

# PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY

## LAKE SAINT LOUIS

### RELIEF PUMP STATION & FORCEMAIN

### WOODLANDS SITE

FEBRUARY 2005

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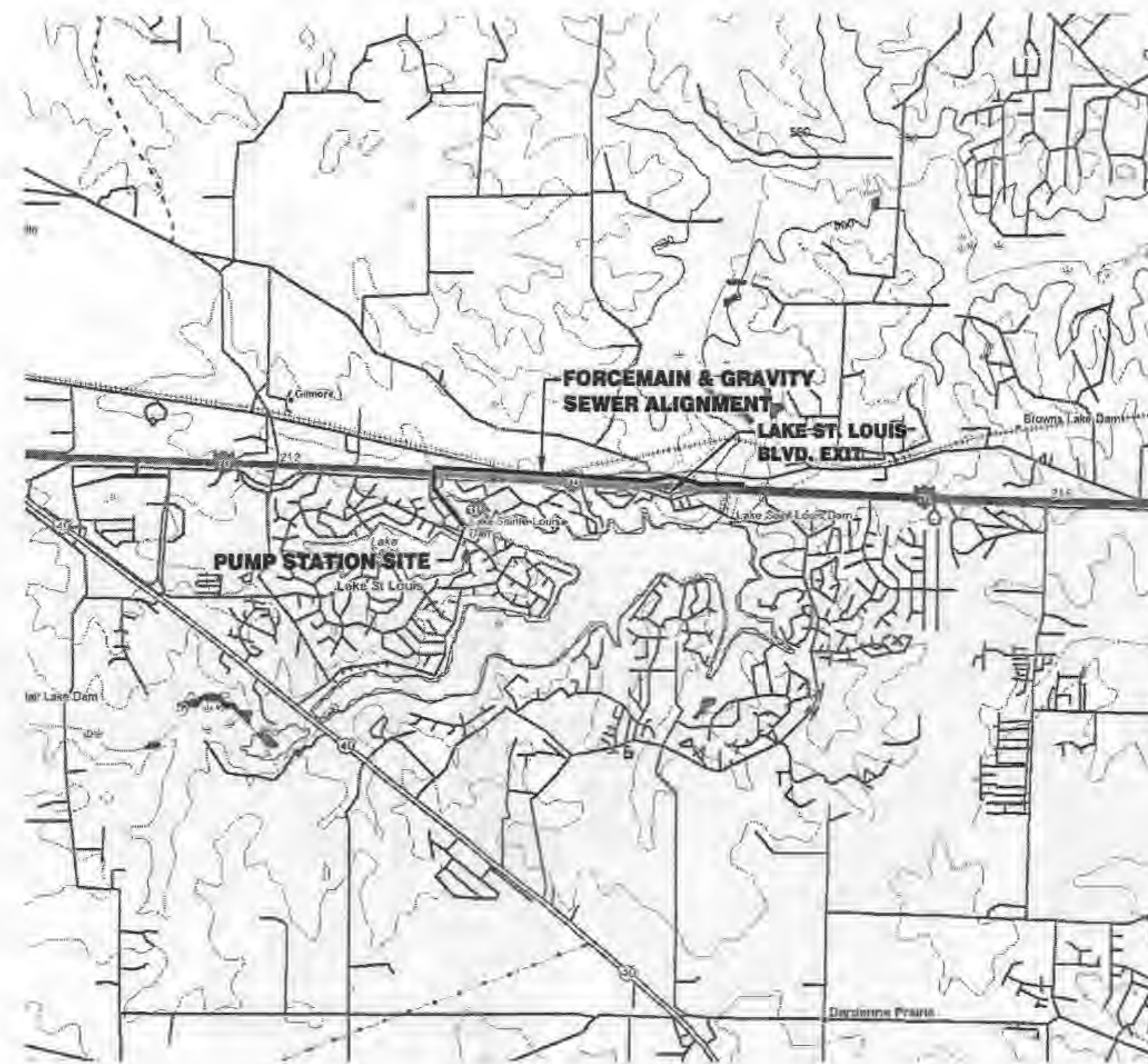
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SITE LOCATION PLAN

NOT TO SCALE

LEGEND

- |      |               |                   |                                    |
|------|---------------|-------------------|------------------------------------|
| ⊙ WM | WATER METER   | — · · · — · · · — | RIGHT-OF-WAY                       |
| ⊙ W  | WATER MANHOLE | — · · · — · · · — | PROPERTY LINE                      |
| ⊙ V  | WATER VALVE   | — OH —            | OVERHEAD ELECTRIC                  |
| ⊙ H  | HYDRANT       | — UTC —           | UNDERGROUND TELEPHONE CABLE        |
| ⊙ B  | BORE HOLE     | — 24" W —         | WATERLINE                          |
| ⊙ G  | GUY ANCHOR    | =====             | FORCEMAIN/GRAVITY SEWER W/EASEMENT |
| ⊙ P  | POWER POLE    | — X — X —         | FENCE                              |
| ⊙ C  | CONTROL POINT | ~~~~~             | EXISTING CONTOUR LINE              |
|      |               | — 450 —           | NEW CONTOUR LINE                   |
|      |               | ▲                 | SPOT ELEVATION                     |
- B-1  
10.0' BORING LOCATION (PROFILE)  
DEPTH OF ROCK OR  
N.R. FOR NO REFUSAL

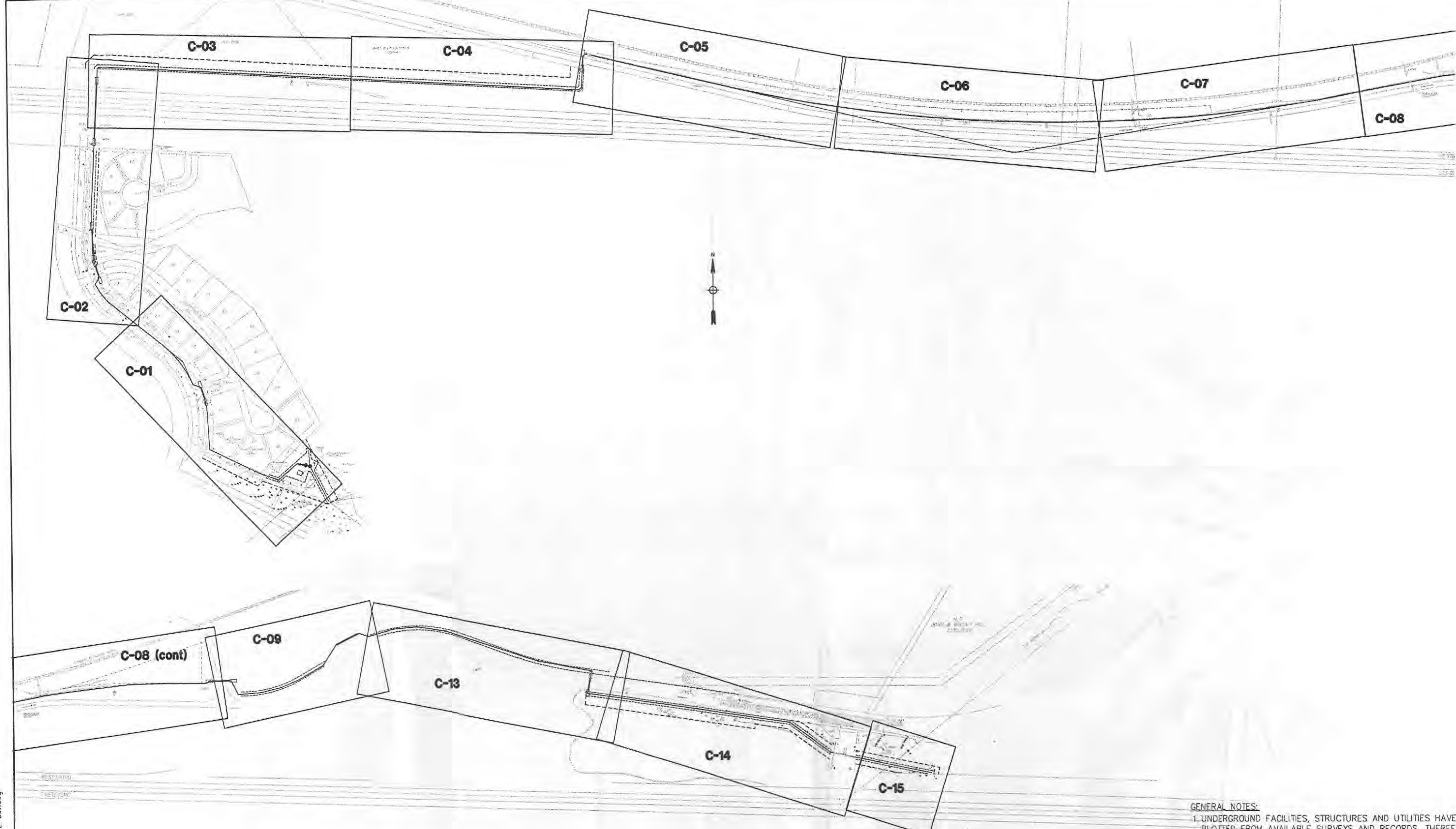
# JACOBS

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RECEIVED  
MAR 17 2005

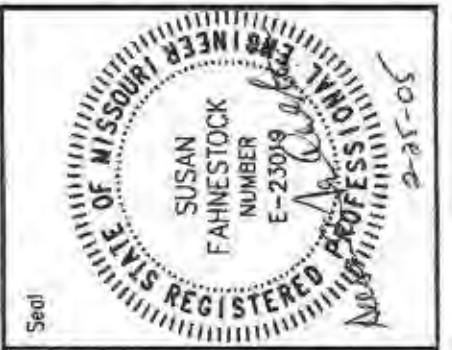
ENGINEERING DEPARTMENT





**DRAWING KEY PLAN**  
NO SCALE

- GENERAL NOTES:**
1. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UTILITIES LOCATED IN THE FIELD PRIOR TO EXCAVATION OR CONSTRUCTION.
  2. MAINTAIN MINIMUM OF 3'-6" OF COVER ON FORCEMAIN UNLESS SHOWN OTHERWISE ON DRAWINGS.
  3. COORDINATE ELECTRIC SERVICE WITH ELECTRIC UTILITY. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRIC SERVICE TO UTILITY METER. FEEDER FROM UTILITY METER TO CONTROL PANEL SHALL BE UNDERGROUND.
  4. FITTINGS SHALL BE USED WHERE SHOWN ON THE CONTRACT DRAWINGS. JOINT DEFLECTION SHALL BE USED IN CONJUNCTION WITH STANDARD FITTINGS TO ACCOMMODATE NONSTANDARD ANGLES OR ANGLES LESS THAN 6 DEGREES. JOINT DEFLECTION SHALL NOT EXCEED 75 PERCENT OF THE PIPE MANUFACTURER'S RECOMMENDATIONS.
  5. CONTRACTOR TO USE RESTRAINED JOINTS ONLY FROM STATION 39+50 TO STATION END OF FORCEMAIN, EXCEPT WHERE NOTED.
  6. MAINTAIN MINIMUM 10 FT HORIZONTAL AND 18 INCHES VERTICAL CLEARANCE BETWEEN FORCEMAIN OR GRAVITY SEWER AND ALL WATER MAINS. BRING CONFLICTS TO THE ATTENTION OF THE OWNERS REPRESENTATIVE.



Rev.	Date	Description	Down	Checked	Approved	Submitted
0	02/25/05	ISSUED FOR BID AND WORK REVIEW				

**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**  
**JACOBS**

**DRAWING KEY PLAN & GENERAL NOTES**

Date	FEBRUARY 2005
Designed	J.J. WINKELMANN
Drawn	J.J. WINKELMANN
Checked	S. FAHNSTOCK
Approved	
Submitted	
Drawing Number	

**G-01**



FORCEMAIN

Point Type	Station	Northing (Y)	Easting (X)
POB	0+00.00	1080661.4626	737423.1704
PI	4.2995 0+04.30	N 77°44' 30" W 1080662.3755	737418.9689
PI	94.4420 0+98.74	S 49°35' 04" W 1080601.1462	737347.0644
PI	68.6899 1+67.43	N 70°20' 52" W 1080624.2473	737282.3756
PI	217.4422 3+84.87	N 64°10' 51" W 1080718.9507	737086.6402
PC	134.1249 5+19.00	N 2°58' 55" W 1080852.8940	737079.6631
LC= 60.9453 DELTA= 7°52' 56" RADIUS= -443.0068 DC= 12°56' 00"			
PI	5+49.52	1080883.2601	737076.5949
PT	5+79.94	1080912.9186	737069.3913
PI	46.5880 6+26.53	N 17°21' 32" W 1080957.3847	737055.4914
PI	32.7011 6+59.23	N 70°19' 06" W 1080968.3983	737024.7008
LC= 188.1513 DELTA= 26°48' 24" RADIUS= -402.1500 DC= 14°14' 51"			
PI	7+55.06	1081056.5575	736987.1325
PT	8+47.38	1081118.3000	736913.8436
PI	269.7596 11+17.14	N 50°32' 12" W 1081289.7550	736705.5807
PI	37.5897 11+54.73	N 41°10' 29" W 1081318.0489	736680.8332
PI	47.4563 12+02.19	N 30°47' 48" W 1081358.8134	736656.5360
PI	30.4016 12+32.59	N 31°45' 12" E 1081384.6645	736672.5351
PI	71.3882 13+03.98	N 17°38' 04" W 1081452.6981	736650.9087
PI	50.1898 13+54.17	N 1°40' 06" W 1081502.8666	736649.4475
PI	29.1958 13+83.36	N 1°42' 09" W 1081532.0495	736648.5801
PI	97.7323 14+81.10	N 1°39' 10" W 1081629.7411	736645.7613
PI	16.0787 14+97.18	N 1°39' 57" W 1081645.8130	736645.2939
PI	536.3310 20+33.51	N 3°08' 51" E 1082181.3350	736674.7421
PI	5.4719 20+38.98	N 48°13' 41" E 1082184.9801	736678.8230
PI	1833.4862 38+72.46	S 86°39' 35" E 1082078.1543	738509.1945
PI	13.2123 38+85.68	N 48°18' 17" E 1082086.9427	738519.0600
PI	118.6356 40+04.31	N 3°21' 29" E 1082205.3746	738526.0092
PI	12.8550 40+17.17	N 53°21' 38" E 1082213.0462	738536.3241
PI	507.5440 45+24.71	S 76°38' 12" E 1082095.7410	739030.1261
PC	LC= 2314.5041 DELTA= 23°04' 32" RADIUS= -5746.7981 DC= 0°59' 49"		
PI	56+97.86	1081825.5159	740171.7327
PRC	68+39.22	1082024.3612	741327.9108
LC= 107.1221 DELTA= 2°29' 48" RADIUS= 2458.3328 DC= 2°19' 50"			
PI	68+92.79	1082036.1022	741380.1779
PT	69+46.34	1082045.5552	741432.9068
PI	370.7000 73+17.04	N 79°01' 48" E 1082116.0984	741796.8328
PI	6.7399 73+23.78	N 78°26' 32" E 1082117.4488	741803.4360
PI	331.8164 76+55.59	N 83°28' 41" E 1082155.1372	742133.1051
PI	142.6384 77+98.23	N 89°14' 07" E 1082157.0407	742275.7308
PI	150.3491 79+48.58	S 89°14' 40" E 1082155.0577	742426.0668
PI	12.3503 79+60.93	N 53°06' 35" E 1082162.4715	742435.9445
PI	83.0063 80+43.94	N 89°39' 21" E 1082162.9699	742518.9493
PI	58.9328 81+02.87	S 26°14' 42" E 1082110.1124	742545.0101
PI	88.9495 81+91.82	N 85°55' 32" E 1082116.4324	742633.7348
PI	76.0038 82+67.82	N 76°52' 09" E 1082133.6986	742707.7513
PI	74.7890 83+42.61	N 67°28' 20" E 1082162.3526	742776.8334
PI	104.5974 84+47.21	N 60°52' 13" E 1082213.2693	742868.2014
PI	92.6321 85+39.84	N 33°25' 17" E 1082290.5841	742919.2222
PI	97.4652 86+37.31	N 64°01' 47" E 1082333.2647	743006.8455
PI	40.4696 86+77.78	S 71°04' 10" E 1082320.1355	743045.1262
PI	96.8816 87+74.66	N 74°14' 25" E 1082346.4488	743138.3661
PI	93.3798 88+68.04	N 84°52' 46" E 1082354.7832	743231.3732
POE			

GRAVITY SEWER

Point Type	Station	Northing (Y)	Easting (X)
MH-1	0+00.00	1082354.7832	743231.3732
MH-2	111.8994	S 81°55' 03" E 1082339.0501	743342.1610
MH-3	369.1236	S 72°00' 49" E 1082225.0679	743693.2454
MH-4	207.7301	S 79°08' 38" E 1082185.9437	743897.2579
MH-5	6+88.75	S 9°51' 10" W 1082101.1545	743882.5320
MH-6	86.0585	S 81°26' 25" E 1082042.7866	744270.3089
MH-7	7+74.81	S 81°27' 57" E 1081984.9115	744655.9907
MH-8	390.0000	S 54°21' 56" E 1081871.2846	744814.5014
EX-MH	15+56.96 195.0300 17+51.99 396.1280	S 78°31' 40" E 1081792.4985	745202.7155

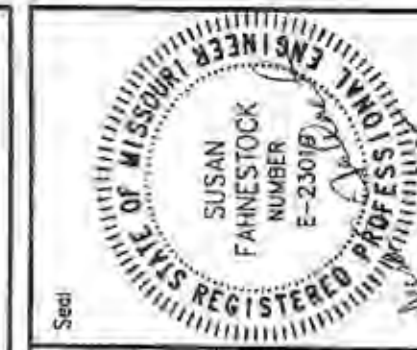
CONTROL POINTS

NUMBER	ELEVATION	NORTHING	EASTING	DESCRIPTION
1	506.86	1080487.36	737593.82	60d LARGE NAIL
2	548.99	1080739.26	737014.73	60d LARGE NAIL
3	548.64	1080394.20	737510.09	60d LARGE NAIL
4	548.96	1080545.81	737221.97	60d LARGE NAIL
5	556.52	1082179.68	747288.34	60d LARGE NAIL
6	488.04	1081964.45	745172.74	MAGNAIL
7	493.20	1081989.24	744760.31	MAGNAIL
8	514.75	1081588.48	736617.12	60d LARGE NAIL
9	516.89	1081933.55	736523.16	60d LARGE NAIL
10	514.97	1082504.02	737269.50	60d LARGE NAIL
11	557.03	1082226.49	738426.81	60d LARGE NAIL
12	555.17	1082607.14	736837.33	MAGNAIL
13	547.64	1082095.87	742456.31	60d LARGE NAIL
14	521.56	1081349.67	736600.44	60d LARGE NAIL
900	541.94	1081821.43	738217.09	BASE STATION FOR GPS
903	564.12	1082958.61	746391.53	60d LARGE NAIL
2273	532.50	1081140.96	736799.19	60d LARGE NAIL
2390	514.60	1081588.61	736617.41	60d LARGE NAIL
2652	533.23	1082082.34	737742.81	60d LARGE NAIL
2653	522.59	1082104.43	737423.72	60d LARGE NAIL
2741	543.52	1081886.51	740639.40	60d LARGE NAIL
2742	542.96	1081711.68	740088.34	60d LARGE NAIL
2755	537.32	1082109.56	741858.14	60d LARGE NAIL
7083	536.96	1082127.45	743566.67	60d LARGE NAIL
7179	562.27	1082107.24	743252.95	60d LARGE NAIL

NOTE: COORDINATES SHOWN ARE MODIFIED MISSOURI STATE PLANE COORDINATES IN FEET.

VERTICAL CONTROL POINT

NUMBER	ELEVATION	DESCRIPTION
RM45	526.16	CHISELED SQUARE ON THE SOUTHEAST WINGWALL OF THE LAKE SAINT LOUIS BOULEVARD BRIDGE OVER THE SPILLWAY OF LAKE SAINT LOUIS



Spec	
Submitted	
Approved	
Checked	
Drawn	
Date	02/25/05
Rev	0

PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.  
LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN  
WOODLANDS SITE  
**JACOBS**

FORCE MAIN,  
GRAVITY SEWER  
& CONTROL POINT  
SCHEDULES

Date	FEBRUARY 2005
Designed	J.J.WINKELMANN
Drawn	J.J.WINKELMANN
Checked	S.FAHNESTOCK
Approved	
Submitted	
Drawing Number	

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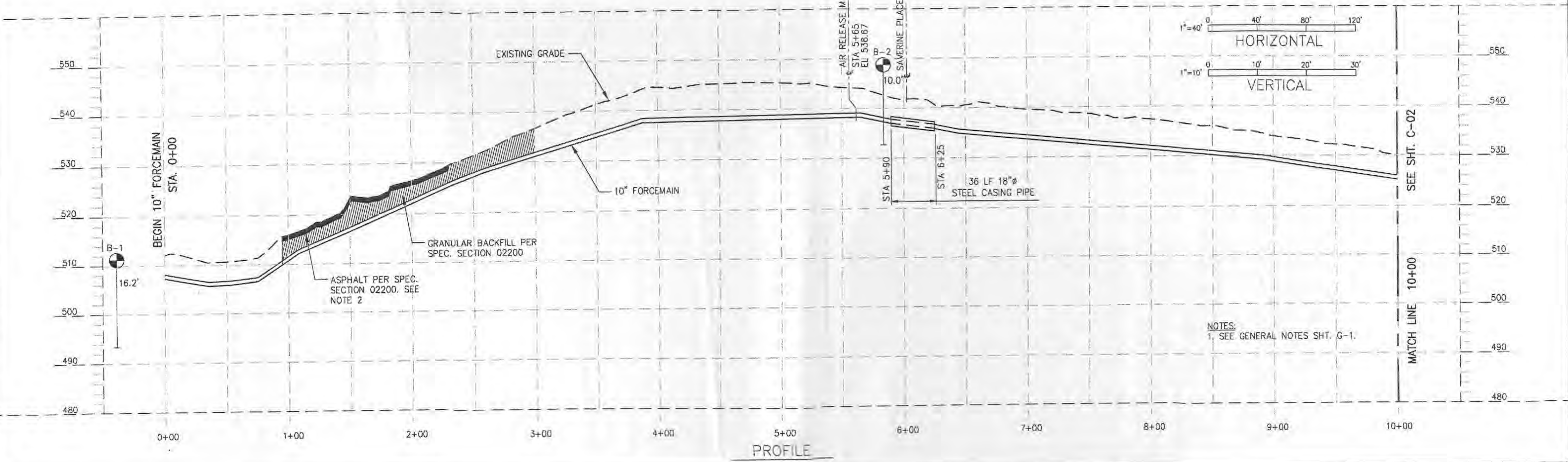
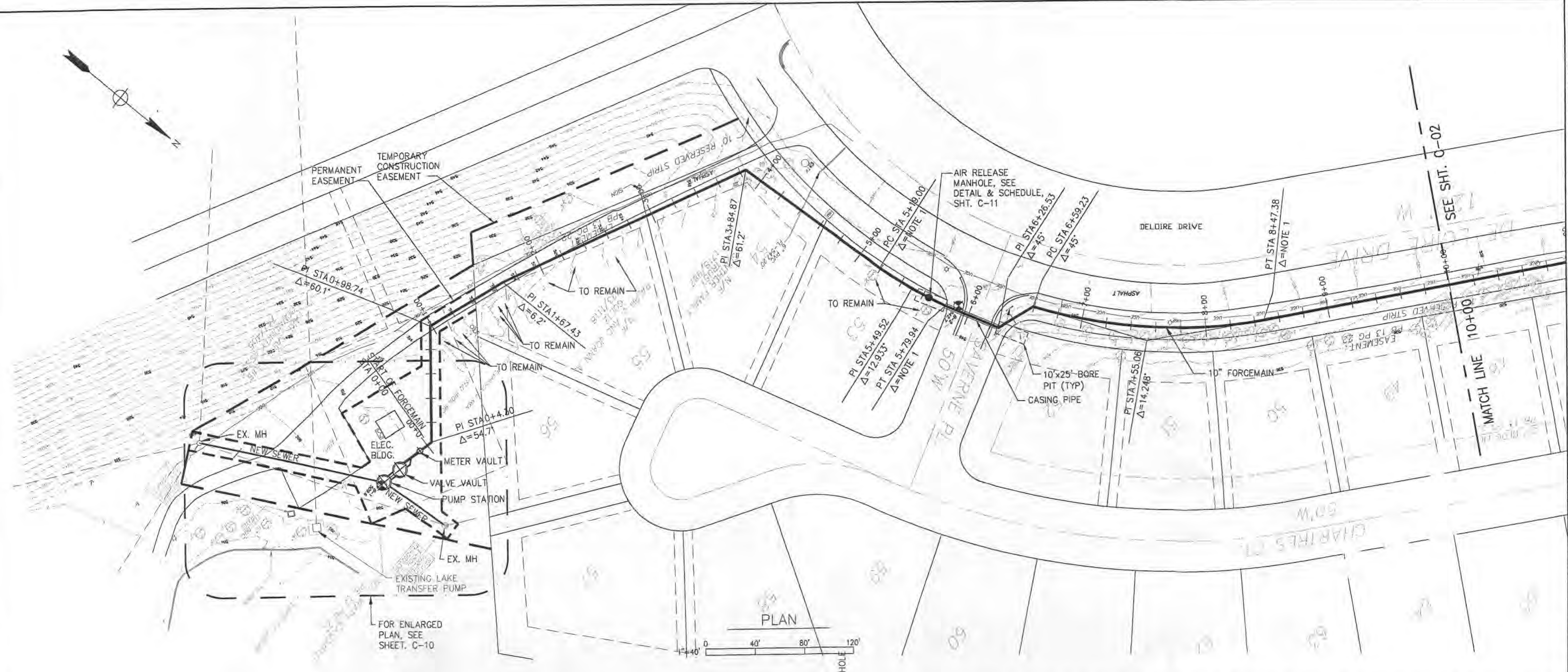


Rev.	Date	Description	Drawn	Checked	Approved	Submitted
0	02/25/05	ISSUED FOR BID AND MODIOR REVIEW				

**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.  
LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN  
WOODLANDS SITE**

**JACOBS**

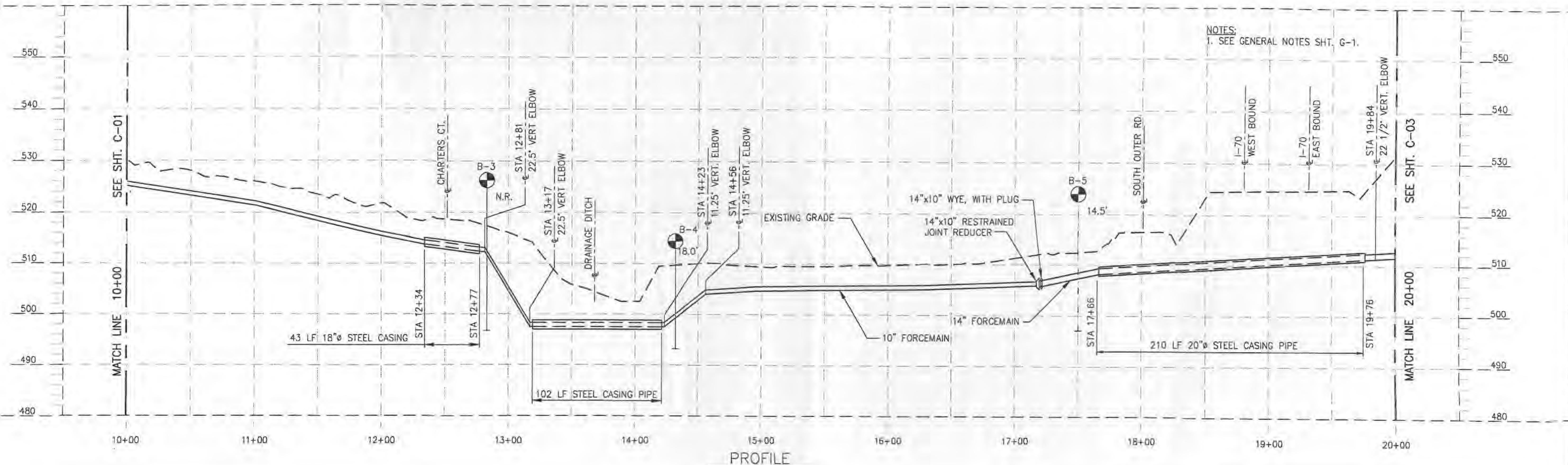
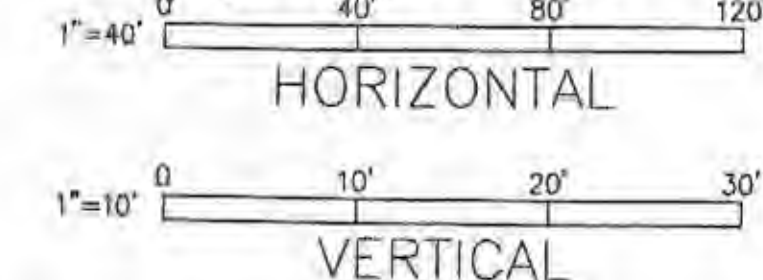
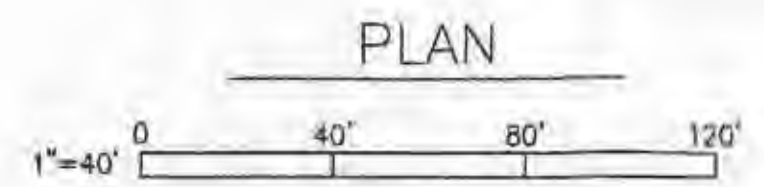
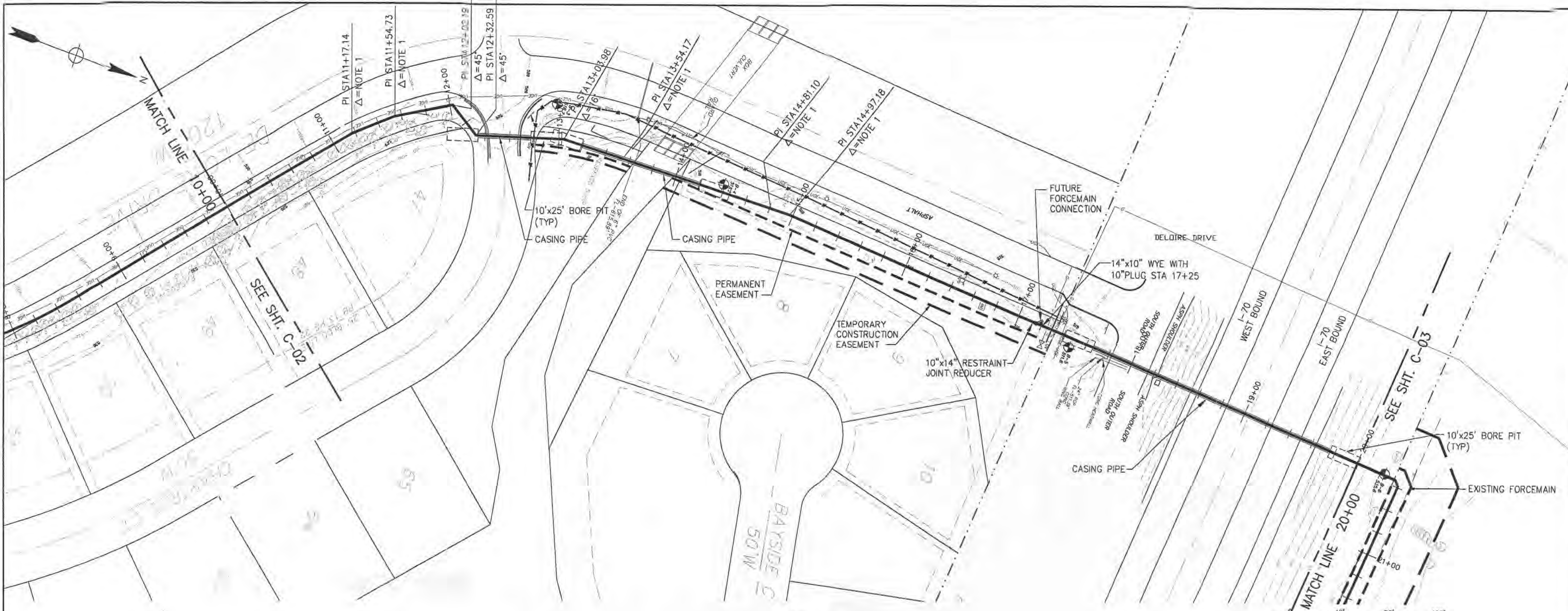
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Date	FEBRUARY 2005	Designed	S. KAPPELMANN
Drawn	J.J. WINKELMANN	Checked	S. FAHNESTOCK
Approved		Submitted	
Drawing Number		C-01	



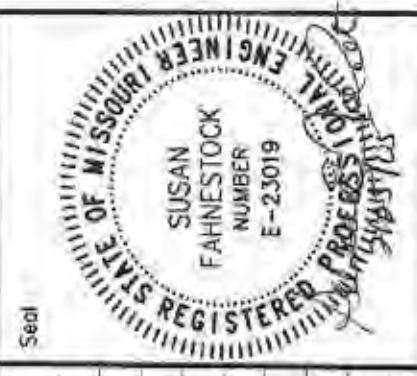
NOTES:  
1. SEE GENERAL NOTES SHT. G-1.

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NOTES:  
1. SEE GENERAL NOTES SHT. G-1.



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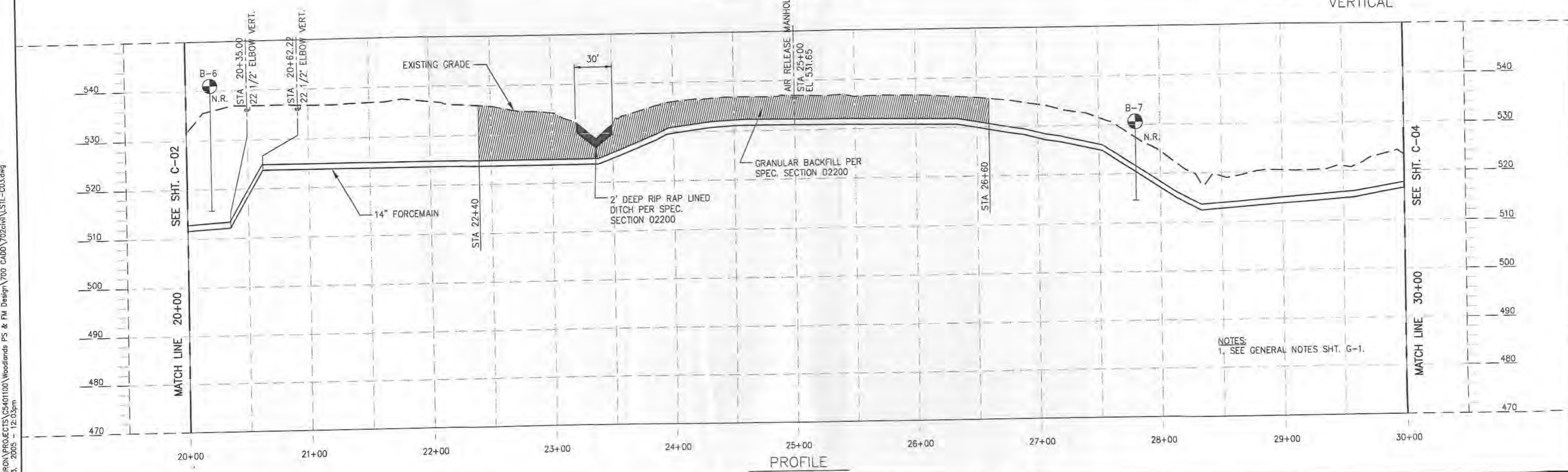
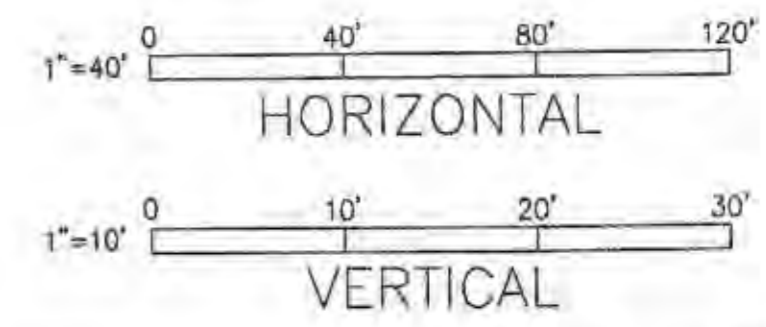
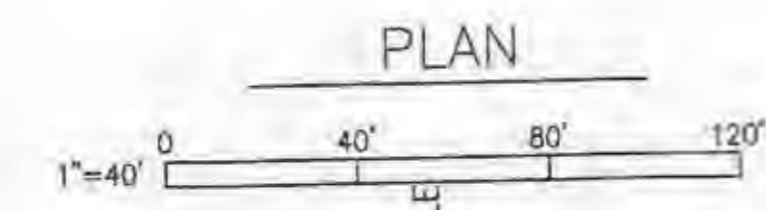
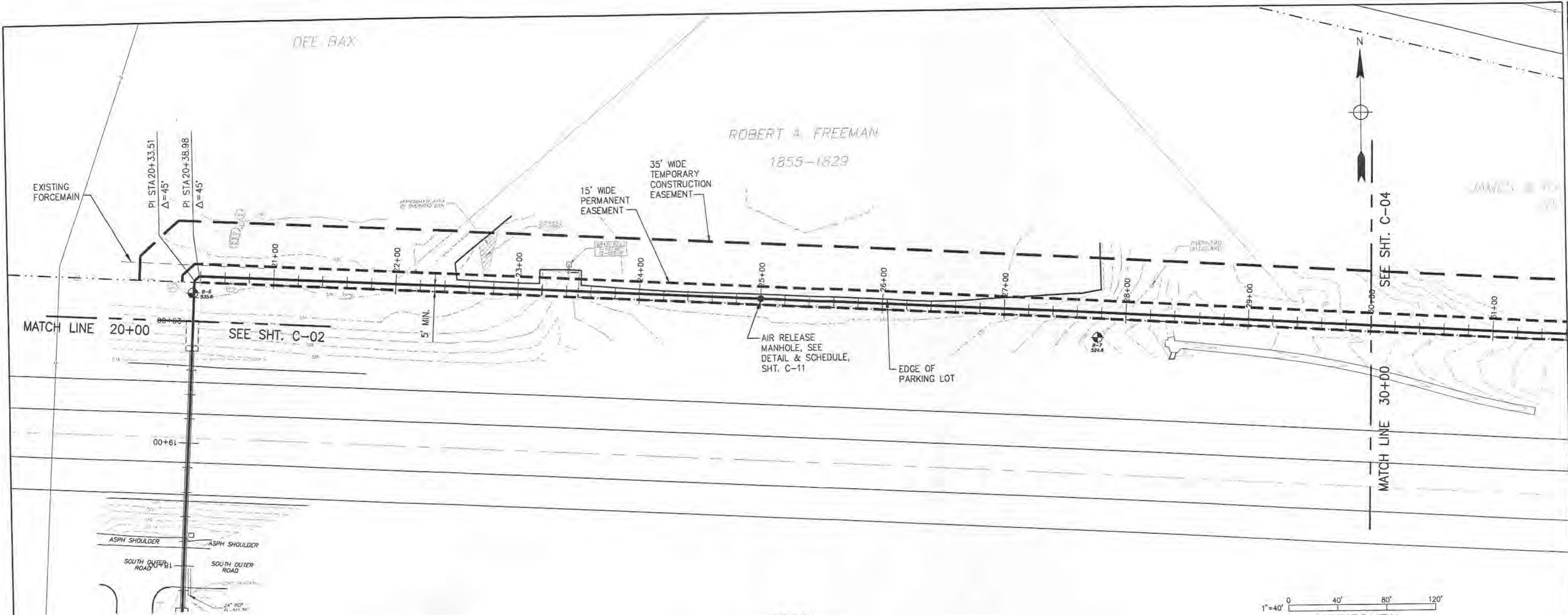
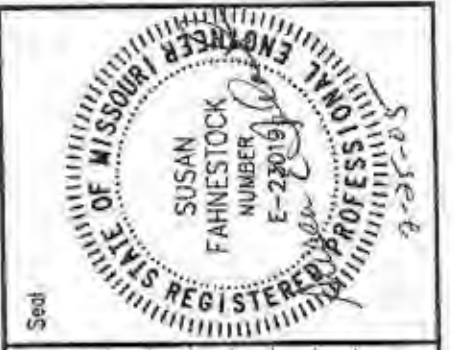
**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**

Title		10" & 14" FORCEMAIN PLAN & PROFILE STA. 10+00 TO STA 20+00
Date	FEBRUARY 2005	
Designed	S.KAPPELMANN	
Drawn	J.J.WINKELMANN	
Checked	S.FAHNESTOCK	
Approved		
Submitted		
Drawing Number	C-02	

**C-02**

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 Mar 03, 2005 - 12:03pm





NOTES:  
1. SEE GENERAL NOTES SHT. G-1.

Rev.	Date	Description	Drawn	Checked	Approved	Submitted
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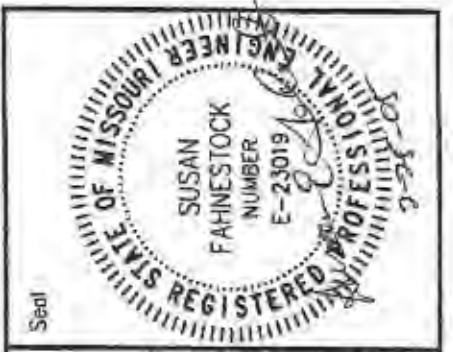
**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**  
**JACOBS**

Title	14" FORCEMAIN PLAN & PROFILE STA. 20+00 TO STA. 30+00
Date	FEBRUARY 2005
Designed	S.KAPPELMANN
Drawn	J.J.WINKELMANN
Checked	S.FAHNESTOCK
Approved	
Submitted	
Drawing Number	

**C-03**

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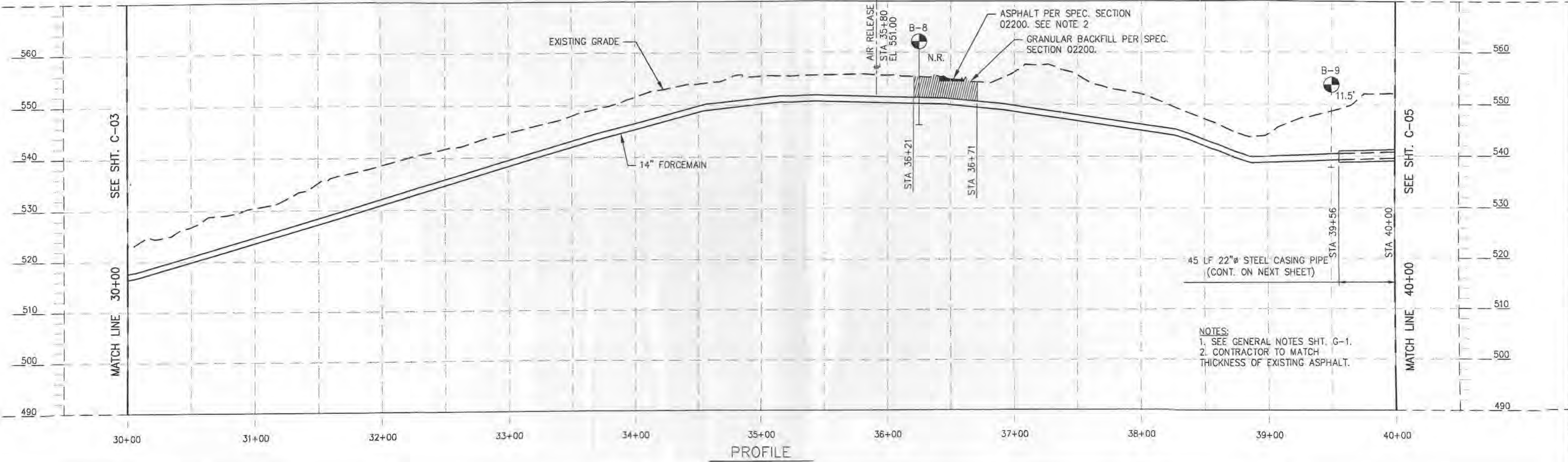
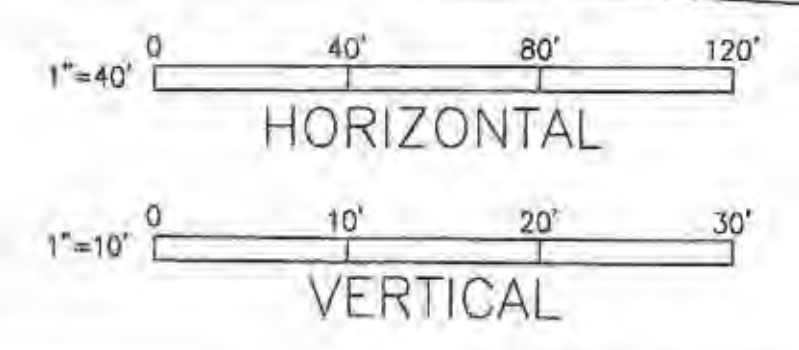
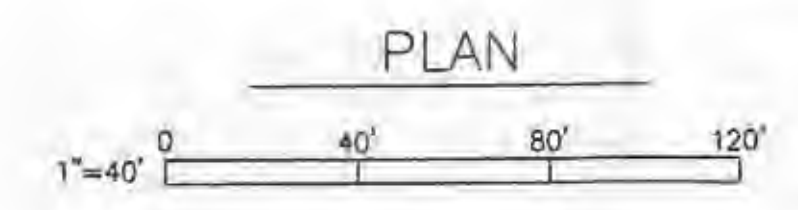
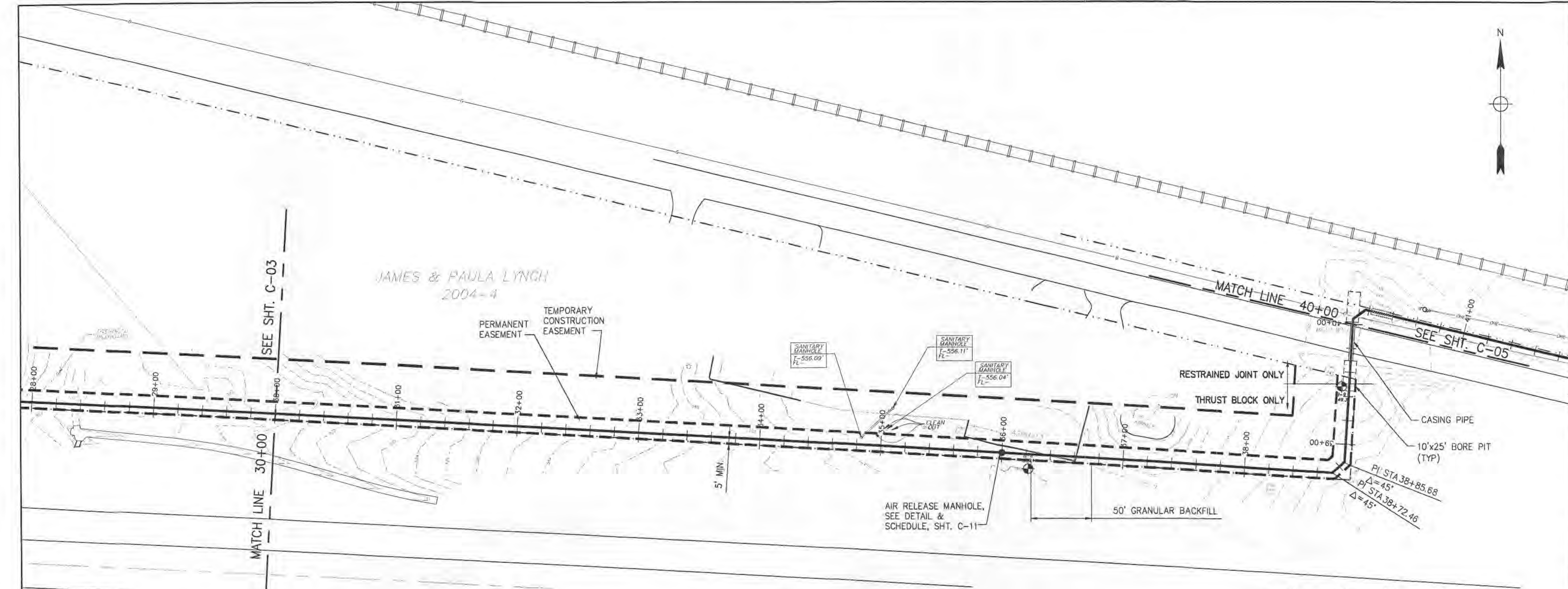


Rev.	Date	Description
0	02/25/05	ISSUED FOR BID AND OWNER REVIEW

**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**  
**JACOBS**

Title	
14" FORCEMAIN PLAN & PROFILE STA. 30+00 TO STA. 40+00	
Date	FEBRUARY 2005
Designed	S.KAPPELMANN
Drawn	J.J. WINKELMANN
Checked	S.FAHNESTOCK
Approved	
Submitted	
Drawing Number	

**C-04**



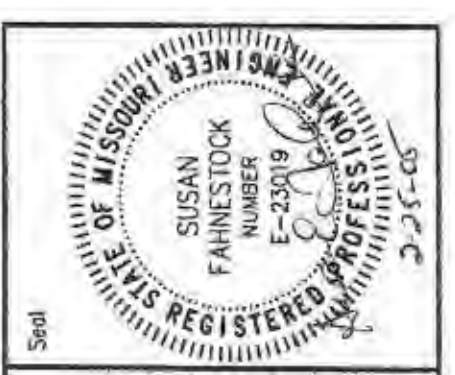
NOTES:  
 1. SEE GENERAL NOTES SHT. G-1.  
 2. CONTRACTOR TO MATCH THICKNESS OF EXISTING ASPHALT.

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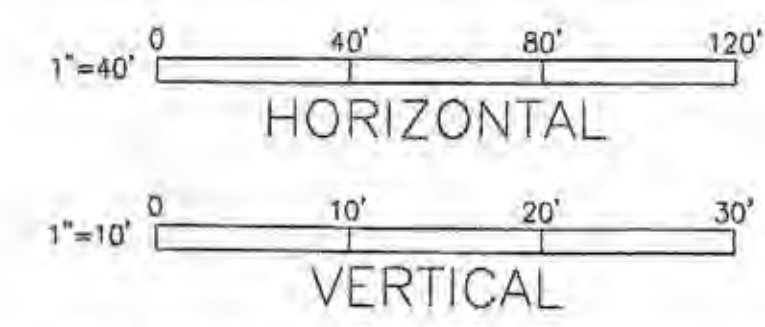
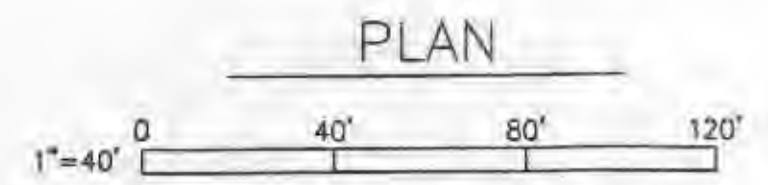
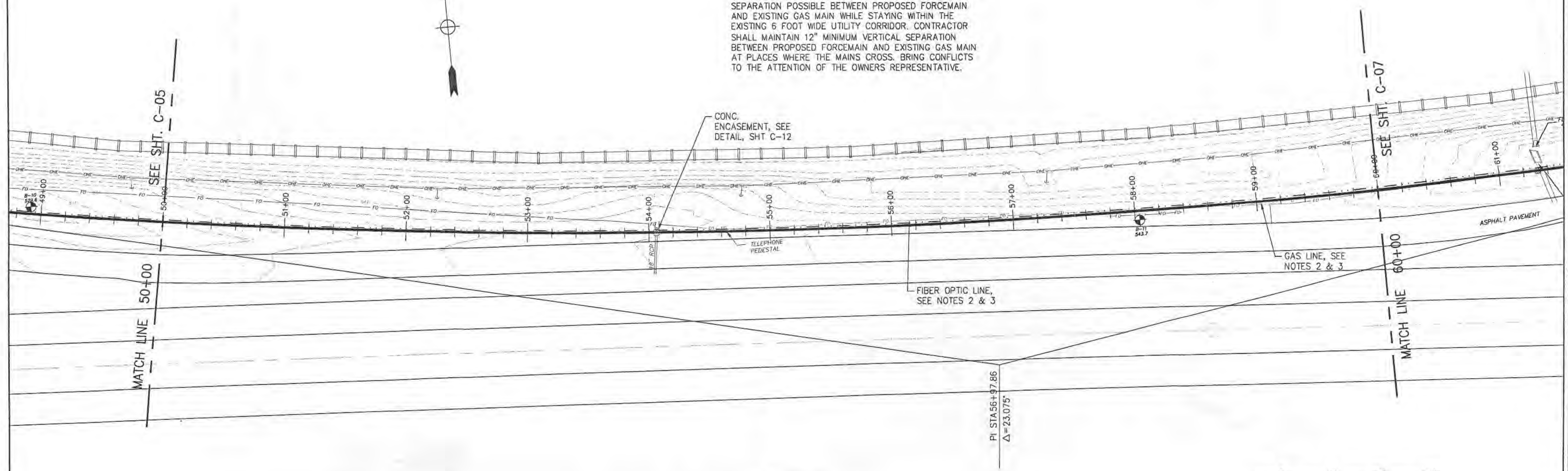




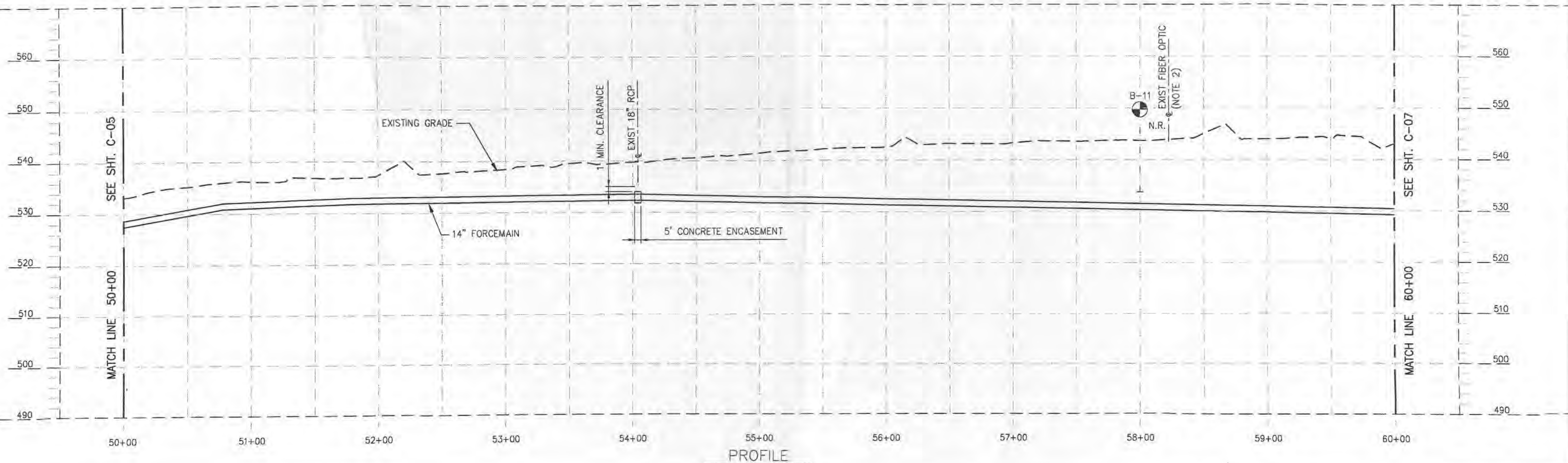




- NOTES:**
- SEE GENERAL NOTES SHT. G-1.
  - GAS LINE IS 12" STEEL SUPPLY FEED (WITH FIBER OPTIC IN 2" PLASTIC CONDUIT). LOCATION BASED ON LACLEDE GAS RECORD INFORMATION AT TIME OF INSTALLATION. CONTRACTOR TO FIELD VERIFY LOCATION AND PROTECT OF ALL UTILITIES WITHIN AND ADJACENT TO EXISTING MODOT UTILITY CORRIDOR DURING CONSTRUCTION ACTIVITIES.
  - CONTRACTOR SHALL MAINTAIN MAXIMUM HORIZONTAL SEPARATION POSSIBLE BETWEEN PROPOSED FORCEMAIN AND EXISTING GAS MAIN WHILE STAYING WITHIN THE EXISTING 6 FOOT WIDE UTILITY CORRIDOR. CONTRACTOR SHALL MAINTAIN 12" MINIMUM VERTICAL SEPARATION BETWEEN PROPOSED FORCEMAIN AND EXISTING GAS MAIN AT PLACES WHERE THE MAINS CROSS. BRING CONFLICTS TO THE ATTENTION OF THE OWNERS REPRESENTATIVE.



PLAN



PROFILE

Rev.	Date	Description
0	02/25/05	ISSUED FOR BID AND WORK REVIEW

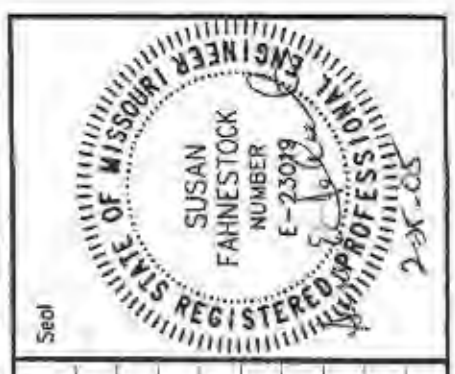
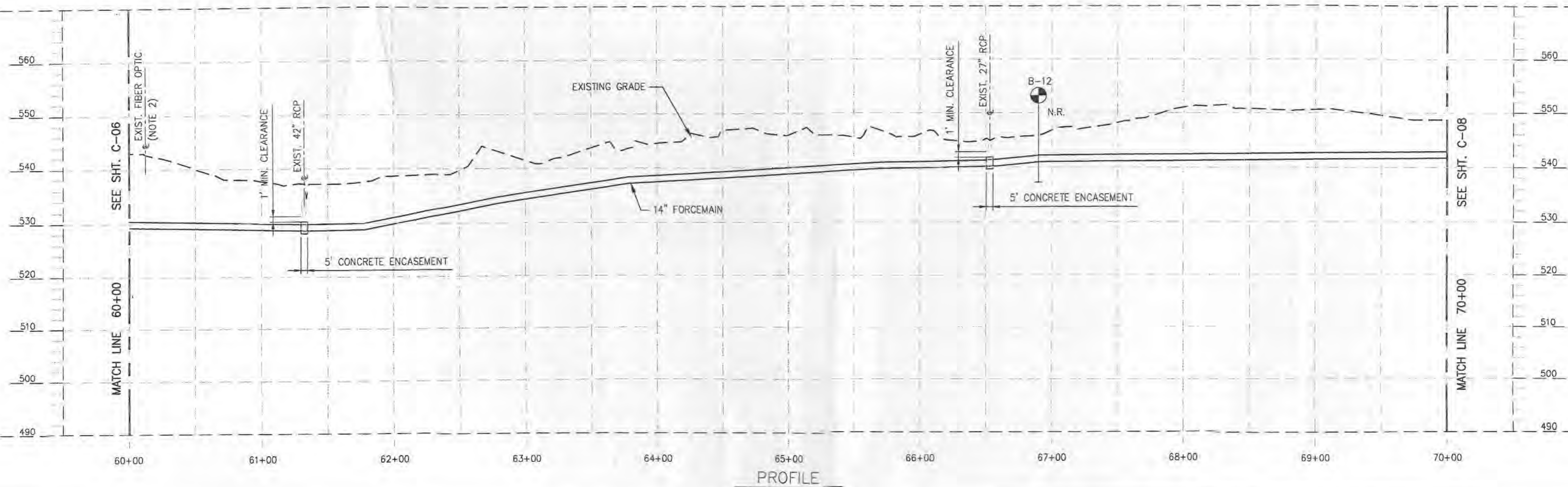
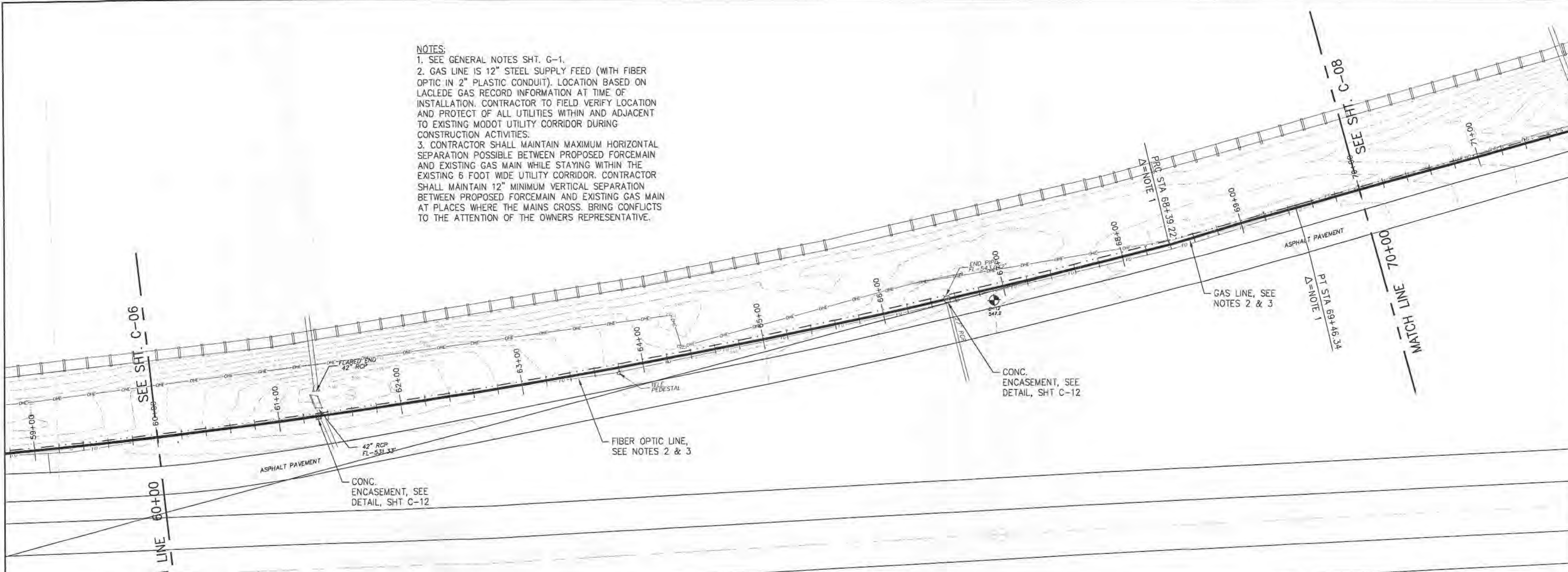
**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**

Title	
14" FORCEMAIN PLAN & PROFILE STA. 50+00 TO STA. 60+00	
Dpts	FEBRUARY 2005
Designed	S.KAPPELMANN
Drawn	J.J. WINKELMANN
Checked	S.FAHNESTOCK
Approved	
Submitted	
Drawing Number	

**C-06**



- NOTES:
1. SEE GENERAL NOTES SHT. G-1.
  2. GAS LINE IS 12" STEEL SUPPLY FEED (WITH FIBER OPTIC IN 2" PLASTIC CONDUIT). LOCATION BASED ON LACLEDE GAS RECORD INFORMATION AT TIME OF INSTALLATION. CONTRACTOR TO FIELD VERIFY LOCATION AND PROTECT OF ALL UTILITIES WITHIN AND ADJACENT TO EXISTING MODOT UTILITY CORRIDOR DURING CONSTRUCTION ACTIVITIES.
  3. CONTRACTOR SHALL MAINTAIN MAXIMUM HORIZONTAL SEPARATION POSSIBLE BETWEEN PROPOSED FORCEMAIN AND EXISTING GAS MAIN WHILE STAYING WITHIN THE EXISTING 6 FOOT WIDE UTILITY CORRIDOR. CONTRACTOR SHALL MAINTAIN 12" MINIMUM VERTICAL SEPARATION BETWEEN PROPOSED FORCEMAIN AND EXISTING GAS MAIN AT PLACES WHERE THE MAINS CROSS. BRING CONFLICTS TO THE ATTENTION OF THE OWNERS REPRESENTATIVE.



Rev.	Date	Description	Drawn	Checked	Approved	Submitted
0	02/25/05	ISSUED FOR BID AND MODR REVIEW				

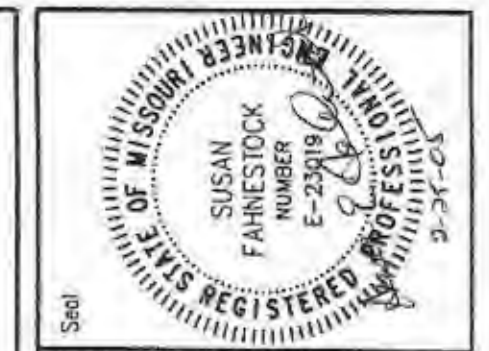
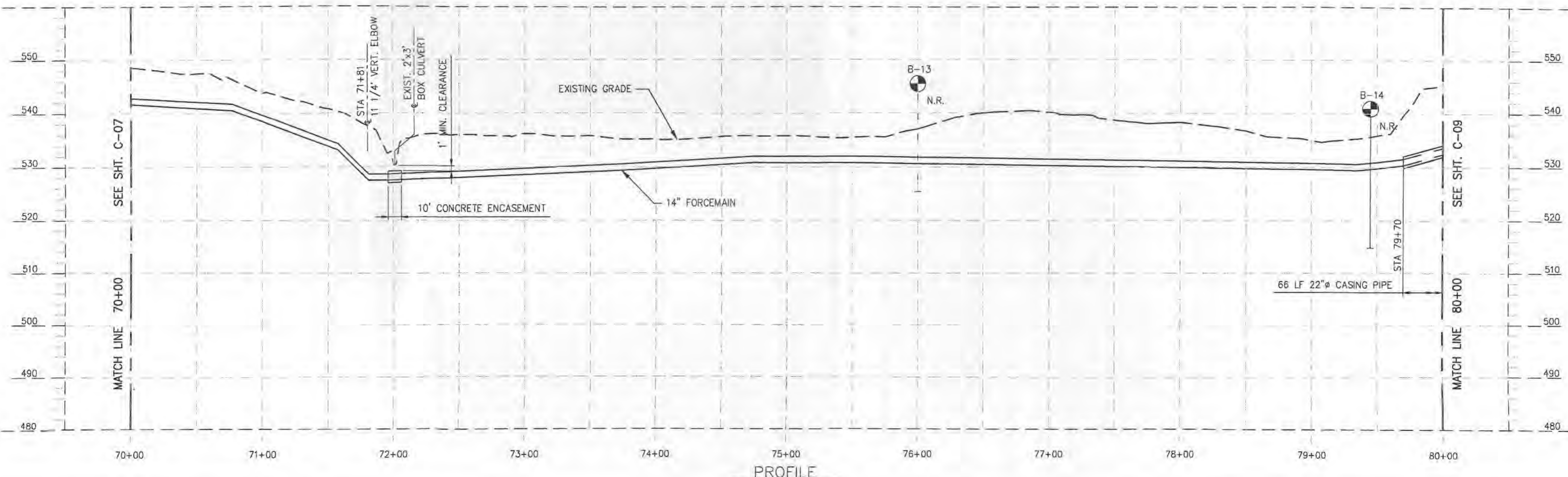
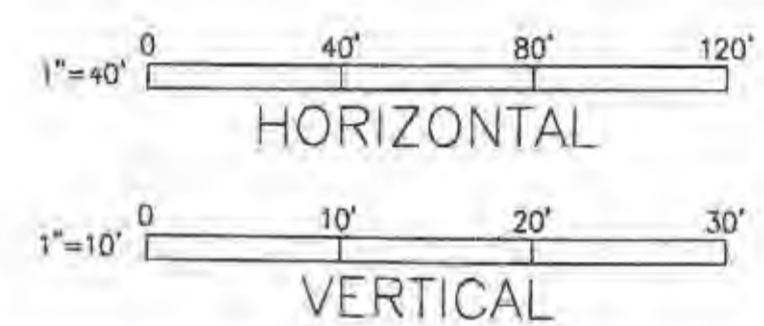
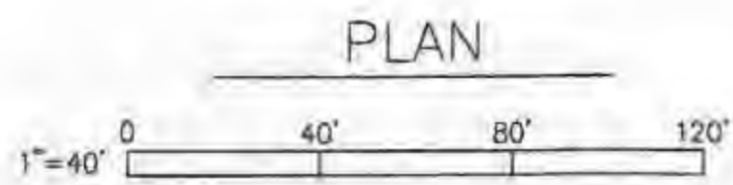
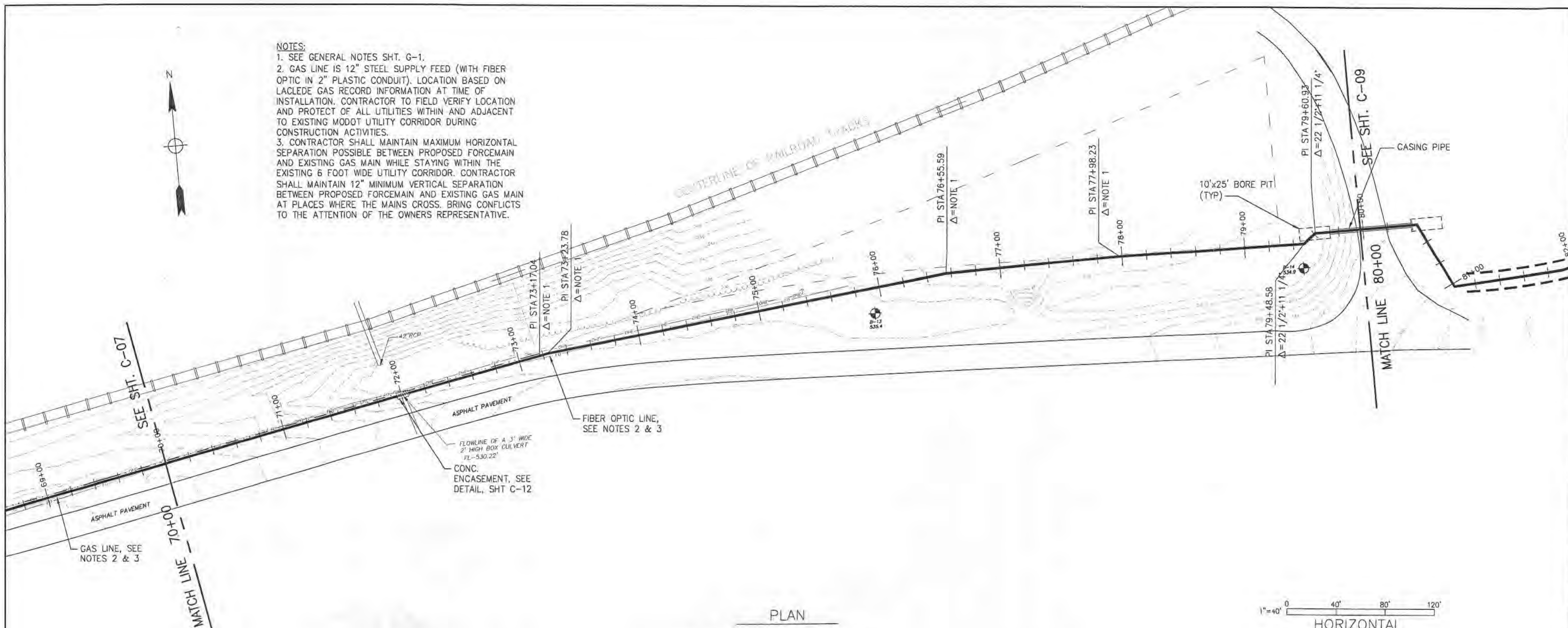
**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**  
**JACOBS**

<b>Title</b> 14" FORCEMAIN PLAN & PROFILE STA. 60+00 TO STA. 70+00	
<b>Date</b>	FEBRUARY 2005
<b>Designed</b>	S.KAPPELMANN
<b>Drawn</b>	J.J. WINKELMANN
<b>Checked</b>	S.FAHNESTOCK
<b>Approved</b>	
<b>Submitted</b>	
<b>Drawing Number</b>	

**C-07**



- NOTES:  
 1. SEE GENERAL NOTES SHT. G-1.  
 2. GAS LINE IS 12" STEEL SUPPLY FEED (WITH FIBER OPTIC IN 2" PLASTIC CONDUIT). LOCATION BASED ON LACLEDE GAS RECORD INFORMATION AT TIME OF INSTALLATION. CONTRACTOR TO FIELD VERIFY LOCATION AND PROTECT OF ALL UTILITIES WITHIN AND ADJACENT TO EXISTING MODOT UTILITY CORRIDOR DURING CONSTRUCTION ACTIVITIES.  
 3. CONTRACTOR SHALL MAINTAIN MAXIMUM HORIZONTAL SEPARATION POSSIBLE BETWEEN PROPOSED FORCEMAIN AND EXISTING GAS MAIN WHILE STAYING WITHIN THE EXISTING 6 FOOT WIDE UTILITY CORRIDOR. CONTRACTOR SHALL MAINTAIN 12" MINIMUM VERTICAL SEPARATION BETWEEN PROPOSED FORCEMAIN AND EXISTING GAS MAIN AT PLACES WHERE THE MAINS CROSS. BRING CONFLICTS TO THE ATTENTION OF THE OWNERS REPRESENTATIVE.



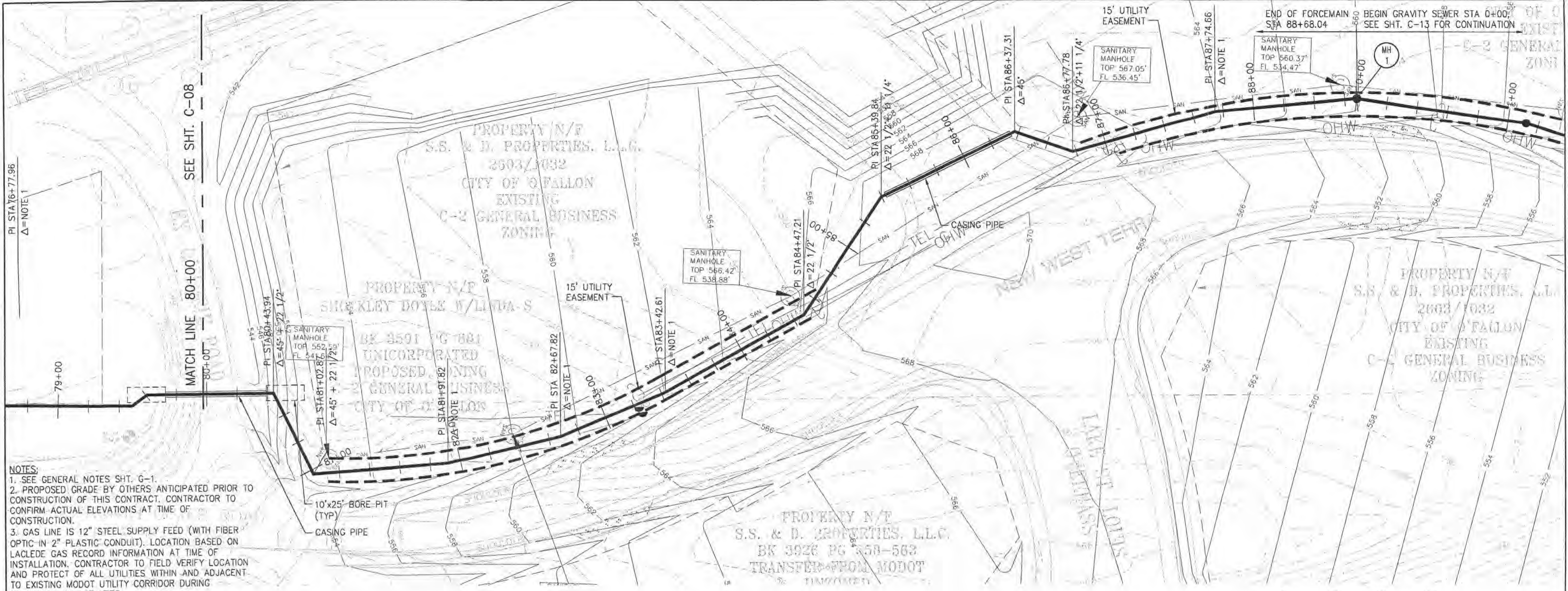
Rev.	Date	Description	Drawn	Checked	Approved	Submitted
0	02/25/05	ISSUED FOR BID AND AWARD REVIEW				

**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**  
**JACOBS**

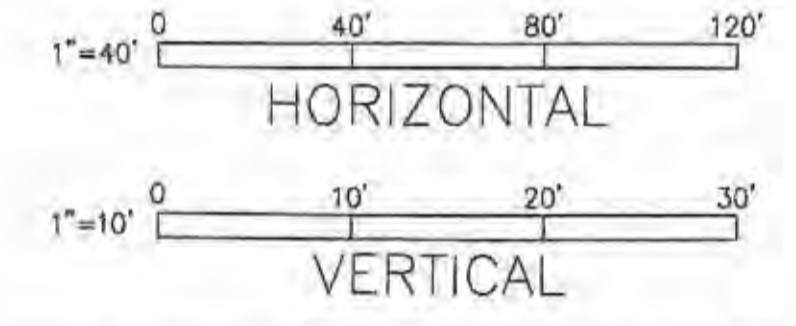
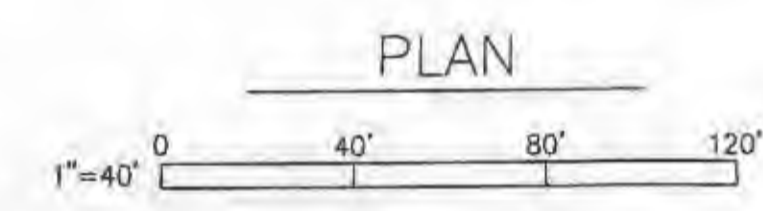
Title	
14" FORCEMAIN PLAN & PROFILE STA. 70+00 TO STA. 80+00	
Date	FEBRUARY 2005
Designed	S.KAPPELMANN
Drawn	J.J. WINKELMANN
Checked	S.FAHNESTOCK
Approved	
Submitted	
Drawing Number	

**C-08**





- NOTES:**
1. SEE GENERAL NOTES SHT. G-1.
  2. PROPOSED GRADE BY OTHERS ANTICIPATED PRIOR TO CONSTRUCTION OF THIS CONTRACT. CONTRACTOR TO CONFIRM ACTUAL ELEVATIONS AT TIME OF CONSTRUCTION.
  3. GAS LINE IS 12" STEEL SUPPLY FEED (WITH FIBER OPTIC-IN 2" PLASTIC CONDUIT). LOCATION BASED ON LALEDE GAS RECORD INFORMATION AT TIME OF INSTALLATION. CONTRACTOR TO FIELD VERIFY LOCATION AND PROTECT OF ALL UTILITIES WITHIN AND ADJACENT TO EXISTING MODOT UTILITY CORRIDOR DURING CONSTRUCTION ACTIVITIES.
  4. CONTRACTOR SHALL MAINTAIN MAXIMUM HORIZONTAL SEPARATION POSSIBLE BETWEEN PROPOSED FORCEMAIN AND EXISTING GAS MAIN WHILE STAYING WITHIN THE EXISTING 15 FOOT WIDE UTILITY EASEMENT. CONTRACTOR SHALL MAINTAIN 12" MINIMUM VERTICAL SEPARATION BETWEEN PROPOSED FORCEMAIN AND EXISTING GAS MAIN AT PLACES WHERE THE MAINS CROSS. BRING CONFLICTS TO THE ATTENTION OF THE OWNERS REPRESENTATIVE.



PROFILE



Rev	Date	Description
0	02/25/05	ISSUED FOR BID AND MODOR REVIEW

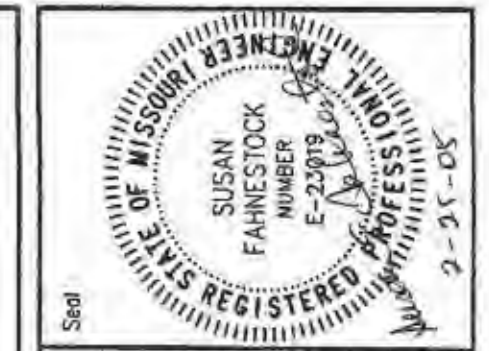
**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**  
**JACOBS**

Date	Designed	Drawn	Checked	Approved	Submitted	Drawing Number
FEBRUARY 2005	S. KAPPELMANN	J.J. WINKELMANN	S. FAHNESTOCK			

**C-09**

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 Mar 05, 2005 11:56am





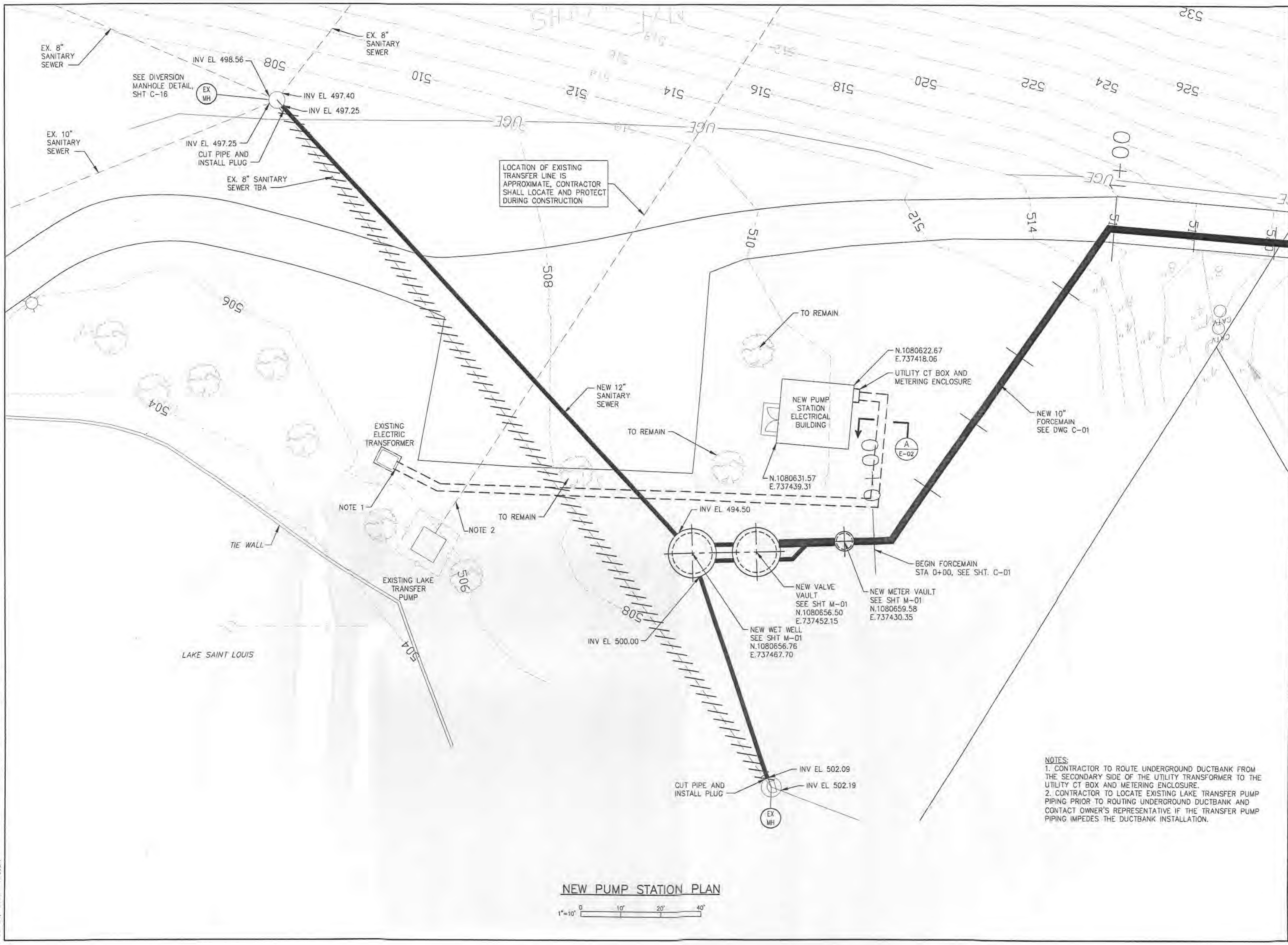
Rev.	Date	Description	Drawn	Checked	Approved	Submitted
0	02/25/05	ISSUED FOR BID AND AWARD REVIEW				

**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**

**JACOBS**

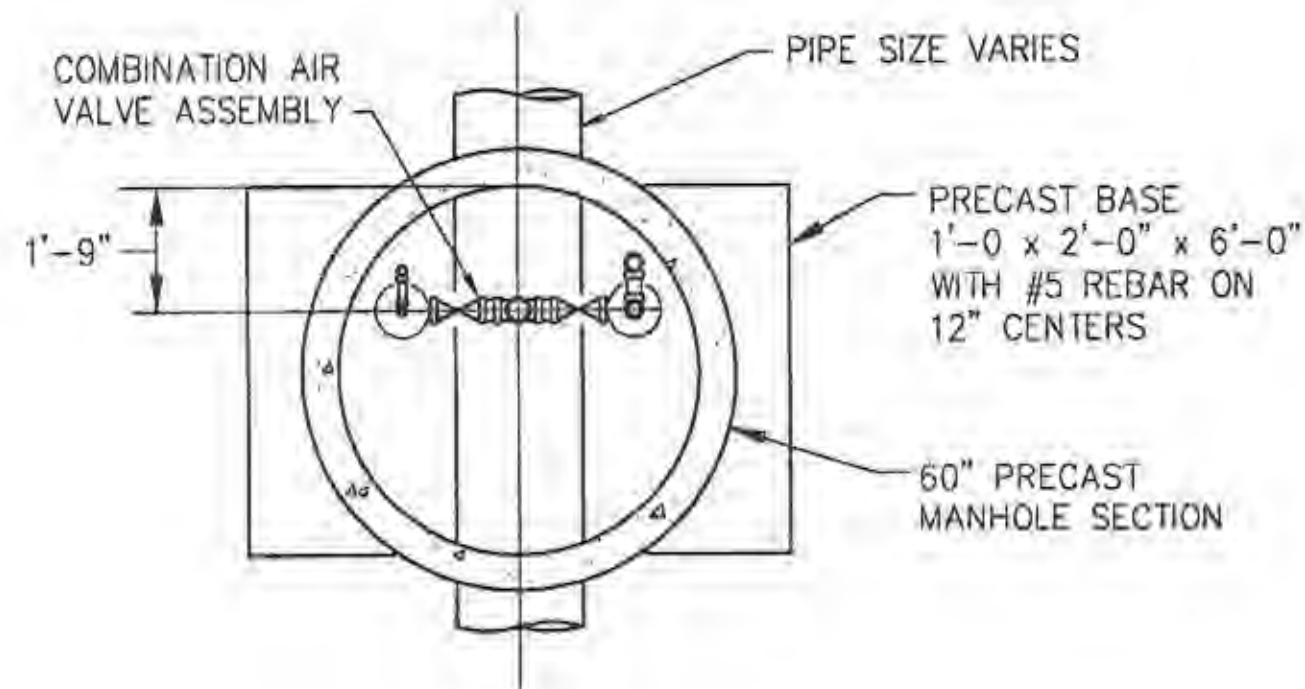
Title	
PUMP STATION SITE LOCATION PLAN	
Date	FEBRUARY 2005
Designed	B.A. SNEED
Drawn	J.J. WINKELMANN
Checked	S. FAHNESTOCK
Approved	
Submitted	
Drawing Number	

**C-10**

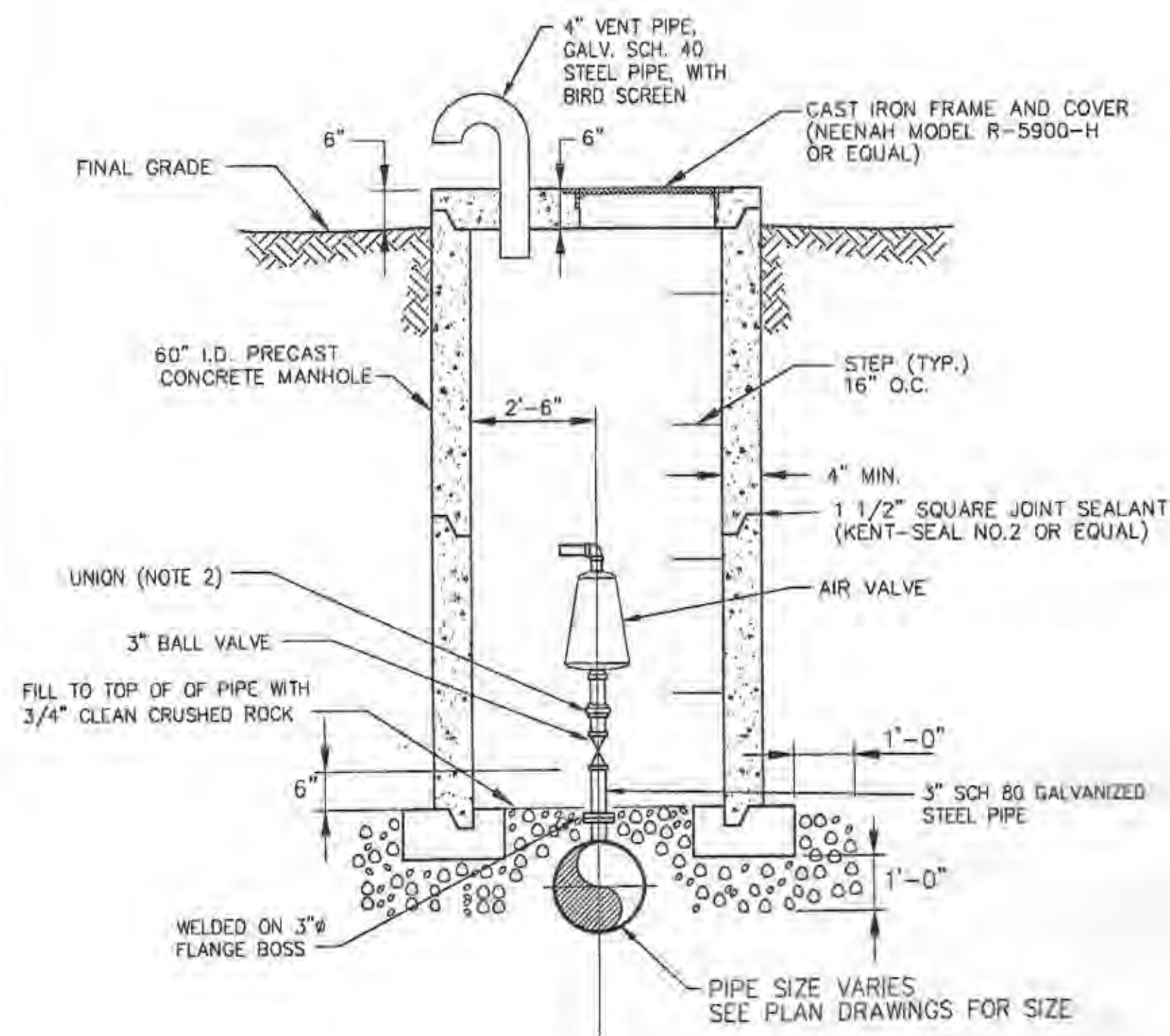


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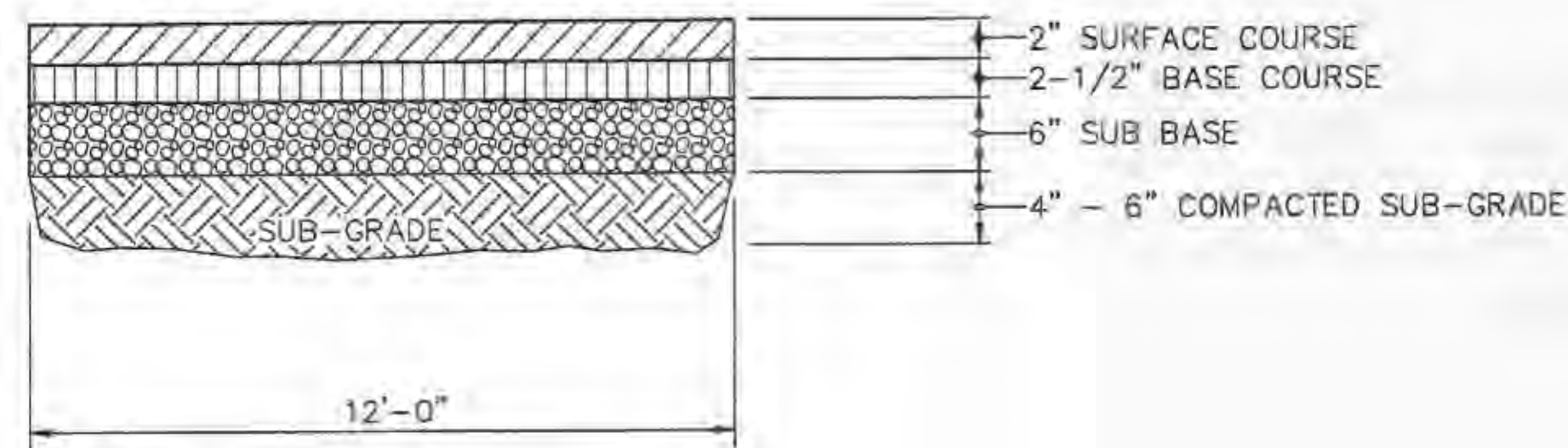




PLAN



ELEVATION  
COMBINATION AIR RELEASE MANHOLE DETAIL  
NOT TO SCALE



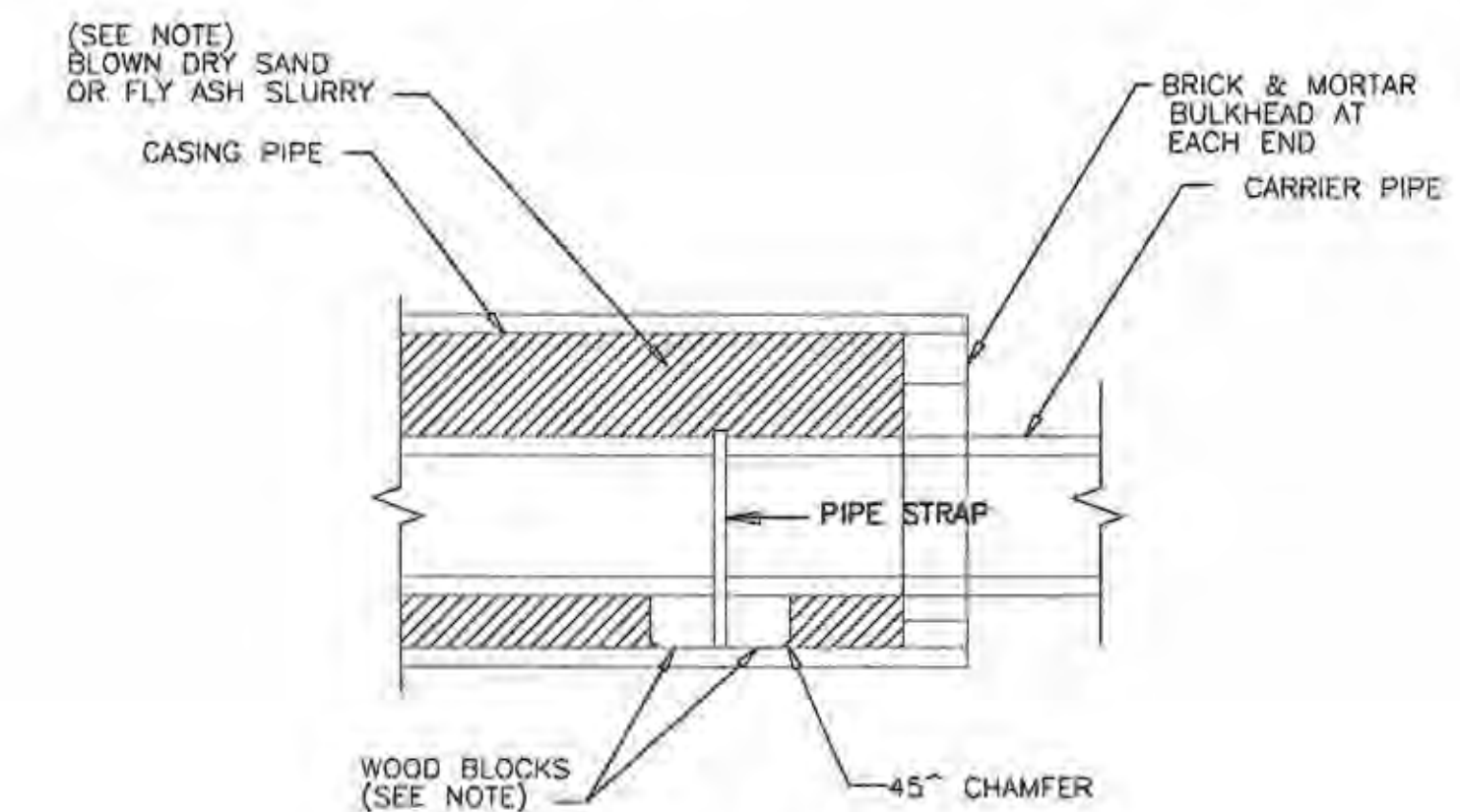
TYPICAL ASPHALT  
CROSS SECTION

NOT TO SCALE

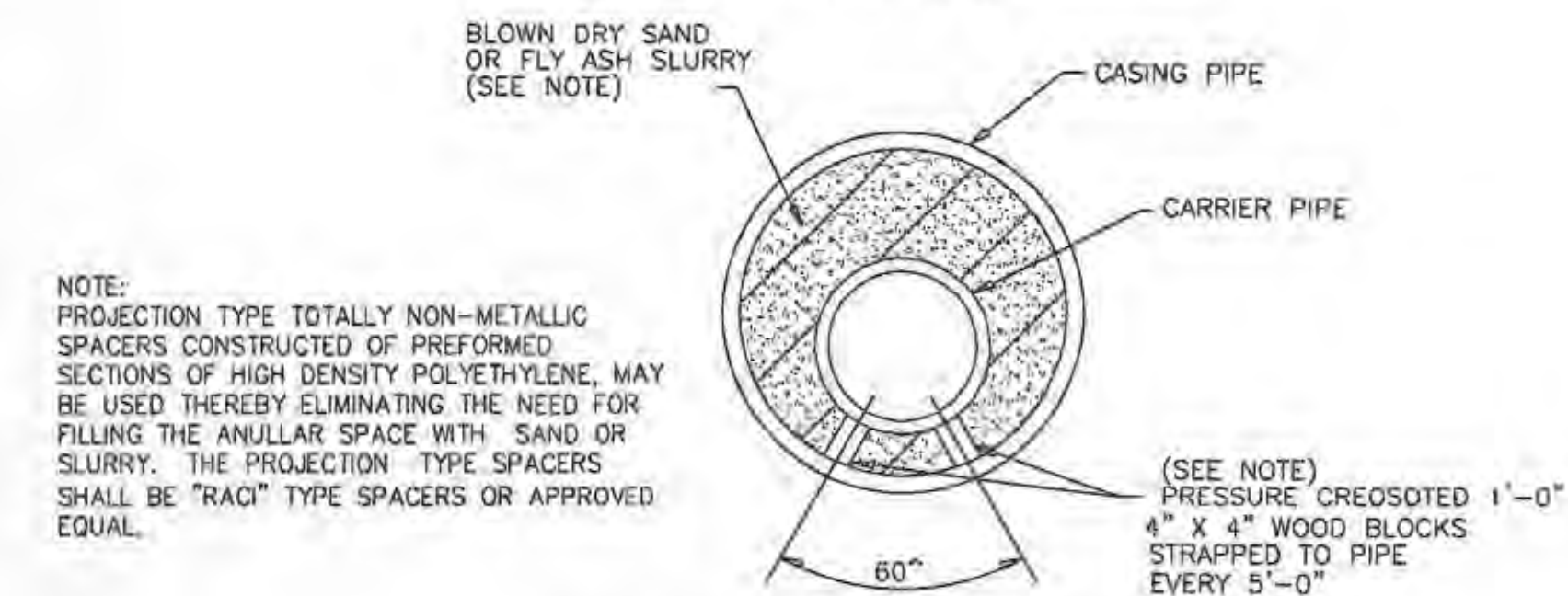
AIR RELEASE VALVE SCHEDULE				
SHEET	STATION	COMBINATION AIR VALVE SIZE (IN.)	AIR RELEASE VALVE SIZE (IN.)	REMARKS
C-01	--	--	2	SEE SPEC. SECTION 02700
C-01	5+65	2		SEE SPEC. SECTION 02700
C-03	25+00	3		SEE SPEC. SECTION 02700
C-04	35+80	3		SEE SPEC. SECTION 02700

NOTES:

1. PROVIDE 12" MINIMUM VERTICAL CLEARANCE BETWEEN TOP OF AIR/VACUUM RELEASE VALVE AND MANHOLE CEILING.
2. UNION FOR THREADED VALVES AND FLANGE FOR FLANGED VALVES.



TYPICAL CASING PROFILE  
NOT TO SCALE



TYPICAL CASING SECTION  
NOT TO SCALE

NOTE:  
PROJECTION TYPE TOTALLY NON-METALLIC SPACERS CONSTRUCTED OF PREFORMED SECTIONS OF HIGH DENSITY POLYETHYLENE, MAY BE USED THEREBY ELIMINATING THE NEED FOR FILLING THE ANNULAR SPACE WITH SAND OR SLURRY. THE PROJECTION TYPE SPACERS SHALL BE "RAC" TYPE SPACERS OR APPROVED EQUAL.



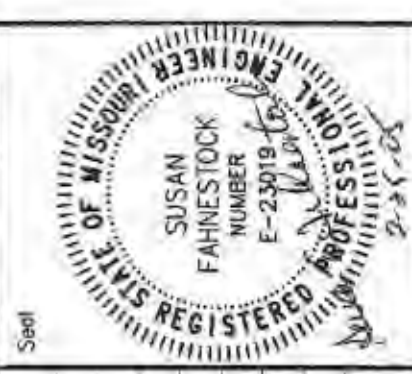
Rev	Date	Description
0	10/25/05	ISSUED FOR BID AND MODER REVIEW

PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.  
LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN  
WOODLANDS SITE  
**JACOBS**

FORCE MAIN TYPICAL DETAILS SHEET 1	
Date	FEBRUARY 2005
Designed	S.KAPPELMANN
Drawn	J.J.WINKELMANN
Checked	S.FAINESTOCK
Approved	
Submitted	
Drawing Number	

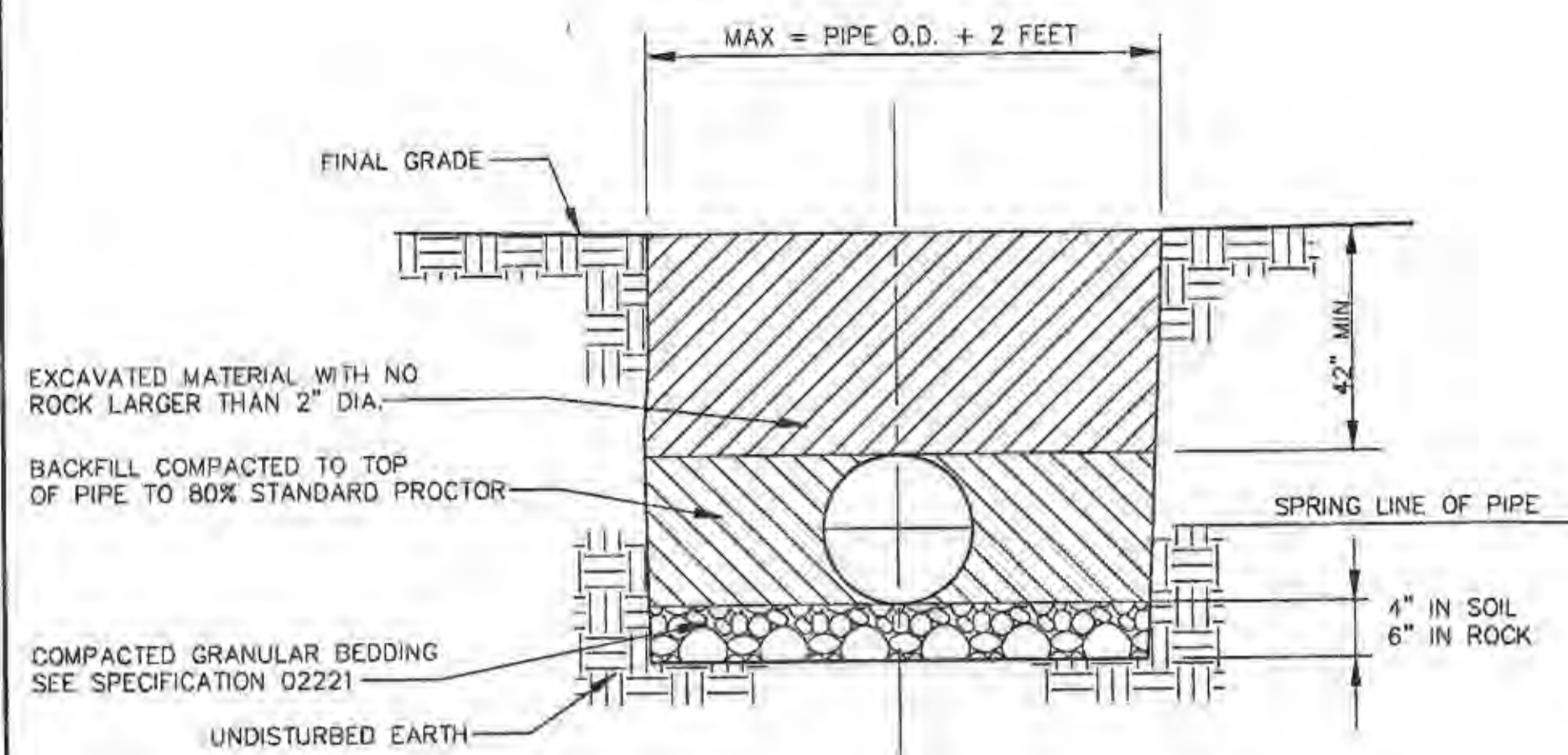
C-11



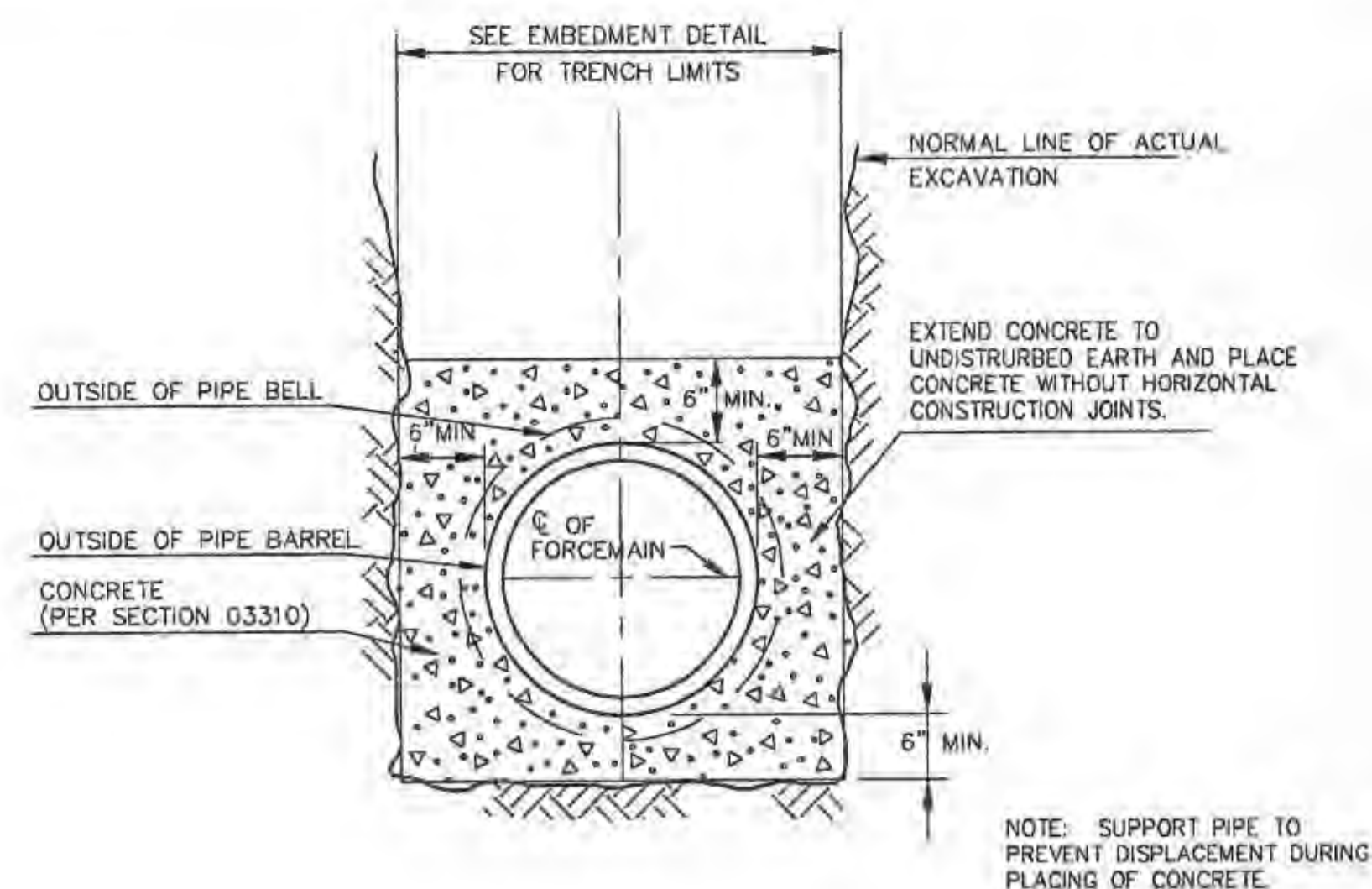


Scale	
Submitted	
Approved	
Checked	
Drawn	
Description	ISSUED FOR BID AND BIDDER REVIEW
Date	02/25/05
Rev.	0

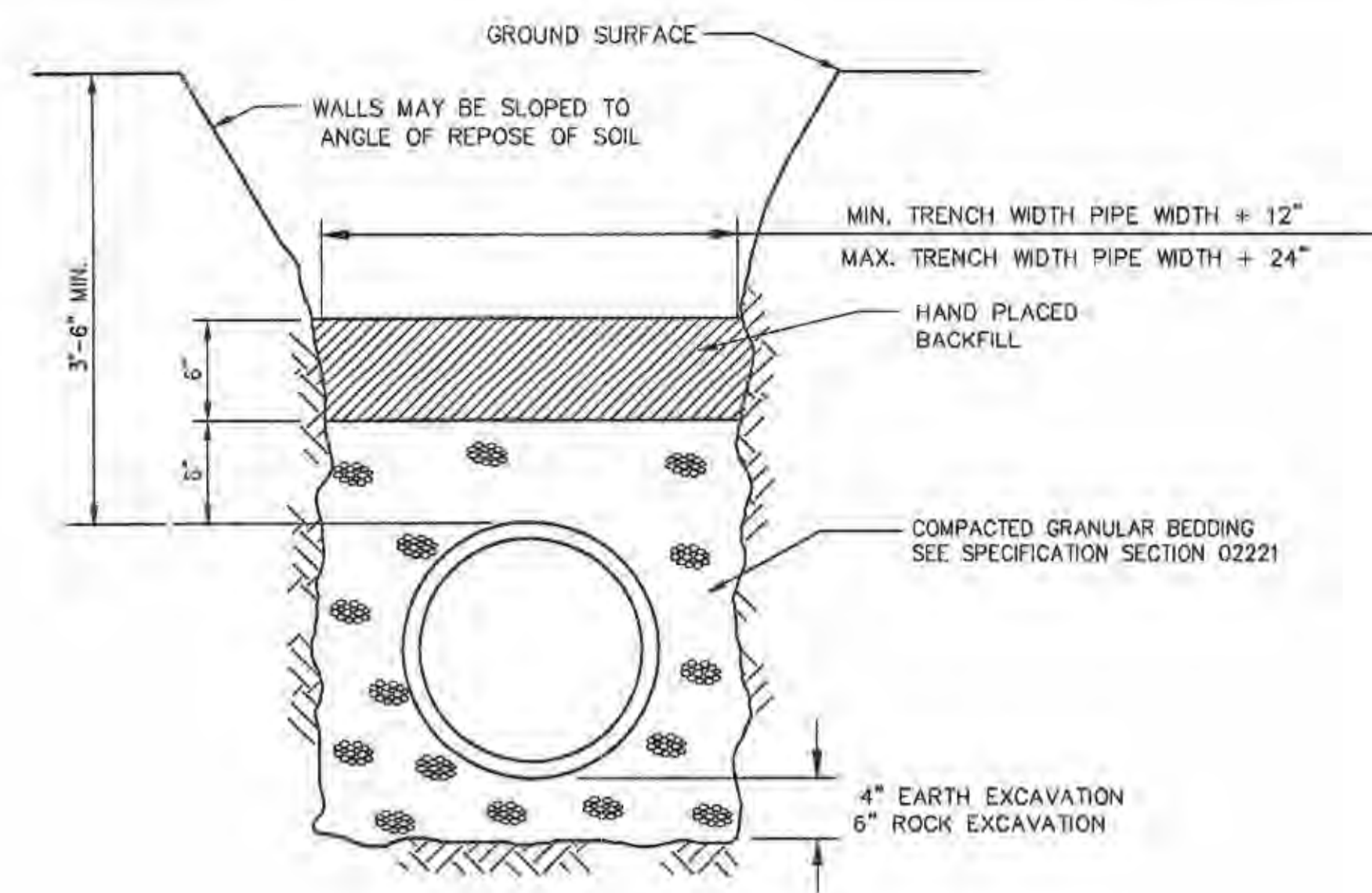
PIPE DIA.	MIN. TRENCH WIDTH
10" - 14"	PIPE DIA. + 12"



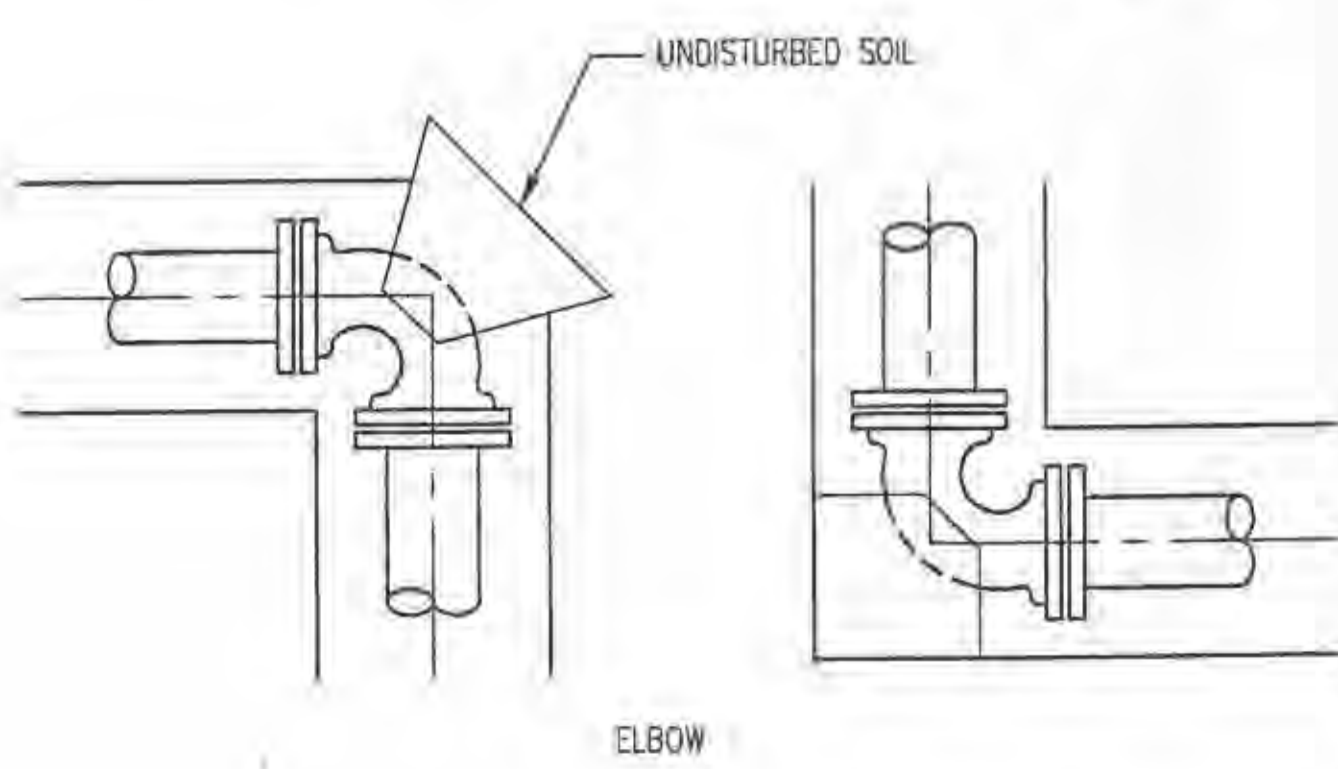
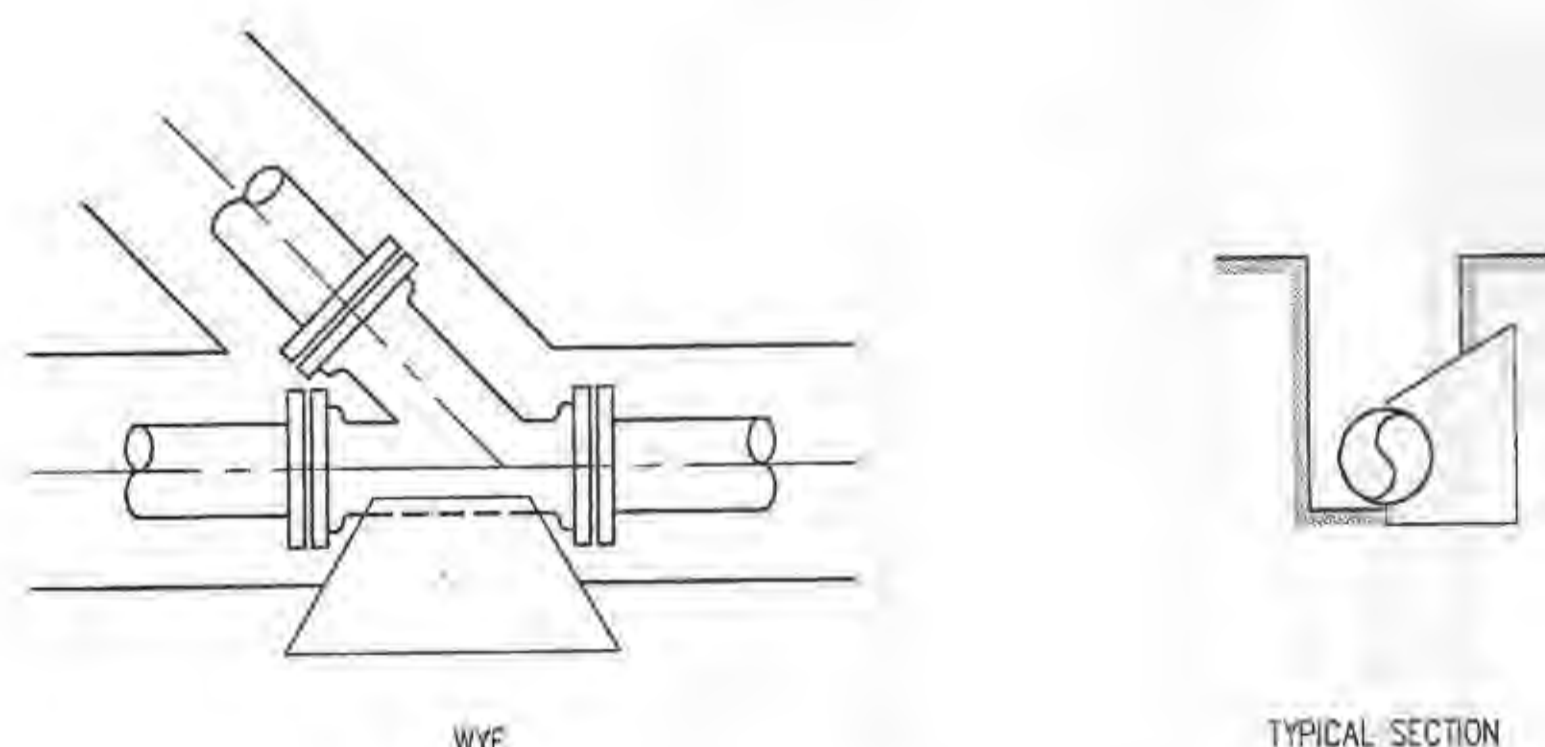
**DUCTILE IRON PIPE EMBEDMENT DETAIL**  
NOT TO SCALE



**CONCRETE ENCASEMENT**  
NOT TO SCALE



**PVC EMBEDMENT DETAIL**  
NOT TO SCALE



**THRUST BLOCK DETAILS**  
NOT TO SCALE

BEARING AREA OF THRUST BLOCKS IN SQ. FT. (HORIZONTAL BENDS)					
FITTINGS DIA.	TEE OR LATERAL	90°	45°	22.5°	11.25°
10"			6.1	3.1	1.6
14"	15.4		11.8	6.0	3.0

VOLUME OF THRUST BLOCK IN CUBIC YARDS (VERTICAL BENDS)				
FITTINGS DIA.	45°	22.5°	11.25°	ROD SIZE
10"	2.5	1.2	0.6	#6
14"	3.6	2.2	1.1	#6

**THRUST BLOCK NOTES**

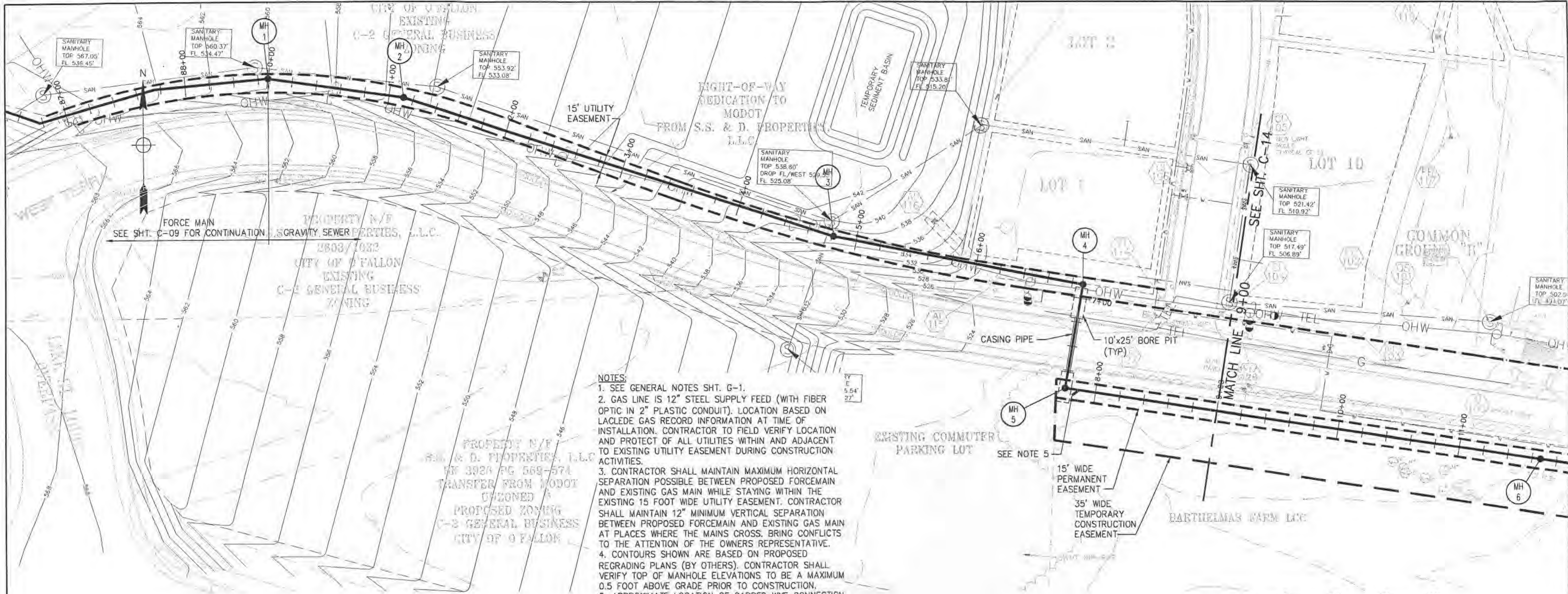
- KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES.
- CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
- THRUST BLOCKS FOR VERTICAL BENDS HAVING DOWNWARD RESULTANT THRUSTS SHALL BE THE SAME AS FOR HORIZONTAL BENDS.
- BEARING AREAS, VOLUMES, AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER THIS STANDARD.
- BEARING AREA OF THRUST BLOCK SHALL NOT BE LESS THAN 1.0 SQ. FT.

**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**  
**JACOBS**

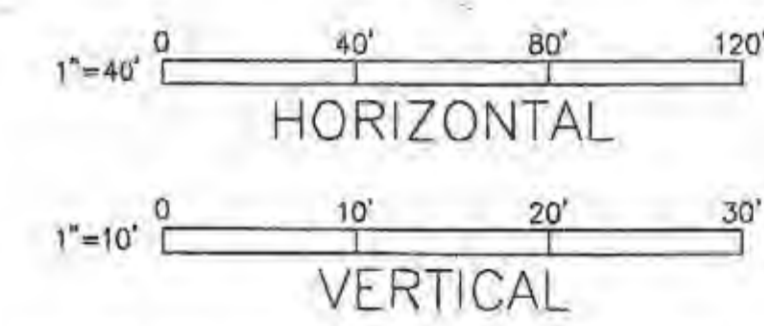
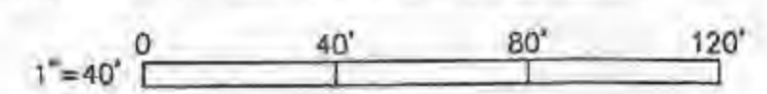
Title	FORCEMAIN TYPICAL DETAILS SHEET 2
Date	FEBRUARY 2005
Design	S.KAPPELMANN
Drawn	J.J.WINKELMANN
Checked	S.FAHNESTOCK
Approved	
Submitted	
Drawing Number	

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Mar 03, 2005 - 11:55am



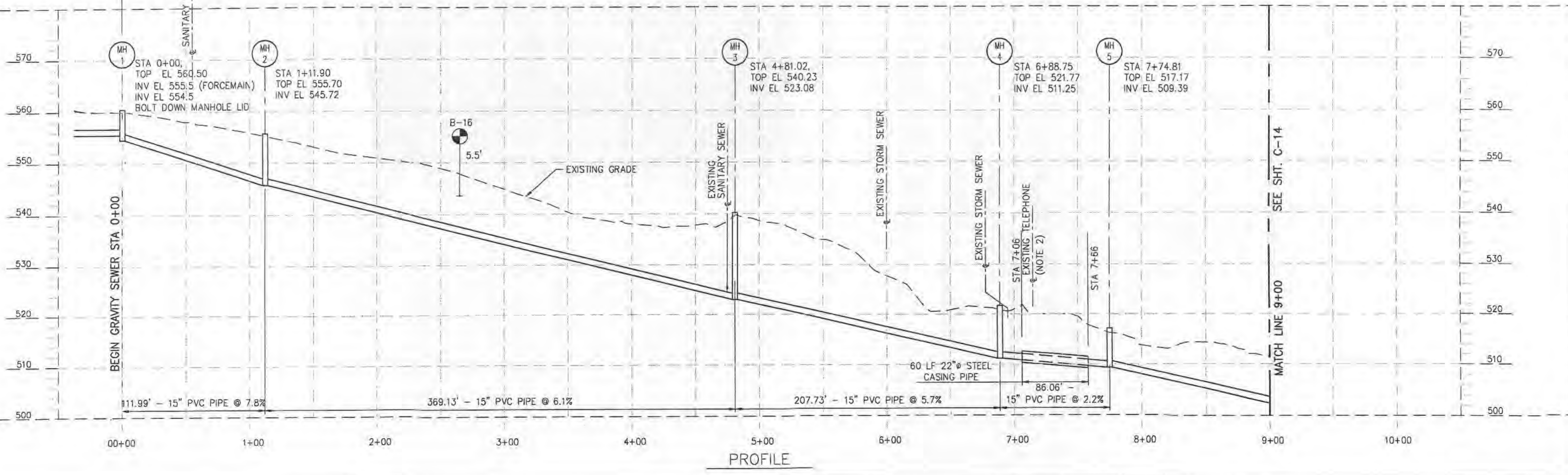


- NOTES:**
1. SEE GENERAL NOTES SHT. G-1.
  2. GAS LINE IS 12" STEEL SUPPLY FEED (WITH FIBER OPTIC IN 2" PLASTIC CONDUIT). LOCATION BASED ON LACLEDE GAS RECORD INFORMATION AT TIME OF INSTALLATION. CONTRACTOR TO FIELD VERIFY LOCATION AND PROTECT OF ALL UTILITIES WITHIN AND ADJACENT TO EXISTING UTILITY EASEMENT DURING CONSTRUCTION ACTIVITIES.
  3. CONTRACTOR SHALL MAINTAIN MAXIMUM HORIZONTAL SEPARATION POSSIBLE BETWEEN PROPOSED FORCEMAIN AND EXISTING GAS MAIN WHILE STAYING WITHIN THE EXISTING 15 FOOT WIDE UTILITY EASEMENT. CONTRACTOR SHALL MAINTAIN 12" MINIMUM VERTICAL SEPARATION BETWEEN PROPOSED FORCEMAIN AND EXISTING GAS MAIN AT PLACES WHERE THE MAINS CROSS. BRING CONFLICTS TO THE ATTENTION OF THE OWNERS REPRESENTATIVE.
  4. CONTOURS SHOWN ARE BASED ON PROPOSED REGRADING PLANS (BY OTHERS). CONTRACTOR SHALL VERIFY TOP OF MANHOLE ELEVATIONS TO BE A MAXIMUM 0.5 FOOT ABOVE GRADE PRIOR TO CONSTRUCTION.
  5. APPROXIMATE LOCATION OF CAPPED WYE CONNECTION FOR FUTURE SERVICE. FINAL LOCATION WILL BE DETERMINED BY THE OWNER AT TIME OF CONSTRUCTION.



FORCE MAIN  
SEE SHT. C-09 FOR CONTINUATION

GRAVITY SEWER



PROFILE

Rev.	Date	Description
0	02/25/05	ISSUED FOR BID AND MOORE REVIEW

**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**

Title	
15" GRAVITY SEWER PLAN & PROFILE STA. 0+00 TO STA. 9+00	
Date	FEBRUARY 2005
Designed	S.KAPPELMANN
Drawn	J.J. WINKELMANN
Checked	S.FAHNESTOCK
Approved	
Submitted	
Drawing Number	

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 Mar. 03, 2005 - 11:55am







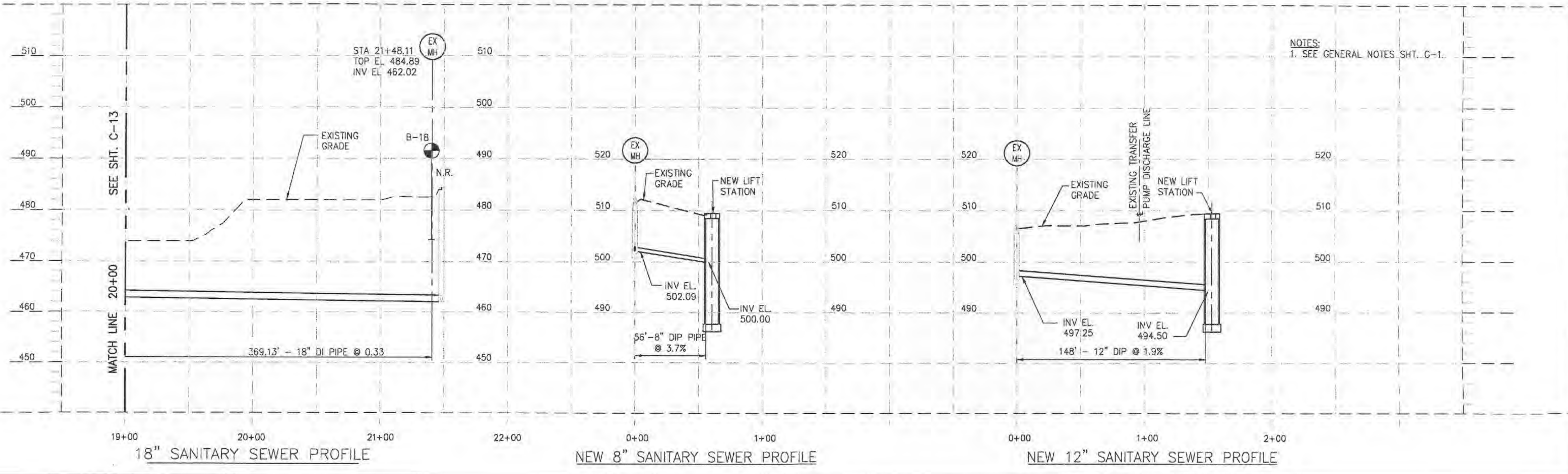
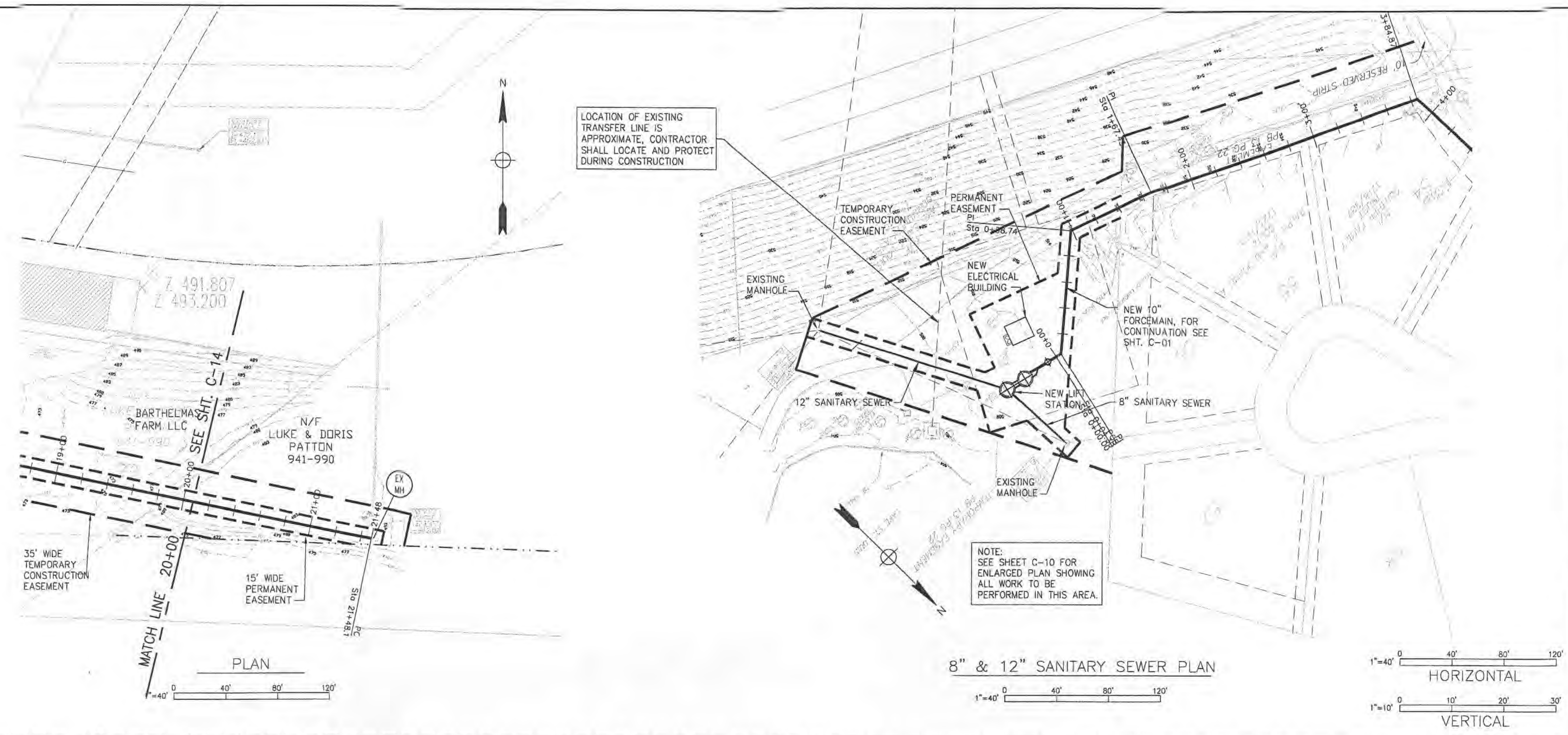


Seal	
Submitted	
Approved	
Checked	
Drawn	
Description	ISSUED FOR BID AND MOOR REVIEW
Date	02/25/05
Rev.	0

**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**  
**JACOBS**

Title	15" GRAVITY SEWER PLAN & PROFILE STA. 19+00 TO STA. 22+00 & MISC. PROFILES
Date	FEBRUARY 2005
Designed	S.KAPPELMANN
Drawn	J.J.WINKELMANN
Checked	S.FAINESTOCK
Approved	
Submitted	
Drawing Number	

**C-15**



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 Mar 03, 2005 - 11:54am

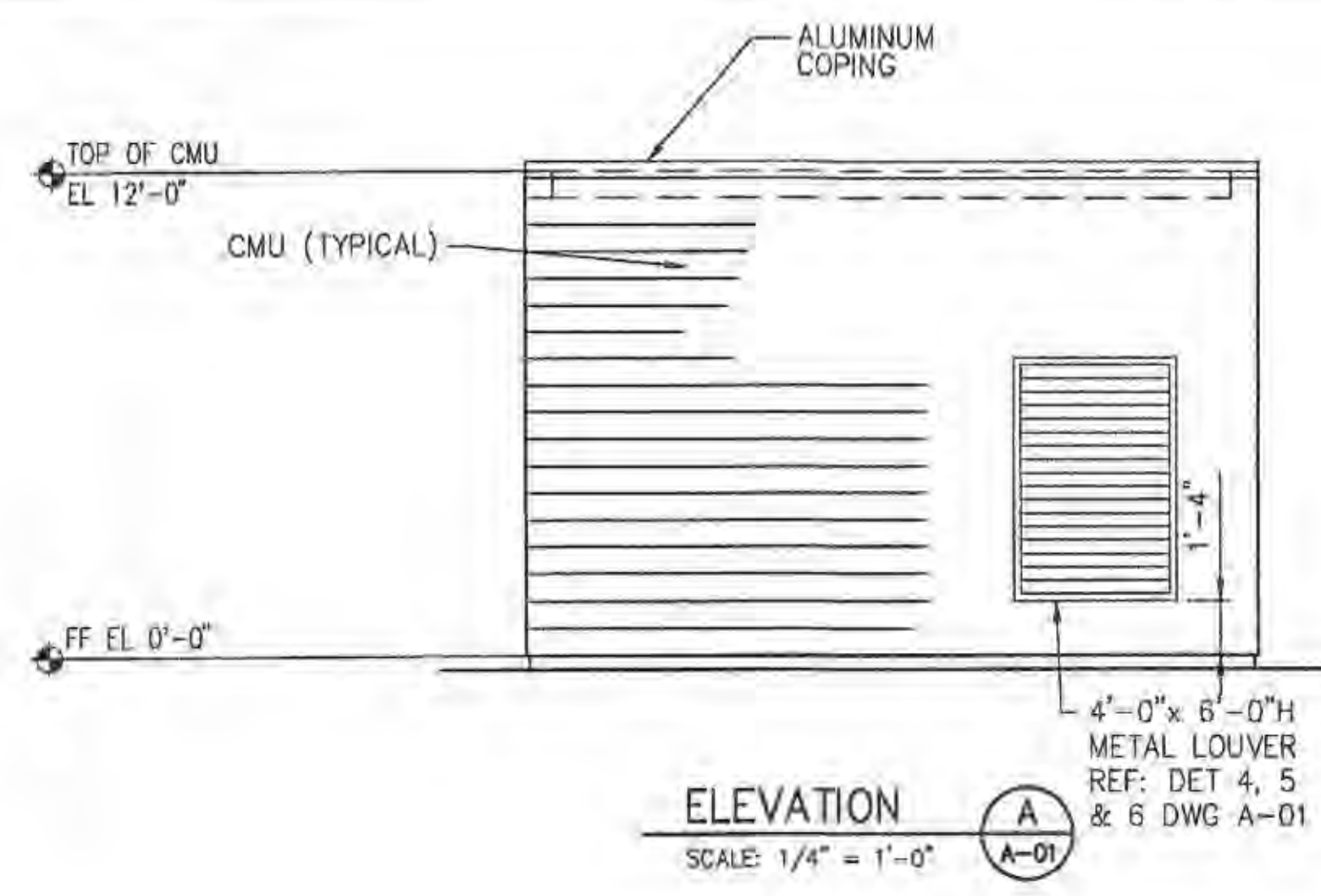
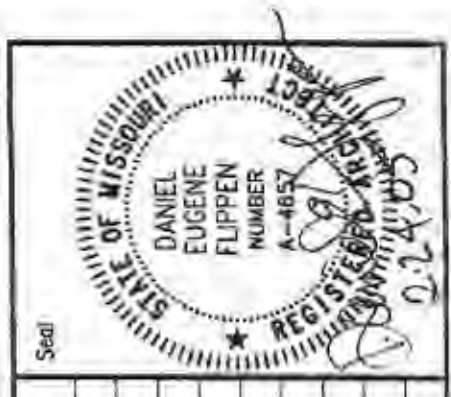




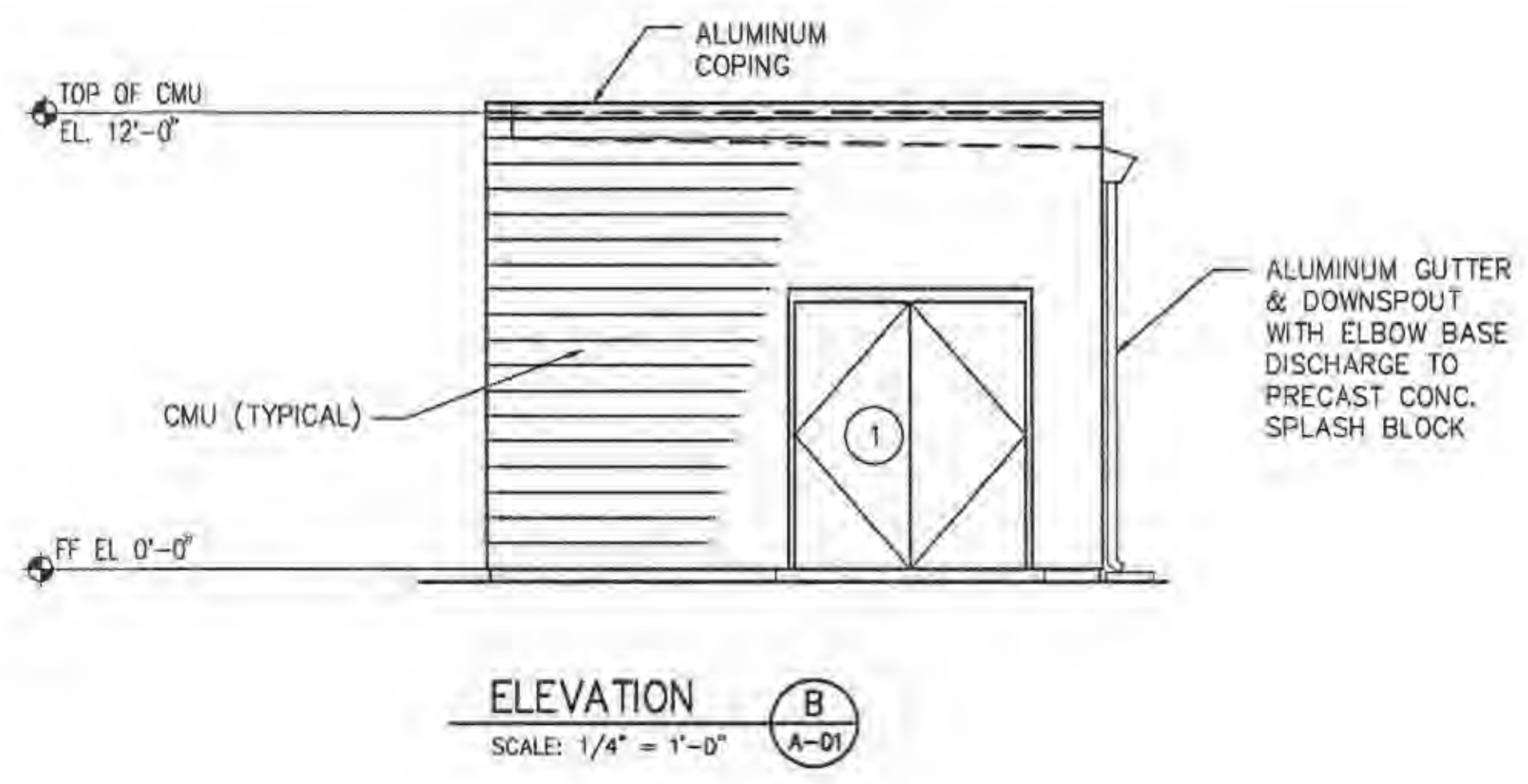




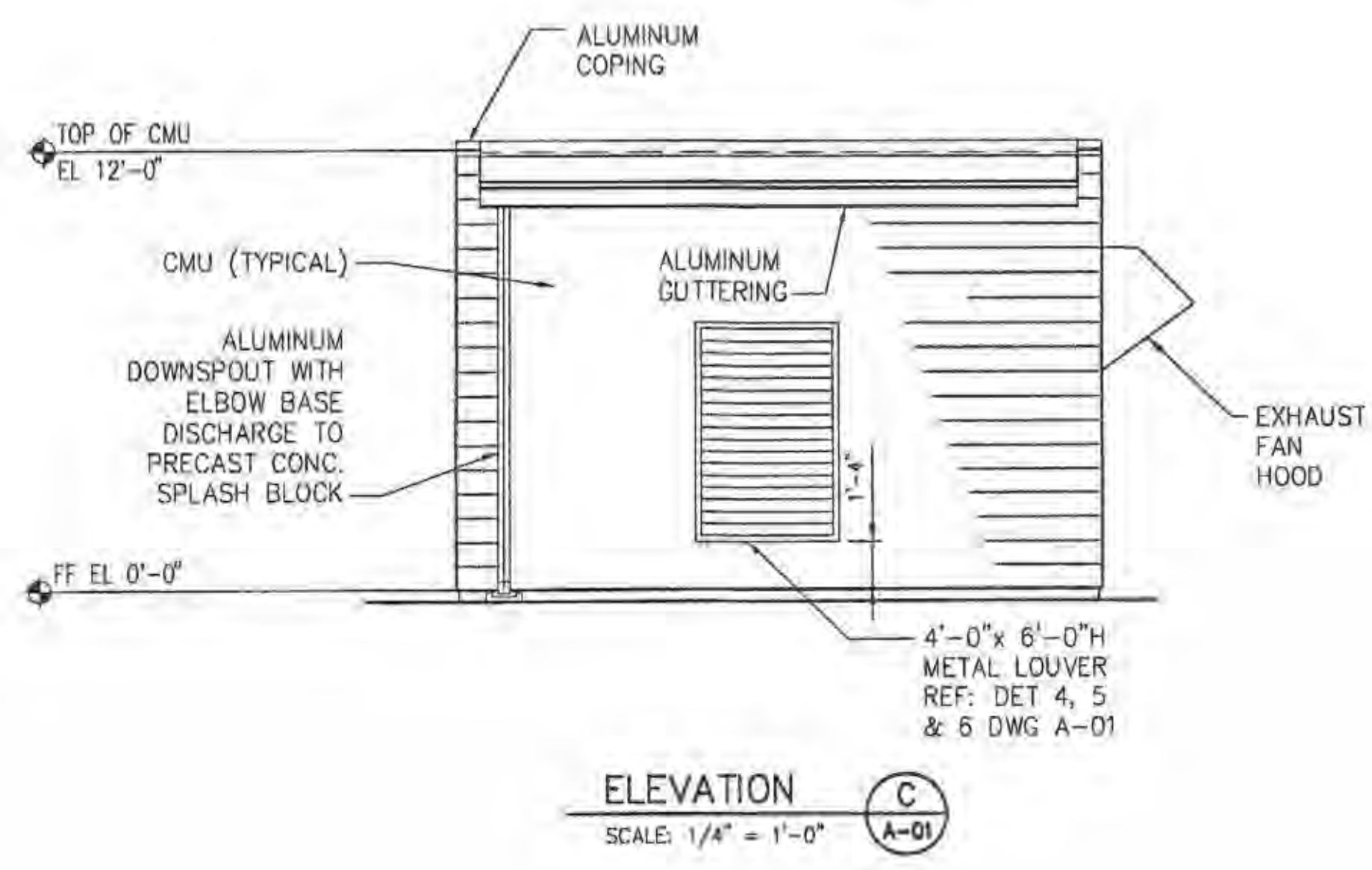




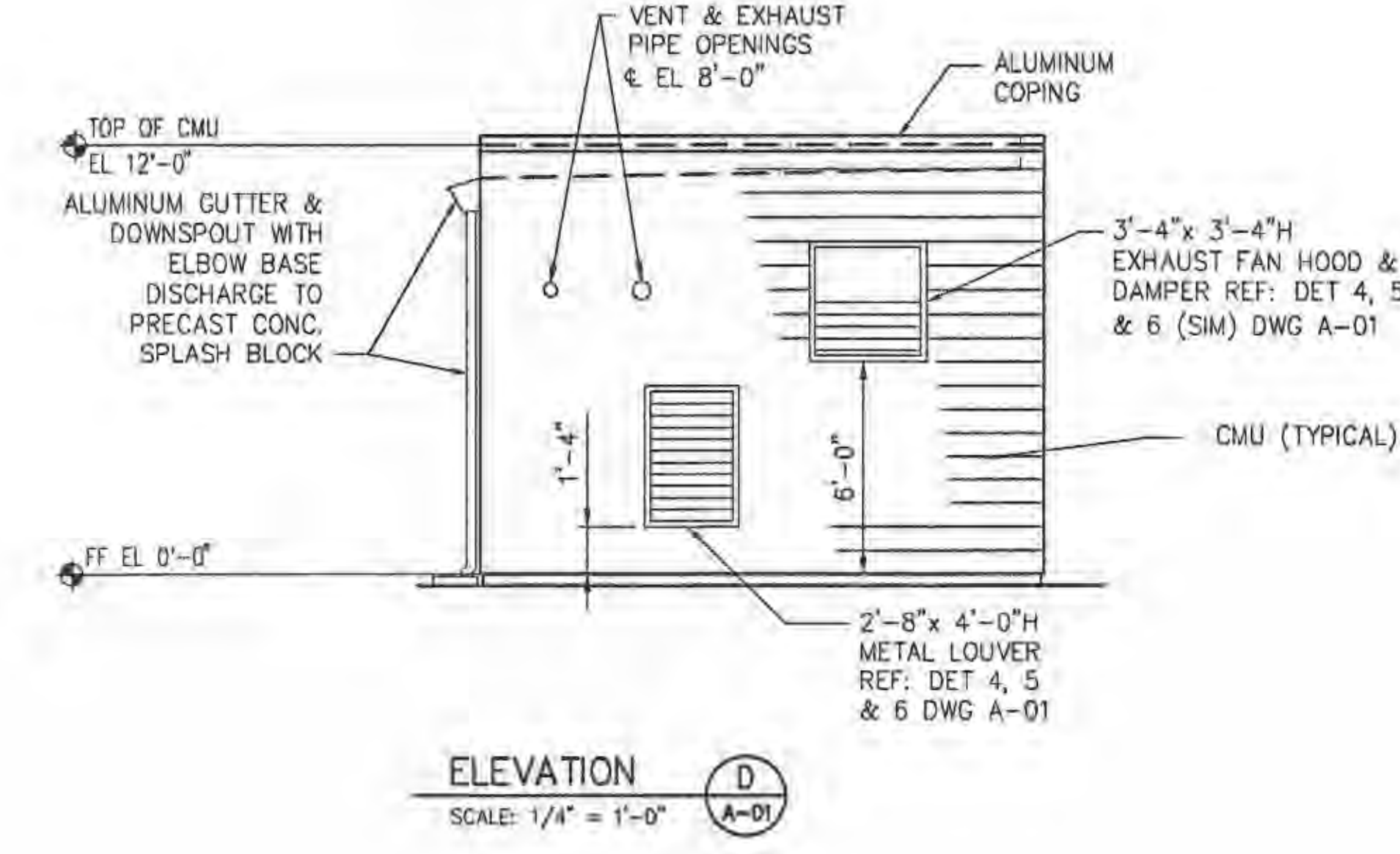
**ELEVATION A**  
SCALE: 1/4" = 1'-0"  
A-01



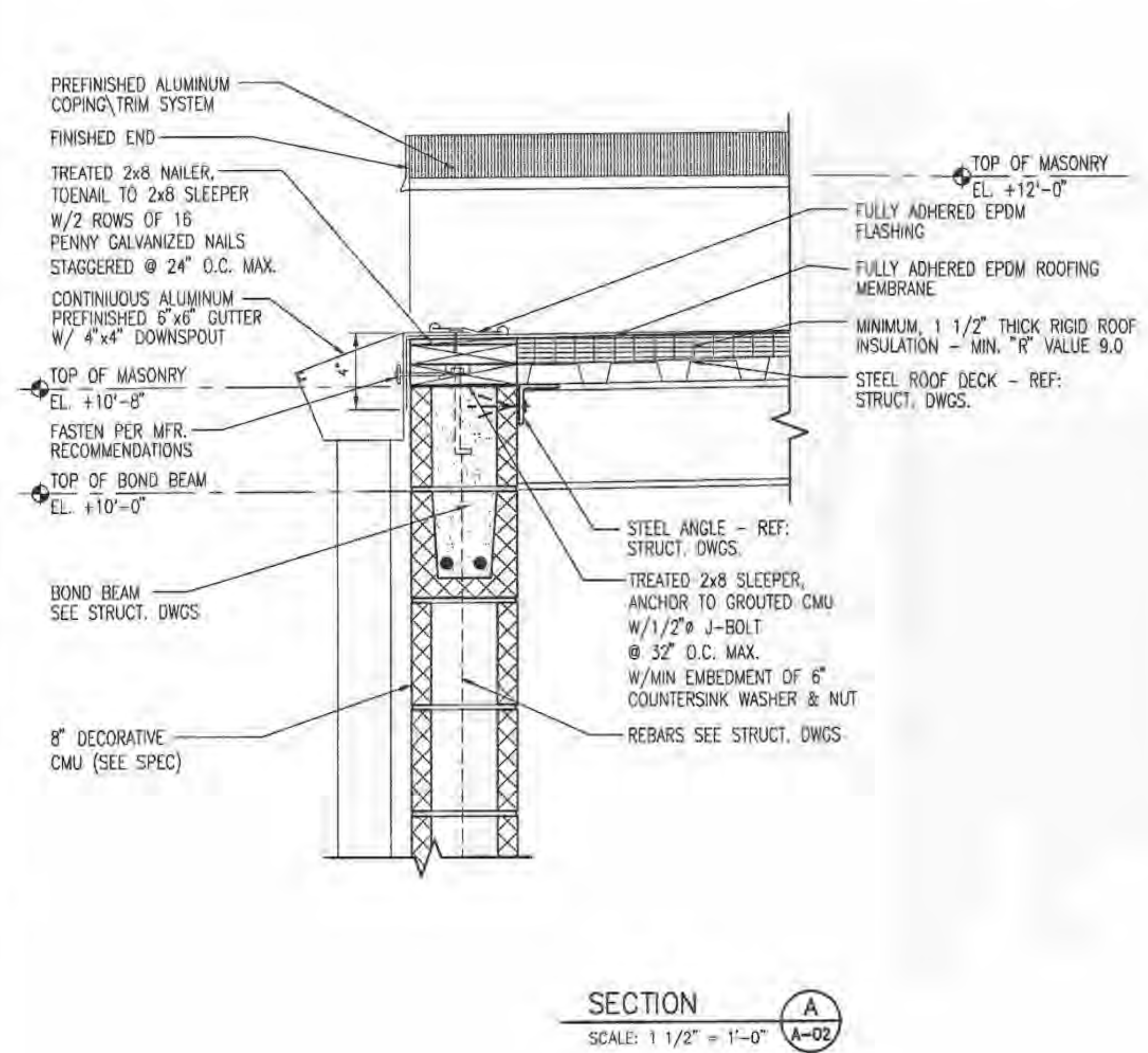
**ELEVATION B**  
SCALE: 1/4" = 1'-0"  
A-01



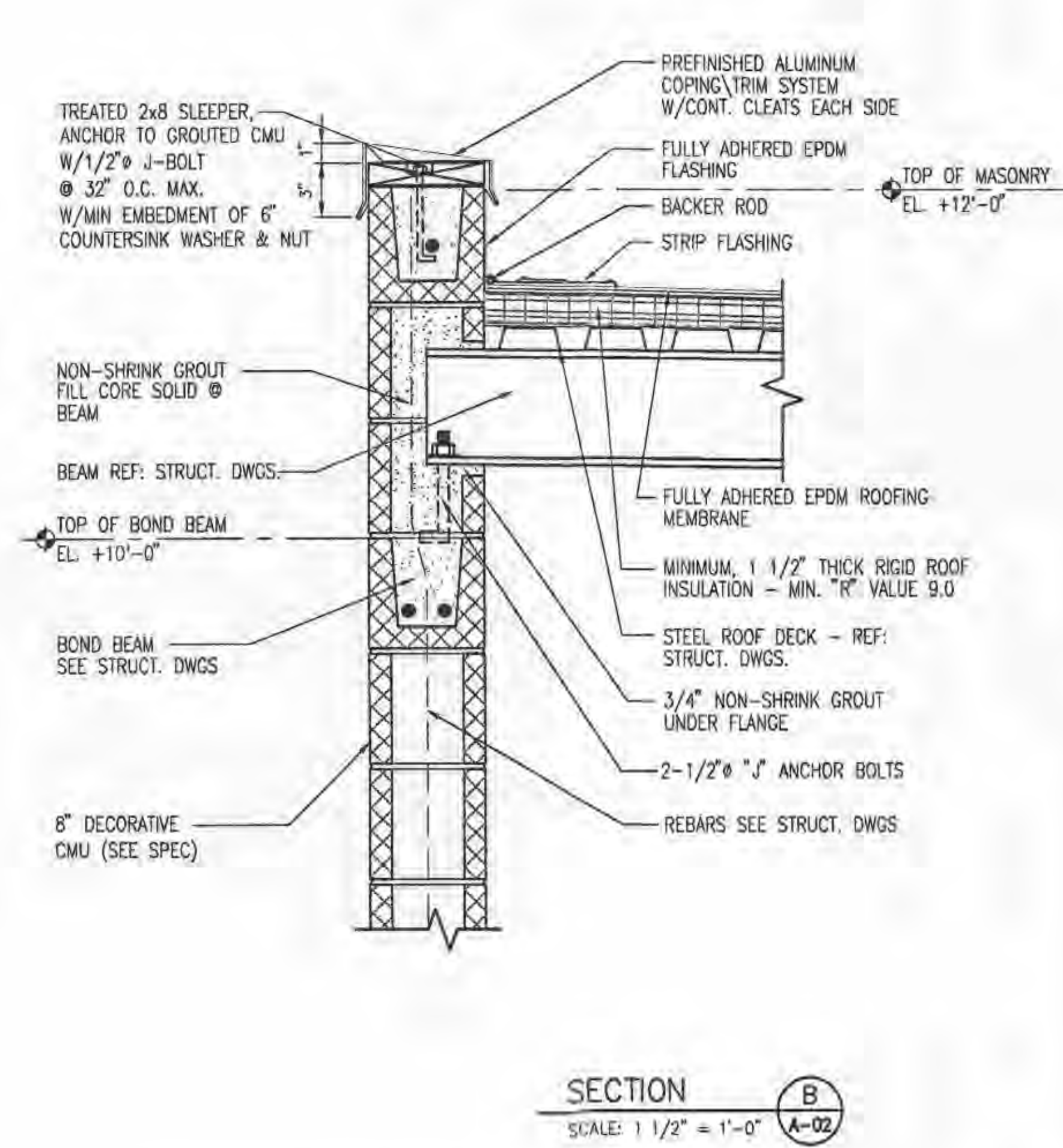
**ELEVATION C**  
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A-01



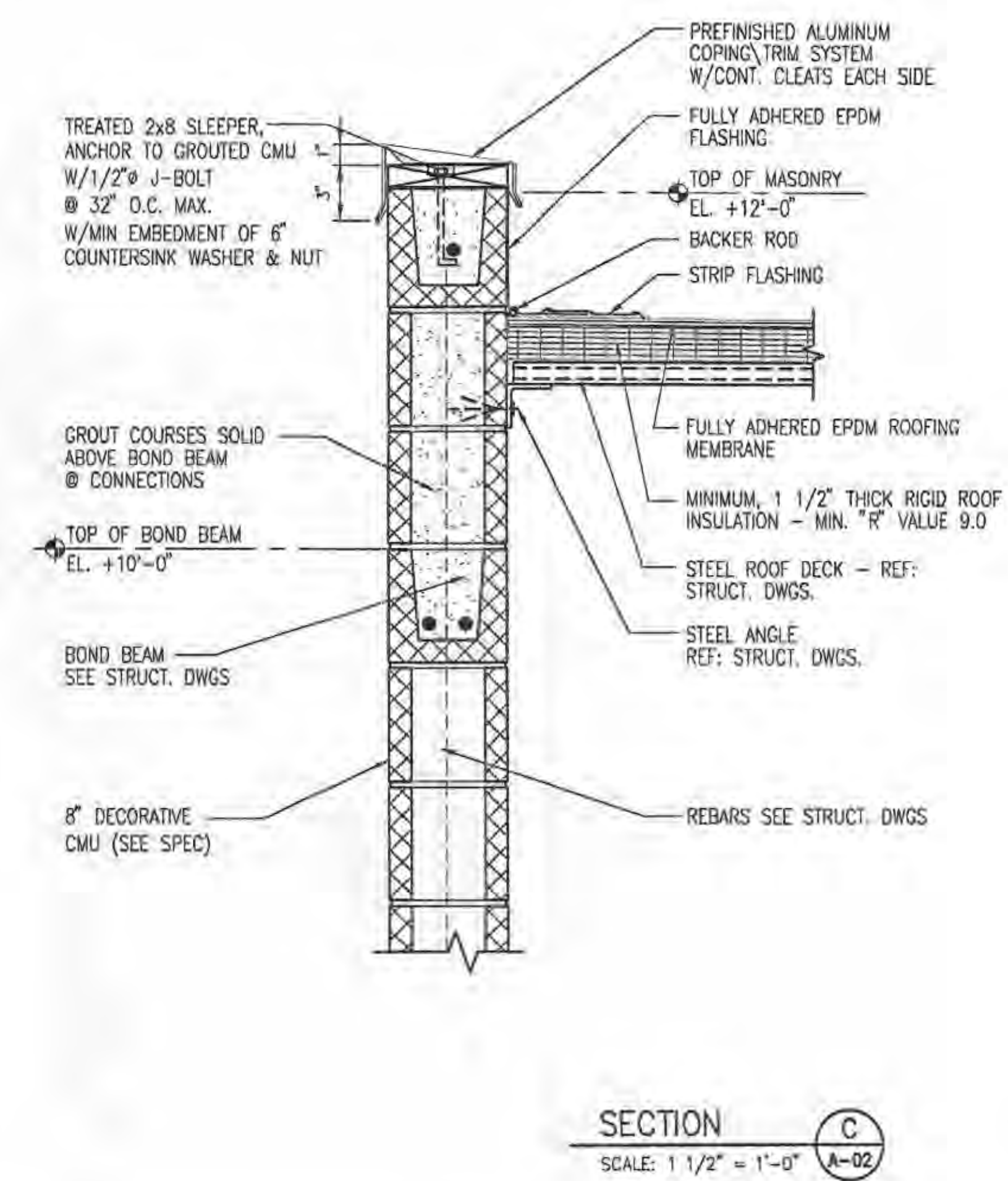
**ELEVATION D**  
SCALE: 1/4" = 1'-0"  
A-01



**SECTION A**  
SCALE: 1 1/2" = 1'-0"  
A-02



**SECTION B**  
SCALE: 1 1/2" = 1'-0"  
A-02



**SECTION C**  
SCALE: 1 1/2" = 1'-0"  
A-02

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Feb 24, 2005 - 2:07pm  
1 of 24 x 36

PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.  
LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN  
WOODLANDS SITE  
**JACOBS**

**ARCHITECTURAL SECTIONS & DETAILS**

Date	FEBRUARY 2005
Designed	NHS
Drawn	JLW
Checked	DEF
Approved	
Submitted	
Drawing Number	

**A-02**



STRUCTURAL NOTES

CODES AND REGULATIONS

BASIC BUILDING CODES: BOCA 1996

DESIGN LOADS FOR BUILDING

LIVE LOAD:  
ROOF LIVE LOAD 20 PSF

SNOW LOAD:  
GROUND SNOW LOAD (Pg) - 20.0 PSF  
SNOW EXPOSURE COEFFICIENT (Ce) - 0.7  
SNOW LOAD IMPORTANCE FACTOR (I) - 1.0  
FLAT ROOF SNOW LOAD (Ps) - 14 PSF

WIND LOAD:  
WIND SPEED (V) - 70 MPH  
WIND EXPOSURE CATEGORY - C  
WIND IMPORTANCE FACTOR (I) - 1.0

LOADS ON COMPONENTS & CLADDING ARE CALCULATED IN ACCORDANCE WITH SECTION 1611.8.

SEISMIC LOAD:  
PEAK VELOCITY-RELATED ACCELERATION (Av) - 0.13  
PEAK ACCELERATION (Aa) - 0.13  
SEISMIC HAZARD EXPOSURE GROUP - I  
SEISMIC PERFORMANCE CATEGORY - C  
SOIL TYPE - S1  
SITE COEFFICIENT (S) - 1.0

OTHER LOADS:  
HUNG LOADS (MECH. ELECT. & PLUMB) - 5 PSF

EQUIPMENT LOADING DIAGRAMS - AS SHOWN ON DRAWINGS.  
VERIFY THAT WEIGHT OF ACTUAL EQUIPMENT PROVIDED DOES NOT EXCEED THAT SHOWN ON THE DRAWINGS. IF LOADS ARE IN EXCESS OF THOSE SHOWN, NOTIFY THE ENGINEER AND DO NOT PROCEED WITH FABRICATION OR CONSTRUCTION WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.

FOUNDATIONS

NET DESIGN BEARING PRESSURE:

FOR ELECTRICAL BUILDING FOUNDATIONS ON SOIL - 2000 PSF U.O.N.  
FOR PUMP STATION AND VALVE VAULT FOUNDATIONS ON ROCK - 5000 PSF U.O.N.

PRIOR TO PLACING THE FOUNDATION CONCRETE, A GEOTECHNICAL ENGINEER SHALL EVALUATE THE CONDITION OF THE BEARING SURFACE TO MAKE SURE THAT THE SPECIFIED NET ALLOWABLE BEARING PRESSURE CAN BE ATTAINED. IF THE SOIL AT THE BEARING STRATA CANNOT SUPPORT THE DESIGN NET ALLOWABLE BEARING PRESSURE, THE GEOTECHNICAL ENGINEER SHALL SUGGEST REMEDIAL ACTIONS REQUIRED TO ATTAIN THE DESIGN BEARING PRESSURE.

CONCRETE

CODES:

"BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318-99)  
"ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES" (ACI 350R-99)

STRENGTH AND TYPE:

PROVIDE THE FOLLOWING TYPES OF CONCRETE AND THE DESIGN 28-DAY COMPRESSIVE STRENGTHS.

NORMAL WEIGHT (145-150 PCF) - 3000 PSI

REINFORCEMENT:

DEFORMED BARS #3 - #18 - ASTM A615 GRADE 60

PLACE REINFORCEMENT AND PROVIDE SUPPORTS FOR REINFORCING STEEL IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICE OF THE CONCRETE REINFORCING STEEL INSTITUTE" (CRSI)-MSP-1.

SPLICE LENGTHS OF REINFORCEMENT IN TENSION fy = 60,000 psi

f'c	#3	#4	#5	#6
3,000 PSI	17"	22"	28"	33"

THE SPLICE LENGTHS SHOWN ABOVE SHALL BE MULTIPLIED BY 1.3 FOR TOP REINFORCING. TOP BARS ARE HORIZONTAL REINFORCEMENT PLACED SO THAT MORE THAN 12" OF CONCRETE IS CAST BELOW THE BAR.

REINFORCING LAP SPLICES:

MAKE LAP SPLICES ONLY AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS INDICATED IN THESE NOTES UNLESS OTHERWISE APPROVED BY THE ENGINEER.

MINIMUM CONCRETE PROTECTION FOR REINFORCEMENT:

BAR SIZE	INTERIOR SLABS BEAMS & COLUMNS NOT IN CONTACT WITH OR EXPOSED TO WATER OR SEWAGE				ALL OTHER EXPOSURE CONDITIONS		
	FORMED SLABS	BEAM STIRRUPS AND COLUMN TIES	FORMED SLABS	BEAM STIRRUPS AND COLUMN TIES	WALLS	GRADE BEAMS, FOOTINGS, MATS AND SLABS PLACED AGAINST GROUND	
#3 THRU #11	1"	1 1/2"	2"	2"	2"	TOP & SIDES - 2" BOTTOM - 3"	

CHAMFERS:

CHAMFER ALL EDGES OF BEAMS, COLUMNS, WALLS, EQUIPMENT PADS, AND SLABS EXPOSED TO VIEW 3/4" UNLESS OTHERWISE NOTED.

FINISHES:

SEE ARCHITECTURAL PLANS, ELEVATIONS, DETAILS AND SCHEDULES FOR TYPES AND LOCATIONS OF FLOOR AND WALL FINISHES.

STRUCTURAL STEEL

CODES AND SPECIFICATIONS:

AISC MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN, 1989  
WELD IN ACCORDANCE WITH THE "STRUCTURAL WELDING CODE - STEEL" AWS D1.1.  
AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.

MATERIAL AND LOCATION:

STRUCTURAL STEEL - ASTM A572 - 50,000 PSI YP. FOR ALL ROLLED SECTIONS AND PLATES.  
STRUCTURAL STEEL TUBING - ASTM A500 GRADE B, FOR ALL MATERIAL DESIGNATED "TS".  
HIGH STRENGTH BOLTS - ASTM A325 - FOR ALL STEEL CONNECTIONS EXCEPT AS OTHERWISE INDICATED.  
STANDARD BOLTS - ASTM A307 - MAY BE USED FOR PURLINS, GIRTS, AND ANCHOR BOLTS ONLY.  
THREADED ROD - ASTM A36 - FOR ANCHOR BOLTS.  
WELDING ELECTRODES - E70XX - ALL TYPES OF WELDS.

METAL DECK:

METAL DECK SHALL CONFORM TO THE CURRENT SPECIFICATIONS OF THE STEEL DECK INSTITUTE.

METAL DECK SHALL BE THE TYPE INDICATED ON THE DRAWINGS.

METAL DECK SHALL BE FASTENED TO SUPPORTING MEMBERS PER MANUFACTURER'S RECOMMENDATIONS AND FOR DIAPHRAGM SHEAR AND UPLIFT STATED IN SPECIFICATIONS.

DO NOT HANG PIPE, DUCT, OR MECHANICAL AND ELECTRICAL EQUIPMENT FROM THE METAL ROOF DECK.

MISCELLANEOUS

DIMENSION VERIFICATION:

DIMENSIONS ON DRAWINGS FOLLOWED BY \* ARE REQUIRED TO BE VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION OR CONSTRUCTION.

VERIFY DIMENSIONS OF OPENINGS IN FLOORS, ROOFS AND WALLS, AND ASSOCIATED SURROUNDING FRAMING, AND ANCHOR BOLT SIZES AND LOCATIONS ASSOCIATED WITH MECHANICAL EQUIPMENT, WITH ACTUAL EQUIPMENT FURNISHED FOR THE PROJECT.

ALL OPENINGS AND SLEEVES ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS. FOR REQUIRED OPENINGS, REFER TO THE ARCHITECTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION AND ELECTRICAL DRAWINGS.

THE CONFIGURATION OF STRUCTURAL FRAMING REQUIRED TO SUPPORT MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT IS BASED ON PRELIMINARY PRODUCT INFORMATION. VERIFY, WITH THE MANUFACTURER OF THE EQUIPMENT FURNISHED FOR THE PROJECT, THAT THE CONFIGURATION IS SUITABLE.

COLUMN AND FOOTING LOCATIONS:

ALL COLUMNS AND FOOTINGS ARE CENTERED ON COLUMN LINES EXCEPT WHERE OTHERWISE SHOWN ON PLANS.

MASONRY

REFER TO ARCHITECTURAL PLANS FOR MASONRY WALL LOCATIONS, TYPES AND DETAILS

DESIGN AND PLACEMENT OF CMU SHALL BE IN ACCORDANCE WITH ACI CODE 530 AND 530.1. ALL MASONRY WORK SHALL BE INSPECTED BY A QUALIFIED INSPECTOR.

PROVIDE ADEQUATE TEMPORARY SUPPORT OF LINTELS UNTIL GROUT HAS REACHED THE 28 DAY SPECIFIED COMPRESSION STRENGTH.

PROVIDE CONTROL JOINTS AT LOCATIONS SHOWN ON ARCHITECTURAL DRAWINGS.

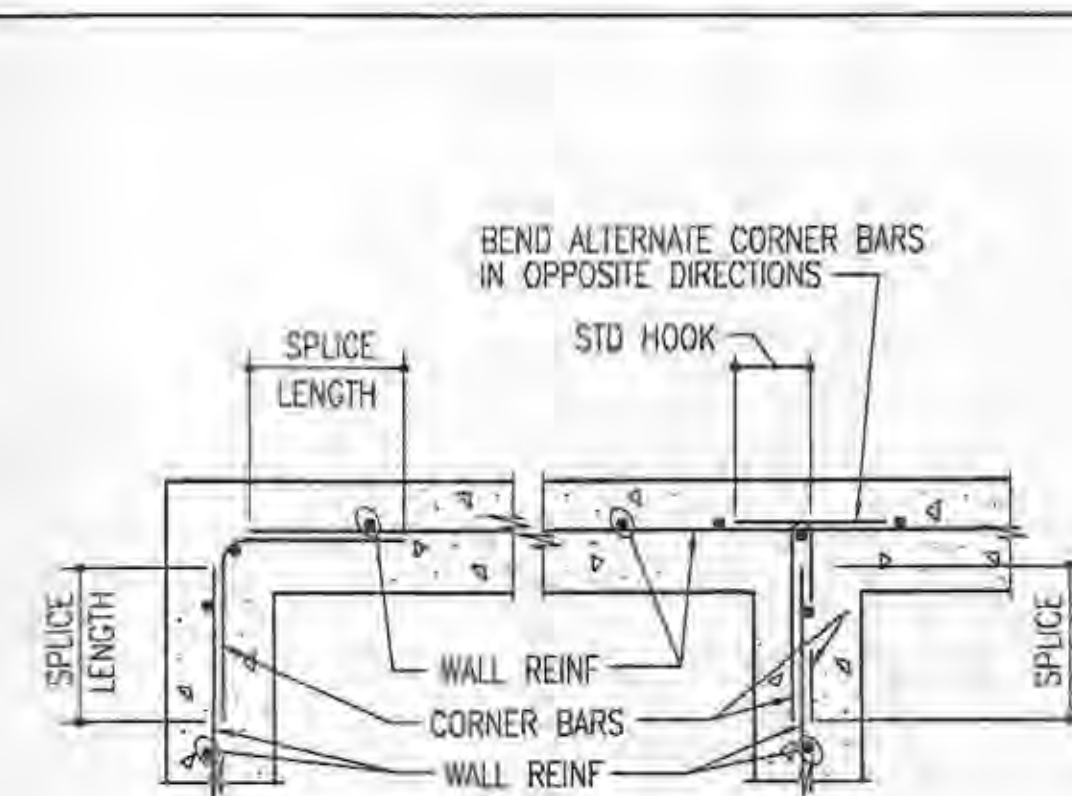
PROVIDE 9 GAGE TRUSS TYPE JOINT REINFORCING AT 16" VERTICAL SPACING.

DISCONTINUE JOINT AND BOND BEAM REINFORCING AT ALL CONTROL JOINTS.

PROVIDE THE FOLLOWING LAP LENGTHS FOR ALL VERTICAL AND HORIZONTAL REINFORCING BAR SPLICES UNLESS OTHERWISE INDICATED:

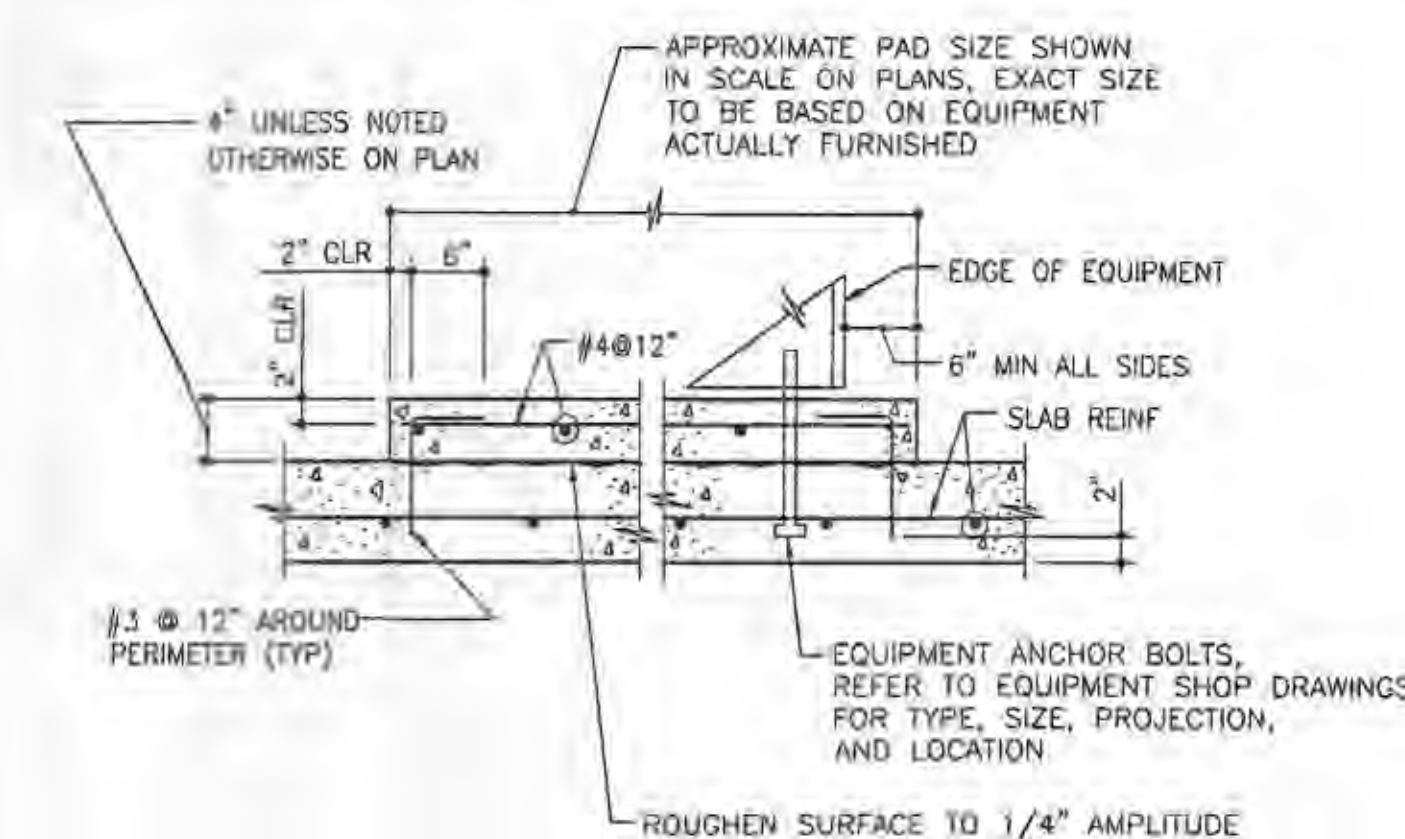
BAR SIZE	LAP LENGTH
4	24"
5	30"
6	36"

FOR DETAILS OF CMU, MORTAR, GROUT, AND REBAR STRENGTHS REFER TO SPECIFICATIONS.



SINGLE LAYER

1 CORNER BARS FOR WALL REINFORCEMENT NTS



2 EQUIPMENT PAD NTS

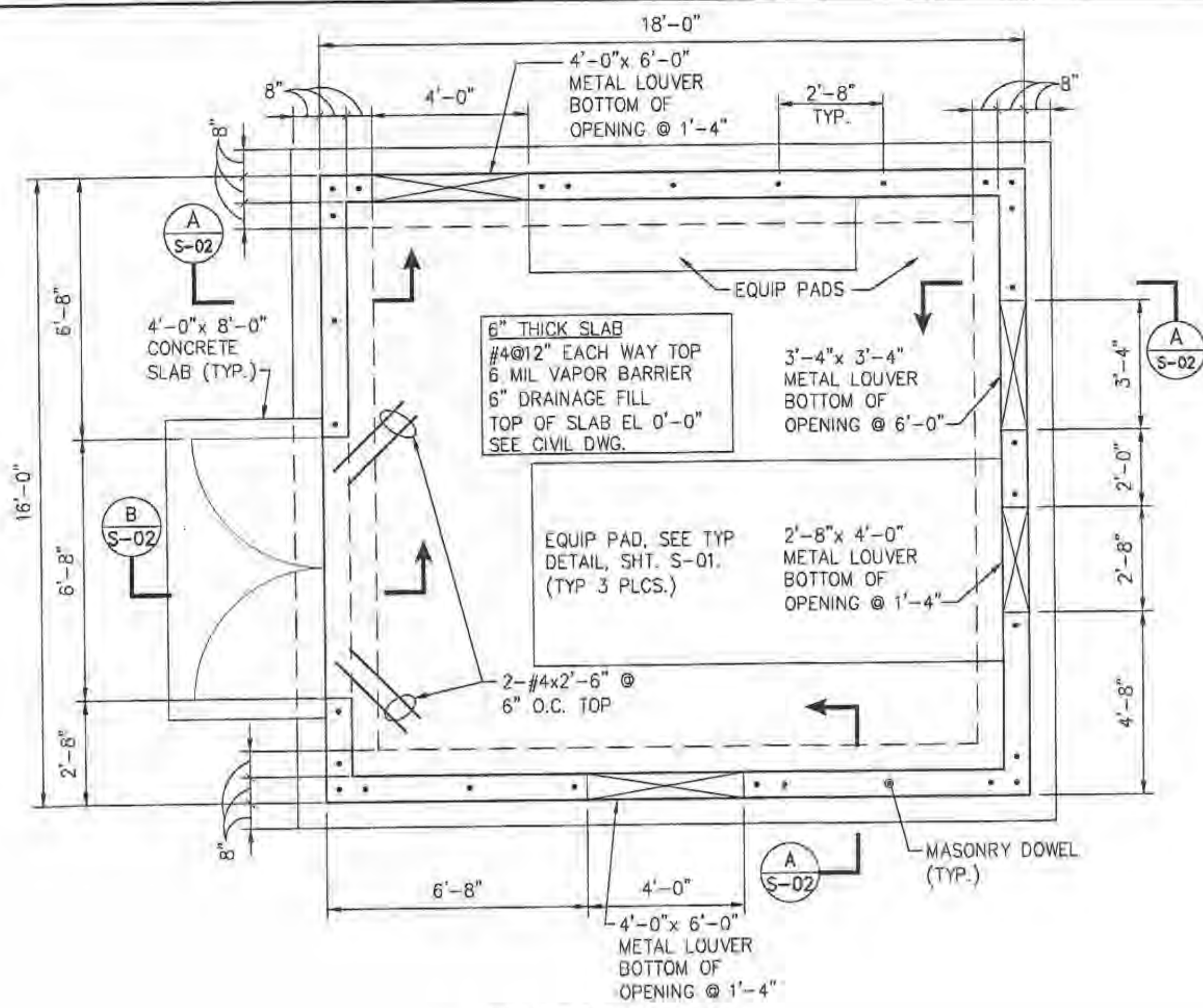


PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.  
LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN  
WOODLANDS SITE  
JACOBS

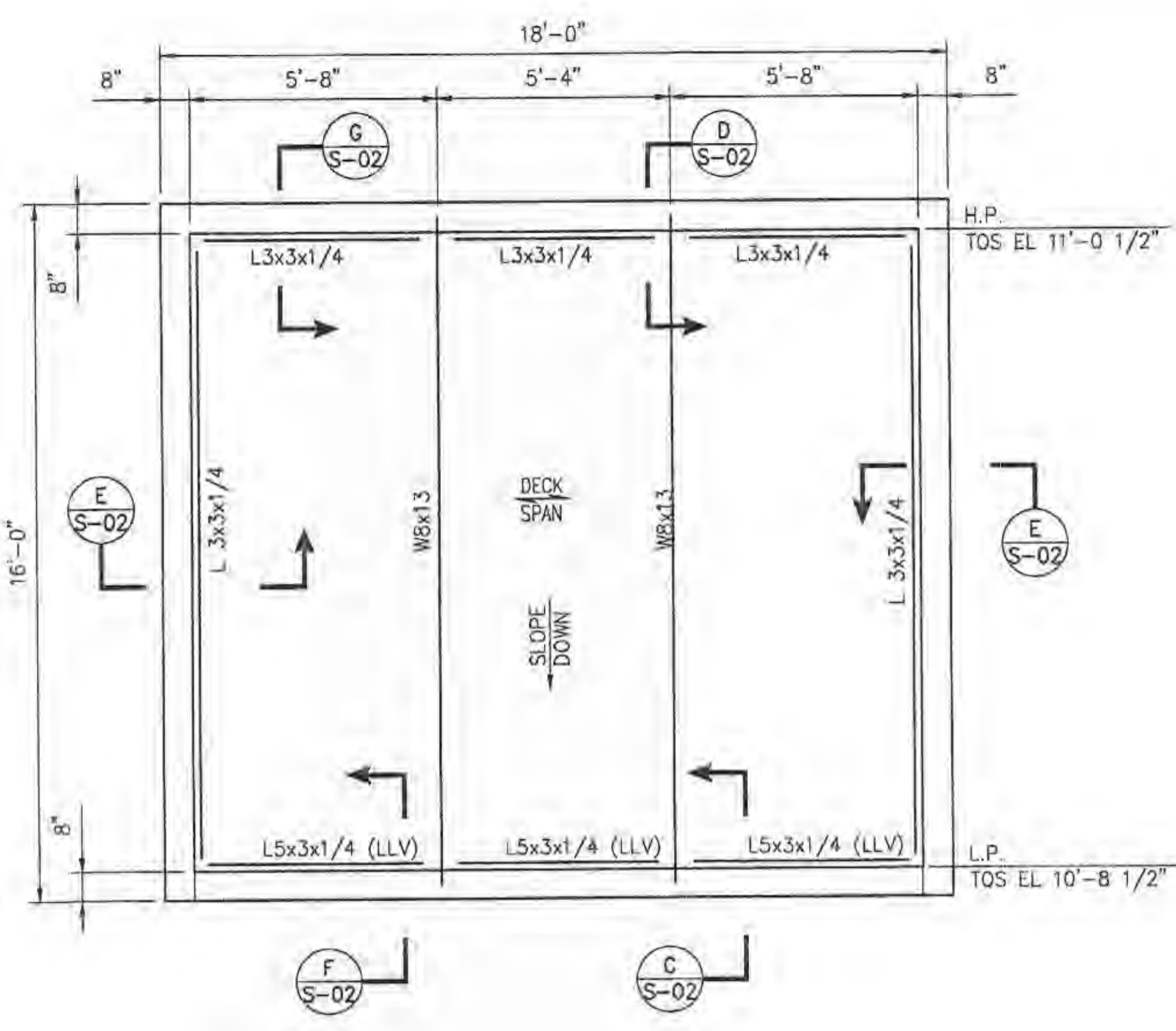
STRUCTURAL GENERAL NOTES AND TYPICAL DETAILS

Date	FEBRUARY 2005
Designed	NHS
Drawn	JJW
Checked	PKM
Approved	
Submitted	
Drawing Number	



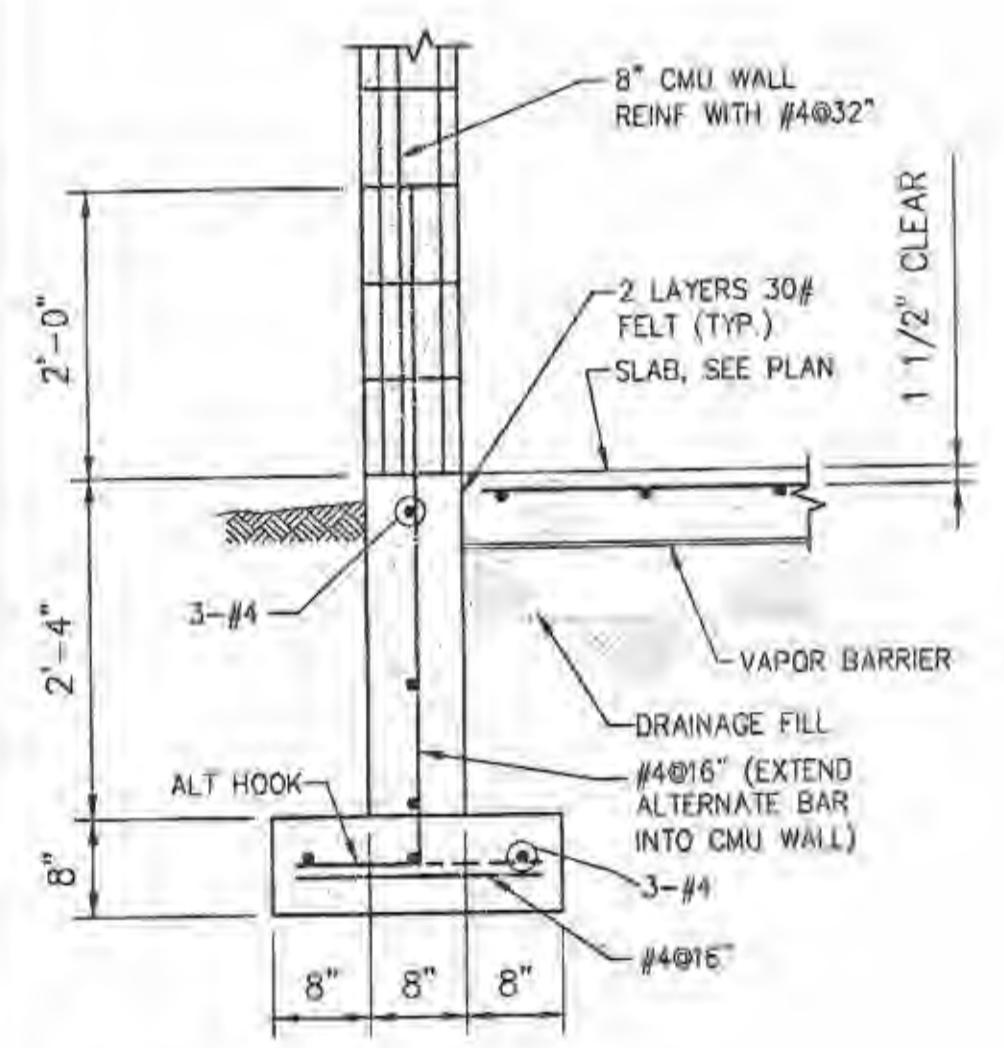


**FOUNDATION PLAN**  
SCALE: 3/8" = 1'-0"

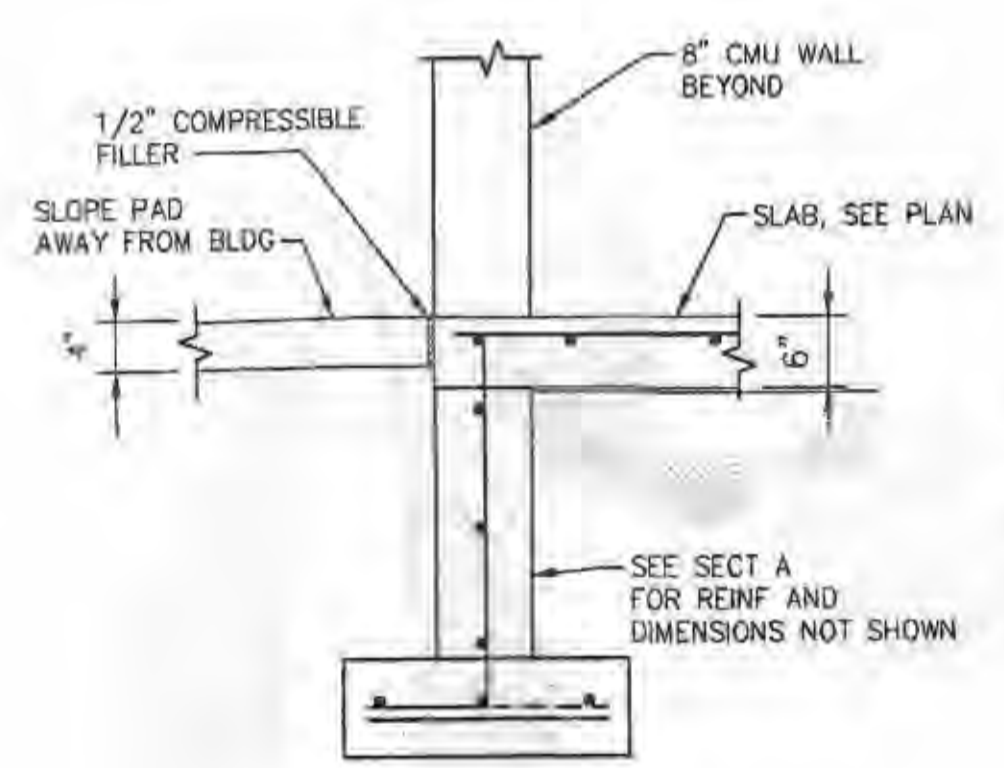


**ROOF FRAMING PLAN**  
SCALE: 3/8" = 1'-0"

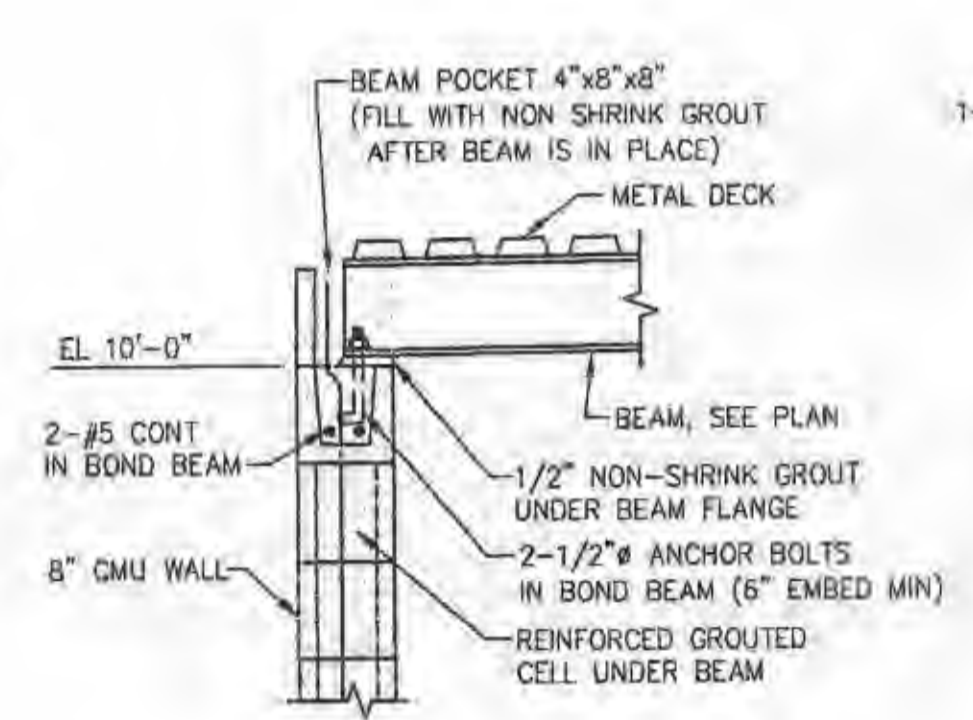
- NOTES:**
1. FOR GENERAL NOTES AND TYPICAL DETAILS, SEE DRAWINGS S-01, SEE CIVIL DRAWINGS FOR FLOOR ELEVATIONS.
  2. WALL FOOTING SHALL BEAR ON UNDISTURBED NATURAL SOIL OR NEWLY PLACED STRUCTURAL FILL (SEE SPECIFICATIONS) AS APPROVED BY A GEOTECHNICAL ENGINEER.
  3. PROVIDE 1 1/2" - 20 GAGE WIDE RIB ROOF DECK. ATTACH DECK TO FRAMING USING 3/4" FASTENING PATTERN USING 5/8" Ø PUDDLE WELDS AND #10 TEK SCREW SIDE LAP FASTENERS. (MIN 1 SIDE LAP FASTENERS PER SPAN)
  4. EQUIPMENT PAD - SEE S-01 FOR DETAILS. COORDINATE PAD SIZE WITH EQUIPMENT MANUFACTURER.
  5. GROUT CELL IF REINFORCED GROUTED CELL DOES NOT OCCUR AT THE ANCHOR LOCATION.
  6. COORDINATE FAN OPENING AND MOUNTING REQUIREMENTS WITH FAN MFR.



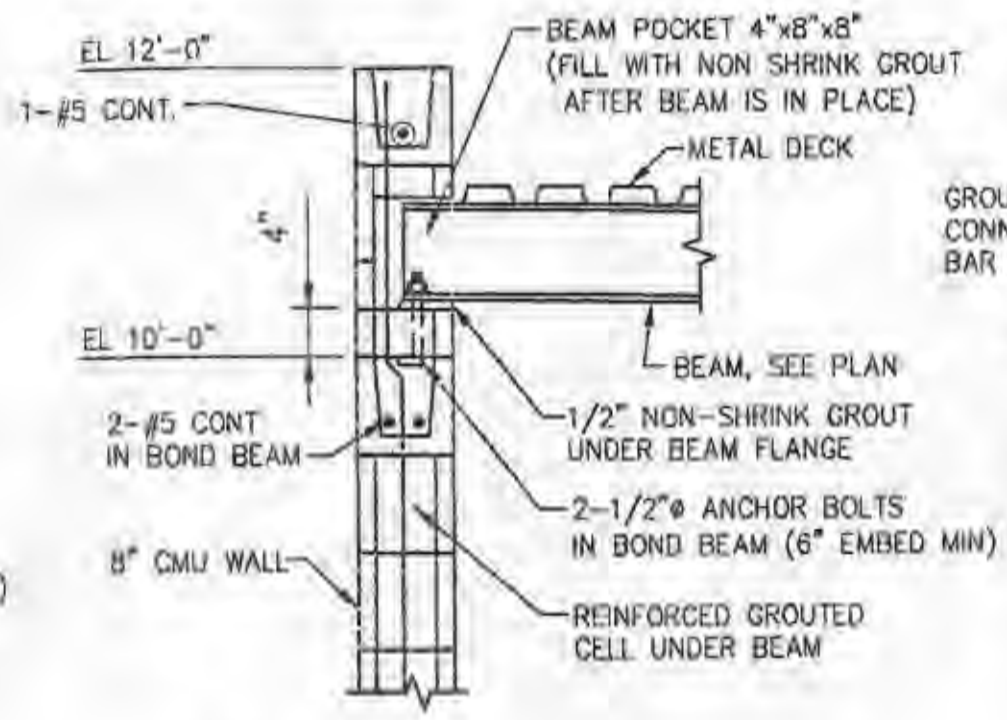
**SECTION A**  
SCALE: 3/4" = 1'-0" S-02



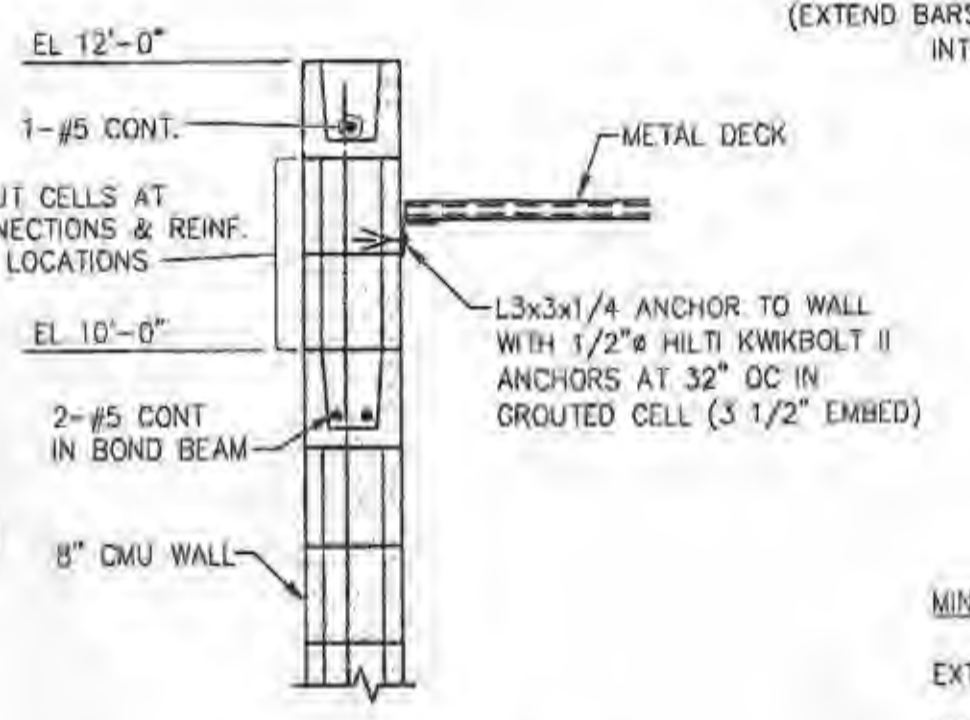
**SECTION B**  
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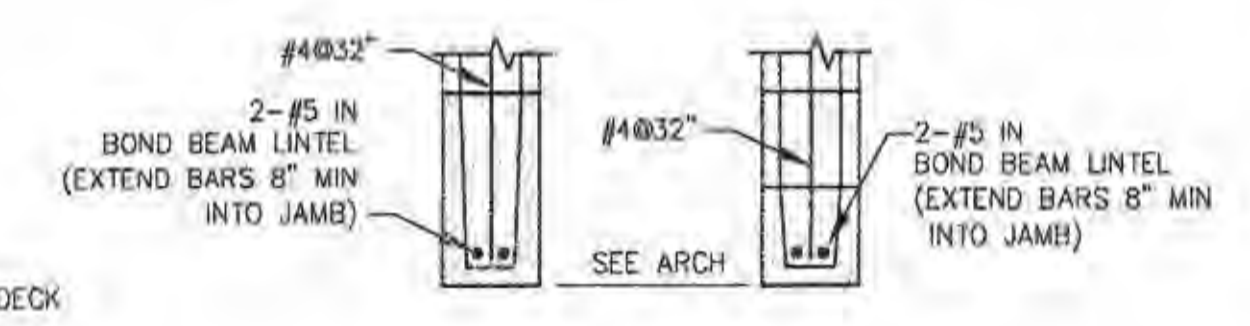
**SECTION C**  
SCALE: 3/4" = 1'-0" S-02



**SECTION D**  
SCALE: 3/4" = 1'-0" S-02

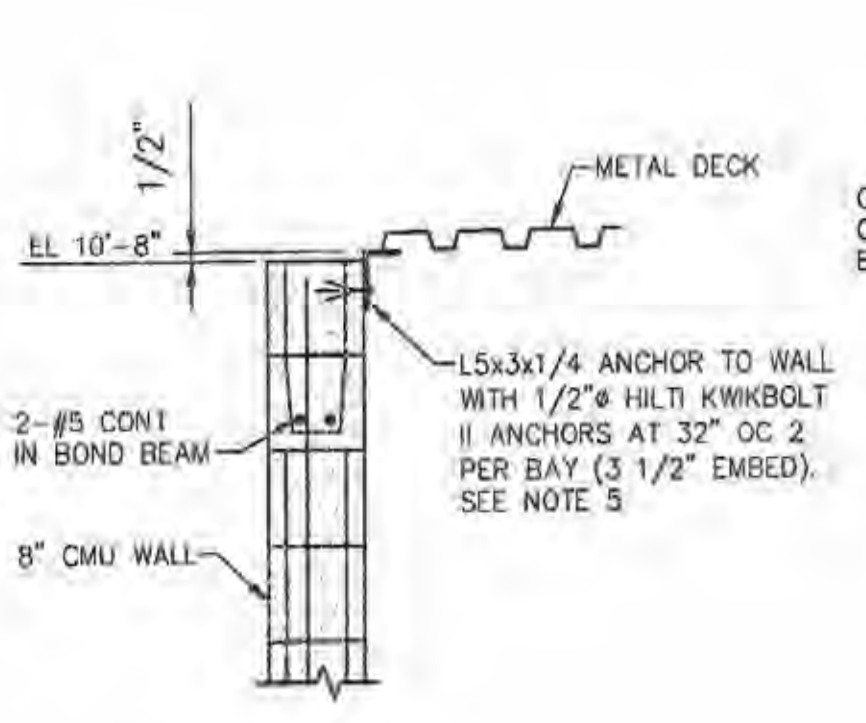


**SECTION E**  
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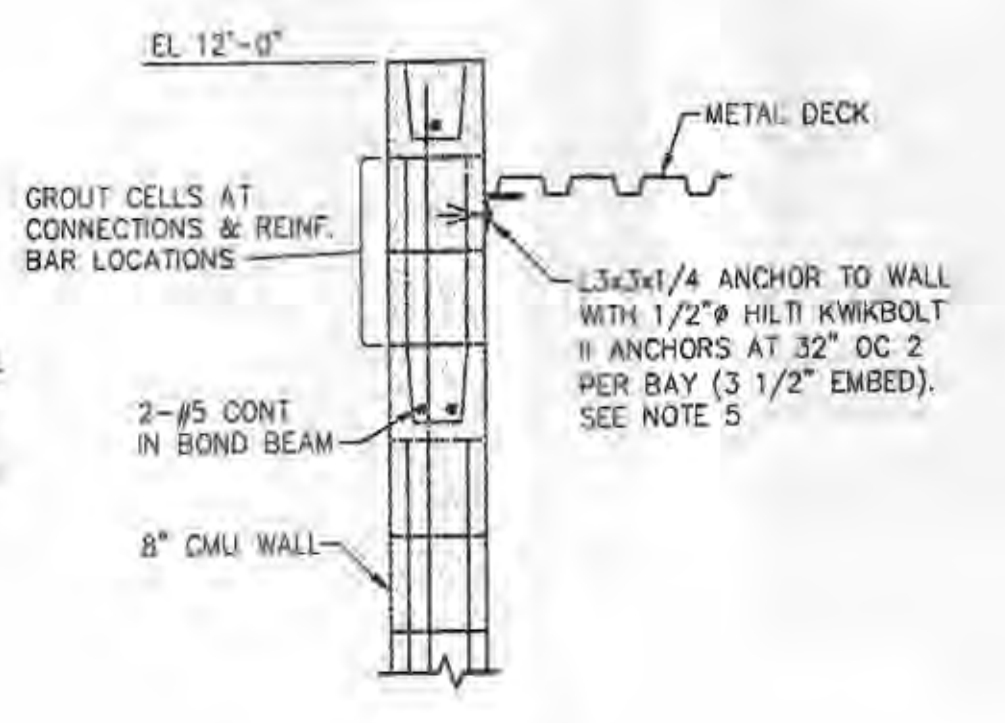


**TYPICAL LINTEL SECTION**  
SCALE: 3/4" = 1'-0"

- MINIMUM CMU WALL REINFORCING (UNLESS SHOWN OTHERWISE)**
- EXTERIOR CORNER - #4 VERT IN CORNER CELL
  - EXTERIOR WALLS - #4 @32" O.C. VERT, 2-#5 HORIZ. IN CONT. BOND BM @ EL 7'-4" ABOVE FIN. FLR. AND 1-#5 AT TOP OF WALL
  - DOOR, WINDOW AND LOUVER JAMB - #5 VERT IN JAMB CELL



**SECTION F**  
SCALE: 3/4" = 1'-0" S-02



**SECTION G**  
SCALE: 3/4" = 1'-0" S-02

**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**  
**JACOBS**

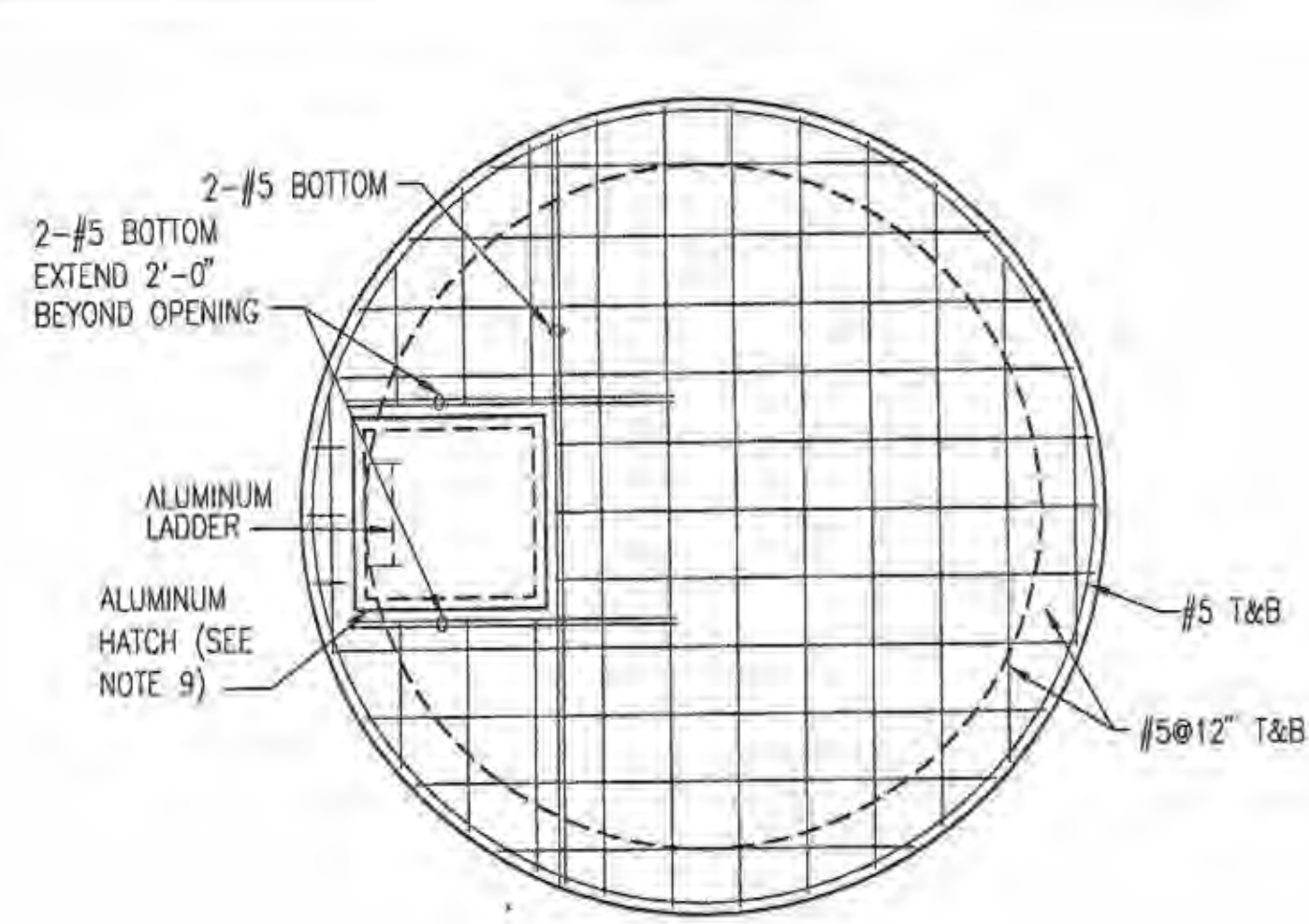
**STRUCTURAL FOUNDATION & ROOF PLAN SECTION & DETAILS**

Date:	FEBRUARY 2005
Designed:	NHS
Drawn:	JJW
Checked:	PKM
Approved:	
Submittals:	
Drawing Number:	

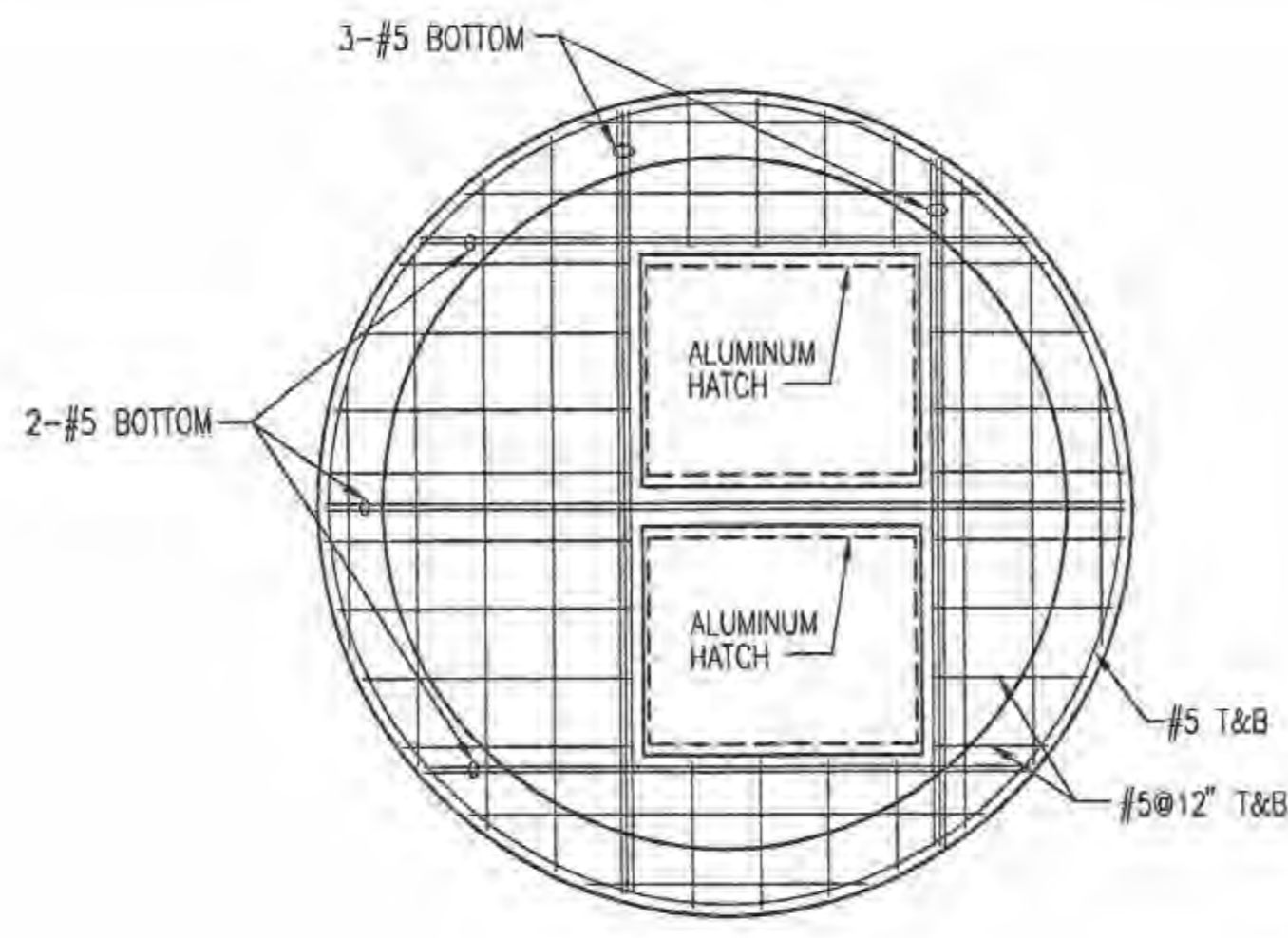
**S-02**

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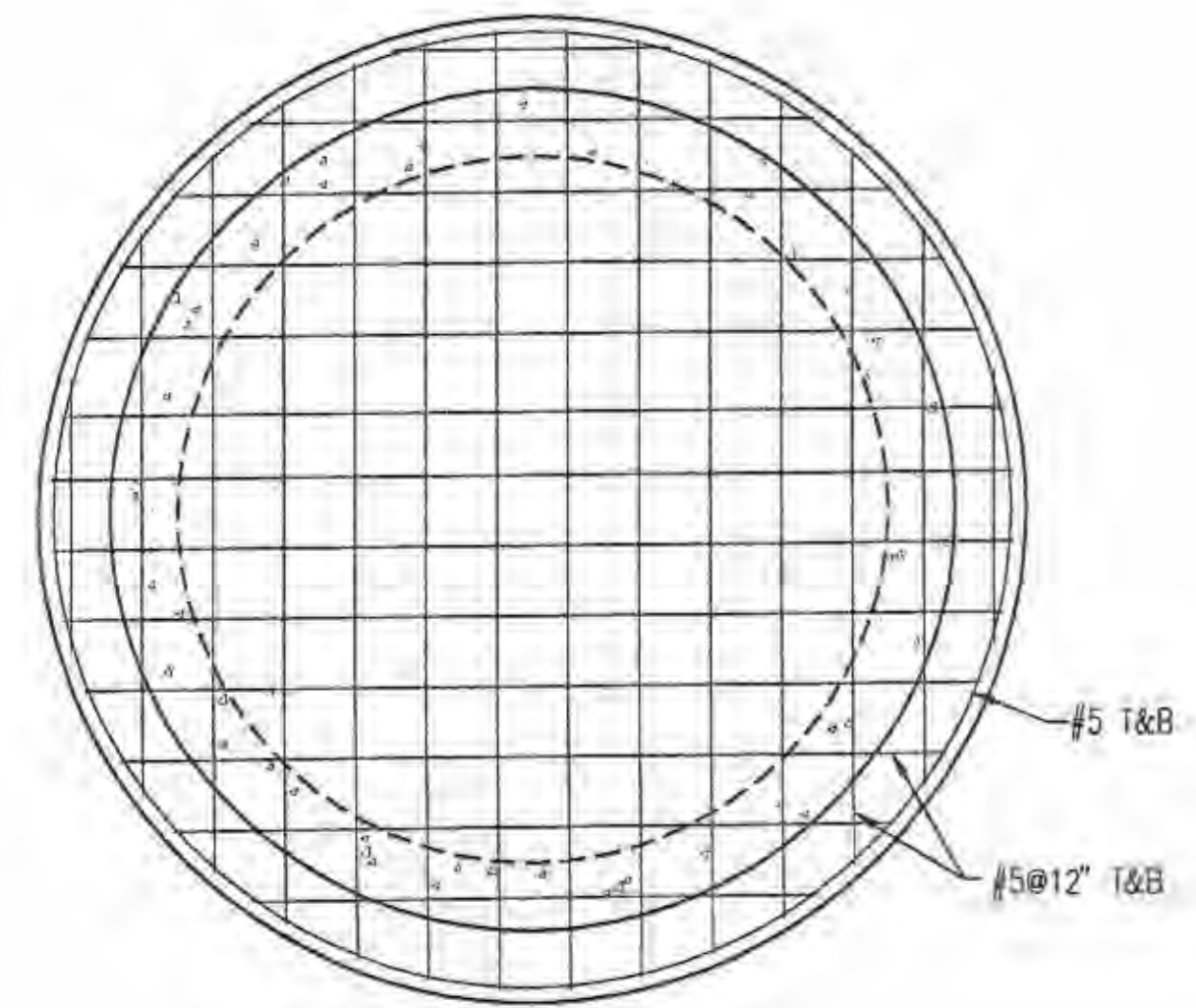




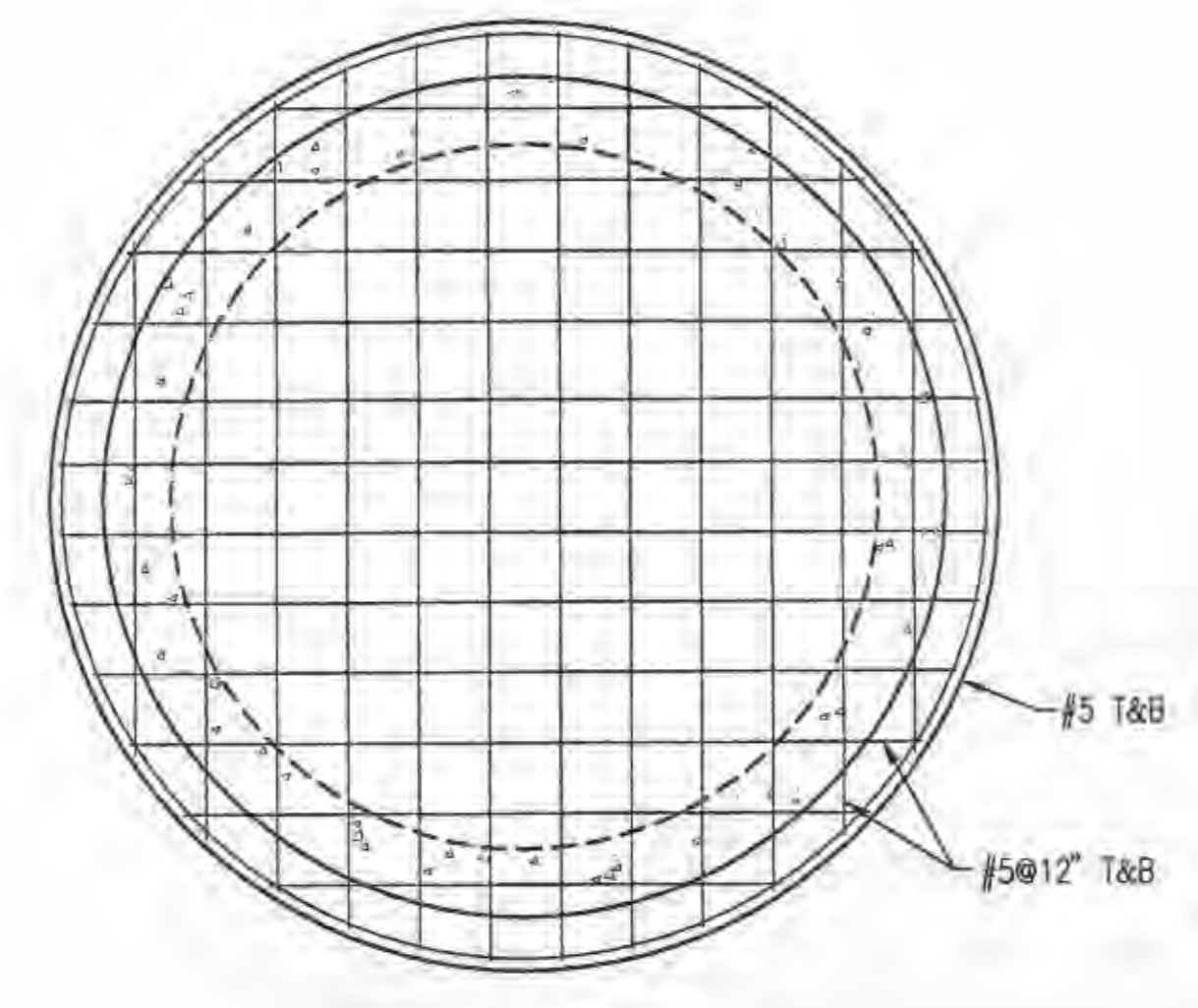
VALVE VAULT TOP SLAB



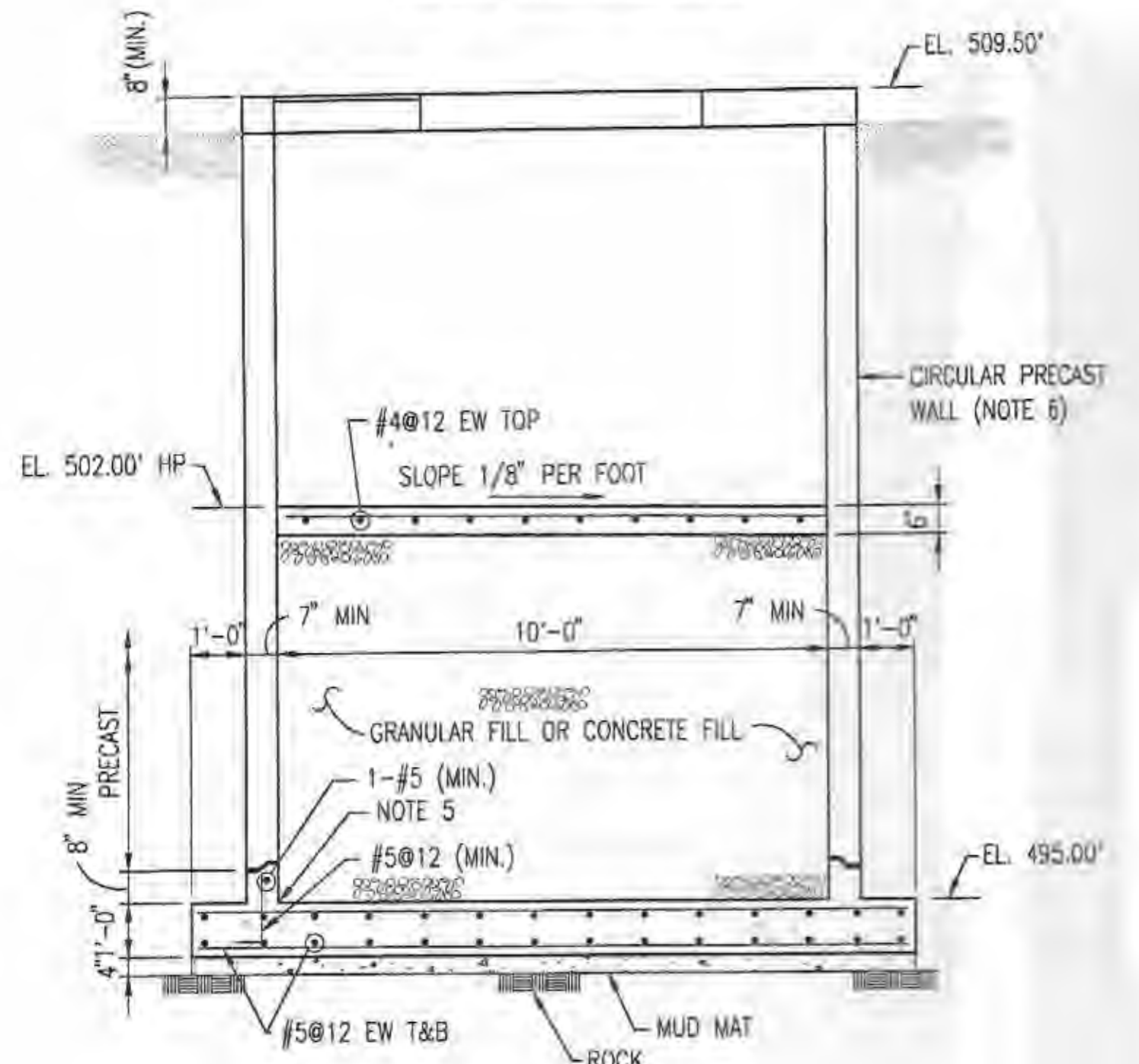
LIFT STATION TOP SLAB



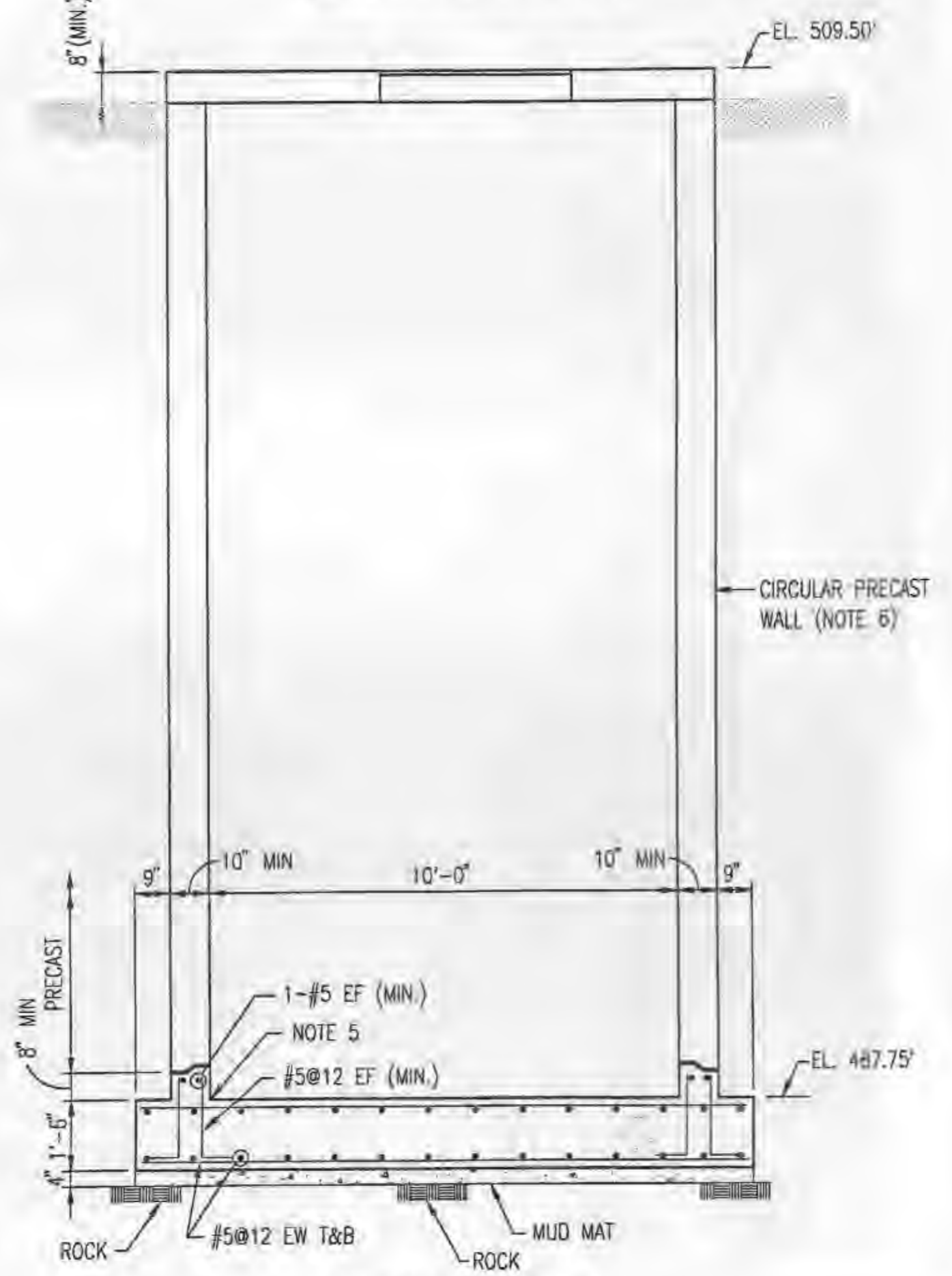
VALVE VAULT BOTTOM SLAB



LIFT STATION BOTTOM SLAB



VALVE VAULT ELEVATION



PUMP STATION ELEVATION

DESIGN LOADS FOR PUMP STATION & VALVE VAULT  
 ROOF LOAD = 100 PSF  
 LATERAL EARTH PRESSURE  
 AT-REST SATURATED = IN-SITE MATERIAL  
 95 LBS./CU. FT.

ROCK IS ESTIMATED TO BE AT EL. 494'-0" ±.  
 SEE GEOTECH REPORT FOR ADDITIONAL INFORMATION.

- NOTES:
- FOR GENERAL NOTES AND TYPICAL DETAILS SEE DWG S-01.
  - FOR TOP OF CONCRETE ELEVATION OF TOP AND BOTTOM SLAB SEE DWG. M-01.
  - FOR LOCATION AND ORIENTATION SEE DWG. C-10.
  - FOR LOCATION OF VENTS AND HATCHES IN TOP SLABS SEE DWG. M-01.
  - VERTICAL SECTION CAST MONOLITHIC WITH BOTTOM SLAB. COORDINATE HEIGHT, REINFORCEMENT REQUIREMENT AND SHAPE WITH PRECAST CONCRETE MANUFACTURER.
  - DESIGN PRECAST WALL FOR THE DESIGN LOADS SPECIFIED ON THIS DRAWING.
  - FOR PUMP STATION FOUNDATIONS ON ROCK, A MINIMUM OF THREE PROBE HOLES SHALL BE DRILLED THROUGH THE ROCK TO A DEPTH OF 5'-0" BELOW FOUNDATION GRADE TO CHECK FOR CLAY SEAMS/VOIDS IN THE ROCK. IF SEAMS/VOIDS GREATER THAN OR EQUAL TO 6" ARE ENCOUNTERED, ROCK EXCAVATION SHOULD CONTINUE BELOW THE SEAM/VOID. THE BEARING FOUNDATION SHALL BE EVALUATED BY A GEOTECHNICAL ENGINEER TO MAKE SURE THAT THE SPECIFIED BEARING PRESSURE CAN BE ATTAINED. CONTRACTOR SHALL PAY FOR THIS GEOTECHNICAL EVALUATION.
  - BACKFILL PLACED AGAINST PUMP STATION AND VALVE VAULT WALLS SHALL BE CLASSIFIED AS CLAYS AND SILTS HAVING A LIQUID LIMIT AND PLASTICITY INDEX LESS THAN 50 AND 25, RESPECTIVELY.
  - PAINT INTERFACE OF ALUMINUM AND CONCRETE SURFACES WITH BITUMASTIC COATING TO PREVENT CORROSION DUE TO GALVANIC ACTION.

A1 PUMP STATION AND VALVE VAULT DETAIL  
 N.T.S.



Rev	Date	Description
0	02/22/05	ISSUED FOR BID AND MODER REVIEW

PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.  
 LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN  
 WOODLANDS SITE  
**JACOBS**

Date	FEBRUARY 2005
Designed	NHS
Drawn	JJW
Checked	PKM
Approved	
Submitted	
Drawing Number	

S-03







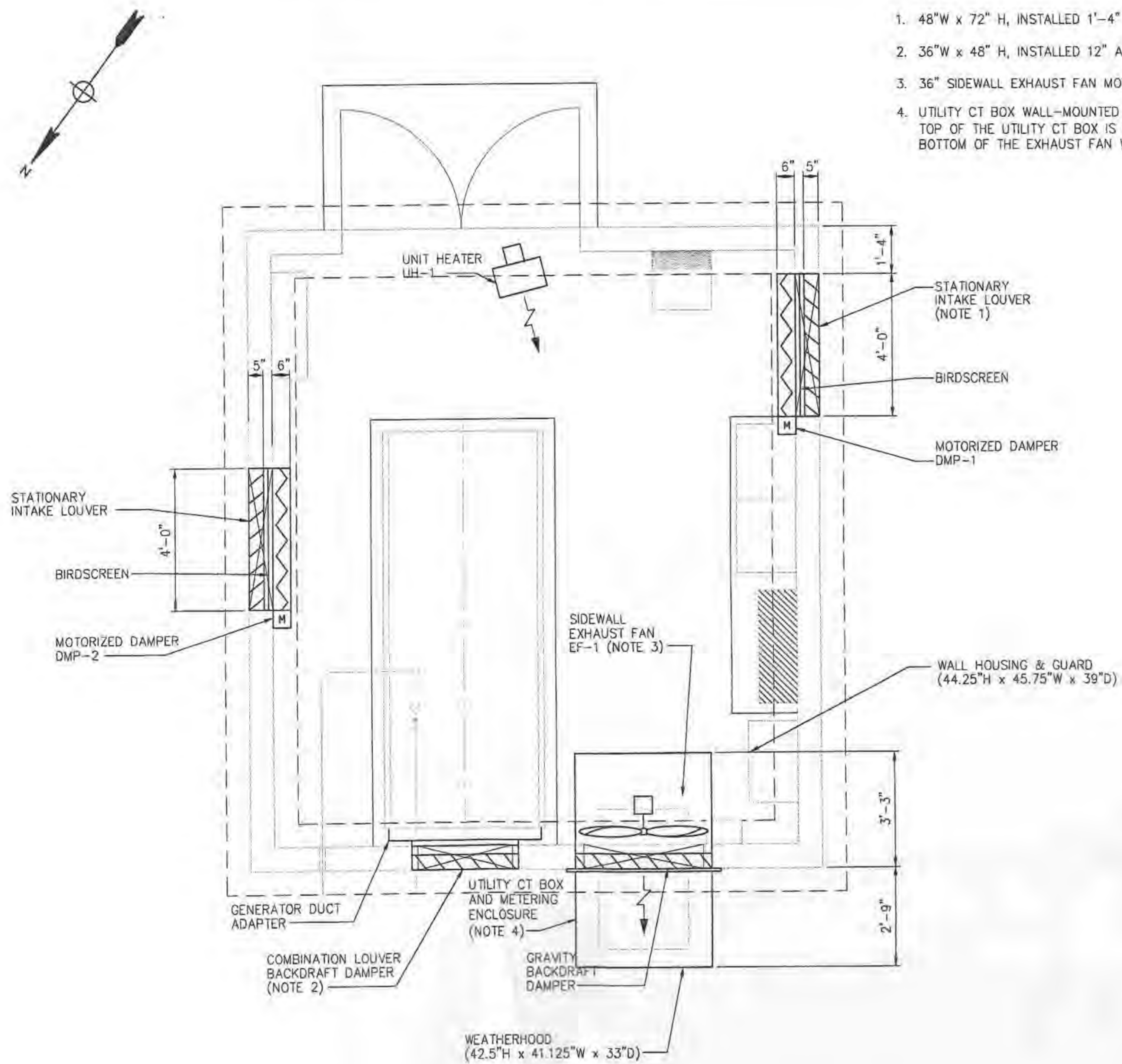


Submitted	
Approved	
Checked	
Drawn	
Description	ISSUED FOR BID AND MGR. REVIEW
Date	02/25/05
Rev.	0

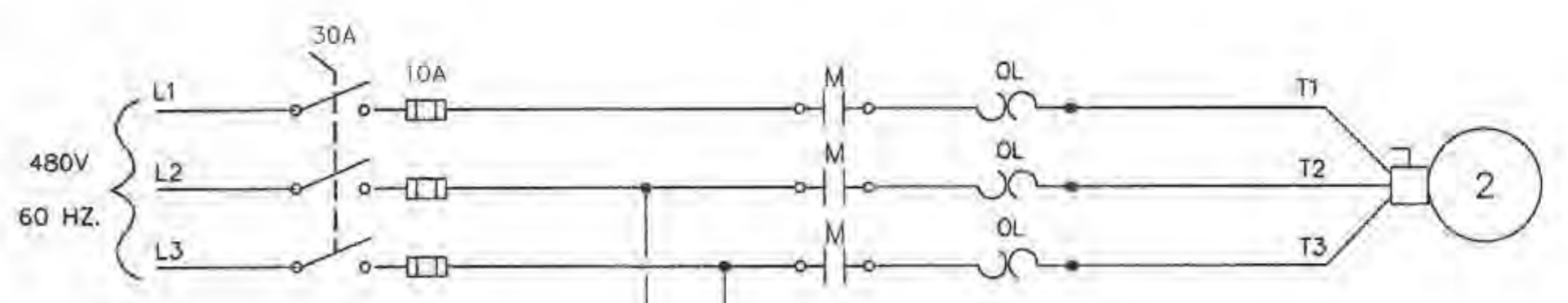
PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.  
 LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN  
 WOODLANDS SITE  
**JACOBS**

Title	HVAC PLAN ELECTRICAL SCHEMATIC AND SCHEDULES
Date	FEBRUARY 2005
Designed	K.MEREDITH
Drawn	J.J.WINKELMANN
Checked	C.D.O'CONNELL
Approved	
Submitted	
Drawing Number	H-01

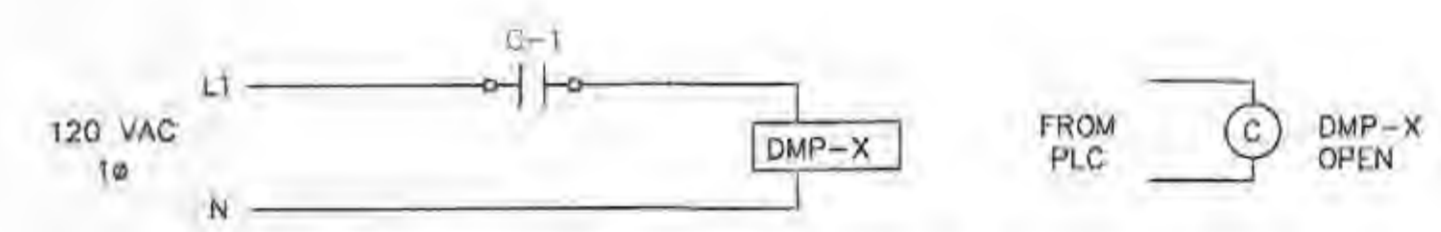
- NOTES:
- 48"W x 72" H, INSTALLED 1'-4" AFF.
  - 36"W x 48" H, INSTALLED 12" AFF.
  - 36" SIDEWALL EXHAUST FAN MOUNTED 6'-0" AFF.
  - UTILITY CT BOX WALL-MOUNTED SUCH THAT THE TOP OF THE UTILITY CT BOX IS 1' BELOW THE BOTTOM OF THE EXHAUST FAN WEATHERHOOD.



**PLAN**  
SCALE: 1/2" = 1'-0"



**EXHAUST FAN WIRING SCHEMATIC**



**DAMPER ACTUATOR WIRING SCHEMATIC (TYP.)**

**MOTORIZED DAMPER SCHEDULE**

MFR	MODEL	QTY.	SIZE		BLADE ACTION		VARIATIONS
			WIDE	HIGH	PB	QB	
GREENHECK	VCD-23	2	48"	72"		X	①

**LOUVER SCHEDULE**

MFR	MODEL	QTY.	SIZE		FRAME	VARIATIONS/FEATURES	DESCRIPTION
			WIDE	HIGH			
GREENHECK	GCE-402	1	36"	48"	6063T5 ALUMINUM	BACKDRAFT DAMPER, BIRDSCREEN	COMBINATION LOUVER BACKDRAFT DAMPER
GREENHECK	EHH-501	2	48"	72"	6063T5 ALUMINUM	BIRDSCREEN	STATIONARY INTAKE LOUVER

①	
FRAME	5" x 1" x 16ga GALVANIZED STEEL
BLADES	16ga. GALVANIZED STEEL
SEALS (OPT.)	VINYL
AXLES	1/2" DIA. PLATED STEEL
ACCESSORIES (OPT.)	ELECTRIC ACTUATOR ②

② ELECTRIC ACTUATOR SHALL OPERATE ON 120V, 60HZ POWER, PROVIDING 2- POSITION OPERATION WITH POWER OPEN AND SPRING RETURN CLOSED. ACTUATOR SHALL FAIL CLOSED AND BE LOCATED INTERNALLY WITH A NEMA 12 ENCLOSURE.





















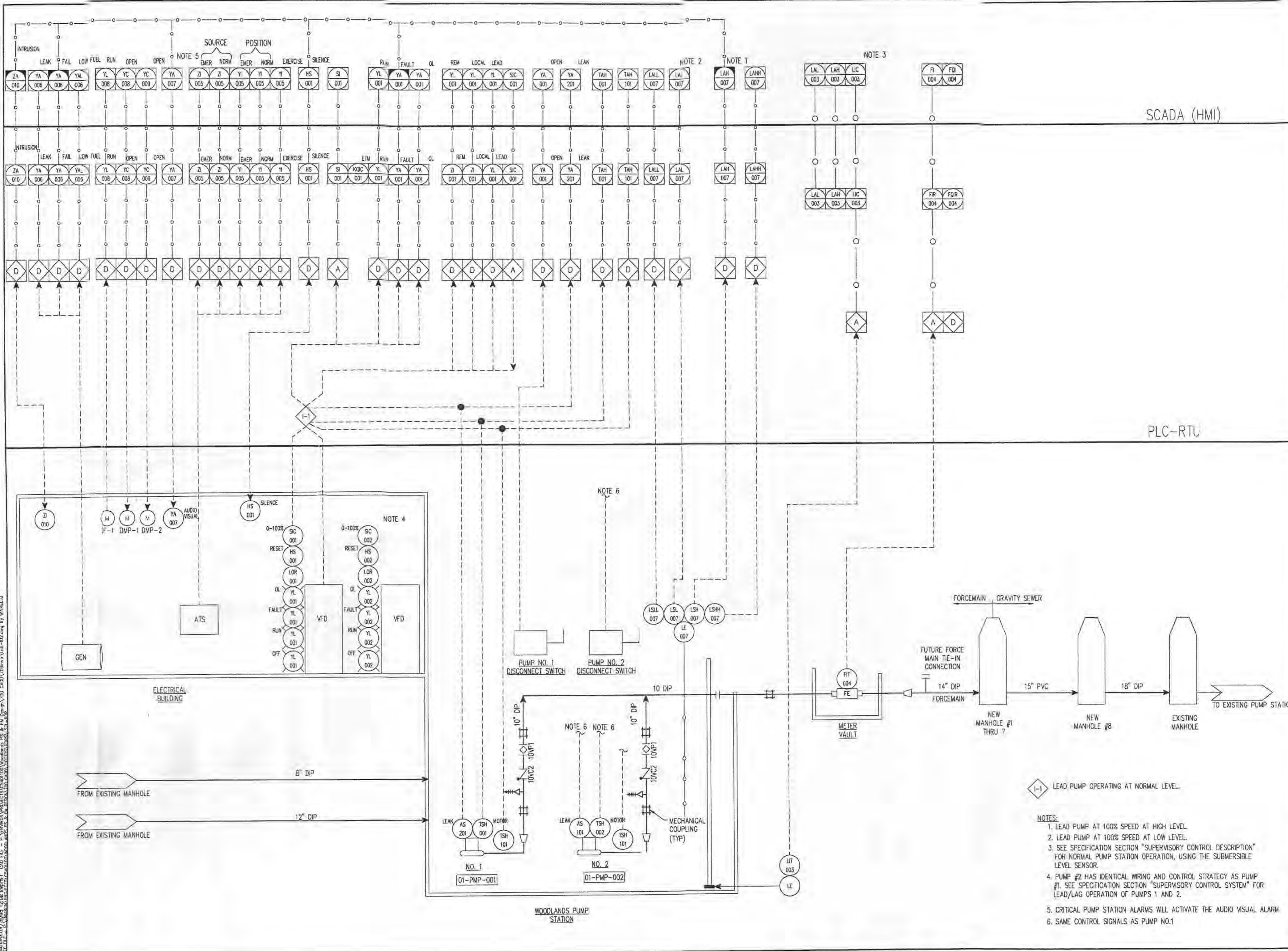




Rev.	Date	Description
0	02/25/05	ISSUED FOR BID AND WORK REVIEW

**PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY, MO.**  
**LAKE SAINT LOUIS RELIEF PUMP STATION AND FORCEMAIN**  
**WOODLANDS SITE**  
**JACOBS**

Title	
PROCESS & INSTRUMENTATION DIAGRAM PUMP STATION	
Date	FEBRUARY 2005
Design	K.MEREDITH
Drawn	J.J.WINKELMANN
Checked	C.D.O'CONNELL
Approved	
Submitted	
Drawing Number	



◊-1-1 LEAD PUMP OPERATING AT NORMAL LEVEL.

- NOTES:**
1. LEAD PUMP AT 100% SPEED AT HIGH LEVEL.
  2. LEAD PUMP AT 100% SPEED AT LOW LEVEL.
  3. SEE SPECIFICATION SECTION "SUPERVISORY CONTROL DESCRIPTION" FOR NORMAL PUMP STATION OPERATION, USING THE SUBMERSIBLE LEVEL SENSOR.
  4. PUMP #2 HAS IDENTICAL WIRING AND CONTROL STRATEGY AS PUMP #1. SEE SPECIFICATION SECTION "SUPERVISORY CONTROL SYSTEM" FOR LEAD/LAG OPERATION OF PUMPS 1 AND 2.
  5. CRITICAL PUMP STATION ALARMS WILL ACTIVATE THE AUDIO VISUAL ALARM.
  6. SAME CONTROL SIGNALS AS PUMP NO.1

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