HYDROLOGY L14/D12 THREE PLANS

L 14-D12

3 PLANS

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE September 4, 1984 REF. NO._____

TO: Jim Fink, MDD Hydrology

FROM: Richard Lovato, MDD Engineering RL

SUBJECT: Project 2236, South 2nd Baseball Fields Storm Drainage

I have been assigned the subject project for design of grading and storm drainage. The project includes construction of several baseball fields at the old S. 2nd Street Sewage Treatment Plant.

The proposed grading plan for the area will drain the fields and parking areas to catch basins then deliver runoff in an underground gravity collection system to the existing 48" dia. storm drain line in Second Street.

Please advise as soon as possible if there is any problem with discharging the runoff from this site into the existing storm drain system in Second Street so we may proceed with the final plans.

RL/fs

Richard:

It will be O.K. to discharge the fields and parking area to the 48" line.

Jim Fink
9/5/84

PLATE 6

INFORMATION SHEET

PROJECT TITLE South Second Softball Fields TYPE OF SUBMITTAL Drainage Report

ZONE ATLAS PAGE NO. L-14 CITY ADDRESS Sewage Treatment Plant No. 1 Site

LEGAL DESCRIPTION See attached maps

ENGINEERING FIRM Engineering Div.City of Alb. CONTACT Richard Lovato

ADDRESS 400 Marquette NW PHONE 766-7441

OWNER Parks Department CONTACT Pat Westbrook

ADDRESS City of Albuquerque PHONE 766-5080

ARCHITECT N/A CONTACT

ADDRESS PHONE

SURVEYOR City Surveyor CONTACT Danny Montano

ADDRESS 2nd & Central Office PHONE 766-5040

CONTRACTOR N/A CONTACT

ADDRESS PHONE

DATE SUBMITTED 10/10/84

BY Richard Lovato

RECEIVED
OCT 12 1984
HYDROLOGY SECTION

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE December 19, 1984 REF. NO._____

TO: Billy Goolsby, City/County Flood Plain Administrator

FROM: Andre Houle, Assistant Quality Assurance Engineer

SUBJECT: South Second Softball Field

I have reviewed the drainage report for the aforementioned project. This site will route all developed storm drainage to an existing 48" line on 2nd Street. Even though this line is at capacity this plan is alright in that the hydraulic grade line "backup" will only result in allowing backed-up water in a ball field. Note also that the outfall for the 48" main is just south of here to the Riverside Drain.

AH/jr

RECEIVED
DEC 20 1984
HYDROLOGY SECTION

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

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

January 15, 1985

Richard Lovato
Engineering Division
400 Marquette NW
Albuquerque, NM 87103

REF: DRAINAGE REPORT FOR SOUTH SECOND SOFTBALL FIELDS (L14-D12) RECEIVED OCTOBER 12, 1984

Dear Richard:

The above referenced plan, received October 12, 1984, is approved.

Please attach a copy of this approved plan to the construction set prior to Hydrology sign-off.

If you have any further questions, please contact this office.

Sincerely yours,

Billy J. Goolsby

Billy J. Goolsby, PE
Civil Engineer/Hydrology

BJG:mrk

DRAINAGE REPORT
FOR
SOUTH SECOND SOFTBALL FIELDS
JOB NO. 2236

OCT 9, 1984

RECEIVED
OCT 12 1984
HYDROLOGY SECTION

DRAINAGE REPORT
FOR
SOUTH SECOND SOFTBALL FIELDS

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DESIGN SECTION

PREPARED BY

RICHARD LOVATO
DESIGN ENGINEER
CITY OF ALBUQUERQUE

Richard Lovato 10/11/84
RICHARD LOVATO

DRAINAGE REPORT

FOR

SOUTH SECOND SOFTBALL FIELDS

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DRAINAGE REPORT

FOR

SOUTH SECOND SOFTBALL FIELDS

PURPOSE AND SCOPE

This drainage report has been prepared to outline the treatment of storm water flowing onto and generated within the South Second Softball Fields (See Plate 1. The hydraulic characteristics of the site were analyzed using procedures outlined in the City of Albuquerque's Development Process Manual (DPM) Chapter 22, entitled "Drainage and Flood Control". The report contains recommendations for satisfactory treatment of the computed flow rates and runoff volumes.

SITE LOCATION AND DESCRIPTION

The site is located in the area shown on Plate 1. It is bounded on the west by the Albuquerque Riverside Drain and Barr Canal, on the east by South Second Street, on the north by Industrial Park (Vacant land) and on the south by MRGCD Tract 427a.

METHOD OF ANALYSIS

The rational method as described in City of Albuquerque's DPM Section 22.2 was used to calculate flow rates.

Rainfall intensities were determined by applying Plate 22.2 D-1 and 22.2 D-2 of Chapter 22 of the DPM. The following values were used.

6 - Hour rainfall (100 year) = 2.25 inches
6 - Hour rainfall (10 year) = (2.25 X .657) = 1.48 inches

$I_{100} = 2.25 \times 6.84 \times (Tc)^{-51}$
I_{10} $1.48 \times 6.84 \times (Tc)^{-51}$

Values for the runoff coefficient were obtained from Plates 22.2 C-1 assuming a 50% impervious surface for the developed condition and a 10% impervious surface for the undeveloped conditions.

C (developed) = 0.42
C (undeveloped) 0.22

EXISTING DRAINAGE CONDITIONS

Presently there is no apparent drainage of the site. The site varies in elevation from 4939 to 4943. There is no defined drainage pattern other than ponding in local depressions. Second Street and AT&SF Railroad on the east and the Barr Canal on the west prevent any flow in the east - west direction (See Plate 5.)

There is an existing 48" RCP storm drain line on the west side of South Second Street which flows south and discharges into the Barr Canal (See Plate 3.)

DRAINAGE CONDITIONS AFTER DEVELOPMENT

Off-Site Runoff

No off site run off is anticipated except that area between the west property boundary line and the Barr Canal bank. This area was included in computation of flow rates in the developed condition.

On-Site Runoff

The hydrologic data for the developed basins is tabulated in Table 1. (See Plate 7).

Basin A. The runoff from Basin A will flow to a graded low point where a Double "D" catch basin will be installed. It will then be conveyed in an appropriately sized uonderground storm drain line to an existing MH on the 48" diameter RCP which flows south in Second Street and discharges into the Barr Canal. Calculated flow Q100 = 6.7 cfs. Q10 = 4.4cfs.

Basin B. The runoff from Basin "B" will flow to a graded low point where a Double 'D' catch basin will be installed. It will then be conveyed in an appropriately sized underground storm drain line to the existing 48" diameter RCP in Second Street. A 6' diameter manhole will be constructed over the existing 48" line to make the connection. Calculated flows Q_{100} = 8.2cfs, Q_{10} = 5.3cfs.

Basin C. The runoff from Basin "C" will flow to a low point in the curb of the parking lot where a Double "C" catch basin will be installed. It will then be conveyed in an underground storm drain system to a new MH where it will join flow from Basin "B" then flow east to the 48" diameter storm drain in Second Street. Calculated flows Q_{100} = 4.4cfs. Q_{10} = 2.9cfs.

Basin "D" and Basin "E". Flow from these basins will flow to two separate low points where Double "D" catch basins will be installed. Flow from Basin "D" will flow east in an underground storm drain system where it will join flow from Basin "E". The combined flows will then continue east in an underground system and discharge into the 48" diameter storm drain in Second Street. The connection will be made at an existing 6' diameter manhole. Calculated flows - Basin "D" - Q_{100} = 9.4cfs, Q_{10} = 6.2cfs, Basin E - Q_{100} 5.2cfs, Q_{10} 3.4cfs.

Basin "F". Flows from Basin F will travel overland to Second Street where it will be picked up in a future storm drain system installed whenever Second Street is improved. Calculated flow Q_{100} = 0.2cfs, Q_{10} = 0.1cfs.

FLOOD HAZARD AREAS

The Federal Emergency Management Agency (FMEA) map of the area, including the site, shows floodwaters from the 100 year storm to be confined within the banks of the Rio Grande. The site is within the limits of the 500 year storm. See Plate 4.

EROSION CONTROL

Most of the site will be paved with concrete or asphalt or be grassed and landscaped. The grading plan proposed incorporates shallow grades where street flow will take place to minimize erosion of the soil.

EASEMENTS AND RIGHTS-OF-WAY

The property is currently owned by the City of Albuquerque. It is not anticipated that any future easements will be required for the storm drain improvements proposed. There may be some existing utility easements which may be vacated when the treatment plant is completely phased out. See Plates 9 & 10.

MAINTENANCE

The City of Albuquerque will be responsible for maintaining proposed improvements in this project.

CONCLUSIONS

Based on the recommendations outlined in this report the developed site will handle all runoff generated from the 100 year storm and discharge the flows into the existing 48" RCP storm drain in Second Street. Included is a letter from Mr. Jim Fink, Hydrology, City of Albuquerque approving the proposed connections to the existing Storm Drain System. See Plate 6 for plan and profiles of Phase I Proposed Improvements.

TABLE I

DEVELOPED CONDITION C = 0.42

BASIN	AREA (acres)	ΔH (ft)	L (ft)	SLOPE (ft/ft)	V ft/sec	TC (Min)	I10	I100	Q10 cfs	Q_{100} cfs
A	3.33	6.0	400	.0150	.70	10	3.12	4.76	4.4	6.7
B	4.07	5.8	400	.0145	.70	10	3.12	4.76	5.3	8.2
C	2.30	2.1	560	.004	.85	11	2.98	4.53	2.9	4.4
D	4.71	4.0	360	0.011	.60	10	3.12	4.76	6.2	9.4
E	2.61	4.0	340	0.012	.65	10	3.12	4.76	3.4	5.2
F	0.09	3.5	150	0.023	.90	10	3.12	4.76	0.1	0.2

17.11 acres. 34 cfs.

2 cfs/acre.

@ capacity for 48" @ .001

0 6 1 5