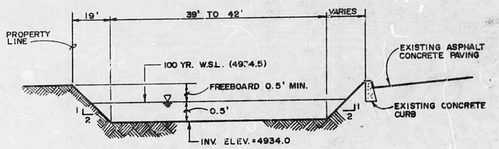
HYDROLOGY

M14/D10
TWO PLANS

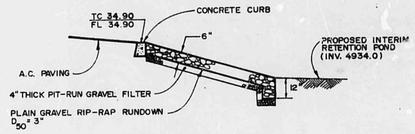
M 14/ D10

2 PLANS



SECTION A-A

NTS



SECTION B-B

NTS

DRAINAGE PLAN

The following items concerning the John Sexton Company Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As depicted by the Vicinity Map, the proposed improvements are located at South Broadway Boulevard, one block south of Woodard Road. The site is described specifically as Tracts B-1 and B-2, South Broadway Industrial Acres. The site is presently partially developed. The surrounding areas are predominantly developed at low to moderate density.

A review of Plate M-14 of the Albuquerque Master Drainage Study indicates that the subject site does not lie within any designated Flood Hazard Zone. At present, about half of this site drains from west to east onto Broadway Boulevard. The remainder of the runoff generated by the site is naturally ponded onsite.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) interface and continuity of existing improvements, 3) limit and character of existing improvements, and 4) limit and character of proposed improvements. Due to lack of curb and gutter improvements on Broadway, it is proposed to grade the basin in which new developments are proposed for 100% retention. It should be noted that the placement of the proposed interim retention pond fronting Broadway Boulevard is to facilitate the convenience of future tie-ins to any proposed storm drainage improvements on Broadway Boulevard. Attention should also be directed to the fact that since the proposed building straddles both Lot B-1 and Lot B-2, drainage covenants for cross-lot drainage will not be required.

The Calculations which appear below analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The SCS Method has been used for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. The Calculations shown hereon should adequately quantify developed runoff volumes and the sizing of proposed retention pond. The Grading and Drainage concept presented herein is consistent with the pre-design conference recap which accompanies this submittal.

CALCULATIONS

BASIN C

Ground Cover Information

From SCS Bernalillo County Soil Survey,
Plate: 40
Hydrologic Soil Group: B (Gm, Glendale)
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)

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

$P_6 = 2.3$ in. (DPM Plate 22.2 D-1)

Existing Condition

A_{total} = 89,070 sf = 2.0 Ac
A_{imp} = 40,080 sf; % impervious = 45 %
Composite CN = 82 (DPM Plate 22.2 C-3)
DRO = 1.2 in (DPM Plate 22.2 C-4)
$q_p = 45.4\ A/T_p = 9.08$ cfs/in runoff

$Q_{100} = Q_{peak} = q_p$ (DRO) = 10.90 cfs
$V_{100} = 3630$ (DRO)A = 8,710 cf

Developed Condition

A_{total} = 89,070 sf = 2.0 Ac
A_{imp} = 84,617 sf; % impervious = 95 %
Composite CN = 97 (DPM Plate 22.2 C-3)
DRO = 1.9 in (DPM Plate 22.2 C-4)
$q_p = 45.4\ A/T_p = 9.08$ cfs/in runoff

$Q_{100} = Q_{peak} = q_p$ (DRO) = 17.25 cfs
$V_{100} = 3630$ (DRO) A = 13,790 cf

Comparison

ΔQ_{100} = (17.25 - 10.90) = 6.35 cfs (increase)
ΔV_{100} = (13,790 - 8,710) = 5,080 cf (increase)

Note: Only Basin C is analyzed as the proposed development has no impact on both Basins A and B.

WATER LEVEL CALCULATION FOR INTERIM RETENTION POND

100-Year Retention Volume = 13,800 cf

Available Pond Surface Area = 51,970 sf

To calculate pond water depths for a 100-year storm, use an equivalent square pond with a width of $\sqrt{51,970}$ ft = 228.0 ft and 2:1 sideslopes with a trapezoidal cross section.

Using d = depth of water in rentention pond in ft. for 100-year storm.
Freeboard = 0.5 ft. ±

Top width @ water surface = 228.0 - (0.5)(2)(2) = 226.0 ft.
Bottom width = (226.0 - 4 d)ft.

Equating volumes and solve for d =

$$\frac{226.0 + (226.0 - 4d)}{2}(d)(226.0) = 51,970$$

$$904d^2 - 102,152d + 51,970 = 0$$
$$d = 0.51'$$

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JUN 18 1986
HYDROLOGY SECTION

JEFFREY G. MORTESSEN
NEW MEXICO
8547
REGISTERED PROFESSIONAL ENGINEER

06-18-86

MORRISSEY & MORTESSEN, INC.
811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS

NO.	DATE	BY	REVISIONS

DESIGNED BY R.P.
DRAWN BY: S.G.H.
APPROVED: J.G.M.

JOB NO. 60761
DATE 5·86

GRADING AND DRAINAGE PLAN
JOHN SEXTON & CO.

FILE NO.

SHEET 2 OF 2

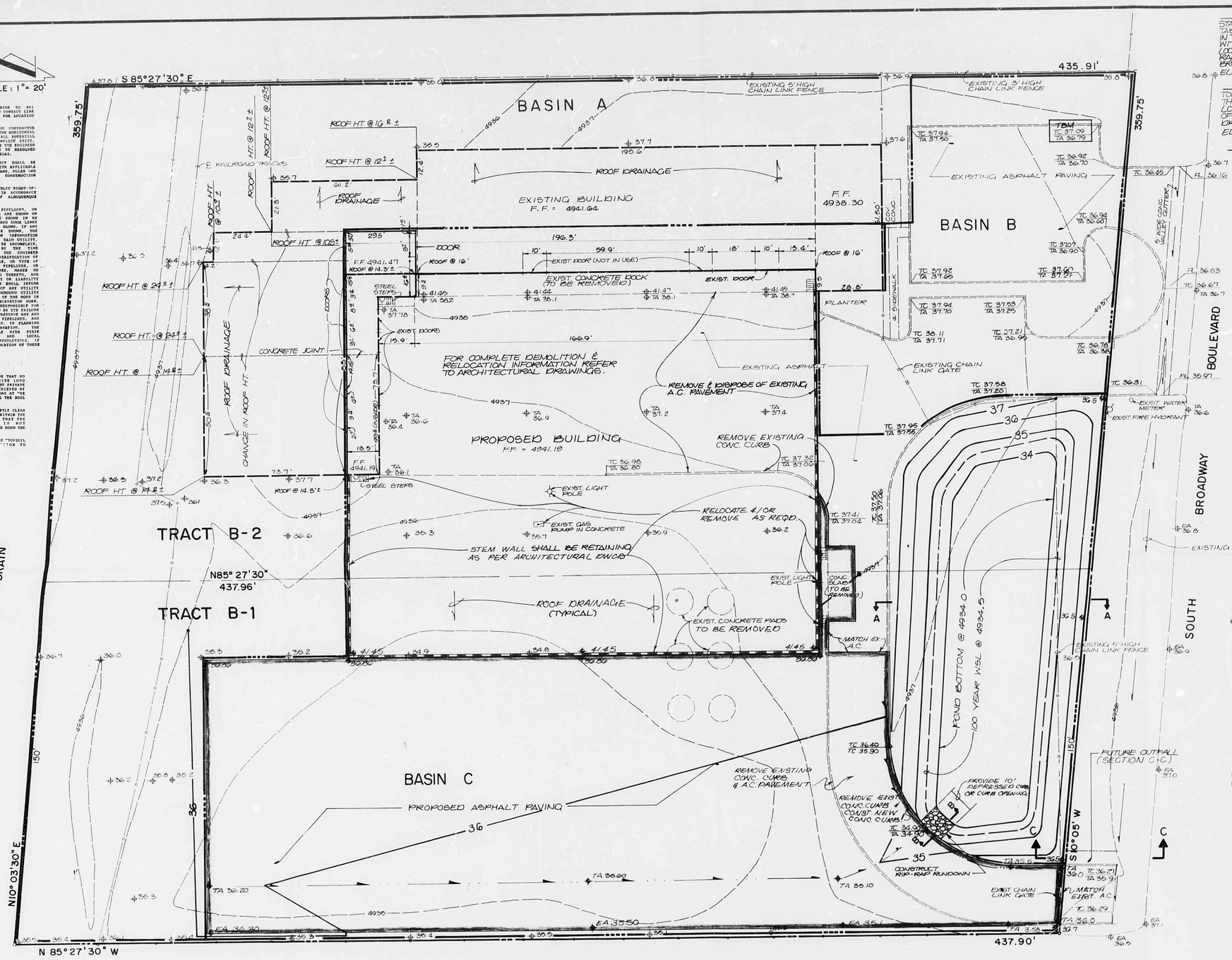
SCALE : 1" = 20'

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 766-1234, FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY (VERIFY) THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER 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 WORK HAS NOT BEEN DONE AND WHERE WORK HAS BEEN DONE, 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 UNDERTAKEN NO FIELD VERIFICATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES OR UNDERGROUND UTILITY LINES. THE ENGINEER 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 DAMAGE TO UTILITIES, PIPELINES, AND 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.

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR PRIVATE PROPERTY. THIS MAY BE ACCOMPLISHED 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. IF THE SOIL EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
3. THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION.



NOTE: ROOF HEIGHTS MEASURED RELATIVE TO EXISTING DOCK ELEVATION.

PROJECT BENCHMARK

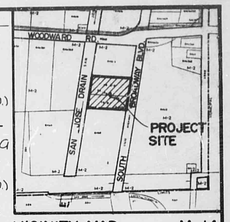
STATION IS A STANDARD ACS BRASS TABLET STAMPED "B-14, 1974" SET IN TOP OF A CONCRETE POST FLUSH WITH THE GROUND. STATION IS LOCATED IN THE NORTHEAST QUADRANT OF THE INTERSECTION OF BROADWAY BLVD. & WOODWARD RD.
ELEVATION = 4937.58 FEET (M.S.L.D.)

TBM

TOP OF CURB ELEV. LOCATED @ THE NORTHEAST CORNER OF A PARKING LOT IN THE NORTHEAST CORNER OF TRACT B-2 AS SHOWN ON THE DRAWING AT LEFT.
ELEVATION = 4937.09 FEET (M.S.L.D.)

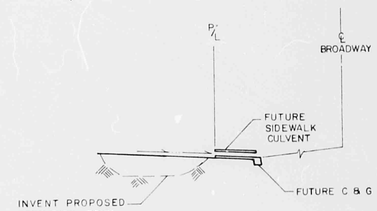
LEGAL DESCRIPTION

TRACTS B-1 & B-2 SOUTH BROADWAY INDUSTRIAL ACRES



VICINITY MAP M-14

1. RESPONSE TO COMMENTS DATED 6-6-86
   a. Future Outfall as shown hereon
   b. No off-site public waters enter proposed retention pond.



SECTION C C
N.T.S

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JEFFREY G. MORTENSEN
NEW MEXICO
8547
06-30-8
REGISTERED PROFESSIONAL ENGINEER

06-09-86
06-18-86

LEGEND

	EXISTING SPOT ELEVATION		PROPERTY LINE
	PROPOSED SPOT ELEVATION	TC	TOP OF CURB
4935	EXISTING CONTOUR	TA	TOP OF ASPHALT
35	PROPOSED CONTOUR		SWALE
	PROPOSED CONCRETE		RETAINING WALL
	PROPOSED ASPHALT		DRAINAGE BASIN BOUNDARY

BERNALILLO DALLAS N.E. • ALBUQUERQUE • NEW MEXICO • 87110
ENGINEERS

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SHEET 1 OF 2