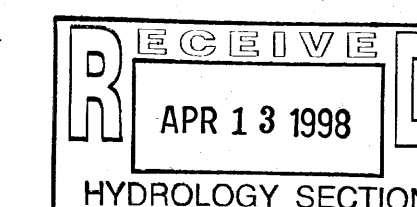


VICINITY MAP K-10  
SCALE 1" = 700'

GRADING AND DRAINAGE PLAN  
FOR  
LOT 17-A, MERIDIAN BUSINESS PARK



DRAINAGE PLAN

THE FOLLOWING ITEMS CONCERNING THE LOT 17-A, MERIDIAN BUSINESS PARK GRADING AND 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 SOUTH SIDE OF MERIDIAN PLACE NW. THE SITE IS UNDEVELOPED. THE LAND SLOPES FROM NORTHWEST TO SOUTHEAST AT A SLOPE OF APPROXIMATELY 1.5%. THE SITE WAS IN A FLOOD PLAIN, BUT THE CONSTRUCTION OF THE UNSER DIVERSION CHANNEL REMOVED THE SITE FROM THE FLOOD PLAIN. THIS SITE IS THE EAST ONE HALF OF LOT 17. LOT 17 WILL BE PLATTED INTO TWO LOTS CONCURRENTLY WITH BUILDING PERMIT APPLICATION.

THE MASTER DRAINAGE PLAN FOR THIS SUBDIVISION WAS PREPARED BY EASTERLING AND ASSOCIATES. THE MASTER PLAN ESTABLISHED A DISCHARGE RATE OF 0.10 CFS/ACRE AND REQUIRED TEMPORARY DIVERSION DITCHES AND PONDS TO CONTROL RUNOFF. THE PONDS AND DITCHES ARE IN PLACE. THIS SITE IS HIGHER THAN THE LAND TO THE SOUTH AND EAST, AND THE STREET TO THE NORTH PREVENTS OFF SITE FLOWS FROM THAT DIRECTION. THEREFORE, THE ONLY RUNOFF THAT CAN ENTER THE SITE IS FROM THE WEST AND IT WILL BE ALLOWED TO ENTER THE SITE AND BE ROUTED THROUGH THE DRAINAGE SYSTEM. THE FLOWS FROM THE WEST ARE NOT CONSIDERED SIGNIFICANT.

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 ELEVATIONS, 3) THE LIMIT AND CHARACTER OF EXISTING IMPROVEMENTS AND 4) THE LIMIT AND CHARACTER OF PROPOSED IMPROVEMENTS. AS SHOWN BY THIS PLAN, THE PROPOSED IMPROVEMENTS CONSIST OF A WAREHOUSE/ OFFICE WITH ASSOCIATED PARKING AND LANDSCAPING. THE SITE IS DIVIDED INTO TWO DRAINAGE BASINS. BASIN A IS THE NORTH ONE THIRD OF THE SITE AND BASIN B IS THE SOUTH TWO THIRDS OF THE SITE. BOTH BASINS FLOW EAST TO PONDS LOCATED ALONG THE EAST PROPERTY LINE. EACH POND HAS A CONTROLLED DISCHARGE TO THE PRIVATE STORM DRAIN SYSTEM. THE DISCHARGES ARE CONTROLLED BY ORIFICES TO CONFORM TO THE DISCHARGE LIMIT OF 0.10 CFS/ACRE.

THE CALCULATIONS, WHICH APPEAR BELOW, ANALYZE THE EXISTING AND PROPOSED CONDITIONS FOR THE 6-HOUR, 100-YEAR RAINFALL EVENT. THE ANALYSIS IS IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL, VOLUME II. AS SHOWN BY THESE CALCULATIONS, THE RATE AND VOLUME OF RUNOFF WILL INCREASE. THE INCREASED RUNOFF WILL BE DETAINED IN PONDS AND RELEASED IN CONFORMANCE WITH THE LIMIT OF 0.10 CFS/ACRE. THIS PLAN CONFORMS WITH THE REQUIREMENTS OF THE MASTER DRAINAGE PLAN.

CALCULATIONS

PRECIPITATION ZONE - 1

EXISTING CONDITIONS

AREA = 2.22 ACRES

LAND TREATMENT A = 100%

E = 0.44\*1.00 = 0.44 INCHES

V = 0.44\*2.22/12 = 0.08 AC FT

Q = 1.29\*2.22 = 2.86 CFS

PROPOSED CONDITIONS

BASIN A

AREA = 0.80 ACRES

LAND TREATMENT B = 21% D = 79%

E = 0.67\*0.21+1.97\*0.79 = 1.70 INCHES

V = 1.7\*0.80/12 = 0.11 AC FT

Q = (2.03\*0.21+4.37\*0.79)\*0.80 = 3.10 CFS

BASIN B

AREA = 1.42 ACRES B = 10% D = 90%

E = 0.67\*0.10+1.91\*0.90 = 1.84 INCHES

V = 1.84\*1.42/12 = 0.22 AC FT

Q = (2.03\*0.10+4.37\*0.90)\*1.42 = 5.87 CFS

INCREASE IN RATE OF RUNOFF = 3.10+5.87-2.86 = 6.11 CFS

INCREASE IN VOLUME OF RUNOFF = 0.22+0.11-0.08 = 0.25 AC FT

POND VOLUMES

POND A

1745/3+(1745+2128)/2+(2128+3441)/2 = 0.12 AC FT @ WS ELEV = 5110

POND B

(525/3)+(525+1519)/2+(1519+6067)/2+(6067+10608)\*0.6/2/43560 = 0.23 AC FT @ WS ELEV = 5108.6

ORIFICES

Q = CA(2GH)^0.5

POND A

0.8\*0.1 = 0.6A(2\*32.3\*3.0)^0.5

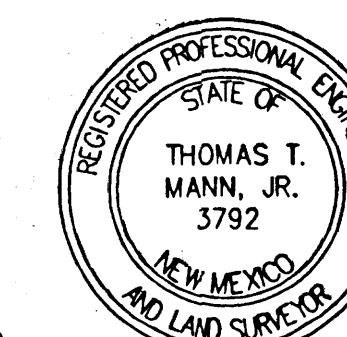
DIA = 1.55 INCHES

POND B

1.42\*0.1 = 0.6A(2\*32.2\*3.6)^0.5

DIA = 1.69 INCHES

1. Address the clearance of the ponds to the proposed 10' public utility easement.
2. What type of erosion control is required? (DPM check sheet will help)
3. Extension of the pipe to the edge of the west property line.
4. Indicate how and where the proposed 10' public utility easement will take place.
5. Detail of the proposed orifice.
6. How you verify surface elevation within the ponds.
7. Indicate the proposed curb elevations within the ponds.
8. Indicate the proposed curb elevations.
9. Is the complete site 5m to be paved?



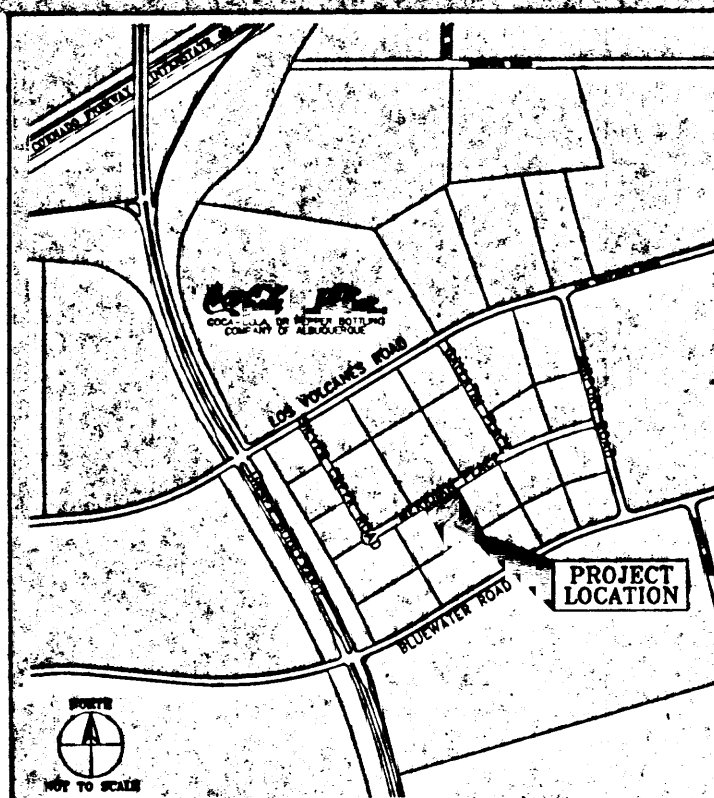
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(505) 298-4651

1

SHEET NO.

DRAWING SCALE: 1" = 30'





# VICINITY MAP K-10

SCALE 1" = 700'

## ADDRESS

XXXX MERIDIAN PLACE NW

## LEGAL DESCRIPTION

LOT 17-A, MERIDIAN BUSINESS PARK

## BENCHMARK

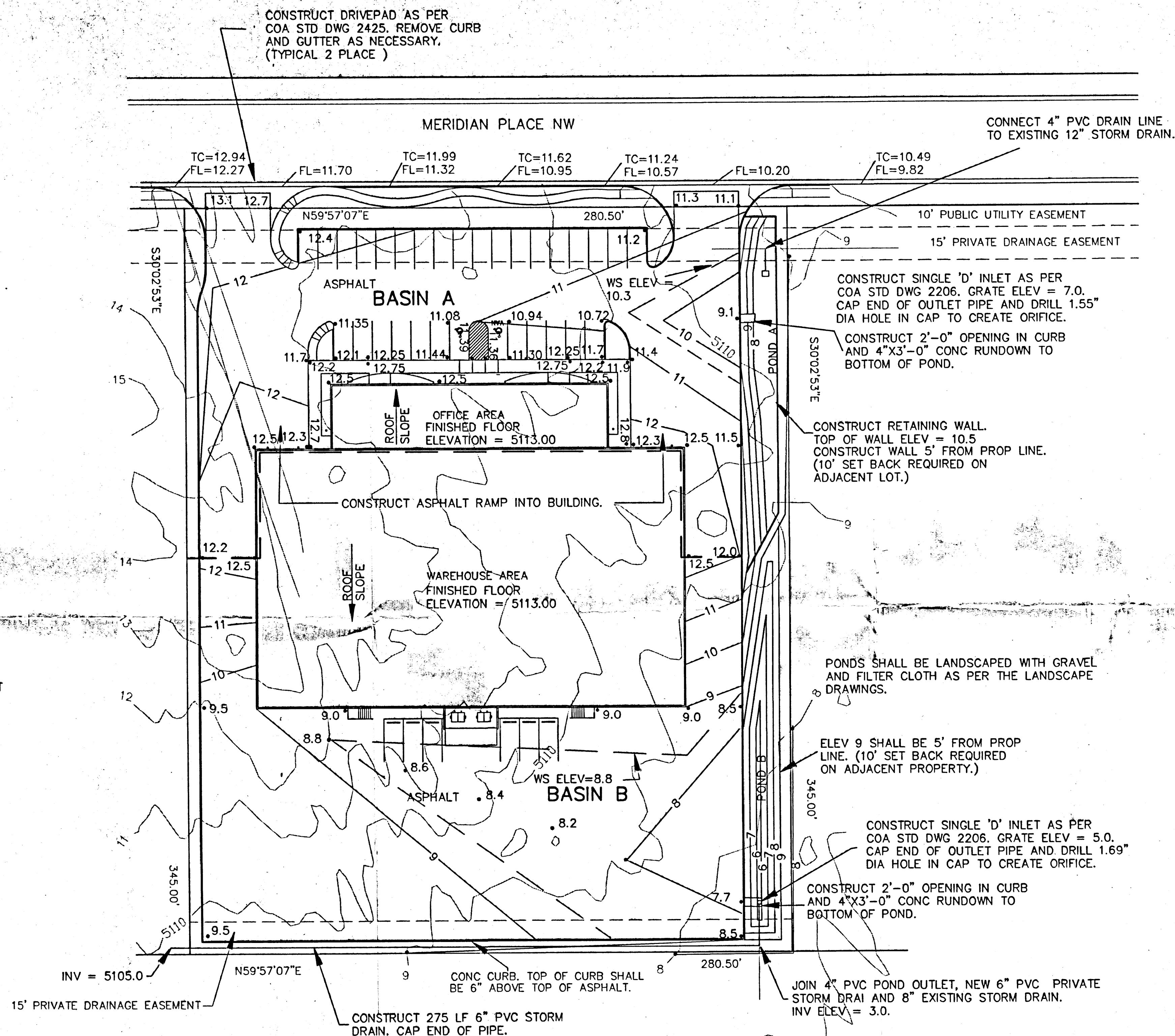
ACS MONUMENT 10-K10, LOCATED AT THE SOUTHEAST CORNER OF UNSER BLVD AND LOS VOLCANES ROAD. ELEVATION = 5142.79

## LEGEND

- 35.8 EXISTING SPOT ELEVATION
- 36.20 NEW SPOT ELEVATION
- 36--- EXISTING CONTOUR
- 35--- NEW CONTOUR
- SWALE
- ✓ VERIFIED ELEVATION
- 36.2--- AS-BUILT ELEVATION
- BASIN BOUNDARY

## NOTES

1. THE MINIMUM SLOPE OF THE ASPHALT SHALL NOT BE LESS THAN 0.5%.



# GRADING AND DRAINAGE PLAN FOR LOT 17-A, MERIDIAN BUSINESS PARK

## DRAINAGE PLAN

THE FOLLOWING ITEMS CONCERNING THE LOT 17-A, MERIDIAN BUSINESS PARK GRADING AND 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 SOUTH SIDE OF MERIDIAN PLACE NW. THE SITE IS UNDEVELOPED. THE LAND SLOPES FROM NORTHWEST TO SOUTHEAST AT A SLOPE OF APPROXIMATELY 1.5%. THE SITE WAS IN A FLOOD PLAIN, BUT THE CONSTRUCTION OF THE UNSER DIVERSION CHANNEL REMOVED THE SITE FROM THE FLOOD PLAIN. THIS SITE IS THE EAST ONE HALF OF LOT 17. LOT 17 WILL BE PLATTED INTO TWO LOTS CONCURRENTLY WITH BUILDING PERMIT APPLICATION.

THE MASTER DRAINAGE PLAN FOR THIS SUBDIVISION WAS PREPARED BY EASTERLING AND ASSOCIATES. THE MASTER PLAN ESTABLISHED A DISCHARGE RATE OF 0.10 CFS/ACRE AND REQUIRED TEMPORARY DIVERSION DITCHES AND PONDS TO CONTROL RUNOFF. THE PONDS AND DITCHES ARE IN PLACE. THIS SITE IS HIGHER THAN THE LAND TO THE SOUTH AND EAST, AND THE STREET TO THE NORTH PREVENTS OFF SITE FLOWS FROM THAT DIRECTION. THEREFORE, THE ONLY RUNOFF THAT CAN ENTER THE SITE IS FROM THE WEST AND IT WILL BE ALLOWED TO ENTER THE SITE AND BE ROUTED THROUGH THE DRAINAGE SYSTEM. THE FLOWS FROM THE WEST ARE NOT CONSIDERED SIGNIFICANT.

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 ELEVATIONS, 3) THE LIMIT AND CHARACTER OF EXISTING IMPROVEMENTS AND 4) THE LIMIT AND CHARACTER OF PROPOSED IMPROVEMENTS. AS SHOWN BY THIS PLAN, THE PROPOSED IMPROVEMENTS CONSIST OF A WAREHOUSE/OFFICE WITH ASSOCIATED PARKING AND LANDSCAPING. THE SITE IS DIVIDED INTO TWO DRAINAGE BASINS. BASIN A IS THE NORTH ONE THIRD OF THE SITE AND BASIN B IS THE SOUTH TWO THIRDS OF THE SITE. BOTH BASINS FLOW EAST TO PONDS LOCATED ALONG THE EAST PROPERTY LINE. EACH POND HAS A CONTROLLED DISCHARGE TO THE PRIVATE STORM DRAIN SYSTEM. THE DISCHARGES ARE CONTROLLED BY ORIFICES TO CONFORM TO THE DISCHARGE LIMIT OF 0.10 CFS/ACRE.

THE CALCULATIONS, WHICH APPEAR BELOW, ANALYZE THE EXISTING AND PROPOSED CONDITIONS FOR THE 6-HOUR, 100-YEAR RAINFALL EVENT. THE ANALYSIS IS IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL, VOLUME II. AS SHOWN BY THESE CALCULATIONS, THE RATE AND VOLUME OF RUNOFF WILL INCREASE. THE INCREASED RUNOFF WILL BE DETAILED IN PONDS AND RELEASED IN CONFORMANCE WITH THE LIMIT OF 0.10 CFS/ACRE. THIS PLAN CONFORMS WITH THE REQUIREMENTS OF THE MASTER DRAINAGE PLAN.

## CALCULATIONS

PRECIPITATION ZONE  
EXISTING CONDITIONS  
AREA = 2.22 ACRES  
LAND TREATMENT A = 100%  
 $E = 0.44 \times 1.00 = 0.44$  INCHES  
 $V = 0.44 \times 2.22 / 12 = 0.08$  AC FT  
 $Q = 1.29 \times 2.22 = 2.86$  CFS

## PROPOSED CONDITIONS

BASIN A  
AREA = 0.80 ACRES  
LAND TREATMENT B = 21% D = 79%  
 $E = 0.67 \times 0.21 + 1.97 \times 0.79 = 1.70$  INCHES  
 $V = 1.7 \times 0.80 / 12 = 0.11$  AC FT  
 $Q = (2.03 \times 0.21 + 4.37 \times 0.79) 0.80 = 3.10$  CFS  
BASIN B  
AREA = 1.42 ACRES B = 10% D = 90%  
 $E = 0.67 \times 0.10 + 1.91 \times 0.90 = 1.84$  INCHES  
 $V = 1.84 \times 1.42 / 12 = 0.22$  AC FT  
 $Q = (2.03 \times 0.10 + 4.37 \times 0.90) 1.42 = 5.87$  CFS

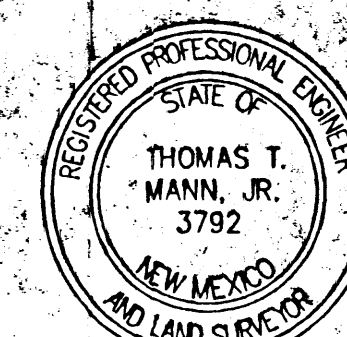
INCREASE IN RATE OF RUNOFF =  $3.10 + 5.87 - 2.86 = 6.11$  CFS  
INCREASE IN VOLUME OF RUNOFF =  $0.22 + 0.11 - 0.08 = 0.25$  AC FT

## POND VOLUMES

POND A  
 $[1232/3 + (1232 + 2 \times 1693 + 3048) / 2 + (4329 + 3048) / 2 \times 0.3] / 43560 = 0.12$  AC FT @ WS ELEV #5110.3  
POND B  
 $[(218 + 2 \times 1010 + 3335) / 2 + (3335 + 13708) 0.8 / 2] / 43560 = 0.22$  AC FT @ WS ELEV=5108.8

## ORIFICES

$Q = CA(2GH)^{0.5}$   
POND A  
 $0.8 \times 0.1 = 0.6A(2 \times 32.3 \times 3.0)^{0.5}$   
DIA = 1.55 INCHES  
POND B  
 $1.42 \times 0.1 = 0.6A(2 \times 32.2 \times 3.6)^{0.5}$   
DIA = 1.69 INCHES



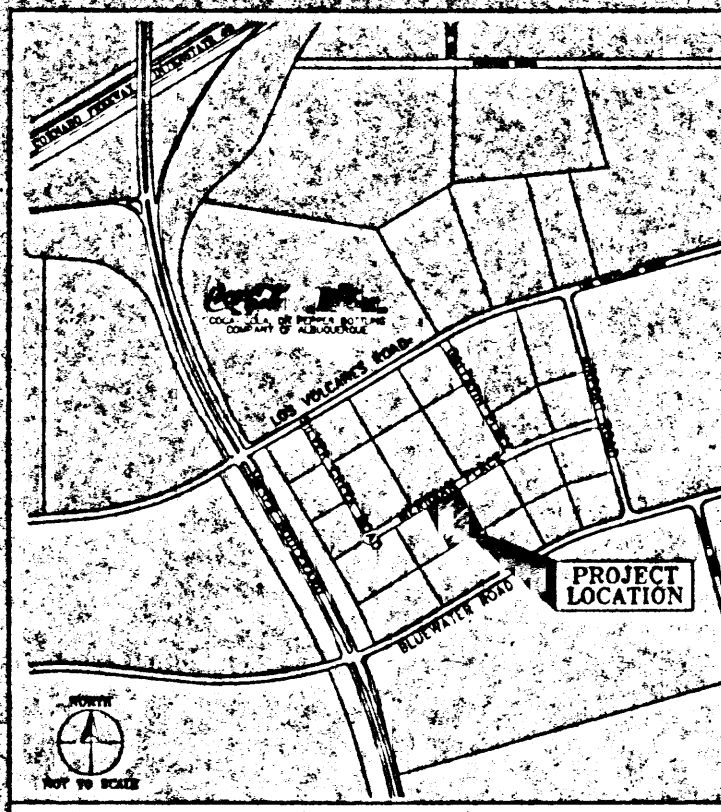
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Associates, Inc.

6312 Horizon Drive NE • Albuquerque, NM 87111  
(505) 298-4651

1

SHEET NO.





VICINITY MAP K-10

SCALE 1" = 700'

ADDRESS

XXXX MERIDIAN PLACE NW

LEGAL DESCRIPTION

LOT 17-A, MERIDIAN BUSINESS PARK

BENCHMARK

ACS MONUMENT 10-K10, LOCATED AT THE SOUTHEAST CORNER OF UNSER BLVD AND LOS VOLCANES ROAD. ELEVATION = 5142.79

LEGEND

- 35.8 EXISTING SPOT ELEVATION
- 36.20 NEW SPOT ELEVATION
- 36 EXISTING CONTOUR
- 35 NEW CONTOUR
- SWALE
- VERIFIED ELEVATION
- 36.2 AS-BUILT ELEVATION
- BASIN BOUNDARY

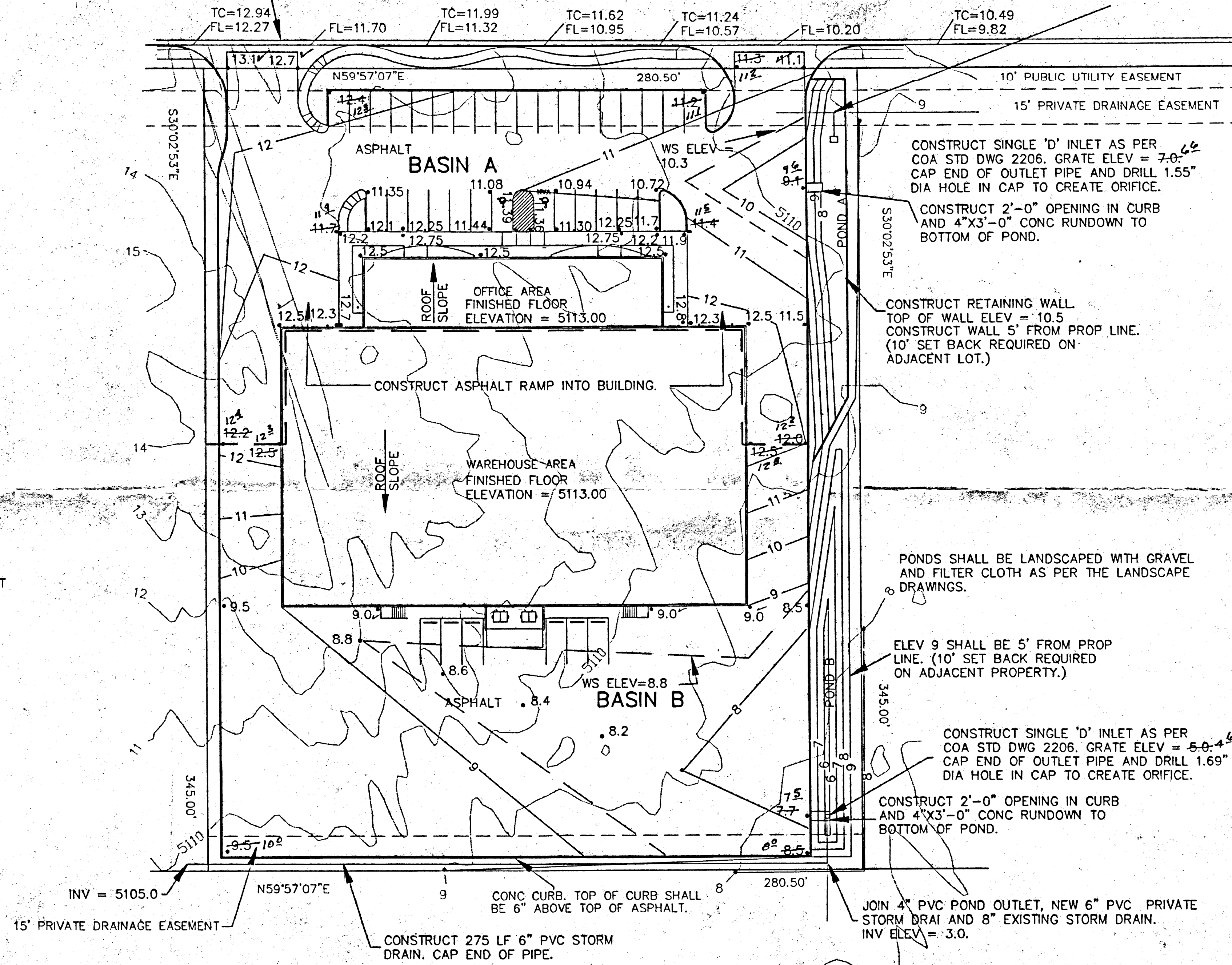
NOTES

1. THE MINIMUM SLOPE OF THE ASPHALT SHALL NOT BE LESS THAN 0.5%.

CONSTRUCT DRIVEPAD AS PER COA STD DWG 2425. REMOVE CURB AND GUTTER AS NECESSARY. (TYPICAL 2 PLACE)

MERIDIAN PLACE NW

CONNECT 4" PVC DRAIN LINE TO EXISTING 12" STORM DRAIN.



DRAINAGE PLAN

THE FOLLOWING ITEMS CONCERNING THE LOT 17-A, MERIDIAN BUSINESS PARK GRADING AND DRAINAGE PLAN ARE CONTAINED HEREON:

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CALCULATIONS

PRECIPITATION ZONE = 1  
EXISTING CONDITIONS  
AREA = 2.22 ACRES  
LAND TREATMENT A = 100%  
 $E = 0.44 \times 1.00 = 0.44$  INCHES  
 $V = 0.44 \times 2.22 / 12 = 0.08$  AC FT  
 $Q = 1.29 \times 2.22 = 2.86$  CFS

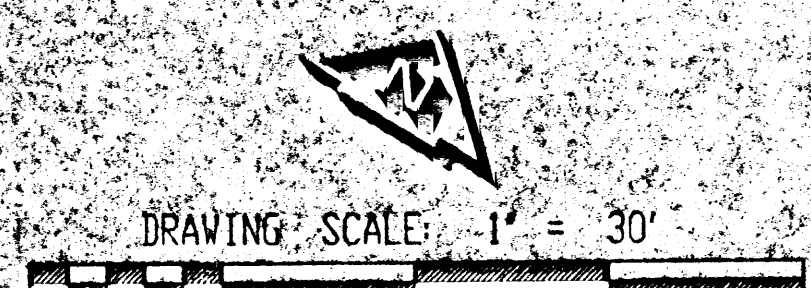
PROPOSED CONDITIONS  
BASIN A  
AREA = 0.80 ACRES  
LAND TREATMENT B = 21% D = 79%  
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 $Q = (2.03 \times 0.21 + 4.37 \times 0.79) 0.80 = 3.10$  CFS  
BASIN B  
AREA = 1.42 ACRES B = 10% D = 90%  
 $E = 0.67 \times 0.10 + 1.91 \times 0.90 = 1.84$  INCHES  
 $V = 1.84 \times 1.42 / 12 = 0.22$  AC FT  
 $Q = (2.03 \times 0.10 + 4.37 \times 0.90) 1.42 = 5.87$  CFS  
INCREASE IN RATE OF RUNOFF =  $3.10 + 5.87 - 2.86 = 6.11$  CFS  
INCREASE IN VOLUME OF RUNOFF =  $0.22 + 0.11 - 0.08 = 0.25$  AC FT

POND VOLUMES

POND A  
 $[1232/3 + (1232 + 2 \times 1693 + 3048) / 2 + (4329 + 3048) / 2 \times 0.3] / 43560 = 0.12$  AC FT @ WS ELEV = 5110.3  
POND B  
 $[(218 + 2 \times 1010 + 3335) / 2 + (3335 + 13708) 0.8 / 2] / 43560 = 0.22$  AC FT @ WS ELEV = 5108.8

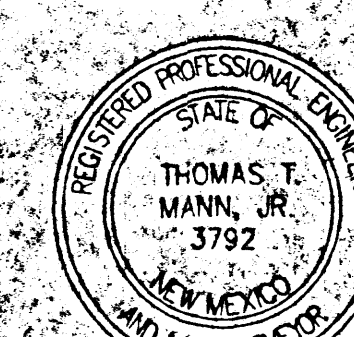
ORIFICES

$Q = CA(2GH)^{0.5}$   
POND A  
 $0.8 \times 0.1 = 0.6A(2 \times 32.3 \times 3.0)^{0.5}$   
DIA = 1.55 INCHES  
POND B  
 $1.42 \times 0.1 = 0.6A(2 \times 32.2 \times 3.6)^{0.5}$   
DIA = 1.69 INCHES



THIS PROJECT WAS CONSTRUCTED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED DRAINAGE PLAN 1/5/99

THOMAS T. MANN, JR. PEPS NO. 3792



Engineering & Surveying Associates, Inc.

C1

SHEET NO.