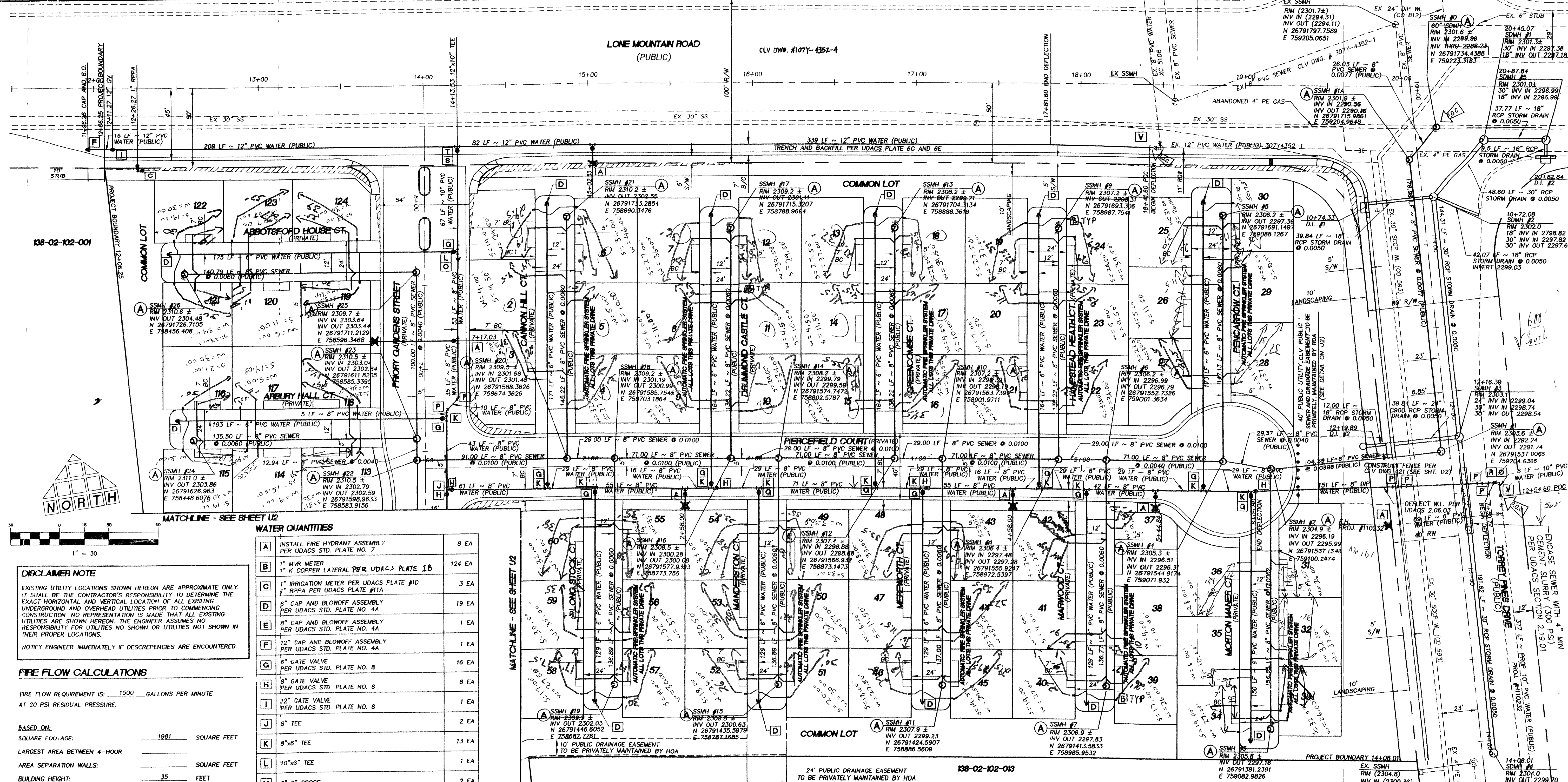




DISCLAIMER NOTE
EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS.
NOTIFY ENGINEER IMMEDIATELY IF DISCREPANCIES ARE ENCOUNTERED.

FIRE FLOW CALCULATIONS

FIRE FLOW REQUIREMENT IS: 1500 GALLONS PER MINUTE AT 20 PSI RESIDUAL PRESSURE.

BASED ON:

SQUARE FOOTAGE:	1981	SQUARE FEET
LARGEST AREA BETWEEN 4-HOUR		
AREA SEPARATION WALLS:		SQUARE FEET
BUILDING HEIGHT:	35	FEET
NUMBER OF STORIES:	2	FLOORS
TYPE OF CONSTRUCTION:	V-N	
OCCUPANCY:	RESIDENTIAL	
FULL AUTOMATIC FIRE SPRINKLER SYSTEM:	YES	

REVIEWED BY: _____
DATE: _____

SEWER QUANTITIES

(A) CONSTRUCT STANDARD ECCENTRIC MANHOLE PER DCSWCS PLATE SD-1	44 EA
(B) CONSTRUCT SPECIAL MANHOLE "B" PER DCSWCS PLATE SD-10	0 EA
(C) INSTALL SEWER LATERAL PER DCSWCS PLATE SD-17	1,740 LF
8" PVC SEWERLINE	4,188 LF

SEWER CONTRIBUTION
124 UNITS @ 1 ERU PER UNIT (90,000 GPD/ERU) = 11,160,000 GPD
365 DAYS PER YEAR
AVERAGE DAILY FLOW = 30,575 GPD
PEAK FACTOR = 3.3
APPROXIMATE PEAK FLOW = 100,898 GPD

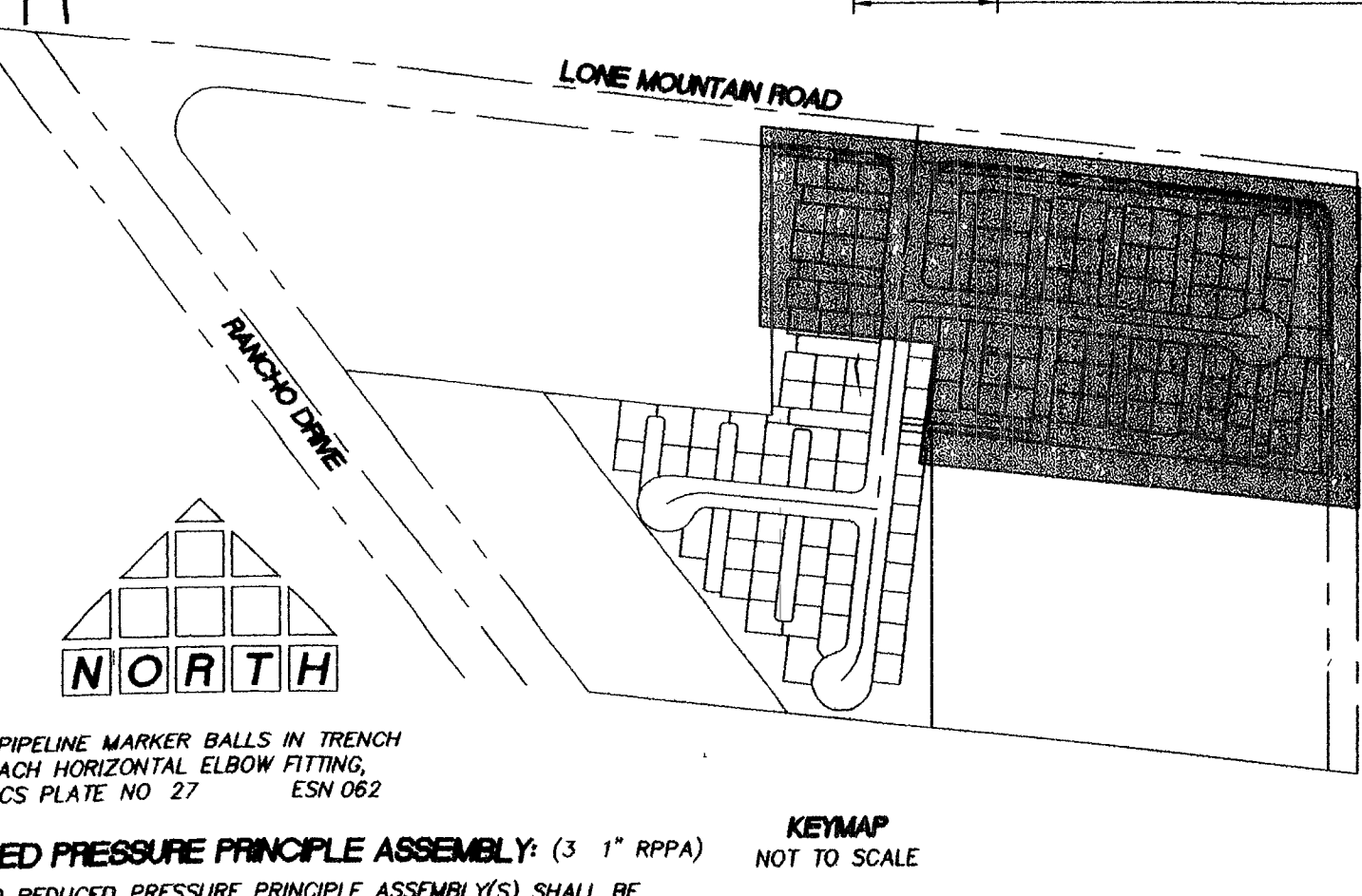
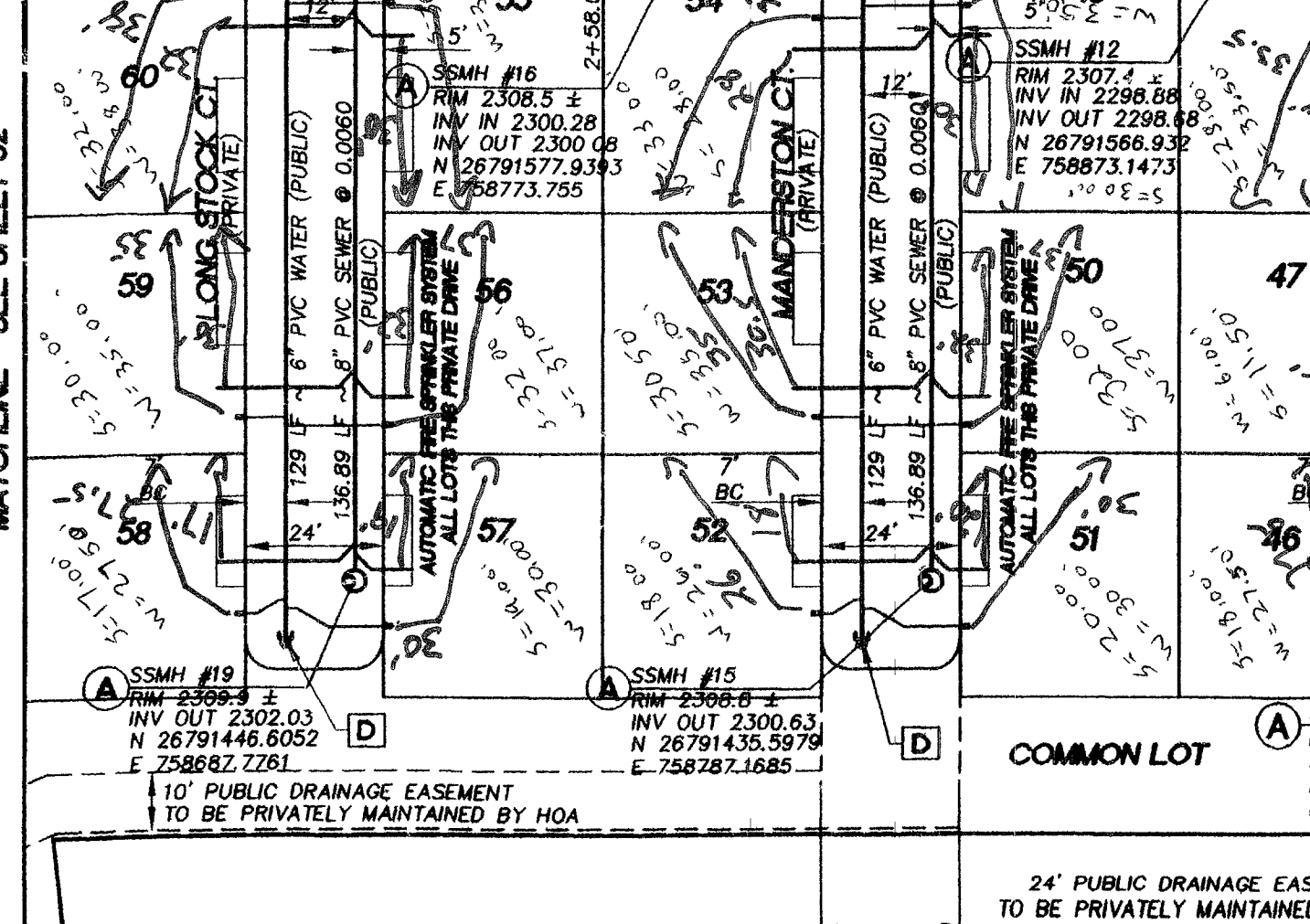
Call before you Dig
1-800-227-2600
Call before you Overhead
1-702-593-6111
Underground
1-702-225-5611

WATER QUANTITIES

(A) INSTALL FIRE HYDRANT ASSEMBLY PER UDACS STD. PLATE NO. 7	8 EA
(B) 1" MVR METER	124 EA
(C) 1" K COPPER LATERAL PER UDACS PLATE #10	3 EA
(D) 6" CAP AND BLOWOFF ASSEMBLY PER UDACS STD. PLATE NO. 4A	19 EA
(E) 8" CAP AND BLOWOFF ASSEMBLY PER UDACS STD. PLATE NO. 4A	1 EA
(F) 12" CAP AND BLOWOFF ASSEMBLY PER UDACS STD. PLATE NO. 4A	1 EA
(G) 6" GATE VALVE PER UDACS STD. PLATE NO. 8	16 EA
(H) 8" GATE VALVE PER UDACS STD. PLATE NO. 8	8 EA
(I) 12" GATE VALVE PER UDACS STD. PLATE NO. 8	1 EA
(J) 8" TEE	2 EA
(K) 8"x6" TEE	13 EA
(L) 10"x6" TEE	1 EA
(M) 8"x6" CROSS	2 EA
(N) 8"x6" REDUCER	1 EA
(O) 10"x8" REDUCER	2 EA
(P) 8" 45° BEND	6 EA
(Q) NOT USED	---
(R) 10" 90° BEND	1 EA
(S) 10" GATE VALVE PER UDACS STD. PLATE NO. 8	1 EA
(T) 12"x10" TEE	1 EA
(U) NOT USED	---
(V) CONNECT TO EXISTING PER UDACS PLATE 4A	2 EA

6" PVC WATERLINE 2,741 LF
8" DIP WATERLINE 151 LF
8" PVC WATERLINE 1,466 LF
10" PVC WATERLINE 77 LF
12" PVC WATERLINE 630 LF

MATCHLINE - SEE SHEET U2



NOTE:
INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE NO. 27 ESN 062

REDUCED PRESSURE PRINCIPLE ASSEMBLY: (3 1" RPPA)
APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) SHALL BE INSTALLED PER THE UDACS PLATE NO. 11A. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE REDUCED PRESSURE PRINCIPLE ASSEMBLY HAS BEEN SUCCESSFULLY TESTED BY THE LVWD.

ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) TO ALLOW THE DISTRICT DIRECT ACCESS FROM THE ADJACENT RIGHT-OF-WAY.

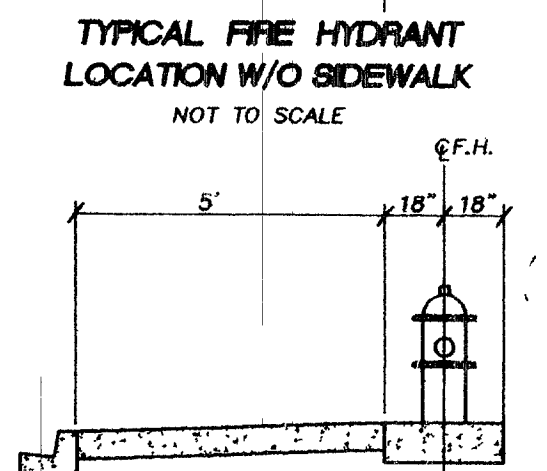
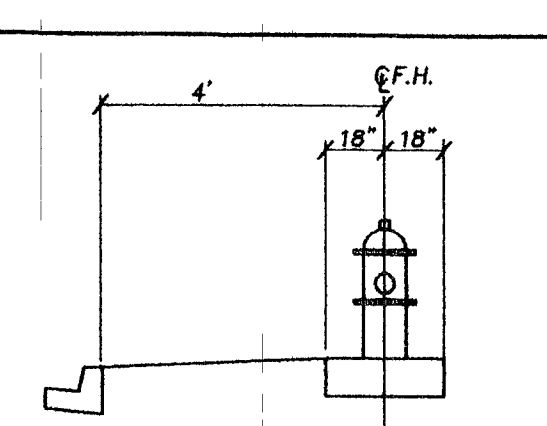
EASEMENTS SHALL BE CLEARLY MARKED OR STAKED PRIOR TO THE START OF CONSTRUCTION.

BASIS OF BEARINGS
SOUTH 00°04'13" WEST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 2, TOWNSHIP 20 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN ON THE MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE, CLARK COUNTY, NEVADA IN FILE 99 OF PARCEL MAPS, AT PAGE 42.

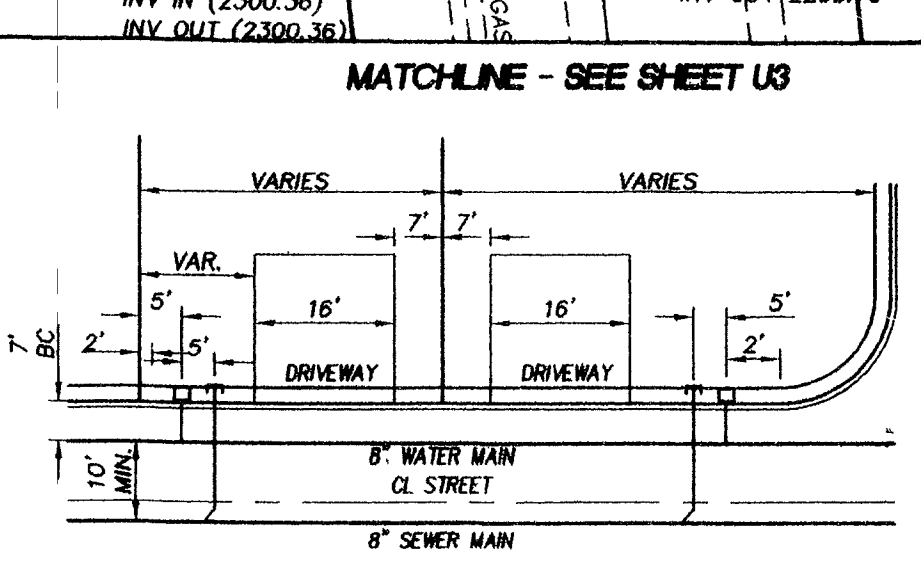
- UTILITY NOTES**
- NOTIFY THOMSON CONSULTING ENGINEERS IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FIELD.
 - PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL LOCATE AND VERIFY SIZE, MATERIAL DEPTH, CONDITION, PRESSURE AND LOCATION OF ALL EXISTING UTILITY LINES WITHIN THE CONSTRUCTION AREA. THOMSON CONSULTING ENGINEERS SHALL BE CONTACTED ONCE THE UTILITY IS LOCATED.
 - PLANS MAY NOT INDICATE ALL EXISTING UTILITY LINES. CONTRACTOR IS TO EXERCISE EXTREME CAUTION DURING EXCAVATION IN ORDER TO AVOID DAMAGING ANY EXISTING UTILITY LINES. IF THE UTILITY LINES ARE DAMAGED BY THE CONTRACTOR, SUCH DAMAGE SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER AT THE CONTRACTOR'S EXPENSE.
 - CONTRACTOR TO SAWCUT AND REMOVE EXISTING ASPHALT AND CONCRETE AS NECESSARY FOR UTILITY TRENCHES. BACKFILL AND PATCH ALL TRENCHES ACCORDING TO CLARK COUNTY STANDARDS.
 - ALL WATER FACILITIES CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS" (UDACS), LATEST EDITION.
 - CONTRACTOR TO FIELD VERIFY LOCATION AND INVERT OF MANHOLE PRIOR TO CONSTRUCTION. THOMSON CONSULTING ENGINEERS SHALL BE CONTACTED ONCE THIS INFORMATION HAS BEEN OBTAINED.

WATERMAIN JOINT DEFLECTION (PVC, 4"-24")
PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.06.01 AND 2.06.02.

BENCHMARK
CLV 8000 2NNW
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF LONE MOUNTAIN AND RANCHO.
ELEVATION (NAVD 88): 706.7908 METERS
2318.86 FEET



APPROVALS
LAS VEGAS VALLEY WATER DISTRICT
PROJECT #11311
DATE 2/28/05
DATE 1/14/05



LATERAL NOTES:
WATER & SEWER SERVICE LATERALS SHALL BE INSTALLED IN SEPARATE TRENCHES A MINIMUM OF 48" APART. WATER LATERALS SHALL BE A MINIMUM OF 12" ABOVE THE SEWER LATERAL. (REF. UNIFORM PLUMBING CODE). WATER LATERAL SHALL BE PLACED 18" ABOVE SEWER MAINS AND LATERALS AT CROSSINGS.

TYPICAL LATERAL LOCATION

THOMSON CONSULTING ENGINEERS
3161 E. WARM SPRINGS ROAD, SUITE 200
LAS VEGAS, NEVADA 89120
702-932-6125
702-932-6125

RICHMOND AMERICAN HOMES
LONE MOUNTAIN / TORREY PINES

UTILITY PLAN

U1
7 OF 21
10748514