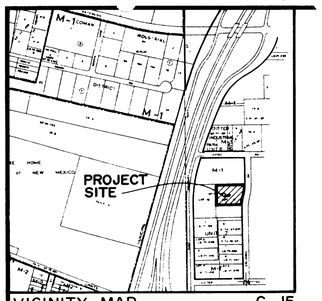


VICINITY MAP G-15

SCALE : 1" = 800'

PROJECT BENCHMARK

STATION MARK 16 A STANDARD USCE BRASS CAP, STAMPED "AAA-SITE-7 NO 3" SET IN TOP OF A CONCRETE POST PROJECTING 1 FOOT ABOVE GROUND. STATION IS LOCATED 2.5 MILES NE OF DOWNTOWN ALBUQUERQUE, ON THE EAST SIDE OF U.S. HIGHWAY 25 (I-25). TO REACH THE STATION FROM THE INTERSECTION OF I-25 & CANDELARIA RD., GO EAST ON CANDELARIA RD. 0.10 MILES TO THE EAST FRONTAGE RD., THEN GO NORTH ON THE EAST FRONTAGE RD., 0.25 MILE TO THE STATION ON THE LEFT.

ELEVATION = 5079.035 FEET (M.S.L.D.)

T.B.M.

TOP OF RIM OF GAS MANHOLE LOCATED IN COLUMBIA DR. N.E. WEST OF THE EAST PROPERTY LINE.

ELEVATION = 5081.33 FEET (M.S.L.D.)

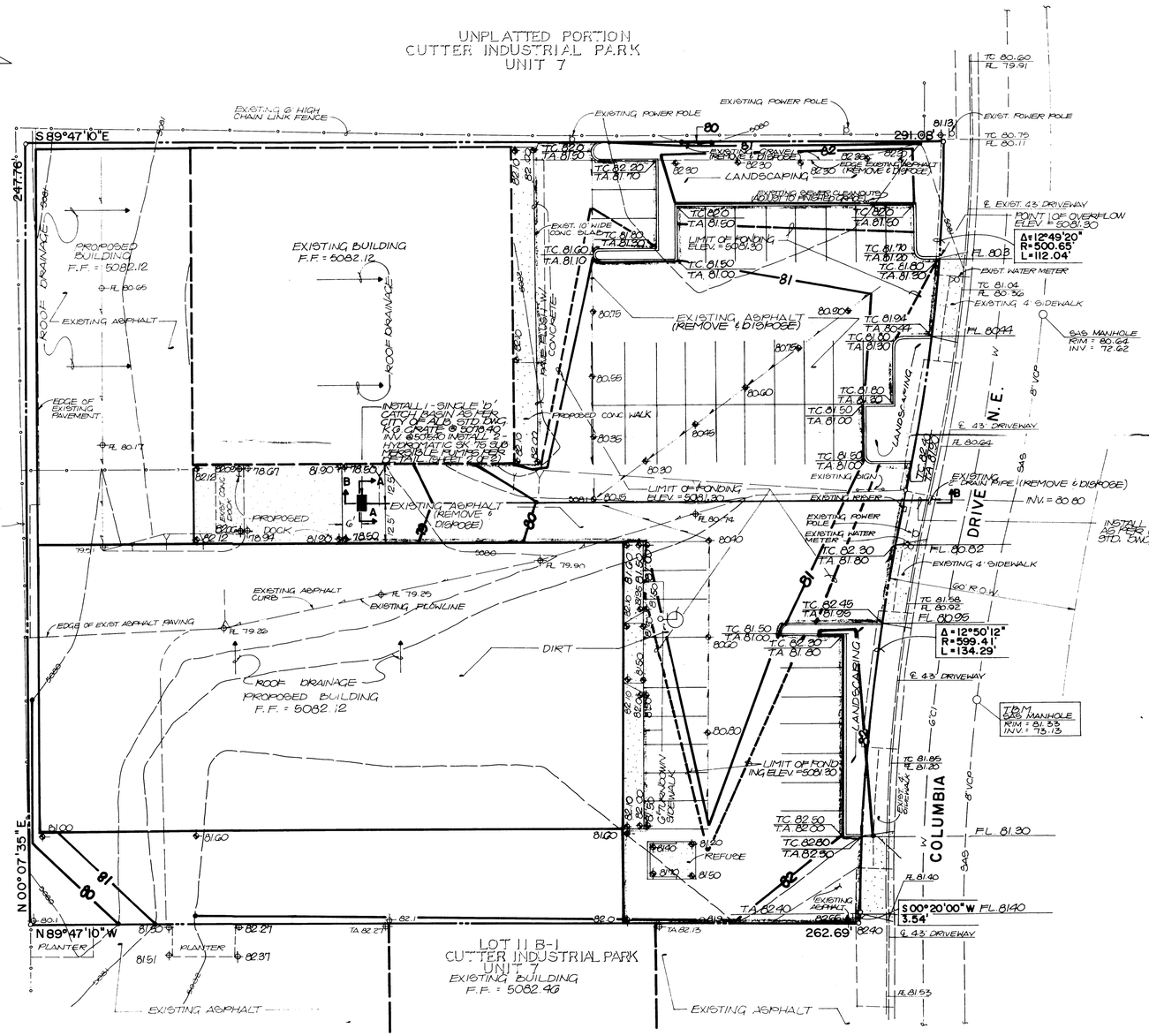
LEGAL DESCRIPTION

LOT 11A B-2 UNIT 7
CUTTER INDUSTRIAL PARK

LEGEND

- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- 5G — PROPOSED CONTOUR
- 5585G — EXISTING CONTOUR
- SWALE
- PROPERTY LINE
- CONCRETE
- PROPOSED ASPHALT
- PROPOSED FENCE
- x—x— EXISTING FENCE
- T.C. 02.00 — TOP OF CURB
- F.L. 01.65 — FLOW LINE

SCALE : 1" = 20'



DRAINAGE PLAN

The following items concerning the Jack Becker Warehouse Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located on the east side of Columbia Drive N.E. just south of Aztec Road N.E. At present the site is partially developed. Much of the surrounding area is currently developed.

As shown by Plate G-15 of the Albuquerque Master Drainage Study, the site does not lie within a designated Flood Hazard Zone, however, downstream flooding is a concern along the East Frontage Road and Aztec Road N.E. At present the majority of the runoff generated by this site flows from north to south onto the adjoining Lot 11B-1, with a small portion of runoff draining onto the adjoining unplatted lot along the north property line of the site. In addition, some offsite flows enter this site at the southeast corner. This runoff, which has been quantified in the calculations, has been accepted and conveyed through the site and will be released onto Columbia Drive N.E.

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 existing and proposed improvements. As shown by this plan, the proposed improvements consist of the construction of two new warehouse buildings along with adjacent paving and landscaping. In addition, a new loading dock will be constructed which will be situated below the street grade. It will be necessary to pump the runoff generated by the parking lot area to the adjacent public right-of-way in Columbia Drive N.E. Appropriate pump details are located on the following sheet. Sufficient pond volume has been provided to contain 100% of the 100-year runoff should the pumps fail. Should the pond fill to its maximum level, the runoff will overflow at the proposed drivepad located at the northeast portion of the site.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. As shown by these calculations, the proposed improvements will result in a decrease in peak runoff generated by this portion of the site due to controlled discharge. The pond volume has been determined based upon the Average End-Area Method. Pump calculations appear on Sheet 2 of 2.

CALCULATIONS

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Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 21:
WeB Wink-Embudo Complex
Hydrologic Soil Group B

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 22.2 D-1)
$T_c = 10$ min (minimum)
A = area, acres

Volume: $V = CP_6A(1/12)$
where C varies
$P_6 = 2.2$ in (DPM Plate 22.2 D-1)
A = area, acres

Existing Condition

$A_{total} = 72,118$ sf $= 1.66$ Ac
$A_{imp} = 40,600$ sf; % impervious = 56%
$C = 0.61$ (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.61(4.65)(1.66) = 4.7$ cfs
$V_{100} = CP_6A = 0.61(2.2/12)(72,118) = 8,065$ cf

Developed Condition

Basin 1

$A_{total} = 66,418$ sf $= 1.52$ Ac
$A_{imp} = 59,850$ sf; % impervious = 90%
$C = 0.86$ (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.86(4.65)(1.52) = 6.1$ cfs
$V_{100} = CP_6A = 0.86(2.2/12)(66,418) = 10,470$ cf

Pond Volume $= 1/2[(A_{78.5} + A_{79.0})(79.0 - 78.5) + (A_{79.0} + (A_{80.0})(80.0 - 79.0)$
$+ (A_{80.0} + A_{81.0})(81.0 - 80.0) + (A_{81.0} + A_{81.3})(81.3 - 81.0)]$
$= 1/2[(0.+690)(0.6) + (690+1435)(1.0) + (1435+10,790)(1.0)$
$+ (10,790+13,600)(0.3)]$
$= 11,040 > V_{100}$

$Q_{release} = 0.4$ cfs (See Sheet 2 of 2)

Basin 2

$A_{total} = 5,700$ sf $= 0.13$ Ac
$A_{imp} = 0$ sf; % impervious = 0%
$C = 0.34$ (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.34(4.65)(0.13) = 0.2$ cfs
$V_{100} = CP_6A = 0.34(2.2/12)(5,700) = 355$ cf

Offsite Flows

$A_{total} = 10,500$ sf $= 0.24$ Ac
$A_{imp} = 10,000$ sf; % impervious = 95%
$C = 0.94$ (DPM Plate 22.2 C-1)
$Q_{100} = 0.94(4.65)(0.24) = 1.0$ cfs
$V_{100} = 0.94(2.2/12)(10,500) = 1,810$ cf

Comparison

$\Delta Q_{100} = 4.7 - 0.4 = 4.3$ cfs (decrease)
$\Delta V_{100} = (10,470 + 355) - 8065 = 2,760$ cf (increase)

E119
FRED BACA

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OCT 08 1985
HYDROLOGY SECTION

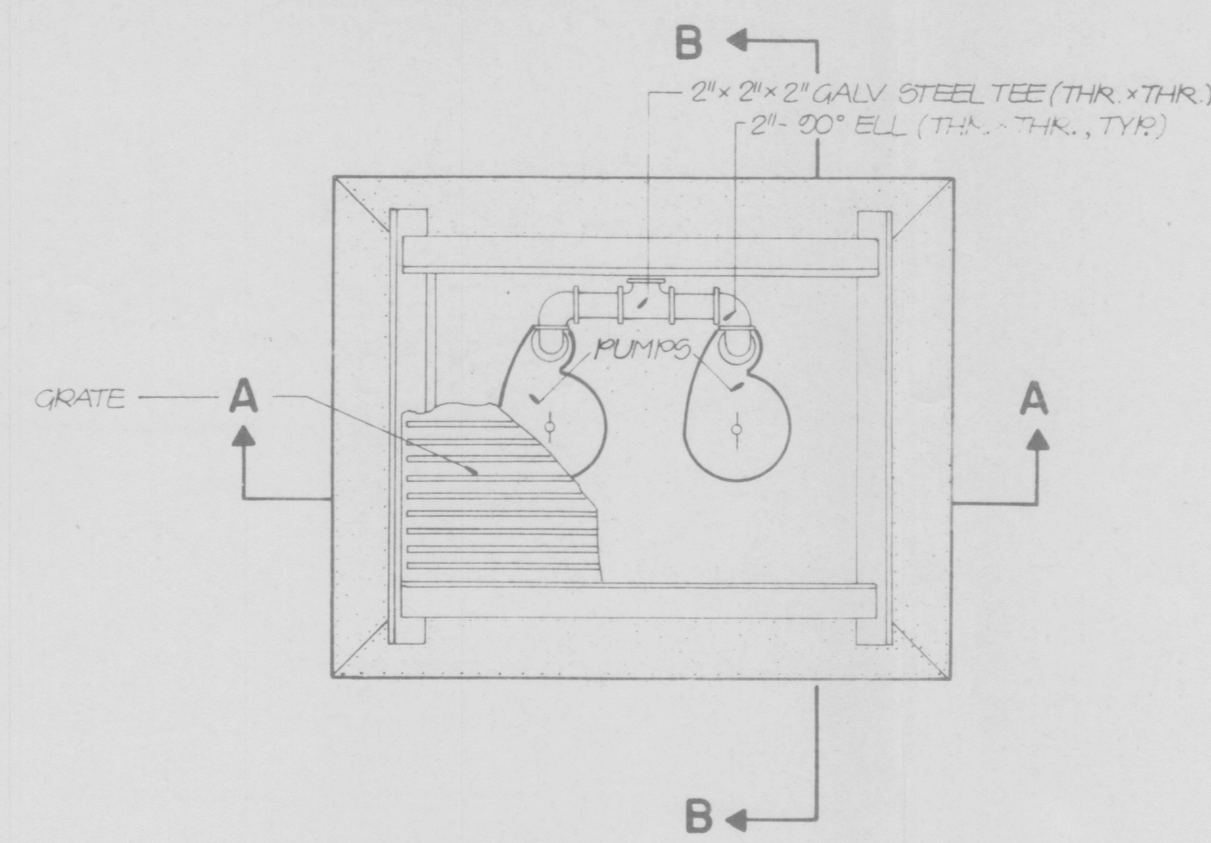
JEFFREY E. MORTENSEN
NEW MEXICO
7541
REGISTERED PROFESSIONAL ENGINEER
10-07-85

NO.	DATE	BY	REVISIONS

DESIGNED BY J.E.M.
DRAWN BY S.J.H.
CHECKED BY J.E.M.
JOB NO. 51031
DATE 8-85

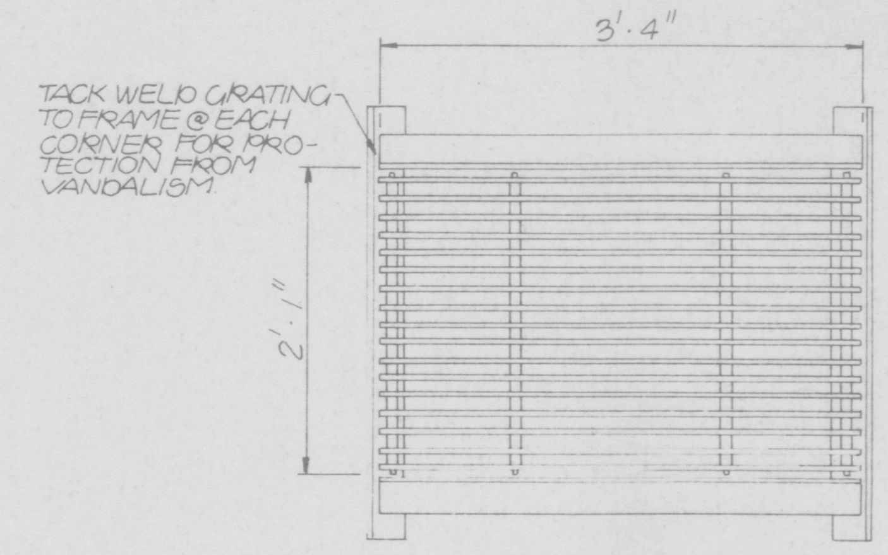
GRADING & DRAINAGE PLAN
JACK BECKER WAREHOUSE

FILE NO.
SHEET 1 OF 2



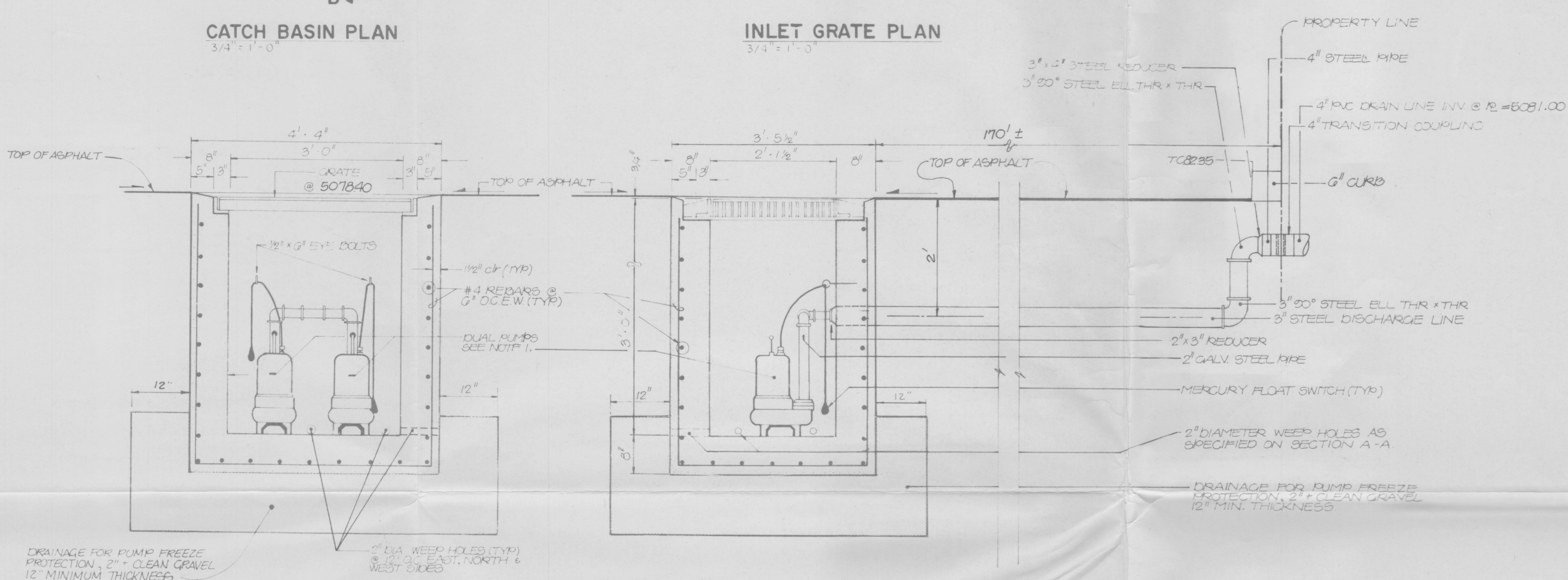
CATCH BASIN PLAN

3/4" = 1'-0"



INLET GRATE PLAN

3/4" = 1'-0"



SECTION A·A

3/4" = 1'-0"

SECTION B·B

3/4" = 1'-0"

PUMP CALCULATIONS

1. Estimated Discharge Rate 100 GPM
2. Head Loss

   A. Elevation: 81.0 - 75.4 = 5.6

   B. Friction (3" pipe)
      Type of Pipe: Steel
      Design C Value: 100
      Chart C Value: 100
      No Correction Required
      H_F = 4.98 ft/100 ft
      Length of Pipe = 170'±

      Equivalent Length of Pipe:
      Sudden Enlargement = 2'
      90° Ell = 2 x 8 = 16'

      Total Equivalent Length of 3" pipe = 188'±
      H_F = 188 (4.98/100) = 9.4'.

   C. Friction (2" pipe)
      Type of Pipe: Steel
      Design C Value: 100
      Chart C Value: 100
      No Correction Required
      H_F = 30.5 ft/100 ft
      Length of Pipe = 3'±

      Equivalent Length of Pipe
      90° Ell = 5' x 2 = 10'

      Equivalent Length of Pipe
      H_F = 13 (30.5/100) = 4.0'

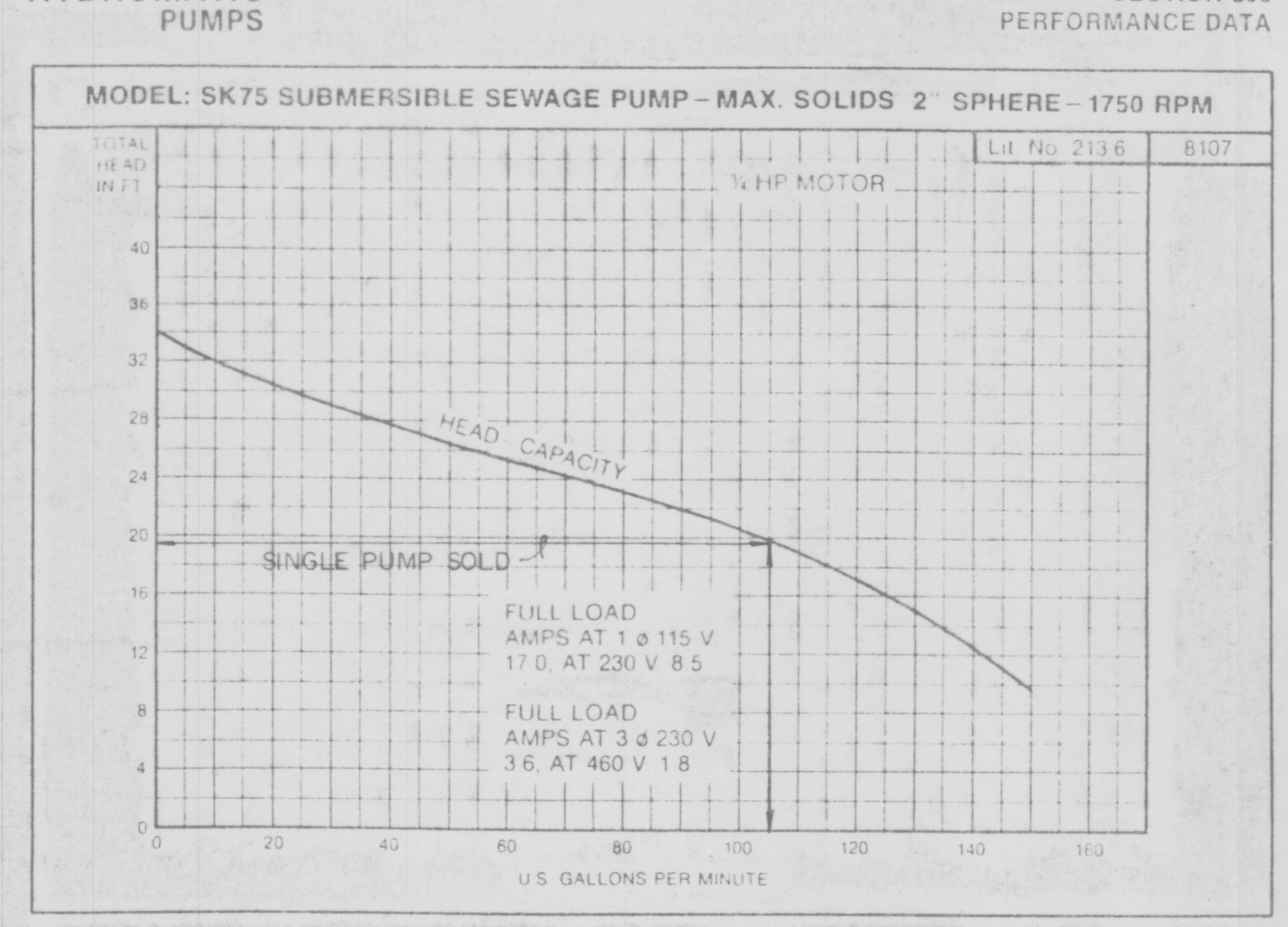
   D. Total
      @ $H_T = H_Z + H_{F,3"} + H_{F,2"}$ = 5.6' + 9.4' + 4.0' = 19.0'

3. Pump Curve Interpretation
      @ H_T = 19.0 Q = 105 GPM
      Q = 105 GPM (1 cf/7.48 gallon)(1 min/60 sec) = 0.2 cfs
      Combined capacity of pumps is approximately 0.4 cfs

Reference: Cameron Hydraulic Data, 14th Edition Ingersoll-Rand Company, Woodcliff Lake, NJ 1970, PP-27, 32, 34, and 48.

HYDROMATIC PUMPS

SECTION 200 PERFORMANCE DATA



PUMP CURVE

NOTES

1. Install two HYDRO-O-MATIC submersible pumps, Model SK75, 3/4 Hp motor, or approved equal. Pump installation shall include three mercury float switches with controls set for "LEAD", "LAG" and "ALTERNATE" modes of operation.
2. Refer to Electrical Plans for location of pump control box, installation of electrical cable/conduit and pump/control one-line diagrams.
3. Grating and frame shall be cleaned of all scale, rust and foreign materials and shall be painted with one shop coat of red oxide primer, then 2 finish coats of aluminum paint (AASHO M69).
4. Installation of the mercury float switches shall be at levels providing optimum pumping time without excessive pump cycling.

DESIGNED BY L.P.U.	JOB NO. 51031	PUMP DETAILS
	8/85	SHEET 2 OF 2