

STERLING RANCH LIFT STATION AND FORCE MAIN EL PASO COUNTY, COLORADO

APRIL 24, 2017

CONTACTS

OWNER: SR SEWER, LLC
20 BOULDER CRESCENT, SUITE 201
COLORADO SPRINGS, CO 80903
JIM MORLEY 719-471-1742

CIVIL ENGINEER: LAMP RYNEARSON & ASSOCIATES
TZA WATER
12596 W. BAYAUD AVE. SUITE 330
LAKEWOOD, CO 80228
BRAD SIMONS, 303-971-0077

LARKIN LAMP RYNEARSON
901 STATE LINE ROAD, SUITE 200
KANSAS CITY, MO 64114
ISAC CRABTREE, 816-361-0440

LAMP RYNEARSON & ASSOCIATES, INC.
4715 INNOVATION DR., SUITE 100
FORT COLLINS, CO 80525
SHAR SHADOWEN, 970-228-0342

LAMP RYNEARSON & ASSOCIATES, INC.
14710 W. DODGE ROAD, #100
OMAHA, NE 68154
JOHN HILL, 402-748-2498

PROJECT MANAGER: MMI WATER ENGINEERS, LLC
7262 S. GARRISON COURT
LITTLETON, CO 80128
BRADLEY A. SIMONS, P.E., 720-234-8398

TRAFFIC ENGINEERING: EL PASO COUNTY PUBLIC SERVICES & TRANSPORTATION DEPARTMENT
3275 AKERS DRIVE
COLORADO SPRINGS, CO 80922
ANDRE BRACKIN, P.E., 719-668-8769

GAS: CITY OF COLORADO SPRINGS

GAS: COLORADO INTERSTATE GAS

GAS: MAGELLAN MIDSTREAM

FORCE MAIN & SEWER: STERLING RANCH METROPOLITAN DISTRICT NO. 1

SANITARY SEWER SERVICE PROVIDER: MERIDIAN SERVICE METROPOLITAN DISTRICT
11886 STAPLETON DRIVE
FALCON, CO 80831
BRADEN McCORRY 719-495-6567

EROSION CONTROL STATEMENT:

ENGINEER'S STATEMENT:

THIS EROSION AND STORMWATER QUALITY CONTROL/GRADING PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. IF SUCH WORK IS PERFORMED IN ACCORDANCE WITH THE GRADING AND EROSION CONTROL PLAN, THE WORK WILL NOT BECOME A HAZARD TO LIFE AND LIMB, ADVERSELY AFFECT THE SAFETY, USE OR STABILITY OF A PUBLIC WAY, DRAINAGE CHANNEL OR OTHER PROPERTY.

[Signature]
ENGINEER, COLORADO P.E. #
[Stamp: EL PASO COUNTY, COLORADO, APR 24 2017]

PROJECT CONTROL

HORIZONTAL CONTROL:

N 1/4 CORNER, SEC 3, T13S, R65W
NORTHING: 410191.1110
EASTING: 241732.9390
ELEVATION: 7010.07
DESCRIPTION: 2 1/2" ALUM CAP W/ 2" ALUM PIPE, LS 11624

NW CORNER, SEC 3, T13S, R65W
NORTHING: 410154.8270
EASTING: 239010.5240
ELEVATION: 7028.15
DESCRIPTION: 2 1/2" ALUM CAP W/ 3/4" REBAR, LS 11624

VERTICAL DATUM:

STERLING RANCH DEVELOPMENT BENCHMARK
NORTHING: 413533.64
EASTING: 235994.01
ELEVATION: 7076.93
DESCRIPTION: 3/4" REBAR WITH 1" PLASTIC CAP

FORCE MAIN & SEWER MAIN EXTENSIONS

ANY CHANGE OR ALTERATIONS AFFECTING THE GRADING, ALIGNMENT, ELEVATION AND/OR DEPTH OF COVER OF ANY FORCE MAIN, SEWER MAINS OR OTHER APPURTENANCES SHOWN ON THIS DRAWING SHALL BE THE RESPONSIBILITY OF THE OWNER/DEVELOPER. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR ALL OPERATION DAMAGE AND DEFECTS IN INSTALLATION AND MATERIAL FOR MAINS AND SERVICES FROM THE DATE OF APPROVAL UNTIL FINAL ACCEPTANCE IS ISSUED.

SIGNED: *[Signature]* DATE: 12/9/19
OWNER/DEVELOPER

PRINT NAME: JAMES F. MORLEY

DBA: SR SEWER LLC

ADDRESS: 20 BOULDER CRESCENT #200
COLORADO SPRINGS, COLORADO 80903

DISTRICT APPROVAL

THE STERLING RANCH METROPOLITAN DISTRICT RECOGNIZED THE DESIGN ENGINEER AS HAVING RESPONSIBILITY FOR THE DESIGN AND HAS LIMITED ITS SCOPE OF REVIEW ACCORDINGLY.

STERLING RANCH METROPOLITAN DISTRICT WASTEWATER DESIGN APPROVAL

SIGNED: *[Signature]* DATE: 12/9/19
DISTRICT ENGINEER

PROJECT NO. _____

DEVELOPER'S STATEMENT - EROSION CONTROL

THE OWNER WILL COMPLY WITH THE REQUIREMENTS OF THE EROSION AND STORMWATER QUALITY CONTROL PLAN INCLUDING TEMPORARY BMP INSPECTION REQUIREMENTS AND FINAL STABILIZATION REQUIREMENTS. ACKNOWLEDGE THE RESPONSIBILITY TO DETERMINE WHETHER THE CONSTRUCTION ACTIVITIES ON THIS PLAN REQUIRE COLORADO DISCHARGE PERMIT SYSTEM (CDPS) PERMITTING FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY.

BY: *[Signature]*
JAMES F. MORLEY

DBA: SR SEWER LLC

TITLE: PRESIDENT

ADDRESS: 20 BOULDER CRESCENT #200
COLORADO SPRINGS, COLORADO 80903

MERIDIAN SERVICE METROPOLITAN DISTRICT APPROVAL

THE MERIDIAN SERVICE METROPOLITAN DISTRICT HAS REVIEWED THESE PLANS PREPARED BY LAMP RYNEARSON & ASSOCIATES AND AMENDED BY MMI WATER ENGINEERS/LLC.

SIGNED: *[Signature]* DATE: 12-9-19
THOMAS A. KERBY, P.E. - DISTRICT ENGINEER

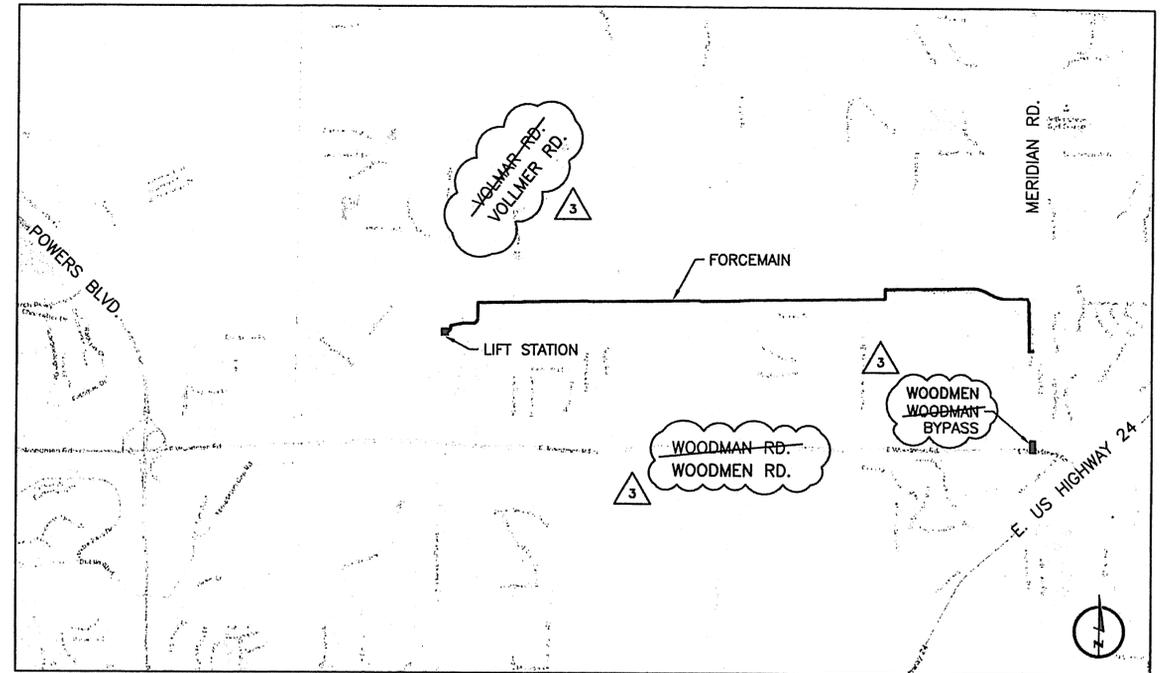
EL PASO COUNTY STANDARD CD SIGNATURE BLOCK:

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH EGM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

JENNIFER IRVINE, P.E. DATE _____
COUNTY ENGINEER / EGM ADMINISTRATOR



LOCATION MAP
N.T.S.

INDEX OF SHEETS

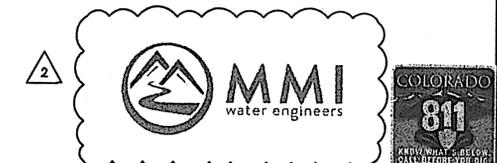
SHEET NUMBER	SHEET TITLE	SHEET NUMBER	SHEET TITLE
GENERAL		FORCE MAIN	
G0.1	COVER SHEET	FM1.1	STA 10+00 TO STA 20+00
G0.2	GENERAL NOTES	FM1.2	STA 20+00 TO STA 30+00
G0.3	GENERAL NOTES	FM1.3	STA 30+00 TO STA 40+00
G0.4	OVERALL PLAN & PROJECT CONTROL	FM1.4	STA 40+00 TO STA 50+00
LIFT STATION		FM1.5	STA 50+00 TO STA 60+00
C1.1	LIFT STATION SITE PLAN	FM1.6	STA 60+00 TO STA 70+00
C1.2	LIFT STATION SITE DETAILS	FM1.7	STA 70+00 TO STA 80+00
T1.1	LIFT STATION PLAN SECTIONS	FM1.8	STA 80+00 TO STA 90+00
T1.2	LIFT STATION PLAN SECTIONS	FM1.9	STA 90+00 TO STA 100+00
T1.3	LIFT STATION PLAN	FM1.10	STA 100+00 TO STA 110+00
T1.4	LIFT STATION SECTIONS	FM1.11	STA 110+00 TO STA 120+00
T1.5	LIFT STATION SECTIONS	FM1.12	STA 120+00 TO STA 130+00
T1.6	LIFT STATION MISCELLANEOUS DETAILS	FM1.13	STA 130+00 TO STA 140+00
T2.1	CHEMICAL AND ELECTRICAL BUILDING PLAN AND ELEVATIONS	FM1.14	STA 140+00 TO STA 150+00
T2.2	CHEMICAL AND ELECTRICAL BUILDING SECTIONS AND DETAILS	FM1.15	STA 150+00 TO STA 160+00
S1.1	LIFT STATION SECTION AND PLAN	FM1.16	STA 160+00 TO STA 170+00
S1.2	LIFT STATION PLAN SECTIONS	FM1.17	STA 170+00 TO STA 180+00
S1.3	LIFT STATION FLOOR AND SLAB REINFORCING	FM1.18	STA 180+00 TO STA 190+00
S1.4	LIFT STATION WALL REINFORCING & DETAILS	FM1.19	STA 190+00 TO STA 200+00
S2.1	CHEMICAL AND ELECTRICAL BUILDING SLAB AND FOUNDATION DETAILS	FM1.20	STA 190+00 TO STA 200+01
E0.1	LEGEND AND GENERAL NOTES	FM1.21	STA 210+00 TO STA 220+00
E1.1	ELECTRICAL SITE PLAN	FM1.22	STA 220+00 TO STA 230+00
E1.2	POWER AND SIGNAL PLAN	FM1.23	STA 230+00 TO STA 240+00
E1.3	LIGHTING PLAN	FM1.24	STA 240+00 TO STA 249+00
E1.4	NOT USED	FM1.25	STA 249+00 TO STA 251+81.43
E1.5	METERING MANHOLE AND POWER RISER	FM1.26	WOODMEN BYPASS
E2.1	POWER RISER AND SCHEDULES	FM2.1	CONSTRUCTION DETAILS
E3.1	ELECTRICAL DETAILS	FM2.2	CONSTRUCTION DETAILS
E3.2	ELECTRICAL DETAILS	FM2.3	CONSTRUCTION DETAILS
		FM2.4	EROSION CONTROL DETAILS



**LAMP RYNEARSON
& ASSOCIATES**

12596 West Bayaud Avenue, Suite 330
Lakewood, Colorado 80228
LRA-Inc.com / tza4water.com

303.971.0030 | P
303.971.0077 | F



P:\Engineering\0418011 Sterling Ranch Lift Station\Utilities\CONSTRUCTION (0418011) - CIVIL.dwg, 4/17/2017 2:32:18 PM, JASON MICHELL, LAMP RYNEARSON & ASSOCIATES

EXISTING LINE LEGEND

----- ADJACENT LOT LINE	---E---E--- EXISTING ELECTRIC	---ST---ST--- EXISTING STORM SEWER
----- EDGE PAVEMENT OR GRAVEL	---FO---FO--- EXISTING FIBER OPTIC	---T---T--- EXISTING TELEPHONE
----- PROPERTY LINE	----- EXISTING FLOWLINE	---W---W--- EXISTING WATER
----- SECTION LINE	---G---G--- EXISTING GAS	---X---X--- EXISTING WIRE FENCE
---CATV---CATV--- EXISTING CABLE TELEVISION	---OHP---OHP--- EXISTING OVERHEAD POWER	
----- EXISTING EASEMENT	---SS---SS--- EXISTING SANITARY SEWER	

EXISTING SYMBOL LEGEND & CODE ABBREVIATIONS

SYMBOL	DESCRIPTION	CODE ABBREVIATIONS	SYMBOL	DESCRIPTION	CODE ABBREVIATIONS	SYMBOL	DESCRIPTION	CODE ABBREVIATIONS
	BUILDING, A/C	BAC		STRIPING, HANDICAP	STHC		UTILITY, UNIDENTIFIED, PULLBOX	UUPB
	BUILDING, ROOF DRAIN	BRD		STRIPING, ONLY	STO		UTILITY, WATER, CURB STOP	UWCS
	BRIDGE, LOW CHORD	BRLC		TRAFFIC CONTROL, CABINET	TCC		UTILITY, WATER, FIRE HYDRANT	UWFH
	DRAINAGE, AREA INLET, ROUND	DAIR		TRAFFIC CONTROL, PEDESTRIAN CROSSING	TCPC		UTILITY, WATER, MANHOLE	UWMH
	DRAINAGE, AREA INLET, SQUARE	DAIS		TRAFFIC CONTROL, POLE WITH MAST	TCPM		UTILITY, WATER, METER	UWM
	DRAINAGE, MANHOLE	DMH		TRAFFIC CONTROL, PULLBOX	TCPB		UTILITY, WATER, POST INDICATOR VALVE	UWPV
	DRAINAGE, STORM, FES	DSF		UTILITY, CABLE, PEDESTAL	UCP		UTILITY, WATER, VALVE	UWV
	DRAINAGE, STORM, PIPE	DSP		UTILITY, CABLE, PULLBOX	UCPB		UTILITY, WATER, WARNING SIGN	UWWS
	GROUND, BORE HOLE	GBH		UTILITY, CABLE, WARNING SIGN	UCWS		UTILITY, WATER, YARD HYDRANT	UWYH
	LANDSCAPE, BENCH	LBE		UTILITY, ELECTRIC, MANHOLE	UEMH			
	LANDSCAPE, BOLLARD	LB		UTILITY, ELECTRIC, METER	UEM			
	LANDSCAPE, BOULDER	LBR		UTILITY, ELECTRIC, POLE	UEP			
	LANDSCAPE, BUSH	LBU		UTILITY, ELECTRIC, PULLBOX	UEPB			
	LANDSCAPE, FLAGPOLE	LFP		UTILITY, ELECTRIC, TRANSFORMER	UET			
	LANDSCAPE, GROUND LIGHT	LGL		UTILITY, ELECTRIC, VAULT	UEV			
	LANDSCAPE, MAILBOX	LMB		UTILITY, ELECTRIC, WARNING SIGN	UEWS			
	LANDSCAPE, MISCELLANEOUS POINT	LMP		UTILITY, FIBER OPTIC, PEDESTAL	UFP			
	LANDSCAPE, TREE, CONIFEROUS	LTC		UTILITY, FIBER OPTIC, PULLBOX	UFPB			
	LANDSCAPE, TREE, DECIDUOUS	LTD		UTILITY, FIBER OPTIC, VAULT	UFV			
	MONUMENT, BENCHMARK	MB		UTILITY, FIBER OPTIC, WARNING SIGN	UFWS			
	MONUMENT, CONTROL	MC		UTILITY, GAS, MANHOLE	UGMH			
	MONUMENT, FOUND	MF		UTILITY, GAS, METER	UGM			
	MONUMENT, FOUND, OFFSET	MFO		UTILITY, GAS, VALVE	UGV			
	MONUMENT, SET	MS		UTILITY, GAS, WARNING SIGN	UGWS			
	MONUMENT, RIGHT-OF-WAY	MROW		UTILITY, IRRIGATION, CONTROL VALVE	UICV			
	MONUMENT, SECTION CORNER	MSC		UTILITY, IRRIGATION, SPRINKLER HEAD	UISH			
	MONUMENT, SECTION CORNER, CALCULATED	MSCC		UTILITY, POLE, H-STRUCTURE	UPH			
	MONUMENT, SECTION CORNER, REFERENCE	MSCR		UTILITY, POLE, PEDESTRIAN LIGHT	UPPL			
	MONUMENT, SECTION CORNER, TIE	MSCT		UTILITY, POLE, STEEL	UPS			
	MONUMENT, SECTION CORNER, WITNESS	MSCW		UTILITY, POLE, STREET LIGHT	UPSL			
	RAILROAD, CROSSBUCK	RRCB		UTILITY, POLE, WOOD	UPW			
	RAILROAD, SIGN, CROSSING	RISC		UTILITY, POLE, WOOD WITH LIGHT	UPWL			
	SIGNS, BILLBOARD	SBLB		UTILITY, SEWER, CLEANOUT	USCO			
	SIGNS, DELINEATOR	SD		UTILITY, SEWER, MANHOLE	USMH			
	SIGNS, INFORMATION	SI		UTILITY, SEWER, WARNING SIGN	USWS			
	SIGNS, MONUMENT	SM		UTILITY, TELEPHONE, MANHOLE	UTMH			
	SIGNS, REGULATORY	SR		UTILITY, TELEPHONE, POLE	UTP			
	STRIPING, ARROW, LEFT	STAL		UTILITY, TELEPHONE, PULLBOX	UTPB			
	STRIPING, ARROW, RIGHT	STAR		UTILITY, TELEPHONE, WARNING SIGN	UTWS			
	STRIPING, ARROW, STRAIGHT	STAS		UTILITY, UNIDENTIFIED, MANHOLE	UUMH			
	STRIPING, BICYCLE	STBC		UTILITY, UNIDENTIFIED, PEDESTAL	UUP			

REMOVALS

	BUILDING TO BE REMOVED
	SIDEWALK TO BE REMOVED
	REMOVAL UTILITY
	REMOVE OBJECT

UTILITIES

	PROPOSED STORM SEWER
	PROPOSED SANITARY SEWER
	PROPOSED SANITARY SEWER SERVICE
	PROPOSED SLOTTED UNDER DRAIN
	PROPOSED UNDERGROUND POWER
	PROPOSED WATER LINE
	PROPOSED GAS
	PROPOSED TELEPHONE
	PROPOSED AIR TAP
	PROPOSED WATER SERVICE
	PROPOSED MANHOLE
	PROPOSED F.E.S.
	PROPOSED F.E.S. WITH ROCK APRON
	PROPOSED CURB INLET
	PROPOSED AREA INLET
	PROPOSED PIPE PLUG
	PROPOSED CLEANOUT
	PROPOSED VALVE
	PROPOSED FIRE HYDRANT ASSEMBLY
	PROPOSED REDUCER
	PROPOSED TEE WITH THRUST BLOCK
	PROPOSED BEND WITH THRUST BLOCK
	PROPOSED CROSS
	PROPOSED METER PIT AND METER VAULT

EROSION & SEDIMENT CONTROL (EC) LEGEND

	SILT FENCE
	WATTLE
	VEHICLE TRACKING CONTROL
	TEMPORARY SEEDING
	STRAW HAY BALE
	SLOPE PROTECTION
	PERMANENT SEEDING
	INLET PROTECTION
	CONCRETE WASHOUT PIT
	CHECK DAM
	CONSTRUCTION ROAD STABILIZATION
	CURB SOCK INLET PROTECTION
	DIVERSION DITCH AND DIKE, TEMPORARY
	DIVERSION CHANNEL, TEMPORARY
	EROSION CONTROL BLANKET
	MULCHING
	RIPRAP
	SEDIMENT BASIN
	SEDIMENT CONTROL LOG
	SURFACE ROUGHENING
	STABILIZED STAGING AREA
	TERRACING
	TEMPORARY STREAM CROSSING
	(COMPACTED) EARTH BERM

PAVING

	PROPOSED CURB AND GUTTER
	PROPOSED FLOWLINE
	PROPOSED RETAINING WALL
	PROPOSED X" CONCRETE SIDEWALK
	PROPOSED X" CONCRETE DECORATIVE
	PROPOSED ASPHALT PAVEMENT
	PROPOSED BARRICADE
	PROPOSED SIGN
	PROPOSED BUILDING
	PROPOSED FENCE
	PROPOSED PARKING STALL COUNT
	PROPOSED PAVEMENT MARKINGS
	SAWED TRANSVERSE CONTRACTION JOINT
	SAWED LONGITUDINAL JOINT
	KEYED LONGITUDINAL
	EXPANSION JOINT
	PROPOSED HANDY CAP PARKING

GRADING

	PROPOSED CONTOUR
	FUTURE CONTOUR
	EXISTING CONTOUR
	PROPOSED SWALE
	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
	SPOT ELEVATION
	SPOT ELEVATION WITH DESCRIPTION SEE ABBREVIATIONS THIS SHEET

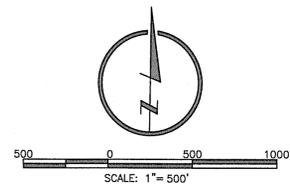
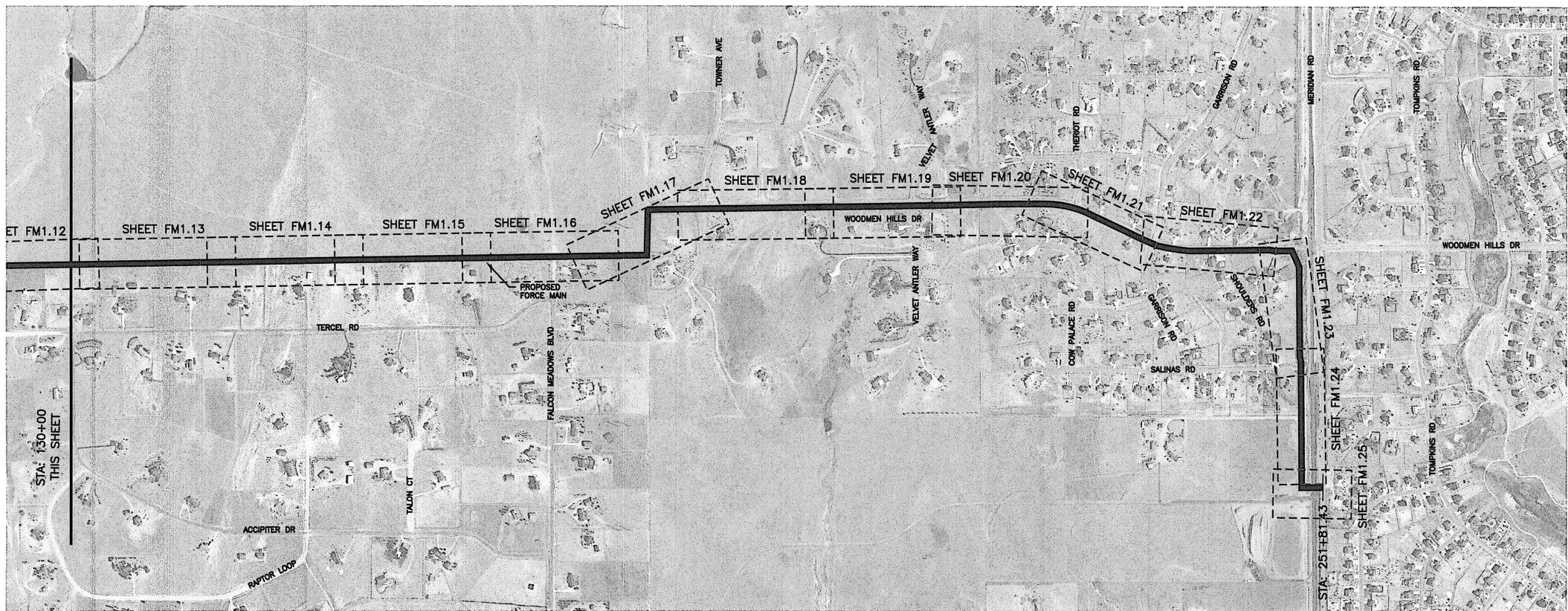
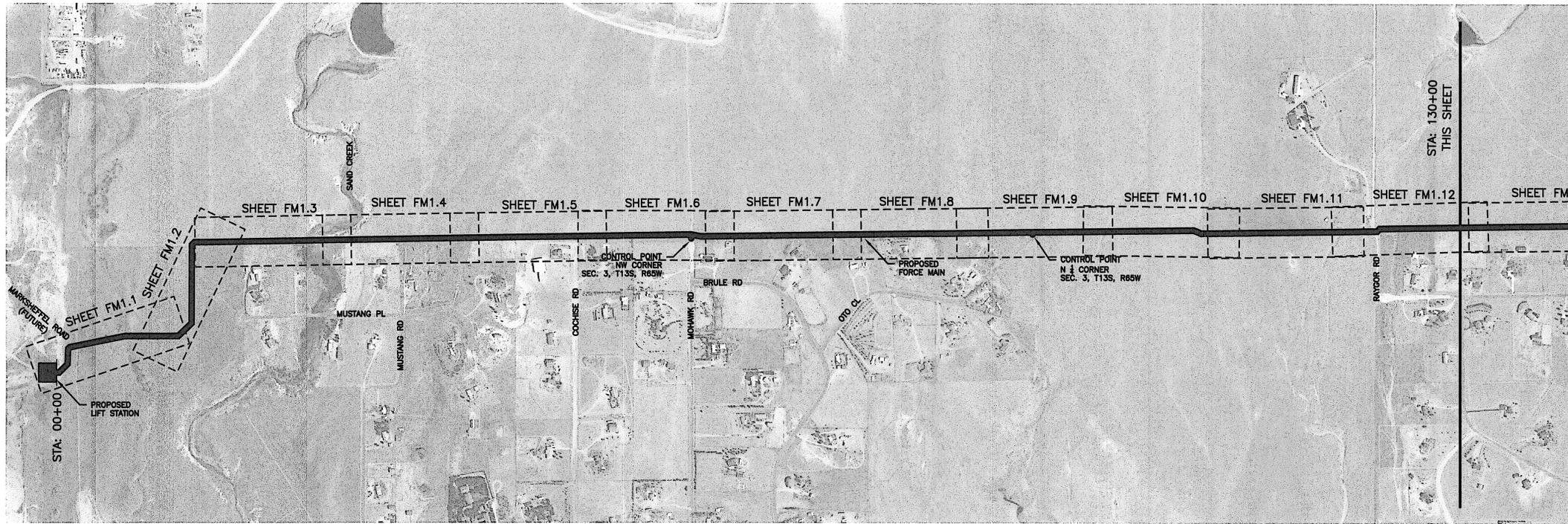
DRAINAGE (DR) LEGEND

	DRAINAGE BASIN ID
	DRAINAGE AREA (AC)
	MINOR STORM RUNOFF COEFFICIENT
	MAJOR STORM RUNOFF COEFFICIENT
	PROPOSED DRAINAGE BASIN BOUNDARY
	PROPOSED DRAINAGE SUB BASIN BOUNDARY
	EXISTING DRAINAGE BASIN BOUNDARY
	EXISTING DRAINAGE SUB BASIN BOUNDARY
	DRAINAGE FLOW PATH
	DESIGN POINT
	CHANNEL FLOW ARROW
	OVERLAND FLOW ARROW

GENERAL ABBREVIATIONS

AC	ACRES
A.D.	GRADE CHANGE
ADA	AMERICANS WITH DISABILITIES ACT
BLDG	BUILDING
BOC	BACK OF CURB
BOSW	BACK OF WALK
BOP	BOTTOM OF PIPE
BOW	BOTTOM OF WALL AT FINISHED GRADE
CATV	CABLE TELEVISION
CF	CUBIC FOOT
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CP	CONTROL POINT
CY	CUBIC YARD
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
E	EAST
EOA	EDGE OF ASPHALT
EOB	EDGE OF BOX
ELEV.	ELEVATION
EOG	EDGE OF GRAVEL
FES	FLARED END SECTION
FFE	FINISH FLOOR ELEVATION
FH	FIRE HYDRANT
FL	FLOWLINE
G	GAS
G.B.	GRADE BREAK
HP	HIGH POINT
HORIZ	HORIZONTAL
I.E.	INVERT ELEVATION
L	LEGAL DIMENSIONS
LF	LINEAR FEET
LP	LOW POINT
M	MEASURED
MH	MANHOLE
ME	MATCH EXISTING
MOE	MINIMUM OPENING ELEVATION
N	NORTH
N.T.S.	NOT TO SCALE
P	PLAT DIMENSIONS
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
P.V.C.	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
R	RECORD DIMENSIONS
RAD	RADIUS
RB	REBAR
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT OF WAY
S	SOUTH
SF	SQUARE FEET
SS	SANITARY SEWER
ST	STORM
STA	STATION
STD	STANDARD
T	TELEPHONE
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOG	TOP OF GRADE
TOI	TOP OF ISLAND
TOP	TOP OF PAVEMENT
TOW	TOP OF WALL
TYP.	TYPICAL
VERT	VERTICAL
W/	WITH
W	WEST
WQCV	WATER QUALITY CAPTURE VOLUME

DRAWN BY JPM	DESIGNED BY JPM	DATE APRIL 24, 2017	JOB NUMBER/TASKS 0418011	BOOK AND PAGE
LAMP RYNEARSON & ASSOCIATES 12556 West Bayland Avenue, Suite 330 Greenwood, Colorado 80228 LRA@lra.com / lra@water.com				
FORCE MAIN LEGEND STERLING RANCH LIFT STATION AND FORCE MAIN STERLING RANCH METROPOLITAN DISTRICT NO. 1				
LAMP RYNEARSON - ENGINEERS				
BRADLEY A. SIMONS 34725				
SHEET				
811 KNOW WHAT'S BELOW CALL BEFORE YOU DIG				
GO.3				



PROJECT CONTROL

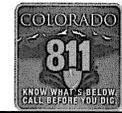
HORIZONTAL CONTROL:

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 EASTING: 241732.9390
 ELEVATION: 7010.07
 DESCRIPTION: 2 1/2" ALUM CAP W/ 2" ALUM PIPE, LS 11624

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 EASTING: 239010.5240
 ELEVATION: 7028.15
 DESCRIPTION: 2 1/2" ALUM CAP W/ 3" REBAR, LS 11624

VERTICAL DATUM:

STERLING RANCH DEVELOPMENT BENCHMARK
 NORTHING: 413533.64
 EASTING: 235994.01
 ELEVATION: 7076.93
 DESCRIPTION: 3" REBAR WITH 1" PLASTIC CAP



DRAWN BY	JPM
DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER-TASK	0416011
BOOK AND PAGE	

REVISIONS

NO.	DESCRIPTION

LAMP RYNEARSON & ASSOCIATES
 12586 West Bayraud Avenue, Suite 330
 Lakewood, Colorado 80228
 LRA-inc.com / r2a@water.com

STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

FORCE MAIN
OVERALL PLAN & PROJECT CONTROL

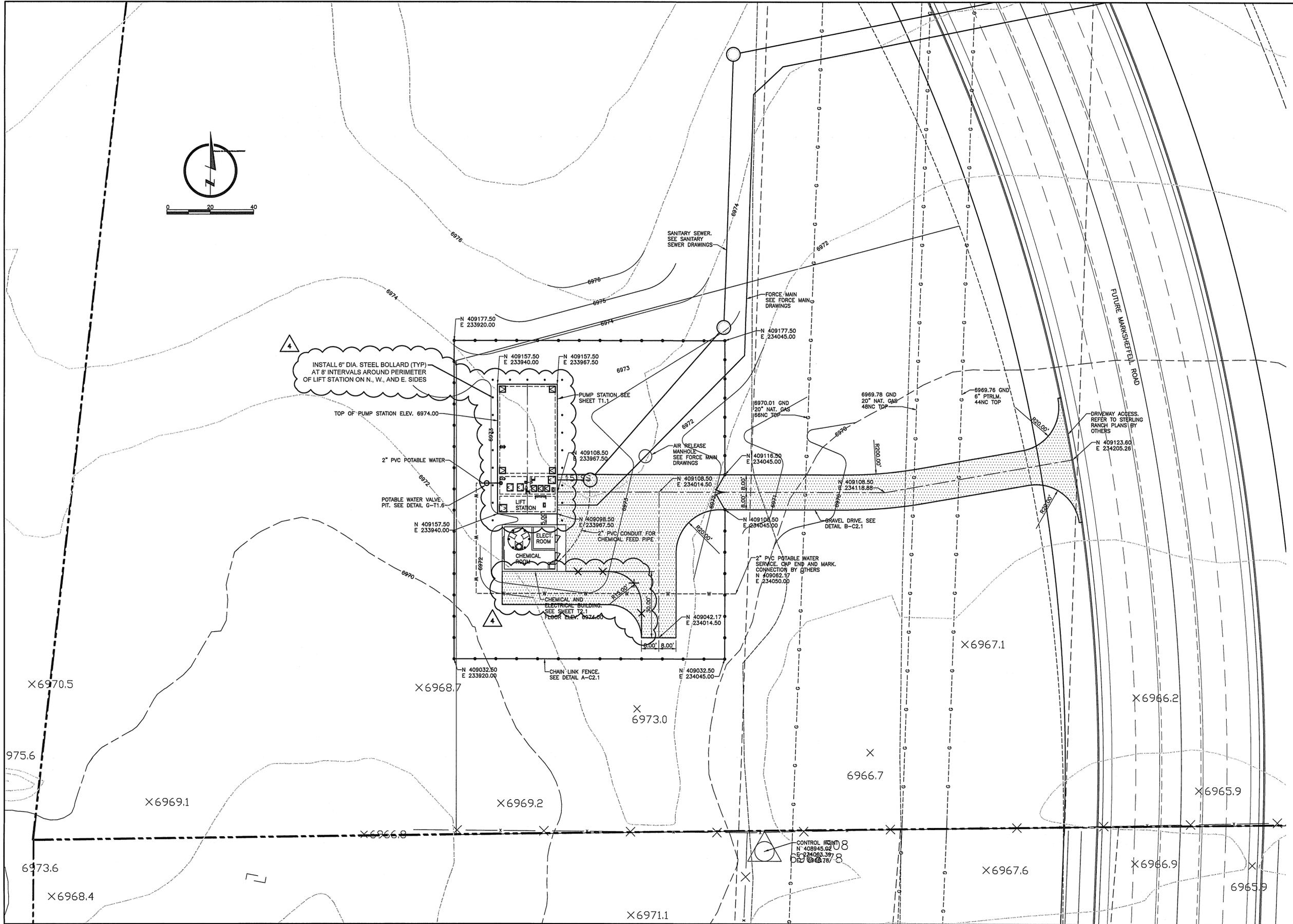
LAMP RYNEARSON - ENGINEERS

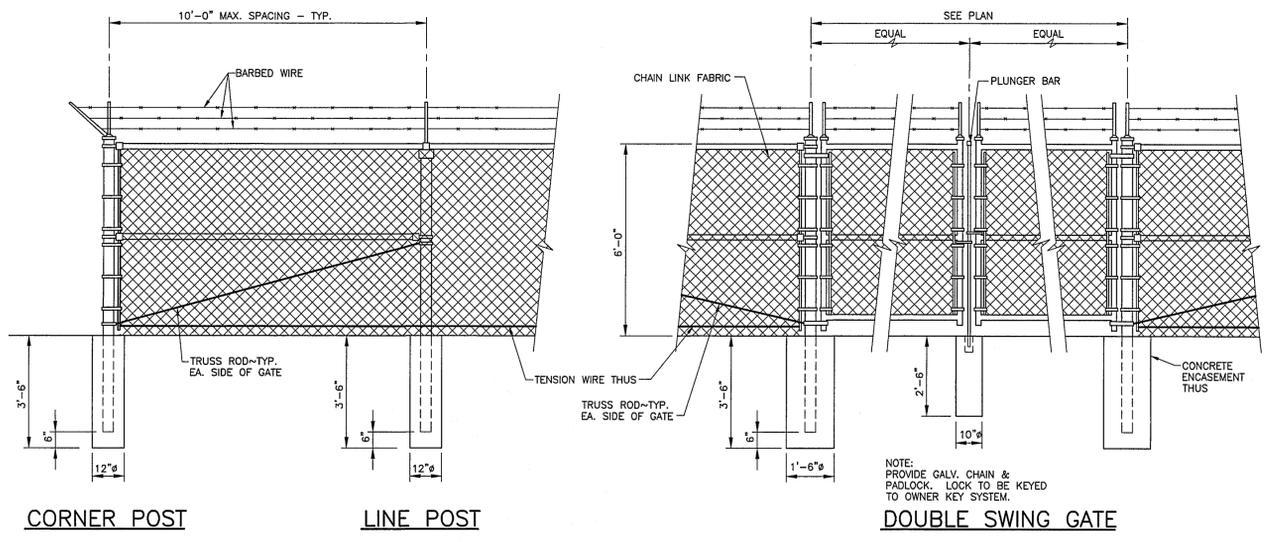


BRADLEY A. SIMONS
 34705
SHEET
G.04

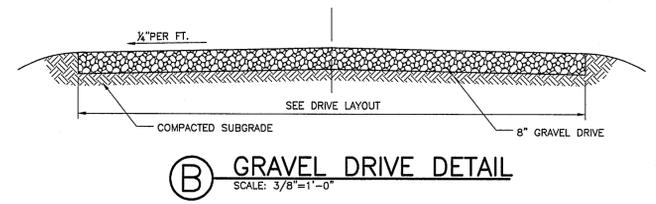
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C:\Projects\2017\Sterling Ranch Lift Station & Force Main\Drawings\Sheet\17011011.dwg - 06/27/19 10:28:34 AM LAMP RYNEARSON & ASSOCIATES





(A) CHAIN LINK FENCE AND GATE DETAIL
SCALE: 3/8"=1'-0"



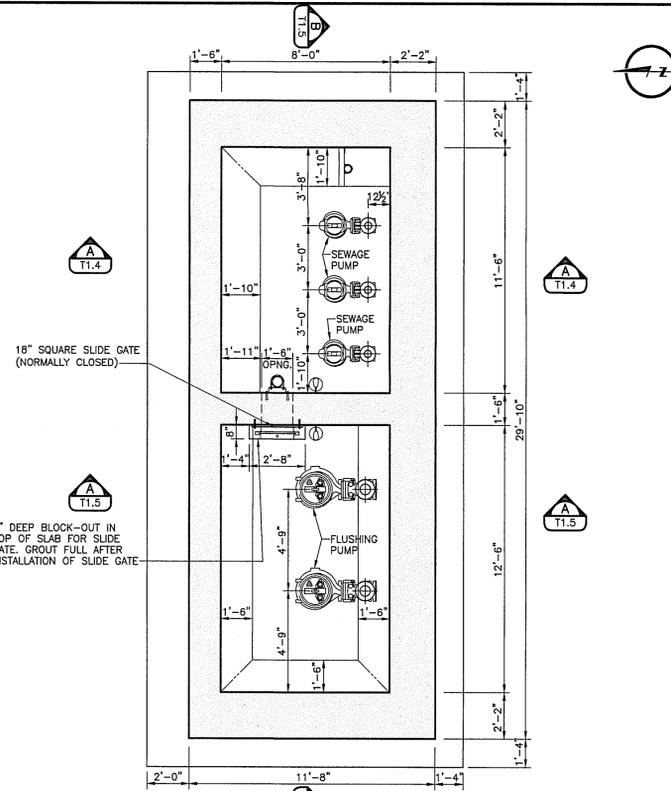
(B) GRAVEL DRIVE DETAIL
SCALE: 3/8"=1'-0"

NOTE:
PROVIDE GALV. CHAIN &
PADLOCK. LOCK TO BE KEYPED
TO OWNER KEY SYSTEM.

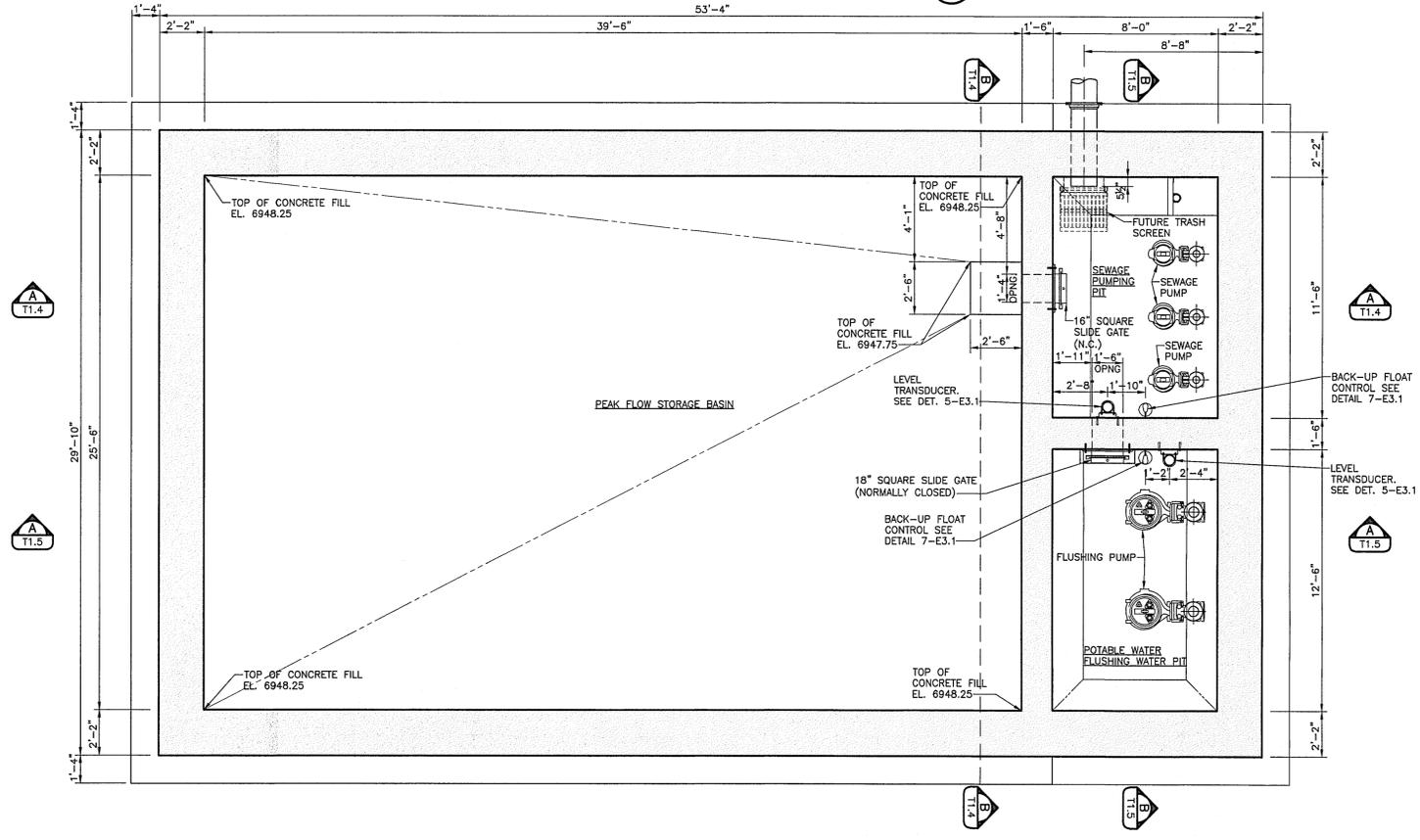
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	DESIGNED BY	ITC
	DATE	04-20-2017
	JOB NUMBER-TASKS	0116011.01
	BOOK AND PAGE	
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STERLING RANCH LIFT STATION & FORCE MAIN STERLING RANCH METROPOLITAN DISTRICT NO. 1		
LIFT STATION SITE DETAILS		
LAMP RYNEARSON - ENGINEERS		
		
BRADLEY A. SIMONS 34705		
SHEET		
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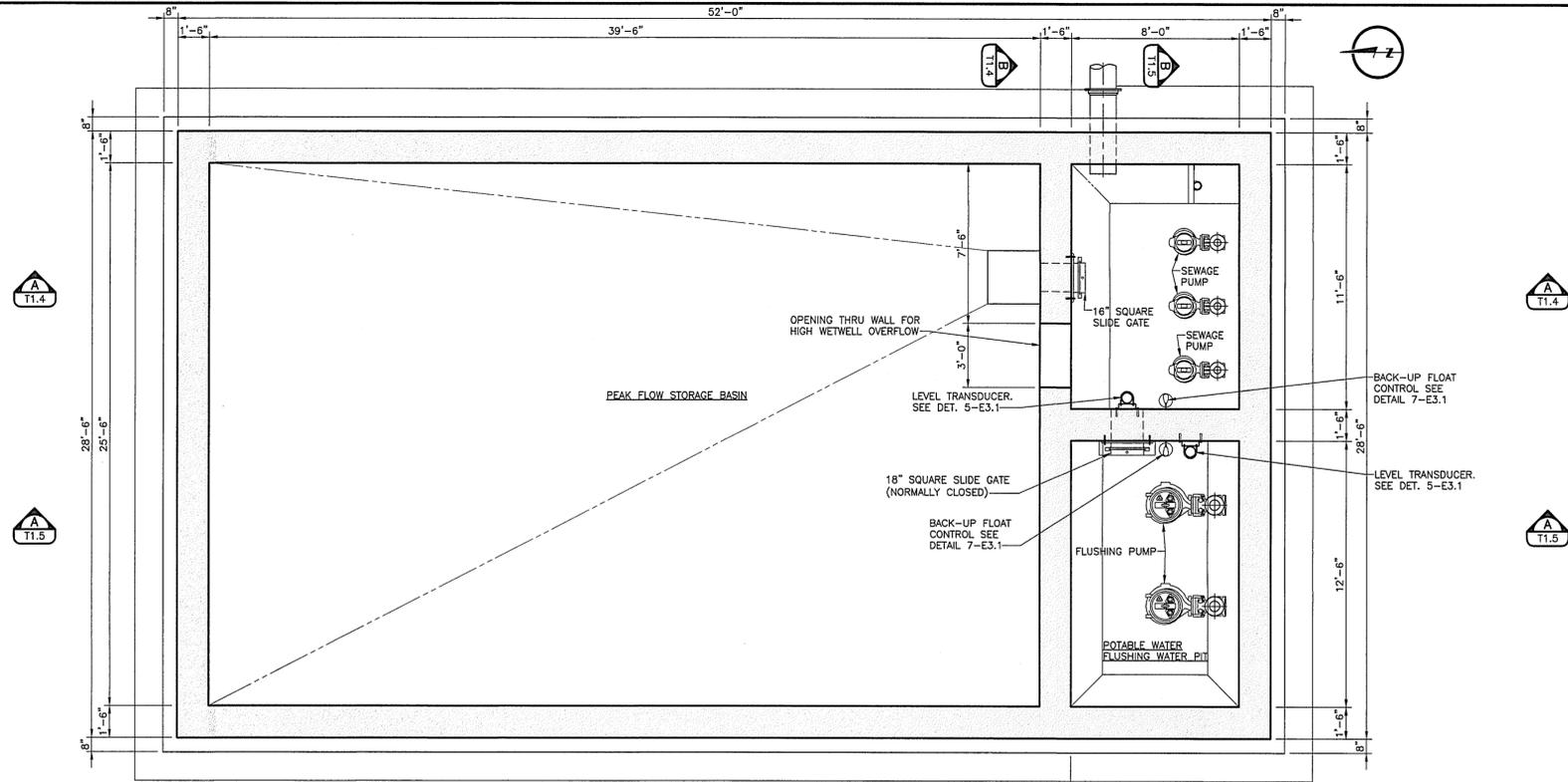


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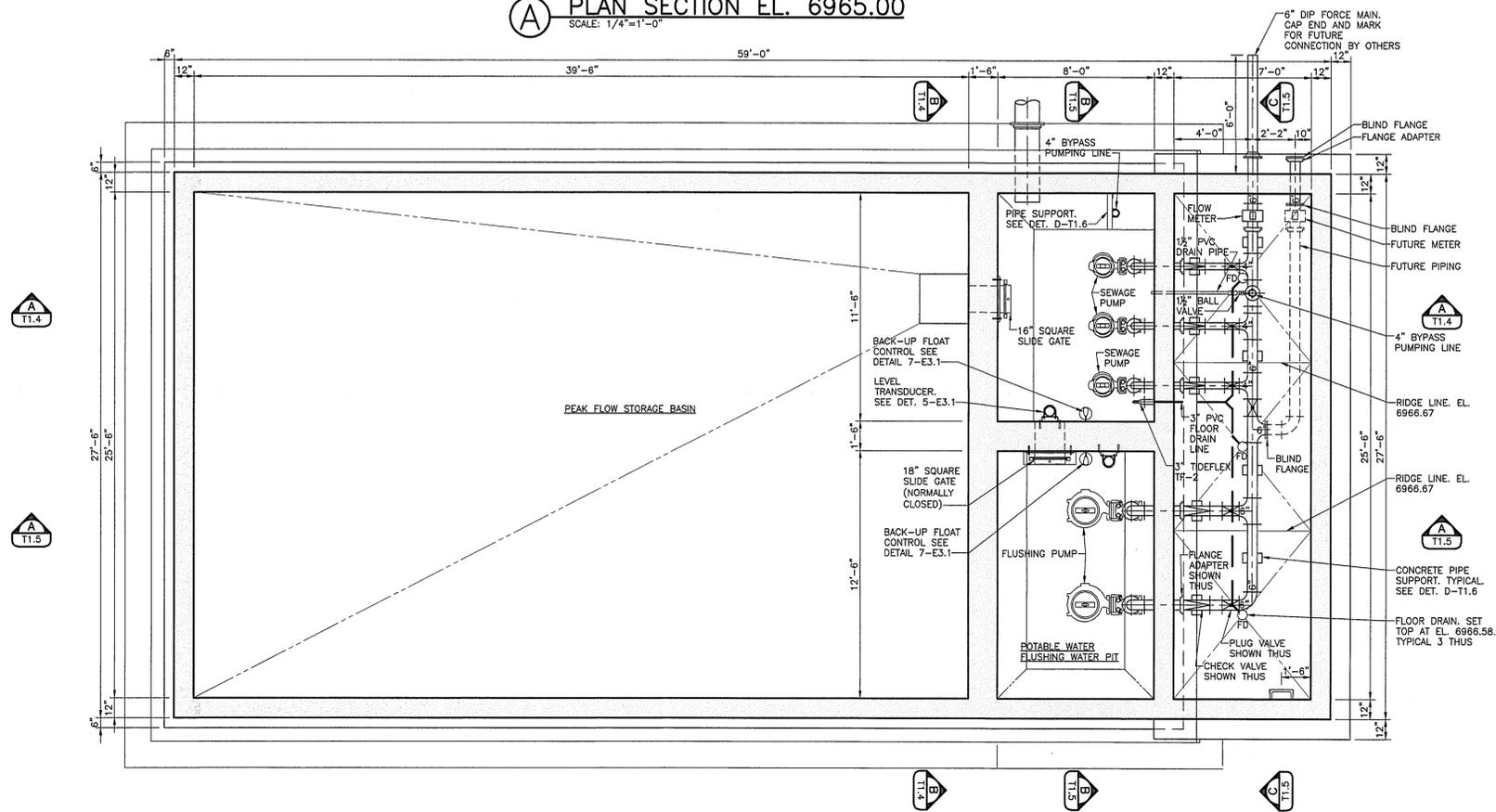
ABBREVIATIONS

ALUM	ALUMINUM
B	BOTTOM
BC	BOLT CIRCLE
BLDG.	BUILDING
B&S	BOTTOM AND SIDES
BV	BALL VALVE
C-C	CENTER TO CENTER
CJ	CONSTRUCTION JOINT
CL	CLEAR
CLR.	CLEARANCE
CSP	CORRUGATED STEEL PIPE
CV	CHECK VALVE
DET.	DETAIL
DIA.	DIAMETER
DIP	DUCTILE IRON PIPE
EF	EACH FACE
EJ	EXPANSION JOINT
EL.	ELEVATION
EW	EACH WAY
EXP.	EXPANDABLE
F.D.	FLOOR DRAIN
FF	FAR FACE
FM	FORCE MAIN
FV	FIELD VERIFY
FT.	FEET
GPM	GALLONS PER MINUTE
GV	GATE VALVE
H	HORIZONTAL OR HEIGHT
HDG	HOT DIP GALVANIZED
HSS	HOLLOW STRUCTURAL SECTION
ID	INSIDE DIAMETER
IF	INSIDE FACE
INV.	INVERT
JT	JOINT
L	LONG
LONG	LONGITUDINAL
MID	MIDDLE OR MID POINT
N.C.	NORMALLY CLOSED
NF	NEAR FACE
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
OVERALL	OVERALL
OC	ON CENTERS
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
PE	POLYETHYLENE
PV	FLUG VALVE
PVC	POLY VINYL CHLORIDE
REQ'D	REQUIRED
SAN.	SANITARY
SPA.	SPACE OR SPACES
SQ.	SQUARE
S.S.	STAINLESS STEEL
STR	STRAIGHT
T	TOP
TBD	TO BE DETERMINED
TOP	TOP OF FOOTING ELEVATION
TOG	TOP OF GROUT
TOS	TOP OF SLAB ELEVATION
TRANS	TRANSVERSE
TYP.	TYPICAL
UNO	UNLESS NOTED OTHERWISE
V	VERTICAL
W	WIDTH
WS	WATERSTOP
WWR	WELDED WIRE REINFORCING

<p>DRAWN BY TWB</p> <p>DESIGNED BY ITC</p> <p>DATE 04-20-2017</p> <p>JOB NUMBER-TASKS 0416011.01</p> <p>BOOK AND PAGE</p>	<p>REVISIONS</p>	<p>12556 West Bayland Avenue, Suite 350 303.971.0030 1400 Wood County Road 80225 303.971.0071 LRA-INC.COM / LRA@LRA.COM</p> <p>LAMP RYNEARSON & ASSOCIATES</p> <p>STERLING RANCH LIFT STATION & FORCE MAIN STERLING RANCH METROPOLITAN DISTRICT NO. 1</p>
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A PLAN SECTION EL. 6965.00
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B PLAN SECTION EL. 6972.00
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STERLING RANCH LIFT STATION & FORCE MAIN
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LIFT STATION
PLAN SECTIONS

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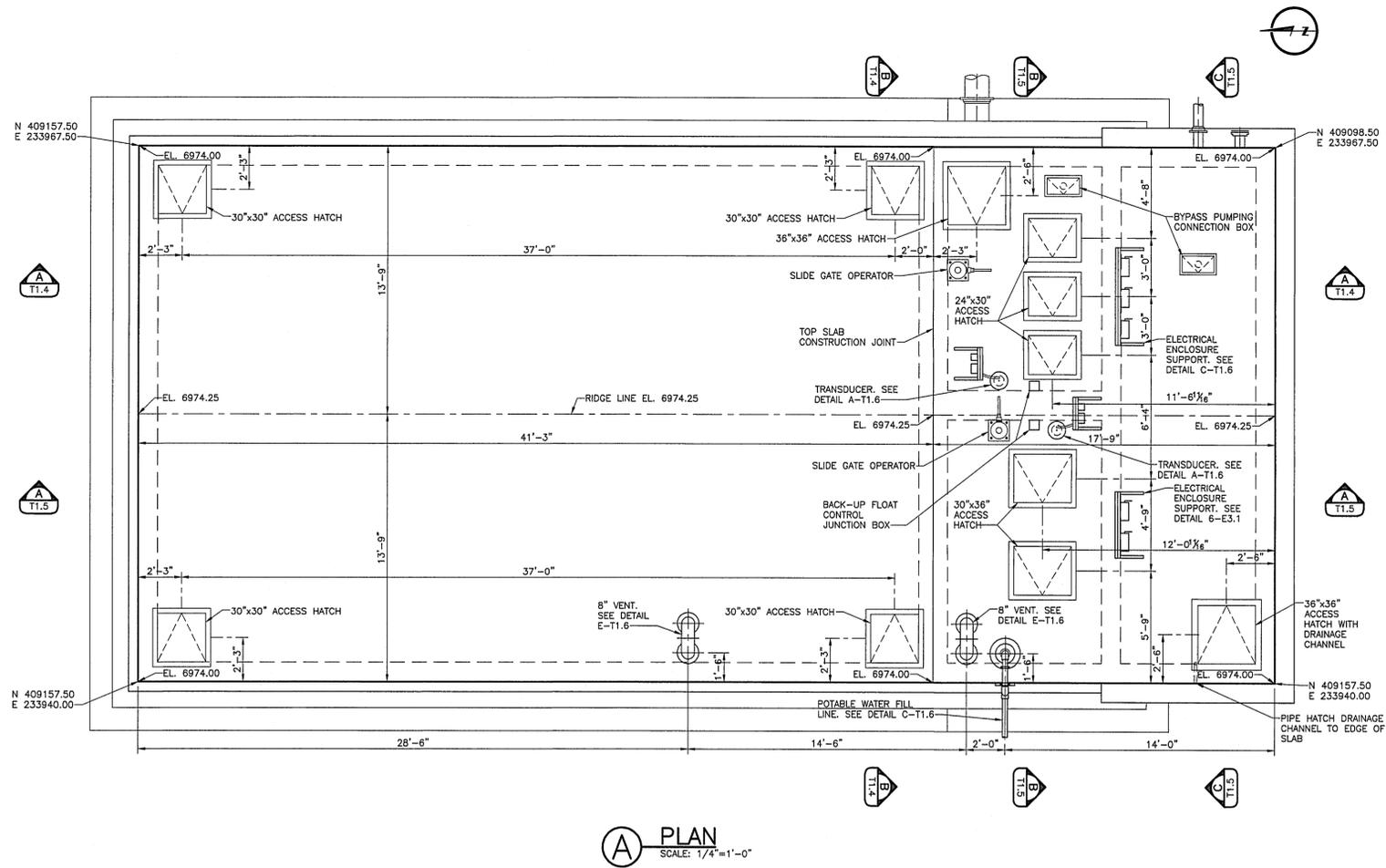
BRADLEY A. SIMONS
94705

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LIFT STATION
PLAN

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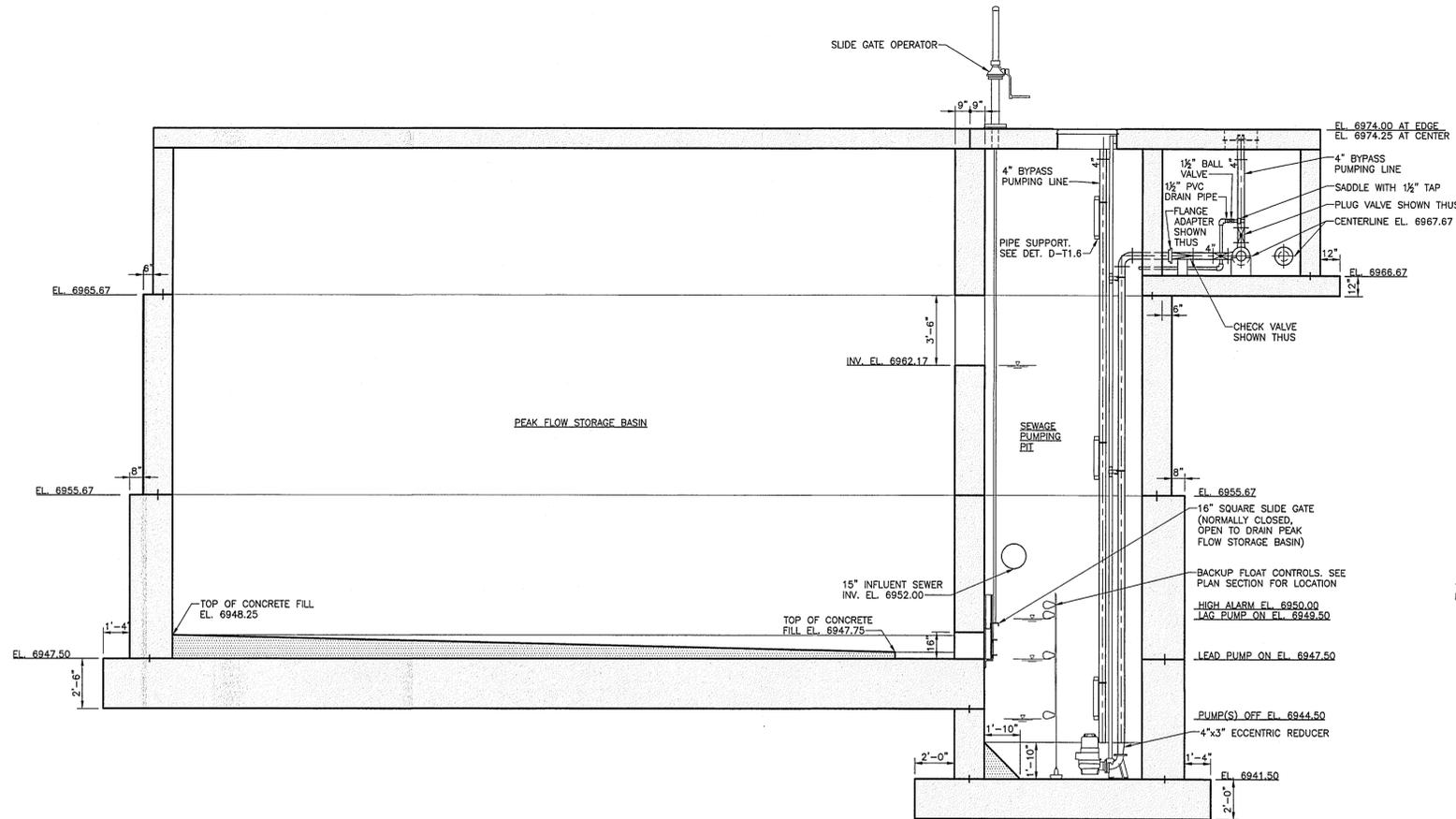


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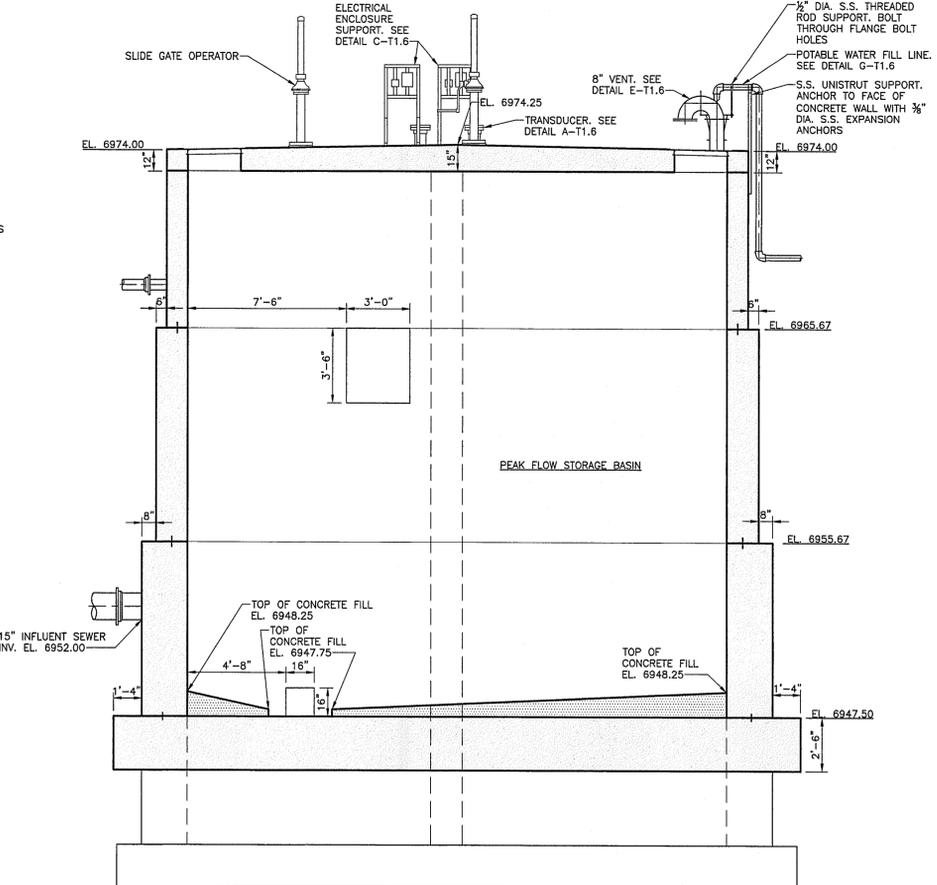
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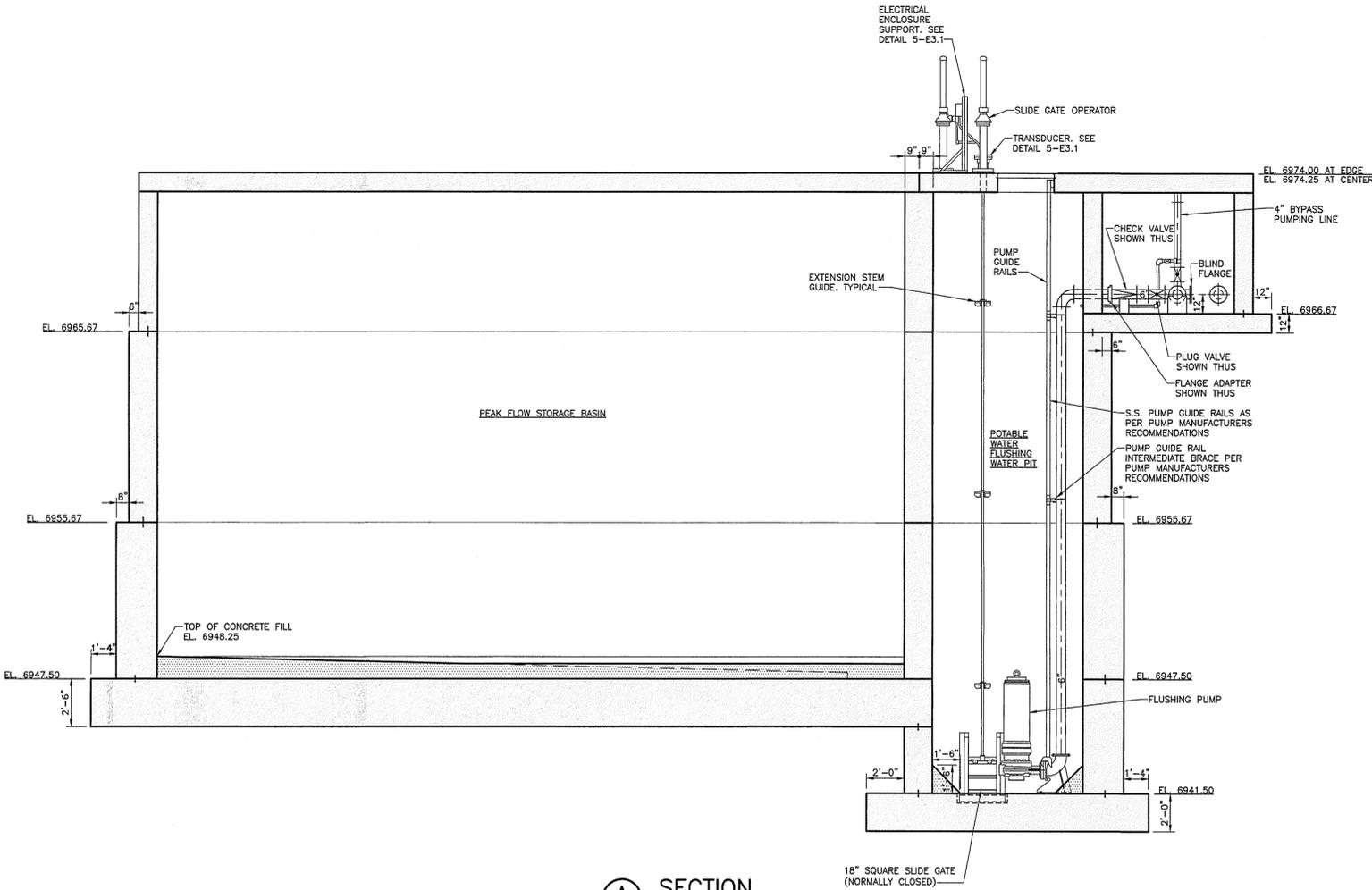


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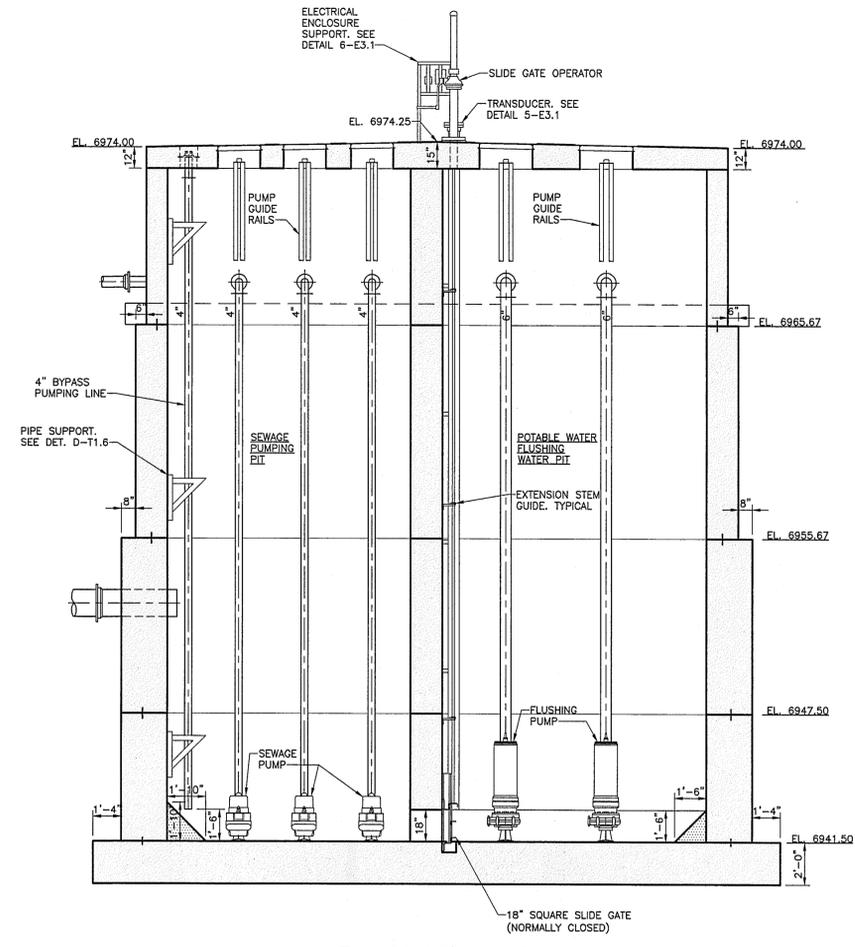


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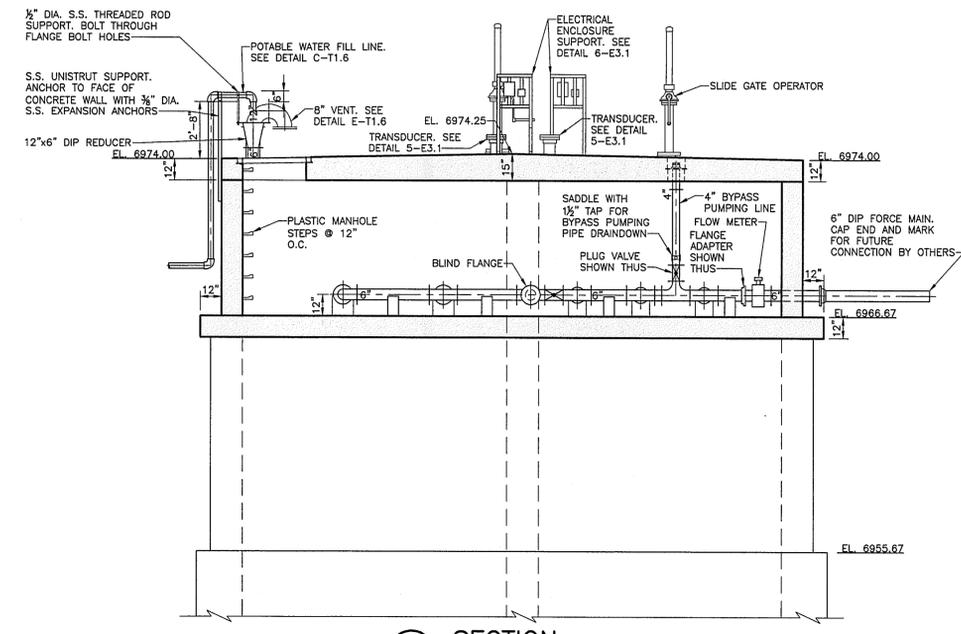
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<p>LIFT STATION SECTIONS</p>				
<p>LAMP RYNEARSON - ENGINEERS</p>				
<p>BRADLEY A. SIMONS 34705</p>				
<p>SHEET</p>				
<p>T1.4</p>				



A SECTION
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B SECTION
SCALE: 1/4"=1'-0"



C SECTION
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LIFT STATION
SECTIONS

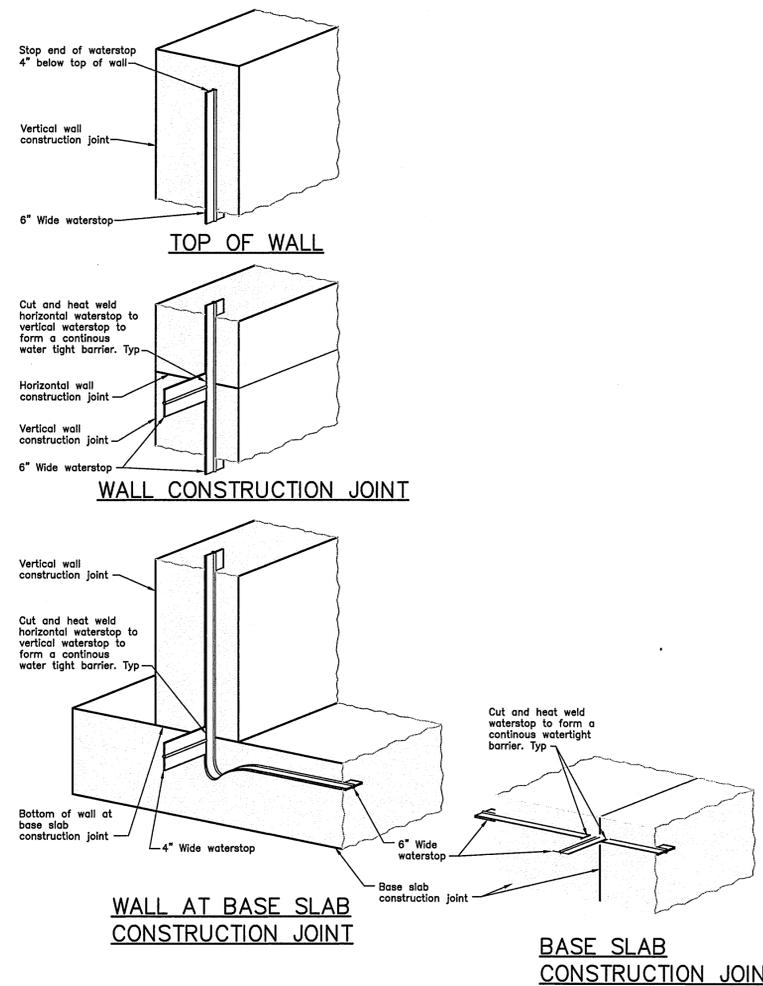
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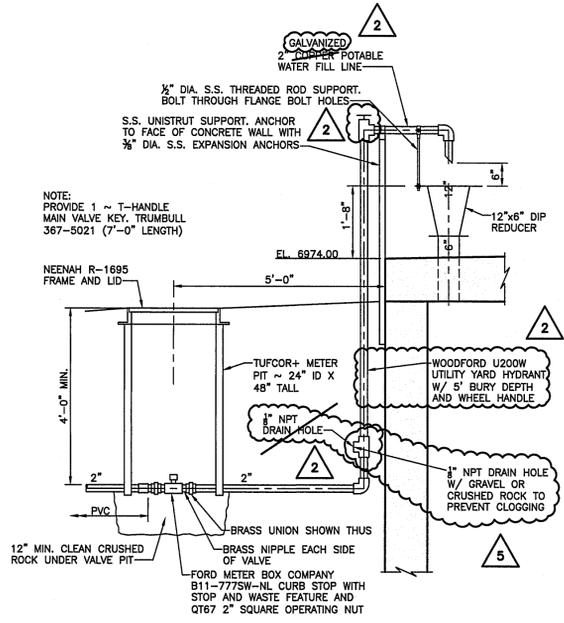
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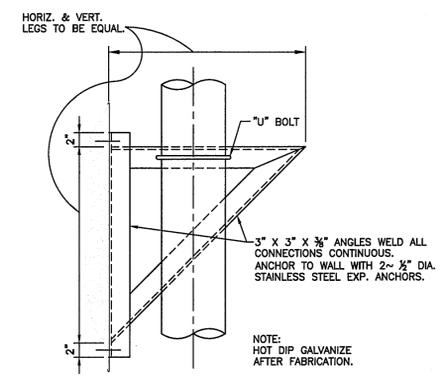
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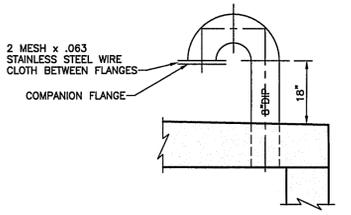
(B) WATERSTOP DETAILS
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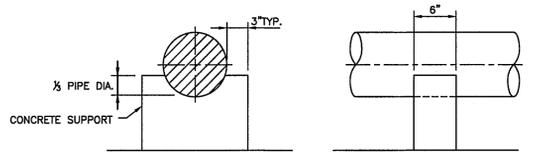
(C) POTABLE WATER FILL DETAIL
SCALE: 1/2"=1'-0"



VERTICAL PIPE SUPPORT



(E) WETWELL VENT DETAIL
SCALE: 1/2"=1'-0"



CONCRETE PIPE SUPPORT

(D) PIPE SUPPORT DETAILS
SCALE: 1"=1'-0"

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REV PER MS&D COMMENTS	03/27/2020
REV PER MS&D COMMENTS	03/27/2020

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LIFT STATION
MISCELLANEOUS DETAILS

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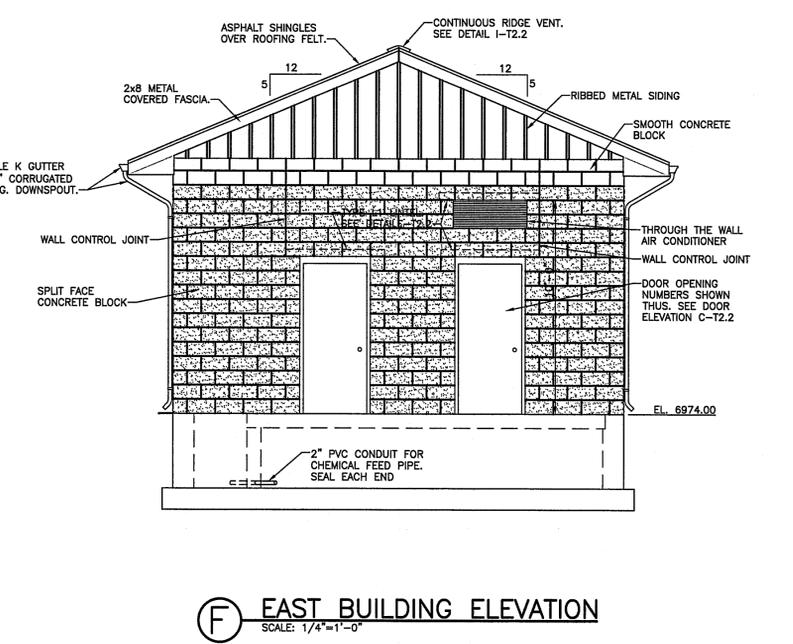
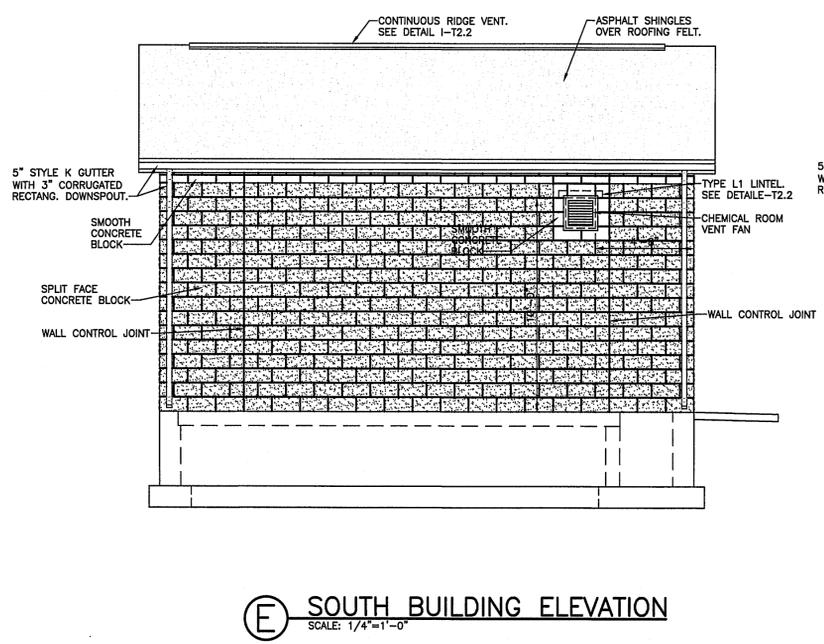
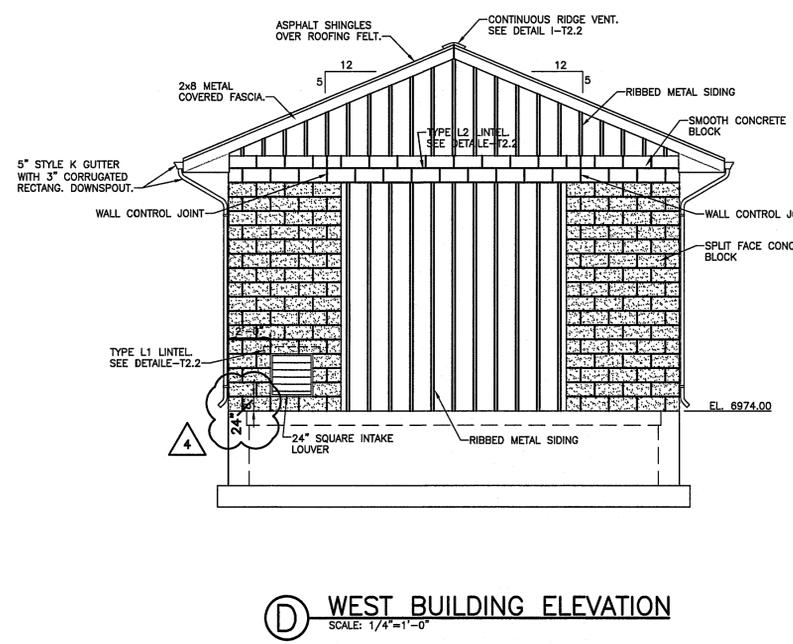
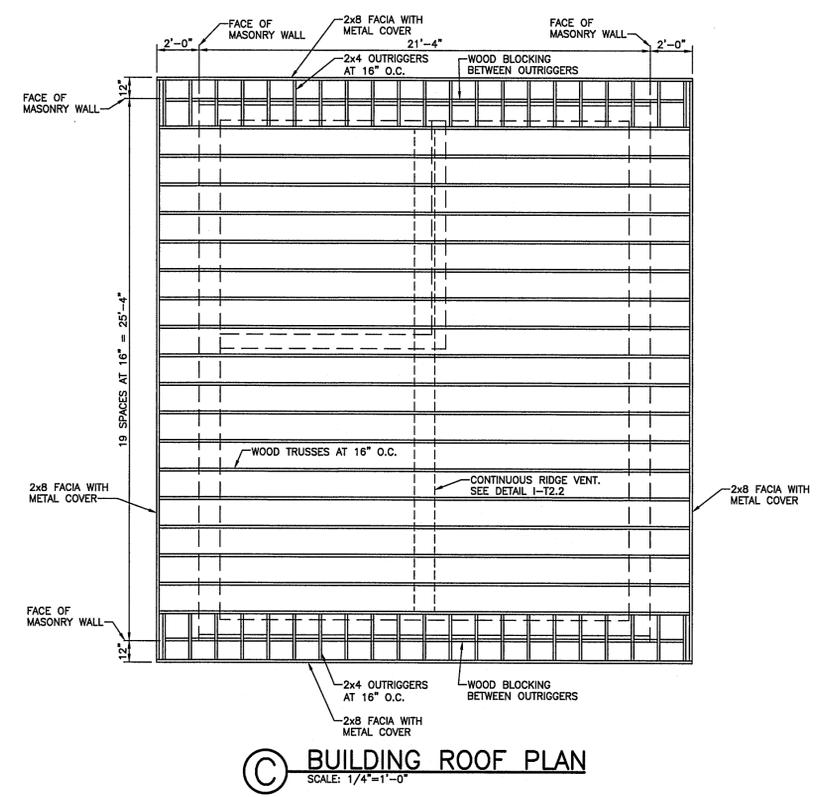
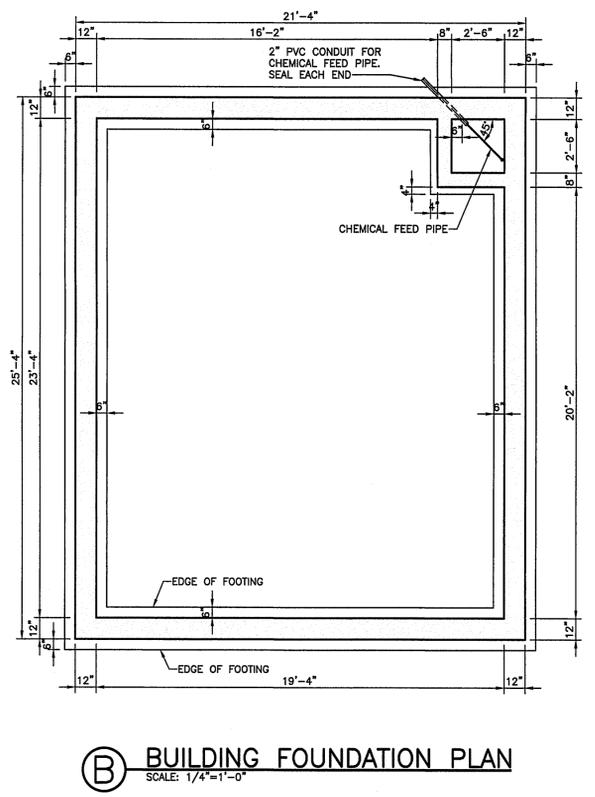
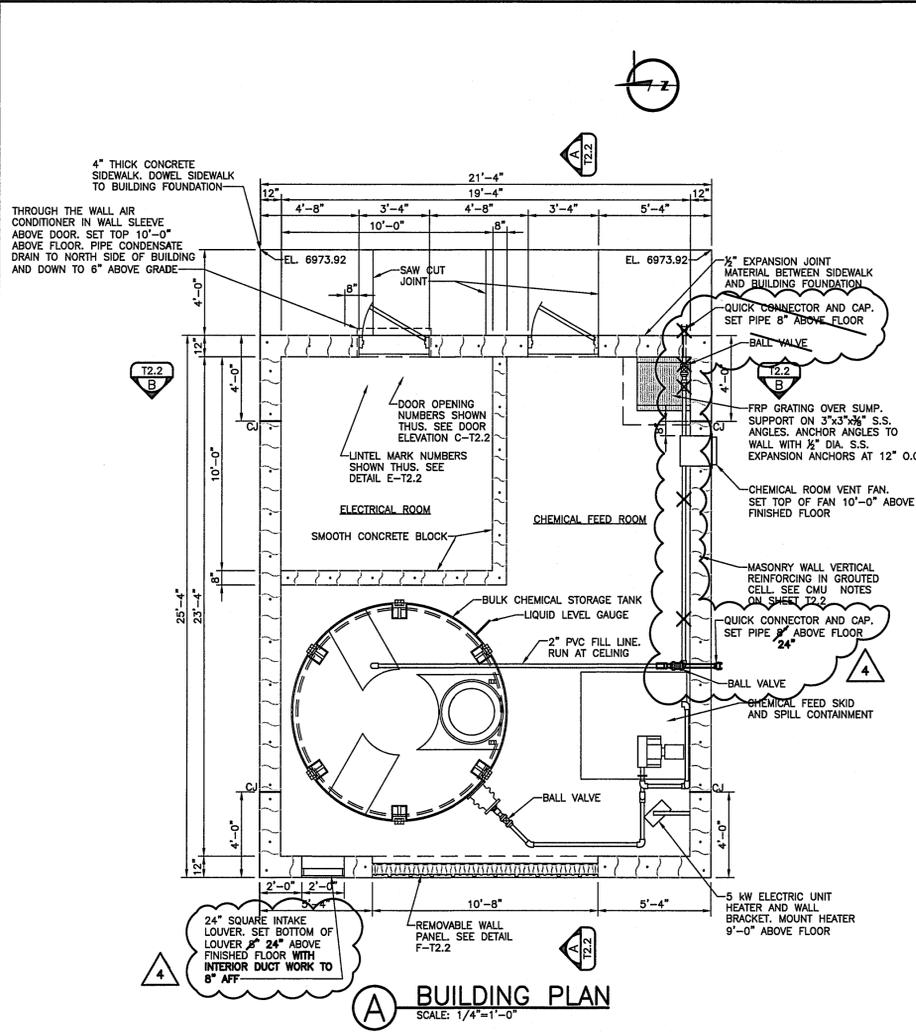


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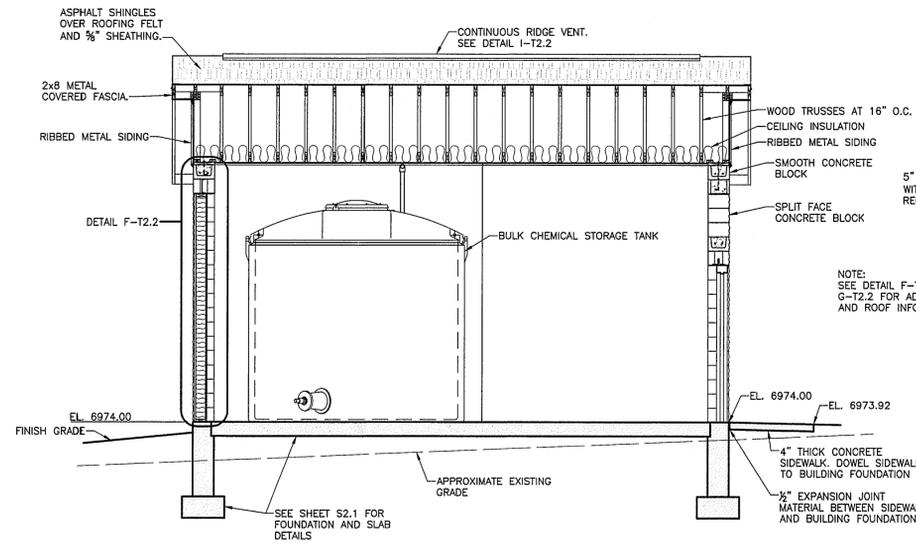
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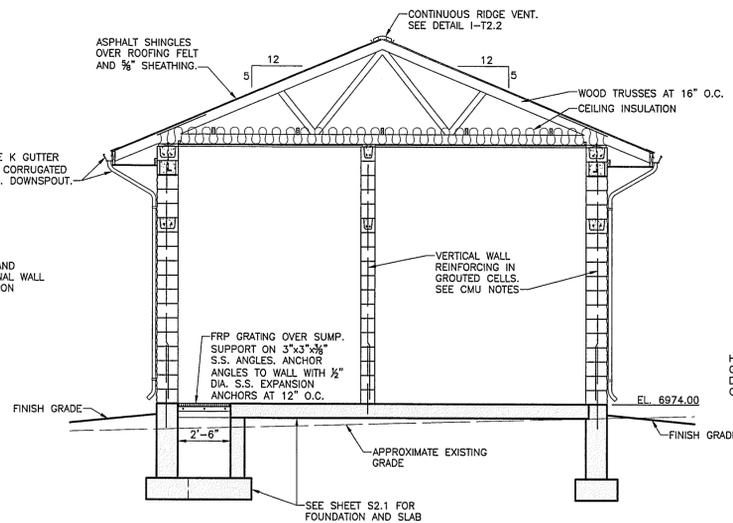


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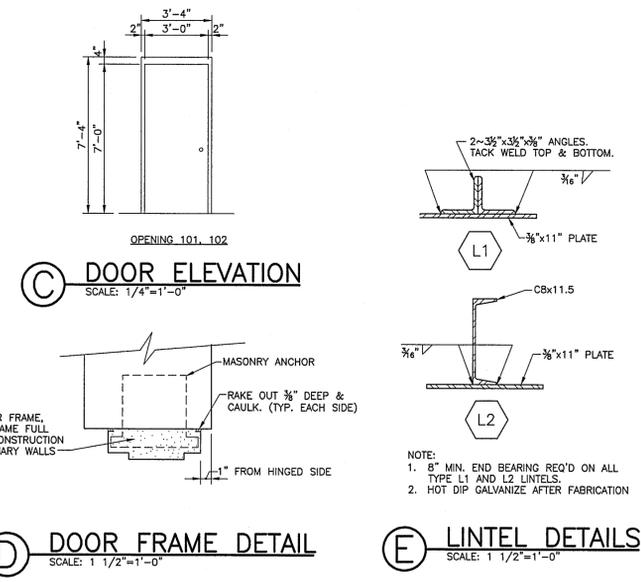
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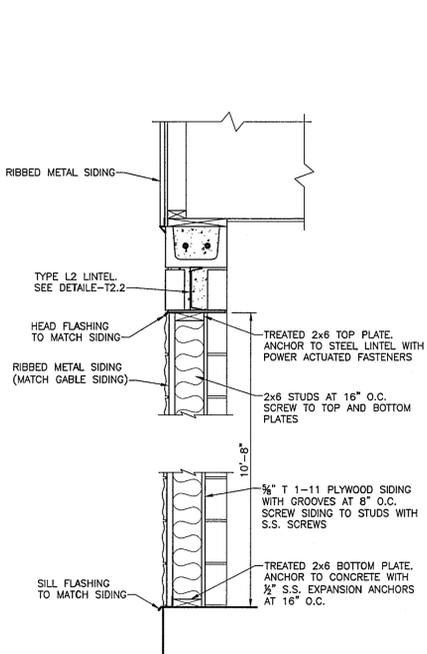
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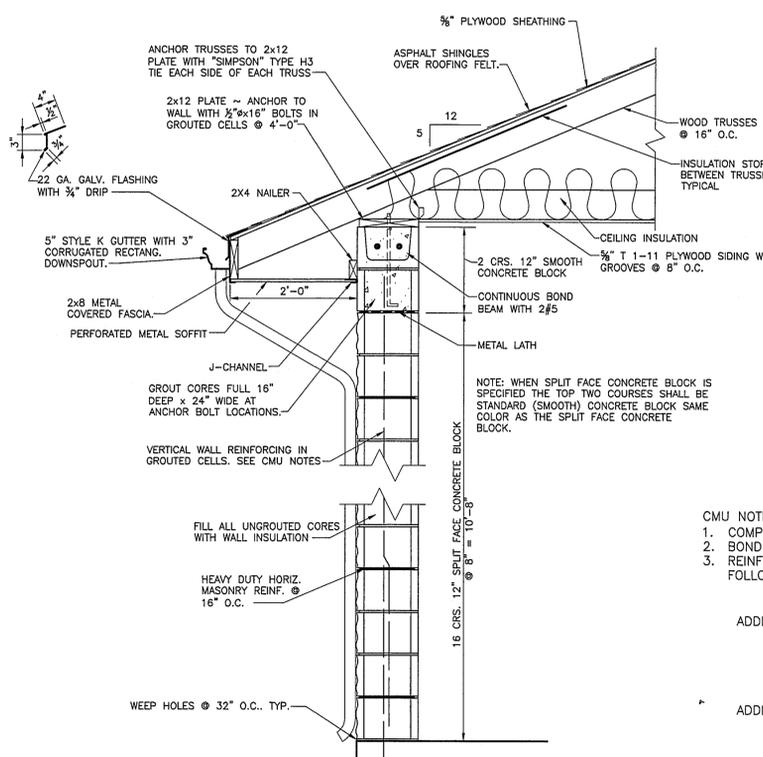
C DOOR ELEVATION
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D DOOR FRAME DETAIL
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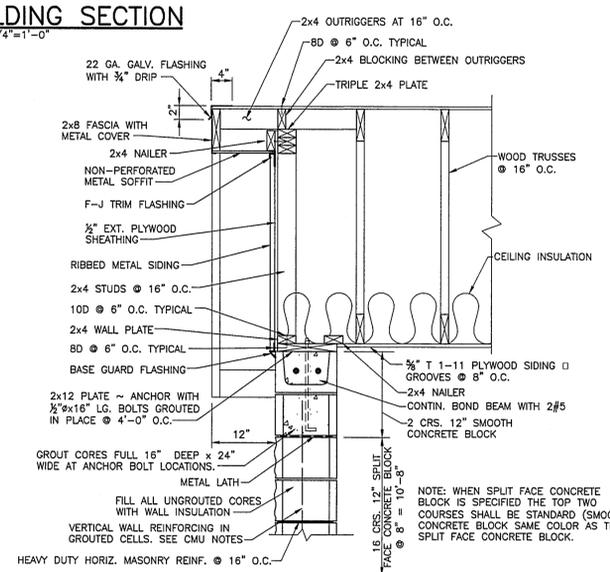
E LINTEL DETAILS
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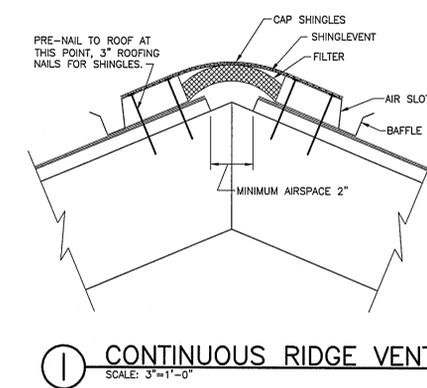
F REMOVABLE WALL PANEL
SCALE: 3/4"=1'-0"



G SIDEWALL ROOF FRAMING DETAIL
SCALE: 3/4"=1'-0"



H GABLE WALL ROOF FRAMING DETAIL
SCALE: 3/4"=1'-0"



I CONTINUOUS RIDGE VENT
SCALE: 3"=1'-0"

- CMU NOTES:
- COMPLETED UNIT MASONRY: f'm=1500 PSI
 - BOND PATTERN: RUNNING BOND
 - REINFORCE WALLS AS NOTED ON PLANS BUT NOT LESS THAN THE FOLLOWING MINIMUMS:
 - VERT 1 #5 AT 2'-0" OC
 - HORZ 1 #5 AT 8'-0" OC (8" TALL BOND BEAM)
- ADDITIONAL VERT:
- 1 #5 VERT IN CELL AT EACH WALL CORNER, WALL INTERSECTIONS, JAMB OF OPENINGS AND EACH SIDE OF CONTROL OR EXPANSION JOINTS. 1 #5 VERT BELOW ALL STEEL LINTEL OR BEAM BEARINGS. PROVIDE DOWELS IN CONCRETE TO MATCH ALL VERT BARS.
- ADDITIONAL HORZ:
- PROVIDE 1 #5 HORZ. BOND BEAM AT TOP OF WALL. PROVIDE 1 #5 HORZ REINF (8" BOND BEAM) AT TOP AND BOTTOM OF ALL OPENINGS UON. EXTEND ALL BARS 24" MIN BEYOND OPENINGS (HOOK BARS IF WALL TERMINATES AMID EXTENSION). PROVIDE HORZ CORNER BARS, SIZE TO MATCH HORZ REINF. L SHAPED, 48 DB EACH LEG. LAP SPLICE REBAR 48 BAR DIAMETERS.
- SHORE AND BRACE WALLS AS NECESSARY UNTIL ALL STRUCTURAL CONSTRUCTION IS COMPLETE.
 - GROUT ALL CELLS WITH REINFORCING STEEL, HORZ. AND VERT.
 - CONTROL JOINTS: NOTED ON PLANS AS "CJ", OR OTHERWISE PLACE AT 24' MAX SPACING AND 12' MAX AND 4' MIN FROM ENDS OR INTERSECTIONS OF WALLS; USE PREMOULDED, KEY SHAPED, HARD RUBBER OR PVC, WITH SEALANT, DISCONTINUE HORIZONTAL REINFORCING (BOND BEAM AND WIRE JOINT REINF) AT VERTICAL CONTROL JOINTS EXCEPT AT FLOOR OR ROOF LEVELS.
 - CONSTRUCT IN ACCORDANCE WITH ACI 530.1

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REVISIONS

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1	303.971.0090
2	303.971.0077

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STERLING RANCH LIFT STATION & FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

CHEMICAL AND ELECTRICAL BUILDING
SECTIONS AND DETAILS

LAMP RYNEARSON - ENGINEERS

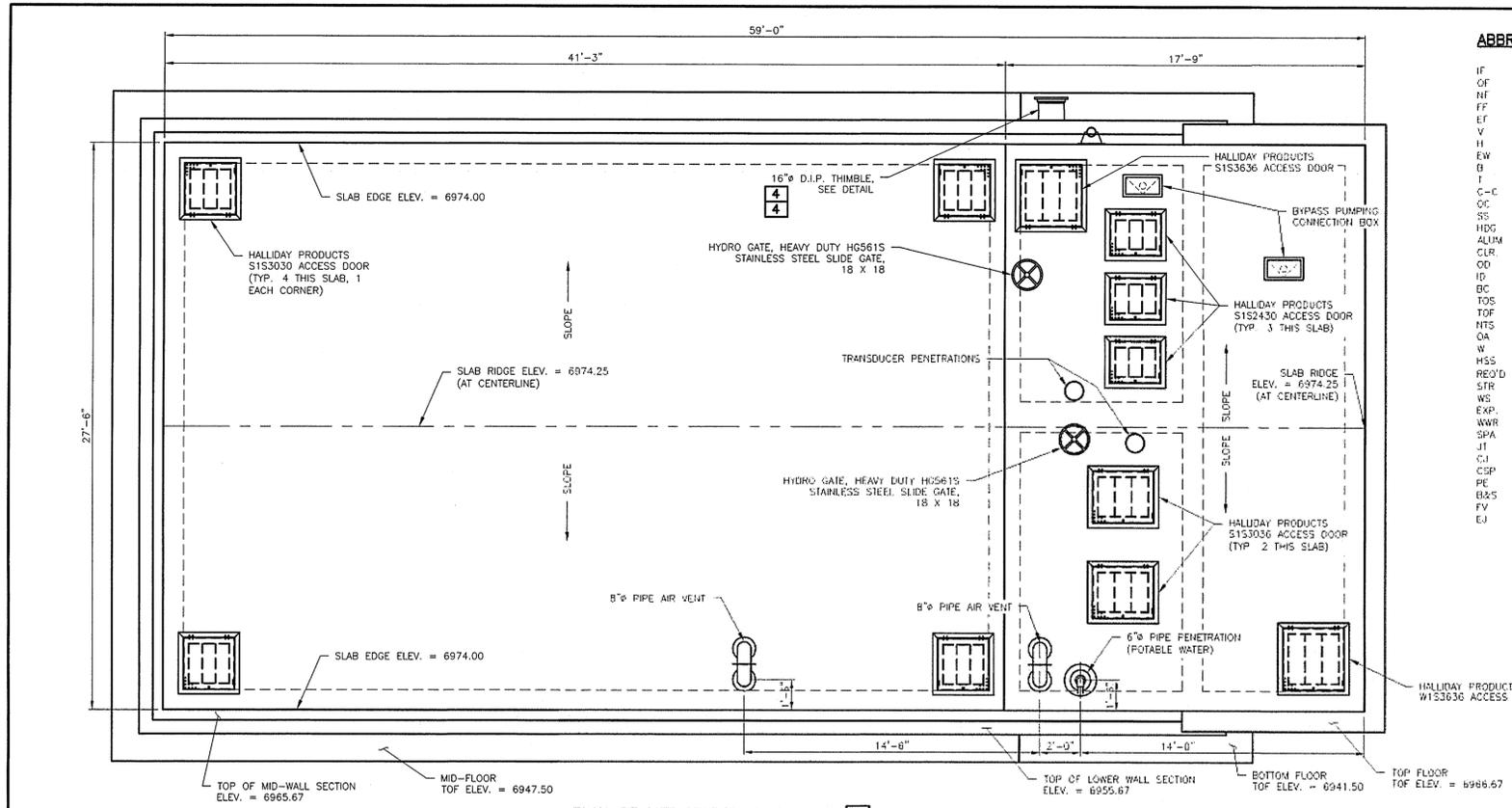


BRADLEY A. SIMONS
34705

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T2.2

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ABBREVIATIONS

IF	INSIDE FACE
OF	OUTSIDE FACE
NF	NEAR FACE
FF	FAR FACE
EF	EACH FACE
V	VERTICAL
H	HORIZONTAL OR HEIGHT
EW	EACH WAY
B	BOTTOM
T	TOP
C-C	CENTER TO CENTER
OC	ON CENTERS
SS	STAINLESS STEEL
H05G	HOT DIP GALVANIZED
ALUM	ALUMINUM
CLR	CLEARANCE
OD	OUTSIDE DIAMETER
ID	INSIDE DIAMETER
BC	BOLT CIRCLE
TOS	TOP OF SLAB ELEVATION
TOP	TOP OF FOOTING ELEVATION
NF TO SCALE	NOT TO SCALE
OVERALL	OVERALL
W	WIDTH
HSS	HOLLOW STRUCTURAL SECTION
REQ'D	REQUIRED
STR	STRAIGHT
WATERSTOP	WATERSTOP
EXP.	EXPANDABLE
WWR	WELDED WIRE REINFORCING
SPA	SPACE OR SPACES
JOINT	JOINT
CJ	CONSTRUCTION JOINT
CSP	CORRUGATED STEEL PIPE
PE	POLYETHYLENE
D&S	BOTTOM AND SIDES
FV	FIELD VERIFY
EJ	EXPANSION JOINT

CONCRETE STRUCTURE NOTES

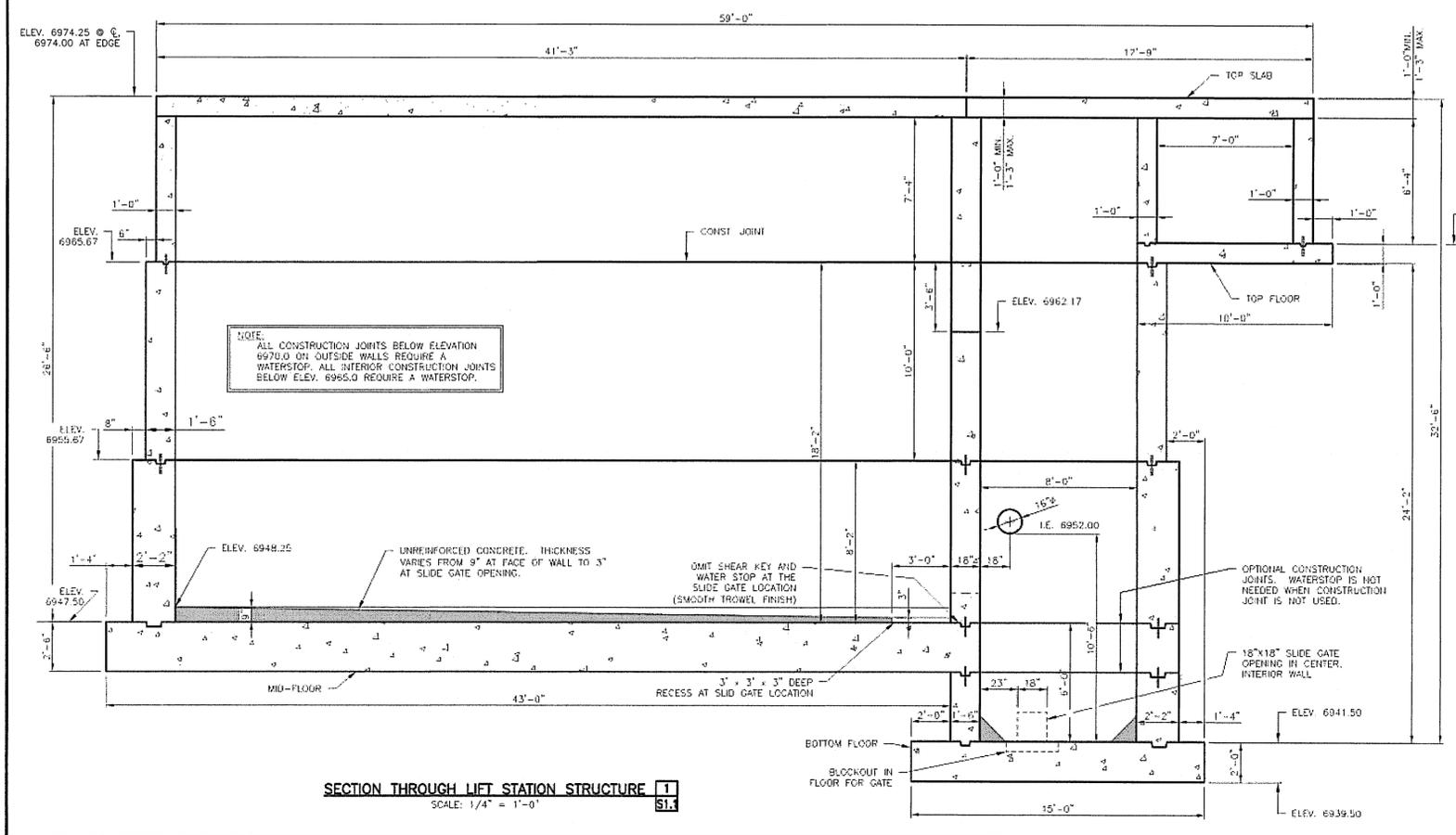
- CONCRETE FOR ALL CAST-IN-PLACE ELEMENTS SHALL BE AIR-ENTRAINED CONCRETE AND SHALL ACHIEVE A 28 DAY COMPRESSIVE STRENGTH NOT LESS THAN 4000 PSI PER ASTM C39. CONCRETE SHALL BE OBTAINED FROM AN APPROVED READY-MIX SUPPLIER UNLESS OTHERWISE APPROVED BY THE ENGINEER. TEST CYLINDERS USED FOR FORM REMOVAL AND BACKFILL TAMPING SHALL BE FIELD CURED PER ASTM C31. PORTLAND CEMENT FOR THIS APPLICATIONS SHALL CONFORM TO THE REQUIREMENTS FOR TYPE I CEMENT IN ACCORDANCE WITH ASTM C150, STANDARD SPECIFICATION FOR PORTLAND CEMENT, INCLUDING TABLE 2 (MAXIMUM EQUIVALENT ALKALIES REQUIREMENTS ONLY) AND TABLE 3.
- THE BASE SLAB OF CONCRETE STRUCTURES SHALL BE GIVEN A ROUGH FLOAT FINISH. THE TOP SLAB OF FLOORS AND STRUCTURES SHALL BE GIVEN A FINISH AS SHOWN IN THE DETAILS. ALL SLABS SHALL BE CURED WITH BURLAP OR A WHITE PIGMENTED CURING COMPOUND.
- REINFORCING STEEL SHALL BE GRADE 60 PER ASTM A615.
- ALL BAR SUPPORTS AND ADDITIONAL REINFORCING STEEL REQUIRED BY THE CONTRACTOR TO SUPPORT THE REINFORCING AS DETAILED SHALL BE INCIDENTAL TO THE COST OF THE STRUCTURE.
- ALL REINFORCING SHALL BE PLACED WITH A 3" CLEARANCE TO CONCRETE SURFACE UNLESS NOTED OTHERWISE REINFORCING SHALL BE PLACED WITH A TOLERANCE OF -1/4", +1/2" ON CLEARANCE AND ± 1" BETWEEN ADJACENT BARS. REINFORCING SHALL BE HELD IN PLACE BY MANUFACTURED SUPPORTS. BOTTOM REINFORCING OF SLABS ON GRADE MAY BE SUPPORTED BY PRECAST CONCRETE BLOCKS.
- CONCRETE WALLS AND TOP SLABS SHALL BE BUILT TO THE THICKNESS SHOWN ON THE DRAWING WITH A TOLERANCE OF -0", +1" FORM TIC HOLES ON EXPOSED AND INTERIOR SURFACES SHALL BE PATCHED.
- ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
- BAR SUPPORTS AGAINST TEXTURED SURFACES SHALL BE STAINLESS STEEL, GALVANIZED OR PLASTIC COATED WITHIN 1/2" FROM THE SURFACE. FORM TIES ON EXPOSED SURFACES SHALL BE STAINLESS STEEL OR PLASTIC.
- THESE STRUCTURES ARE DESIGNED FOR LATERAL LOADS OF 45 PCF EQUIVALENT FLUID PRESSURE FOR DRAINED SOIL AND 120 PCF SATURATED SOIL CONDITION WITH WATER TABLE DEPTH OF 4 FEET FROM GROUND SURFACE. SOIL LOADS ARE APPLIED WITH AND WITHOUT THE TOP SLAB IN PLACE. THE TOP SLAB IS DESIGNED FOR 120 PSF UNIFORM LOAD AND 2,000 LBS. POINT LOAD.
- ALL CONCRETE INSERTS SHALL BE STRUCTURAL STEEL CONFORMING TO ASTM A36 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123, UNLESS NOTED OTHERWISE.
- EXPANSION JOINT MATERIAL (FIBER TYPE) SHALL CONFORM TO ASTM D1751.
- WATERSTOP SHALL BE RIBBED CENTER BULB PVC WATERSTOPS HAVING A WIDTH NOT LESS THAN 2/3 OF THE WALL THICKNESS OR 12" MAXIMUM WIDTH UNLESS NOTED OTHERWISE.
- THE ENGINEER MAY REQUIRE ADDITIONAL EXPANDABLE WATERSTOP AT LOCATIONS DURING CONSTRUCTION THAT COULD REQUIRE PROTECTION FROM SEEPAGE DUE TO CONSTRUCTION METHODS AND FORMING THAT MAY NOT BE DEEMED WATER TIGHT. EXPANDABLE WATERSTOP SHALL BE 1" X 1/2" BENTONITE IMPREGNATED ROPE (TREMCO SUPERSTOP OR APPROVED SUBSTITUTE). WATERSTOP SHALL BE PLACED IN A CONTINUOUS RIBBON AND SECURED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- ANCHOR BOLTS AND DOWELS SHALL BE SECURED IN DRILLED HOLES BY A TWO-COMPONENT EPOXY ADHESIVE (SIMPSON EPOXY TIE OR APPROVED SUBSTITUTE). ADHESIVE SHALL BE MIXED AND APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS WHEN WEATHER CONDITIONS ARE BEYOND THOSE PERMITTED BY THE ADHESIVE MANUFACTURER'S THE CONTRACTOR SHALL PROPOSE ALTERNATE MATERIALS OR METHODS AT NO ADDITIONAL COST TO THE OWNER.
- EXPANSION ANCHORS SHALL BE OF THE THREE SECTION WEDGE DESIGN (HLR 304 OR 316 STAINLESS STEEL KWIK BOLT II OR APPROVED SUBSTITUTE) OF THE SIZE SPECIFIED. HOLES SHALL BE DRILLED FULL DEPTH AND CLEANED AND INSPECTED BY THE ENGINEER'S REPRESENTATIVE PRIOR TO INSTALLING THE ANCHORS.
- PLACEMENT OF CONCRETE WHEN THE TEMPERATURE IS BELOW 40°F SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 306.1 THE PROCEDURES TO OBTAIN SUITABLE CONDITIONS IN THE FORMWORK AND TO PROTECT THE CONCRETE DURING CURING SHALL BE REVIEWED WITH THE ENGINEER 48 HOURS BEFORE THE PLACEMENT.

EXCAVATION AND GRADING FOR CONCRETE STRUCTURES

- THE CONTRACTOR SHALL EXPOSE EXISTING SEWERS AND CONFLICTS AND VERIFY ALL LOCATIONS AND ELEVATIONS PRIOR TO COMMENCING WORK. DIMENSIONS TO EXISTING STRUCTURES SHALL GOVERN OVER ELEVATIONS AND DIMENSIONS MARKED FV OR THOSE STAKED IN THE FIELD.
- THE CONTRACTOR SHALL SHORE AND DEWATER THE EXCAVATION AS NECESSARY TO MEET SAFETY REQUIREMENTS AND TO OBTAIN QUALITY CONCRETE WORK.
- ALL STRUCTURE FOUNDATIONS AND FOOTINGS SHALL BE PLACED ON UNDISTURBED SOIL OR SANDSTONE, OR SHALL BE COMPACTED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.

STRUCTURAL STEEL AND METAL EMBEDMENTS FOR CONCRETE STRUCTURES

- ALL HSS ROUND OR RECTANGULAR SECTIONS SHALL CONFORM TO ASTM A500, GRADE B OR C STRUCTURAL TUBING. STRUCTURAL STEEL, STEEL PLATES AND OTHER MISCELLANEOUS STEEL ITEMS IN THE STRUCTURES SHALL BE FABRICATED FROM STRUCTURAL STEEL CONFORMING TO ASTM A36 OR A572. WELDING SHALL MEET REQUIREMENTS OF AWS D1.1.
- ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED AS PER ASTM A153/F2329.
- ALL STEEL PIPE SHALL BE STANDARD WEIGHT STEEL PIPE CONFORMING TO ASTM A53 OF THE NOMINAL SIZES NOTED (O.D. IS ONE SIZE LARGER) HSS TUBING SHALL CONFORM TO ASTM A500, GRADE B (FY = 42 KSI).
- HATCHES SHALL BE HALLDAY PRODUCTS SERIES W15 OR S15 ACCESS DOOR AS INDICATED ON THE PLANS.
- ALL ALUMINUM EMBEDMENTS AND HATCHES SHALL BE COATED ON SURFACES IN CONTACT WITH CONCRETE WITH A BITUMINOUS COATING.
- PAINT SHALL BE THEMCO SERIES 90-97, ZINC PRIMER, THEMCO SERIES 73 ENDURA SHIELD, COLOR TO BE DETERMINED BY ENGINEER, THEMCO SERIES 76 ENDURA-CLAR COVER, UNLESS OTHERWISE NOTED ON ARCHITECTURAL PLANS OR SPECIFICATIONS. COLOR SAMPLES SHALL BE SUBMITTED TO THE ARCHITECT FOR THE OWNER'S REVIEW PRIOR TO ORDERING PAINT.
- GALVANIZED SURFACES AND STAINLESS STEEL ITEMS SHALL NOT BE PAINTED.



NOTE:
ALL CONSTRUCTION JOINTS BELOW ELEVATION 6970.0 ON OUTSIDE WALLS REQUIRE A WATERSTOP. ALL INTERIOR CONSTRUCTION JOINTS BELOW ELEV. 6965.0 REQUIRE A WATERSTOP.

811
Know what's below.
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ALL UTILITIES ARE SHOWN BASED ON THE INFORMATION AVAILABLE TO THE ENGINEER. THERE IS NO GUARANTEE ALL UTILITIES ARE SHOWN OR THAT THE LOCATION, DEPTH, AND SIZE OF EACH FACILITY IS CORRECT. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES AND SERVICE LINES PRIOR TO CONSTRUCTION.

LAMP RYNEARSON & ASSOCIATES
12596 West Baynard Avenue, Suite 330, 303.971.0020 | 1846wood, Colorado 80228 | LRA@lra.com / lra@water.com

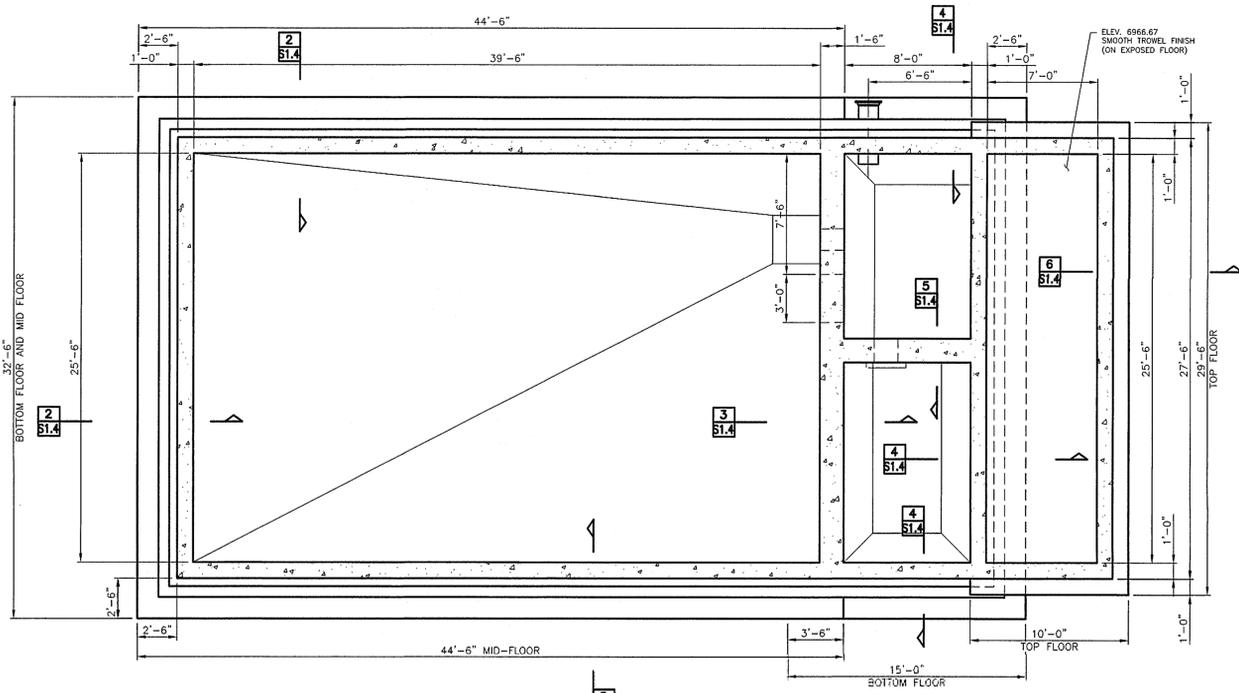
STERLING RANCH METROPOLITAN DISTRICT NO. 1

LIFT STATION SECTION AND PLAN

LARIN LAMP RYNEARSON

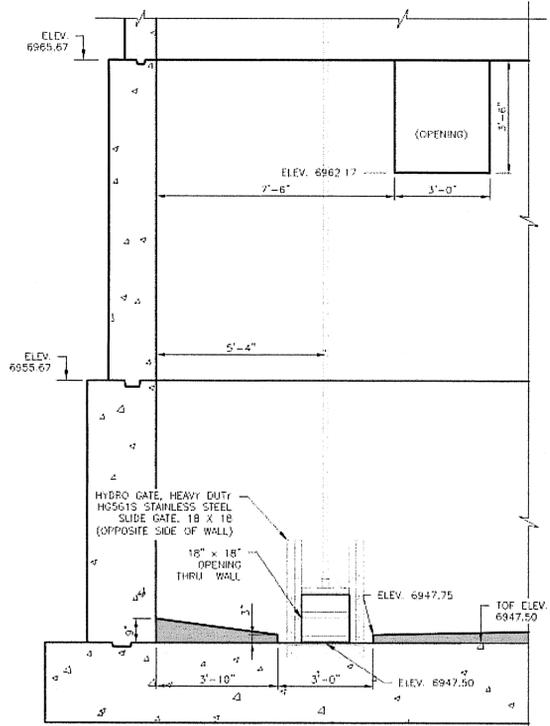
Professional Engineer
04/20/2017
Johnny M. Hill
42301

SHEET S1.1

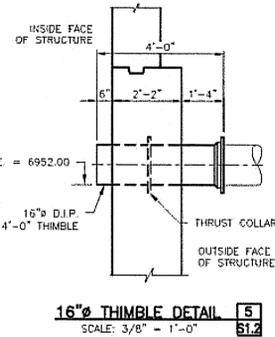


PLAN SECTION THRU UPPER WALL [2]
SCALE: 3/16" = 1'-0"

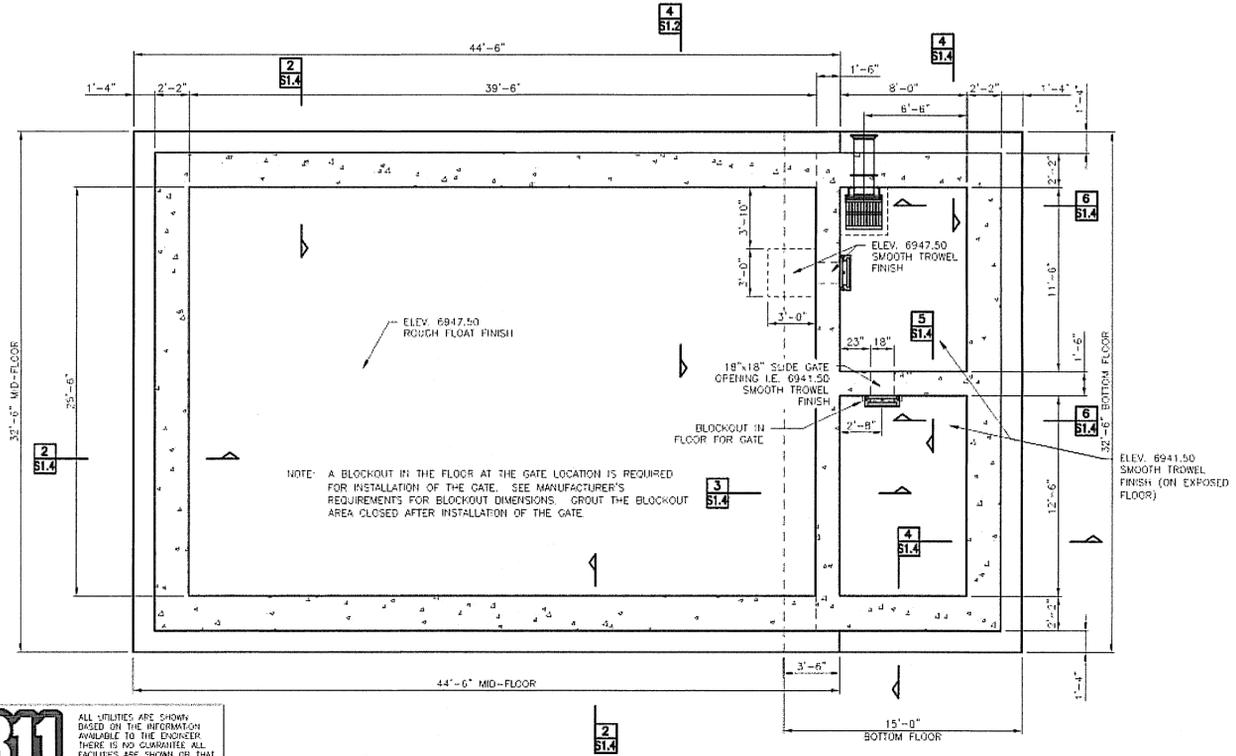
NOTE: SEE SHEETS T1.1 THROUGH T1.5 FOR ALL PENETRATIONS AND BLOCKOUTS FOR SIZE AND LOCATION. NOT ALL MAY BE SHOWN ON THIS SHEET.



PART ELEVATION NEAR SLIDE GATE SHOWING [4]
UNREINFORCED CONCRETE & OPENING [5]
SCALE: 3/8" = 1'-0"

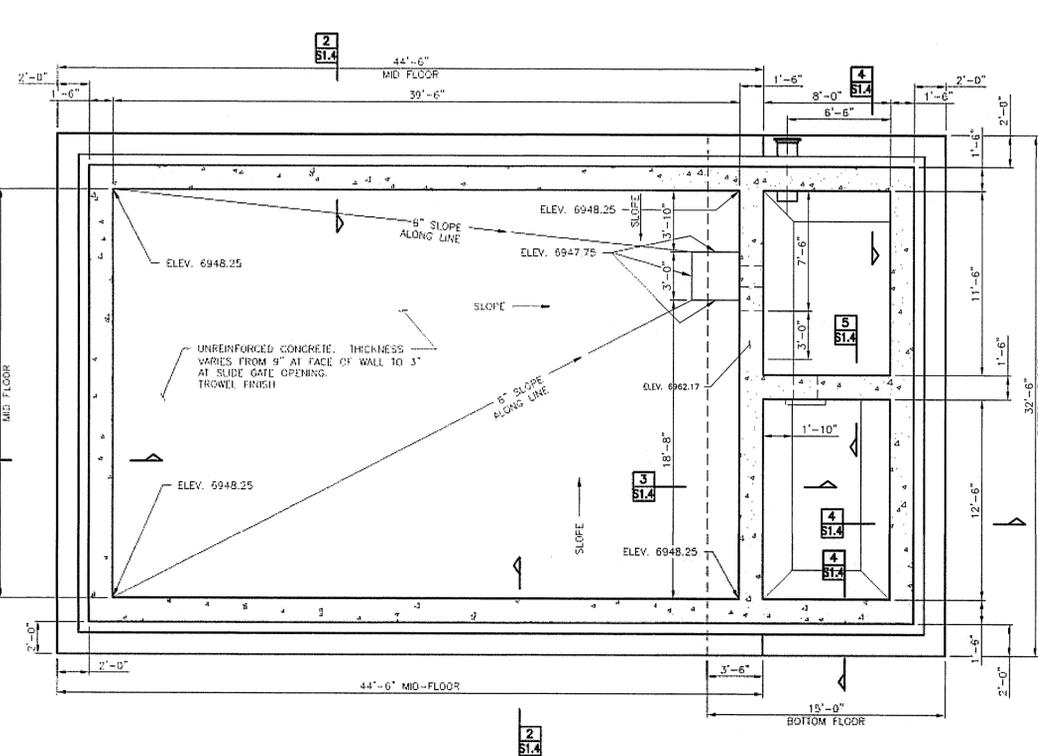


16" THIMBLE DETAIL [5]
SCALE: 3/8" = 1'-0"



PLAN SECTION THRU LOWER WALL [1]
SCALE: 3/16" = 1'-0"

NOTE: A BLOCKOUT IN THE FLOOR AT THE GATE LOCATION IS REQUIRED FOR INSTALLATION OF THE GATE. SEE MANUFACTURER'S REQUIREMENTS FOR BLOCKOUT DIMENSIONS. GROUT THE BLOCKOUT AREA CLOSED AFTER INSTALLATION OF THE GATE.

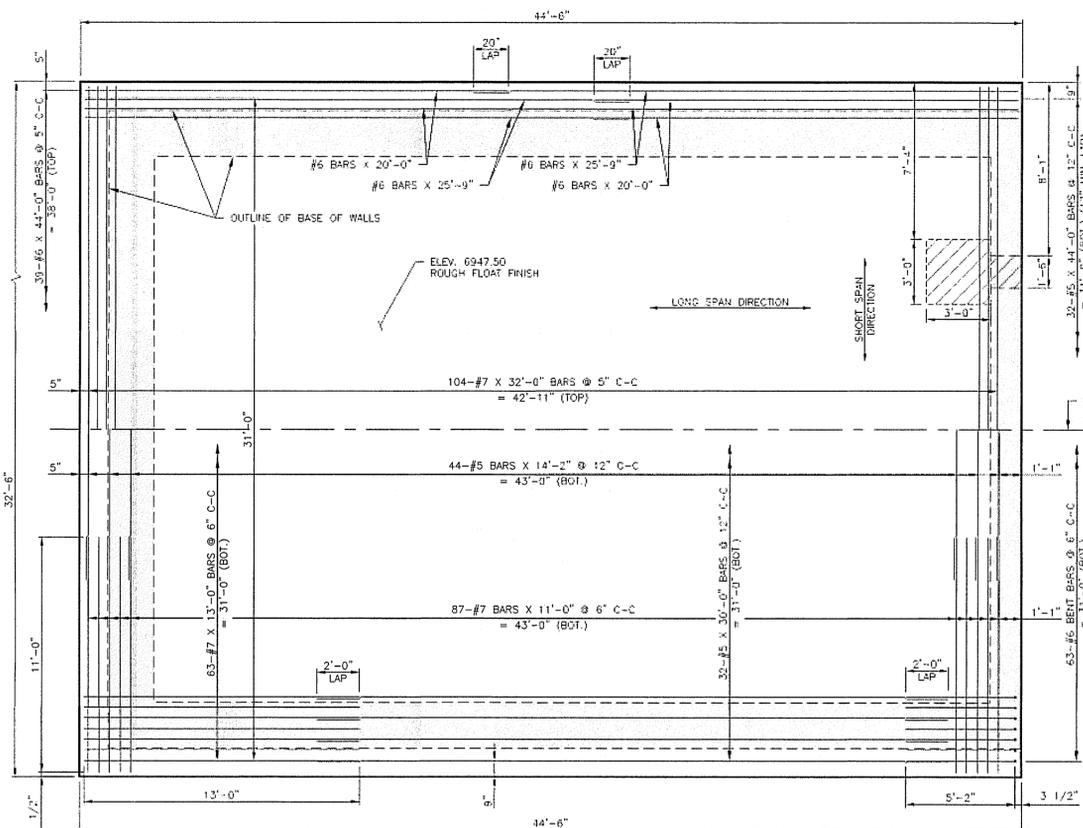


PLAN SECTION THRU MID WALL DETAIL [3]
SCALE: 3/16" = 1'-0"

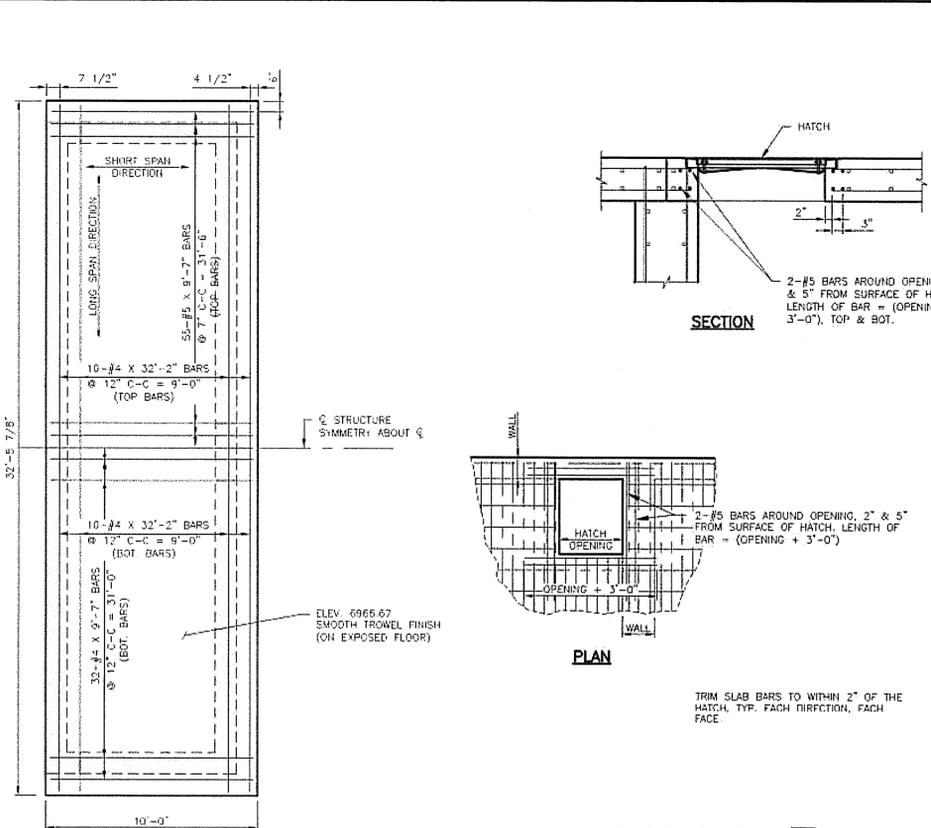
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ALL UTILITIES ARE SHOWN BASED ON THE INFORMATION AVAILABLE TO THE ENGINEER. THERE IS NO GUARANTEE ALL UTILITIES ARE SHOWN OR THAT THE LOCATION, DEPTH, AND SIZE OF EACH FACILITY IS CORRECT. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES AND SERVICE LINES PRIOR TO CONSTRUCTION.

DRAWN BY: [Blank] DESIGNED BY: [Blank] DATE: [Blank] JOB NUMBER/TASKS: [Blank] BOOK AND PAGE: [Blank]	REVISIONS: [Blank]
LAMP RYNEARSON & ASSOCIATES 12595 West Bayaud Avenue, Suite 330, Lakewood, Colorado 80228 303.971.0030 303.971.0077 FAX 303.971.0077 LRA-inc.com / lra@water.com	
LIFT STATION PLAN SECTIONS	
STERLING RANCH LIFT STATION & FORCE MAIN STERLING RANCH METROPOLITAN DISTRICT NO. 1	
LARKIN LAMP RYNEARSON 	
SHEET S1.2	

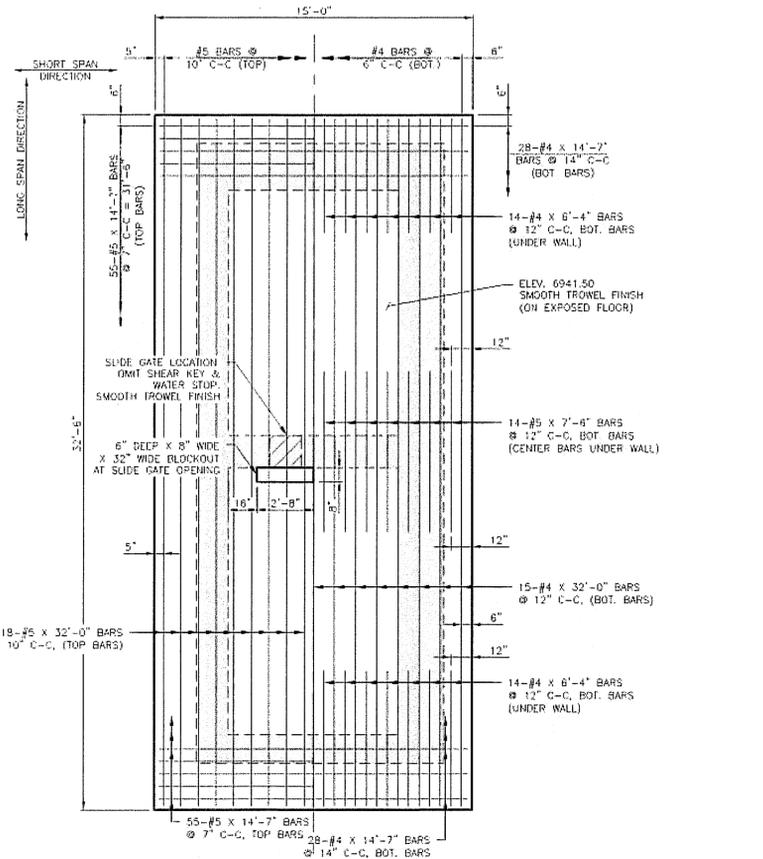


PLAN OF MID-FLOOR REINFORCING LAYOUT 2
SCALE: 1/4" = 1'-0"

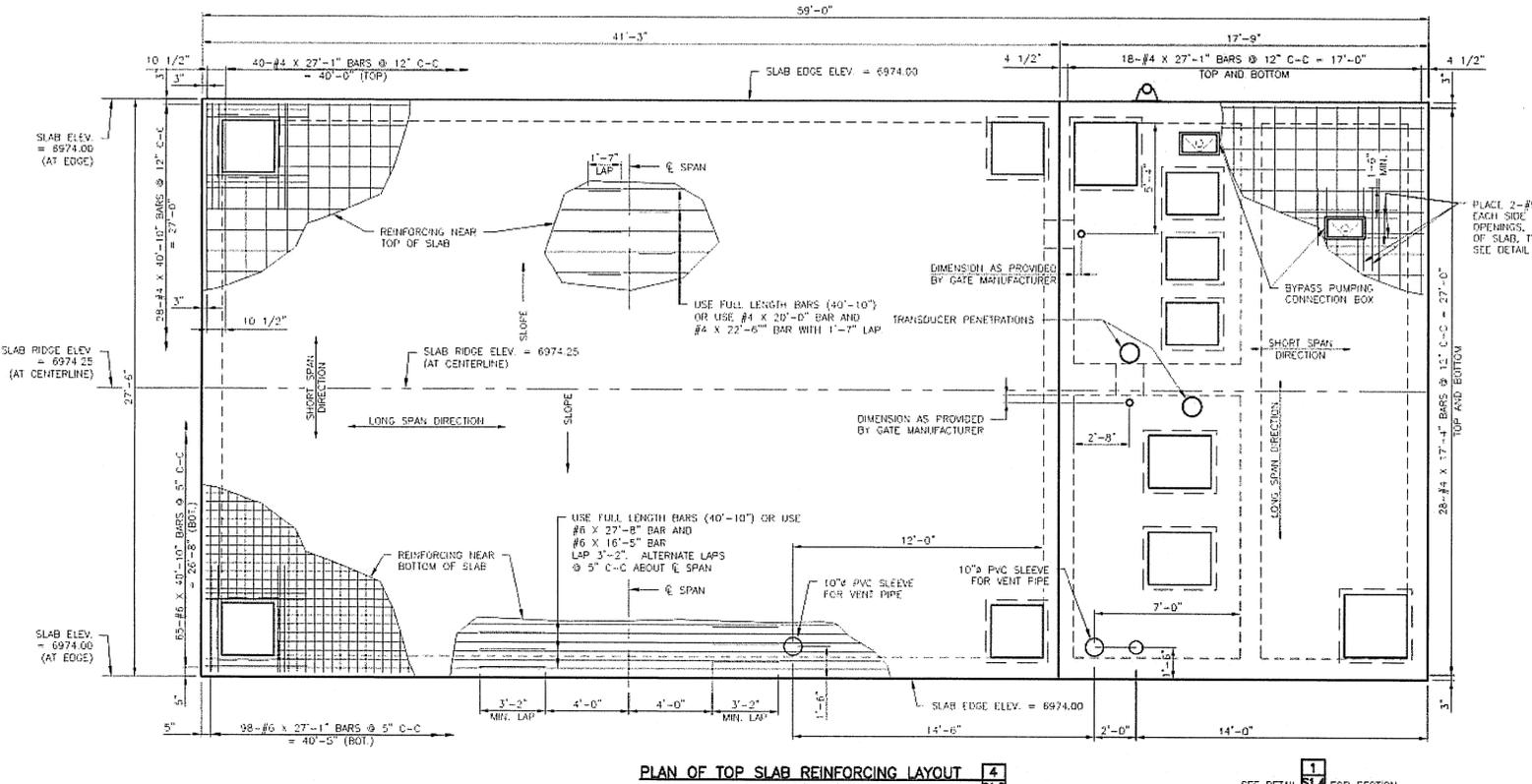


PLAN OF TOP FLOOR REINFORCING LAYOUT 3
SCALE: 1/4" = 1'-0"

HATCH REINFORCING DETAILS 5
SCALE: 1/4" = 1'-0"



PLAN OF BOTTOM FLOOR REINFORCING LAYOUT 1
SCALE: 1/4" = 1'-0"

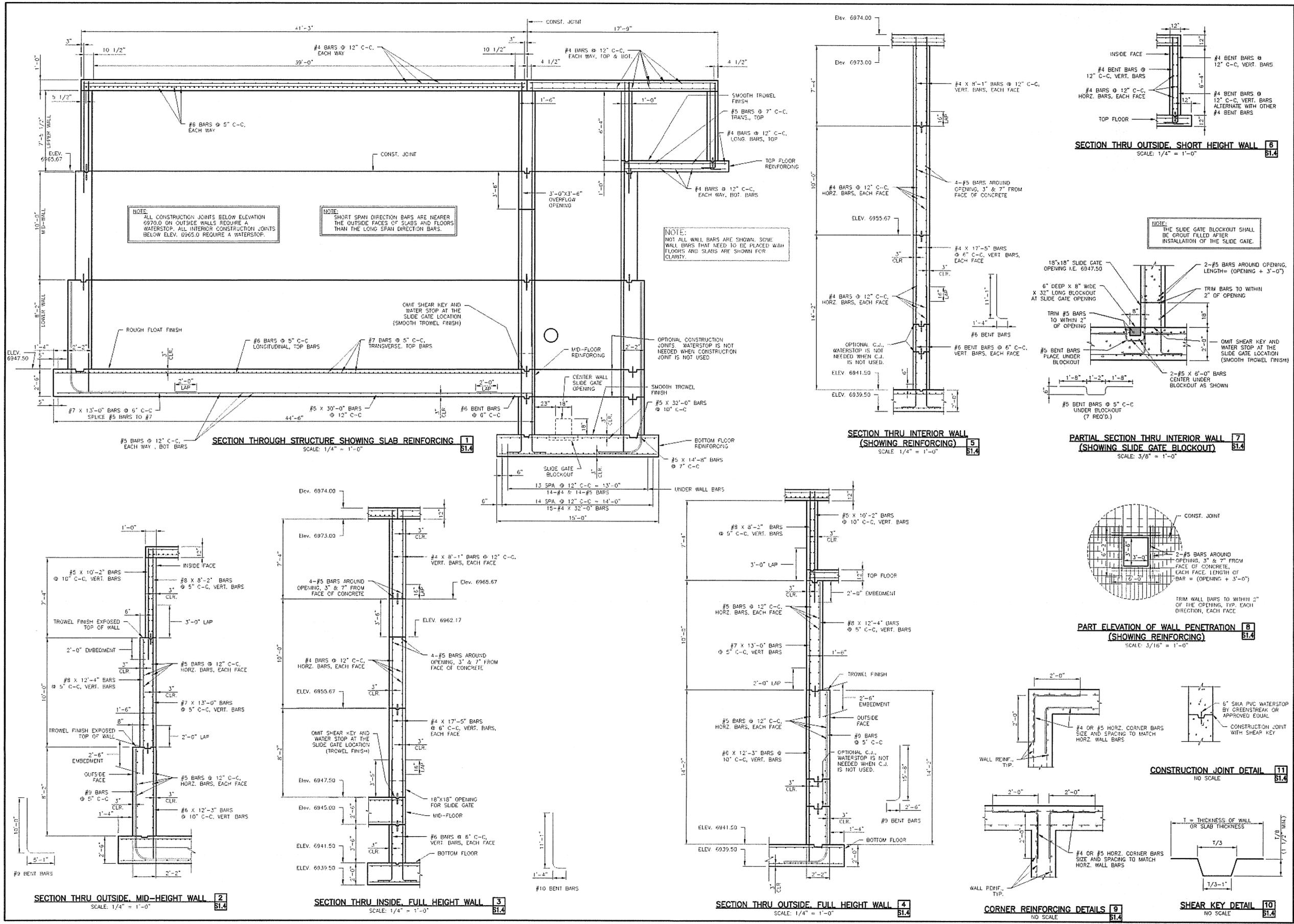


PLAN OF TOP SLAB REINFORCING LAYOUT 4
SCALE: 1/4" = 1'-0"

SEE DETAIL S1.4 FOR SECTION THRU TOP SLAB

LAMP RYNEARSON & ASSOCIATES, INC. 12556 West Bayaud Avenue, Suite 530, 80397-0050 | P: 303.971.0000 | F: 303.971.0077 | E: info@lrap.com | www.lrap.com

DRAWN BY: BJK DESIGNED BY: JMH DATE: 01/20/2017 JOB NUMBER/TASKS: 011811.01-005 BOOK AND PAGE:	REVISIONS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 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NOTE: ALL CONSTRUCTION JOINTS BELOW ELEVATION 6970.0 ON OUTSIDE WALLS REQUIRE A WATERSTOP. ALL INTERIOR CONSTRUCTION JOINTS BELOW ELEV. 6965.0 REQUIRE A WATERSTOP.

NOTE: SHORT SPAN DIRECTION BARS ARE NEARER THE OUTSIDE FACES OF SLABS AND FLOORS THAN THE LONG SPAN DIRECTION BARS.

NOTE: NOT ALL WALL BARS ARE SHOWN. SOME WALL BARS THAT NEED TO BE PLACED WITH FLOORS AND SLABS ARE SHOWN FOR CLARITY.

NOTE: THE SLIDE GATE BLOCKOUT SHALL BE GROUT FILLED AFTER INSTALLATION OF THE SLIDE GATE.

NOTE: OMIT SHEAR KEY AND WATER STOP AT THE SLIDE GATE LOCATION (SMOOTH TROWEL FINISH)

NOTE: TRIM WALL BARS TO WITHIN 2" OF THE OPENING, TYP. EACH DIRECTION, EACH FACE

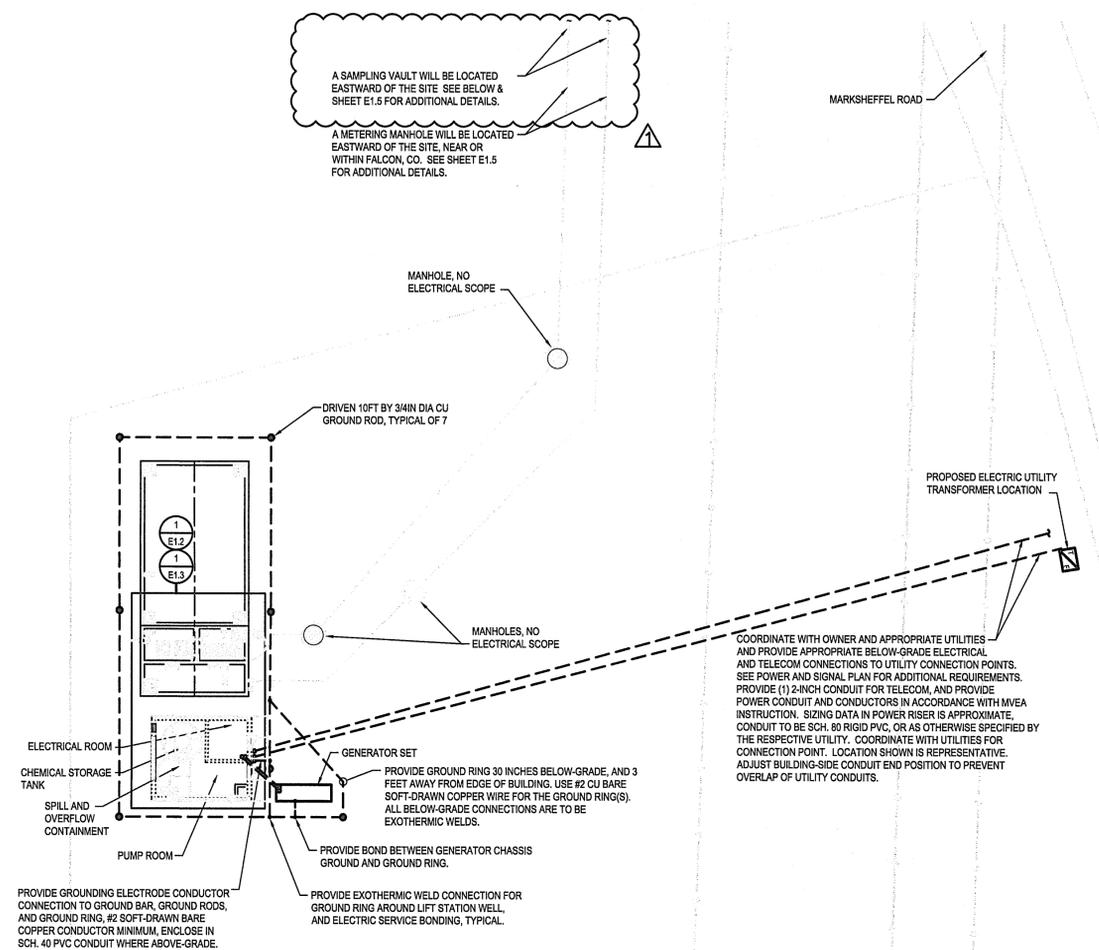
NOTE: 6" Sika PVC WATERSTOP BY GREENSTREAK OR APPROVED EQUAL

NOTE: CONSTRUCTION JOINT WITH SHEAR KEY

NOTE: T = THICKNESS OF WALL OR SLAB THICKNESS

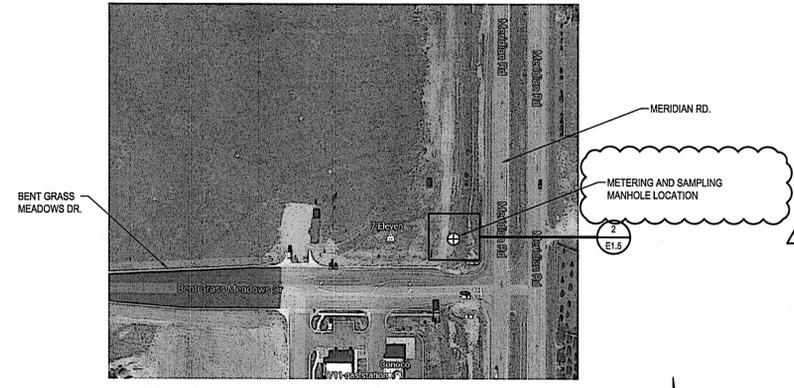
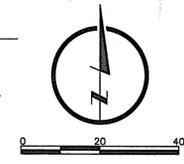
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LAMP RYNEARSON & ASSOCIATES 12586 West Bayland Avenue, Suite 330 Houston, TX 77041 Phone: 281.460.1000 Fax: 281.460.1001 Email: info@lra.com / lra@lra.com					
LIFT STATION & DETAILS WALL REINFORCING & DETAILS					
STERLING RANCH LIFT STATION & FORCE MAIN STERLING RANCH METROPOLITAN DISTRICT NO. 1					
LARKIN LAMP RYNEARSON 04/20/2017 Johnny M. Hill 42301					
SHEET S1.4					

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1
E1.1
LIFT STATION SITE PLAN
SCALE: 1"=20'-0"

GENERAL NOTES:
A. NEW AND RELOCATED ITEMS SHOWN AS BOLD
ITEMS ROUTED BELOW-FLOOR, BELOW-GRADE OR CONCEALED SHOWN AS DASHED
EXISTING ITEMS SHOWN AS LIGHT



1
E1.1
METERING MANHOLE SITE PLAN
NOT TO SCALE



COREY
Electrical Engineering, Inc.
Commercial and Transportation Design
7025 S. Wadsworth Ct., Suite D, Englewood, CO 80112 | P (303) 685-1237 |
project@coreyeng.com COREY PROJECT #16481

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	DESIGNED BY GSR		
DATE 04/18/17	LOD MATER-TASKS		
BOOK AND PAGE	0418011.01		
LIFT STATION ELECTRICAL SITE PLAN			
E1.1			





COMcheck Software Version 4.0.5.1
Interior Lighting Compliance Certificate

Section 1: Project Information

Energy Code: 2009 IECC
Project Title: Sterling Ranch Lift Station
Project Type: New Construction
Construction Site: MARKSHEFFEL ROAD, FALCON, CO 80908
Owner/Agent:
Designer/Contractor: Glenn Ross, Cory Electrical Engineering, Inc., 7822 S. Wheeling Ct., Suite B, Englewood, CO 80112, 303-308-8984, Glenn@CoryEng.com

Section 2: Interior Lighting and Power Calculation

Area Category	Floor Area (sq ft)	Allowed Watts (F2)	Allowed Watts (E x C)
Workshop	440	1.4	616
		Total Allowed Watts =	616

Section 3: Interior Lighting Fixture Schedule

Fixture ID - Description / Lamp / Wattage Per Lamp / Ballast	Lamps / Fixture	# of Fixtures	D (C x D) Watt.
Workshop (440 sq.ft.)	1	5	45
LED 1: Other:			225
		Total Proposed Watts =	225

Section 4: Requirements Checklist

Interior Lighting: **PASSES**

Lighting Wattage:

- 1. Total proposed watts must be less than or equal to total allowed watts.

Allowed Watts	Proposed Watts	Complies
616	225	YES

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Controls, Switching, and Wiring:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.
- Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.

Project Title: Sterling Ranch Lift Station
Data filename: F:\DATA\ACAD\16_Archives\16400 - 16499\16481 Sterling Ranch Lift Station\Design\ECC-Comcheck\2017-02-13
COMcheck.cck
Report date: 03/16/17
Page 1 of 4



COMcheck Software Version 4.0.5.1
Exterior Lighting Compliance Certificate

Section 1: Project Information

Energy Code: 2009 IECC
Project Title: Sterling Ranch Lift Station
Project Type: New Construction
Exterior Lighting Zone: 2 (Residentially zoned area)
Construction Site: MARKSHEFFEL ROAD, FALCON, CO 80908
Owner/Agent:
Designer/Contractor: Glenn Ross, Cory Electrical Engineering, Inc., 7822 S. Wheeling Ct., Suite B, Englewood, CO 80112, 303-308-8984, Glenn@CoryEng.com

Section 2: Exterior Lighting Area/Surface Power Calculation

Exterior Area/Surface	Quantity	Allowed Watts / Unit	Tradable Watts	Allowed Watts (B x C)	Proposed Watts
Well Tops (Walkway >= 10 feet wide)	508 ft2	0.14	Yes	71	81
		Total Tradable Watts =	71		
		Total Allowed Supplemental Watts** =	600		

* Wattage tradeoffs are only allowed between tradable areas/surfaces.
** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

Fixture ID - Description / Lamp / Wattage Per Lamp / Ballast	Lamps / Fixture	# of Fixtures	D (C x D) Watt.
Well Tops (Walkway >= 10 feet wide 508 ft2): Tradable Wattage	1	3	27
LED 1: Other:			81
		Total Tradable Proposed Watts =	81

Section 4: Requirements Checklist

Lighting Wattage:

- 1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.
- Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- Lighting not designated for dusk-to-dawn operation is controlled by either a photosensor (with time switch), or an astronomical time switch.
- Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.

Exceptions:

- All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

Project Title: Sterling Ranch Lift Station
Data filename: F:\DATA\ACAD\16_Archives\16400 - 16499\16481 Sterling Ranch Lift Station\Design\ECC-Comcheck\2017-02-13
COMcheck.cck
Report date: 03/16/17
Page 3 of 4

- Lighting in stairways or corridors that are elements of the means of egress.
- Master switch at entry to hotel/motel guest room.
- Individual dwelling units separately metered.
- Medical task lighting or ambulatory display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.
- Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.
- Photocell/astronomical time switch on exterior lights.
- Lighting intended for 24 hour use.
- Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).
- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: Compliance Statement

Compliance Statement: The proposed lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2009 IECC requirements in COMcheck Version 4.0.5.1 and to comply with the mandatory requirements in the Requirements Checklist.

Glenn Ross, Project Engineer (EIT)
Signature: *Glenn Ross*
Date: 03/16/2017

Project Title: Sterling Ranch Lift Station
Data filename: F:\DATA\ACAD\16_Archives\16400 - 16499\16481 Sterling Ranch Lift Station\Design\ECC-Comcheck\2017-02-13
COMcheck.cck
Report date: 03/16/17
Page 2 of 4

- All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 80 lumens/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety status, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

Section 5: Compliance Statement

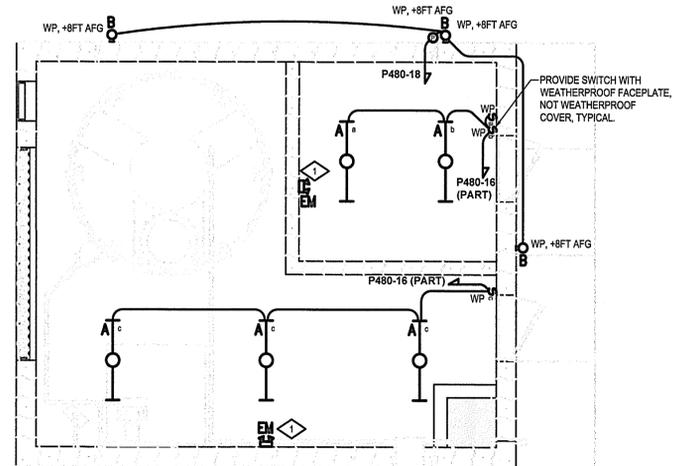
Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2009 IECC requirements in COMcheck Version 4.0.5.1 and to comply with the mandatory requirements in the Requirements Checklist.

Glenn Ross, Project Engineer (EIT)
Signature: *Glenn Ross*
Date: 03/16/2017

Project Title: Sterling Ranch Lift Station
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Report date: 03/16/17
Page 4 of 4



NO CHANGES THIS SHEET



DETAIL NOTES

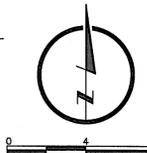
- PROVIDE NEW LED EMERGENCY LIGHT FIXTURE WITH 90-MINUTE EMERGENCY BATTERY. CONNECT TO UNSWITCHED LEG OF LOCAL LIGHTING CIRCUIT.

LIFT STATION LIGHTING PLAN

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

GENERAL NOTES:

- NEW AND RELOCATED ITEMS SHOWN AS BOLD
- AUTO-OFF CONTROLS HAVE BEEN OMITTED AS A FUNCTION OF WORKER SAFETY. LOSS OF LIGHT WHEN WORKING WITH CHEMICALS OR ELECTRICITY CAN BE CATASTROPHIC.
- PROVIDE PHOTOCELL CONTROL OF ALL EXTERIOR LIGHTS. PROVIDE EXTERIOR LIGHTS WITH INTEGRAL MOTION DETECTION, WHICH IS TO TURN ON INDIVIDUAL LIGHTS UPON MOTION. OVER-RIDE TO OFF IS ACHIEVED BY SWITCHING CIRCUIT BREAKER AT PANELBOARD "P480".



LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	MOUNTING	VOLTAGE	LAMPS / BALLAST
A	LITHONIA (OR APPROVED EQUAL)	VAP 400LM FST WD MVOLT G210 40K 80CRI (OR APPROVED EQUAL)	WET-LOCATION ENCLOSED LED LUMINAIRE WITH MINUS 20 TO POS 104 DEG-F RATING WITH HIGH-IMPACT FROSTED POLYCARBONATE LENS.	PENDANT 11" AFF	120/277V	LED ARRAY 4,000LM MIN, 48W MAX 4000K CCT
B	LITHONIA (OR APPROVED EQUAL)	DSXW LED 100 700 4000K T3M 277 BBW PIR DCSBX (OR APPROVED EQUAL)	WET-LOCATION WALL SCONCE WITH TYPE 3 DISTRIBUTION, INTEGRAL MOTION DETECTOR, AND SURFACE-MOUNTED BACKBOX FOR CONDUIT, DARK BRONZE FINISH	WALL 9" AFF	277V	LED ARRAY 2,750LM MIN, 27W MAX 4000K CCT
EM	BEGHELLI (OR APPROVED EQUAL)	LAX-29V-SE-UB2-AT (OR APPROVED EQUAL)	WET-LOCATION INTEGRAL BUG-EYE LUMINAIRE FOR EGRESS LIGHTING WITH INTEGRAL BATTERY PACK RATED FOR TEMPERATURE CONDITIONS	WALL 9" AFF	277V	(2) 9W HALOGEN HEADS

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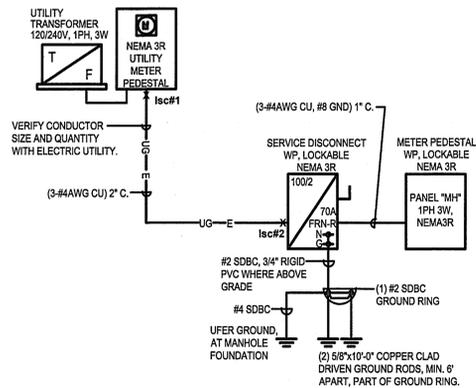
STERLING RANCH LIFT STATION & FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

LIFT STATION LIGHTING PLAN



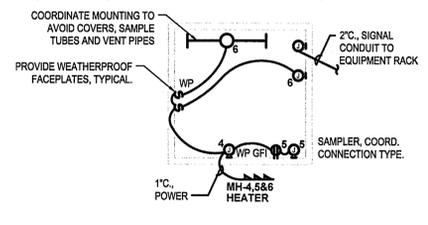
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E.1.3



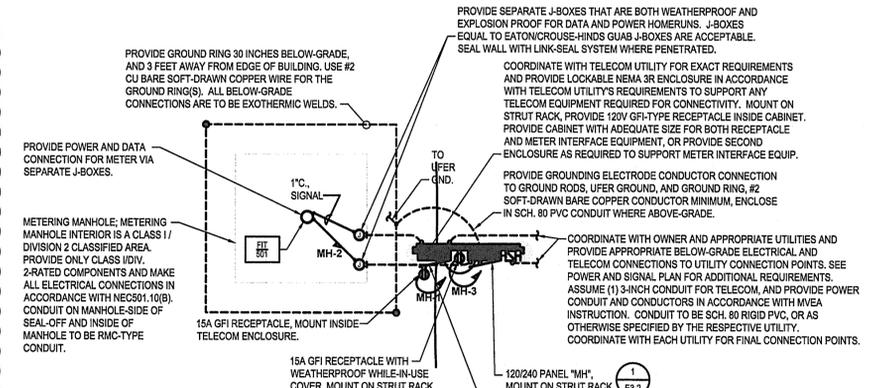
1 POWER ONE-LINE DIAGRAM
E1.5 NO SCALE

GENERAL NOTES:
A. NEW AND RELOCATED ITEMS SHOWN AS BOLD



3 SAMPLING VAULT PLAN
E1.5 NO SCALE

GENERAL NOTES:
A. NEW AND RELOCATED ITEMS SHOWN AS BOLD
ITEMS ROUTED BELOW-FLOOR, BELOW-GRADE OR CONCEALED SHOWN AS DASHED
B. HOMERUNS CONNECT TO PANEL "MH" VIA BELOW-GRADE CONDUIT. UPSIZE CONDUIT AND CONDUCTOR IN ACCORDANCE WITH NEC WHERE COMBINING CIRCUITS INTO A SINGLE CONDUIT. PROVIDE LINK-SEAL SYSTEM AROUND CONDUIT PENETRATIONS WHEREVER VAULT WALL IS PENETRATED. SEAL CONDUIT INTERIOR WHERE CONDUIT PENETRATES THE WALL.
C. AUTO-OFF CONTROLS HAVE BEEN OMITTED AS A FUNCTION OF WORKER SAFETY. LOSS OF LIGHT WHEN WORKING WITH CHEMICALS OR ELECTRICITY CAN BE CATASTROPHIC.



2 METERING MANHOLE PLAN
E1.5 NO SCALE

GENERAL NOTES:
A. NEW AND RELOCATED ITEMS SHOWN AS BOLD
ITEMS ROUTED BELOW-FLOOR, BELOW-GRADE OR CONCEALED SHOWN AS DASHED
B. SEAL CONDUITS FITTINGS AT BOUNDARY OF CLASS I DIV. 2 MANHOLE SPACE. PROVIDE SEAL-OFF FITTINGS WHERE CONDUITS FROM MANHOLE EMERGE FROM BELOW-GRADE.
C. HOMERUNS CONNECT TO PANEL "MH" VIA BELOW-GRADE CONDUIT. UPSIZE CONDUIT AND CONDUCTOR IN ACCORDANCE WITH NEC WHERE COMBINING CIRCUITS INTO A SINGLE CONDUIT. PROVIDE LINK-SEAL SYSTEM AROUND CONDUIT PENETRATIONS WHEREVER VAULT WALL IS PENETRATED. SEAL CONDUIT INTERIOR WHERE CONDUIT PENETRATES THE WALL.
D. METERING MANHOLE IS LOCATED ON THE NORTHWEST CORNER OF BENT GRASS MEADOWS DR AND MERIDIAN ROAD IN FALCON, CO. REFERENCE CIVIL PLANS FOR EXACT LOCATION. ORIENT CONSTRUCTION TO MATCH SERVICE SUPPLY DIRECTION AND ALIGNMENT OF MANHOLE. COORDINATE WITH OWNER'S PROJECT MANAGER FOR FINAL RACK LOCATION AND OBTAIN APPROVAL BEFORE ROUGH-IN.

1PH FAULT CALCULATION

POINT #1, AT THE TRANSFORMER:

Isc	=	43,400	A LN
Isc	=	29,600	A LL

POINT #2, AT BOTH SERVICE DISCONNECT & PANEL "MH":

(THIS CALCULATION ASSUMES AT LEAST 35' BETWEEN TRANSFORMER AND PEDESTAL. IF PEDESTAL IS CLOSER TO TRANSFORMER THEN CONTACT OWNER'S ENGINEER FOR REVISED CALCULATION.)

f = 2.0	x	Length	x	Isc (L-N)	/	Volts (L-N)	x	Wire Factor
f = 2.0	x	35	x	43,400	/	120	x	3825
f =								6.52
M = 1	/	1+f = 1/	1+	6.52	=	0.13		
Isc = M	x	Isc (L-N)	=	0.13	x	43,400	A =	5,698 A LN
f = 2.0	x	Length	x	Isc (L-L)	/	Volts (L-L)	x	Wire Factor
f = 2.0	x	35	x	29,600	/	240	x	3825
f =								2.28
M = 1	/	1+f = 1/	1+	2.28	=	0.31		
Isc = M	x	Isc (L-L)	=	0.31	x	29,600	A =	9,088 A LL

Code	Description	Load	Blr	Phase	Circuit	Blr	Load	Description	Code					
1.4	R	REC-TELECOM	600	20	1	A	2	1	20	500	METER	L	1.4	
1.2	X	REC-CONVENIENCE	500	20	1	B	4	1	20	500	SAMPLER VAULT HEATER	L	1.1	
1	X	SAMPLER & TELECOM	600	20	1	S	A	6	1	20	310	S VAULT LGT, OUTLET & FAN	X	1

Code	Description	Conn.	DF	NEC Demand	Load Summary	Balance
L	Lighting	1.00	125%	1.25	KVA	
R	Recept up to 10 kVA	0.00	100%	0.00	KVA	2.30 KVA 87%
	Recept over 10 kVA	0.00	50%	0.00	KVA	Leg B 1.18 KVA 33%
M	Motor	0.00	100%	0.00	KVA	
	Largest Motor	0.00	125%	0.00	KVA	
C	Computer Recept	0.00	125%	0.00	KVA	Connected 3.21 KVA
A	Appliances	0.00	65%	0.00	KVA	Design 16.80 KVA
X	Misc. Equipment / Mixed Loads	1.31	100%	1.31	KVA	Demand 3.46 KVA
	Connected Total	3.21	KVA	Demand Total	3.46	KVA
	Connected Load	13.38	Amps	Demand Load	14.42	Amps
				Spare Load	69.58	Amps
				NEC Demand	3.46	KVA
				Service Design Load	70	Amps
				NEC Demand	14.42	Amps

1. PROVIDE FEATURES FOR LOCKING IN "OFF" POSITION.
2. TURN OFF RECEPTACLE AT PANELBOARD WHEN NOT IN USE
3. PROVIDE PANELBOARD WITH LOCKABLE COVER TO PREVENT PUBLIC ACCESS.
4. PROVIDE INTERNAL SURGE PROTECTION, AND INCREASE NUMBER OF PANEL SPACES AS REQUIRED TO ACCOMMODATE SURGE PROTECTION DEVICE. ENSURE ANY SURGE PROTECTION DEVICE IS RATED FOR THE ENVIRONMENT WHERE IT IS INSTALLED.
5. PROVIDE NEW BREAKERS AS NEEDED.

REVISIONS

REV. 1	SAMPLER VAULT, 1005/19
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DESIGNED BY: GGR
DATE: 04/21/2017
JOB NUMBER: 16481
JOB DATE: 04/18/11.01
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STERLING RANCH LIFT STATION & FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

LIFT STATION
METERING MANHOLE AND POWER RISER



X:\Corey\Projects\16481 Sterling Ranch Lift Station\E1.1 - Schematic\E1.1 - Schematic\Rev.dwg, 10/20/19 2:50:22 PM, ELECTRICS, LAMP RYNEARSON & ASSOCIATES

3PH FAULT CALCULATION

POINT #1, AT THE UTILITY TRANSFORMER:

$$I_{sc} = 11,200 \text{ A}$$

POINT #2, AT SERVICE DISCONNECT:

(THIS CALCULATION ASSUMES AT LEAST 30' BETWEEN TRANSFORMER AND DISCONNECT. IF PEDESTAL IS CLOSER TO TRANSFORMER THEN CONTACT OWNER'S ENGINEER FOR REVISED CALCULATION.)

$$f = \frac{1.73 \times \text{Length} \times I_{sc}(\text{distance})}{1000000} \times \frac{L-L \text{ Volts}}{480} \times \text{Wire Factor}$$

$$f = \frac{1.73 \times 30 \times 11200}{1000000} \times \frac{480}{480} \times 27846 = 0.04$$

$$M = 1 / (1 + f) = 1 / (1 + 0.04) = 0.98$$

$$I_{sc} = M \times I_{sc}(\text{distance}) = 0.98 \times 11200 \text{ A} = 10,733 \text{ A}$$

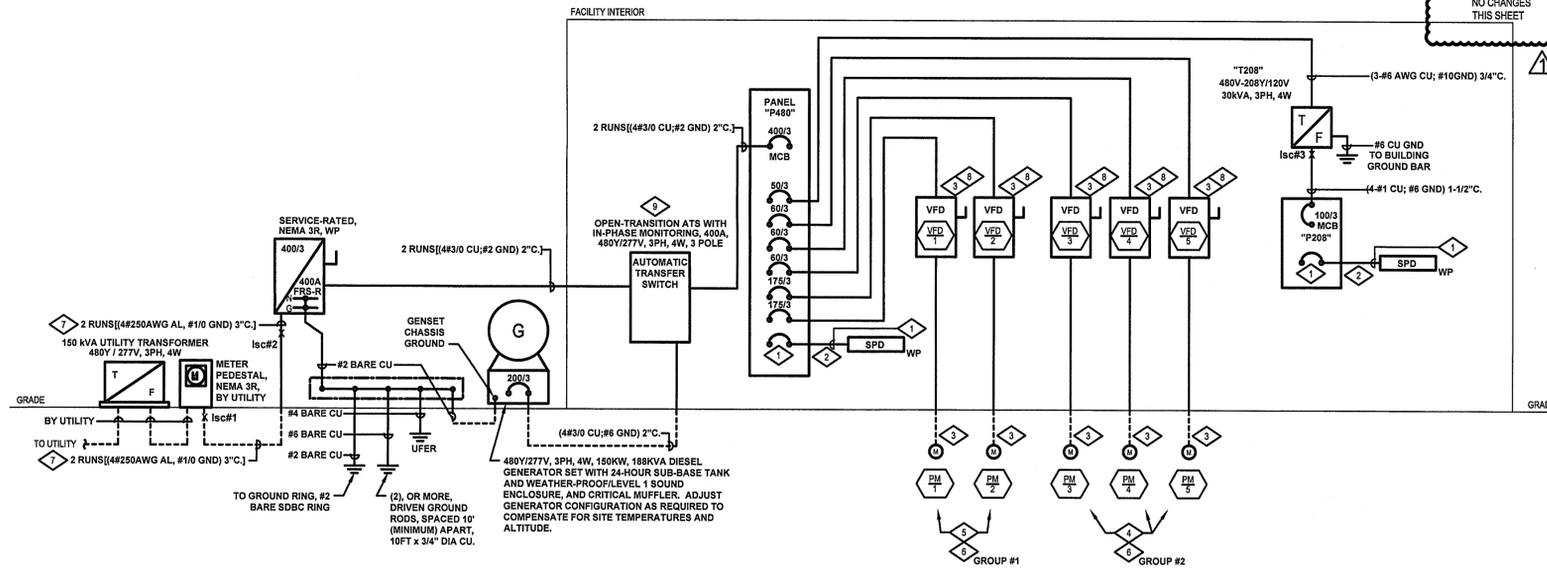
NO FURTHER CALCULATION PERFORMED FOR 480V SYSTEM, AS <14K

POINT #3, THROUGH THE TRANSFORMER (WORST CASE):

$$f = \frac{I_p \times V_p \times 1.73 \times \sqrt{Z}}{1000000} \times \frac{\text{KVA}}{480} \times 2.00$$

$$f = \frac{10733 \text{ A} \times 480 \text{ V} \times 1.73 \times 2.00}{1000000} \times \frac{30 \text{ KVA}}{480} = 5.94$$

$$M = 1 / (1 + f) = 1 / (1 + 5.94) = 0.14$$

$$I_{sc} = \frac{V_p / V_s}{480 \text{ V} / 208 \text{ V}} \times M \times I_p = \frac{480}{208} \times 0.14 \times 10733 \text{ A} = 3,588 \text{ A}$$


POWER RISER DIAGRAM

NOT TO SCALE

GENERAL NOTES:

A. NEW AND RELOCATED ITEMS SHOWN AS SOLID

ITEMS BY OTHER TRADES SHOWN AS LIGHT

BELOW-GRADE ITEMS SHOWN AS DASHED

DETAIL NOTES

- PROVIDE CIRCUIT BREAKER, CONDUCTORS, AND CONDUIT IN ACCORDANCE WITH NEC AND SPD MANUFACTURER'S INSTRUCTIONS.
- PROVIDE PANELBOARD WITH SURGE PROTECTIVE DEVICE (SPD) TO SUPPRESS TRANSIENT VOLTAGE SURGES.
- SEE MECHANICAL EQUIPMENT REQUIREMENTS.
- THESE MOTORS ARE CONTROLLED SO THAT ONLY TWO OF THESE THREE MOTORS WILL BE RUN AT THE SAME TIME.
- THESE MOTORS ARE CONTROLLED SO THAT ONLY ONE GROUP OF MOTORS WILL BE RUN AT THE SAME TIME. (100HP VFD MAXIMUM.)
- OMIT GROUND IF REQUIRED BY UTILITY TO PREVENT BONDING FACILITY TO UTILITY GROUNDING SYSTEM. COORDINATE WITH UTILITY'S ENGINEER FOR APPROVAL TO OMIT GROUND IN THIS CONNECTION.
- CONSIDER ALTITUDE AND AMBIENT TEMPERATURE WHEN SIZING VFDs. PROVIDE VFDs CAPABLE OF SUPPLYING THE FULL HORSEPOWER OF THE MOTOR AT SITE ALTITUDE AND WORSE-CASE TEMPERATURE. IF VFDs ARE UP-SIZED FOR DE-RATING, THEN PROVIDE PROGRAMMING TO LIMIT CURRENT SUPPLY TO MAXIMUM RATING FOR MOTOR-MATCHED VFD.
- PROVIDE AUTOMATIC TRANSFER SWITCH RATED TO MEET NEC ARTICLE 701 REQUIREMENTS, ESPECIALLY REQUIREMENTS OF NEC 701.5.

INSTRUMENTATION CABLE SCHEDULE

ROW #	AREA	FROM	TO	REQUIREMENTS	DESCRIPTION
1	WATER BASIN	LIT-101	CTL. PNL.	SEE NOTE	PRESSURE TRANSDUCER FOR LEVEL
2	WATER BASIN	LSH-101	CTL. PNL.	SEE NOTE	HIGH-HIGH-LEVEL SWITCH - SEE SPECS FOR REQUIREMENTS
4	WATER BASIN	LSH-101	CTL. PNL.	SEE NOTE	HIGH-LEVEL SWITCH - SEE SPECS FOR REQUIREMENTS
5	WATER BASIN	LSL-101	CTL. PNL.	SEE NOTE	LOW-LEVEL SWITCH - SEE SPECS FOR REQUIREMENTS
6	WATER BASIN	LSL-101	CTL. PNL.	SEE NOTE	LOW-LEVEL SWITCH - SEE SPECS FOR REQUIREMENTS
7	SLUDGE BASIN	LIT-102	CTL. PNL.	SEE NOTE	PRESSURE TRANSDUCER FOR LEVEL
8	SLUDGE BASIN	LSH-102	CTL. PNL.	SEE NOTE	HIGH-HIGH-LEVEL SWITCH - SEE SPECS FOR REQUIREMENTS
4	SLUDGE BASIN	LSH-102	CTL. PNL.	SEE NOTE	HIGH-LEVEL SWITCH - SEE SPECS FOR REQUIREMENTS
5	SLUDGE BASIN	LSL-102	CTL. PNL.	SEE NOTE	LOW-LEVEL SWITCH - SEE SPECS FOR REQUIREMENTS
10	SLUDGE BASIN	LSL-102	CTL. PNL.	SEE NOTE	LOW-LEVEL SWITCH - SEE SPECS FOR REQUIREMENTS
11	VALVE VAULT	FIT-201	CTL. PNL.	SEE NOTE	FLOW METER - GLASS IDIV. 2-RATED
12	V.V.L.T. (P.U.T.)	FIT-202	CTL. PNL.	SEE NOTE	FLOW METER - FUTURE DEVICE, PROVIDE INFRASTRUCTURE.
13	ELEC. ROOM	JSA-101	CTL. PNL.	SEE NOTE	POWER TRANSFER SWITCH FAULT ALARM
14	ELEC. ROOM	JSA-101	CTL. PNL.	SEE NOTE	POWER TRANSFER SWITCH - UTILITY POWER STATUS
15	ELEC. ROOM	JSA-101	CTL. PNL.	SEE NOTE	POWER TRANSFER SWITCH - GENERATOR POWER STATUS
16	WATER BASIN	TSH-1	CTL. PNL.	SEE NOTE	MOTOR TEMPERATURE SWITCH
17	WATER BASIN	ASH-1	CTL. PNL.	SEE NOTE	MOTOR MOISTURE SWITCH
18	WATER BASIN	TSH-2	CTL. PNL.	SEE NOTE	MOTOR TEMPERATURE SWITCH
19	WATER BASIN	ASH-2	CTL. PNL.	SEE NOTE	MOTOR MOISTURE SWITCH
20	SLUDGE BASIN	TSH-3	CTL. PNL.	SEE NOTE	MOTOR TEMPERATURE SWITCH
21	SLUDGE BASIN	ASH-3	CTL. PNL.	SEE NOTE	MOTOR MOISTURE SWITCH
22	SLUDGE BASIN	TSH-4	CTL. PNL.	SEE NOTE	MOTOR TEMPERATURE SWITCH
23	SLUDGE BASIN	ASH-4	CTL. PNL.	SEE NOTE	MOTOR MOISTURE SWITCH
24	SLUDGE BASIN	TSH-5	CTL. PNL.	SEE NOTE	MOTOR TEMPERATURE SWITCH
25	SLUDGE BASIN	ASH-5	CTL. PNL.	SEE NOTE	MOTOR MOISTURE SWITCH
26	ABOVE W. BSN.	SAO-1	CTL. PNL.	SEE NOTE	SWITCH OPENING ALARM PRE-ACTION SWITCH
27	ABOVE W. BSN.	SAO-2	CTL. PNL.	SEE NOTE	SWITCH OPENING ALARM PRE-ACTION SWITCH
28	ABOVE S. BSN.	SAO-3	CTL. PNL.	SEE NOTE	SWITCH OPENING ALARM PRE-ACTION SWITCH
29	ABOVE S. BSN.	SAO-4	CTL. PNL.	SEE NOTE	SWITCH OPENING ALARM PRE-ACTION SWITCH
30	ABOVE S. BSN.	SAO-5	CTL. PNL.	SEE NOTE	SWITCH OPENING ALARM PRE-ACTION SWITCH
31	METER MANHOLE	FIT-501	CTL. PNL.	SEE NOTE	FLOW METER - GLASS IDIV. 2-RATED

NOTE: PROVIDE CONDUIT AND CABLE BETWEEN DEVICES SHOWN. CONDUIT SIZE AND CABLE REQUIREMENTS ARE REPRESENTATIVE ONLY. COORDINATE WITH CONTROL SYSTEM PROVIDER FOR FINAL CONDUIT AND CABLE SELECTION. ALL FINAL WIRE TERMINATIONS/CONNECTIONS TO BE PROVIDED BY INSTRUMENTATION CONTRACTOR. CABLE TYPE "TP" INDICATES "TWISTED PAIR CABLE"; CABLE TYPE "STP" INDICATES INSTRUMENTS TO "SHIELDED TWISTED-PAIR CABLE"; VERIFY CABLE TYPE IN ALL CASES WITH CONTROL SYSTEM PROVIDER. PROVIDE #12AWG CU GROUND IN EVERY INSTRUMENTATION CONDUIT. BASIS FOR ANALOG - #16AWG CU STP; DISCRETE - #18 STP; POWER - (2#12CU)#120ND34°C. PROVIDE CONDUIT FOR ALL INSTRUMENT CONNECTIONS. REPLACE BASIS CABLES WITH CABLES RECOMMENDED BY MANUFACTURER OF LISTED EQUIPMENT WHERE CONFLICT WITH BASIS CABLES OCCUR.

SUPPLIED FROM: 480Y/277V UTILITY SERVICE VIA FUSED DISCONNECT SWITCH VIA AUTO. XFR. SWITCH

TYPE	DESCRIPTION	BKR	CIR	LOAD (VOLT AMPS) / PHASE	CIR	BKR	DESCRIPTION	TYPE
3	M VFD-1	175	1	36584 0	2	TBD	SURGE PROT. DEVICE	1
3	M - (PM-1)	/	3	36584 0	4	/	-	1
3	M - (100HP)	3P	5	36584 0	8	3P	-	1
2,3	VFD-2	175	7	0 0 0	8	-	SPACE	-
2,3	- (PM-2)	/	9	0 0 0	10	-	SPACE	-
2,3	- (100HP)	3P	11	0 0 0	12	-	SPACE	-
2,3	VFD-3	60	13	0 0 0	14	-	SPACE	-
2,3	- (PM-3)	/	15	0 226	16 16	16	LTG - INTERIOR	L
2,3	- (30HP)	3P	17	0 81	16 16	16	LTG - EXTERIOR	L
2,3	VFD-4	60	19	0 0 0	20	-	SPACE	-
2,3	- (PM-4)	/	21	0 0 0	22	-	SPACE	-
2,3	- (30HP)	3P	23	0 0 0	24	-	SPACE	-
2,3	VFD-5	60	25	0 6386	26 50	P208 VIA XFMR	RMG	-
2,3	- (PM-5)	/	27	0 4436	28	/	-	RMG
2,3	- (30HP)	3P	29	0 5700	30	3P	-	RMG
			4250	4125	4235			

LOAD TYPE	CONNECTED KVA	TOTAL	FACTOR	DEMAND KVA	TOTAL				
LIGHTING	0.0	0.2	0.1	0.3	128%	0.0	0.3	0.1	0.4
RECEPTACLE (10KVA OR LESS)	0.5	0.9	0.2	1.6	100%	0.5	0.9	0.2	1.6
RECEPTACLE (OVER 10KVA)	0.0	0.0	0.0	0.0	50%	0.0	0.0	0.0	0.0
HVAC/MOTOR	2.3	2.4	1.9	6.6	100%	2.3	2.4	1.9	6.6
MOTOR(LARGEST)	36.6	36.6	36.6	199.8	128%	45.8	45.8	45.8	137.3
KITCHEN EQUIPMENT	0.0	0.0	0.0	0.0	100%	0.0	0.0	0.0	0.0
MISCELLANEOUS	3.5	1.1	3.6	8.2	100%	3.5	1.1	3.6	8.2
TOTAL KVA	43.0	41.2	42.3	126.5	TOTAL AMP	52	50	52	154.0
WITH GROUND BUS					TOTAL AMP	188	182	189	186.3

LEGEND: L = LIGHTING R = RECEPTACLE M = HVAC / MOTOR K = KITCHEN G = MISCELLANEOUS
MAX PERCENT DIFFERENCE BETWEEN PHASES (A,B,C): 4%

- PROVIDE COMPLETE NEW PANELBOARD.
- PROVIDE PANELBOARD WITH INTEGRAL SURGE PROTECTIVE DEVICE (SPD). SIZE CONNECTION AND CIRCUIT BREAKER IN ACCORDANCE WITH NEC AND SPD MANUFACTURER'S REQUIREMENTS.
- LOAD NOT ADDED TO CALCULATED LOAD AS THIS MOTOR IS LOCKED-OUT WHEN THE LARGEST MOTOR/VFD ON THE SYSTEM IS OPERATING.
- PROVIDE MEANS FOR LOCKING CIRCUIT BREAKER IN THE OFF POSITION, FOR USE AS EQUIPMENT SERVICE DISCONNECT.

SUPPLIED FROM: 500A CIRCUIT BREAKER IN PANEL "7480" VIA 30KVA TRANSFORMER

TYPE	DESCRIPTION	BKR	CIR	LOAD (VOLT AMPS) / PHASE	CIR	BKR	DESCRIPTION	TYPE
R	REC - EXTERIOR	20	1	360 0	2	TBD	SURGE PROT. DEVICE	-
R	REC - ELEC RM.	20	3	900 0	4	/	-	-
R	REC - PUMP RM. - N	20	6	180 0	6	3P	-	-
R	REC - PUMP RM. - S	20	7	180 430	8	20	CONTROL PANEL	M
M	PUMP - SUMP	20	9	1176 300	10 15	FAN VF-1, LU-1	M	M
M	PUMP - CHEM C1	40	11	1920 2500	12 30	CUH-1 UNIT HEATER	G	G
M	PUMP - CHEM C2, C3	15	13	1086 2500	14 2P	-	G	G
M	SPARE	15	15	100 1000	16 20	208V GENSET LOADS	G	G
-	SPARE	15	17	0 1000	18 2P	-	G	G
-	SPARE	15	19	0 1000	20 20	120V GENSET LOADS	G	G
-	SPACE	-	21	0 100	22 15	FLOW METER	G	G
-	SPACE	-	23	0 100	24 15	FLOW METER (FUT)	G	G
-	SPACE	-	25	0 860	26 15	HVAC-1 AIR COND.	M	M
-	SPACE	-	27	0 860	28 2P	-	M	M
-	SPACE	-	29	0 0	30 -	SPACE	-	-
			6386	4436	5700			

LOAD TYPE	CONNECTED KVA	TOTAL	FACTOR	DEMAND KVA	TOTAL				
LIGHTING	0.0	0.0	0.0	0.0	128%	0.0	0.0	0.0	0.0
RECEPTACLE (10KVA OR LESS)	0.5	0.9	0.2	1.6	100%	0.5	0.9	0.2	1.6
RECEPTACLE (OVER 10KVA)	0.0	0.0	0.0	0.0	50%	0.0	0.0	0.0	0.0
HVAC/MOTOR	1.2	1.2	0.0	2.5	100%	1.2	1.2	0.0	2.5
MOTOR(LARGEST)	1.1	1.2	1.9	4.2	128%	1.4	1.5	2.4	5.3
KITCHEN EQUIPMENT	0.0	0.0	0.0	0.0	100%	0.0	0.0	0.0	0.0
MISCELLANEOUS	3.5	1.1	3.6	8.2	100%	3.5	1.1	3.6	8.2
TOTAL KVA	6.4	6.4	6.7	16.5	TOTAL AMP	7	5	6	17.6
WITH GROUND BUS					TOTAL AMP	59	39	51	48.6

LEGEND: L = LIGHTING R = RECEPTACLE M = HVAC / MOTOR K = KITCHEN G = MISCELLANEOUS
MAX PERCENT DIFFERENCE BETWEEN PHASES (A,B,C): 31%

- PROVIDE COMPLETE NEW PANELBOARD.
- PROVIDE PANELBOARD WITH INTEGRAL SURGE PROTECTIVE DEVICE (SPD). SIZE CONNECTION AND CIRCUIT BREAKER IN ACCORDANCE WITH NEC AND SPD MANUFACTURER'S REQUIREMENTS.
- CIRCUIT RESERVED FOR ACCESSORIES, PUMPS, INSTRUMENT SYSTEMS, AND SIMILAR IN THE PUMP ROOM. PROVIDE UP TO TWO (2) ADDITIONAL CONNECTIONS WITH LOCAL WEATHERPROOF DISCONNECT SWITCH AT EACH EQUIPMENT LOCATION.
- PROVIDE MECHANICAL RESTRAINT FOR THIS CIRCUIT BREAKER AND RESTRAIN IN "OFF" POSITION.

NO CHANGES THIS SHEET

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DESIGNED BY	GJR
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BOOK AND PAGE	

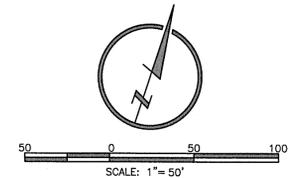
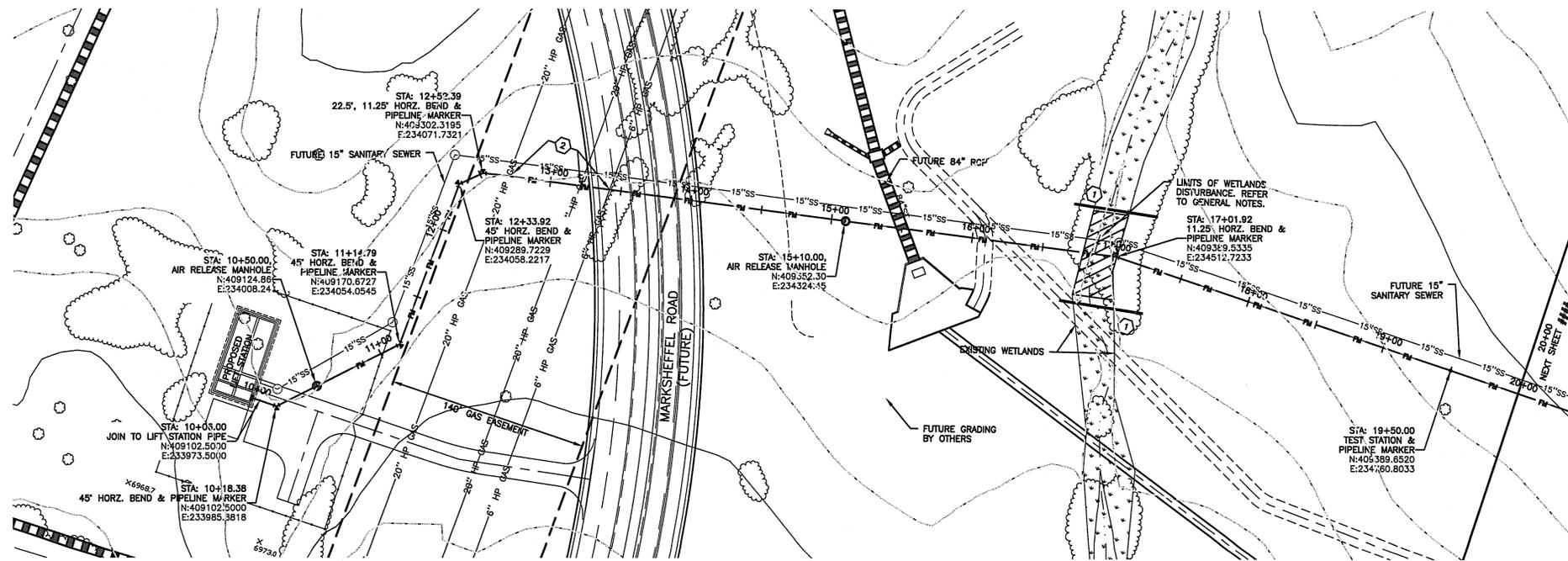
REVISIONS
REV. 1, SAMPLER VAULT, 10/05/19
303.971.0030 | P
303.971.0077 | F
LRA, Inc. com / lra@lra.com

12596 West Bayard Avenue, Suite 330
Lakewood, Colorado 80228
LAMP RYNEARSON & ASSOCIATES
STERLING RANCH LIFT STATION & FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

LIFT STATION
POWER RISER AND SCHEDULES



COREY
Electrical Engineering, Inc.
Commercial and Transportation Design
7022 S. Broadway St., Suite B, Englewood, CO 80112 | P (303) 481-1877
projects@coreyeng.com COREY PROJECT #16481

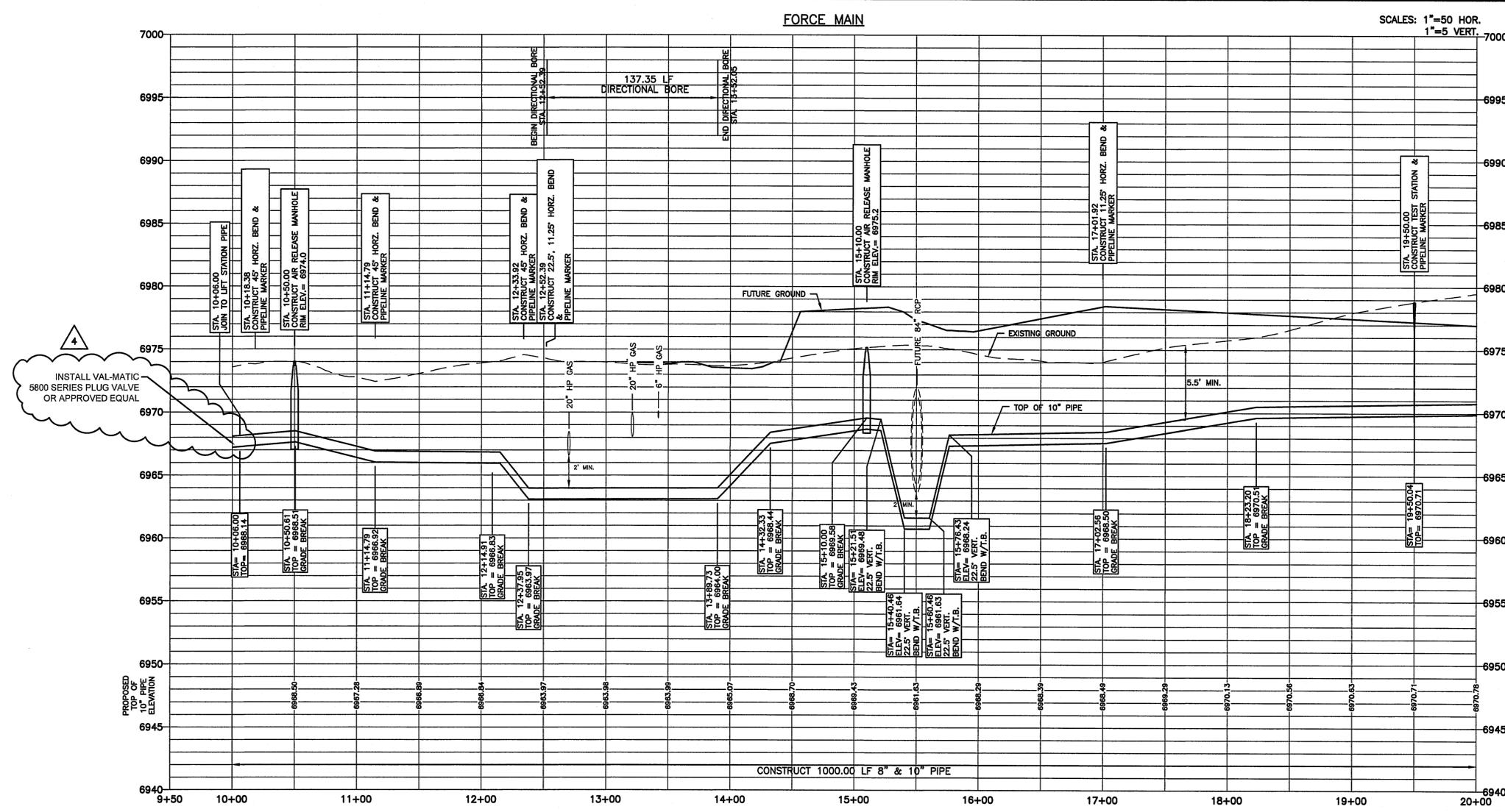


NOTES:

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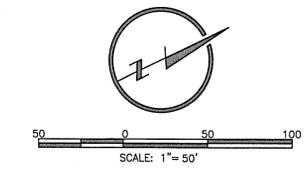
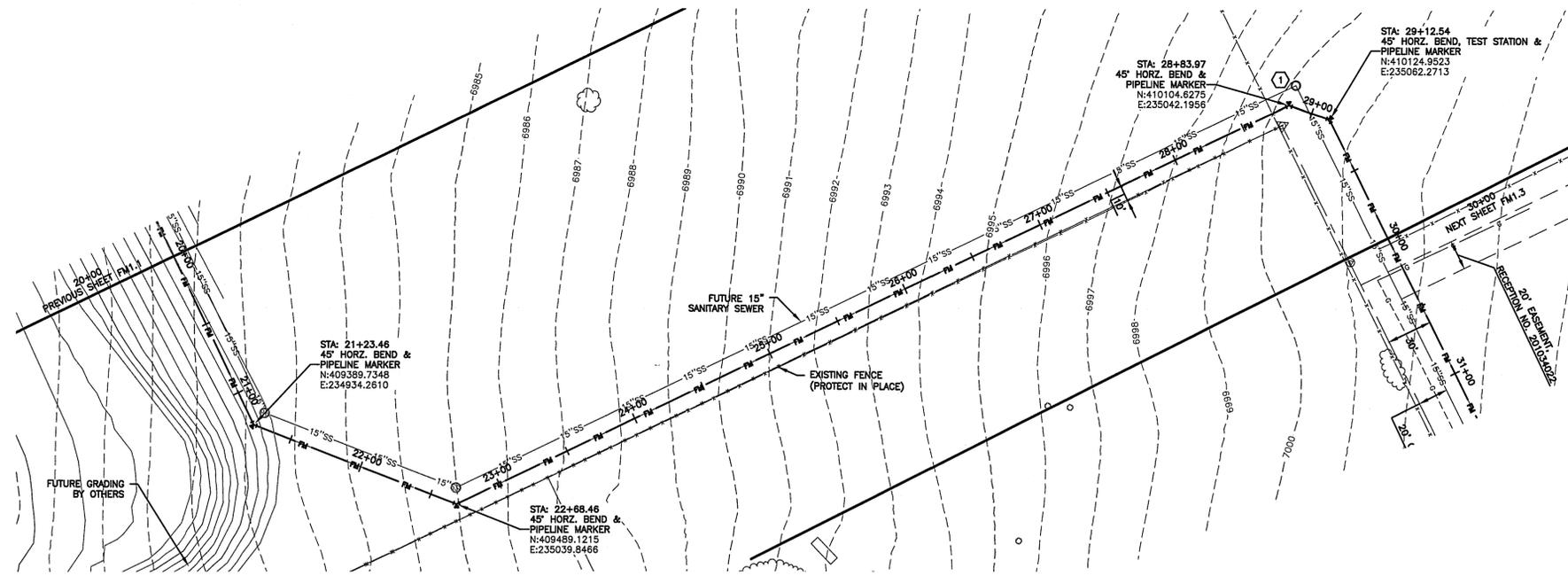
KEYNOTE:

- ① SEDIMENT CONTROL LOG PER DETAIL SHEET FM2.4
- ② CONTRACTOR SHALL COORDINATE AND OBTAIN PERMITS WITH THE UTILITY COMPANIES PRIOR TO CONSTRUCTION AND CROSSING THE EXISTING HIGH PRESSURE GAS MAIN.
 - A. COLORADO INTERSTATE GAS (719) 520-4816
 - B. MAGELLAN MIDSTREAM GAS (918) 574-7098



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DRAWN BY: JPM DESIGNED BY: JPM DATE: APRIL 24, 2017 JOB NUMBER/TASKS: 0418011 BOOK AND PAGE:	REVISIONS: REVISED PER COMMENTS - 08/02/18 303.971.0030 P 303.971.0071 F 12556 West Bayaud Avenue, Suite 330 Lakewood, Colorado 80228 LRA-rtc.com 724water.com	FORCE MAIN PLAN & PROFILE SHEET - 1 STERLING RANCH LIFT STATION AND FORCE MAIN STERLING RANCH METROPOLITAN DISTRICT NO. 1
		FORCE MAIN PLAN & PROFILE SHEET - 1
LAMP RYNEARSON - ENGINEERS 		811 KNOW WHAT'S BELOW CALL BEFORE YOU DIG
BRADLEY A. SIMONS 34705 SHEET		FM.1



NOTES:

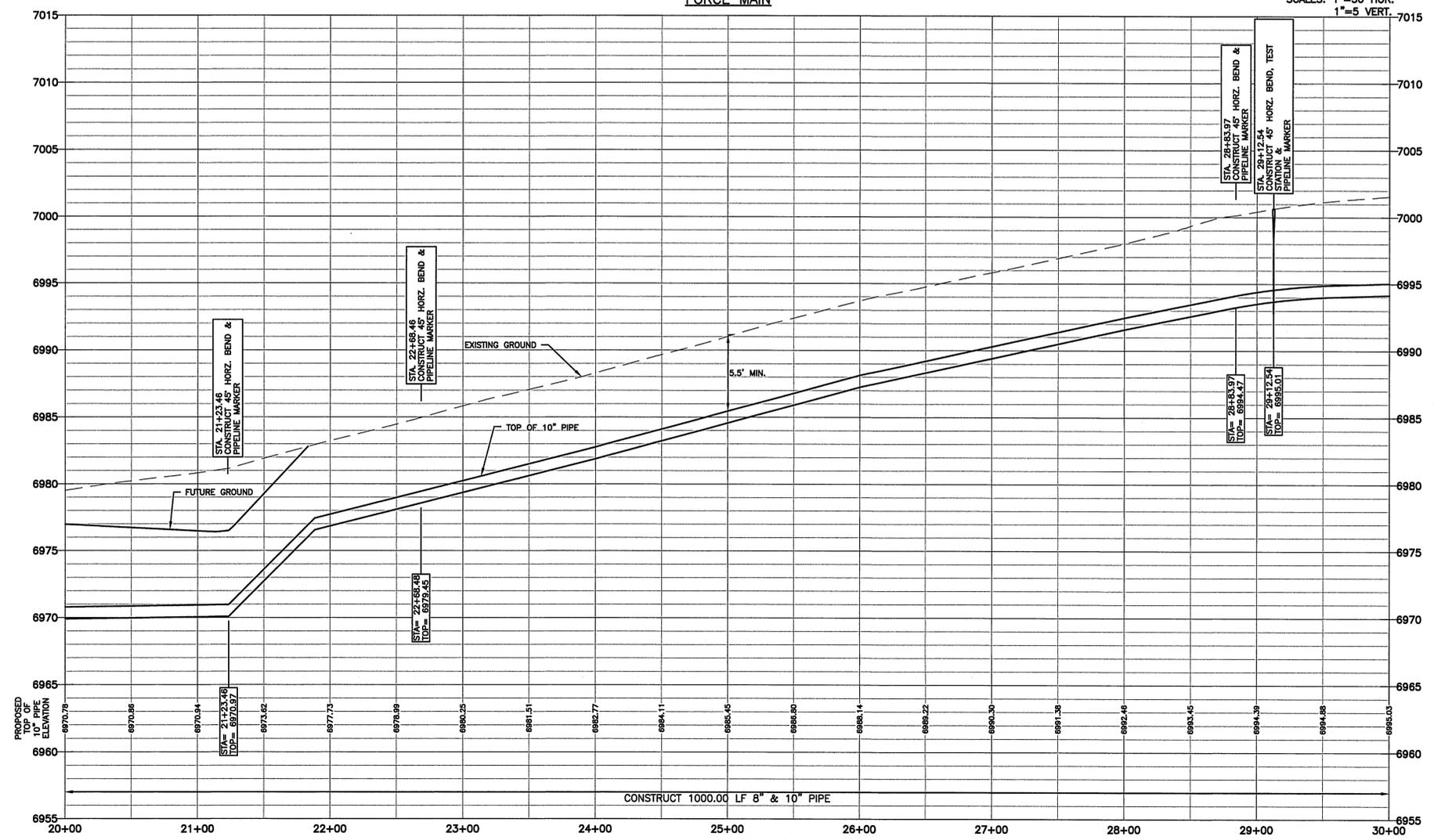
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KEYNOTE:

- ① REMOVE AND RE-INSTALL 50 LF OF EXISTING FENCE

FORCE MAIN

SCALES: 1"=50 HOR.
1"=5 VERT.



CONSTRUCT 1000.00 LF 8" & 10" PIPE

DRAWN BY	JPM
DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER-TASK	0416011
BOOK AND PAGE	

REVISIONS

NO.	DESCRIPTION
1	12596 West Bayraud Avenue, Suite 330 Lakewood, Colorado 80228 LRA-INC.COM / LRA-WATER.COM

LAMP RYNEARSON & ASSOCIATES
STERLING RANCH LIFT STATION AND FORCE MAIN DISTRICT NO. 1

FORCE MAIN PLAN & PROFILE
STA. 20+00 TO STA. 30+00

LAMP RYNEARSON - ENGINEERS



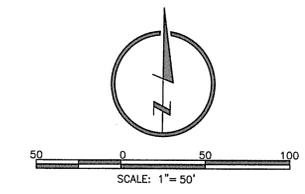
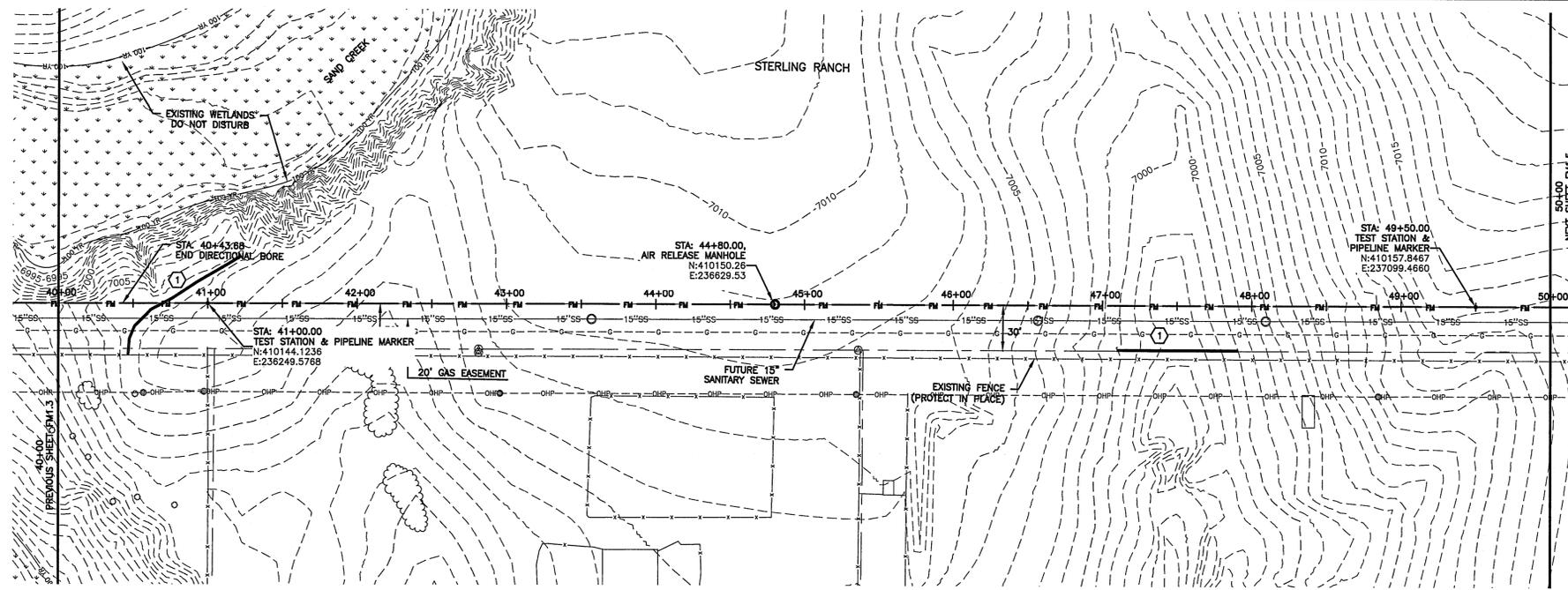
BRADLEY A. SIMONS
34705

SHEET

FM1.2



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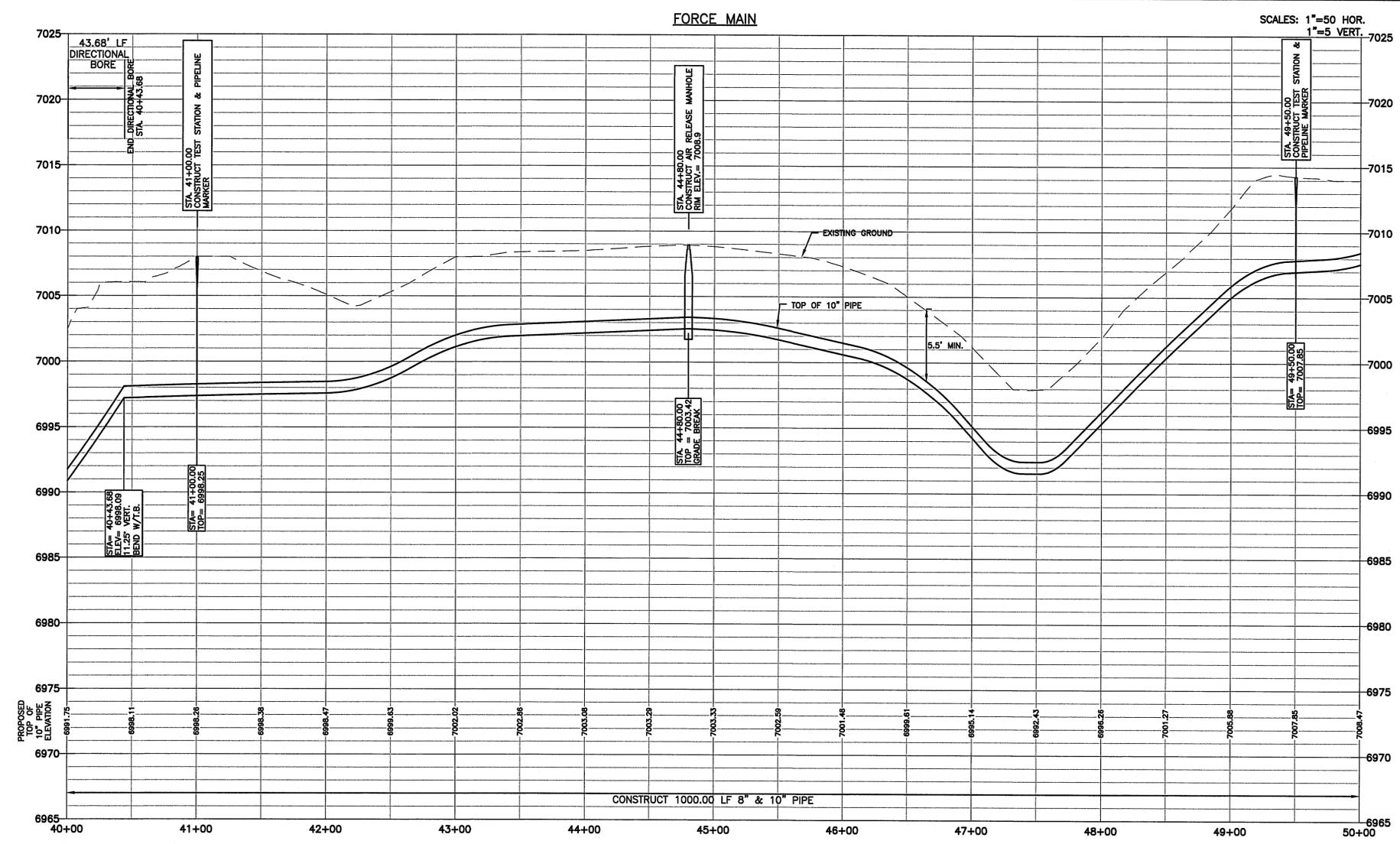


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KEYNOTE:

- ① SEDIMENT CONTROL LOG PER DETAIL SHEET FM2.4



DRAWN BY	JPM
DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER-TASKS	0418011
BOOK AND PAGE	

REVISIONS	

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 12606 West Bayland Avenue, Suite 300
 Littleton, Colorado 80120
 Phone: 303.971.0077
 Fax: 303.971.0077
 Email: lra@lra.com / lra@water.com

STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

FORCE MAIN PLAN & PROFILE
STA. 40+00 TO STA. 50+00

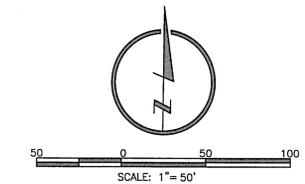
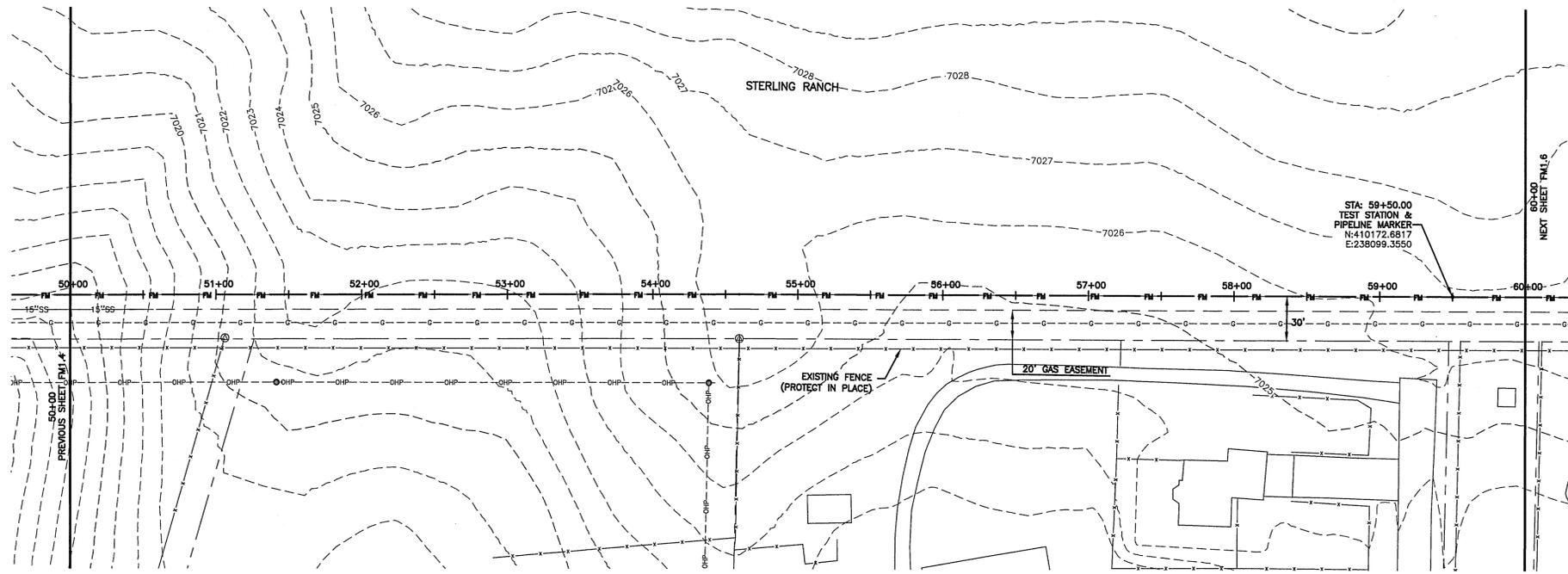
LAMP RYNEARSON - ENGINEERS



BRADLEY A. SIMONS
 94705
SHEET
FM1.4



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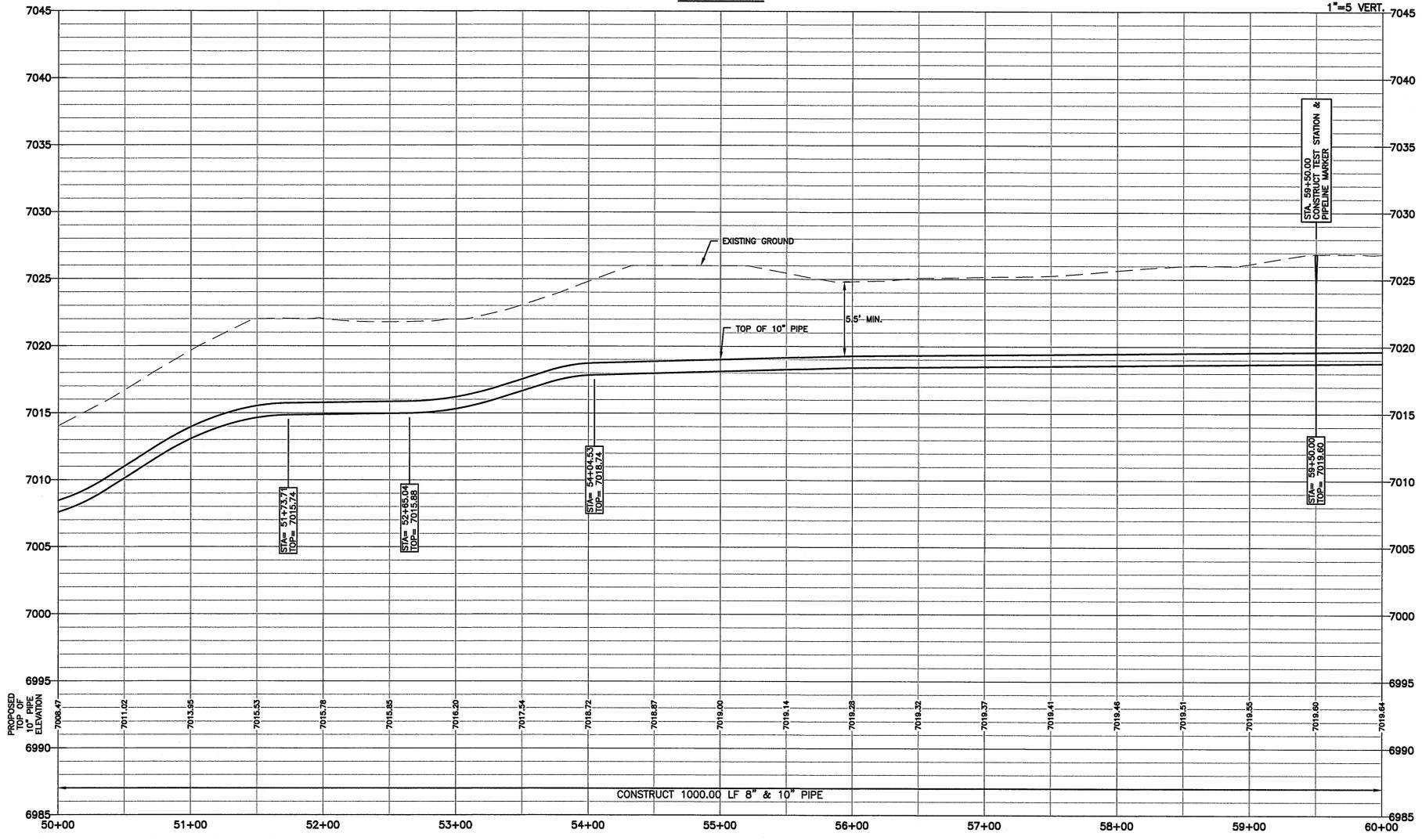


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FORCE MAIN

SCALES: 1"=50 HOR.
1"=5 VERT.



CONSTRUCT 1000.00 LF 8" & 10" PIPE

DRAWN BY	JPM
DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER-TASKS	0418011
BOOK AND PAGE	

LAMP RYNEARSON & ASSOCIATES
 12586 West Bayrauz Avenue, Suite 330
 Greenwood, CO 80228
 LRA-inc.com / lra@lra.com

STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

FORCE MAIN PLAN & PROFILE
STA. 50+00 TO STA. 60+00

LAMP RYNEARSON - ENGINEERS

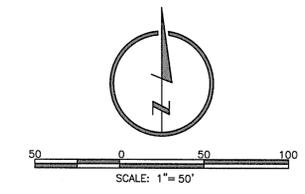
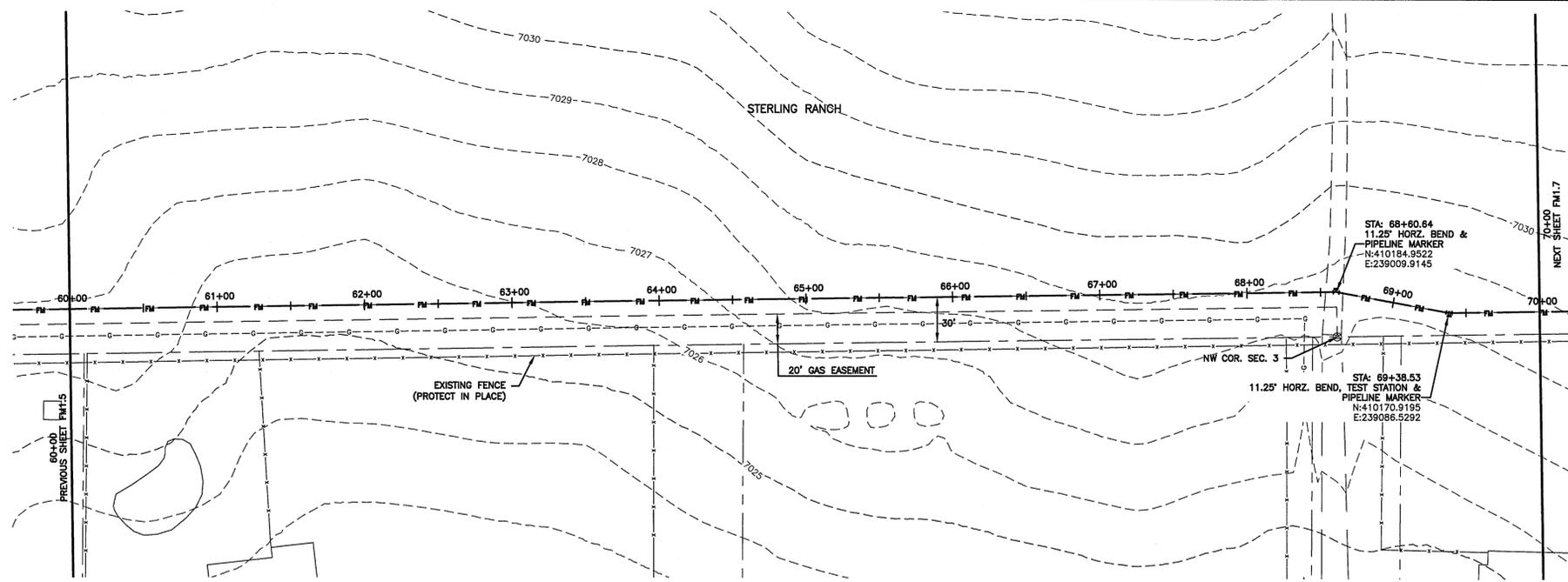


BRADLEY A. SIMONS
84705

SHEET
FM1.5

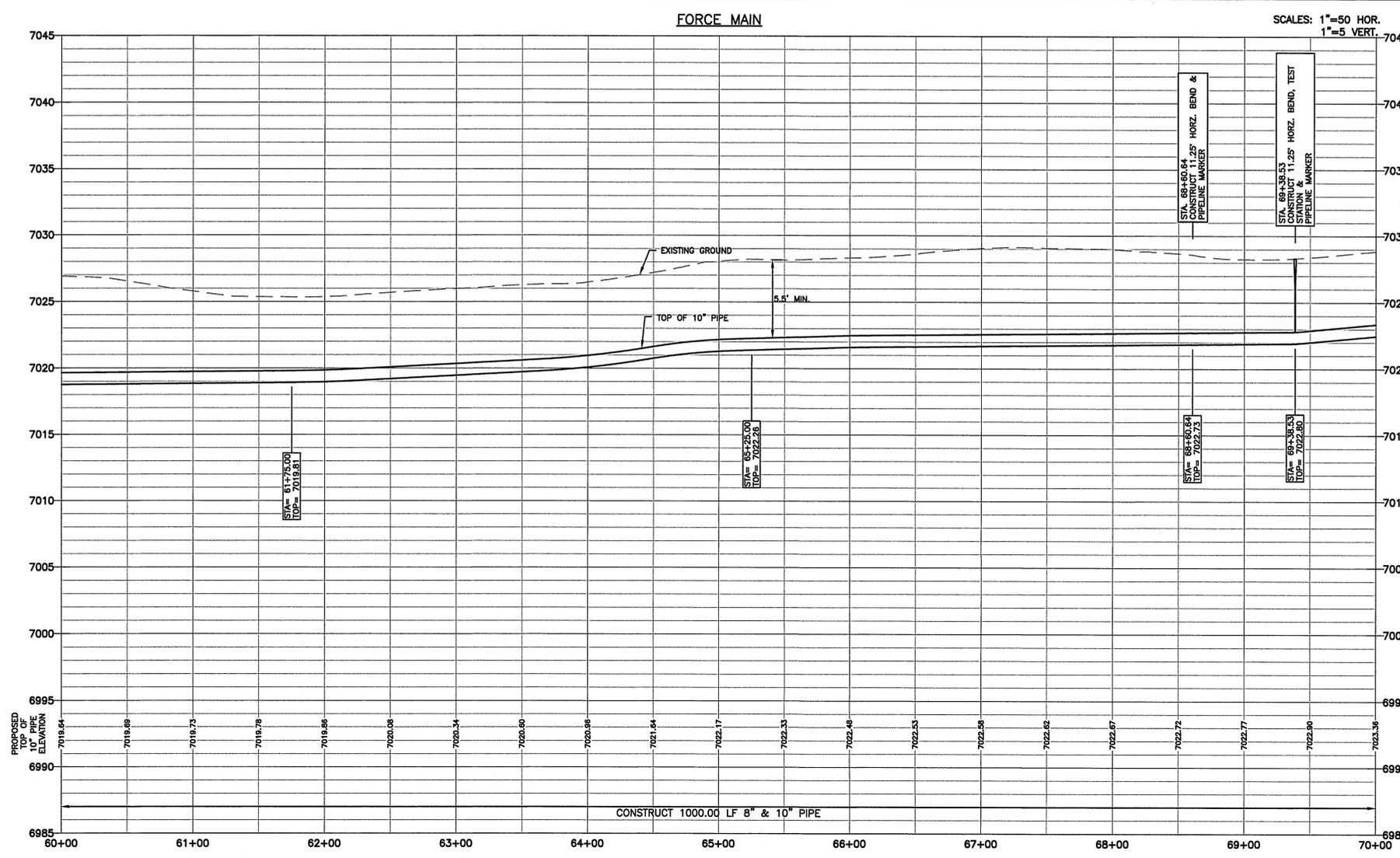


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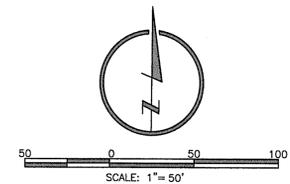
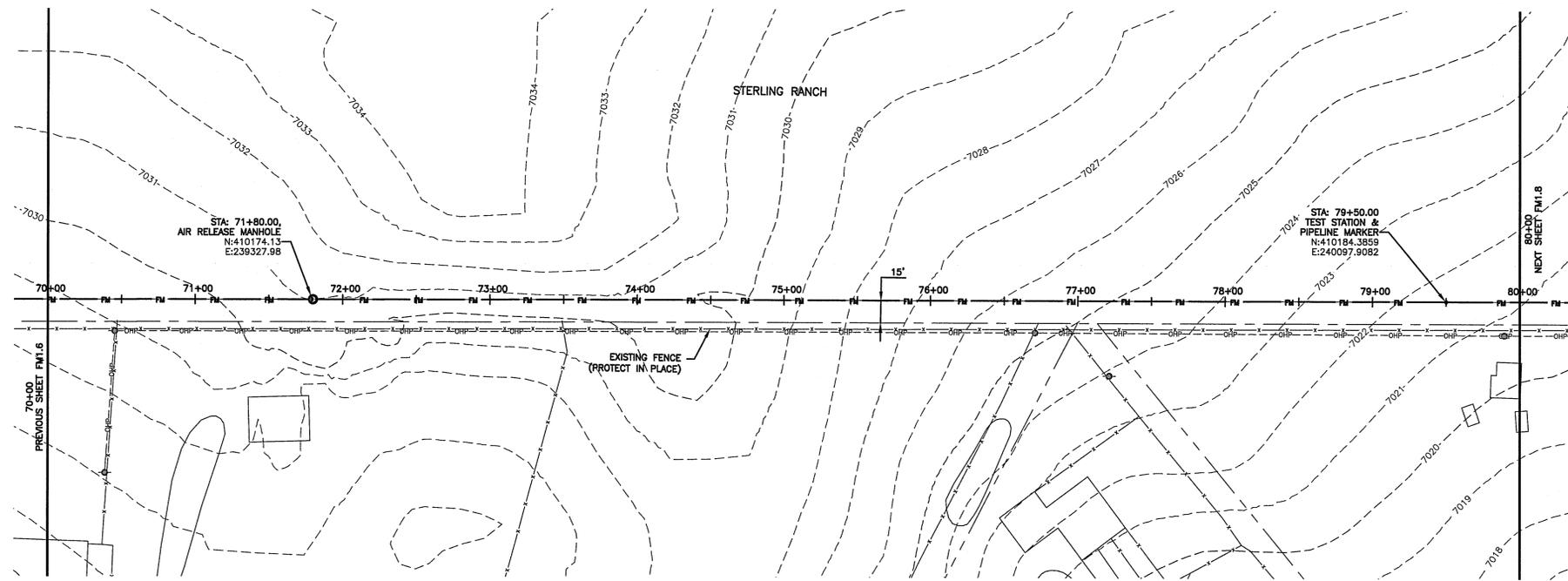
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LAMP RYNEARSON & ASSOCIATES 12506 West Bayland Avenue, Suite 300 Lakewood, Colorado 80228 LRA-inc.com / lra@water.com				
STERLING RANCH LIFT STATION AND FORCE MAIN STERLING RANCH METROPOLITAN DISTRICT NO. 1				
FORCE MAIN PLAN & PROFILE STA. 60+00 TO STA. 70+00				
LAMP RYNEARSON - ENGINEERS				
BRADLEY A. SIMONS 34705				
SHEET				
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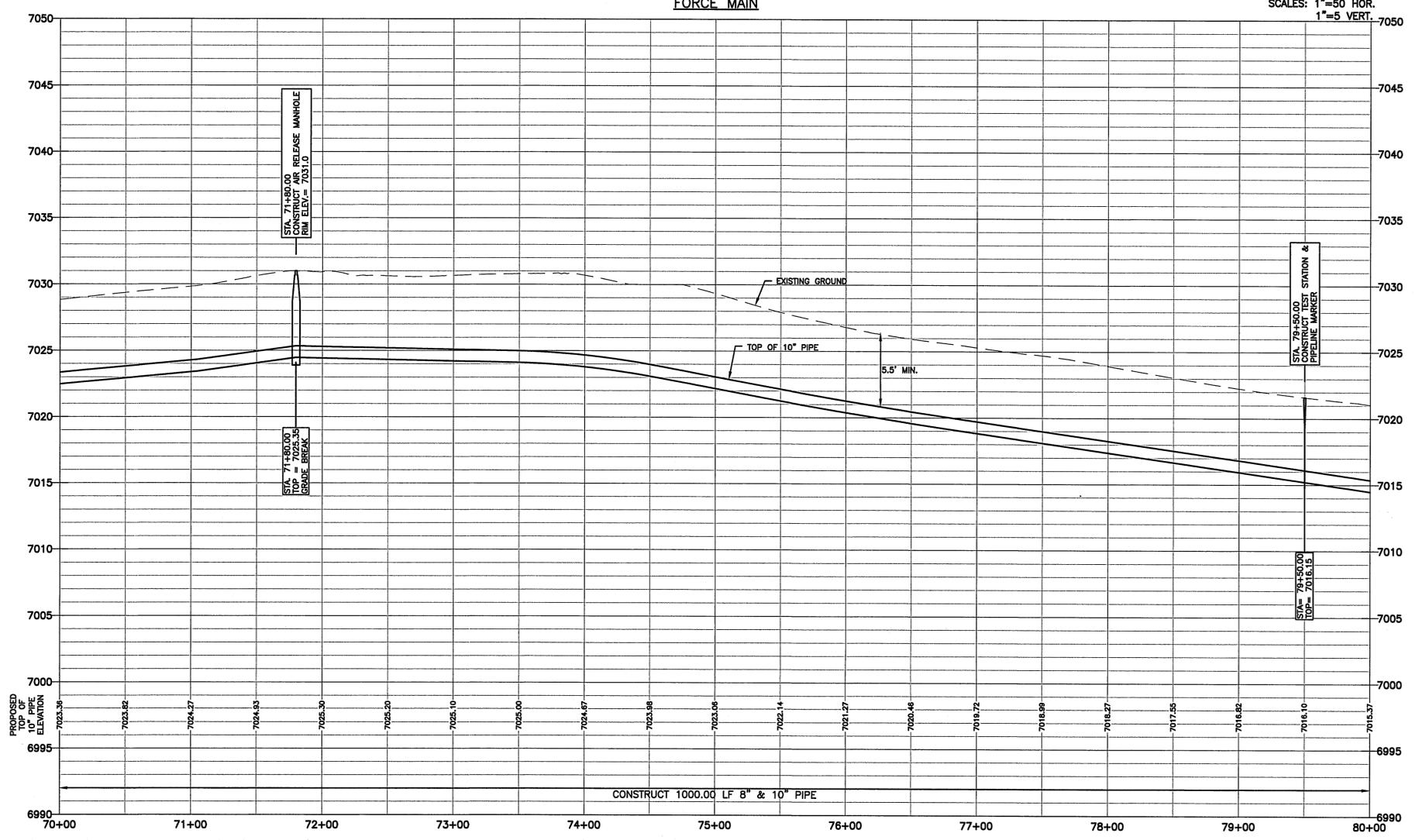


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FORCE MAIN

SCALES: 1"=50 HOR.
1"=5 VERT.



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DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER-TASKS	0418011
BOOK AND PAGE	

12596 West Bayraud Avenue, Suite 330
Lakewood, Colorado 80228
LRA-INC.COM / LRA@LRA-INC.COM

LAMP RYNEARSON & ASSOCIATES

STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

FORCE MAIN PLAN & PROFILE
STA. 70+00 TO STA. 80+00

LAMP RYNEARSON - ENGINEERS

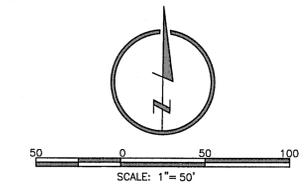
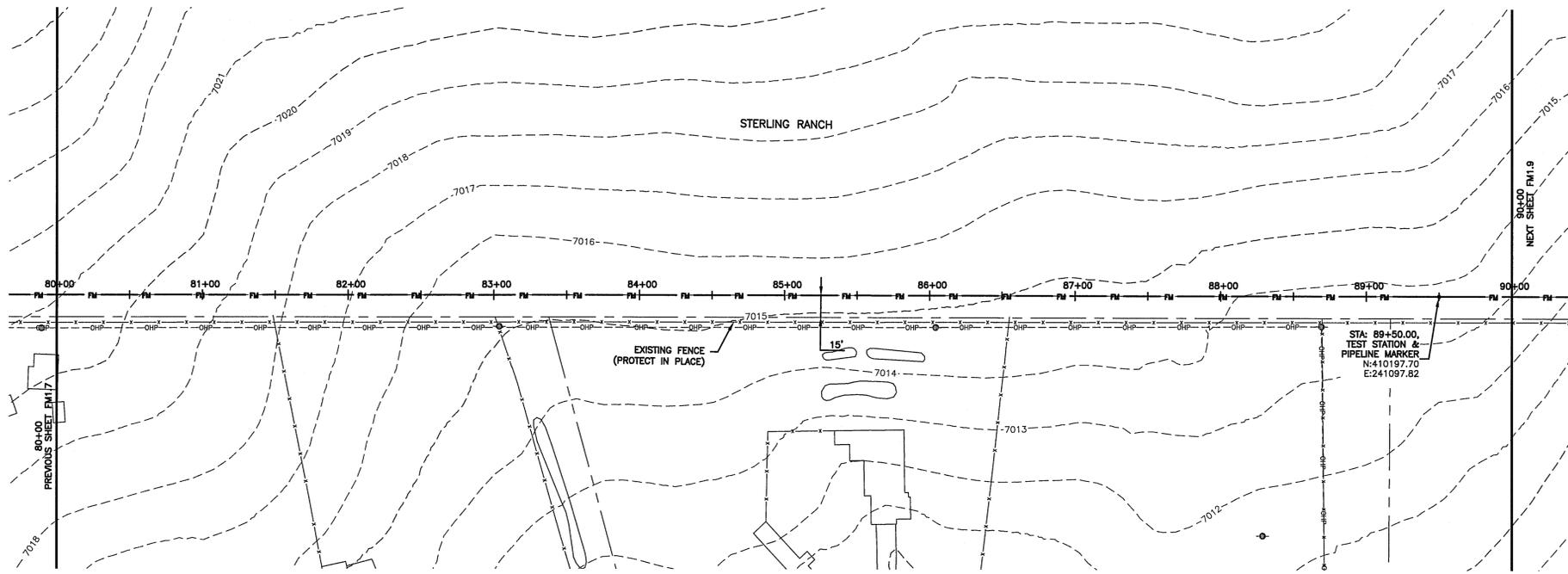


BRADLEY A. SIMONS
34705

SHEET
FM1.7



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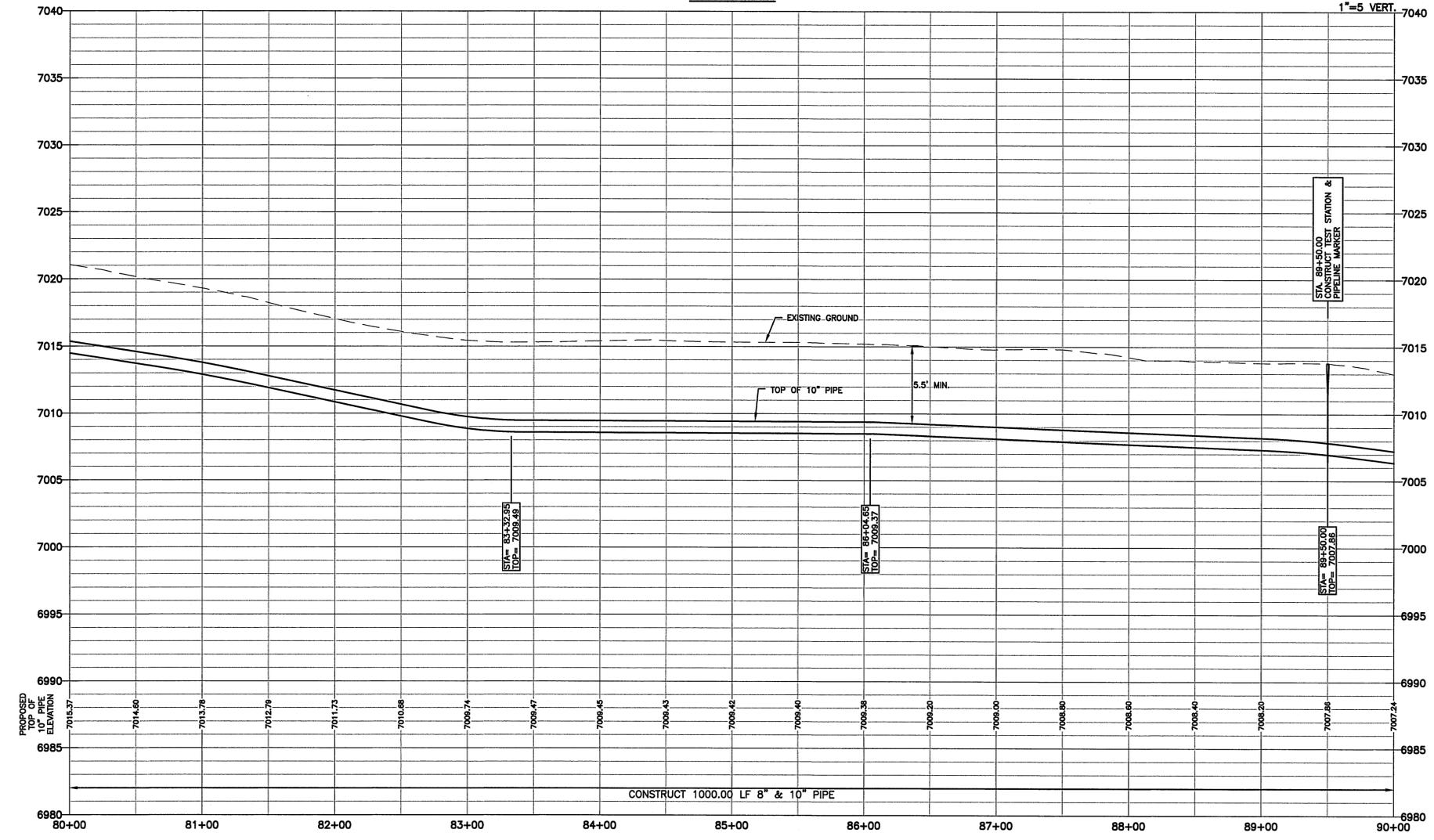


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FORCE MAIN

SCALES: 1"=50 HOR.
1"=5 VERT.



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DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER-TASKS	0418011
BOOK AND PAGE	

REVISIONS

NO.	DESCRIPTION	DATE

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12526 West Baywood Avenue, Suite 330, 80028
Lamp Ryneason & Associates, Inc.
LRA-inc.com / lra@water.com

STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

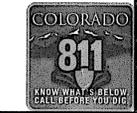
FORCE MAIN PLAN & PROFILE
STA. 80+00 TO STA. 90+00

LAMP RYNEARSON - ENGINEERS

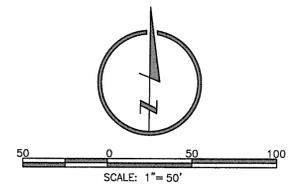
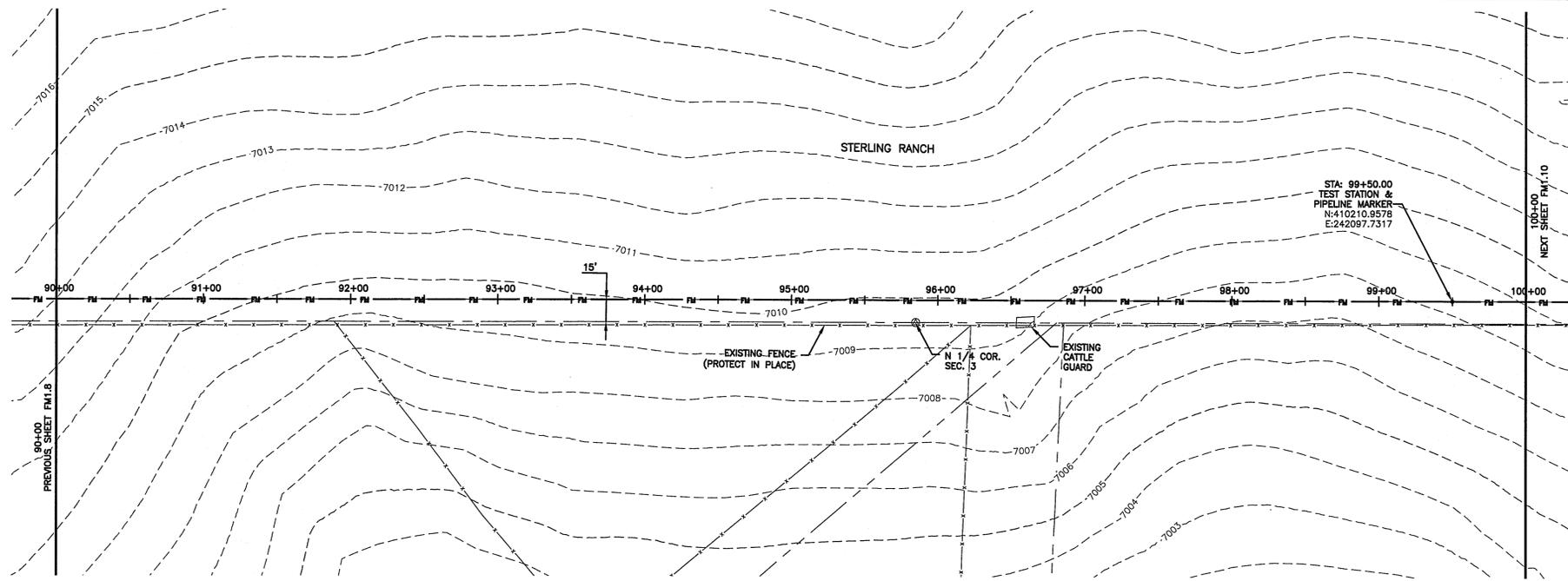


BRADLEY A. SIMONS
34705

SHEET
FM1.8

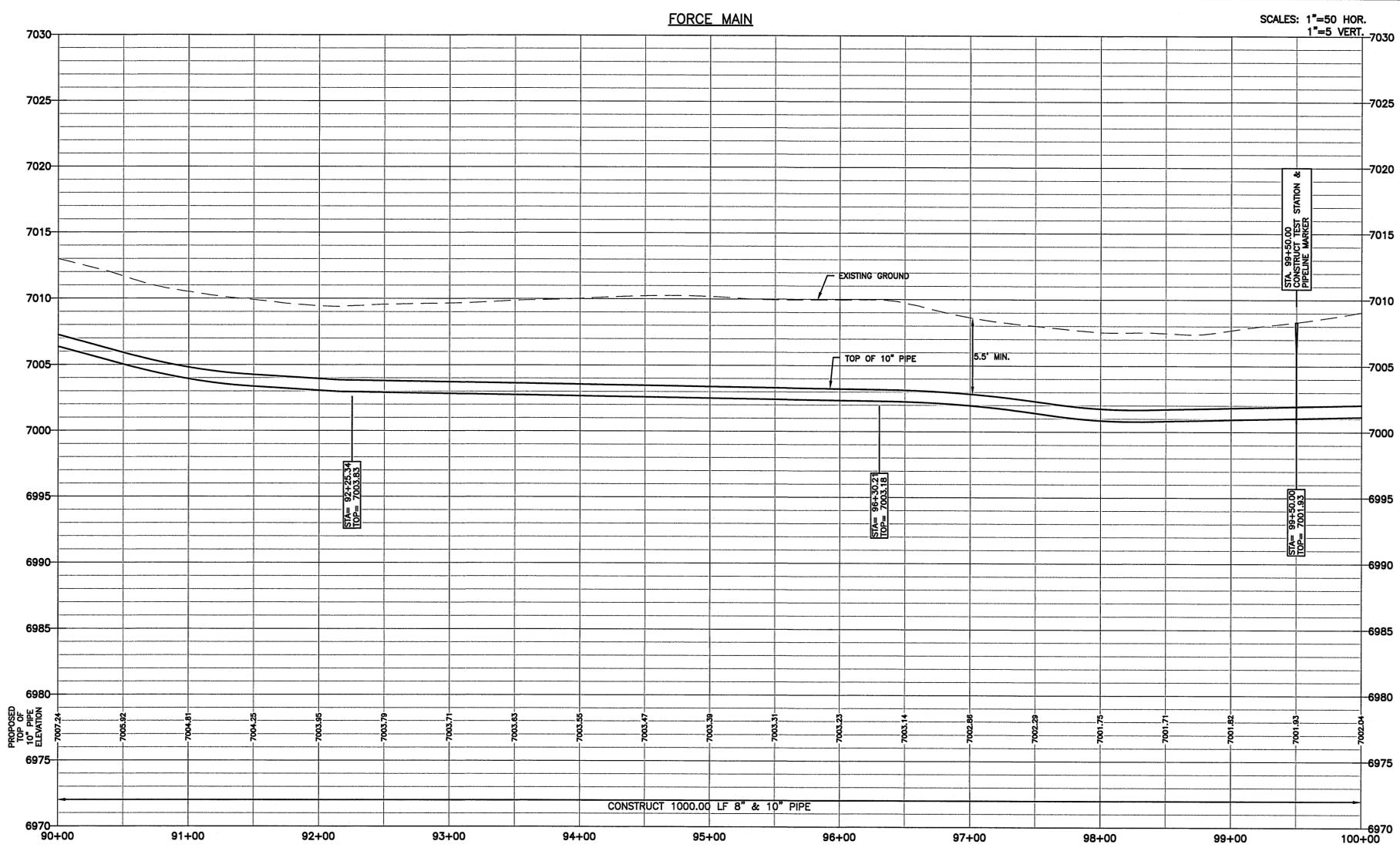


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DATE	APRIL 24, 2017
JOB NUMBER-TASKS	0418011
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 12586 West Bayraud Avenue, Suite 330, Greenwood, Colorado 80228
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STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

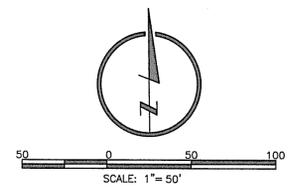
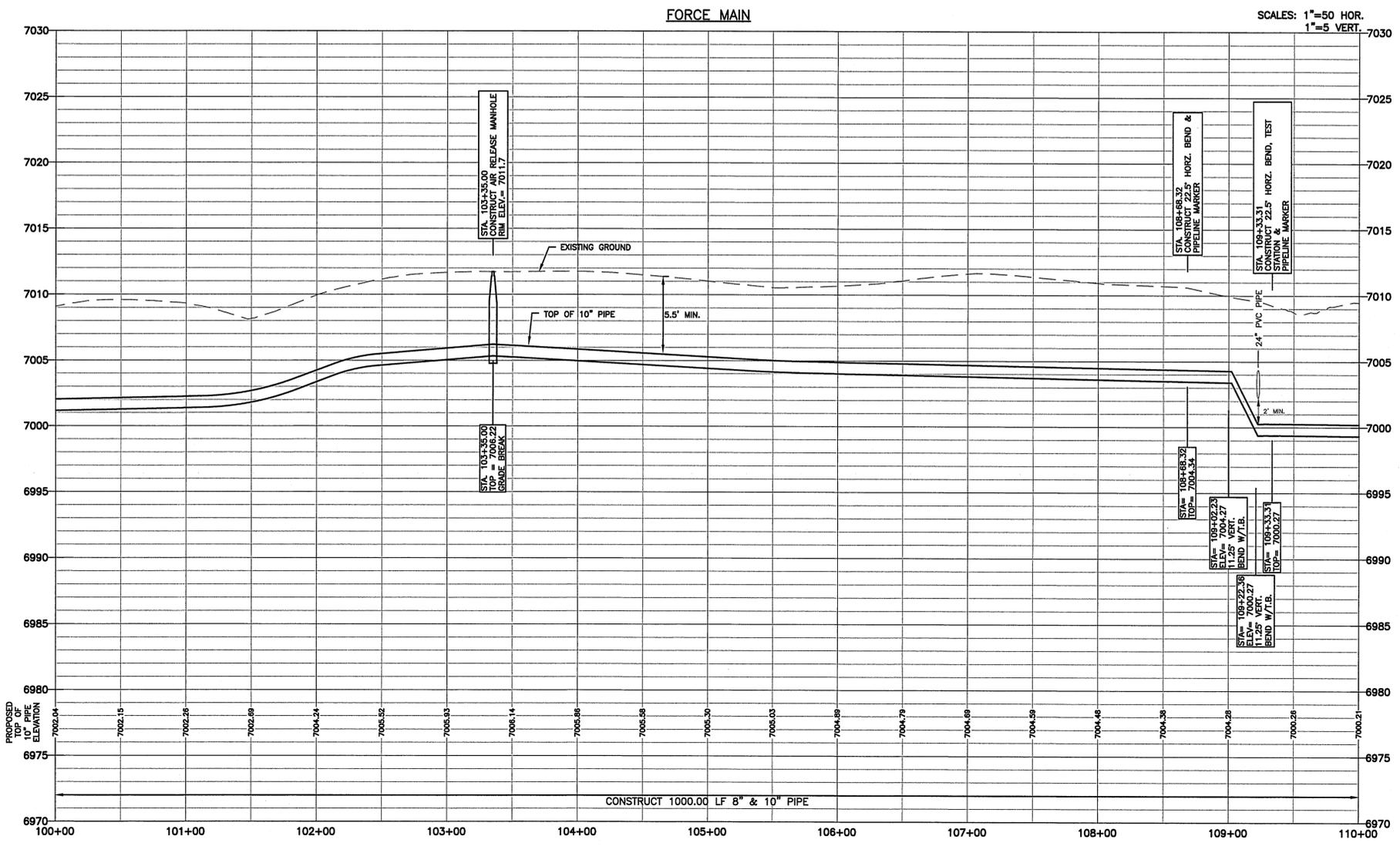
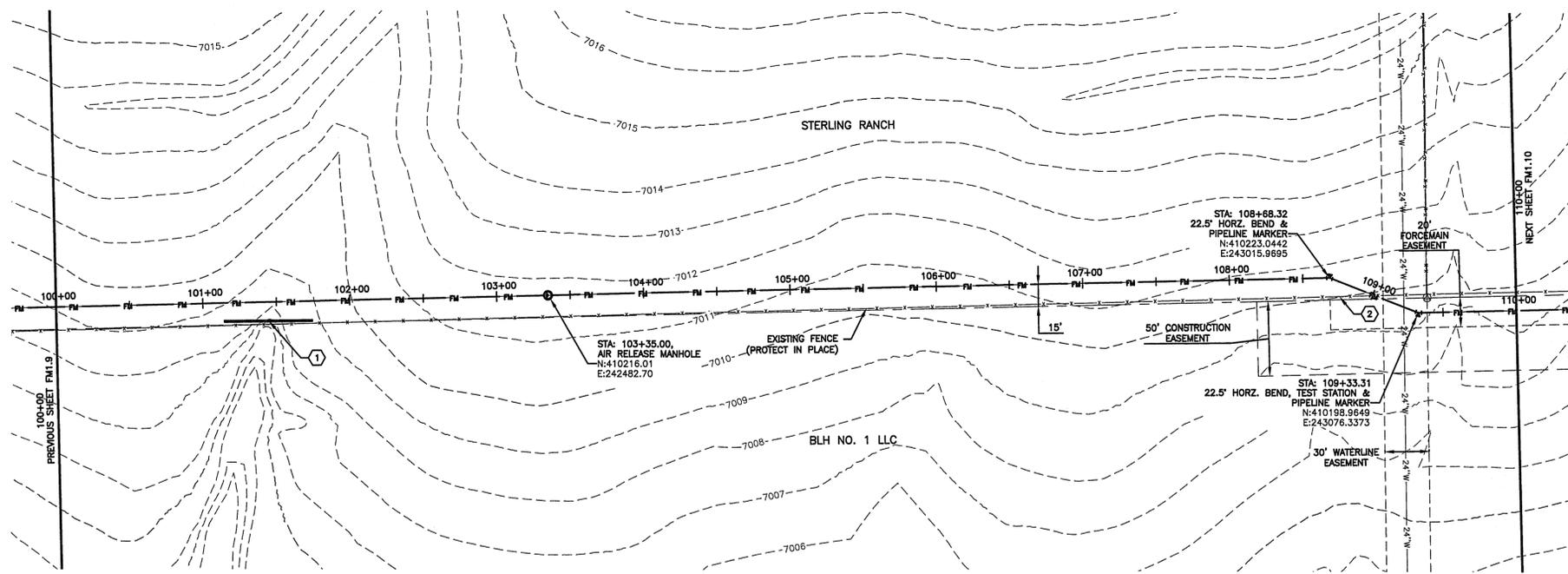
FORCE MAIN PLAN & PROFILE
STA. 90+00 TO STA. 100+00

LAMP RYNEARSON - ENGINEERS

BRADLEY A. SIMONS
34705

SHEET
FM1.9

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NOTES:

1. SEE SHEET G0.2 FOR GENERAL NOTES.
2. STATIONING IS BASED ON THE CENTERLINE BETWEEN THE 8" AND 10" FORCE MAINS.
3. CONTRACTOR SHALL INSTALL THRUST BLOCKS AT ALL HORIZONTAL AND VERTICAL BENDS PER DETAIL.
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KEYNOTE:

- ① SEDIMENT CONTROL LOG PER DETAIL SHEET FM2.4
- ② REMOVE AND RE-INSTALL 115 LF OF EXISTING FENCE

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**STERLING RANCH LIFT STATION AND FORCE MAIN
 DISTRICT NO. 1**

**FORCE MAIN PLAN & PROFILE
 STA. 100+00 TO STA. 110+00**

LAMP RYNEARSON - ENGINEERS

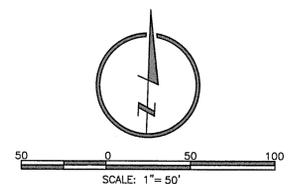
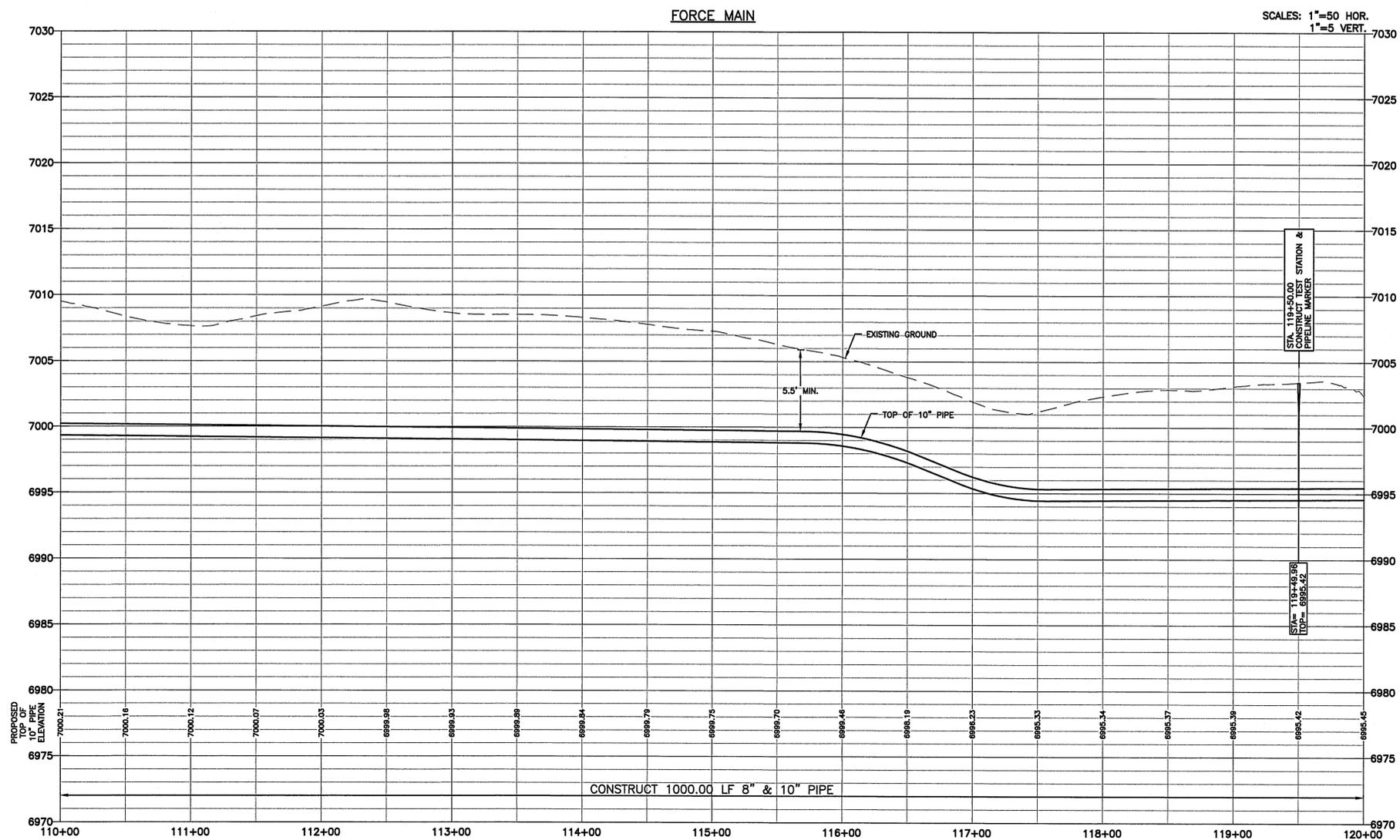
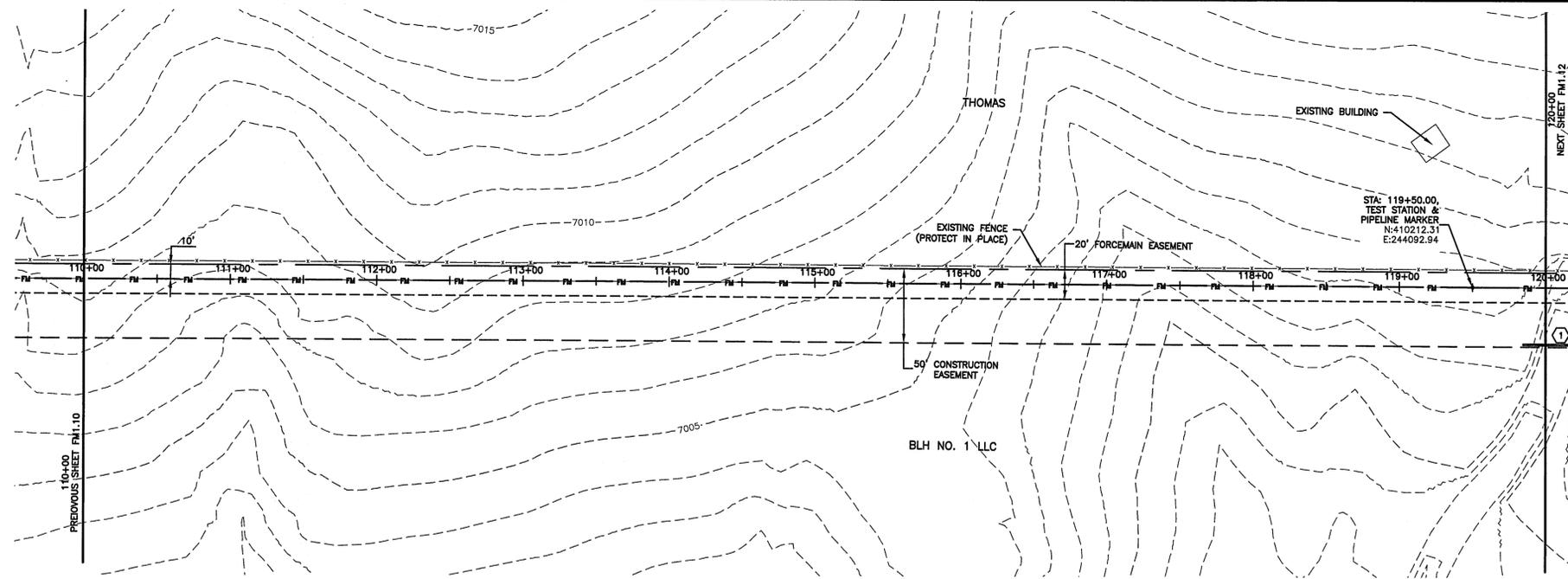


BRADLEY A. SIMONS
 34705

SHEET
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NOTES:

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KEYNOTES:

- ① SEDIMENT CONTROL LOG PER DETAIL SHEET FM2.4

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DATE	APRIL 24, 2017
JOB NUMBER-TASKS	0416011
BOOK AND PAGE	

REVISIONS

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 303.971.0070 | 303.971.0077 | F
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**STERLING RANCH LIFT STATION AND FORCE MAIN
 STERLING RANCH METROPOLITAN DISTRICT NO. 1**

**FORCE MAIN PLAN & PROFILE
 STA. 110+00 TO STA. 120+00**

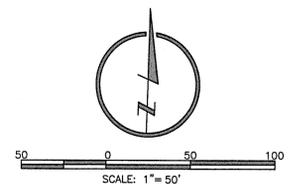
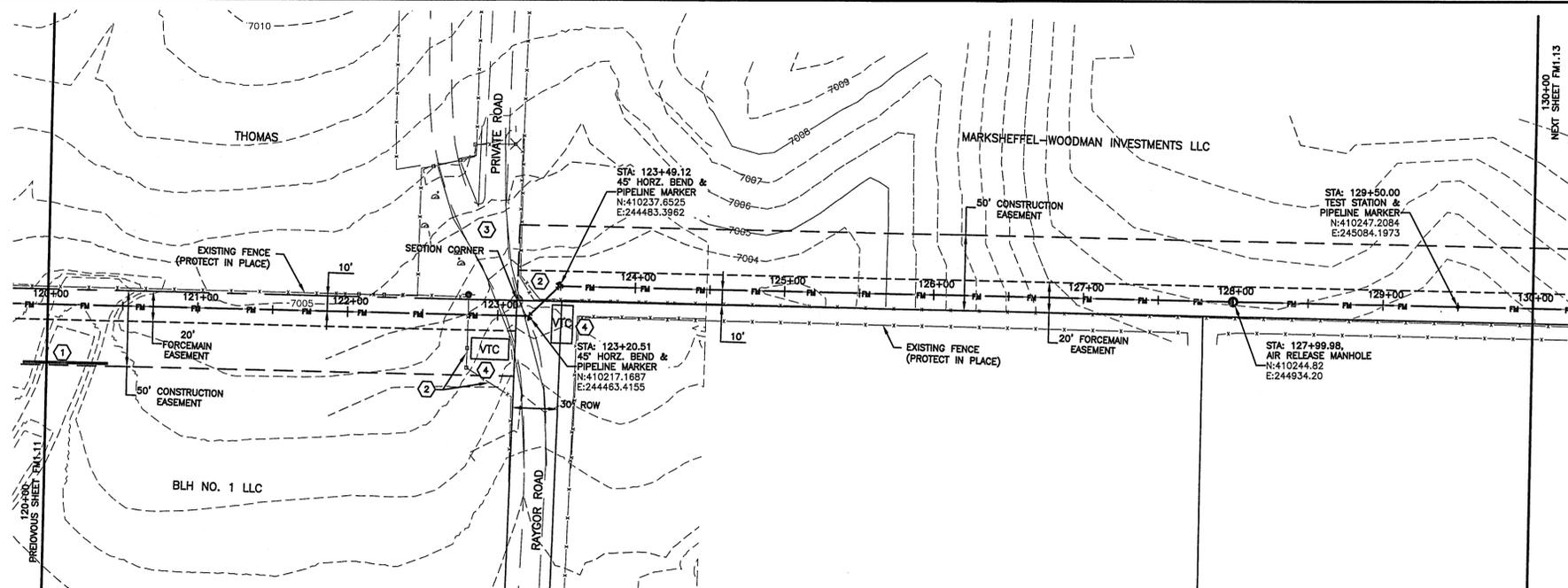
LAMP RYNEARSON - ENGINEERS

BRADLEY A. SIMONS
34705

SHEET

FM1.11

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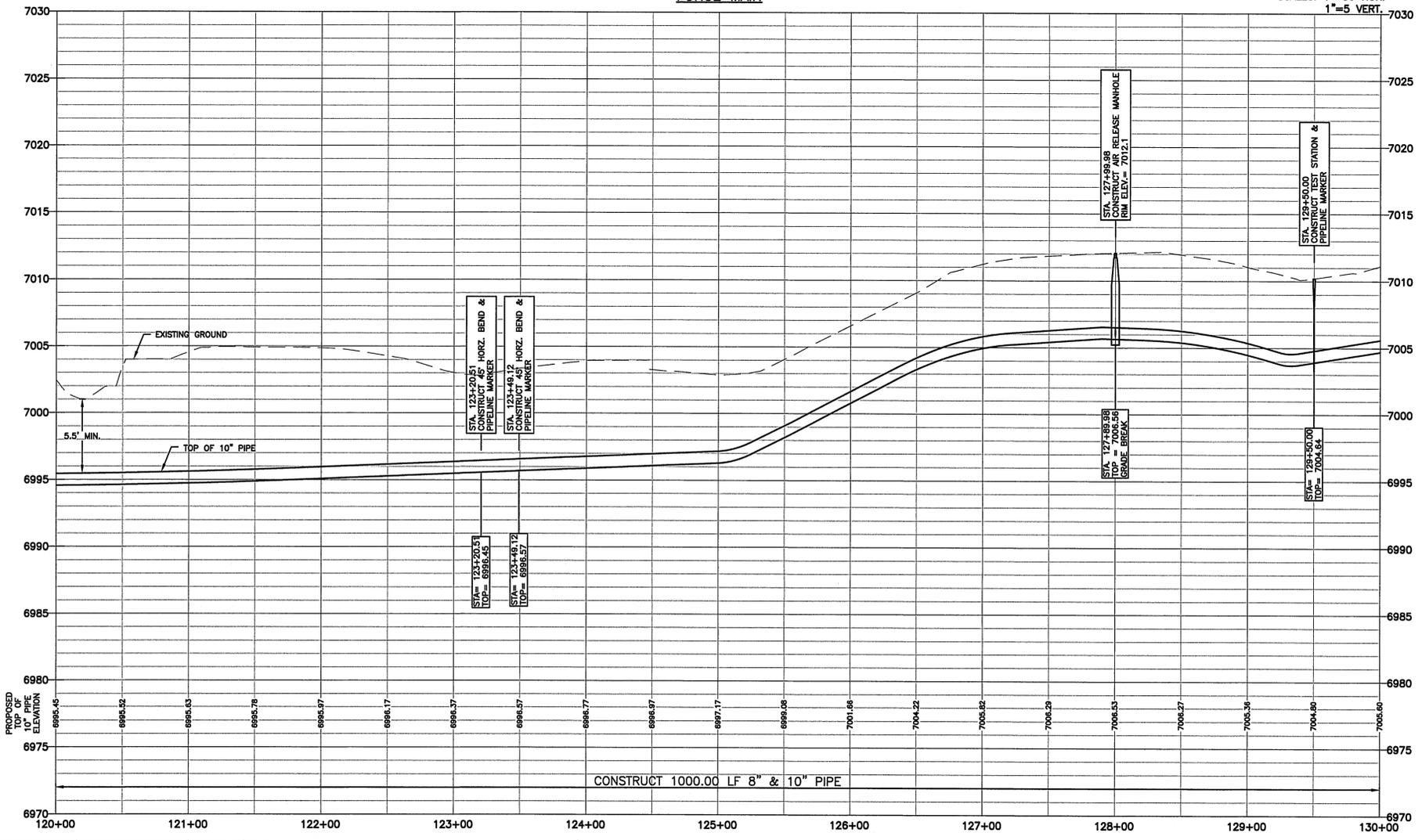
- SEE SHEET G0.2 FOR GENERAL NOTES.
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KEYNOTES:

- ① SEDIMENT CONTROL LOG PER DETAIL SHEET FM2.4
- ② REMOVE AND RE-INSTALL 115 LF OF EXISTING FENCE.
- ③ CONTRACTOR SHALL KEEP ACCESS OPEN TO ALL RESIDENTIAL LOTS AT ALL TIMES. CONTRACTOR SHALL NOTIFY AND COORDINATE ACCESS WITH ALL PROPERTY OWNERS.
- ④ VEHICLE TRACKING CONTROL PER SHEET FM2.4

FORCE MAIN

SCALES: 1"=50 HOR.
1"=5 VERT.



CONSTRUCT 1000.00 LF 8" & 10" PIPE

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**STERLING RANCH LIFT STATION AND FORCE MAIN
 STERLING RANCH METROPOLITAN DISTRICT NO. 1**

**FORCE MAIN PLAN & PROFILE
 STA. 120+00 TO STA. 130+00**

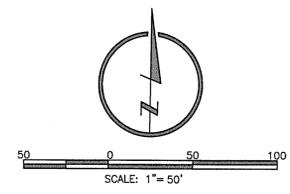
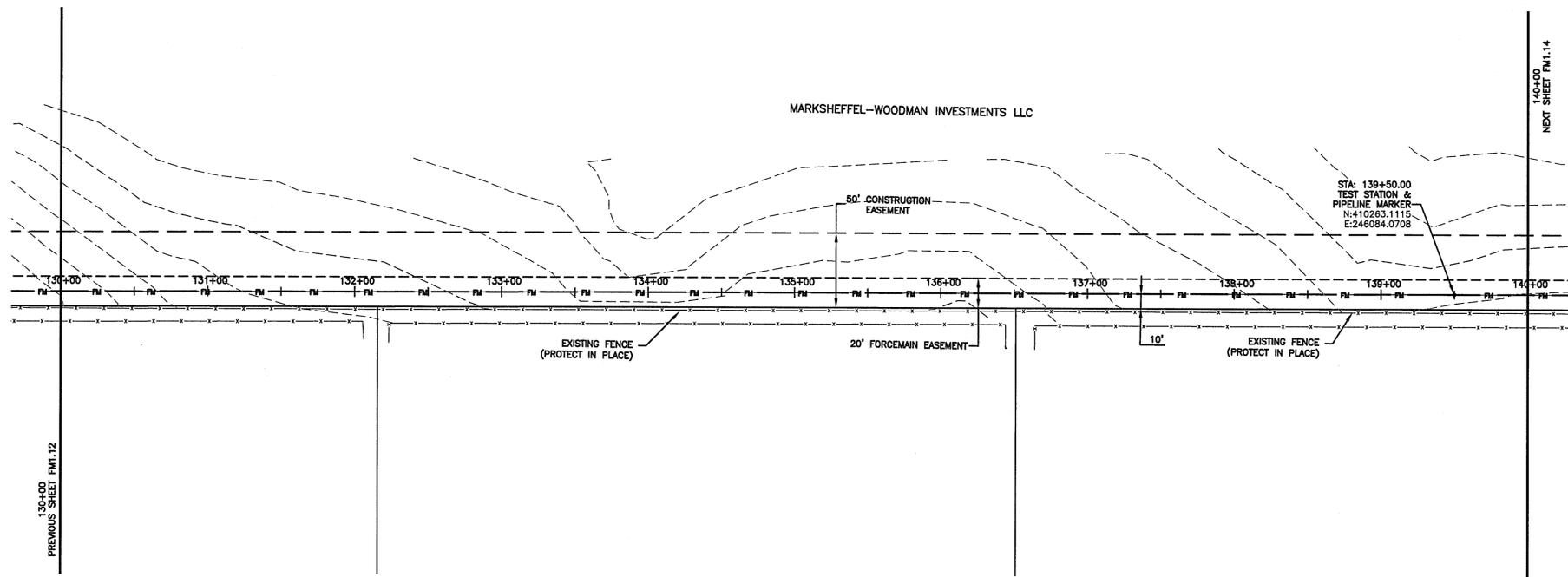
LAMP RYNEARSON - ENGINEERS

BRADLEY A. SIMONS
 34705

811
 KNOW WHAT'S BELOW
 CALL BEFORE YOU DIG

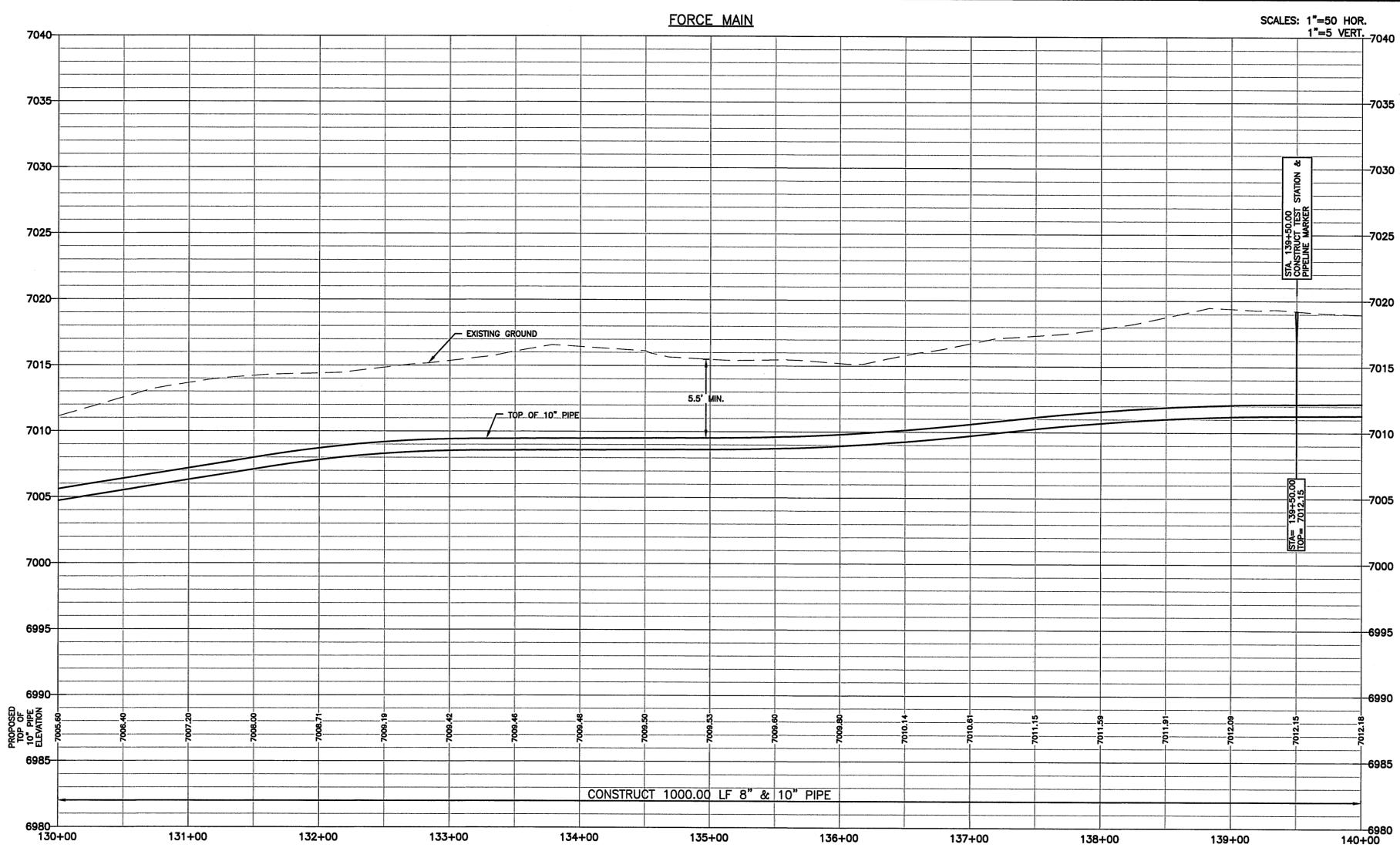
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NOTES:

1. SEE SHEET 60.2 FOR GENERAL NOTES.
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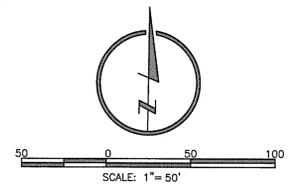
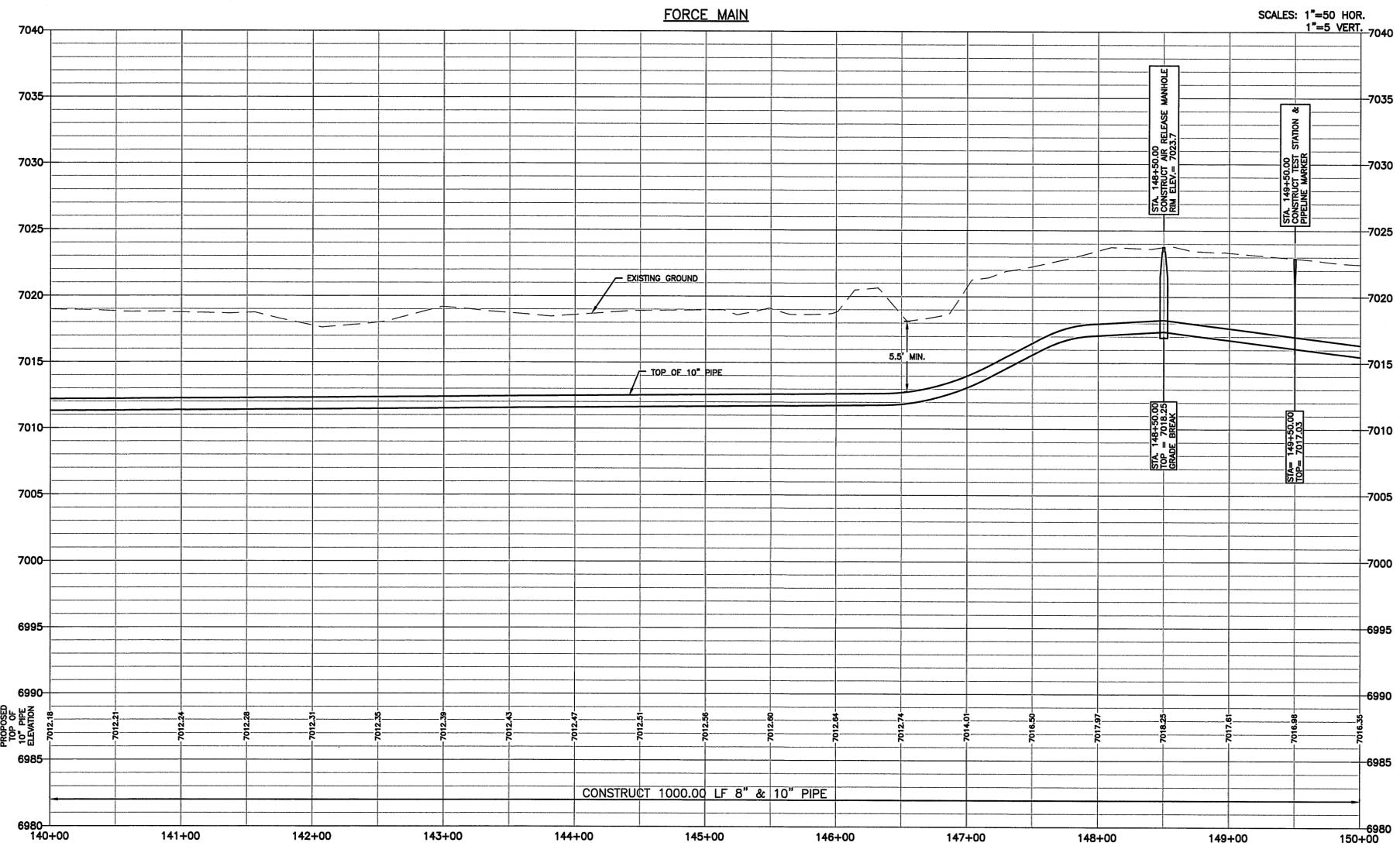
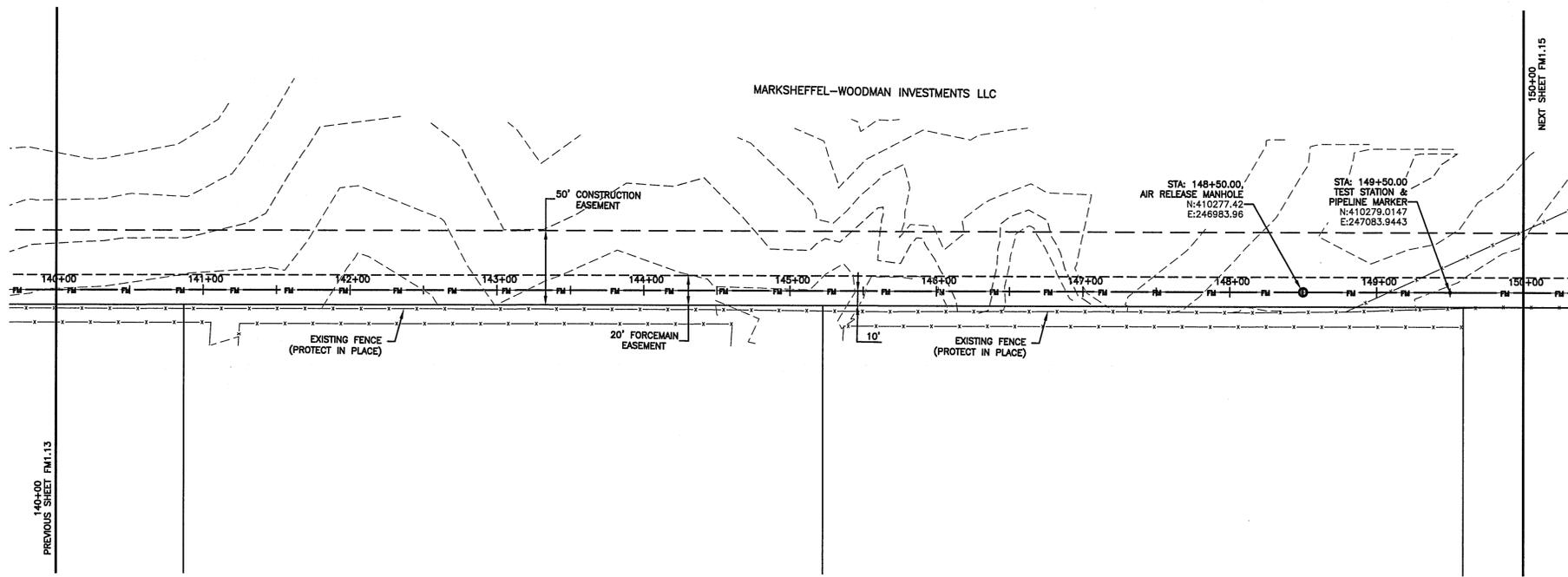
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DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER-TASKS	0418011
BOOK AND PAGE	

REVISIONS	12556 West Bayaud Avenue, Suite 350 303.971.0030 P Lakewood, Colorado 80228 303.971.0077 F LRA-INC.COM LRA@LRA.COM
LAMP RYNEARSON & ASSOCIATES 	
STERLING RANCH LIFT STATION AND FORCE MAIN STERLING RANCH METROPOLITAN DISTRICT NO. 1	

FORCE MAIN PLAN & PROFILE STA. 130+00 TO STA. 140+00	
LAMP RYNEARSON - ENGINEERS	
BRADLEY A. SIMONS 34705	
SHEET	
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NOTES:

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Lubbock, TX 79424
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**STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1**

**FORCE MAIN PLAN & PROFILE
STA. 140+00 TO STA. 150+00**

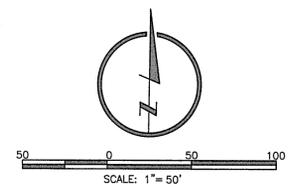
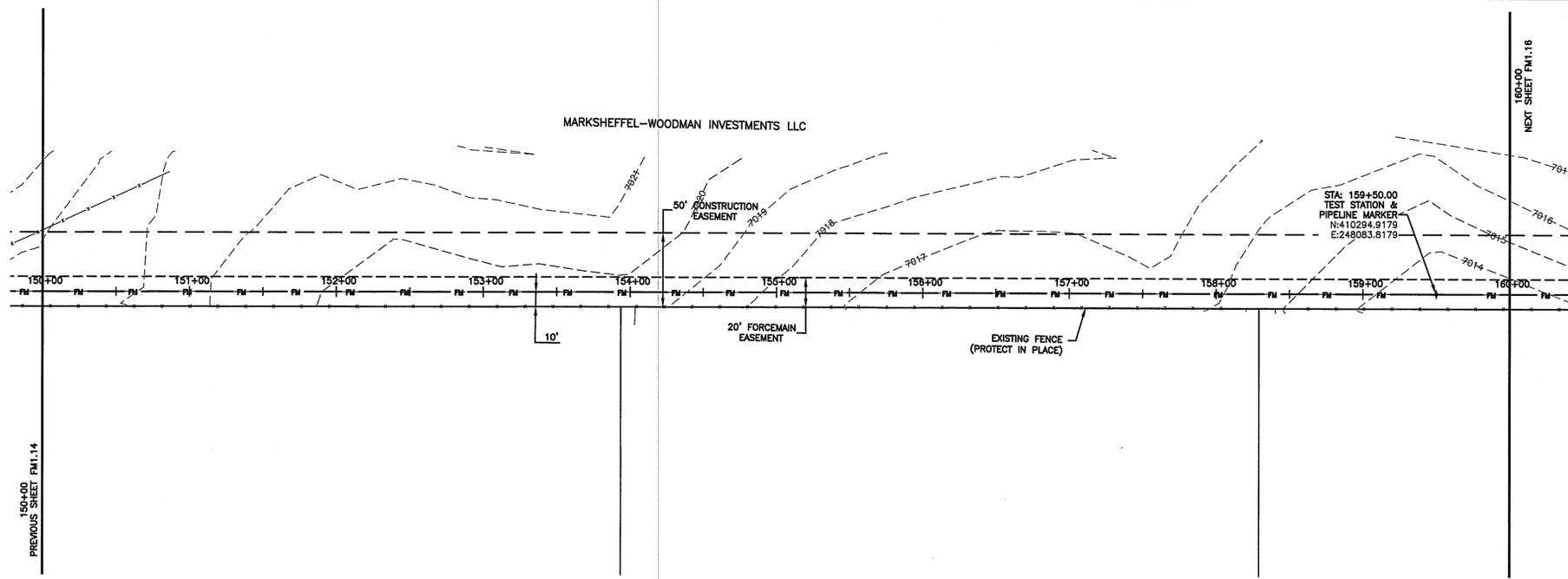
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BRADLEY A. SIMONS
34705

SHEET

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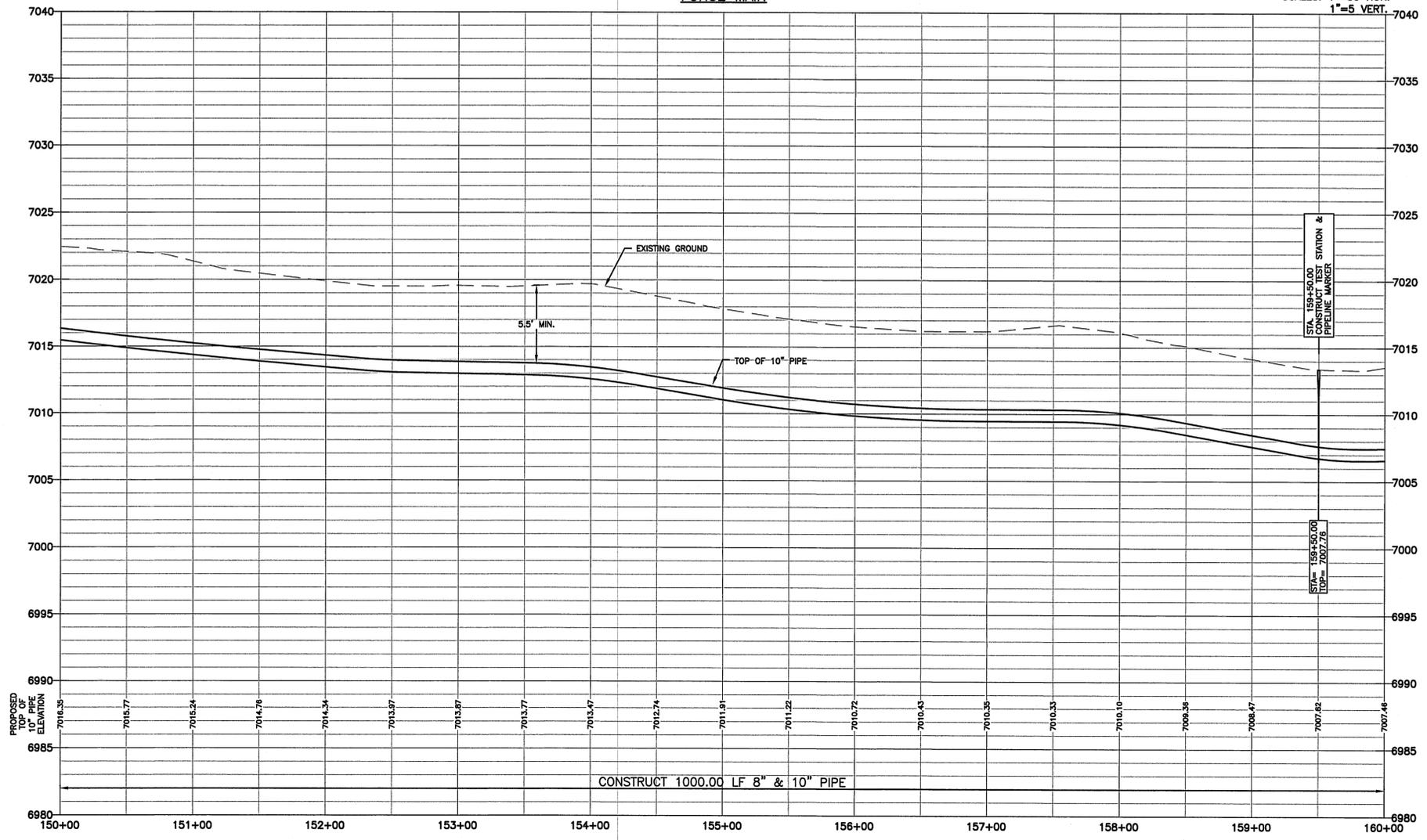


NOTES:

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FORCE MAIN

SCALES: 1"=50 HOR.
1"=5 VERT.



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JOB NUMBER/TASKS	0416011
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REVISIONS

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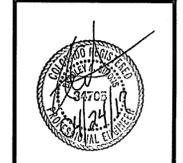
12555 West Bayaud Avenue, Suite 330
 Greenwood, Colorado 80228
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**STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1**

**FORCE MAIN PLAN & PROFILE
STA. 150+00 TO STA. 160+00**

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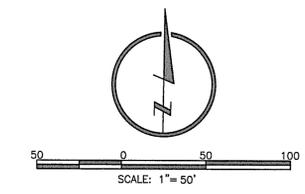
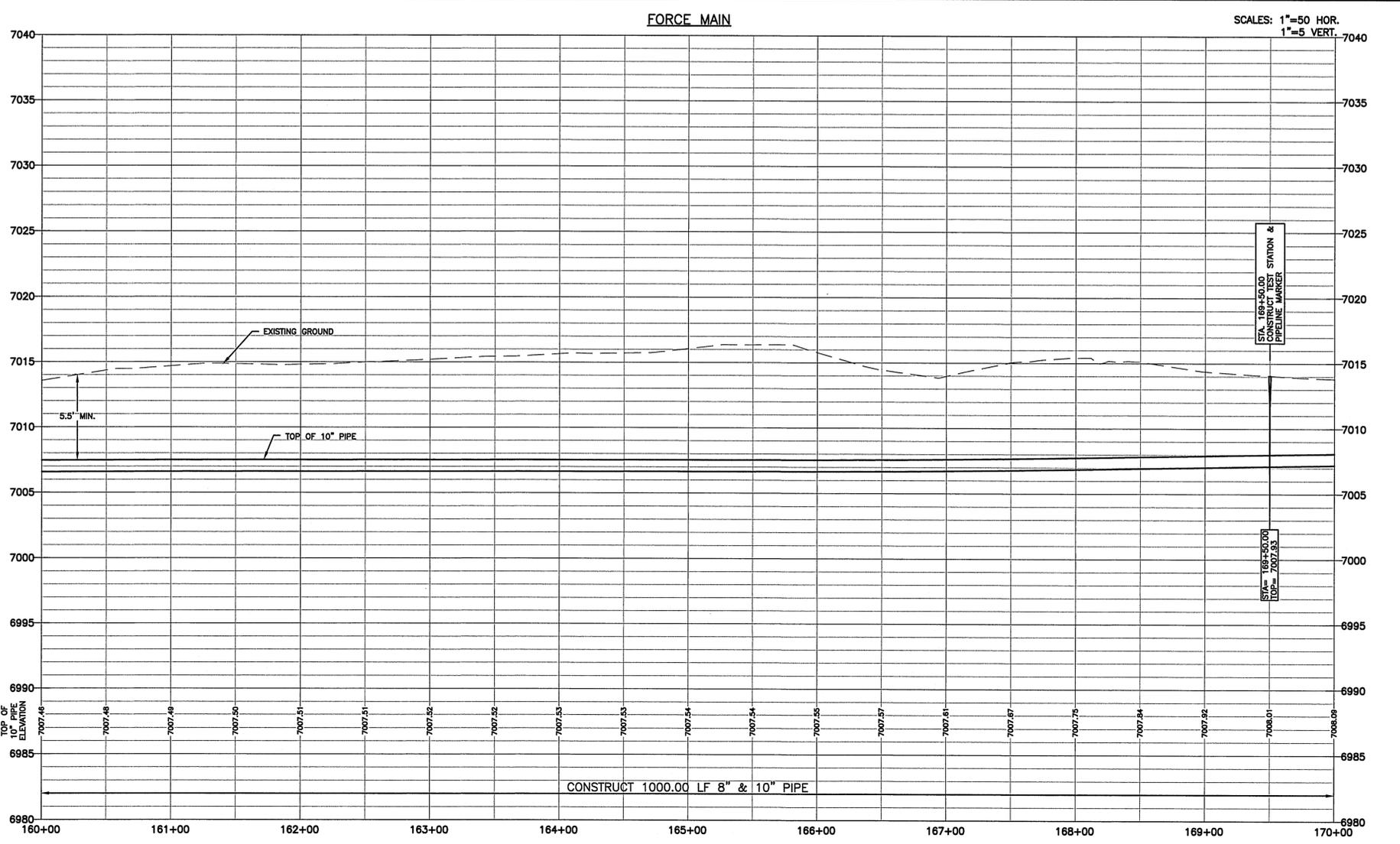
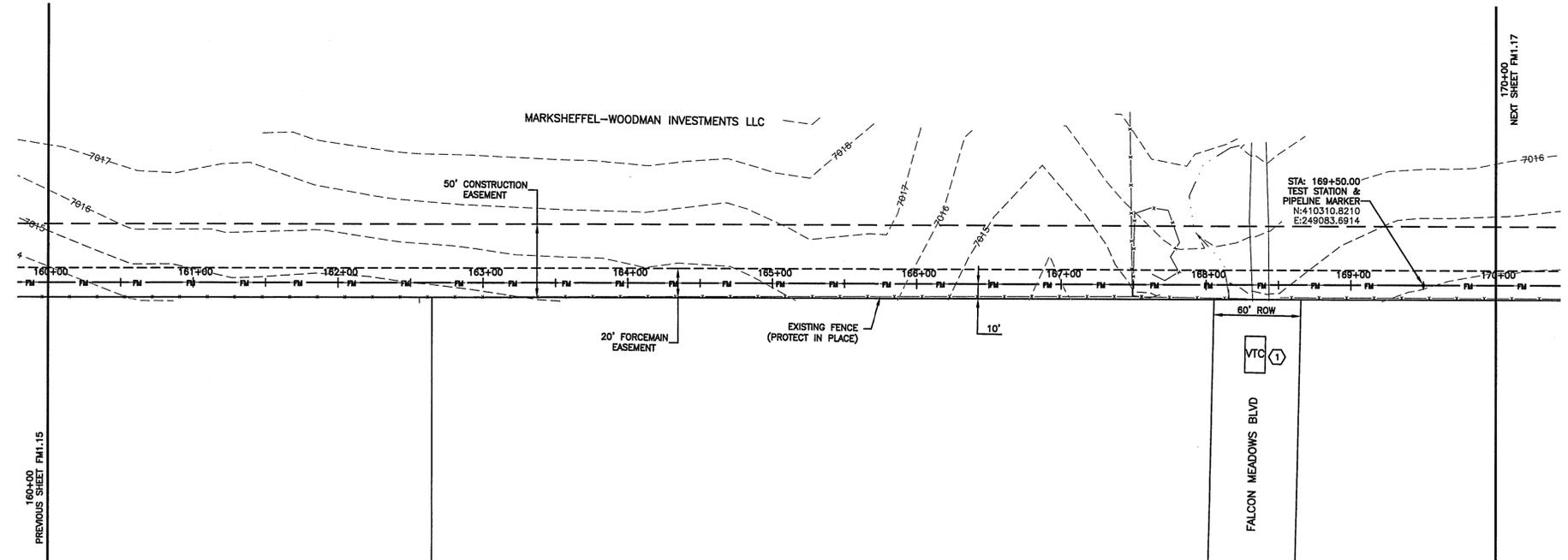


BRADLEY A. SIMONS
34705

SHEET
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KEYNOTES:

- ① VEHICLE TRACKING CONTROL PER SHEET FM2.4

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DATE	APRIL 24, 2017
JOB NUMBER-TASKS	0416011
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REFERENCES

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 12556 West Bayland Avenue, Suite 300 303.971.0077 | F
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LAMP RYNEARSON & ASSOCIATES

**STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1**

**FORCE MAIN PLAN & PROFILE
STA. 160+00 TO STA. 170+00**

LAMP RYNEARSON - ENGINEERS

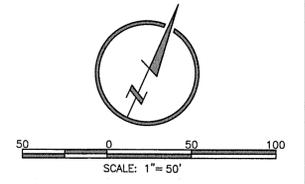
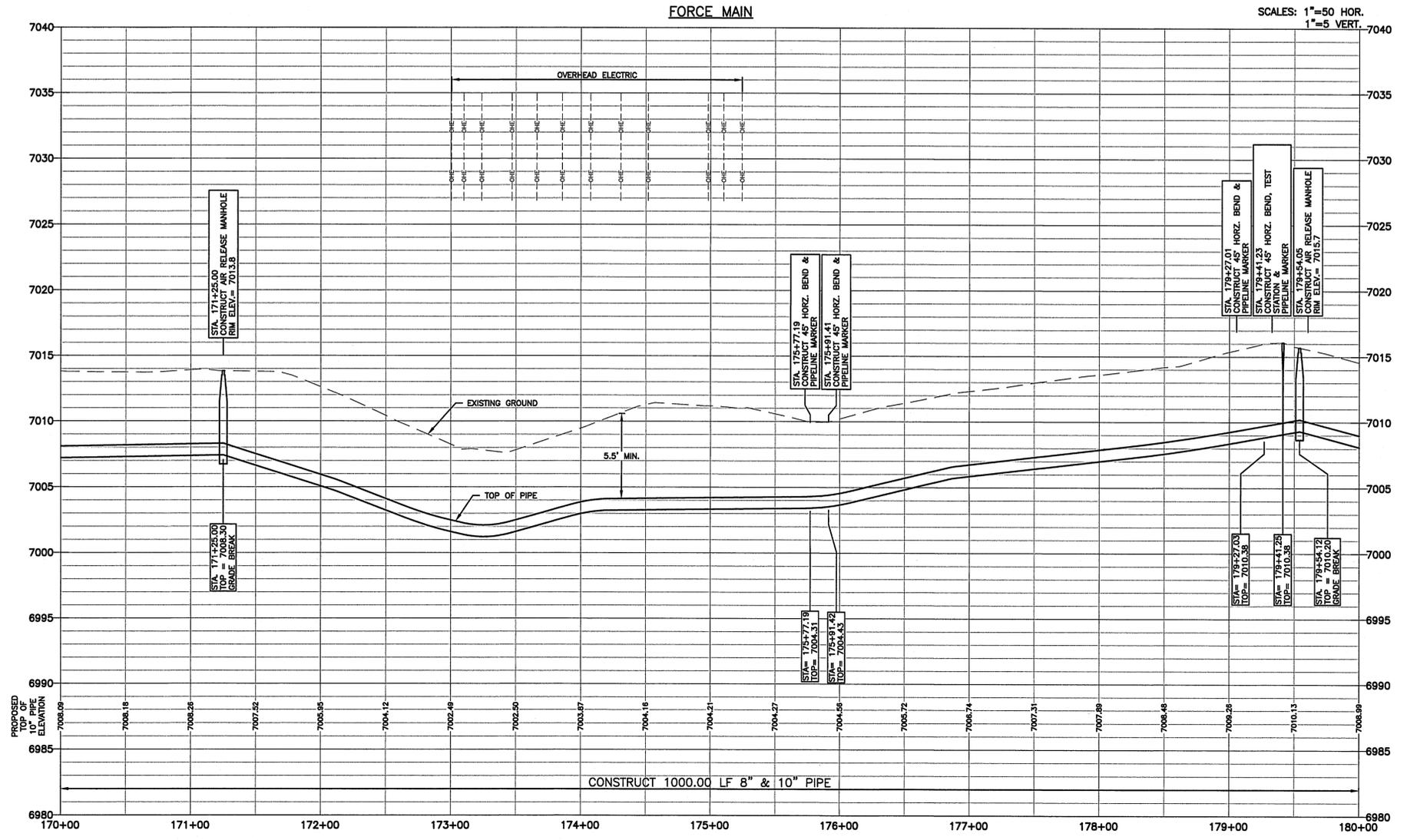
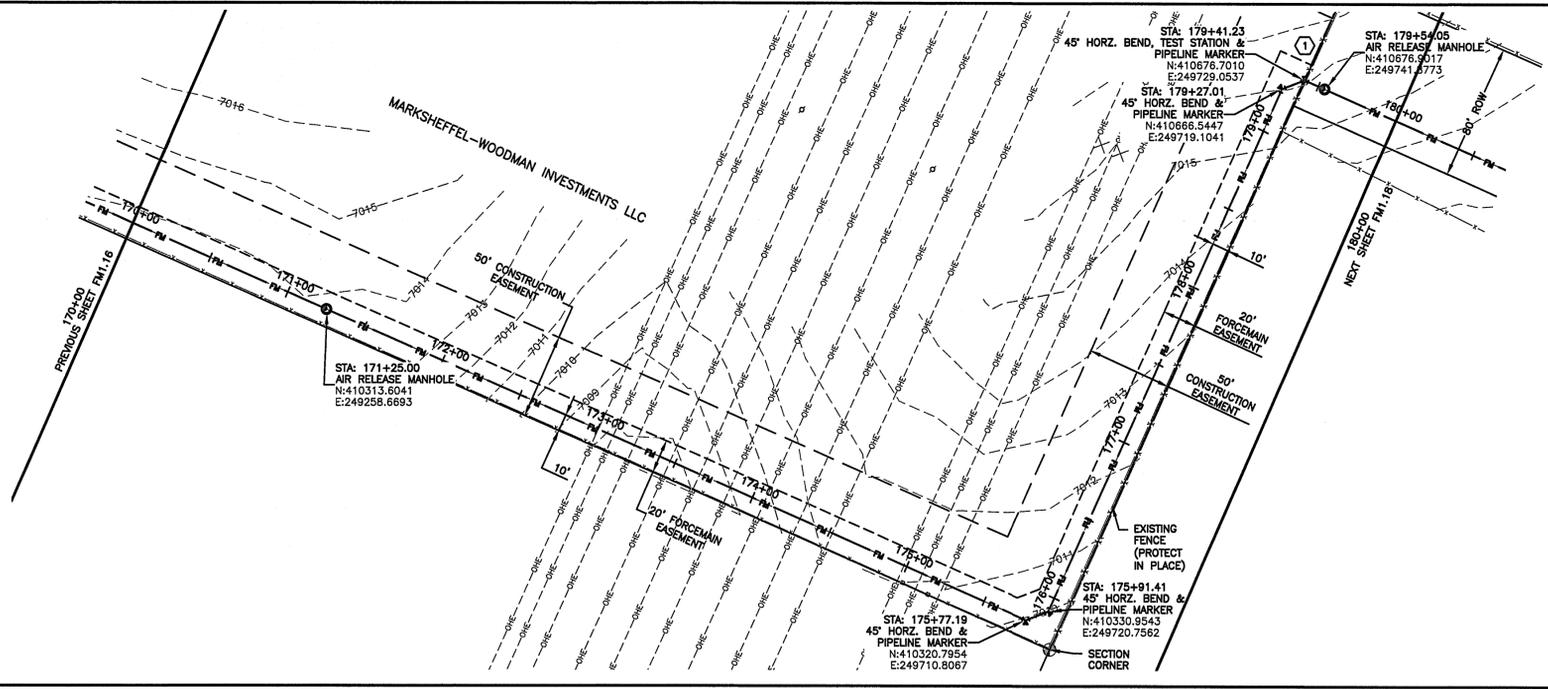
BRADLEY A. SIMONS
34705

SHEET

FM1.16

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NOTES:

- SEE SHEET 60.2 FOR GENERAL NOTES.
- STATIONING IS BASED ON THE CENTERLINE BETWEEN THE 8" AND 10" FORCE MAINS.
- CONTRACTOR SHALL INSTALL THRUST BLOCKS AT ALL HORIZONTAL AND VERTICAL BENDS PER DETAIL.
- CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES WITHIN THE AREA OF WORK 7 DAYS PRIOR TO THE START OF INSTALLATION OF THE PIPELINE. THE CONTRACTOR SHALL NOTIFY OWNER AND ENGINEER OF ANY CONFLICTS THAT ARISE AND REQUIRE REDESIGN OF ANY PORTION OF THE PROJECT. REFER TO GENERAL NOTES FOR FURTHER INFORMATION.
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- CONTRACTOR SHALL RESEED ALL AREAS DISTURBED DURING CONSTRUCTION, INCLUDING ANY SOIL AND/OR LANDSCAPING.
- CONTRACTOR SHALL PROTECT IN PLACE OR REMOVE AND REPLACE ANY SIGNS, MAILBOXES, LANDSCAPING, OR OTHER OBSTRUCTIONS DISTURBED DURING CONSTRUCTION.

KEYNOTES:

- ① REMOVE & RE-INSTALL 50 LF OF EXISTING FENCING.

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DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER/TASKS	0418011
BOOK AND PAGE	

REVISIONS

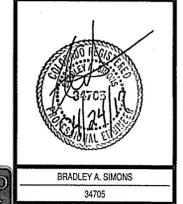
NO.	DESCRIPTION

LAMP RYNEARSON & ASSOCIATES
 12586 West Bayland Avenue, Suite 330
 Greenwood, Colorado 80228
 LRA@lra.com | lra-water.com

**STERLING RANCH LIFT STATION AND FORCE MAIN
 DISTRICT NO. 1**

**FORCE MAIN PLAN & PROFILE
 STA. 170+00 TO STA. 180+00**

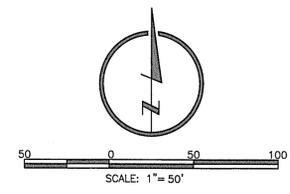
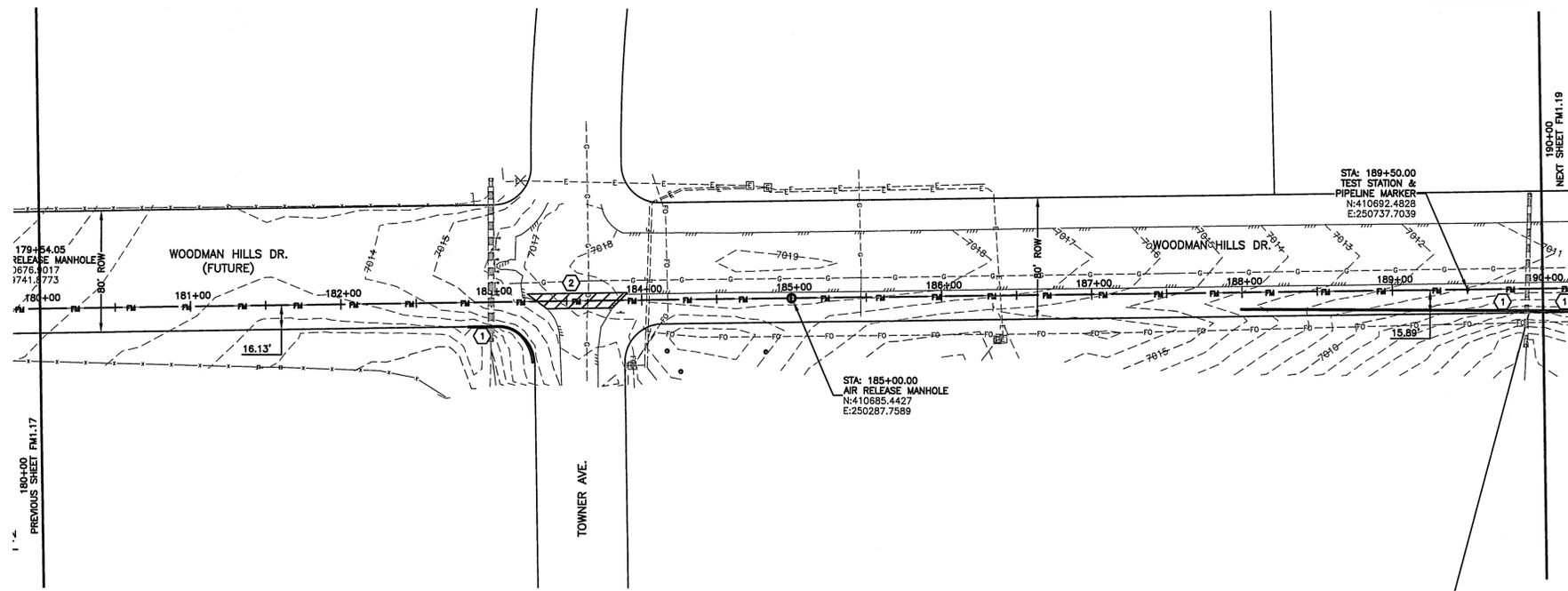
LAMP RYNEARSON - ENGINEERS



BRADLEY A. SIMONS
 34705
SHEET
FM1.17



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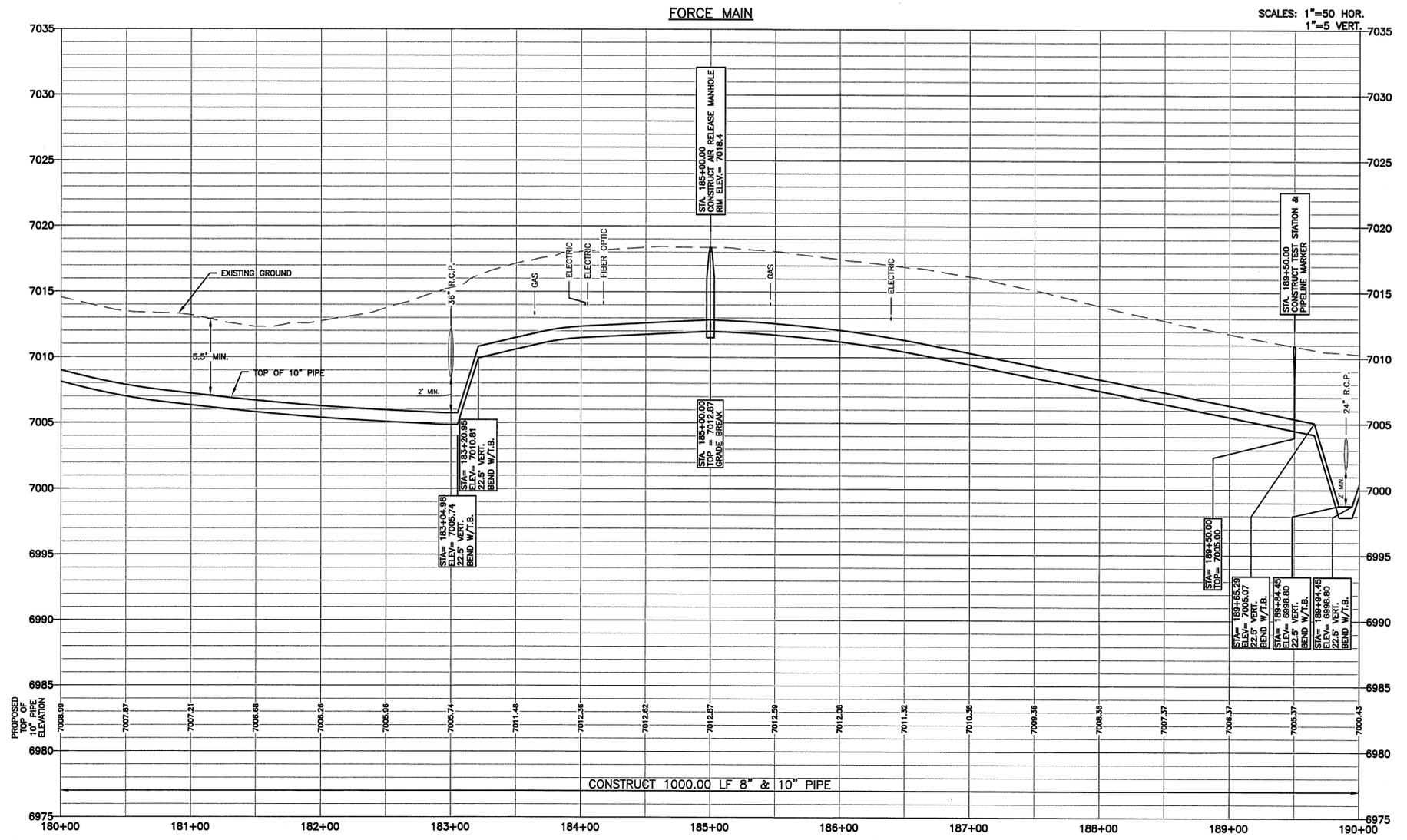


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9. CONTRACTOR SHALL RESEED ALL AREAS DISTURBED DURING CONSTRUCTION, INCLUDING ANY SOD AND/OR LANDSCAPING.

KEYNOTES:

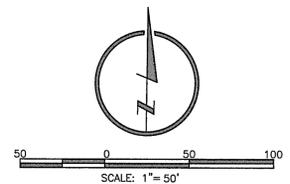
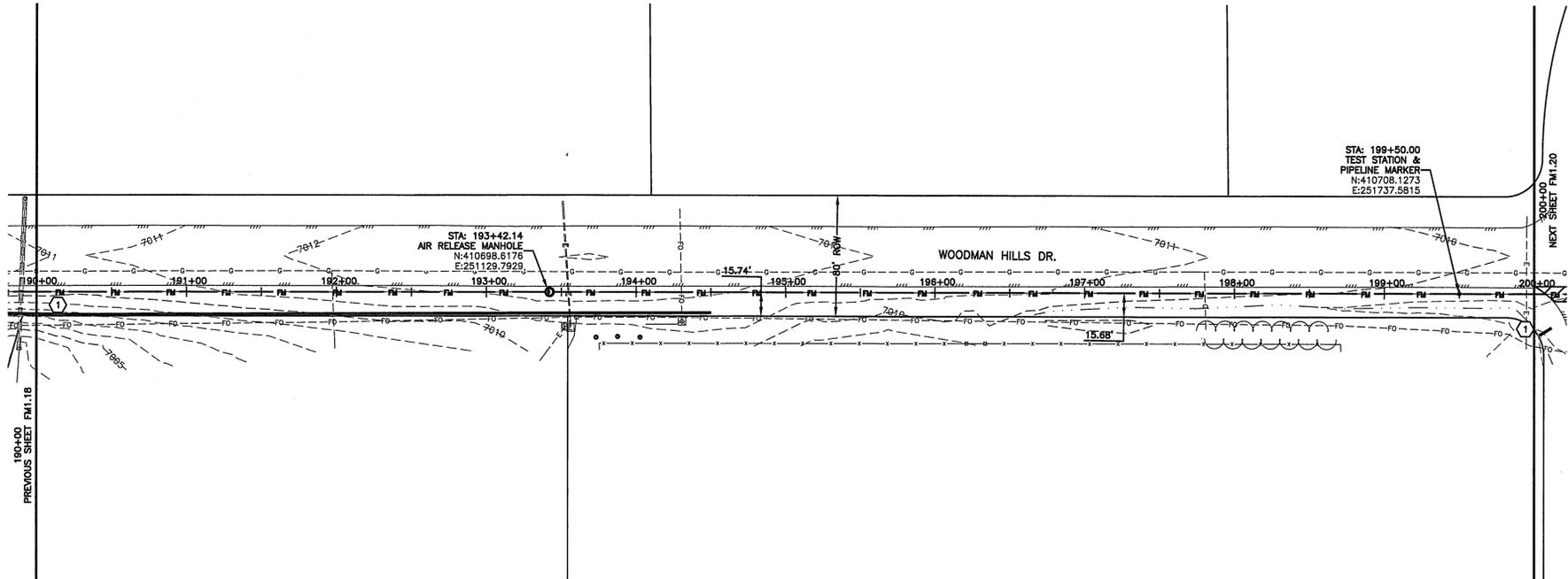
- ① SEDIMENT CONTROL LOG PER DETAIL SHEET FM2.4
- ② CONTRACTOR SHALL SAW CUT, REMOVE & REPLACE EXISTING PAVEMENT PER EL PASO COUNTY SPECIFICATIONS.



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DRAWN BY JPM DESIGNED BY JPM DATE APRIL 24, 2017 JOB NUMBER-TASKS 0416011 BOOK AND PAGE	REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">1</td> <td style="width: 85%;">12595 West Bayaud Avenue, Suite 330 Lakewood, Colorado 80228 LRA-inc.com / LRAwater.com</td> <td style="width: 10%;">303.971.0030 303.971.0077</td> </tr> </table>	1	12595 West Bayaud Avenue, Suite 330 Lakewood, Colorado 80228 LRA-inc.com / LRAwater.com	303.971.0030 303.971.0077	<p>LAMP RYNEARSON & ASSOCIATES</p> <p>STERLING RANCH LIFT STATION AND FORCE MAIN STERLING RANCH METROPOLITAN DISTRICT NO. 1</p>
1	12595 West Bayaud Avenue, Suite 330 Lakewood, Colorado 80228 LRA-inc.com / LRAwater.com	303.971.0030 303.971.0077			
<p>FORCE MAIN PLAN & PROFILE STA. 180+00 TO STA. 190+00</p>					
<p>LAMP RYNEARSON - ENGINEERS</p>					
<p>BRADLEY A. SIMONS 34705</p>					
<p>SHEET FM1.18</p>					



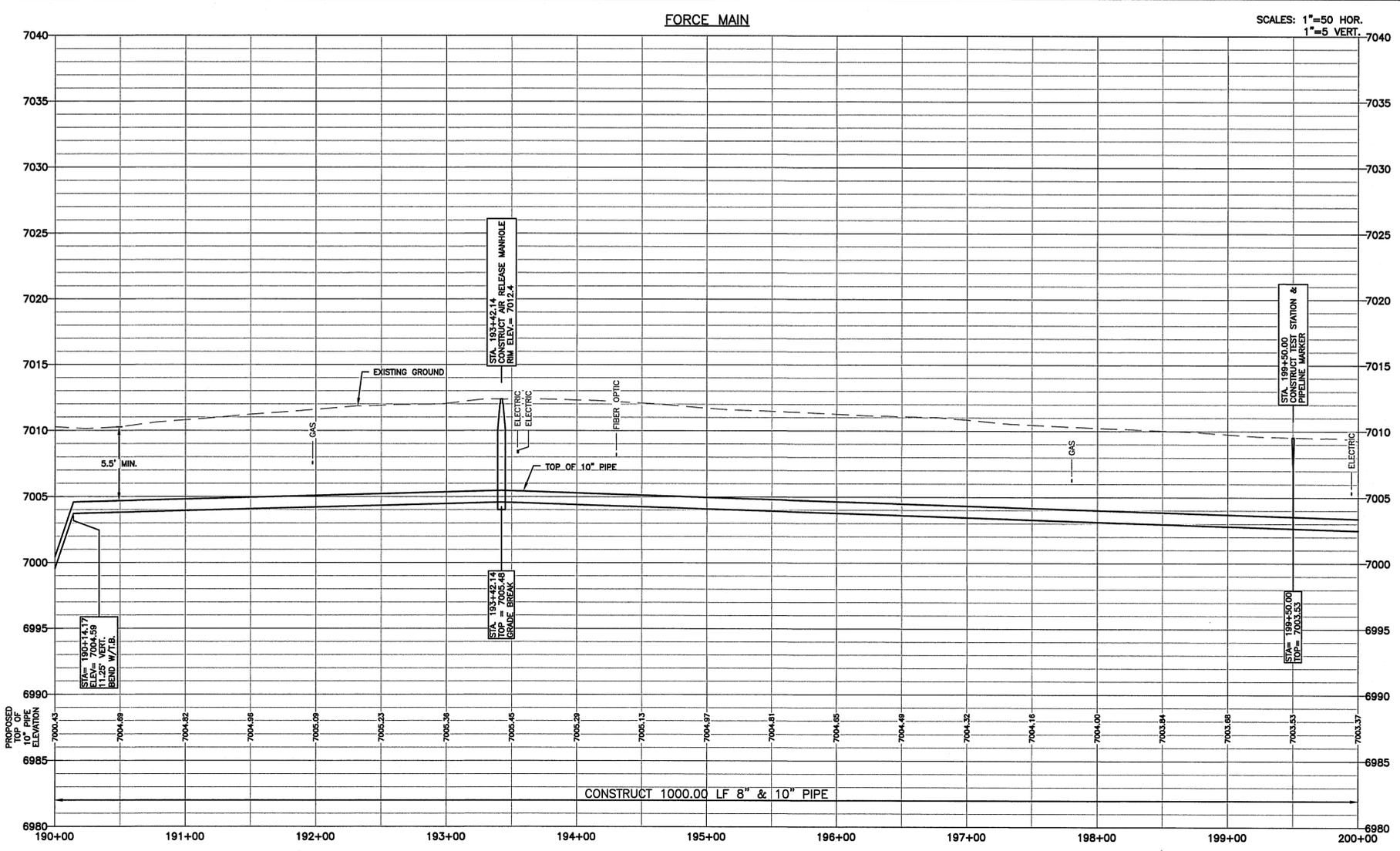


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KEYNOTES:

- ① SEDIMENT CONTROL LOG PER DETAIL SHEET FM2.4



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DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER-TASKS	0415011
BOOK AND PAGE	

REVISIONS

NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMITS	04/24/17
2	ISSUED FOR PERMITS	04/24/17

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STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

FORCE MAIN PLAN & PROFILE
STA. 190+00 TO STA. 200+00

LAMP RYNEARSON - ENGINEERS

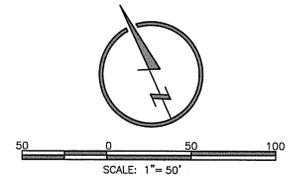
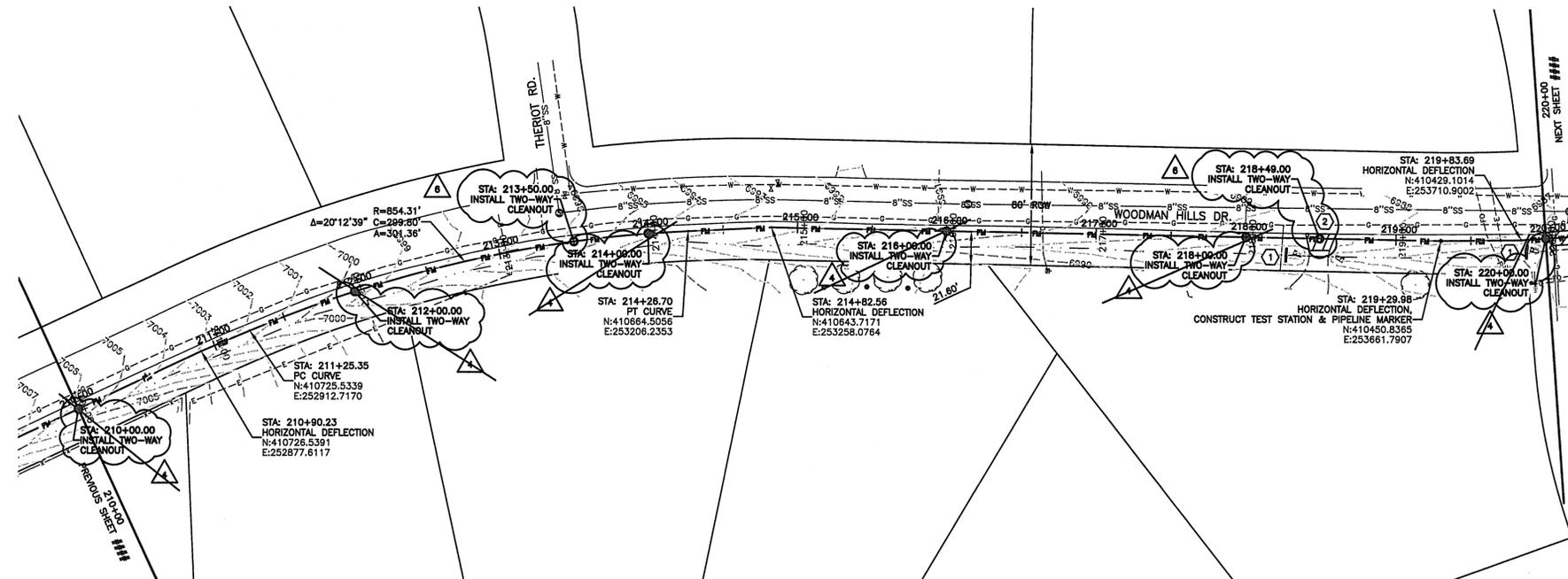


BRADLEY A. SIMONS
 94705

SHEET
FM1.19



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NOTES:

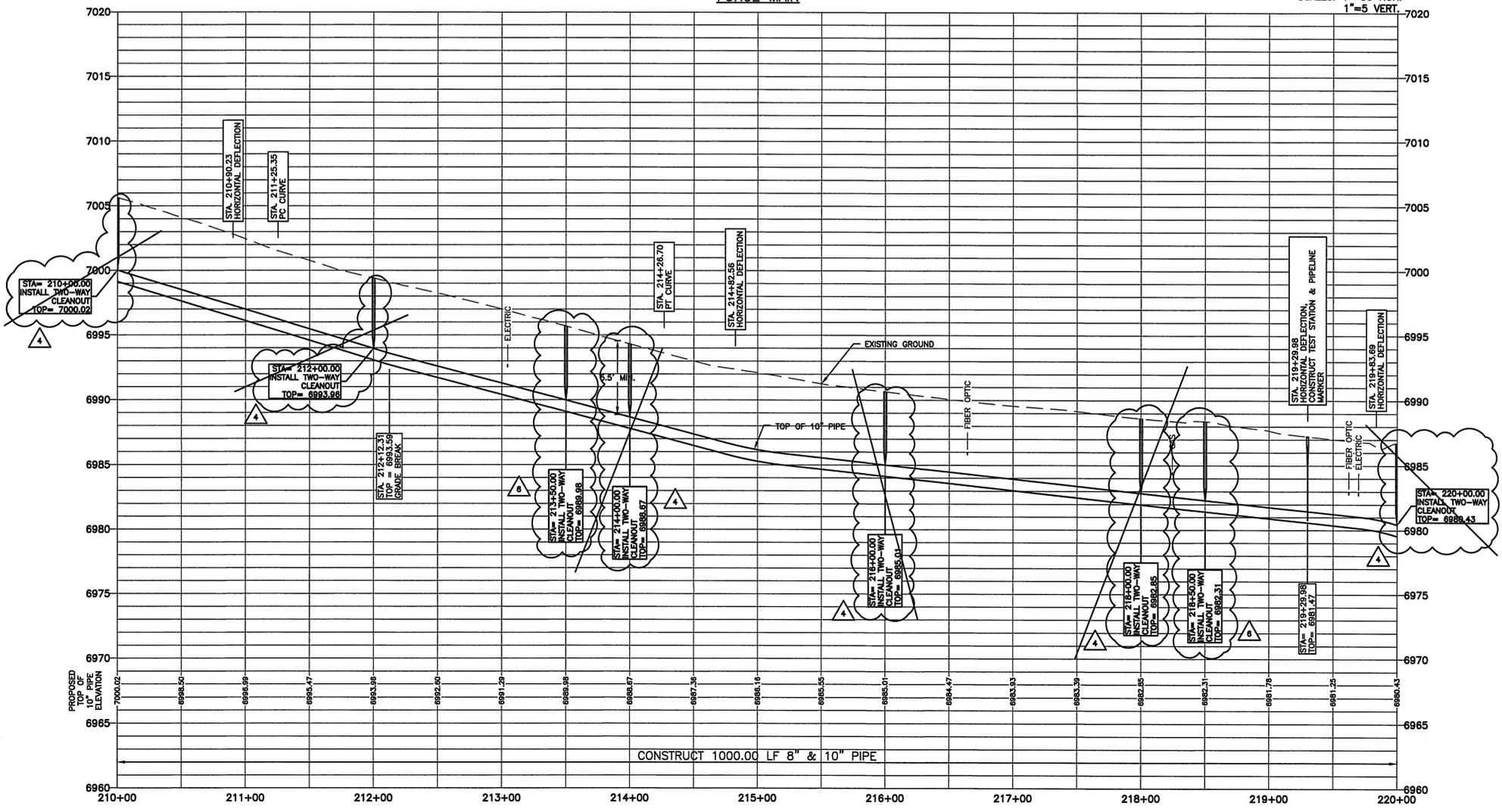
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KEYNOTES:

- ① SEDIMENT CONTROL LOG PER DETAIL SHEET FM2.4
- ② CONTRACTOR SHALL SAW CUT, REMOVE AND REPLACE EXISTING CONCRETE DRIVEWAY.

FORCE MAIN

SCALES: 1"=50 HOR.
1"=5 VERT.



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DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER-TASKS	0416011
BOOK AND PAGE	

REVISIONS

REVISION PER COMMENTS	06/07/19	FILE	303.971.0030
REVISION PER COMMENTS	07/06/19	FILE	303.971.0077
REVISION PER COMMENTS	09/29/19	FILE	

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LAMP RYNEARSON & ASSOCIATES

STERLING RANCH LIFT STATION AND FORCE MAIN
 DISTRICT NO. 1

FORCE MAIN PLAN & PROFILE
 STA. 210+00 TO STA. 220+00

LAMP RYNEARSON - ENGINEERS

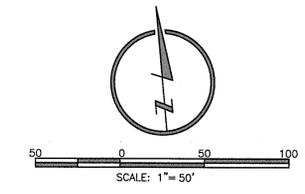
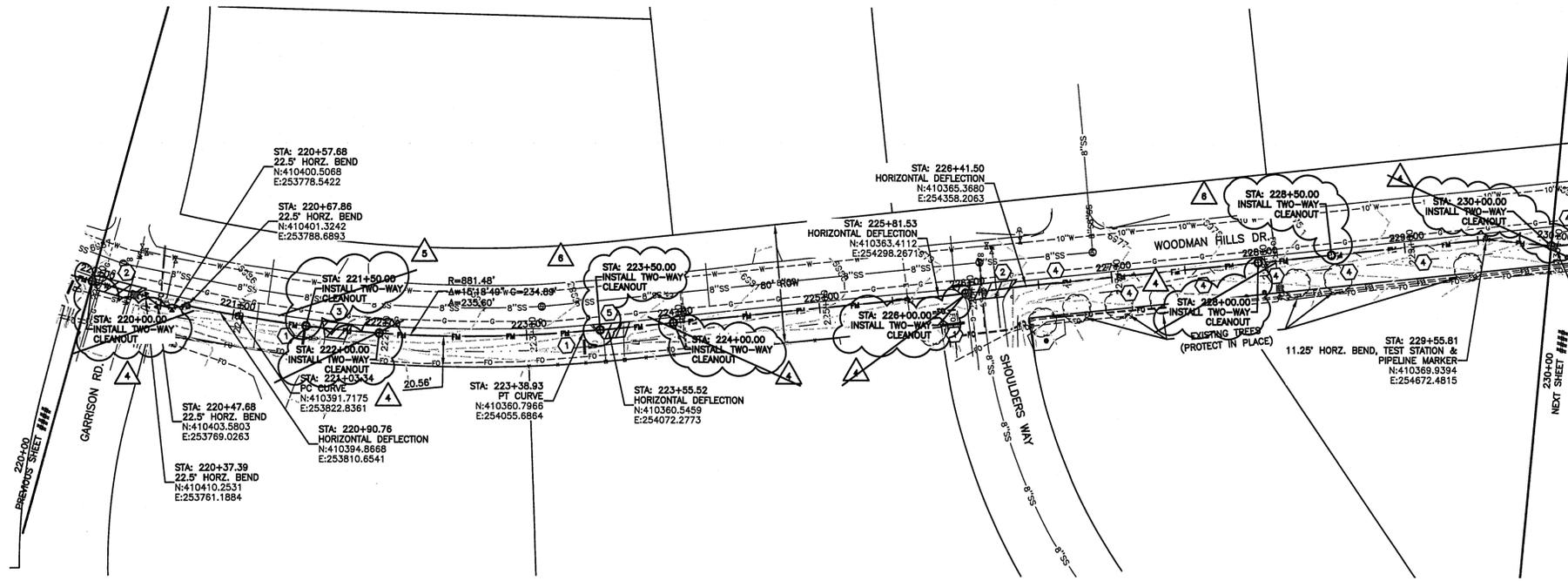


BRADLEY A. SIMONS
34705

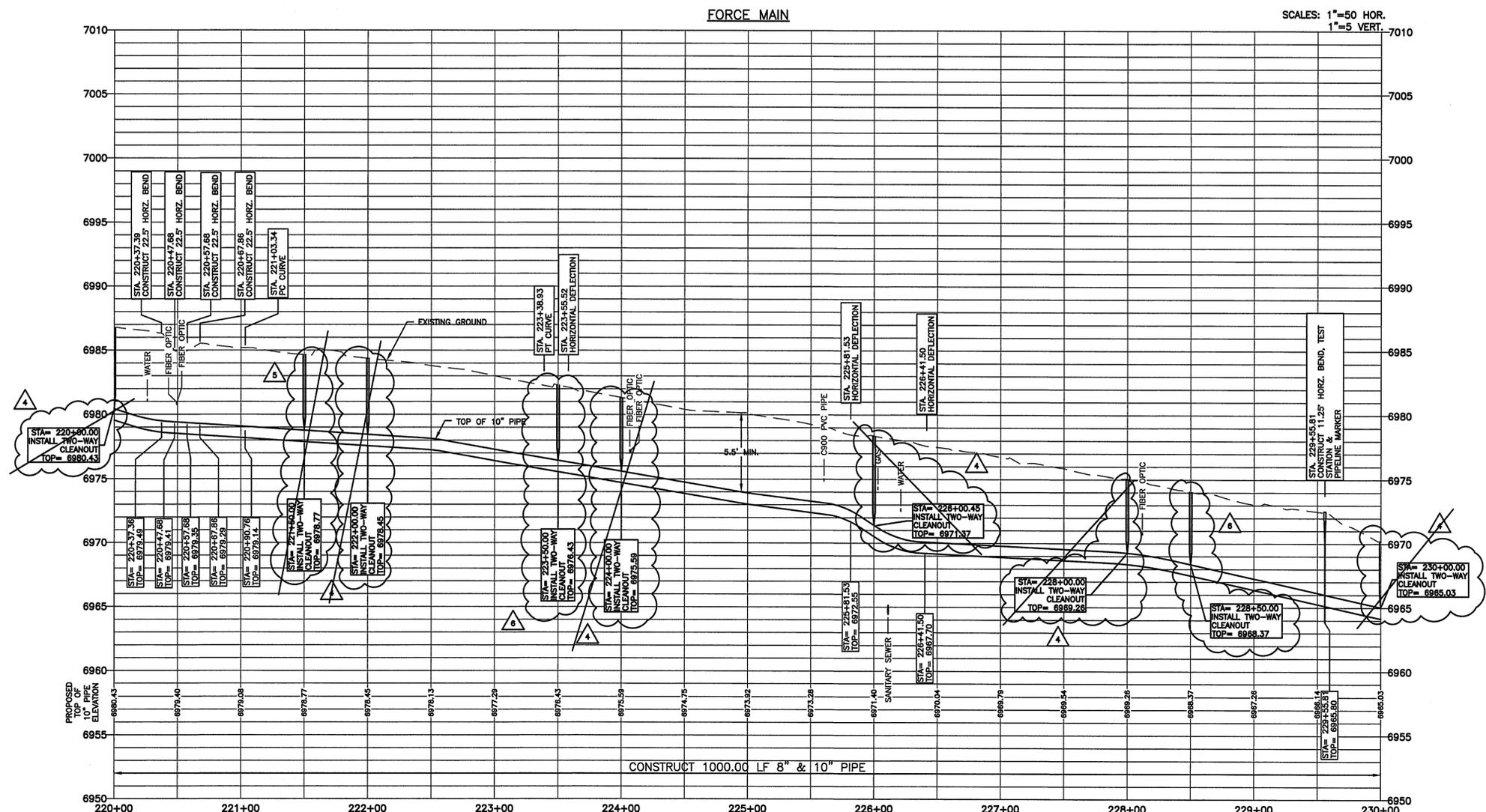
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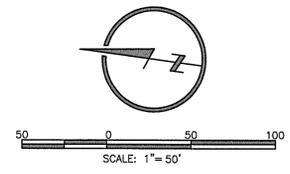
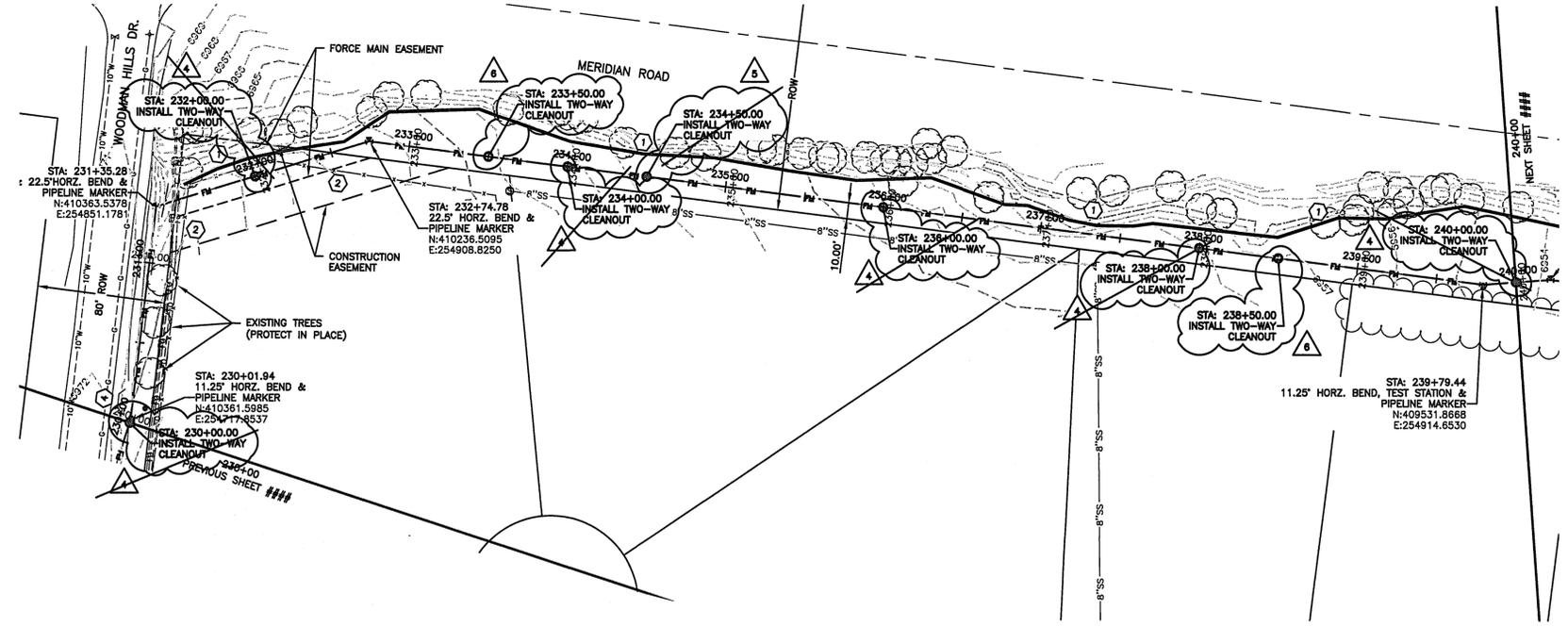
- NOTES:**
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- KEYNOTES:**
- SEDIMENT CONTROL LOG PER DETAIL SHEET FM2.4
 - CONTRACTOR SHALL SAW CUT, REMOVE & REPLACE EXISTING PAVEMENT PER EL PASO COUNTY SPECIFICATIONS.
 - CONTRACTOR SHALL SAW CUT, REMOVE AND REPLACE EXISTING CONCRETE DRIVEWAY.
 - CONTRACTOR SHALL REMOVE AND REPLACE EXISTING DECORATIVE FENCE.
 - CONTRACTOR SHALL REMOVE AND REPLACE EXISTING GRAVEL DRIVEWAY.

DRAWN BY: JPM DESIGNED BY: JPM DATE: APRIL 24, 2017 JOB NUMBER-TASKS: 0418011 BOOK AND PAGE:	REVISIONS: 1. REVISED PER COMMENTS - 06/07/19 2. REVISED PER COMMENTS - 07/09/19 3. REVISED PER COMMENTS - 08/26/19	10506 West Broadway Avenue, Suite 330 Lakewood, Colorado 80228 LRA-inc.com / tsa@water.com	LAMP RYNEARSON & ASSOCIATES STERLING RANCH LIFT STATION AND FORCE MAIN DISTRICT NO. 1
FORCE MAIN PLAN & PROFILE STA. 220+00 TO STA. 230+00		LAMP RYNEARSON - ENGINEERS	
BRADLEY A. SIMONS 34705		811 KNOW WHAT'S BELOW CALL BEFORE YOU DIG	
SHEET FM1.22			

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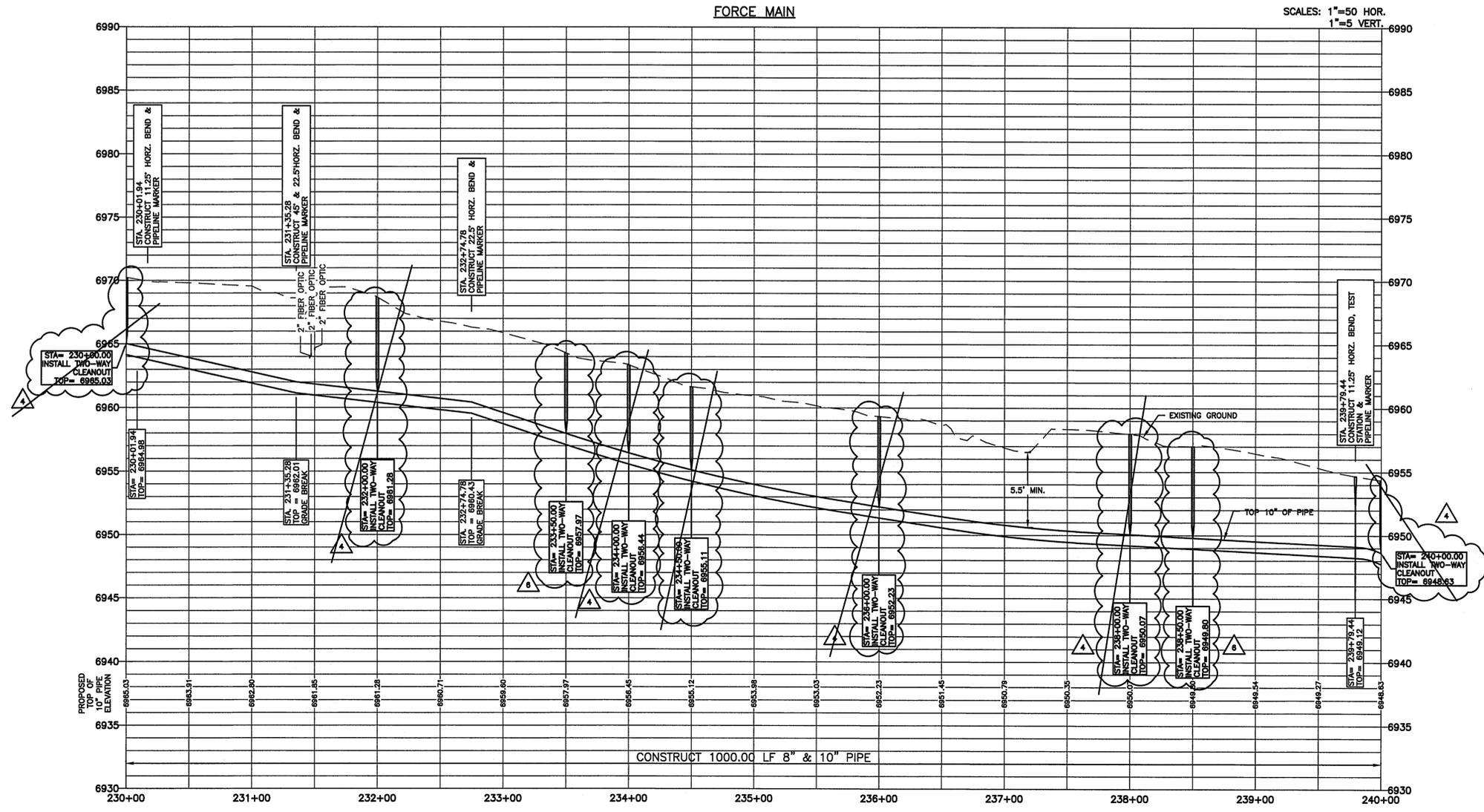


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KEYNOTES:

- SEDIMENT CONTROL LOG PER DETAIL SHEET FM2.4
- REMOVE AND REPLACE 180 L.F. OF EXISTING FENCE.
- NOT USED.
- CONTRACTOR SHALL REMOVE AND RE-INSTALL EXISTING DECORATIVE FENCE.



FORCE MAIN

SCALES: 1"=50 HOR.
1"=5 VERT.

CONSTRUCT 1000.00 LF 8" & 10" PIPE

DRAWN BY	JPM
DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER/TASKS	0418011
BOOK AND PAGE	

REVISIONS

REVISION	DESCRIPTION
1	REVISION PER COMMENTS - 06/07/19
2	REVISION PER COMMENTS - 07/02/19
3	REVISION PER COMMENTS - 09/29/19

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 Greenwood, Colorado 80228
 L&A-INC.COM / 724-WATER.COM

LAMP RYNEARSON & ASSOCIATES

STERLING RANCH LIFT STATION AND FORCE MAIN
 DISTRICT NO. 1

FORCE MAIN PLAN & PROFILE
 STA. 230+00 TO STA. 240+00

LAMP RYNEARSON - ENGINEERS

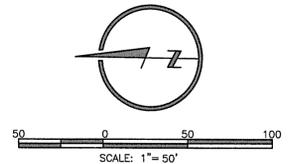
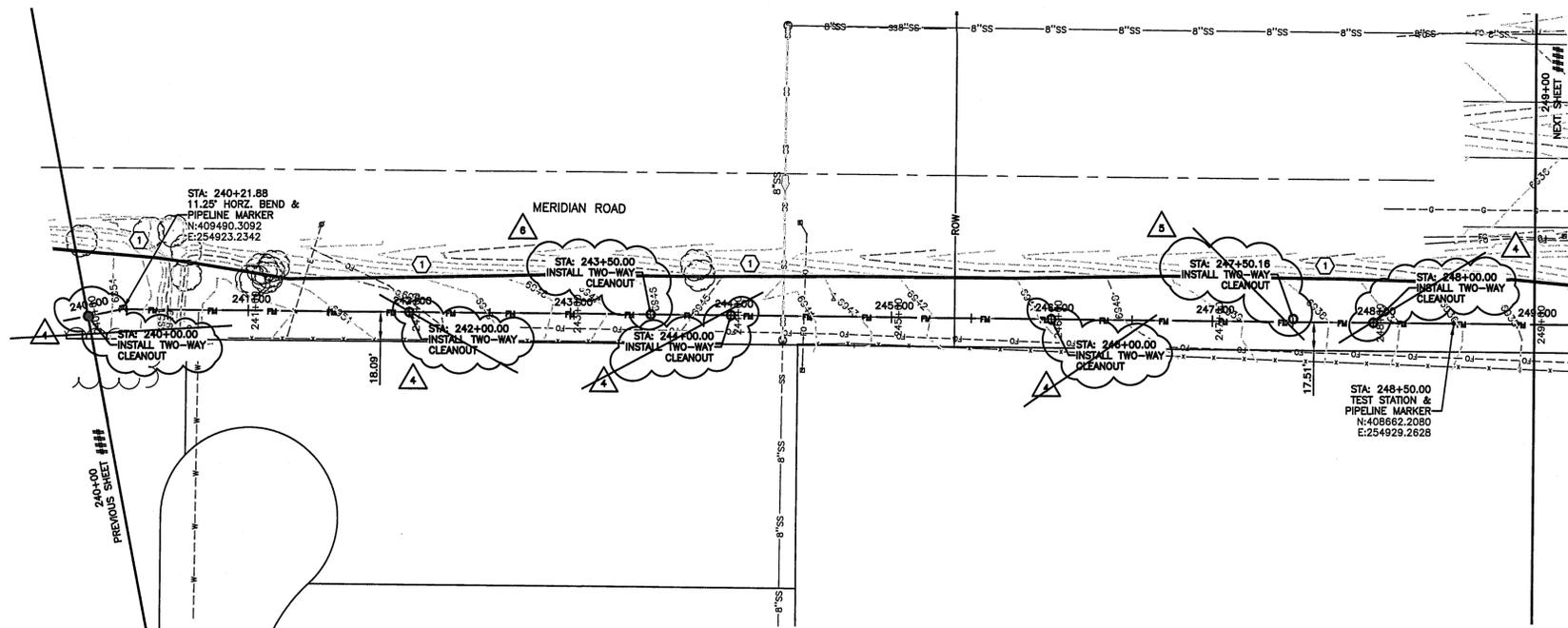


BRADLEY A. SIMONS
 34705

SHEET
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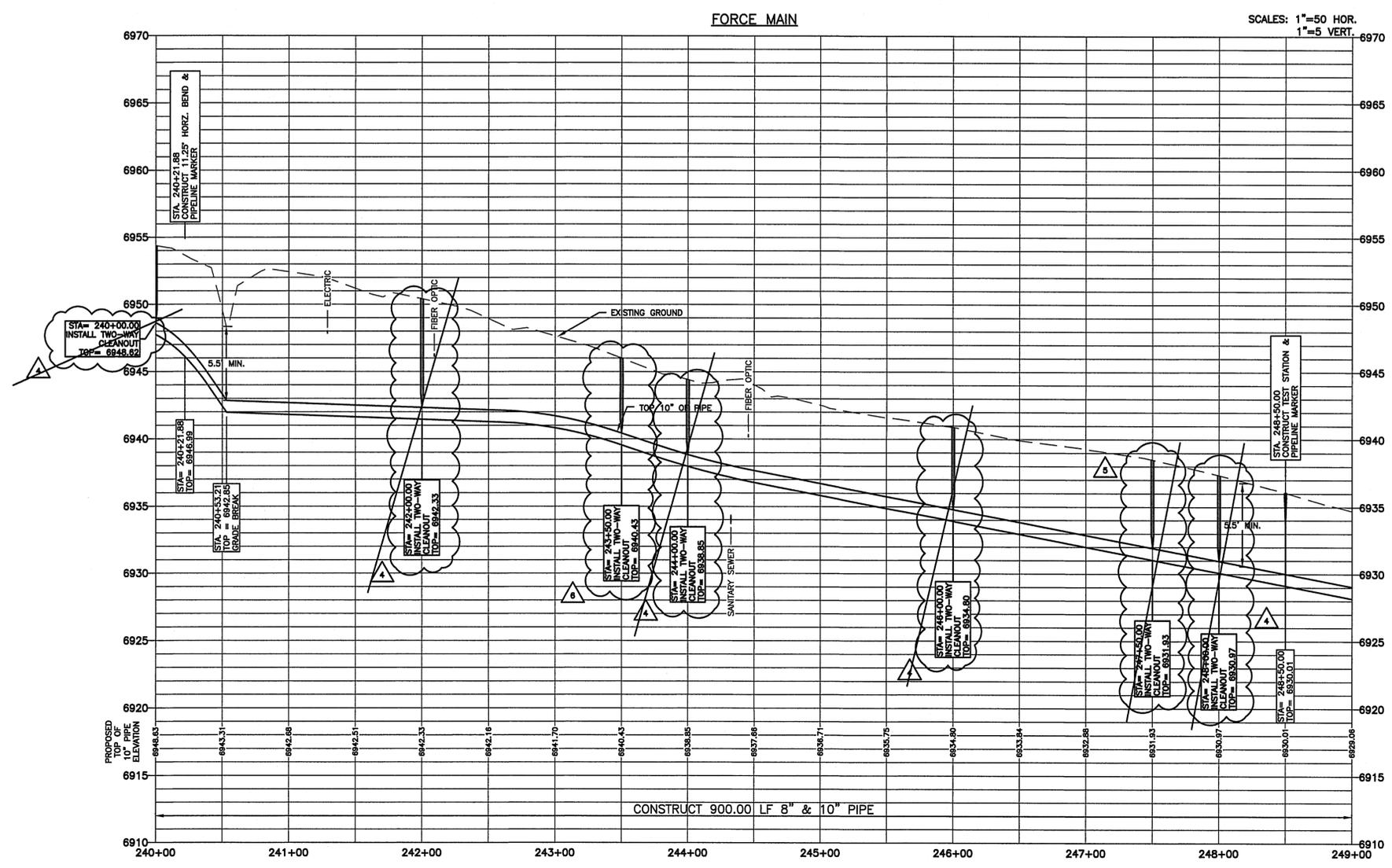


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KEYNOTES:

- ① SEDIMENT CONTROL LOG PER DETAIL SHEET FM2.4



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DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER-TASKS	0416011
BOOK AND PAGE	

REVISED PER COMMENTS	06/07/19
REVISED PER COMMENTS	07/02/19
REVISED PER COMMENTS	09/28/19

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 Lakewood, Colorado 80228
 LRA, Inc. / lra@lra.com / lra@water.com

STERLING RANCH LIFT STATION AND FORCE MAIN DISTRICT NO. 1

FORCE MAIN PLAN & PROFILE
 STA. 240+00 TO STA. 250+00

LAMP RYNEARSON - ENGINEERS

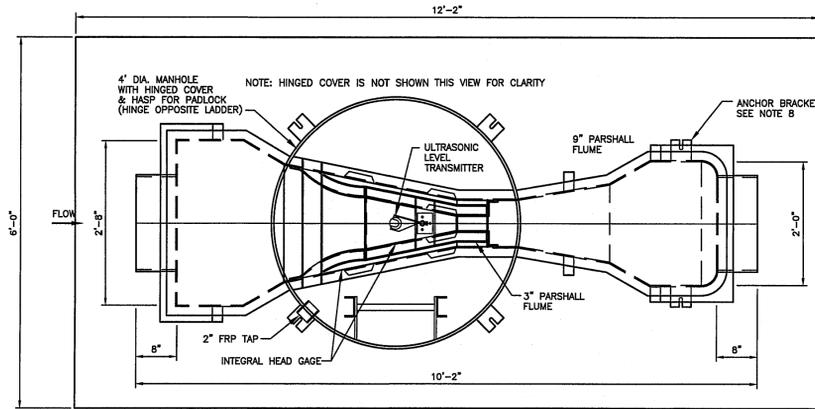


BRADLEY A. SIMONS
34705

SHEET
FM1.24

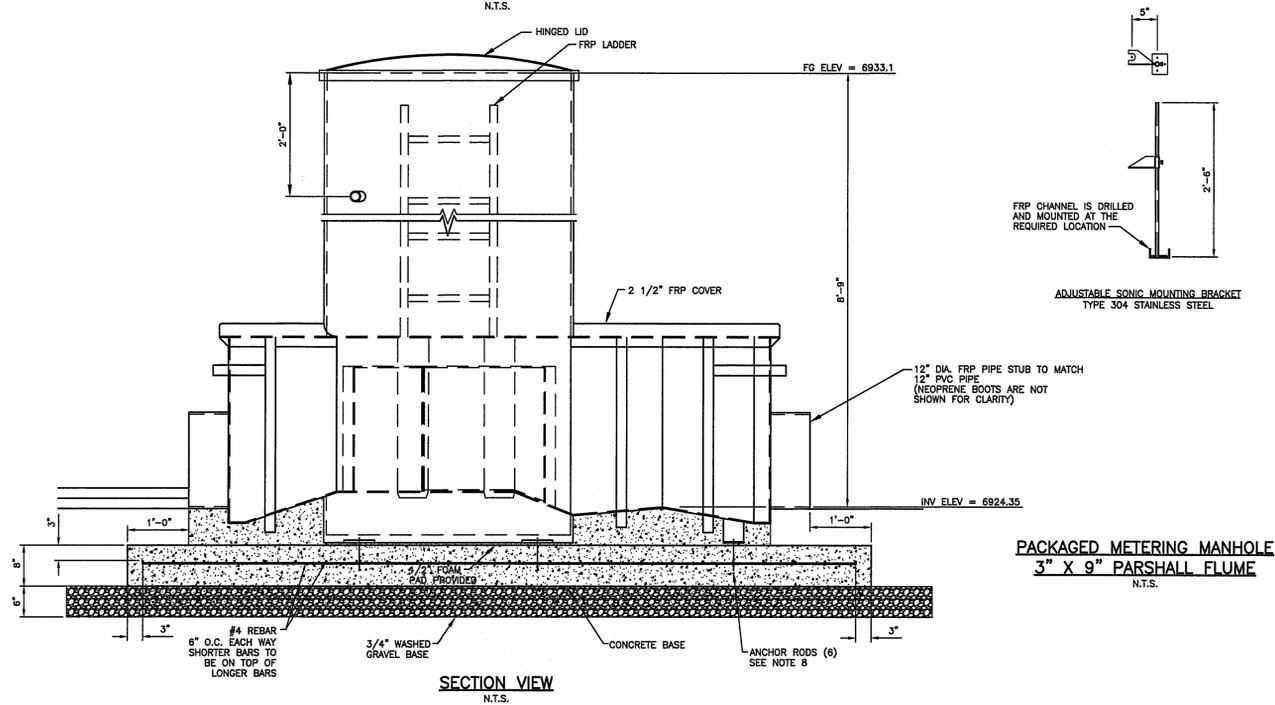


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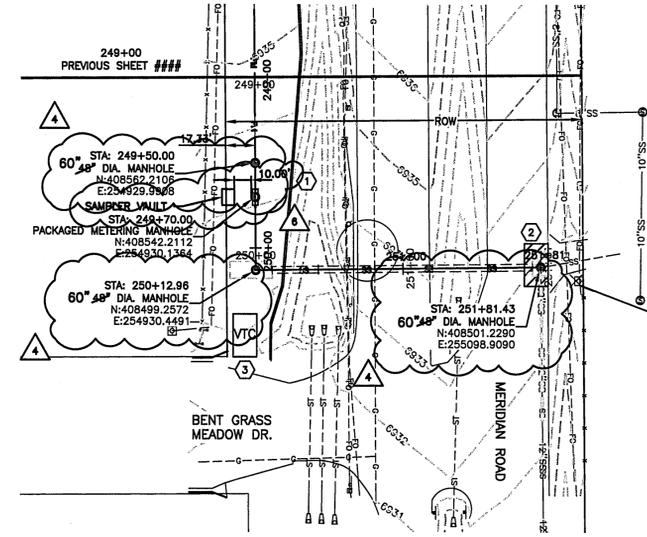
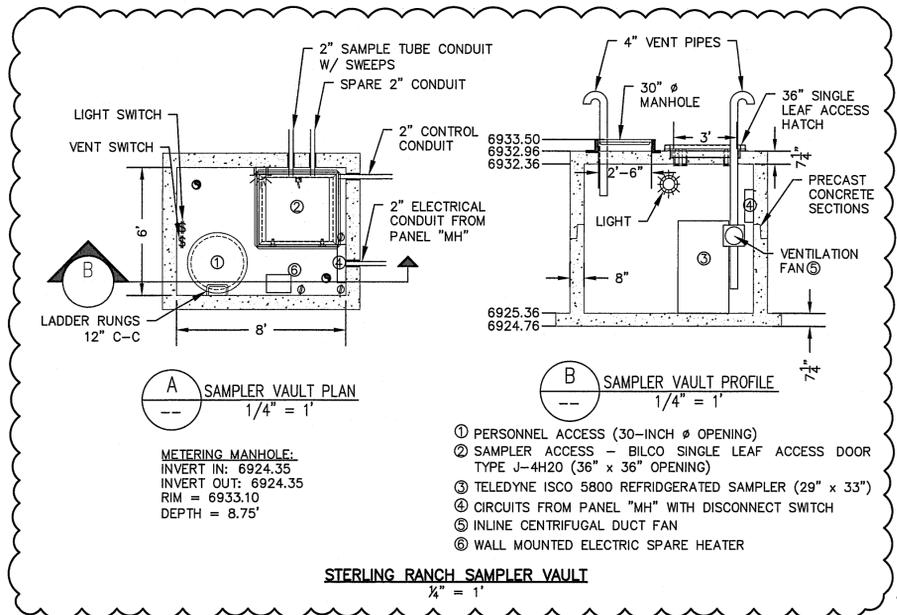


PLAN VIEW
N.T.S.

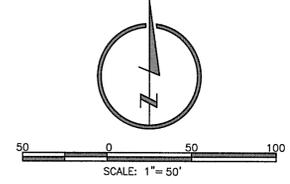
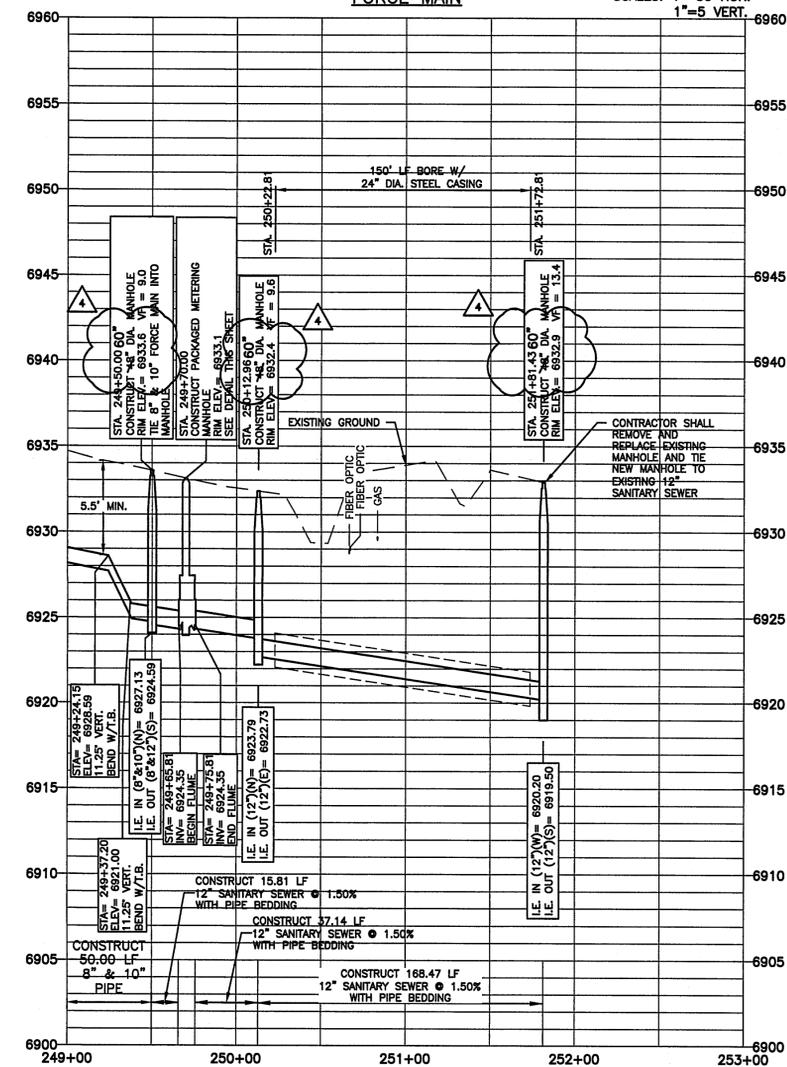
- NOTES:
1. PACKAGED METERING MANHOLE SHALL BE PLASTI-FAB OR APPROVED EQUAL.
 2. MATERIAL IS FRP (FIBERGLASS REINFORCED POLYESTER).
 3. NEOPRENE BOOTS ARE SECURED WITH STAINLESS STEEL BANDS.
 4. THE MINIMUM MANHOLE BARREL THICKNESS IS 1/2" FRP.
 5. HINGE, HASP, ANCHOR BRACKET & BOLTS ARE TYPE 304 S/S.
 6. A 3" PARSHALL FLUME SHALL BE INSTALLED INSIDE THE 8" PARSHALL FLUME PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL FILL MANHOLE WITH CONCRETE TO THE TOP OF THE FLUME.
 7. HAS-R 304 SS OR HAS-R 316 SS ANCHOR RODS, 1/2" DIA. WITH 5" EMBEDMENT INTO CONCRETE WITH HLT HIT-RE 500 VS EPOXY OR APPROVED EQUAL.



SECTION VIEW
N.T.S.



FORCE MAIN
SCALE: 1" = 50 HOR.
1" = 5 VERT.



NOTES:

1. SEE SHEET G0.2 FOR GENERAL NOTES.
2. STATIONING IS BASED ON THE CENTERLINE BETWEEN THE 8" AND 10" FORCE MAINS.
3. CONTRACTOR SHALL INSTALL THRUST BLOCKS AT ALL HORIZONTAL AND VERTICAL BENDS PER DETAIL.
4. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES WITHIN THE AREA OF WORK 7 DAYS PRIOR TO THE START OF INSTALLATION OF THE PIPELINE. THE CONTRACTOR SHALL NOTIFY OWNER AND ENGINEER OF ANY CONFLICTS THAT ARISE AND REQUIRE REDESIGN OF ANY PORTION OF THE PROJECT. REFER TO GENERAL NOTES FOR FURTHER INFORMATION.
5. CONTRACTOR SHALL BE REQUIRED TO STAY WITHIN THE CONSTRUCTION EASEMENTS AND/OR ROAD RIGHT OF WAY WHEN CONSTRUCTING THE PIPELINE. TRAFFIC CONTROL MEASURES SHALL BE IN PLACE DURING CONSTRUCTION PER EL PASO COUNTY REQUIREMENTS.
6. CONTRACTOR SHALL PROVIDE A MINIMUM 1' OF CLEARANCE BETWEEN ALL UTILITIES UNLESS OTHERWISE NOTED.
7. CONTRACTOR SHALL PLACE SEDIMENT CONTROL LOGS UPSTREAM OF ALL STORM DRAIN PIPES WITHIN THE PROJECT AREA.
8. CONTRACTOR SHALL BLADE A SMALL 6" HIGH BERM ALONG THE DOWNSTREAM SIDE OF TRENCHING OPERATIONS TO CONTROL STORM DRAINAGE FLOWS AND MINIMIZE TRANSPORTATION SEDIMENT DOWNSTREAM. SEE DETAIL SHEET FM2.4.
9. CONTRACTOR SHALL RESEED ALL AREAS DISTURBED DURING CONSTRUCTION, INCLUDING ANY SOD AND/OR LANDSCAPING.
10. CONTRACTOR SHALL PROTECT IN PLACE OR REMOVE AND REPLACE ANY SIGNS, MAILBOXES, LANDSCAPING, OR OTHER OBSTRUCTIONS DISTURBED DURING CONSTRUCTION.

KEYNOTES:

- 1 SEDIMENT CONTROL LOG PER DETAIL SHEET FM2.4
- 2 CONTRACTOR SHALL SAW CUT, REMOVE & REPLACE EXISTING PAVEMENT PER EL PASO COUNTY SPECIFICATIONS.
- 3 VEHICLE TRACKING CONTROL PER SHEET FM2.4

DRAWN BY	JPM
DESIGNED BY	JPM
DATE	APRIL 24, 2017
JOB NUMBER/TASKS	0418011
BOOK AND PAGE	

REVISIONS

NO.	REVISION	DATE
1	REVISED PER COMMENTS - 06/07/19	06/07/19
2	REVISED PER COMMENTS - 06/26/19	06/26/19

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LAMP RYNEARSON & ASSOCIATES

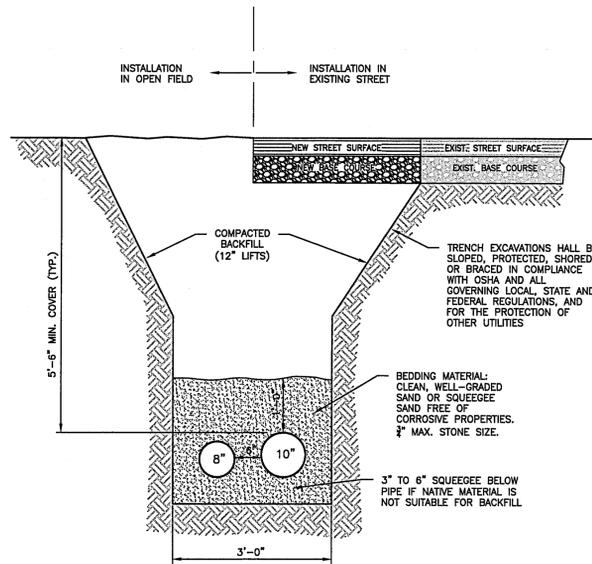
STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

FORCE MAIN PLAN & PROFILE
STA. 249+00 TO STA. 251+83.43
AND
PACKAGED METERING MANHOLE

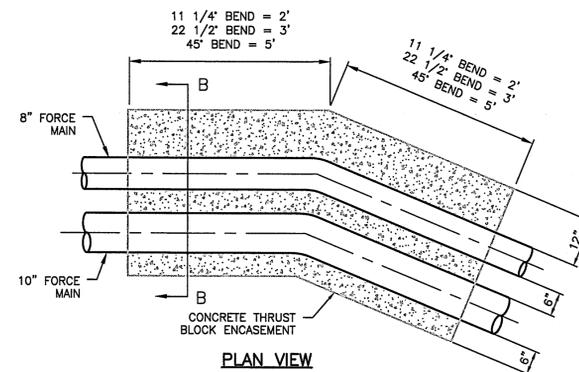
LAMP RYNEARSON - ENGINEERS

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34705

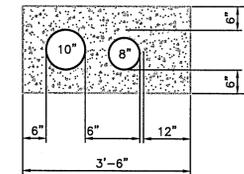
SHEET
FM1.25



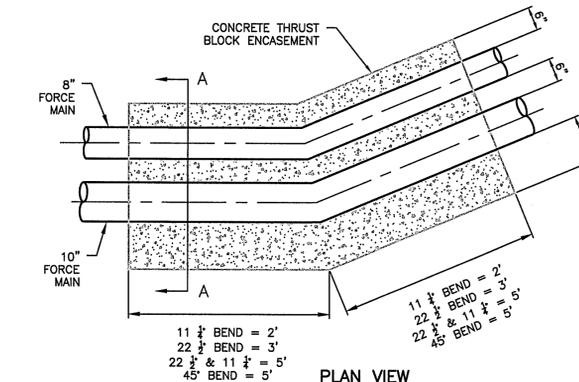
TYPICAL TRENCH SECTION
N.T.S.



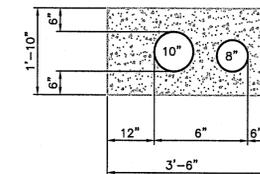
PLAN VIEW



SECTION B-B

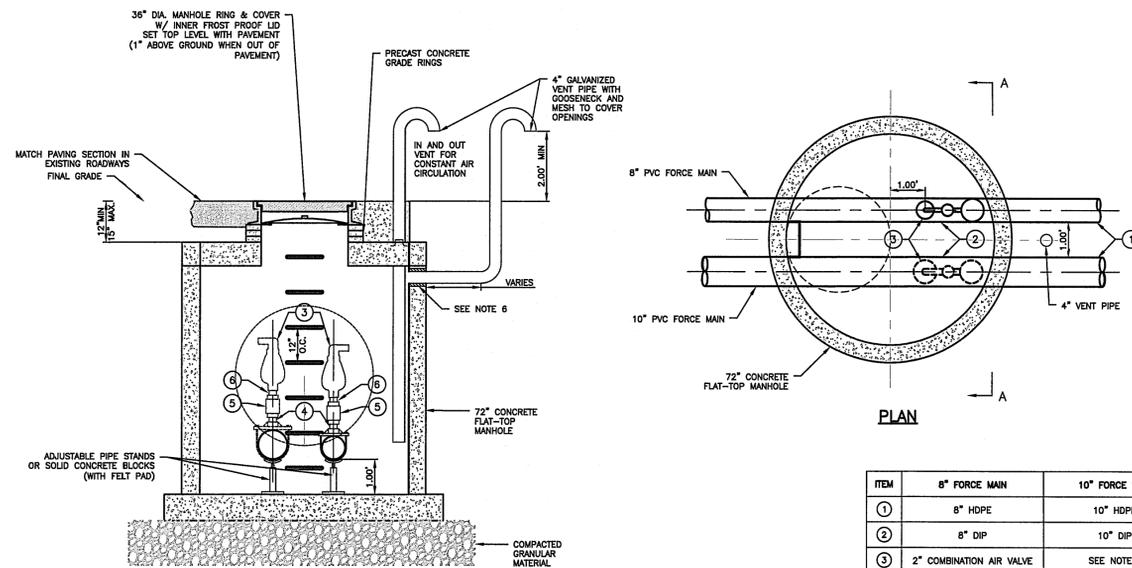


PLAN VIEW



SECTION A-A

HORIZONTAL THRUST BLOCK DETAIL
N.T.S.



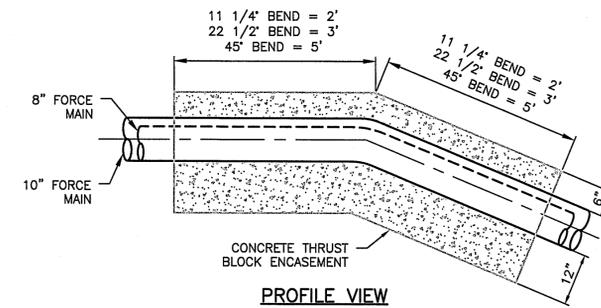
SECTION A-A

PLAN

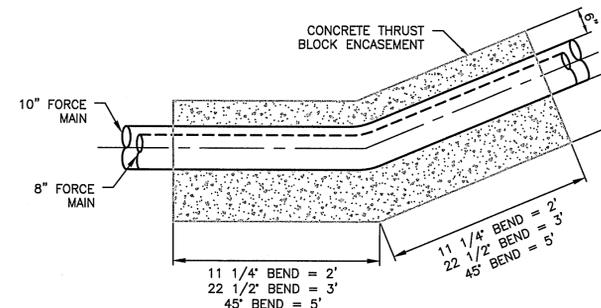
ITEM	8" FORCE MAIN	10" FORCE MAIN
①	8" HDPE	10" HDPE
②	8" DIP	10" DIP
③	2" COMBINATION AIR VALVE	SEE NOTE 1
④	2" TAPPING SADDLE	SEE NOTE 1
⑤	2" STAINLESS STEEL THREADED BALL VALVE	SEE NOTE 1
⑥	2" THREADED NIPPLE	SEE NOTE 1

AIR RELEASE MANHOLE
N.T.S.

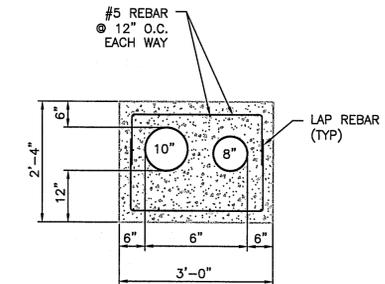
- NOTES:
1. THE FUTURE COMBINATION AIR VALVE AND APPURTENANCES ASSOCIATED WITH THE 10" FORCEMAIN SHALL BE SIZED AND INSTALLED PRIOR TO THE USE OF THE 10" FORCE MAIN.
 2. ALL CONCRETE WORK SHALL COMPLY WITH LATEST ACI-318 SPECIFICATIONS.
 3. ALL LADDER RUNGS MUST LINE UP BOTH HORIZONTALLY AND VERTICALLY.
 4. ALL SUPPORT MATERIALS SHALL BE GIVEN 2 COATS OF RUST INHIBITIVE PAINT.
 5. AIR AND VACUUM VALVE STATIONS TO BE HOUSED IN A 6' DIAMETER CONCRETE VAULT DESIGNED FOR HS-20 LOADING CONDITIONS AND 300 PSF SURCHARGE LOAD.
 6. GROUT ALL PENETRATIONS FULL W/ PORTLAND CEMENT, NON-SHRINK GROUT. SEAL AS NECESSARY FOR WATERTIGHT CONNECTION.
 7. AIR AND VACUUM VALVE STATIONS SHALL BE DESIGNED PER PIPELINE REQUIREMENTS.
 8. FOR ADDITIONAL DETAILS REFER TO COLORADO SPRINGS UTILITIES DETAIL A6-10.



PROFILE VIEW



PROFILE VIEW



SECTION

VERTICAL THRUST BLOCK DETAIL
N.T.S.

FORCE MAIN
CONSTRUCTION DETAILS

LAMP RYNEARSON - ENGINEERS



BRADLEY A. SIMONS

34705

SHEET

FM2.1

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DESIGNED BY	SAS	04/23/19
DATE	APRIL 24, 2017	
JOB NUMBER-TASK	0418011	
BOOK AND PAGE		

REV. AIR RELEASE MANHOLE 11/01/17
REV. PSE MEMO COMMENTS 04/23/19
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STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

FIELD INSTALLATION OF POLYETHYLENE TUBING FOR DIP PIPE AND FITTINGS

STEP 1:

PLACE TUBE OF POLYETHYLENE MATERIAL ON PIPE PRIOR TO LOWERING IT INTO TRENCH.

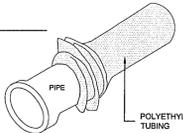
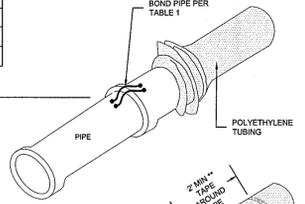


TABLE 1
SUITABLE CONDUCTOR SIZES FOR JOINT BONDING OF DUCTILE IRON PIPE

PIPE SIZE (IN)	QUANTITY - SIZE OF BOND	SIZE OF CHARGE (G)
8 TO 14	2 - #8 STRANDED OR SOLID	25
	2 - #4 STRANDED OR SOLID	32
16 TO 36	4 - #8 STRANDED OR SOLID	25
	1 - BONDING STRAP	15
42 TO 64	2 - #2 STRANDED OR SOLID	32
	4 - #4 STRANDED OR SOLID	32

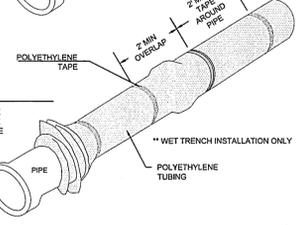
STEP 2:

INSTALL BONDING STRAP OR WIRE AT EVERY JOINT OF PIPE PRIOR TO WRAPPING. PULL TUBE OVER THE LENGTH OF THE PIPE. TAKE TUBE TO END AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH TAPE TO HOLD THE PLASTIC TUBE IN PLACE.



STEP 3:

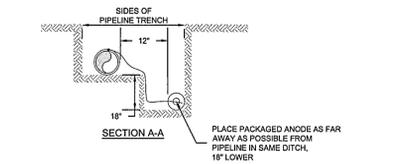
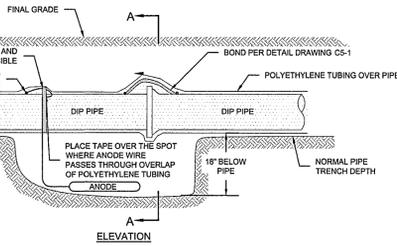
OVERLAP FIRST TUBE WITH ADJACENT TUBE AND SECURE WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE ADJACENT SPIGOT END AND WRAP WITH TAPE TO HOLD THE PLASTIC TUBE IN PLACE.



NOTES:

- ANY TEARS OR HOLES SHALL BE REPAIRED WITH POLYETHYLENE TUBING AND TAPE.
- WHEN WORKING AROUND EXISTING POLY WRAPPED PIPE, ANY TEARS AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED.
- WHEN WORKING AROUND EXISTING BONDED PIPE, ANY BROKEN BONDS AS A RESULT OF CONSTRUCTION, SHALL BE REPAIRED.

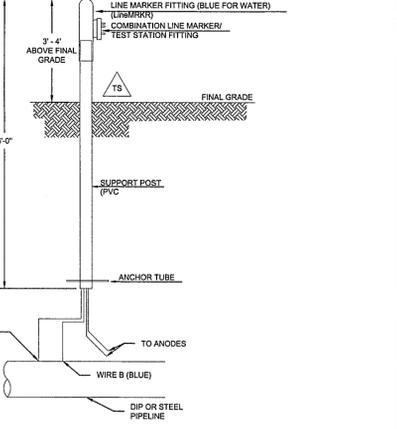
Colorado Springs Utilities
POLYETHYLENE TUBING
CS-1
DATED 02/01/15



NOTES:

- THERMITE WELD ANODE TO PIPE WITH A 15 GRAM CHARGE. INSTALL A COPPER SLEEVE WHEN WIRE IS #10 AWG OR SMALLER.
- THERMITE WELD CONNECTIONS AND ANY BARE METAL SHALL BE COVERED WITH PRIMERLESS HANDICAP OR CORROSION TAPE.
- PACKED ANODE SHOULD BE COVERED WITH FINE SOIL CONTAINING NO ROCKS OR DIRT CLUMPS AND SHALL BE HAND TAMPED TO THE BOTTOM OF THE PIPE FOR COMPACTION.
- ANODE WITH BROKEN BAGS SHALL NOT BE USED.
- ANODES SHALL BE REMOVED FROM PLASTIC PACKAGING.
- IT IS NOT NECESSARY TO WET THE ANODES.
- DIP PIPE SHALL BE ENCASED IN POLYETHYLENE TUBING PER DETAIL DRAWING C5-1.

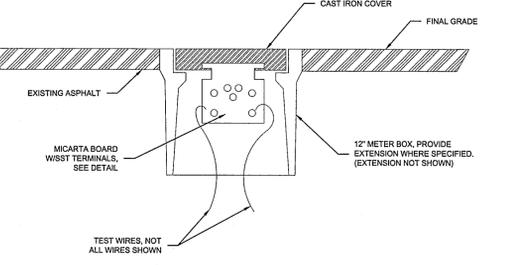
Colorado Springs Utilities
BONDING JOINT AND ANODE INSTALLATION
C5-2
DATED 02/01/15



NOTES:

- THE CONTRACTOR SHALL COORDINATE WITH COLORADO SPRINGS UTILITIES TO WIRE TERMINAL BOARD.
- THERMITE WELD WIRES TO PIPE WITH A 15 GRAM CHARGE. INSTALL A COPPER SLEEVE WHEN WIRE IS #10 AWG OR SMALLER.
- THERMITE WELD CONNECTIONS AND ANY BARE METAL SHALL BE COVERED WITH PRIMERLESS HANDICAP OR CORROSION TAPE.
- THE CONTRACTOR SHALL VERIFY CONTINUITY OF ALL WIRES TO TERMINAL BOARD PRIOR TO FINAL ACCEPTANCE.
- COLOR CODE WIRE INSULATION AS SHOWN IN APPLICABLE TEST STATION DETAILS. CONNECT EACH TEST WIRE TO SEPARATE TERMINAL.
- WIRE CONFIGURATION FOR FLUSH MOUNT STYLE TEST STATIONS SIMILAR TO POST MOUNT STYLE TEST STATIONS.
- PROVIDE 18 INCHES SLACK IN TEST WIRES, MINIMUM.

Colorado Springs Utilities
INSTALLATION OF POST MOUNT TEST STATION IN UNIMPROVED AREAS
A8-11
DATED 02/01/15



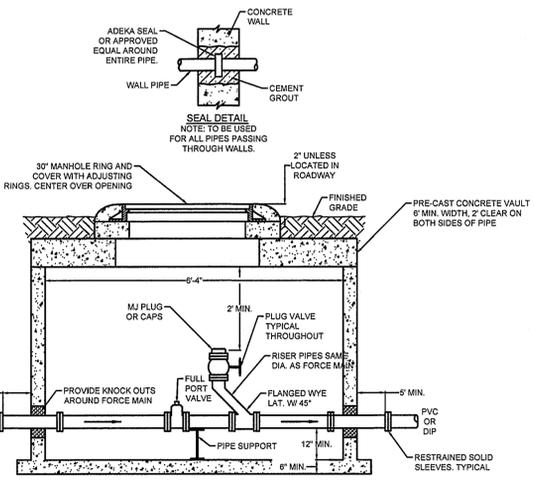
NOTES:

- THE CONTRACTOR SHALL COORDINATE WITH COLORADO SPRINGS UTILITIES TO WIRE TERMINAL BOARD.
- THERMITE WELD WIRES TO PIPE WITH A 15 GRAM CHARGE. INSTALL A COPPER SLEEVE WHEN WIRE IS #10 AWG OR SMALLER.
- THERMITE WELD CONNECTIONS AND ANY BARE METAL SHALL BE COVERED WITH PRIMERLESS HANDICAP OR CORROSION TAPE.
- THE CONTRACTOR SHALL VERIFY CONTINUITY OF ALL WIRES TO TERMINAL BOARD PRIOR TO FINAL ACCEPTANCE.
- COLOR CODE WIRE INSULATION AS SHOWN IN APPLICABLE TEST STATION DETAILS. CONNECT EACH TEST WIRE TO SEPARATE TERMINAL.
- WIRE CONFIGURATION FOR FLUSH MOUNT STYLE TEST STATIONS SIMILAR TO POST MOUNT STYLE TEST STATIONS.
- PROVIDE 18 INCHES SLACK IN TEST WIRES, MINIMUM.

NOTES:

- TERMINALS SHALL BE 1/4" STAINLESS STEEL W/ LOCKING WASHER, TWO FLAT WASHERS, AND DOUBLE NUTS.
- ALL WIRE CONNECTIONS TO BE WIRING TONGUE COMPRESSION TERMINALS.
- WIRES ON TEST STATIONS TO BE PERMANENTLY LABELED WITH PIPE IDENTIFICATION (i.e. 12" DIP) USING NYLON WIRE MARKER TAGS.

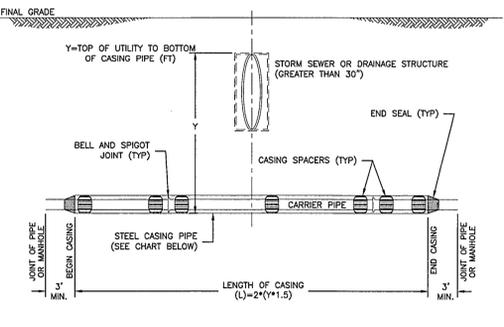
Colorado Springs Utilities
TEST STATION FLUSH MOUNT
A8-9
DATED 03/21/14



ONE-WAY FORCE MAIN CLEAN-OUT
STA: 208+50

*NOTE: ALL PIPING 4" AND LARGER IN CLEAN-OUT CHAMBER, EXCEPT AS NOTED, TO BE DUCTILE IRON CONNECTED WITH FLANGED JOINTS AND STAINLESS STEEL BOLTS.

Colorado Springs Utilities
ONE-WAY FORCE MAIN CLEAN-OUT
C2-4
DATED 5/2010

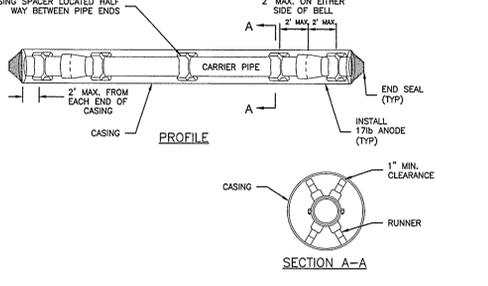


CARRIER PIPE SIZE (INCH)	MIN. CASING PIPE SIZE (INCH)	MIN. CASING WALL THICKNESS (INCH)
8	12	0.250
12	16	0.312
18	22	0.375
20 & 21	24	0.500
24	30	0.500
30	36	0.625
36	42	0.625

NOTES:

- THE DESIGN ENGINEER SHALL VERIFY THAT THE SIZE OF THE CASING PIPE WILL MEET THE NEEDS OF THE PROJECT.
- CASING WALL THICKNESS BASED ON E80 LOADING.
- CASING SHALL BE STEEL PIPE WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI.
- SEE DETAIL DRAWING C2-5 FOR CASING SPACER DETAILS.
- WHERE THE WASTEWATER MAIN CROSSES ABOVE A WATER MAIN, SEE SECTION 2.5.F.3.
- WHERE THE WASTEWATER MAIN CROSSES UNDER A RAILWAY OR MAJOR ROADWAY, THE LENGTH OF CASING AND ITS PROPERTIES SHALL BE DETERMINED BY THE AUTHORITY HAVING JURISDICTION.

Colorado Springs Utilities
TYPICAL STEEL CASING INSTALLATION
C2-4
DATED 5/2010



CARRIER PIPE:

- CARRIER PIPE SHALL BE CENTERED WITHIN CASING BY USE OF APPROVED CASING SPACERS. (SEE CHAPTER 4)

PLACEMENT OF SPACERS ON CARRIER PIPE:

- CASING SPACERS SHALL BE PLACED MAX. 2' FROM EACH END OF CASING AND ON EITHER SIDE OF EACH BELL. WHEN CARRIER PIPE IS PVC, CASING SPACER SHALL BE PLACED AT THE HOME MARK TO PREVENT OVER-BELLING. SPACERS SHALL ALSO BE PLACED HALF WAY BETWEEN PIPE ENDS, OR IN ACCORDANCE WITH PIPE MANUFACTURERS RECOMMENDATIONS.

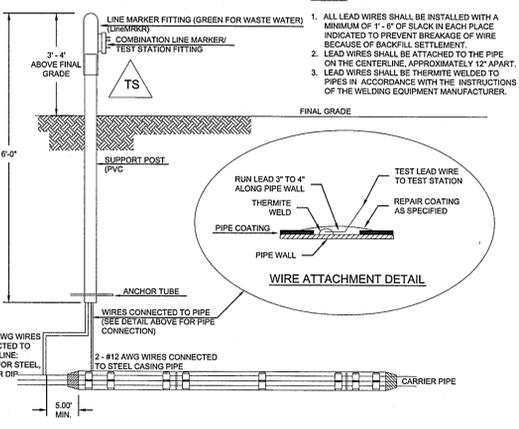
END SEALS:

- END SEALS SHALL BE USED TO ENSURE A WATER TIGHT SEAL ON EITHER END OF THE CASING.

CATHODIC PROTECTION:

- CASING SHALL BE CATHODICALLY PROTECTED USING A 17 LB HIGH POTENTIAL ANODE AND AN APPROVED COATING. SEE SECTION 2.5.G.

Colorado Springs Utilities
TYPICAL STEEL CASING INSTALLATION (CONTINUED)
C2-5
DATED 5/2010



NOTES:

- THE CASING SHALL BE CATHODICALLY PROTECTED UNDER THE DIRECTION OF THE COLORADO SPRINGS UTILITIES INSPECTOR. SEE SECTION 2.5.G.
- EXAMPLE CAN VARY DUE TO SITE CONDITIONS AND COLORADO SPRINGS UTILITIES INSPECTORS' DIRECTION.
- SEE STANDARD DETAIL DRAWING C2-4 - STEEL CASING INSTALLATION.
- CONTRACTOR TO COORDINATE W/ COLORADO SPRINGS UTILITIES TO WIRE TERMINAL BOARD.
- THERMITE WELD WIRES TO PIPE W/ 15 GRAM CHARGE. INSTALL COPPER SLEEVE WHEN WIRE IS #10 AWG OR SMALLER.
- THERMITE WELD CONNECTIONS AND ANY BARE METAL SHALL BE COVERED WITH PRIMERLESS HANDICAP OR CORROSION TAPE.
- CONTRACTOR TO VERIFY CONTINUITY OF ALL WIRES TO TERMINAL BOARD PRIOR TO FINAL ACCEPTANCE.

Colorado Springs Utilities
INSTALLATION OF CATHODIC PROTECTION TEST STATION AT A CASING PIPE
C5-5
DATED 02/01/15

REVISIONS
DRAWN BY: SAS
DESIGNED BY: SAS
DATE: APRIL 24, 2017
JOB NUMBER-TASKS: 0418011
BOOK AND PAGE: 34705

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FORCE MAIN CONSTRUCTION DETAILS

STERLING RANCH LIFT STATION AND FORCE MAIN
STERLING RANCH METROPOLITAN DISTRICT NO. 1

LAMP RYNEARSON - ENGINEERS

BRADLEY A. SIMONS
34705

SHEET
FM2.2

Temporary and Permanent Seeding (TS/PS) EC-2

Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.

Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses

Species* (Common name)	Growth Season ¹	Pounds of Pure Live Seed (PLS)/acre ²	Planting Depth (inches)
1. Oats	Cool	35 - 50	1 - 2
2. Spring wheat	Cool	25 - 35	1 - 2
3. Spring barley	Cool	25 - 35	1 - 2
4. Annual ryegrass	Cool	10 - 15	½
5. Millet	Warm	3 - 15	¼ - ¾
6. Sudangrass	Warm	5 - 10	½ - ¾
7. Sorghum	Warm	5 - 10	½ - ¾
8. Winter wheat	Cool	20 - 35	1 - 2
9. Winter barley	Cool	20 - 35	1 - 2
10. Winter rye	Cool	20 - 35	1 - 2
11. Triticale	Cool	25 - 40	1 - 2

* Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

¹ See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

² Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses

Common Name	Botanical Name	Growth Season ¹	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Alkali Soil Seed Mix					
Alkali salsola	<i>Sporobolus airoides</i>	Cool	Bunch	1,750,000	0.25
Bain wildrye	<i>Elymus cinereus</i>	Cool	Bunch	165,000	2.5
Solar streambank wheatgrass	<i>Agropyron riparium 'Solar'</i>	Cool	Sod	170,000	2.5
Jose tall wheatgrass	<i>Agropyron elongatum 'Jose'</i>	Cool	Bunch	79,000	7.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
Total					17.75
Fertile Loamy Soil Seed Mix					
Ephraim crested wheatgrass	<i>Agropyron cristatum 'Ephraim'</i>	Cool	Sod	175,000	2.0
Dural hard fescue	<i>Festuca ovina 'durluscula'</i>	Cool	Bunch	565,000	1.0
Lincoln smooth brome	<i>Bromus inermis leys 'Lincoln'</i>	Cool	Sod	130,000	3.0
Solar streambank wheatgrass	<i>Agropyron riparium 'Solar'</i>	Cool	Sod	170,000	2.5
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	7.0
Total					15.5
High Water Table Soil Seed Mix					
Meadow foxtail	<i>Alopecurus pratensis</i>	Cool	Sod	900,000	0.5
Reedtop	<i>Aegrotis alba</i>	Warm	Open sod	5,000,000	0.25
Reed canarygrass	<i>Phalaris arundinacea</i>	Cool	Sod	68,000	0.5
Lincoln smooth brome	<i>Bromus inermis leys 'Lincoln'</i>	Cool	Sod	130,000	3.0
Pathfinder switchgrass	<i>Panicum virgatum 'Pathfinder'</i>	Warm	Sod	389,000	1.0
Alkar tall wheatgrass	<i>Agropyron elongatum 'Alkar'</i>	Cool	Bunch	79,000	5.5
Total					10.75
Transition Turf Seed Mix²					
Ruebens Canadian bluegrass	<i>Poa compressa 'Ruebens'</i>	Cool	Sod	2,500,000	0.5
Dural hard fescue	<i>Festuca ovina 'durluscula'</i>	Cool	Bunch	565,000	1.0
Citation perennial ryegrass	<i>Lolium perenne 'Citation'</i>	Cool	Sod	247,000	3.0
Lincoln smooth brome	<i>Bromus inermis leys 'Lincoln'</i>	Cool	Sod	130,000	3.0
Total					7.5

Temporary and Permanent Seeding (TS/PS) EC-2

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses (cont.)

Common Name	Botanical Name	Growth Season ¹	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
Blue grama	<i>Bouteloua gracilis</i>	Warm	Sod-forming bunchgrass	825,000	0.5
Camper little bluestem	<i>Schizachyrium scoparium 'Camper'</i>	Warm	Bunch	240,000	1.0
Prairie sandreed	<i>Calamagrostis longifolia</i>	Warm	Open sod	274,000	1.0
Sand dropseed	<i>Sporobolus cryptandrus</i>	Cool	Bunch	5,298,000	0.25
Vaughn sideoats grama	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
Total					10.25
Heavy Clay, Rocky Foothill Seed Mix					
Ephraim crested wheatgrass ⁴	<i>Agropyron cristatum 'Ephraim'</i>	Cool	Sod	175,000	1.5
Oshe Intermediate wheatgrass	<i>Agropyron intermedium 'Oshe'</i>	Cool	Sod	115,000	5.5
Vaughn sideoats grama ⁴	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Lincoln smooth brome	<i>Bromus inermis leys 'Lincoln'</i>	Cool	Sod	130,000	3.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
Total					17.5

¹ All of the above seeding mixes and rates are based on drill seeding followed by crimped straw mulch. These rates should be doubled if seed is broadcast and should be increased by 50 percent if the seeding is done using a Brillion Drill or is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching should be done as a separate operation.

² See Table TS/PS-3 for seeding dates.

³ If site is to be irrigated, the transition turf seed rates should be doubled.

⁴ Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

⁵ Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideoats grama.

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses

Seeding Dates	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
	Warm	Cool	Warm	Cool
January 1-March 15			✓	✓
March 16-April 30	4	1,2,3	✓	✓
May 1-May 15	4		✓	
May 16-June 30	4,5,6,7			
July 1-July 15	5,6,7			
July 16-August 31				
September 1-September 30		8,9,10,11		
October 1-December 31			✓	✓

Mulch

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the Mulching BMP Fact Sheet for additional guidance.

Maintenance and Removal

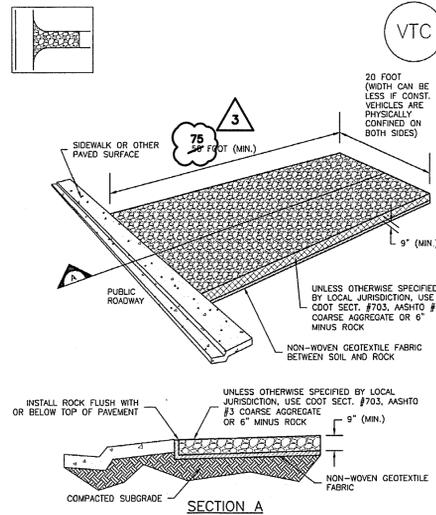
Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

Vehicle Tracking Control (VTC) SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

GRADED BERM N.T.S



EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

- SEE SITE PLAN FOR:
 - LOCATION OF DIVERSION SWALE
 - TYPE OF SWALE (UNLINED, COMPACTED AND/OR LINED)
 - LENGTH OF EACH SWALE
 - DEPTH, D, AND WIDTH, W DIMENSIONS
 - FOR ECB/TRM LINED DITCH, SEE ECB DETAIL
 - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, D50.
- SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCEEDING 2-YEAR FLOW RATE OR 10 CFS.
- EARTH DIKES AND SWALES INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES IN PROXIMITY.
- EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.
- SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.
- FOR LINED DITCHES, INSTALLATION OF ECB/TRM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.
- WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

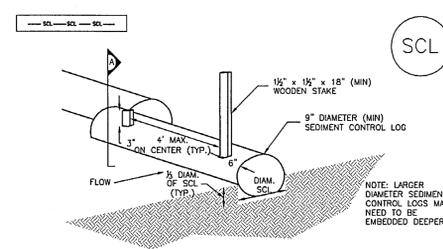
EARTH DIKE AND DRAINAGE SWALE MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.
- WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDS, AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

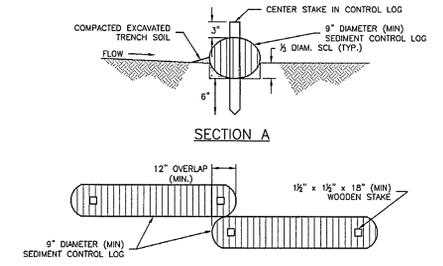
(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF COLORADO SPRINGS, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Sediment Control Log (SCL) SC-2



SECTION A



SCL-1. SEDIMENT CONTROL LOG

Sediment Control Log (SCL) SC-2

SEDIMENT CONTROL LOG INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
- SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADING LAND-DISTURBING ACTIVITIES.
- SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELISIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
- SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.
- IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/3 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING.
- THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.
- FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/3 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
- SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDS AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PRAIRIE, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF ARIZONA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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FORCE MAIN EROSION CONTROL DETAILS
 STERLING RANCH LIFT STATION AND FORCE MAIN
 STERLING RANCH METROPOLITAN DISTRICT NO. 1

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