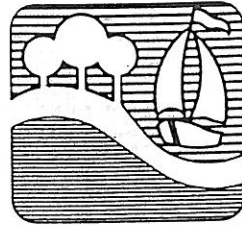


# CITY OF ROCKWALL



CITY OF ROCKWALL  
"THE NEW HORIZON"

## ENGINEERING PLANS

FOR

### CHANDLER'S DEEP LIFT STATION AND FORCE MAIN MODIFICATIONS

OCTOBER 1994

#### CITY COUNCIL MEMBERS

ALMA K. WILLIAMS	MAYOR
NELL WELBORN	PRO-TEM
GEORGE HATFIELD	
PAT LUBY	
DALE MORGAN	
TODD WHITE	
BOB WILSON	

#### CITY MANAGER

JULIE COUCH

#### DIRECTOR OF COMMUNITY DEVELOPMENT

W.L. DOUPHRADE II, P.E.

APPROVED BY THE CITY OF ROCKWALL, TEXAS  
ON Oct 10, 1994

BY: W. White

ATTEST: June W. Harley

PREPARED FOR:  
CITY OF ROCKWALL  
205 WEST RUSK  
ROCKWALL, TEXAS 75087

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY C.F. RASOR, P.E., NO. 28168 ON OCTOBER 5th, 1994



CITY OF ROCKWALL  
"THE NEW HORIZON"



CHANDLER'S DEEP LIFT STATION  
AND FORCE MAIN MODIFICATIONS  
COVER SHEET

Scale: NONE  
Date: 10/94  
Designed by: J.A. MARLER  
Drawn by: C.W. JOHNSON  
Checked by: E.M. WOTLEY  
Approved by: C.F. RASOR  
Project No.: CR09421.2

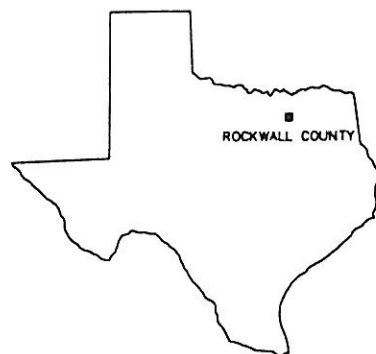
SHEET  
1  
OF 8

No.	Date	Revisions

Chiang, Patel and Associates, Inc.  
Consulting Engineers • Planners • Project Managers  
Dallas, Texas

**GENERAL NOTES**

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE CITY OF ROCKWALL OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UNDERGROUND UTILITIES BEFORE COMMENCING WORK AND AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE FOLLOWING COMPANIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION FOR FIELD COORDINATION OF ALL CONSTRUCTION AND PRIOR TO ANY EXCAVATION. THE NAME AND TELEPHONE NUMBER OF COMPANIES WHICH MAY BE AFFECTED BY THE PROJECT ARE LISTED BELOW:  
 LONE STAR GAS COMPANY  
 PHONE: (214) 228-7764  
  
 SOUTHWESTERN BELL TELEPHONE COMPANY  
 PHONE: (DIAL OPERATOR AND ASK FOR ENTERPRISE 9800)  
  
 TEXAS POWER AND LIGHT  
 PHONE: (214) 722-8393  
  
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING AND SUPPORTING EXISTING UTILITIES DURING CONSTRUCTION. THERE SHALL NOT BE A SEPARATE PAY ITEM FOR TEMPORARILY SUPPORTING OF EXISTING UTILITIES DURING CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED BY APPLICABLE REGULATING AGENCIES PRIOR TO BEGINNING WORK.
4. THE CONTRACTOR SHALL NOTIFY SURROUNDING PROPERTY OWNERS 72 HOURS PRIOR TO MOBILIZATION AND 72 HOURS PRIOR TO INTERRUPTING ANY UTILITY SERVICE.
5. THE CONTRACTOR SHALL PROTECT THE EXISTING TREES, BUSHES, LANDSCAPING, PLANTS AND LAWNS UNLESS NOTED OTHERWISE ON THE DRAWINGS. ANY DAMAGE TO THE EXISTING TREES, BUSHES, LANDSCAPING PLANTS AND LAWNS CAUSED BY THE CONSTRUCTION SHALL BE REPLACED TO THE SATISFACTION OF THE CITY OF ROCKWALL, AT NO ADDITIONAL COST.
6. TRAFFIC CONTROL AND PROTECTIVE DEVICES SHALL BE USED WHERE REQUIRED AND SHALL CONFORM TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS. BARRICADES, WARNING SIGNS, FLARES, FLASHING DEVICES AND FLAGPERSONS SHALL BE PROVIDED BY THE CONTRACTOR. TRAFFIC CONTROL AND PROTECTIVE DEVICES SHALL BE CONSIDERED SUBSIDIARY TO THE OTHER BID ITEMS.
7. PROVIDE CONCRETE THRUST BLOCKING SIZED AND LOCATED AS REQUIRED AND AS SHOWN IN THE STANDARD DETAILS INCLUDED IN THE PLANS.
8. ALL EXTERIOR ABOVE GRADE PIPING AND PIPING IN VAULTS SHALL BE INSULATED.



**VICINITY MAP**

**STANDARD ABBREVIATIONS**

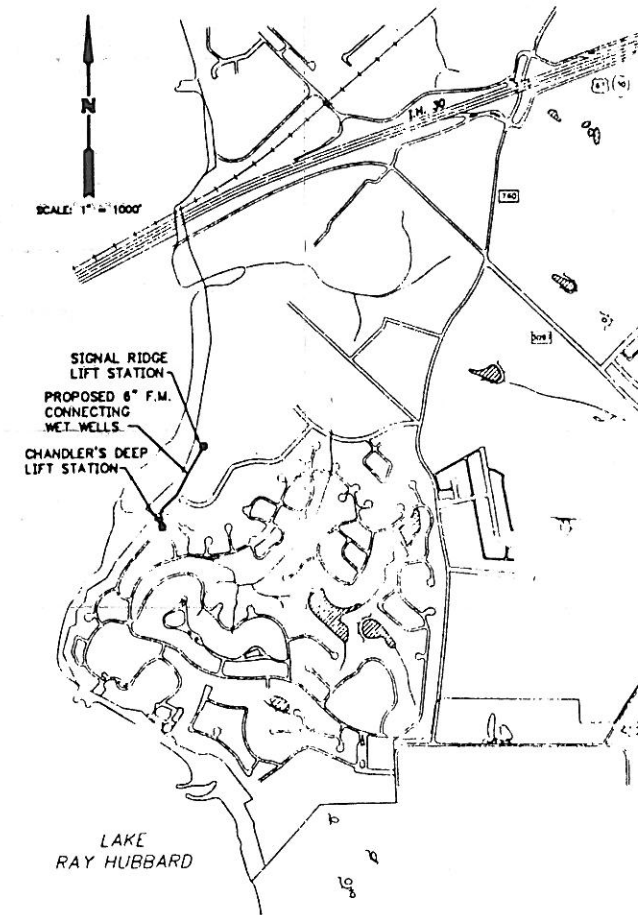
BC	BACK OF CURB
BM	BENCH MARK
BU	BUTTERFLY VALVE
C	CENTERLINE
CO	CLEANOUT
CONC	CONCRETE
DIA	DIAMETER
DI	DUCTILE IRON PIPE
EL	ELEVATION
EP	EDGE OF PAVEMENT
EXIST	EXISTING
FH	FIRE HYDRANT
FL	FLOW LINE
GM	GAS METER
GV	GATE VALVE
HORZ	HORIZONTAL
IRF	IRON ROD FOUND
LT	LEFT
MH	MANHOLE
OH	OVERHEAD ELECTRIC
PI	PLACE
R	PROPERTY LINE
PP	POWER POLE
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
RCCP	REINFORCED CONCRETE CYLINDER PIPE
RT	RIGHT
R/W	RIGHT-OF-WAY
SS	SANITARY SEWER
ST	STREET
STD	STANDARD
TP	TOP OF PAVEMENT
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
WM	WATER METER
WV	WATER VALVE

**LEGEND**

	PROPOSED WATER LINES
	EXISTING WATER LINES
	EXISTING PAVEMENT CENTERLINES
	EXISTING RIGHT-OF-WAY OR PROPERTY LINE.
	EXISTING EASEMENT
	EXISTING FENCE LINE
	PROPOSED FENCE LINE
	EXISTING OVERHEAD ELECTRIC
	EXISTING CONTOUR
	PROPOSED CONTOUR
	FLOW LINE
	POWER POLE
	EXISTING MANHOLE
	PROPOSED MANHOLE
	EXISTING FIRE HYDRANT
	PROPOSED FIRE HYDRANT
	CONCRETE PAVEMENT AND CURB
	ASPHALT PAVEMENT
	GRAVEL PAVEMENT
	TREES OR SHRUBS
	BENCH MARK
	EXISTING WATER VALVE
	PROPOSED WATER VALVE
	BORE HOLE
	WATER METER
	BOLLARD
	LIGHT POLE

**INDEX TO DRAWINGS**

SHEET NO.	SHEET DESCRIPTION
1.	COVER SHEET
2.	SHEET INDEX
3.	SITE PLAN
4.	FORCE MAIN - PLAN AND PROFILE
5.	LIFT STATION IMPROVEMENTS
6.	ELECTRICAL SITE PLAN AND DETAILS
7.	MISCELLANEOUS DETAILS
8.	PIPE EMBEDMENTS & THRUST BLOCK DETAILS



**LOCATION MAP**

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY C.F. RASOR, P.E. NO. 28168 ON OCTOBER 5th, 1994



**CITY OF ROCKWALL**  
"THE NEW HORIZON"



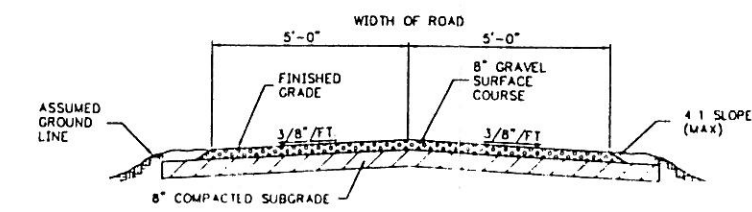
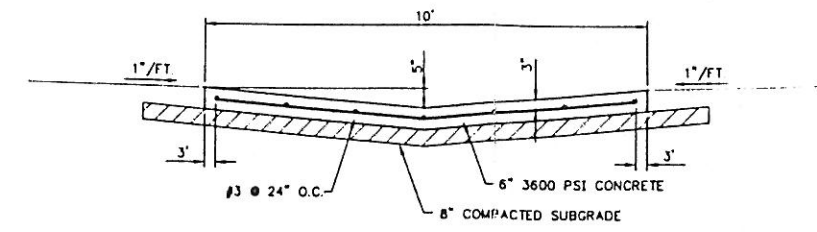
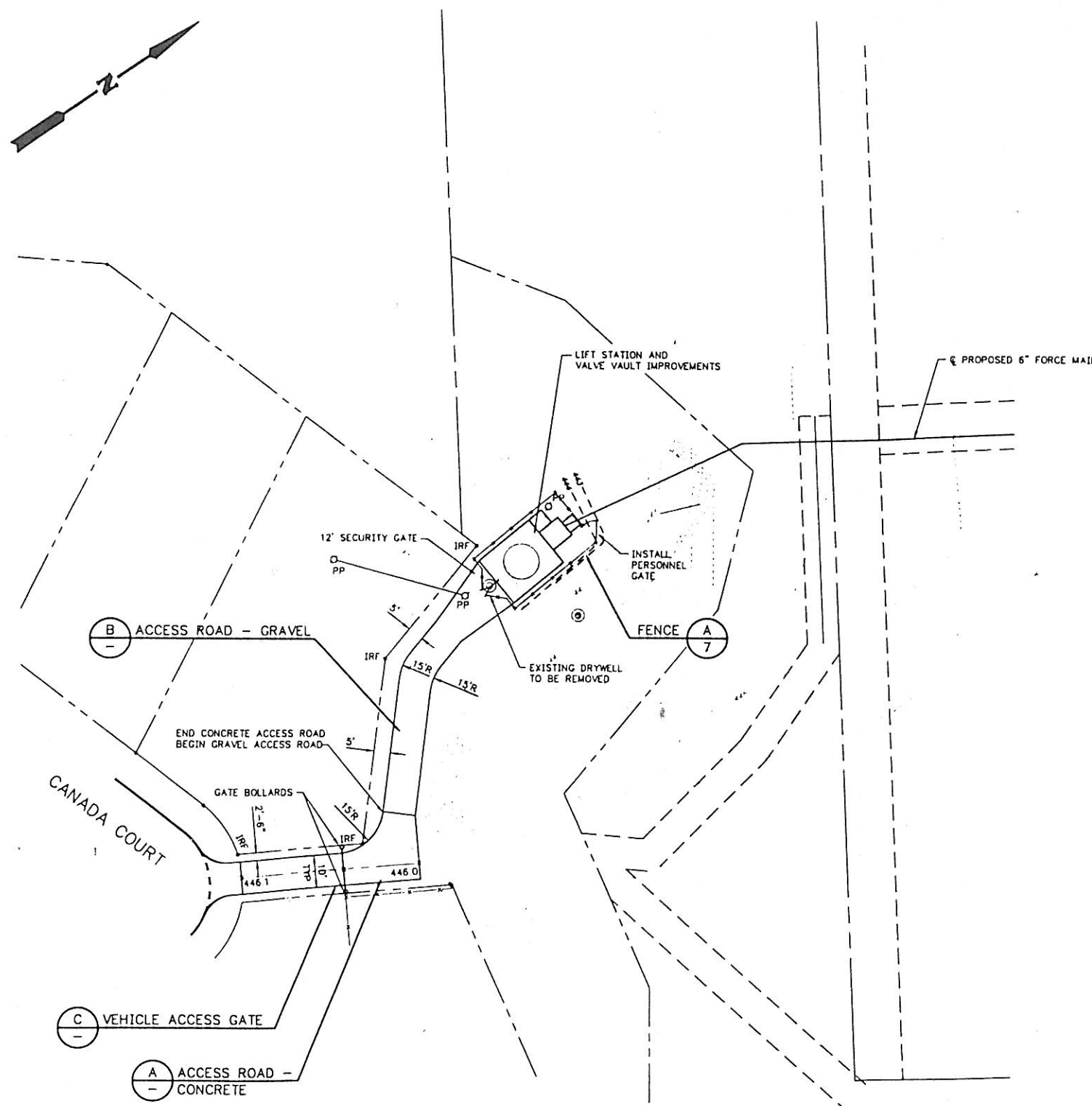
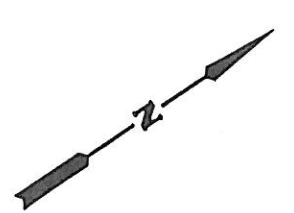
CHANDLERS DEEP LIFT STATION AND FORCE MAIN MODIFICATIONS

SHEET INDEX

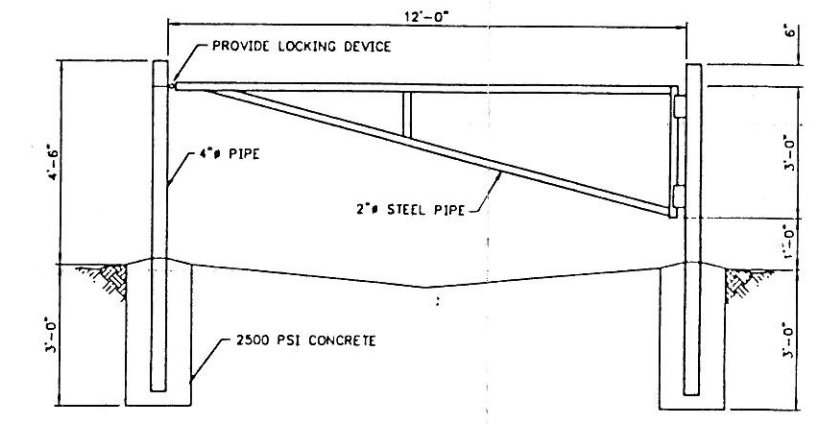
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Designed by: J.A. MARLER	
Drawn by: G.W. JOHNSON	
Checked by: E.M. MOTLEY	
Approved by: C.F. RASOR	
Project No. CR09421.2	

**Chiang, Patel and Associates, Inc.**  
Consulting Engineers • Planners • Project Managers  
Dallas, Texas





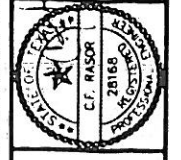
NOTE:  
8" PREPARED SUBGRADE, COMPACTED TO AT LEAST 95% STANDARD PROCTOR DENSITY AT NOT LESS THAN OPTIMUM MOISTURE



**NOTES**

1. ALL AREA INSIDE SECURITY FENCE NOT COVERED BY CONCRETE SLAB, SHALL BE SCARIFIED AND COVERED WITH GRAVEL
2. GRAVEL ACCESS ROAD SHALL EXTEND TO MATCH CONCRETE SLAB INSIDE SECURITY FENCE.
3. ACCESS GATE SHALL BE INSTALLED TO BE IN-LINE WITH EXISTING PRIVACY FENCE.

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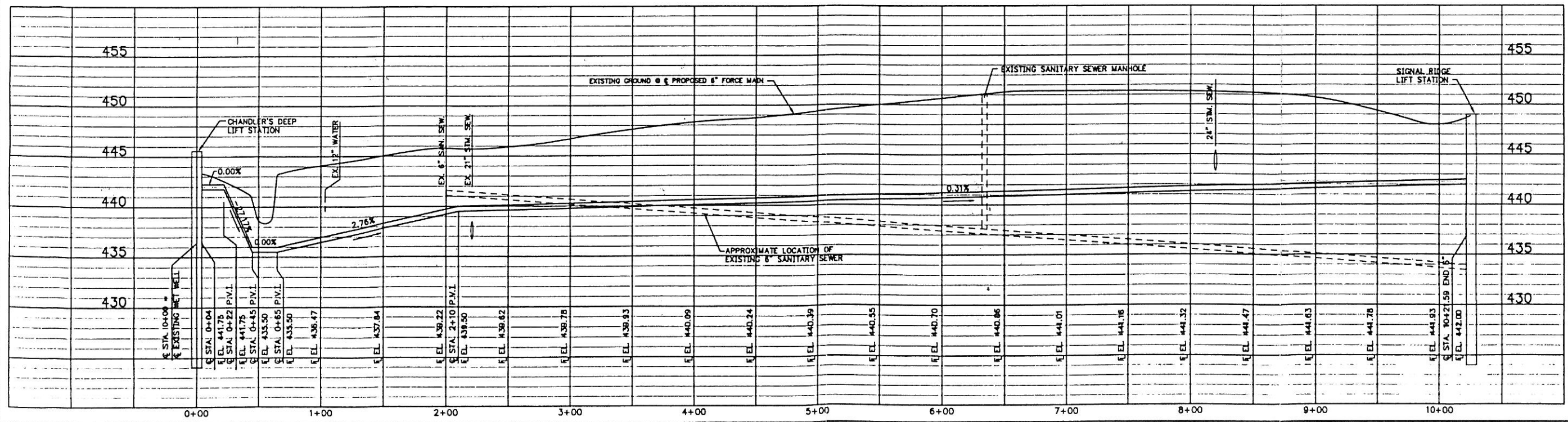
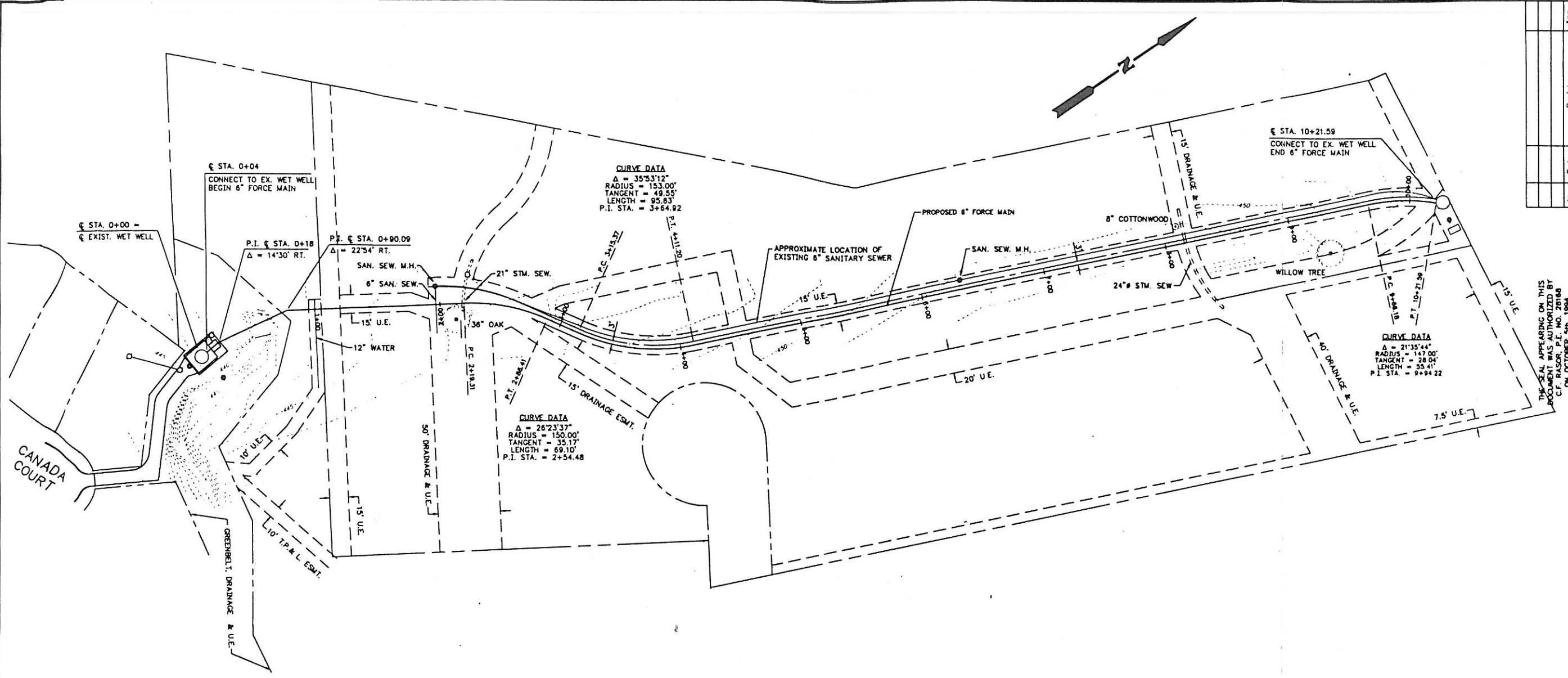
CITY OF ROCKWALL  
"THE NEW HORIZON"

CHANDLERS DEEP LIFT STATION  
AND FORCE MAIN MODIFICATIONS  
SITE PLAN

Scale	1" = 20'
Date	9/7/94
Designed by	J.A. MARLER
Drawn by	G.W. JOHNSON
Checked by	E.M. MOTLEY
Approved by	C.F. RASOR
Project No.	CR09421.2

No.	Date	Revisions	App.





No.	Date	Revisions	App.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY C.F. RASOR, P.E. NO. 28168 ON OCTOBER 5th, 1994

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 Dallas, Texas

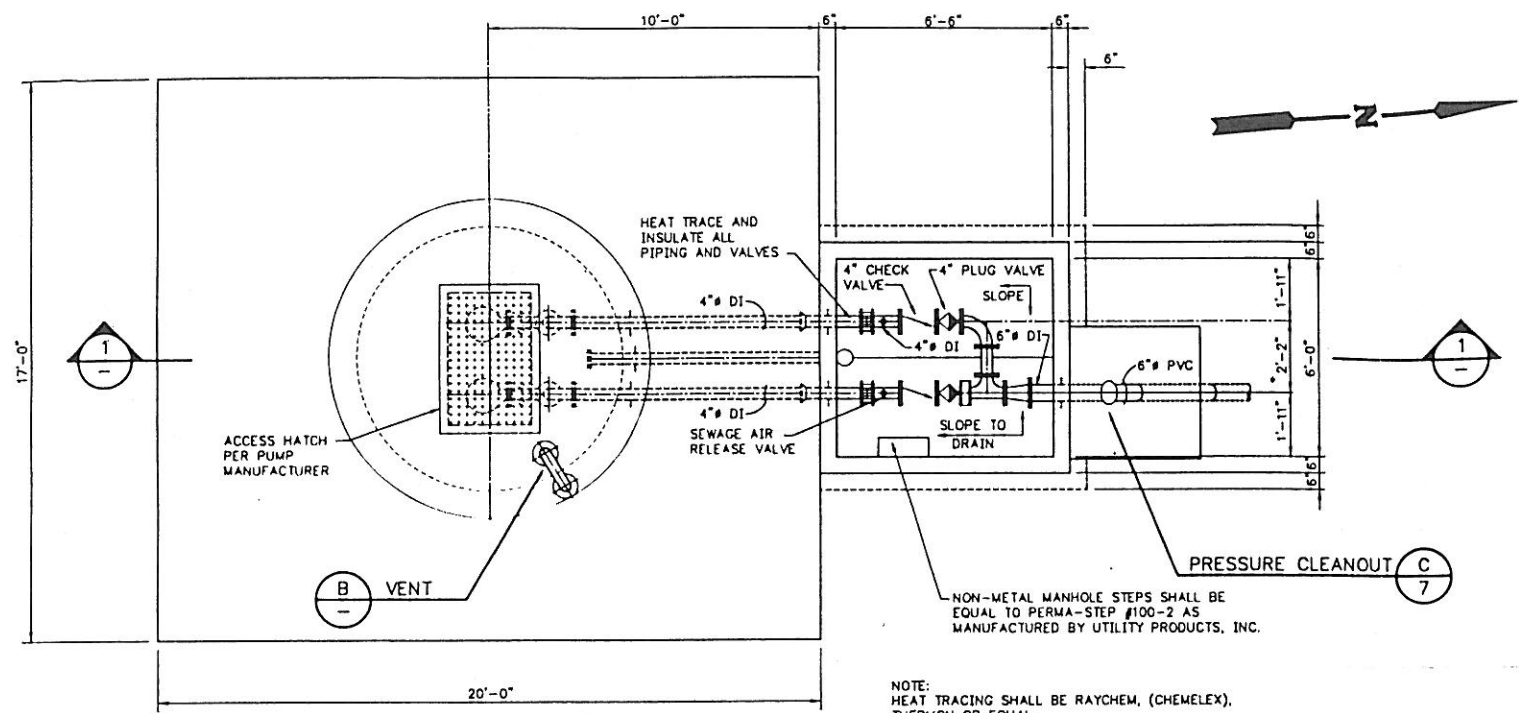


**CITY OF ROCKWALL**  
 "THE NEW HORIZON"

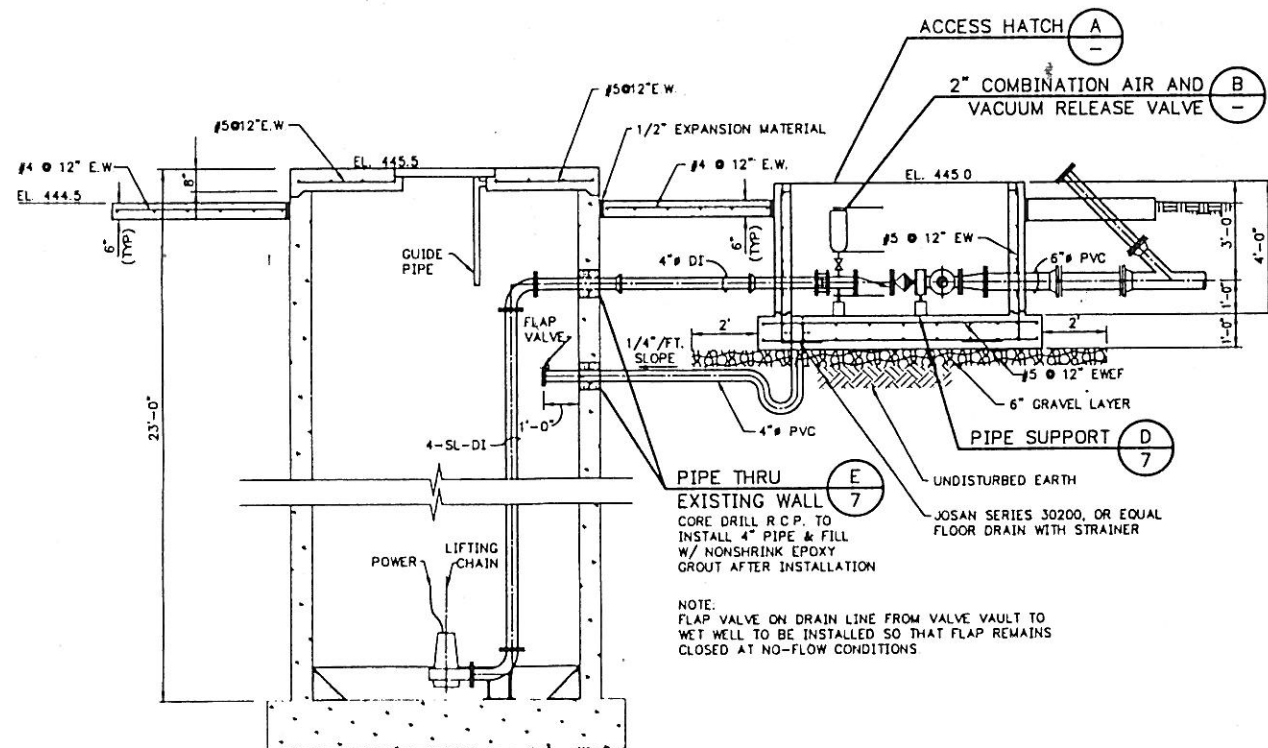


CHANDLER'S DEEP LIFT STATION  
 AND FORCE MAIN MODIFICATIONS  
 PROPOSED FORCE MAIN  
 PLAN - PROFILE

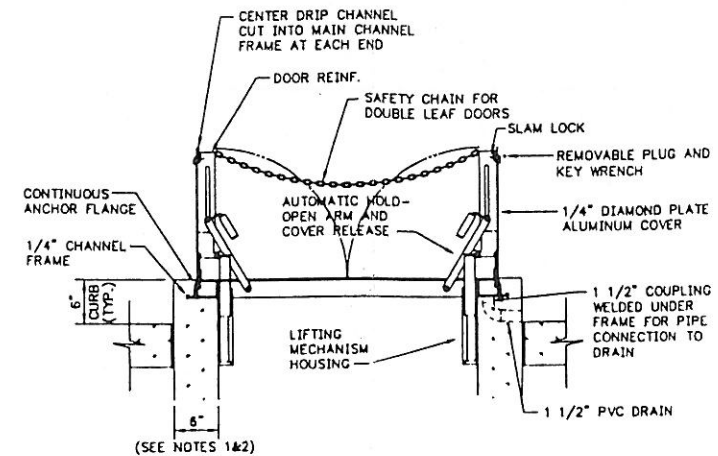
Scale: 1"=40'; 1"=5' V Date: 10/94  
 Designed by: J.A. MARLER  
 Drawn by: G.W. JOHNSON  
 Checked by: E.M. MOTLEY  
 Approved by: C.F. RASOR  
 Project No. CR09421.2



**PLAN - LIFT STATION & VALVE VAULT**  
SCALE 3/8" = 1'-0"

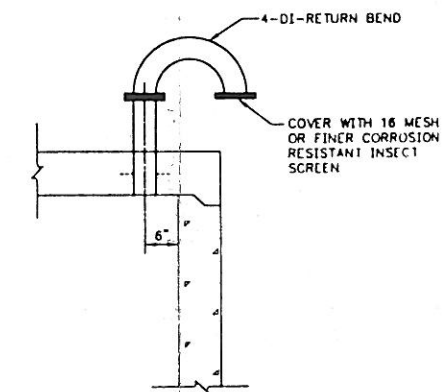


**SECTION - LIFT STATION & VALVE VAULT**  
SCALE 3/8" = 1'-0"

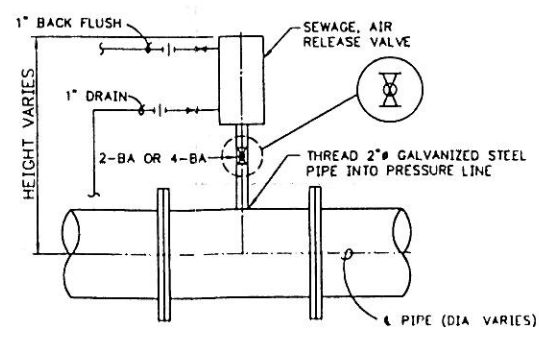


- NOTES:
- EXTERIOR ACCESS HATCH SHALL BE MOUNTED ON 6 INCH WALL WITH DRAIN AND SHALL BE BILCO TYPE "JO-AL", OR EQUAL WITH 6" x 6'-6" OPENING
  - ALL HARDWARE SHALL BE STAINLESS STEEL OR ALUMINUM

**A ACCESS HATCH**  
SCALE N.T.S.



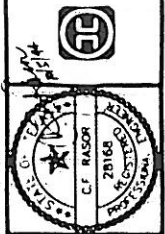
**B VENT DETAIL**  
SCALE N.T.S.



**C 2" COMBINATION AIR AND VACUUM RELEASE VALVE**  
SCALE N.T.S.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY C.F. RASOR, P.E. NO. 28168 ON OCTOBER 30th, 1994

No.	Date	Revisions	APP.

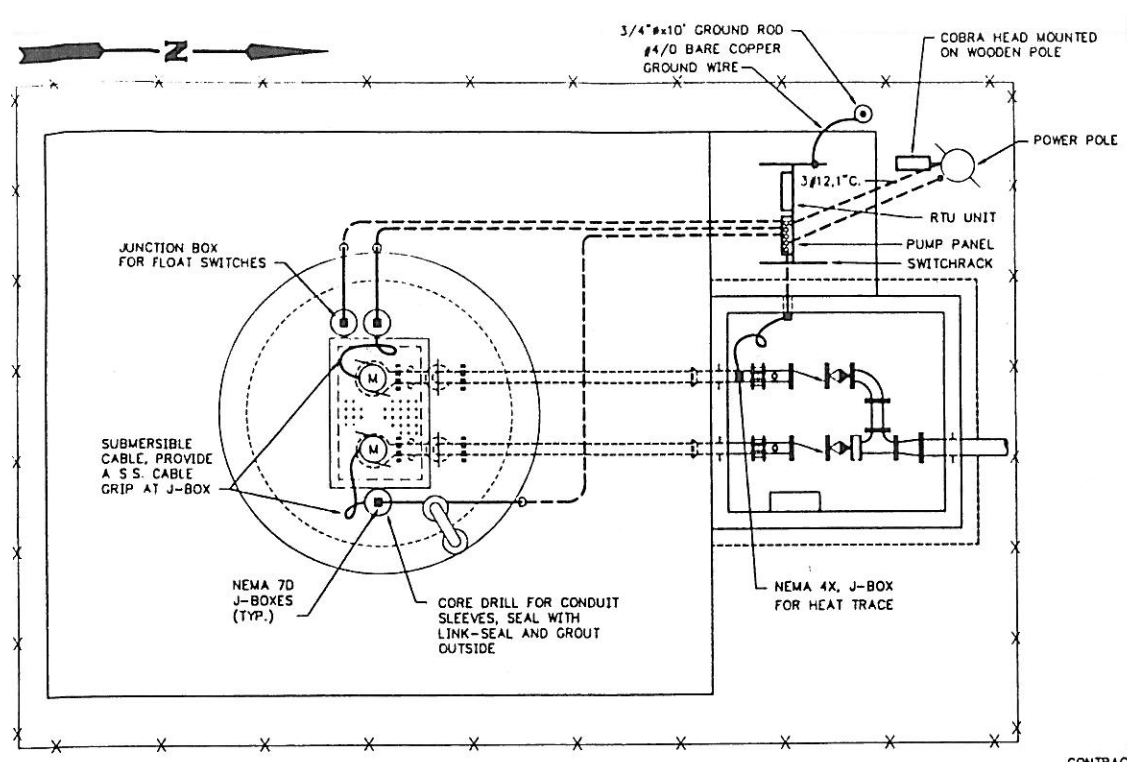


CITY OF ROCKWALL  
"THE NEW HORIZON"

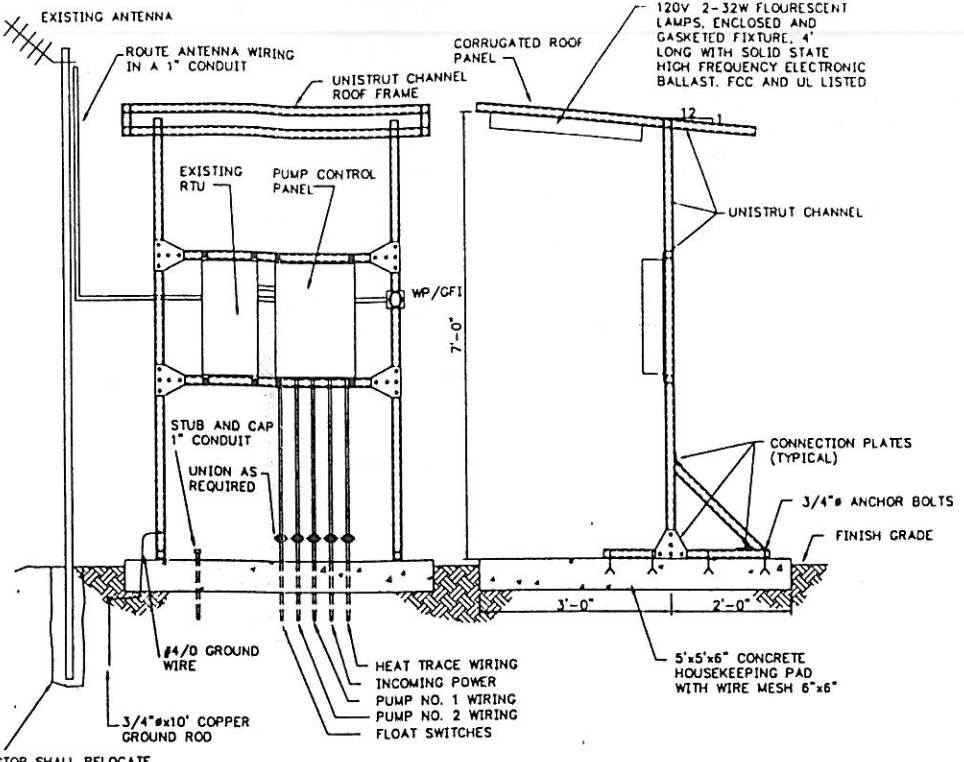


CHANDLERS DEEP LIFT STATION AND FORCE MAIN MODIFICATIONS  
LIFT STATION MODIFICATIONS

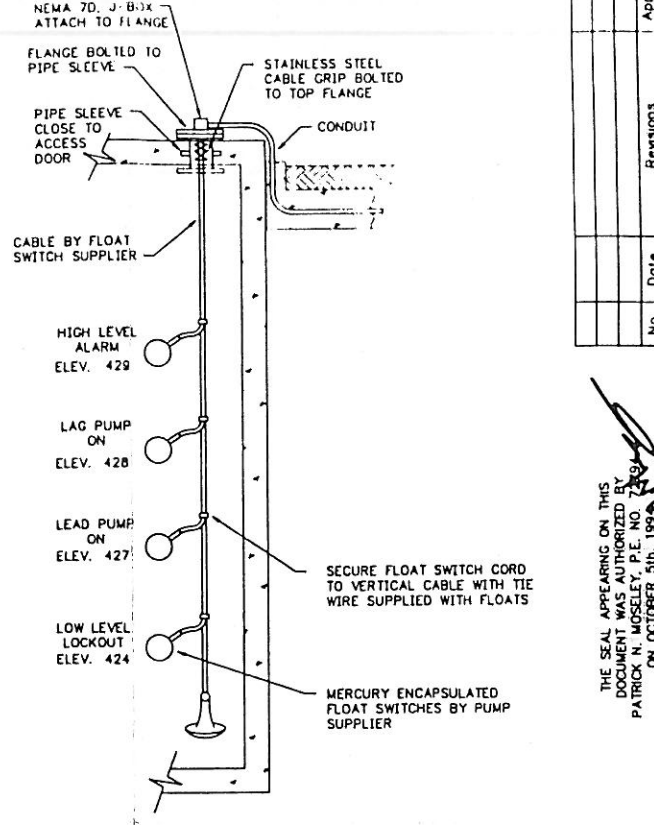
Scale 3/8" = 1'-0"	Date 10/94
Designed by J.A. MARLER	
Drawn by C.W. JOHNSON	
Checked by E.M. MOTLEY	
Approved by C.F. RASOR	
Project No. CR09471 2	



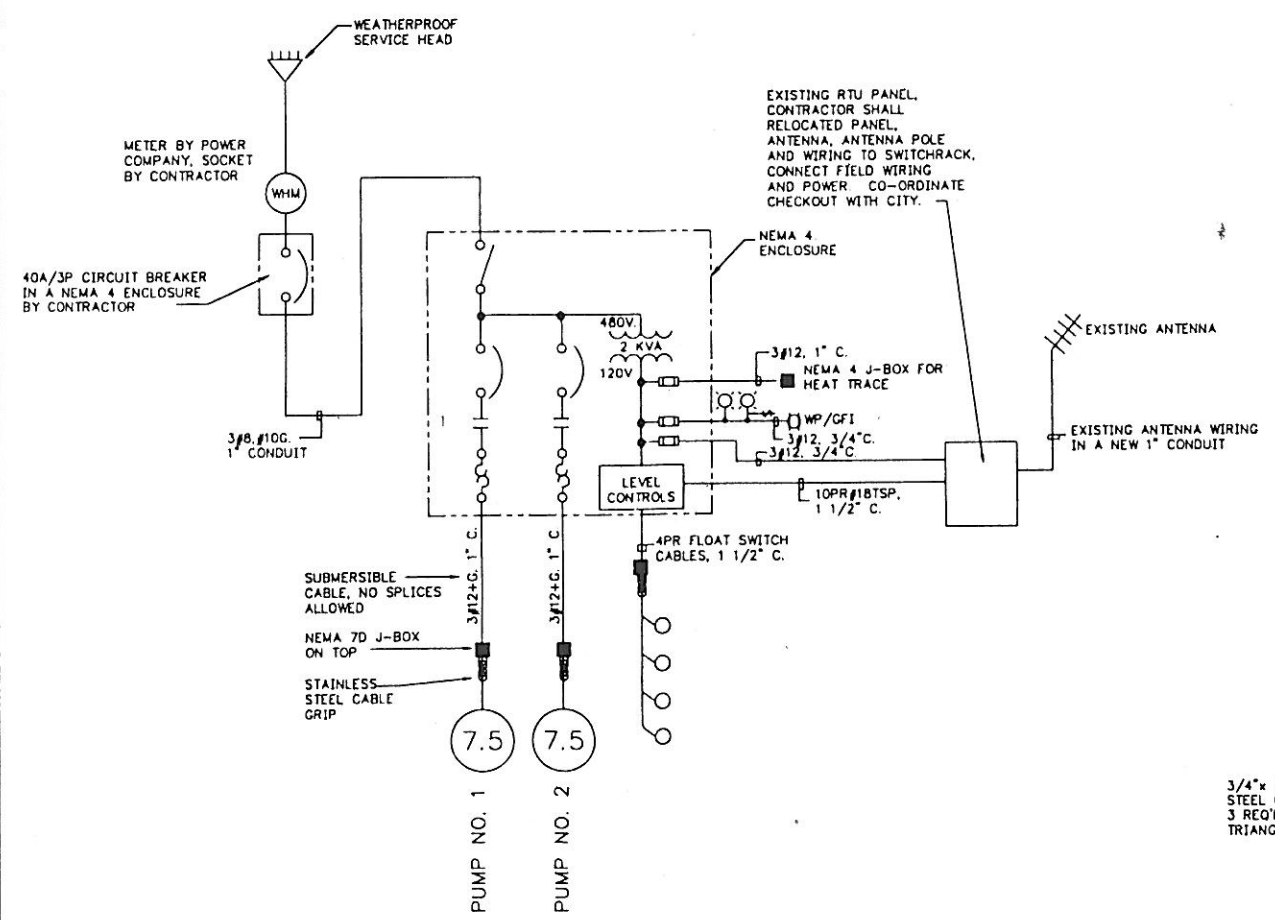
**LIFT STATION - PLAN**  
SCALE: 3/8" = 1'-0"



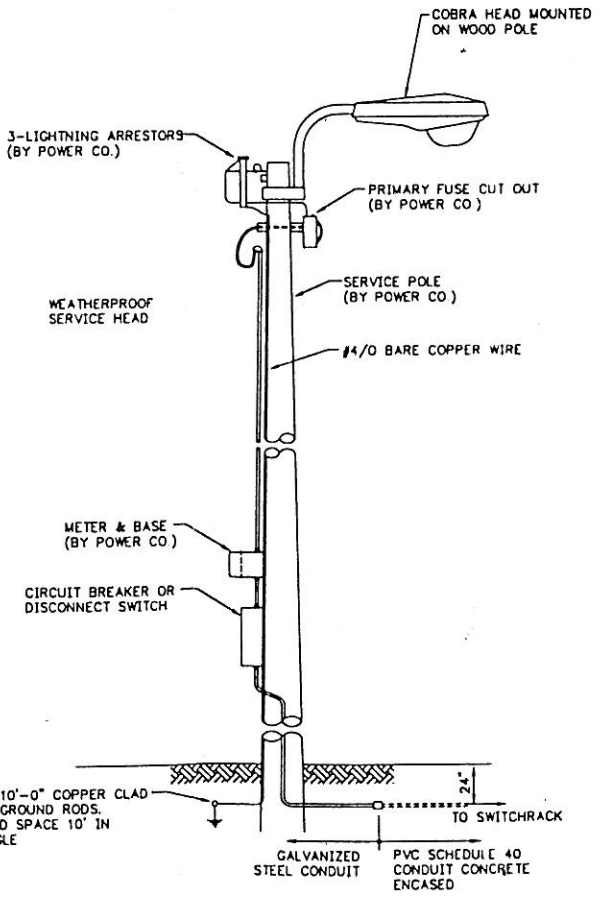
**A SWITCHRACK DETAIL**  
SCALE: N.T.S.



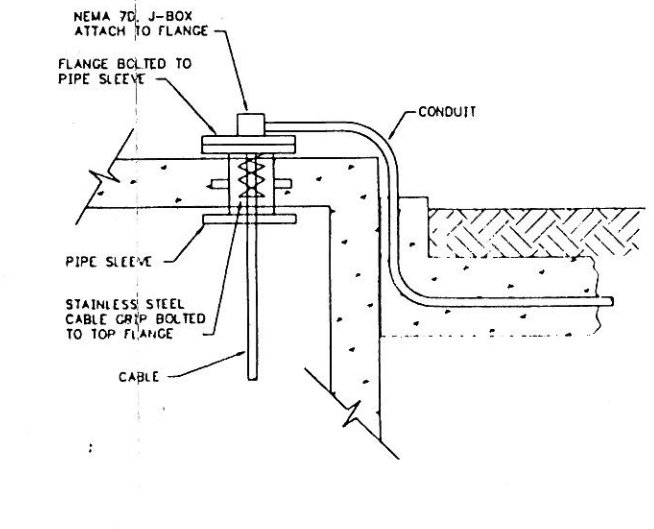
**B SUSPENDED FLOAT SWITCH DETAIL**  
SCALE: N.T.S.



**C ONELINE DIAGRAM**  
SCALE: N.T.S.



**D POWER POLE DETAIL**  
SCALE: N.T.S.



**E CABLE GRIP DETAIL**  
SCALE: N.T.S.

- NOTES
1. ALL ELECTRICAL WORK SHALL BE DONE IN STRICT COMPLIANCE WITH THE LATEST NATIONAL ELECTRIC CODE AND ALL APPLICABLE STATE AND LOCAL CODES. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICIAN REGULARLY ENGAGED IN SUCH A TRADE.
  2. ALL PROPOSED ELECTRICAL DEVICES AND EQUIPMENT SHALL BE NEW AND SHALL BE UL LISTED AND APPROVED ALL EQUIPMENT SHALL BE GROUNDED PER NEC REQUIREMENTS
  3. ALL CONDUITS, CONDUCTORS AND CONDUIT FITTINGS SHALL BE ALUMINUM UNDERGROUND CONDUITS AND CONDUIT FITTINGS SHALL BE THIN WALL PVC TYPE EB INSTALLED A MINIMUM OF 18 INCHES BELOW GRADE AND HAVING A MINIMUM OF 3 INCH CONCRETE (CLASS C) ENVELOPE ALL SIDES. INSTALL A 4 INCH WIDE YELLOW PLASTIC MARKER TAPE 6 INCHES ABOVE THE CONCRETE DUCTBANK, THROUGHOUT THE LENGTH OF THE DUCTBANK. ALL CONDUITS SHALL BE 3/4" AND LARGER.
  4. ALL CONDUCTORS SHALL BE THIN/THWN OR XHHN COPPER SUITABLE FOR INSTALLATIONS IN WET AND DRY LOCATIONS. POWER CONDUCTORS SHALL BE A MINIMUM OF NO 12 AWG. CONTROL CONDUCTORS SHALL BE A MINIMUM OF NO 14 AWG. SIGNAL CONDUCTORS FOR 4-20 mA ANALOG CONTROL AND INDICATION SIGNAL SHALL BE TWISTED SHIELDED PAIR CABLES NO 18 AWG, WITH THE SHIELD GROUNDED AT THE FIELD INSTRUMENT END ONLY. INSTALLED PER ISA AND IEEE STANDARDS. SIGNAL WIRING SHALL BE INSTALLED IN SEPARATE CONDUITS FROM POWER WIRING. ALL CONDUCTORS SHALL BE TAGGED AT ALL TERMINATION POINTS WITH HEAT SHRINK WIRE MARKERS. ALL CONDUCTORS SHALL BE TESTED FOR CONTINUITY AFTER INSTALLATION. SPLICES SHALL NOT BE ACCEPTABLE.

No.	Date	Revisions

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PATRICK N. MOSELEY, P.E. NO. 72794 ON OCTOBER 5th, 1999.

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Dallas, Texas

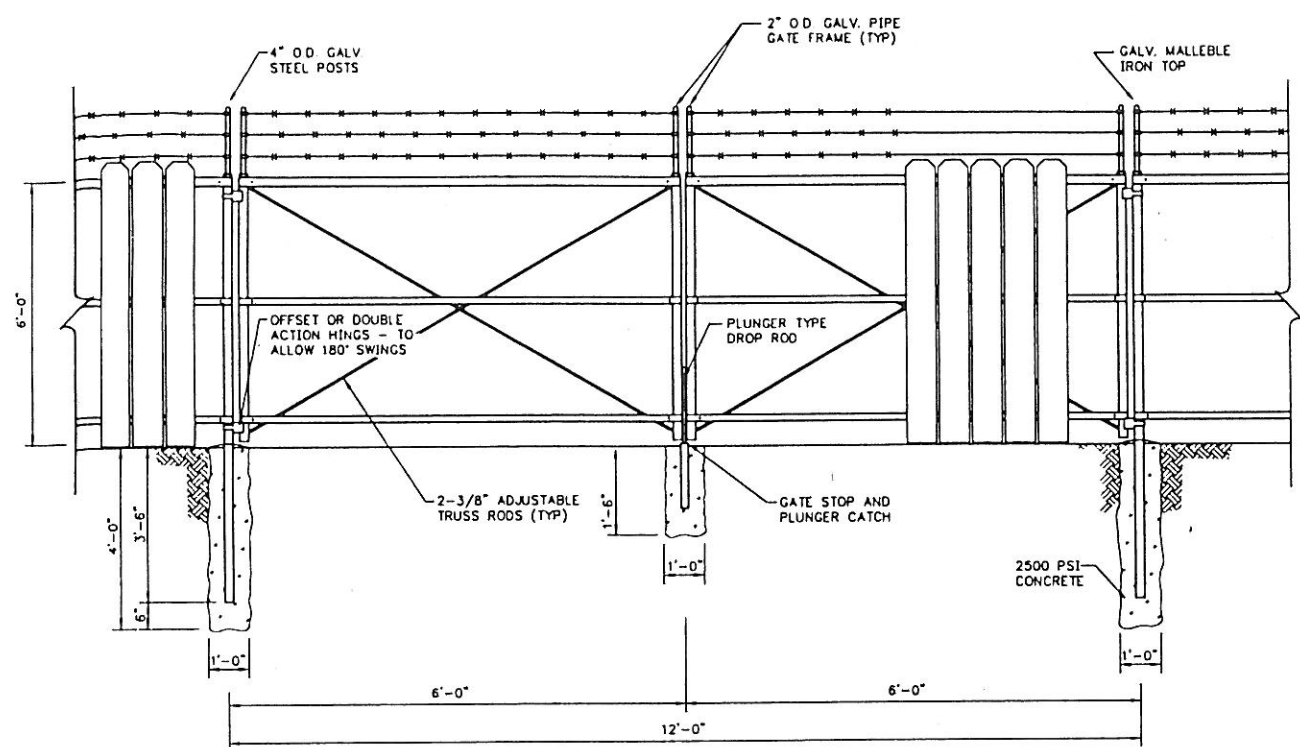
CITY OF ROCKWALL  
"THE NEW HORIZON"

CHANDLERS DEEP LIFT STATION  
AND FORCE MAIN MODIFICATIONS  
ELECTRICAL SITE PLAN

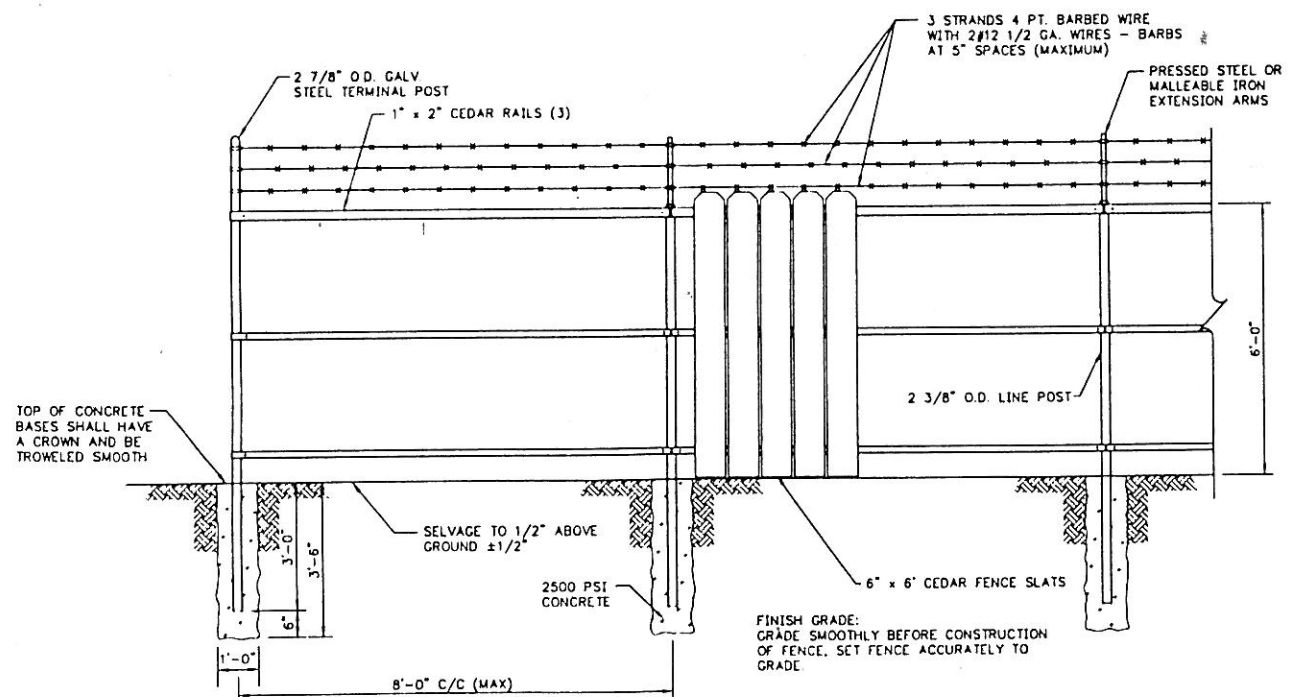
Scale: AS SHOWN Date: 9-8-94  
Designed by: P.N. MOSELEY  
Drawn by: T.G. GRANT  
Checked by: P.N. MOSELEY  
Approved by: P.K. PATEL  
Project No. CRO94212

SHEET  
6  
OF 8





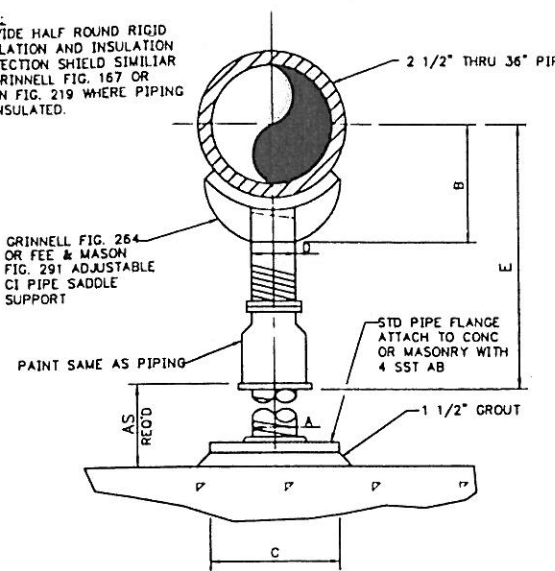
**A GATE INSTALLATION**  
SCALE: N.T.S.



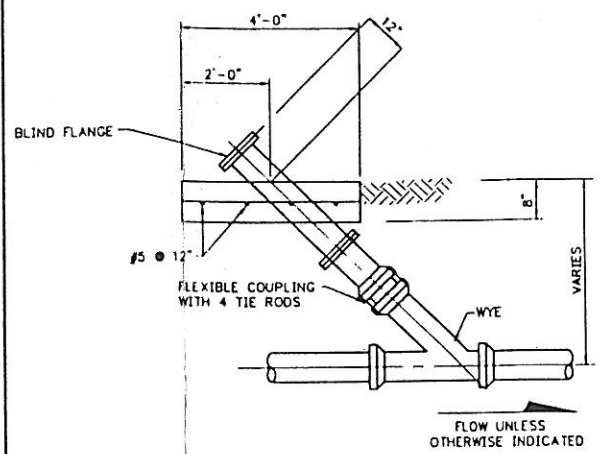
**B FENCE INSTALLATION**  
SCALE: N.T.S.

PIPE SIZE	A	B	C	D	E	
					MIN	MAX
2-1/2"	2-1/2"	3-1/2"	9"	1-1/2"	6"	13"
3"	2-1/2"	3-3/4"	9"	1-1/2"	8-1/4"	13-1/4"
3-1/2"	2-1/2"	4"	9"	1-1/2"	8-1/2"	13-1/2"
4"	3"	4-1/4"	9"	2-1/2"	9-1/4"	14"
5"	3"	4-7/8"	9"	2-1/2"	10"	14-3/4"
6"	3"	5-1/2"	9"	2-1/2"	10-1/2"	15-1/4"

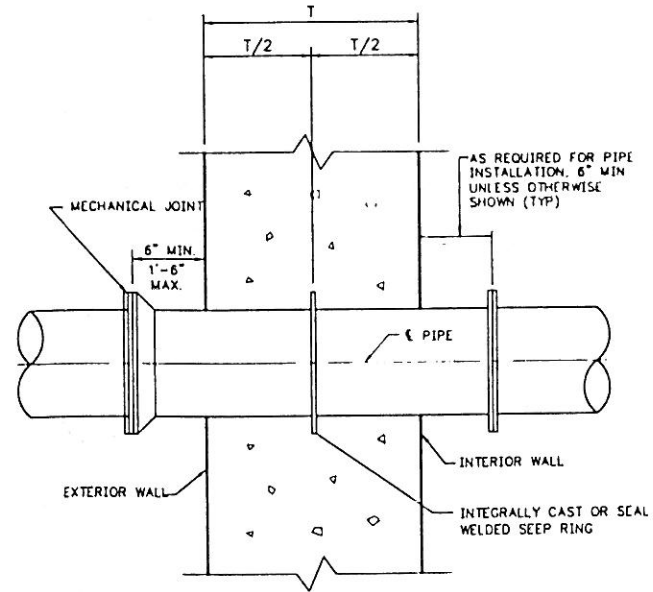
NOTE: PROVIDE HALF ROUND RIGID INSULATION AND INSULATION PROTECTION SHIELD SIMILAR TO GRINNELL FIG. 167 OR ELCEN FIG. 219 WHERE PIPING IS INSULATED.



**C PIPE SUPPORT**  
SCALE: N.T.S.

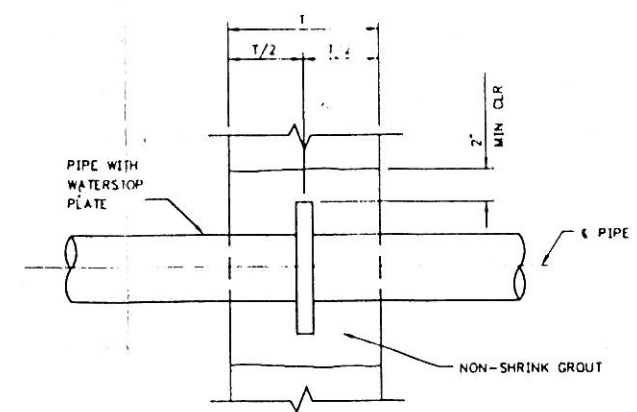


**D PRESSURE CLEANOUT**  
SCALE: N.T.S.



NOTE: PIPE THIMBLE SHALL BE IN PLACE BEFORE PLACING CONCRETE. COAT WALL PIPE WITH SPECIFIED COATING SYSTEM PRIOR TO CONC PLACEMENT.

**E WALL PIPE**  
SCALE: N.T.S.



**F PIPE THRU EXISTING WALL**  
SCALE: N.T.S.

No.	Date	Revisions	App.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY C.F. RASOR, P.E. NO. 28168 ON OCTOBER 20th, 1994.

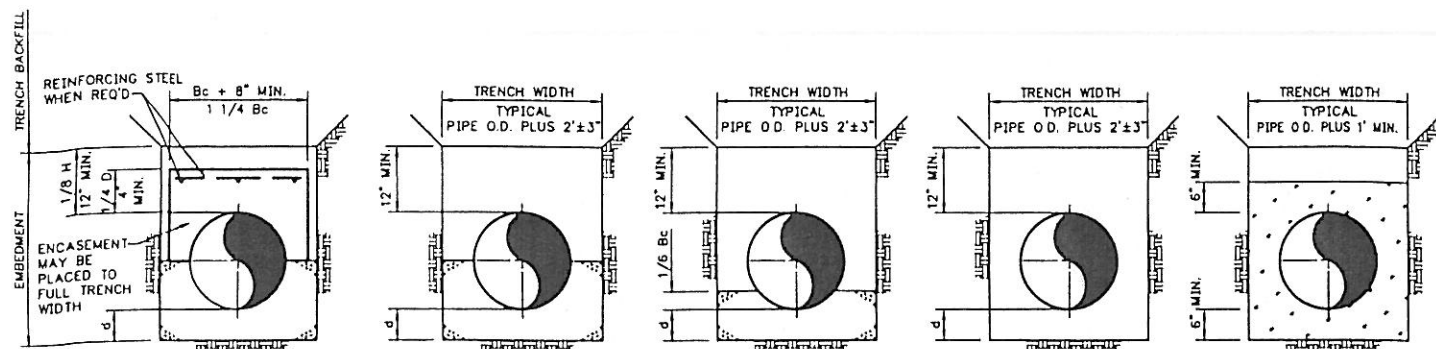
**Chiang, Patel and Associates, Inc.**  
Consulting Engineers • Planners • Project Managers  
Dallas, Texas

**CITY OF ROCKWALL**  
"THE NEW HORIZON"

CHANDLERS DEEP LIFT STATION  
AND FORCE MAIN MODIFICATIONS  
MISCELLANEOUS DETAILS

Scale AS SHOWN Date 10/94  
Designed by J.A. MARLER  
Drawn by G.W. JOHNSON  
Checked by E.M. MOTLEY  
Approved by C.F. RASOR  
Project No. CR09-421.2

SHEET  
**7**  
OF 8



**CLASS A**  
 REINFORCED  $A_s = 1.0\%$ ,  $L = 4.8$   
 REINFORCED  $A_s = 0.4\%$ ,  $L = 3.4$   
 PLAIN  $L = 2.8$

**CLASS B**  
 $L = 1.9$

**CLASS C**  
 $L = 1.5$

**CLASS C**  
 (POLYETHYLENE WRAPPED,  
 COATED OR PLASTIC PIPE)  
 $L = 1.5$

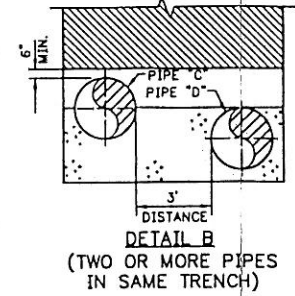
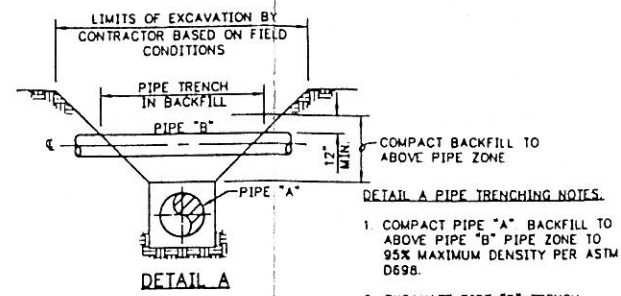
**CLASS E**  
 $L = 1.9$

DEPTH OF BEDDING MATERIAL BELOW PIPE		
D	d	d
	MIN. SOIL	MIN. ROCK
27" AND SMALLER	3"	6"
30" TO 60"	4"	9"
66" AND LARGER	6"	12"

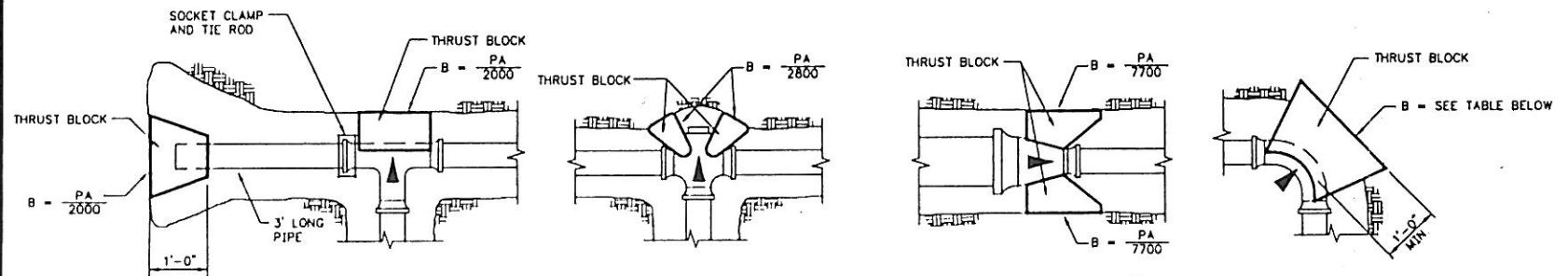
**PIPE EMBEDMENTS**

- LEGEND**
- CONCRETE, 3000 PSI MIN.
  - GRANULAR EMBEDMENT
  - COMPACTED EMBEDMENT
  - Bc OUTSIDE DIAMETER OF PIPE
  - H BACKFILL COVER ABOVE TOP OF PIPE
  - D INSIDE PIPE DIAMETER
  - d DEPTH OF BEDDING MATERIAL BELOW PIPE
  - A<sub>s</sub> AREA OF TRANSVERSE STEEL IN THE ARCH EXPRESSED AS A PERCENTAGE OF AREA OF CONCRETE AT INVERT OF CROWN
  - L LOAD FACTOR

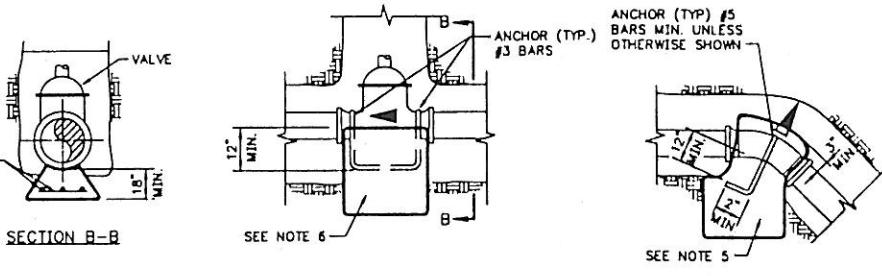
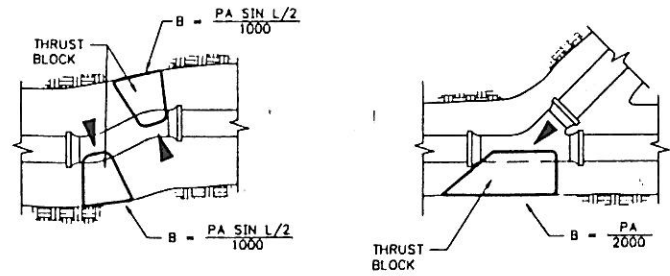
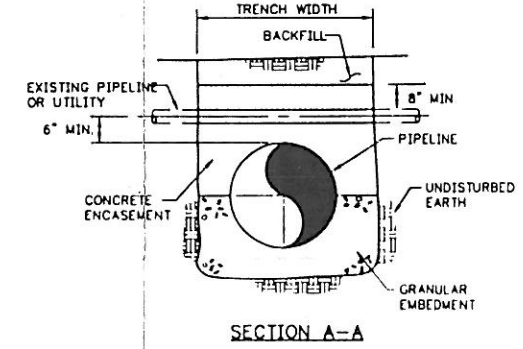
- EMBEDMENT NOTES:**
- GRANULAR EMBEDMENT SHALL BE CRUSHED ROCK OR PEA GRAVEL ASTM C-33, TYPE 57 WITH NOT LESS THAN 95% PASSING 1/2" (3/4" FOR 30" & LARGER PIPE) AND NOT LESS THAN 95% RETAINED ON A NO. 4 SIEVE. MAXIMUM SIZE 1/2". EMBEDMENT SHALL BE PLACED IN NOT MORE THAN 6" THICK LAYERS AND COMPACTED BY SLICING WITH A SHOVEL OR VIBRATING.
  - COMPACTED EMBEDMENT SHALL BE SELECT FILL MATERIALS FREE FROM DEBRIS, ORGANIC MATERIALS, ROCKS, TRENCH LOAM AND CLAY. UNIFORMLY GRADED HAVING LESS THAN 50% FINES BY WEIGHT PASSING NO. 200 SIEVE AND PLASTICITY INDEX OF LESS THAN 12. PLACE IN UNIFORM LAYERS NOT MORE THAN 8" THICK AND COMPACT TO 95% STANDARD PROCTOR DENSITY.
  - TRENCH WIDTH: IF ACTUAL TRENCH WIDTH IS GREATER THAN MAXIMUM PERMITTED, THEN CONTRACTOR SHALL PROVIDE NEXT HIGHER CLASS OF EMBEDMENT AS APPROVED BY ENGINEER.
  - FINE GRADED SAND SHALL BE NATURAL SAND MEETING ASTM C33. PLACE SAND AROUND PIPE IN 8" LAYERS AND THOROUGHLY HAND TAMP. ASSURE THAT ALL VOIDS ARE FILLED BY "WALKING IN" AND SLICING WITH A SHOVEL TO PIPE SPRING-LINE. AVOID DAMAGE TO THE POLYETHYLENE WRAP DURING PLACING AND COMPACTING OF SAND BEDDING AND SAND COVER.



**PIPE TRENCHING DETAILS**



TYPE OF BEND	VALUE OF B
90°	PA/1400
60°	PA/2000
45°	PA/3800
30°	PA/3800
15°	PA/7600

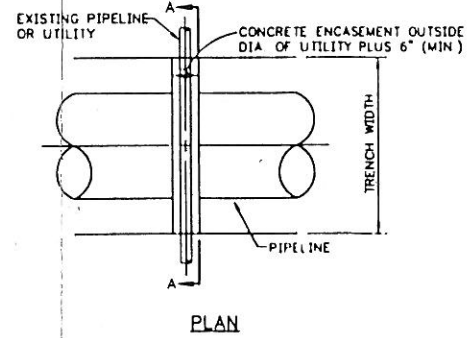


**TABLE A**  
**ANCHORAGE OF VALVES**

WORKING PRESSURE (PSI)	SIZE OF VALVE REQUIRING ANCHORAGE
50 - 100	12" & UP
101 - 150	18" & UP
151 - 200	ALL SIZES

**LEGEND**

- B = BEARING AREA, MINIMUM CONCRETE THRUST AREA IN SQUARE FEET
- A = AREA OF PIPE IN SQUARE INCHES
- P = TEST PRESSURE IN PSI
- L = ANGLE OF BEND IN DEGREES



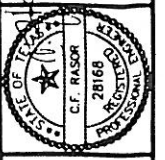
**TYPICAL DETAIL OF PIPELINE OR UTILITY CROSSING**

**THRUST BLOCKING NOTES:**

- CONCRETE THRUST BLOCKING INSTALLATIONS ARE SHOWN TO GIVE THE CONTRACTOR A GENERAL KNOWLEDGE OF THE WORK HE MUST PERFORM. CHANGES IN MATERIALS ENCOUNTERED IN THE TRENCH MAY CHANGE THE EXACT LOCATION OF THE BLOCKS SHOWN HEREIN.
- 3000 PSI CONCRETE SHALL BE PLACED FOR BLOCKING AT EACH CHANGE IN DIRECTION OF THE PIPELINE IN A MANNER WHICH WILL SUBSTANTIALLY BRACE THE PIPE AGAINST UNDISTURBED TRENCH WALLS. 3000 PSI CONCRETE SHALL CONFORM TO THE SPECIFICATIONS.
- CONCRETE BLOCKING SHALL HAVE BEEN IN PLACE FOUR (4) DAYS PRIOR TO TESTING THE PIPELINE.
- BLOCKING OF BEARING AREAS OF TWO (2) SQUARE FEET OR GREATER SHALL REQUIRE FORM CONSTRUCTION.
- EVERY VERTICAL BEND SHALL BE ANCHORED TO A CONCRETE THRUST BLOCK KEYPED INTO UNDISTURBED SOIL. THE THRUST BLOCK SHALL BE OF SUFFICIENT SIZE AND WEIGHT TO RESIST THRUST WITHOUT MOVING.
- ALL VALVES UNDER CONDITIONS OF SIZE AND PRESSURE, AS NOTED IN TABLE "A", SHALL REQUIRE BLOCKING AGAINST THRUST CREATED BY VALVE CLOSURE.
- ANCHORS KEYPED OR TIED TO UNDISTURBED SOIL SHALL BE REQUIRED AT EVERY THIRD LENGTH OF PIPE PLACED ON SLOPES.
- THRUST BLOCKING OF 3000 PSI CONCRETE SHALL BE PROVIDED AT ALL BENDS, TEES, AND ELBOWS ON ALL BURIED PIPELINES WITH FLEXIBLE JOINTS. THRUST BLOCKING SHALL BE ADEQUATE FOR THE PARTICULAR CONDITIONS OF PIPE DIAMETER, PIPE PRESSURE, AND SOIL BEARING PRESSURE ENCOUNTERED. THRUST BLOCKING SHALL EXTEND TO THE LIMITS OF TRENCH EXCAVATION AND SHALL BEAR AGAINST UNDISTURBED TRENCH WALLS.

**CONCRETE THRUST BLOCKS FOR BURIED PIPES**

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY C.F. RASOR, P.E. NO. 28168 ON OCTOBER 5th, 1994



**CITY OF ROCKWALL**  
 "THE NEW HORIZON"

CHANDLERS DEEP LIFT STATION  
 AND FORCE MAIN MODIFICATIONS  
 PIPE EMBEDMENT &  
 THRUST BLOCKING DETAILS

Scale: AS SHOWN Date: 10/94  
 Designed by: J.A. MARLER  
 Drawn by: G.W. JOHNSON  
 Checked by: E.M. MOTLEY  
 Approved by: C.F. RASOR  
 Project No. CR094212