

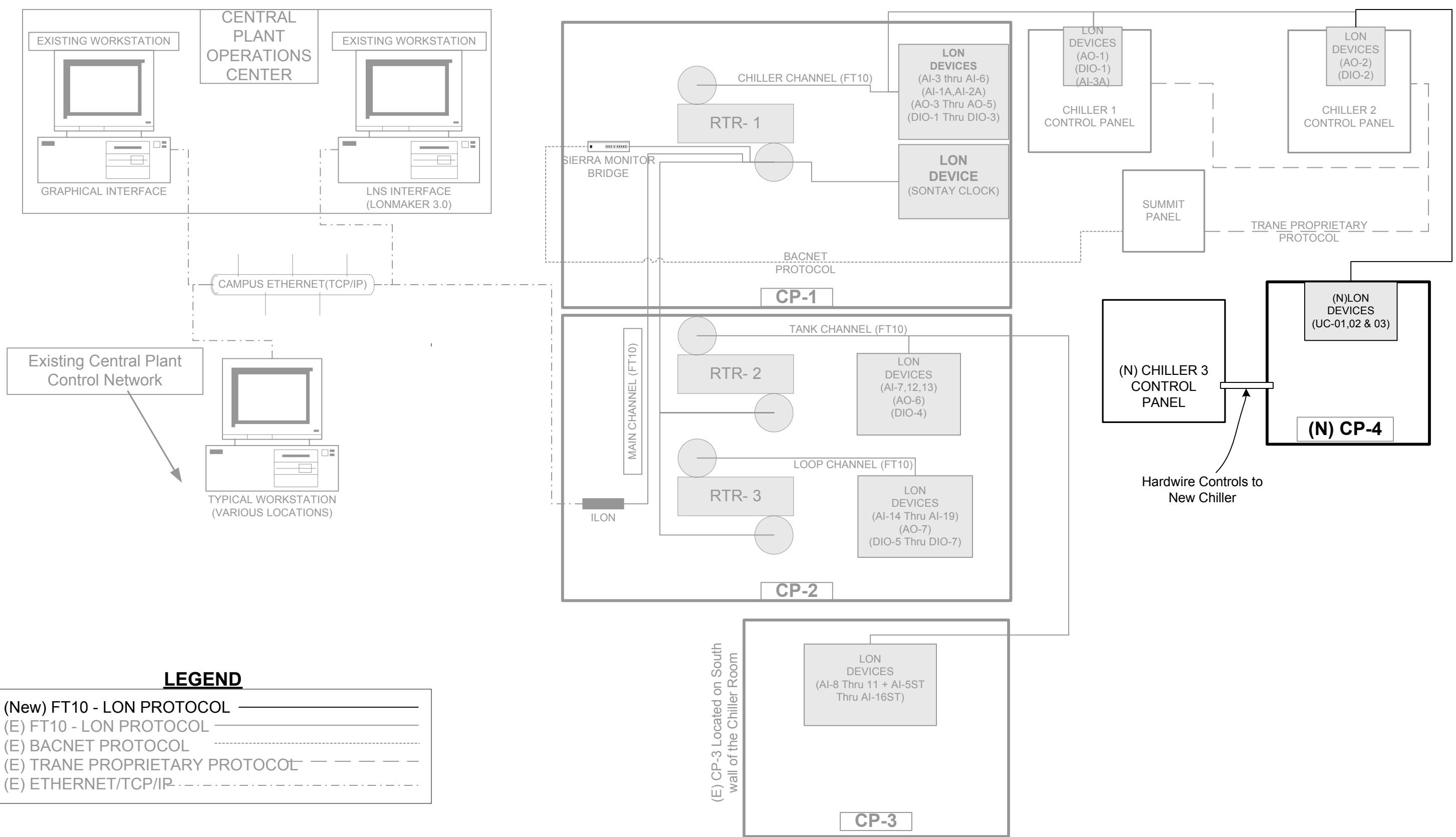
CONTROL SYSTEM FOR:
CENTRAL PLANT CHILLER ADDITION

ANY PLACE
 ANY STREET
 ANY CITY, ANY STATE 90000

ACS Controls
 A division of American Chiller Service, Inc.
 8270 Belvedere Avenue #140
 Sacramento, CA 95826

SHEET #	DESCRIPTION	REVISION
TITLE	TITLE SHEET	SUBMITTAL
CS 1.0	COMMUNICATION ARCHITECTURE	SUBMITTAL
CS 2.0	CHILLER CONTROL SCHEMATIC	SUBMITTAL
CS 3.0	TOWER CONTROL SCHEMATIC	SUBMITTAL
CS 4.0	FCU1 CONTROL SCHEMATIC	SUBMITTAL
CS 5.0	UC-01 WIRING DIAGRAM	SUBMITTAL
CS 6.0	UC-02 WIRING DIAGRAM	SUBMITTAL
CS 7.0	UC-03 WIRING DIAGRAM	SUBMITTAL
CS 8.0	(E) CP-2 WIRING MODIFICATIONS	SUBMITTAL
CS 9.0	PANEL LAYOUT & PARTIAL FLOOR PLAN	SUBMITTAL
CS 10.0	PARTS LIST & DDC POINT LIST	SUBMITTAL

ACS Controls and its parent company American Chiller Service, Inc., are the owners of this document and the related intellectual property associated with this document. Under no circumstances shall this document, in part or in whole, be used or copied in a manner which shall be construed as detrimental to ACS Controls or its parent company without prior written permission.	NO.	DATE	BY	REVISION DESCRIPTION	ACS Controls A division of American Chiller Service, Inc., <i>"Communicate Openly"</i> 8270 Belvedere Ave. #140 Sacramento, CA 95826 916 457-7800 Fax 916 731-8100	DATE	CUSTOMER NAME			
		01/01/04	MJN	SUBMITTAL		11/07/2003	ANY CITY			
						SCALE	NONE	LOCATION	ANY CITY	
						DRAWN BY	MJN	DRAWING DESCRIPTION	CENTRAL PLANT CHILLER ADDITION	
						ENGINEERED BY	MJN	TITLE SHEET	TITLE SHEET	
					ENGINEERING GROUP	ACS CONTROLS	DRAWING FILE NAME	11333	SHEET	TITLE



LEGEND

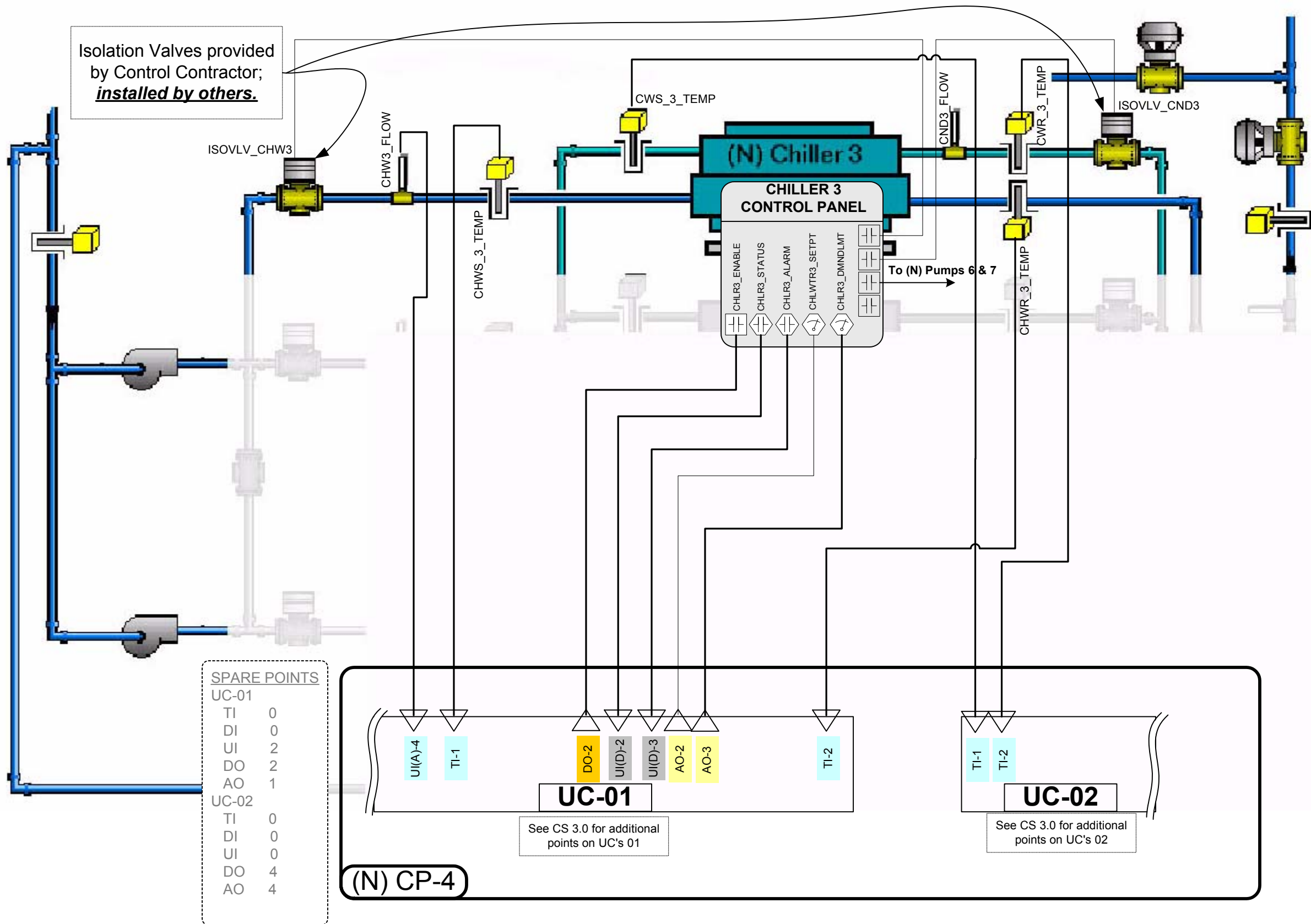
- (New) FT10 - LON PROTOCOL —————
- (E) FT10 - LON PROTOCOL - - - - -
- (E) BACNET PROTOCOL - - - - -
- (E) TRANE PROPRIETARY PROTOCOL - - - - -
- (E) ETHERNET/TCP/IP - - - - -

ACS Controls and its parent company American Chiller Service, Inc., are the owners of this document and the related intellectual property associated with this document. Under no circumstances shall this document, in part or in whole, be used or copied in a manner which shall be construed as detrimental to ACS Controls or its parent company without prior written permission.

NO.	DATE	BY	REVISION DESCRIPTION
01	01/01/04	MJN	SUBMITTAL

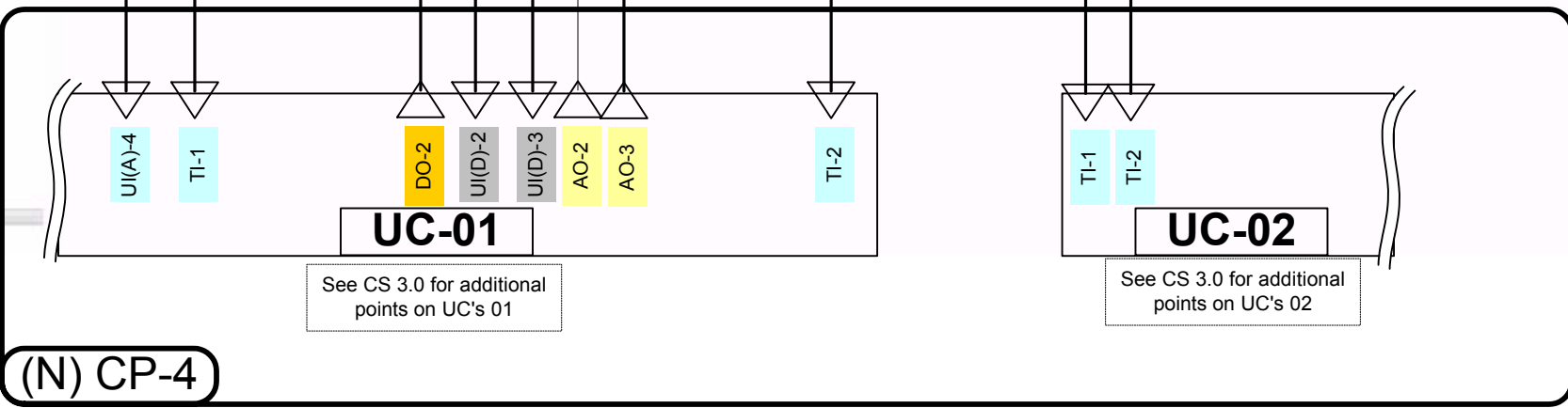
ACS Controls
 A division of American Chiller Service, Inc.,
 "Communicate Openly"
 8270 Belvedere Ave. #140
 Sacramento, CA 95826
 916 457-7800 Fax 916 731-8100

DATE	11/07/2003	CUSTOMER NAME	
SCALE	NONE	LOCATION	ANY CITY
DRAWN BY	MJN	DRAWING DESCRIPTION	CENTRAL PLANT CHILLER ADDITION
ENGINEERED BY	MJN		COMMUNICATION ARCHITECTURE
ENGINEERING GROUP	ACS CONTROLS	DRAWING FILE NAME	11333
		SHEET	CS 1.0



SPARE POINTS

UC-01	
TI	0
DI	0
UI	2
DO	2
AO	1
UC-02	
TI	0
DI	0
UI	0
DO	4
AO	4

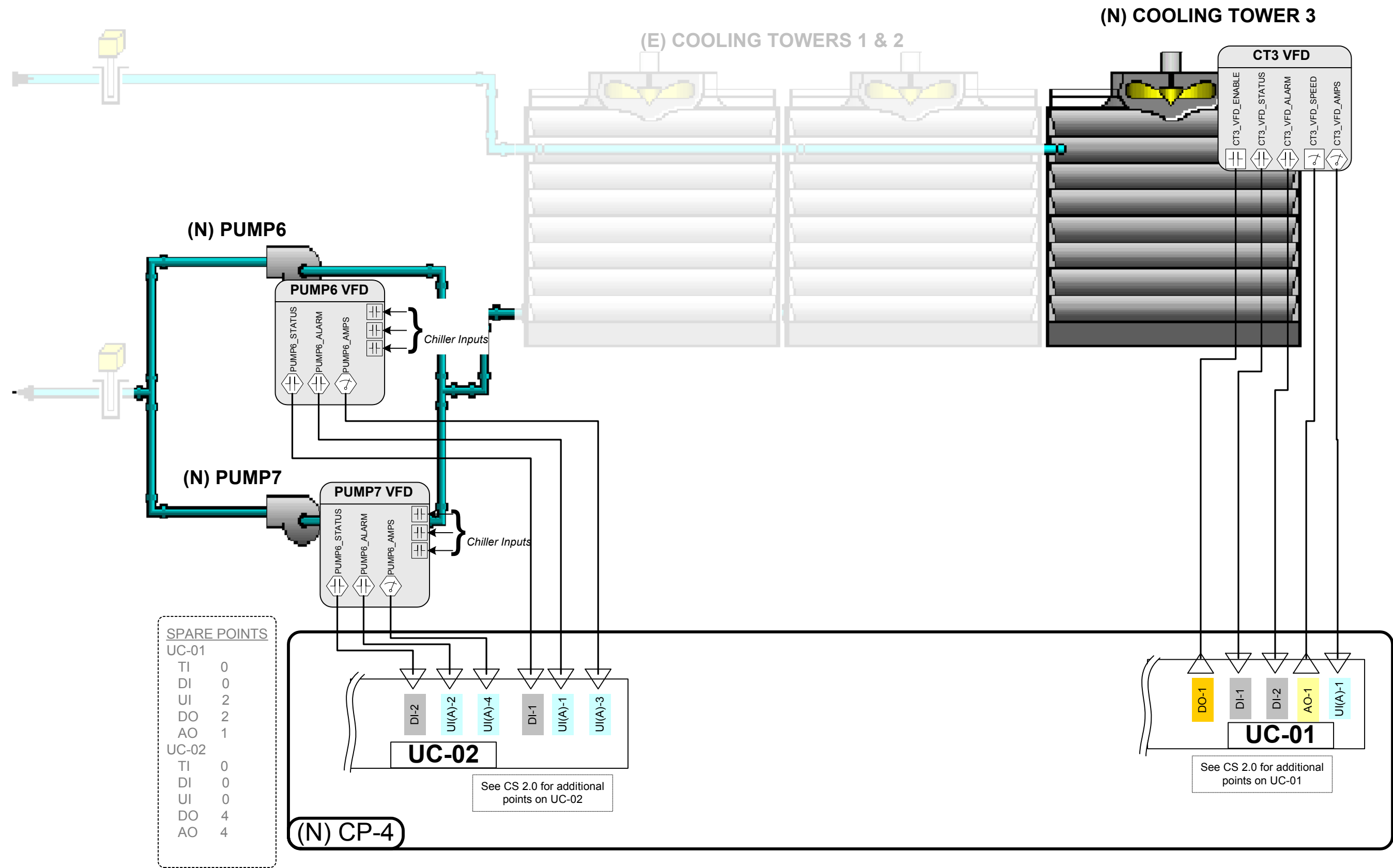


ACS Controls and its parent company American Chiller Service, Inc., are the owners of this document and the related intellectual property associated with this document. Under no circumstances shall this document, in part or in whole, be used or copied in a manner which shall be construed as detrimental to ACS Controls or its parent company without prior written permission.

NO.	DATE	BY	REVISION DESCRIPTION
1	11/01/2004	MJN	SUBMITTAL

ACS Controls
 A division of American Chiller Service, Inc.,
"Communicate Openly"
 8270 Belvedere Ave. #140
 Sacramento, CA 95826
 916 457-7800 Fax 916 731-8100

DATE	11/07/2003	CUSTOMER NAME	
SCALE	NONE	LOCATION	ANY CITY
DRAWN BY	MJN	DRAWING DESCRIPTION	CENTRAL PLANT CHILLER ADDITION
ENGINEERED BY	MJN		CHILLER CONTROL SCHEMATIC
ENGINEERING GROUP	ACS CONTROLS	DRAWING FILE NAME	11333
		SHEET	CS 2.0

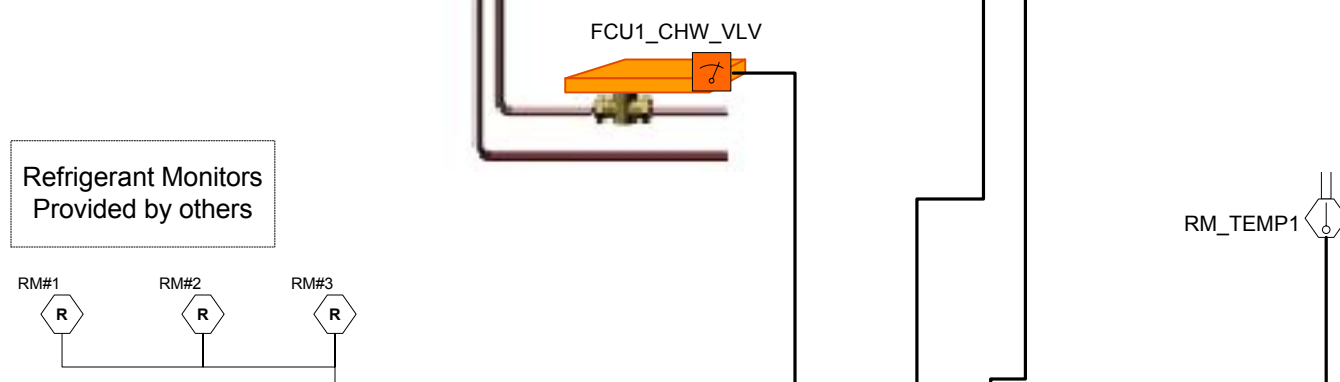


NO.	DATE	BY	REVISION DESCRIPTION
01	01/04	MJN	SUBMITTAL

ACS Controls and its parent company American Chiller Service, Inc., are the owners of this document and the related intellectual property associated with this document. Under no circumstances shall this document, in part or in whole, be used or copied in a manner which shall be construed as detrimental to ACS Controls or its parent company without prior written permission.

ACS Controls
 A division of American Chiller Service, Inc.,
"Communicate Openly"
 8270 Belvedere Ave. #140
 Sacramento, CA 95826
 916 457-7800 Fax 916 731-8100

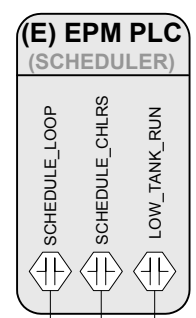
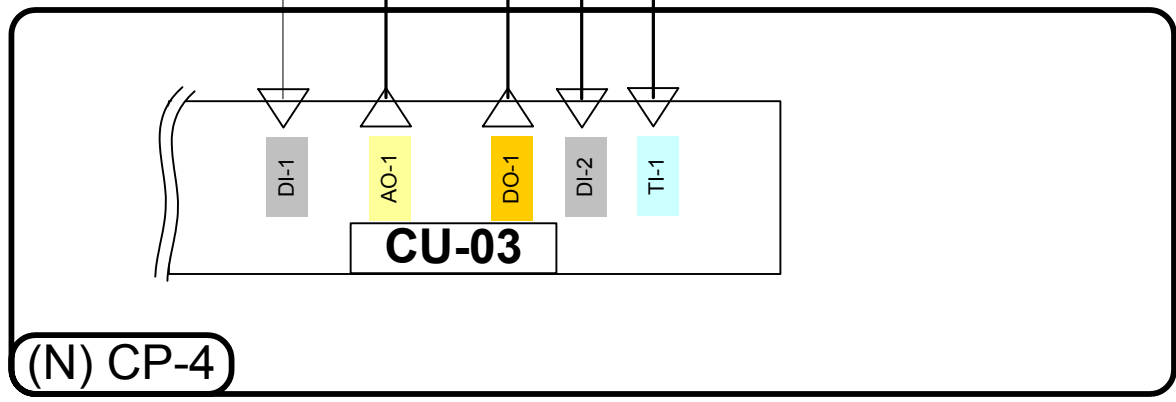
DATE	11/07/2003	CUSTOMER NAME	
SCALE	NONE	LOCATION	ANY CITY
DRAWN BY	MJN	DRAWING DESCRIPTION	CENTRAL PLANT CHILLER ADDITION
ENGINEERED BY	MJN		TOWER CONTROL SCHEMATIC
ENGINEERING GROUP	ACS CONTROLS	DRAWING FILE NAME	11333
		SHEET	CS 3.0



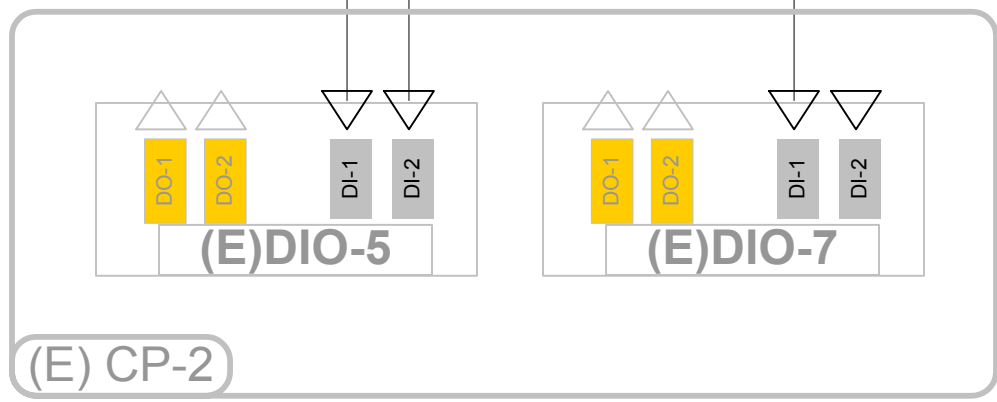
Refrigerant Monitors
Provided by others

RM#1
RM#2
RM#3

SPARE POINTS	
UC-03	
TI	1
DI	0
UI	4
DO	3
AO	3



New Schedule Points from
Existing PLC terminated to
spare points in Existing CP-2

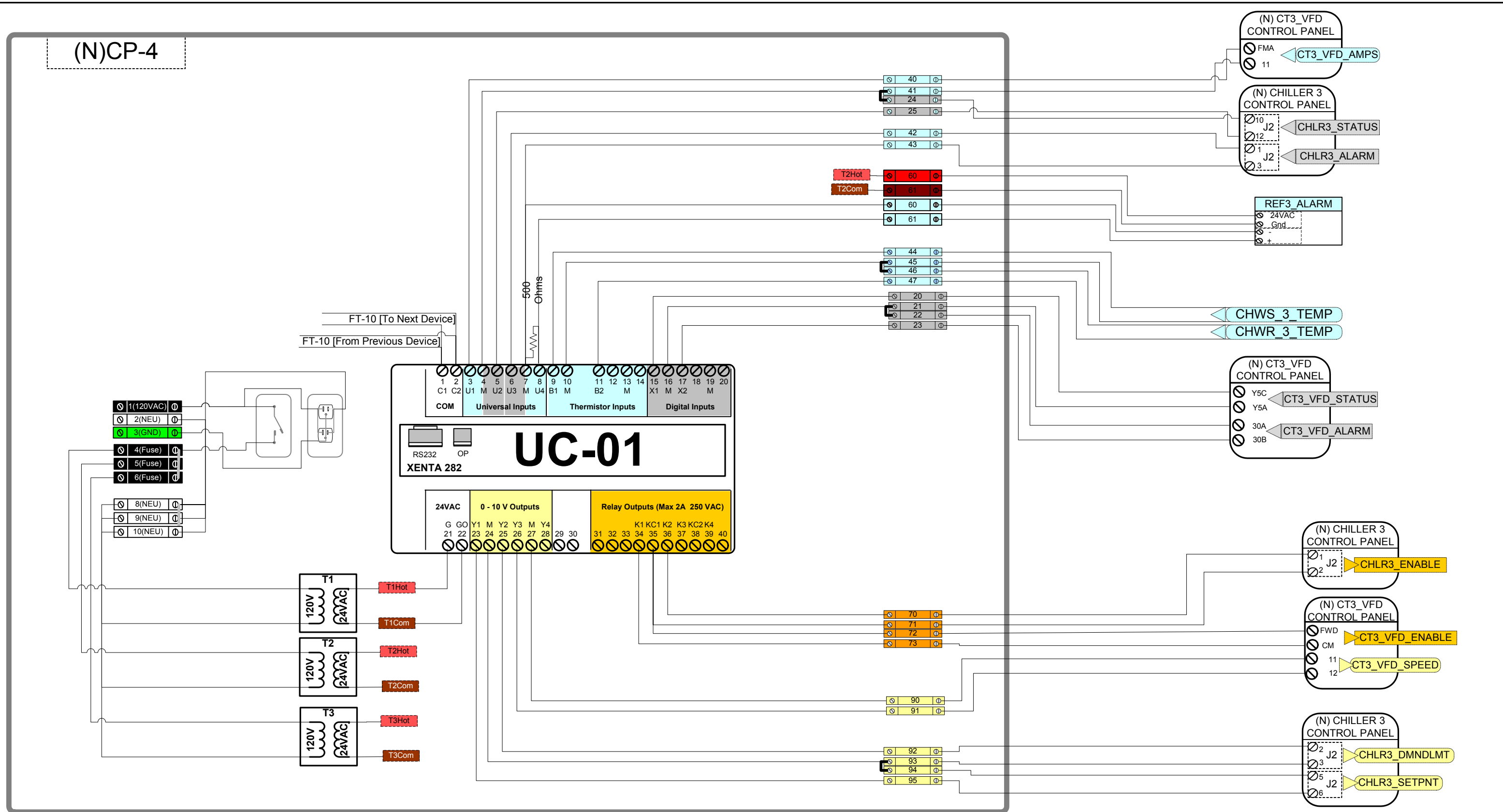


ACS Controls and its parent company American Chiller Service, Inc., are the owners of this document and the related intellectual property associated with this document. Under no circumstances shall this document, in part or in whole, be used or copied in a manner which shall be construed as detrimental to ACS Controls or its parent company without prior written permission.

NO.	DATE	BY	REVISION DESCRIPTION
01	01/04	MJN	SUBMITTAL

ACS Controls
A division of American Chiller Service, Inc.,
"Communicate Openly"
8270 Belvedere Ave. #140
Sacramento, CA 95826
916 457-7800 Fax 916 731-8100

DATE	11/07/2003	CUSTOMER NAME	
SCALE	NONE	LOCATION	ANY CITY
DRAWN BY	MJN	DRAWING DESCRIPTION	CENTRAL PLANT CHILLER ADDITION FCU1 CONTROL SCHEMATIC & SCHEDULE CONTROL SCHEMATIC
ENGINEERED BY	MJN	DRAWING FILE NAME	11333
ENGINEERING GROUP	ACS CONTROLS	SHEET	CS 4.0



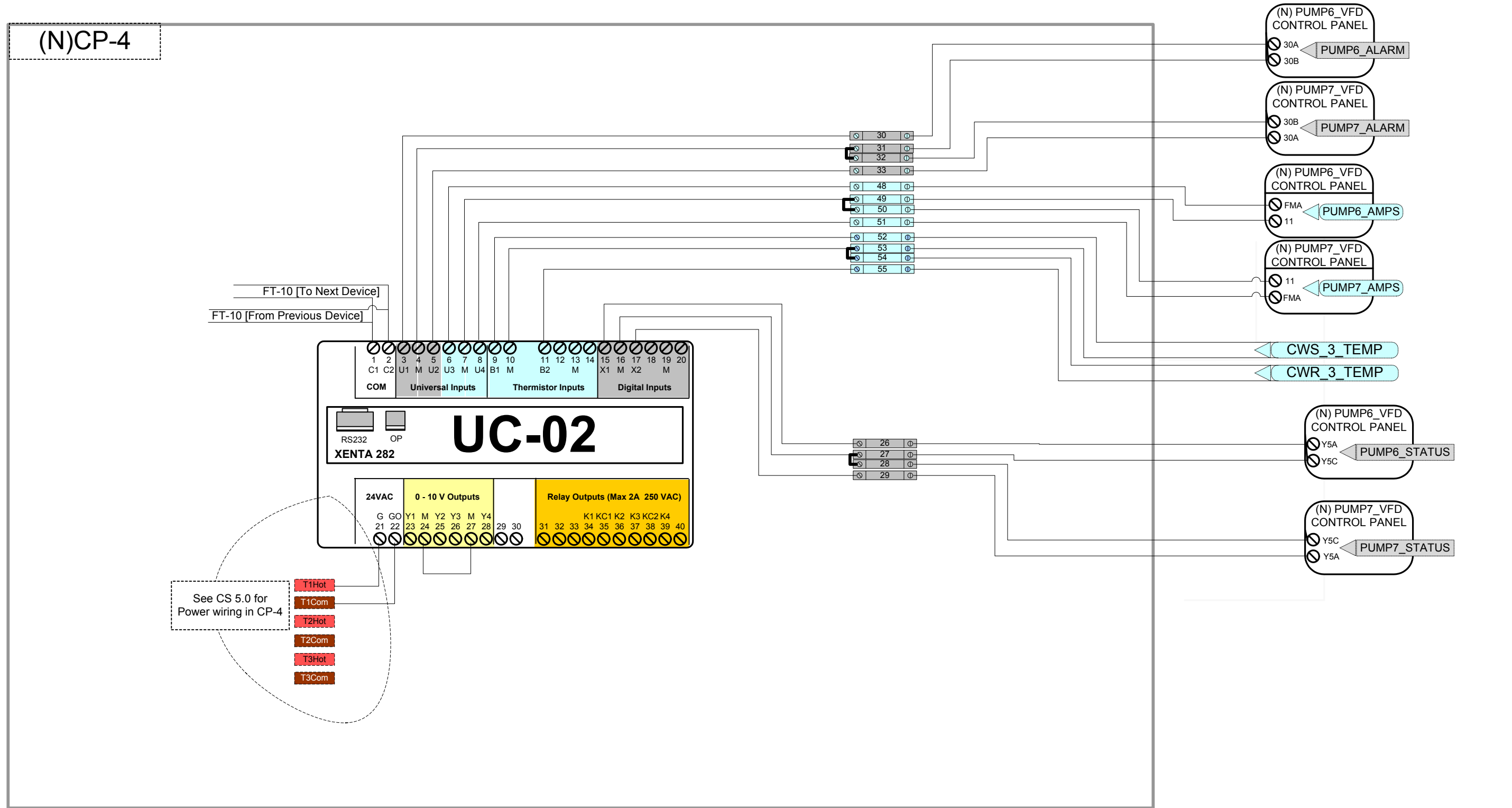
UC-01 WIRING DIAGRAM (CP-4)

ACS Controls and its parent company American Chiller Service, Inc., are the owners of this document and the related intellectual property associated with this document. Under no circumstances shall this document, in part or in whole, be used or copied in a manner which shall be construed as detrimental to ACS Controls or its parent company without prior written permission.

NO.	DATE	BY	REVISION DESCRIPTION
	01/01/04	MJN	SUBMITTAL

ACS Controls
 A division of American Chiller Service, Inc.,
"Communicate Openly"
 8270 Belvedere Ave. #140
 Sacramento, CA 95826
 916 457-7800 Fax 916 731-8100

DATE	11/07/2003	CUSTOMER NAME	
SCALE	NONE	LOCATION	ANY CITY
DRAWN BY	MJN	DRAWING DESCRIPTION	CENTRAL PLANT CHILLER ADDITION
ENGINEERED BY	MJN		UC-01 WIRING DIAGRAM
ENGINEERING GROUP	ACS CONTROLS	DRAWING FILE NAME	11333
		SHEET	CS 5.0



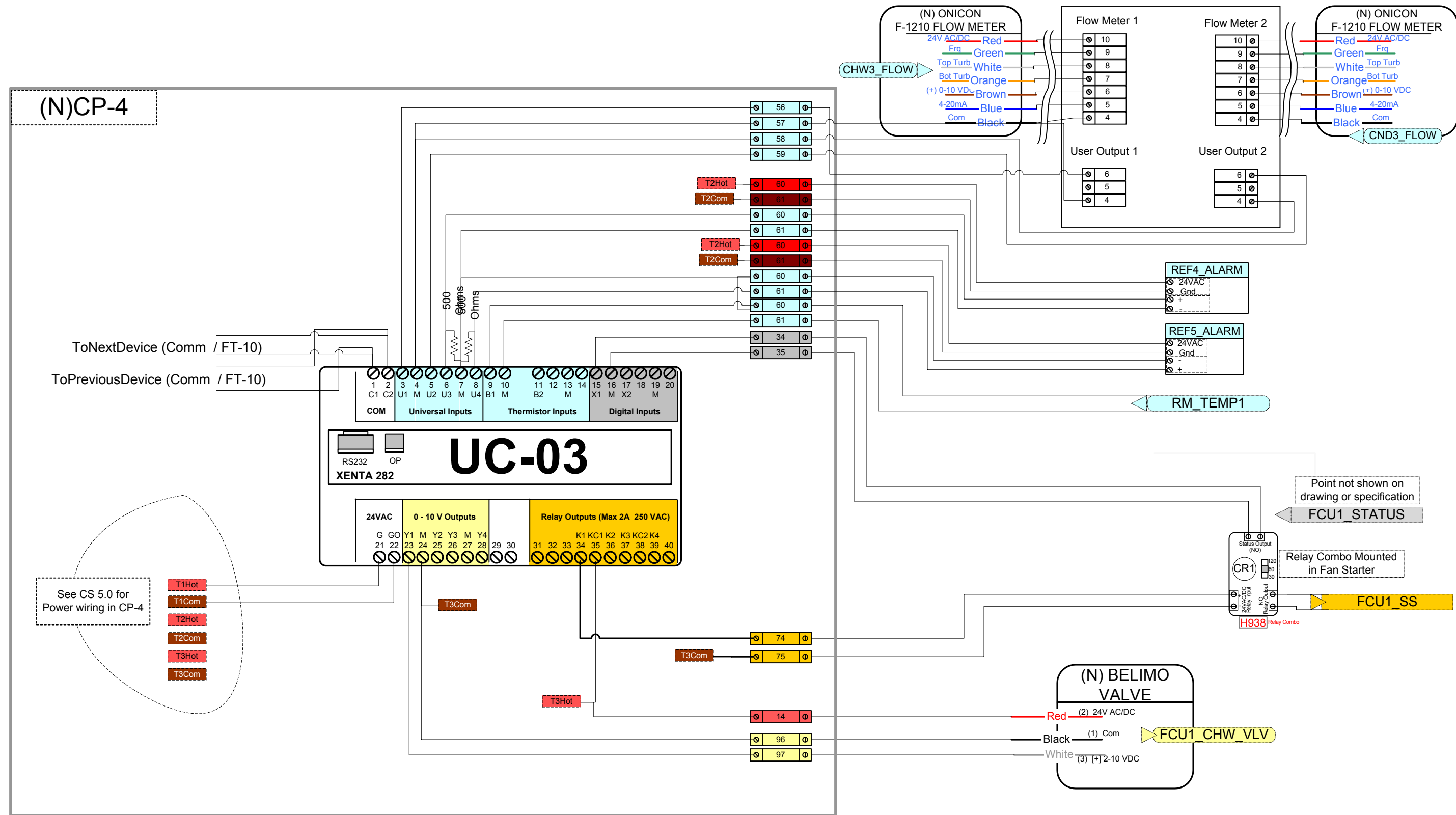
UC-02 WIRING DIAGRAM (CP-4)

ACS Controls and its parent company American Chiller Service, Inc., are the owners of this document and the related intellectual property associated with this document. Under no circumstances shall this document, in part or in whole, be used or copied in a manner which shall be construed as detrimental to ACS Controls or its parent company without prior written permission.

NO.	DATE	BY	REVISION DESCRIPTION
01/01/04	MJN		SUBMITTAL

ACS Controls
 A division of American Chiller Service, Inc.,
"Communicate Openly"
 8270 Belvedere Ave. #140
 Sacramento, CA 95826
 916 457-7800 Fax 916 731-8100

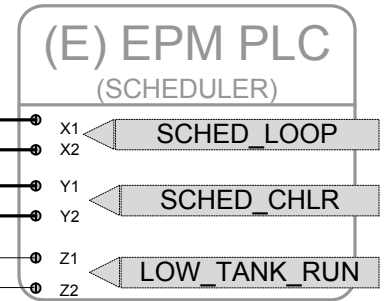
DATE	11/07/2003	CUSTOMER NAME	
SCALE	NONE	LOCATION	ANY CITY
DRAWN BY	MJN	DRAWING DESCRIPTION	CENTRAL PLANT CHILLER ADDITION
ENGINEERED BY	MJN		UC-02 WIRING DIAGRAM
ENGINEERING GROUP	ACS CONTROLS	DRAWING FILE NAME	11333
		SHEET	CS 6.0



UC-03 WIRING DIAGRAM (CP-4)

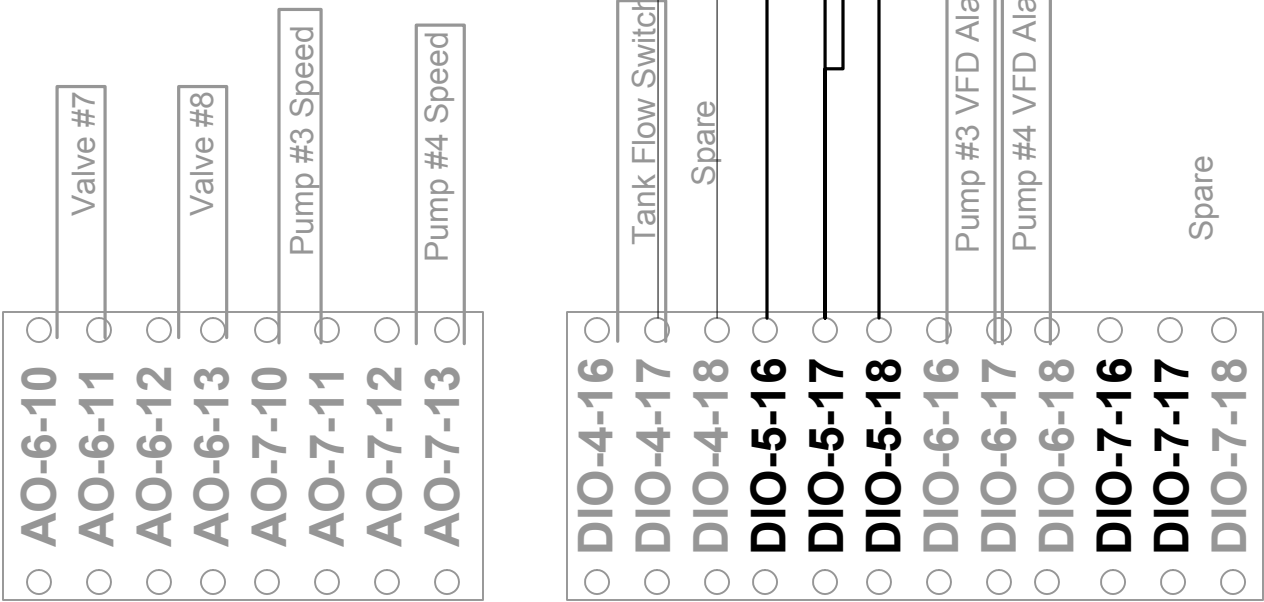
ACS Controls and its parent company American Chiller Service, Inc., are the owners of this document and the related intellectual property associated with this document. Under no circumstances shall this document, in part or in whole, be used or copied in a manner which shall be construed as detrimental to ACS Controls or its parent company without prior written permission.	NO.	DATE	BY	REVISION DESCRIPTION
		01/01/04	MJN	SUBMITTAL
ACS Controls A division of American Chiller Service, Inc., <i>"Communicate Openly"</i> 8270 Belvedere Ave. #140 Sacramento, CA 95826 916 457-7800 Fax 916 731-8100				
DATE	11/07/2003	CUSTOMER NAME		
SCALE	NONE	LOCATION	ANY CITY	
DRAWN BY	MJN	DRAWING DESCRIPTION	CENTRAL PLANT CHILLER ADDITION	
ENGINEERED BY	MJN		UC-03 WIRING DIAGRAM	
ENGINEERING GROUP	ACS CONTROLS	DRAWING FILE NAME	11333	SHEET CS 7.0

New wiring to spares in (E)CP-2 from existing PLC points. Coordinate terminations at PLC with CSUS Facilities Management.



(E)CP-2

New Schedule Points from Existing PLC terminated to spare points in Existing CP-2

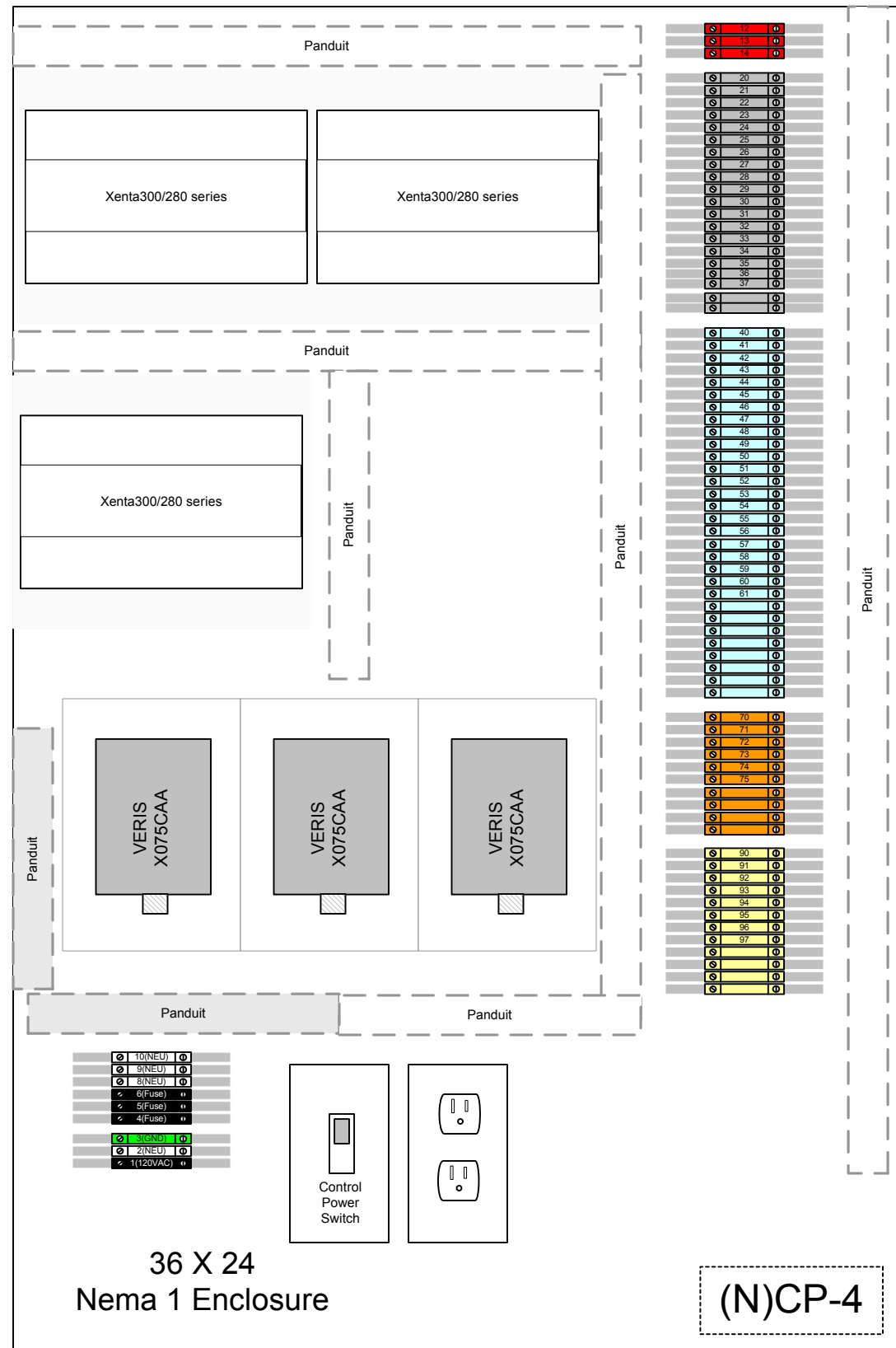


ACS Controls and its parent company American Chiller Service, Inc., are the owners of this document and the related intellectual property associated with this document. Under no circumstances shall this document, in part or in whole, be used or copied in a manner which shall be construed as detrimental to ACS Controls or its parent company without prior written permission.

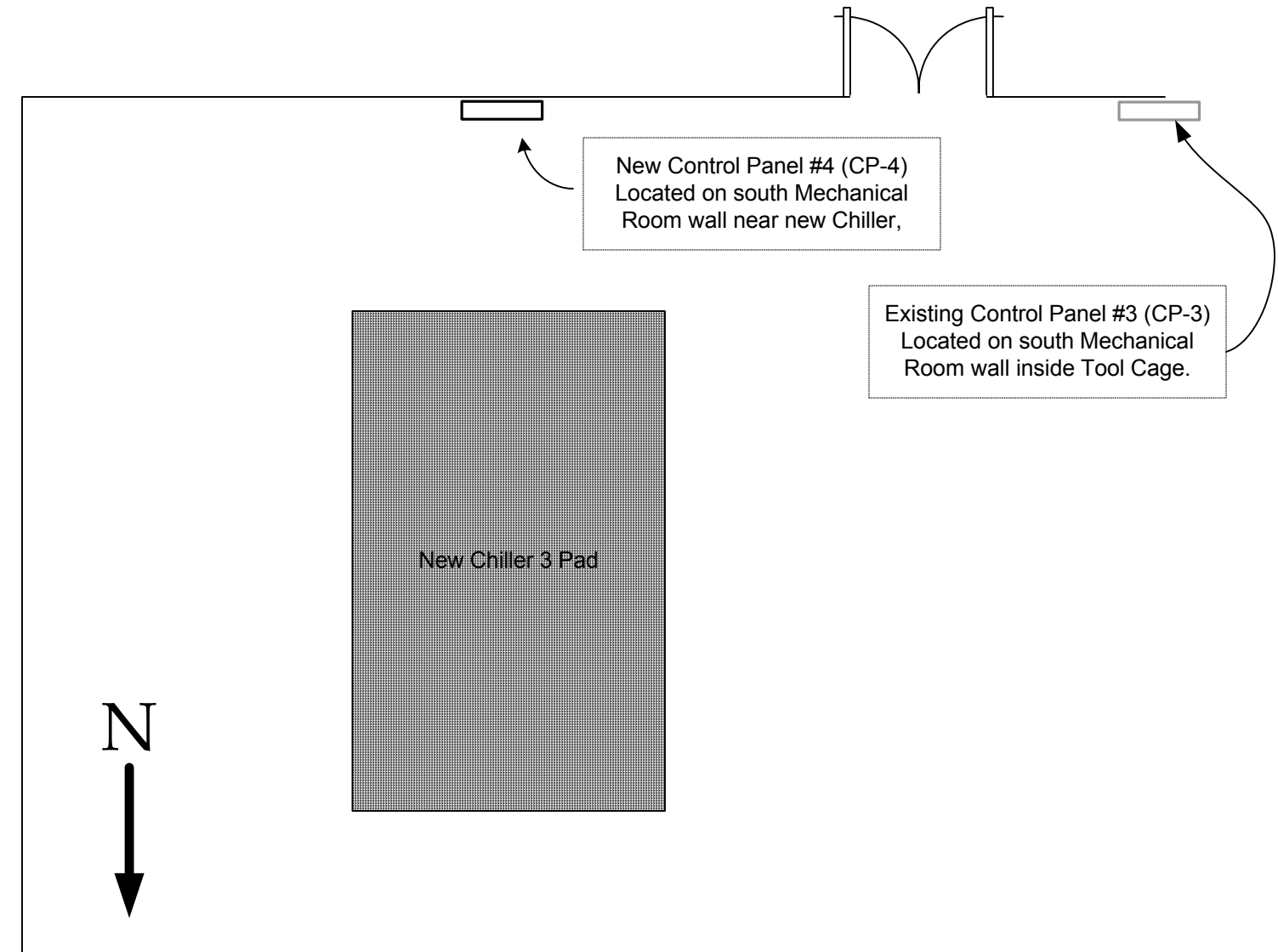
NO.	DATE	BY	REVISION DESCRIPTION
	01/01/04	MJN	SUBMITTAL

ACS Controls
A division of American Chiller Service, Inc.,
"Communicate Openly"
8270 Belvedere Ave. #140
Sacramento, CA 95826
916 457-7800 Fax 916 731-8100

DATE	11/07/2003	CUSTOMER NAME	
SCALE	NONE	LOCATION	ANY CITY
DRAWN BY	MJN	DRAWING DESCRIPTION	CENTRAL PLANT CHILLER ADDITION
ENGINEERED BY	MJN	DRAWING DESCRIPTION	PLC/LON SCHEDULE POINT WIRING
ENGINEERING GROUP	ACS CONTROLS	DRAWING FILE NAME	11333
		SHEET	CS 8.0



Panel Layout



Partial Central Plant Floor Plan

NO SCALE

<p>ACS Controls and its parent company American Chiller Service, Inc., are the owners of this document and the related intellectual property associated with this document. Under no circumstances shall this document, in part or in whole, be used or copied in a manner which shall be construed as detrimental to ACS Controls or its parent company without prior written permission.</p>	NO.	DATE	BY	REVISION DESCRIPTION	
		01/07/03	MJN	SUBMITTAL	
				<p>ACS Controls A division of American Chiller Service, Inc., <i>"Communicate Openly"</i> 8270 Belvedere Ave. #140 Sacramento, CA 95826 916 457-7800 Fax 916 731-8100</p>	
		DATE	CUSTOMER NAME		
		11/07/2003			
		SCALE	LOCATION		
		NONE	ANY CITY		
		DRAWN BY	DRAWING DESCRIPTION		
		MJN	CENTRAL PLANT CHILLER ADDITION PANEL LAYOUT & PARTIAL FLOOR PLAN		
		ENGINEERED BY	DRAWING FILE NAME		
		MJN	11333		SHEET
		ENGINEERING GROUP	ACS CONTROLS		CS 9.0

PARTS LIST

TAG	QTY	PART #	MANF.	DESCRIPTION
UC1,2 & 3	3	XENTA 282	TAC	Programmable Unit Controller(2DI,4UI,4TI,4DO&4AO)
CHW(S&R)_3_TEMP CW(S&R)_3_TEMP	4	TIDDINO	Veris/TAC	Immersion 1800 Ohm 8" Thermistor W/Well
RM_TEMP1	1	TEN00	Veris/TAC	Room Sensor 1800 Ohm Thermistor
CHW3_FLOW	1	#F1210	Onicon	Onicon Model #F1210 with install Kit (14" schedule 40 Steel Pipe - Nominal 1875 Gpm)
CND3_FLOW	1	3-5100 +MK515	+G+Signet	Flow Sensor and Battery Powered Monitor (Stand Alone)
FCU1_CHW_VLV	1	B222B + LR24-SR US	Belimo/TAC	2-Way Control Valve with 2-10VDC Modulating Actuator Cv=7.4 (9GPM @ ~1.5psi)
CR1	1	H938	Veris/TAC	24VAC Relay/Current Switch Combo
XFMR	1	X075CAA	Veris/TAC	120/24 VAC Control Transformer(75VA) W/Circuit Brkr
ISOVLV_CHW3 (Installation by Others)	1	Series 31 NYL2-x140 90-210 & Series 5 Declutchable Gear Actuator	Bray	14" 2 -Way Butterfly Valve with Double Acting Pneumatic Actuator and Gear Drive Override
ISOVLV_CND3 (Installation by Others)	1	Series 31 NYL2-x180 90-255 & Series 5 Declutchable Gear Actuator	Bray	18" 2 -Way Butterfly Valve with Double Acting Pneumatic Actuator and Gear Drive Override

POINT LIST

		New Points to Existing LON Controllers	
UC-01	UC-02	UC-03	DIO -5 DIO -7
DI's	DI's	DI's	DI's
CT3_VFD_STATUS	PUMP6_STATUS	REFRIG_MON	SCHED_LOOP
CT3_VFD_ALARM	PUMP7_STATUS	FCU1_STATUS	SCHED_CHLR
DO's	DO's	DO's	
CT3_VFD_S/S		FCU1_S/S	
CHLR3_ENABLE			
UI's	UI's	UI's	
CT3_VFD_AMPS	PUMP6_ALARM	CHW3_FLOW	
CHLR3_STATUS	PUMP7_ALARM	CND3_FLOW	
CHLR3_ALARM	PUMP6_AMPS		
	PUMP7_AMPS		
TI's	TI's	TI's	
CHWS_3_TEMP	CWS_3_TEMP	RM_TEMP1	
CHWR_3_TEMP	CWR_3_TEMP		
AO's	AO's	AO's	
CT3_VFD_SPEED		FCU1_CHW_VLV	
CHLR3_SETPNT			
CHLR3_DMNDLMT			

ACS Controls and its parent company American Chiller Service, Inc., are the owners of this document and the related intellectual property associated with this document. Under no circumstances shall this document, in part or in whole, be used or copied in a manner which shall be construed as detrimental to ACS Controls or its parent company without prior written permission.

NO.	DATE	BY	REVISION DESCRIPTION
01/01/04	MJN		SUBMITTAL

ACS Controls
 A division of American Chiller Service, Inc.,
"Communicate Openly"
 8270 Belvedere Ave. #140
 Sacramento, CA 95826
 916 457-7800 Fax 916 731-8100

DATE	11/07/2003	CUSTOMER NAME	
SCALE	NONE	LOCATION	ANY CITY
DRAWN BY	MJN	DRAWING DESCRIPTION	CENTRAL PLANT CHILLER ADDITION PARTS LIST & DDC POINT LIST
ENGINEERED BY	MJN	DRAWING FILE NAME	11333
ENGINEERING GROUP	ACS CONTROLS	SHEET	CS 10.0