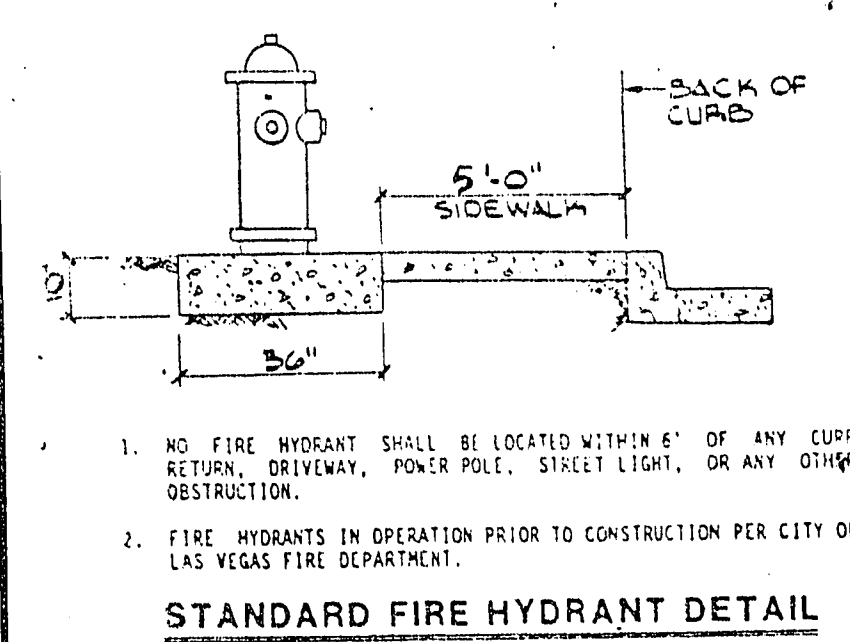
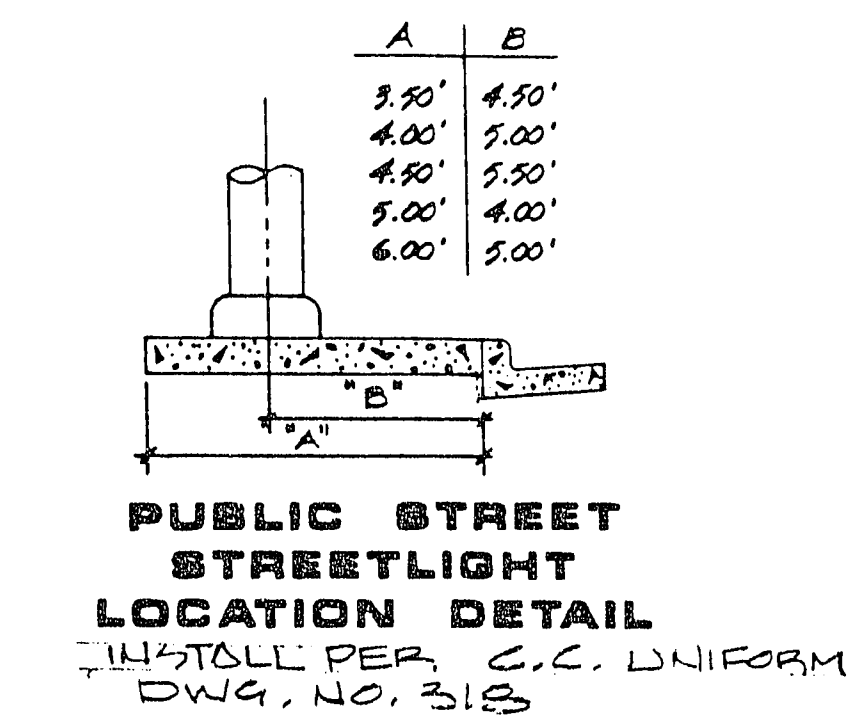


- LAS VEGAS VALLEY WATER DISTRICT**
- ALL WORK TO CONFORM TO LAS VEGAS VALLEY WATER DISTRICT STANDARD FILES.
 - ALL WORK, EXCEPT AS MODIFIED HEREON BY NOTE NO. 1, SHALL BE DONE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF CONSTRUCTION STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA.
 - NOTICE TO BE GIVEN ENGINEERING DEPARTMENT OF THE LAS VEGAS VALLEY WATER DISTRICT 48 HOURS PRIOR TO ACTUAL CONSTRUCTION.
 - SERVICE SADDLES WILL BE REQUIRED ON ALL SERVICES 1/2" AND LARGER. TAPPED COLLARS ARE PERMITTED ON 1" AND SMALLER. SADDLE TAP COLLARS ARE NOT PERMITTED.
 - ALL LINES TO BE PRESSURE TESTED TO 200 PSI.
 - DEFLECTION ANGLE SHALL NOT EXCEED 2% DEGREES PER 13 FOOT SECTION OF PIPE FOR PIPE SIZES SMALLER THAN 14" AND 16".
 - ALL METERS SHALL BE LOCATED OUTSIDE OF DRIVEWAYS.
 - SERVICE LATERALS FOR LOTS WILL BE TAPPED ON EXISTING MAIN BY OWNER'S CONTRACTOR UNDER DIRECTION OF THE LAS VEGAS VALLEY WATER DISTRICT.
 - DETECTOR TAPE REQUIRED IN ACCORDANCE WITH STANDARD PLATE NO. 27 WHERE INDICATED AND AS FOLLOWS:
 - OVER ALL MAINS NOT INSTALLED AT 6 FEET FROM BACK OF CURB.
 - OVER ALL SERVICE LATERALS NOT INSTALLED AT RIGHT ANGLES TO MAINS.
 - CALL BEFORE YOU DIG - 1-800-227-2600
 - INSTALL SERVICE LATERALS PER L.V.W.D. STD. PLATE 1

CLV STREET LIGHT NOTES

ALL STREETLIGHTING INSTALLATIONS SHALL CONFORM TO THE LATEST ISSUE OF THE STANDARD DETAILS AND SPECIFICATIONS OF THE CITY OF LAS VEGAS, AND SHALL ALSO CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, LATEST EDITION, UNLESS OTHERWISE NOTED.

- CLV SEWER NOTES**
- ALL SANITARY SEWER INSTALLATIONS SHALL CONFORM TO THE STANDARD DETAILS AND SPECIFICATIONS OF THE CITY OF LAS VEGAS, AND SHALL ALSO CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, LATEST EDITION, UNLESS OTHERWISE NOTED.
 - CHISEL "S" OR "G" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
 - POLYVINYL CHLORIDE (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, AND INSTALLED WITH SAND BEDDING AND BACKFILL OR TYPE II GRAVEL.
 - ALL MANHOLES IN PAVED STREETS 80' R/W AND LARGER, SHALL HAVE CONCRETE COLLARS.
 - TEE SADDLES SHALL BE USED TO CONNECT SERVICE LATERALS TO EXISTING MAIN LINES UP TO 32" DIA. SIZE. CONNECTIONS TO 15" OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES.
 - A SEWER MAIN CROWING OVER OR LESS THAN 18" UNDER A WATER MAIN MUST BE REINFORCED CONCRETE ENCASED PIPE FOR A DISTANCE NOT LESS THAN TEN FEET TO EACH SIDE OF THE CENTERLINE OF THE WATER MAIN.

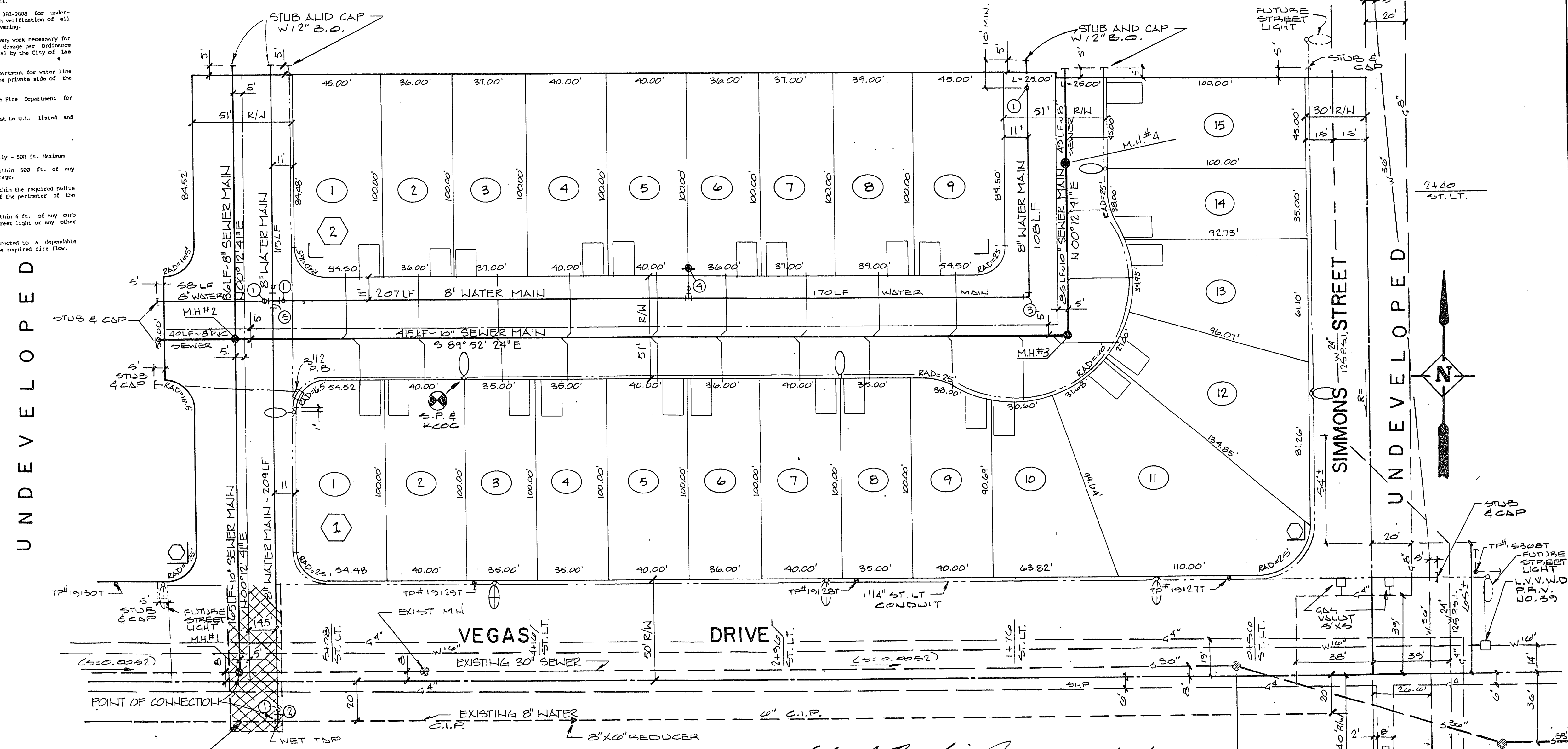


FIRE FLOW ESTIMATE

TYPE OF CONST. WOOD TYPE II
TOTAL FLOOR AREA 1500 SQ. FT. 2 STORIES
OCCUPANCY SINGLE FAMILY - 25%
AUTO SPRINKLER NO
EXPOSURES
FRONT 0.1' + 10%
LEFT 1.1' + 20%
REAR 1.1' + 15%
RIGHT 1.2' + 20%
TOTAL + 65%
C = 1.5 FIRE FLOW REQ'D 1,500 GPM

- FIRE DEPARTMENT NOTES**
- All work shall be done in strict accordance with the City of Las Vegas Fire Department "Hydrant Specifications", "Hydrant Installation Specifications" and Ordinance 13319.
 - Authorized hydrants for this project are:
 - Kennedy Guardian
 - Shiller A-63 Centurian
 - Clow Model 256 Medallion
 - On any new home or building construction, accessible fire hydrants shall be installed before combustible construction commences and said fire hydrants shall be in good working order with an adequate water supply.
 - Contractor shall place a green reflective marker at centerline of street adjacent to fire hydrant.
 - Call the Las Vegas Fire Department at 303-3988 for underground inspection, pressure and flush verification of all fire hydrants and fire lines before covering.
 - Painting of the curb and hydrant and any work necessary for protection of hydrants from physical damage per Ordinance 13319 shall be completed before approval by the City of Las Vegas Fire Department.
 - A permit is required from the Fire Department for water line and fire hydrant installations on the private side of the meter.
 - A flow test must be witnessed by the Fire Department for verification of on-site water supply.
 - All on-site fire main materials must be U.L. listed and F.H. approved.
 - Fire hydrant spacing:
 - Residential - 600 ft. Maximum
 - Commercial, including multi-family - 500 ft. MaximumFire hydrants shall be located within 500 ft. of any construction or combustible open storage.
 - No fire hydrant shall be located within the required radius of a cut-de-sac or within 20 ft. of the perimeter of the radius of the cut-de-sac.
 - No fire hydrant shall be located within 6 ft. of any curb return, driveway, power pole, street light or any other obstruction.
 - Ensure that fire hydrants are connected to a dependable water supply capable of supplying the required fire flow.

UNDEVELOPED



PAVEMENT PATCH TO MATCH EXIST. DC PER C.I.V. STD.

LEGEND AND QUANTITY ESTIMATE

WATER			
1	8" GATE VALVE	5	EA.
2	8" x 8" MECH. JOINT TOPPING TEE	1	EA.
3	90° BEND	1	EA.
4	STANDARD FIRE HYDRANT (INCLUDES: 1/4" G.V., TEE, PIPE AND FITTINGS)	1	EA.
5	8" PVC WATER MAIN	811	L.F.
6	3/4" SERVICE W/3/4" METER	24	EA.
7	8" x 8" CROWN	1	EA.
SEWER			
1	STANDARD MANHOLE	4	EA.
2	8" SEWER MAIN	843	L.F.
3	4" SEWER LATERAL	655	L.F.
4	WYES	24	EA.

STREET LIGHT			
1	100 WATTS HPS LUMINAIR	3	EA.
2	1/4" CONDUIT	1,043	LF
3	DEVEY LOCATION		
4	STREET NAME SIGN	3	EA.
5	250 WATTS HPS LUMINAIR	3	EA.
6	STOP SIGN	1	EA.
7	S.P. & P.C.C.C.	1	EA.
NOTE			
EXACT LOCATION OF ALL UNDERGROUND UTILITIES TO BE FIELD DETERMINED.			

Edmund ...
CITY OF LAS VEGAS FIRE MARSHAL

11/20/89
DATE

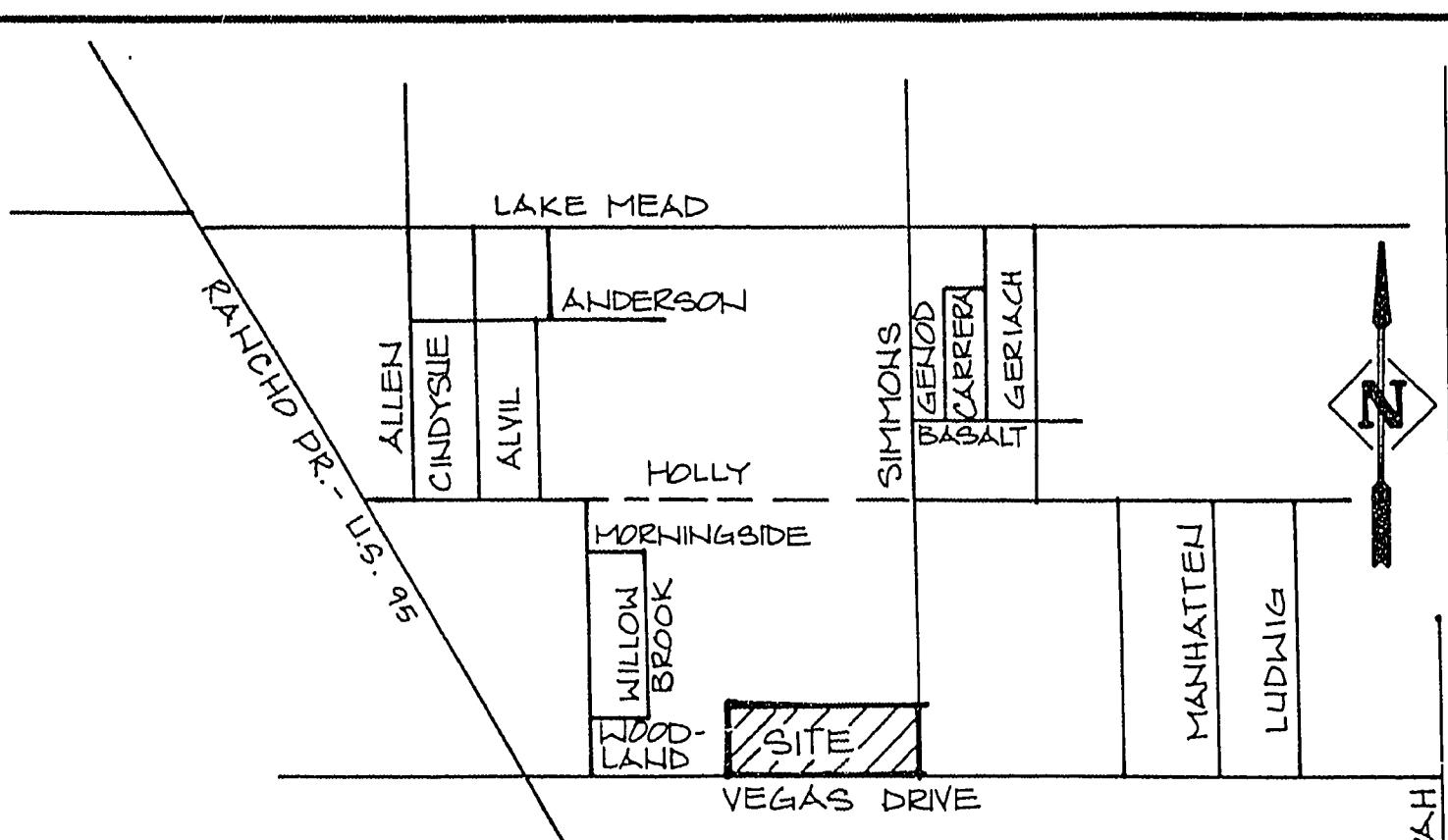
L.V.V.W.D.
NEVADA POWER CO.

1/27/89
DATE

Name of Plan: WILLOW BROOK MANOR PHASE I
Water plan as shown will be acceptable. It is NOT approved for construction.
Kenneth ...
LVVWD Date 12/30/88

BENCH MARK

C.I.V. BENCH MARK # 6120C4
S.E. COR. OF HOLLY AVE.
& FERRELL ST. ELEV. 2113.76



AMERICAN DEVELOPMENT CORP.

DATE OCT. 1988
DESIGN D.W.I.
DRAWN LEE
CHECK I.V.K.
SCALE 1" = 30'

D & K ENGINEERING
3227 MEADE AVENUE
LAS VEGAS, NEVADA 89102

WILLOW BROOK MANOR PHASE I
MASTER UTILITY PLAN

SHEET 7