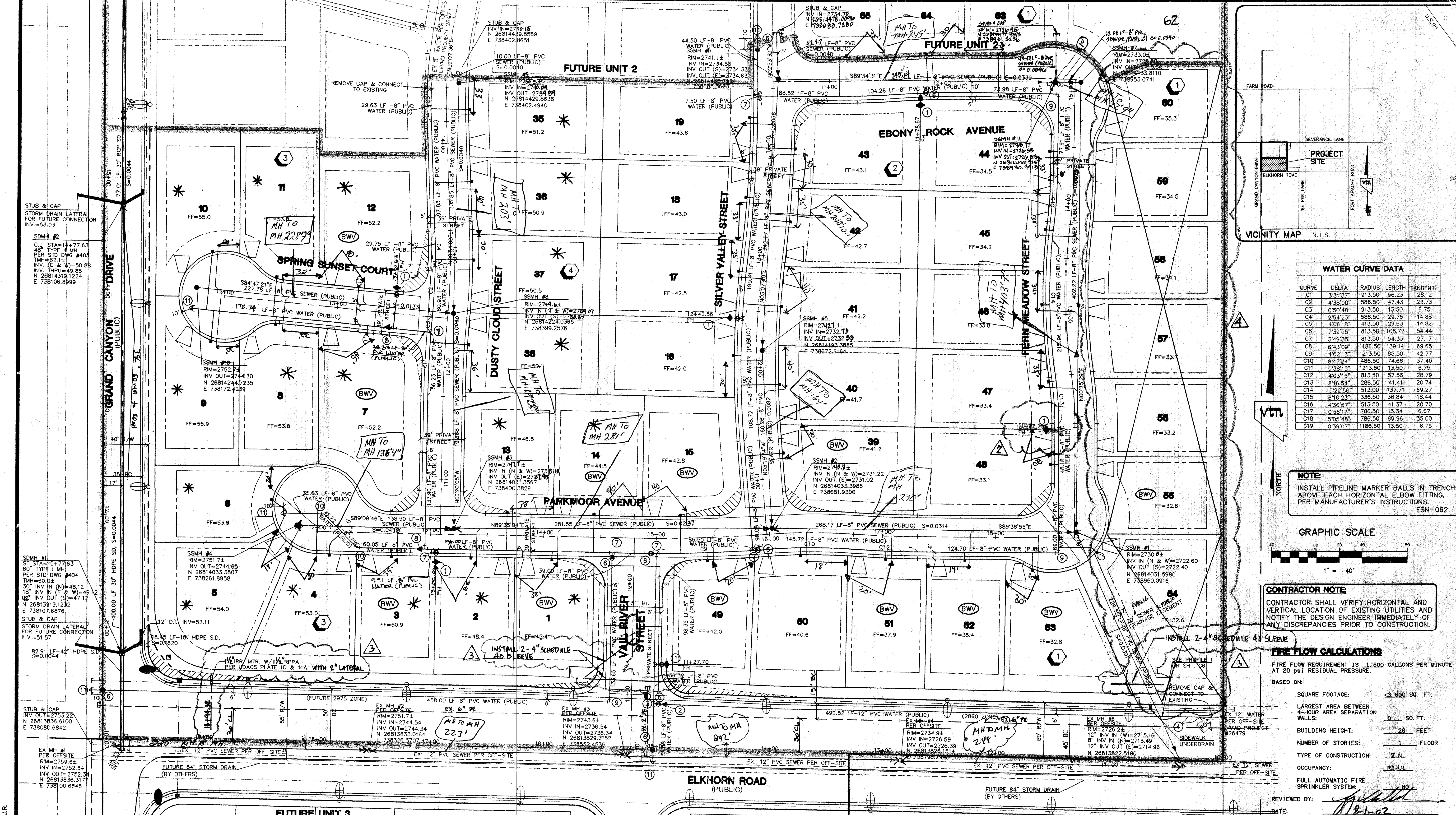


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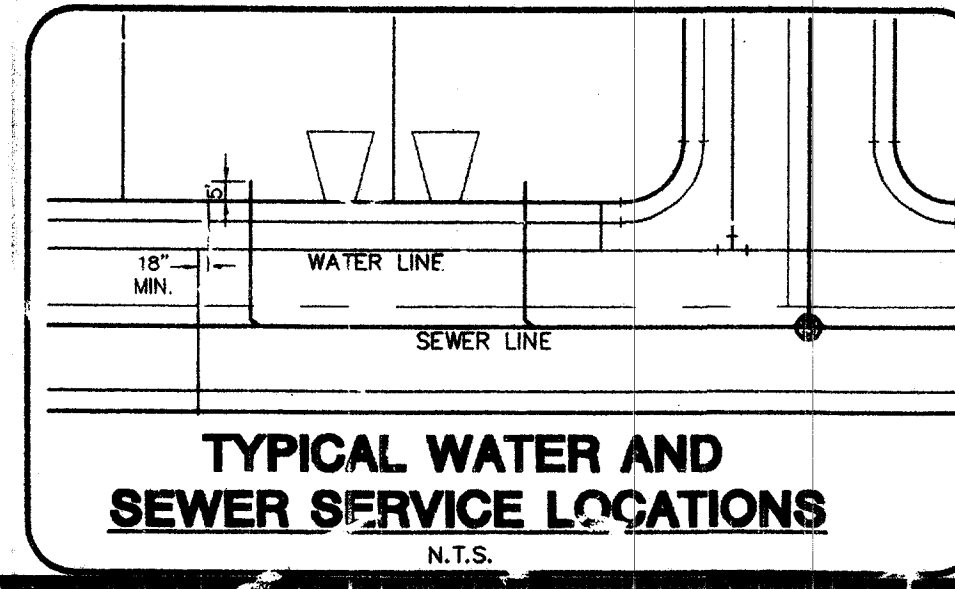


SEWER CONNECTION NOTE:
A SEGMENT OF THE DOWNSIDE SEWER SYSTEM THAT WILL SERVE THIS PROJECT HAS NOT BEEN COMPLETED &/OR ACCEPTED FOR MAINTENANCE BY THE CITY OF LAS VEGAS. ANY WORK DONE ON THIS PROJECT PRIOR TO THE COMPLETION &/OR ACCEPTANCE OF THE DOWNSIDE SEWER SYSTEM(S) SHALL BE DONE AT THE DEVELOPER'S OWN RISK. THE CITY OF LAS VEGAS RESERVES THE RIGHT TO PREVENT THE PHYSICAL CONNECTION OF THIS PROJECT INTO THE DOWNSIDE SEWER SYSTEM UNTIL ALL SEGMENTS HAVE BEEN COMPLETED & ACCEPTED FOR MAINTENANCE, OR UNTIL SUCH TIME AS THEY HAVE BEEN DEEMED AVAILABLE FOR SERVICE.

BENCHMARK
PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
PROJECT BENCHMARK: CLARK COUNTY BENCHMARK 109030N4
NAVD88 ELEVATION: 819.508 METERS (2688.67 FEET)
RIVET AND SQUARE ALUMINUM PLATE IN THE SOUTHWEST CORNER OF A ELECTRICAL CABINET BASE (#00720), 200 FT. SOUTH AND 40 FT. WEST CENTENNIAL PLUM & GRAND CANYON DR.

BASIS OF BEARING
THE BASIS OF BEARINGS FOR THIS PROJECT IS NORTH 00°06'46" WEST BEING THE WEST LINE OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 18, TOWNSHIP 18 SOUTH, RANGE 60 EAST, M.D.M., CLARK COUNTY, NEVADA, AS SHOWN ON A RECORD OF SURVEY ON FILE IN THE CLARK COUNTY, NEVADA, RECORDS OFFICE, IN FILE 114 AT PAGE 57.

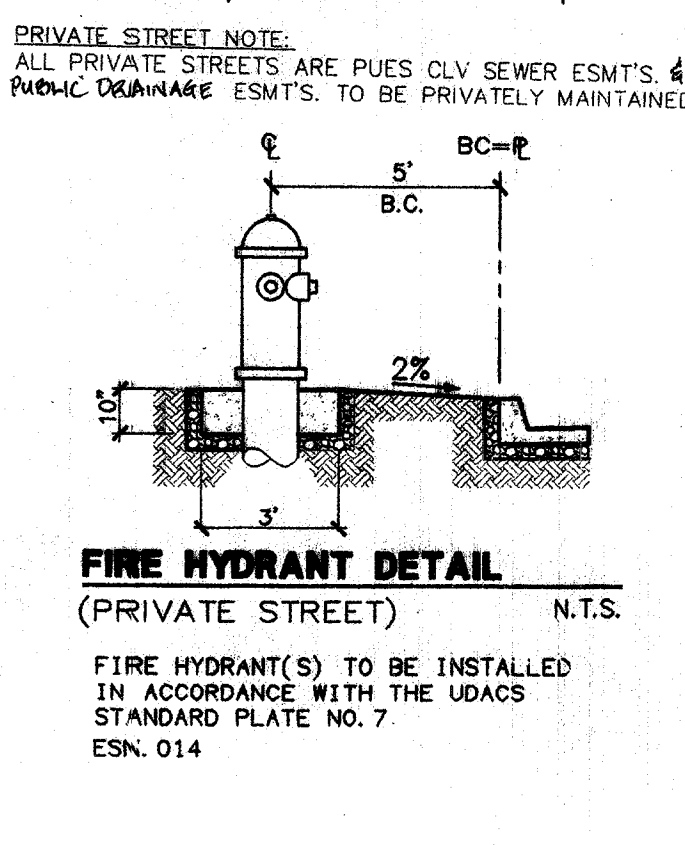
FUTURE SERVICE LATERALS AND METERS
INSTALLATION OF SERVICE LATERALS (1") FOR FUTURE LOTS SHALL BE INSTALLED PER THE UDACS PLATE 10. IF ANY OF THE SERVICE LATERALS TO BE INSTALLED FOR FUTURE LOTS ARE INCORRECTLY LOCATED OR ARE NOT USED FOR ANY REASON WHEN THE LOTS ARE DEVELOPED, THE DEVELOPER SHALL ABANDON THE LATERALS AT THE CONNECTION TO THE ACTIVE MAIN IN ACCORDANCE WITH THE DISTRICT'S STANDARDS AND AT THE DEVELOPER'S EXPENSE.



ESTIMATE OF QUANTITIES/LEGEND

WATER	SEWER
1" FIRE HYDRANT ASSEMBLY (8"x6" TEE & 8"GV)(UDACS PLATE 7)	6 EA.
12"x8" REDUCER	1 EA.
8" TEE	1 EA.
12"-11 1/4" BEND	2 EA.
8"x6" TEE	1 EA.
8" GATE VALVE	8 EA.
8" TEE	4 EA.
8"x6" REDUCER	1 EA.
8"-90° BEND	3 EA.
8"-45° BEND	2 EA.
CAP W/2" B.O. (UDACS PLATE 4)	5 EA.
1" SERVICE W/ 3/4" METER (UDACS PLATE 10)	44 EA.
1" SERVICE W/ 1" METER (UDACS PLATE 10)	5 EA.
6" WATER MAIN (PUBLIC)	310 LF.
8" WATER MAIN (PUBLIC)	2,928 LF.
12" WATER MAIN (PUBLIC)	493 LF.
1/2" SERVICE W/ 1/2" IRRIGATION METER & 2" RPPA (UDACS PLATE 10 & 11A)	1 EA.

SEWER
● STANDARD MANHOLE..... 10 EA.
● 8" SEWER MAIN (PUBLIC)..... 2,658 LF.
● 4" SEWER LATERALS (PRIVATE)..... 1,059 LF.
● 4" SEWER WYES..... 49 EA.
● 6" BACKWATER VALVES (PRIVATE)..... 12 EA.
SEWER CONTRIBUTION (BASED ON 45 LOTS)
AVERAGE DAILY FLOW = 0.0113 MGD.
PEAK FLOW (PF=3.5) = 0.0394 MGD.

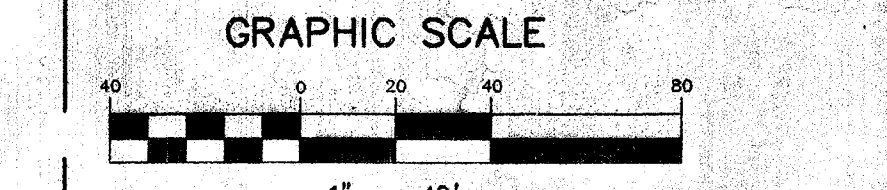


APPROVAL:
CITY OF LAS VEGAS FIRE MARSHAL
DATE: 8-1-02
LAS VEGAS FIRE DISTRICT (SHEET CS, CS, CS)
DATE: 5/21/02
NEVADA POWER COMPANY
NEVADA POWER COMPANY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NEVADA POWER COMPANY RESERVES THE RIGHT TO ADDRESS ANY EXISTING OR FUTURE CONFLICTS ONCE THE FINAL DESIGN IS COMPLETED. THE NEW SERVICE AND THE RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO THE NEVADA PUBLIC UTILITY COMMISSION'S RULES AND REGULATIONS.

WATER CURVE DATA

CURVE	DELTA	RADIUS	LENGTH	TANGENT
C1	3°31'37"	913.50	56.23	28.12
C2	4°38'00"	586.50	47.43	23.73
C3	0°50'48"	913.50	13.50	6.75
C4	2°54'23"	586.50	29.75	14.88
C5	4°06'18"	413.50	29.63	14.82
C6	7°32'25"	813.50	108.72	54.44
C7	3°49'35"	813.50	54.33	27.17
C8	6°43'09"	1186.50	139.14	69.65
C9	4°02'13"	1213.50	85.50	42.77
C10	8°47'34"	486.50	74.66	37.40
C11	0°38'15"	1213.50	13.50	6.75
C12	4°03'16"	813.50	57.56	28.79
C13	8°16'54"	286.50	41.41	20.74
C14	15°22'50"	513.00	137.71	69.27
C15	6°16'23"	336.50	36.84	18.44
C16	4°36'57"	513.00	41.37	20.70
C17	0°58'17"	786.50	13.34	6.67
C18	5°05'48"	786.50	69.96	35.00
C19	0°39'07"	1186.50	13.50	6.75

NOTE:
INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL BLOW FITTING, PER MANUFACTURER'S INSTRUCTIONS.
ESN-062



CONTRACTOR NOTE:
CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

FIRE FLOW CALCULATIONS
FIRE FLOW REQUIREMENT IS 1,500 GALLONS PER MINUTE AT 20 PSI RESIDUAL PRESSURE.
BASED ON:
SQUARE FOOTAGE: <3,600 SQ. FT.
LARGEST AREA BETWEEN 4-HOUR AREA SEPARATION WALLS: 0 SQ. FT.
BUILDING HEIGHT: 20 FEET
NUMBER OF STORIES: 1 FLOOR
TYPE OF CONSTRUCTION: V N
OCCUPANCY: R3/U1
FULL AUTOMATIC FIRE SPRINKLER SYSTEM: NO
REVIEWED BY: [Signature]
DATE: 8-1-02

PERMA-BILT HOMES
7150 POLLOCK DRIVE, SUITE 104
LAS VEGAS, NEVADA, 89119
(702) 888-9100

CITY OF LAS VEGAS, NEVADA
2727 SOUTH RAINBOW BOULEVARD LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 82-2597

ELKHORN/GRAND CANYON

MASTER UTILITY PLAN

CONTRACTOR'S SITE
AARON M. YAMACHKA
CIVIL
NO. 15079

5 of 27 SHEETS
DRAWING NO. 3074-4736-1

REVISIONS

NO.	DATE	BY	REVISION
1	5/21/02	BY	REVISION
2	5/21/02	BY	REVISION
3	5/21/02	BY	REVISION
4	5/21/02	BY	REVISION
5	5/21/02	BY	REVISION
6	5/21/02	BY	REVISION
7	5/21/02	BY	REVISION
8	5/21/02	BY	REVISION
9	5/21/02	BY	REVISION
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24	5/21/02	BY	REVISION
25	5/21/02	BY	REVISION
26	5/21/02	BY	REVISION
27	5/21/02	BY	REVISION