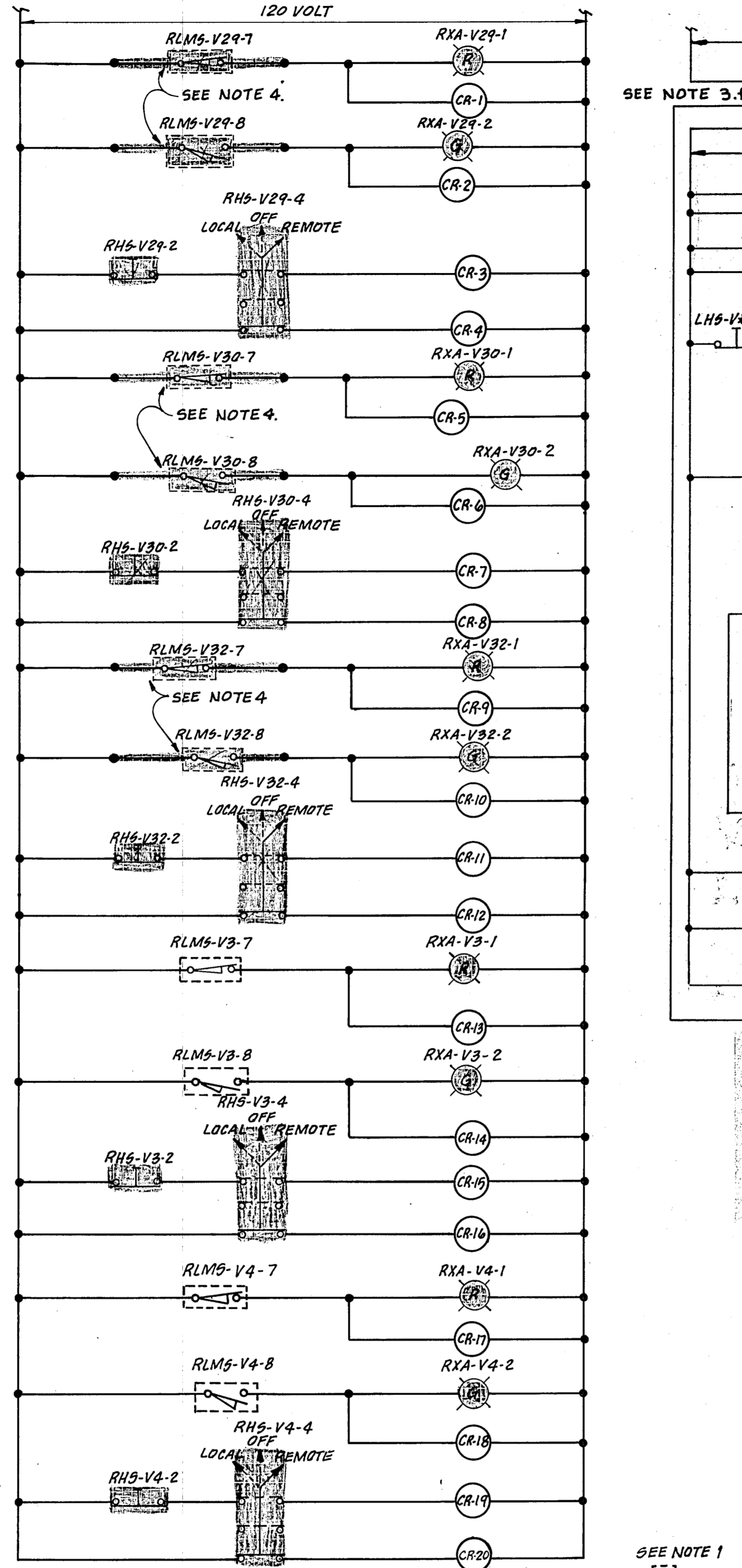


EXISTING VALVE V-* MOTOR STARTER CONTROL SCHEMATIC

(AT OCC-V*)
 V*, V-*, CR-*, CR-**: V29, V-29, CR-3, CR-4 FOR VALVE NO. 29
 V30, V-30, CR-7, CR-8 FOR VALVE NO. 30
 V32, V-32, CR-11, CR-12 FOR VALVE NO. 32

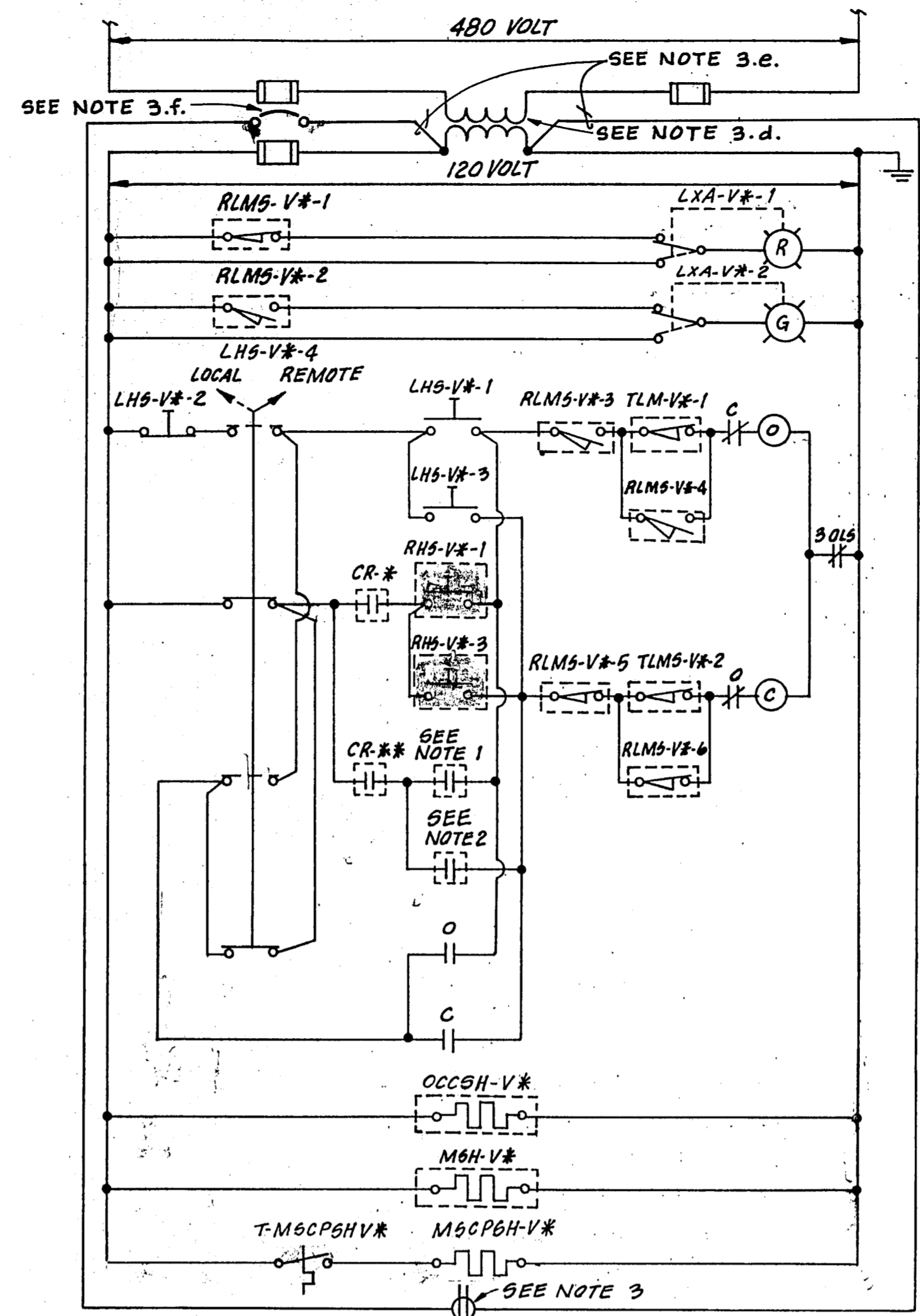
LIMIT SWITCH SCHEDULE	
SWITCH NO.	FUNCTION
RLMS-V*-1	ROTOR LIMIT SWITCH OPENS WHEN VALVE IS FULLY CLOSED, DE-ENERGIZING VALVE OPEN LIGHT.
RLMS-V*-2	ROTOR LIMIT SWITCH OPENS WHEN VALVE IS FULLY OPEN, DE-ENERGIZING VALVE CLOSED LIGHT.
RLMS-V*-3	ROTOR LIMIT SWITCH OPENS WHEN VALVE IS FULLY OPEN, DE-ENERGIZING VALVE OPEN MOTOR STARTER COIL.
RLMS-V*-4	ROTOR LIMIT SWITCH CLOSURES WHEN VALVE IS FULLY CLOSED, BYPASSING OPENING TORQUE LIMIT SWITCH.
RLMS-V*-5	ROTOR LIMIT SWITCH OPENS WHEN VALVE IS FULLY CLOSED, DE-ENERGIZING VALVE CLOSED MOTOR STARTER COIL.
RLMS-V*-6	ROTOR LIMIT SWITCH CLOSURES WHEN VALVE IS FULLY OPEN, BYPASSING CLOSED TORQUE LIMIT SWITCH.
RLMS-V*-7	SAME AS RLMS-V*-1.
RLMS-V*-8	SAME AS RLMS-V*-2.
TLMS-V*-1	TORQUE LIMIT SWITCH OPENS WHEN MECHANICAL OVERLOAD OCCURS DURING VALVE OPENING CYCLE, DE-ENERGIZING VALVE OPEN MOTOR STARTER COIL.
TLMS-V*-2	TORQUE LIMIT SWITCH OPENS WHEN MECHANICAL OVERLOAD OCCURS DURING VALVE CLOSING CYCLE, DE-ENERGIZING VALVE CLOSED MOTOR STARTER COIL.

V*: V29 FOR VALVE NO. 29
 V30 FOR VALVE NO. 30
 V32 FOR VALVE NO. 32
 V3 FOR VALVE NO. 3
 V4 FOR VALVE NO. 4



PROPOSED VALVE V-* SYSTEM CONTROL SCHEMATIC

(AT MCP-1)
 CR-*, CR-**, CR-***, CR-****, V*, V-*: CR-1, CR-2, CR-3, CR-4, V29, V29 FOR VALVE NO. 29
 CR-5, CR-6, CR-7, CR-8, V30, V30 FOR VALVE NO. 30
 CR-9, CR-10, CR-11, CR-12, V32, V32 FOR VALVE NO. 32
 CR-13, CR-14, CR-15, CR-16, V3, V-3 FOR VALVE NO. 3
 CR-17, CR-18, CR-19, CR-20, V4, V-4 FOR VALVE NO. 4



PROPOSED VALVE V-* MOTOR STARTER CONTROL SCHEMATIC

(AT M6CP-V*)
 V*, V-*, CR-*, CR-**: V3, V-3, CR-15, CR-16 FOR VALVE NO. 3
 V4, V-4, CR-19, CR-20 FOR VALVE NO. 4

CONTROL SCHEMATIC LEGEND

- EXISTING
- PROPOSED
- FUSE
- CONTROL POWER TRANSFORMER
- GROUND
- EXTERNALLY MOUNTED DEVICE
- NORMALLY CLOSED LIMIT SWITCH CONTACT
- NORMALLY OPEN LIMIT SWITCH CONTACT
- PILOT LIGHT, R=red/valve open, G=green/valve closed
- PUSH-TO-TEST PILOT LIGHT, R=red/valve OPEN, G=green/valve closed
- NORMALLY CLOSED MOMENTARY PUSH-BUTTON HAND SWITCH
- NORMALLY OPEN MOMENTARY PUSH-BUTTON HAND SWITCH
- LOCAL-REMOTE, TWO POSITION SELECTOR HAND SWITCH
- LOCAL-OFF-REMOTE, THREE POSITION SELECTOR HAND SWITCH
- MOTOR STARTER OPEN (FORWARD) COIL, NORMALLY OPEN CONTACT, NORMALLY CLOSED CONTACT, RESPECTIVELY
- MOTOR STARTER (REVERSE) COIL, NORMALLY OPEN CONTACT, NORMALLY CLOSED CONTACT, RESPECTIVELY
- CONTROL RELAY, NORMALLY OPEN CONTACT, NORMALLY CLOSED CONTACT, RESPECTIVELY
- THREE MOTOR THERMAL OVERLOADS
- NORMALLY OPEN THERMOSTAT CONTACT WITH CLOSING ON TEMPERATURE DECREASE
- SPACE HEATER
- POTENTIOMETER

CONTROL SCHEMATIC ABBREVIATIONS

- C CLOSE
- CR CONTROL RELAY
- G GREEN
- LHS LOCAL HAND SWITCH
- LXA LOCAL PILOT LIGHT
- MCP MONITORING AND CONTROL PANEL
- MP MONITORING PANEL
- MSCP MOTOR STARTER CONTROL PANEL
- MSCPSH MOTOR STARTER CONTROL PANEL SPACE HEATER
- MSH MOTOR SPACE HEATER
- NO. NUMBER
- O OPEN
- OCC OPERATOR CONTROL COMPARTMENT
- OCCSCH OPERATOR CONTROL COMPARTMENT SPACE HEATER
- OLMSCSH OPERATOR LIMIT SWITCH COMPARTMENT SPACE HEATER
- OLS OVERLOADS
- POT POTENTIOMETER
- R RED
- RHS REMOTE HAND SWITCH
- RLMS ROTOR LIMIT SWITCH
- RXA REMOTE PILOT LIGHT
- SCADA SUPERVISORY CONTROL AND DATA ACQUISITION
- T THERMOSTAT
- TLMS TORQUE LIMIT SWITCH
- V VALVE

NOTES

1. Contact from SCADA System to open respective valve while contact is closed.
2. Contact from SCADA System to close respective valve while contact is closed.
3. 30 amp rated duplex receptacle to be provided in accordance with all applicable requirements of item "Electrical Construction" and the following requirements.
 - a. Receptacle to be utilized for portable sump pump provided by City of Dallas Pumping Division.
 - b. Receptacle to be coordinated with sump pump's plug via City of Dallas Pumping Division.
 - c. Receptacle to be flush-mounted on motor starter control panel dead front.
 - d. Size of control power transformer that provides power to receptacle and motor starter control circuit to be 5.0 kilovolt-amperes.
 - e. Size of conductors required for receptacle circuit to be No. 10 American Wire Gauge.
 - f. Receptacle circuit to be protected via a 30 amp circuit breaker. Circuit breaker to be accessible from motor starter control panel dead front without opening dead front.
4. Existing valve limit switch conductors to be disconnected from SCADA system and reconnected to Monitoring and Control Panel MCP-1. Indicated control relay to be provided and relay contacts connected to SCADA System to replace disconnected valve limit switch as shown.

NO.	DATE	REVISION	APPROVED
BELTWOOD RESERVOIR EXPANSION ELECTRICAL CONTROLS			
DALLAS WATER UTILITIES CITY OF DALLAS, TEXAS Turner Collier & Braden Inc.			
DESIGN	R.A.B.	CONTRACT NO.	89-79
DRAWN	A.R.	FILE NO.	630 Q 700 F
TRACED			
CHECKED			
DATE			
			SHEET NO. 44A
			OF 44

Robert A. Huggins
 6/14/89