

CONSTRUCTION PLANS
FOR
WASTEWATER SYSTEM IMPROVEMENTS

HARRIMAN UTILITY BOARD

HARRIMAN, TENNESSEE

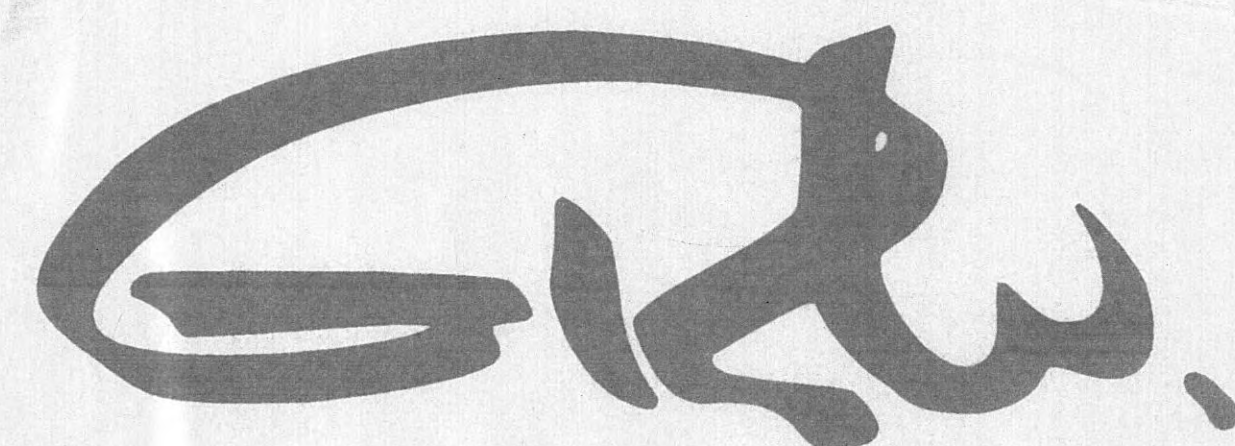
SOUTH HARRIMAN PUMP STATIONS REHABILITATION

CONTRACT S02-03
NOVEMBER, 2002

WPC 02-1086

APPROVAL EXPIRES
JAN 15 2004
TN DEPT. OF ENVIRONMENT & CONSERVATION
Division of Water Pollution Control

APPROVED FOR CONSTRUCTION
THE DOCUMENT BEARING THIS STAMP HAS BEEN REVIEWED AND RECOMMENDED BY THE
TENNESSEE DEPT. OF ENVIRONMENT & CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
AND IS HEREBY APPROVED FOR CONSTRUCTION BY THE COMMISSIONER
JAN 15 2003
THE APPROVAL SHALL NOT BE CONSIDERED AS CREATING A PRESUMPTION OF
CORRECT OPERATION OR AS A WARRANTY BY THE COMMISSIONER THAT THE
APPROVED PROJECTS WILL REACH THE DESIGNED GOALS. FOR THE COMMISSIONER
BY



GRW Elrod Dunson, Inc.

Engineers, Architects, Planners

404 BNA Drive, Suite 201 NASHVILLE, TN 37217
PH. (615)366-1600 FAX (615)366-0406

LEXINGTON LOUISVILLE NASHVILLE KNOXVILLE INDIANAPOLIS

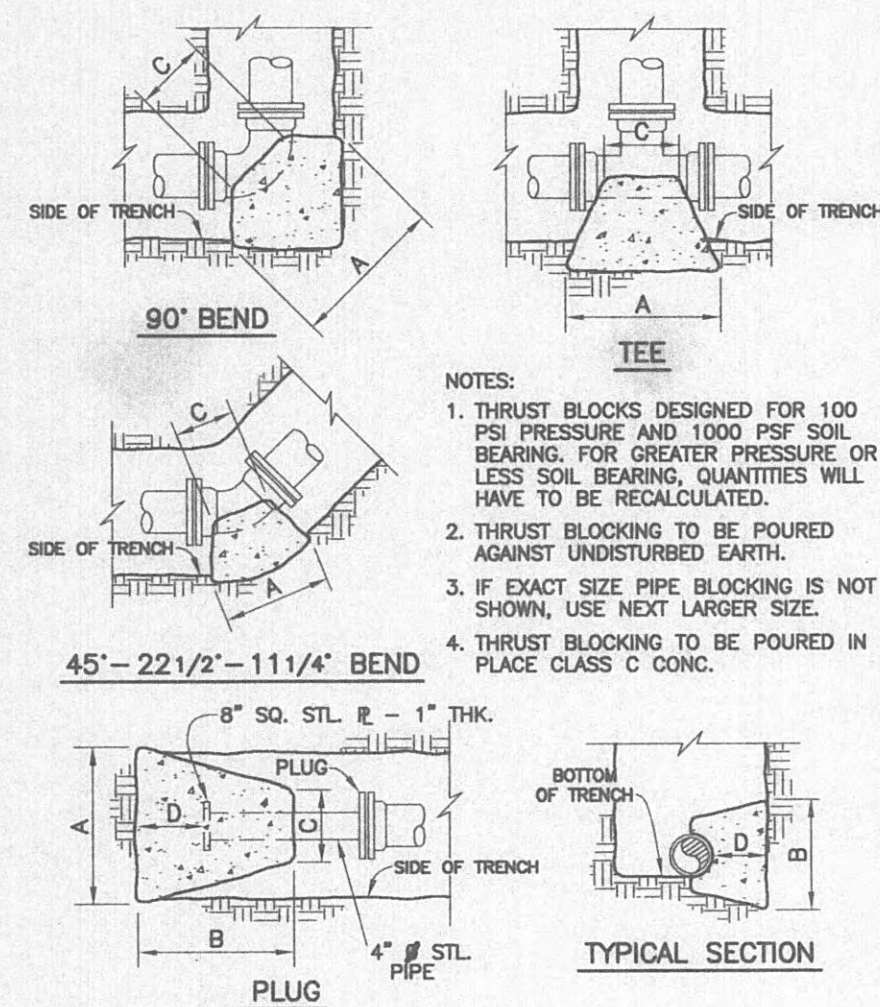
Accepted By: _____
Title: _____ MANAGER
For: HARRIMAN UTILITY BOARD
Date: _____

PROJECT NO. 7601-30

SET NO.



Robert C. Threadgill 12/2/02



THRUST BLOCKING DETAIL
NOT TO SCALE

90° BEND									
SIZE	16"	12"	10"	8"	6"	4"	2"		
A	67	50	42	34	28	18	16		
B	67	50	42	34	28	18	16		
C	30	18	15	12	12	9	9		
D	34	25	21	17	13	9	9		

45° BEND									
SIZE	16"	12"	10"	8"	6"	4"	2"		
A	48	37	31	25	18	12	12		
B	48	37	31	25	18	12	12		
C	18	16	14	12	12	8	8		
D	24	18	15	12	9	6	6		

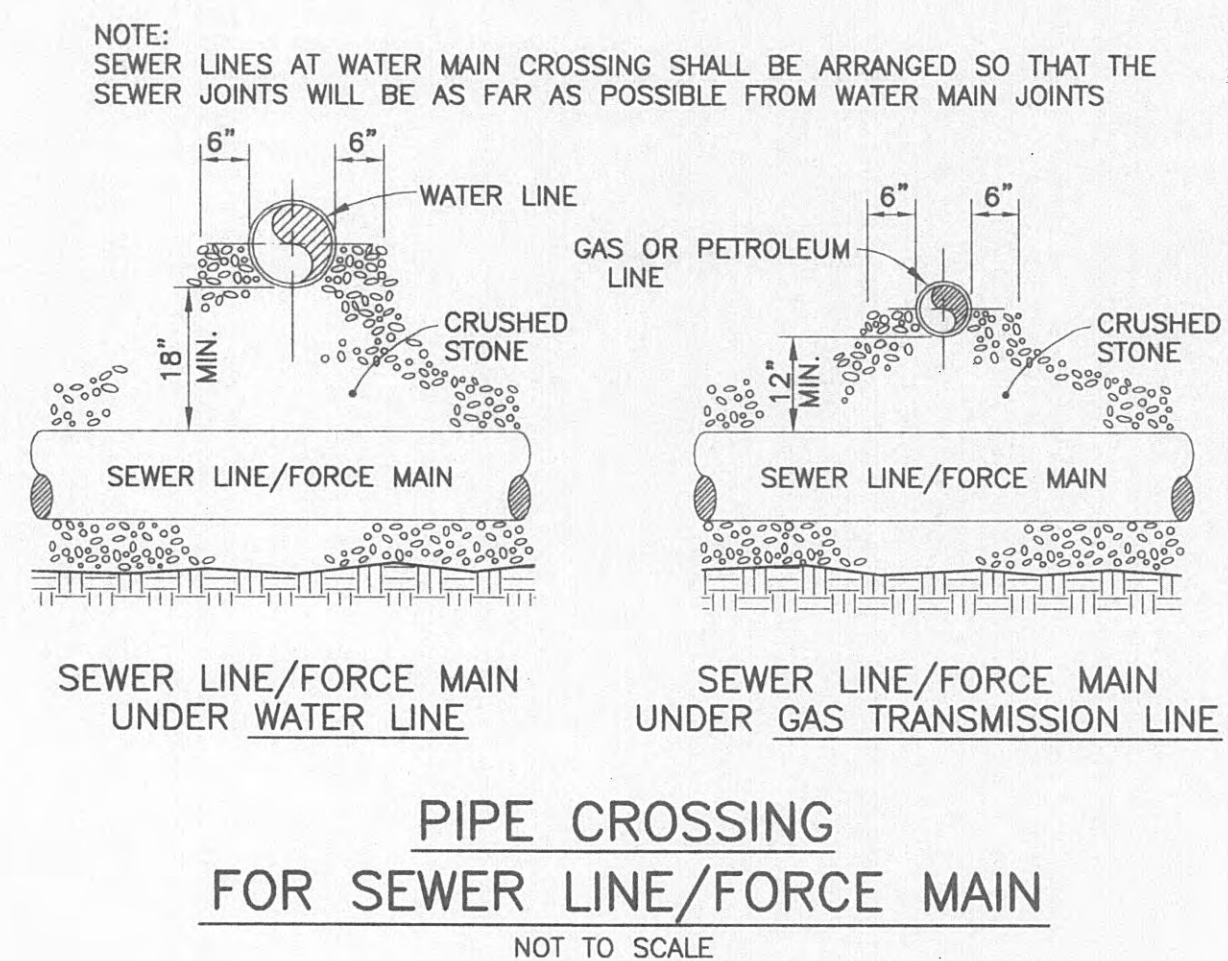
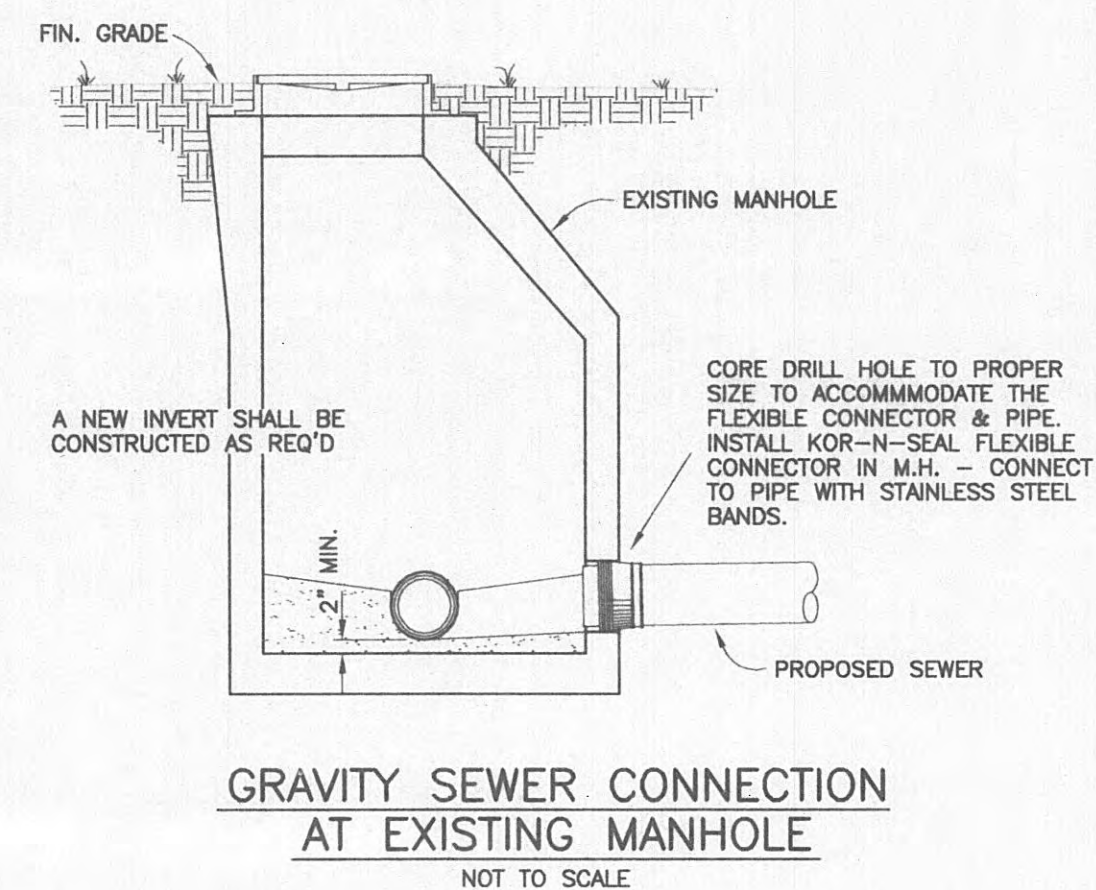
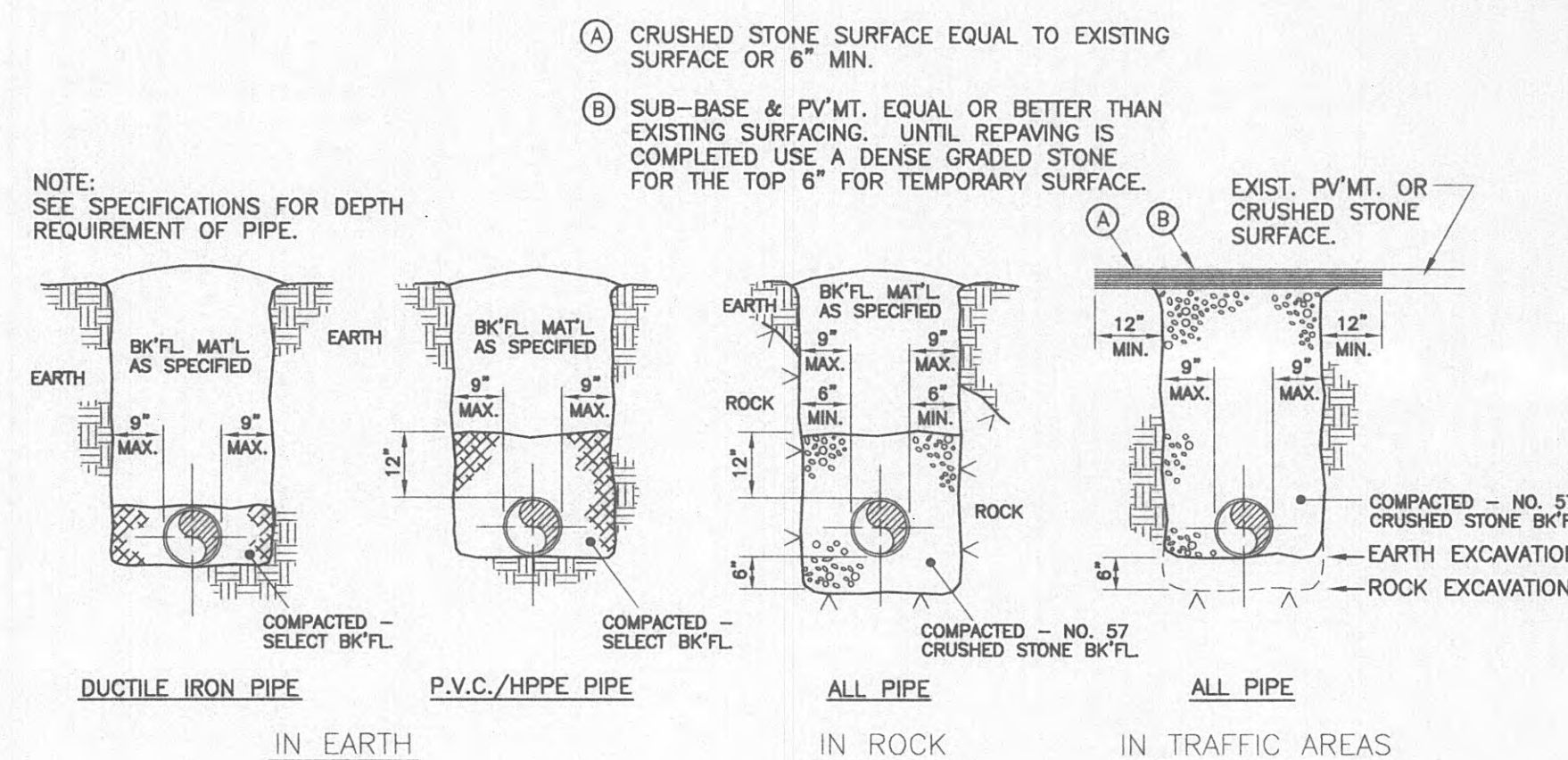
22 1/2° BEND									
SIZE	16"	12"	10"	8"	6"	4"	2"		
A	35	26	23	18	13	9	9		
B	35	26	23	18	13	9	9		
C	18	16	14	12	10	8	8		
D	19	13	11	9	6	4	4		

11 1/4° BEND									
SIZE	16"	12"	10"	8"	6"	4"	2"		
A	25	19	16	13	11	9	9		
B	25	19	16	13	11	9	9		
C	18	16	14	12	10	8	8		
D	12	9	8	6	5	4	4		

PLUG									
SIZE	16"	12"	10"	8"	6"	4"	2"		
A	56	52	43	34	26	26	26		
B	56	52	43	34	26	26	26		
C	12	12	12	12	12	12	12		
D	44	32	22	15	11	11	11		

TEE									
SIZE	16"	12"	10"	8"	6"	4"	2"		
A	56	52	42	28	43	26	26		
B	56	52	43	28	43	26	26		
C	30	12	12	12	12	12	12		
D	30	26	21	14	21	13	13		

DIMENSIONS ARE IN INCHES



90° BEND									
SIZE	12"	10"	8"	6"	4"	2"			
A	60	54	48	42	36	30			
B	48	42	36	30	22	12			
C	44	38	32	26	18	8			
D	46	40	34	28	20	12			

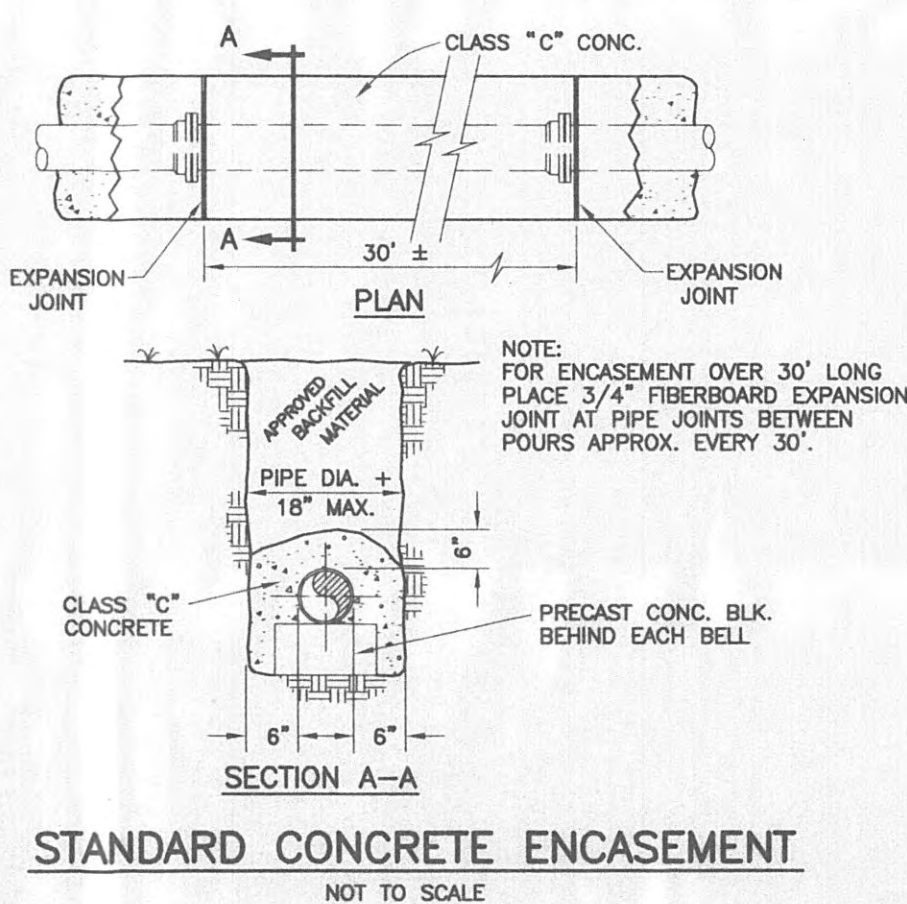
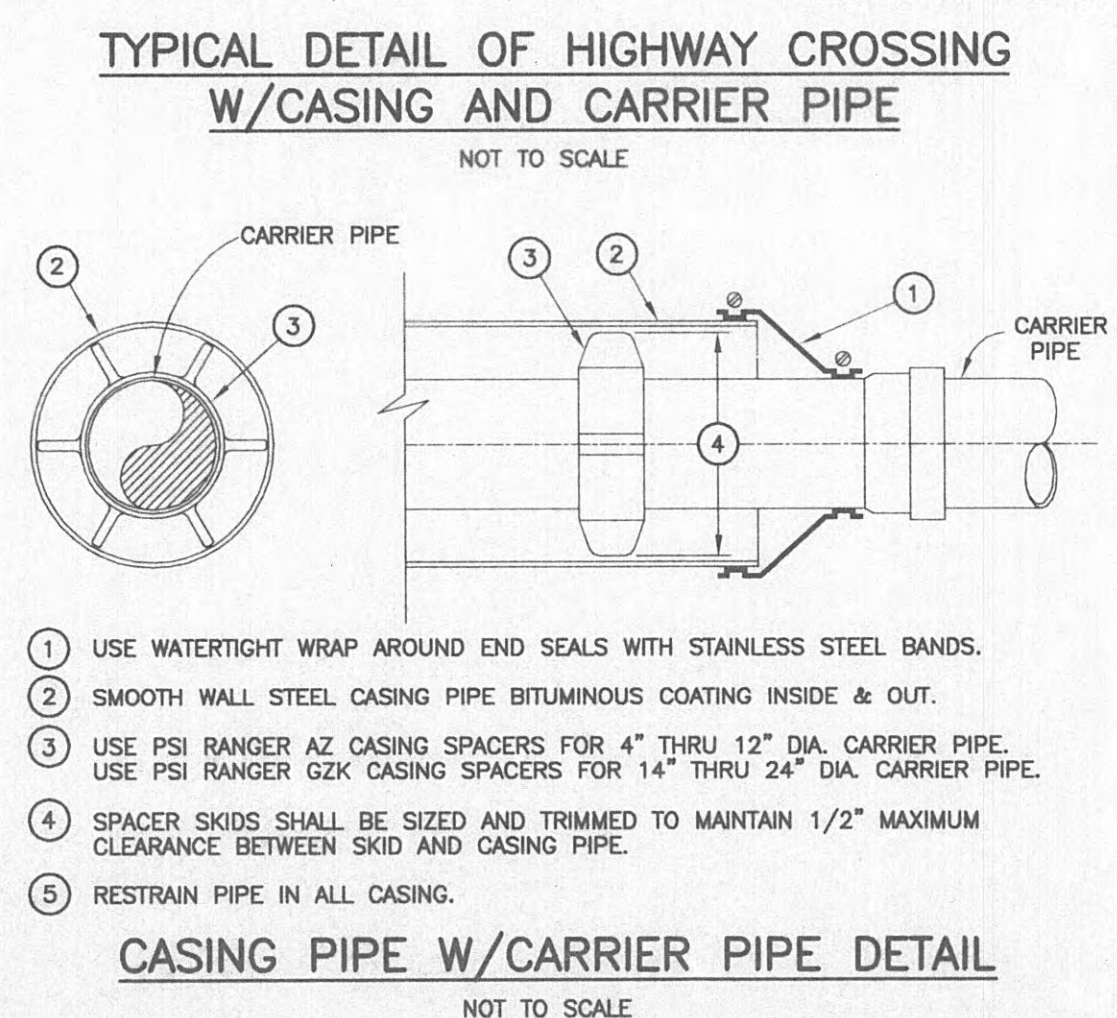
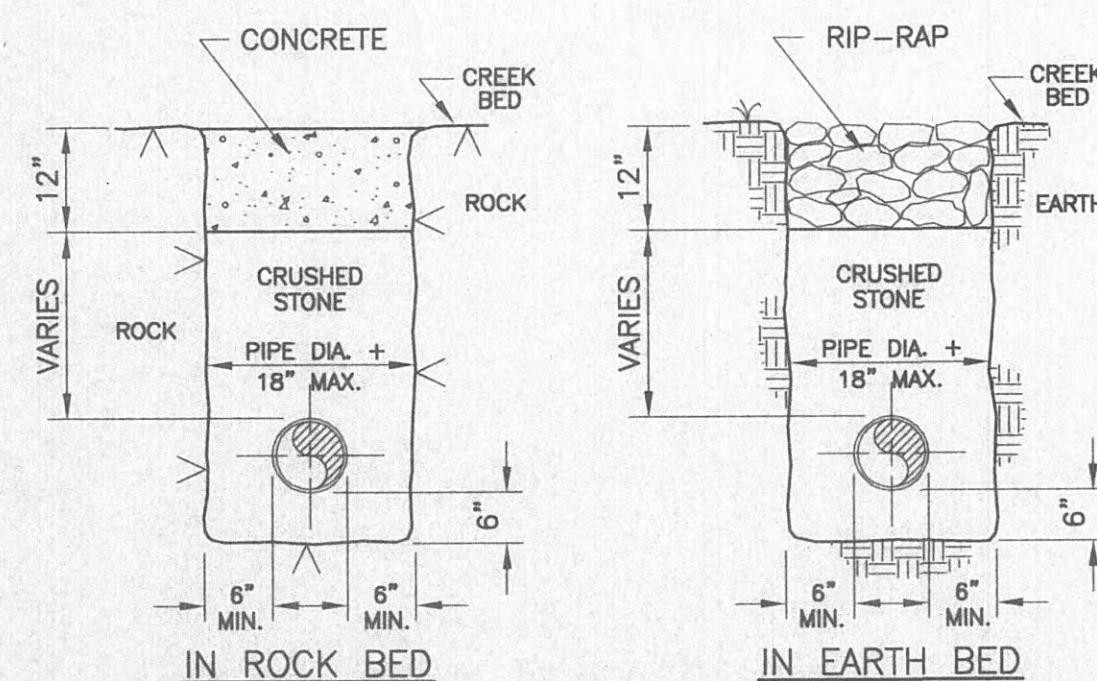
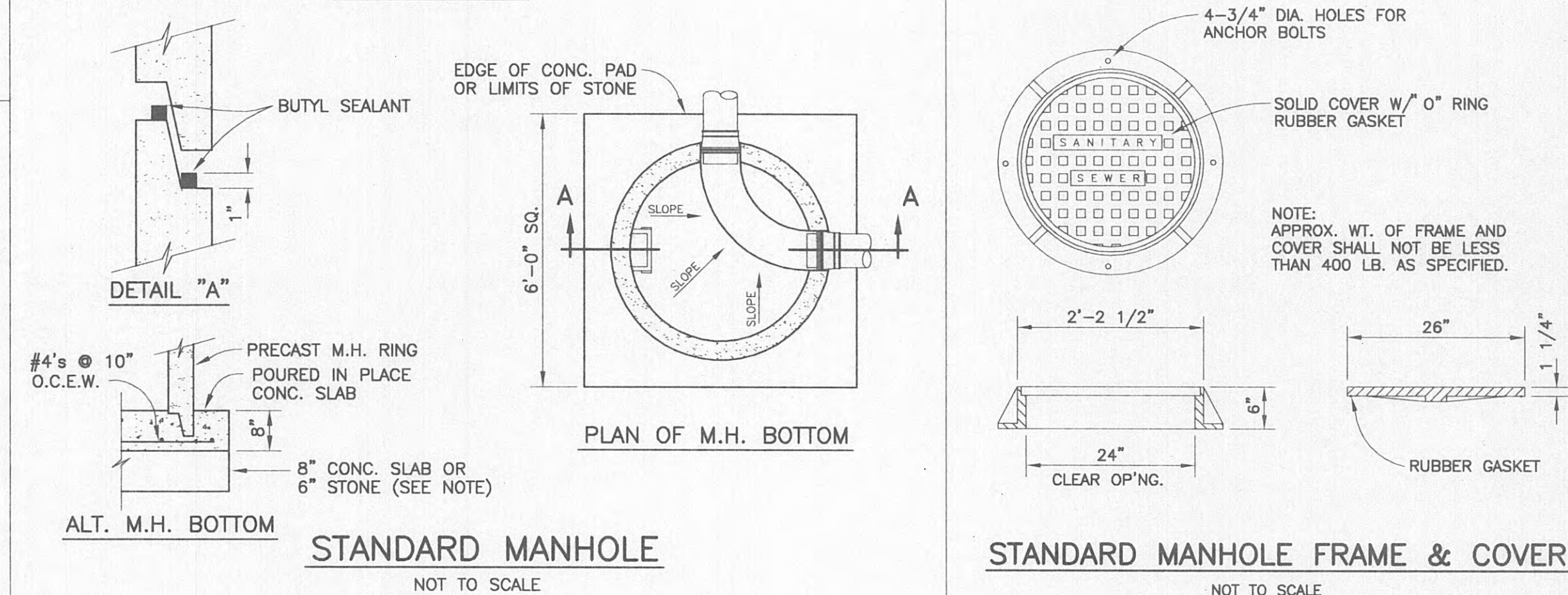
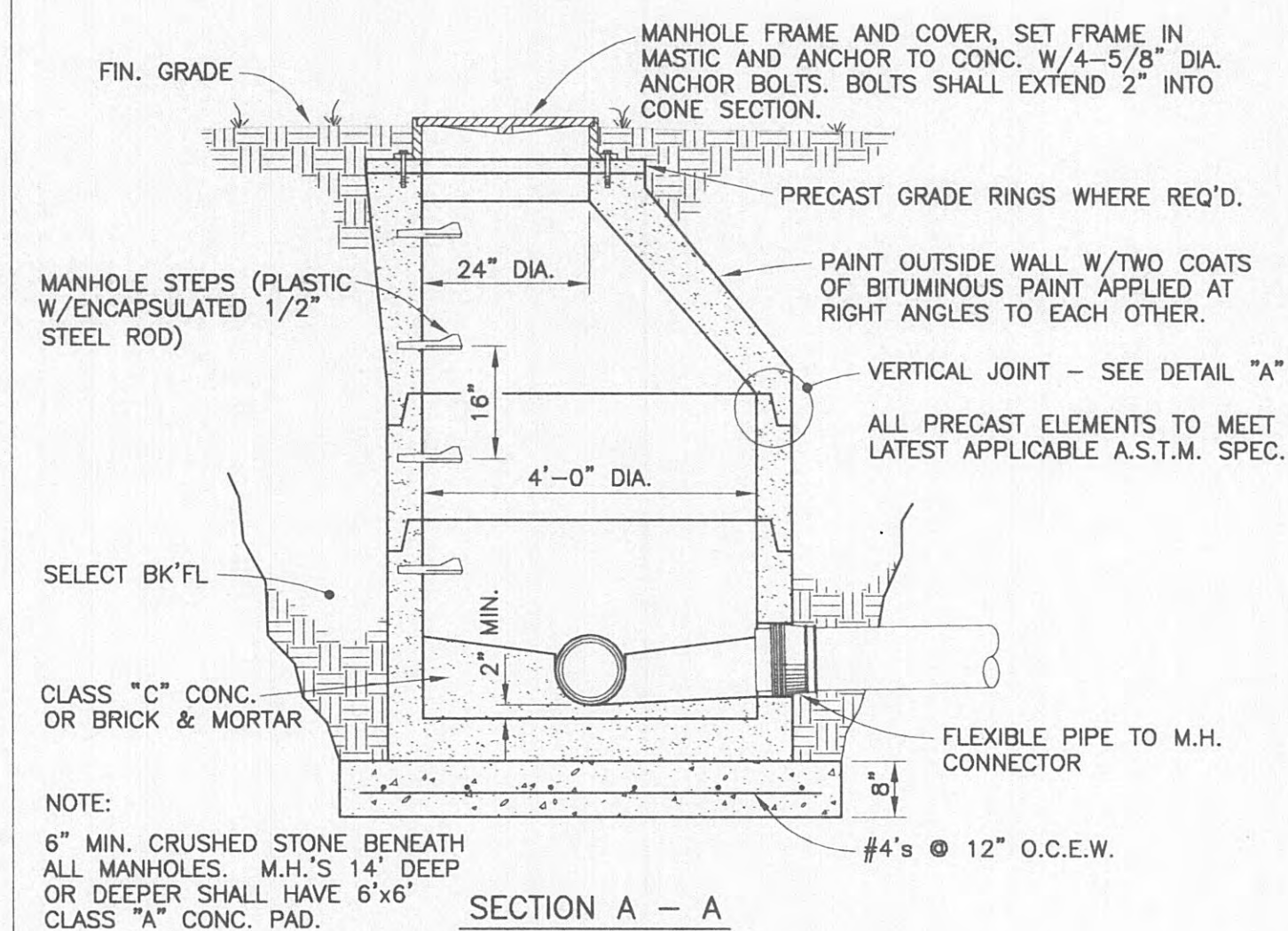
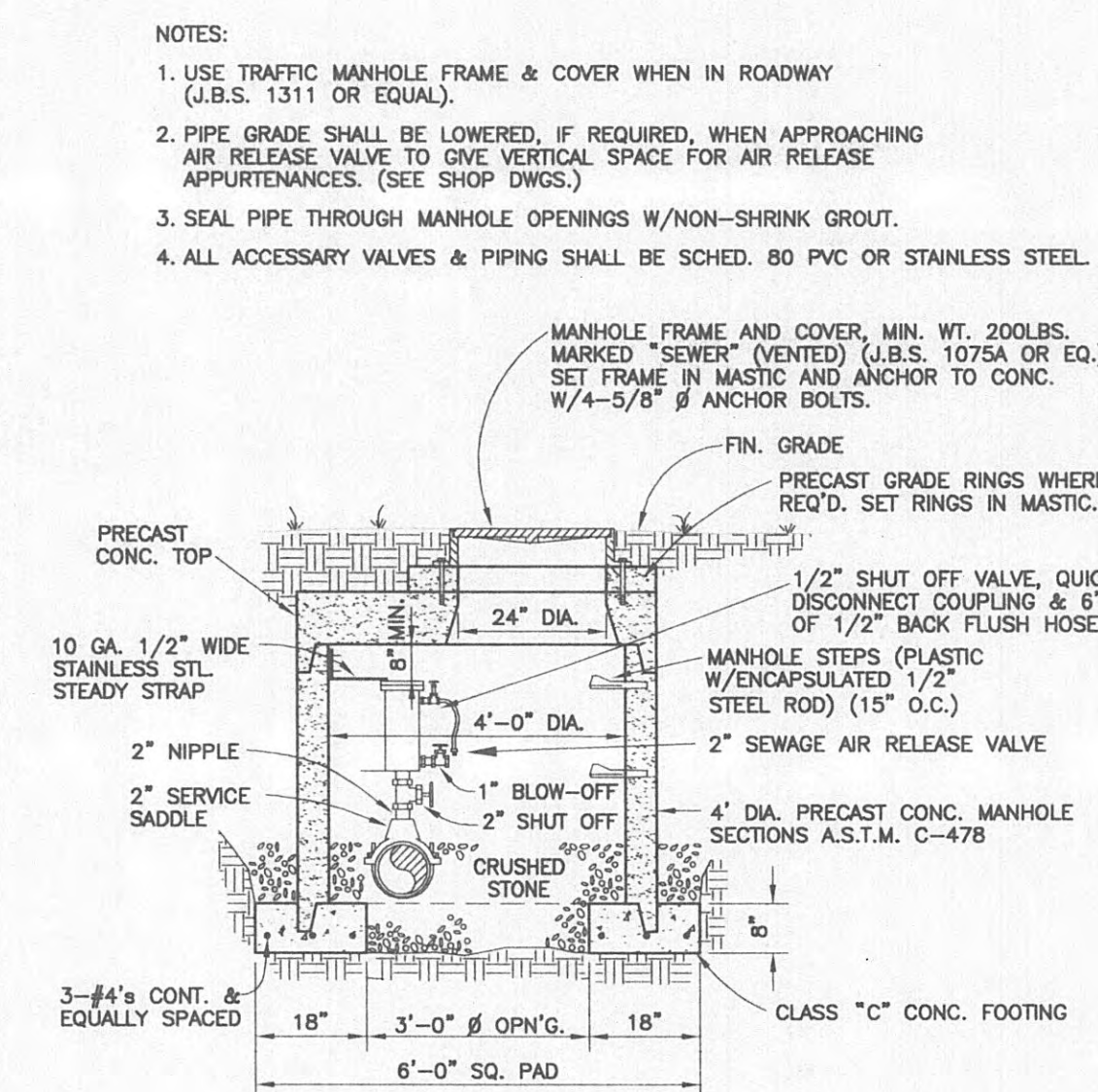
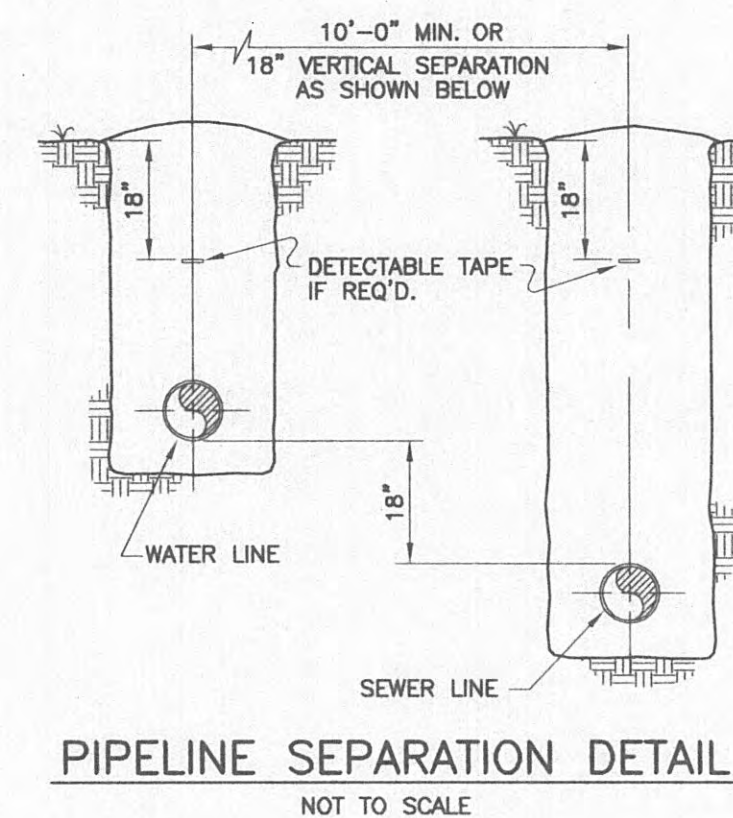
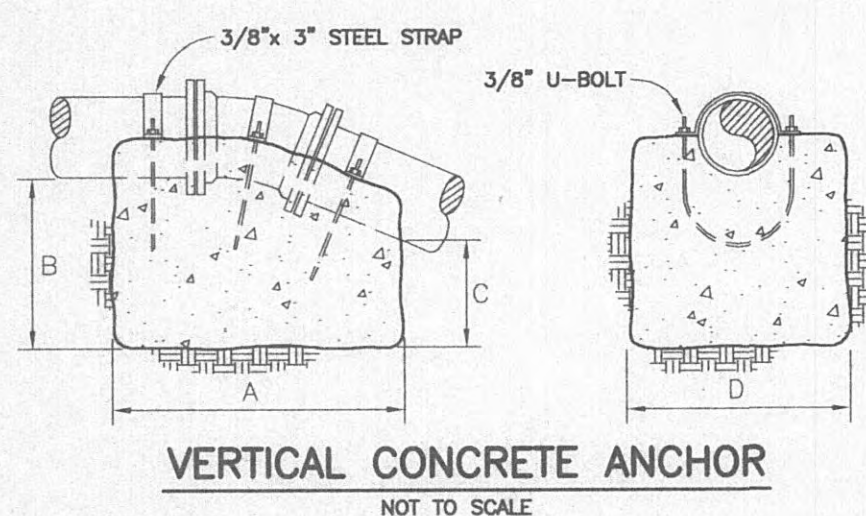
45° BEND									
SIZE	12"	10"	8"	6"	4"	2"			
A	56	50	44	38	32	28			
B	42	38	32	26	20	12			
C	38	34	28	22	16	8			
D	40	36	30	24	18	10			

22 1/2° BEND									
SIZE	12"	10"	8"	6"	4"	2"			
A	50	44	38	34	30	22			
B	34	30	26	22	16	12			
C	30	26	22	18	12	8			
D	32	28	24	20	14	10			

11 1/4° BEND									
SIZE	12"	10"	8"	6"	4"	2"			
A	34	30	26	24	22	18			
B	28	24	18	16	12	8			
C	26	24	18	16	12	8			
D	30	26	24	18	12	10			

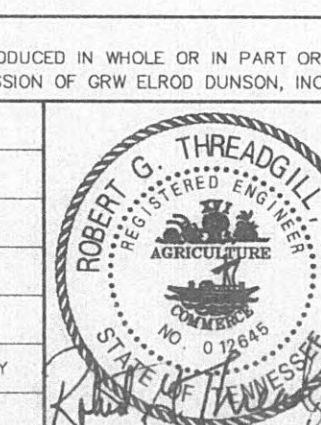
DIMENSIONS ARE IN INCHES

- NOTES:
- POUR CLASS C CONCRETE ANCHOR AGAINST UNDISTURBED EARTH OR ROCK.
 - IF EXACT SIZE PIPE IS NOT SHOWN, USE NEXT LARGER SIZE.
 - VERTICAL CONCRETE ANCHOR DESIGNED FOR 100 PSI FOR GREATER PRESSURE. QUANTITIES WILL HAVE TO BE RECALCULATED.



BURIED TELEPHONE CABLES AND UTILITIES
CALL: TENNESSEE ONE CALL (1-800-351-1111)

REVISIONS			
NO.	DESCRIPTION	DATE	BY



GRW PROJECT NO. 7601-30 CONTRACT NO. S02-03

STANDARD CONSTRUCTION DETAILS
SOUTH HARRIMAN PUMP STATION REHABILITATION
HARRIMAN UTILITY BOARD
HARRIMAN, TENNESSEE

DESIGNED: RGT	DATE: NOVEMBER, 2002
DRAWN: DGR	SCALE: NONE
REVIEWED: RGT	SHEET NO. C-9
APPROVED: RGT	

GRW Elrod Dunson, Inc.
Engineers, Architects, Planners
LEXINGTON LOUISVILLE INDIANAPOLIS
NASHVILLE KNOXVILLE

12-2-02

Note: Elevations are Based on Control Monument C.P.--B of Tennessee Highway Department Pine Ridge Road Project. Monument is an Iron Pin (Found) with a Mattern & Craig Eng. Cap. Elevation of 857.24 From Highway Project Plans.

MAP LEGEND

- ⊙ Spike (Found)
- ⊙ Iron Pin (Found)
- ⊙ Iron Pipe (Found)
- WM Water Meter
- GM Gas Meter
- ⊙ Valve
- ⊙ Power Pole
- ⊙ Light Pole
- Power Line
- Drainage Manhole
- Sanitary Sewer Manhole
- Proposed Force Main
- 2" Contour
- 10" Contour
- Gas Main
- Water Main
- Ditch/Creek

PLUG EXIST. FM AFTER NEW CONNECTION

STA. 0+00
MAKE CONNECTION HERE TO EXIST. 10" D.I.P. FORCE MAIN
INSTALL -
1 - 10" CUTTING-IN-SLEEVE
1 - 90° MJ FITTING
USE MEGA-LUG TYPE RESTRAINTS ON ALL FITTINGS

EXISTING 10" DIP FORCE MAIN APPROX. LOC. FROM WOODY PS

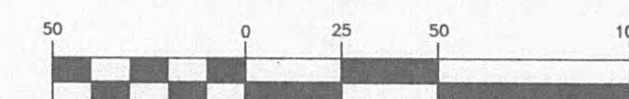
BORE AND JACK S.E. PURITAN RD.
50 LF - 18" STEEL CASING
(25 MIN. THK.) WITH 10" R.J. DIP CARRIER PIPE

INSTALL 2" AIR RELEASE VALVE STA. 8+50 OR HIGH POINT IN PIPE

STA. 11+51.0
MAKE CONNECTION HERE TO EXIST. 10" D.I.P. FORCE MAIN
INSTALL -
1 - 10" CUTTING-IN-SLEEVE
1 - 90° MJ FITTING
USE MEGA-LUG TYPE RESTRAINTS ON ALL FITTINGS

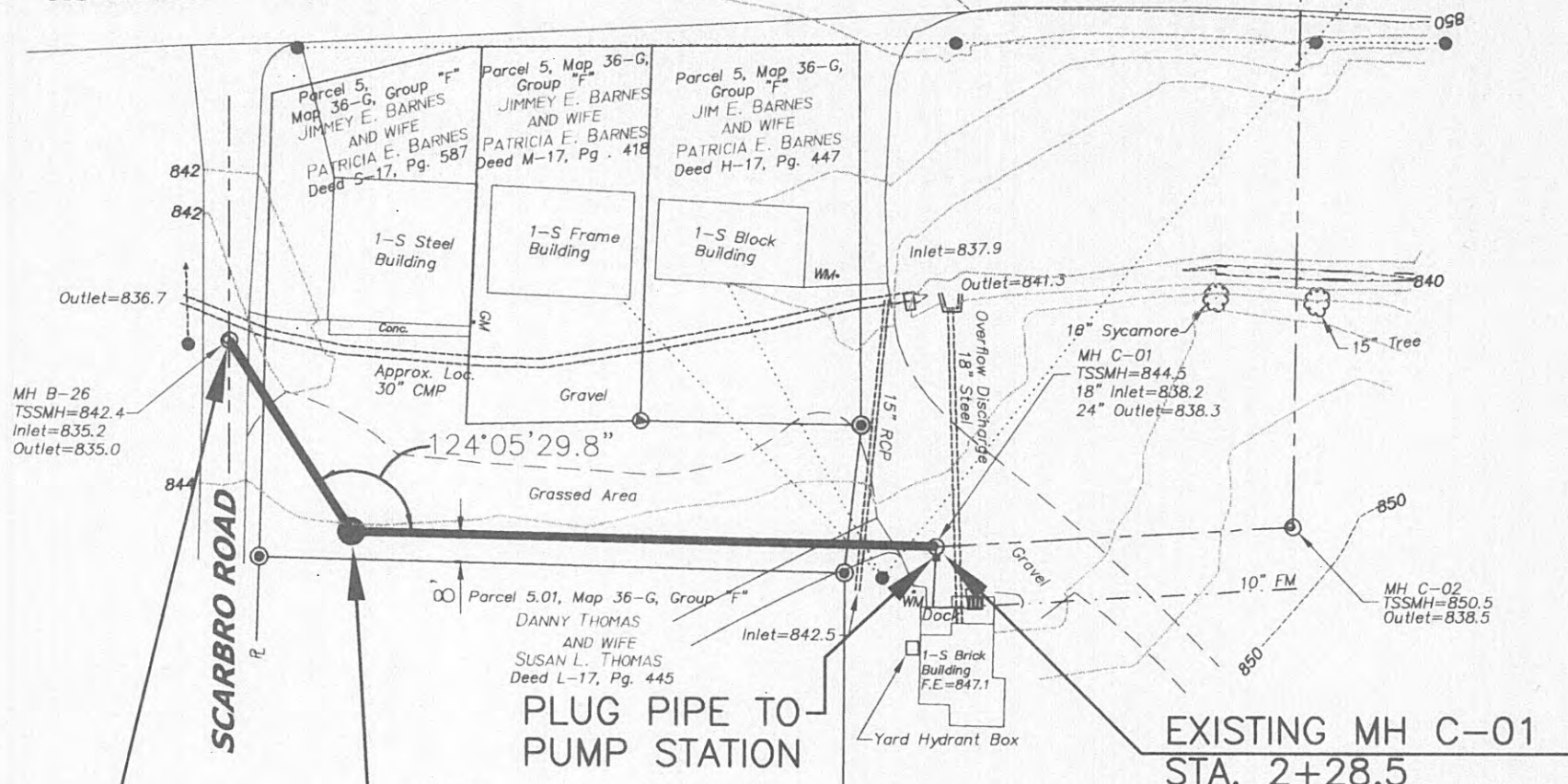
PLUG EXIST. FM AFTER NEW CONNECTION

GRAPHIC SCALE



(IN FEET)
1 inch = 50 ft. HOR
1 inch = 5 ft. VERT

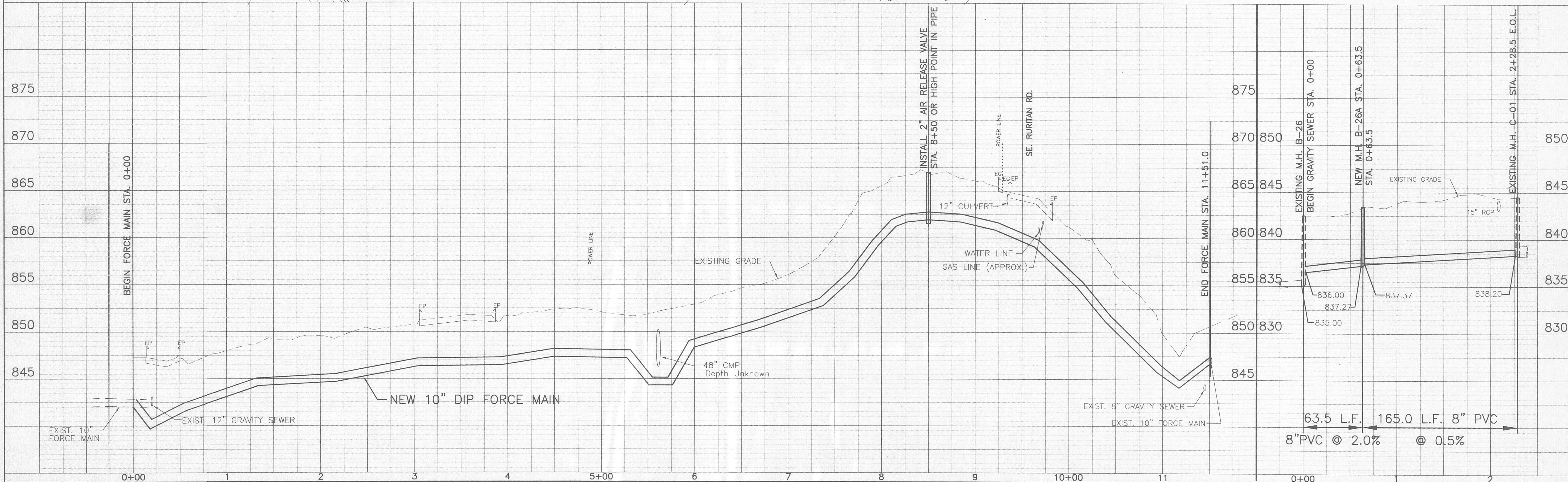
RURITAN DRIVE (TENN HWY 29A)



PLUG PIPE TO PUMP STATION
NEW M.H. B-26A
STA. 0+63.5

EXISTING MH B-26
STA. 0+00
MAKE CONNECTION - CORE DRILL OPENING FOR PIPE AND INSTALL PIPE USING KOR-N-SEAL CONNECTOR

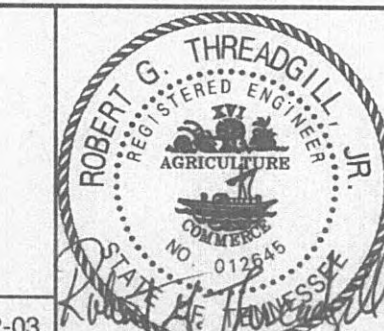
EXISTING MH C-01
STA. 2+28.5
MAKE CONNECTION - CORE DRILL OPENING FOR PIPE, RESHAPE INVERT AS REQUIRED AND INSTALL PIPE USING KOR-N-SEAL CONNECTOR.



NOTES:

NO.	DESCRIPTION	DATE	BY

FORCE MAIN - STA. 0+00 TO STA. 11+51 E.O.L.
GRAVITY SEWER - STA. 0+00 TO STA. 2+28.5 E.O.L.
HARRIMAN UTILITY BOARD
HARRIMAN, TENNESSEE



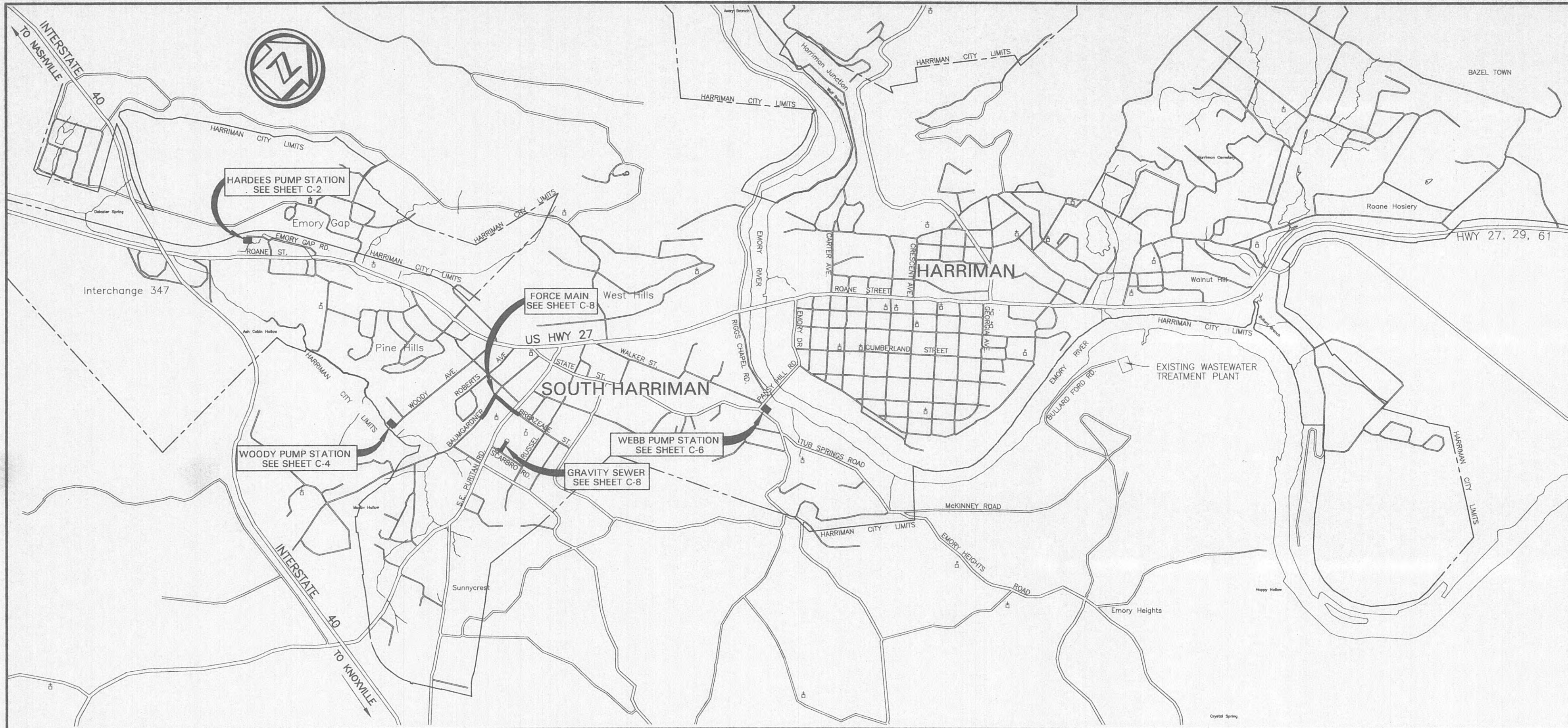
GRW Elrod Dunson, Inc.
Engineers, Architects, Planners
MEMPHIS TENNESSEE

DRAWN: DGR
FILE NAME: 7601-30-08.DWG
CHECKED: RGT
APPROVED: RGT
DATE: NOVEMBER, 2002
SCALE: NOTED
SHEET NO. C-8

GRW PROJECT NO. 7601-30

CONTRACT NO. S02-03

12-2-02



LOCATION MAP
SCALE: 1" = 1500'



VICINITY MAP
NOT TO SCALE

INDEX OF SHEETS

- C-1 LOCATION MAP, VICINITY MAP AND INDEX OF SHEETS
- C-2 EXISTING HARDEES SEWAGE PUMP STATION-PLAN VIEWS
- C-3 EXISTING HARDEES SEWAGE PUMP STATION-SECTIONS
- C-4 EXISTING WOODY ST. SEWAGE PUMP STATION-PLAN VIEWS
- C-5 EXISTING WOODY ST. SEWAGE PUMP STATION-SECTIONS
- C-6 EXISTING WEBB SEWAGE PUMP STATION-PLAN VIEWS
- C-7 EXISTING WEBB SEWAGE PUMP STATION-SECTIONS
- C-8 PLAN AND PROFILE FORCE MAIN STA. 0+00 TO STA. 11+51 E.O.L.
- C-9 PLAN AND PROFILE GRAVITY SEWER STA. 0+00 TO STA. 2+28.5 E.O.L.
- C-9 STANDARD CONSTRUCTION DETAILS

- A-1 ARCHITECTURAL
- A-2 ARCHITECTURAL

- E-1 ELECTRICAL SYMBOLS
- E-2 CONTROL CIRCUIT - HARDEES PUMP STATION
- E-3 HARDEES PUMP STATION ELECTRICAL PLAN & DETAILS
- E-4 CONTROL CIRCUIT - WEBB PUMP STATION
- E-5 WEBB PUMP STATION ELECTRICAL PLAN & DETAILS
- E-6 CONTROL CIRCUIT - WOODY ST. PUMP STATION
- E-7 WOODY ST. PUMP STATION ELECTRICAL PLAN & DETAILS

- M-1 MECHANICAL
- M-2 MECHANICAL
- M-3 MECHANICAL
- M-4 MECHANICAL

GRW PROJECT NO. 7601-30 CONTRACT NO. S02-03

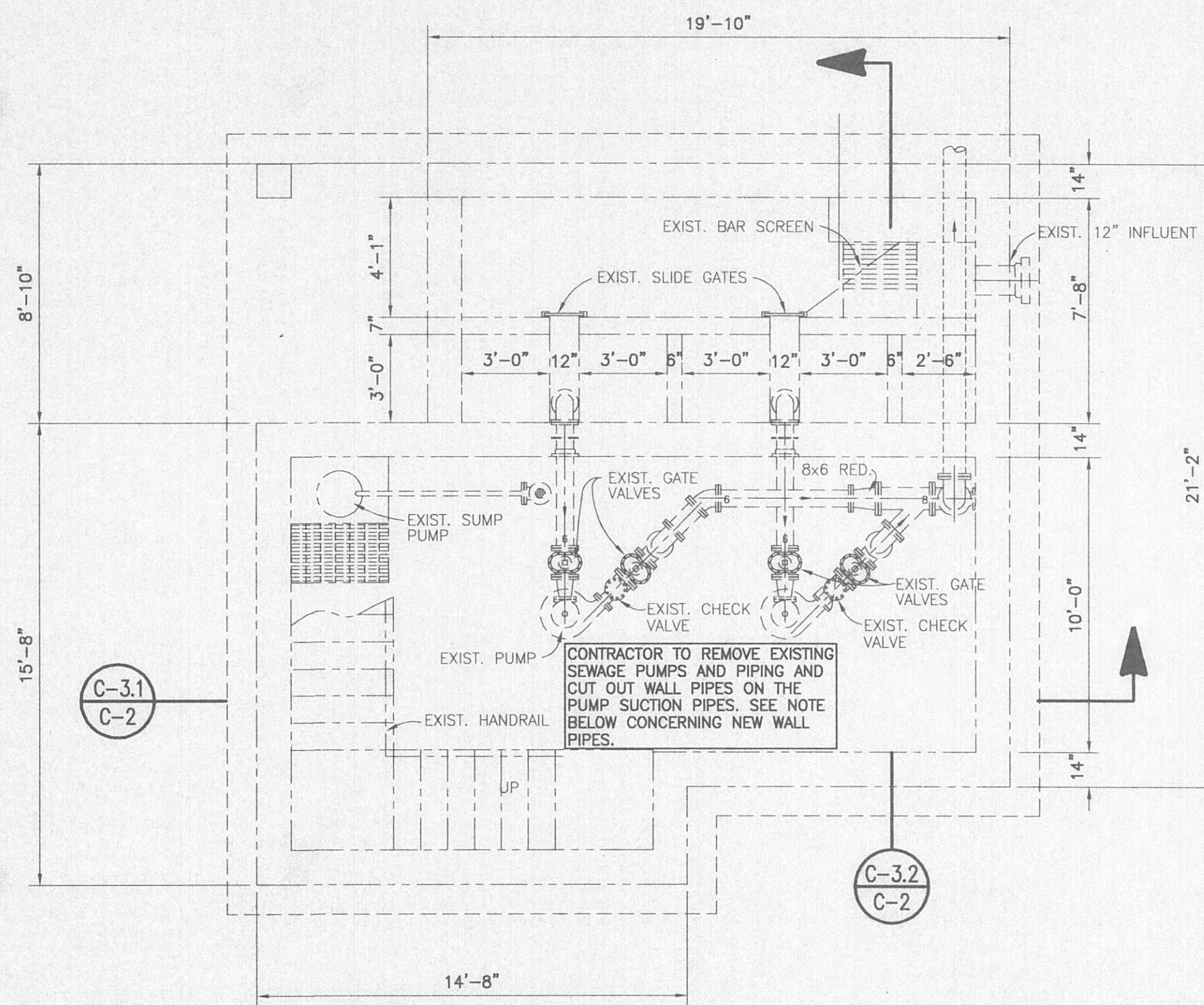
LOCATION PLAN, VICINITY MAP
INDEX OF DRAWINGS
SOUTH HARRIMAN PUMP STATIONS REHABILITATION
HARRIMAN UTILITY BOARD - HARRIMAN, TENNESSEE

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NO.	DESCRIPTION	DATE	BY
	REVISIONS		

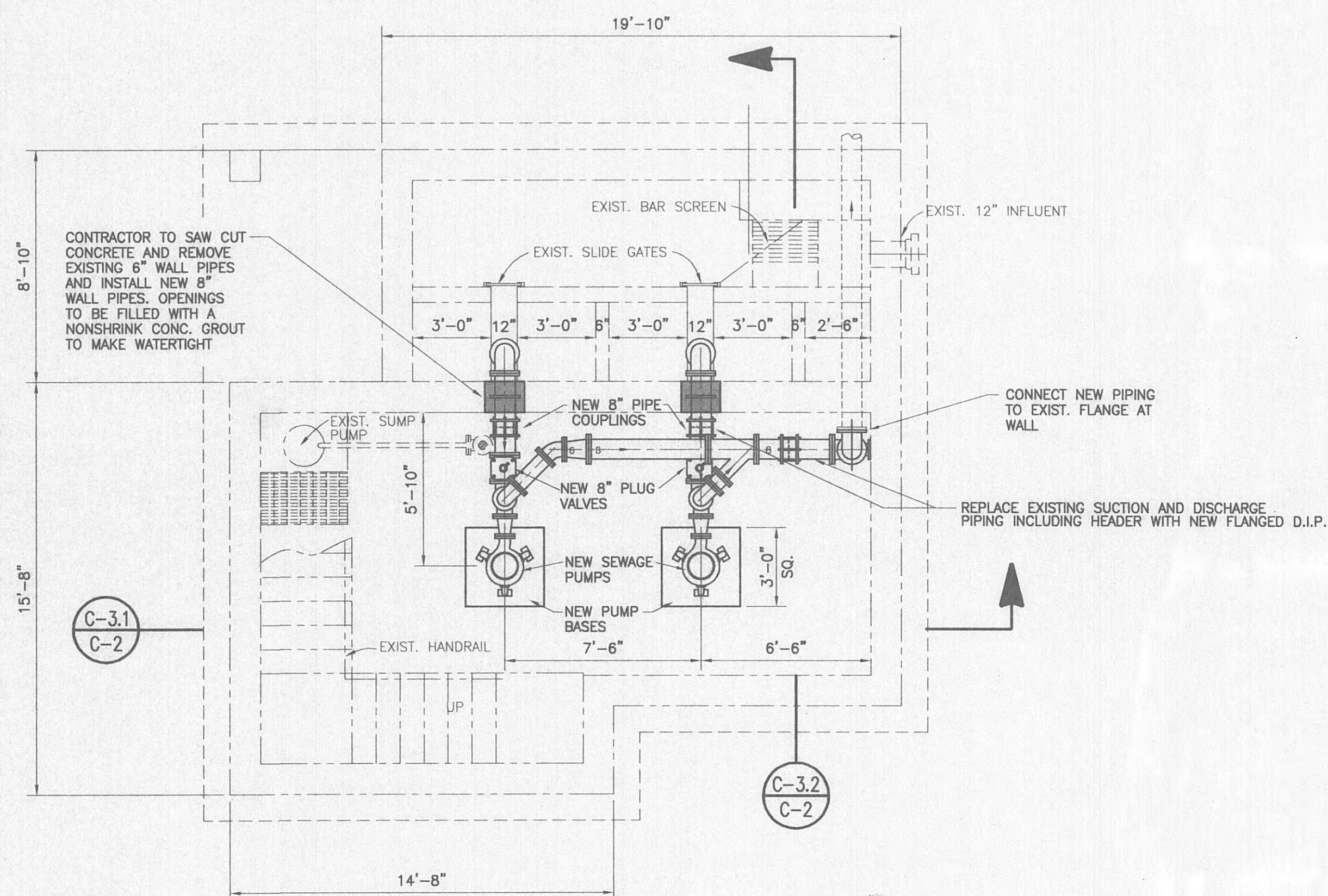


 GRW Elrod Dunson, Inc. Engineers, Architects, Planners LEXINGTON LOUISVILLE INDIANAPOLIS NASHVILLE KNOXVILLE		DESIGNER: RGT DRAWN: DGR REVIEWED: RGO APPROVED: RGT	DATE: NOVEMBER, 2002 SCALE: AS NOTED SHEET NO. C-1
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12-2-02



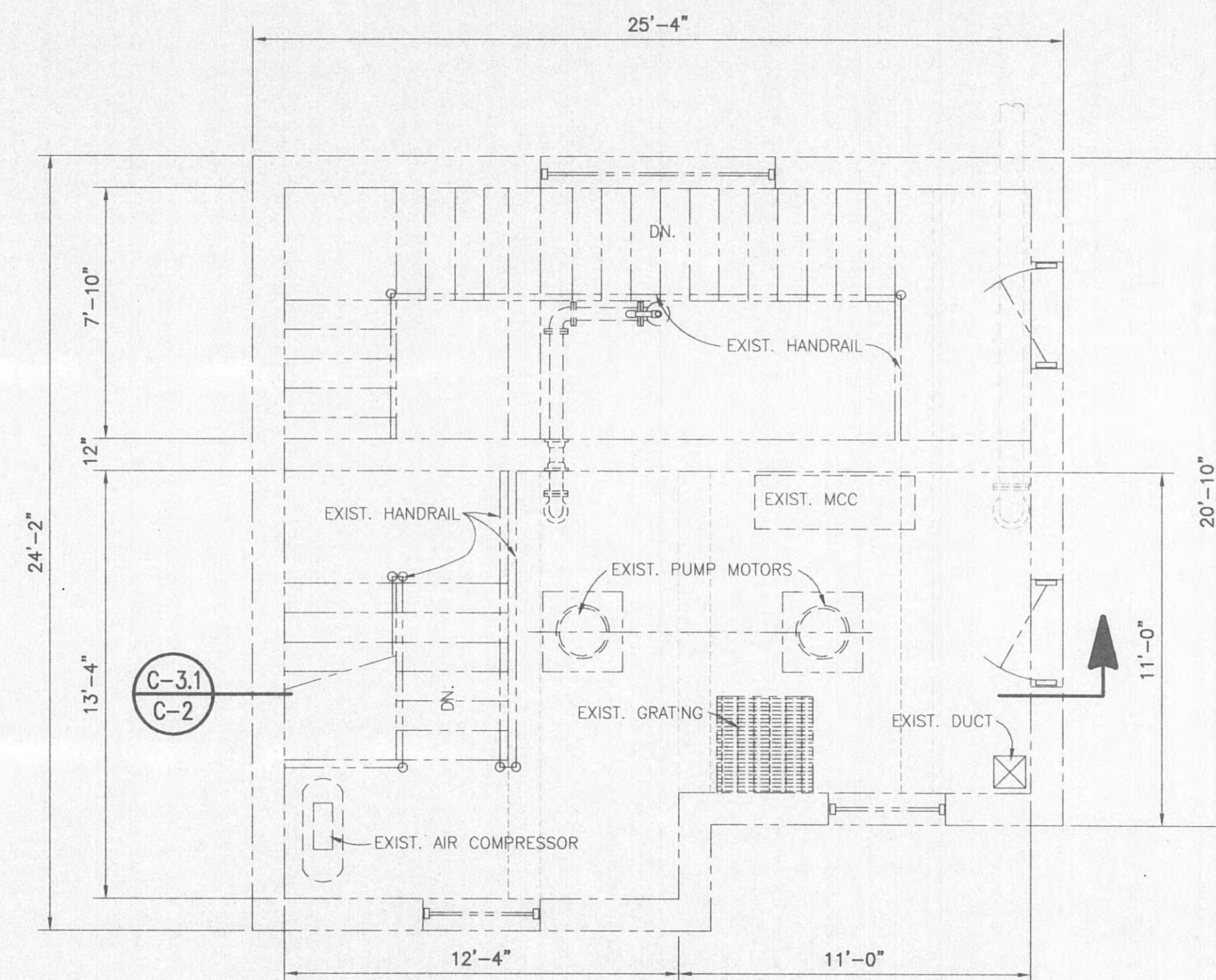
EXISTING FLOOR PLAN - PUMP LEVEL
SCALE: 1/4" = 1'-0"



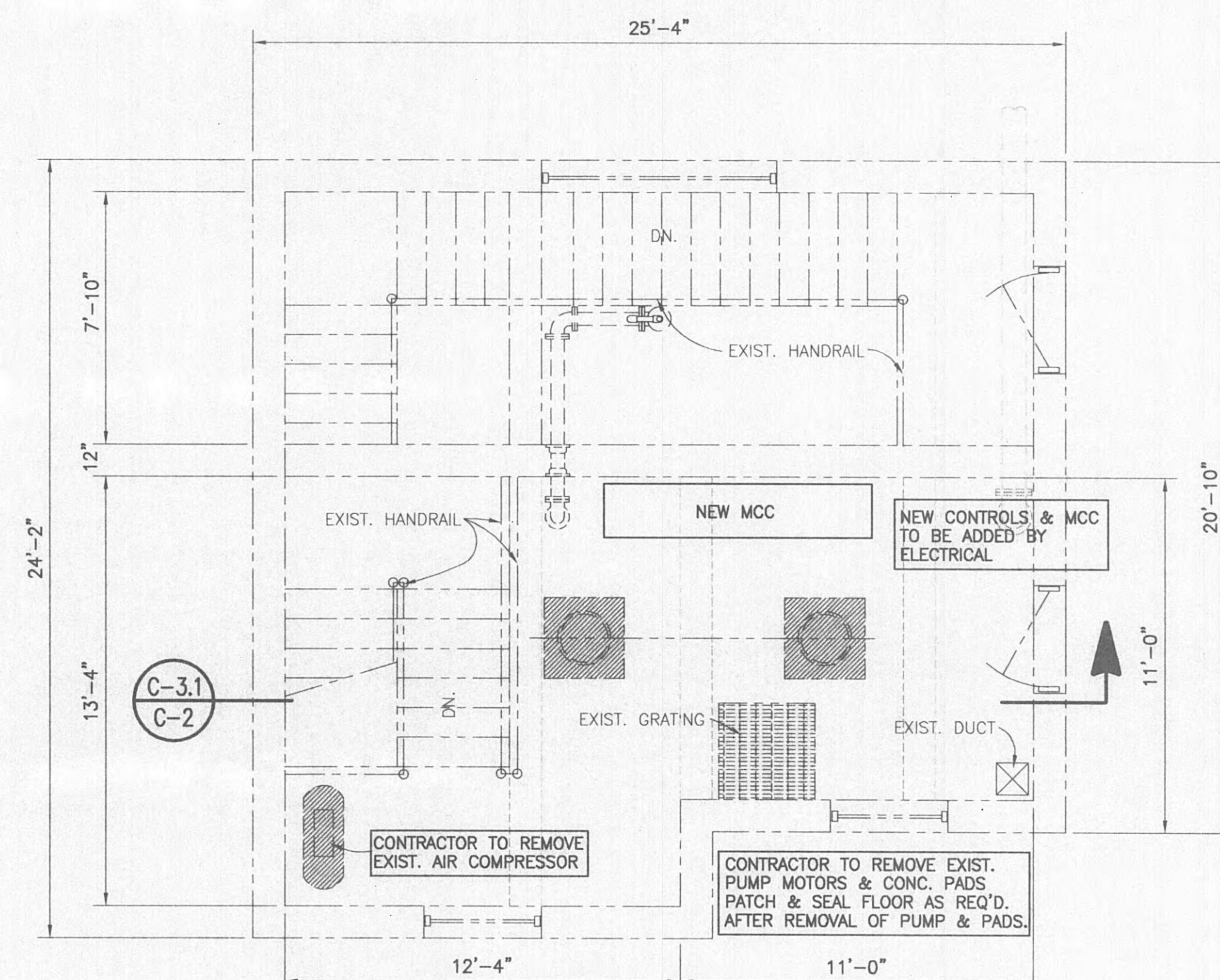
MODIFIED FLOOR PLAN - PUMP LEVEL
SCALE: 1/4" = 1'-0"

CONTRACTOR NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR BYPASS PUMPING WHILE REHABILITATING PUMP STATION. THIS INCLUDES ANY REQUIRED CONNECTIONS TO INFLUENT AND DISCHARGE LINES. HUB WILL PROVIDE THE REQUIRED ELECTRICAL SERVICE FOR BYPASS PUMPING.
2. THE OWNER SHALL HAVE FIRST SALVAGE RIGHTS TO ALL EXISTING VALVES, PIPING AND EQUIPMENT. IF THE OWNER REJECTS SALVAGED MATERIALS, THE CONTRACTOR SHALL PROVIDE FINAL DISPOSAL OF ALL ITEMS.
3. CONTRACTOR TO CLEAN AND PAINT PIPING AND WALLS. WALLS INCLUDE ENTRANCE LEVEL, ELECTRICAL AREA AND PUMP LEVEL. PUMP AND PIPING AREA.



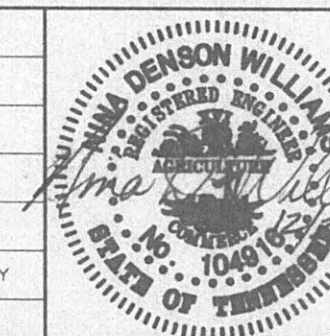
EXISTING FLOOR PLAN - ENTRANCE LEVEL
SCALE: 1/4" = 1'-0"



MODIFIED FLOOR PLAN - ENTRANCE LEVEL
SCALE: 1/4" = 1'-0"

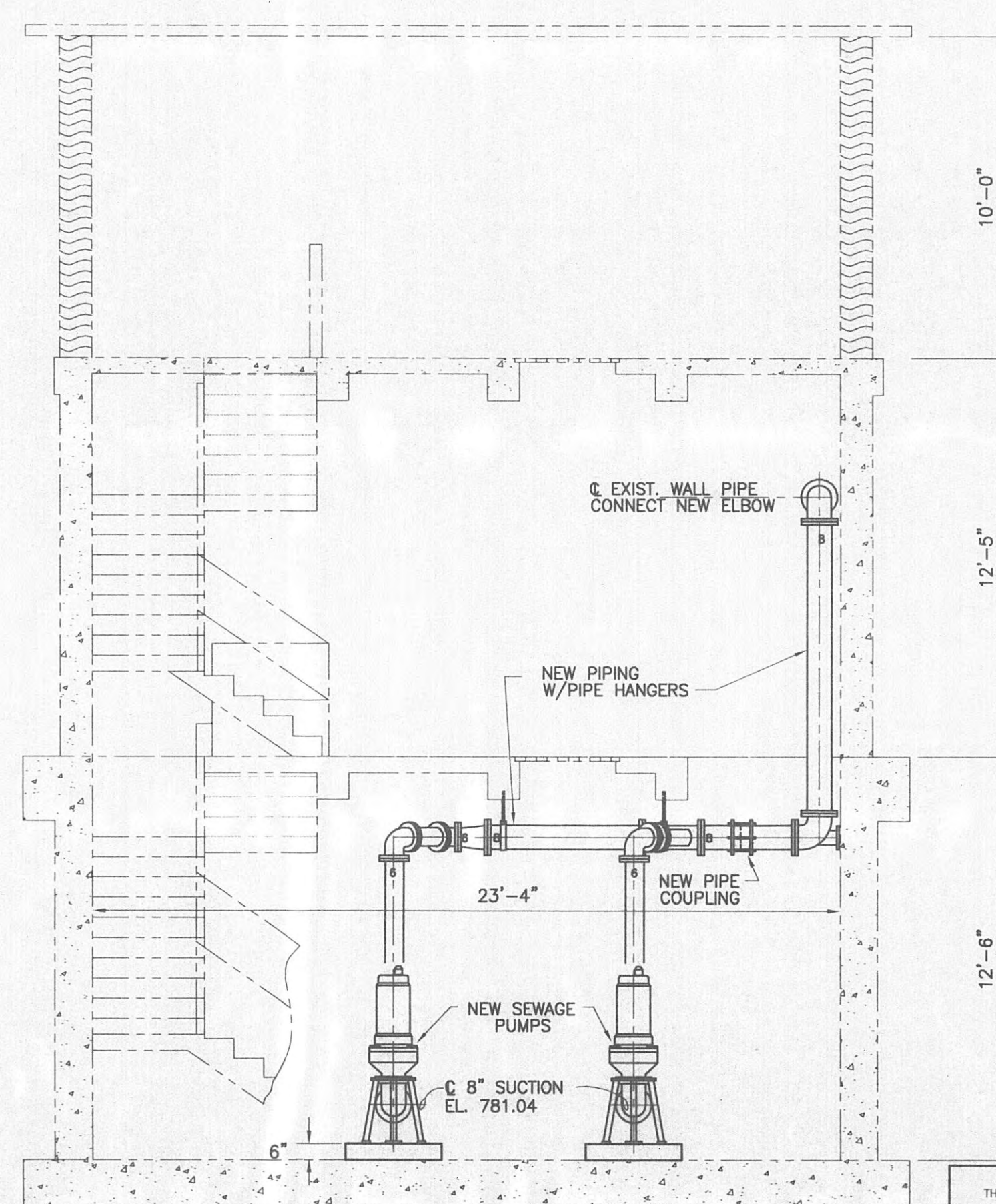
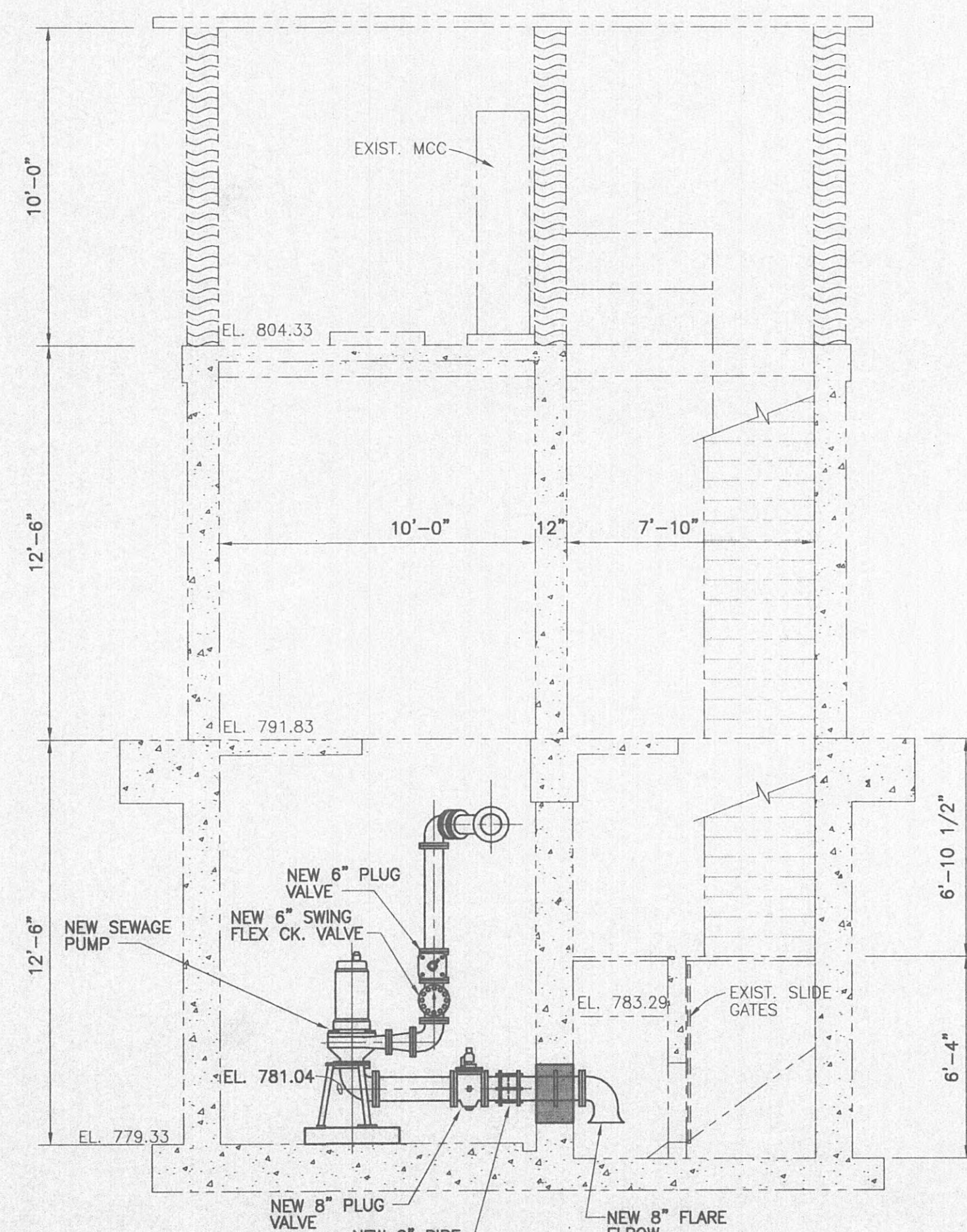
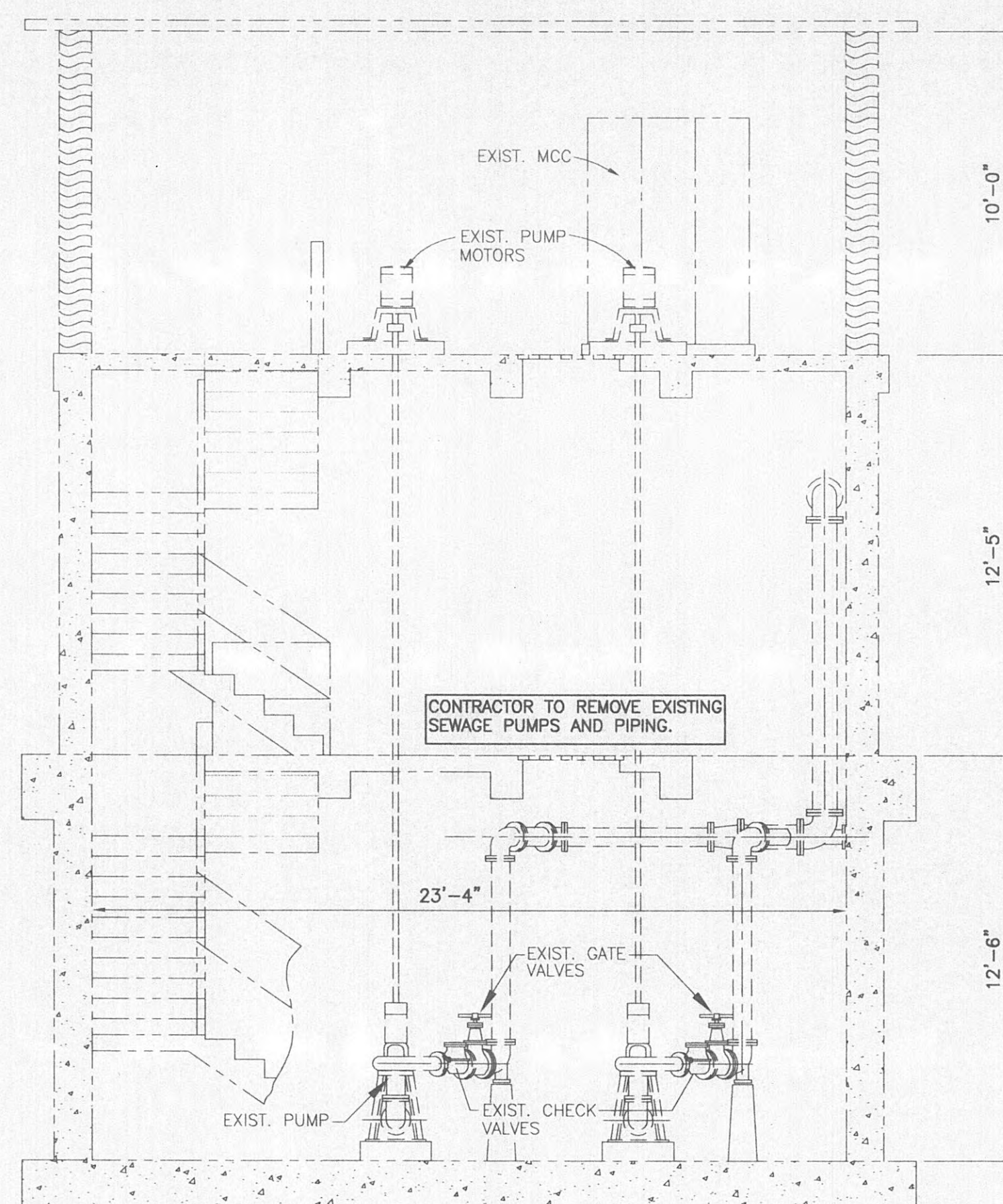
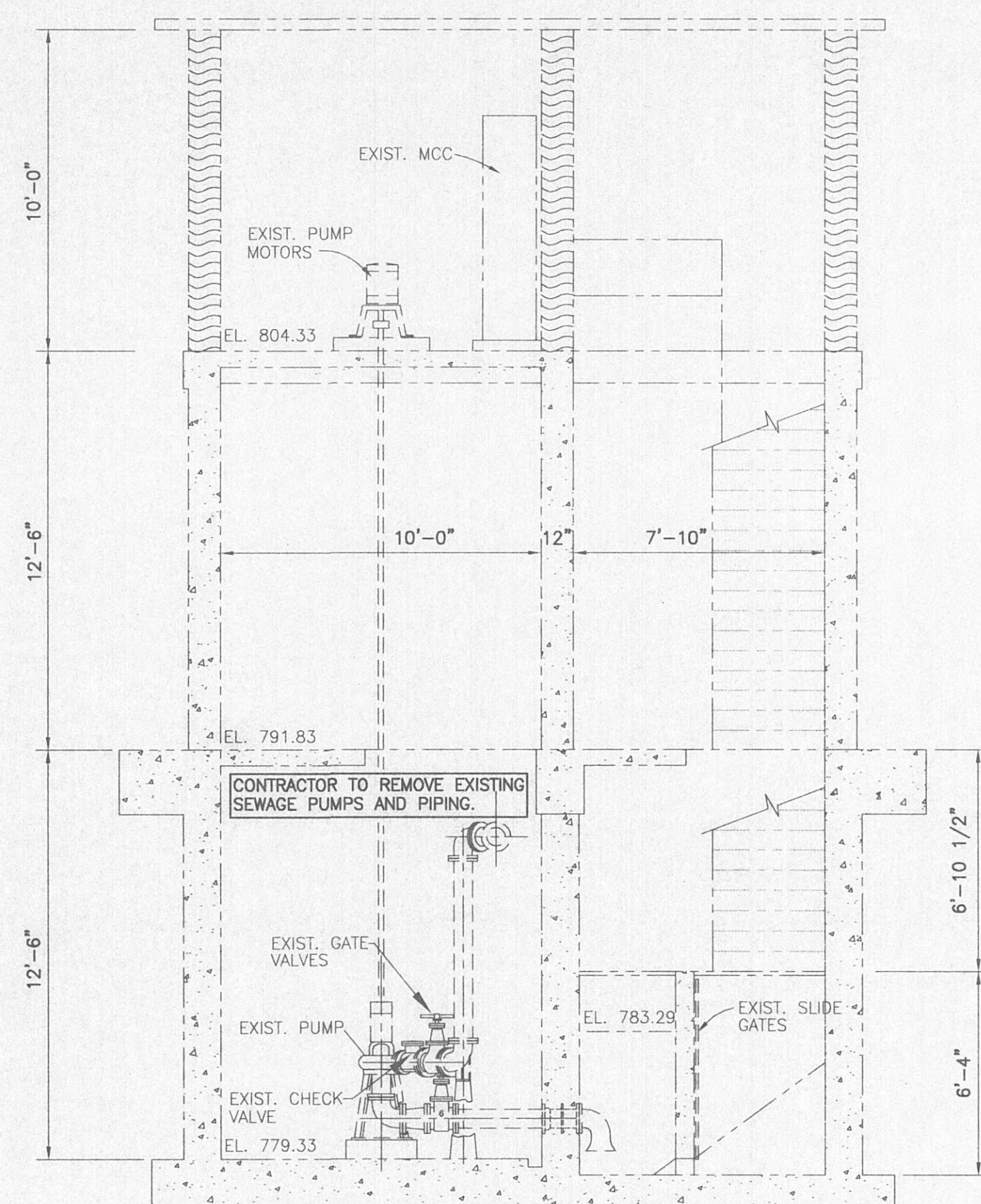
GRW PROJECT NO. 7601-30 CONTRACT NO. S02-03
EXISTING HARDEES SEWAGE PUMP STATION
PLAN VIEWS
HARRIMAN UTILITY BOARD
HARRIMAN, TENNESSEE

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REVISIONS			



GRW Elrod Dunson, Inc.
Engineers, Architects, Planners
LEXINGTON LOUISVILLE INDIANAPOLIS
NASHVILLE KNOXVILLE

DESIGNED: RGT/NDW	DATE: NOVEMBER, 2002
DRAWN: DGR	SCALE: AS NOTED
REVIEWED: NDW	SHEET NO. C-2
APPROVED: RGT	



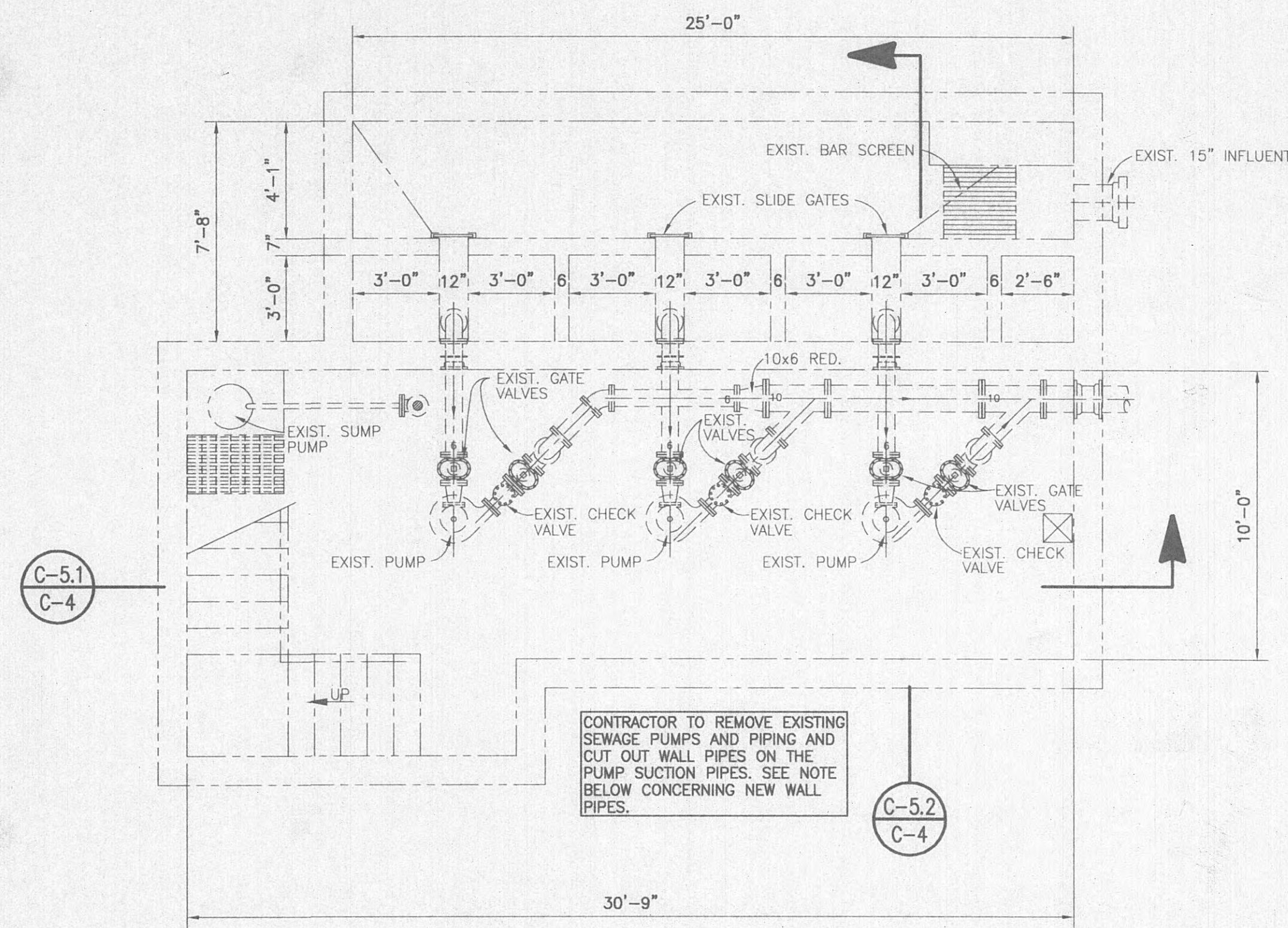
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	REVISIONS		

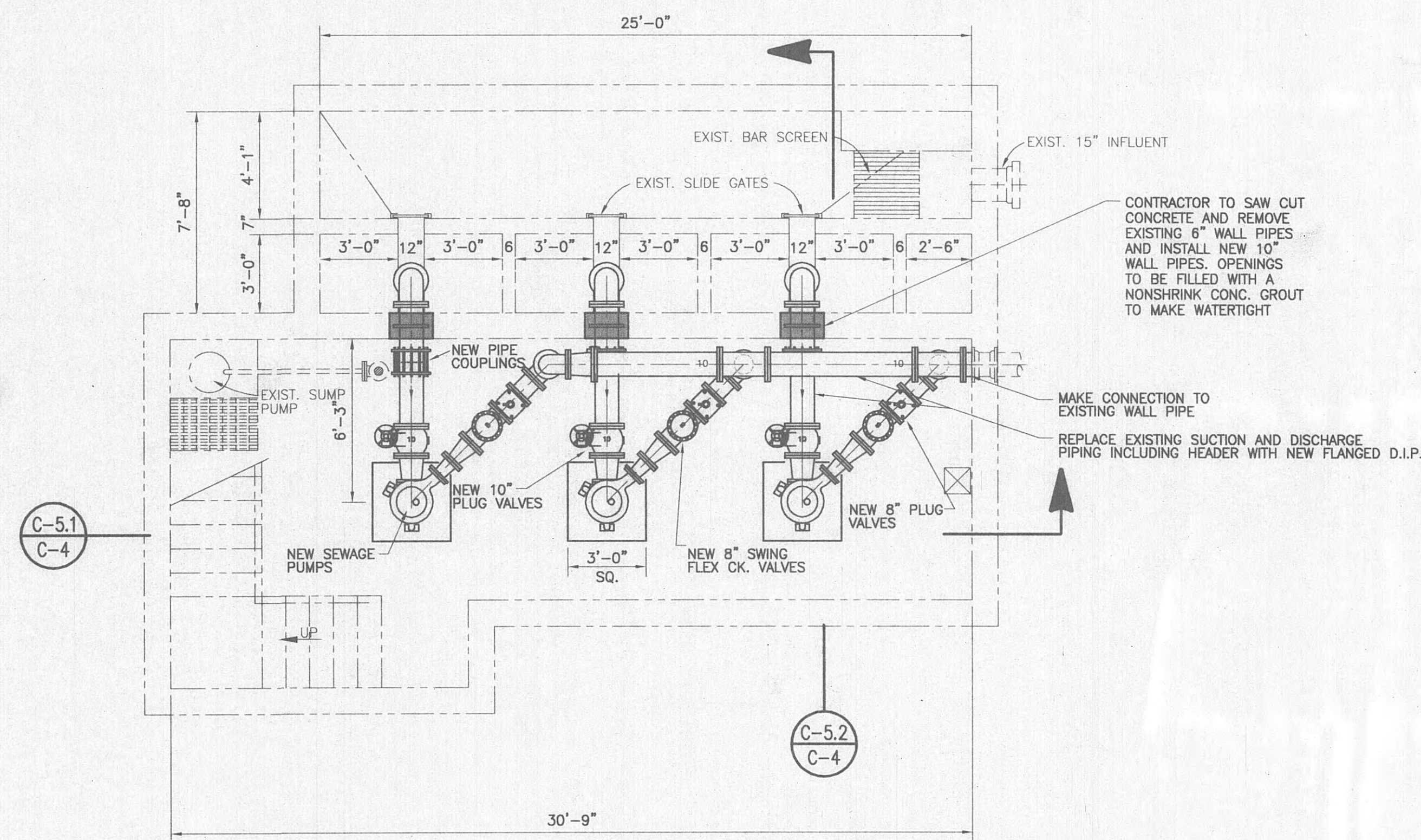
GRW PROJECT NO. 7601-30	CONTRACT NO. S02-03
EXISTING HARDEES SEWAGE PUMP STATION SECTIONS HARRIMAN UTILITY BOARD HARRIMAN, TENNESSEE	

 GRW Elrod Dunson, Inc. Engineers, Architects, Planners LEXINGTON LOUISVILLE NORMAN POLDS NASHVILLE KNOXVILLE	DESIGNED:	DATE:
	RGT/NDW	NOVEMBER, 2002
	DRAWN:	SCALE:
	DGR	AS NOTED
	REVIEWED:	SHEET NO.
NDW		
APPROVED:		
P/C/T		C-3

FILE NAME: 7601-30-03.DWG



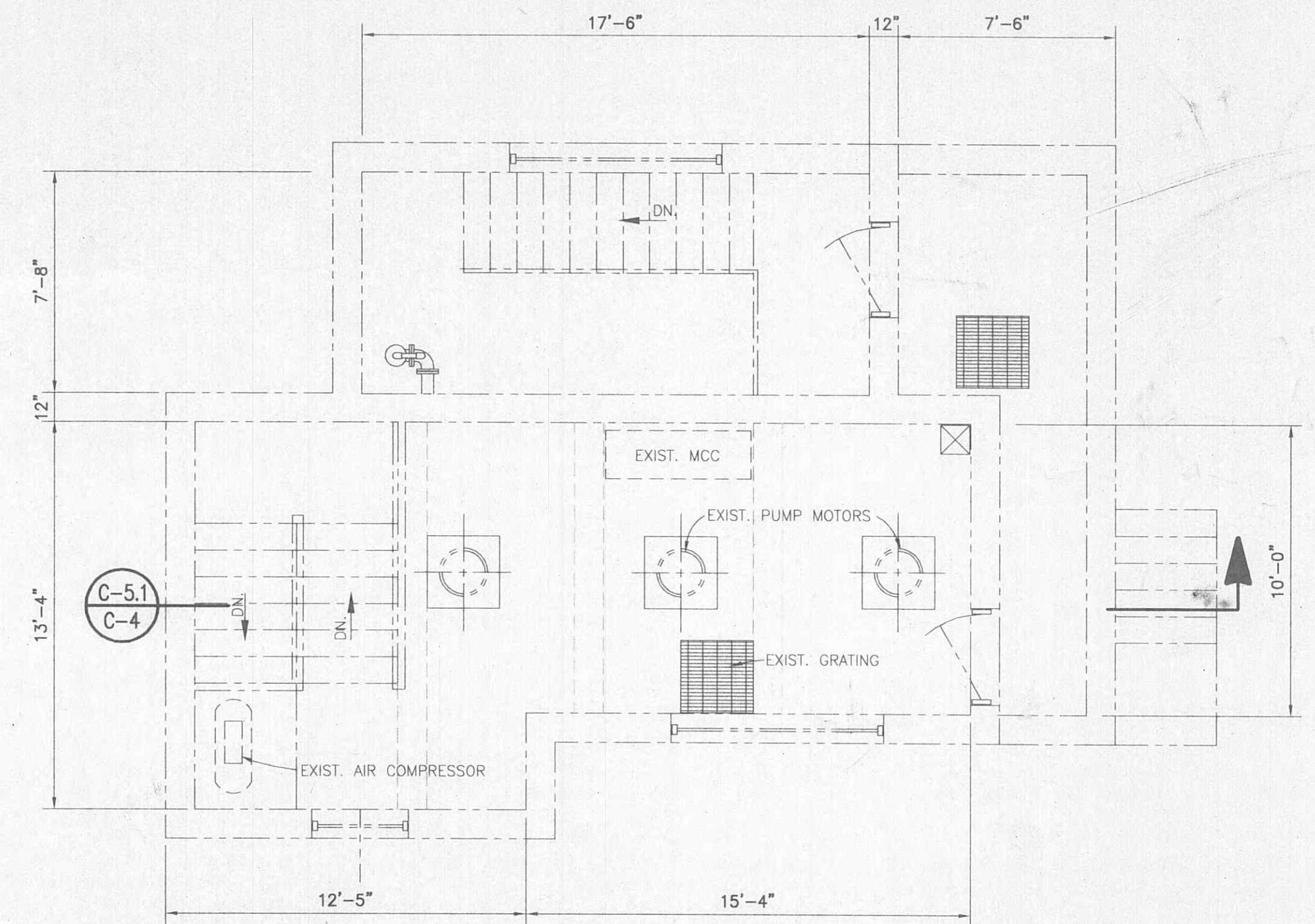
EXISTING FLOOR PLAN - PUMP LEVEL
SCALE: 1/4" = 1'-0"



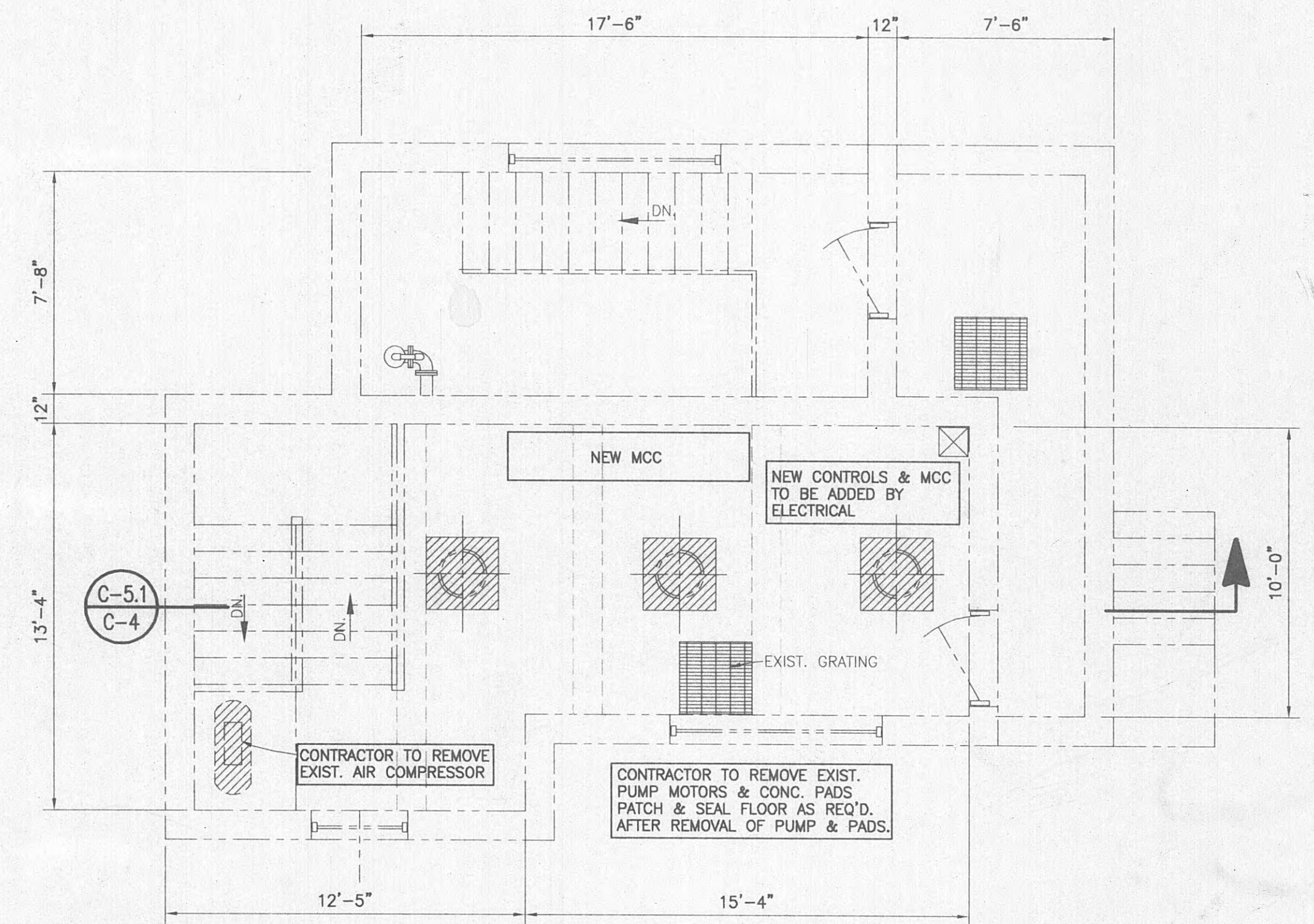
MODIFIED FLOOR PLAN - PUMP LEVEL
SCALE: 1/4" = 1'-0"

CONTRACTOR NOTES:

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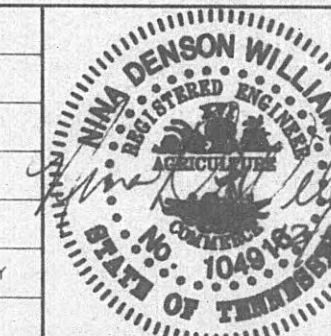
EXISTING FLOOR PLAN - ENTRANCE LEVEL
SCALE: 1/4" = 1'-0"



MODIFIED FLOOR PLAN - ENTRANCE LEVEL
SCALE: 1/4" = 1'-0"

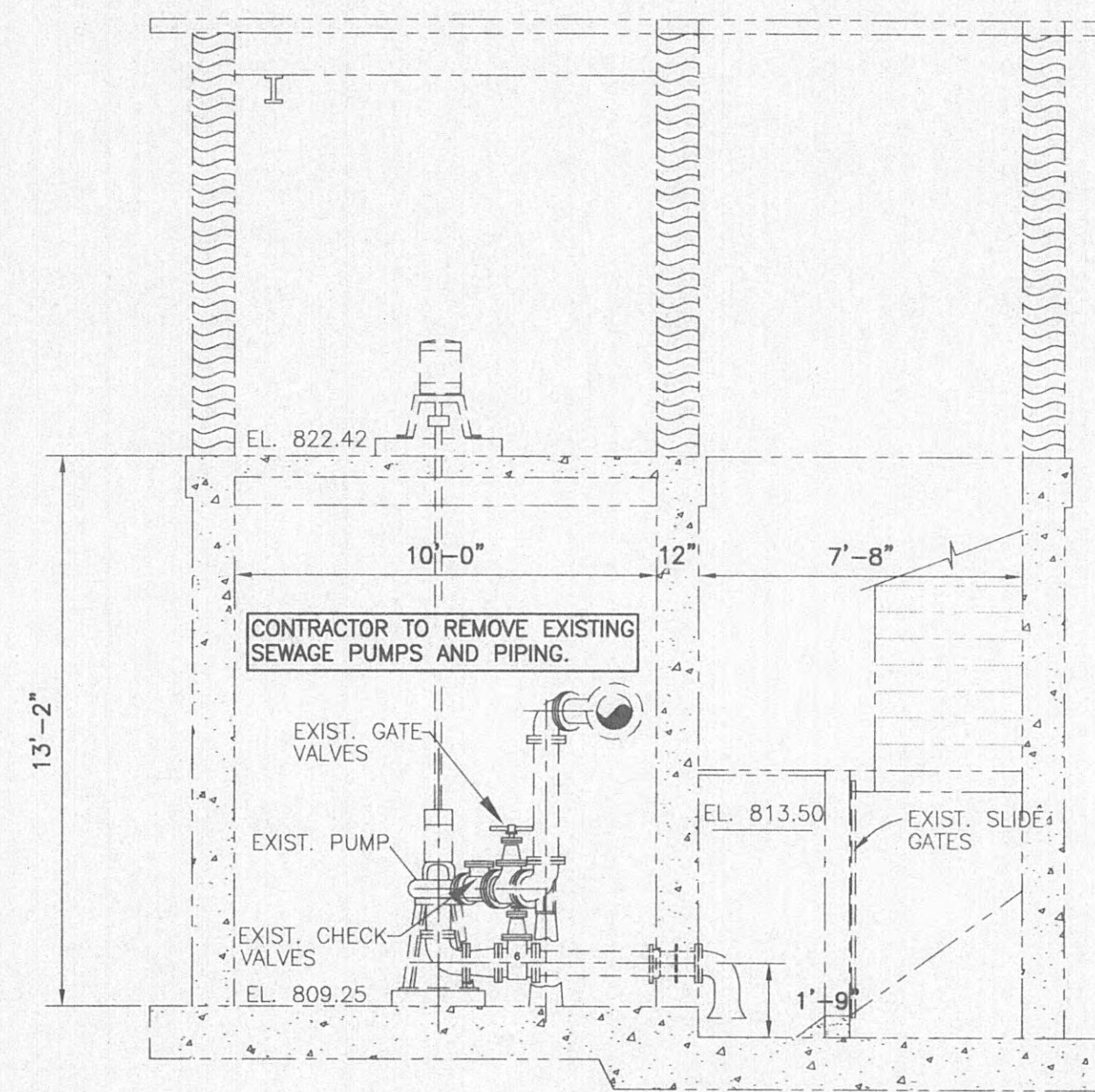
GRW PROJECT NO. 7601-30 CONTRACT NO. S02-03
EXISTING WOODY ST. SEWAGE PUMP STATION
PLAN VIEWS
HARRIMAN UTILITY BOARD
HARRIMAN, TENNESSEE

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NO.	DESCRIPTION	DATE	BY
REVISIONS			

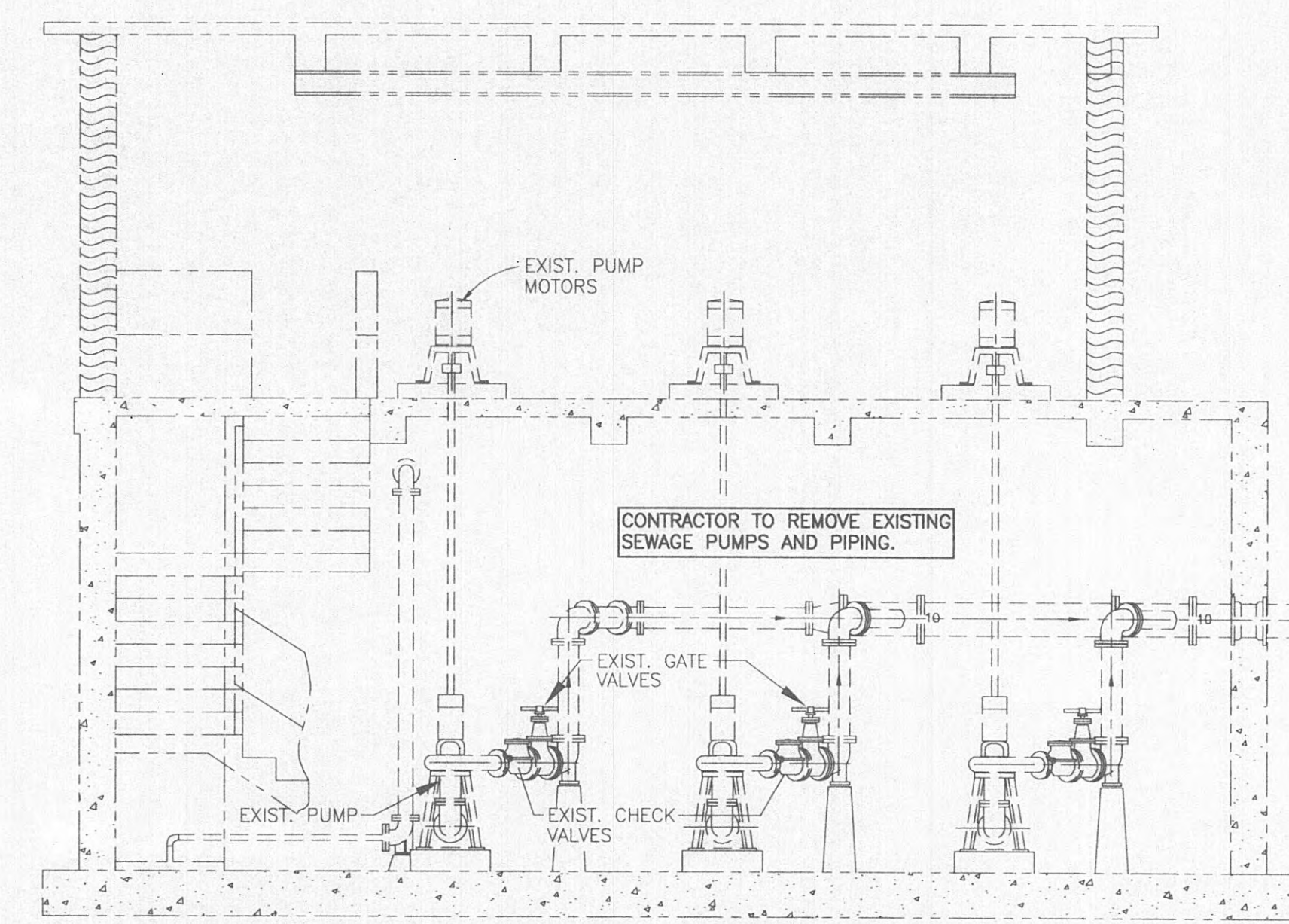


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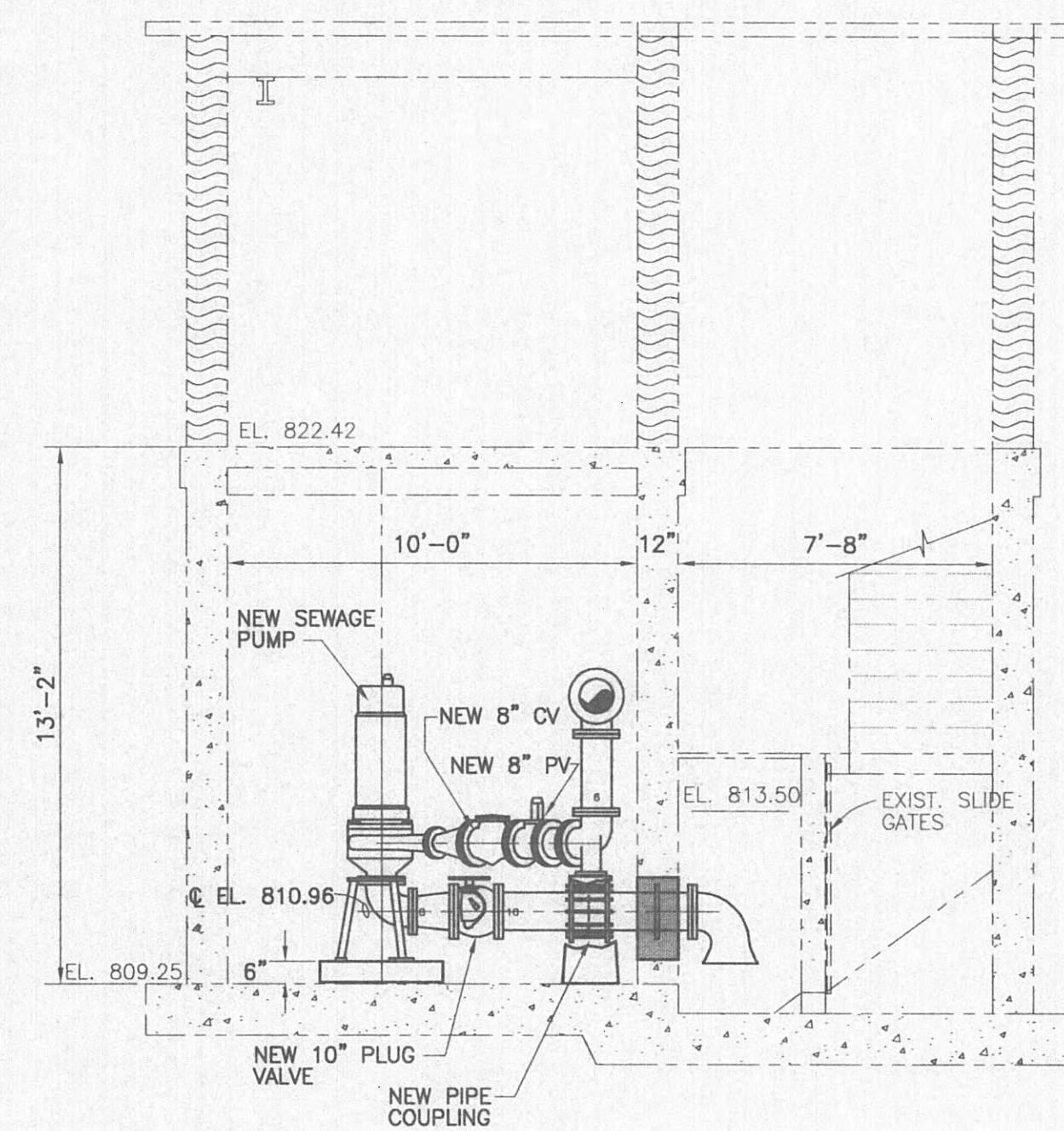
DESIGNED: RGT/NDW	DATE: NOVEMBER, 2002
DRAWN: DGR	SCALE: AS NOTED
REVIEWED: NDW	SHEET NO.
APPROVED: RGT	C-4



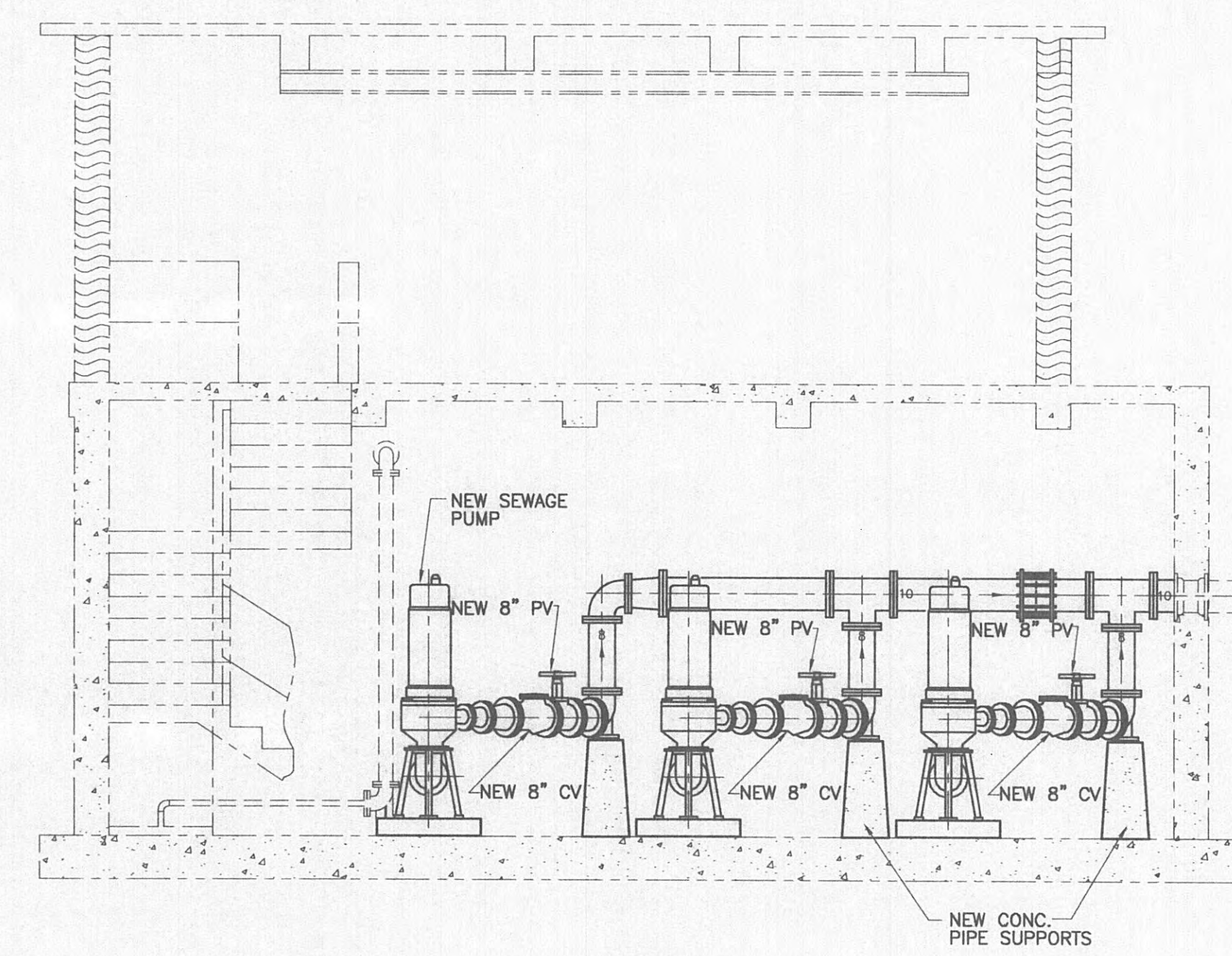
EXISTING CONDITIONS-SECTION C-5.2
SCALE: 1/4" = 1'-0"
C-4



EXISTING CONDITIONS-SECTION C-5.1
SCALE: 1/4" = 1'-0"
C-4



MODIFIED CONDITIONS-SECTION C-5.2
SCALE: 1/4" = 1'-0"
C-4



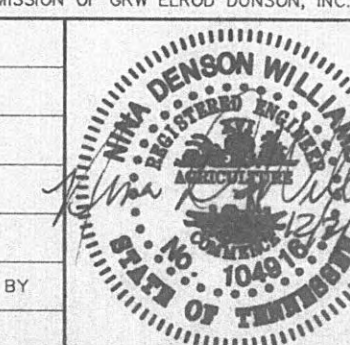
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SCALE: 1/4" = 1'-0"
C-4

FILE NAME: 7601-30-05.DWG

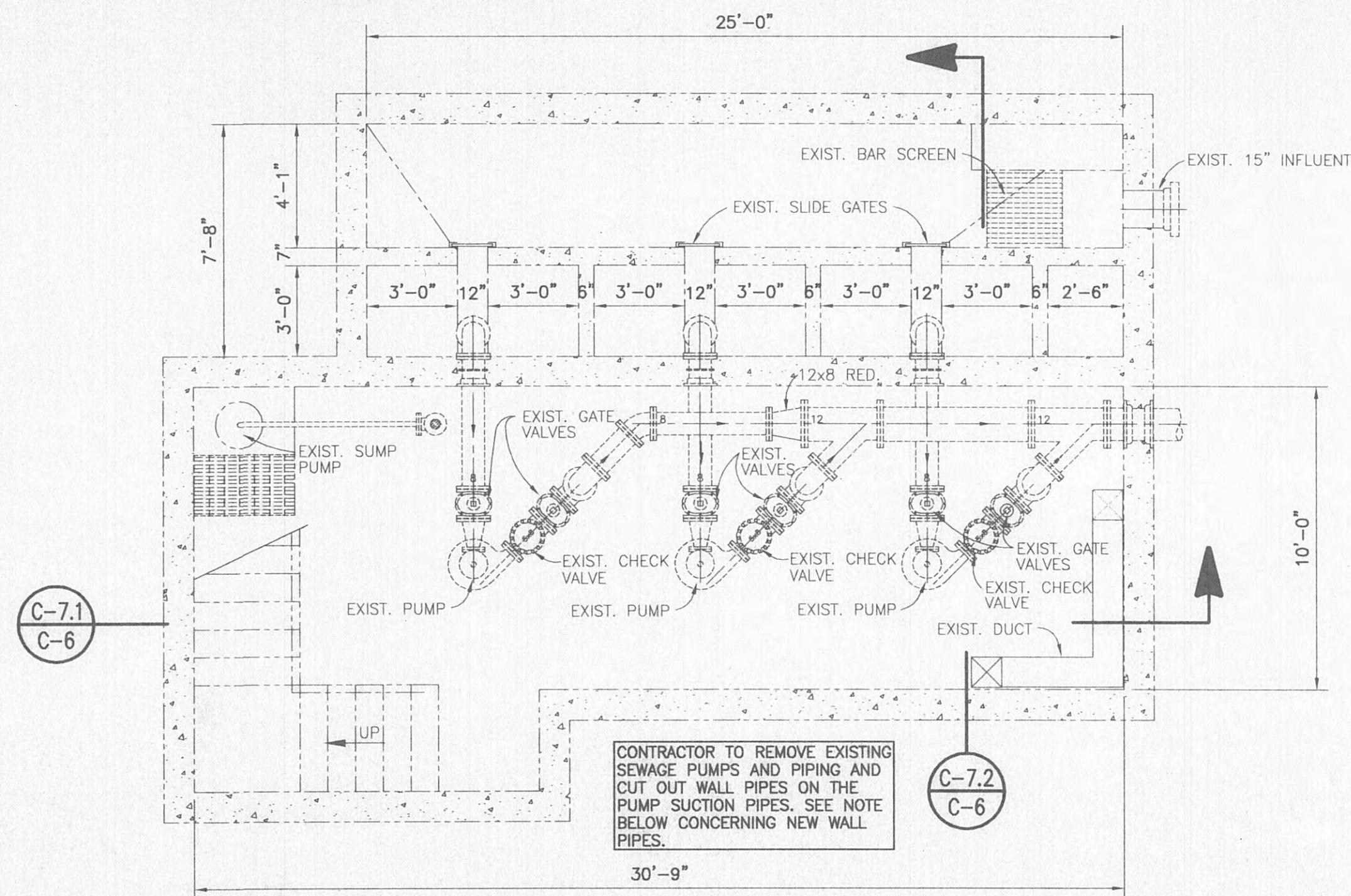
GRW PROJECT NO. 7601-30 CONTRACT NO. S02-03

EXISTING WOODY ST. SEWAGE PUMP STATION
SECTIONS
HARRIMAN UTILITY BOARD
HARRIMAN, TENNESSEE

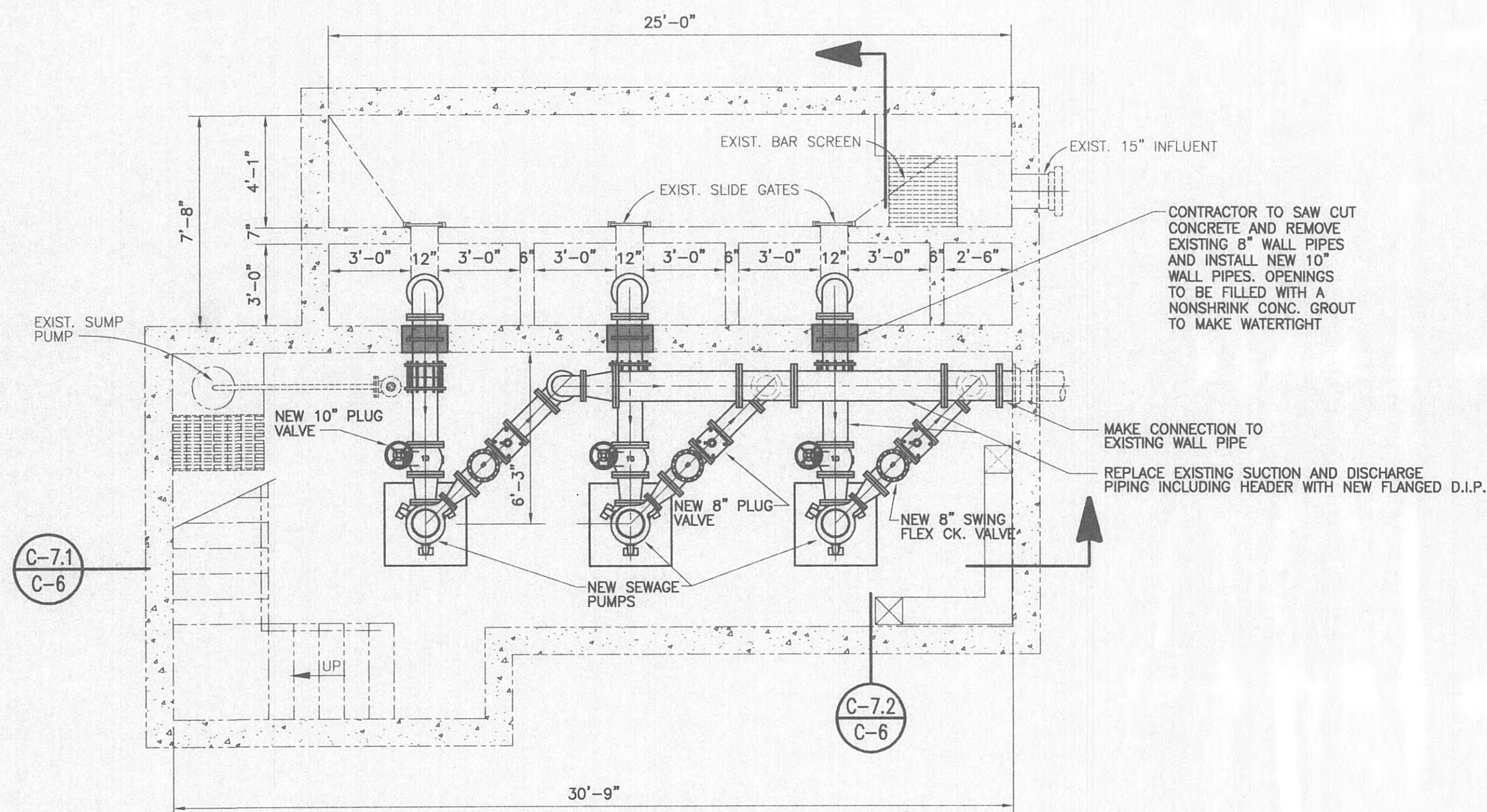
REVISIONS			
NO.	DESCRIPTION	DATE	BY



DESIGNED: RGT/NDW	DATE: NOVEMBER, 2002
DRAWN: DGR	SCALE: AS NOTED
REVIEWED: NDW	SHEET NO. C-5
APPROVED: RGT	

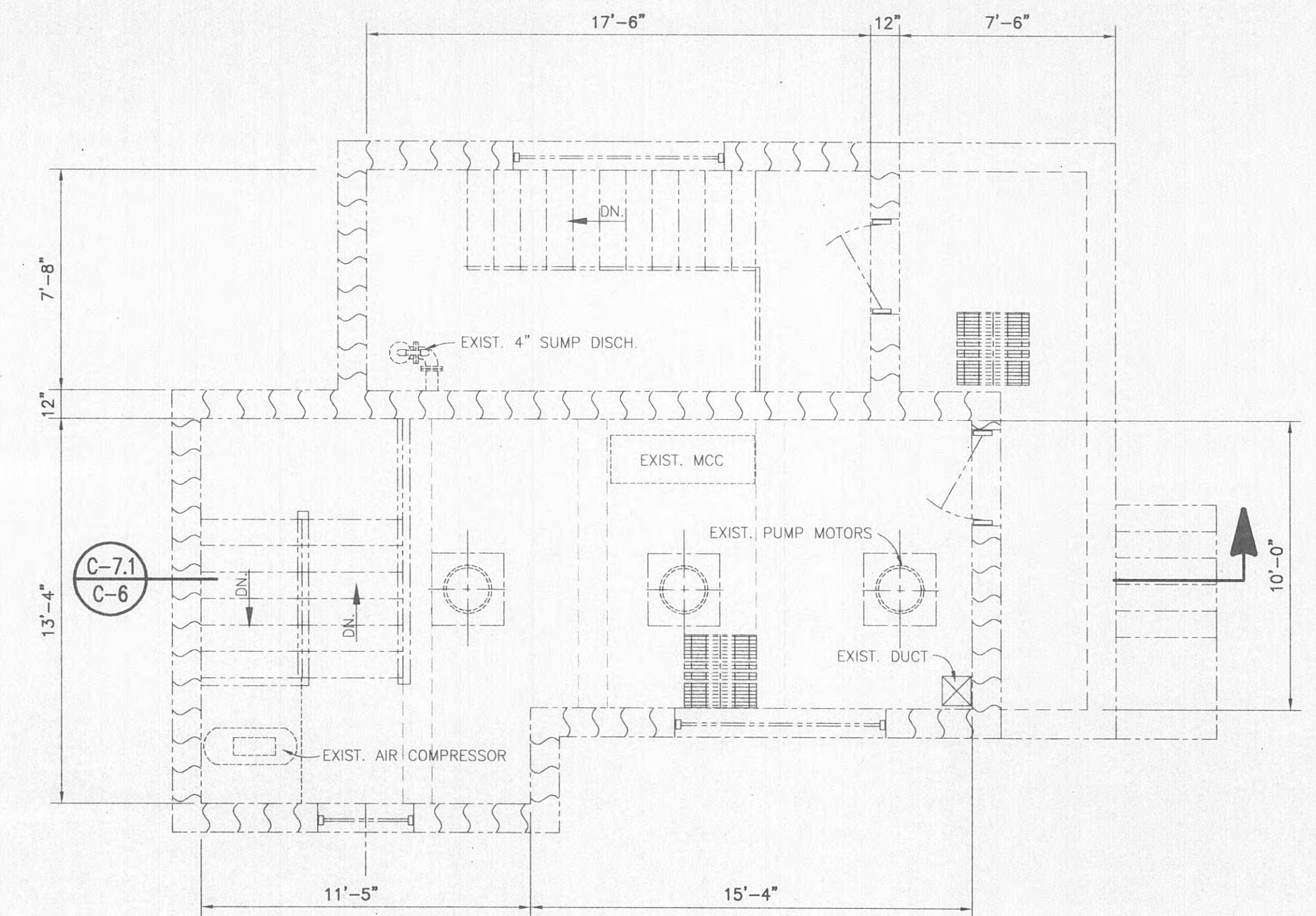


EXISTING FLOOR PLAN — PUMP LEVEL
SCALE: 1/4" = 1'-0"

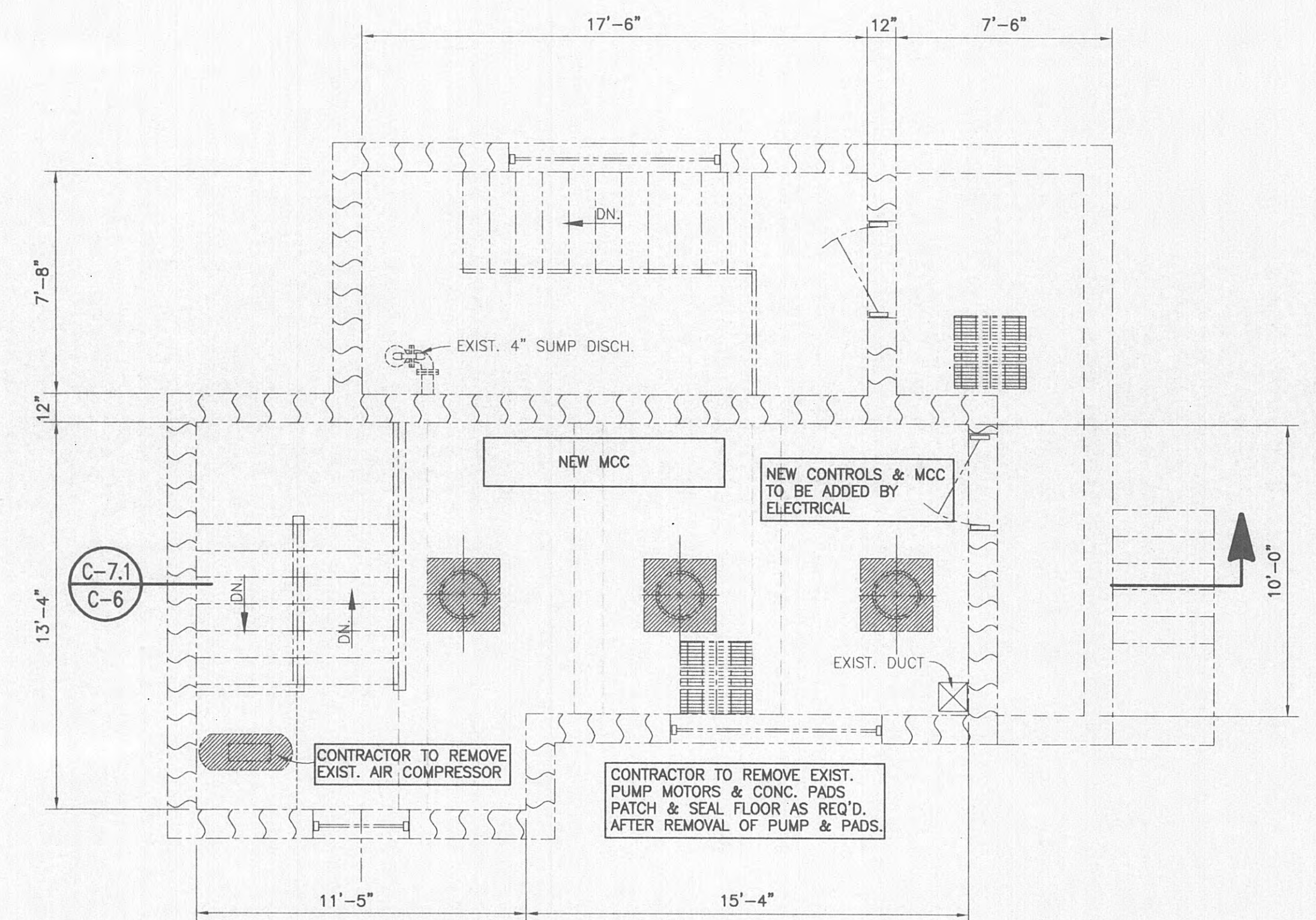


MODIFIED FLOOR PLAN — PUMP LEVEL
SCALE: 1/4" = 1'-0"

- CONTRACTOR NOTES:
1. CONTRACTOR SHALL BE RESPONSIBLE FOR BYPASS PUMPING WHILE REHABILITATING PUMP STATION. THIS INCLUDES ANY REQUIRED CONNECTIONS TO INFLUENT AND DISCHARGE LINES. HUB WILL PROVIDE THE REQUIRED ELECTRICAL SERVICE FOR BYPASS PUMPING.
 2. THE OWNER SHALL HAVE FIRST SALVAGE RIGHTS TO ALL EXISTING VALVES, PIPING AND EQUIPMENT. IF THE OWNER REJECTS SALVAGED MATERIALS, THE CONTRACTOR SHALL PROVIDE FINAL DISPOSAL OF ALL ITEMS.
 3. CONTRACTOR TO CLEAN AND PAINT PIPING AND WALLS. WALLS INCLUDE ENTRANCE LEVEL ELECTRICAL AREA AND PUMP LEVEL PUMP AND PIPING AREA.



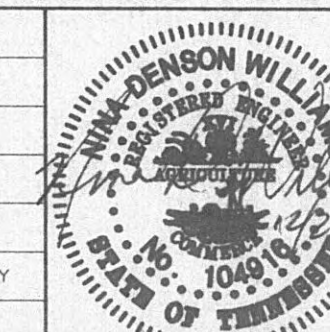
EXISTING FLOOR PLAN — ENTRANCE LEVEL
SCALE: 1/4" = 1'-0"



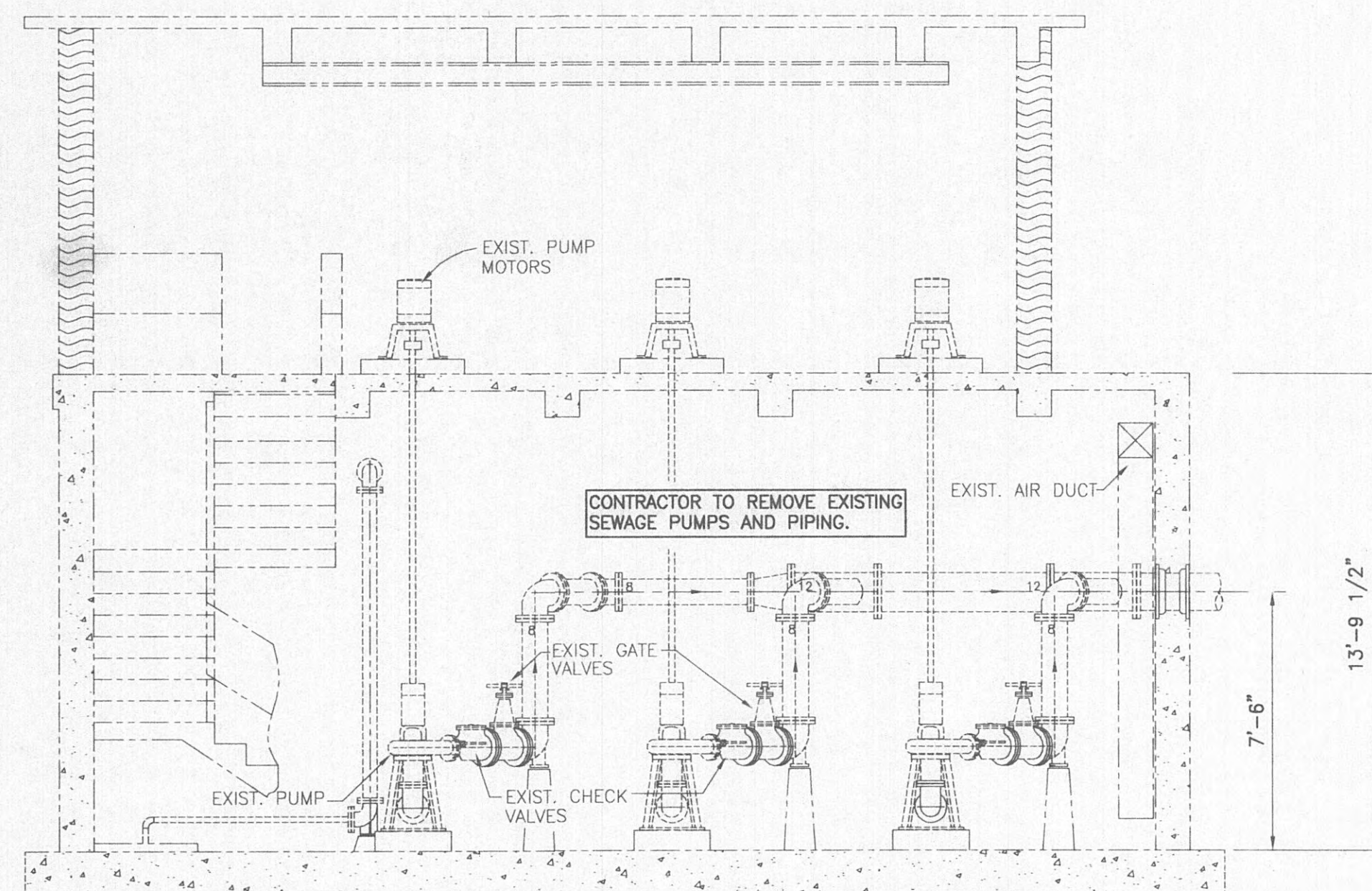
MODIFIED FLOOR PLAN — ENTRANCE LEVEL
SCALE: 1/4" = 1'-0"

GRW PROJECT NO. 7601-30 CONTRACT NO. S02-03
EXISTING WEBB SEWAGE PUMP STATION
PLAN VIEWS
HARRIMAN UTILITY BOARD
HARRIMAN, TENNESSEE

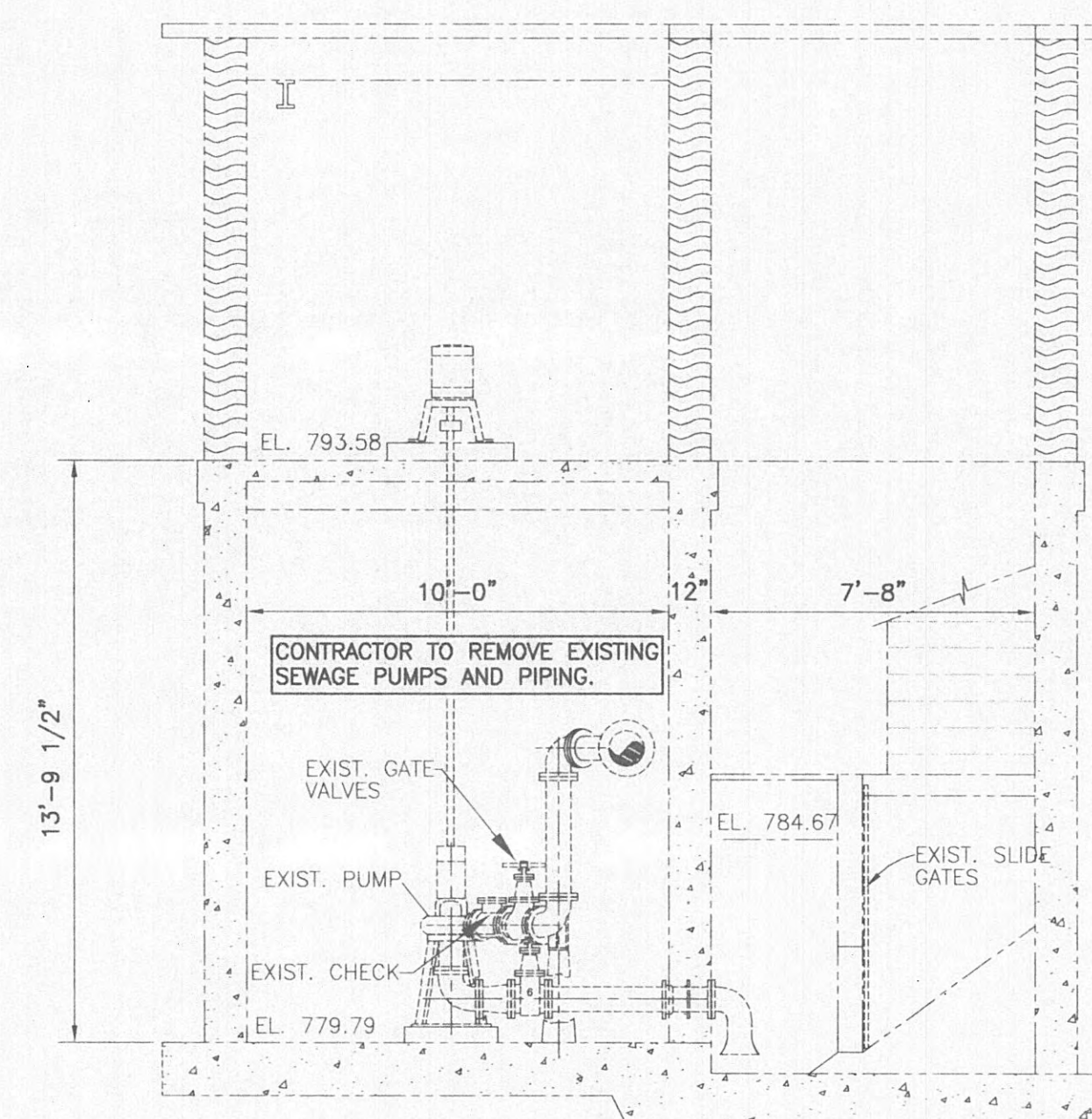
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NO.	DESCRIPTION	DATE	BY
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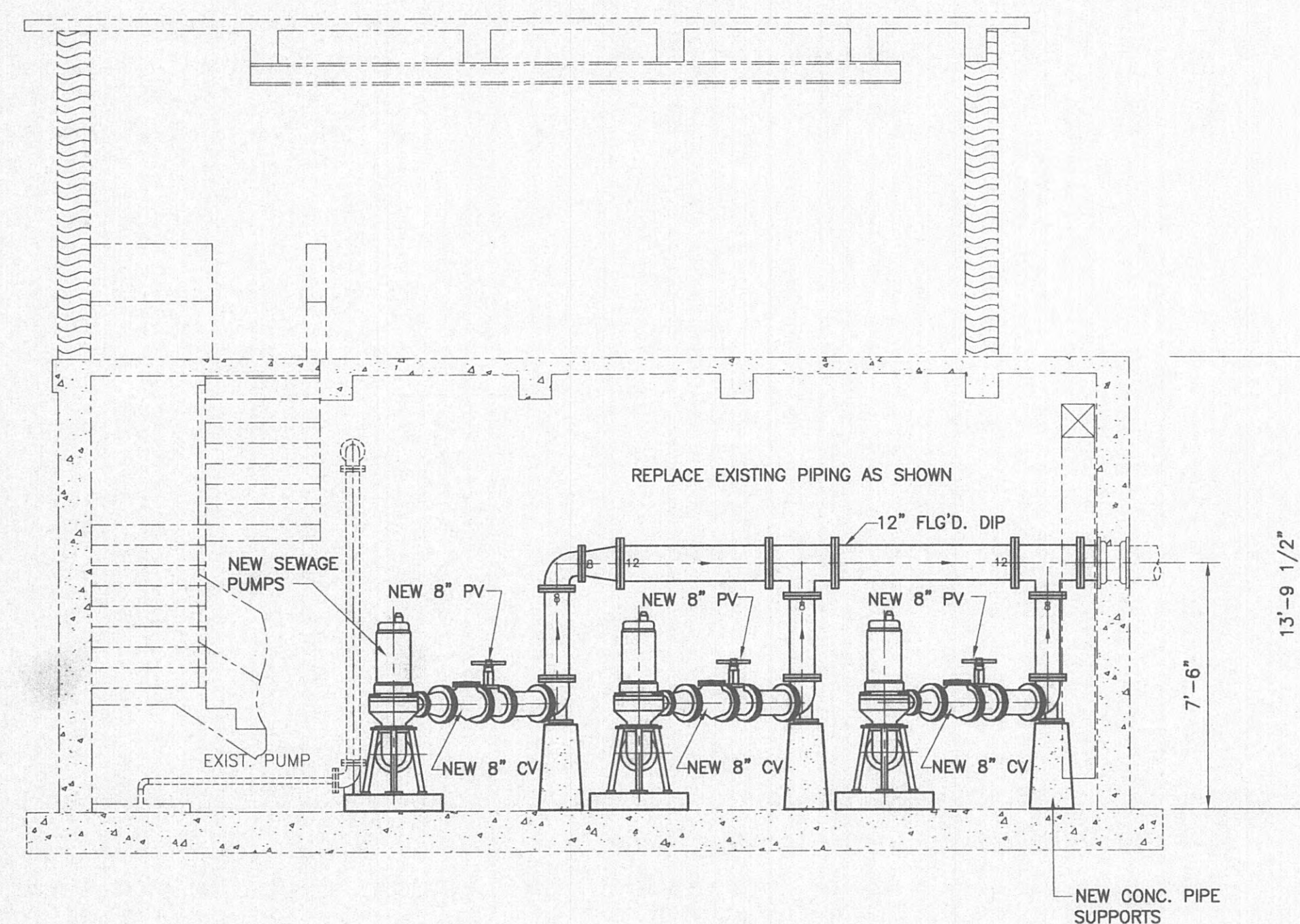
DESIGNED: RGT/NDW	DATE: NOVEMBER, 2002
DRAWN: DGR	SCALE: AS NOTED
REVIEWED: NDW	SHEET NO. C-6
APPROVED: RGT	



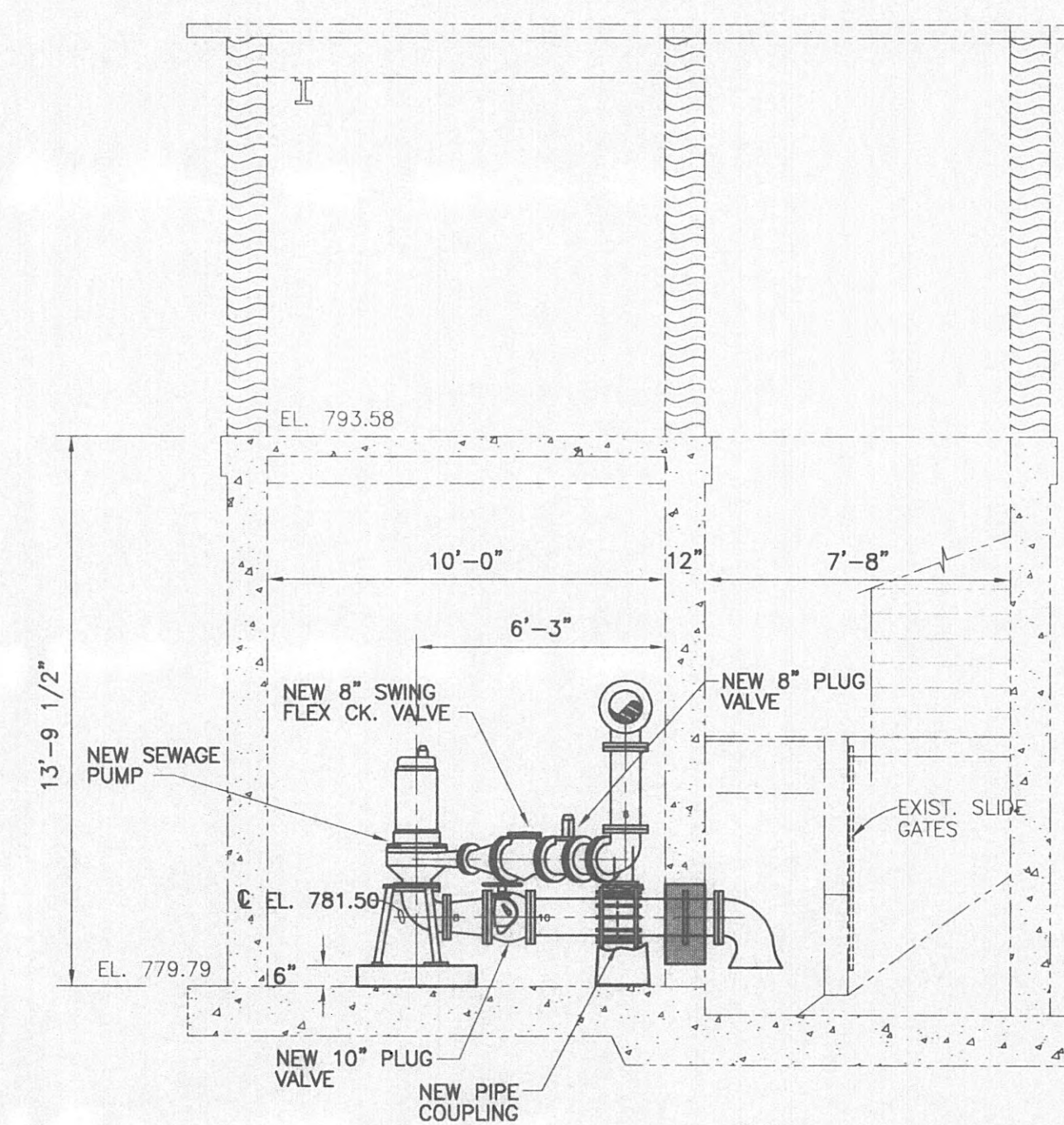
EXISTING CONDITIONS-SECTION C-7.2
SCALE: 1/4" = 1'-0"
C-6



EXISTING CONDITIONS-SECTION C-7.1
SCALE: 1/4" = 1'-0"
C-6



MODIFIED CONDITIONS-SECTION C-7.2
SCALE: 1/4" = 1'-0"
C-6



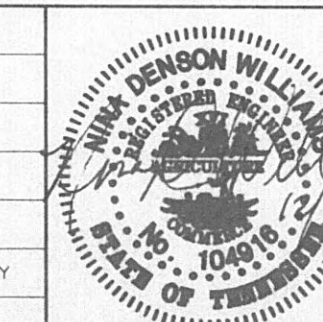
MODIFIED CONDITIONS-SECTION C-7.1
SCALE: 1/4" = 1'-0"
C-6

FILE NAME: 7601-30-07

GRW PROJECT NO. 7601-30 CONTRACT NO. S02-03

EXISTING WEBB SEWAGE PUMP STATION
SECTIONS
HARRIMAN UTILITY BOARD
HARRIMAN, TENNESSEE

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REVISIONS			



GRW Elrod Dunson, Inc.
Engineers, Architects, Planners
LEXINGTON LOUISVILLE INDIANAPOLIS
NASHVILLE KNOXVILLE

DESIGNED: RGT/NDW	DATE: NOVEMBER, 2002
DRAWN: DGR	SCALE: AS NOTED
REVIEWED: NDW	SHEET NO.
APPROVED: RGT	C-7