE 100 YEAR, 6-HOUR STORM EVENT.

PORTIONS OF THE SITE ARE WITHIN THE FLOODPOOL OF AMAFCA'S LAS VENTANAS DAM. THE FILL FOR THE SITE WAS CONTEMPLATED WHEN THE DAM WAS DESIGNED AND HAS BEEN APPROVED BY THE OFFICE OF THE STATE ENGINEER.

THE CALCULATIONS PRESENTED ON THIS SHEET ARE FOR THE FULL BUILD-OUT OF THE SITE. HOWEVER, THE CURRENT PHASE INCLUDES CONSTRUCTION OF THE TWO SOCCER FIELDS, THE ENTRANCE WAY, AND THE PARKING LOT. THE BASKETBALL COURTS ARE BEING BID ON AS AN ALTERNATE FOR THIS PHASE. THE TENNIS COURTS, TENNIS BUILDING, AND PLAYGROUND AREA ARE TO BE BUILT IN A FUTURE PHASE.

EXISTING CONDITIONS

THE EXISTING SITE CONSISTS OF SANDY SOIL, BASALT, AND MILD DESERT VEGETATION. THE SITE SLOPES TOWARDS THE EAST AT AN AVERAGE SLOPE OF APPROXIMATELY 2%. THE SITE DISCHARGES APPROXIMATELY 24 CFS INTO TRACT Z-1 LAS VENTANAS DETENTION DAM.

PROPOSED CONDITIONS

THE ENTRANCE TO THE SITE CONTAINS A WATERLOCK TO PREVENT DRAINAGE FROM ENTERING THE SITE FROM UNIVERSE BLVD. HOWEVER, A NEGLIGIBLE AMOUNT OF DRAINAGE WILL BE DISCHARGED TO UNIVERSE BLVD DUE TO THE INSTALLATION OF AN ASPHALT TRAIL AND A LANDSCAPING BUFFER ALONG UNIVERSE BLVD. THE DRAINAGE FROM BASIN A (APPROXIMATELY 25.4 CFS) WILL DISCHARGE TO TRACT Z-1 (THE DAM POOL AREA) VIA SHEET FLOW. BASIN B (APPROXIMATELY 29.2 CFS) WILL DISCHARGE TO A CONCRETE ROUNDWATER IN THE SOUTHEAST CORNER OF THE PARKING LOT. THE 12" WIDE CONCRETE ROUNDWATER WAS DESIGNED USING THE WEIR EQUATION (SEE TABLE) AND INCLUDES AN ACCESS GATE AND SCREEN TO PREVENT DEBRIS FROM ENTERING AMAFCA PROPERTY.

FLOW DEPTH ANALYSIS WAS PERFORMED FOR THE NORTH AND SOUTH BASINS TO DETERMINE THE EXISTING WATER ELEVATIONS. AS A RESULT OF THE ANALYSIS, GABION BASKET WALLS WILL BE INSTALLED FOR PORTIONS OF THE NORTH AND SOUTH BASINS ALONG THE PROPERTY LINE TO PREVENT OFF-SITE FLOW FROM PASSING THROUGH PORTIONS OF THE SOUTH BASIN. THE NORTH BASIN IS APPROXIMATELY 516 FEET LONG CONSISTING OF 3 TO 4 WALLS. THE SOUTH BASIN IS APPROXIMATELY 434 FEET LONG CONSISTING OF 2 TO 3 WALLS. THE SHEET PILE WALLS WOULD BE 2 FEET THICK, 10 FEET HIGH, AND 25 ON THE SHEET PILE SPACING. ELEVATIONS, VELOCITIES, FLORESATES, SLOPE, AND MANNING'S COEFFICIENTS AT THOSE LOCATIONS (OTHER LOCATIONS ARE VERY SIMILAR). A SCOUR CALCULATION WAS DONE TO DETERMINE HOW DEEP THE GABION BASKETS NEED TO BE. SCOUR DEPTHS OF 4 FEET (SOUTH SIDE) AND 2 FEET (NORTH SIDE) AND CALCULATED USING EQUATIONS 3.24 AND 3.89 OF THE **SEDIMENT AND EROSION DESIGN GUIDE** TO SOLVE FOR V_c AND THE SCOUR DEPTH, RESPECTIVELY (EQUATIONS ARE DISPLAYED IN THE SECTION DETAILS). STRUCTURAL ANALYSIS WAS PERFORMED FOR THE WORST-CASE SCENARIO OF 4 FEET FOR THE SOUTH SIDE AND 2 FEET FOR THE NORTH SIDE. STRUCTURAL ANALYSIS WAS PERFORMED FOR THE SCOUR DEPTHS OF 4 FEET AND 2 FEET ENCOUNTERED AT OR NEAR THE SURFACE AND THE BELOW-GRADE PORTION OF THE GABION BASKET STRUCTURE IS OMITTED. THE GABION BASKET STRUCTURE WAS FOUND TO BE ADEQUATE UNDER BOTH SCENARIOS.

CONCLUSION

THE PROPOSED CONDITIONS PEAK DISCHARGE FROM THE SITE IS APPROXIMATELY 54.6 CFS, AS SHOWN IN THE "PROPOSED CONDITIONS BASIN DATA TABLE" ON THIS SHEET. THE DRAINAGE MANAGEMENT PLAN DEMONSTRATES THE PROPOSED DRAINAGE CONCEPTS. THE IMPLEMENTATION OF THESE CONCEPTS WOULD RESULT IN THE SAFE PASSAGE OF THE 100 YEAR STORM EVENT. THE SLOPES OF THE FIELDS DO NOT EXCEED THE LIMITS PROVIDED BY THE CITY MUNICIPAL DEPARTMENT, THE SIDEWALKS AND RAMPS MEET ADA STANDARDS, AND THE FUTURE PLAYGROUND IS OUT OF THE 100-YEAR FLOODPLAIN ZONE (5403.6 FEET).

DRAINAGE BASIN BOUNDARY

100 YEAR FLOODPLAIN ELEVATION

BASIN ID

BASIN PEAK FLOWRATE

DIRECTION OF FLOW

TITLE: VENTANA RANCH COMMUNITY PARK - PHASE 2 RECREATION FIELDS
DRAINAGE MANAGEMENT PLAN