

GROUND WATER PUMPING, TREATMENT AND DISCHARGE

FOR

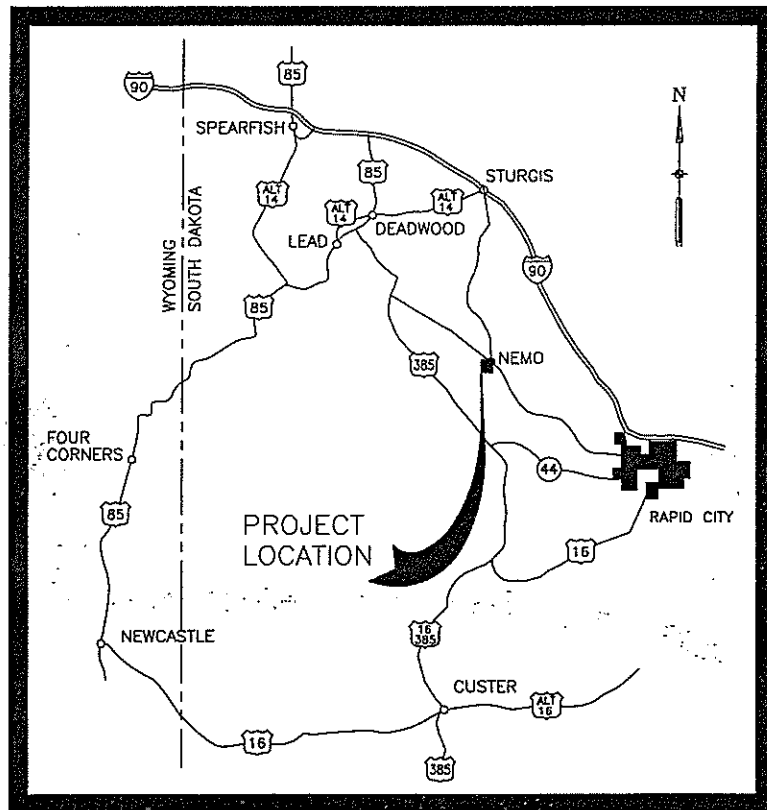
USDA FOREST SERVICE BLACK HILLS NATIONAL FOREST NEMO WORK CENTER, SOUTH DAKOTA

PREPARED BY

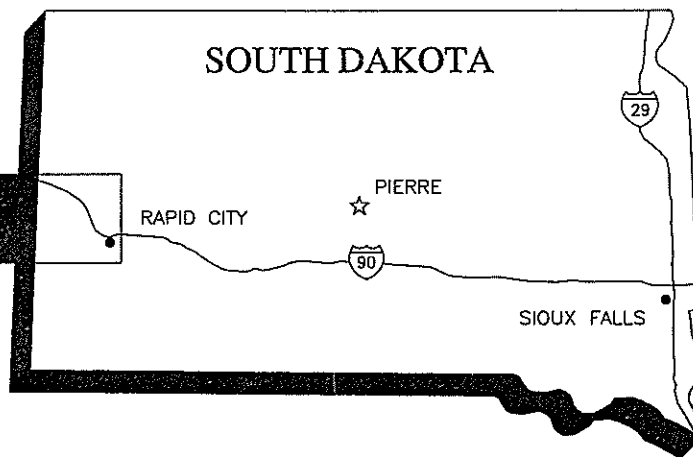


INDEX OF FIGURES

SHEET NO.	FIGURE TITLE
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SHEET 2	CIVIL SITE PLAN AS BUILT LAYOUT
SHEET 3	CIVIL DETAILS AS BUILT
SHEET 4	PROCESS AND INSTRUMENTATION AS BUILT



VICINITY MAP
SCALE IN MILES



STATE MAP
NOT TO SCALE

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REV	DATE	BY	DESCRIPTION

DESIGNED BY CW	DISCIPLINE ENGINEER
DRAWN BY HG	
CHECKED BY	
DATE 02.23.06	

PROJECT ENGINEER

RECORD DRAWING

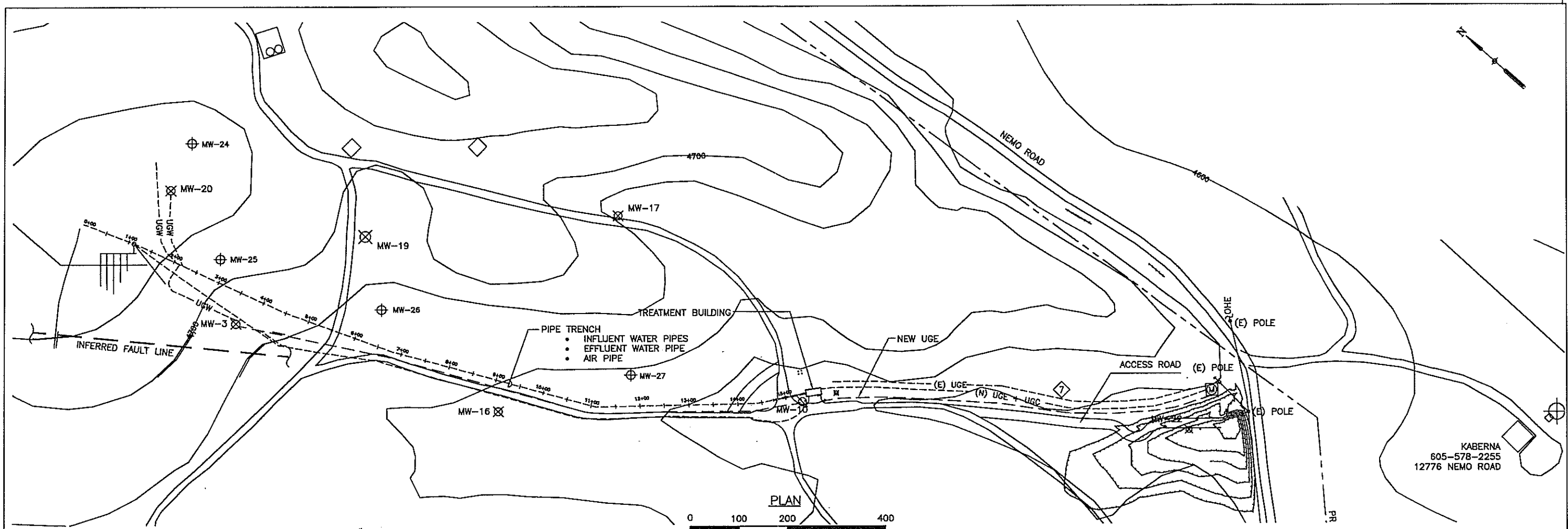


NEMO WORK CENTER
GROUNDWATER COLLECTION REMEDIAL ACTION

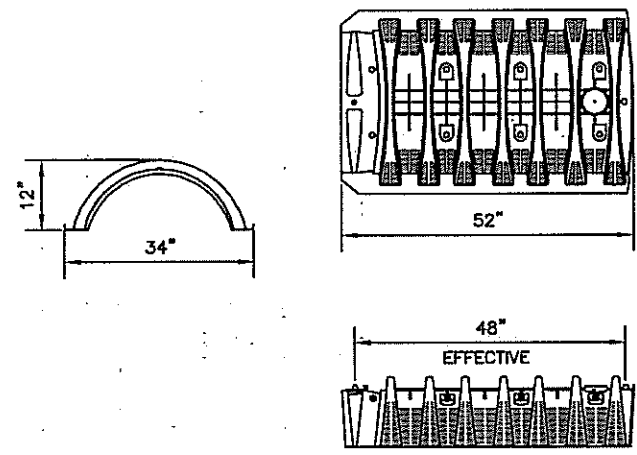
COVER SHEET AND
INDEX OF DRAWINGS

VERIFY SCALES
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

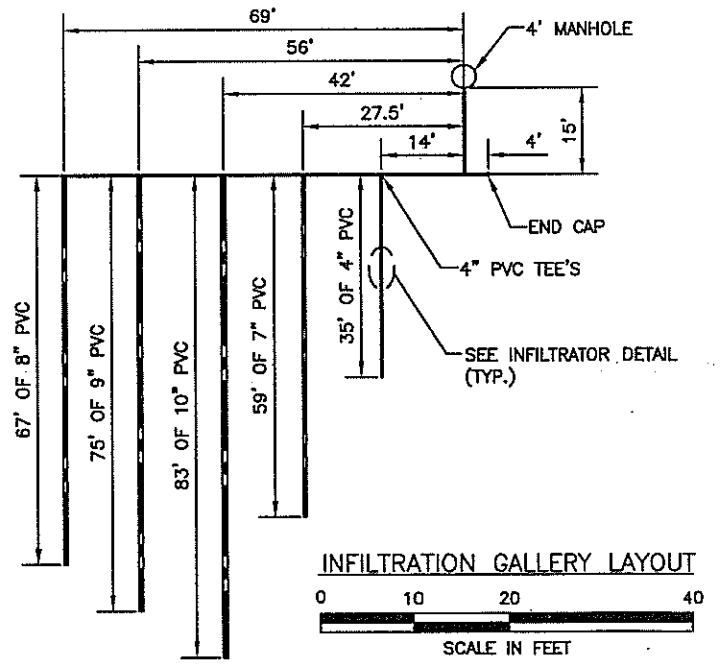
JOB NO.
22238383
DRAWING NO.
1
SHEET NO.
1 OF 4



PLAN
SCALE IN FEET



INFILTRATOR DETAIL
N.T.S.



INFILTRATION GALLERY LAYOUT
SCALE IN FEET

W:\Project\22238383_USFS_Minna\Site\0111_01_CAD\As-Built Drawings\NEMO-C01\A10102-9-2008\14421.dwg

REV	DATE	BY	DESCRIPTION

DESIGNED BY JL	DISCIPLINE ENGINEER
DRAWN BY HC	
CHECKED BY 	
DATE 02.23.06	

PROJECT ENGINEER

RECORD DRAWING

URS
8181 E. TUFTS AVE
DENVER, CO 80237
(303) 694-2770

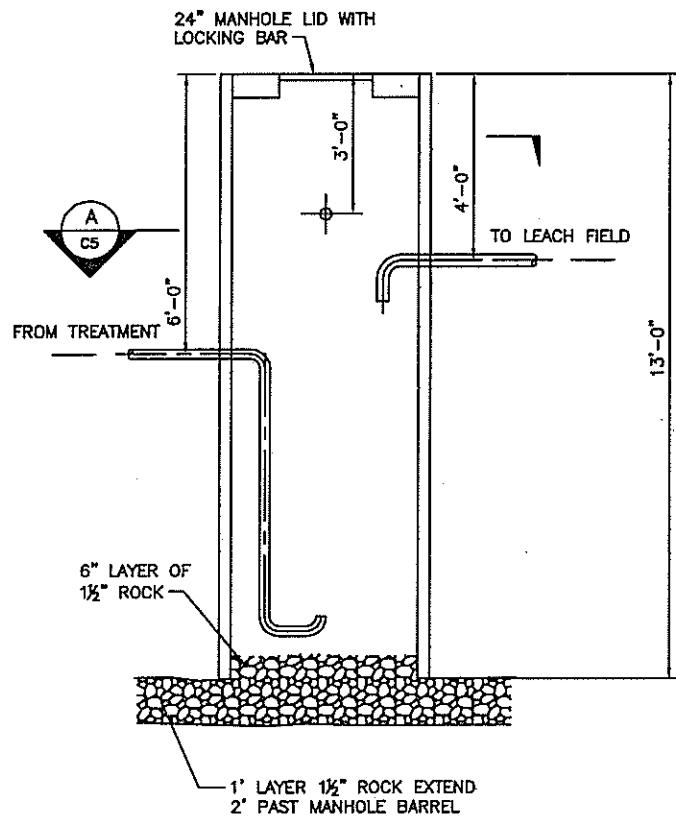
PROJECT ENGINEER

NEMO WORK CENTER
GROUNDWATER COLLECTION REMEDIAL ACTION

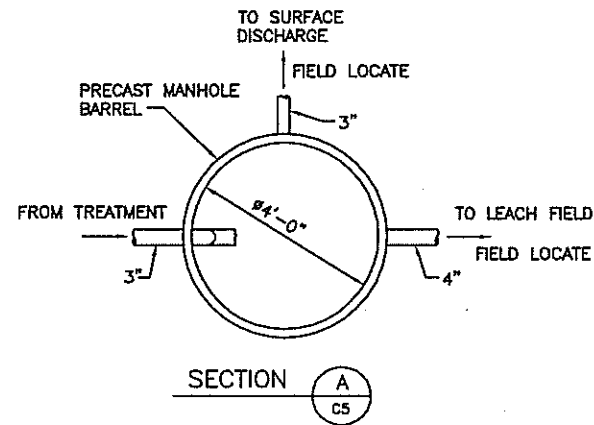
CIVIL
SITE PLAN
AS-BUILT

VERIFY SCALES
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

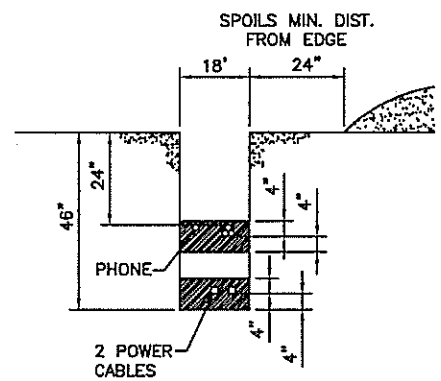
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22238383
DRAWING NO.
2
SHEET NO.
2 OF 4



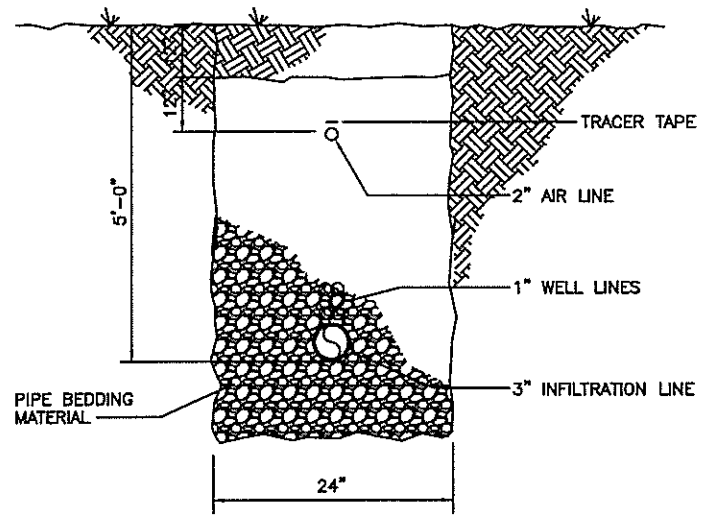
DRY WELL
SCALE: 1/2" = 1'-0"



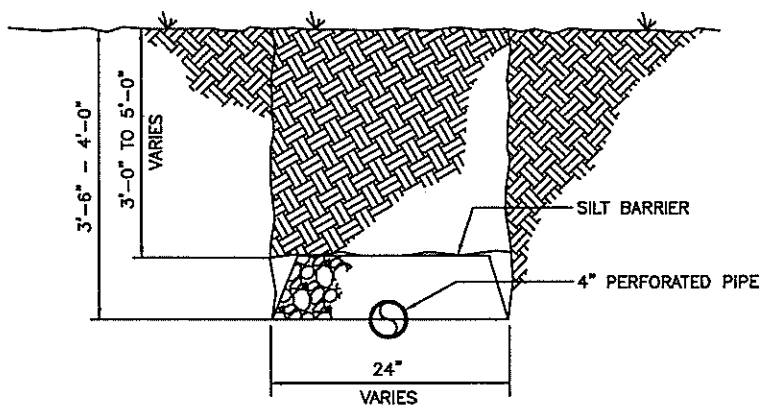
SECTION A
C5



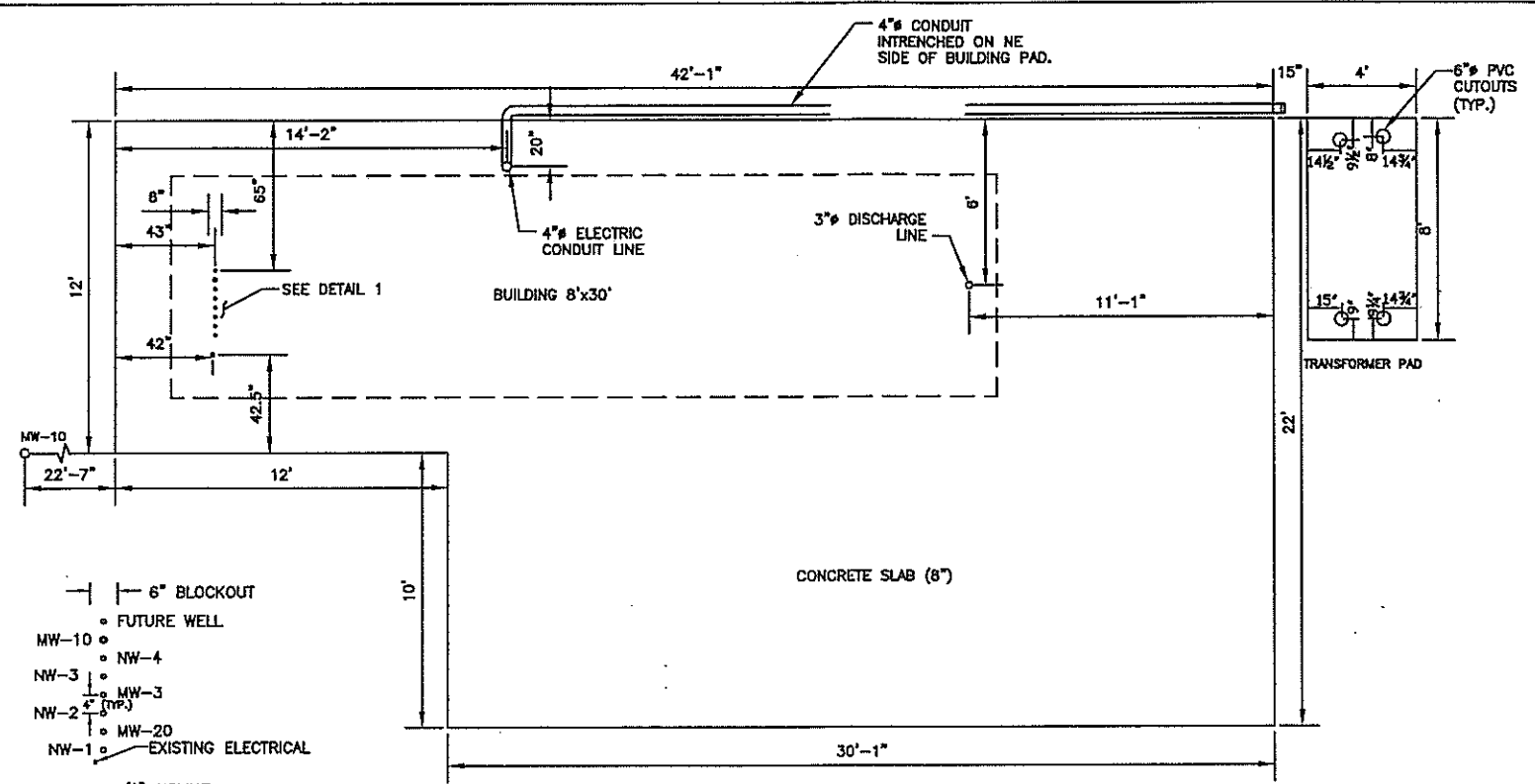
TELEPHONE AND ELECTRIC SERVICE TRENCH



SECTION - TRENCH

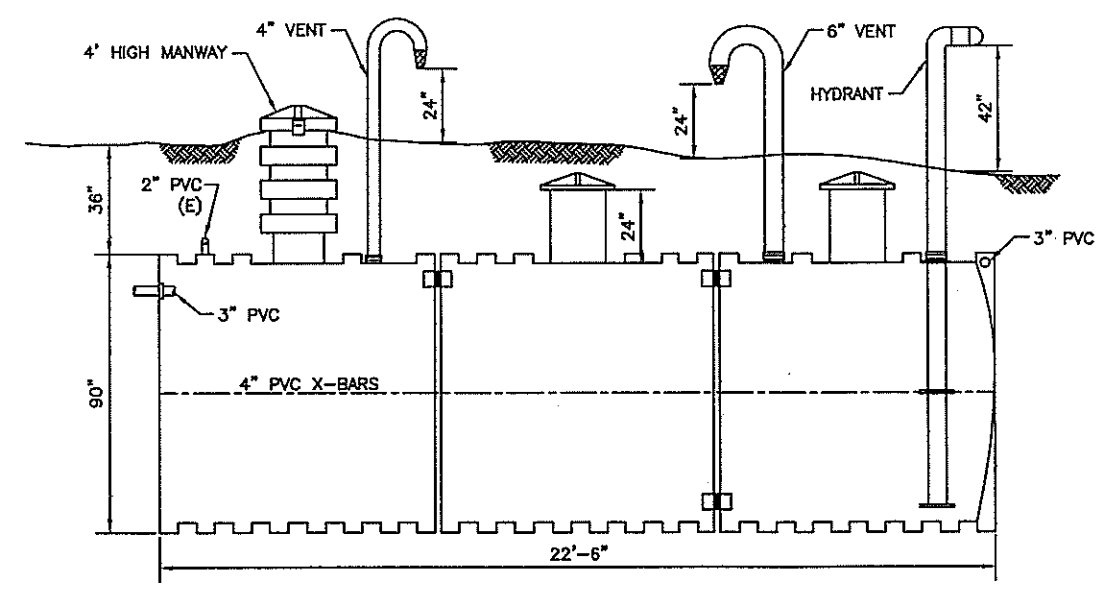


INFILTRATION GALLERY TRENCH



DETAIL 1

TREATMENT BUILDING PAD LAYOUT

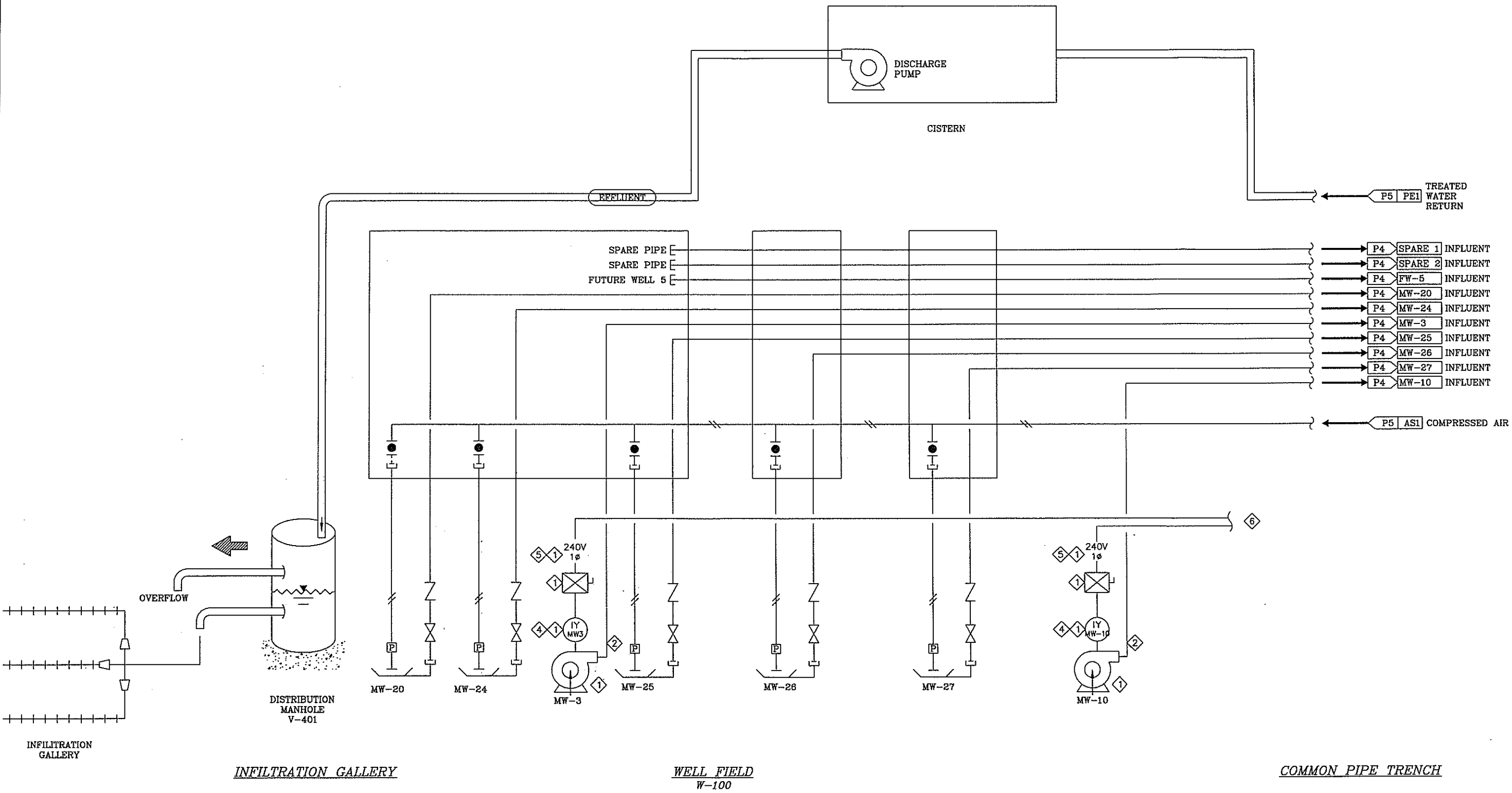


DETAIL OF CISTERN

W:\Projects\22238383_LJSSL_Nemo\Sub_00\11_0_CAD\4-built_drawing\NEMO-CO44810\22238383.dwg 1 AM

DESIGNED BY DRAWN BY CHECKED BY DATE	DISCIPLINE ENGINEER	PROJECT ENGINEER	RECORD DRAWING	8181 E. TUFTS AVE DENVER, CO 80237 (303) 694-2770	NEMO WORK CENTER GROUNDWATER COLLECTION REMEDIAL ACTION	VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 22238383
					CIVIL DETAILS ASBUILT	DRAWING NO. 3	
					SHEET NO. 3 OF 4		

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REV	DATE	BY	DESCRIPTION

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DRAWN BY HS	
CHECKED BY HS	
DATE 02.23.06	

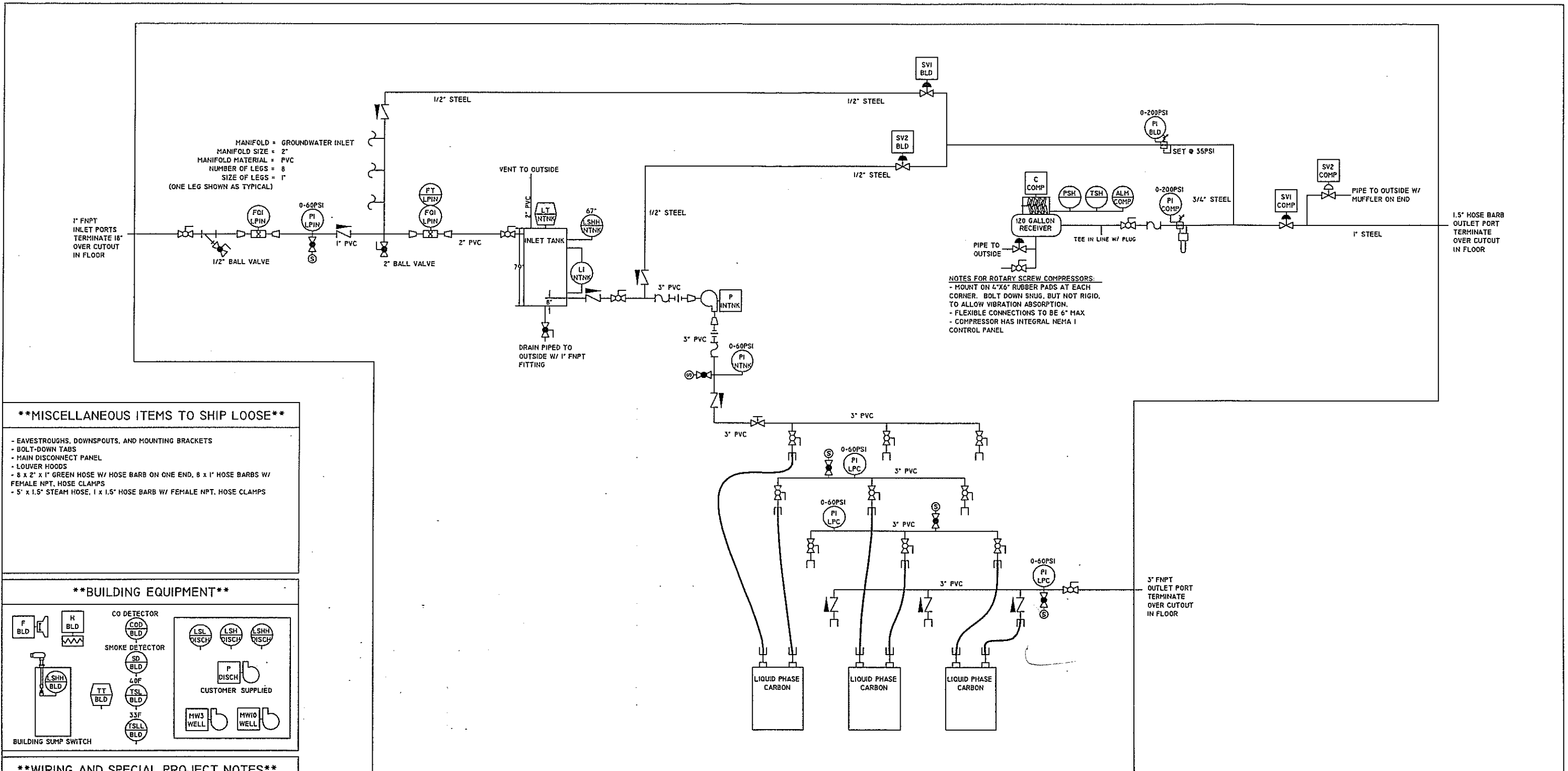
PROJECT ENGINEER

RECORD DRAWING

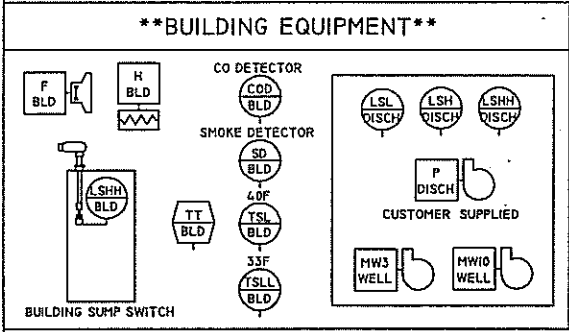


NEMO WORK CENTER
 GROUNDWATER COLLECTION REMEDIAL ACTION
 PROCESS AND INSTRUMENTATION
 AS BUILT

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING	JOB NO. 22238383
0 1" SCALE BAR	DRAWING NO. 4
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. 4 OF 4



- **MISCELLANEOUS ITEMS TO SHIP LOOSE****
- EAVESTROUGHS, DOWNSPOUTS, AND MOUNTING BRACKETS
 - BOLT-DOWN TABS
 - MAIN DISCONNECT PANEL
 - LOUVER HOODS
 - 8 x 2' x 1" GREEN HOSE W/ HOSE BARB ON ONE END, 8 x 1" HOSE BARBS W/ FEMALE NPT, HOSE CLAMPS
 - 5' x 1.5" STEAM HOSE, 1 x 1.5" HOSE BARB W/ FEMALE NPT, HOSE CLAMPS



****WIRING AND SPECIAL PROJECT NOTES****

WIRING TO BE GENERAL PURPOSE, ACCORDING TO NEC FOR INDOORS.

CONTROL PANEL
 TO BE LOCATED IN TREATMENT BUILDING

** MAIN DISCONNECT SHIPPED LOOSE FOR INSTALLATION BY OTHERS **

PIPING DETAILS:

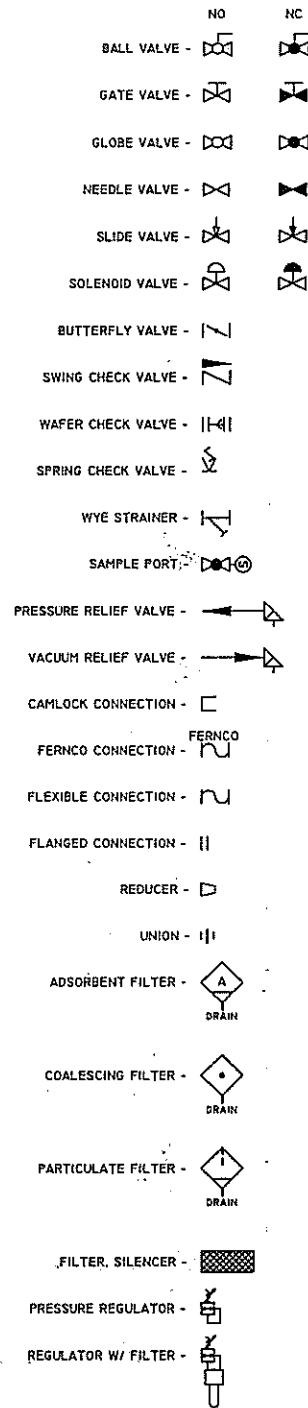
- WATER FLOW METERS: PROVIDE 10 DIA. OF STRAIGHT PIPE BEFORE AND 5 DIA. OF STRAIGHT PIPE AFTER METERS. ENSURE THAT THROTTLING VALVES ARE NOT DIRECTLY IN LINE WITH METERS.
- AIR FLOW METERS: PROVIDE 8 DIA. OF STRAIGHT PIPE BEFORE AND 3 DIA. OF STRAIGHT PIPE AFTER METERS, IF POSSIBLE. AVOID TEES AND ELBOWS BEFORE AND AFTER METERS.
- MATERIALS OF VALVES AND FITTINGS TO BE THE SAME AS THE DESCRIPTION AT THE LINE. IF THERE IS A TRANSITION FROM PVC TO STEEL, THE VALVE SHOULD BE BRASS.
- THERE ARE NO SPECIAL PIPING REQUIREMENTS OTHER THAN WHAT IS EXPLAINED ON THE DIAGRAM.
- WHEN PVC HOSE IS SPECIFIED, ALWAYS USE VACUUM HOSE; USE GREEN HOSE FOR PRESSURES LESS THAN 60PSI; USE TANK TRUCK HOSE FOR PRESSURES BETWEEN 60PSI AND 150PSI.
- PVC PIPE MAY BE SUBSTITUTED WITH EQUAL-SIZED PVC HOSE WHERE A FLEXIBLE CONNECTION IS PREFERRED.

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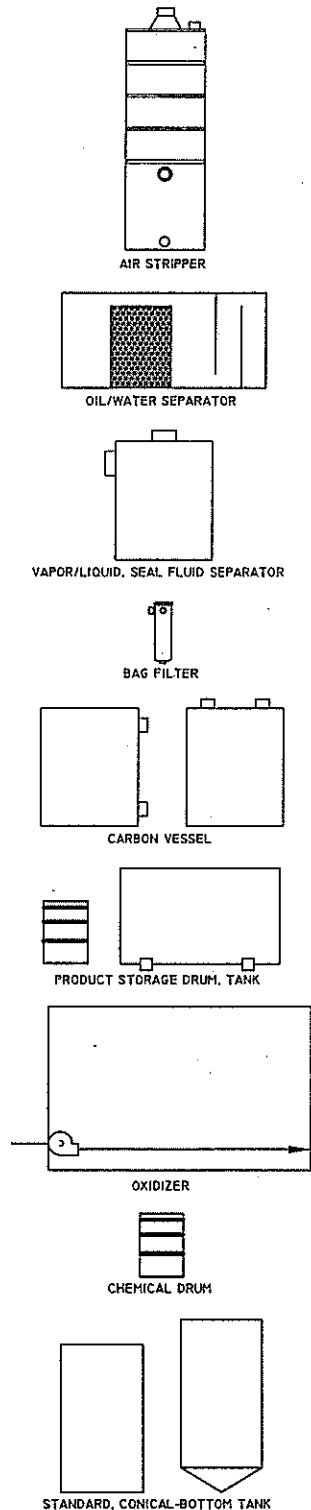
LEVEL	DATE	BY	REVISION
C	AUG 22,06	BW	AS-BUILT
B	JUL 14,06	BW	FOR PRODUCTION
AZ	JUN 12,06	BW	MISCELLANEOUS ITEMS SHIPPED LOOSE
A1	JUN 7,06	BW	DISCONNECT SHIPPED LOOSE
A	MAY 25,06	BW	FOR APPROVAL

DWG. NO:	50112-01 (PAGE 1 OF 2)
TITLE:	PROCESS & INSTRUMENTATION DRAWING
CUSTOMER:	NEMO WORK CENTER URS CORPORATION
	MLE EQUIPMENT INC.

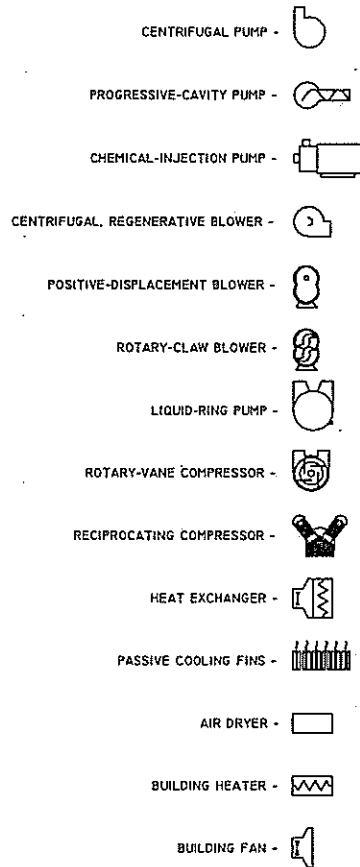
VALVES AND PIPING



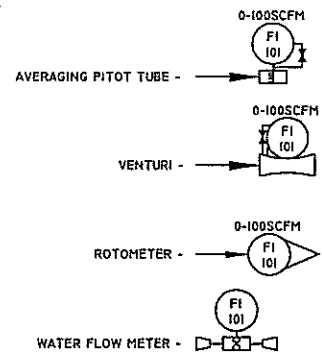
EQUIPMENT



EQUIPMENT



FLOW MEASUREMENT



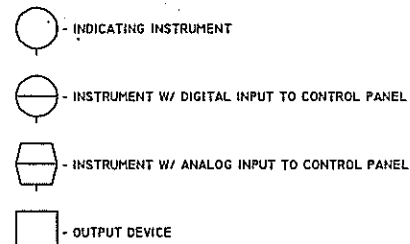
INSTRUMENT DESIGNATION

	INPUT	1ST MODIFIER	2ND MODIFIER	3RD MODIFIER	OUTPUT	1ST MODIFIER	
A							A
B						BLOWER	B
C	CYCLE					COMPRESSOR	C
D		DIFFERENTIAL				AIR DRYER	D
E							E
F	FLOW					FAN	F
G			GAUGE				G
H				HIGH	HAND	HEATER	H
I	CURRENT		INDICATOR				I
J							J
K							K
L	LEVEL			LOW			L
M					MOTORIZED		M
N							N
O							O
P	PRESSURE				PNEUMATIC	PUMP	P
Q							Q
R							R
S	SPEED		SWITCH		SOLENOID		S
T	TEMPERATURE		TRANSMITTER				T
U							U
V						VALVE	V
W							W
X							X
Y							Y
Z	POSITION						Z

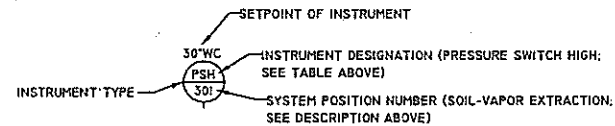
SYSTEM POSITION DESIGNATION

- COMP - AIR COMPRESSOR
- LPIN - GROUNDWATER INLET MANIFOLD
- DISCH - INLET TANK
- LPC - LIQUID-PHASE CARBON
- DISCH - DISCHARGE TANK
- BLD - BUILDING OR SKID

INSTRUMENT IDENTIFICATION



EXAMPLE



INSTRUMENT INFORMATION

INFORMATION ON ALL EQUIPMENT IN SYSTEM CAN BE FOUND IN THE MANUAL AND SUBMITTAL PACKAGE USING THE INSTRUMENT DESIGNATION AND SYSTEM POSITION NUMBER. THE SYSTEM POSITION NUMBER IDENTIFIES THE MODULE OF THE MANUAL AND SUBMITTAL PACKAGE WHERE THE INSTRUMENT CAN BE FOUND, WHILE THE INSTRUMENT DESIGNATION IDENTIFIES THE EXACT INSTRUMENT. SEE THE EXAMPLE BELOW FOR ILLUSTRATION.

MAPLE LEAF ENVIRONMENTAL EQUIPMENT, LTD. www.maple-leaf.ca					
PROJECT NUMBER: 7777777					
PROJECT NAME: 7777777					
CUSTOMER NAME: 7777777					
MECHANICAL ITEMS CHOSEN BY: 7777777					
300 - SOIL VAPOR EXTRACTION COMPONENT LIST			M: MANUAL IS PROVIDED S: SPEC SHEET IS PROVIDED D: DRAWING IS REQUIRED		
PART#	DEVICE ID	DESCRIPTION	MODEL	MANUFACTURER	QTY
		HIGH DISCHARGE PRESSURE SWITCH			
15547	PSH-301	Differential Air Pressure Switch, Nema 1, (5-4" w/c)	1823-40	Dwyer	1

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LEVEL	DATE	BY	REVISION
C	AUG 22,06	BW	AS-BUILT
B	JUL 14,06	BW	FOR PRODUCTION
A2	JUN 12,06	BW	MISCELLANEOUS ITEMS SHIPPED LOOSE
A1	JUN 7,06	BW	DISCONNECT SHIPPED LOOSE
A	MAY 24,06	BW	FOR APPROVAL

DWG. NO:	50112-01 (PAGE 2 OF 2)
TITLE:	P&ID LEGEND
CUSTOMER:	NEMO WORK CENTER URS CORPORATION
	MLE EQUIPMENT INC.