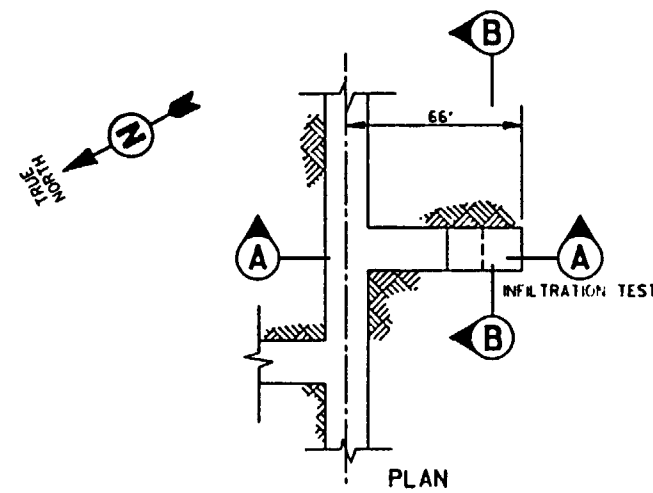


INFILTRATION TEST
REFERENCE: NVO-309 REV 1 APPX B
SCALE: 1" = 30'

NOTES

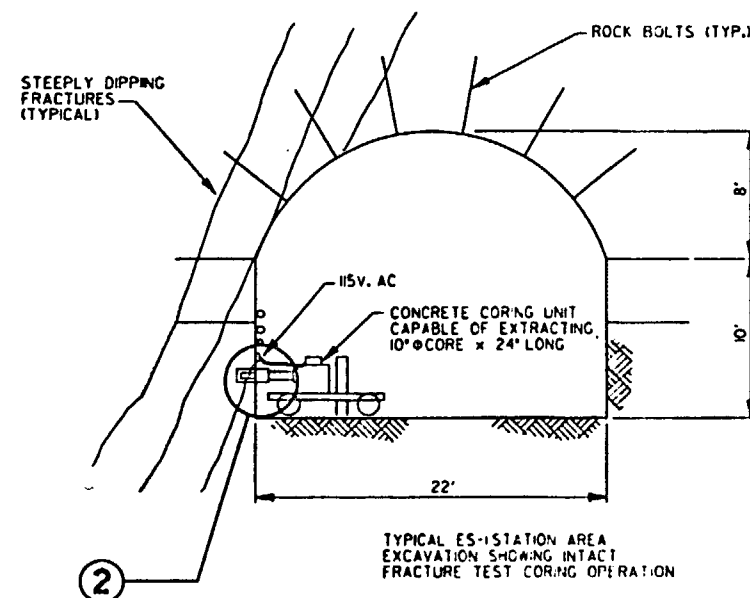
1. ALL HOLES CORED DRY.
2. ALL HOLES DRILLED WITH AIR ONLY.
3. MINE ENTIRE FACILITIES WITHOUT WATER.
4. ROCK BOLT - WIRE MESH SUPPORT.

REFERENCE DRAWINGS

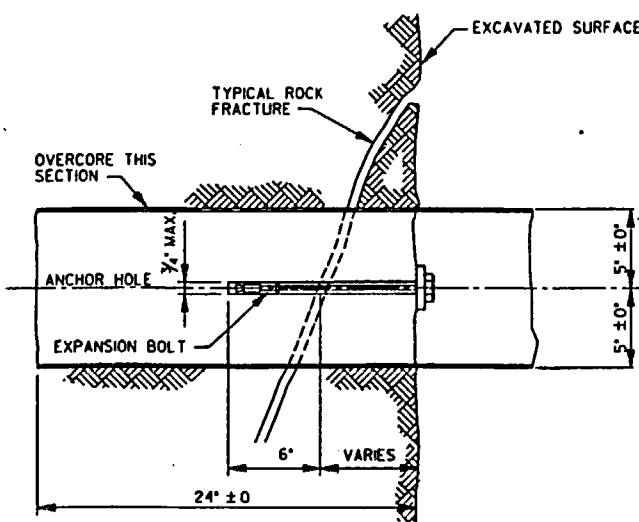
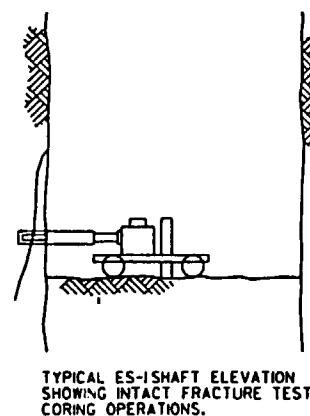
FS-GA-0161 MTL PLAN - TEST AREAS
(GENERAL ARRANGEMENT)

SI
APERTURE
CARD

Also Available On
Aperture Card



INTACT FRACTURE TEST
REFERENCE: NVO-309 REV 1 APPX B
SCALE: 3/16" = 1'-0"



DETAIL
SCALE: NONE

NOTES

1. ALL DRILLING WILL BE DRY.
2. THE HOLE ORIENTATION MAY BE IN ANY DIRECTION, AT THE OPTION OF THE PRINCIPAL INVESTIGATOR.
3. LOCATE ANCHOR BOLTS AS FAR AS POSSIBLE FROM ROCK BOLTS.

REFERENCE DRAWINGS

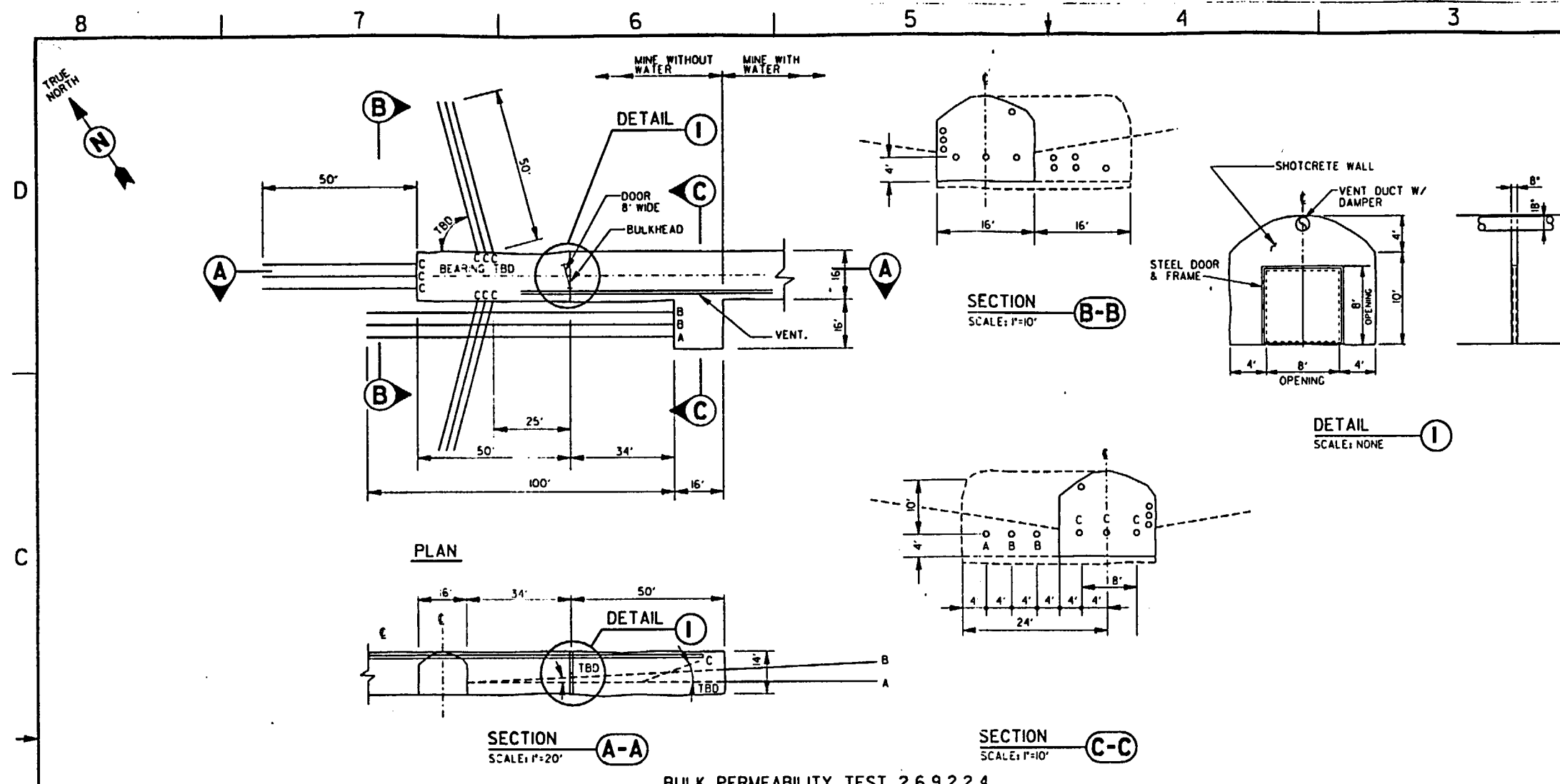
FS-GA-0161 MTL PLAN - TEST AREAS
(GENERAL ARRANGEMENT)

8901040172-61

ITEM	REQD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY MAIN TEST LEVEL - TEST ALCOVES DETAILS - SHEET 1				
DESIGN	JLL	DATE	12-88	
DRAWN	JLL	DATE	12-88	
CHECKED	JAN	DATE	12-88	
PROJ. DES.	BCH	DATE	12-88	
O.A.R.	A-AL	DATE	12-88	
PROJ. MGR.	717	DATE	12-88	
ACCEPTED		DATE	12-88	
W.B.S. NO.			1.2.6.6.0	
DRAWING NO.			FS-GA-0163	
SCALE			NOTED	
DATE				
SHEET 1 OF 1				

3/16" = 1'-0"
1" = 30'

QUALITY LEVELS OF THE ITEMS OR
ACTIVITIES ON THIS DRAWING SHALL
BE FOUND IN THE ESF QUALITY
ASSURANCE LEVEL ASSIGNMENT SHEETS.
(OALAS)



NOTES

- ALL HOLES ARE DRILLED DRY.
- ALL HOLES CAN BE ODEX-4.85" IF REQ'D.
- ORIENTATION TO BE DETERMINED IN FIELD.
- DUST COLLECTION SYSTEM.

REFERENCE DRAWINGS

FS-GA-0161 MTL PLAN - TEST AREAS
GENERAL ARRANGEMENT

REFERENCES

- SDRD, NVO-309, REV. I, APPEND. B
2.6.9.2.2.4-G.A.
- SDRD, NVO-309, REV. I, APPEND. B-NO. + LENGTH OF HOLES.
- DEV. STUDY MIN DRILL SPACE REQ'D.

SI
APERTURE
CARD

Also Available On
Aperture Card

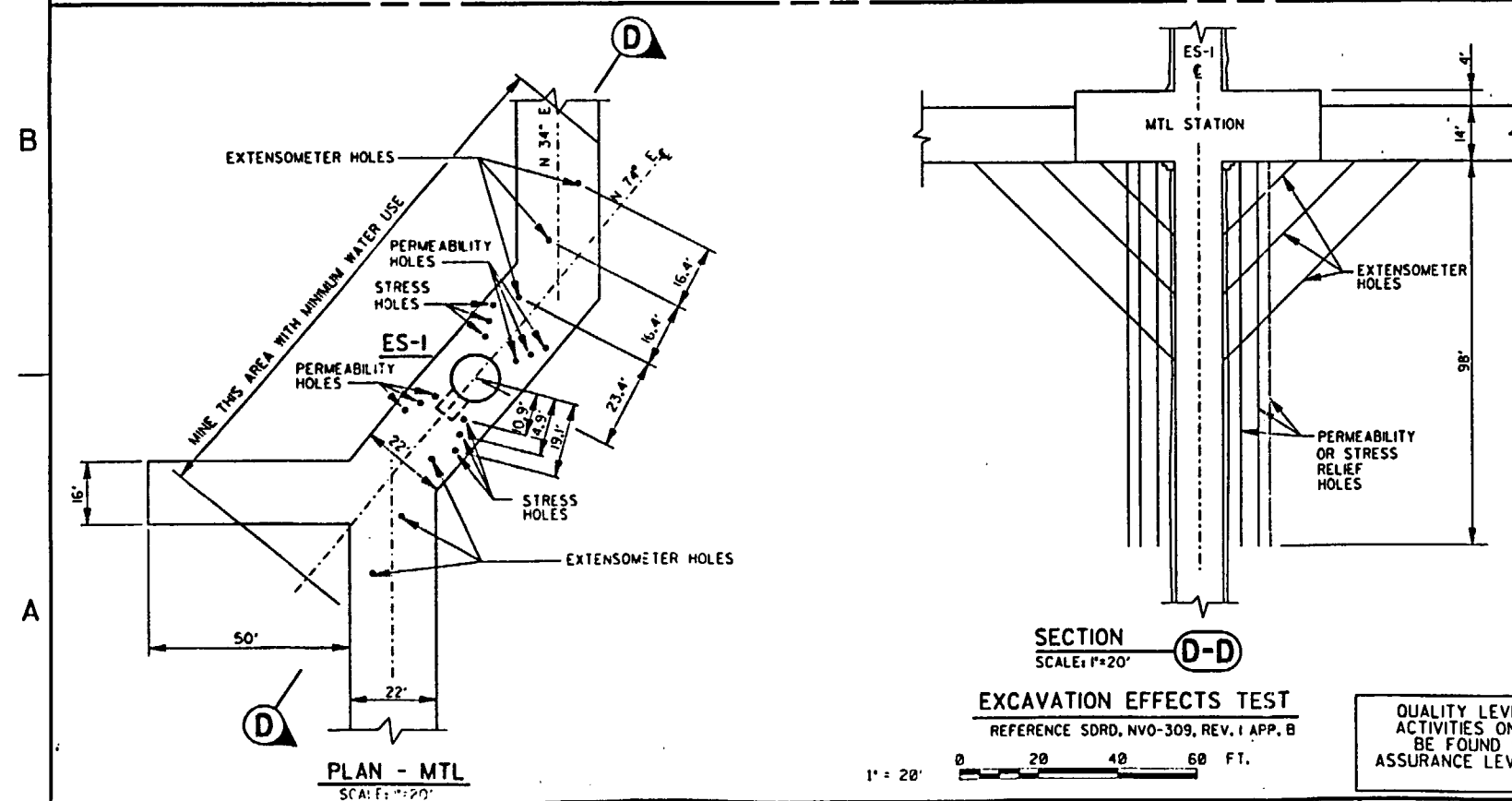
NOTES

- ALL HOLES ARE DRILLED DRY.
- VERTICAL HOLES WILL BE WITHIN 1' OF VERTICAL.
- ALL HOLES WILL BE DRILLED AND INSTRUMENTED PRIOR TO SHAFT SINKING BELOW STATION LEVEL.

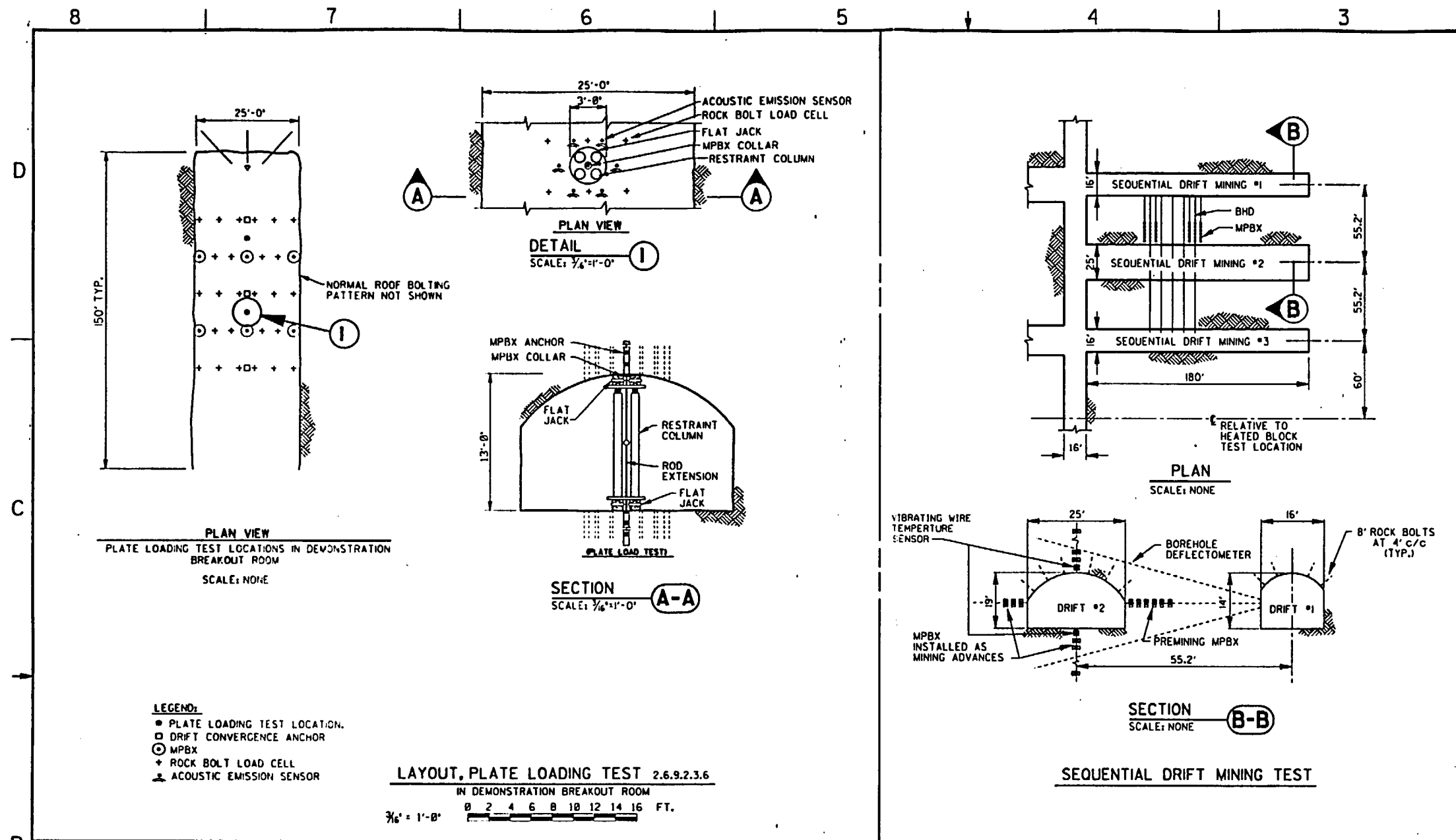
REFERENCE DRAWINGS

FS-GA-0161 MTL PLAN - TEST AREAS
GENERAL ARRANGEMENT

8901040172-62



ITEM	REQD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY				
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC.				
LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT				
EXPLORATORY SHAFT FACILITY				
MAIN TEST LEVEL - TEST ALCOVES				
DETAILS - SHEET 2				
DESIGN	CHK	DATE	W.B.S. NO.	REV.
DRAWN	R.H.	12-8-88	12.6.6.0	C
CHECKED	J.A.H.	12-8-88	SCALE	DATE
PROJ. MGR.	B.C.H.	12-8-88	NOTED	
QA/QC	A.A.L.	12-8-88		
PROJ. MGR.	217	12-8-88		
ACCEPTED				
THIRD				
DRAWING NO. FS-GA-0164				SHEET 1 OF 1



NO.	DATE	REVISION	DES.	DRN.	CHK.	P.D.M.	O.A.R.	P.M.	Y.M.P.O.

NOTES

- FOR MASTER LEGEND OF GRAPHIC SYMBOLS, SEE DRAWINGS FS-GA-0003 & FS-GA-0004
- FOR ABBREVIATIONS AND ACRONYMS, SEE DRAWING FS-GA-0005
- SOME SYMBOLS ARE REPEATED ON THIS DRAWING FOR EASE OF IDENTIFICATION.

REFERENCE DRAWING

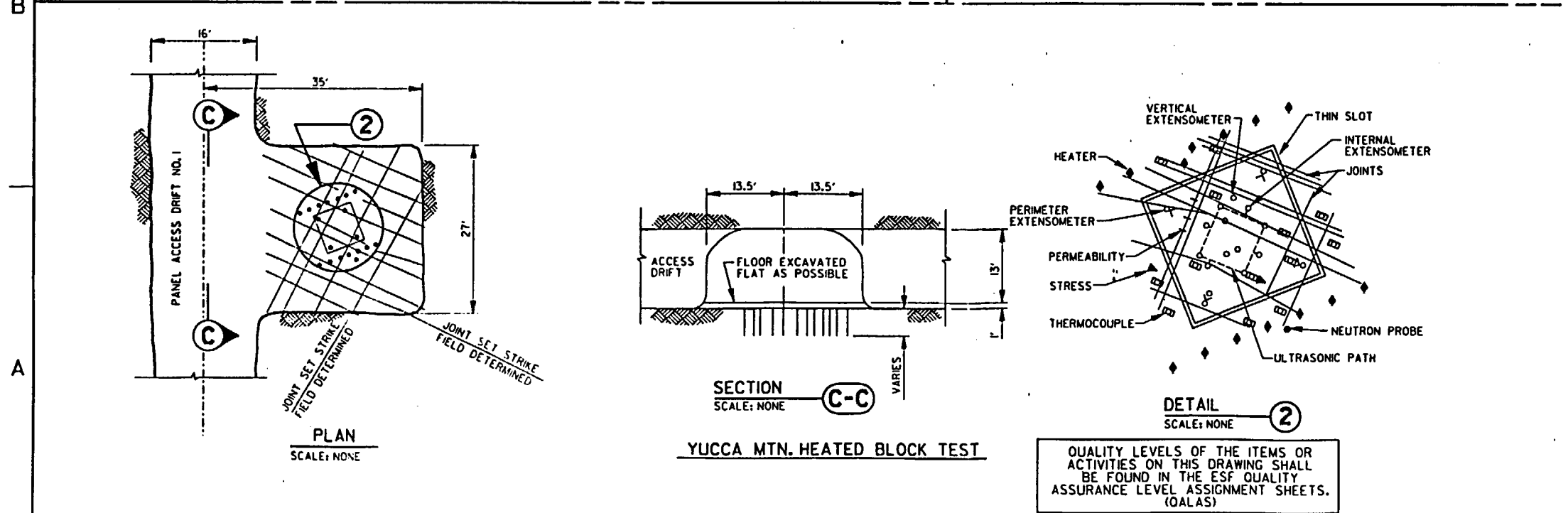
FS-GA-0161 MTL PLAN - TEST AREAS
GENERAL ARRANGEMENT

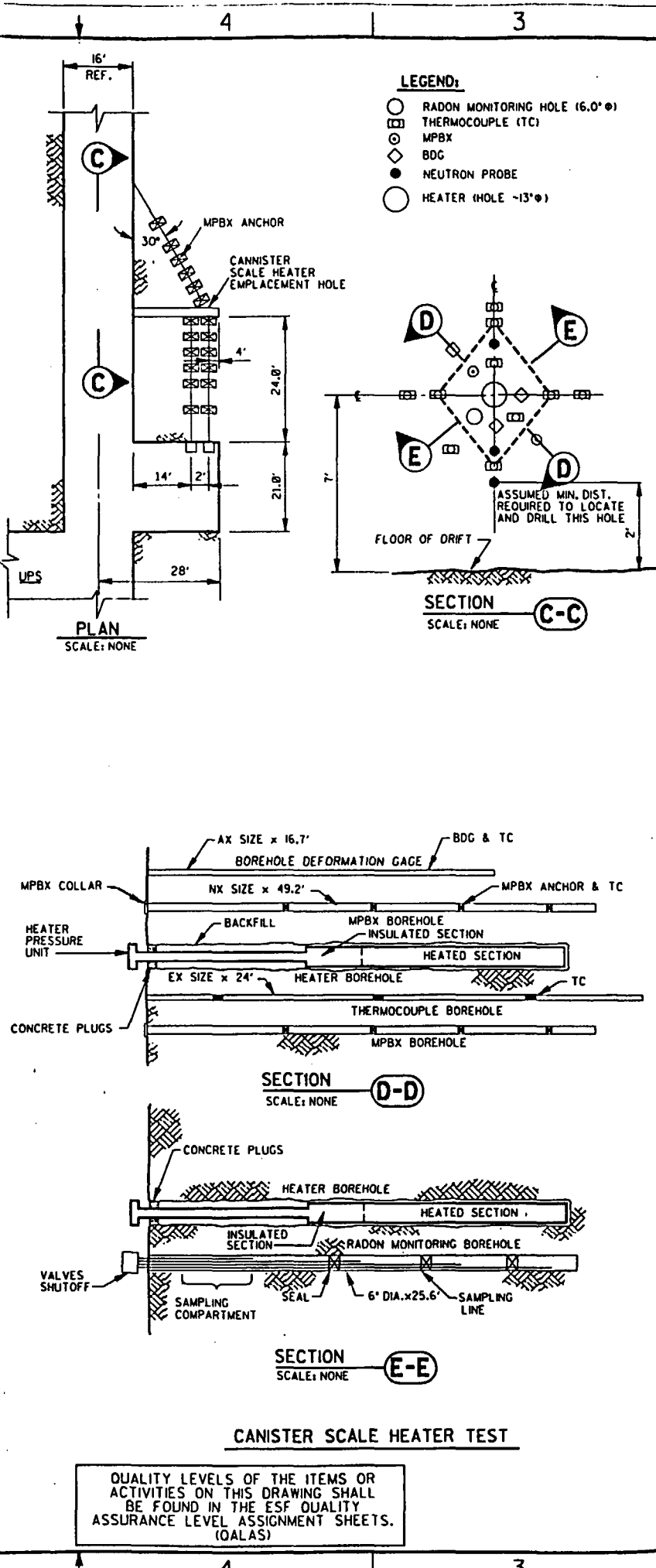
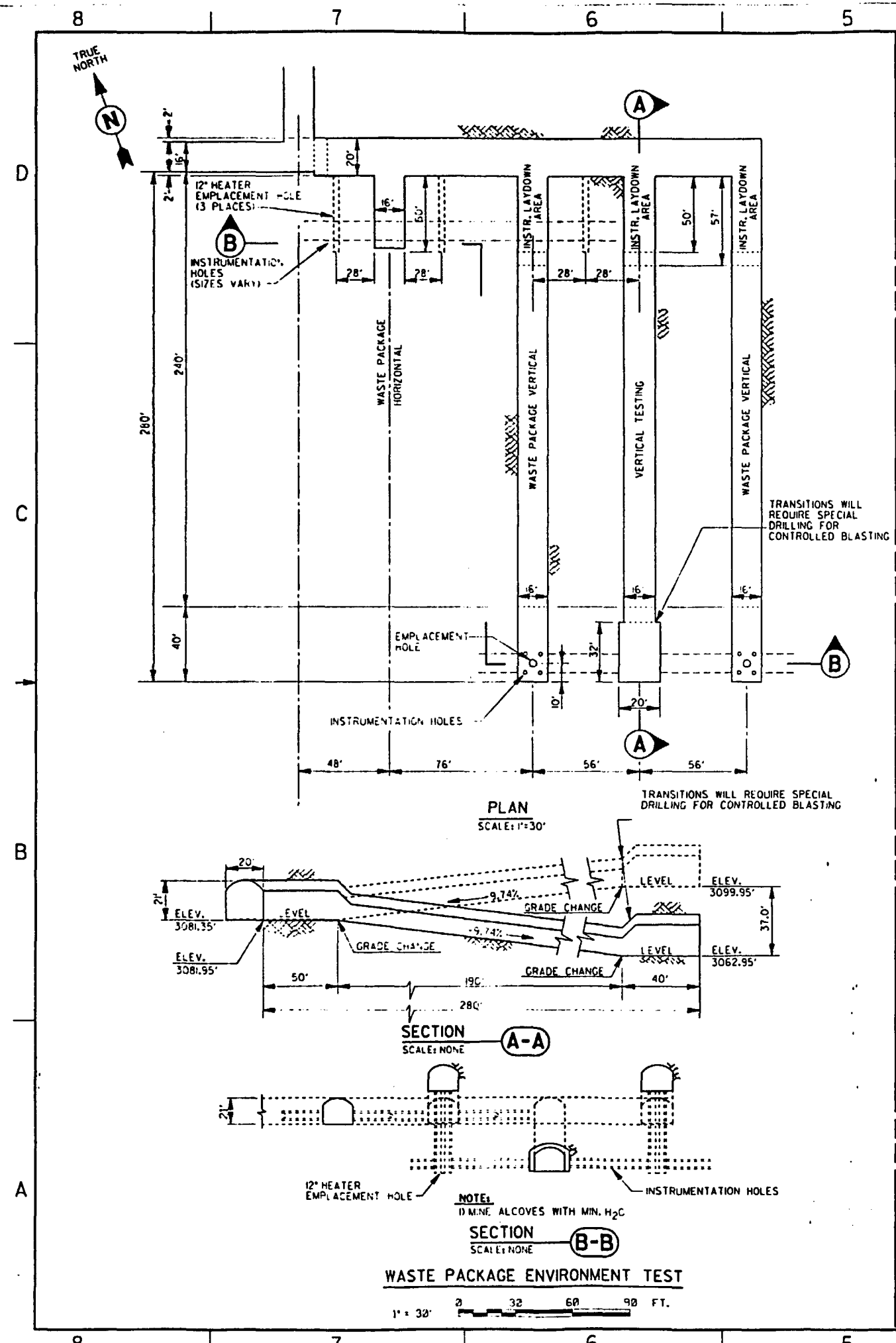
SI APERTURE CARD

Also Available On Aperture Card

8901040172-63

ITEM	REQD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY				
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC.				
LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT				
EXPLORATORY SHAFT FACILITY				
MAIN TEST LEVEL - TEST ALCOVES				
DETAILS - SHEET 3				
APPROVALS	DATE			
DESIGN	11/2/88			
DRAWN	J.L.M.			
CHECKED	J.L.M.			
PROJ. MGR.	B.C.H.			
QA/QC	A.A.U.			
PROJ. MGR.	11/2/88			
ACCEPTED	11/2/88			
W.B.S. NO.	1.2.6.6.0			
DRAWING NO.	FS-GA-0165			
SCALE	NOTED			
DATE				
SHEET	1 OF 1			





NO.	DATE	REVISION	DES.	DRN.	CHK.	P.D.M.	C.A.R.	P.M.	Y.M.P.D.
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NOTES

- FOR SYMBOLS, SEE DRAWING FS-GA-003 & FS-GA-0004
- SOME SYMBOLS ARE REPEATED ON THIS DRAWING FOR EASE OF IDENTIFICATION.

REFERENCE DRAWINGS

FS-GA-0161 MTL - TEST AREAS
GENERAL ARRANGEMENT

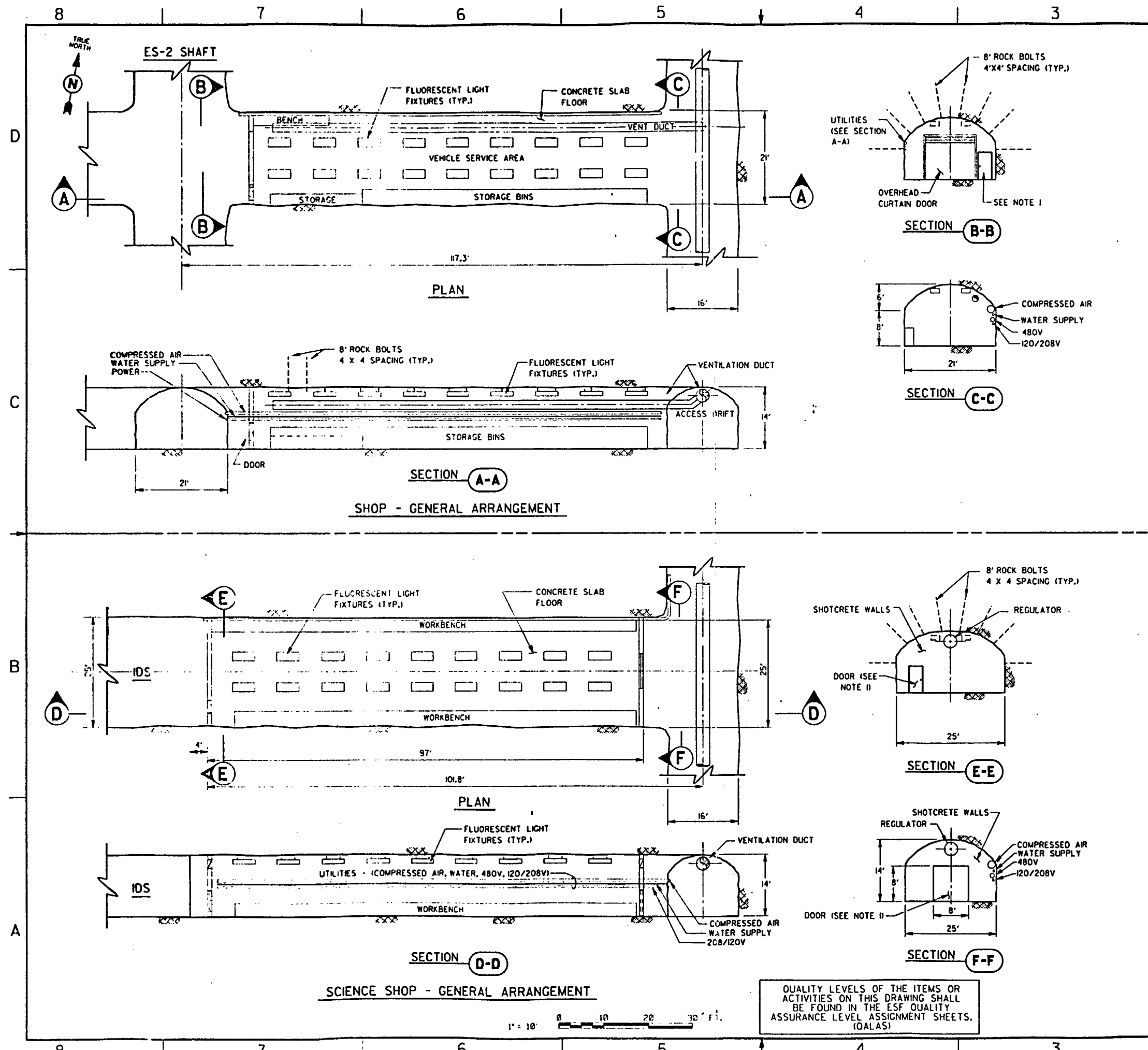
ITEM	RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY MAIN TEST LEVEL - TEST ALCOVES DETAILS - SHEET 4				
W.B.S. NO. 1.2.6.6.0			DRAWING NO. FS-GA-0166	
SCALE NOTED			DATE	
SHEET 1 OF 1			REV. C	

SI
APERTURE
CARD

Also Available On
Aperture Card

890.1040172-64

QUALITY LEVELS OF THE ITEMS OR ACTIVITIES ON THIS DRAWING SHALL BE FOUND IN THE ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEETS. (OALAS)



2		1	
NO. DATE	REVISION	DES. DRN. CHK. P.D.M. O.A.R. P.M. Y.M.P.O.	

NOTE

1. FOR CROSS SECTIONS & DETAILS OF DOORS
SEE DRAWING NO. FS-GA-0180

REFERENCE DRAWINGS

FS-GA-0160	MTL PLAN - DIMENSIONAL GENERAL ARRANGEMENT
FS-GA-0180	SUBSURFACE MISCELLANEOUS TYPICAL DETAILS

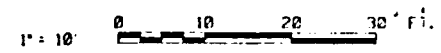
SI APERTURE CARD

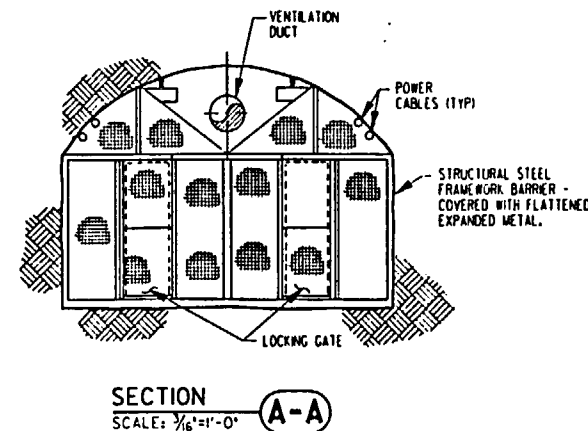
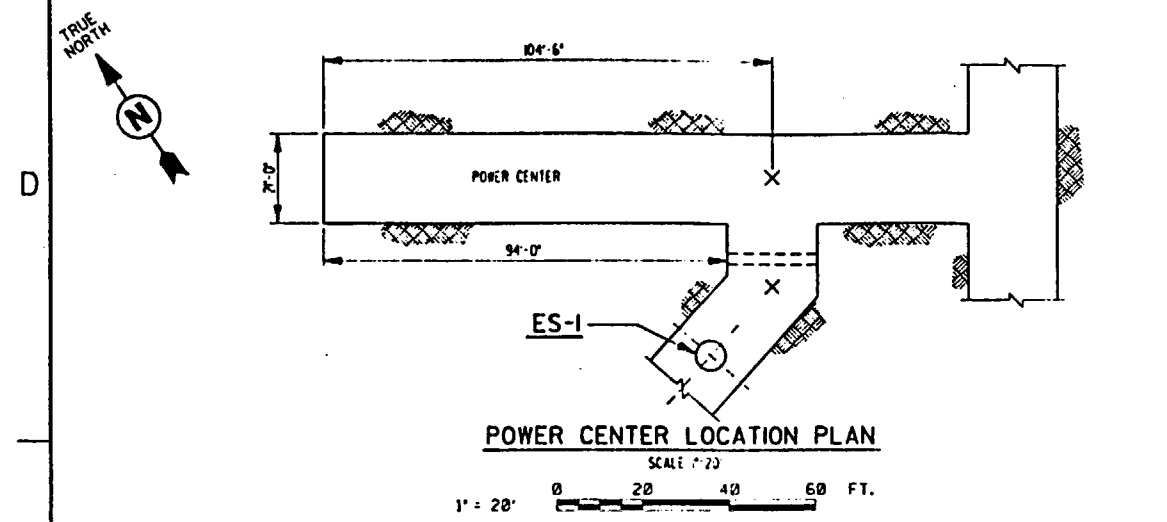
Also Available On Aperture Card

890.1040172-45

ITEM	RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY MTL - SERVICE & UTILITY AREA DETAILS - SHEET 1				
APPROVALS		DATE		
DESIGN	J.O.E.	12-8-81		
DRAWN	J.O.E.	12-8-81		
CHECKED	J.A.H.	12-8-81		
PROJ. MGR.	B.C.H.	12-8-81		
QA/QC	A.A.U.	12-8-81		
PROJ. MGR. ACCEPTED	T.T.T.	12-8-81		
W.B.S. NO.		DRAWING NO.		REV.
1.2.6.6.0		FS-GA-0171		C
SCALE		DATE		SHEET 1 OF 1
1"=10'				

QUALITY LEVELS OF THE ITEMS OR ACTIVITIES ON THIS DRAWING SHALL BE FOUND IN THE ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEETS. (OALAS)



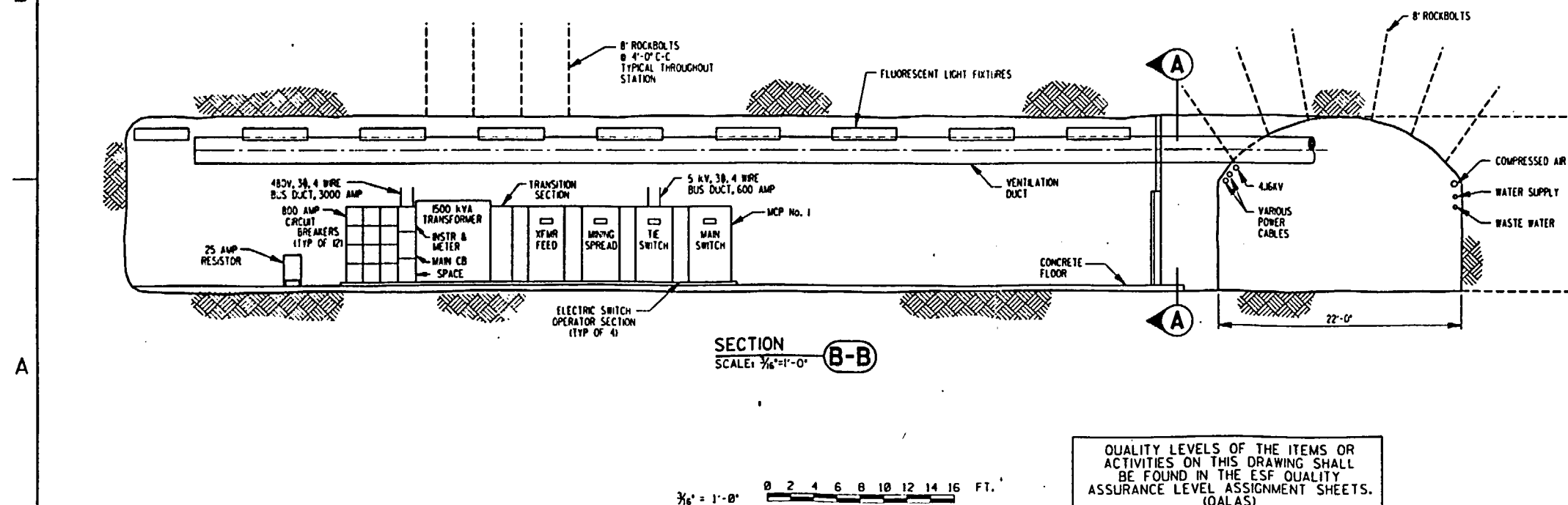
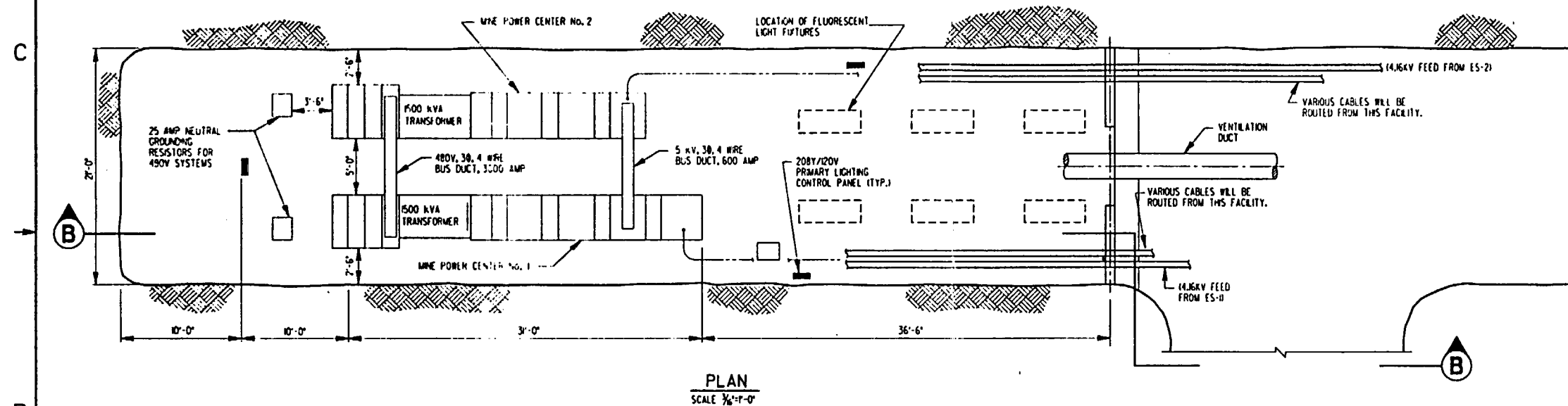


NOTE

1. FOR LOCATION OF POWER CENTER RELATIVE TO
MTL PLAN, SEE DRAWING FS-GA-0160.

REFERENCE DRAWING

FS-GA-0160 MTL PLAN - DIMENSIONAL
GENERAL ARRANGEMENT



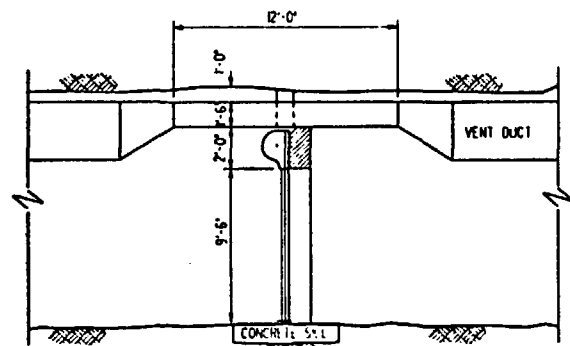
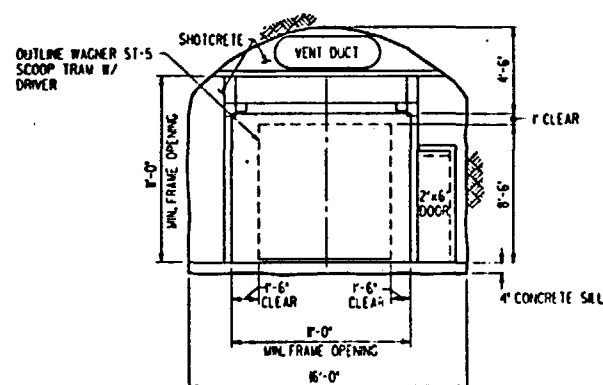
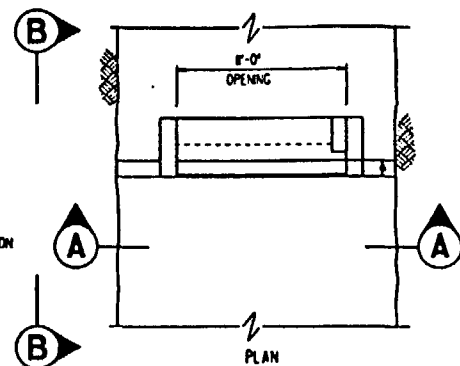
SI APERTURE CARD

**Also Available On
Aperture Card**

890.1040172-66

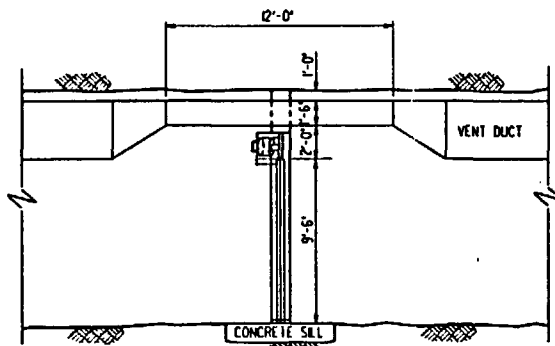
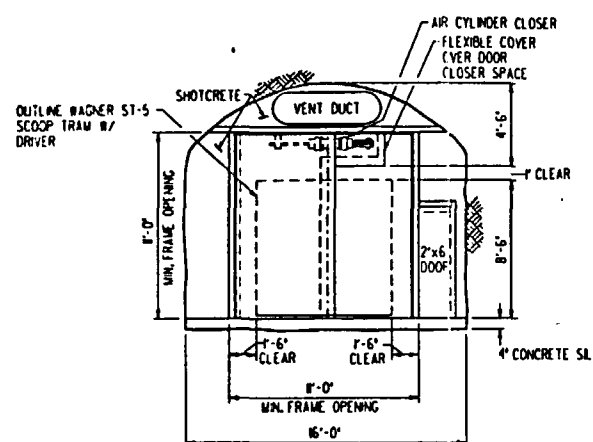
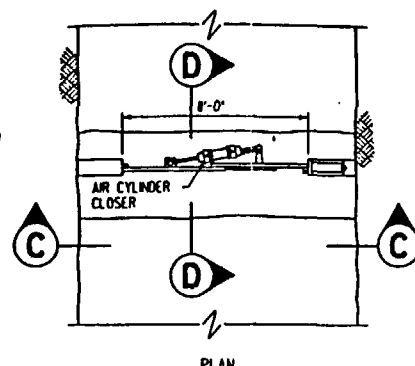
ITEM		REOD MATERIAL		DESCRIPTION		DWG. NO.
U.S. DEPARTMENT OF ENERGY						
NEVADA OPERATIONS OFFICE				LAS VEGAS, NEVADA		
APPROVALS		DATE		FENIX & SCISSON, INC.		
				LAS VEGAS, NEVADA		
DESIGN	R.G.	R-08		YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY MTL-SERVICE & UTILITY AREA DETAILS—SHEET 2		
DRAWN	R.G.	9-88				
CHECKED	JAH	11-88				
PROLL DFL. MGR.	B.-CH.	12-8-88				
S.A.R.	A.D.L.	12-8-88				
PROLL MGR.	T.H.	12-8-88				
ACCEPTED	JS	12-8-88		W.B.S. NO. 1.2.6.6.O DRAWING NO. FS-GA-0172 REV. C		
TYPEO						
				SCALE NOTED DATE SHEET 1 OF 1		

- NOTES:
1. ELECTRICALLY POWERED ROLL-UP TYPE DOOR
 2. DOOR MATERIAL: FLEXIBLE, NONFLAMMABLE
 3. DOOR APPLICABLE TO 16' AND WIDER EXCAVATION WIDTHS

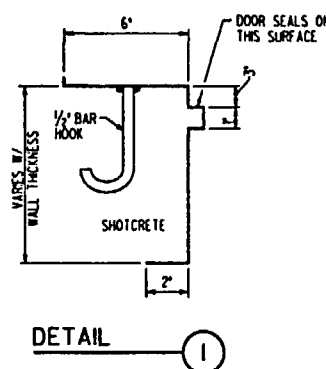
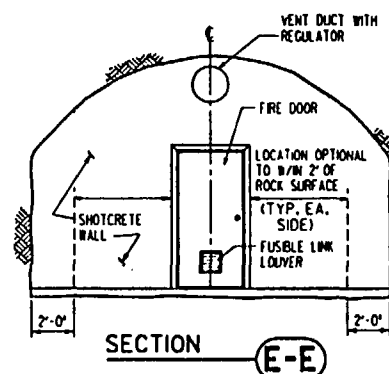
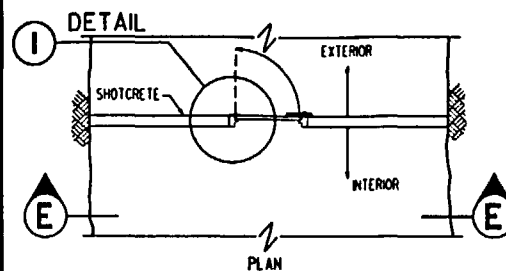


TYPICAL AIR CONTROL DOOR
FOR MOBILE EQUIPMENT PASSTHROUGH
LOCATE WHERE REQUIRED

- NOTES:
1. AIR CYLINDER VALVES ACTUATED BY SOLENOID SWITCHES
 2. DOOR MATERIAL: OPTIONAL
 3. DOOR ARRANGEMENT IS APPLICABLE TO 16' AND WIDER DRIFTS



ALTERNATE AIR CONTROL DOOR ACROSS
ACCESS DRIFT
LOCATE WHERE REQUIRED



TYPICAL MAN DOOR IN SHOTCRETE WALLS
ACROSS ALCOVES
LOCATE WHERE REQUIRED

REFERENCE DRAWINGS

- | | |
|------------|--|
| FS-GA-0150 | ES-1 UDBR LEVEL PLAN |
| FS-GA-0171 | MTL-SERVICE & UTILITY AREA DETAILS-SHEET 1 |

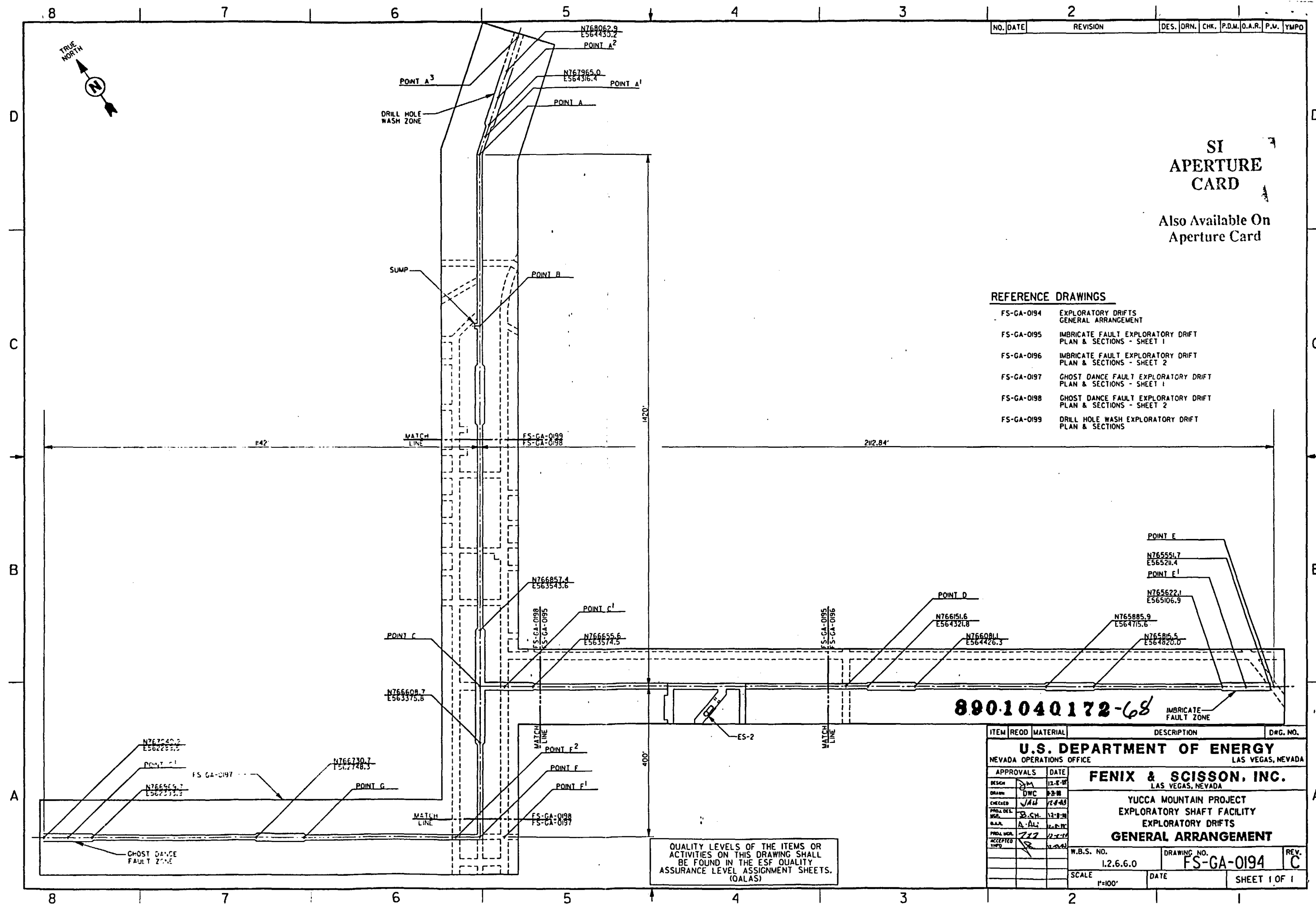
SI APERTURE CARD

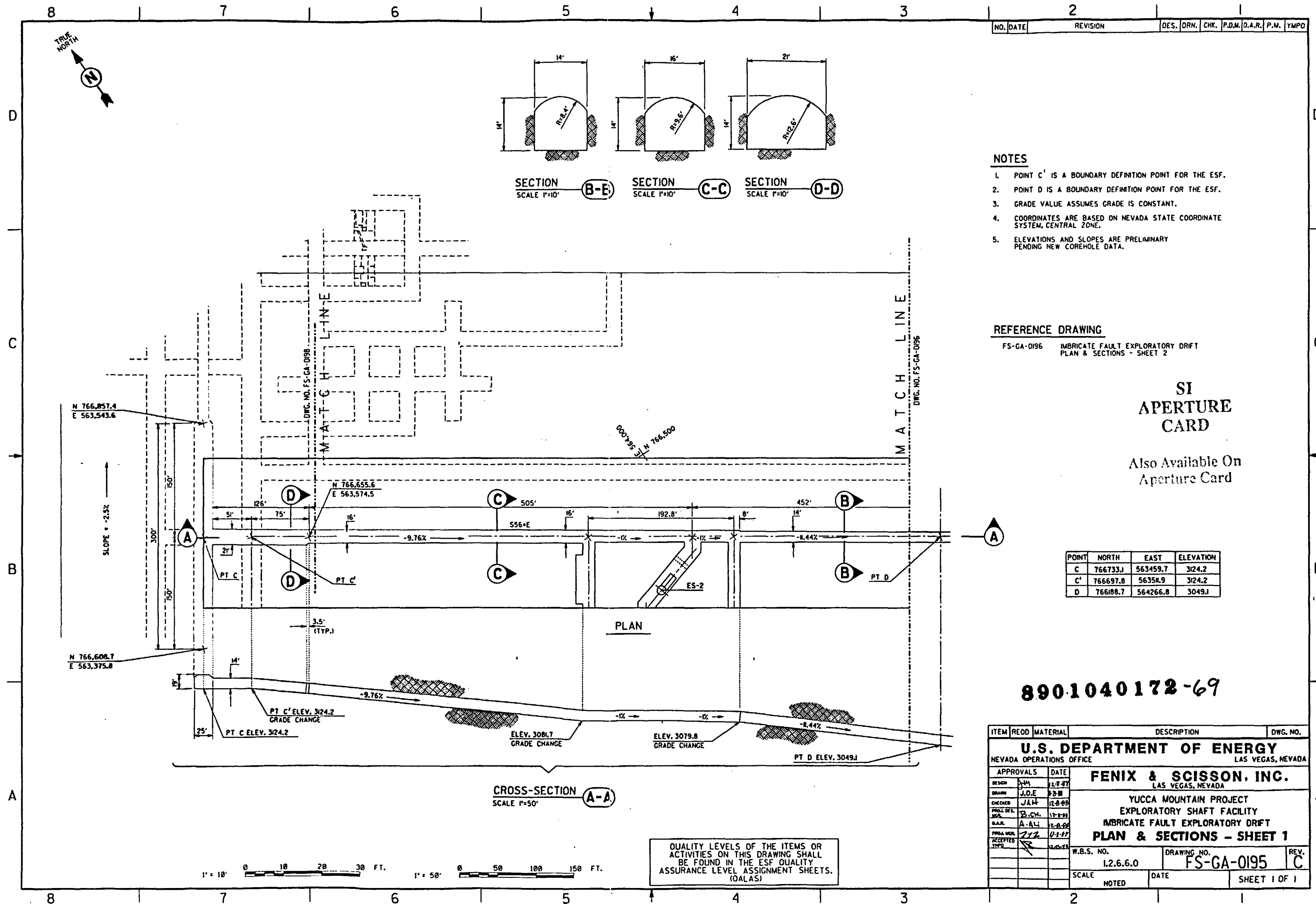
Also Available On
Aperture Card

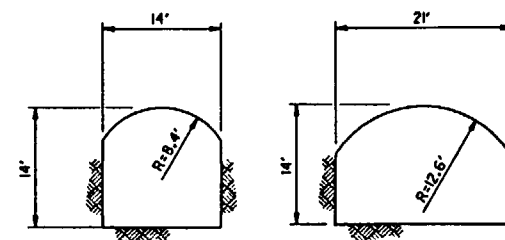
890.1040172-67

QUALITY LEVELS OF THE ITEMS OR
ACTIVITIES ON THIS DRAWING SHALL
BE FOUND IN THE ESF QUALITY
ASSURANCE LEVEL ASSIGNMENT SHEETS.
(OALAS)

ITEM	RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY				
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC.				
LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT				
EXPLORATORY SHAFT FACILITY				
SUBSURFACE MISCELLANEOUS				
TYPICAL DETAILS				
W.B.S. NO.		DRAWING NO.		REV.
1.2.6.6.0		FS-GA-0180		C
SCALE		DATE		SHEET 1 OF 1
NONE				







SECTION B-B
SCALE: 1" = 10'

SECTION C-C
SCALE: 1" = 10'

000595
JUN 766.000

NOTES

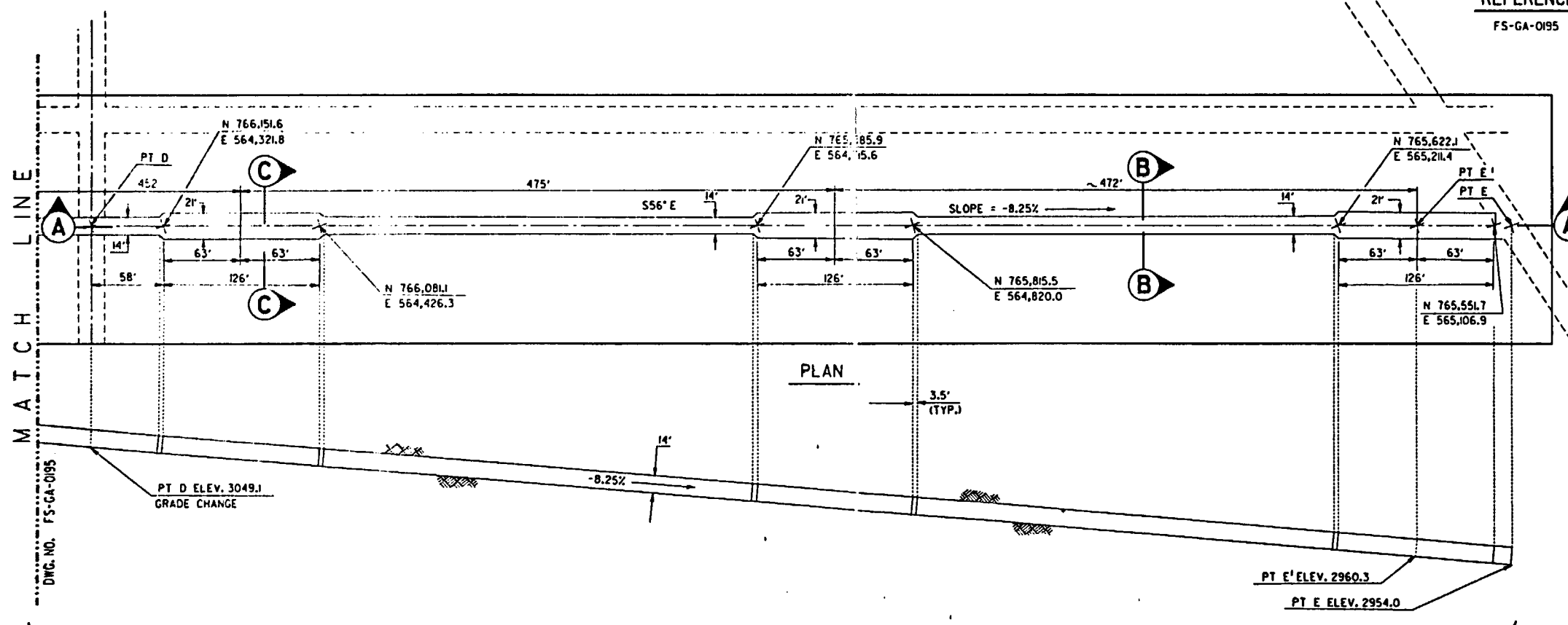
1. POINT D IS A BOUNDARY DEFINITION POINT FOR THE ESF.
2. POINT E' IS A PROJECTED INTERSECTION OF THE SURFACE TRACE OF THE SUSPECTED IMBRICATE FAULT ZONE AT THE REPOSITORY LEVEL.
3. POINT E IS A CONTROL POINT TO GIVE SLOPE AND BEARING TO THE EXPLORATORY DRIFT FROM POINT C TO THE PERIMETER DRIFT.
4. COORDINATES ARE BASED ON NEVADA STATE COORDINATE SYSTEM, CENTRAL ZONE.
5. ELEVATIONS AND SLOPES ARE PRELIMINARY PENDING NEW COREHOLE DATA.

REFERENCE DRAWING

FS-GA-0195 IMBRICATE FAULT EXPLORATORY DRIFT
PLAN & SECTIONS - SHEET 1

SI
APERTURE
CARD

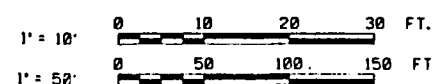
Also Available On
Aperture Card



POINT	NORTH	EAST	ELEVATION
D	766188.7	564266.8	3049.1
E'	765587.0	565158.9	2960.3
E	765543.9	565222.7	2954.0

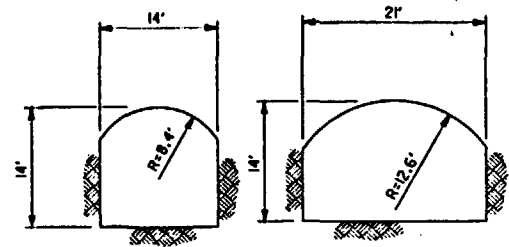
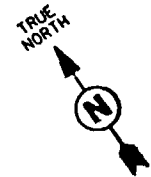
890.1040172-70

CROSS-SECTION A-A
SCALE: 1" = 50'



QUALITY LEVELS OF THE ITEMS OR
ACTIVITIES ON THIS DRAWING SHALL
BE FOUND IN THE ESF QUALITY
ASSURANCE LEVEL ASSIGNMENT SHEETS.
(OALAS)

ITEM	RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
APPROVALS DESIGN: J.M. DRAWN: J.O.E. CHECKED: J.A.H. PROJ. DES. / SPEC.: B.C.H. S.A.S.: A.B.U. PROJ. MGR.: Z.T. ACCEPTED: [Signature]			DATE: 12-8-90 12-8-90 12-8-90 12-8-90 12-8-90 12-8-90	
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY IMBRICATE FAULT EXPLORATORY DRIFT PLAN & SECTIONS - SHEET 2				
W.B.S. NO. 1.2.6.6.0			DRAWING NO. FS-GA-0196	
SCALE NOTED			DATE SHEET 1 OF 1	



SECTION B-B SCALE: 1" = 10'

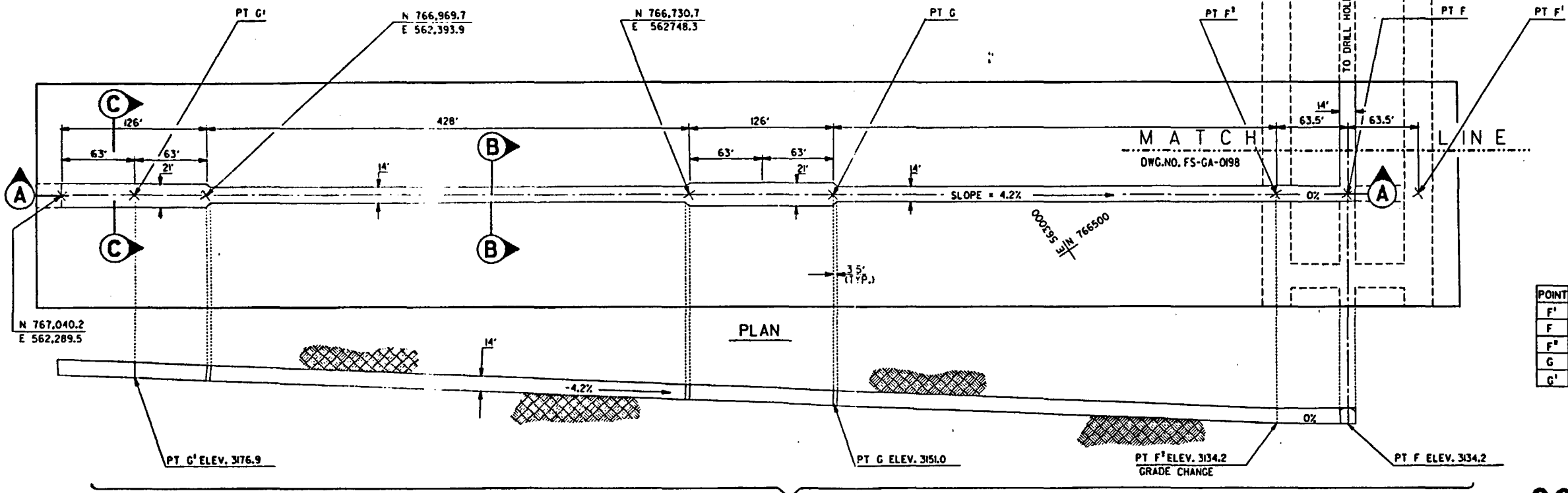
SECTION C-C SCALE: 1" = 10'

000395
JUN 767000

- NOTES**
- F.F', F' and G' GIVE SLOPE AND BEARING DEFINITION FOR THE EXPLORATORY DRIFT FROM THE MAINS TOWARD THE GHOST DANCE STRUCTURE.
 - G' IS A PROJECTION OF THE SURFACE TO REPOSITORY LEVEL OF THE GHOST DANCE ZONE.
 - COORDINATES ARE BASED ON NEVADA STATE COORDINATE SYSTEM, CENTRAL ZONE.
 - ELEVATIONS AND SLOPES ARE PRELIMINARY PENDING NEW COREHOLE DATA.

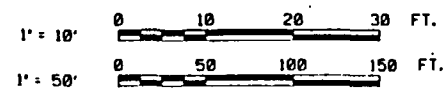
REFERENCE DRAWING
FS-GA-0198 GHOST DANCE FAULT EXPLORATORY DRIFT PLAN & SECTIONS

SI APERTURE CARD
Also Available On Aperture Card



POINT	NORTH	EAST	ELEVATION
F'	766366.4	563288.4	3134.2
F	766401.6	563236.2	3134.2
F'	766436.9	563183.9	3134.2
G	766660.2	562852.8	3151.0
G'	767005.0	562341.7	3176.9

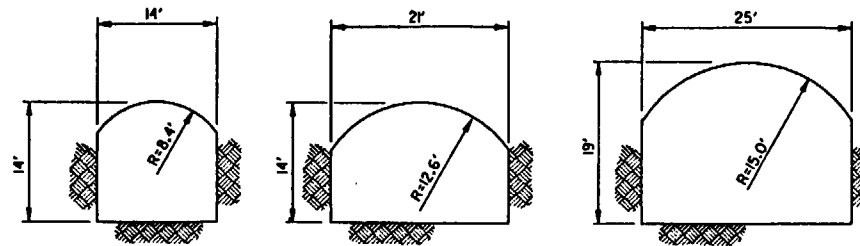
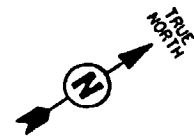
CROSS-SECTION A-A SCALE: 1" = 50'



QUALITY LEVELS OF THE ITEMS OR ACTIVITIES ON THIS DRAWING SHALL BE FOUND IN THE ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEETS. (OALAS)

8901040172-71

ITEM	REQD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY				
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC.				
LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT				
EXPLORATORY SHAFT FACILITY				
GHOST DANCE FAULT EXPLORATORY DRIFT				
PLAN & SECTIONS - SHEET 1				
W.B.S. NO. 1.2.6.6.0				
DRAWING NO. FS-GA-0197				
REV. C				
SCALE NOTED				
DATE				
SHEET 1 OF 1				



SECTION B-B SCALE: 1" = 10'
SECTION C-C SCALE: 1" = 10'
SECTION D-D SCALE: 1" = 10'

NOTES

1. POINT C' IS A BOUNDARY DEFINITION POINT FOR THE ESF.
2. COORDINATES ARE BASED ON NEVADA STATE COORDINATE SYSTEM, CENTRAL ZONE.
3. ELEVATIONS AND SLOPES ARE PRELIMINARY PENDING NEW COREHOLE DATA.

REFERENCE DRAWINGS

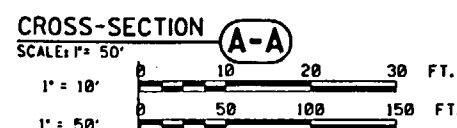
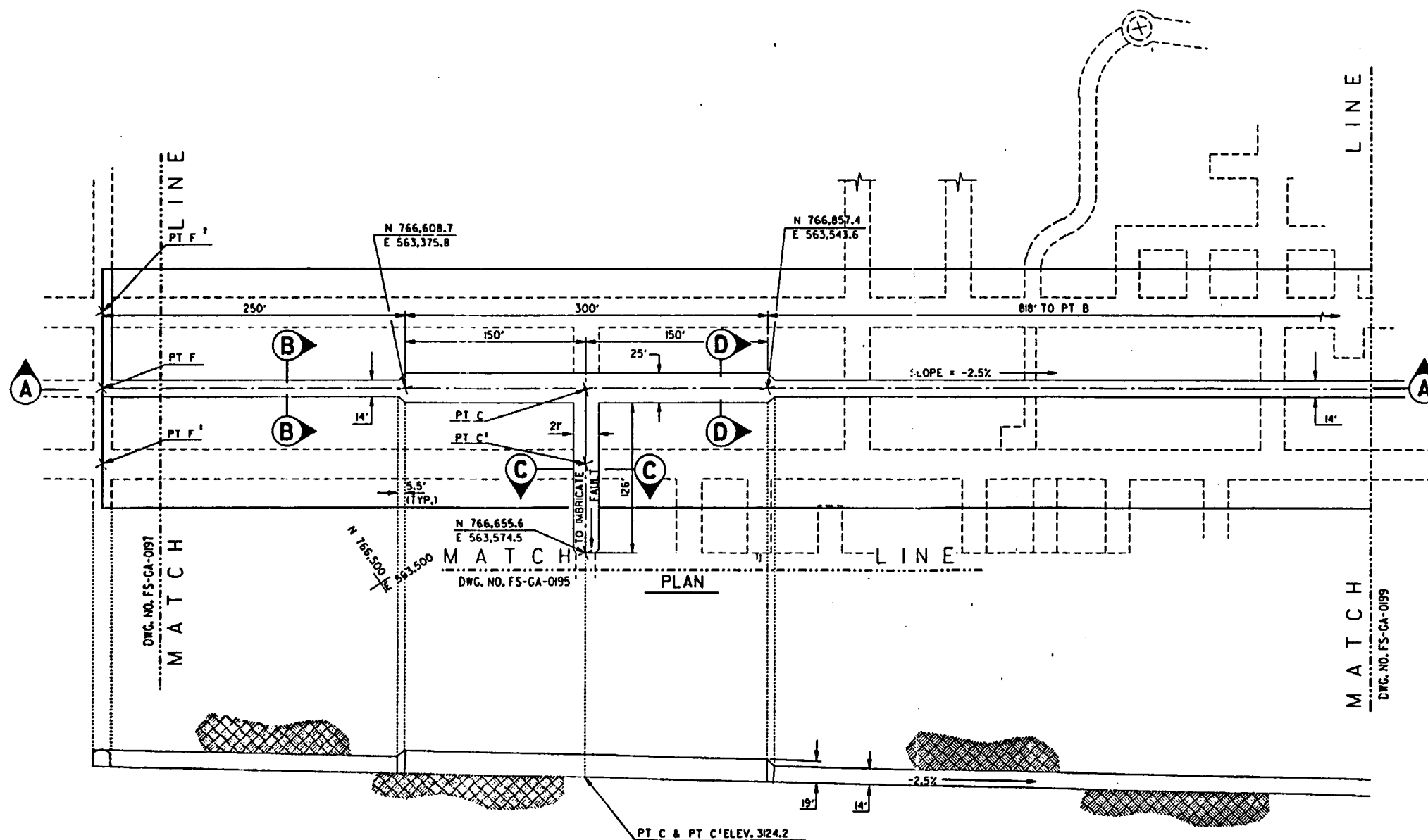
- FS-GA-0197 GHOST DANCE FAULT EXPLORATORY DRIFT PLAN & SECTIONS - SHEET 1
FS-GA-0199 DRILL HOLE WASH FAULT EXPLORATORY DRIFT PLAN & SECTIONS

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Also Available On
Aperture Card

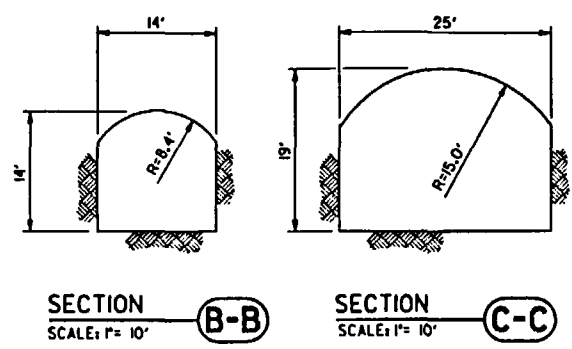
POINT	NORTH	EAST	ELEVATION
C	766733.1	563459.7	3124.2
C'	766697.8	563581.9	3124.2

8901040172-72



QUALITY LEVELS OF THE ITEMS OR
ACTIVITIES ON THIS DRAWING SHALL
BE FOUND IN THE ESF QUALITY
ASSURANCE LEVEL ASSIGNMENT SHEETS.
(OALAS)

ITEM	RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY GHOST DANCE FAULT EXPLORATORY DRIFT PLAN & SECTIONS - SHEET 2				
APPROVALS		DATE		
DESIGN	J.M.	12-1-11		
DRAWN	J.O.E.	12-8-11		
CHECKED	J.M.	12-8-11		
PROJ. MGR.	D.C.H.	12-8-11		
S.A.R.	A.A.U.	12-8-11		
PROJ. MGR.	T.J.	12-8-11		
ACCEPTED				
TITLE				
W.B.S. NO.		DRAWING NO.		REV.
12.6.6.0		FS-GA-0198		C
SCALE		DATE		SHEET 1 OF 1
NOTED				



- NOTES
1. POINT A' IS A BACKSIGHT TO ESTIMATE BEARING AND SLOPE FOR THE TUFF RAMP.
 2. POINT A IS THE TURNING POINT FOR TUFF RAMP ALIGNMENT.
 3. POINT A' IS THE INTERSECTION OF THE PROJECTED SURFACE TRACE OF THE DRILL HOLE WASH STRUCTURE AND THE TUFF RAMP.
 4. POINTS A AND A' ARE ESTIMATES OF THE EXTREME LOCATIONS AT WHICH THE TUFF RAMP WILL INTERSECT THE DRILL HOLE WASH STRUCTURE.
 5. POINT B (POINT OF ENTRY) LOCATES THE SLOPE CHANGE FROM THE REPOSITORY TO THE TUFF RAMP.
 6. COORDINATES ARE BASED ON NEVADA STATE COORDINATE SYSTEM, CENTRAL ZONE.
 7. ELEVATIONS AND SLOPES ARE PRELIMINARY PENDING NEW COREHOLE DATA.

REFERENCE DRAWING
FS-GA-0198 GHOST DANCE FAULT EXPLORATORY DRIFT
PLAN & SECTIONS - SHEET 2

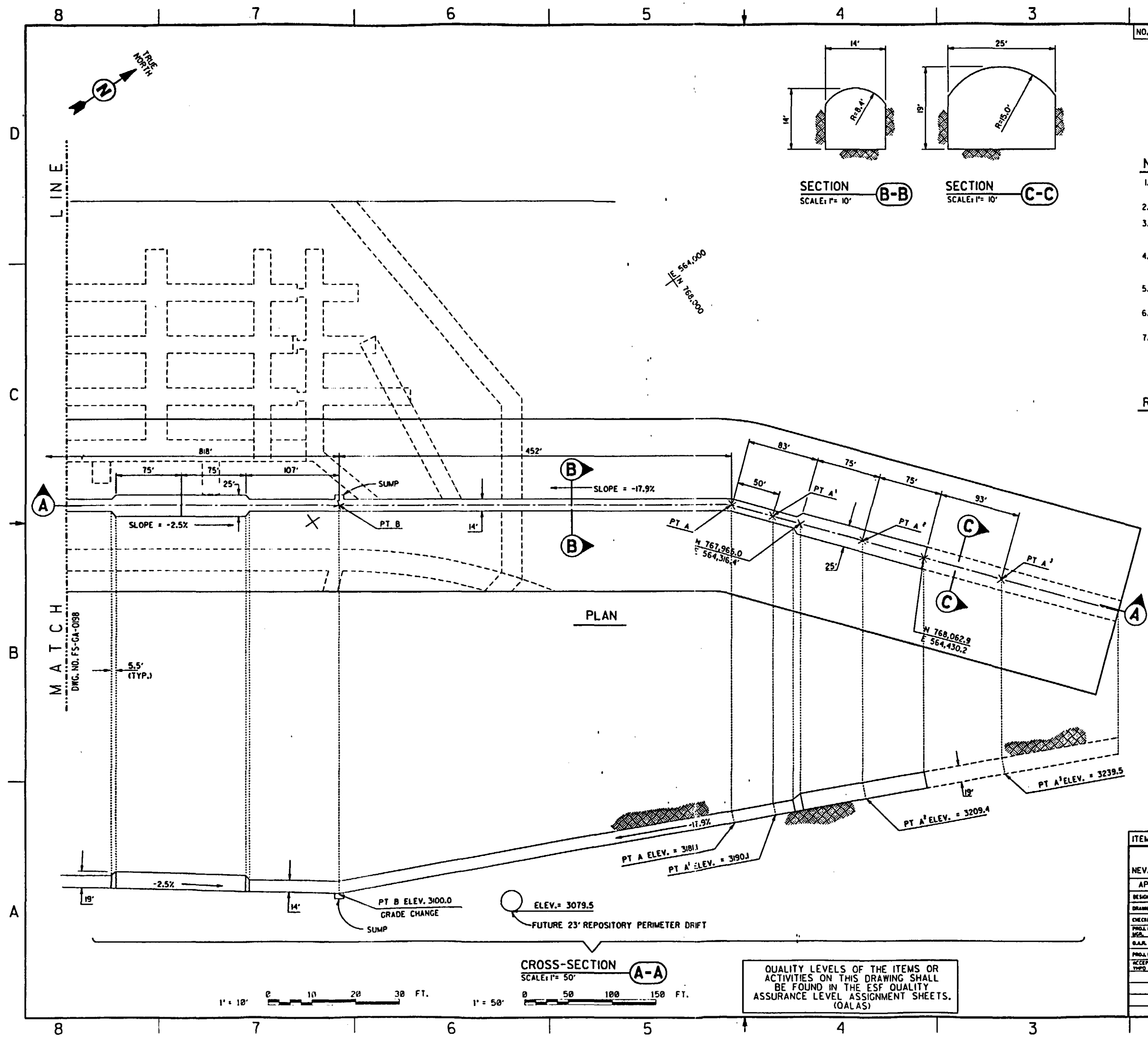
SI
APERTURE
CARD

Also Available On
Aperture Card

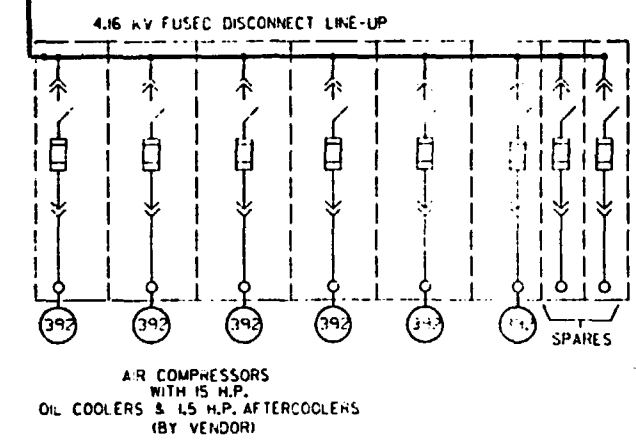
POINT	NORTH	EAST	ELEVATION
A ¹	768124.7	564500.2	3239.5
A ²	768014.4	564373.4	3209.4
A ³	767943.7	564292.0	3190.1
A	767910.7	564254.0	3181.1
B	767535.2	564000.8	3100.0

8901040172-73

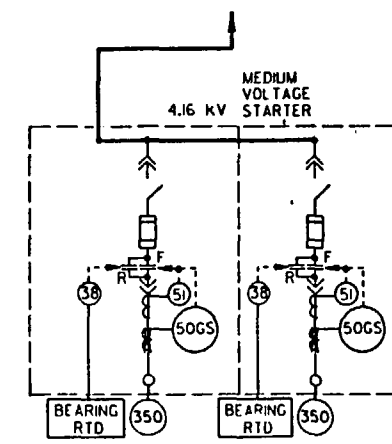
ITEM	REQD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY				
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
APPROVALS		DATE	FENIX & SCISSON, INC.	
DESIGN		12-1-77	LAS VEGAS, NEVADA	
DRAWN		J.O.E. 7-8-78	YUCCA MOUNTAIN PROJECT	
CHECKED		J.A.H. 12-8-80	EXPLORATORY SHAFT FACILITY	
PROL. DEL. MOD.		B.C.H. 12-8-80	DRILL HOLE WASH FAULT EXPLORATORY DRIFT	
O.A.R.		A.H.I. 12-8-80	PLANS & SECTIONS	
PROL. MOD. ACCEPTED		7-77 12-1-77		
			W.B.S. NO.	DRAWING NO.
			1.2.6.6.0	FS-GA-0199
			SCALE	REV.
			NOTED	C
			DATE	SHEET 1 OF 1



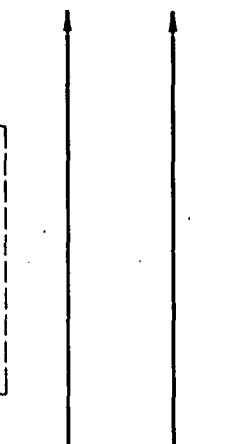
TO 4.16 KV SWITCHGEAR AT HOIST HOUSE SEE H&N DWG JS-025-ESF-E4
TO 4.16 KV SWITCHGEAR AT STAND-BY GENERATOR HOUSE SEE H&N DWG JS-025-ESF-E3



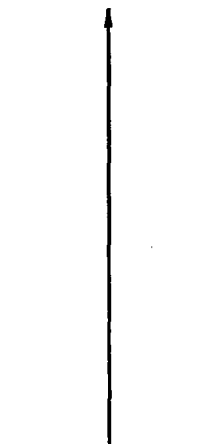
TO 4.16 KV SURFACE SWITCHGEAR MPP-3 SEE H&N DWG JS-025-ESF-E4



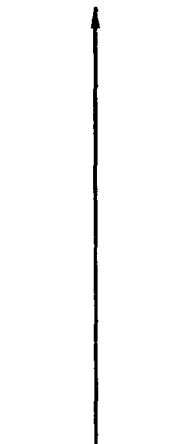
TO 4.16 KV SWITCHGEAR AT HOIST HOUSE SEE H&N DWG JS-025-ESF-E4
TO PMDS-7 TO PMDS-6



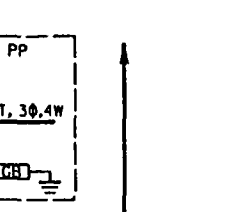
TO 208V SURFACE PANEL HFP-1 SEE H&N DWG JS-025-ESF-E4



TO 208V SURFACE PANEL HFP-2 SEE H&N DWG JS-025-ESF-E4



TO 480V SURFACE DISTRIBUTION PANEL PP-1 AT HOIST HOUSE SEE H&N DWG JS-025-ESF-E4



NOTES

- FOR MASTER LEGEND OF GRAPHIC SYMBOLS, SEE DRAWINGS FS-GA-0003 & FS-GA-0004.
- SOME LOADS ARE APPROXIMATE AND MAY BE SUBJECT TO CHANGE.
- SEE NOTE 4 ON DWG. FS-GA-0201.
- TEMPORARY PANELS WILL BE USED FOR PERMANENT HEADFRAME AND COLLAR AREA POWER REQUIREMENTS DURING OPERATIONS.

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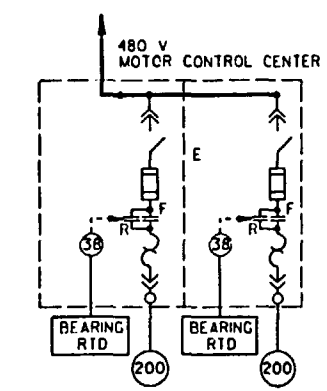
REFERENCE DRAWINGS

- | | | |
|---------------|--|---------------------------------|
| FS-GA-0003 | TITLE I LEGEND, SHEET 1 | Also Available On Aperture Card |
| FS-GA-0004 | TITLE I LEGEND, SHEET 2 | |
| FS-GA-0005 | TITLE I ABBREVIATIONS & ACRONYMS | |
| FS-GA-0201 | SUBSURFACE ELECTRICAL - SHEET 1 ONE LINE DIAGRAM | |
| JS-025-ESF-E3 | NON-ESSENTIAL POWER ONE LINE DIAGRAM | |
| JS-025-ESF-E4 | ESSENTIAL POWER ONE LINE DIAGRAM | |

ES-1 SHAFT ES-2 SHAFT
5 KV, 3/C WIRE ARMORED MINE POWER CABLE, TYPE MPP WITH GROUND CHECK CONDUCTOR

TO MTL LEVEL MINE PWR. CENTERS (REF. DWG. FS-GA-0201)

ES-2 SURFACE VENTILATION FAN (OPERATING & STANDBY)
TO 480V SURFACE POWER PANEL PP-1 SEE H&N DWG JS-025-ESF-E4



ES-1 HOIST 900 HP (2x450 HP) EXISTING
ES-2 HOIST 1500 HP EXISTING
GOVERNMENT FURNISHED EQUIPMENT

(7.5 KW) ES-1 SHAFT

(7.5 KW) ES-2 SHAFT

ES-1 TO UDBR LEVEL 480V POWER (REF. DWG. FS-GA-0201)

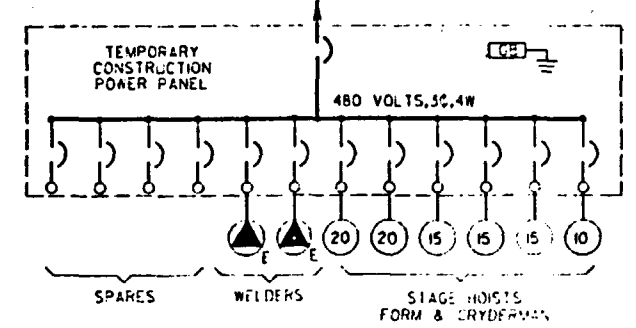
TO SKV FUSED DISCONNECT SWITCH AT COLLAR AREAS SEE H&N DWG JS-025-ESF-E4

PORTABLE SHAFT HEATER 1670 KW
ES-1

PORTABLE SHAFT HEATER 1380 KW
ES-2

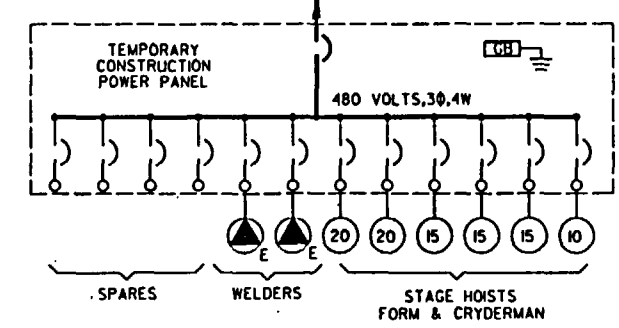
8901040172-74

TO 480 V SURFACE POWER PANEL PP-1 SEE H&N DWG JS-025-ESF-E4 (SEE NOTE 4)



ES-1 SHAFT SINKING AND OUTFITTING EQUIPMENT

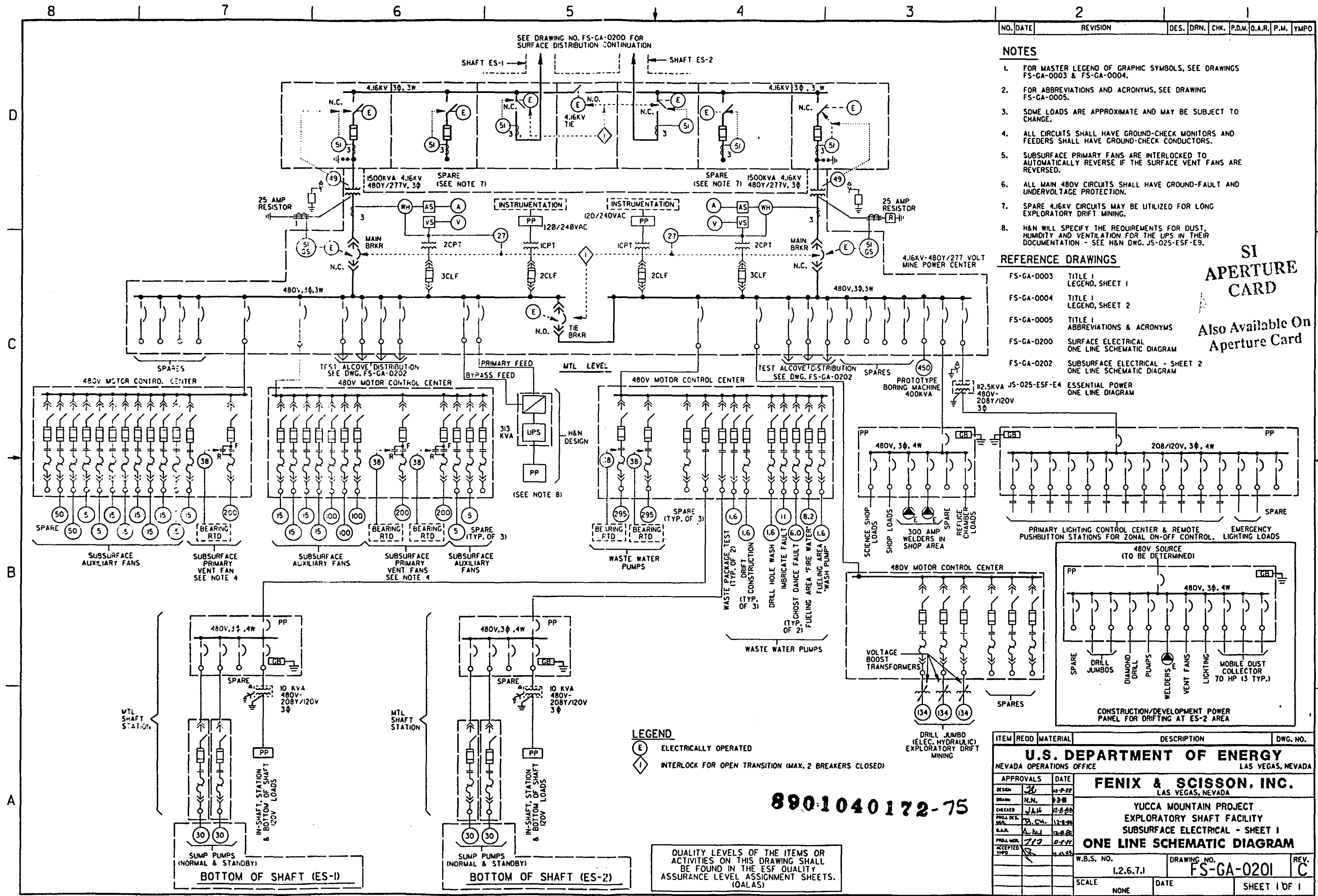
TO 480 V SURFACE POWER PANEL PP-2 SEE H&N DWG JS-025-ESF-E4 (SEE NOTE 4)



ES-2 SHAFT SINKING AND OUTFITTING EQUIPMENT

QUALITY LEVELS OF THE ITEMS OR ACTIVITIES ON THIS DRAWING SHALL BE FOUND IN THE ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEETS. (OALAS)

ITEM	RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY SURFACE ELECTRICAL ONE LINE SCHEMATIC DIAGRAM				
W.B.S. NO.		DRAWING NO.		REV.
1.2.6.7.1		FS-GA-0200		C
SCALE		DATE		SHEET 1 OF 1
NONE				



NO.	DATE	REVISION	DES.	DRN.	CHK.	P.D.M.	O.A.R.	P.M.	Y.M.P.O.
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- NOTES**
- FOR MASTER LEGEND OF GRAPHIC SYMBOLS, SEE DRAWINGS FS-GA-0003 & FS-GA-0004.
 - FOR ABBREVIATIONS AND ACRONYMS, SEE DRAWING FS-GA-0005.
 - SOME LOADS ARE APPROXIMATE AND MAY BE SUBJECT TO CHANGE.
 - ALL CIRCUITS SHALL HAVE GROUND-CHECK MONITORS AND FEEDERS SHALL HAVE GROUND-CHECK CONDUCTORS.
 - SUBSURFACE PRIMARY FANS ARE INTERLOCKED TO AUTOMATICALLY REVERSE IF THE SURFACE VENT FANS ARE REVERSED.
 - ALL MAIN 480V CIRCUITS SHALL HAVE GROUND-FAULT AND UNDERVOLTAGE PROTECTION.
 - SPARE 4.16KV CIRCUITS MAY BE UTILIZED FOR LONG EXPLORATORY DRIFT MINING.
 - H&N WILL SPECIFY THE REQUIREMENTS FOR DUST, HUMIDITY AND VENTILATION FOR THE UPS IN THEIR DOCUMENTATION - SEE H&N DWG. JS-025-ESF-E9.
- REFERENCE DRAWINGS**
- | | |
|------------|--|
| FS-GA-0003 | TITLE I LEGEND, SHEET 1 |
| FS-GA-0004 | TITLE I LEGEND, SHEET 2 |
| FS-GA-0005 | TITLE I ABBREVIATIONS & ACRONYMS |
| FS-GA-0200 | SURFACE ELECTRICAL ONE LINE SCHEMATIC DIAGRAM |
| FS-GA-0202 | SUBSURFACE ELECTRICAL - SHEET 2 ONE LINE SCHEMATIC DIAGRAM |
- SI APERTURE CARD**
Also Available On Aperture Card

- LEGEND**
- (E) ELECTRICALLY OPERATED
 - (I) INTERLOCK FOR OPEN TRANSITION (MAX. 2 BREAKERS CLOSED)

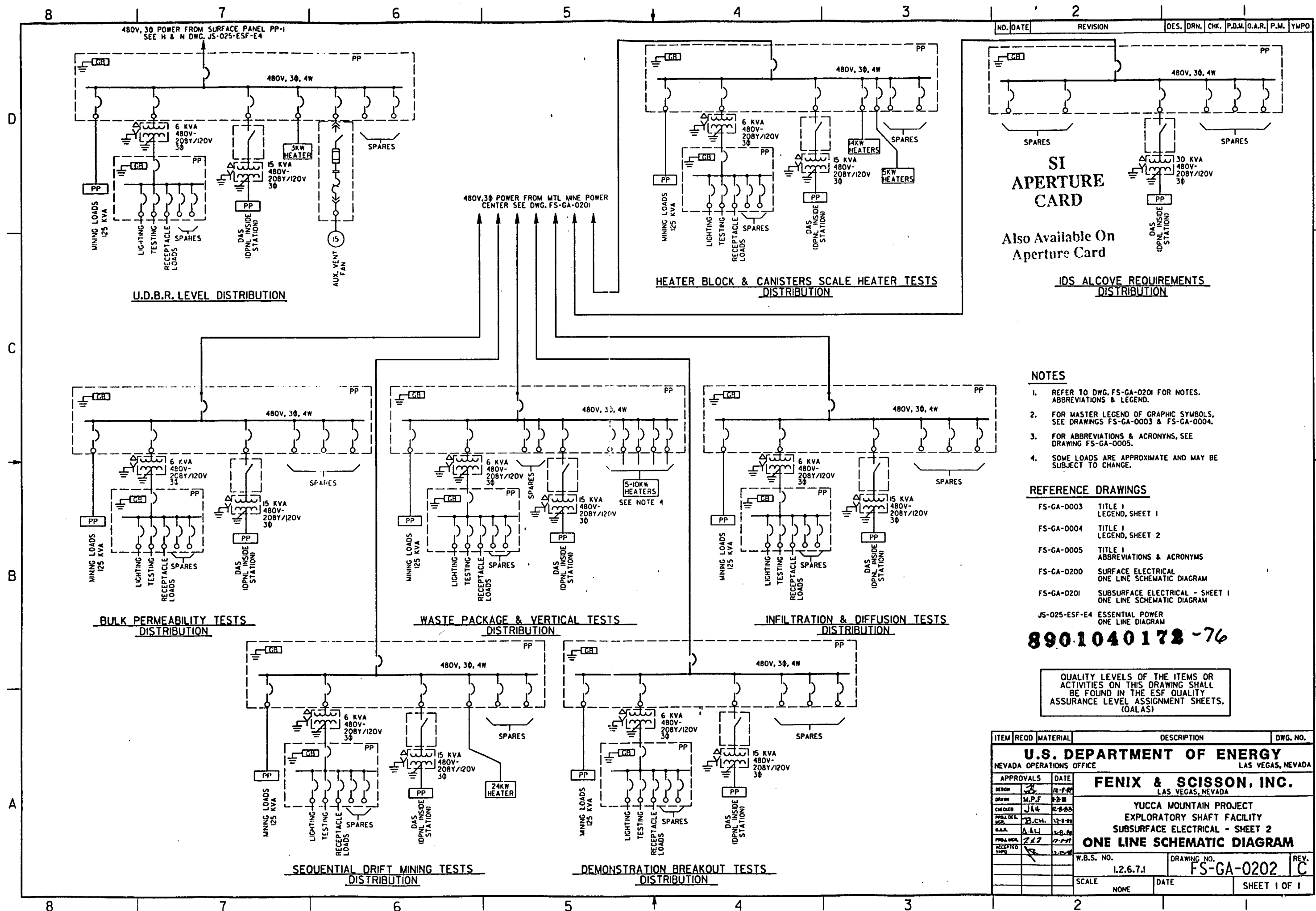
ITEM	REQD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY SUBSURFACE ELECTRICAL - SHEET 1 ONE LINE SCHEMATIC DIAGRAM				
W.B.S. NO.		DRAWING NO.		REV.
1.2.6.7.1		FS-GA-0201		C
SCALE		DATE		SHEET 1 OF 1
NONE				

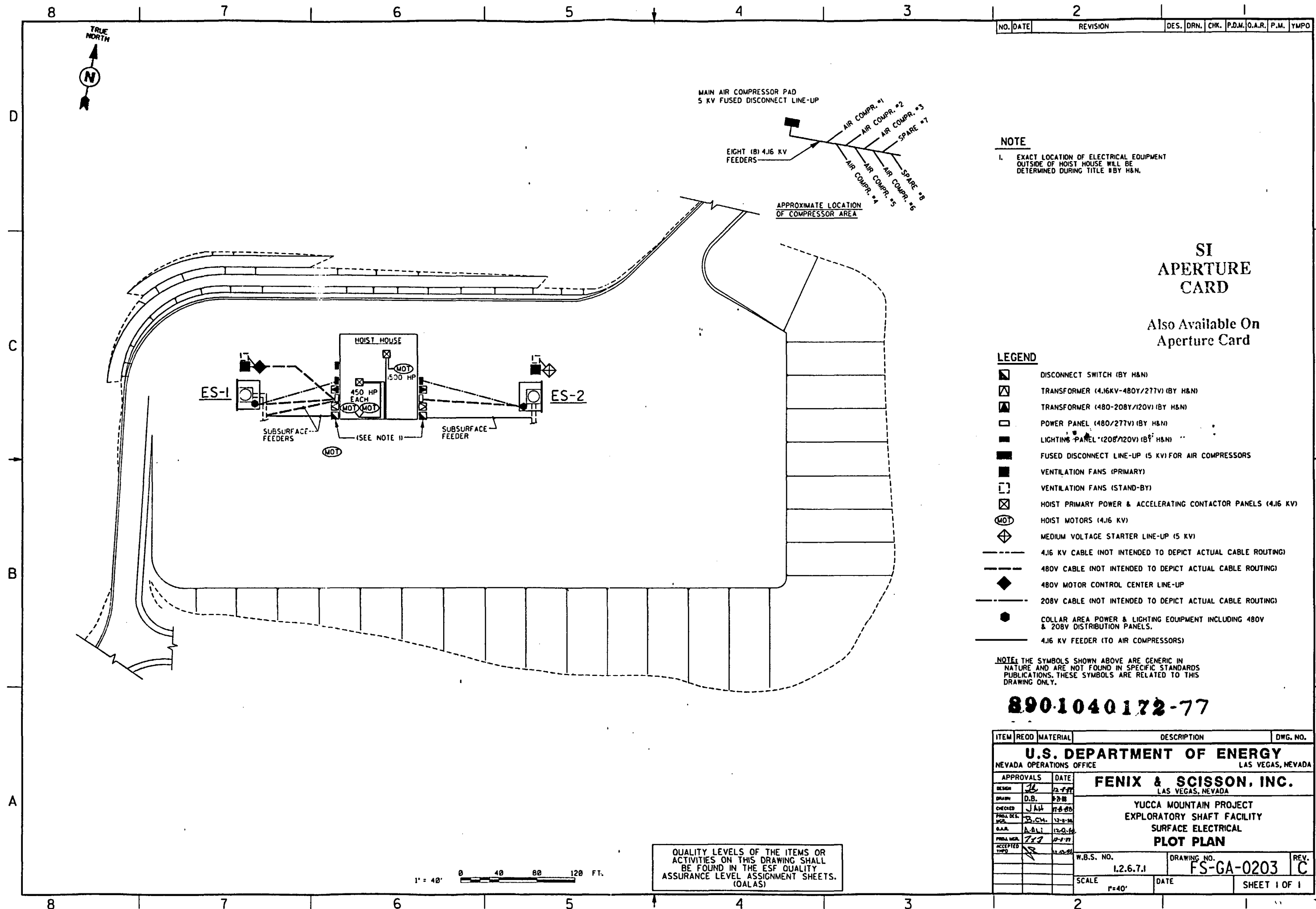
APPROVALS

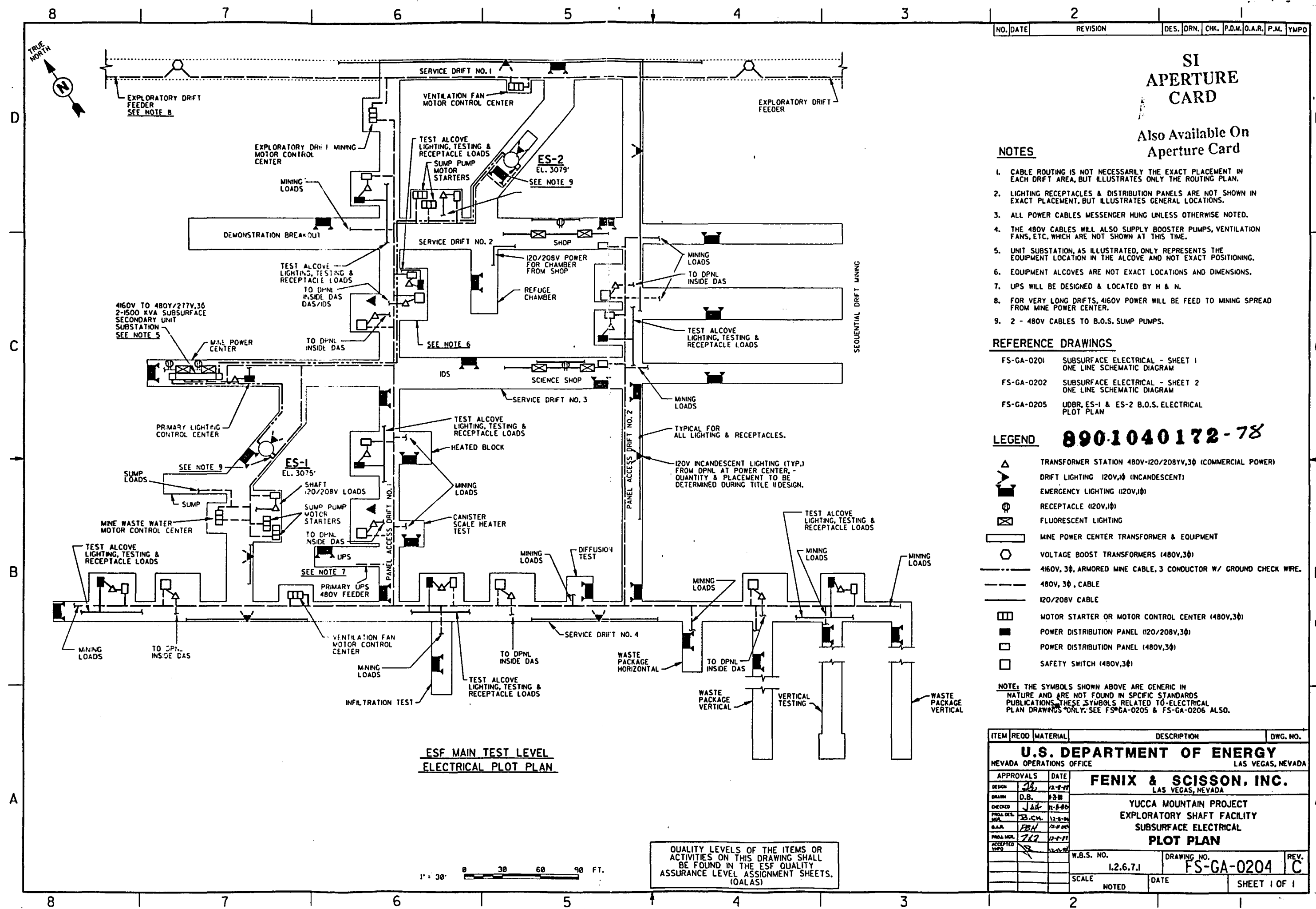
DESIGN	DATE
N.N.	12-8-88
CHIEF	12-8-88
PROJ. MGR.	12-8-88
ACC. MGR.	12-8-88
ACC. TYP.	12-8-88

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QUALITY LEVELS OF THE ITEMS OR ACTIVITIES ON THIS DRAWING SHALL BE FOUND IN THE ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEETS. (OALAS)







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NOTES

1. CABLE ROUTING IS NOT NECESSARILY THE EXACT PLACEMENT IN EACH DRIFT AREA, BUT ILLUSTRATES ONLY THE ROUTING PLAN.
2. LIGHTING RECEPTACLES & DISTRIBUTION PANELS ARE NOT SHOWN IN EXACT PLACEMENT, BUT ILLUSTRATES GENERAL LOCATIONS.
3. ALL POWER CABLES MESSENGER HUNG UNLESS OTHERWISE NOTED.
4. THE 480V CABLES WILL ALSO SUPPLY BOOSTER PUMPS, VENTILATION FANS, ETC. WHICH ARE NOT SHOWN AT THIS TIME.
5. UNIT SUBSTATION, AS ILLUSTRATED, ONLY REPRESENTS THE EQUIPMENT LOCATION IN THE ALCOVE AND NOT EXACT POSITIONING.
6. EQUIPMENT ALCOVES ARE NOT EXACT LOCATIONS AND DIMENSIONS.
7. UPS WILL BE DESIGNED & LOCATED BY H & N.
8. FOR VERY LONG DRIFTS, 4160V POWER WILL BE FEED TO MINING SPREAD FROM MINE POWER CENTER.
9. 2 - 480V CABLES TO B.O.S. SUMP PUMPS.

REFERENCE DRAWINGS

- FS-GA-0201 SUBSURFACE ELECTRICAL - SHEET 1 ONE LINE SCHEMATIC DIAGRAM
- FS-GA-0202 SUBSURFACE ELECTRICAL - SHEET 2 ONE LINE SCHEMATIC DIAGRAM
- FS-GA-0205 UDBR, ES-1 & ES-2 B.O.S. ELECTRICAL PLOT PLAN

LEGEND

- TRANSFORMER STATION 480V-120/208V, 3Ø (COMMERCIAL POWER)
- DRIFT LIGHTING 120V, 1Ø (INCANDESCENT)
- EMERGENCY LIGHTING (120V, 1Ø)
- RECEPTACLE (120V, 1Ø)
- FLUORESCENT LIGHTING
- MINE POWER CENTER TRANSFORMER & EQUIPMENT
- VOLTAGE BOOST TRANSFORMERS (480V, 3Ø)
- 4160V, 3Ø, ARMORED MINE CABLE, 3 CONDUCTOR W/ GROUND CHECK WIRE.
- 480V, 3Ø, CABLE
- 120/208V CABLE
- MOTOR STARTER OR MOTOR CONTROL CENTER (480V, 3Ø)
- POWER DISTRIBUTION PANEL (120/208V, 3Ø)
- POWER DISTRIBUTION PANEL (480V, 3Ø)
- SAFETY SWITCH (480V, 3Ø)

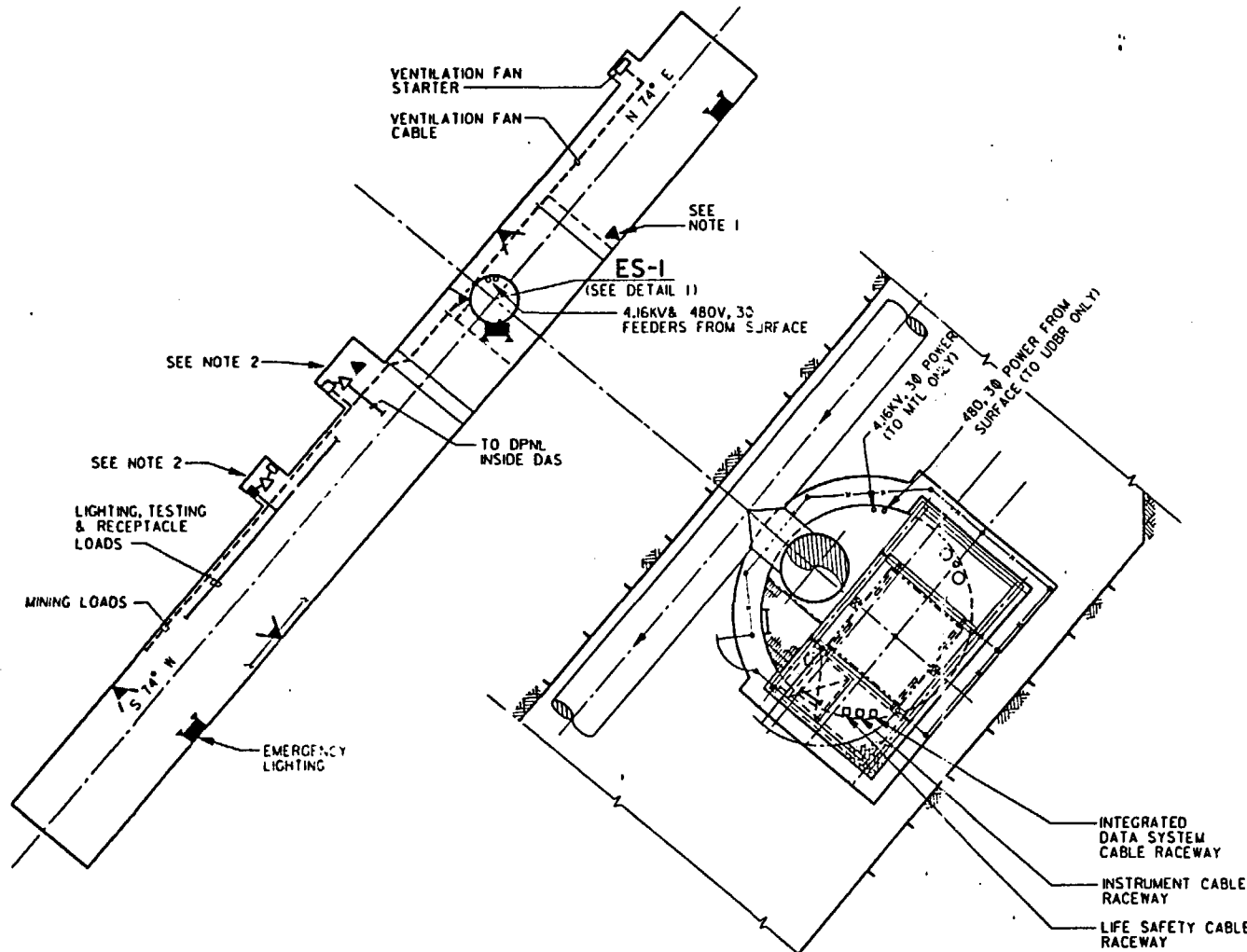
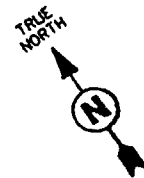
NOTE: THE SYMBOLS SHOWN ABOVE ARE GENERIC IN NATURE AND ARE NOT FOUND IN SPECIFIC STANDARDS PUBLICATIONS. THESE SYMBOLS RELATED TO ELECTRICAL PLAN DRAWINGS ONLY. SEE FS-GA-0205 & FS-GA-0206 ALSO.

ESF MAIN TEST LEVEL
ELECTRICAL PLOT PLAN

1" = 30'
0 30 60 90 FT.

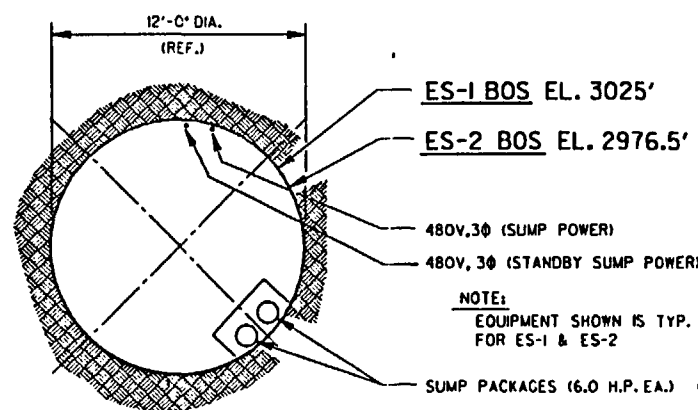
QUALITY LEVELS OF THE ITEMS OR ACTIVITIES ON THIS DRAWING SHALL BE FOUND IN THE ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEETS. (OALAS)

ITEM	RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY				
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
APPROVALS		DATE	FENIX & SCISSON, INC.	
DESIGN	DB	12-8-77	LAS VEGAS, NEVADA	
DRAWN	D.B.	12-8-77	YUCCA MOUNTAIN PROJECT	
CHECKED	J.H.	12-8-77	EXPLORATORY SHAFT FACILITY	
PROJ. DES. MGR.	J.B. CH.	12-8-77	SUBSURFACE ELECTRICAL	
C.A.R.	P.B.H.	12-8-77	PLOT PLAN	
PROJ. MGR.	T.L.T.	12-8-77	W.B.S. NO.	
ACCEPTED	RS	12-8-77	DRAWING NO.	
			1.2.6.7.1	FS-GA-0204
			SCALE	REV. C
			NOTED	SHEET 1 OF 1



ELECTRICAL PLOT PLAN
UPPER DEMONSTRATION BREAKOUT ROOM
 ELEVATION = 3530'
 SCALE: 1"=20'

DETAIL 1
 SCALE: NONE



ELECTRICAL PLOT PLAN
BOTTOM OF SHAFT
 SCALE: 1/4"=1'-0"



QUALITY LEVELS OF THE ITEMS OR ACTIVITIES ON THIS DRAWING SHALL BE FOUND IN THE ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEETS. (QALAS)

NOTES

1. INCANDESCENT & EMERGENCY LIGHTING DOES NOT DEPICT ACTUAL LOCATIONS.
2. EQUIPMENT ALCOVE LOCATIONS AND SIZES ARE ONLY APPROXIMATE AND MAY BE SUBJECT TO CHANGE.
3. SEE DRAWING FS-GA-0204 FOR GENERAL NOTES AND SYMBOL LEGEND.

REFERENCE DRAWINGS

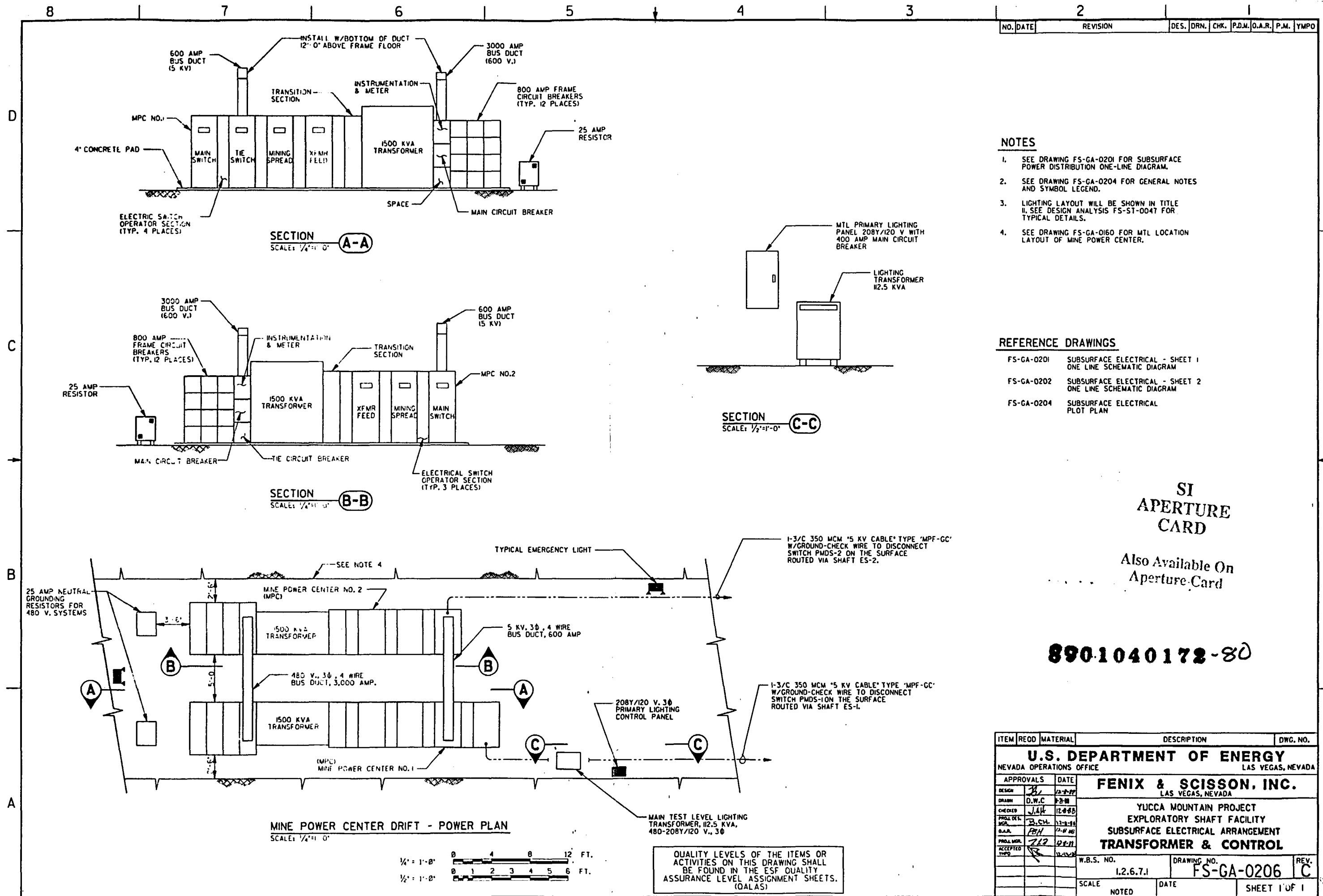
- | | |
|------------|---|
| FS-GA-0201 | SUBSURFACE ELECTRICAL - SHEET 1
ONE LINE SCHEMATIC DIAGRAM |
| FS-GA-0202 | SUBSURFACE ELECTRICAL - SHEET 2
ONE LINE SCHEMATIC DIAGRAM |
| FS-GA-0204 | SUBSURFACE ELECTRICAL
PLOT PLAN |

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Also Available On
 Aperture Card

880-1040172-79

ITEM	RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
APPROVALS			DATE	
DESIGN	JL	12-1-77	FENIX & SCISSON, INC. LAS VEGAS, NEVADA YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY UDBR, ES-1 & ES-2 B.O.S. ELECTRICAL PLOT PLAN	
DRAWN	H.D.G.	5-2-80		
CHECKED	JAH	11-8-80		
PROJ. MGR.	B.C.H.	12-1-81		
ACCEPTED	FEH	12-4-81		
W.B.S. NO. 1.2.6.7.1			DRAWING NO. FS-GA-0205	
SCALE NOTED			DATE	
SHEET 1 OF 1			REV. C	



NOTES

- SEE DRAWING FS-GA-0201 FOR SUBSURFACE POWER DISTRIBUTION ONE-LINE DIAGRAM.
- SEE DRAWING FS-GA-0204 FOR GENERAL NOTES AND SYMBOL LEGEND.
- LIGHTING LAYOUT WILL BE SHOWN IN TITLE II. SEE DESIGN ANALYSIS FS-ST-0047 FOR TYPICAL DETAILS.
- SEE DRAWING FS-GA-0160 FOR MTL LOCATION LAYOUT OF MINE POWER CENTER.

REFERENCE DRAWINGS

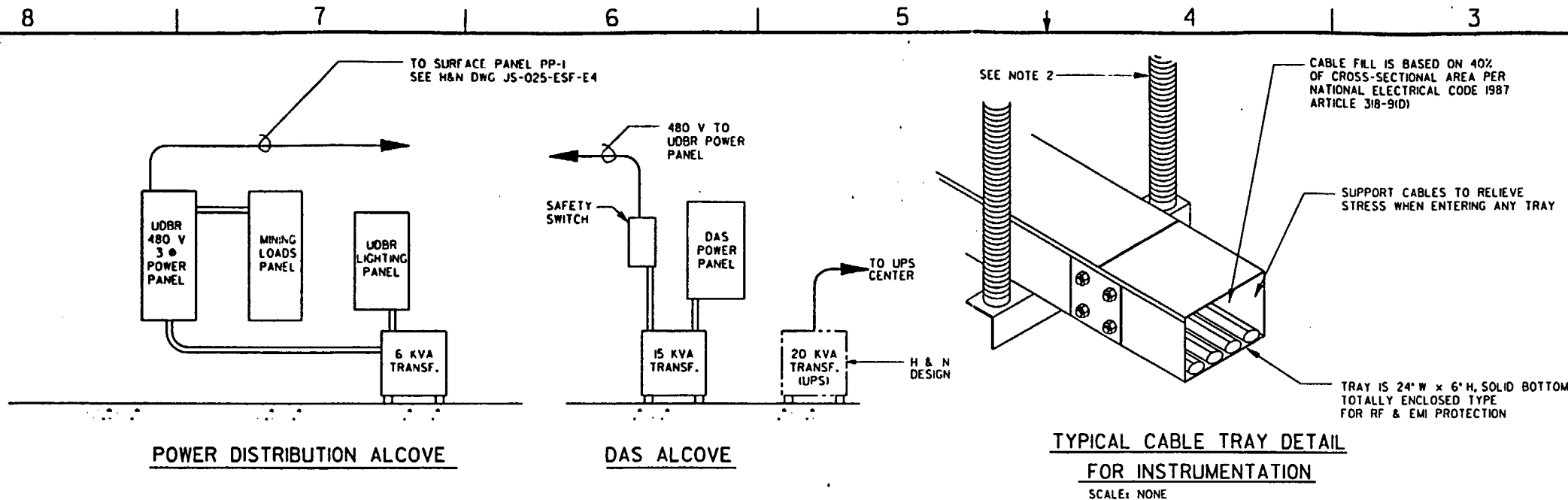
FS-GA-0201	SUBSURFACE ELECTRICAL - SHEET 1 ONE LINE SCHEMATIC DIAGRAM
FS-GA-0202	SUBSURFACE ELECTRICAL - SHEET 2 ONE LINE SCHEMATIC DIAGRAM
FS-GA-0204	SUBSURFACE ELECTRICAL PLOT PLAN

SI
APERTURE
CARD

Also Available On
Aperture Card

890.1040172-80

ITEM	REQD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY				
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
APPROVALS DATE				
DESIGN	BY	D.W.C.	12-8-88	
DRAWN	BY	D.W.C.	12-8-88	
CHECKED	BY	J.H.K.	12-8-88	
PROJ. ENG.	BY	B.S.H.	12-8-88	
QA	BY	P.H.	12-8-88	
PROJ. MGR.	BY	T.L.T.	12-8-88	
ACCEPTED	BY			
W.B.S. NO.			DRAWING NO.	REV.
1.2.6.7.1			FS-GA-0206	C
SCALE		DATE		SHEET 1 OF 1
NOTED				



NOTES

1. THE ARRANGEMENT SHOWN FOR THE UDBR IS TYPICAL FOR ALL TEST ALCOVE POWER DISTRIBUTION.
2. WALL BRACKETS MAY BE USED INSTEAD OF 'TRAPEZE' HANGERS. USE ROLLERS OR LEAVE TRAY UNCLAMPED IN RUNS OF 100 FT. OR MORE TO ALLOW FOR ROCK MOVEMENT AND THERMAL EXPANSION.
3. ALL LOCAL AREA NETWORK, COMMUNICATION, AND INSTRUMENT CABLES SHALL RUN ON THE OPPOSITE SIDE OF DRIFTS FROM POWER & LIGHTING CABLES. IF CROSSOVERS ARE NECESSARY, THEY SHALL BE MADE AT 90° ANGLES.
4. ALSO REFER TO NOTES ON DWG. FS-GA-0206.
5. ENVIRONMENTAL, GAS AND FIRE DETECTION MONITORING SYSTEMS ARE BY HOLMES & NARVER.

REFERENCE DRAWINGS

- | | |
|---------------|---|
| FS-GA-0201 | SUBSURFACE ELECTRICAL - SHEET 1
ONE LINE SCHEMATIC DIAGRAM |
| FS-GA-0202 | SUBSURFACE ELECTRICAL - SHEET 2
ONE LINE SCHEMATIC DIAGRAM |
| FS-GA-0204 | SUBSURFACE ELECTRICAL
PLOT PLAN |
| FS-GA-0205 | UDBR, ES-1 & ES-2 B.O.S. ELECTRICAL
PLOT PLAN |
| FS-GA-0206 | SUBSURFACE ELECTRICAL ARRANGEMENT
TRANSFORMER & CONTROL |
| JS-025-ESF-E4 | ESSENTIAL POWER
ONE LINE DIAGRAM |

SI
APERTURE
CARD

Also Available On
Aperture Card

8901040172-81

SPARE	15 HP	15 HP	50 HP	50 HP	200 HP (FVR) VENT FAN
SPARE					
SPARE	15 HP	15 HP	15 HP	5 HP	
SPARE					
SPARE	SPARE	15 HP	15 HP	5 HP	
SPARE	SPARE				

ES-1 VENTILATION MOTOR CONTROL CENTER
SCALE: 1/2" = 1'-0"

SPARE	15 HP	15 HP	100 HP		
SPARE					
SPARE	15 HP	5 HP	100 HP	200 HP (FVR) VENT FAN	200 HP (FVR) VENT FAN
SPARE					
SPARE	15 HP	5 HP	100 HP		
SPARE					

ES-2 VENTILATION MOTOR CONTROL CENTER
SCALE: 1/2" = 1'-0"

SPARE	11.0 HP	6.0 HP			
SPARE	8.2 HP	6.0 HP			
SPARE	ES-1 BOS FEEDER	1.6 HP	295 HP (FVNR) WASTE WATER PUMP	295 HP (FVNR) WASTE WATER PUMP	
SPARE	ES-2 BOS FEEDER	1.6 HP			
SPARE	1.6 HP	1.6 HP			
1.6 HP	1.6 HP	1.6 HP			

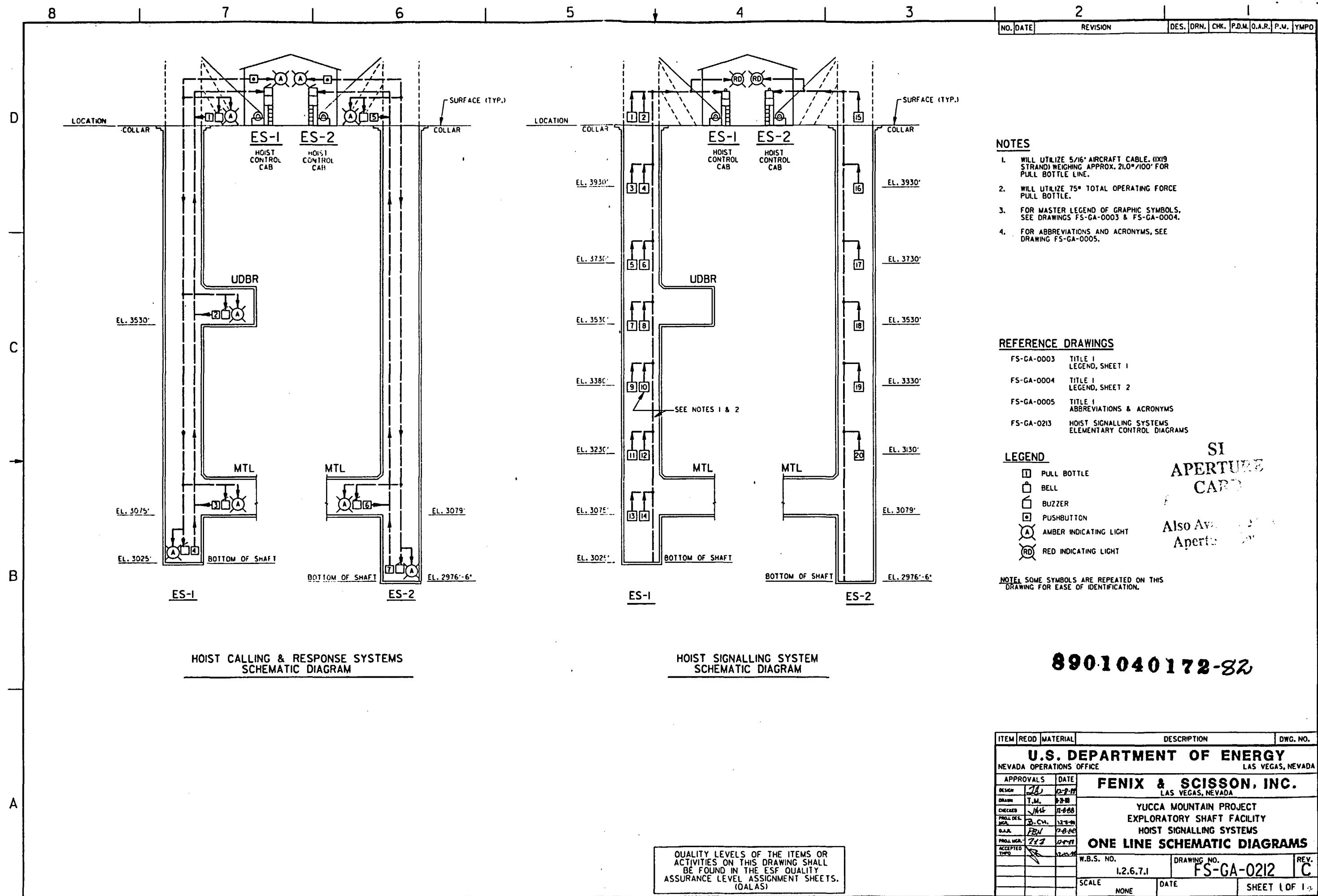
NOTE: 295 HP IS A NON-STANDARD
MOTOR RATING. SIZE BASED
ON 400 HP. MAXIMUM.

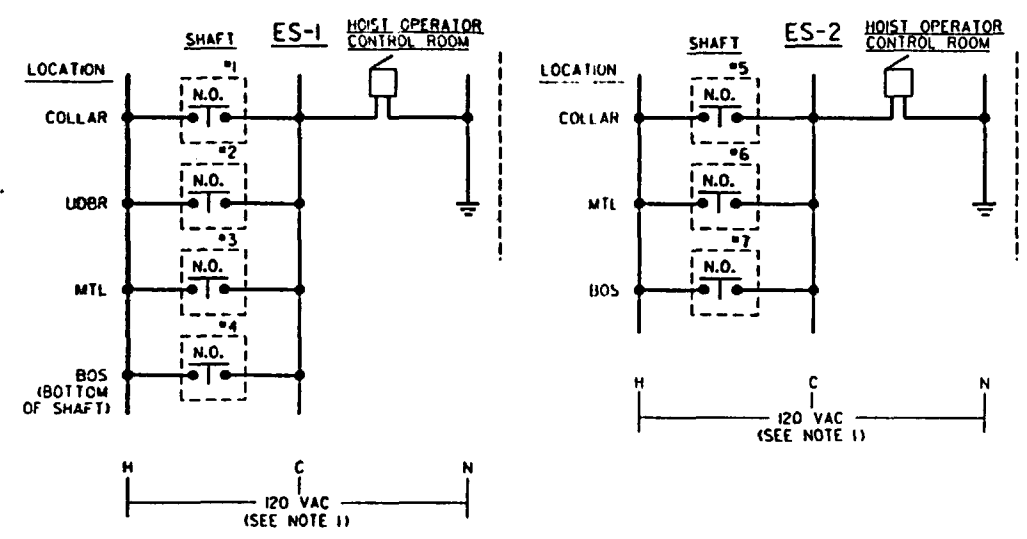
WASTE WATER SYSTEM MOTOR CONTROL CENTER
SCALE: 1/2" = 1'-0"

1/2" = 1'-0" 0 1 2 3 4 5 6 FT.

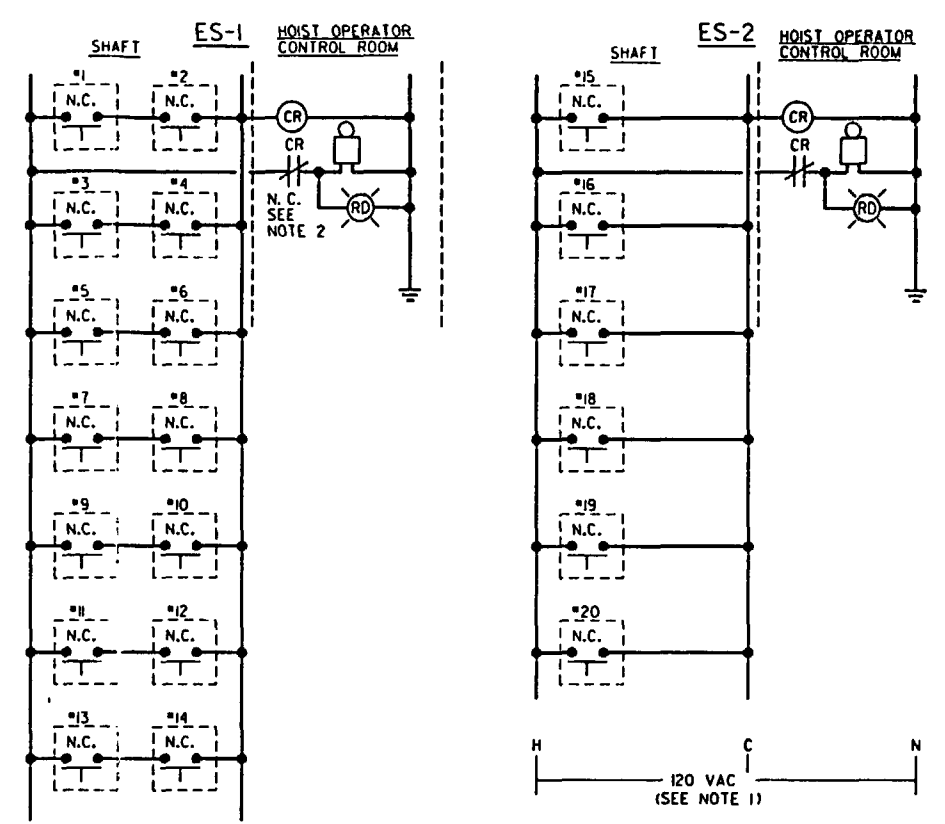
QUALITY LEVELS OF THE ITEMS OR
ACTIVITIES ON THIS DRAWING SHALL
BE FOUND IN THE ESF QUALITY
ASSURANCE LEVEL ASSIGNMENT SHEETS.
(OALAS)

ITEM	REQD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
APPROVALS		DATE		
DESIGN	D.W.C.	12-1-11		
CHECKED	J.A.H.	12-8-11		
PROJ. DEL.	D.C.H.	12-8-11		
B.A.R.	D.C.H.	12-8-11		
PROJ. MGR.	T.T.T.	12-1-11		
ACCEPTED		12-1-11		
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY SUBSURFACE ELECTRICAL ARRANGEMENT TYPICAL DETAILS				
W.B.S. NO.		DRAWING NO.		REV.
1.2.6.7.1		FS-GA-0207		C
SCALE		DATE		SHEET 1 OF 1
NOTED				

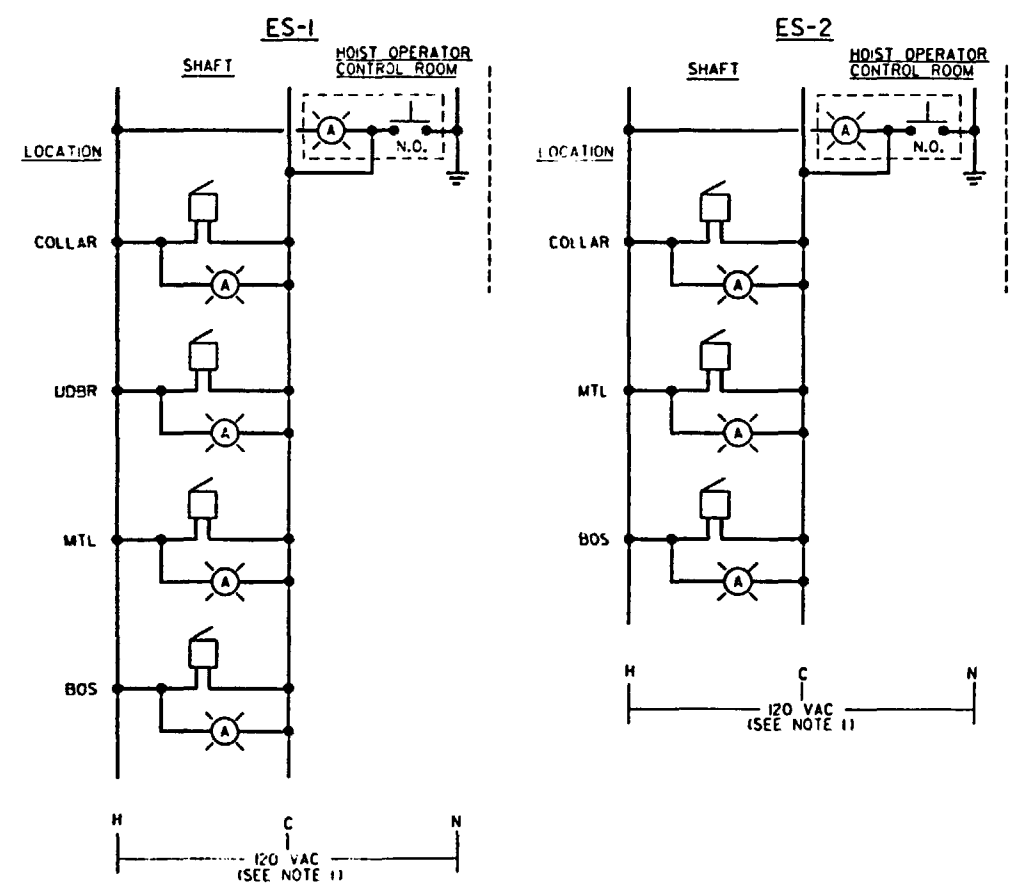




HOIST CALLING SYSTEM



HOIST SIGNALLING SYSTEM



HOIST RESPONSE-TO-CALL SYSTEM

NOTES

- ONE 120V SUPPLY WILL FEED ALL ES-1 SIGNALLING CIRCUITS AND ONE 120V SUPPLY WILL FEED ALL ES-2 SIGNALLING CIRCUITS.
- THE CONTROL RELAY CR CONTACT IS SHOWN IN ITS NORMAL OR DE-ENERGIZED STATE WHICH IS NORMALLY CLOSED.

REFERENCE DRAWINGS

- FS-GA-0003 TITLE I LEGEND, SHEET 1
- FS-GA-0004 TITLE I LEGEND, SHEET 2
- FS-GA-0005 TITLE I ABBREVIATIONS & ACRONYMS
- FS-GA-0212 HOIST SIGNALLING SYSTEMS ONE LINE SCHEMATIC DIAGRAMS

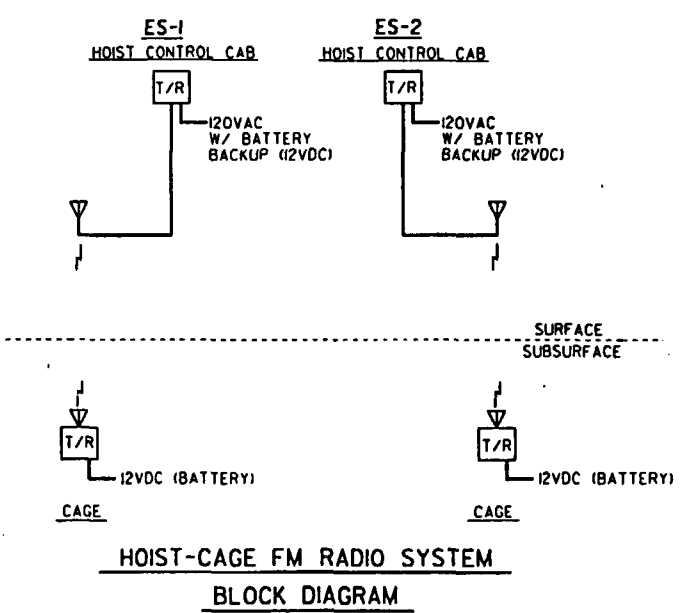
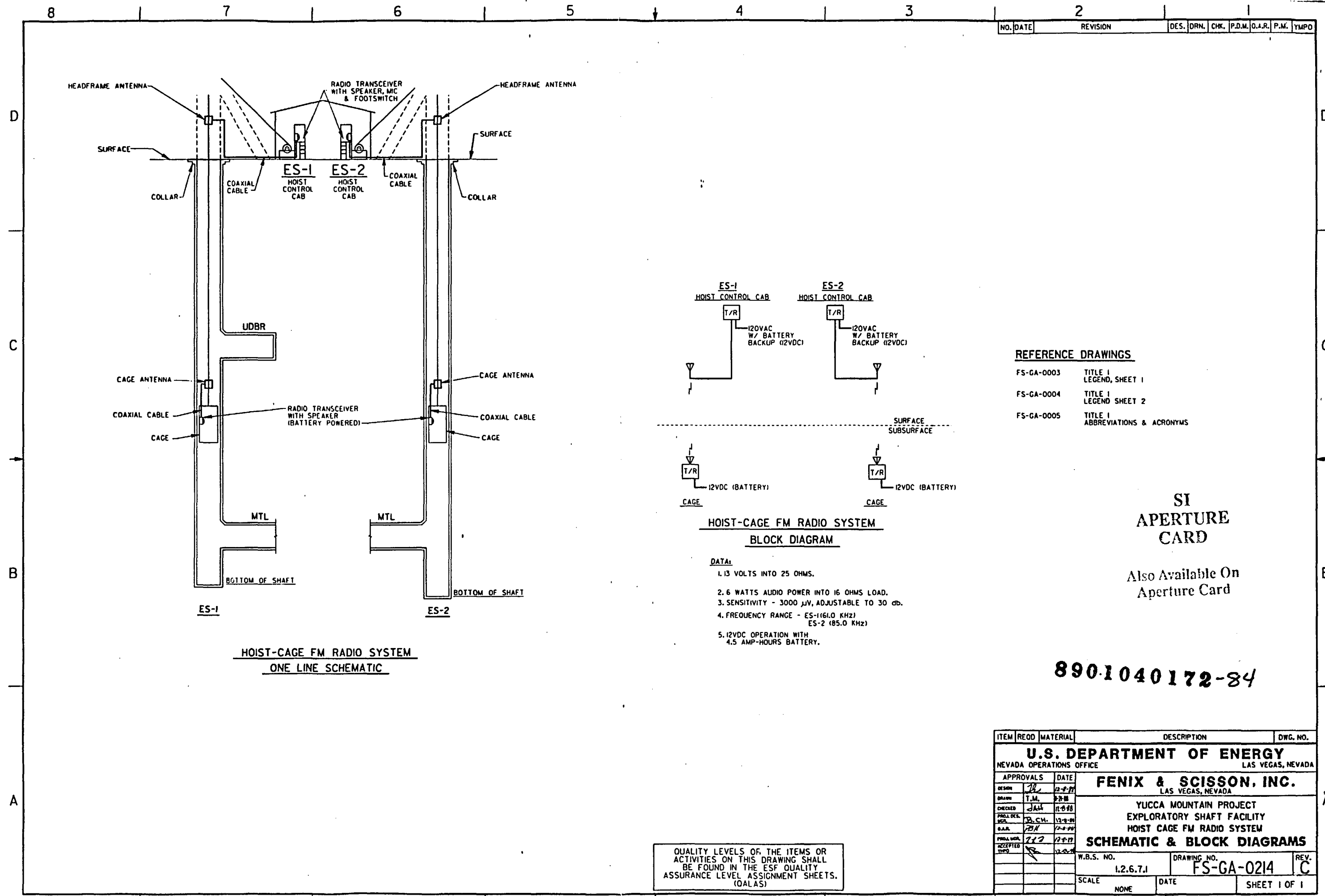
**SI
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CARD**

Also Available On
Aperture Card

8901040172-83

QUALITY LEVELS OF THE ITEMS OR ACTIVITIES ON THIS DRAWING SHALL BE FOUND IN THE ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEETS. (DALAS)

ITEM	REQD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY HOIST SIGNALLING SYSTEMS ELEMENTARY CONTROL DIAGRAMS				
APPROVALS	DATE	W.B.S. NO. 1.2.6.7.1 DRAWING NO. FS-GA-0213 REV. C		
DESIGN	T.M.	SCALE NONE DATE SHEET 3 OF 1		
DRAWN	J.A.H.			
CHECKED	J.A.H.			
PROD. DES.	B.C.H.			
O.A.R.	P.S.H.			
PROD. MGR.	T.T.T.			
ACCEPTED	T.T.T.			



- DATA:
- 1. 13 VOLTS INTO 25 OHMS.
 - 2. 6 WATTS AUDIO POWER INTO 16 OHMS LOAD.
 - 3. SENSITIVITY - 3000 μ V, ADJUSTABLE TO 30 db.
 - 4. FREQUENCY RANGE - ES-1 (16.0 KHz)
ES-2 (85.0 KHz)
 - 5. 12VDC OPERATION WITH
4.5 AMP-HOURS BATTERY.

REFERENCE DRAWINGS	
FS-GA-0003	TITLE I LEGEND, SHEET 1
FS-GA-0004	TITLE I LEGEND SHEET 2
FS-GA-0005	TITLE I ABBREVIATIONS & ACRONYMS

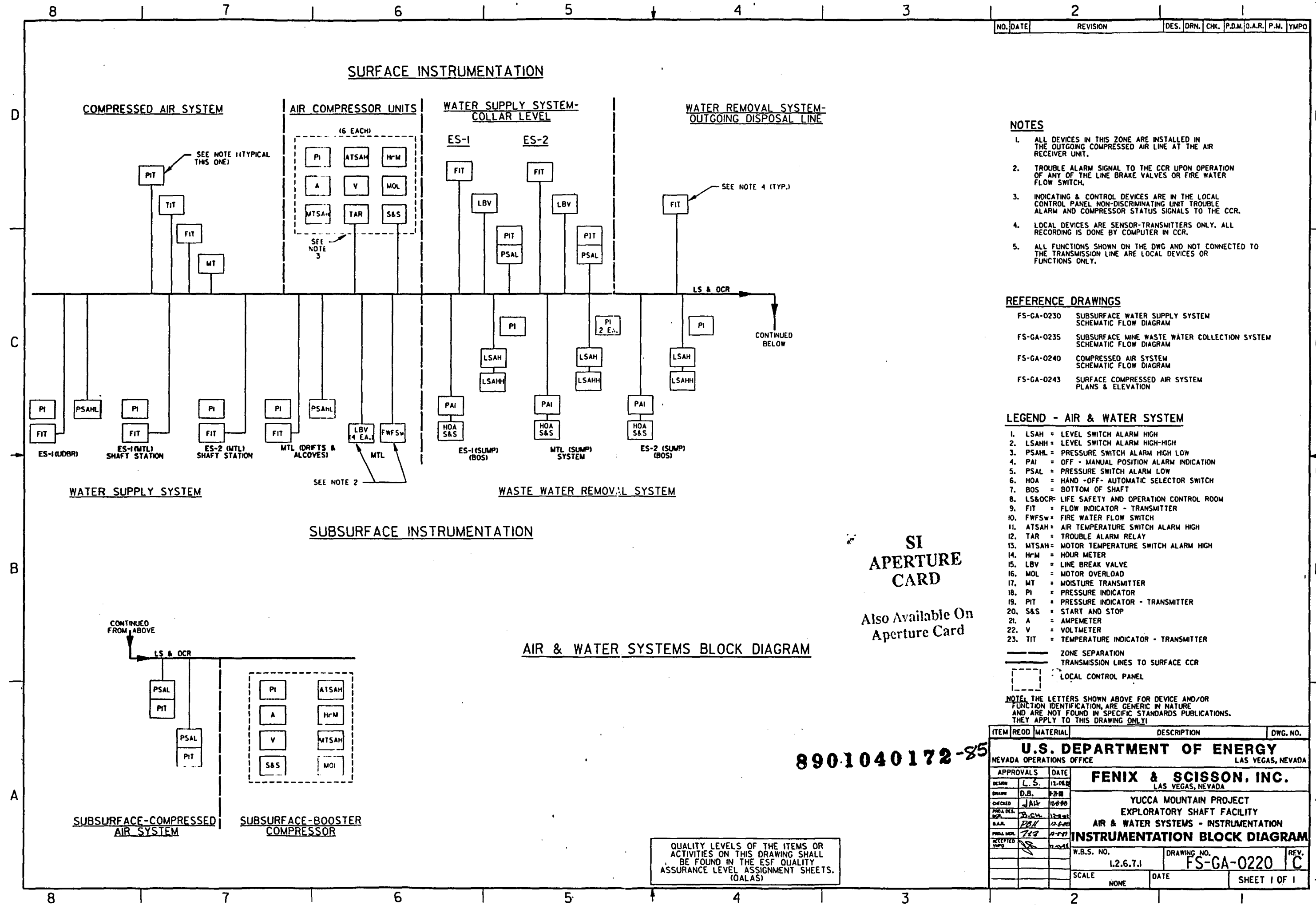
SI
APERTURE
CARD

Also Available On
Aperture Card

890.1040172-84

QUALITY LEVELS OF THE ITEMS OR
ACTIVITIES ON THIS DRAWING SHALL
BE FOUND IN THE ESF QUALITY
ASSURANCE LEVEL ASSIGNMENT SHEETS.
(OALAS)

ITEM	REQD	MATERIAL	DESCRIPTION	OWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY HOIST CAGE FM RADIO SYSTEM SCHEMATIC & BLOCK DIAGRAMS				
APPROVALS		DATE	W.B.S. NO.	DRAWING NO.
DESIGN	JL	12-8-77	1.2.6.7.1	FS-GA-0214
DRAWN	T.M.	8-8-78		
CHECKED	JAM	11-8-78		
PROJ. DES.	B.C.M.	12-9-78		
Q.A.A.	BN	12-8-78		
PROJ. MGR.	TLJ	12-8-78		
ACCEPTED				
SCALE		DATE	SHEET 1 OF 1	
NONE				



- NOTES**
1. ALL DEVICES IN THIS ZONE ARE INSTALLED IN THE OUTGOING COMPRESSED AIR LINE AT THE AIR RECEIVER UNIT.
 2. TROUBLE ALARM SIGNAL TO THE CCR UPON OPERATION OF ANY OF THE LINE BRAKE VALVES OR FIRE WATER FLOW SWITCH.
 3. INDICATING & CONTROL DEVICES ARE IN THE LOCAL CONTROL PANEL NON-DISCRIMINATING UNIT TROUBLE ALARM AND COMPRESSOR STATUS SIGNALS TO THE CCR.
 4. LOCAL DEVICES ARE SENSOR-TRANSMITTERS ONLY. ALL RECORDING IS DONE BY COMPUTER IN CCR.
 5. ALL FUNCTIONS SHOWN ON THE DWG AND NOT CONNECTED TO THE TRANSMISSION LINE ARE LOCAL DEVICES OR FUNCTIONS ONLY.

- REFERENCE DRAWINGS**
- FS-GA-0230 SUBSURFACE WATER SUPPLY SYSTEM SCHEMATIC FLOW DIAGRAM
 - FS-GA-0235 SUBSURFACE MINE WASTE WATER COLLECTION SYSTEM SCHEMATIC FLOW DIAGRAM
 - FS-GA-0240 COMPRESSED AIR SYSTEM SCHEMATIC FLOW DIAGRAM
 - FS-GA-0243 SURFACE COMPRESSED AIR SYSTEM PLANS & ELEVATION

- LEGEND - AIR & WATER SYSTEM**
1. LSAH = LEVEL SWITCH ALARM HIGH
 2. LSAHH = LEVEL SWITCH ALARM HIGH-HIGH
 3. PSAHL = PRESSURE SWITCH ALARM HIGH LOW
 4. PAI = OFF - MANUAL POSITION ALARM INDICATION
 5. PSAL = PRESSURE SWITCH ALARM LOW
 6. HOA = HAND -OFF- AUTOMATIC SELECTOR SWITCH
 7. BOS = BOTTOM OF SHAFT
 8. LS&OCR = LIFE SAFETY AND OPERATION CONTROL ROOM
 9. FIT = FLOW INDICATOR - TRANSMITTER
 10. FWFSW = FIRE WATER FLOW SWITCH
 11. ATSAH = AIR TEMPERATURE SWITCH ALARM HIGH
 12. TAR = TROUBLE ALARM RELAY
 13. MTSAH = MOTOR TEMPERATURE SWITCH ALARM HIGH
 14. H-M = HOUR METER
 15. LBV = LINE BREAK VALVE
 16. MOL = MOTOR OVERLOAD
 17. MT = MOISTURE TRANSMITTER
 18. PI = PRESSURE INDICATOR
 19. PIT = PRESSURE INDICATOR - TRANSMITTER
 20. S&S = START AND STOP
 21. A = AMPERMETER
 22. V = VOLTMETER
 23. TIT = TEMPERATURE INDICATOR - TRANSMITTER
- ZONE SEPARATION
--- TRANSMISSION LINES TO SURFACE CCR
[] LOCAL CONTROL PANEL

NOTE: THE LETTERS SHOWN ABOVE FOR DEVICE AND/OR FUNCTION IDENTIFICATION, ARE GENERIC IN NATURE AND ARE NOT FOUND IN SPECIFIC STANDARDS PUBLICATIONS. THEY APPLY TO THIS DRAWING ONLY.

**SI
APERTURE
CARD**

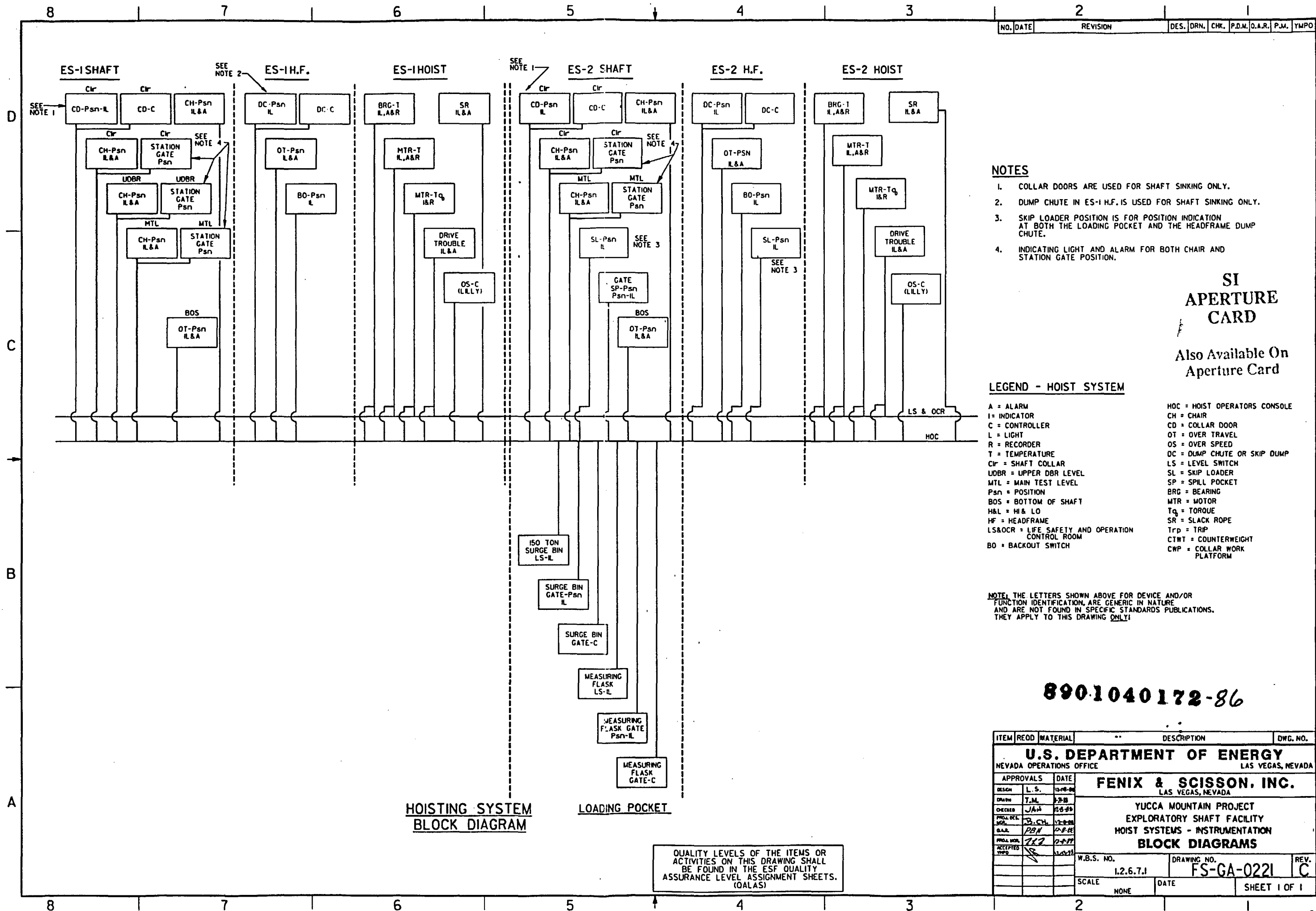
Also Available On
Aperture Card

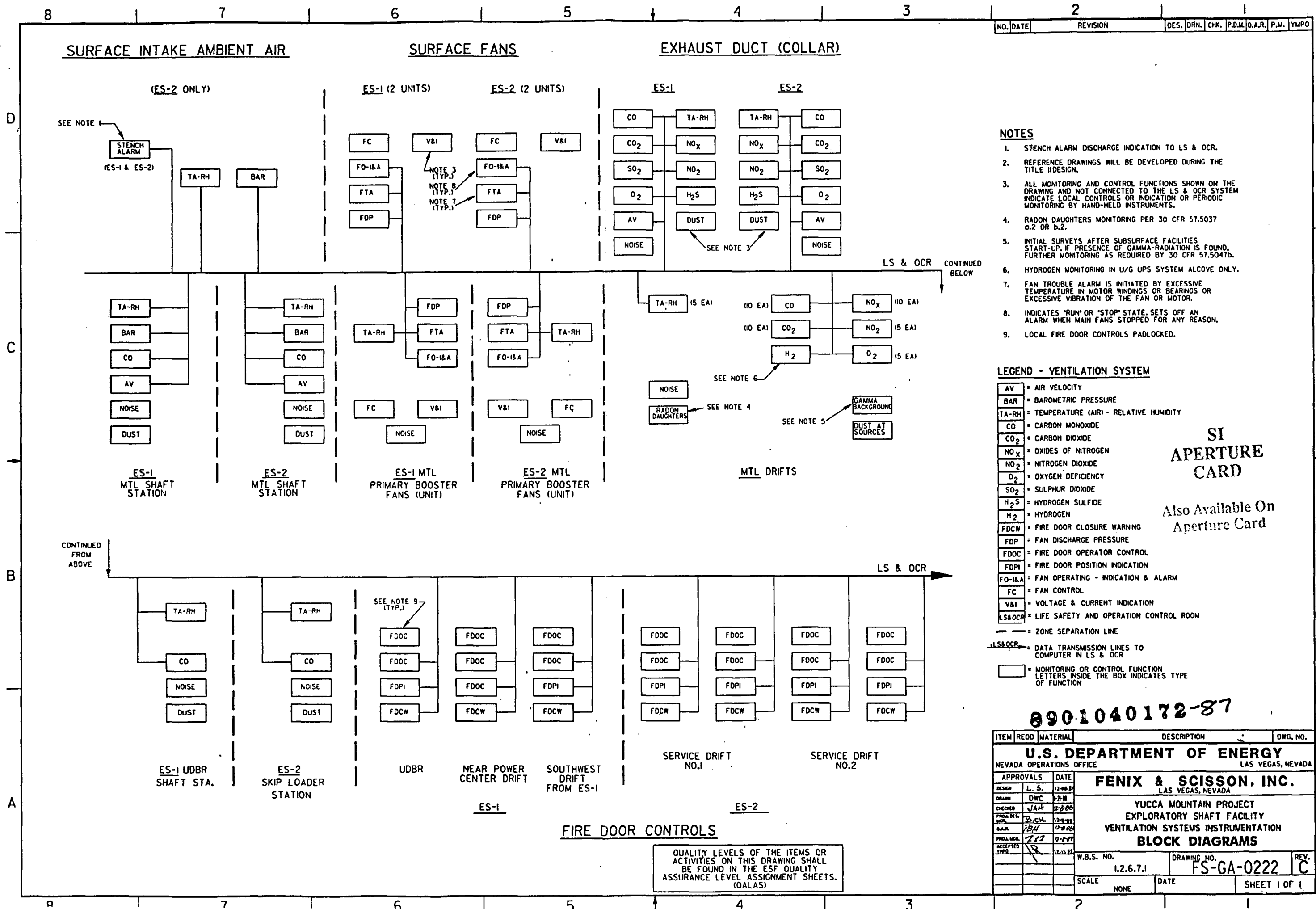
AIR & WATER SYSTEMS BLOCK DIAGRAM

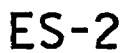
890.1040172-85

QUALITY LEVELS OF THE ITEMS OR ACTIVITIES ON THIS DRAWING SHALL BE FOUND IN THE ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEETS. (OALAS)

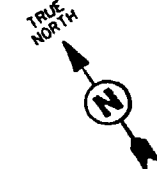
ITEM		RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA					
APPROVALS		DATE		FENIX & SCISSON, INC. LAS VEGAS, NEVADA	
DESIGN	L.S.	12-08-85		YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY AIR & WATER SYSTEMS - INSTRUMENTATION	
DRAWN	D.B.	12-08-85		INSTRUMENTATION BLOCK DIAGRAM	
CHECKED	JAK	12-08-85		W.B.S. NO. 1.2.6.7.1	
PROJ. DES.	D.C.H.	12-08-85		DRAWING NO. FS-GA-0220	
PROJ. DES.	D.B.	12-08-85		REV. C	
PROJ. DES.	T.C.	12-08-85		SCALE NONE	
PROJ. DES.	T.C.	12-08-85		DATE	
PROJ. DES.	T.C.	12-08-85		SHEET 1 OF 1	







SHEET 1 OF 1



NOTES

- DOORS TO BE AFFECTED BY BLASTING SHALL BE OPEN DURING BLASTING.
- PREFERABLY, STUB ENTRY (AT INTERSECTIONS) SHALL BE ADVANCED 30' TO 50' TO AVOID BLASTING DAMAGE TO VENTILATION DUCT DURING SUBSEQUENT DEVELOPMENT OF THE INTERSECTION.
- SPIRAL WIRE REINFORCED BAG OR A SMALLER SIZE SLIDING RIGID DUCT MAY BE USED AS AN EXTENSION TUBE TO THE FACE.
- THIS IS A CONCEPTUAL DESIGN TO SHOW THE VENTILATION OF THE MTL DEVELOPMENT. LOCAL MODIFICATION TO ADAPT THE VENTILATION SYSTEM TO CERTAIN CHANGES OR TRANSITION SHALL BE DONE IN THE FIELD AS REQUIRED.

REFERENCE DRAWINGS

- | | |
|------------|---|
| FS-GA-0225 | VENTILATION - SCHEMATIC FLOW DIAGRAM |
| FS-GA-0228 | VENTILATION SYSTEM - PHASE 3 FLOW DIAGRAM |

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CARD

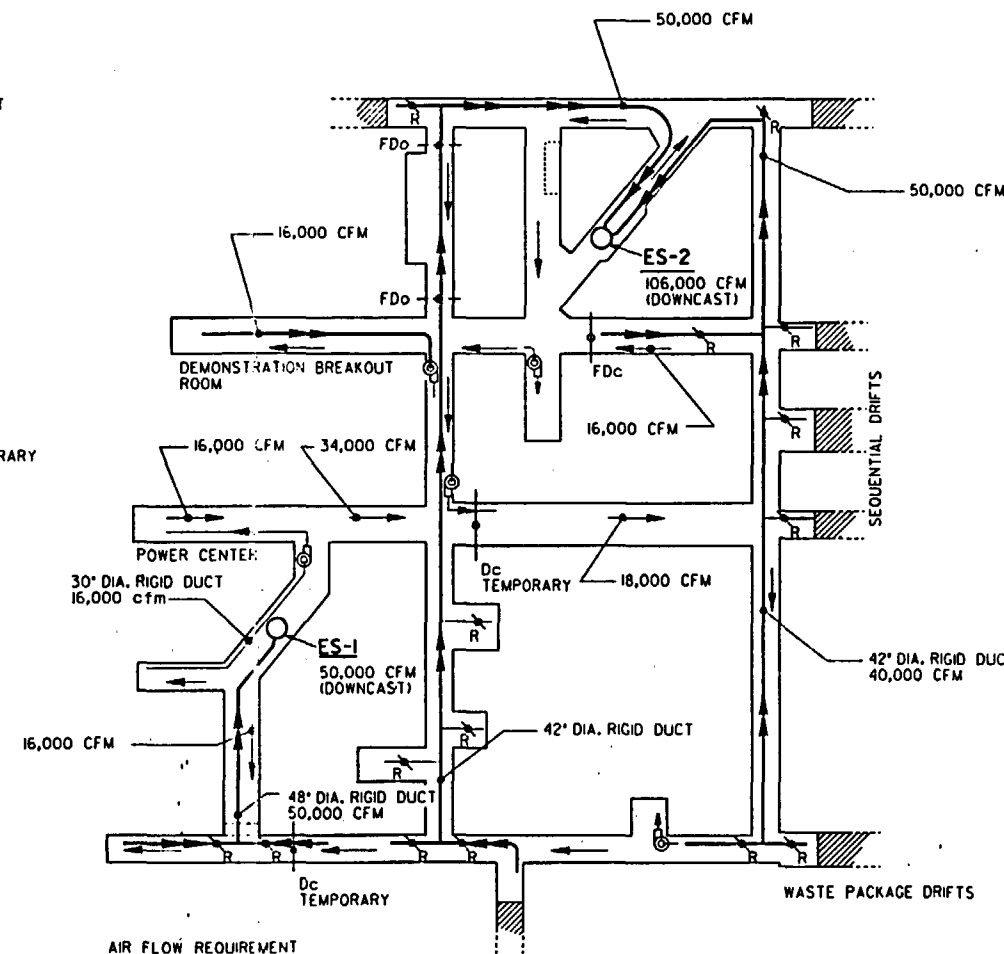
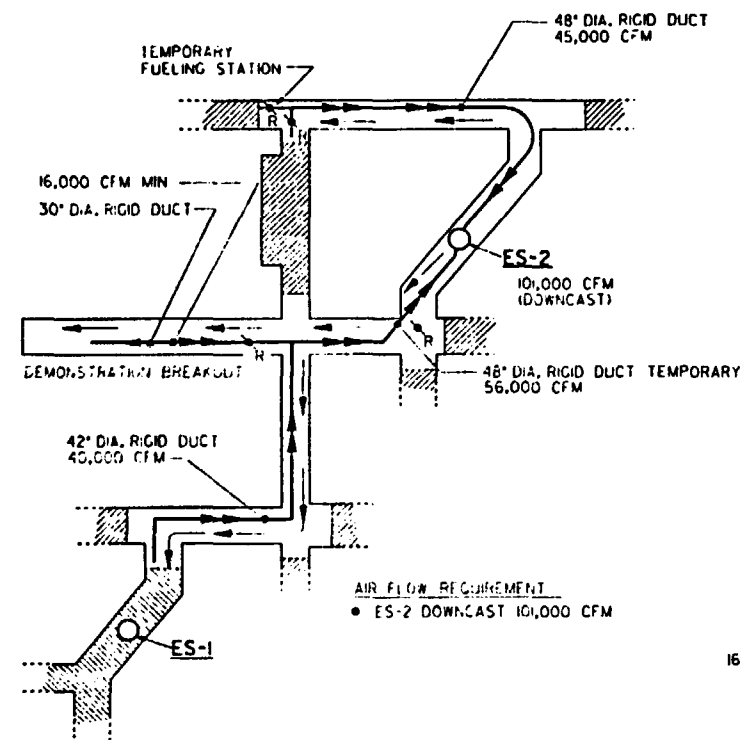
Also Available On
Aperture Card

LEGEND

- | | |
|-----|--|
| → | FRESH AIR SUPPLY (THROUGH DRIFT OR DUCT) |
| ← | RETURN AIR (EXHAUST RIGID DUCT) |
| ⊙ | AXIAL FAN |
| R | REGULATOR (DRIFT OR DUCT) |
| FDC | FIRE DOOR (CLOSED POSITION) |
| FDO | FIRE DOOR (OPEN POSITION) |
| Dc | DOOR (CLOSED POSITION) |

NOTE: THE SYMBOLS SHOWN ABOVE ARE GENERIC IN NATURE AND ARE NOT FOUND IN SPECIFIC STANDARDS PUBLICATIONS. THESE SYMBOLS APPEAR ONLY ON DRAWINGS FS-GA-0225, FS-GA-0227, FS-GA-0228

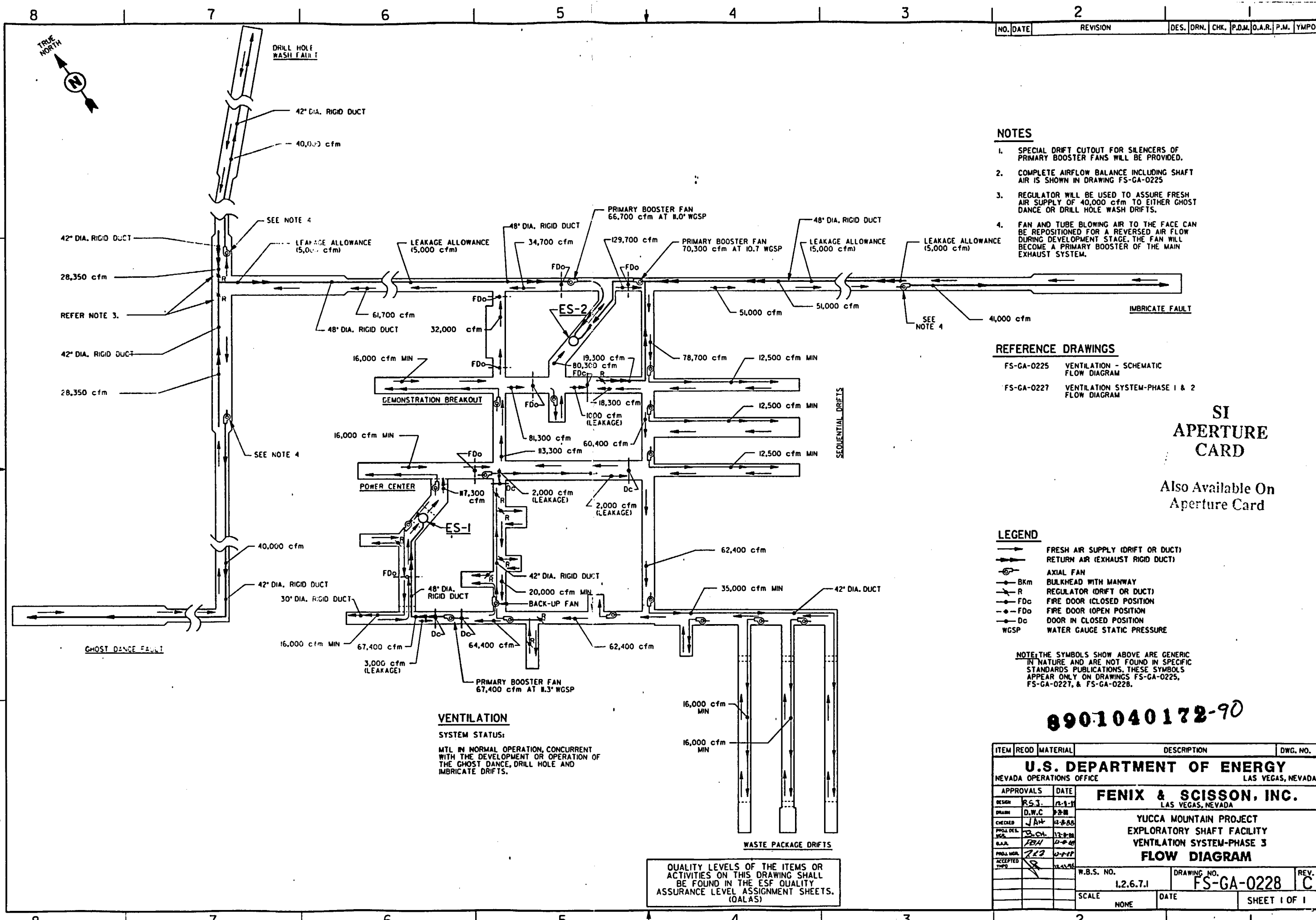
8901040172-89



VENTILATION
MTL DEVELOPMENT
PHASE 2

QUALITY LEVELS OF THE ITEMS OR ACTIVITIES ON THIS DRAWING SHALL BE FOUND IN THE ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEETS. (OALAS)

ITEM	RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY VENTILATION SYSTEM-PHASE 1 AND 2 FLOW DIAGRAM				
APPROVALS	DATE			
DESIGN R.S.S.	12-1-81			
DRAWN D.W.C.	12-8-81			
CHECKED J.A.	12-8-81			
PROJ. MGR. B.C.	12-8-81			
QA/QC J.B.	12-8-81			
PROJ. MGR. ACCEPTED	12-8-81			
Y.M.P.O.	12-8-81			
W.B.S. NO.		DRAWING NO.		REV.
1.2.6.7.1		FS-GA-0227		C
SCALE		DATE		SHEET 1 OF 1
NONE				



- NOTES**
- SPECIAL DRIFT CUTOUT FOR SILENCERS OF PRIMARY BOOSTER FANS WILL BE PROVIDED.
 - COMPLETE AIRFLOW BALANCE INCLUDING SHAFT AIR IS SHOWN IN DRAWING FS-GA-0225
 - REGULATOR WILL BE USED TO ASSURE FRESH AIR SUPPLY OF 40,000 cfm TO EITHER GHOST DANCE OR DRILL HOLE WASH DRIFTS.
 - FAN AND TUBE BLOWING AIR TO THE FACE CAN BE REPOSITIONED FOR A REVERSED AIR FLOW DURING DEVELOPMENT STAGE. THE FAN WILL BECOME A PRIMARY BOOSTER OF THE MAIN EXHAUST SYSTEM.

- REFERENCE DRAWINGS**
- FS-GA-0225 VENTILATION - SCHEMATIC FLOW DIAGRAM
 - FS-GA-0227 VENTILATION SYSTEM-PHASE 1 & 2 FLOW DIAGRAM

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Also Available On Aperture Card

- LEGEND**
- FRESH AIR SUPPLY (DRIFT OR DUCT)
 - RETURN AIR (EXHAUST RIGID DUCT)
 - AXIAL FAN
 - BKw BULKHEAD WITH MANWAY
 - R REGULATOR (DRIFT OR DUCT)
 - FDc FIRE DOOR (CLOSED POSITION)
 - FDo FIRE DOOR (OPEN POSITION)
 - Dc DOOR IN CLOSED POSITION
 - WGSP WATER GAUGE STATIC PRESSURE

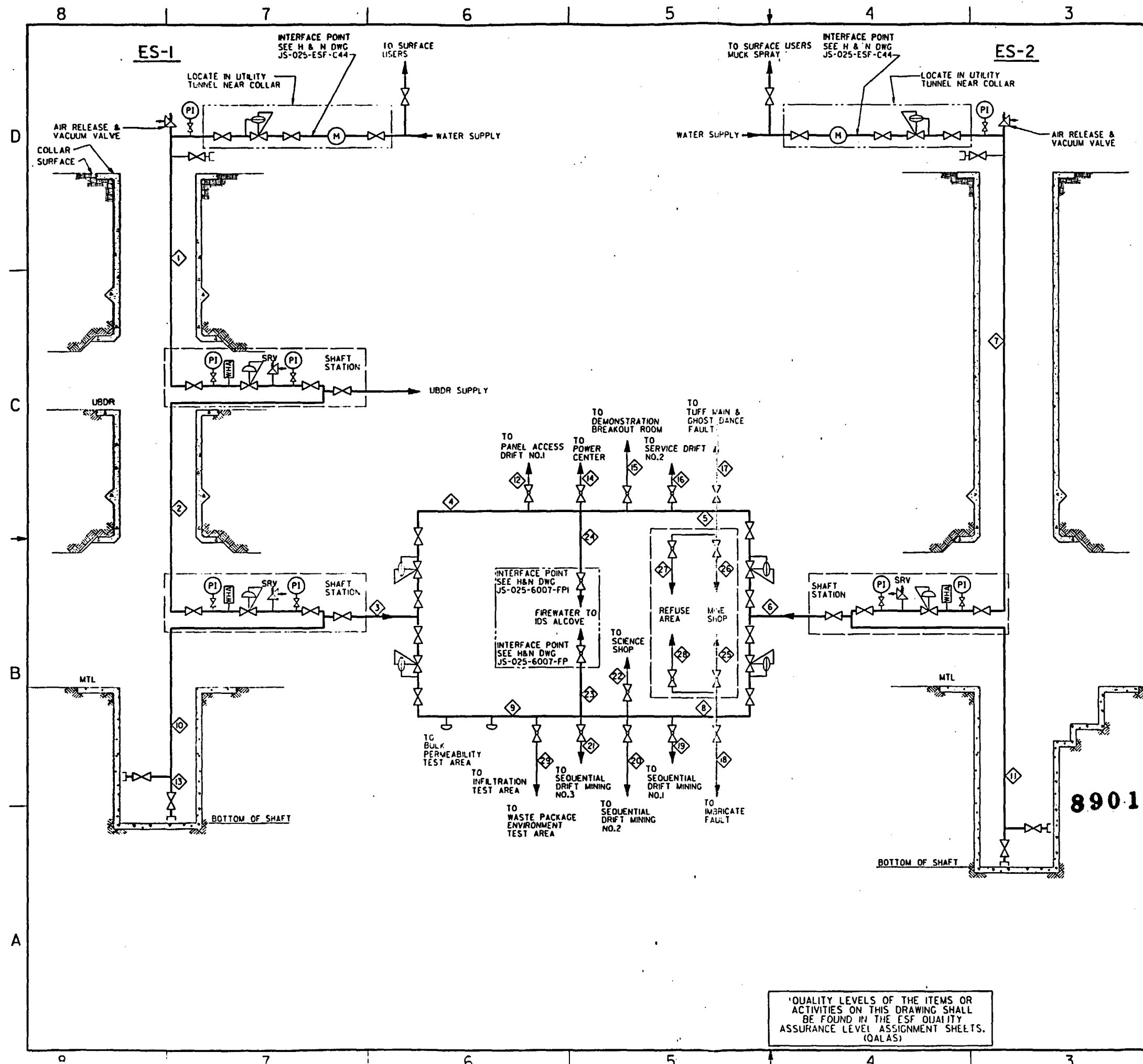
NOTE: THE SYMBOLS SHOWN ABOVE ARE GENERIC IN NATURE AND ARE NOT FOUND IN SPECIFIC STANDARDS PUBLICATIONS. THESE SYMBOLS APPEAR ONLY ON DRAWINGS FS-GA-0225, FS-GA-0227, & FS-GA-0228.

VENTILATION SYSTEM STATUS:
MTL IN NORMAL OPERATION, CONCURRENT WITH THE DEVELOPMENT OR OPERATION OF THE GHOST DANCE, DRILL HOLE AND IMBRICATE DRIFTS.

QUALITY LEVELS OF THE ITEMS OR ACTIVITIES ON THIS DRAWING SHALL BE FOUND IN THE ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEETS. (DALAS)

8901040172-90

ITEM	RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY				
NEVADA OPERATIONS OFFICE			LAS VEGAS, NEVADA	
APPROVALS		DATE	FENIX & SCISSON, INC.	
DESIGN		12-1-81	LAS VEGAS, NEVADA	
DRAWN		D.W.C.	YUCCA MOUNTAIN PROJECT	
CHECKED		JAN	EXPLORATORY SHAFT FACILITY	
PROJ. DES.		12-8-80	VENTILATION SYSTEM-PHASE 3	
PROJ. DES.		12-8-80	FLOW DIAGRAM	
PROJ. DES.		12-8-80		
PROJ. DES.		12-8-80		
ACCEPTED		12-8-80		
W.B.S. NO.			DRAWING NO.	REV.
1.2.6.7.1			FS-GA-0228	C
SCALE		DATE	SHEET 1 OF 1	
NONE				



NO.	DATE	REVISION	DES.	DRN.	CHK.	P.D.M.	G.A.R.	P.M.	YMPO
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NOTES

- SUPPLY TWO INCH UTILITY HOSE CONNECTIONS SPACED SUCH THAT A 100 FOOT HOSE WILL REACH ALL AREAS.
- VALVING TO TEST AREAS REFLECT FLEXIBILITY AND AVAILABILITY ONLY.
- UL AND/OR FM APPROVED EQUIPMENT WILL BE USED WHERE APPROPRIATE.
- FOR MASTER LEGEND OF GRAPHIC SYMBOLS, SEE DRAWINGS FS-GA-0003, & FS-GA-0004.
- FOR ABBREVIATIONS & ACRONYMS, SEE DRAWING FS-GA-0005.

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Also Available On
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REFERENCE DRAWINGS

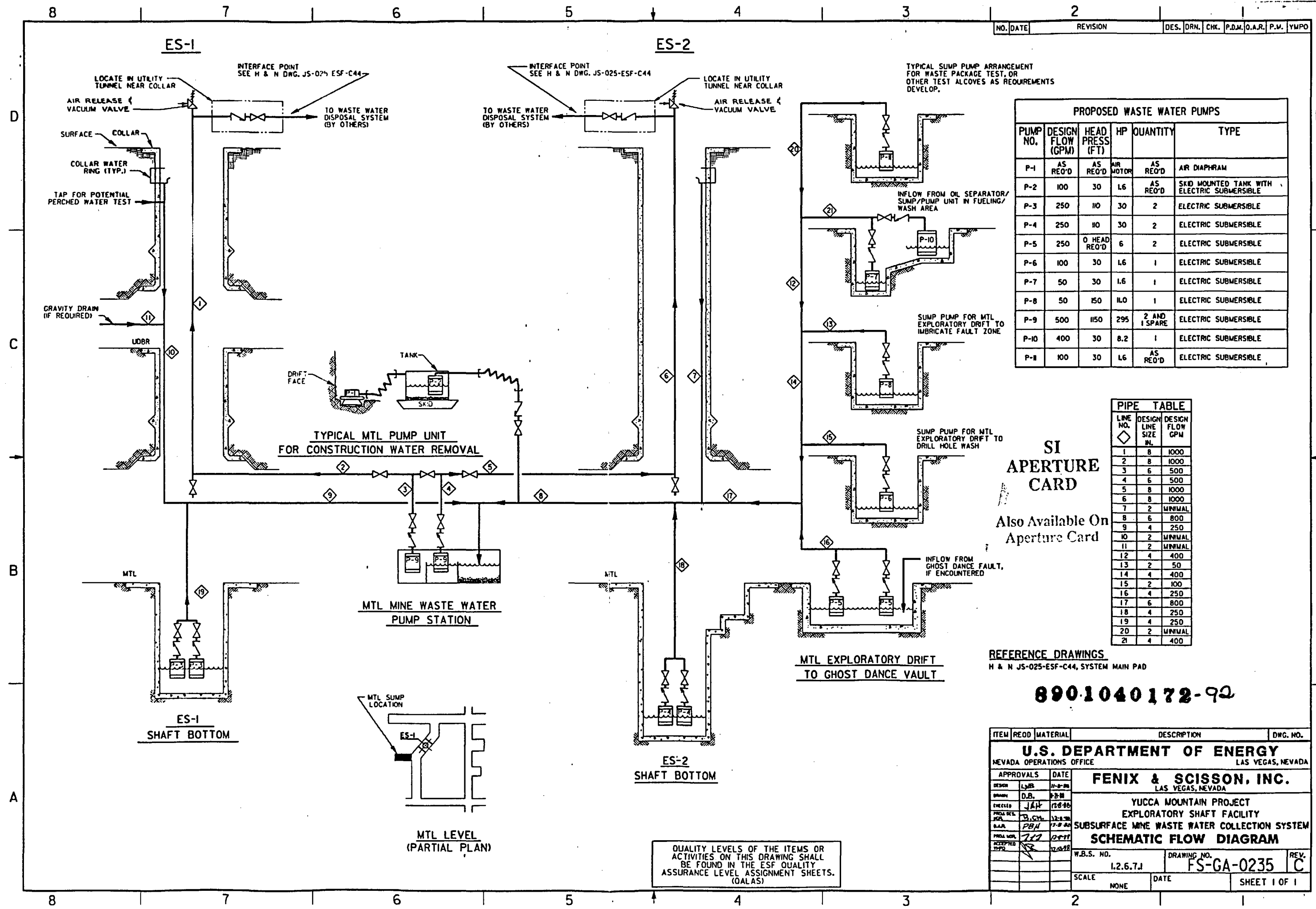
- JS-025-ESF-C44 SYSTEM MAIN PAD
- JS-025-6007-FPI SUBSURFACE DATA BUILDING 6007 FIRE PROTECTION AND FIRE ALARM PLAN

PIPE TABLE		
LINE NO.	DESIGN LINE SIZE IN.	DESIGN FLOW GPM
1	6	500
2	6	500
3	6	500
4	6	500
5	6	500
6	6	500
7	6	500
8	6	500
9	6	500
10	2	100
11	2	100
12	2	100
13	2	100
14	2	100
15	2	100
16	2	100
17	6	500
18	6	500
19	2	100
20	2	100
21	2	100
22	2	100
23	4	300
24	4	300
25	4	200
26	4	200
27	2	100
28	2	100
29	2	100

8901040172-91

QUALITY LEVELS OF THE ITEMS OR ACTIVITIES ON THIS DRAWING SHALL BE FOUND IN THE ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEETS. (QALAS)

ITEM	RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY SUBSURFACE MINE WATER SUPPLY SYSTEM SCHEMATIC FLOW DIAGRAM				
APPROVALS DESIGN: LMB DRAWN: D.B. CHECKED: JAW PROJ. MGR.: B.C.M. QA: JBN PROJ. MGR. ACCEPTED: JAW		DATE: 8-8-88 12-8-88 12-8-88 12-8-88 12-8-88 12-8-88		
W.B.S. NO. 1.2.6.7.1		DRAWING NO. FS-GA-0230		
SCALE NONE		DATE SHEET 1 OF 1		



NO.	DATE	REVISION	DES.	DRN.	CHK.	P.D.M.	O.A.R.	P.M.	YMPO
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PROPOSED WASTE WATER PUMPS					
PUMP NO.	DESIGN FLOW (GPM)	HEAD PRESS (FT)	HP	QUANTITY	TYPE
P-1	AS REQ'D	AS REQ'D	AS REQ'D	AS REQ'D	AIR DIAPHRAM
P-2	100	30	1.6	AS REQ'D	SKID MOUNTED TANK WITH ELECTRIC SUBMERSIBLE
P-3	250	110	30	2	ELECTRIC SUBMERSIBLE
P-4	250	110	30	2	ELECTRIC SUBMERSIBLE
P-5	250	0 HEAD REQ'D	6	2	ELECTRIC SUBMERSIBLE
P-6	100	30	1.6	1	ELECTRIC SUBMERSIBLE
P-7	50	30	1.6	1	ELECTRIC SUBMERSIBLE
P-8	50	150	11.0	1	ELECTRIC SUBMERSIBLE
P-9	500	1150	295	2 AND 1 SPARE	ELECTRIC SUBMERSIBLE
P-10	400	30	8.2	1	ELECTRIC SUBMERSIBLE
P-11	100	30	1.6	AS REQ'D	ELECTRIC SUBMERSIBLE

PIPE TABLE		
LINE NO.	DESIGN LINE SIZE IN.	DESIGN FLOW GPM
1	8	1000
2	8	1000
3	6	500
4	6	500
5	8	1000
6	8	1000
7	2	MINIMAL
8	6	800
9	4	250
10	2	MINIMAL
11	2	MINIMAL
12	4	400
13	2	50
14	4	400
15	2	100
16	4	250
17	6	800
18	4	250
19	4	250
20	2	MINIMAL
21	4	400

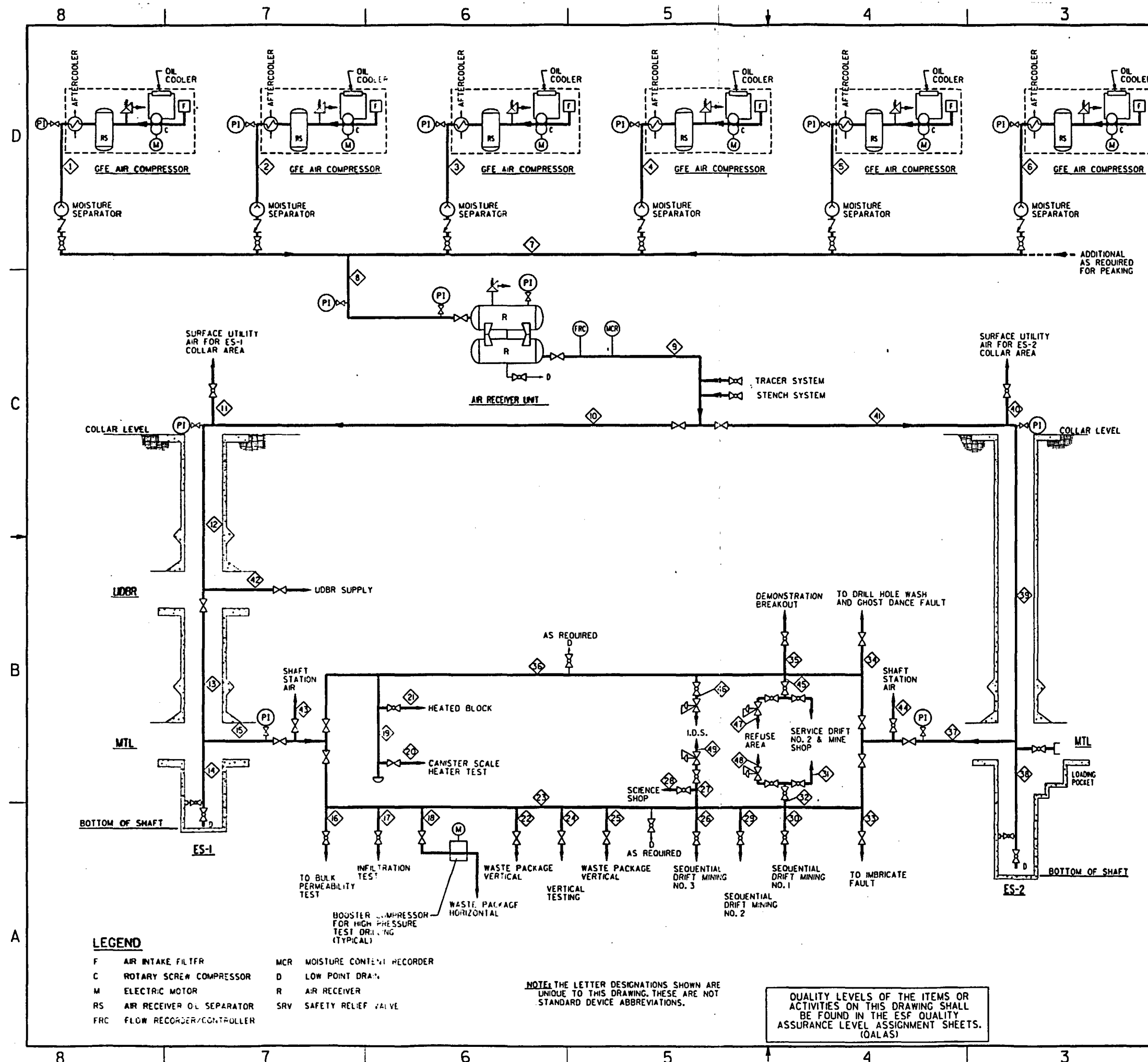
SI
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CARD
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Aperture Card

REFERENCE DRAWINGS
H & N JS-025-ESF-C44, SYSTEM MAIN PAD

890.1040172-92

ITEM	RECD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
FENIX & SCISSON, INC. LAS VEGAS, NEVADA				
YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY SUBSURFACE MINE WASTE WATER COLLECTION SYSTEM SCHEMATIC FLOW DIAGRAM				
W.B.S. NO.		DRAWING NO.		REV.
1.2.6.7.J		FS-GA-0235		C
SCALE		DATE		SHEET 1 OF 1
NONE				

QUALITY LEVELS OF THE ITEMS OR
ACTIVITIES ON THIS DRAWING SHALL
BE FOUND IN THE ESF QUALITY
ASSURANCE LEVEL ASSIGNMENT SHEETS.
(OALAS)



NO.	DATE	REVISION	DES.	DRN.	CHK.	P.D.M.	O.A.R.	P.M.	Y.M.P.O.
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NOTES

- DESIGN USER PRESSURE IS 90 PSIG MINIMUM THROUGHOUT SYSTEM. DESIGN USER TEMPERATURE IS 130°F MAXIMUM.
- HIGH PRESSURE COMPRESSED AIR FOR TEST CORE DRILLING IS TO BE DEVELOPED BY PORTABLE BOOSTER AIR COMPRESSORS.
- COMPRESSED AIR OIL FILTERS AND/OR DRYERS MAY BE REQUIRED FOR THE IDS ALCOVE AND VARIOUS TESTS.
- SUPPLY TWO INCH UTILITY CONNECTIONS SPACED SUCH THAT 50 FEET HOSES IN SHAFTS AND 100 FEET HOSES IN DRIFTS, WILL BE SUFFICIENT TO REACH ALL AREAS.
- FURTHER LOCATIONS AND CONFIGURATIONS OF MOISTURE TRAPS AND PRESSURE INDICATORS WILL BE INCLUDED IN TITLE II WORK.
- FOR GRAPHIC SYMBOLS SEE DRAWINGS FS-GA-0003, AND FS-GA-0004.
- FOR ABBREVIATIONS & ACRONYMS SEE DRAWING FS-GA-0005.

REFERENCE DRAWING

FS-GA-0243 SURFACE COMPRESSED AIR SYSTEM
PLANS & ELEVATION

PIPE TABLE					
LINE NO.	DESIGN LINE SIZE IN.	DESIGN FLOW SCFM	LINE NO.	DESIGN LINE SIZE IN.	DESIGN FLOW SCFM
1	4	1250	26	4	1200
2	4	1250	27	2	MINIMAL
3	4	1250	28	2	MINIMAL
4	4	1250	29	4	1200
5	4	1250	30	4	1200
6	4	1250	31	2	MINIMAL
7	12	10000	32	2	MINIMAL
8	12	10000	33	8	3000
9	12	10000	34	8	4000
10	8	5000	35	4	1000
11	2	MINIMAL	36	8	5000
12	8	5000	37	8	5000
13	8	5000	38	2	MINIMAL
14	2	MINIMAL	39	8	5000
15	8	5000	40	2	MINIMAL
16	4	1200	41	8	5000
17	4	1200	42	6	1400
18	8	2200	43	6	1400
19	8	2200	44	6	1400
20	8	2200	45	2	MINIMAL
21	4	1000	46	2	MINIMAL
22	8	2200	47	2	MINIMAL
23	8	5000	48	2	MINIMAL
24	8	2200	49	2	MINIMAL
25	8	2200	50		

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8201040172-93

ITEM	READ	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
APPROVALS		DATE	FENIX & SCISSON, INC. LAS VEGAS, NEVADA	
DESIGN	L.W.B.	8-8-88	YUCCA MOUNTAIN PROJECT EXPLORATORY SHAFT FACILITY COMPRESSED AIR SYSTEM SCHEMATIC FLOW DIAGRAM	
DRAWN	D.B.	8-8-88		
CHECKED	JAK	11-8-88		
PROV. DES.	J.B. CH.	12-8-88		
BLANK	PDH	1-8-89	W.B.S. NO.	
PROV. MOD.	213	12-8-88	DRAWING NO.	
ACCEPTED			FS-GA-0240	
SCALE			DATE	SHEET 1 OF 1
NONE				

8

7

6

5

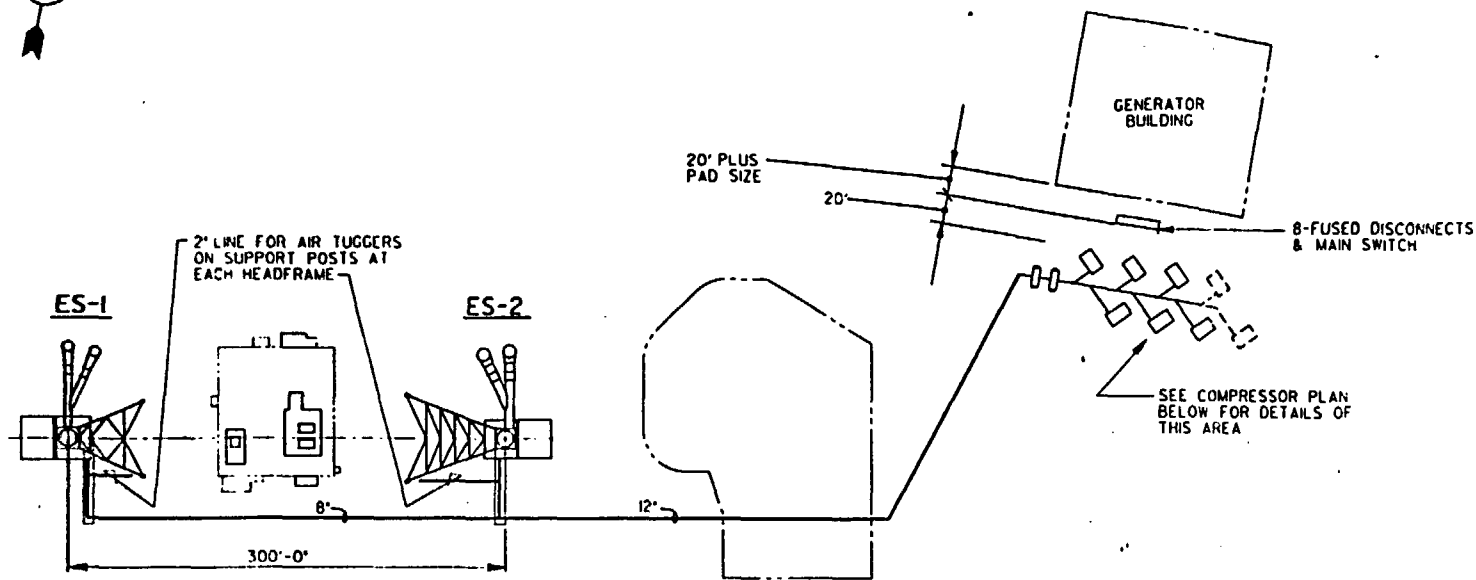
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3

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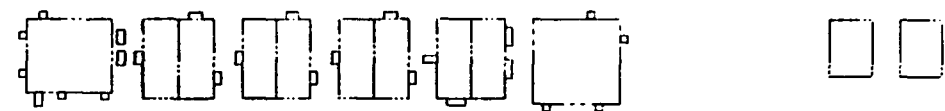
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NO.	DATE	REVISION	DES.	DRN.	CHK.	P.D.M.	O.A.R.	P.W.	Y.M.P.O.



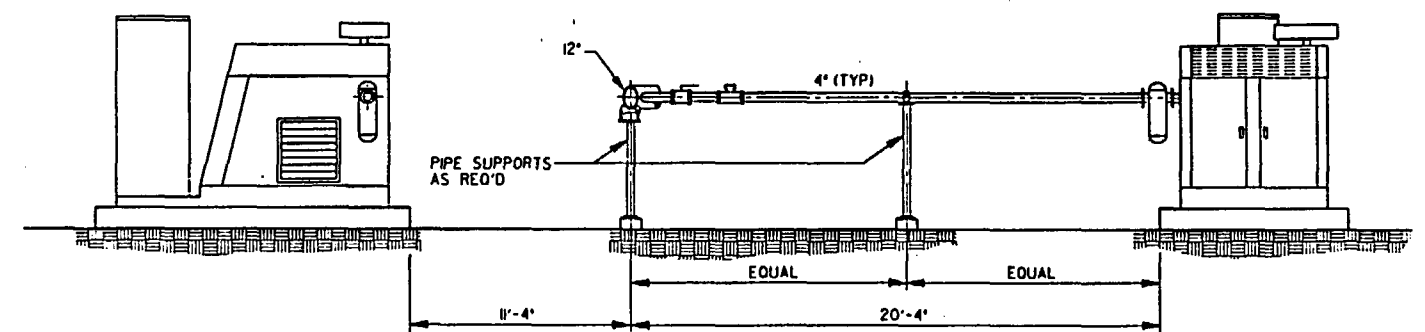
REFERENCE DRAWING

FS-GA-00H
SURFACE
PLOT PLAN



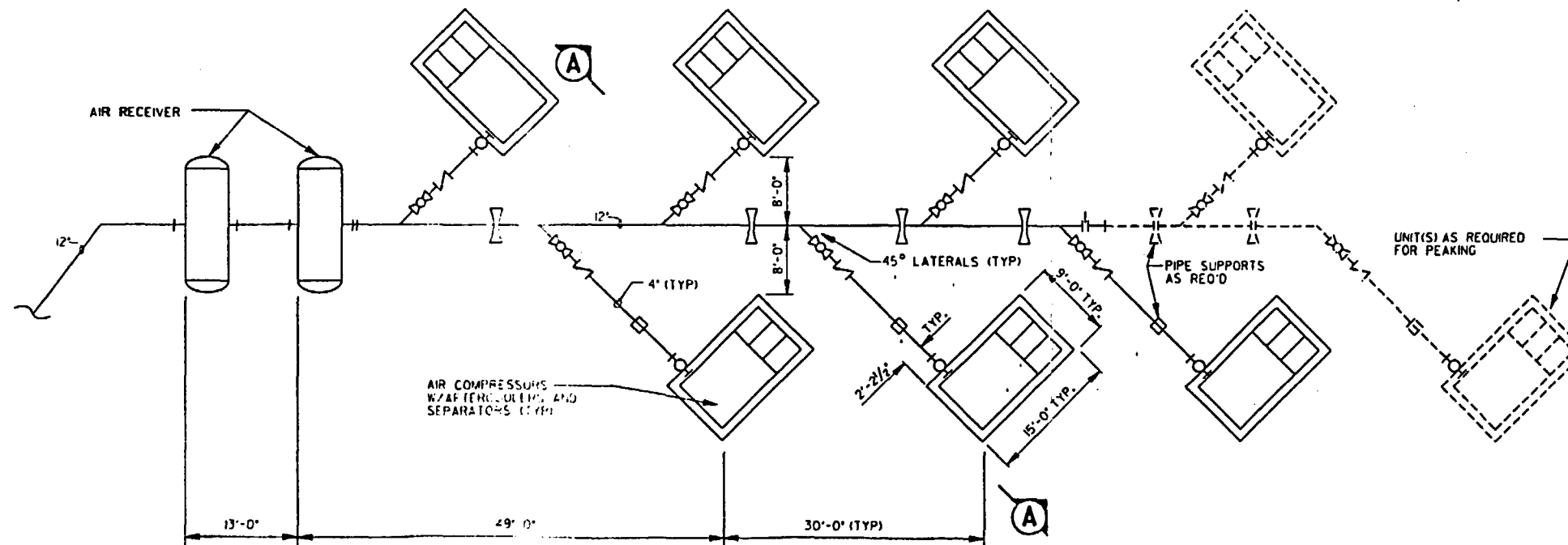
AIR LINE AND COMPRESSOR LOCATION PLAN

SCALE: 1"=60'-0"

ELEVATION
SCALE: 1/4"=1'-0" (A)

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COMPRESSOR PLAN

SCALE: 1/4"=1'-0"

1" = 60'
1/4" = 1'-0"
1/8" = 1'-0"

QUALITY LEVELS OF THE ITEMS OR
ACTIVITIES ON THIS DRAWING SHALL
BE FOUND IN THE ESF QUALITY
ASSURANCE LEVEL ASSIGNMENT SHEETS.
(OALAS)

890.1040172-94

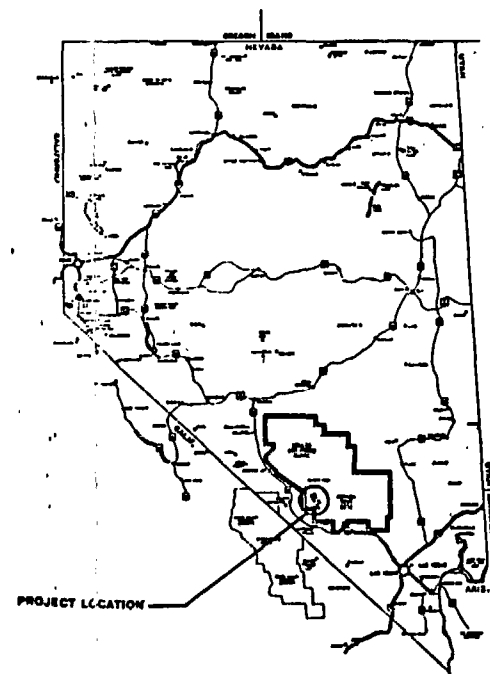
ITEM	REQD	MATERIAL	DESCRIPTION	DWG. NO.
U.S. DEPARTMENT OF ENERGY				
NEVADA OPERATIONS OFFICE			LAS VEGAS, NEVADA	
APPROVALS		DATE		
DESIGN	LWB	11-8-88		
DRAWN	D.W.C.	12-8-88		
CHECKED	JAH	12-8-88		
PROJ. DES. MGR.	B.C.M.	12-8-88		
P.A.R.	PZH	12-8-88		
PROJ. MGR.	JJJ	12-11-88		
ACCEPTED	VS	12-10-88		

UNITED STATES DEPARTMENT OF ENERGY

NEVADA NUCLEAR WASTE STORAGE INVESTIGATION

EXPLORATORY SHAFT FACILITY

LAS VEGAS, NEVADA



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Aperture Card

8901040172-95

Prepared By

HOLMES & NARVER, INC.
ENERGY SUPPORT DIVISION

TITLE I

NO.		DATE		REVISIONS		12-15-73	
U.S. DEPARTMENT OF ENERGY LAS VEGAS, NEVADA							
NEVADA OPERATIONS OFFICE		NEVADA NUCLEAR WASTE STORAGE INVESTIGATION EXPLORATORY SHAFT FACILITY					
DESIGNED CLP	CLP	TITLE SHEET					
DRAWN PPE	PPE	HOLMES & NARVER, INC. ARCHITECTS - ENGINEERS ENERGY SUPPORT DIVISION					
CHECKED PPE	PPE	1050 E. FLAMINGO ROAD LAS VEGAS, NEVADA 89109		12-15-73		JS-025-ESF-TI	
1:2.5		1:2.5		1:2.5		1:2.5	

EXPLORATORY SHAFT FACILITY	
CIVIL	DRAWING NO.
TITLE SHEET	JS-025-ESF-T1
DRAWING INDEX	JS-025-ESF-T2
SYMBOLS AND ABBREVIATIONS	JS-025-ESF-T3
SYMBOLS AND ABBREVIATIONS	JS-025-ESF-T4
SYMBOLS AND ABBREVIATIONS	JS-025-ESF-T5
VICINITY AND LOCATION MAP	JS-025-ESF-C2
ESF OVERALL SITE PLAN	JS-025-ESF-C3
MAIN PAD SITE PLAN	JS-025-ESF-C4
MAIN PAD GRADING PLAN	JS-025-ESF-C4
BOOSTER PUMP SITE & GRADING PLAN	JS-025-ESF-C4
BATCH PLANT, FILL STAND SITE & GRADING PLAN	JS-025-ESF-C14
"H" ROAD STA 361+84.71 TO STA 371+50	JS-025-ESF-C18
"H" ROAD STA 371+50 TO STA 383+50	JS-025-ESF-C17
"H" ROAD STA 383+50 TO STA 398+00	JS-025-ESF-C18
"H" ROAD STA 398+00 TO STA 408+50	JS-025-ESF-C19
"H" ROAD STA 408+50 TO STA 419+62.02	JS-025-ESF-C20
G-4 ROAD	JS-025-ESF-C24
WATER TANK ROAD	JS-025-ESF-C25
NORTH ACCESS ROAD	JS-025-ESF-C26
HAUL ROAD	JS-025-ESF-C27
EXPLOSIVE STORAGE ROAD	JS-025-ESF-C28
BOOSTER PUMP STATION LAYOUT	JS-025-ESF-C31
SUBSTATION, COMMUNICATION PADS SITE & GRADING PLAN	JS-025-ESF-C36
LOWER PARKING SITE & GRADING PLAN	JS-025-ESF-C37
MUCK STORAGE, BORROW PIT SITE & GRADING PLAN	JS-025-ESF-C38
TOP SOIL, BORROW PIT SITE & GRADING PLAN	JS-025-ESF-C39
LOWER EQUIPMENT STORAGE SITE & GRADING PLAN	JS-025-ESF-C40
WASTEWATER FACILITIES SITE & GRADING PLAN	JS-025-ESF-C41
EXPLOSIVE STORAGE, G-4, WATER TANK SITE, COMMUNICATION PAD GRADING PLAN	JS-025-ESF-C42
SYSTEM OVERALL UTILITY PLAN	JS-025-ESF-C43
SYSTEM MAIN PAD UTILITY PLAN	JS-025-ESF-C44
PMF & 100 YR FLOOD PLAIN	JS-025-ESF-C45
ARCHITECTURAL	
TRAILER COMPLEX - PLAN AND GENERAL NOTES	JS-025-ESF-A1
ELECTRICAL	
ESF ELECTRICAL SITE PLAN	JS-025-ESF-E1
MAIN SWGR - ONE LINE DIAGRAM	JS-025-ESF-E2
MON - ESSENTIAL - ONE LINE DIAGRAM	JS-025-ESF-E3
ESSENTIAL - ONE LINE DIAGRAM	JS-025-ESF-E4
MAIN PAD - POWER & LIGHTING PLAN	JS-025-ESF-E5
SUBSTATION PAD - POWER & LIGHTING PLAN	JS-025-ESF-E6
SHAFT ES-1 - DAS UPS POWER RISER DIAGRAM	JS-025-ESF-E7
MAIN TEST LEVEL - POWER & DAS LOCATION PLAN	JS-025-ESF-E8
UPS DISTRIBUTION - ONE LINE DIAGRAM	JS-025-ESF-E9
MECHANICAL	
FIRE PROTECTION - ES-1 & ES-2 ELEVATIONS	JS-025-ESF-FP1
FIRE PROTECTION - UOBR PLAN	JS-025-ESF-FP2
FIRE PROTECTION - MAIN TEST LEVEL PLAN	JS-025-ESF-FP3
FIRE PROTECTION - EXTENSION DRIFTS PLAN	JS-025-ESF-FP4
LIFE SAFETY & OPERATIONS - BLOCK DIAGRAM	JS-025-ESF-FP5
ALARM SYSTEM - ES-1 & ES-2 ELEVATIONS	JS-025-ESF-FP6
ALARM SYSTEM - UOBR PLAN	JS-025-ESF-FP7
ALARM SYSTEM - MAIN TEST LEVEL PLAN	JS-025-ESF-FP8
ALARM SYSTEM - EXTENSION DRIFTS PLAN	JS-025-ESF-FP9
FIRE DETECTION - ES-1 & ES-2 ELEVATIONS	JS-025-ESF-FP10
FIRE DETECTION - UOBR PLAN	JS-025-ESF-FP11
FIRE DETECTION - MAIN TEST LEVEL PLAN	JS-025-ESF-FP12
FIRE DETECTION - EXTENSION DRIFTS PLAN	JS-025-ESF-FP13

EXPLORATORY SHAFT FACILITY	
COMMUNICATIONS	DRAWING NO.
IDS CABLE PLANT - SIMPLIFIED BLOCK DIAGRAM	JS-025-ESF-W1
IDS - FACILITY DIAGRAM	JS-025-ESF-W2
IDS - TYPICAL INSTALLTION DETAILS	JS-025-ESF-W3
TELEMETRY - SITE PLAN	JS-025-ESF-W4
TELEMETRY - BLOCK DIAGRAM	JS-025-ESF-W5
CCTV - SURFACE BLOCK DIAGRAM	JS-025-ESF-W6
CCTV - SYSTEM BLOCK DIAGRAM	JS-025-ESF-W7
CCTV - EQUIPMENT LAYOUT	JS-025-ESF-W8
MICROWAVE COMMUNICATION SHELTER PLAN & ELEVATION	JS-025-ESF-W9
ADMINISTRATIVE TELEPHONE SYSTEM BLOCK DIAGRAM	JS-025-ESF-W10
AREA 25 BLOCK DIAGRAM	JS-025-ESF-W11
MINE PLANT-EXPERIMENTER'S INTERCOM BLOCK DIAGRAM	JS-025-ESF-W12
MINE PLANT-EXPERIMENTER'S INTERCOM ES-1 & ES-2	JS-025-ESF-W13
MINE PLANT-EXPERIMENTER'S INTERCOM UOBR TEST LEVEL	JS-025-ESF-W14
MINE PLANT-EXPERIMENTER'S INTERCOM MAIN TEST LEVEL	JS-025-ESF-W15
MINE PLANT-EXPERIMENTER'S INTERCOM EXTENSION DRIFTS	JS-025-ESF-W16
MINE PLANT-EXPERIMENTER'S INTERCOM SURFACE BLOCK DIAGRAM	JS-025-ESF-W17
SHOP BUILDING 6000	
ARCHITECTURAL	DRAWING NO.
SHOP BUILDING 6000 - PLAN, SECTION & ELEVATIONS	JS-025-6000-A1
MECHANICAL	
SHOP BUILDING 6000 - HVAC PLAN	JS-025-6000-M1
SHOP BUILDING 6000 - PLUMBING PLAN	JS-025-6000-M2
SHOP BUILDING 6000 - COMPRESSED AIR SYS. PLAN	JS-025-6000-M3
SHOP BUILDING 6000 - WELDING EXHAUST SYS. PLAN	JS-025-6000-M7
SHOP BUILDING 6000 - FIRE PROTECTION PLAN & SECTION	JS-025-6000-FP1
SHOP BUILDING 6000 - FIRE ALARM PLAN	JS-025-6000-FP2
ELECTRICAL	
SHOP BUILDING 6000 - LIGHTING AND POWER PLAN	JS-025-6000-E2
COMMUNICATIONS	
SHOP BUILDING 6000 - COMMUNICATIONS PLAN	JS-025-6000-W1
WAREHOUSE BUILDING 6001	
ARCHITECTURAL	DRAWING NO.
WAREHOUSE BUILDING 6001 - PLAN, SECTION, & ELEVATIONS	JS-025-6001-A1
WAREHOUSE BUILDING 6001 - PLAN & GENERAL NOTES	JS-025-6001-A2
WAREHOUSE BUILDING 6001 - SECTION & ELEVATIONS	JS-025-6001-A3
MECHANICAL	
WAREHOUSE BUILDING 6001 - HVAC PLAN	JS-025-6001-M1
WAREHOUSE BUILDING 6001 - PLUMBING PLAN	JS-025-6001-M2
WAREHOUSE BUILDING 6001 - FIRE PROTECTION PLAN & SECTION	JS-025-6001-FP1
WAREHOUSE BUILDING 6001 - FIRE ALARM PLAN	JS-025-6001-FP2
ELECTRICAL	
WAREHOUSE BUILDING 6001 - LIGHTING & POWER PLAN	JS-025-6001-E1
COMMUNICATIONS	
WAREHOUSE BUILDING 6001 - COMMUNICATIONS PLAN	JS-025-6001-W1

ES-1 & ES-2 HOIST HOUSE BUILDING 6002	
ARCHITECTURAL	DRAWING NO.
ES-1 & ES-2 HOIST HOUSE 6002 - FLOOR PLAN & GENERAL NOTES	JS-025-6002-A1
ES-1 & ES-2 HOIST HOUSE 6002 - ELEVATIONS & SECTION	JS-025-6002-A2
MECHANICAL	
ES-1 & ES-2 HOIST HOUSE 6002 - HVAC & PLUMBING PLAN	JS-025-6002-M1
ES-1 & ES-2 HOIST HOUSE 6002 - FIRE PROT. & FIRE ALARM PLAN	JS-025-6002-FP1
ELECTRICAL	
ES-1 & ES-2 HOIST HOUSE 6002 - LIGHTING & POWER PLAN	JS-025-6002-E3
COMMUNICATIONS	
ES-1 & ES-2 HOIST HOUSE 6002 - COMMUNICATIONS PLAN	JS-025-6002-W1
BOOSTER PUMP STATION BUILDING 6004	
ARCHITECTURAL	DRAWING NO.
BOOSTER PUMP STATION BUILDING - PLAN, ELEVATION & GEN. NOTES	JS-025-6004-A1
ELECTRICAL	
BOOSTER PUMP STATION 6004 - LIGHTING AND POWER PLAN	JS-025-6004-E1
SURFACE DATA BUILDING 6006	
ARCHITECTURAL	DRAWING NO.
SURFACE DATA BUILDING 6006 - FLOOR PLAN & GENERAL NOTES	JS-025-6006-A1
SURFACE DATA BUILDING 6006 - SECTION & ELEVATIONS	JS-025-6006-A2
MECHANICAL	
SURFACE DATA BUILDING 6006 - HVAC PLAN	JS-025-6006-M1
SURFACE DATA BUILDING 6006 - PLUMBING PLAN	JS-025-6006-M2
SURFACE DATA BUILDING 6006 - FIRE PROTECTION PLAN	JS-025-6006-FP1
SURFACE DATA BUILDING 6006 - FIRE ALARM PLAN	JS-025-6006-FP2
ELECTRICAL	
SURFACE DATA BUILDING 6006 - LIGHTING AND POWER PLAN	JS-025-6006-E1
COMMUNICATIONS	
SURFACE DATA BUILDING 6007 - COMMUNICATIONS PLAN	JS-025-6007-W1
SUBSURFACE DATA BUILDING 6007	
ARCHITECTURAL	DRAWING NO.
SUBSURFACE DATA BUILDING 6007 - PLANS, SECTIONS & GEN. NOTES	JS-025-6007-A1
MECHANICAL	
SUBSURFACE DATA BUILDING 6007 - HVAC PLAN	JS-025-6007-M1
SUBSURFACE DATA BUILDING 6007 - FIRE PROT. & FIRE ALARM PLAN	JS-025-6007-FP1
ELECTRICAL	
SUBSURFACE DATA BUILDING 6007 - LIGHTING AND POWER PLAN	JS-025-6007-E1
COMMUNICATIONS	
SUBSURFACE DATA BUILDING 6007 - COMMUNICATIONS PLAN	JS-025-6007-W1

CHANGE HOUSE BUILDING 6008	
ARCHITECTURAL	DRAWING NO.
CHANGE HOUSE BUILDING 6008 - FLOOR PLAN & GENERAL NOTES	JS-025-6008-A1
CHANGE HOUSE BUILDING 6008 - SECTION & ELEVATIONS	JS-025-6008-A2
MECHANICAL	
CHANGE HOUSE BUILDING 6008 - HVAC PLAN	JS-025-6008-M1
CHANGE HOUSE BUILDING 6008 - PLUMBING PLAN	JS-025-6008-M2
CHANGE HOUSE BUILDING 6008 - FIRE PROTECTION PLAN	JS-025-6008-FP1
ELECTRICAL	
CHANGE HOUSE BUILDING 6008 - LIGHTING & POWER PLAN	JS-025-6008-E1
COMMUNICATIONS	
CHANGE HOUSE BUILDING 6008 - COMMUNICATIONS PLAN	JS-025-6008-W1
OFFICE TRAILER TYPE A	
ARCHITECTURAL	DRAWING NO.
OFFICE TRAILER TYPE A - FLOOR PLAN	JS-025-058-A1
MECHANICAL	
OFFICE TRAILER TYPE A - HVAC & PLUMBING PLAN	JS-025-058-M1
OFFICE TRAILER TYPE A - FIRE PROT. & FIRE ALARM PLAN	JS-025-058-FP1
ELECTRICAL	
OFFICE TRAILER TYPE A - LIGHTING & POWER PLAN	JS-025-058-E1
COMMUNICATIONS	
OFFICE TRAILER TYPE A - COMMUNICATIONS PLAN	JS-025-058-W1
OFFICE TRAILER TYPE B	
ARCHITECTURAL	DRAWING NO.
OFFICE TRAILER TYPE B - FLOOR PLAN & SECTION	JS-025-058-2-A1
MECHANICAL	
OFFICE TRAILER TYPE B - HVAC & PLUMBING PLAN	JS-025-058-2-M1
OFFICE TRAILER TYPE B - FIRE PROT. & FIRE ALARM PLAN	JS-025-058-2-FP1
ELECTRICAL	
OFFICE TRAILER TYPE B - LIGHTING & POWER PLAN	JS-025-058-2-E1
COMMUNICATIONS	
OFFICE TRAILER TYPE B - COMMUNICATIONS PLAN	JS-025-058-2-W1

NO.	DATE	REVISIONS	1	2	3	4	5	6	7	8	9	10	11	12
U.S. DEPARTMENT OF ENERGY														
NEVADA OPERATIONS OFFICE														
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION														
EXPLORATORY SHAFT FACILITY														
DRAWING INDEX														
HOLMES & NARVER, INC.														
ARCHITECTS - ENGINEERS														
ENERGY SUPPORT DIVISION														
1080 E. PLAMINGO ROAD LAS VEGAS, NEVADA 89103														
JS-025-ESF-T2														

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ELECTRICAL/COMMUNICATIONS SYMBOLS AND ABBREVIATIONS

WIRING DIAGRAM SYMBOLS

	AIR CIRCUIT BREAKER		WATTMETER
	SAFETY SWITCH NON-FUSED TYPE		WATTMETER DEMAND METER
	SAFETY SWITCH FUSED TYPE		UNDERVOLTAGE RELAY
	LIGHTNING ARRESTER		UNDERCURRENT RELAY FOR GROUND CHECK MONITOR
	DISCONNECTING DEVICE		TRANSFORMER THERMAL RELAY
	CURRENT TRANSFORMER		COMBINATION INSTANTANEOUS & OVERCURRENT RELAY
	CURRENT TRANSFORMER GROUND SENSING TYPE		GROUND RESIDUAL RELAY
	POWER TRANSFORMER		OVERCURRENT RELAY
	POTENTIAL TRANSFORMER		GROUND FAULT OVERCURRENT RELAY
	BATTERY		GROUND SENSING OVERCURRENT RELAY
	GROUND		GROUND OVERCURRENT RELAY
	CONTACT - NORMALLY OPEN		OVERVOLTAGE RELAY
	CONTACT - NORMALLY CLOSED		SUDDEN PRESSURE SWITCH RELAY
	THERMAL OVERLOAD DEVICE		LOCK-OUT TRANSFORMER RELAY
	MAGNETIC OVERLOAD DEVICE		DIFFERENTIAL PROTECTIVE RELAY
	TAP OR SPLICE		INDICATING LAMP (A) AMBER, (G) GREEN, (R) RED, (W) WHITE
	INCOMING LINE		AMMETER SWITCH
	OUTGOING LINE		VOLTMETER SWITCH
	FUSE		TRANSFER SWITCH
	TRANSFER SWITCH - (ATS) DENOTES AUTOMATIC TRANSFER SWITCH		TEST SWITCH
	PUSHBUTTON - NORMALLY OPEN		MOTOR SWITCH
	PUSHBUTTON - NORMALLY CLOSED		CONTACTOR
	BATTERY CHARGER		HEATER-NUMERICAL INDICATES KW
	3 PHASE WYE CONNECTED WITH GROUNDING NEUTRAL		LIMIT SWITCH
	DELTA CONNECTED		SOLENOID
	ALARM HORN		DAMPER MOTOR
	THERMOSTAT		INTERLOCK RELAY
	OIL CIRCUIT BREAKER		CIRCUIT TIE-BREAKER
	DRAWOUT CIRCUIT BREAKER		
	HIGH VOLTAGE INTERRUPTOR		
	DISCONNECT SWITCH FUSED		
	PAD MOUNTED GEAR NON-FUSED SWITCH		
	PAD MOUNTED GEAR FUSED SWITCH		
	RESISTOR		
	AMMETER		
	VOLTMETER		
	WATTMETER		

LIGHTING AND POWER SYMBOLS

	WIRING CONCEALED IN CEILING OR WALL		JUNCTION BOX - BELOW FLOOR
	WIRING CONCEALED IN FLOOR		EXIT LIGHT - CEILING MOUNTED ARROW POINTS TOWARD EXIT DOOR
	WIRING EXPOSED		EXIT LIGHT - WALL MOUNTED
	WIRING TURNED UP		TRANSFORMER
	WIRING TURNED DOWN		
	CONDUIT, INDICATES 8 CONDUCTORS SHORT LINE INDICATES NEUTRAL WIRE, DOT INDICATES GROUND WIRE		
	LIGHTING TRANSFORMER		
	POWER PANELBOARD		
	LIGHTING PANELBOARD		
	AIR CIRCUIT BREAKER, SINGLE POLE		
	AIR CIRCUIT BREAKER, TWO POLE		
	AIR CIRCUIT BREAKER, THREE POLE		
	SOLID NEUTRAL		
	NORMAL PANEL-CIRCUIT DESIGNATION FLUORESCENT FIXTURE (PENDANT, CEILING OR FLUSH)		
	FIXTURE TYPE		
	NORMAL CIRCUIT OPERATION		
	FLUORESCENT FIXTURE-EMERGENCY (MULTI LAMP)		
	EMERGENCY OPERATION-BATTERY OPERATION		
	FIXTURE 2-HEAD EMERGENCY UNIT BATTERY PACK 'RN' DENOTES REMOTE HEAD		
	SINGLE ARM POLE TYPE FIXTURE WITH INTEGRAL PHOTO-ELECTRIC CONTROL		
	TWO ARM POLE TYPE FIXTURE WITH INTEGRAL PHOTO-ELECTRIC CONTROL		
	THREE ARM POLE TYPE FIXTURE WITH INTEGRAL PHOTO-ELECTRIC CONTROL		
	FIXTURE WALL PACK TYPE WITH PHOTO-ELECTRIC CONTROL		
	DUPLEX RECEPTACLE OUTLET 'WP' DENOTES WEATHERPROOF 120V, 20A		
	DUPLEX RECEPTACLE OUTLET WITH GROUND FAULT INTERRUPTER DEVICE 120V, 20A		
	QUADRUPLER RECEPTACLE OUTLET 120V, 20A		
	PUSH BUTTON STATION		
	POWER OUTLET - 208V, 3PH		
	POWER OUTLET - 480V, 3PH		
	PLUGMOLD - SINGLE TYPE GROUNDING RECEPTACLES		
	SWITCH SINGLE POLE 120V/277V, 20A		
	SWITCH THREE WAY 120V/277V, 20A		
	SWITCH FOUR WAY 120V/277V, 20A		
	MANUAL MOTOR STARTER SWITCH		
	DIMMER SWITCH		
	SAFETY SWITCH - (30) DENOTES AMP RATING		
	DEVICE BOX - 'JB' JUNCTION BOX 'PB' PULL BOX		
	JUNCTION BOX - CEILING MOUNTED		
	JUNCTION BOX - WALL MOUNTED		
	MOTOR-NUMERICAL INDICATES HORSEPOWER		

ABBREVIATIONS

AC	ALTERNATING CURRENT	AC	AC
ACB	AIR CIRCUIT BREAKER	ACB	ACB
AL	ALUMINUM	AL	AL
ALT	ALTERNATOR OR ALTERNATE	ALT	ALT
APPROX	APPROXIMATELY	APPROX	APPROX
AS	AMMETER SWITCH	AS	AS
AUTO	AUTOMATIC	AUTO	AUTO
ATS	AUTOMATIC TRANSFER SWITCH	ATS	ATS
AUX	AUXILIARY	AUX	AUX
BKR	BREAKER	BKR	BKR
CHDR	CALICO HILL DEMONSTRATION ROOM	CHDR	CHDR
CB	CIRCUIT BREAKER	CB	CB
CKT	CONDUIT	CKT	CKT
C	COPPER	C	C
CU	CURRENT	CU	CU
CLF	CURRENT LIMITING FUSE	CLF	CLF
CT	CURRENT TRANSFORMER	CT	CT
DC	DIRECT CURRENT	DC	DC
DIFF	DIFFERENTIAL	DIFF	DIFF
DISTR	DISTRIBUTION	DISTR	DISTR
DM	DEMAND METER	DM	DM
DP	DIFFERENTIAL PRESSURE SWITCH	DP	DP
ELECT	ELECTRICAL	ELECT	ELECT
EW	ELECTRIC WATER HEATER	EW	EW
EL	ELEVATION	EL	EL
EXC	EXCITATION OR EXCITER	EXC	EXC
ENS	EXTAR HIGH STRENGTH GALVANIZED STEEL	ENS	ENS
FBK	FEEDER	FBK	FBK
FIX	FIXTURE	FIX	FIX
FLD	FIELD	FLD	FLD
FLX	FLEXIBLE	FLX	FLX
FLS	FLOW SWITCH	FLS	FLS
FP	FIRE PROTECTION	FP	FP
FREQ	FREQUENCY	FREQ	FREQ
FUN	GENERATOR	FUN	FUN
GFCI	GROUND FAULT CURRENT INTERRUPTER	GFCI	GFCI
GRD	GROUND	GRD	GRD
HP	HORSEPOWER	HP	HP
HT	HIGH VOLTAGE	HT	HT
HEATING	HEATING, VENTILATING AND OR AIR CONDITIONING	HEATING	HEATING
HEAT	HEAT (CYCLES PER SECOND)	HEAT	HEAT
IA	INTERFACIAL AMPLIFIER	IA	IA
JB	JUNCTION BOX	JB	JB
KV	KILOVOLT	KV	KV
KVA	KILOVOLTAMPERE	KVA	KVA
KVAR	REACTIVE KILOVOLTAMPERE	KVAR	KVAR
KW	KILOWATT	KW	KW
KWH	KILOWATT-HOUR	KWH	KWH
LA	LIGHTNING ARRESTER	LA	LA
LP	LIGHTING PANEL	LP	LP
LT	LIGHTING TRANSFORMER	LT	LT
LV	LOW VOLTAGE	LV	LV
LD	LOWER DEMONSTRATION BREAKOUT ROOM	LD	LD
MAN	MAGNETIC	MAN	MAN
MAN	MANUAL	MAN	MAN
MCB	MAIN CIRCUIT BREAKER	MCB	MCB
MCC	MOTOR CONTROL CENTER	MCC	MCC
MCH	THOUSAND CIRCULAR MILS	MCH	MCH
MCS	MAIN CONTROL SWITCHBOARD	MCS	MCS
MLO	MAIN LUGS ONLY	MLO	MLO
MS	MANUAL STARTER	MS	MS
MVA	MEGAVOLTAMPERE	MVA	MVA
MEW	REACTIVE MEGAVOLTAMPERE	MEW	MEW
MEW	MEGAWATT	MEW	MEW
NC	NON-AUTOMATIC NORMALLY CLOSED	NC	NC
NEUT	NEUTRAL	NEUT	NEUT
NO	NON-FUSED SAFETY SWITCH NORMALLY OPEN	NO	NO
NORM	NORMALLY OPEN	NORM	NORM
OCB	OIL CIRCUIT BREAKER	OCB	OCB
OL	OVERLOAD	OL	OL
PH	PANEL	PH	PH
PT	POTENTIAL TRANSFORMER	PT	PT
PF	POWER FACTOR	PF	PF
PS	PULL BOX	PS	PS
REL	RELAY	REL	REL
RES	RESISTOR	RES	RES
REV	REVERSE	REV	REV
RT	RADIAL BOREHOLE TEST	RT	RT
RS	RAPID START	RS	RS
RSC	RIGID STEEL CONDUIT	RSC	RSC
S/N	SOLID NEUTRAL	S/N	S/N
SP	SPARE	SP	SP
SW	SAFETY SWITCH	SW	SW
STN	STATION	STN	STN
SUP	SUBSTATION	SUP	SUP
SW	SWITCH	SW	SW
SWB	SWITCHBOARD	SWB	SWB
SWG	SWITCHING	SWG	SWG
SWOR	SWITCHGEAR	SWOR	SWOR
SY	SYSTEM	SY	SY
TS	TRANSFER SWITCH	TS	TS
UH	UNIT HEATER	UH	UH
UPS	UNINTERRUPTED POWER SUPPLY	UPS	UPS
UV	UNDERVOLTAGE	UV	UV
V	VOLTAGE OR VOLTS	V	V
VM	VOLTMETER	VM	VM
W	WATT	W	W
WH	WATT-HOUR	WH	WH
WM	WATTMETER	WM	WM
WP	WEATHER PROOF	WP	WP

COMMUNICATIONS SYMBOLS

	MINE PLANT INTERCOM OUTLET - WALL MOUNT
	MINE PLANT INTERCOM OUTLET - FLOOR MOUNT
	EXPERIMENTERS INTERCOM OUTLET
	ADMINISTRATIVE TELEPHONE OUTLET - WALL MOUNT
	ADMINISTRATIVE TELEPHONE OUTLET - FLOOR MOUNT
	CABLE CROSS CONNECT BOX
	MINE PLANT-EXPERIMENTERS INTERCOM
	SINGLE PAIR CABLE
	MULTI PAIR CABLE
	MTL DISTRIBUTION NETWORK (COAXIAL CABLE)
	TELEPHONE BACKBOARD

ABBREVIATIONS

DATA ACQUISITION STATION	DAS
EXPLORATORY SHAFT 1	ES-1
EXPLORATORY SHAFT 2	ES-2
FIBER OPTIC	FO
INTEGRATED DATA SYSTEM	IDS
LOWER DEMONSTRATION BREAKOUT ROOM	LDOR
MAIN TEST LEVEL	MTL
ETHERNET REPEATER (NOT USED FOR IR10-B)	RE
RADIAL BORE HOLE	RBH
ETHERNET TERMINATOR (NOT USED FOR IR10-B)	TER
UPPER DEMONSTRATION BREAKOUT ROOM	UDOR
ZONE BOX	ZB
TIME CODE DATA FORMAT	IR10-B
LEVEL	LV
LOW	LO
VOLTS ALTERNATING CURRENT	VAC
DIRECT CURRENT	DC
COMMON DATA ZONE BOX	CDZB
AMPERAGE TRIP	AT
ELECTRONIC PRIVATE AUTOMATIC BRANCH EXCHANGE	SPABX
CLOSED CIRCUIT TELEVISION SYSTEM	CCTV

SI APERTURE CARD

Also Available On Aperture Card

890-1040172-98

NO.	DATE	REVISION	BY	DATE
U.S. DEPARTMENT OF ENERGY				
NEVADA OPERATIONS OFFICE				
DESIGNED BY	CLP	BRN	LAS VEGAS, NEVADA	
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION				
EXPLORATORY SHAFT FACILITY				
SYMBOLS & ABBREVIATIONS				
DESIGNED BY	CLP	BRN	DATE	12-8-88
HOLMES & NARVER, INC.				
ARCHITECTS - ENGINEERS				
ENERGY SUPPORT DIVISION				
1080 E. FLAMINGO ROAD LAS VEGAS, NEVADA 89119				
1.2.8				

TITLE I

ARCHITECTURAL, STRUCTURAL AND CIVIL SYMBOLS AND ABBREVIATIONS

ARCHITECTURAL/STRUCTURAL SYMBOLS

	STEEL	FIRE CONTROL SYSTEM	F	RADIUS	RAD
	CONCRETE	FOOT	FC	RAISED	RSD
	STONE, GRAVEL, FILL	FOR EXAMPLE	FT	RECESS	REC
	EXPOSED AGGREGATE	IDENTIFICATION NUMBER	HTG	RELOCATED	RELOC
	EARTH	CORNER BEAD	NO	REPLACE	REO
	BATT INSULATION	COUNTER	NO	REQUIRED	REQ
	RIGID INSULATION	DIST	NO	ROUGH OPENING	RO
	ACOUSTIC TILE	DOOR	NO	SHEATHING	SHTHG
	METAL STUD	DOOR CLOSER	NO	SHOWER DRAIN	SD
	CERAMIC TILE	DOOR STOP	NO	SINK	SK
	GLASS	DOWN	NO	SOUNDPROOF	SHDPRF
	GYPSUM WALL BOARD	DOWN SPOUT	NO	STORAGE	STOR
	ONE HOUR RATED FIRE WALL	EQUAL	NO	STOREROOM	STRM
	TWO HOUR RATED FIRE WALL	EQUALLY SPACED	NO	STRUCTURAL	STRCT
	CARPET	EXPANSION JOINT	NO	STRUCTURE	STRCT
	RESILIENT FLOORING TILE	EXTERIOR	NO	SURF	SURF
	DOOR TYPE	FABRICATE	NO	SUSPENDED ACOUSTICAL	SATC
	WINDOW TYPE	FARENHEIT	NO	TILE CEILING	SYMM
	ROOM/SPACE NUMBER AND NAME		NO	TEMPERED	TEMP
			NO	THICKNESS	THKNS
			NO	THROUGH	THRU
			NO	TILE BASE	TB
			NO	TILE FLOOR	TF
			NO	TILE WAINSCOT	TW
			NO	TILE	T
			NO	TOILET	TOILET
			NO	UNFINISHED	UNFIN
			NO	URINAL	UR
			NO	Vault door	VD
			NO	VERIFY	VERFY
			NO	VESTIBULE	VEST
			NO	WAINSCOT	WA
			NO	WALL	W
			NO	WALL VENT	WV
			NO	WATER CLOSET	WC
			NO	WATERPROOF	WTRPRF
			NO	WATERPROOFING	WPS
			NO	WEATHERSTRIPPING	WS
			NO	WINDOW	WDO

CIVIL SYMBOLS

EXISTING	NEW	ABBREVIATIONS
		BENCH MARK, DELTA AND ANGLE POINT
		STRUCTURE
		CONCRETE
		CONTOUR
		GRADE SPOT ELEVATION
		FLOW LINE
		TOP OF SLOPE (FOR CUT OR FILL SLOPE)
		TOE OF SLOPE (SOLID LINE INDICATES CONTROL DIMENSION)
		CHAIN LINK FENCE
		BARBED WIRE FENCE
		FIRE HYDRANT
		CHECK VALVE
		GATE VALVE
		CONCRETE THRUST BLOCK
		SLOPE DIRECTION DOWN
		WIRE, CONDUIT OR PIPE (SEE ABBREVIATION LIST FOR ELEMENT)
		MANHOLE (MH)
		CATCH BASIN (CB)
		CULVERT WITH END SECTIONS
		HORIZ:VERT (4:1)
		CUT OR FILL SLOPE

SI
APERTURE
CARD

Also Available On
Aperture Card

890-1040172-99

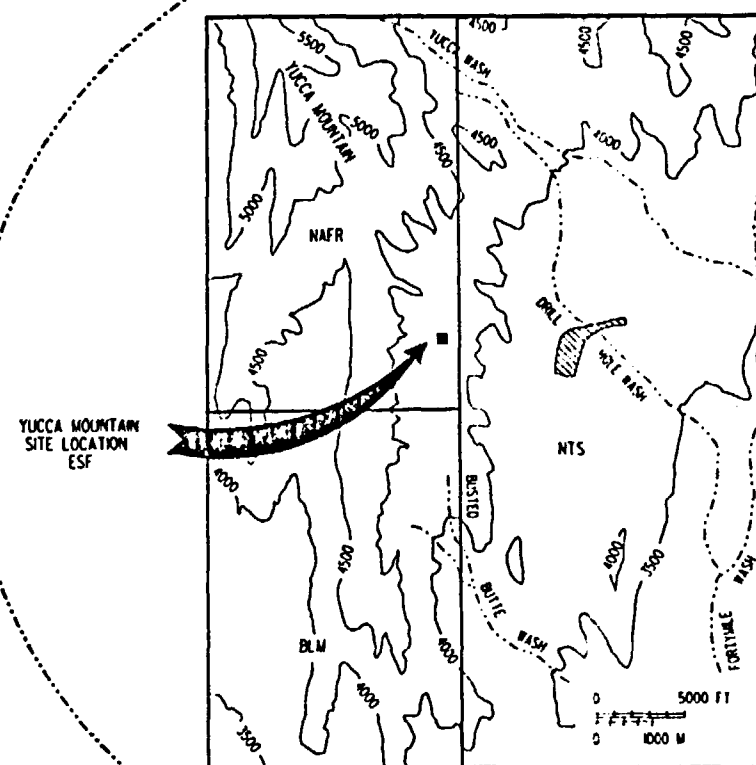
TITLE I

NO.	DATE	REVISIONS
U.S. DEPARTMENT OF ENERGY		
NEVADA OPERATIONS OFFICE		
LAS VEGAS, NEVADA		
CLP	CLP	CLP
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION		
EXPLORATORY SHAFT FACILITY		
SYMBOLS & ABBREVIATIONS		
HOLMES & NARVER, INC.		
ARCHITECTS - ENGINEERS		
ENERGY SUPPORT DIVISION		
1020 E. PLANNING ROAD LAS VEGAS, NEVADA 89109		
8.10.56		
50056		
JS-025-ESF-T5		
1.2.6		



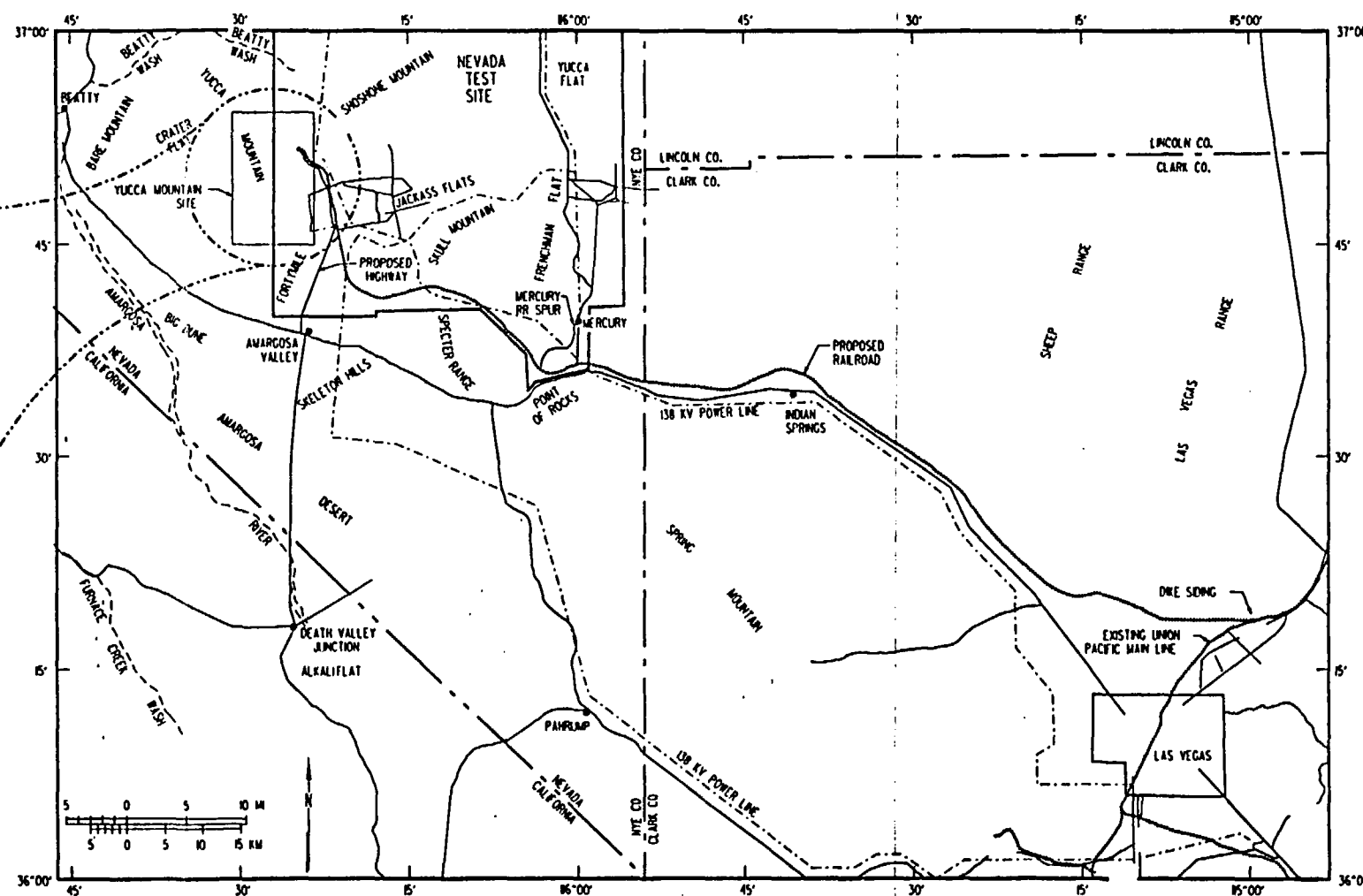
SI APERTURE CARD

Also Available On
Aperture Card



YUCCA MOUNTAIN SITE
VICINITY MAP

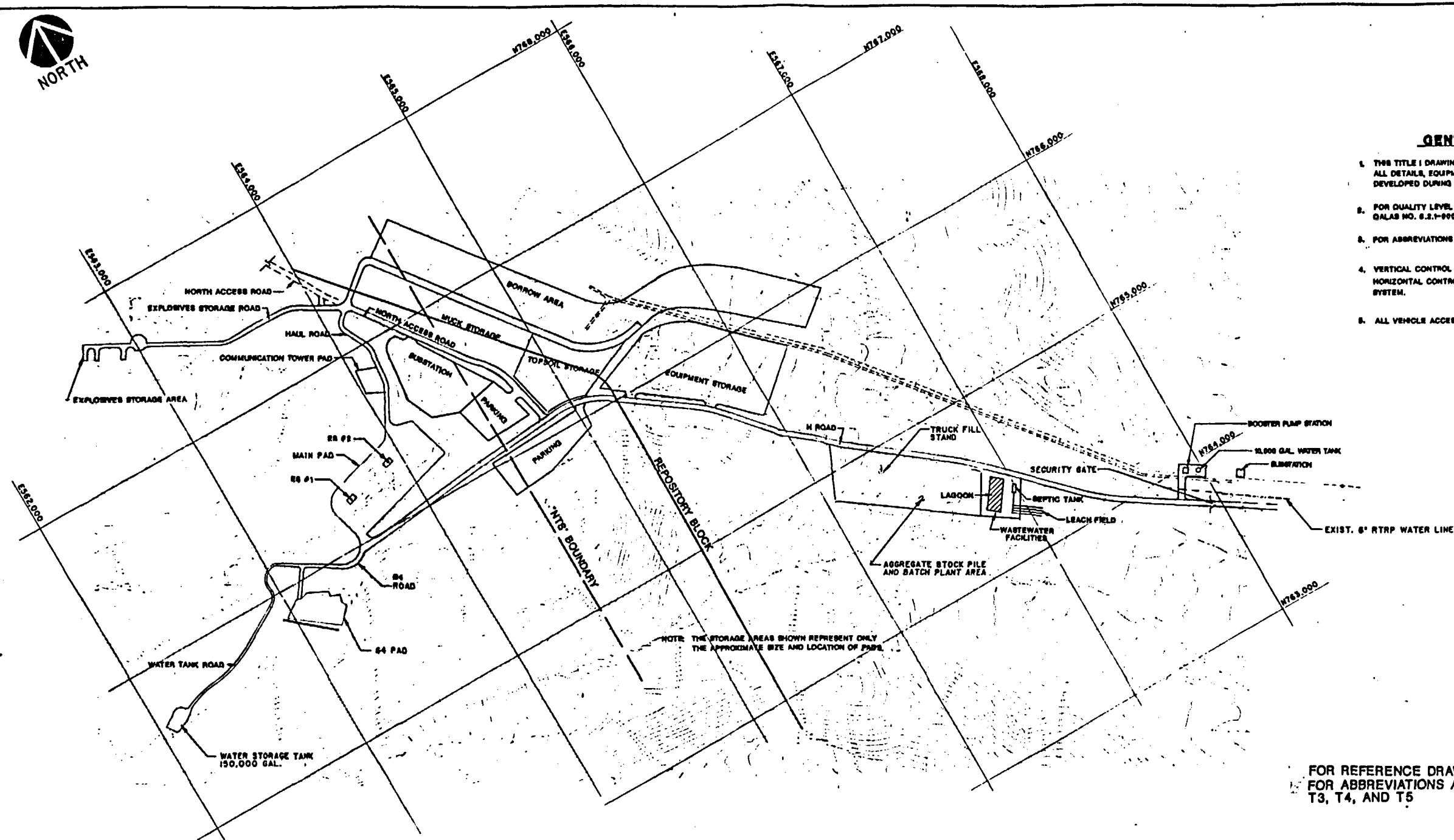
BOUNDARY OF CENTRAL
SURFACE FACILITIES AREA
BLM BUREAU OF LAND
MANAGEMENT
NAFR NELLIS AIR FORCE RANGE
NTS NEVADA TEST SITE



PROJECT LOCATION MAP

FOR REFERENCE DRAWINGS, SEE DRAWING T2.
FOR ABBREVIATIONS AND SYMBOLS, SEE DRAWING
T3, T4, AND T5

NO.		DATE		REVISIONS	
U.S. DEPARTMENT OF ENERGY					
NEVADA OPERATIONS OFFICE					
LAS VEGAS, NEVADA					
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION					
EXPLORATORY SHAFT FACILITY					
VICINITY AND LOCATION					
MAPS					
DESIGNED BY		CHECKED BY		DATE	
NA		NA		12/22/88	
DRAWN BY		CHECKED BY		DATE	
NA		NA		12/22/88	
APPROVED BY		DATE		DATE	
12/22/88		12/22/88		12/22/88	
HOLMES & NARVER, INC.		ARCHITECTS - ENGINEERS		ENERGY SUPPORT DIVISION	
1050 E. FLAMINGO ROAD		LAS VEGAS, NEVADA 89109		U.S.D.B.1	



GENERAL NOTES

1. THIS TITLE I DRAWING DEPICTS ONLY THE MAJOR DESIGN FEATURES OF THIS PROJECT. ALL DETAILS, EQUIPMENT DESCRIPTIONS, AND SPECIAL INSTRUCTIONS SHALL BE DEVELOPED DURING THE TITLE II EFFORT.
2. FOR QUALITY LEVEL REFER TO ESF QUALITY ASSURANCE LEVEL ASSIGNMENT SHEET, QALAS NO. 6.2.1-0001 & QALAS NO. 6.2.1-0002.
3. FOR ABBREVIATIONS AND SYMBOLS SEE DWG. JS-025-ESF-T5.
4. VERTICAL CONTROL IS BASED ON BLM DATUM MEAN SEA LEVEL (MSL) 1988; HORIZONTAL CONTROL IS BASED ON NEVADA CENTRAL STATE PLANE COORDINATE SYSTEM.
5. ALL VEHICLE ACCESS SHALL BE OILED AND CMP EXCEPT AS SHOWN OTHERWISE.

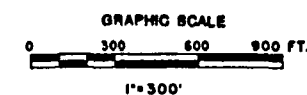
SI APERTURE CARD

Also Available On
Aperture Card

FOR REFERENCE DRAWINGS, SEE DRAWING T2.
FOR ABBREVIATIONS AND SYMBOLS, SEE DRAWING
T3, T4, AND T5

MAP

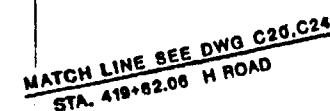
SCALE: 1" = 300'



TITLE I

8901040172-102

NO.		DATE		REVISIONS		11/11/89	
U.S. DEPARTMENT OF ENERGY							
NEVADA OPERATIONS OFFICE							
LAS VEGAS, NEVADA							
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION							
EXPLORATORY SHAFT FACILITY							
ESF OVERALL SITE							
MAP							
DESIGNED BY		CHECKED BY		DATE		11/11/89	
NA		NA		11/11/89		11/11/89	
PROJECT ENGINEER		DATE		11/11/89		11/11/89	
HOLMES & NARVER, INC.		10.0000		10.0000		10.0000	
ARCHITECTS - ENGINEERS		1.2.2.1		1.2.2.1		1.2.2.1	
ENERGY SUPPORT DIVISION		1050 E. FLAMINGO ROAD		LAS VEGAS, NEVADA 89103		1050 E. FLAMINGO ROAD	
1050 E. FLAMINGO ROAD		LAS VEGAS, NEVADA 89103		1050 E. FLAMINGO ROAD		LAS VEGAS, NEVADA 89103	
1050 E. FLAMINGO ROAD		LAS VEGAS, NEVADA 89103		1050 E. FLAMINGO ROAD		LAS VEGAS, NEVADA 89103	



TO G-4 PAD & WATER TANK PAD

LAYOUT AND SITE PLAN
SCALE 1"=40'

100

TITLE I

- ① MOIST HOUSE
- ② LANL OFFICE
- ③ LLNL OFFICE
- ④ SNL/USQS OFFICE
- ⑤ SAIC OFFICE
- ⑥ HAN/F&S OFFICE
- ⑦ DOE/NRC/STATE OF NEVADA
- ⑧ IDS BUILDING
- ⑨ CHANGE HOUSE/REECO SAFETY
- ⑩ SHOP
- ⑪ UNASSIGNED #
- ⑫ SUBCONTRACTOR'S AREA
- ⑬ UNASSIGNED BLDG.
- ⑭ REECO TRAILER
- ⑮ REECO TRAILER

**Also Available On
Aperture Card**

1. FOR QUALITY ASSURANCE LEVEL ASSIGNMENT,
SEE QALA NO. 6.2.1-0001

2. FOR GENERAL NOTES, SEE DRAWING C3.

CURVE No.	DELTA	RADIUS	TANGENT	LENGTH
①	85° 36' 29"	100.00'	92.61'	149.41'
②				
③				
④	90° 00' 00"	15.00'	15.00'	23.56'
⑤	45° 00' 00"	90.00'	37.28'	70.68'
⑥	90° 00' 00"	107.00'	107.00'	168.07'
⑦	106° 00' 00"	30.00'	37.81'	55.30'
⑧	90° 00' 00"	30.00'	30.00'	47.12'

8901040172-103

FOR REFERENCE DRAWINGS, SEE DRAWING T2.
FOR ABBREVIATIONS AND SYMBOLS, SEE DRAWING
T3, T4, AND T5

NO.	DATE	REVISIONS		1 2 3 4 5 6 7 8 9 10 11 12	DT CR	SAT DA	FRI 1 2 3 4 5 6 7 8 9 10 11 12
U. S. DEPARTMENT OF ENERGY							
NEVADA OPERATIONS OFFICE				LAS VEGAS, NEVADA			
DESIGNATION LB	DRAWING NO. M.S.F.	NEVADA NUCLEAR WASTE STORAGE INVESTIGATION EXPLORATORY SHAFT FACILITY MAIN PAD LAYOUT AND SITE PLAN					
CHECKED 73							
SAFETY NA	DATE KP						
PROJECT ENGINEER <i>[Signature]</i>							
SUBMITTED BY <i>[Signature]</i>	DATE 12/2/82	AGENCY APPROVAL HOLMES & NARVER, INC.		DRAWING NUMBER <i>[Signature]</i>		DATE 12/2/82	
HOLMES & NARVER, INC. ARCHITECTS—ENGINEERS 1000 SOUTH MAIN LAS VEGAS, NEVADA 89101				U.S. NO. 80080A W.B.S. NO. 12-025-ESF-C4			



NOTES

1. FOR QUALITY ASSURANCE LEVEL ASSIGNMENT, SEE GSA NO. 8.5.1-0001
2. FOR GENERAL NOTES, SEE DRAWING C5.

SI APERTURE CARD

Also Available On
Aperture Card

FOR REFERENCE DRAWINGS, SEE DRAWING T2.
FOR ABBREVIATIONS AND SYMBOLS, SEE DRAWING
T3, T4, AND T5

8901040172-101

MATCH LINE SEE DWG C20
"H" ROAD STA. 419+68.00

"V" DITCH TO DAYLIGHT

TO G4 PAD

TO EXPLOSIVE STORAGE, MUCK
STORAGE AND SUBSTATION PAD

MATCH LINE SEE DWG C30 C40

"V" DITCH
1:4 CUT TYP

TOP OF
CUT SLOPE

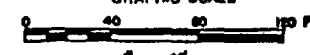
TOP OF SLOPE 7

FULL SLOPE
TYP

GRADING PLAN

SCALE 1" = 40'

GRAPHIC SCALE



TITLE I

NO.		DATE		REVISIONS		BY		CHK		APP.	
U. S. DEPARTMENT OF ENERGY											
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA											
DESIGNED		BY		TYPED		BY		CHECKED		BY	
LB		MSF		MSF		MSF		MSF		MSF	
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION											
EXPLORATORY SHAFT FACILITY											
MAIN PAD											
GRADING PLAN											
DRAWN		BY		DATE		AGENCY APPROVAL		DATE		DATE	
J. C. HALL		12/1/88		12/1/88		HOLMES & NARVER, INC.		12/1/88		12/1/88	
HOLMES & NARVER, INC.		ARCHITECTS-ENGINEERS		U. S. NO.		00028A		U. S. NO.		JS-025-ESF-C8	
1000 E. PLANNING ROAD		LAS VEGAS, NEVADA 89100		12.5.2.1.1		SHEET		1		OF 1	



NOTES

1. FOR QUALITY ASSURANCE LEVEL ASSIGNMENT, SEE QALA NO. 6.2.1-0001, 6.2.2-0001
2. FOR GENERAL NOTES, SEE DRAWING C3.

SI APERTURE CARD

Also Available On
Aperture Card

8901040172-105

FOR REFERENCE DRAWINGS, SEE DRAWING T2.
FOR ABBREVIATIONS AND SYMBOLS, SEE DRAWING
T3, T4, AND T5

SITE & GRADING PLAN

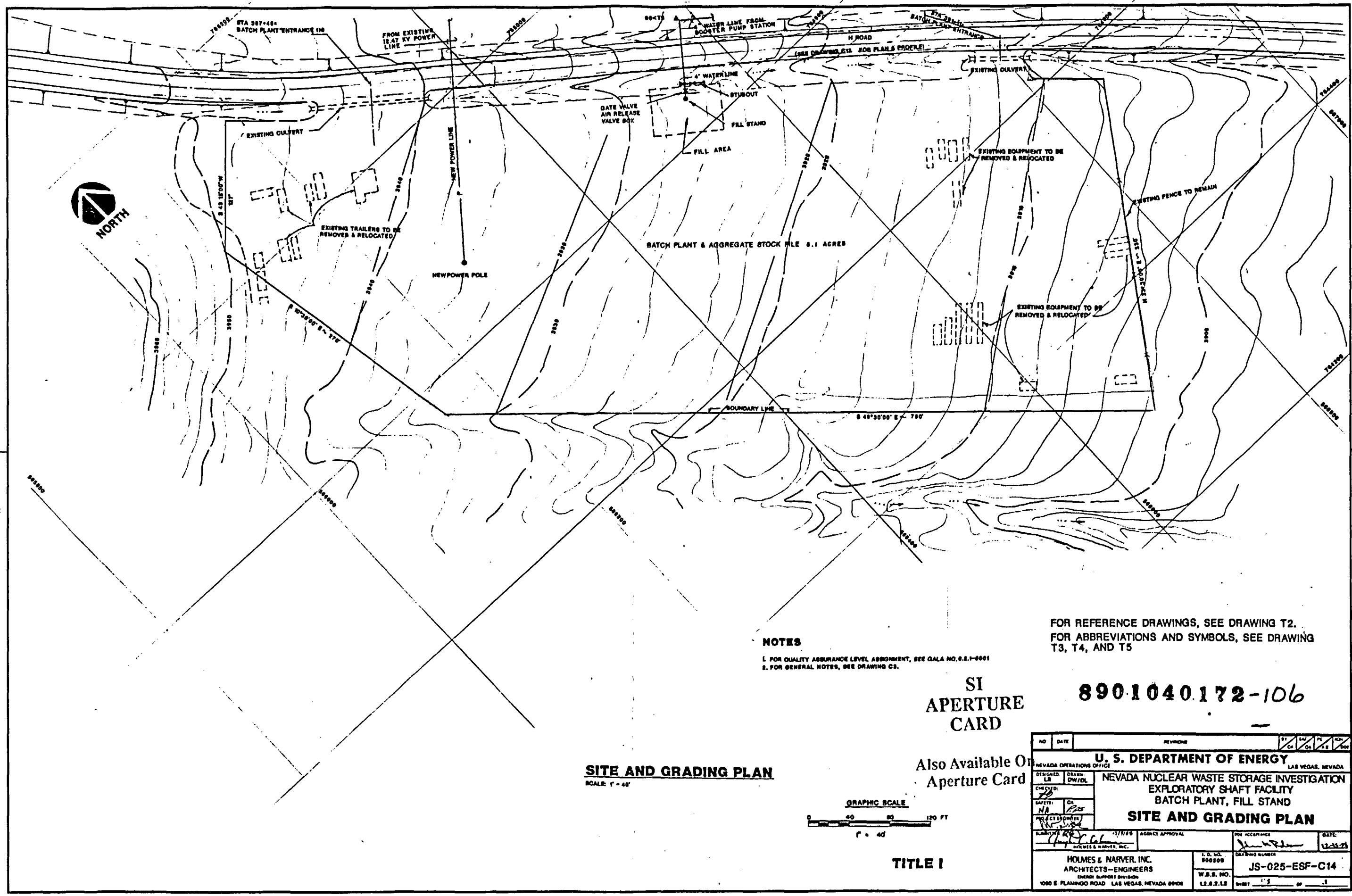
SCALE: 1"=10'

GRAPHIC SCALE
0 10 20 30 FT.

1" = 10'

TITLE I

NO.	DATE	REVISIONS	BY	DATE
U. S. DEPARTMENT OF ENERGY				
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA				
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION				
EXPLORATORY SHAFT FACILITY				
BOOSTER PUMP STATION				
SITE & GRADING PLAN				
DESIGNED MC	DATE MC	CHECKED TB	DATE TB	PROJECT NA
SUBMITTAL 1/1/78		AGENCY APPROVAL 1/1/78		DATE 1/1/78
HOLMES & NARVER, INC. ARCHITECTS-ENGINEERS 1050 E. FLAMINGO ROAD LAS VEGAS, NEVADA 89108		DRAWING NUMBER JS-025-ESF-C11		



NOTES

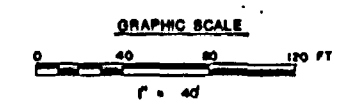
- 1. FOR QUALITY ASSURANCE LEVEL ASSIGNMENT, SEE QALA NO. 0.2.1-0001
- 2. FOR GENERAL NOTES, SEE DRAWING C3.

FOR REFERENCE DRAWINGS, SEE DRAWING T2.
FOR ABBREVIATIONS AND SYMBOLS, SEE DRAWING
T3, T4, AND T5

SI
APERTURE
CARD

8901040172-106

SITE AND GRADING PLAN
SCALE: 1" = 40'



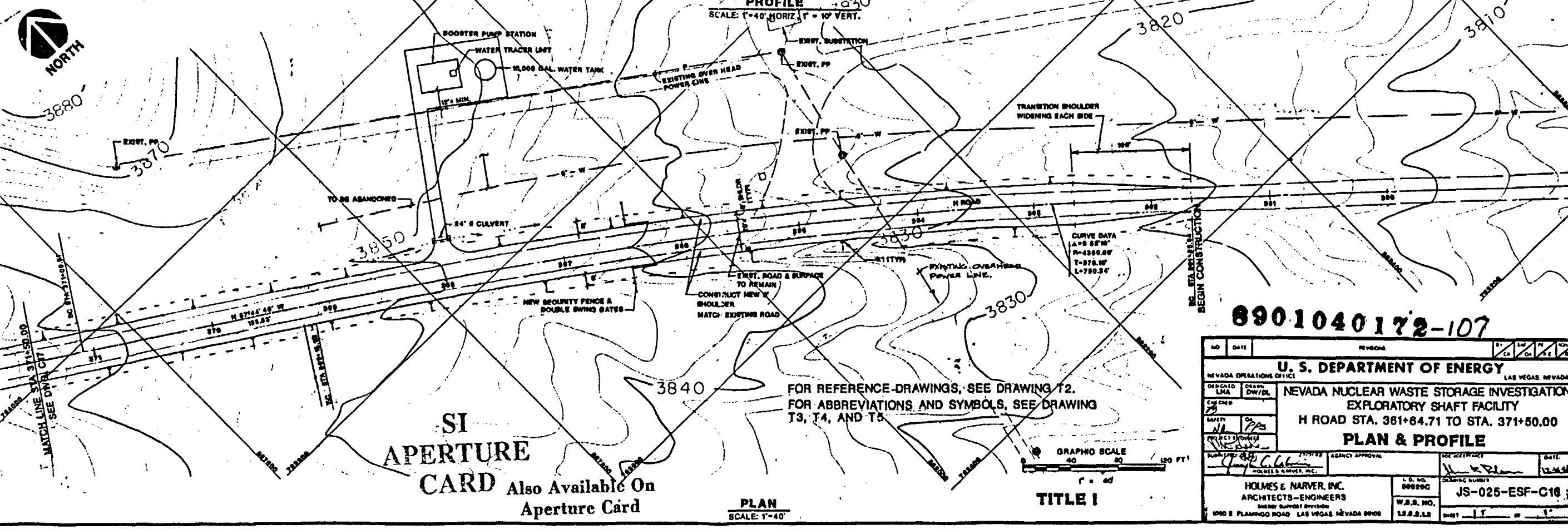
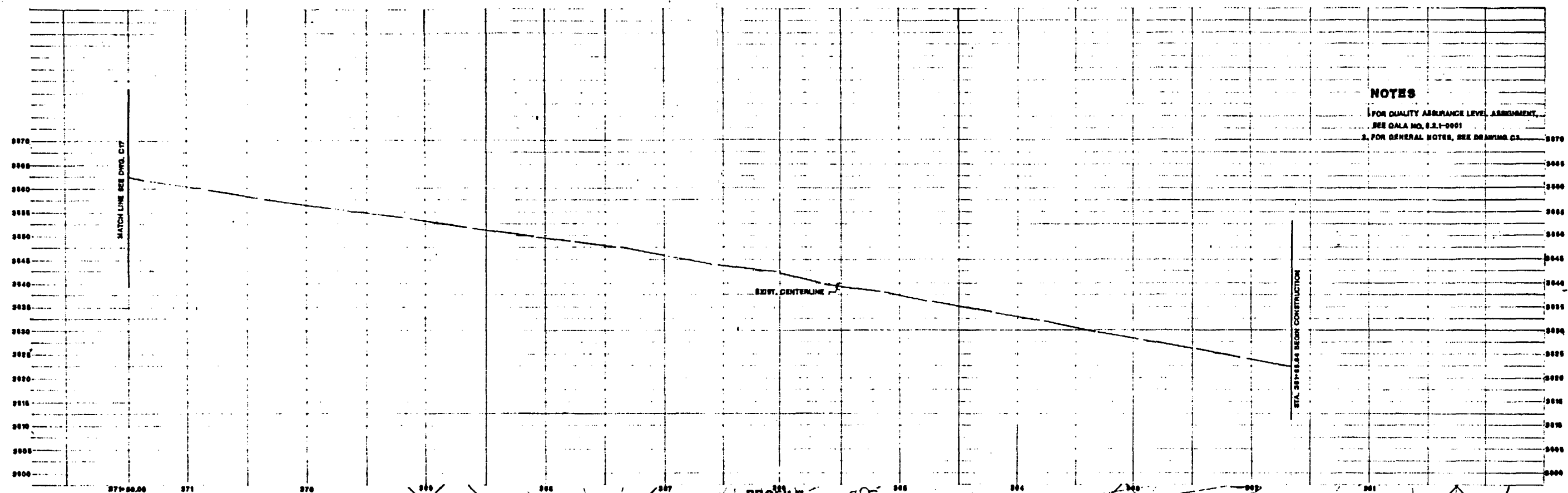
TITLE I

Also Available On
Aperture Card

NO.		DATE		REVISIONS		BY	CHK	DATE	APPROVED
U. S. DEPARTMENT OF ENERGY LAS VEGAS, NEVADA									
NEVADA OPERATIONS OFFICE									
DESIGNED:	LB	DRAWN:	DW/DL	NEVADA NUCLEAR WASTE STORAGE INVESTIGATION EXPLORATORY SHAFT FACILITY BATCH PLANT, FILL STAND					
CHECKED:	JP	SITE AND GRADING PLAN							
SAFETY:	NA	CA	JP						
PROJECT ENGINEER:	JP			AGENCY APPROVAL			DATE:		12-23-78
HOLMES & NARVER, INC. 1050 E. PLAMINO ROAD LAS VEGAS, NEVADA 89008				I. O. NO. 800208		DRAWING NUMBER		JS-025-ESF-C14	
ARCHITECTS-ENGINEERS				W. S. S. NO. 12.8.2.12		SHEET		1 OF 1	

NOTES

1. FOR QUALITY ASSURANCE LEVEL ASSIGNMENT,
SEE DATA NO. 8.3.1-0001
2. FOR GENERAL NOTES, SEE DRAWING C3.

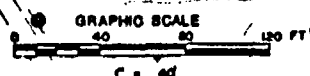


8901040172-107

NO. DATE		REVISION		BY	
U. S. DEPARTMENT OF ENERGY					
NEVADA OPERATIONS OFFICE					
LAS VEGAS, NEVADA					
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION					
EXPLORATORY SHAFT FACILITY					
H ROAD STA. 361+64.71 TO STA. 371+50.00					
PLAN & PROFILE					
DESIGNED LMA		GRAPH DW/DL		DATE	
CHECKED		APPROVED		DATE	
SAFETY		AGENCY APPROVAL		DATE	
HOLMES & NARVER, INC.		ARCHITECTS-ENGINEERS		DATE	
1700 E. PLANNING ROAD LAS VEGAS NEVADA 89009		L.S. NO. 800200		JS-025-ESF-C16	
L.S. NO. 12.2.13		DATE		DATE	

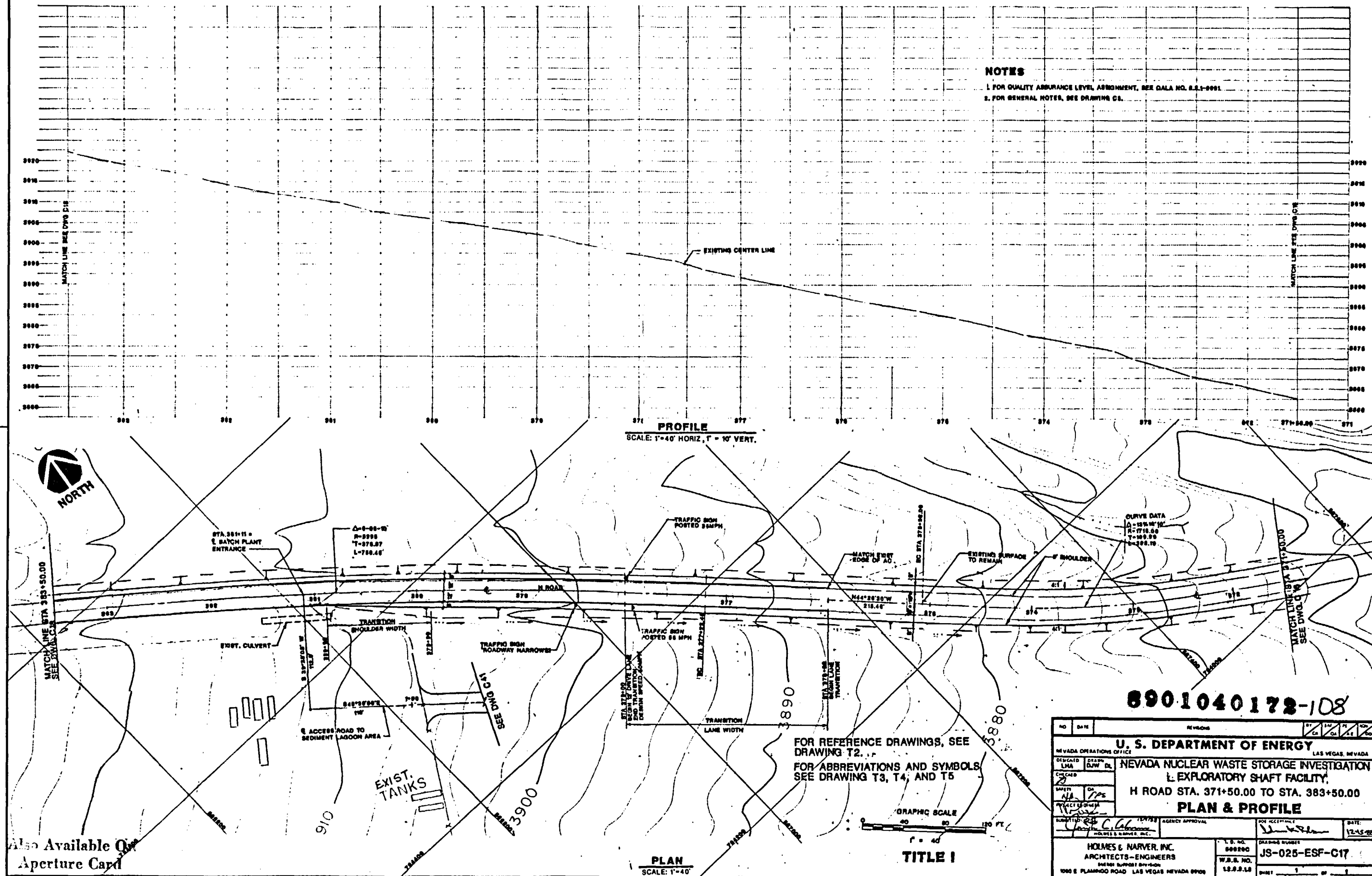
SI
APERTURE
CARD Also Available On
Aperture Card

FOR REFERENCE DRAWINGS, SEE DRAWING T2.
FOR ABBREVIATIONS AND SYMBOLS, SEE DRAWING
T3, T4, AND T5

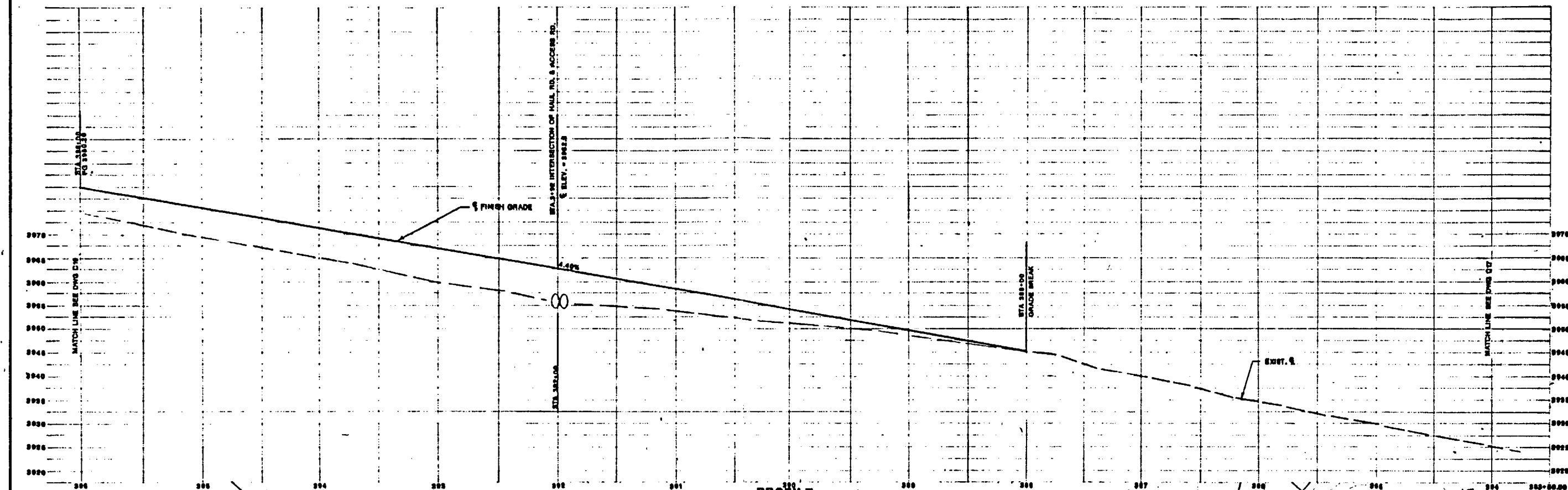


TITLE I

SI APERTURE CARD

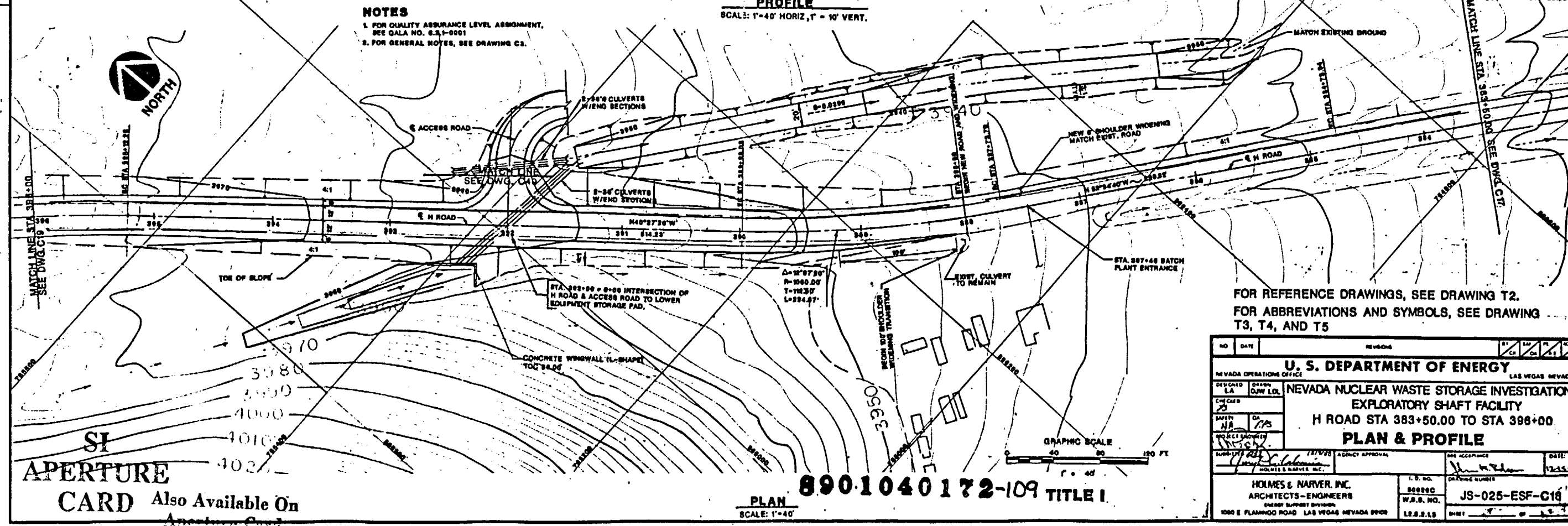


Also Available On
Aperture Card



NOTES
 1. FOR QUALITY ASSURANCE LEVEL ASSIGNMENT, SEE QALA NO. 6.3.1-0001
 2. FOR GENERAL NOTES, SEE DRAWING C3.

PROFILE
 SCALE: 1"=40' HORIZ, 1"=10' VERT.



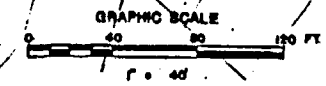
FOR REFERENCE DRAWINGS, SEE DRAWING T2.
 FOR ABBREVIATIONS AND SYMBOLS, SEE DRAWING T3, T4, AND T5

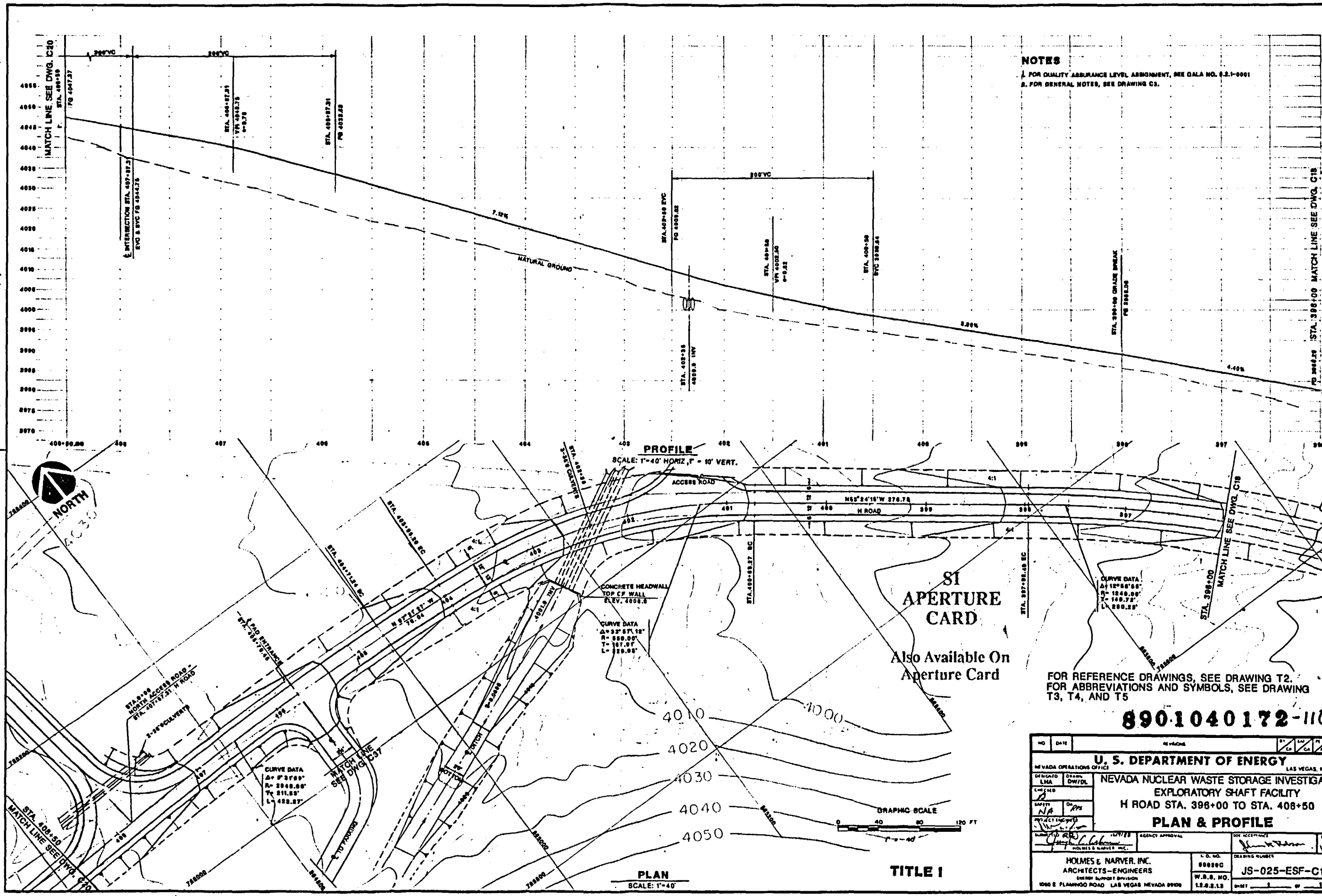
NO.		DATE		REVISIONS		BY	CHKD	APP'D
U. S. DEPARTMENT OF ENERGY LAS VEGAS, NEVADA NEVADA OPERATIONS OFFICE NEVADA NUCLEAR WASTE STORAGE INVESTIGATION EXPLORATORY SHAFT FACILITY H ROAD STA 383+50.00 TO STA 389+00 PLAN & PROFILE								
DESIGNED	LA	DRAWN	LDJ	CHECKED	JS	SAFETY	NR	DATE
PROJECT MANAGER [Signature] HOLMES & NARVER, INC.						AGENCY APPROVAL [Signature] DATE: 12-25-81		
HOLMES & NARVER, INC. ARCHITECTS-ENGINEERS ENERGY SUPPORT DIVISION 1000 E. FLAMINGO ROAD LAS VEGAS, NEVADA 89008						I. S. NO. 000280 W. S. S. NO. L. S. S. L.S.		
DRAWING NUMBER JS-025-ESF-C18						DATE: 12-25-81		

SI APERTURE CARD
 Also Available On Aperture Card

890.1040172-109 TITLE I

PLAN
 SCALE: 1"=40'





NOTES
1. FOR QUALITY ASSURANCE LEVEL ASSIGNMENT, SEE DATA NO. 8.2.1-0001
2. FOR GENERAL NOTES, SEE DRAWING C3.

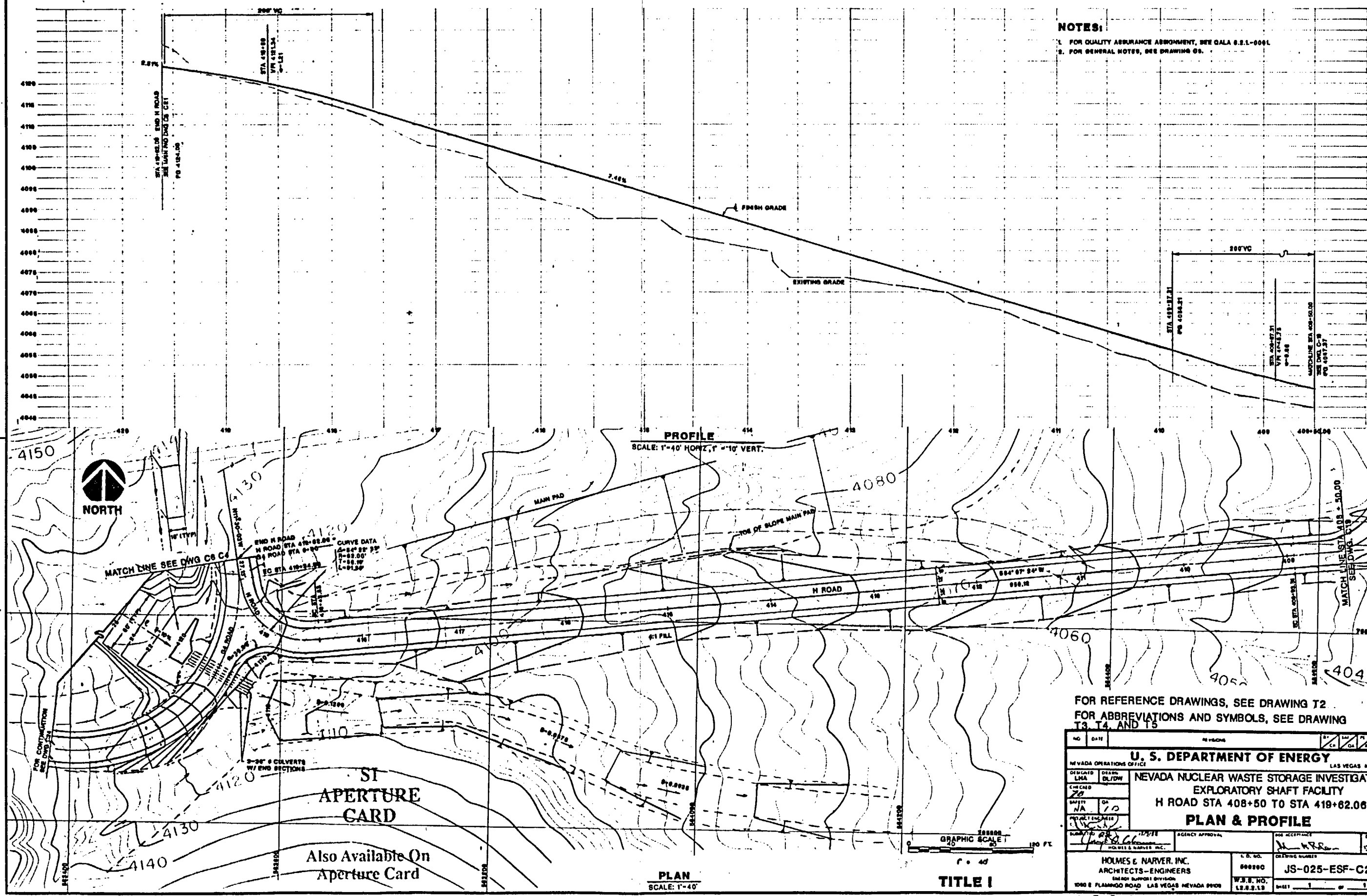
**SI
APERTURE
CARD**

Also Available On
Aperture Card

FOR REFERENCE DRAWINGS, SEE DRAWING T2.
FOR ABBREVIATIONS AND SYMBOLS, SEE DRAWING
T3, T4, AND T5

890.1040172-110

NO. DATE		REVISED		BY		CHK		DO	
U. S. DEPARTMENT OF ENERGY									
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA									
NEVADA NUCLEAR WASTE STORAGE INVESTIGATION									
EXPLORATORY SHAFT FACILITY									
H ROAD STA. 396+00 TO STA. 408+50									
PLAN & PROFILE									
DESIGNED LMA		DRAWN DW/DL		CHECKED NA		DATE 12/15/88		BY J. L. B. S. L. B.	
HOLMES & NARVER, INC.		AGENCY APPROVAL		DATE		BY		DO	
HOLMES & NARVER, INC.		ARCHITECTS-ENGINEERS		12/15/88		12/15/88		12/15/88	
1000 E. PLANNING ROAD LAS VEGAS, NEVADA 89008		W.B.S. NO.		12.8.5.1.3		SHEET		1	



NOTES:
1. FOR QUALITY ASSURANCE ASSIGNMENT, SEE GALA 8.2.1-0001.
2. FOR GENERAL NOTES, SEE DRAWING 03.

FOR REFERENCE DRAWINGS, SEE DRAWING T2
FOR ABBREVIATIONS AND SYMBOLS, SEE DRAWING
T3, T4, AND T5

NO.		DATE		REVISED		BY		DATE	
U. S. DEPARTMENT OF ENERGY									
NEVADA OPERATIONS OFFICE					LAS VEGAS, NEVADA				
DESIGNED: LMA					DRAWN: BL/DW				
CHECKED: ZA					DATE: 12/78				
SAFETY: NA					DATE: 1/10				
PROJECT: ST Aperture Card					PROJECT: ST Aperture Card				
SUBMITTED: 12/78					AGENCY APPROVAL: [Signature]				
HOLMES & NARVER, INC.					DATE: 12-15-78				
HOLMES & NARVER, INC.					ARCHITECTS-ENGINEERS				
ENERGY SUPPORT DIVISION					1000 E. FLAMINGO ROAD, LAS VEGAS, NEVADA 89119				
L.S. NO. 000000					W.S. NO. 12.0.2.13				
PROJECT NO. JS-025-ESF-C20					SHEET 1 OF 1				

8901040172-III