

CITY OF ROCKWALL, TEXAS

CONSTRUCTION PLANS FOR

EASTSIDE 700 PUMP STATION INSTALLATION OF PUMP 6

COUNCIL MEMBERS

KEN JONES, MAYOR
JOHN KING, MAYOR PRO-TEM
BILL CECIL
BOB COTTI
BILLY MORRIS
TERRY RAULSTON
LARRY DOBBS

CITY MANAGER

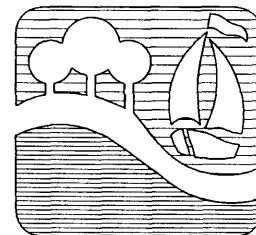
JULIE COUCH

ASSISTANT CITY MANAGER

RICHARD CROWLEY

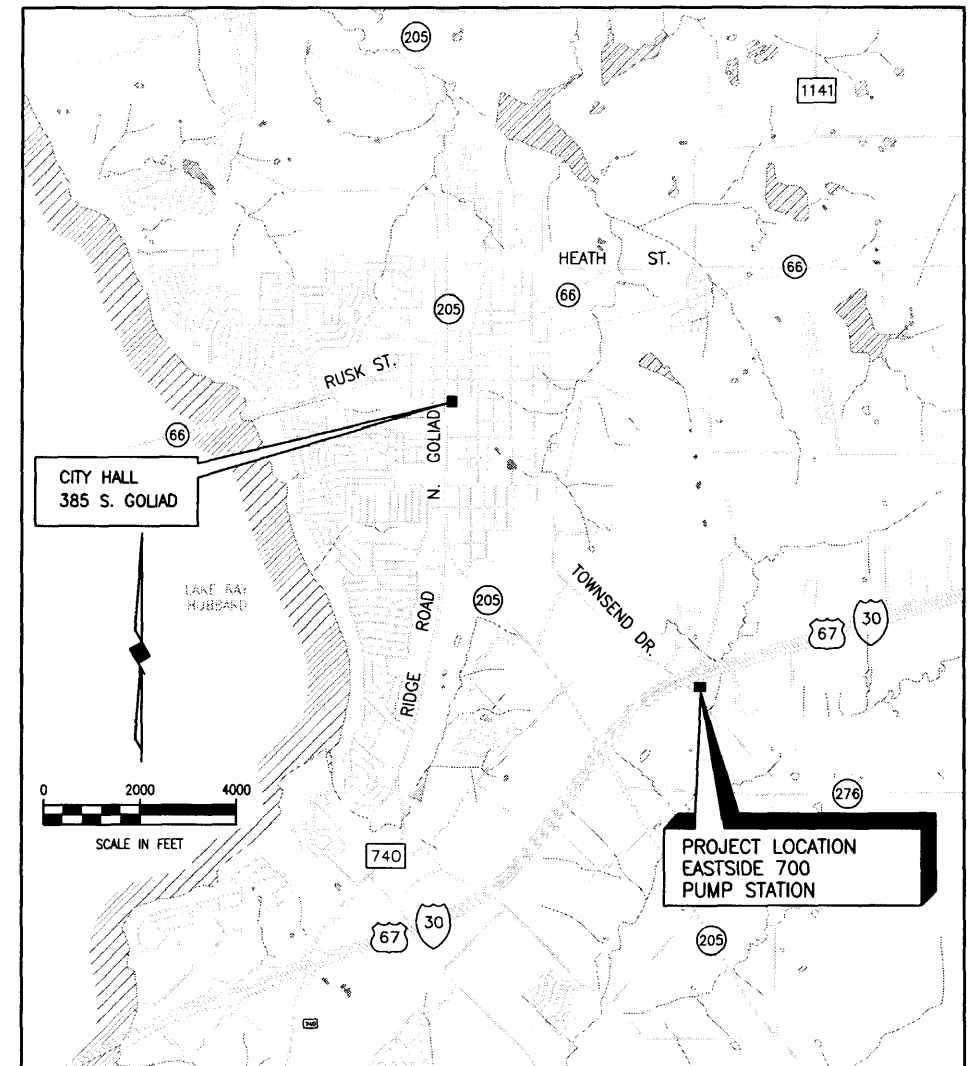
CITY ENGINEER

CHUCK TODD, P.E.



BIRKHOFF, HENDRICKS & CONWAY, L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

JULY, 2003

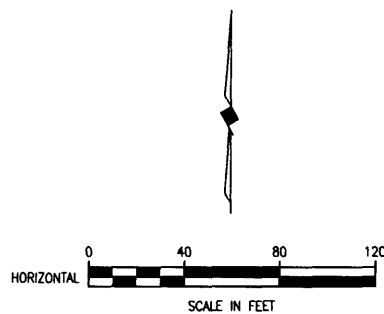


LOCATION MAP
SHEET INDEX

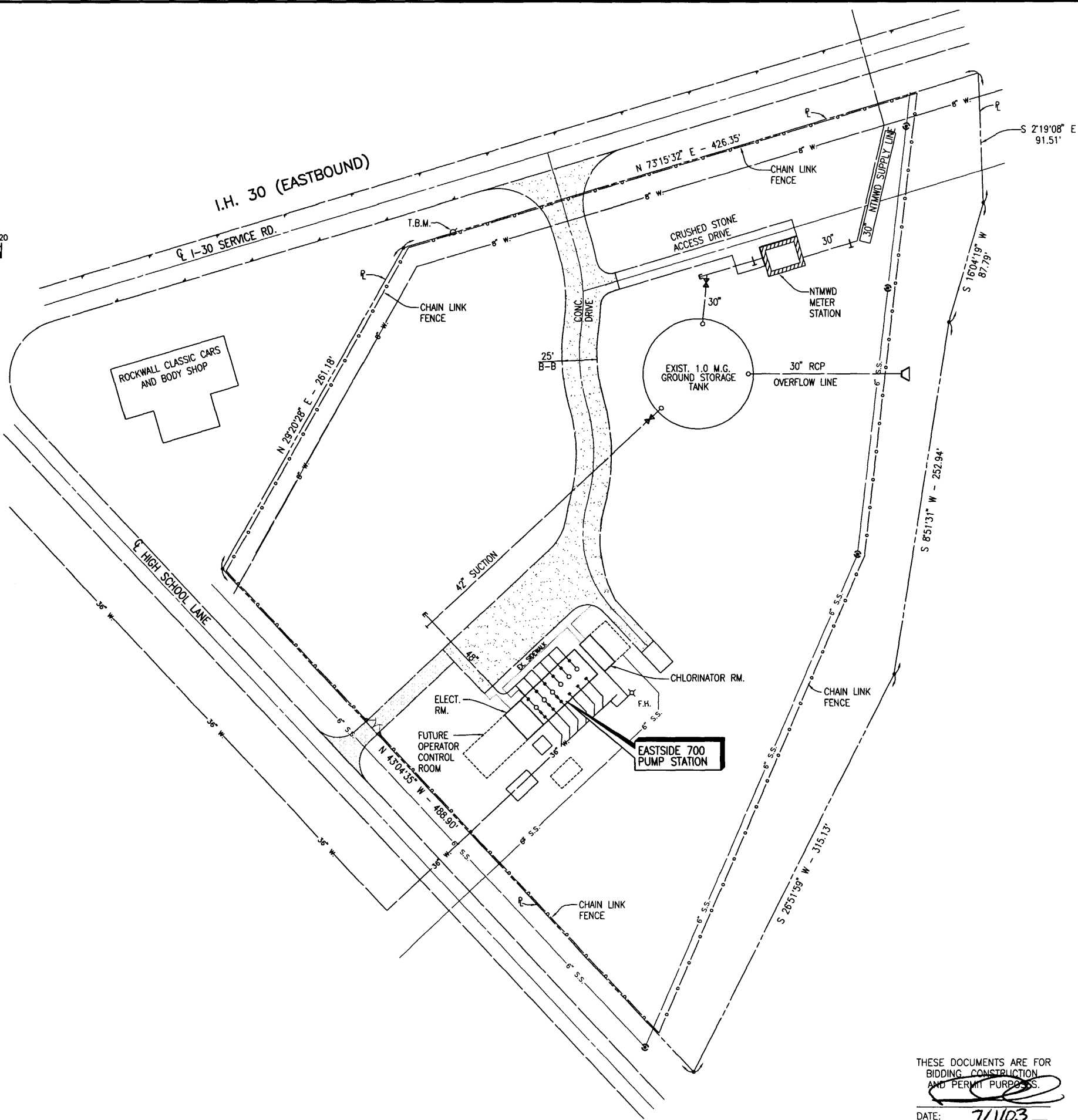
<u>SHEET NO.</u>	<u>SHEET DESCRIPTION</u>
-	COVER SHEET, LOCATION MAP AND INDEX
1	EXISTING SITE PLAN
2	EXISTING PUMP STATION ROOF PLAN
3	EXISTING & PROPOSED PIPING LAYOUT (BELOW GRADE)
4	EXISTING PUMP 6 - SECTION PROPOSED PUMP 6 - SECTION
5	PROPOSED PUMP 6 - PLAN
E1	ELECTRICAL PLAN AT GRADE
E2	ELECTRICAL SECTIONAL PLAN
E3	ELECTRICAL ONE LINE DIAGRAM
E4	ELECTRICAL SCHEMATICS & DETAILS
E5	ELECTRICAL SCHEDULES & DETAILS

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BIDDING, CONSTRUCTION,
AND PERMIT PURPOSES.
DATE: 7/1/03





T.B.M.:
RR SPIKE SET IN POWER POLE,
SOUTH SIDE OF I.H. 30 SERVICE
ROAD, APPROX. 80' WEST OF RAMP
STATION ENTRANCE.
ELEV. 546.80



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CITY OF ROCKWALL, TEXAS
EASTSIDE 700 PUMP STATION
EXISTING SITE PLAN

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Dallas, Texas

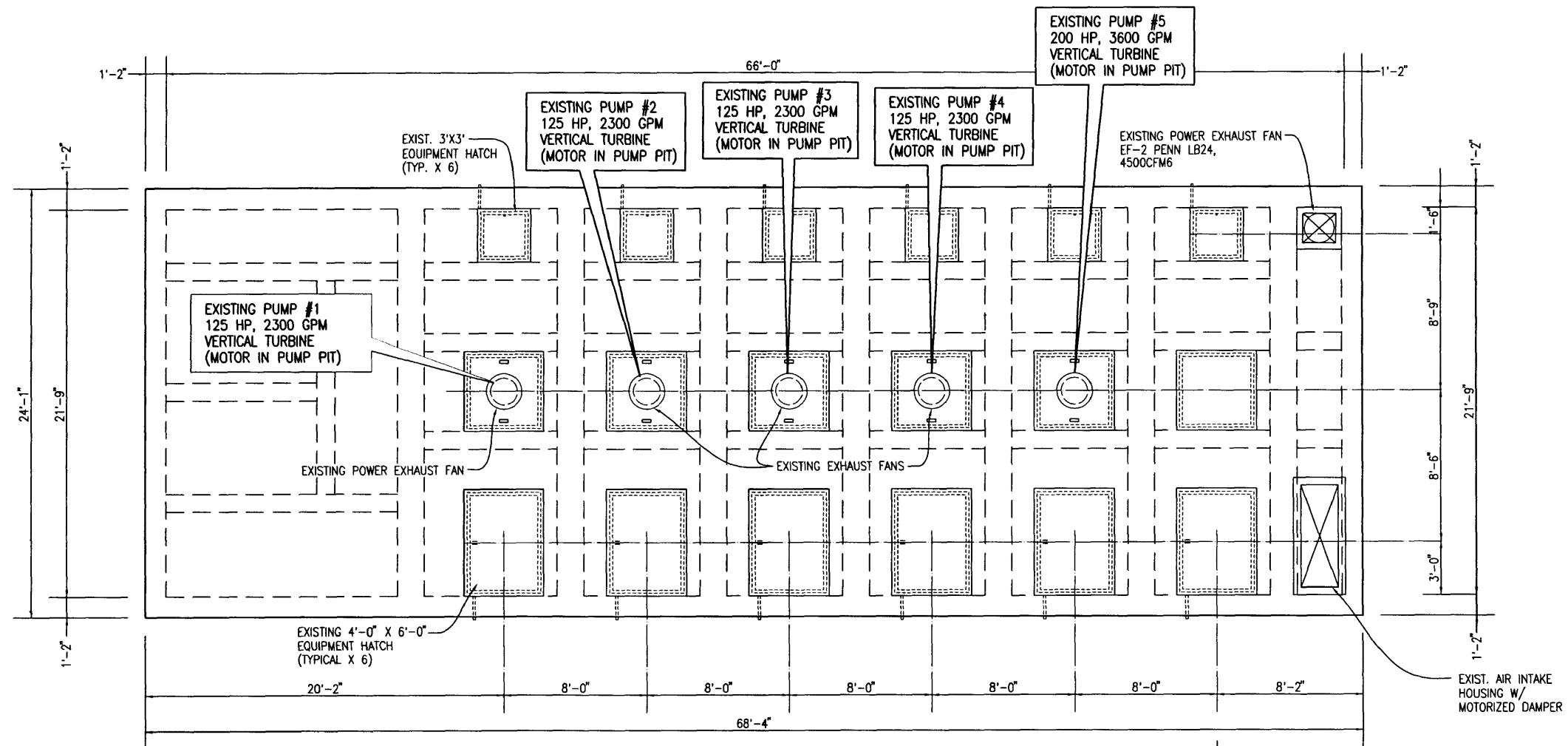
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DATE: 7/1/03



DESIGNED BY: P.A.C.	PROJECT: 2K2-174	SHEET NO. 1
DRAWN BY: B.H.C.	DATE: JULY, 2003	OF 10 SHEETS

6/30/03 WAB H:\Projects\Rockwall\2K2-174-700\SHEETS\2K2-174-01.dwg FULL SCALE 1=40

6/30/03 KAB H:\Projects\Rockwall\2K2-174_700\ SHEETS\2K2-174-02.dwg FULL SCALE 1=48



TOP PLAN
SCALE: 1/8"=1'-0"

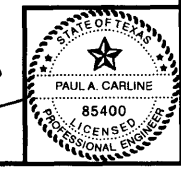
PROPOSED PUMP #6

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CITY OF ROCKWALL, TEXAS
EASTSIDE 700 PUMP STATION
EXIST. ROOF PLAN

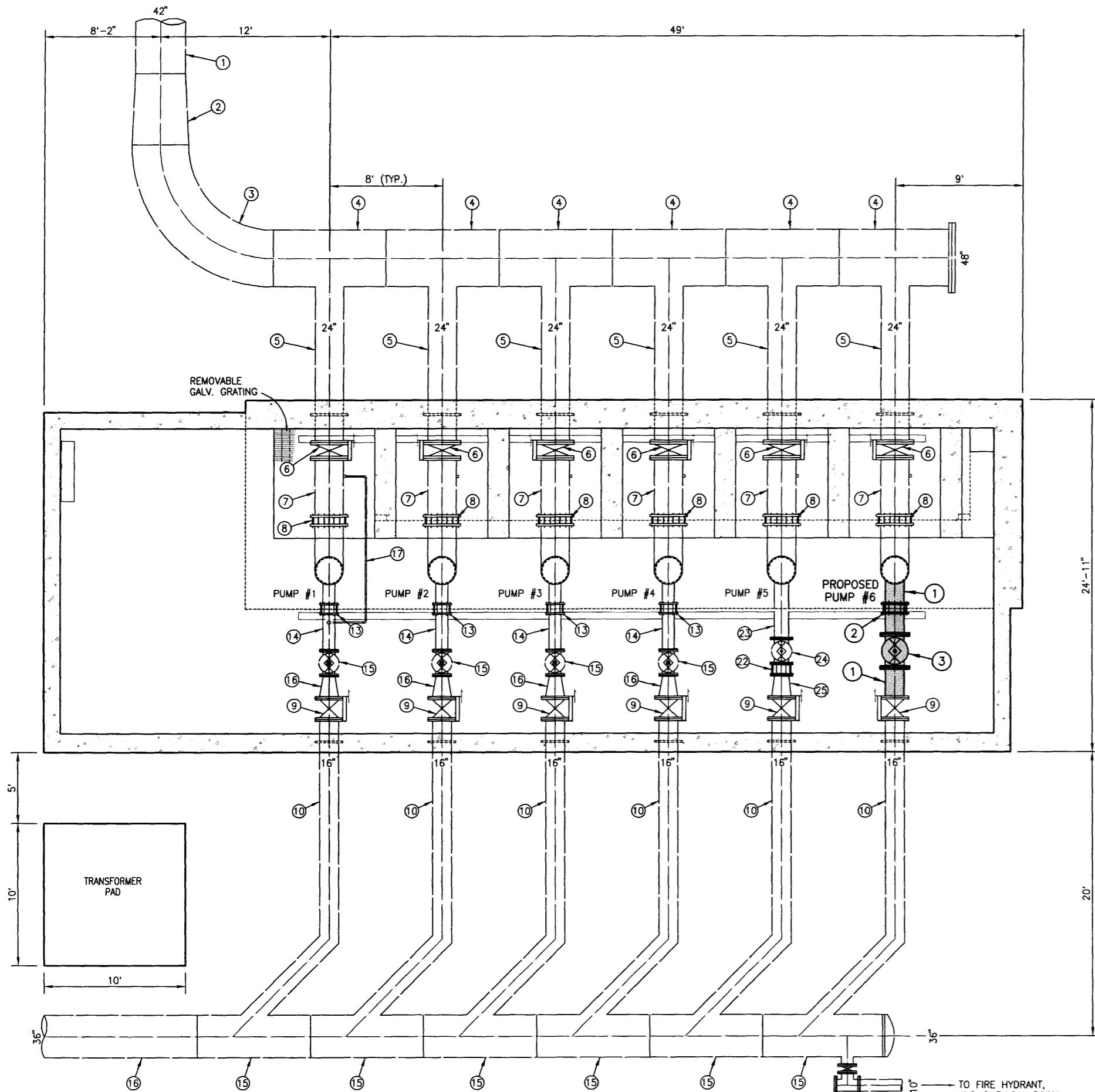
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Dallas, Texas

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DESIGNED BY: P.A.C.	PROJECT: 2K2-174	SHEET NO. 2
DRAWN BY: B.H.C.	DATE: JULY, 2003	OF 10 SHEETS

6/30/03 KAB H:\Projects\Rockwall\2K2-174_200\SHEETS\2K2-174-03.dwg FULL SCALE 1=48



SECTIONAL PLAN
SCALE: 1/8" = 1'-0"

EXISTING PIPING / EQUIPMENT SCHEDULE

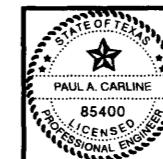
ITEM NO.	MATERIAL	JOINT	DESCRIPTION
①	CEMENT LINED WELDED STEEL	WELDED	42" SUCTION HEADER
②	CEMENT LINED WELDED STEEL	WELDED	48"x42" REDUCER
③	CEMENT LINED WELDED STEEL	WELDED	48" 90° FABRICATED BEND
④	CEMENT LINED WELDED STEEL	WELDED	48"x24" FABRICATED TEE
⑤	CEMENT LINED WELDED STEEL	WELDED	24" PUMP SUCTION LINE
⑥	-	FLG.	24" BUTTERFLY VALVE W/ MANUAL OPERATOR
⑦	COAL-TAR EPOXY LINED WELDED STEEL	WELDED	24" PUMP SUCTION LINE
⑧	-	-	24" DRESSER COUPLING
⑨	-	FLG.	16" BUTTERFLY VALVE
⑩	CEMENT LINED WELDED STEEL	WELDED	16" PUMP DISCHARGE LINE
⑪	CEMENT LINED WELDED STEEL	WELDED	36"x16" FABRICATED WYE
⑫	R.C.C.P.	GASKET	36" DISCHARGE HEADER
⑬	-	-	10" HARNESSED DRESSER COUPLING
⑭	COAL-TAR EPOXY LINED WELDED STEEL	WELDED	10" PUMP DISCHARGE PIPING
⑮	-	FLG.	10" PUMP CONTROL VALVE
⑯	-	FLG.	16"x10" REDUCER
⑰	SCHEDULE 40 STEEL	THREADED	CL ₂ INJECTOR SUPPLY LINE
⑱	P.V.C.	PUSH-ON	4" P.V.C. DRAIN LINE
⑲	COAL-TAR EPOXY LINED WELDED STEEL	FLG.	24" DIAMETER PUMP CAN
⑳	-	THREADED	2" AIR & VACUUM VALVE (APCO 145C)
㉑	-	THREADED	PRESSURE GAUGE ASSEMBLY
㉒	-	-	12" HARNESSED DRESSER COUPLING
㉓	COAL TAR EPOXY LINED WELDED STEEL	WELDED	12" PUMP DISCHARGE PIPING
㉔	-	FLG.	12" PUMP CONTROL VALVE
㉕	-	FLG.	16"x12" REDUCER

PROPOSED PIPING / EQUIPMENT SCHEDULE

ITEM NO.	MATERIAL	JOINT	DESCRIPTION
①	COAL TAR EPOXY LINED WELDED STEEL	WELDED	16" PUMP DISCHARGE PIPING
②	-	-	16" HARNESSED DRESSER COUPLING
③	-	FLG.	16" PUMP CONTROL VALVE

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DATE: 7/1/03

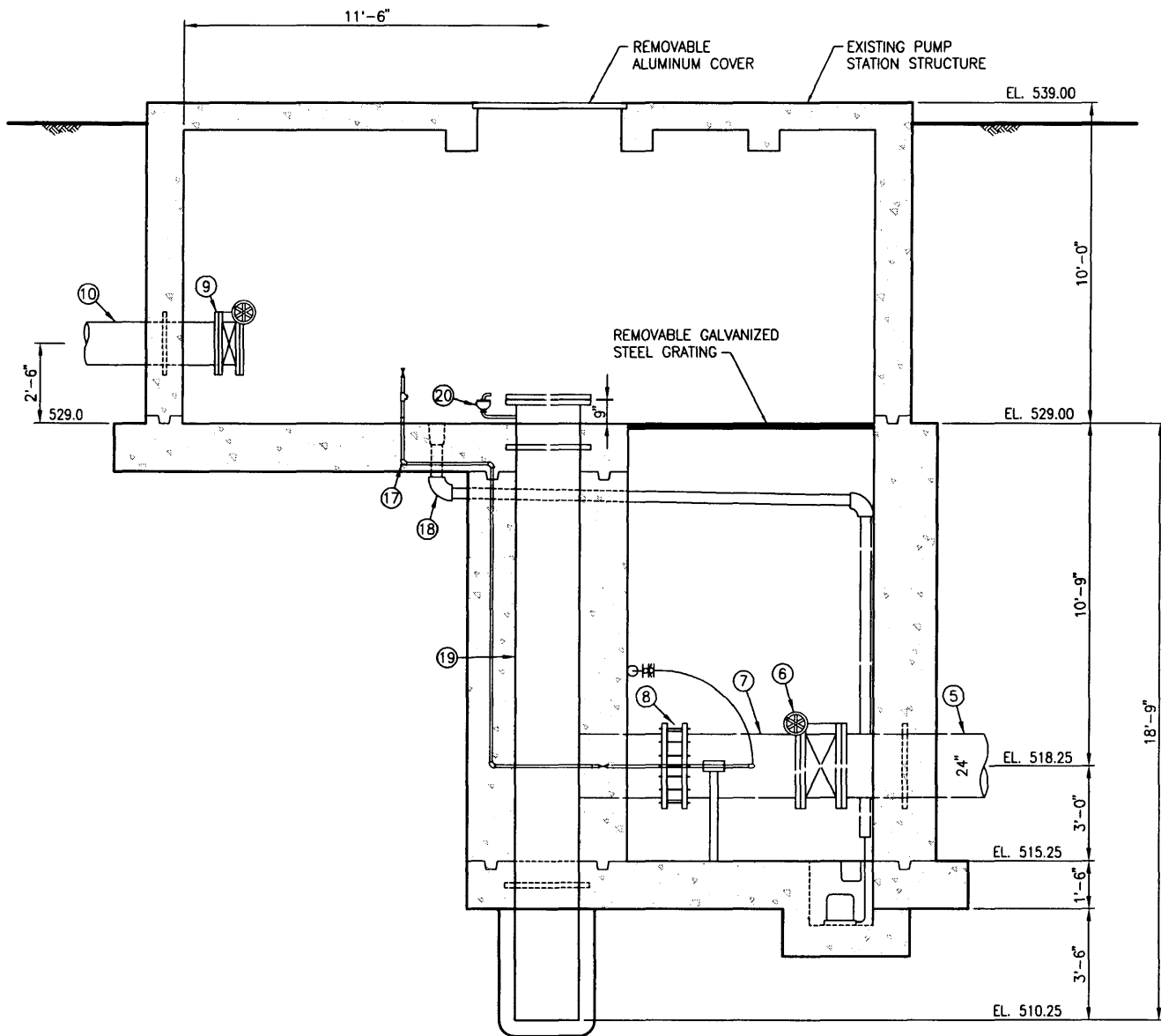


CITY OF ROCKWALL, TEXAS
EASTSIDE 700 PUMP STATION
EXISTING & PROPOSED PIPING LAYOUT
(BELOW GRADE)

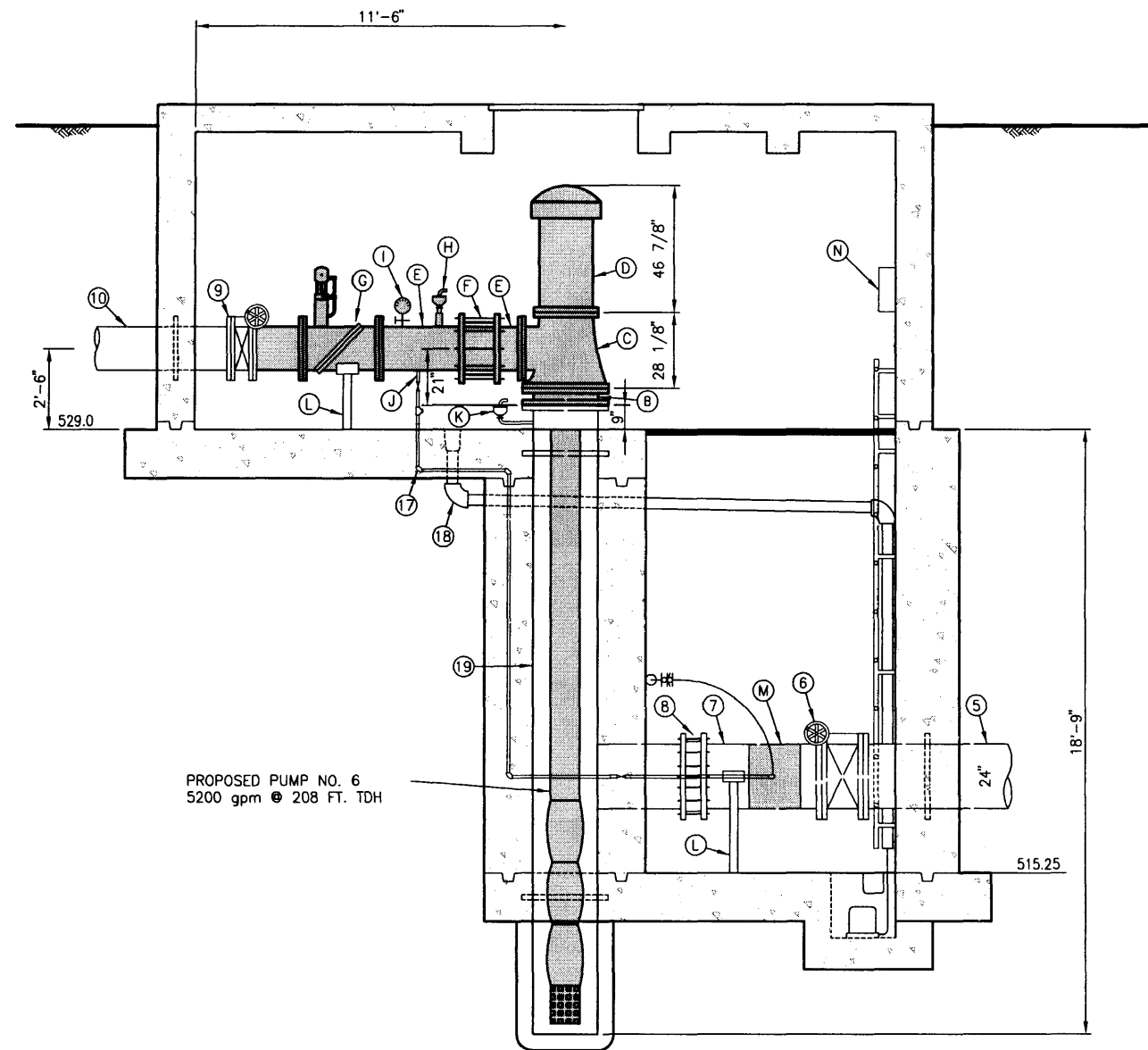
BIRKHOFF, HENDRICKS & CONWAY, L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: P.A.C.	PROJECT: 2K2-174	SHEET NO. 3
DRAWN BY: B.H.C.	DATE: JULY, 2003	OF 10 SHEETS

6/30/03 KAB H:\Projects\Rockwall\202-174_700\SHEETS\202-174-04.dwg FULL SCALE 1=32



SECTION EXIST. PUMP 6
SCALE: 3/16"=1'-0"

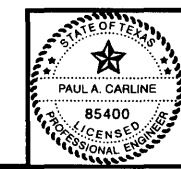


SECTION PROPOSED PUMP 6
SCALE: 3/16"=1'-0"

PROPOSED PUMP ROOM PIPING AND MATERIAL LEGEND							
PIPE NO.	PIPE TYPE	JOINT	DESCRIPTION	PIPE NO.	PIPE TYPE	JOINT	DESCRIPTION
(A)	-	-	FURNISH & INSTALL PUMP NO. 6 WITH 5200 gpm, 208 FT. TDH VERTICAL TURBINE PUMP, 16" DISCHARGE	(H)	-	THREADED	RE-SET EXISTING 2-INCH AIR & VACUUM VALVE
(B)	COAL-TAR EPOXY LINED STEEL	FLG.	EXISTING PUMP CAN TO PROPOSED PUMP HEADER ADAPTOR CONFIGURED AS REQUIRED BY PUMP MANUFACTURER ADAPTER TO BE INCLUDED IN LUMP SUM BID ITEM FOR PUMP	(I)	-	THREADED	RE-SET EXISTING PRESSURE GAUGE
(C)	CAST IRON	FLG.	PUMP HEAD w/16" DISCHARGE FLG.	(J)	-	THREADED	RE-CONNECT CHEMICAL FEED SUPPLY LINE
(D)	-	-	350 HP PUMP MOTOR DIRECTLY MOUNTED TO PUMP HEAD	(K)	-	-	EXISTING 2" AIR/VACUUM VALVE TO BE RELOCATED
(E)	D.I.P.	FLG.-P.E.	16" PUMP DISCHARGE SPOOL	(L)	-	-	SADDLE TYPE PIPE SUPPORT
(F)	-	-	16" RESTRAINED COUPLING	(M)	-	-	TRANSIT TIME METER, BADGER VANTAGE 4400
(G)	-	FLG.	16" PUMP CONTROL VALVE, TILTED DISK CHECK VALVE WITH TOP MOUNTED OIL FILLED DASHPOT, VAL-MATIC 9000T OR APPROVED EQUAL	(N)	-	-	TRANSIT TIME METER READOUT, BADGER VANTAGE 4400

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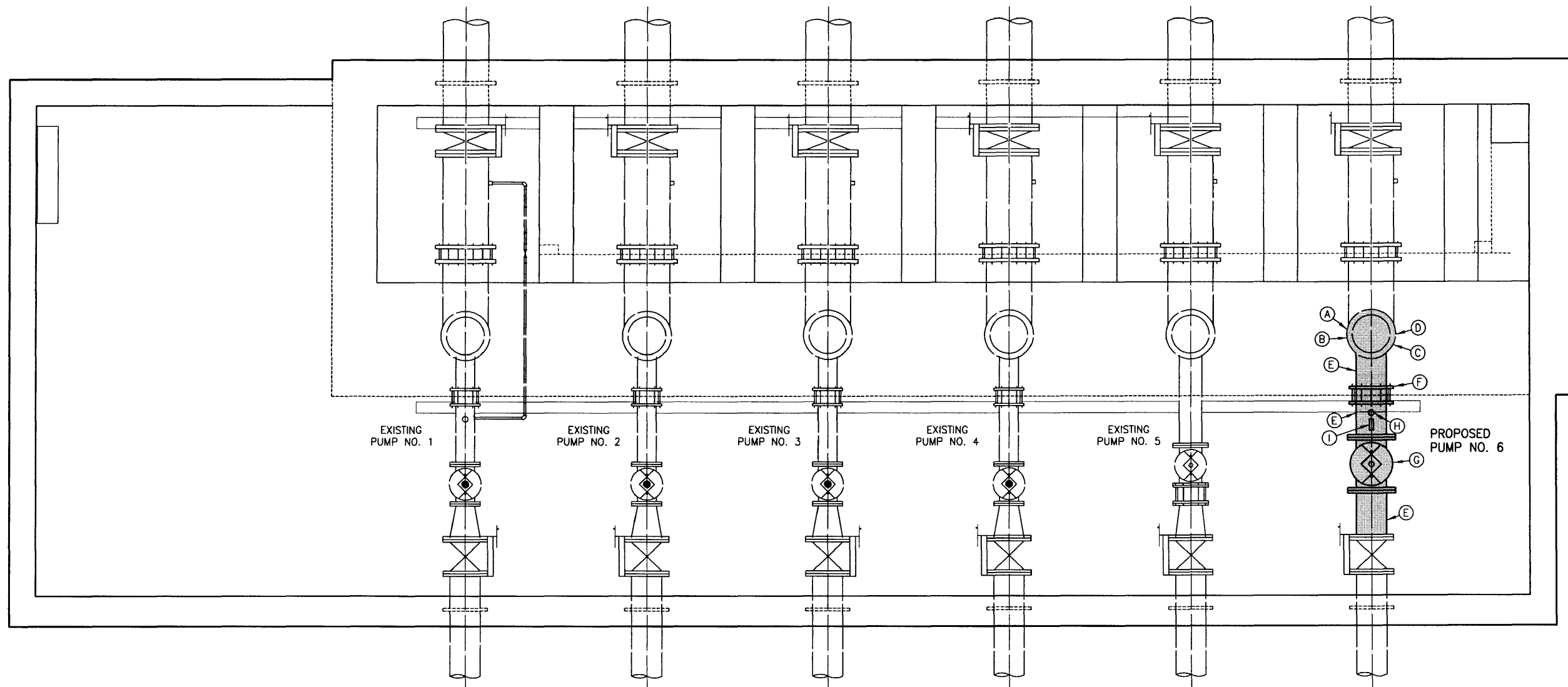
CITY OF ROCKWALL, TEXAS

**EASTSIDE 700 PUMP STATION
EXISTING & PROPOSED PUMP 6
SECTIONS**

BIRKHOFF, HENDRICKS & CONWAY, L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: P.A.C.	PROJECT: 2K2-174	SHEET NO. 4
DRAWN BY: B.H.C.	DATE: JULY, 2003	OF 10 SHEETS

6/30/03 KAB H:\Projects\Rockwall\2K2-174_700\SHEETS\2K2-174-05.dwg FULL SCALE 1=32

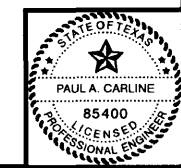


PLAN PROPOSED PUMP 6
SCALE: 3/8"=1'-0"

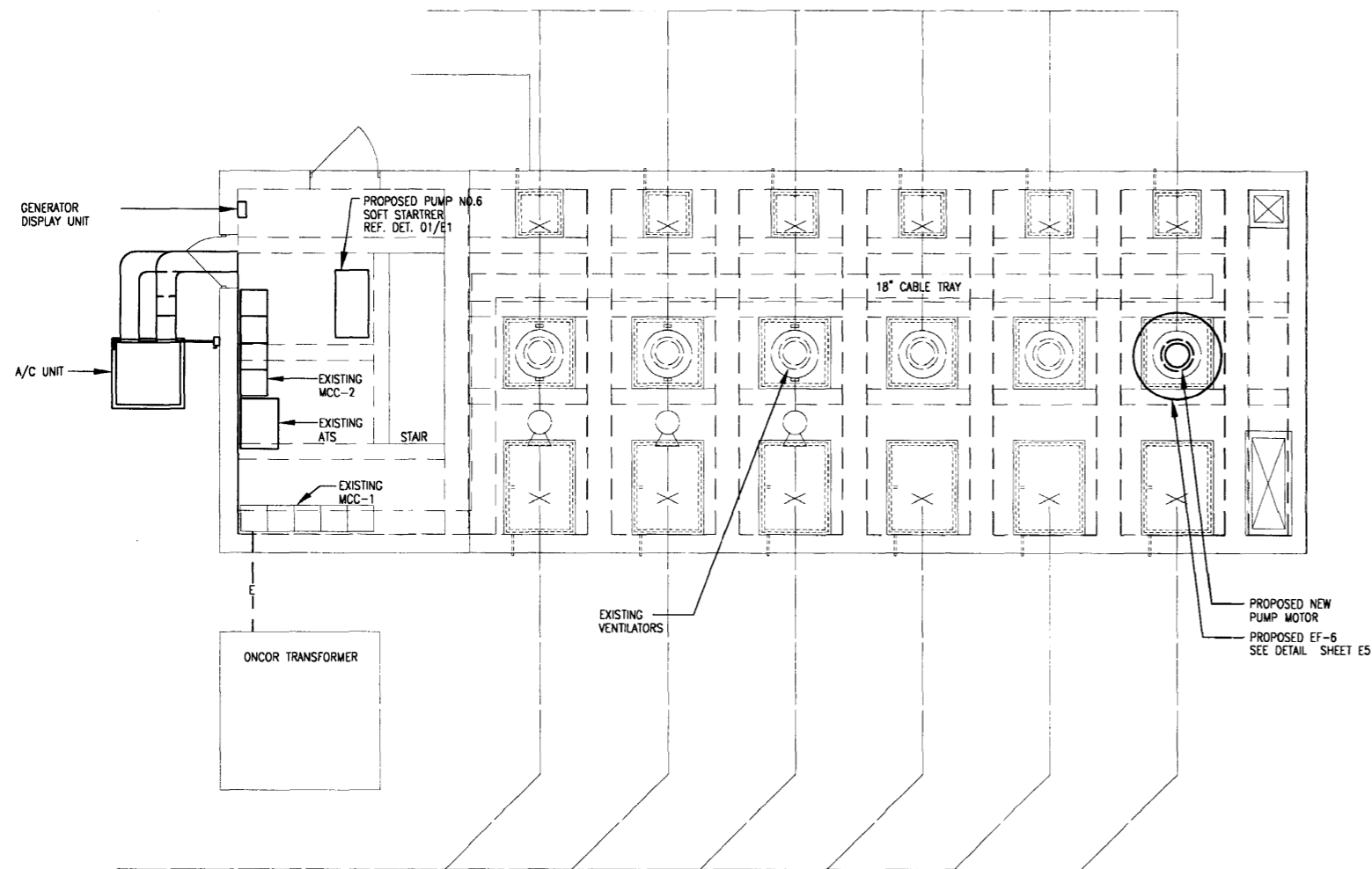
PROPOSED PUMP ROOM PIPING AND MATERIAL LEGEND							
PIPE NO.	PIPE TYPE	JOINT	DESCRIPTION	PIPE NO.	PIPE TYPE	JOINT	DESCRIPTION
(A)	-	-	PUMP NO. 6 WITH 5200 gpm, 208 FT. TDH VERTICAL TURBINE PUMP, 16" DISCHARGE	(H)	-	THREADED	RE-SET EXISTING 2-INCH AIR & VACUUM VALVE
(B)	COAL-TAR EPOXY LINED STEEL	FLG.	EXISTING PUMP CAN TO PROPOSED PUMP HEADER ADAPTOR CONFIGURED AS REQUIRED BY PUMP MANUFACTURER ADAPTER TO BE INCLUDED IN LUMP SUM BID ITEM FOR PUMP	(I)	-	THREADED	RE-SET EXISTING PRESSURE GAUGE
(C)	CAST IRON	FLG.	PUMP HEAD w/16" DISCHARGE FLG.				
(D)	-	-	350 HP PUMP MOTOR DIRECTLY MOUNTED TO PUMP HEAD				
(E)	D.I.P.	FLG.-P.E.	16" PUMP DISCHARGE SPOOL				
(F)	-	-	16" RESTRAINED COUPLING				
(G)	-	FLG.	16" PUMP CONTROL VALVE, TILTED DISK CHECK VALVE WITH TOP MOUNTED OIL FILLED DASHPOT, VAL-MATIC 9000T OR APPROVED EQUAL				

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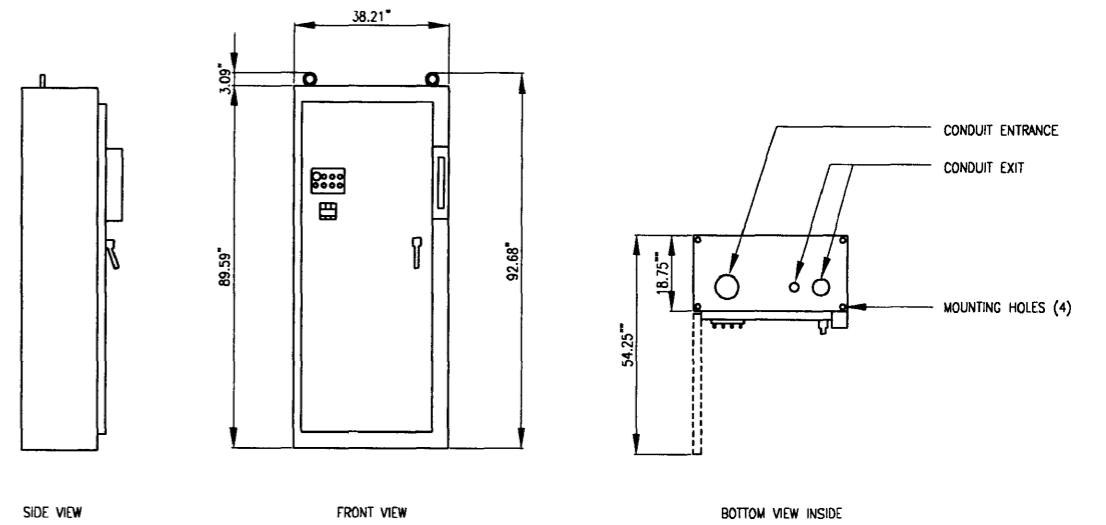
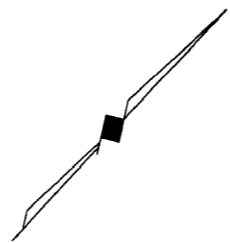
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DATE: 7/1/03



CITY OF ROCKWALL, TEXAS		
EASTSIDE 700 PUMP STATION PROPOSED PUMP 6 PLAN		
BIRKHOFF, HENDRICKS & CONWAY, L.L.P. CONSULTING ENGINEERS Dallas, Texas		
DESIGNED BY: P.A.C.	PROJECT: 2K2-174	SHEET NO. 5
DRAWN BY: B.H.C.	DATE: JULY, 2003	OF 10 SHEETS



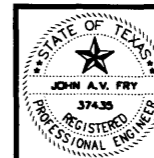
PLAN AT GRADE
SCALE: 3/16"=1'-0"



**01 ELEVATION-PUMP NO. 6
SOFT STARTER**
NOT TO SCALE

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John A. Fry
3 July 03



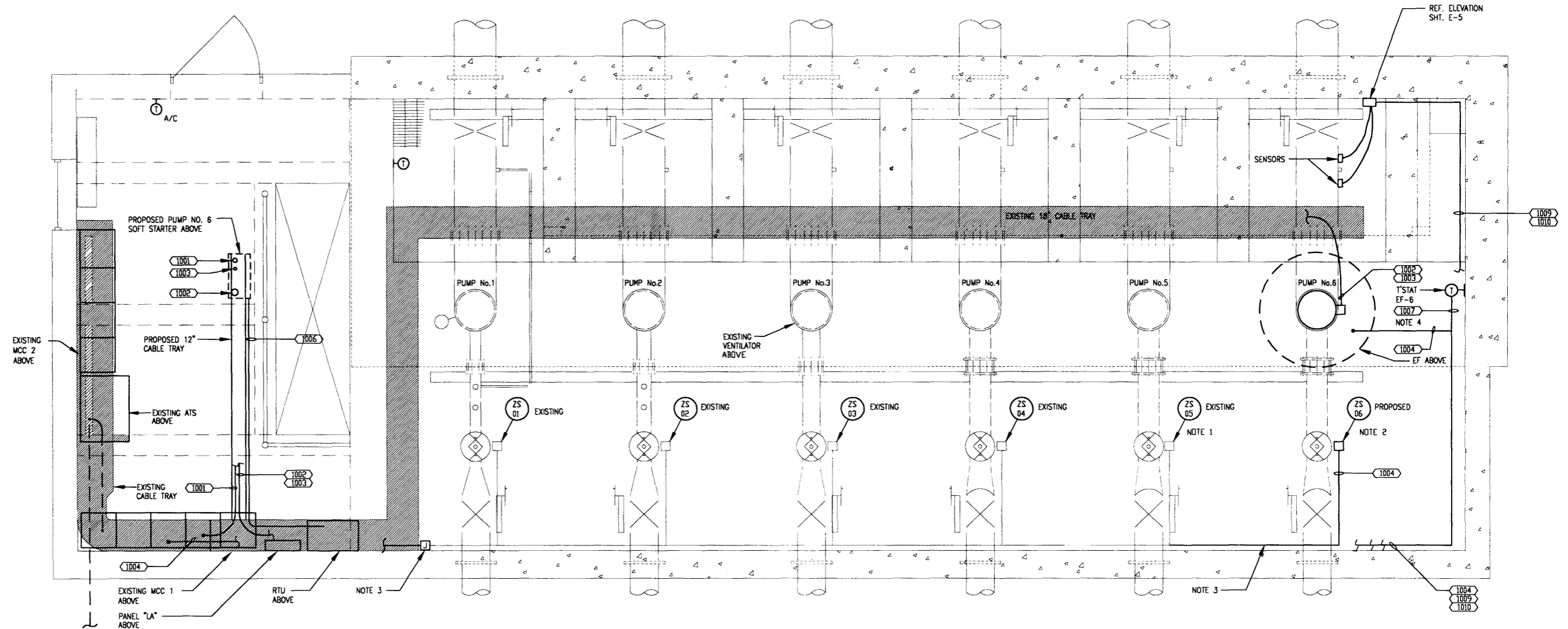
CITY OF ROCKWALL, TEXAS

**EASTSIDE 700 PUMP STATION
PUMP NO. 6
PLAN AT GRADE**

BIRKHOFF, HENDRICKS & CONWAY, L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.A.V.F.	PROJECT: 2K2-174	SHEET NO. E-1
DRAWN BY: F.W.	DATE: JULY, 2003	OF 10 SHEETS

MCA PROJECT 18.039



NOTES

1. EXISTING PUMP-CONTROL-VALVE CONTROLS VARY DEPENDING ON THE VALVE TYPE.
2. PUMP-CONTROL-VALVE CONTROLS FOR PUMP NO. 6 INCLUDES ONE LIMIT SWITCH. REFER TO PUMP CONTROL SCHEMATIC.
3. CONTRACTOR MAY ADD NEW CONDUCTORS TO EXISTING CONDUIT OR PROVIDE SEPARATE CONDUIT FOR ZS-06 SWITCH.
4. CONDUIT 1007 TEES OFF FROM CONDUIT 1004.

SECTIONAL PLAN
SCALE 3/16"=1'-0"

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John A. Fry
3 July '03



CITY OF ROCKWALL, TEXAS
EASTSIDE 700 PUMP STATION
PUMP NO. 6
PLAN

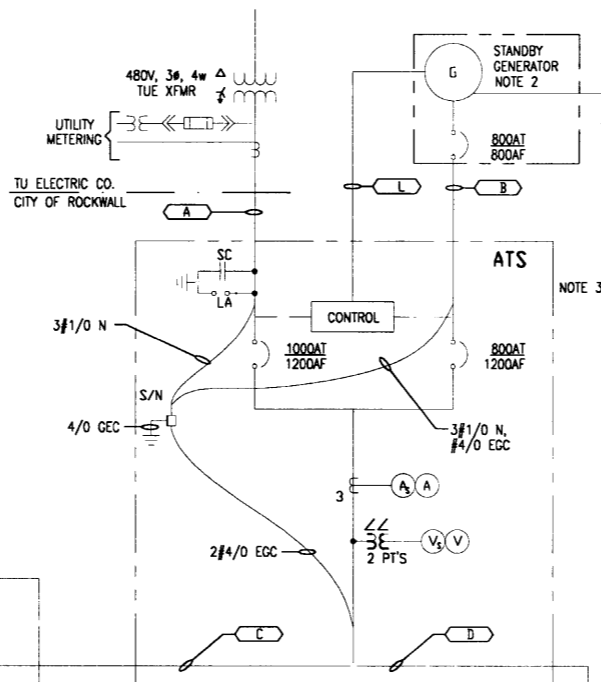
BIRKHOFF, HENDRICKS & CONWAY, L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: JAV.F.	PROJECT: 2K2-174	SHEET NO. E-2
DRAWN BY: F.W.	DATE: JULY, 2003	OF 10 SHEETS

MCA PROJECT 18.039

SECTION 1		SECTION 2		SECTION 3		SECTION 4		SECTION 5	
UH-1	UH-2	EF-1	EF-2	EF-3	SURGE				
UH-3	UH-4	600ACB	EF-6	NOTE 2					
XFMR PNL "LA"	LTG	NOTE 1 PUMP NO. 6		SIZE 5	SIZE 5	MAIN			
SCRUBBER PUMP LOUV-L1	SPACE	SIZE 3							
SPACE	STARTER SPARE	200 HP PUMP NO. 5	125 HP PUMP NO. 3						

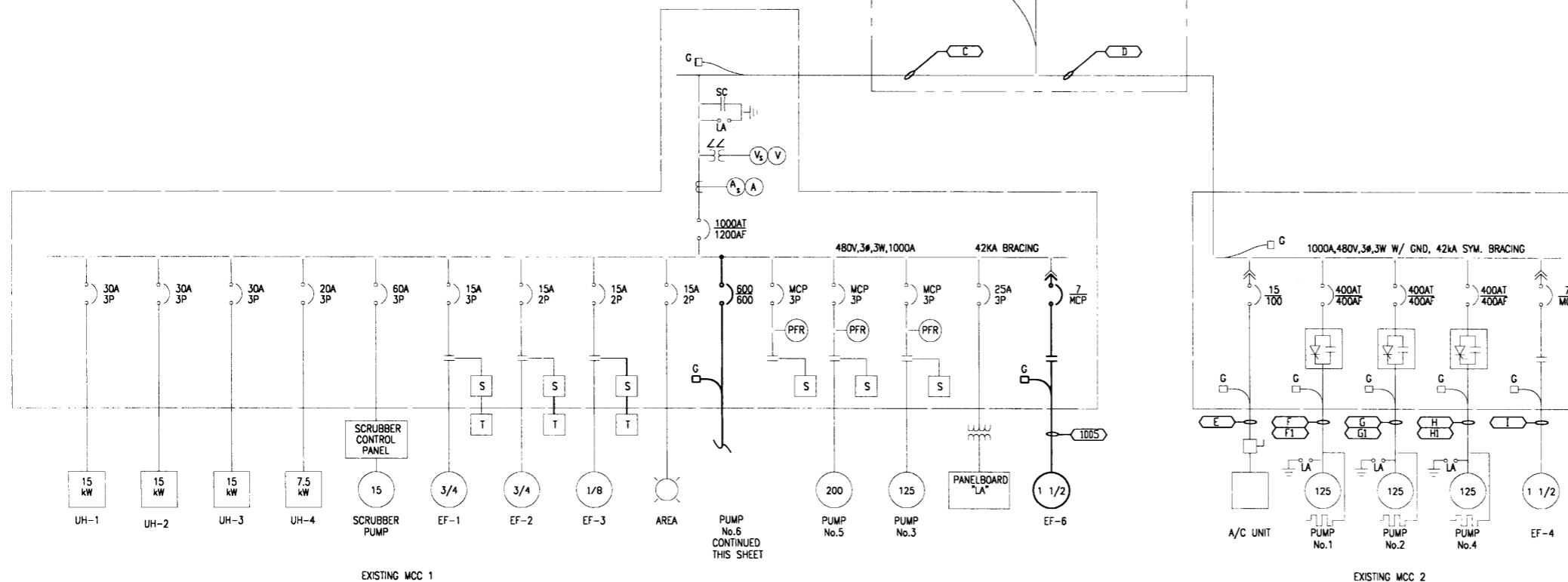
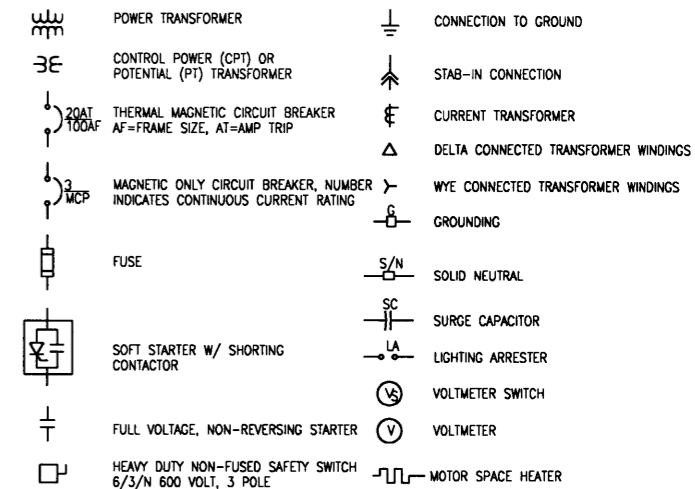
EXISTING 480V MCC No.1



NOTES:

1. PROVIDE 600A T.M.C.B. WITH A MINIMUM OF 42KAIC SYM. INTERRUPTING RATING COMPLETE WITH MCC CAN, DOOR, ETC. FOR A COMPLETE INSTALLATION. REFER TO SPECIFICATIONS.
2. PROVIDE SIZE 1 COMBINATION STARTER FOR EF-6 COMPLETE WITH MCC BUCKET, DOORS, ETC. FOR A COMPLETE INSTALLATION. REFER TO SPECIFICATIONS.
3. A.T.S. IS SERVICE ENTRANCE RATED AND HAS 65KA SYM. WITHSTAND AND INTERRUPTING RATING.

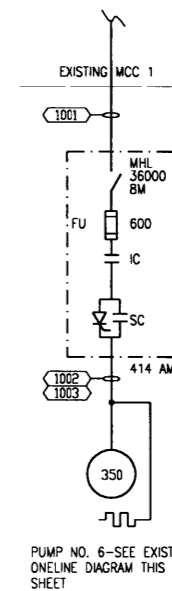
ONE LINE DIAGRAM LEGEND



EXISTING MCC 1

EXISTING ONE LINE DIAGRAM

EXISTING MCC 2



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CITY OF ROCKWALL, TEXAS

EASTSIDE 700 PUMP STATION
PUMP NO. 6
ONE LINE DIAGRAM

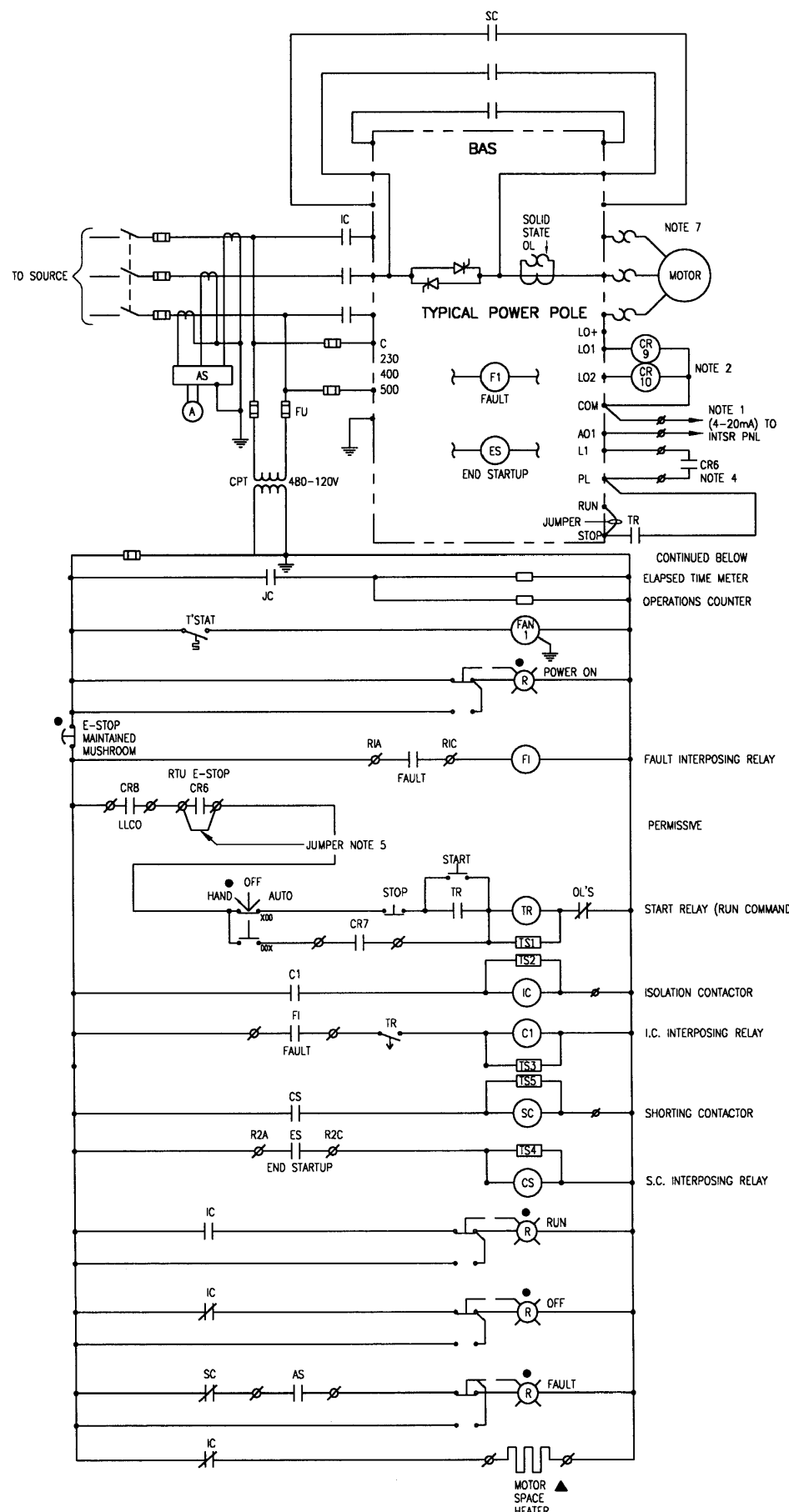
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Dallas, Texas



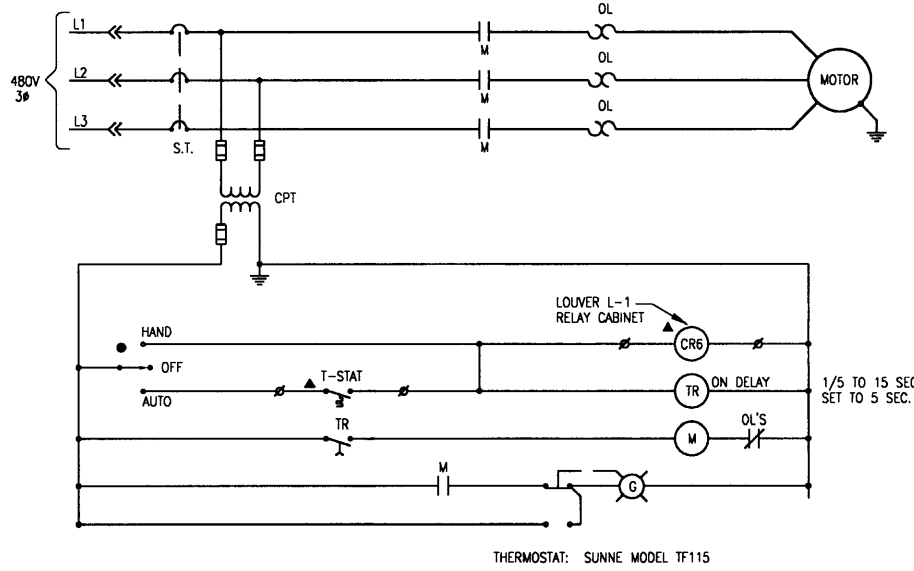
John A.V. Fry
3 July '03

DESIGNED BY: J.A.V.F. PROJECT: 2K2-174 SHEET NO. E-3
DRAWN BY: F.W. DATE: JULY, 2003 OF 10 SHEETS

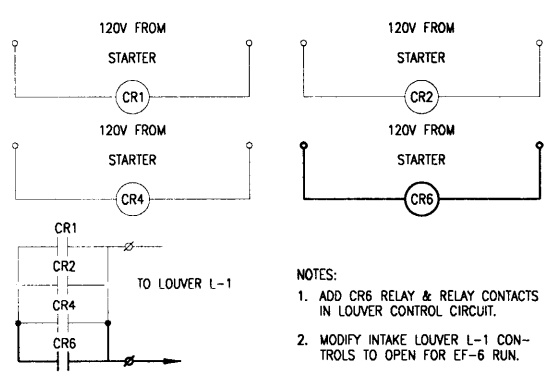
MCA PROJECT 18.039



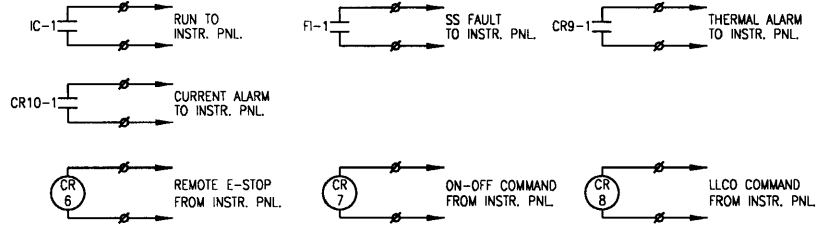
**CONTROL SCHEMATIC-PUMPS
TYPICAL FOR P-6**



SCHEMATIC - EF-6



SCHEMATIC - LOUVER L1 RELAY CABINET

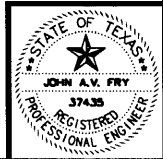


- NOTES:
1. A01, 4-20mA, 800 OHM MAXIMUM LOOP RESISTANCE. OUTPUT IS PROGRAMMABLE FOR MOTOR CURRENT, THERMAL STATE OR POWER FACTOR.
 2. L01 & L02 ARE 24VAC OUTPUTS FROM SOFT STARTER.
 3. CR6 THUR CR10 24VDC RELAY MOUNTED IN STARTER CABINET. P&B KRPA140.
 4. REMOTE EMERGENCY STOP IS ALSO KNOWN AS "EXTERNAL FAULT" BY THE SOFT STARTER VENDOR.
 5. REMOVE JUMPER ON CR6 IF RTU E-STOP USED

CONTROL DIAGRAM LEGEND	
SYMBOL	DESCRIPTION
●	DOOR MOUNTED DEVICE
▲	DEVICE MOUNTED REMOTE FROM CONTROL
■	DEVICE MOUNTED REMOTE FROM STARTER UNIT BUT IN MCC
⊠	TERMINAL FOR CONNECTION OF EXTERNAL CIRCUITS
⌞	NORMALLY CLOSED CONTACTS
⌟	NORMALLY OPEN CONTACTS
CPT	CONTROL POWER TRANSFORMER
HAND OFF AUTO	3 POSITION SELECTOR SWITCH
~	MOTOR SPACE HEATER
XC	CONTACTOR
XX	CONTROL RELAY
TR	TIMING RELAY
F	FUSE
STOP	"STOP" PUSH BUTTON
START	"START" PUSH BUTTON
STOP (mushroom)	EMERGENCY "STOP" MUSHROOM BUTTON
TR1	TIMED CONTACTS
T-STAT	THERMOSTAT
LS	LIMIT SWITCH
FS	FLOAT SWITCH
AL	AUDIBLE ALARM
G	PUSH-TO-TEST PILOT LIGHT LETTER INDICATES COLOR

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John A. Fry
3 July '03



CITY OF ROCKWALL, TEXAS

**EASTSIDE 700 PUMP STATION
PUMP NO. 6
ELECTRICAL DETAILS**

BIRKHOFF, HENDRICKS & CONWAY, L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.A.V.F.	PROJECT: 2K2-174	SHEET NO. E-4
DRAWN BY: F.W.	DATE: JULY, 2003	OF 10 SHEETS

CONDUIT & CABLE SCHEDULE

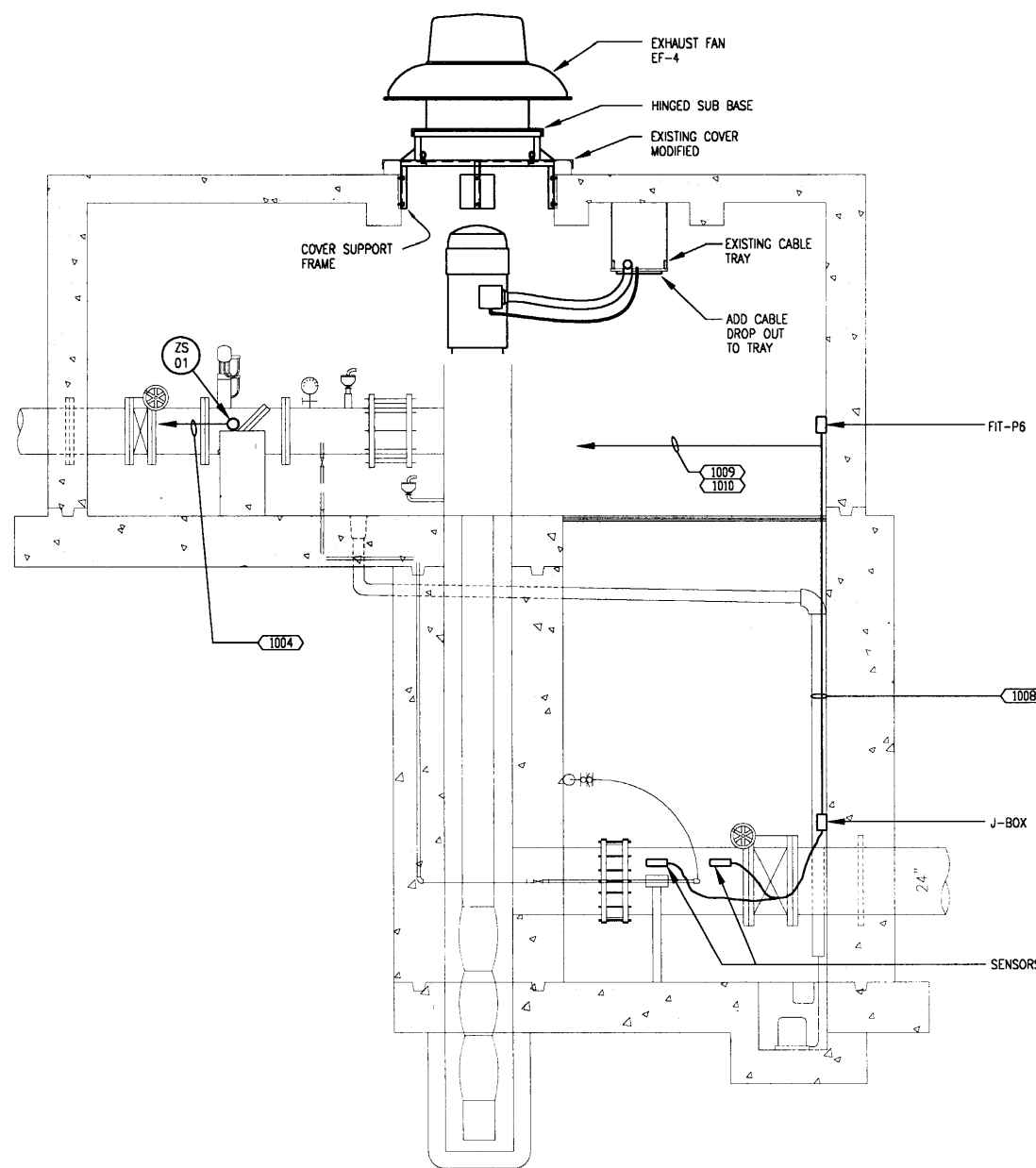
TAG	WIRING	CONDUIT	SOURCE	DESTINATION	COMMENT
1001	2 SETS-3#350, #3G	NOTE 1	MCC-1	SOFT STARTER P-6	FEEDER
1002	2 SETS-3#350, #3G	NOTE 1	SOFT STARTER P-6	P-6 MOTOR	
1003	3#12, #12G	NOTE 1	SOFT STARTER P-6	P-6 MOTOR	SPACE HEATER
1004	2#14, #14G	3/4"	ZSO-6	RTU	P-6 VALVE CLOSED
1005	3#12, #12G, 3#14	3/4"	MCC-1	EF-6	P-6 VENT FAN
1006	9-2C/S#16	1 1/2"	SOFT STARTER P-6	RTU	
1007	3#14, #14G	3/4"	MCC-1	THERMOSTAT	EF-6
1008	WFG CABLE	3/4"	FIC-P6	FLOW SENSORS	REF. ELEVATION SHT E-5
1009	2#12, #12G	3/4"	PANEL LA	FIC-P6	
1010	1-2 C/S #16, 6#14	3/4"	FIC-P6	RTU	

NOTES:
1. TRAY CABLE. REF. TO SPECIFICATIONS.

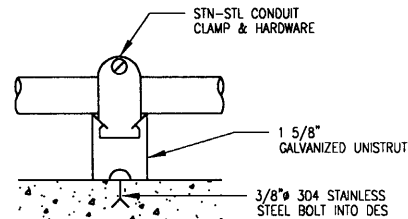
RTU SCHEDULE

TAG DESCRIPTION	DI	DO	AI	FIELD DEVICE
ZSC-6	1			PUMP NO. 5 VALVE COLOSED SWITCH
RUN/STOP P-6		1		SOFT START P-6 CR-7
PUMP 6 ON	1			SPFT START P-6 IC
PUMP 6 FAIL	1			SOFT START P-6 FI
THERMAL ALARM	1			SOFT START P-6 CR-9
CURRENT ALARM	1			SOFT START P-6 CR-10
EMERGENCY STOP		1		SOFT START P-6 CR-6
FLOW-PUMP 6			1	
NOTOR P-6			1	SOFT START P-6 AO-1
TOTAL	5	2	2	

EXISTING SQUARE D (MODICON) REQUIRES ADDITION OF EXTENDER MODULE OR REPLACEMENT OF EXISTING PLC TO PROVIDE THESE INPUTS.

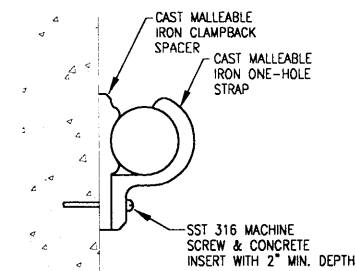


ELEVATION - PUMP No.1
NOT TO SCALE

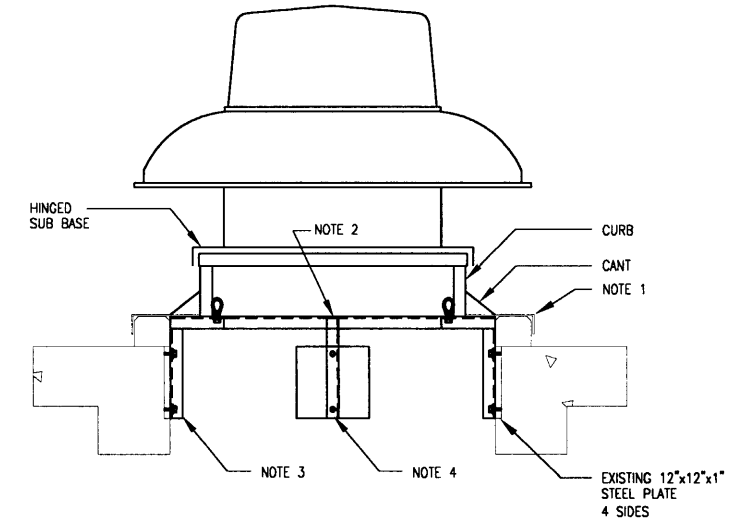


NOTES:
1. SLOTTED CHANNEL MEMBERS TO BE SOLID BODY ALUMINUM, EXCEPT AS NOTED WHERE SOLID BODY STN-STL IS SHOWN OR OTHER TYPES
2. USE 1 5/8\"/>

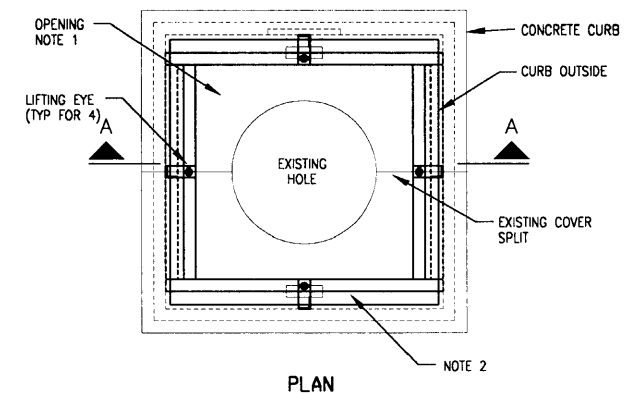
03 TYPICAL CONDUIT SUPPORT FOR SURFACE-MTD RUNS ON CONCRETE
NOT TO SCALE



04 TYPICAL CONDUIT SUPPORT ON CONCRETE STRUCTURES FOR SINGLE CONDUIT RUNS
NOT TO SCALE



SECTION A-A



PLAN

NOTES:
1. UTILIZE EXISTING 3/8\"/>

DETAIL - PUMP COVER SUPPORT FRAME
NOT TO SCALE

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CITY OF ROCKWALL, TEXAS

EASTSIDE 700 PUMP STATION

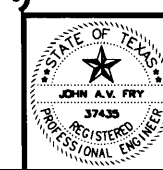
PUMP NO. 6

EXHAUST FAN AND DETAILS

BIRKHOFF, HENDRICKS & CONWAY, L.L.P.

CONSULTING ENGINEERS
Dallas, Texas

John A. Fry
3 July 03



DESIGNED BY: J.A.V.F.	PROJECT: 2K2-174	SHEET NO. E-5
DRAWN BY: F.W.	DATE: JULY, 2003	OF 10 SHEETS