

City of Albuquerque P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 24, 2002

Jeff Mortensen, PE Jeff Mortensen & Associates 6010B Midway Park Blvd. NE Albuquerque, NM 87109

RE: Rio Grande Pool – Bathhouse Renovation Grading and Drainage Plan (K13-D35) Engineer's Stamp Dated May 29, 2002

Dear Mr. Mortensen:

The above referenced grading and drainage plan received May 29, 2002 is approved for Building Permit and Work Order action at DRC.

If you have any questions please call me at 924-3982

Sincerely,

Carlos A. Montoya, PE

City Floodplain Administrator

DRAINAGE & TRANSPORTATION INFORMATION SHEET 93.031.3

PROJECT TITLE: _RIO GRANDE POOL - BATHHOUSE RENOVATI	ION ZONE MAP/DRG FILE #K13/D35
DRB #:EPC #:	WORK ORDER #:4347.11
LEGAL DESCRIPTION:UNPLATTED CITY PROPERTY	
CITY ADDRESS:1410 IRON AVENUE SW	
ENGINEER: JEFF MORTENSEN & ASSOCIATES, INC.	CONTACT:JEFF MORTENSEN
ADDRESS: 6010B MIDWAY PARK BLVD NE 87109	PHONE:345-4250
OWNER: CITY OF ALBUQUERQUE PARKS & GENERAL SERVICES	CONTACT:ARCHITECT
ADDRESS: x	PHONE: x
ARCHITECT: KELLS & CRAIG ARCHITECTS_	CONTACT:PETER HOLLOWAY
ADDRESS: 400 GOLD SW, SUITE 880	PHONE:243-2724
SURVEYOR: JEFF MORTENSEN & ASSOCIATES, INC.	CONTACT: JEFF MORTENSEN
ADDRESS: 6010B MIDWAY PARK BLVD. NE 87109	PHONE:345-4250
CONTRACTOR: N/A	CONTACT:
ADDRESS:	PHONE: x_
CHECK TYPE OF SUBMITTAL:	CHECK TYPE OF APPROVAL SOUGHT:
DRAINAGE REPORT	SIA/FINANCIAL GUARANTY RELEASE
_X_DRAINAGE PLAN	PRELIMINARY PLAT APPROVAL
CONCEPTUAL GRADING & DRAINAGE PLAN	S. DEV. PLAN FOR SUB'D APPROVAL
_X_GRADING PLAN	S. DEV. PLAN FOR BLDG PERMIT APPROVAL
EROSION CONTROL PLAN	SECTOR PLAN APPROVAL
ENGINEER'S CERTIIFICATION (HYDROLOGY)	FINAL PLAT APPROVAL
CLOMR/LOMR	FOUNDATION PERMIT APPROVAL
TRAFFIC CIRCULATION LAYOUT (TCL)	_X_BUILDING PERMIT APPROVAL
ENGINEERS CERTIFICATION (TCL)	CERTIFICATE OF OCCUPANCY APPROVAL (PERM)
ENGINEERS CERTIFICATION (DRB APPR SITE PLAN)	CERTIFICATE OF OCCUPANCY APPROVAL (TEMP)
X OTHER PLAN REVISION/UPDATE	GRADING PERMIT APPROVAL
WAS A PRE-DESIGN CONFERENCE HELD YES X NO (SPECIFY) COPY PROVIDED COPY PROVIDED COPY PROVIDED	PAVING PERMIT APPROVAL WORK ORDER APPROVAL THER: DRC PLANS
DATE SUBMITTED: 05-30-2002 B	Y: JEFF MORTENSEN

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a Drainage Submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

- 1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
- Drainage Plans: Required for building permits, grading permits and site plans less than five (5) acres.
- 3. Drainage Report: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

DRAINAGE PLAN

I. INTRODUCTION AND EXECUTIVE SUMMARY

THIS PROJECT, THE RIO GRANDE POOL PARKING LOT, IS LOCATED JUST NORTH OF THE RIO GRANDE ZOO AND REPRESENTS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. THE PURPOSE OF THIS PLAN IS TO UPDATE THE PREVIOUSLY APPROVED GRADING AND DRAINAGE PLAN (K-13/D35) WHICH WAS APPROVED IN JUNE 1993, HOWEVER, THE IMPROVEMENTS WERE NOT CONSTRUCTED THE PROPOSED IMPROVEMENTS WILL REMAIN ESSENTIALLY THE SAME AS THE PREVIOUS PLAN AND WILL CONSIST OF THE RECONSTRUCTION OF THE EXISTING PAVED PARKING LOT FOR IMPROVED DRAINAGE AND PEDESTRIAN ACCESS. THE SITE WILL DISCHARGE RUNOFF INTO THE EXISTING STORM DRAIN SYSTEM LOCATED WITHIN IRON AVENUE SW. OFFSITE FLOWS DO NOT IMPACT THE PROJECT SITE. THIS SUBMITTAL IS MADE IN SUPPORT OF D.R.C. APPROVAL,

II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED AT THE SOUTHWEST CORNER OF IRON AVENUE SW AND 14 TH STREET SW. THE CURRENT LEGAL DESCRIPTION IS THE RIO GRANDE SWIMMING POOL. AS SHOWN BY PANEL 333 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA, SEPTEMBER 20, 1996, THIS SITE DOES NOT LI WITHIN A DESIGNATED FLOOD HAZARD ZONE (ZONE A). HOWEVER, A FLOOD HAZARD ZONE IS IDENTIFIED AT THE INTERSECTION OF IRON AVENUE SW AND 14 TH STREET SW AND IS CONFINED TO THE ROADWAY. THE ALCALDE PUMP STATION, LOCATED TO THE WEST AND DOWNSTREAM OF THE SITE, WAS CONSTRUCTED TO MITIGATE THE FLOODING WITHIN IRON AVENUE SW. THIS SYSTEM DISCHARGES INTO THE RIO GRANDE STORMWATER COLLECTED BY THE STORM DRAIN SYSTEM LOCATED WITHIN IRON AVENUE SW.

III. BACKGROUND DOCUMENTS

RIO GRANDE POOL PARKING LOT IMPROVEMENTS GRADING AND DRAINAGE PLAN (K-13/D35), PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC., JUNE, 1993, WAS USED IN THE PREPARATION OF THIS UPDATED PLAN.

IV. EXISTING CONDITIONS

THE PROJECT SITE CONSISTS OF A PAVED PARKING LOT SERVING THE RIO GRANDE POOL. RUNOFF GENERATED BY THE PARKING LOT DRAINS VIA SURFACE FLOWS INTO ADJACENT IRON AVENUE SW AND 14 TH STREET SW. THE EXISTING PARKING LOT DRAINS POORLY AND EXHIBITS VARIOUS DEGREES OF PAVEMENT FAILURE RESULTING FROM POOR DRAINAGE AND ASSOCIATED SUBGRADE FAILURE. A SINGLE 'C' PUBLIC STORM INLET IS LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF IRON AVENUE AND 14 TH STREET. THIS INLET CAPTURES RUNOFF WITHIN THE STREET INTERSECTION WHICH IS THEN DIRECTED INTO A 60" PUBLIC STORM DRAIN. THE 60" PUBLIC STORM DRAIN DISCHARGES INTO THE RIO GRANDE, LOCATED WEST OF THE SITE, UTILIZING THE ALCALDE PUMP STATION LOCATED NEAR THE OUTFALL BASED UPON VISUAL OBSERVATION, OFFSITE FLOWS DO NOT IMPACT THE PROJECT SITE.

V. DEVELOPED CONDITIONS

AS SHOWN BY THE PLAN, THE OVERALL PROJECT CONSISTS OF THE DEMOLITION OF THE EXISTING PAVEMENT IMPROVEMENTS AND THE RECONSTRUCTION OF THOSE IMPROVEMENTS TO PROVIDE FOR POSITIVE DRAINAGE. TO FACILITATE THE DRAINAGE OF THE PARKING LOT, TWO SINGLE 'D' STORM INLETS ARE PROPOSED. THESE STORM INLETS WILL BE CONNECTED BY A 12" PRIVATE STORM DRAIN WHICH WILL DRAIN FROM WEST TO EAST AND DISCHARGE INTO THE EXISTING SINGLE 'C' PUBLIC STORM INLET.

VI. GRADING PLAN

THE GRADING PLAN SHOWS: 1) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS AS TAKEN FROM THE TOPOGRAPHIC SURVEY PREPARED BY THIS OFFICE, DATED MAY 1993. 2) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS, 3) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS, 4) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS, AND 5) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES.

VII. CALCULATIONS

THE CALCULATIONS CONTAINED HEREIN ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL. 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 THE DRAINAGE CALCULATIONS, ONLY A NEGLIGIBLE INCREASE IN DEVELOPED RUNOFF WILL RESULT FROM THE PROPOSED IMPROVEMENTS. DPM PLATE 22.3 D-5 WAS USED TO DETERMINE THE CAPACITY OF THE NEW STORM INLET GRATES AND MANNING?S EQUATION WAS ØSED TO CALCULATE THE CAPACITY OF THE NEW PRIVATE STORM DRAIN PIPES UNDER GRAVITY FLOW.

VIII. CONCLUSION

THE CONTINUED FREE DISCHARGE OF RUNOFF FROM THIS SITE INTO IRON AVENUE SW AND 14 TH STREET SW IS APPROPRIATE DUE TO THE FOLLOWING FACTORS:

- 1. THIS PROJECT IS MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA
- 2. NEGLIGIBLE INCREASE IN DEVELOPED RUNOFF 3. PROXIMITY TO DOWNSTREAM DRAINAGE FACILITIES
- 4. CONFORMANCE WITH THE PREVIOUSLY APPROVED DRAINAGE PLAN

CALCULATIONS

- I. PRECIPITATION ZONE = 2II. $P_{6,100} = P_{360} = 2.35$ IN
- III. TOTAL AREA $(A_T) = 18,325 \text{ SF } / 0.42 \text{ AC}$

IV. EXISTING LAND TREATMENT

V. DEVELOPED LAND TREATMENT

- TREATMENT AREA (SF/AC) % 1,460/0.03
- 17,125/0.39

AREA (SF/AC) % 1,330/0.03

VI. EXISTING CONDITION

- A. VOLUME $E^{M} = (E^{A}A^{A} + E^{B}A^{B} + E^{C}A + C^{E}D^{A}D)/A^{A}$
- $E_{\rm M} = [0.78(0.03) + 2.12(0.39)]/0.42 = 2.02 \text{ IN}$
- $V_{100,6-HR} = (2.02/12)0.42 = 0.0709 \text{ AC-FT} = 3,090 \text{ CF}$

16,995/0.39

93

B. PEAK DISCHARGE

 $Q_p = Q_{100} = 2.28(0.03) + 4.70(0.39) = 1.9 CFS$

VII. DEVELOPED CONDITION

A. VOLUME

 $E_{\mathbf{W}} = (E_{\mathbf{A}}A_{\mathbf{A}} + E_{\mathbf{B}}A_{\mathbf{B}} + E_{\mathbf{C}}A_{\mathbf{C}} + E_{\mathbf{D}}A_{\mathbf{D}})/A_{\mathbf{T}}$ $E_W = [0.78(0.03) + 2.12(0.39)]/0.42 = 2.02 \text{ IN}$

 $V_{100,6-HR} = (E_W/12)A_T$

 $V_{100.6-HR} = (2.02/12)0.42 = 0.0709 \text{ AC-FT} = 3,090 \text{ CF}$

B. PEAK DISCHARGE

 $Q_{P} = Q_{PA}A_{A} + Q_{PB}A_{B} + Q_{PC}A_{C} + Q_{PD}A_{D}$

 $Q_p = Q_{100} = 2.28(0.03) + 4.70(0.39) = 1.9 \text{ CFS}$

C. PRIVATE STORM DRAIN CAPACITY

1. GRATE CAPACITY USING DPM PLATE 22.3 D-5 WHERE: D = 0.5 FT

 $Q = 4.0 \text{ CFS} > Q_{100} = 1.9 \text{ CFS}$

2. PIPE CAPACITY $Q = 1.486/n R^{0.67} S^{0.5} A (MANNING'S EQN.)$

S = 0.0020

- N = 0.012A = 0.785 SF (12" PIPE FLOWING FULL)
- P = 3.14 FTR = A/P = 0.785/3.14 = 0.25 FT
- S = 0.0050
- $Q = 2.7 \text{ CFS} > Q_{100} = 1.9 \text{ CFS}$

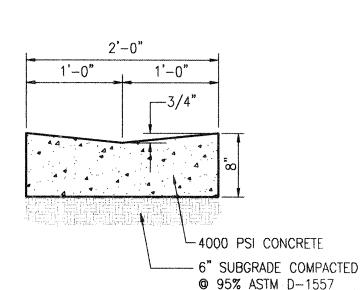
VIII. COMPARISON

A. VOLUME

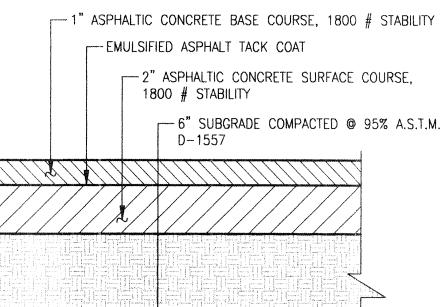
 $\Delta V_{100,6-HR} = 0 - 0 = 0 \text{ CF (NO CHANGE)}$

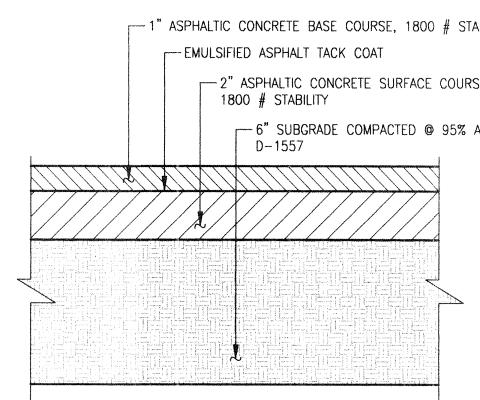
B. PEAK DISCHARGE

 $\Delta Q_{100} = 1.9 - 1.9 = 0.0 \text{ CFS (NO CHANGE)}$

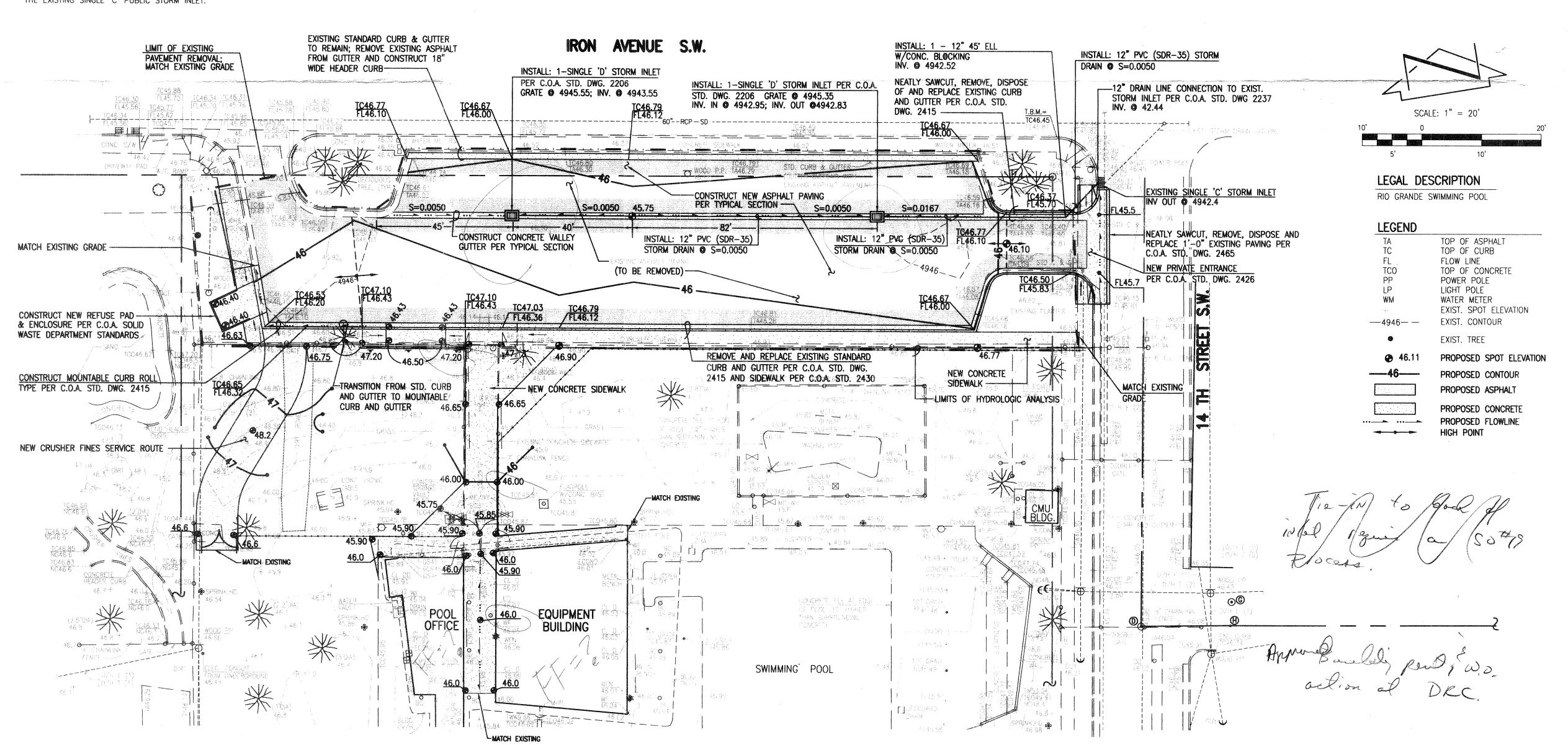


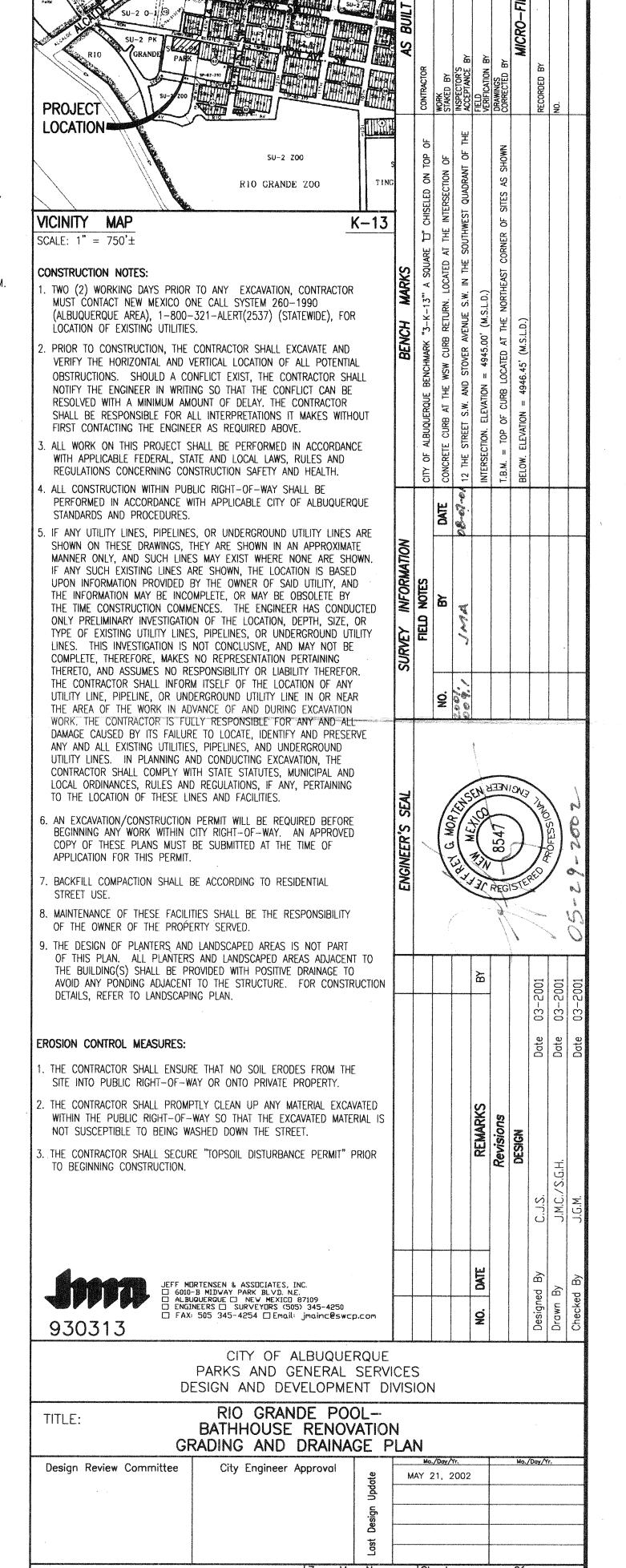
TYPICAL VALLEY GUTTER SECTION





TYPICAL ASPHALT PAVING SECTION SCALE: 1" = 4"





City Project No.

4347.1