

CONCRETE PAVING

MATCH ASPHALT GRADES

AT N. & W. PROP. LINES

TA-13 55

2' ALLEY GUTTER-

SUMP PUMP MH

EDGE ASPHALT

TOP EL.=19.86

FORCE MAIN -

INV. = 16.26

TOP ELEV. = 16.70

3" SCH.40 PVC

INTO PARKING LOT

DISCHARGE THROUGH CURB

CONST. RET. WALL AT PROP. LINE -

TEMPORARY BENCH MARK (TBM) -

N. RIM SAS MH. ELEV. = 5114.03

GENERAL NOTES:

NOTE:

SIDERATIONS.

RET. WALL

RIM = 13.25\*

NO.2415

PER C.O.A. STD.DWG.

EDGE ASPHALT PVM'T.

INVERT = 09.49\* ACO DRAIN -

-10' PUE

-

17.37 TW -

16.70 TW -

GRATE = 13.14

TAMTABB

1: ADD 5100 TO SPOT ELEVATIONS TO SHOW TRUE ELEVATION.

3: ELEVATIONS SHOWN ARE BASED ON ACS STATION "2-G16", WITH

UTILITIES SHOWN HEREON ARE IN THEIR APPROXIMATE LOCATION BASED

ONLY ON ABOVE GROUND EVIDENCE FOUND IN THE FIELD AND AS-BUILT

INDICATED AS ABANDONED OR NOT, SHALL BE VERIFIED BY OTHERS FOR

EXACT LOCATION AND / OR DEPTH PRIOR TO EXCAVATION OR DESIGN CON-

INFORMATION PROVIDED BY THE CLIENT. UTILITIES SHOWN HEREON, WHETHER

2: CONTOUR INTERVAL IS ONE (1) FOOT.

AN ELEVATION OF 5112.36

TA=14.65

IC=14.97 /

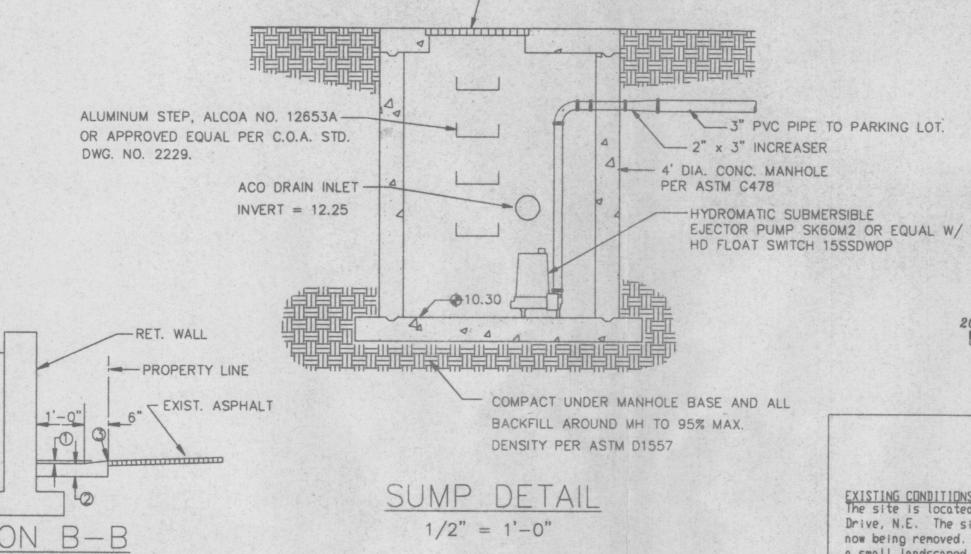
E.INV.=12.60

W.INV.=12.45

Since the area north of the new addition is very flat, a flow test was conducted to determine if off-site flow actually enters the site. For purposes of this discussion, the 40' X 70' portion of the site north of the proposed addition will be refered to as the "panhandle". An area which is 63.5' X 111' (7048.5 sf or 0.1618 acre) lies east of the panhandle. This area is all paved and generates a peak 100-year discharge of  $Q = 0.1618 \times 4.70 = 0.76$  cfs. A 5/8" garden hose was allowed to run in this area from a point near the NW corner of the existing building and the flow path of the water was noted. The water ran in a northwesterly direction around the NE corner of the ponhandle and followed the approximate centerline of the existing 10' public utility easement to a point approximately 50' west of the NW corner of the panhandle. At that point, the flow turned south into Lot 2A and ran into a swale in the ashpalt parking lot which is 20' south of, and parallel to, the north property line of Lot 2A (which lot is presently occupied by Safety Counceling). The flow continues west through the concrete paved area of Automatic Fueling, and discharges through a drivepad into Richmond Drive.

There were points north of the panhandle where pallets placed in the flowpath caused the water to puddle and the overflow from the puddles ran into the site. It is proposed to offset the northerly retaining wall 18" south of the property line and fill that space with a concrete section (see Section B-B) 18" wide and with a depth varying from 2" max. to 0" min. The concrete section is proposed to discharge into a widening concreted apron which will match the existing asphalt in Lot 2A. The space to construct the apron is made available by angling the westerly wall at a 45° angle.

There is no need to offset the retaining wall from the east property line because water will flow along the base of the wall





7 TA m 16 18

16.30

-DOWNSPOUT IS ANGLED TO DISCHARGE AT SE COR. OF BLDG,

\$16.94 NEW SPOT ELEV. -5117 EXIST. CONTOUR ROOF FLOW SHEET FLOW CONCENTRATED FLOW TOP OF CURB/CONCRETE

TOP OF WALL

LANDSCAPING

EXISTING CONDITIONS:

 $V100 = (540 \times 0.78 + 27,503 \times 2.12)/12 = 4,894 \text{ cf}$ 

 $V100 = (1,964 \times 0.78 + 280 \times 1.13 + 25,799 \times 2.12)/12 = 4,712 cf$ 

# LEGAL DESCRIPTION:

IA=17.33

IA=17.53

ASPHALT

FORMER LEGAL DESCRIPTION:

CONC. WALK 4 .. 4

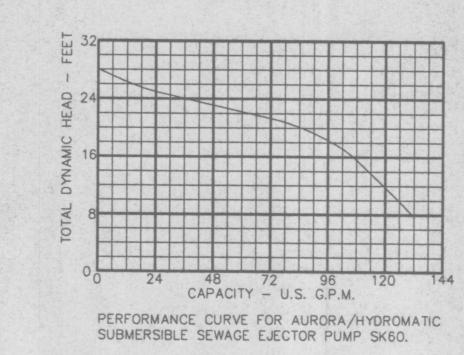
ALL OF LOT NUMBERED THREE (3) OF THE PLAT OF LOTS 1,2, AND 3, BUILDING CORPORATION OF AMERICA COMPLEX, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, ALBUQUERQUE, NEW MEXICO ON APRIL 03, 1974, IN VOLUME A5, FOLIO 48,

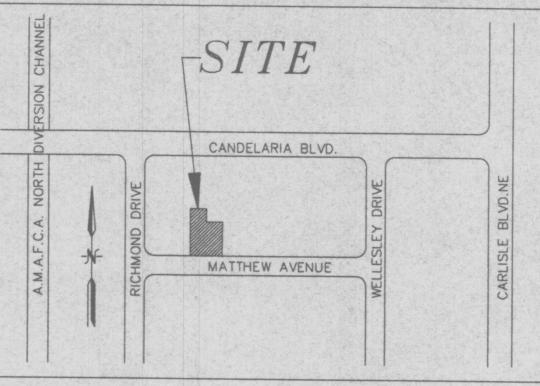
TOGETHER WITH

ALL OF TRACT LETTERED "B" OF THE SUMMARY PLAT OF LAND IN BLOCKS C & 8 OF DUKE CITY INDUSTRIAL AREA SUBDIVISION, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, ALBUQUERQUE, NEW MEXICO ON JANUARY 25, 1984 IN VOLUME B20, FOLIO 118.

PRESENT LEGAL DESCRIPTION:

LOT 3-A, BUILDING CORPORATION OF AMERICA COMPLEX, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, ALBUQUERQUE, NEW MEXICO ON DECEMBER 8. 1995, IN VOLUME 95C, FOLIO 439.





0.00

0.07

0.00

0.64

0.71

0.2070

0.31

83

1,054

1,137

It is assumed that during the 100-year storm, ponding could be permitted in the dock basin to a depth

--- A = 37.45 SF

Vol. in Manhole = 12.56(14.64 - 10.30) = 54.50 cf use 54 cf. For vol. of pumps- Assume 4 cf.

0.21

 $-0.21 + [0.21^2 - 4 \times 0.3592 \times (-0.1839)]^{1/2} / (2 \times 0.3592) = 0.3453 / 0.7184 = 0.4807 cfs$ 

Vpond =  $[1/2(0.4807 \times 0.1354) + 0.4807 \times 0.21 + 1/2(0.4807 \times 0.2084)]$  3600 = 661 (Check)

0.72

Because volumes from the above diagram are slightly larger than the calculated V100, a factor of

1189/1137 = 1.0457 is used to convert volumes in the above diagram to actual volumes, and vice versa.

VICINITY MAP

LAND TREATMENT AREA (Sq.Ft.) AREA (Acres) V100 (CF) Q100 (CFS)

0.0000

0.0292

0.0000

0.1370

0.1662

Base of Dock 13.19 \_- High Water Level = 14.64 13.77 \

Grate Elev. = 13.14 Slope = 0.0200 Ft./Ft.

 $tB = (2.107 \times 1.88 \times 0.1662 / 0.71) - (0.25 \times 0.1370/0.1662) = 0.72 hr.$ 

 $V100 = [1/2(0.71 * 0.20) + 0.71 * 0.21 + 1/2(0.71 \times 0.31)3,600 = 1,189 cf$ 

V-pond = [1/2(Q1 \* 0.2817 Q1) + 0.21 Q1 + 1/2(Q1 \* 0.4366Q1)] 3,600 = 662 cf

Convert storage volume to diagram volume. 633 \* 1.0457 = 662 cf

 $0.359201^2 + 0.2101 = 0.1839$  or  $0.359201^2 + 0.2101 - 0.1839 = 0$ 

CALCULATE BASE OF PONDED VOLUMES (UPPER PORTION OF DIAGRAM):

Required minimum discharge = 0.71 cfs - 0.48 cfs = 0.23 cfs

AREAS DRAINING TO SUMP, VOLUMES AND DISCHARGE RATES:

1,272

5,968

7,240

CALCULATION OF REQUIRED MINIMUM DISCHARGE RATE:

of 1.5 feet. The volume is calculated as follows:

A = 48.60 SF Width = 12' Volume = 48.60 X 12 = 583 cf

E = [1,272 (0.78) + 5,968 (2.12)] / 7,240 = 1.88 in.

 $tp = (0.7 \times 0.2) + [(1.6 - (0.1370 / 0.1662)]/12 = 0.20 hr.$ 

Continue the peak for 0.25 \* (0.1370 / 0.1662) = 0.21 hr.

A = 7.37 SF

Total Volume = 583 + 54 - 4 = 633 cf.

0.1336

Solve for Q1 using the quadratic equation.

Quadratic Equation Solution.

PUMP SELECTION:

 $[0.140901^2 + 0.2101 + 0.218301^2] = 662 / 3600$ 

0.20

-CALCULATIONS

Totals

ZONE ATLAS NO. H-16

-Slope = 0.1000 Ft, /Ft.

-A = 3.78 SF

# DRAINAGE

The site is located on the north side of Matthew Avenue, N.E., between Wellesley Drive and Richmond Drive, N.E. The site is presently developed and has two buildings, the westernmost one of which is now being removed. Nearly all of the existing non-building area is paved with the exception of a small landscaped area. The northerly 40'-x 70' portion of the site is paved and drains to the west into an existing paved parking lot where it drains directly west over asphalt to Richmond Avenue. The property to the east of this portion is also paved and it has been graded so that the runoff flows north of the N.E. corner of this portion, and then west along the existing 10 utility easement. This flow pattern was confirmed by running a garden hose in this area and observing the flow pattern. The flow continues to the vicinity of the existing power pole 50' west of the NW corner of the site. where it crosses the fence into the paved parking lot and flows west to Richmond Ave. There is an existing retaining wall along the east property line. The area between the wall and the existing

building is paved with asphalt and drains south to the existing parking lot and into Matthew Ave. PROPOSED CONDITIONS:

It is proposed to construct a building addition and a loading dock as shown on the plan. The east side of the lot will remain the same as it is with the exception of new striping for parking and handicapped spaces. The front parking lot on the west side will be graded to drain to the street. The loading dock truck ramp is too low to drain to the street and will, therefore, require a sump pump to pump the runoff from the loading dock, the area behind the building, and a protion of the new building into the front parking lot where it will drain by gravity into the street. The low point of the truck ramp will be drained by an ACO drain and 6' PVC pipe into the sump pump manhole. Roof runoff from the westerly side of the existing building will be carried to the front of the building by a stainless steel gutter built into the roof system.

### DRAINAGE CRITERIA:

The calculations shown on this plan were prepared in accordance with Section 22.2, Hydrology, of the Development Process Manual, Volume 2, Design Criteria, for the City of Albuquerque, in cooperation with Bernalillo County, New Mexico and the Albuquerque Metropolitan Arroyo Flood Control Authority, January, 1993.

### PREVIOUS DRAINAGE SUBMITTAL:

A drainage submittal was prepared in 1984 by Resource Technology, Inc. and is filed under Hydrology Number H16 / D56.

# PRECIPITATION ZONE:

The site is east of the Rio Grande River but west of San Mateo Boulevard and is, therefore, in Precipitation Zone 2.

# LAND TREATMENT AREAS, EXCESS PRECIPITATION AND UNIT PEAK DISCHARGE:

The peak discharge per acre and excess precipitation are shown for the four land treatments in Zone 2 in the table below, and the values shown are from the City of Albuquerque D.P.M. Also shown are the existing and proposed land treatment areas.

AND			E (in)					Developed Site Areas		
REATMENT	100-yr.	10-yr.	100-yr.	10-yr.	7,	Sq.Ft.	Acres	%	Sq.Ft.	Acres
A	1.56	0.38	0.53	0.13	0.0	0	0.0	0.0	0.000	0.0000
В	2.28		0.78						1,964	
C	3.14	1.71	1.13	0.52			0.0			0.0064
D	4.70	3.14	2.12	1.34	98.0	27,503				0.5923
otals									28,043	
EAK DISCH	ARGE:									

EXISTING CONDITIONS:

 $Q100 = 0.0124 \times 2.28 + 0.6314 \times 4.70 = 3.00 cfs$  $Q10 = 0.0124 \times 0.95 + 0.6314 \times 3.14 = 1.99 \text{ cfs}$ 

# DEVELOPED CONDITIONS:

 $Q100 = 0.0451 \times 2.28 + 0.0064 \times 3.14 + 0.5923 \times 4.70 = 2.91 cfs$  $Q10 = 0.0451 \times 0.95 + 0.0064 \times 1.71 + 0.5923 \times 3.14 = 1.91 cfs$ 

 $V10 = (540 \times 0.28 + 27,503 \times 1.34)/12 = 3,084 \text{ cf}$ 

V10 = (1,964 \* 0.28 + 280 \* 0.52 + 25,799 \* 1.34)/12 = 2,939 cfSUMMARY OF VOLUMES AND PEAK DISCHARGE RATES:

	V100(CF)	VIO(CF)	Q100(CFS)	Q10(CFS)
XISTING	4,894	3,084	3.00	1.99
DEVELOPED	4,712	2,939	2.91	1.91
ECREASE	182	145	0.09	0.08

Static Head: 16.26 - 12.25 = 4.01 Ft. Friction loss: Flow = 0.24 cfs \* 448.83 gpm/cfs = 103.23 gpm. This is the peak pumping capacity required during the 100-year storm. For 125 gpm w/ 3' PVC pipe, friction loss is 3.7 Ft./100 Ft. Length of pipe = 72 Ft. 2 ea. 90 deg. bends and one check valve. 2\*7.7 + 25.5 = 40.9 ft. Total length is 72 + 40.9 = 112.9 Ft. Friction Loss = 112.9(3.7 /100) = 4.17 Ft. Total Dynamic Head (TDH) = 4.01 + 4.17 = 8.18 Ft. Use Hydromatic SK 60 Submersible

Sewage Ejector Pump.

AUG 2 3 1996



FRANK D. LOVELADY, P.E. 300 ALAMOSA ROAD NW ALBUQUERQUE, NEW MEXICO 87107 (505)345 - 2267

AS-CONSTRUCTED G & D PLAN OFFICE/WAREHOUSE ADDITION FOR AUTO-CHLOR SYSTEM OF ALBUQUERQUE 3211 MATTHEW AVENUE N.E. ALBUQUERQUE, NEW MEXICO

Designed: FDL Scale: 1" = 20' Date: AUG. 1996 Job No. 511

to the corner of the wall where it will enter the concrete section and flow to the west.

√S 89° 27′, 55″ E

CONST. DOCK

-O.H.DOORS

NEW BUILDING ADDITION

PLOT 3-A

VQ = 14 89

-CONST. NEW 24' DRIVEPAD

MATTHEW

FIN. FLR ELEV. = 5117.44\*

NO.2415

1 VARIES FROM 2" AT EAST END TO O" AT WEST END. 26" MIN. THICKNESS OF CONCRETE 3 MATCH EXIST. ASPHALT

SLDS, CLEAR.

FORMER

TRACT B

MINSTALL STAINLESS STEEL GUTTER IN ROOF SYSTEMO

FF = 5117.44

110.00

CAPT DRIVE . .

V3.=15.70

EXISTING OFFICE

- REMOVE DS

- REMOVE EXIST DRIVEPAD

CONST. NEW C&G AND SW

AVENUE

0.3466 AC.

EXISTING WAREHOUSE BUILDING

ASPHALT

- 24" DIA. STD. 325 M.H. RING & SLOTTED COVER

GRATE ELEV. = 16.30

SECTION A-A 1'' = 1' - 0''

TANTAL EXIST. SPOT ELEV. -INDICATES AS-BUILT SPOTELEV.

TOP OF ASPHALT

L.S.

HANDICAPPED STRIPING

VOLUME, 100-YEAR, 6-HOUR:

DEVELOPED CONDITIONS:

# ENGINEER'S CERTIFICATION:

HAVING INSPECTED THE AS-CONSTRUCTED FACILITY AND HAVING TAKEN SPOT ELEVATIONS AT KEY LOCATIONS, I HEREBY CERTIFY THAT THE AS-CONSTRUCTED FACILITY IS IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED GRADING AND DRAINAGE PLAN WITH ENGINEER'S STAMP DATED 2/20/96 AND AND REVISION DATED 3/6/96.

> 8/12/9/2 Thank of Morelands FRANK D. LOVELADY, N.M.P.E. 6512 DATE

Drawn FDL Checked FDL

Since the area north of the new addition is very flat, a flow test was conducted to determine if off-site flow actually enters the site. For purposes of this discussion, the 40' X 70' portion of the site north of the proposed addition will be refered to as the "panhandle". An area which is 63.5' X 111' (7048.5 sf or 0.1618 acre) lies east of the panhandle. This area is all paved and generates a peak 100-year discharge of  $Q = 0.1618 \times 4.70 = 0.76$  cfs. A 5/8" garden hase was allowed to run in this area from a point near the NW corner of the existing building and the flow path of the water was noted. The water ran in a northwesterly direction around the NE corner of the ponhandle and followed the approximate centerline of the existing 10' public utility easement to a point approximately 50' west of the NW corner of the panhandle. At that point, the flow turned south into Lot 2A and ran into a swale in the ashpalt parking lot which is 20' south of, and parallel to, the north property line of Lot 2A (which lot is presently occupied by Safety Counceling). The flow continues west through the concrete paved area of Automatic Fueling, and discharges through a drivepad into Richmond Drive.

There were points north of the panhandle where pallets placed in the flowpath caused the water to puddle and the overflow from the puddles ran into the site. It is proposed to offset the northerly retaining wall 18" south of the property line and fill that space with a concrete section (see Section B-B) 18" wide and with a depth varying from 2" max. to 0" min. The concrete section is proposed to discharge into a widening concreted apron which will match the existing asphalt in Lot 2A. The space to construct the apron is made available by angling the westerly wall at a 45° angle.

There is no need to offset the retaining wall from the east property line because water will flow along the base of the wall

√S 89° 27′ 55″ E 70.30′ E

CONST. DOCK

13.77

1-0.H.DOORS

NEW BUILDING ADDITION

PLOT 3-A

V.L. 14 89

-CONST. NEW 24' DRIVEPAD

1: ADD 5100 TO SPOT ELEVATIONS TO SHOW TRUE ELEVATION.

3: ELEVATIONS SHOWN ARE BASED ON ACS STATION "2-G16", WITH

2: CONTOUR INTERVAL IS ONE (1) FOOT.

MATTHEW

DS& 1' CONC.RD

TA=15.29

\ YA=15.36

FIN. FLR ELEV. = 5117.44

1 VARIES FROM 2" AT

26" MIN. THICKNESS

OF CONCRETE

TW ELEV. = 17.37

TA=16.74

- REMOVE DS

- REMOVE EXIST DRIVEPAD

CONST. NEW C&G AND SW

AVENUE

NOTE:

FORMER

0.3466 AC.

BLOCK COMERCIAL BLDG.

MINSTALL STAINLESS STEEL GUTTER IN ROOF SYSTEMO

DS4\_\_\_\_\_\_\_DS

EXISTING OFFICE -

FF = 5117.44

110.00

JOHN DRIVE

\CL=15.70

UTILITIES SHOWN HEREON ARE IN THEIR APPROXIMATE LOCATION BASED

ONLY ON ABOVE GROUND EVIDENCE FOUND IN THE FIELD AND AS-BUILT

INDICATED AS ABANDONED OR NOT, SHALL BE VERIFIED BY OTHERS FOR

INFORMATION PROVIDED BY THE CLIENT. UTILITIES SHOWN HEREON, WHETHER

EXISTING WAREHOUSE BUILDING

FIN.FLR.ELEV. = 5117.44

WEST END.

NO.2415

EAST END TO O" AT

to the corner of the wall where it will enter the concrete section and flow to the west.

CONCRETE PAVING -

MATCH ASPHALT GRADES

AT N. & W. PROP. LINES

CMU WALL

TA=1355

2' ALLEY GUTTER-

NO.2415

PER C.O.A. STD.DWG.

EDGE ASPHALT PVM'T.

6" DIA. PVC PIPE -

SUMP PUMP MH

E.INV.=12.25

RET. WALL

EDGE ASPHALT

TOP EL.=19.86

FORCE MAIN -

INV. = 16.26

TOP ELEV. = 16.70

3" SCH.40 PVC

INTO PARKING LOT

DISCHARGE THROUGH CURB

CONST. RET. WALL AT PROP. LINE -

TEMPORARY BENCH MARK (TBM) -

N. RIM SAS MH. ELEV. = 5114.03

CLEIA.OE/

-10' PUE

7 -

17.37 TW -

INVERT = 10.30 GRATE = 13.14

16.70 TW -

E.INV.=12.60

AC UNITS

TA=14.94 /\* 1

TA=14.88

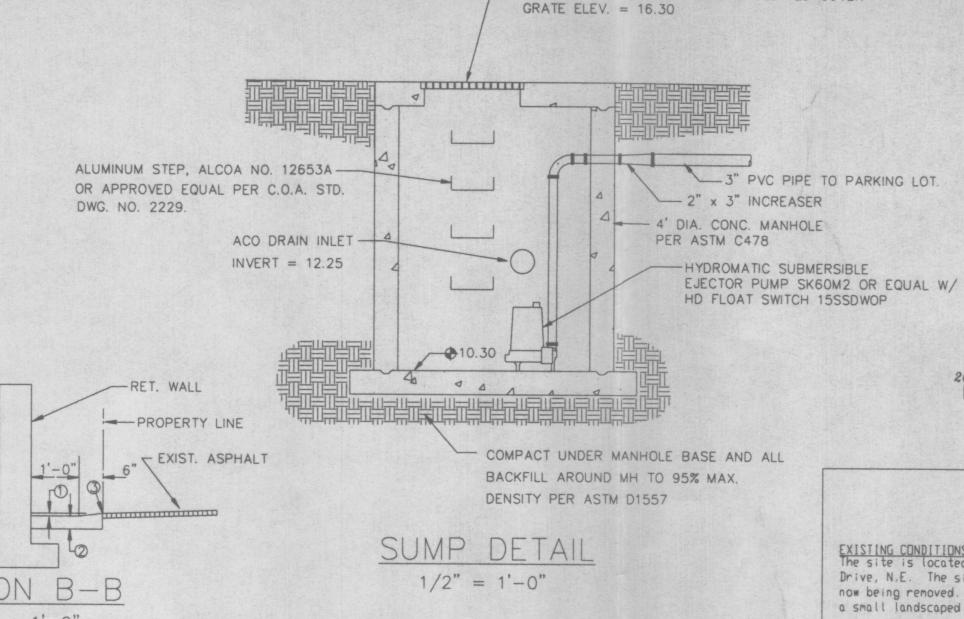
TA=14.65

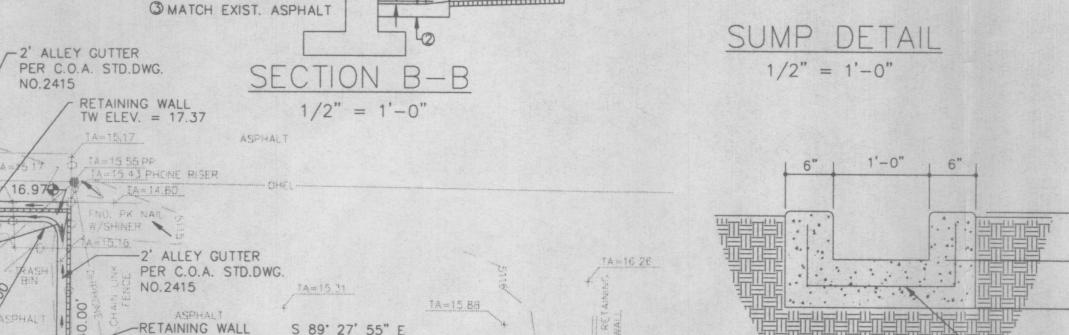
MANHOLE N.RIM=14 03

GENERAL NOTES:

W.INV.=12.45

ACO DRAIN





TA = 16 18

TA=16,20

40.00' IC=17.4

ELOG., CLEAR

1'' = 1' - 0''

DISCHARGE AT SE COR. OF BLDG,

-DOWNSPOUT IS ANGLED TO

JA=17.33

IA=15.32

IA=17.63

FL=16 85

VQL=16.56

ASPHALT

m16.89

. .

CONC. WALK 4

\IC=16.91

LEGEND: IA=17.33 EXIST. SPOT ELEV. \$16.94 NEW SPOT ELEV. ROOF FLOW SHEET FLOW CONCENTRATED FLOW TOP OF CURB/CONCRETE TOP OF ASPHALT TOP OF WALL

- 24" DIA. STD. 325 M.H. RING & SLOTTED COVER

LANDSCAPING HANDICAPPED STRIPING

LEGAL DESCRIPTION:

FORMER LEGAL DESCRIPTION:

A5, FOLIO 48,

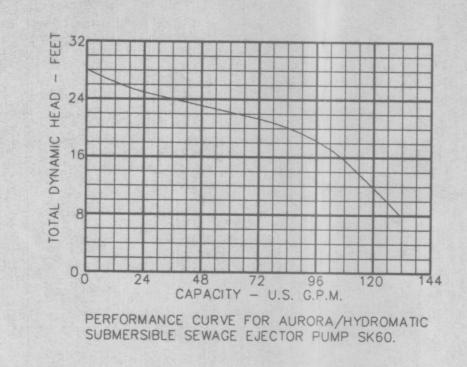
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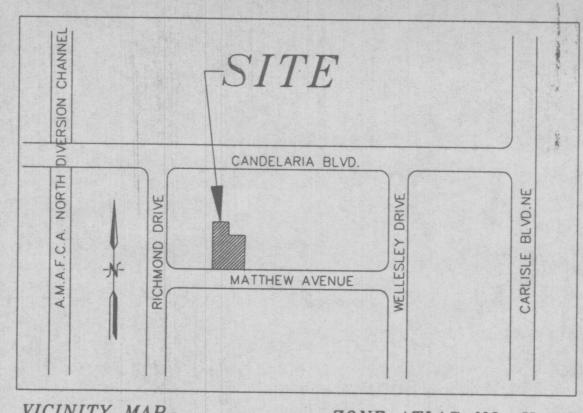
EXISTING CONDITIONS:

V10 = (540 \* 0.28 + 27,503 \* 1.34)/12 = 3,084 cfDEVELOPED CONDITIONS:

 $V100 = (1.964 \times 0.78 + 280 \times 1.13 + 25,799 \times 2.12)/12 = 4,712 cf$ V10 = (1,964 \* 0.28 + 280 \* 0.52 + 25,799 \* 1.34)/12 = 2,939 cf

SUMMARY OF VOLUMES AND PEAK DISCHARGE RATES: Q100(CFS) Q10(CFS) EXISTING 4,894 3,084 3.00 1.99 DEVELOPED 4,712 2,939 2.91 DECREASE 0.09 0.08





VICINITY MAP

ZONE ATLAS NO. H-16

# DRAINAGE

# CALCULATIONS

EXISTING CONDITIONS:
The site is located on the north side of Matthew Avenue, N.E., between Wellesley Drive and Richmond Drive, N.E. The site is presently developed and has two buildings, the westernmost one of which is now being removed. Nearly all of the existing non-building area is paved with the exception of a small landscaped area. The northerly 40' x 70' portion of the site is paved and drains to the west into an existing paved parking lot where it drains directly west over asphalt to Richmond Avenue. The property to the east of this portion is also paved and it has been graded so that the runoff flows north of the N.E. corner of this portion, and then west along the existing 10 utility easement. This flow pattern was confirmed by running a garden hose in this area and observing the flow pattern. The flow continues to the vicinity of the existing power pole 50' west of the NW corner of the site. where it crosses the fence into the paved parking lot and flows west to Richmond Ave. There is an existing retaining wall along the east property line. The area between the wall and the existing building is paved with asphalt and drains south to the existing parking lot and into Matthew Ave.

PROPOSED CONDITIONS: It is proposed to construct a building addition and a loading dock as shown on the plan. The east side of the lot will remain the same as it is with the exception of new striping for parking and handicapped spaces. The front parking lot on the west side will be graded to drain to the street. The loading dock truck ramp is too low to drain to the street and will, therefore, require a sump, pump to pump the runoff from the loading dock, the area behind the building, and a protion of the new building into the front parking lot where it will drain by gravity into the street. The low point of the truck ramp will be drained by an ACD drain and 6' PVC pipe into the sump pump manhole. Roof runoff from the westerly side of the existing building will be carried to the front of the building by a stainless steel gutter built into the roof system.

### DRAINAGE CRITERIA:

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### PREVIOUS DRAINAGE SUBMITTAL:

A drainage submittal was prepared in 1984 by Resource Technology, Inc. and is filed under Hydrology Number H16 / D56.

# PRECIPITATION ZONE:

The site is east of the Rio Grande River but west of San Mateo Boulevard and is, therefore, in Precipitation Zone 2.

# LAND TREATMENT AREAS, EXCESS PRECIPITATION AND UNIT PEAK DISCHARGE:

The peak discharge per acre and excess precipitation are shown for the four land treatments in Zone 2 in the table below, and the values shown are from the City of Albuquerque D.P.M. Also shown are the existing and proposed land treatment areas.

AND REATMENT	q(cfs 100-yr.	/ac) 10-yr.	E (1	n) 10-yr.	Exsisti	ng Site A	Areas Acres		oped Site	
										neres
A		0.38	0.53	0.13	0.0	0	0.0	0.0	0,000	0.0000
В	2.28	0.95	0.78	0.28	2.0	540				0.0451
c	3.14	1.71	1.13	0.52	0.0	0	0.0		280	0.0064
D		3.14		1.34		27,503				0.5923
otals						28,043				0.6438
EAK DISCH	ARGE:									
VICTING O	TUDITION O									

Q100 = 0.0124 \* 2.28 + 0.6314 \* 4.70 = 3.00 cfs Q10 =  $0.0124 \times 0.95 + 0.6314 \times 3.14 = 1.99 \text{ cfs}$ 

# DEVELOPED CONDITIONS:

 $Q10 = 0.0451 \times 0.95 + 0.0064 \times 1.71 + 0.5923 \times 3.14 = 1.91 cfs$ 

# VOLUME, 100-YEAR, 6-HOUR:

# V100 = {540 \* 0.78 + 27,503 \* 2.12}/12 = 4,894 cf

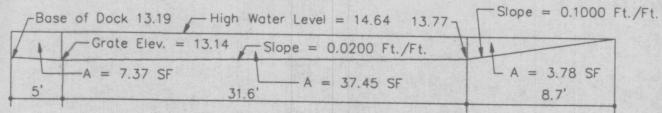
# LAND TREATMENT AREA (Sq.Ft.) AREA (Acres) V100 (CF) Q100 (CFS)

# AREAS DRAINING TO SUMP, VOLUMES AND DISCHARGE RATES:

				4.00 (01.07
A	0	0.0000	0	0.00
В	1,272	0.0292	83	0.07
C	0	0.0000	0	0.00
D	5,968	0.1370	1,054	0.64
Totals	7,240	0.1662	1 137	0.71

### CALCULATION OF REQUIRED MINIMUM DISCHARGE RATE:

It is assumed that during the 100-year storm, ponding could be permitted in the dock basin to a depth of 1.5 feet. The volume is calculated as follows



A = 48.60 SF Width = 12' Volume = 48.60 X 12 = 583 cf

Vol. in Manhole = 12.56(14.64 - 10.30) = 54.50 cf use 54 cf. For vol. of pumps - Assume 4 cf. Total Volume = 583 + 54 - 4 = 633 cf.

### E = [1,272 (0.78) + 5,968 (2.12)] / 7,240 = 1.88 in.

tB = (2.107 \* 1.88 \* 0.1662 / 0.71) - (0.25 \* 0.1370/0.1662) = 0.72 hr.

tp = (0.7 \* 0.2) + [(1.6 - (0.1370 / 0.1662)]/12 = 0.20 hrContinue the peak for 0.25 \* (0.1370 / 0.1662) = 0.21 hr.

0.2070 0.20 0.21 0.31 0.72

 $V100 = [1/2(0.71 * 0.20) + 0.71 * 0.21 + 1/2(0.71 \times 0.31)3,600 = 1,189 cf$ Because volumes from the above diagram are slightly larger than the calculated V100, a factor of 1189/1137 = 1.0457 is used to convert volumes in the above diagram to actual volumes, and vice versa. Convert storage volume to diagram volume. 633 \* 1.0457 = 662 cf Solve for Q1 using the quadratic equation.

V-pond = [1/2(Q1 \* 0.2817 Q1) + 0.21 Q1 + 1/2(Q1 \* 0.4366Q1)] 3,600 = 662 cf

 $[0.140901^2 + 0.2101 + 0.218301^2] = 662 / 3600$ 

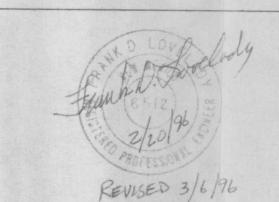
 $0.359201^2 + 0.2101 = 0.1839$  or  $0.359201^2 + 0.2101 - 0.1839 = 0$ 

 $-0.21 + [0.21^2 - 4 \times 0.3592 \times (-0.1839)]^{1/2} / (2 \times 0.3592) = 0.3453 / 0.7184 = 0.4807 cfs$ CALCULATE BASE OF PONDED VOLUMES (UPPER PORTION OF DIAGRAM):

Vpond =  $[1/2(0.4807 \times 0.1354) + 0.4807 \times 0.21 + 1/2(0.4807 \times 0.2084)]$  3600 = 661 (Check)

# PUMP SELECTION:

Static Head: 16.26 - 12.25 = 4.01 Ft. Friction loss: Flow = 0.24 cfs \* 448.83 gpm/cfs = 103.23 gpm. This is the peak pumping capacity required during the 100-year storm. For 125 gpm w/ 3' PVC pipe, friction loss is 3.7 Ft./100 Ft. Length of pipe = 72 Ft. 2 ea. 90 deg. bends and one check valve. 2\*7.7 + 25.5 = 40.9 ft. Total length is 72 + 40.9 = 112.9 Ft. Friction Loss = 112.9(3.7 /100) = 4.17 Ft. Total Dynamic Head (TDH) = 4.01 + 4.17 = 8.18 Ft. Use Hydromatic SK 60 Submersible Sewage Ejector Pump.



FRANK D. LOVELADY, P.E. 300 ALAMOSA ROAD NW

GRADING AND DRAINAGE PLAN OFFICE/WAREHOUSE ADDITION FOR AUTO-CHLOR SYSTEM OF ALBUQUERQUE 3211 MATTHEW AVENUE N.E. ALBUQUERQUE, NEW MEXICO

(505)345 - 2267Checked FDL Scale: 1" = 20' Date: MAR. 1996 Job No. 511 Designed: FDL Drawn: FDL

AN ELEVATION OF 5112.36 EXACT LOCATION AND/ OR DEPTH PRIOR TO EXCAVATION OR DESIGN CON-OF DUKE CITY INDUSTRIAL AREA SUBDIVISION, FILED IN THE OFFICE OF THE COUNTY SIDERATIONS. CLERK OF BERNALILLO COUNTY, ALBUQUERQUE, NEW MEXICO ON JANUARY 25, 1984 IN VOLUME B20, FOLIO 118. PRESENT LEGAL DESCRIPTION: LOT 3-A, BUILDING CORPORATION OF AMERICA COMPLEX, FILED IN THE OFFICE OF THE ALBUQUERQUE, NEW MEXICO 87107

COUNTY CLERK OF BERNALILLO COUNTY, ALBUQUERQUE, NEW MEXICO ON DECEMBER 8, 1995, IN VOLUME 95C, FOLIO 439.

ALL OF LOT NUMBERED THREE (3) OF THE PLAT OF LOTS 1,2, AND 3, BUILDING

CORPORATION OF AMERICA COMPLEX, FILED IN THE OFFICE OF THE COUNTY CLERK

ALL OF TRACT LETTERED "B" OF THE SUMMARY PLAT OF LAND IN BLOCKS C & 8

OF BERNALILLO COUNTY, ALBUQUERQUE, NEW MEXICO ON APRIL 03, 1974, IN VOLUME

 $Q100 = 0.0451 \times 2.28 + 0.0064 \times 3.14 + 0.5923 \times 4.70 = 2.91 cfs$ Quadratic Equation Solution. Required minimum discharge = 0.71 cfs - 0.48 cfs = 0.23 cfs