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Heavy Oil

Controlled Document

Quest CCS Project

Hazardous Area Classification Drawings

Project	Quest CCS Project
Document Title	Hazardous Area Classification Drawings
Document Number	07-1-HX-2334-0001
Document Revision	Rev. 02
Document Status	Approved
Document Type	HX2334-Hazardous Area Classification Diagram
Control ID	245D
Owner / Author	Fareza Na'al
Issue Date	2011-09-15
Expiry Date	None
ECCN	EAR 99
Security Classification	Unclassified
Disclosure	None


Revision History shown on next page

Revision History

REVISION STATUS			APPROVAL		
Rev.	Date	Description	Originator	Reviewer	Approver
2A/ 3A	2011-07-13	Issued for Review	KEVIN REDMOND	Fareza Na'al	
0/2 /3	2011-09-15	Issued for Approval	Mainlin. Suarez Fluor	Fareza Na'al	

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Signatures for this revision

Date	Role	Name	Signature or electronic reference (email)
2011-07-13	Originator	KEVIN REDMOND	Transmittal No: A6GT-ESCN-00044
2011-09-15	Approver	Mainlin. Suarez	Mainlin.Suarez@fluor.com 

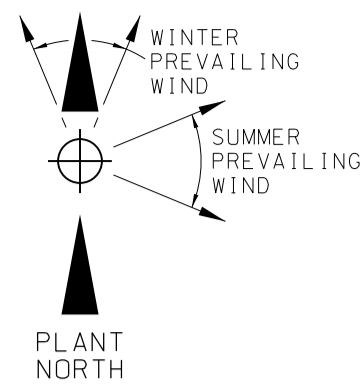
Summary

None

Keywords

Area Classification Drawings

Hazardous Area Classification Drawings		Rev. 02
Heavy Oil		



NOTES

- 5m ZONE EXTENDS TO INTAKE AND EXHAUST VENTS ON BUILDINGS.
- REFER TO DOCUMENT 99049-0-DC-EQ-00001.00 FOR BASIS OF AREA CLASSIFICATION.
- COMPRESSOR BUILDING VENTILATED @ 0.02 ACPH MIN.
PSA BUILDINGS VENTILATED @ 2.35 ACPH MIN.
- UNIT DESCRIPTIONS:
UNIT 240 FEED GAS COMPRESSION
NITROGEN RECYCLE COMPRESSION
UNIT 241 HYDROGEN MANUFACTURING UNIT TRAIN 1
STEAM-REFORMER / HEAT RECOVERY
CO-SHIFT
CONDENSATE TREATMENT
UNIT 242 HYDROGEN MANUFACTURING UNIT TRAIN 2
STEAM-REFORMER / HEAT RECOVERY
CO-SHIFT
CONDENSATE TREATMENT
UNIT 243 PRESSURE SWING ADSORPTION TRAIN 1
UNIT 244 PRESSURE SWING ADSORPTION TRAIN 2

LEGEND

- CLASS 1 ZONE 0
GROUP IIc (GROUP B, C & D)
TEMP CODE T2A
- CLASS 1 ZONE 1
GROUP IIc (GROUP B, C & D)
TEMP CODE T2A
- CLASS 1 ZONE 2
GROUP IIc (GROUP B, C & D)
TEMP CODE T2A



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3	11 SEP 13	ISSUED FOR DESIGN	AK	KR	MS	FN		
2	10 JUN 25	AS BUILT PER MOC 5907A	RS	JMP				
1	02 SEP 30	AS BUILT	GSD	WM	WM	MWP		
0	00 NOV 30	ISSUED FOR CONSTRUCTION	MFS	JTM	AJB	MWP		RR
C	00 MAY 31	ISSUED FOR DESIGN	AB	JTM	AJB	DLA		RR
B	99 DEC 22	ISSUED FOR HAZOP	BJW	AJB	AJB	DLA		
A			AB	IK				
REV	ISSUED DATE	DESCRIPTION	DWN	CHKD	ENG	APP	APP	CLNT APP

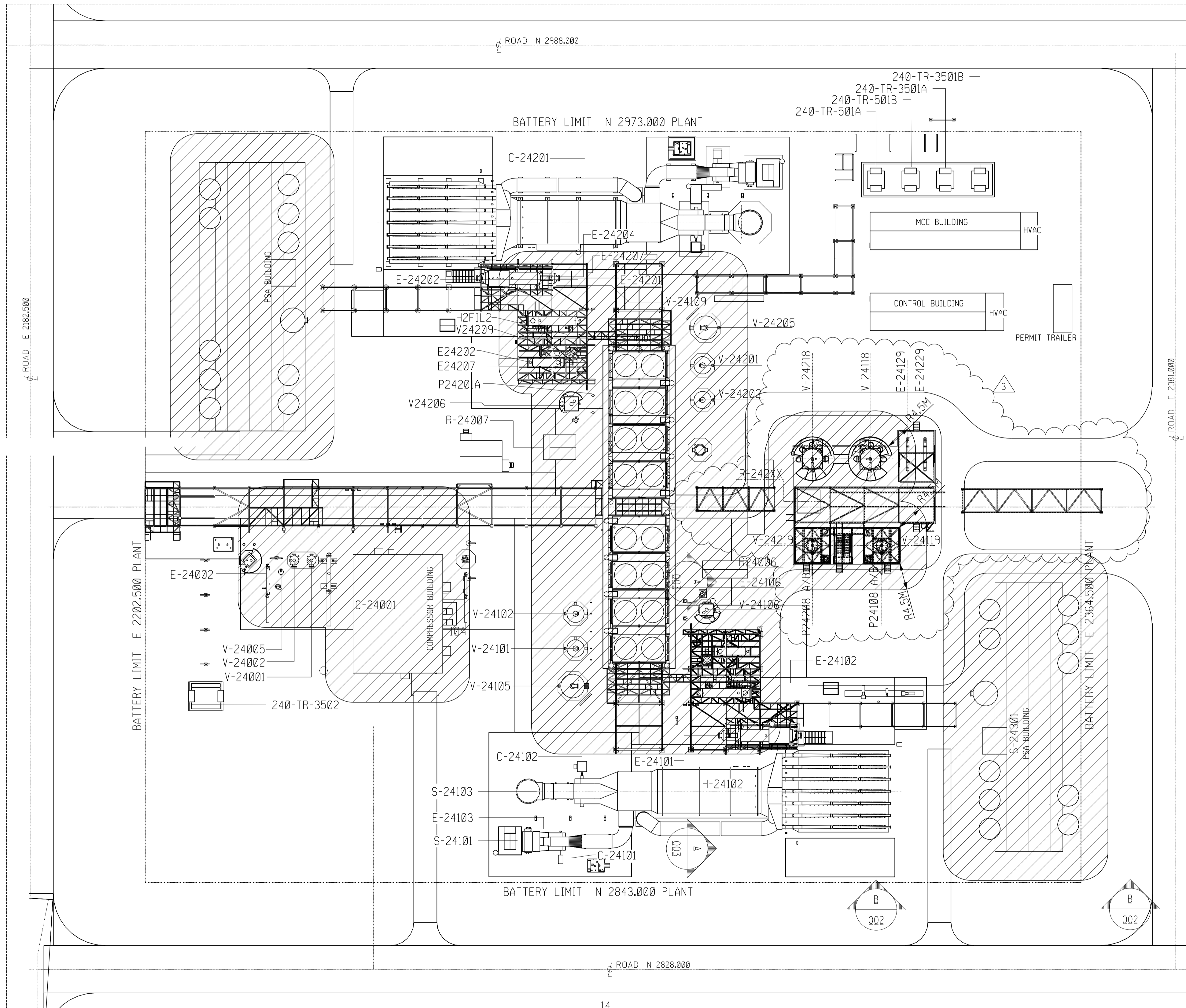
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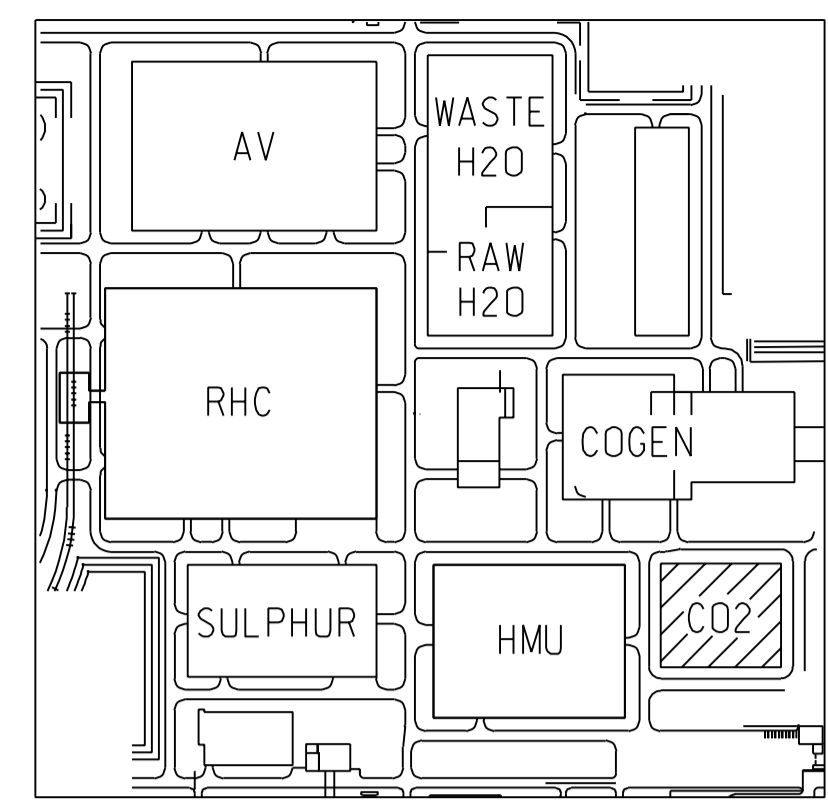
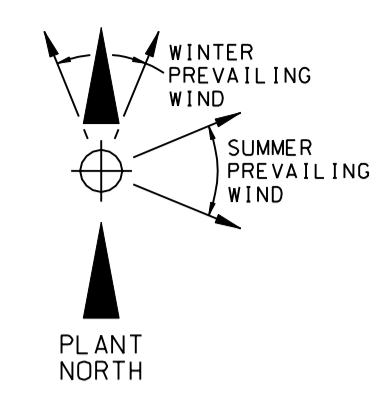
FULL SIZE VERSION OF THIS DWG. STAMPED WITH PERMIT TO PRACTICE AT REV. 0

SHELL CANADA LTD.
ATHABASCA OIL SANDS
DOWNSTREAM PROJECT
PARSONS . KRUPP UHDE . TRI OCEAN

HYDROGEN MANUFACTURING UNIT
OVERALL AREA CLASSIFICATION

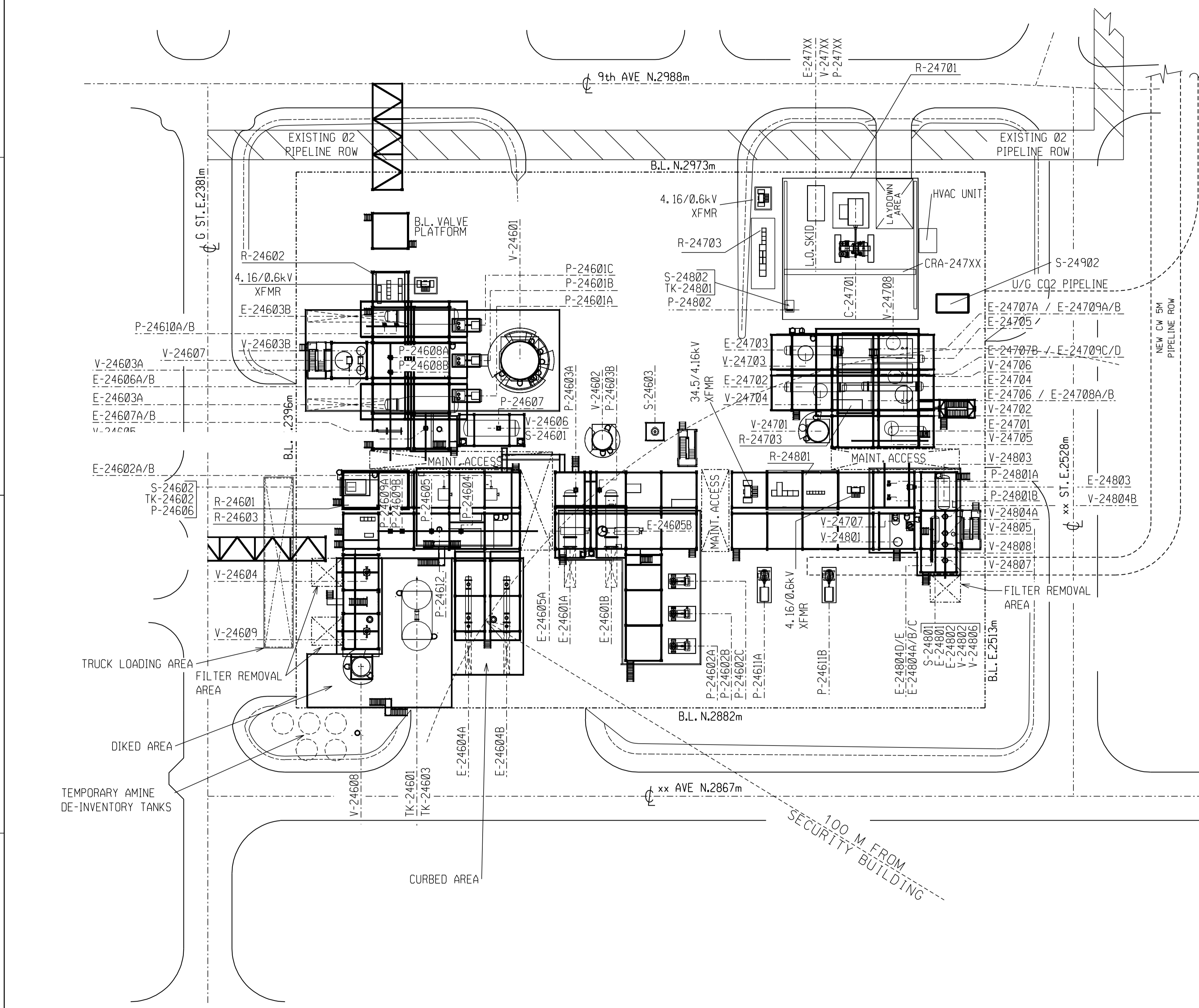
SCALE: 1:400 TOE DWG. No.: 99049-0-DG-ED-00001.1
SHELL DWG NO.: 240.1522.000.050.001 REV. 3





LEGEND
 [] NON-HAZARDOUS

NOTES:
 1. ALL AREA CLASSIFICATIONS ARE IN ACCORDANCE WITH AMERICAN PETROLEUM INSTITUTE (API) RECOMMENDED PRACTICE (RP)-505.FOR CLASSIFICATION OF LOCATIONS FOR ELECTRICAL INSTALLATIONS AT PETROLEUM FACILITIES (LATEST EDITION).



MECHANICAL EQUIPMENT LIST

C-24701 CRA-247XX	INTEGRALLY GEARED CENTRIFUGAL CO2 COMPRESSOR COMPRESSOR BUILDING BRIDGE CRANE	S-24601 S-24602 S-24603 S-24801 S-24802 S-24902	AMINE DRAIN DRUM SUMP ANTI-FOAM INJECTION PACKAGE CO2 VENT STACK TEG REGENERATION PACKAGE TEG MAKE-UP PACKAGE CO2 PIPELINE PIG LAUNCHER (TRI-OCEAN SCOPE)
E-24601A/B E-24602A/B E-24603A/B E-24604A/B E-24605A/B E-24606A/B E-24607A/B E-24701 E-24702 E-24703 E-24704 E-24705 E-24706 E-24707A/B E-24708A/B E-24709A-D E-247XX E-24801 E-24802 E-24803 E-24804A-E	STRIPPER OVERHEAD CONDENSERS LEAN/RICH AMINE EXCHANGER STRIPPER REBOILERS LEAN AMINE COOLERS LEAN AMINE TRIM COOLERS LP CONDENSATE/DEMIN WATER EXCHANGER CONDENSATE COOLER COMPRESSOR 1ST STAGE COOLER COMPRESSOR 2ND STAGE COOLER COMPRESSOR 3RD STAGE COOLER COMPRESSOR 4TH STAGE COOLER COMPRESSOR 5TH STAGE COOLER COMPRESSOR 6TH STAGE COOLER CO2 COMPRESSOR AFTERCOOLERS COMPRESSOR 6TH STAGE COOLER SPACE HEATERS CO2 COMPRESSOR AFTERCOOLER SPACE HEATERS LUBE OIL COOLER (C-24701) TEG STRIPPER CONDENSER (S-24801) TEG STRIPPER REBOILER (S-24801) LEAN/RICH TEG EXCHANGER LEAN TEG COOLER	TK-24601 TK-24602 TK-24603 TK-24801 V-24601 V-24602 V-24603A/B V-24604 V-24605 V-24606 V-24607 V-24608 V-24609 V-24701 V-24702 V-24703 V-24704 V-24705 V-24706 V-24707 V-24801 V-24802 V-24803 V-24804	AMINE MAKE-UP TANK ANTI-FOAM INJECTION TANK (S-24602) AMINE MAKE-UP TANK TEG MAKE-UP TANK (S-24802) AMINE STRIPPER STRIPPER REFLUX DRUM STRIPPER REBOILER CONDENSATE POTS LEAN AMINE FILTER DRAINED AMINE FILTER AMINE DRAIN DRUM CONDENSATE FLASH DRUM LEAN AMINE CARBON FILTER LEAN AMINE POST FILTER COMPRESSOR SUCTION KO DRUM COMPRESSOR 2ND STAGE KO DRUM COMPRESSOR 3RD STAGE KO DRUM COMPRESSOR 4TH STAGE KO DRUM COMPRESSOR 5TH STAGE KO DRUM COMPRESSOR 6TH STAGE KO DRUM TEG INLET SCRUBBER COMPRESSOR 7TH STAGE KO DRUM LUBE OIL FILTER (C-24701) TEG ABSORBER TEG STRIPPER (S-24801) TEG FLASH DRUM LEAN TEG FILTERS TEG STRIPPER REBOILER CONDENSATE POT TEG SURGE DRUM (S-24801) LEAN TEG CARBON FILTER LEAN TEG POST FILTER
P-24601A/B/C P-24602A/B/C P-24603A/B P-24604 P-24605 P-24606 P-24607 P-24608A/B P-24609A/B P-24610A/B P-24611A/B P-24612 P-247XX P-24801A/B P-24802	LEAN AMINE PUMPS LEAN AMINE CHARGE PUMPS STRIPPER REFLUX PUMPS AMINE RE-INVENTORY PUMP AMINE MAKE-UP PUMP ANTI-FOAM INJECTION PUMP (S-24602) AMINE DRAIN PUMP RECOVERED CLEAN CONDENSATE PUMPS WATER MAKE-UP PUMPS DEMIN WATER SUPPLY PUMPS COOLING WATER BOOSTER PUMPS STORM WATER PUMP (NOTE 4) LUBE OIL PUMP (C-24701) LEAN TEG PUMPS TEG MAKE-UP PUMP (S-24802)		

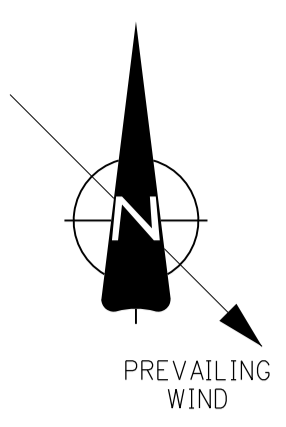
BUILDING LIST

R-24601	REGEN. ANTI-FOAM INJECTION SHELTER
R-24602	REGEN. REMOTE #2 I/O AND MCC SHELTER
R-24603	REGEN. REMOTE #4 I/O AND MCC SHELTER
R-24701	COMPRESSOR BUILDING
R-24702	COMPRESSION REMOTE #1 I/O AND MCC SHELTER
R-24703	COMPRESSION REMOTE #2 I/O AND MCC SHELTER
R-24801	DEHYDRATION/CW REMOTE #1 I/O AND MCC SHELTER



NO.	DATE	DRAWN BY	DESCRIPTION	CHECK.	LEAD	APPR.	REFERENCE DRAWINGS
0	11SEP06	PTJ	ISSUED FOR DESIGN	KR	MS	FN	246.0000.000.044.001 PLOT PLAN CO2 CAPTURE (RCDU) UNIT 246, 247, 248, 249
							246.0000.000.044.004 ELEVATION AND SECTION VIEWS CO2 CAPTURE (RCDU)
REVISIONS				DOC. No. :			

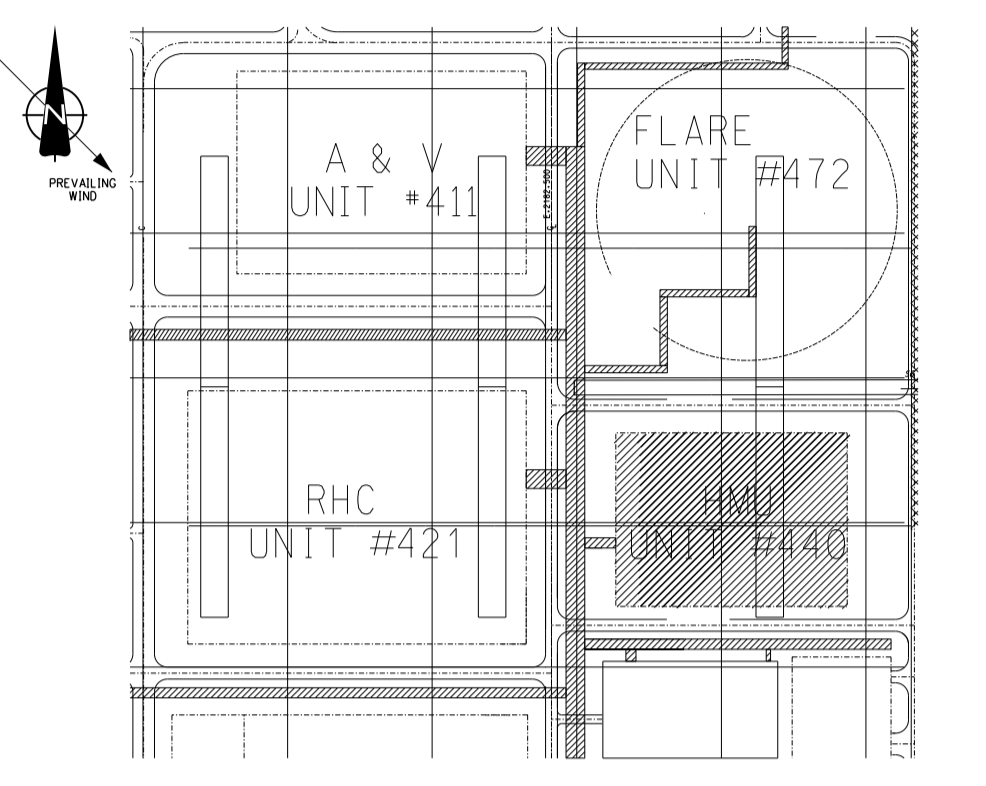
DATE 10 NOV 02	SCALE 1:400	DRAWN K. REDMOND	CHECKED M. SUAREZ	LEAD M. SUAREZ	APPROVED F. NAAL
SHELL CANADA ENERGY SHELL QUEST CCS PROJECT		FLUOR CONTRACT: 4621			
AREA CLASSIFICATION CO2 CAPTURE (RCDU) PLANT UNIT 246, 247, 248, 249					
SHEET SIZE: 2159 x 841		SHEET NO.: 0		CWP NO.: 0	



H-44102 CONVECTION BANK		R-44001 COMPRESSOR BUILDING	R-44006 UNIT ANALYSER BUILDING
E-44108	E-44112	V-44341	R-44301 HMU-PSA BUILDING
E-44109	E-44113	V-44301	R-44302 HC-PSA BUILDING
E-44110	E-44114	V-44345	
E-44111	E-44115	V-44346	
E-44116	E-44116	E-44303	
E-44119	E-44117	E-44304	
		E-44305	
		E-44306	

- LAB WASTE STORAGE TANK SHALL BE SUBJECTED TO THE CHEMICALS (LISTED BELOW), DILUTED WITH A GREAT DEAL OF WATER THUS MAKING THE CONTENTS OF THIS TANK MAINLY AQUEOUS. MAJOR CHEMICALS: GASOLINE, DIESEL, JET FUEL, BENZENE. MINOR CHEMICALS: HEXANE, TOLUENE, ACETONE, ACIDS (SULFURIC, HCL, NITRIC), AMINE, SULFOLANE, SULFUR (CONTAINING HYDROCARBONS), NITROGEN (CONTAINING HYDROCARBONS).
- LAB WASTE STORAGE TANK SHALL BE SUBJECTED TO THE SANITARY AND STORM SUMP PITS. DO NOT CONTAIN HYDROCARBON.

- NOTES**
- REFER TO SHELL AREA CLASSIFICATION AND ELECTRICAL EQUIPMENT SPACING DESIGN ESTG 15-1.02 FOR ALL DEFINITIONS, CODES AND REFERENCE DRAWINGS. THE RECOMMENDED LIMITS OF CLASSIFIED LOCATIONS ARE IN ACCORDANCE WITH API RP505, 1997 EDITION; RECOMMENDED PRACTICE FOR CLASSIFICATION OF LOCATIONS FOR ELECTRICAL INSTALLATIONS AT PETROLEUM FACILITIES CLASSIFIED AS CLASS 1, ZONE 0, ZONE 1 AND ZONE 2.
 - THE AREA CLASSIFICATION BOUNDARIES HAVE BEEN SHOWN IN A SIMPLIFIED MANNER AND DO NOT PORTRAY THE EXACT LIMITS OF THE AREA CLASSIFICATION FOR EACH PIECE OF EQUIPMENT ON THE AREA PERIMETER.
 - ALL BELOW GRADE LOCATIONS SUCH AS SUMPS AND TRENCHES WITHIN ZONE 2 AREA SHALL BE CLASSIFIED AS ZONE 1.
 - ANALYZER BUILDING IS CLASSIFIED AS CLASS 1, ZONE 2 UNDER THE ASSUMPTION THAT THE CONDITIONS FOR ADEQUATE VENTILATION AS PER API RP505 SECTION 6.6.2.4.2 ARE MET.
 - ALL ELECTRICAL EQUIPMENT WITHIN THE PROCESS AREA SHALL BE SUITABLE FOR CLASS 1, ZONE 2, GROUP IIB+H2 TEMPERATURE CODE T3



LEGEND:

- CLASS 1 ZONE 0 GROUP IIB+H2 (GROUP B, C & D) TEMP CODE T1
- CLASS 1 ZONE 1 GROUP IIB+H2 (GROUP B, C & D) TEMP CODE T1
- CLASS 1 ZONE 2 GROUP IIB+H2 (GROUP B, C & D) TEMP CODE T1 LIGHTER THAN AIR
- CLASS 1 ZONE 2 GROUP IIB+H2 (GROUP B, C & D) TEMP CODE T1 HEAVIER THAN AIR
- UNCLASSIFIED (NON-HAZARDOUS)
- TEMPERATURE CLASS T1
- IIB+H2 GAS GROUP LOCATION

MASTER DRAWING AS BUILT INFORMATION REQUIRED

REFERENCE DRAWINGS

440.0000.000.044.001	UNIT 440 - PLOT PLAN
440.1522.000.035.001	UNIT 440 - HMU AREA CLASSIFICATION RECORDS
440.1522.000.053.001	UNIT 440-HMU AREA CLASSIFICATION DETAILS
440.1522.000.005.001	UNIT 440-HMU AREA CLASSIFICATION PHILOSOPHY

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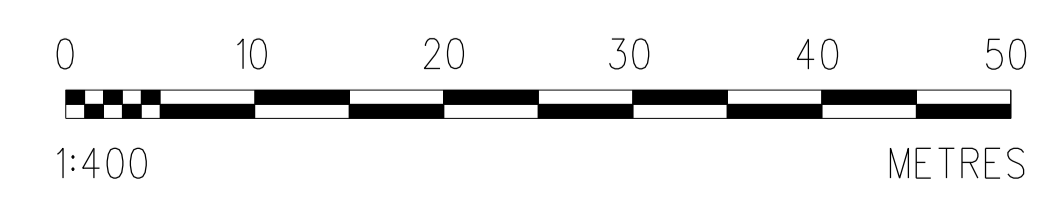
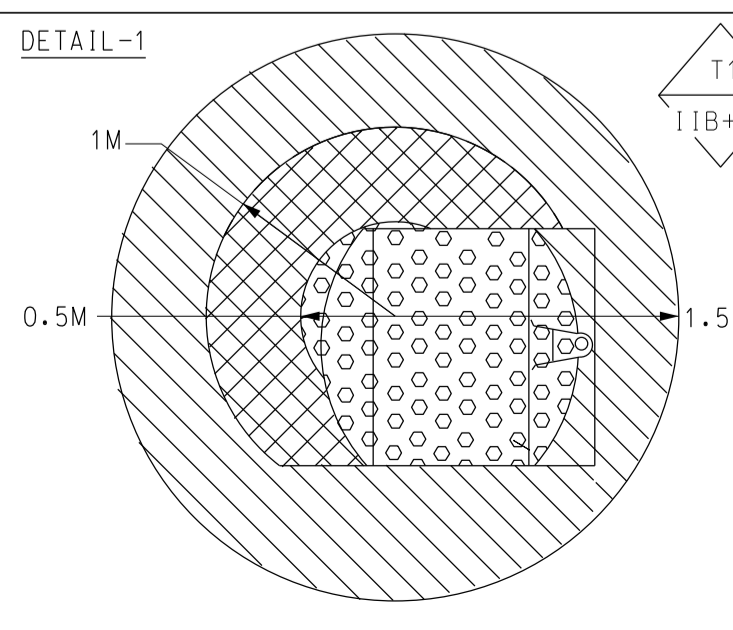
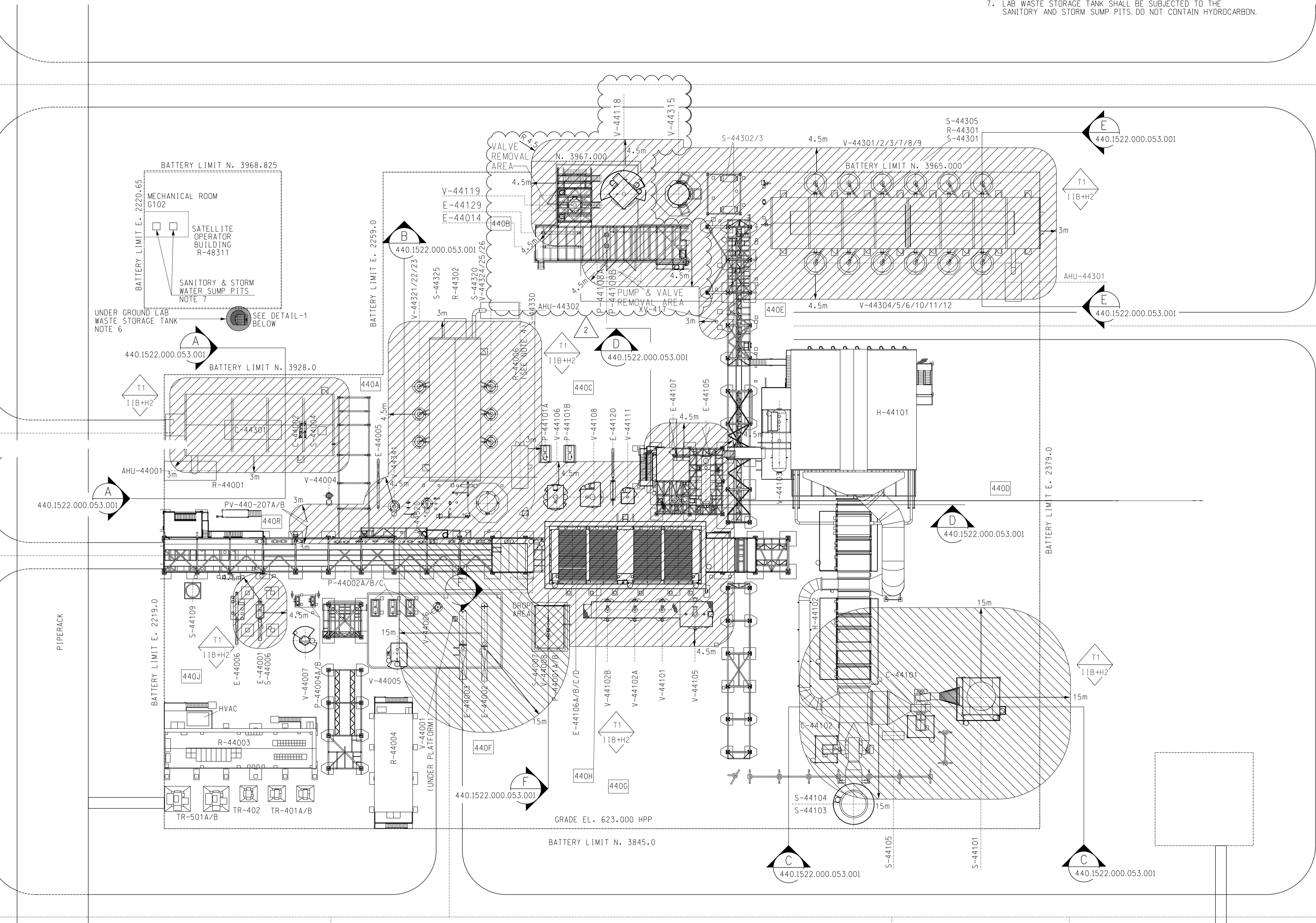
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0	30/08/07	ISSUED FOR CONSTRUCTION	DM	IS	PB	PG	PB	
REV	ISSUED DATE	DESCRIPTION	DWN	CHKD	ENG	APP	APP	APP

SHELL CANADA ENERGY
SCOTFORD UPGRADE EXPANSION 1

BANTREL
APEGGA PERMIT: P 3913

UNIT 440-HMU
AREA CLASSIFICATION LAYOUT

SCALE: 1:400	SHELL DWG NO.: 440.1522.000.050.001	REV. 2
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CWP C-440W-A-EW-001