U.S. DEPARTMENT OF ENERGY
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

PRESENTATION TO THE NUCLEAR WASTE TECHNICAL REVIEW BOARD

SUBJECT: WASTE ISOLATION APPROACH

PRESENTER: EDGAR PETRIE

PRESENTER'S TITLE AND ORGANIZATION: ACTING DIRECTOR,
ENGINEERING & DEVELOPMENT DIVISION
YUCCA MOUNTAIN PROJECT OFFICE
LAS VEGAS, NEVADA

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SEPTEMBER 18 - 19, 1991

STATUS OF DESIGN STUDY

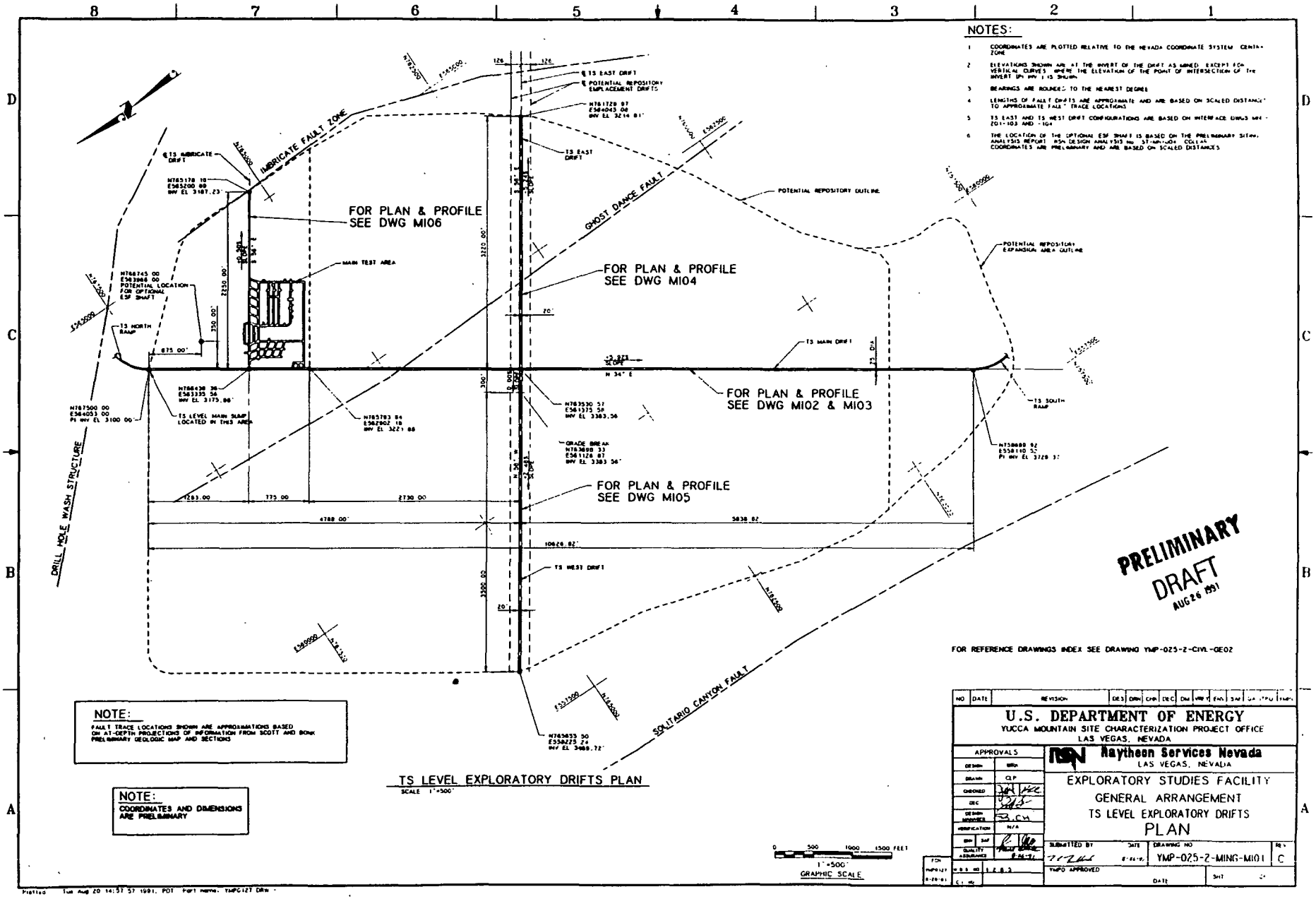
- THIS IS A PRELIMINARY/TITLE I DESIGN. SUBSTANTIAL WORK IS NEEDED BEFORE FINALIZATION OF DESIGN AND CONSTRUCTION STARTS. THIS WORK WILL BE DONE IN TITLE II

TITLE I LEVEL OF DETAIL

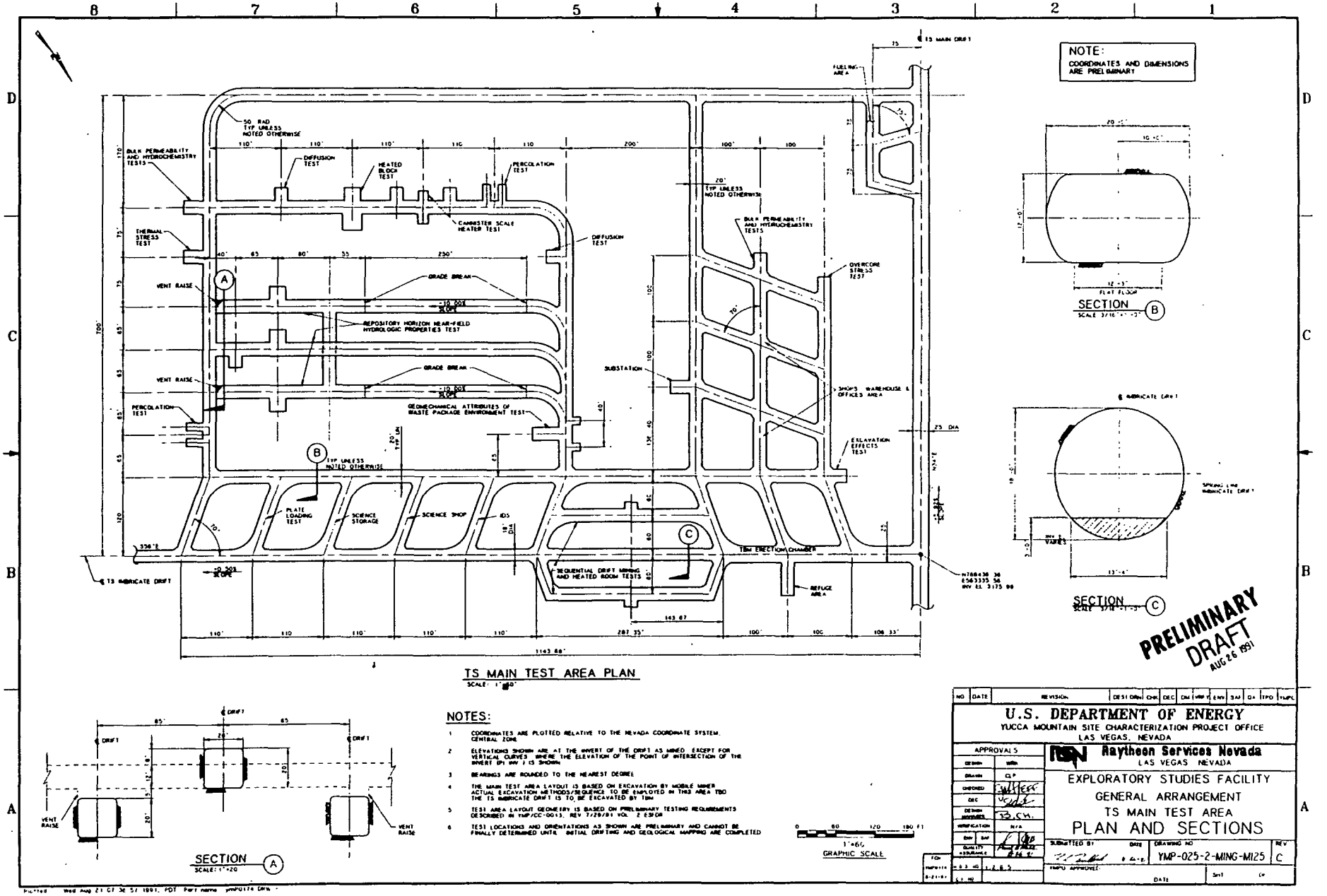
- THE PRELIMINARY STAGE OF PROJECT DESIGN UTILIZES THE CONCEPTUAL DESIGN AND DESIGN CRITERIA THAT HAVE BEEN PREPARED FOR THE PROJECT AS A DESIGN BASIS

- SUFFICIENT DESIGN NEEDS TO BE PERFORMED TO ILLUSTRATE THE EXTENT OF THE PROJECT SCOPE AND CONSTRUCTION FEATURES. FURTHERMORE, FROM THIS PRELIMINARY DESIGN, CONSTRUCTION COST AND SCHEDULES CAN BE DEVELOPED

TS LEVEL EXPLORATORY DRIFTS PLAN



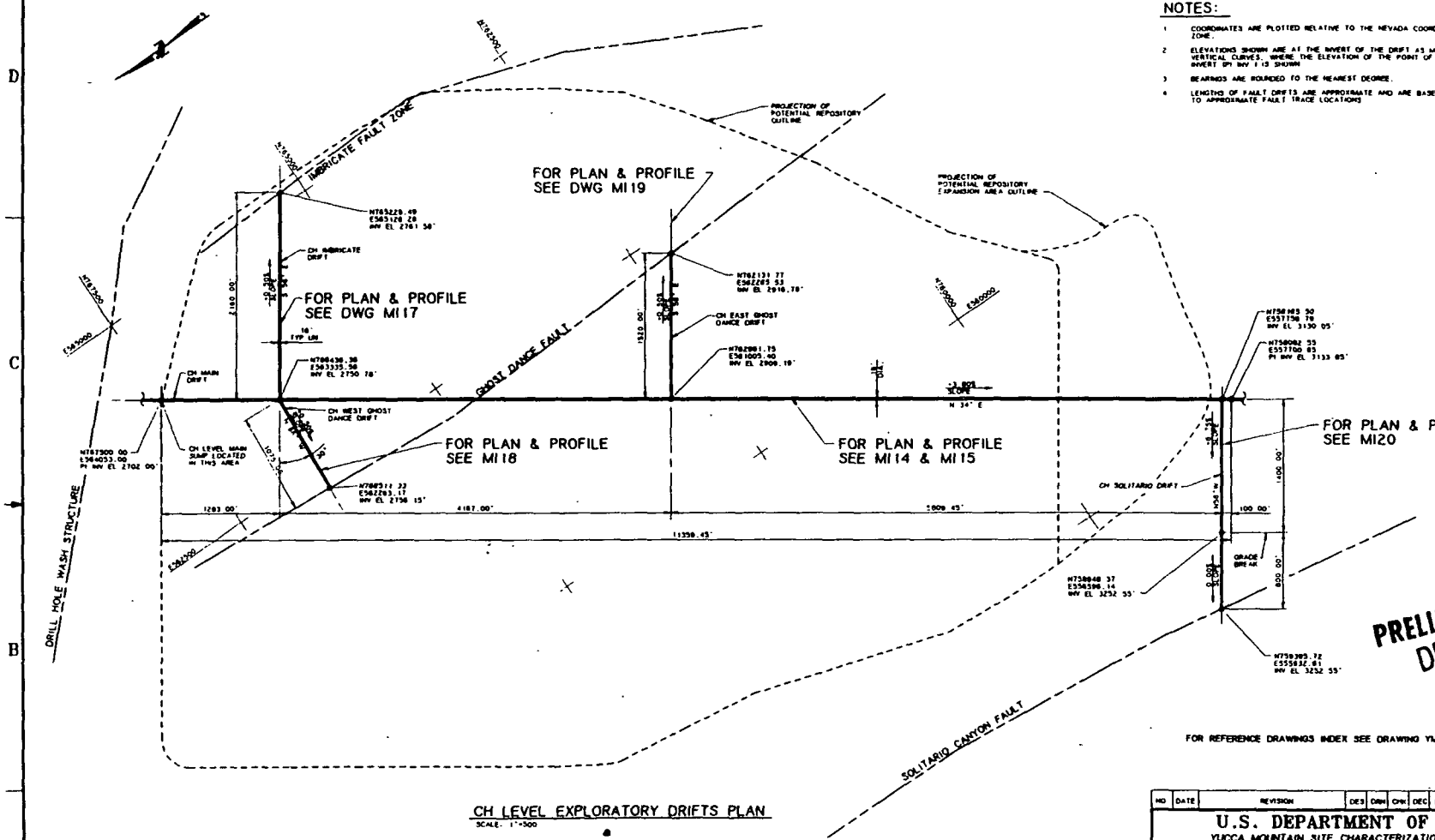
TS MAIN TEST AREA PLAN



CH LEVEL EXPLORATORY DRIFTS PLAN

NOTES:

1. COORDINATES ARE PLOTTED RELATIVE TO THE NEVADA COORDINATE SYSTEM, CENTRAL ZONE.
2. ELEVATIONS SHOWN ARE AT THE INVERT OF THE DRIFT AS MINED, EXCEPT FOR VERTICAL CURVES, WHERE THE ELEVATION OF THE POINT OF INTERSECTION OF THE INVERT (PI INV) IS SHOWN.
3. BEARINGS ARE ROUNDED TO THE NEAREST DEGREE.
4. LENGTHS OF FAULT DRIFTS ARE APPROXIMATE AND ARE BASED ON SCALED DISTANCES TO APPROXIMATE FAULT TRACE LOCATIONS.



CH LEVEL EXPLORATORY DRIFTS PLAN
SCALE: 1"=500

PRELIMINARY DRAFT AUG 26 1991

FOR REFERENCE DRAWINGS INDEX SEE DRAWING YMP-025-2-CIVL-GE02

NOTES:

FAULT TRACE LOCATIONS SHOWN ARE APPROXIMATIONS BASED ON AT-DEPTH PROJECTIONS OF INFORMATION FROM SCOTT AND BOHK PRELIMINARY GEOLOGIC MAP AND SECTIONS

NOTE:

COORDINATES AND DIMENSIONS ARE PRELIMINARY

0 500 1000 1500 FEET
1"=500
GRAPHIC SCALE

NO	DATE	REVISION	DES	DRN	CHK	DEC	DM	VRFY	ENV	SAF	QA	TPO	YMPO

U.S. DEPARTMENT OF ENERGY
YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT OFFICE
LAS VEGAS, NEVADA

Raytheon Services Nevada
LAS VEGAS, NEVADA

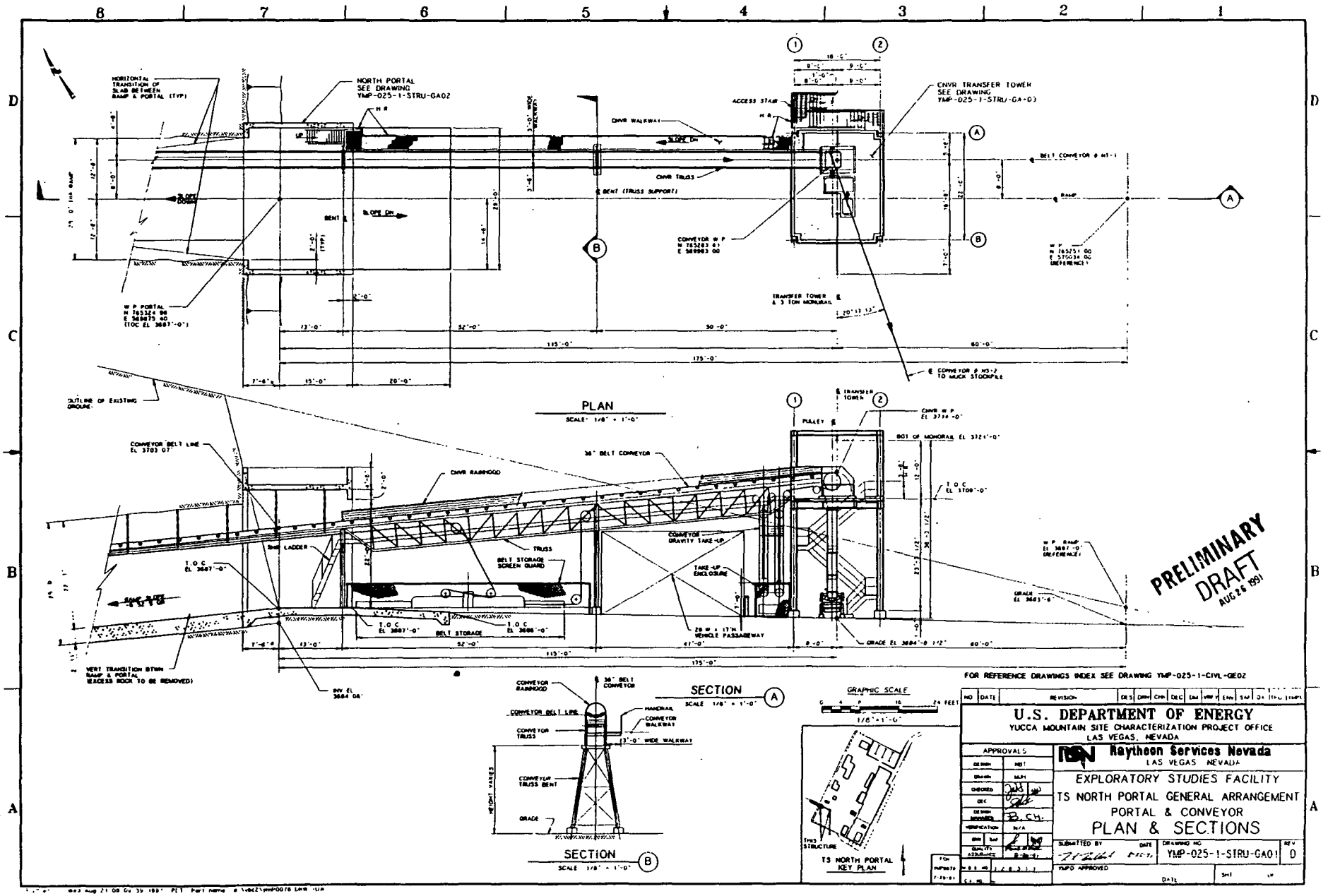
EXPLORATORY STUDIES FACILITY
GENERAL ARRANGEMENT
CH LEVEL EXPLORATORY DRIFTS
PLAN

APPROVALS: DESIGN WRH; DRAWN CLP; CHECKED; DEC; DESIGN MANAGER B.CH.; VERIFICATION N/A; ENV; SAF; QUALITY ASSURANCE 8-26-91

SUBMITTED BY: DATE 8-26-91
DRAWING NO: YMP-025-2-MING-MI13
REV: C
YMPO APPROVED: DATE
SHT OF

Plotted: Tue Aug 20 17:31:53 1991, PDT Part name: YMPQ153.DRW

TS NORTH PORTAL GENERAL ARRANGEMENT PORTAL AND CONVEYOR



BASIS FOR CONSIDERATION OF WASTE ISOLATION IN THE ESF

- PROGRAMMATIC REQUIREMENTS, REGULATIONS AND GUIDANCE
  - 10 CFR 60.15 (c)
- PROJECT REQUIREMENTS
  - ESFDR
  - Q-LIST (ITEMS IMPORTANT TO WASTE ISOLATION)
- ESF WOULD BE AN INTEGRAL PART OF A POTENTIAL REPOSITORY

TOPICAL STUDIES AND CONSIDERATIONS IN PROGRESS AND TO BE COMPLETED IN TITLE II

- CONTROL OF FLUIDS AND FOREIGN MATERIALS
- IDENTIFIED CONSIDERATIONS AND TITLE II DESIGN PHASES MOST SIGNIFICANTLY IMPACTED BY CONSIDERATIONS

CONSIDERATION	DESIGN PHASE AFFECTED
SURFACE CONSTRUCTION WATER MOVEMENT	1 & 2
ACCESS CONSTRUCTION WATER MOVEMENT	2, 4 & 10
SEWAGE AND SETTLING POND WATER MOVEMENT	1, 3
WATER ENTRY INTO ACCESSES THROUGH ROCK MASS	ALL PHASES
SURROUNDING SHAFT COLLAR & LINER	2, 4 & 10
ACCESS AND MAIN PAD BLASTING EFFECTS	1, 3, & 10
ACCESS AND COLLAR CREEP	2, 4, 5, 6 & 10
ACCESS AND COLLAR THERMAL STRESS	2, 4, 5, 6 & 10
FAR-FIELD THERMAL EFFECTS	TESTING DESIGN
SYSTEMS AND COMPONENTS IMPORTANT TO SAFETY	ALL PHASES
HYDROLOGIC AND GEOCHEMICAL EFFECTS OF TRACERS	TESTING DESIGN
HYDROLOGIC AND GEOCHEMICAL EFFECTS OF CHEMICALS	ALL PHASES

TITLE II LEVEL OF DETAIL

TITLE II DEFINITIVE DESIGN IS THE FINAL DESIGN. A PARTIAL LIST OF WHAT THIS DESIGN USUALLY INCLUDES IS:

- RESTUDY AND REDESIGN WORK RESULTING FROM CHANGES AS MAY BE REQUIRED FROM PRELIMINARY DESIGN
- DEVELOPMENT OF FINAL WORKING DRAWINGS AND SPECIFICATIONS FOR PROCUREMENT AND CONSTRUCTION
- ESTIMATE DEVELOPMENT OF CONSTRUCTION LABOR, EQUIPMENT AND MATERIAL QUANTITIES
- DEVELOPMENT OF DETAILED ESTIMATES OF CONSTRUCTION AND PROCUREMENT COST AND SCHEDULES
- PREPARATION OF ANALYSIS OF HEALTH, SAFETY, ENVIRONMENTAL AND OTHER PROJECT ASPECTS

PLANNED CONSIDERATIONS FOR TITLE II DESIGN

- VERIFICATION OF DESIGN AND DESIGN INPUTS
- DESIGN IMPLEMENTATION INCORPORATING CONCERNS AND RESULTS DURING APPROPRIATE DESIGN PHASES
- INCORPORATION OF WASTE ISOLATION REQUIREMENTS INTO DESIGN