



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
KEN SCHULTZ

CHIEF
ADMINISTRATIVE OFFICER

GENE ROMO

DEPUTY CAO
PUBLIC SERVICES

FRANK MARTINEZ

DEPUTY CAO
PLANNING/DEVELOPMENT

BILL MUELLER

May 18, 1988

Jeff Mortensen, P.E.
Tom Mann & Associates, Inc.
811 Dallas, NE
Albuquerque, New Mexico 87110

RE: DRAINAGE PLAN FOR WEST MESA RESERVOIR
(K-9/D7) ENGINEER'S STAMP DATED MAY 3, 1988

Dear Mr. Mortensen:

Based on the information provided on your submittal of May 9, 1988, the above referenced plan is approved for Building Permit.

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

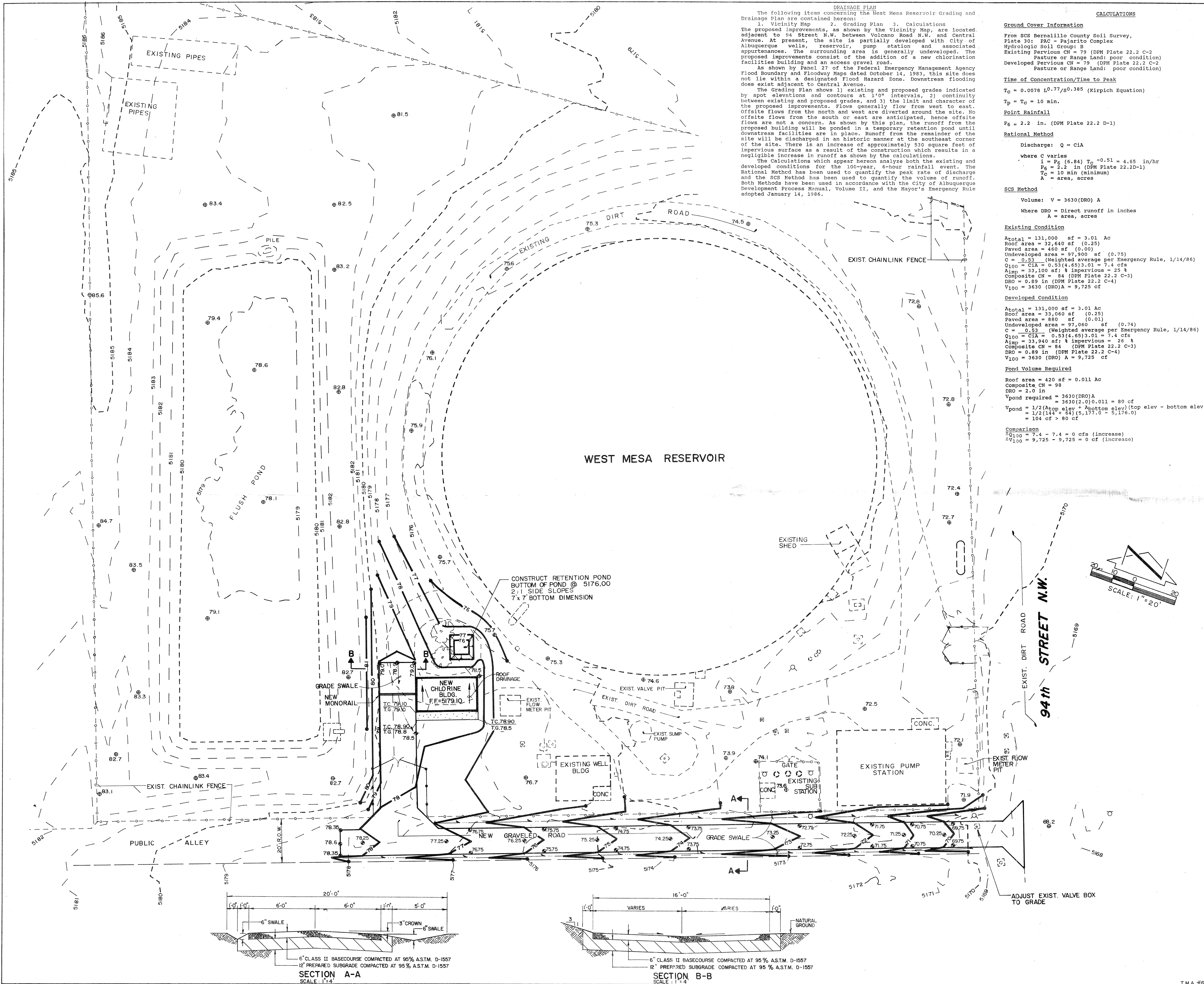
Also, we will need concurrence from the inspector in charge of this C.I.P. prior to Certificate of Occupancy release.

If I can be of further assistance, please feel free to call me at 768-2650.

Cordially,

Bernie J. Montoya
Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj



The following items concerning the West Mesa Reservoir Grading and Drainage Plan are contained herein:

1. Vicinity Map 2. Grading Plan 3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located adjacent to 94 Street N.W. between Volcano Road N.W. and Central Avenue. At present, the site is partially developed with City of Albuquerque wells, reservoir, pump station and associated appurtenances. The surrounding area is generally undeveloped. The proposed improvements consist of the addition of a new chlorination facilities building and an access gravel road.

As shown by Panel 27 of the Federal Emergency Management Agency Flood Boundary and Floodway Map dated October 14, 1983, this site does not lie within a designated Flood Hazard Zone. Downstream flooding does exist adjacent to Central Avenue.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) continuity between existing and proposed grades, and 3) the limit and character of the proposed improvements. Flows generally flow from west to east. Offsite flows from the north and west are diverted around the site. No offsite flows from the south or east are anticipated, hence offsite flows are not a concern. As shown by this plan, the runoff from the proposed building will be ponded in a temporary retention pond until downstream facilities are in place. Runoff from the remainder of the site will be discharged in an historic manner at the southeast corner of the site. There is an increase of approximately 530 square feet of impervious surface as a result of the construction which results in a negligible increase in runoff as shown by the calculations.

The calculations which appear herein 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.

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 30: PAC - Pajarito Complex Hydrologic Soil Group: B Existing Pervious CN = 79 (DPM Plate 22.2 C-2) Pasture or Range Land: poor condition Developed Pervious CN = 79 (DPM Plate 22.2 C-2) Pasture or Range Land: poor 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

$P_6 = 2.2$ in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: $Q = CIA$
where C varies
 $i = P_6 (6.84) T_c^{-0.51} = 4.65$ in/hr
 $P_6 = 2.2$ 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

Atotal = 131,000 sf = 3.01 Ac
Roof area = 32,640 sf (0.25)
Paved area = 460 sf (0.00)
Undeveloped area = 97,900 sf (0.75)
 $C = 0.53$ (Weighted average per Emergency Rule, 1/14/86)
 $Q_{100} = CIA = 0.53(4.65)3.01 = 7.4$ cfs
 $A_{imp} = 33,100$ sf; $\frac{1}{2}$ impervious = 26 %
Composite CN = 84 (DPM Plate 22.2 C-3)
DRO = 0.89 in (DPM Plate 22.2 C-4)
 $V_{100} = 3630 (DRO) A = 9,725$ cf

Developed Condition

Atotal = 131,000 sf = 3.01 Ac
Roof area = 33,060 sf (0.25)
Paved area = 880 sf (0.01)
Undeveloped area = 97,060 sf (0.74)
 $C = 0.53$ (Weighted average per Emergency Rule, 1/14/86)
 $Q_{100} = CIA = 0.53(4.65)3.01 = 7.4$ cfs
 $A_{imp} = 33,940$ sf; $\frac{1}{2}$ impervious = 26 %
Composite CN = 84 (DPM Plate 22.2 C-3)
DRO = 0.89 in (DPM Plate 22.2 C-4)
 $V_{100} = 3630 (DRO) A = 9,725$ cf

Pond Volume Required

Roof area = 420 sf = 0.011 Ac
Composite CN = 98
DRO = 2.0 in
 $V_{pond} \text{ required} = 3630(DRO)A$
 $V_{pond} = 1/2(A_{top} \text{ elev} + A_{bottom} \text{ elev})(\text{top elev} - \text{bottom elev.})$
 $= 1/2(144' + 64')(5,177.0 - 5,176.0)$
 $= 104$ cf > 80 cf

Comparison

$Q_{100} = 7.4 - 7.4 = 0$ cfs (increase)
 $V_{100} = 9,725 - 9,725 = 0$ cf (increase)

PROJECT LOCATION

BENCHMARK
TBM ELEV. 5167.69

VICINITY MAP
SCALE: 1" = 800'

LEGAL DESCRIPTION

CITY OF ALBUQUERQUE PROPERTY WEST MESA WELL SITE, TRACT 27, BLOCK 9 OF THE TOWNSITE OF WESTLAND

LEGEND

- 5430 EXISTING CONTOUR
- 5430 NEW CONTOUR
- EXISTING SWALE
- NEW SWALE
- EXISTING SPOT ELEVATION
- NEW SPOT ELEVATION
- EXISTING CHAIN LINK FENCE
- NEW CHAIN LINK FENCE
- EXISTING POWER / LIGHT POLE
- NEW ASPHALT
- NEW CONCRETE
- EXISTING RETAINING WALL
- WATER BLOCK

CONSTRUCTION NOTES:

- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 315-1234, FOR LOCATION OF EXISTING UTILITIES.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL SUBSISTANT OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE BUSINESS SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
- 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.
- ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
- IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS THEY ARE SHOWN IN AN APPROXIMATE HORIZONTAL ONLY, AND SUCH LINES MAY EXIST WHERE THEY ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OR SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS UNDERTAKEN NO FIELD VERIFICATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. MAKES NO ASSURANCE OF RESPONSIBILITY OR LIABILITY THEREOF. THE CONTRACTOR SHALL LOCATE THEMSELF 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 PROTECT 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.

REVISIONS

NO.	DATE	REVISIONS
1	1-88	DESIGN
2	1-88	T.M.A.
3	1-88	J.G.M.

APPROVALS

ENGINEER	DATE	ENGINEER	DATE
D.R.C. Chair			
Trans. Dev.			
Utility Dev.			

DRAWING NO. C-18 **PROJECT NO.** 3458 **MAP NO.** K-9 **SHEET** 21 **OF** 52

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
CHLORINATION FACILITIES-1988
WEST MESA FACILITY
GRADING PLAN
HYDROLOGY SECTION

ENGINEER'S SEAL
SEAL OF THE CITY OF ALBUQUERQUE
REGISTERED PROFESSIONAL ENGINEER
NO. 8347
05-03-88