

GRADING/DRAINAGE PLAN

The following items concerning Parcel "E" of Parcels A thru H of Paseo Del Norte Industrial Park Subdivision, Albuquerque New Mexico, Bernalillo County, are contained hereon:

1. Vicinity Map 2. FEMA Flood Map 3. Drainage Calculations

EXISTING CONDITIONS

As shown by the vicinity map, the site contains 0.7923 acres and is located south of El Pueblo Road on Lorraine Court NE. the site has been graded per the Master Drainage Plan prepared by Jeff Mortensen and Associates. The topography slopes from east to west. According to the Flood Insurance Rate Map Panel 0136-D, dated September 20,1996, the site is not located within a designated flood zone.

PROPOSED CONDITIONS

As shown by the Grading/Drainage Plan, the project will consist of six Office/Warehouse type buildings totaling 12,812 sf along with associated paved parking and landscaped areas. On-site flows will be collected on site and routed into the 10' foot private drainage easement at a controlled rate of 1.4 cfs per the Master Drainage Plan. A hydrograph has been provided to indicate the required ponding volume. The calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6 hr rainfall event. The procedure for 40 acres and smaller basins, as set forth in the revision of Section 22.2 Hydrology of the Development Process Manual, Volume II, Design Criteria dated 1997, has been used to quantify the peak rate of discharge and volume of run-off generated.

DOWN STREAM CAPACITY

Per the approved Master Drainage Plan for Paseo Del Norte Industrial Park, Parcel "E" has an allowable discharge rate of 1.3 cfs . A 10' foot private drainage easement has been provide to serve Parcel "E". The developed volume will be stored within the parking area with a header curb on the west property line in which a two inch pipe will be constructed through the header curve to release .336 cfs the remaining allowable .964 cfs will be routed into the easement through the downspout on the south east corner of the building.

"PARCEL ""E"" AREA = 0.7923 ac.

ZONE 2

PRECIPITATION: 360 = 2.35 in.

1440 = 2.75 in.

10day = 3.95 in.

EXCESS PRECIPITATION: PEAK DISCHARGE:

TREATMENT A 0.53 in. 1.56 cfs/ac.

TREATMENT B 0.78 in. 2.28 cfs/ac.

TREATMENT C 1.13 in. 3.14 cfs/ac.

TREATMENT D 2.12 in. 4.70 cfs/ac.

EXISTING CONDITIONS: PROPOSED CONDITIONS:

AREA AREA

TREATMENT A 0 ac. 0 ac.

TREATMENT B 0 ac. 0 ac.

TREATMENT C 0.7923 ac. 0.177 ac.

TREATMENT D 0 ac. 0.6153 ac.

EXISTING EXCESS PRECIPITATION:

Weighted E = ( 0.53 )x( 0.00 )+( 0.78 )x( 0.00 )+( 1.13 )x( 0.79 )+( 2.12 )x( 0.00 )/ 0.79 ac.

= 1.13 in.

V100-360 = ( 1.13 )x( 0.79 )/ 12 = 0.074608 ac-ft = 3250 cf

EXISTING PEAK DISCHARGE:

Q100 = ( 1.56 )x( 0.00 )+( 2.28 )x( 0.00 )+( 3.14 )x( 0.79 )+( 4.70 )x( 0.00 )= 2.48 cfs

PROPOSED EXCESS PRECIPITATION:

Weighted E = ( 0.53 )x( 0.00 )+( 0.78 )x( 0.00 )+( 1.13 )x( 0.18 )+( 2.12 )x( 0.62 )/ 0.79 ac.

= 1.90 in.

V100-360 = ( 1.90 )x( 0.79 )/ 12.0 = 0.125371 ac-ft = 5461 cf

V100-1440 = ( 0.13 )+( 0.62 )x( 2.75 - 2.35 )/ 12 = 0.145881 ac-ft = 6355 cf

V100-10day = ( 0.13 )+( 0.62 )x( 3.95 - 2.35 )/ 12 = 0.207411 ac-ft = 9035 cf

PROPOSED PEAK DISCHARGE:

Q100 = ( 1.56 )x( 0.00 )+( 2.28 )x( 0.00 )+( 3.14 )x( 0.18 )+( 4.70 )x( 0.62 )= 3.48 cfs

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR MANAGEMENT OF STORM RUN-OFF DURING CONSTRUCTION, HE SHALL ASSURE THAT THE FOLLOWING MEASURES ARE TAKEN:

1. ADJACENT PROPERTY SHALL BE PROTECTED AT ALL TIMES BY TEMPORARY BERMS, DIKES, SWALES, AND OTHER TEMPORARY GRADING AS REQUIRED TO PREVENT STORM RUN-OFF FROM LEAVING THE SITE AND ENTERING ADJACENT PROPERTY.

2. ADJACENT PUBLIC RIGHT-OF-WAY SHALL BE PROTECTED AT ALL TIMES FROM STORM WATER RUN-OFF FROM THE SITE. NO SEDIMENT BEARING WATER SHALL BE PERMITTED TO ENTER THE PUBLIC STREETS.

2. THE CONTRACTOR SHALL IMMEDIATELY AND THOROUGHLY REMOVE ANY OR ALL SEDIMENT WITHIN THE PUBLIC STREETS THAT HAVE BEEN ERODED FROM THE SITE AND DEPOSITED THERE.

HYDROGRAPH CALCULATIONS

Qr = 1.3 cfs A = .7923 acres Ad = .615 acres tc = .2 hrs Qt = 3.48 cfs E = 1.90

Tp = 0.7 x tc + ( 1.6 - Ad / At ) / 12  
Tp = .14 + ( .0686 ) = .2086 x 60 = 12.52 min.

Tb = 2.017 x E x At / Qp - .25 x Ad / At .25 x .615 / .7923 = .1941 x 60 = 11.64 min.  
Tb = 2.017 x 1.90 x .7923 / 3.48 - .1941 = .678 x 60 = 40.68 min.

PIPE RELEASE CALCULATION FOR A 2" PIPE

Q = Ca 2gh  
Q = (.68 )( .0872 )( 5.67 ) + .336 cfs

BENCHMARK : "ACS" NAA-9 LOCATED 113' SOUTH OS PASEO DEL NORTE AND 72' EAST OF THE NORTH DIVERSION CHANNEL ELEVATION = 5069.27

T.B.M.: TOP OF CURB IN THE PROJECTION OF THE SOUTHEAST PROPERTY CORNER ( SEE PLAN ) ELEVATION = 5091.10

PONDING REQUIRED PER HYDROGRAPH 2758 cf  
PONDING PROVIDED 43' X 43' X 1.5' = 2773 cf

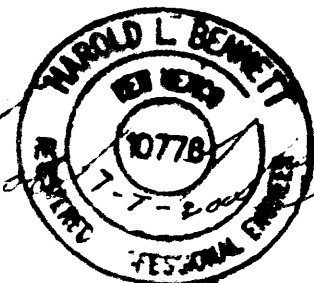
10' PRIVATE DRAINAGE EASEMENT TO SERVE PARCELS E AND F

PRIVATE DRAINAGE CHANNEL  
FL83.10  
0.33 CFS THRU 2" PIPE  
PONDING AREA  
H.C. H.C.  
2" PVC PIPE THRU HEADER CURB  
CALCULATIONS FOR RELEASE OF 2" PVC  
Q=CxAx(2gh)<sup>1/2</sup>  
Q=.67x.0872x5.67  
Q= 0.33 cfs

ENGINEER CERTIFICATION FOR PARCEL "E" OF PARCELS A THRU H OF PASEO DEL NORTE INDUSTRIAL PARK

AS INDICATED BY THE AS-BUILT INFORMATION SHOWN HEREON: THE ABOVE REFERENCED SITE HAS BEEN GRADED AND DRAINED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN DATED NOVEMBER 18,1999. THEREFORE, A PERMANENT CERTIFICATE OF OCCUPANCY IS HEREBY RECOMMENDED. THE AS-BUILT INFORMATION SHOWN HEREON WAS OBTAINED BY ME OR UNDER MY DIRECT SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

HAROLD L. BENNETT NMPE # 10776



LEGAL

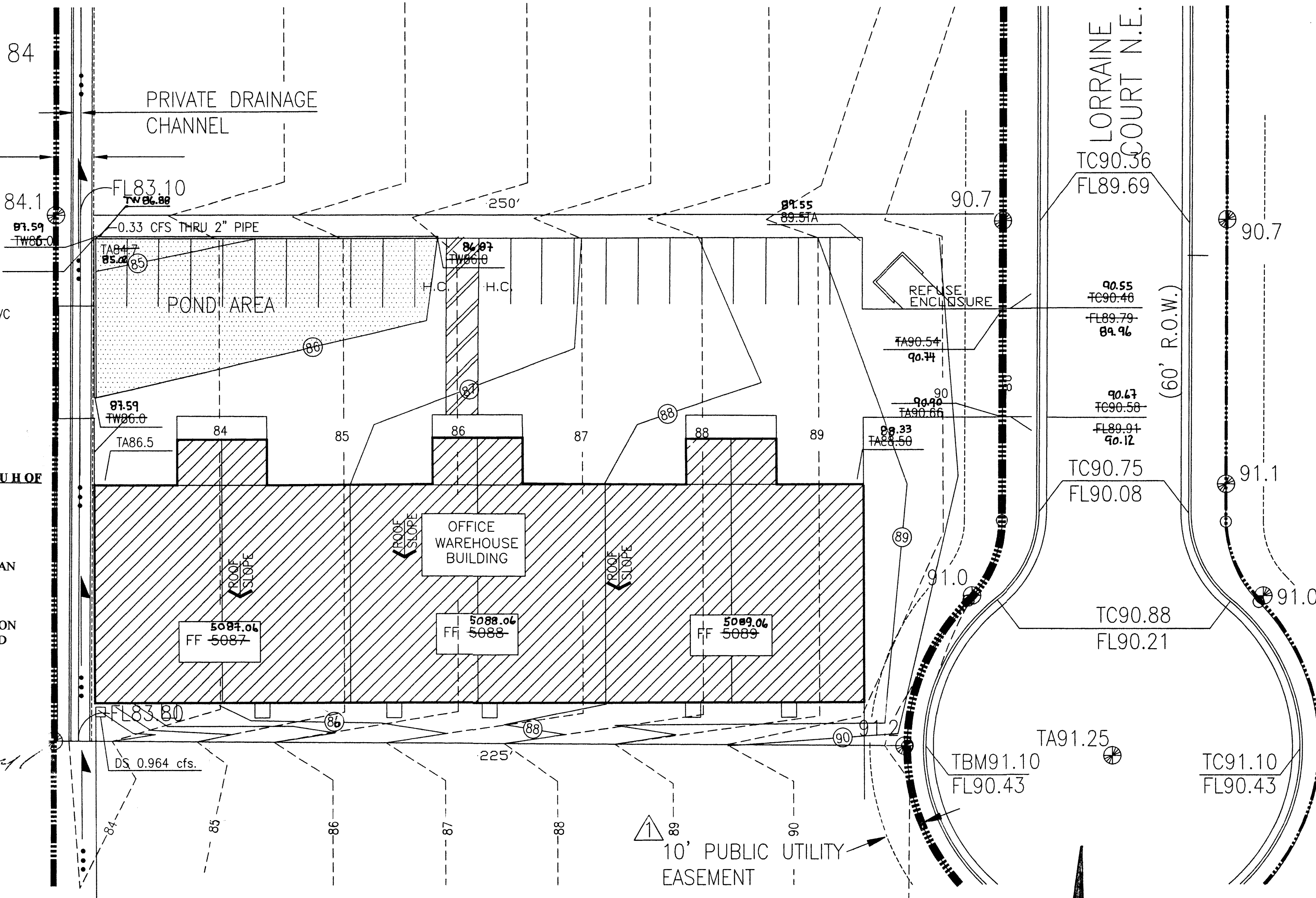
PARCEL E, OF PARCELS A THRU H OF PASEO DEL NORTE INDUSTRIAL PARK ALBUQUERQUE, BERNALILLO COUNTY NEW MEXICO

NOTE TO CONTRACTOR

1. An excavation/construction permit will be required before beginning any work within the City right-of-way. Approved copy of this plan must be submitted at the time of application for permit.
2. All work detailed in this plan to be performed, except as otherwise stated or provided hereon, shall be constructed in accordance with City of Albuquerque Standard Specification for Public Works Construction.
3. Two working days prior to any excavation, contractor must contact line locating Services at (505) 260-1990 for locating existing utilities.
4. Prior to construction, the contractor shall excavate and verify the horizontal and vertical location of all construction. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.
5. Backfill compaction shall be according to residential use.
6. 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.

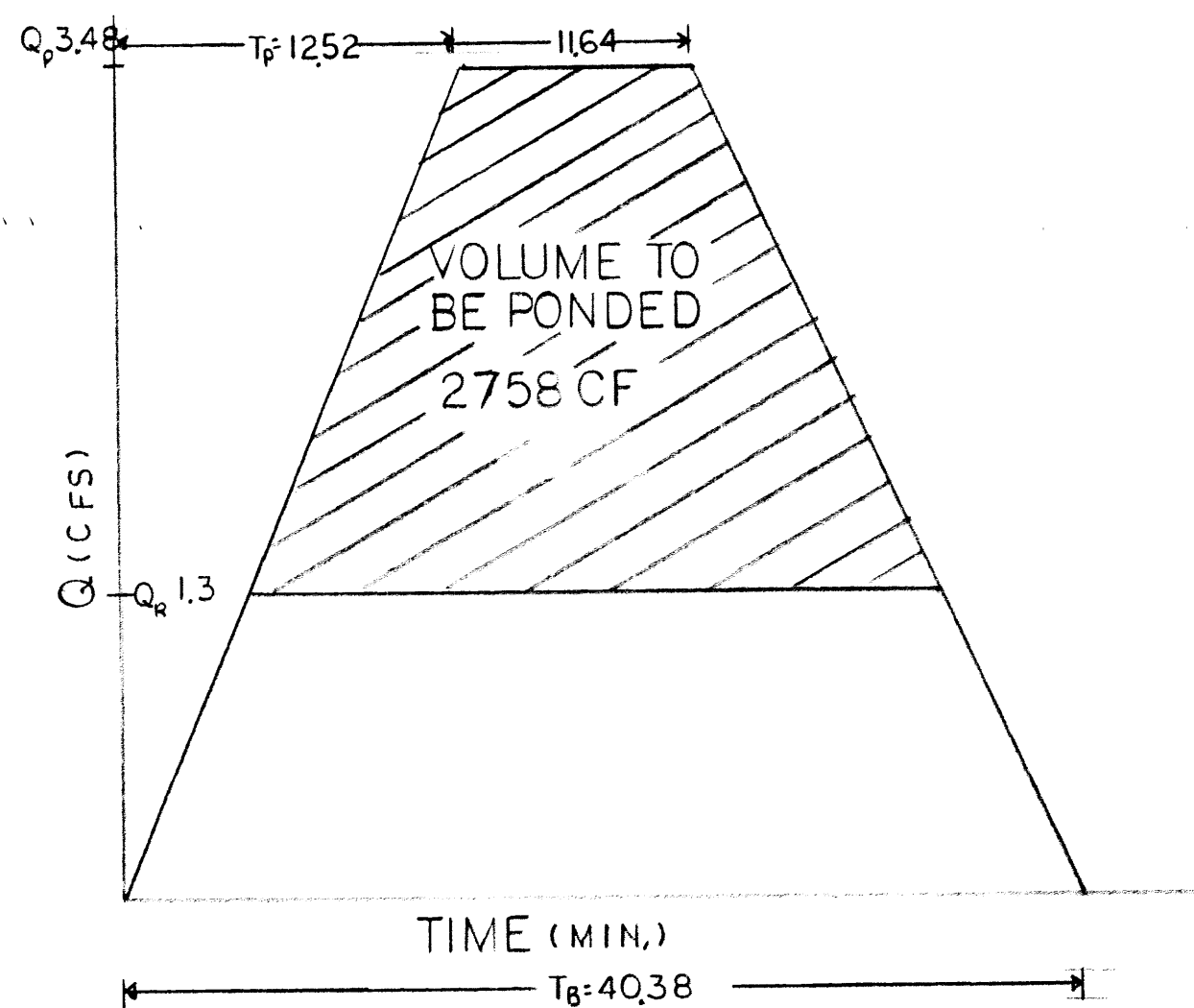
SYMBOL LEGEND

EXISTING CONTOUR --- 5102  
PROPOSED CONTOUR --- (25)  
DESIGNED SPOT ELEVATION 27.50 TC 27.00 TA  
PROPERTY LINE ---  
EASEMENT LINE ---  
FLOW DIRECTION -->  
EXISTING SPOT ELEVATION +85.1  
DOWN SPOUT □ AS-BUILT 90.67 90.59  
ABBREVIATION LEGEND  
TOP OF CON. PAD --- TCP  
TOP OF CURB --- TC  
TOP OF ASPHALT --- TA  
FLOWLINE --- FL  
TOP OF WALL --- TW



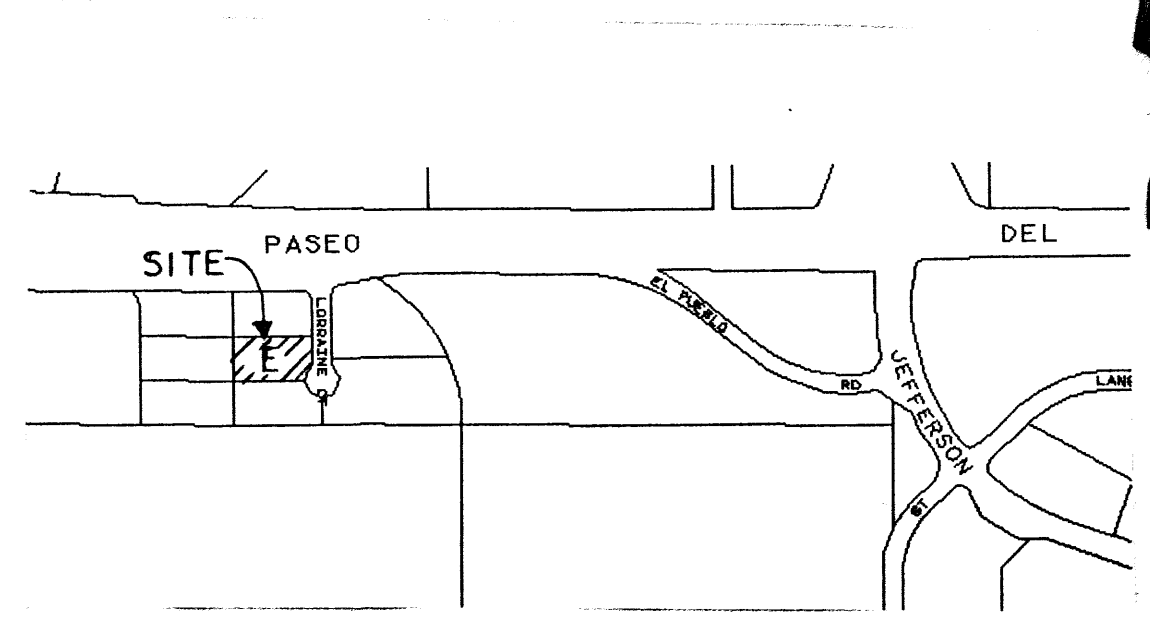
GRADING & DRAINAGE PLAN

Scale 1"=20'-0"

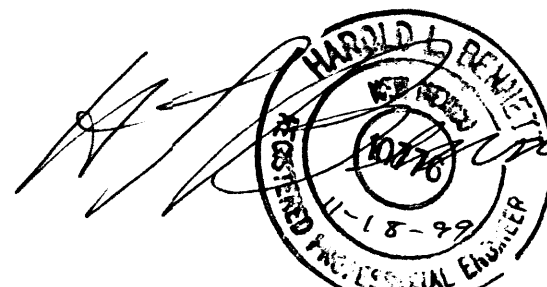


HYDROGRAPH

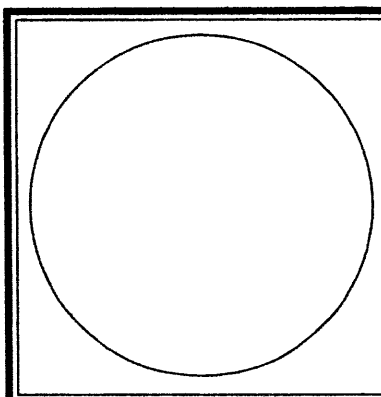
VICINITY MAP D-17



FLOOD PANEL 0136-D



REGISTERED JUL 10 2000 HYDROLOGY SECTION



JOB NO:	9920
DATE:	28 OCTOBER 1999
REVISIONS	

Sheet Title  
GRADING & DRAINAGE PLAN  
Drawn By: BJM  
Checked By:

BJM DEVELOPMENT CONSULTANT  
DESIGN - PLANNER  
Albuquerque, New Mexico

Project Name  
ALBUQUERQUE, NEW MEXICO

SHEET NO.  
GD