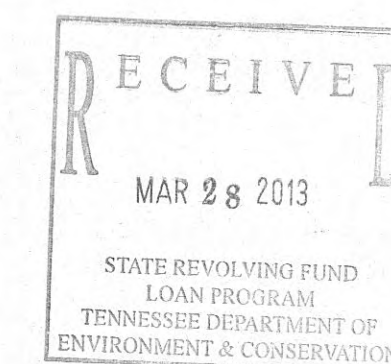


SEWER REHABILITATION CARDIFF, McDONALD AND LADD PUMP STATIONS FOR HARRIMAN UTILITY BOARD

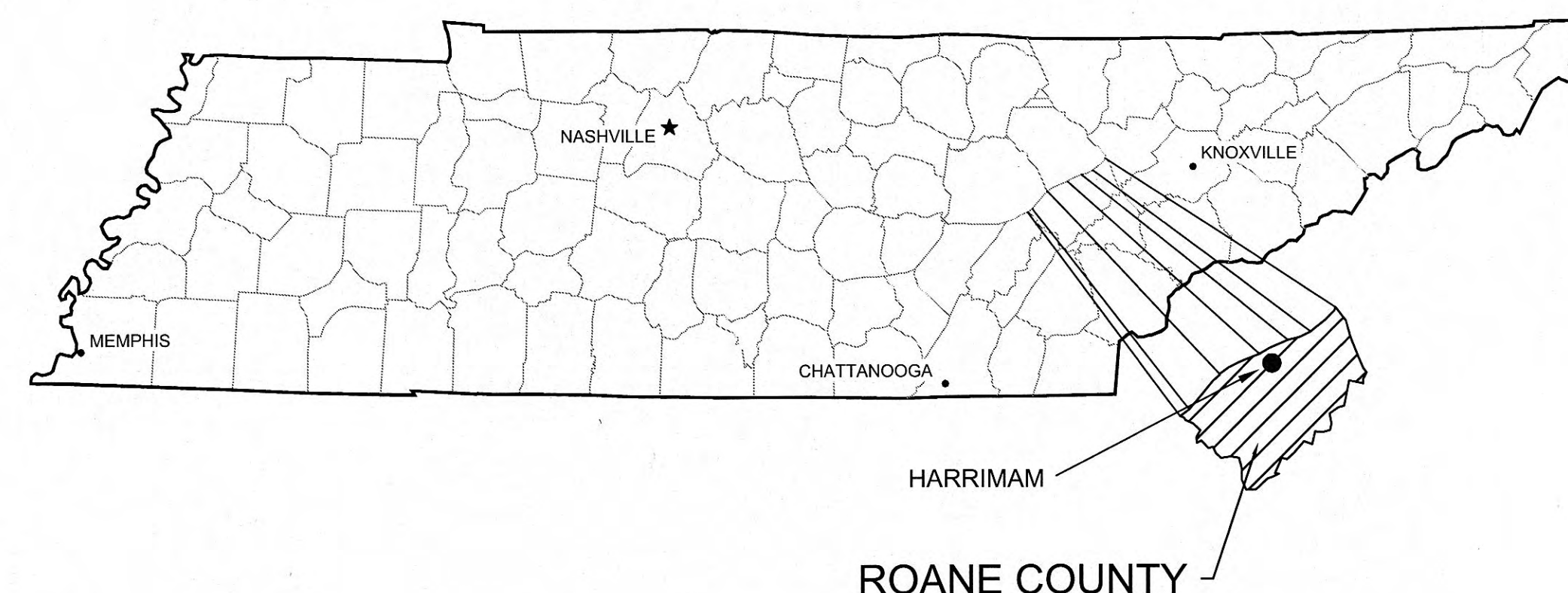
ROANE COUNTY
HARRIMAN, TENNESSEE
CONTRACT NO. S12-01



WPC13-0161

CG0201.1-269

DWG. No.	INDEX OF DRAWINGS
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G-003	STANDARD GRAVITY SEWER DETAILS
G-004	STANDARD PRESSURE PIPE DETAILS
G-005	STANDARD SITE DETAILS AND EROSION DETAILS
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C-0-102	EXISTING McDONALD PUMP STATION - DEMOLITION / NEW SITE PLAN AND DETAILS
C-0-103	LADD PUMP STATION - EXISTING SITE PLAN LADD PUMP STATION - NEW SITE PLAN
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E-6	LEGEND SCHEDULES AND DETAILS
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M-2	LADD PUMP STATION FLOOR PLANS - HVAC



APPROVED FOR CONSTRUCTION
The document bearing this stamp has been received and reviewed by the
TN Department of Environment and Conservation, SRF Loan Program
and is hereby approved for construction by the Commissioner.
APPROVED MAY 10 2013
This approval expires 1 year from the approval date AND shall not be
constituted as creating a presumption of correct operation or as warranting by
the Commissioner that the approved facilities will reach the designed goals.
For the Commissioner by _____

GRW.

ENGINEERS - ARCHITECTS - PLANNERS

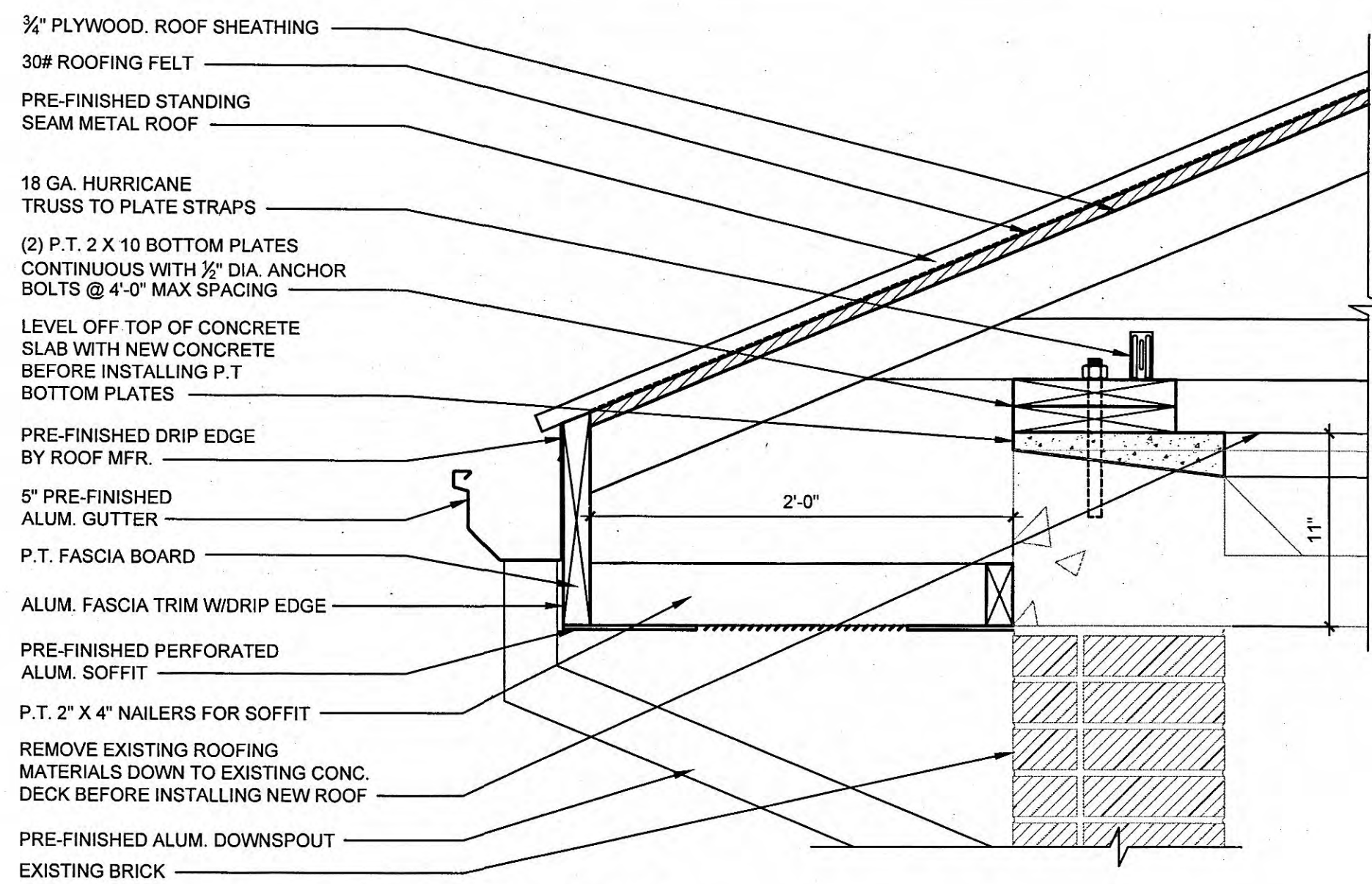
www.grwinc.com



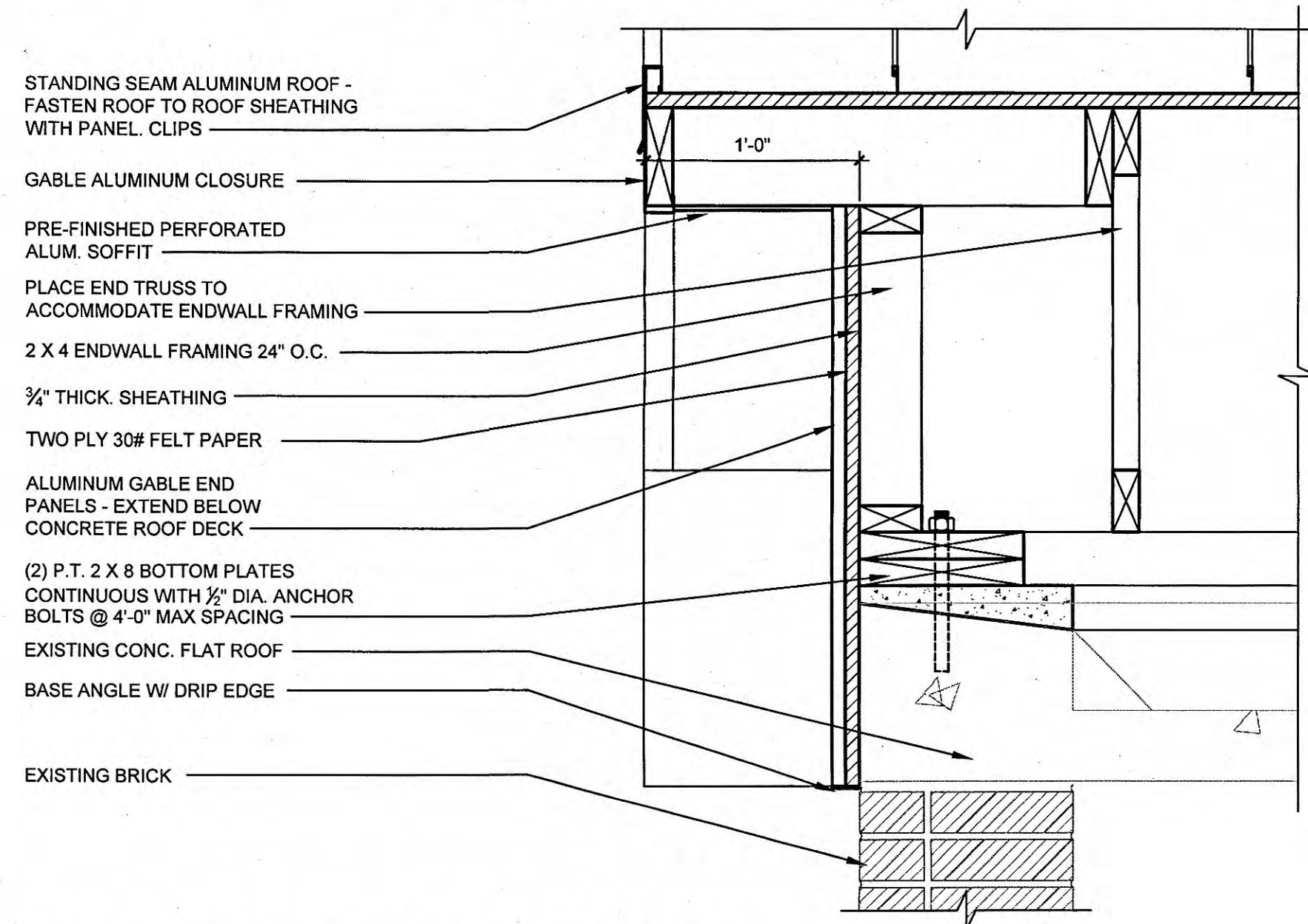
DECEMBER 2012

SRF
Sewer
(PS Rehab)
TDEC-Approved
Set

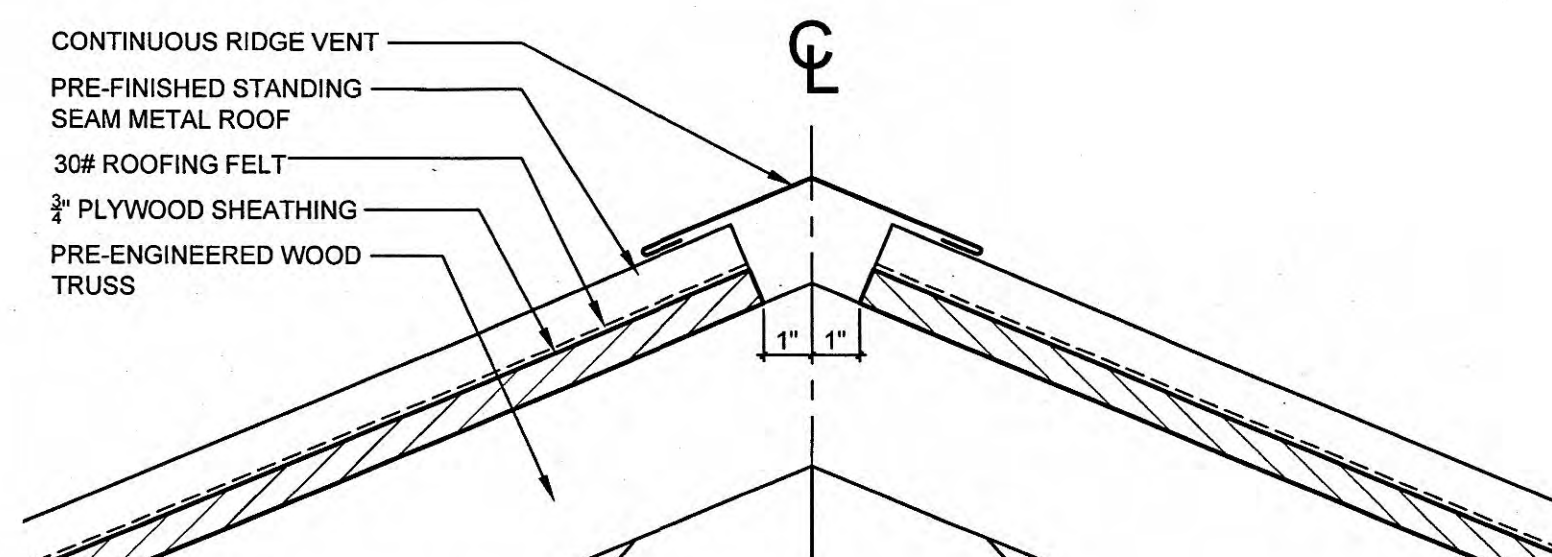
GRW PROJECT NO. 3947-01



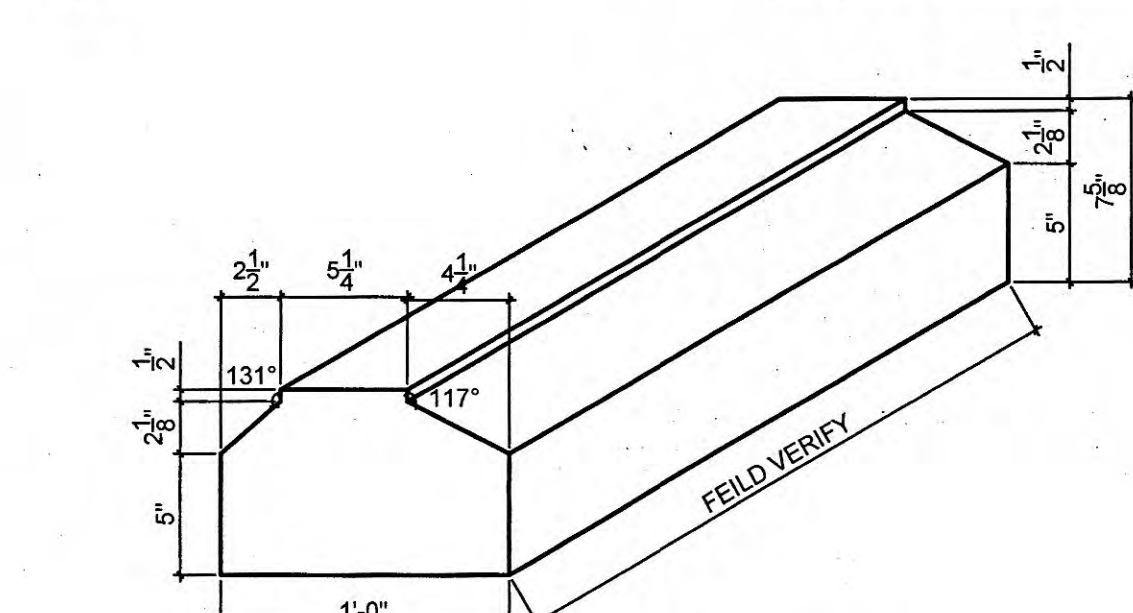
1 TYPICAL EAVE DETAIL
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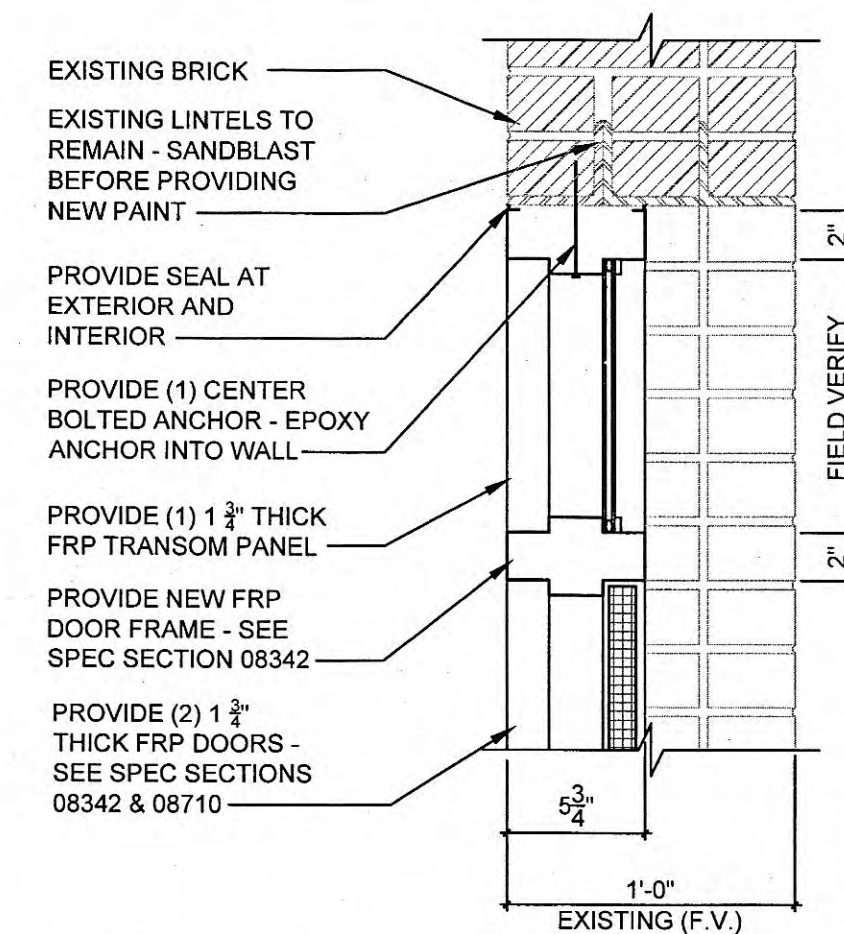
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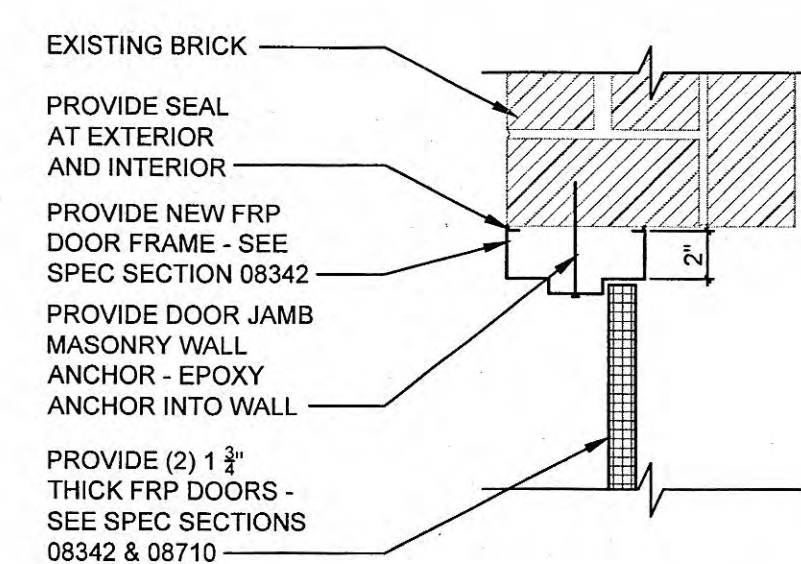
3 RIDGE VENT DETAIL
SCALE: 3"=1'-0"



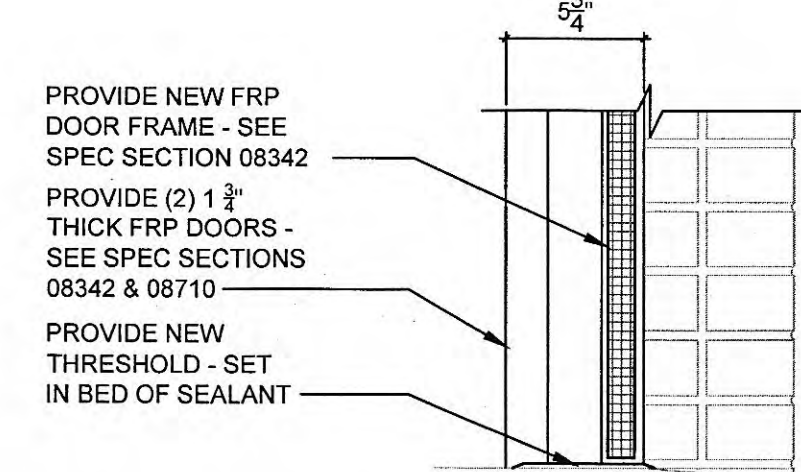
4 PRECAST SILL DETAIL
SCALE: 1 1/2"=1'-0"



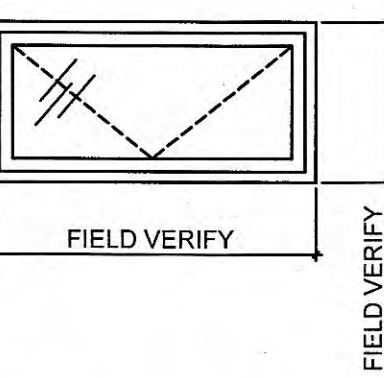
5 DOOR HEAD & TRANSOM DETAIL
SCALE: 1 1/2"=1'-0"



6 DOOR JAMB DETAIL
SCALE: 1 1/2"=1'-0"

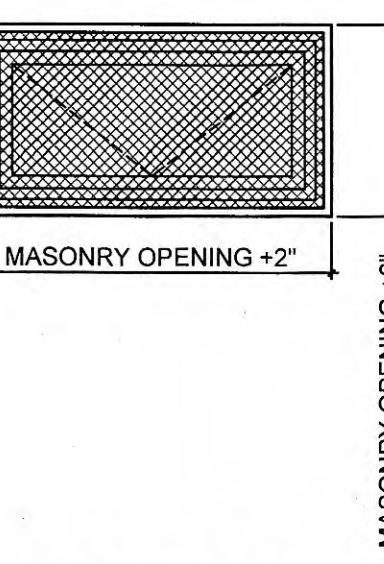


7 DOOR THRESHOLD DETAIL
SCALE: 1 1/2"=1'-0"

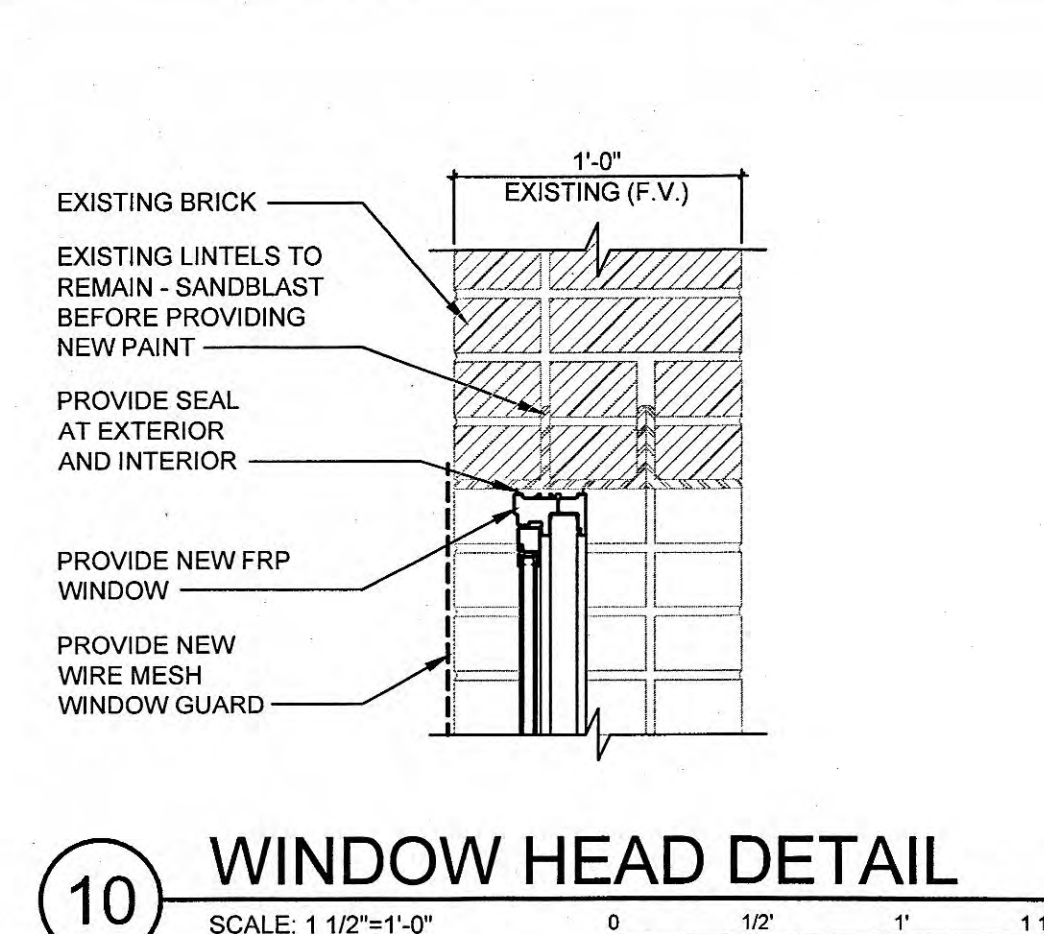


8 WINDOW ELEVATION - (A)
SCALE: 1/2"=1'-0"

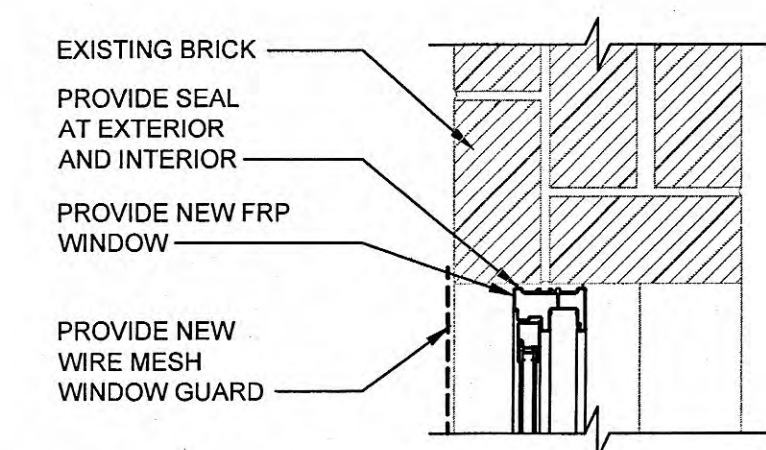
NOTES:
REMOVE EXISTING WINDOW GUARD - ATTACH NEW WINDOW GUARD AFTER PROVIDING ALL NECESSARY REHABILITATION TO EXISTING BRICK WALL - SEE SPEC SECTIONS 01731, 04500, 10605.



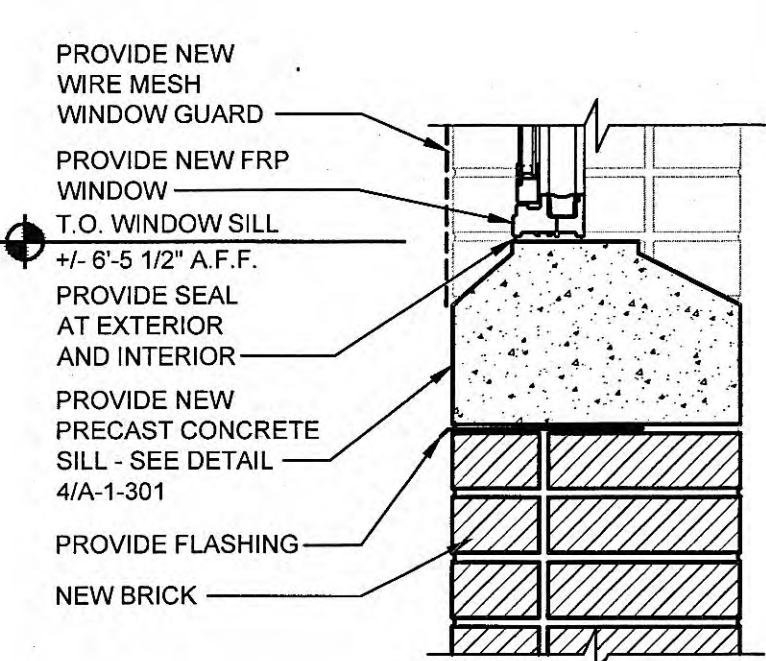
9 WINDOW GUARD DETAIL
SCALE: 1/2"=1'-0"



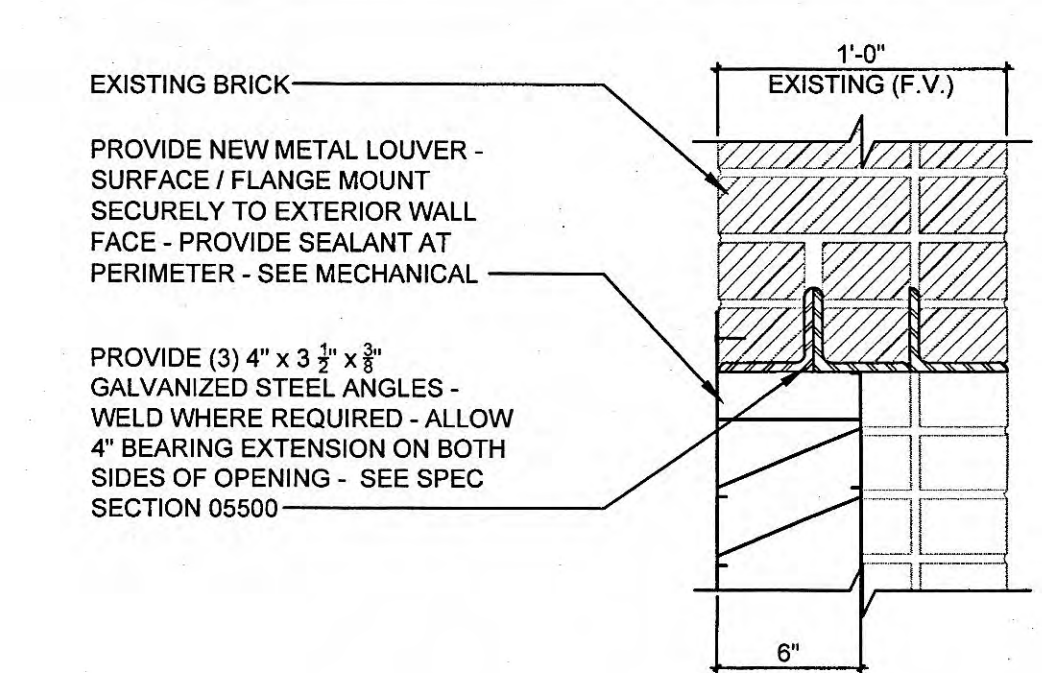
10 WINDOW HEAD DETAIL
SCALE: 1 1/2"=1'-0"



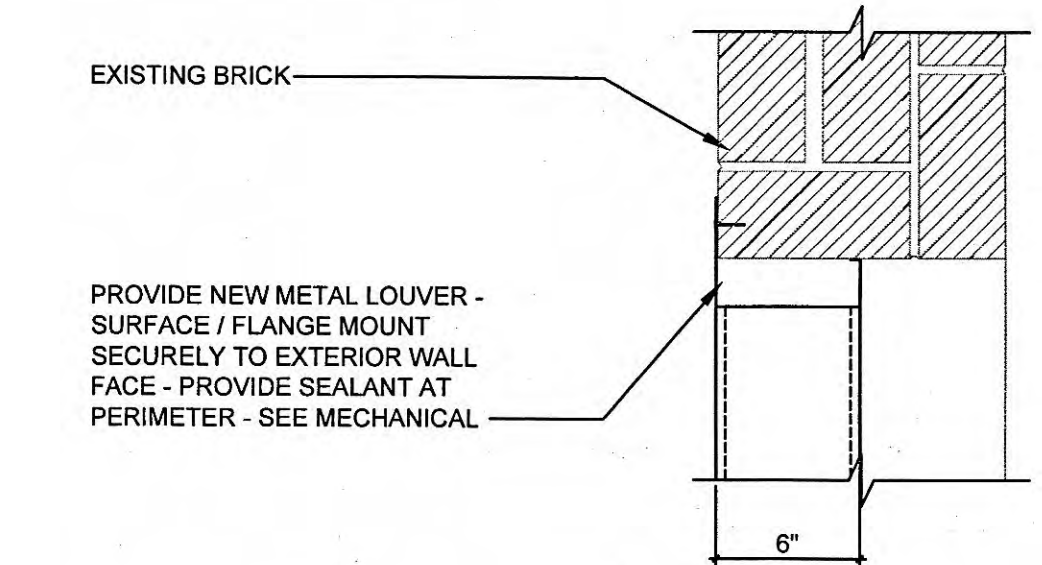
11 WINDOW JAMB DETAIL
SCALE: 1 1/2"=1'-0"



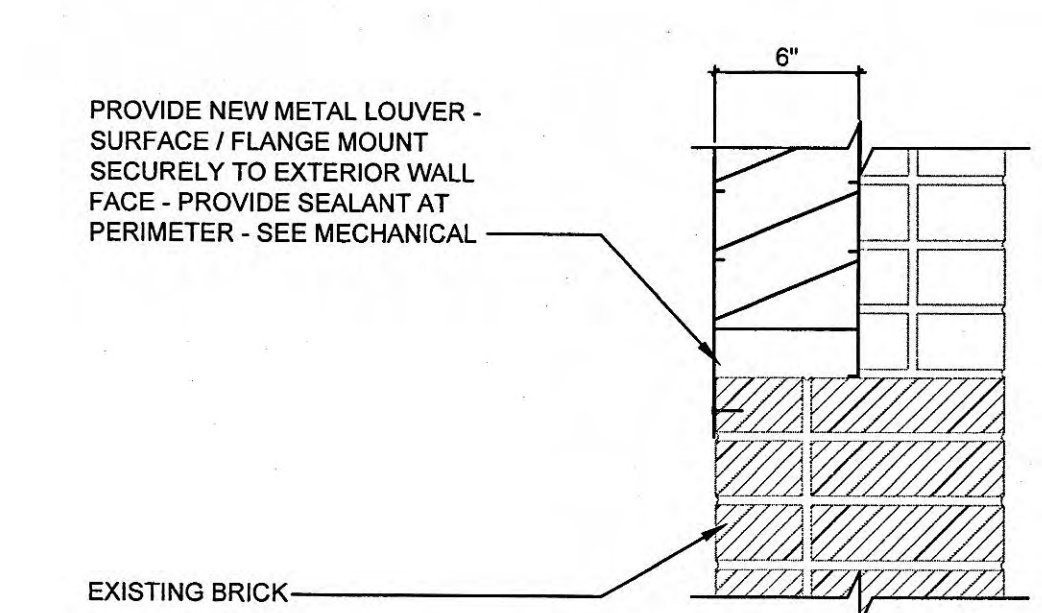
12 WINDOW SILL DETAIL
SCALE: 1 1/2"=1'-0"



14 NEW LOUVER OPENING HEAD DETAIL
SCALE: 1 1/2"=1'-0"

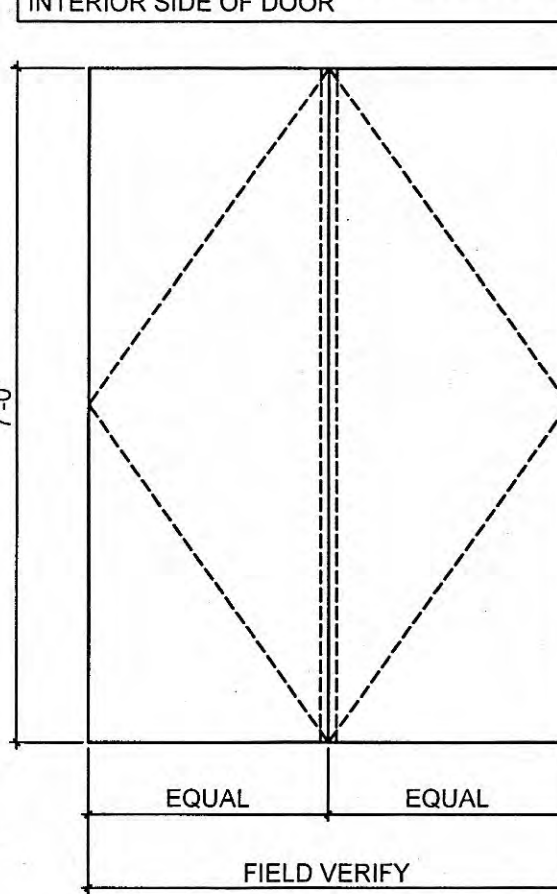


15 NEW LOUVER OPENING JAMB DETAIL
SCALE: 1 1/2"=1'-0"

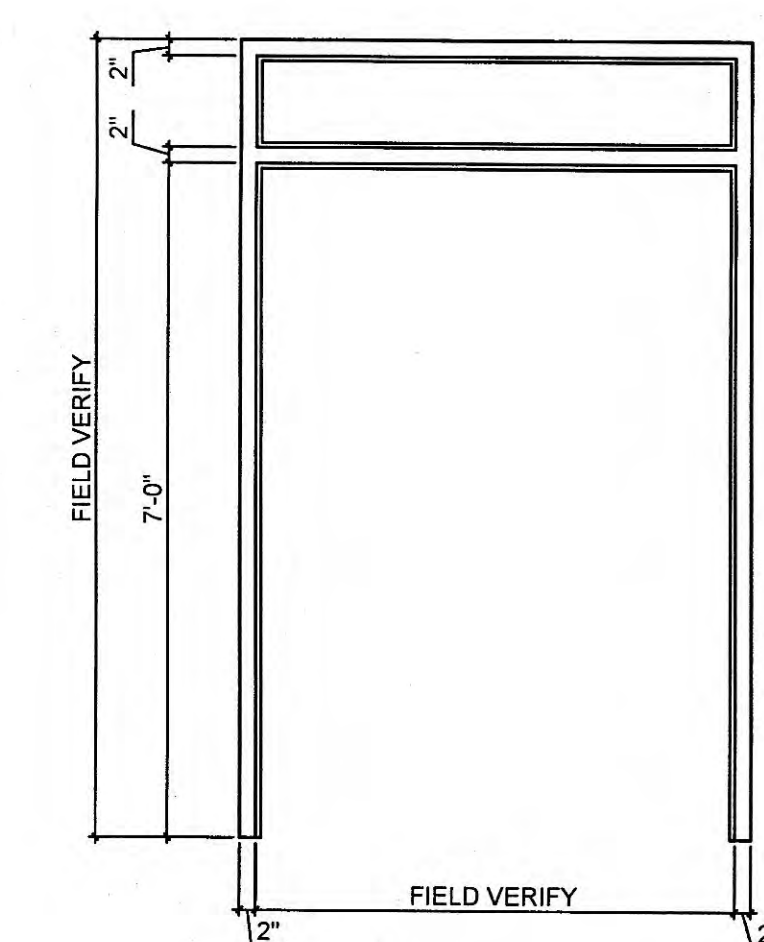


16 NEW LOUVER OPENING SILL DETAIL
SCALE: 1 1/2"=1'-0"

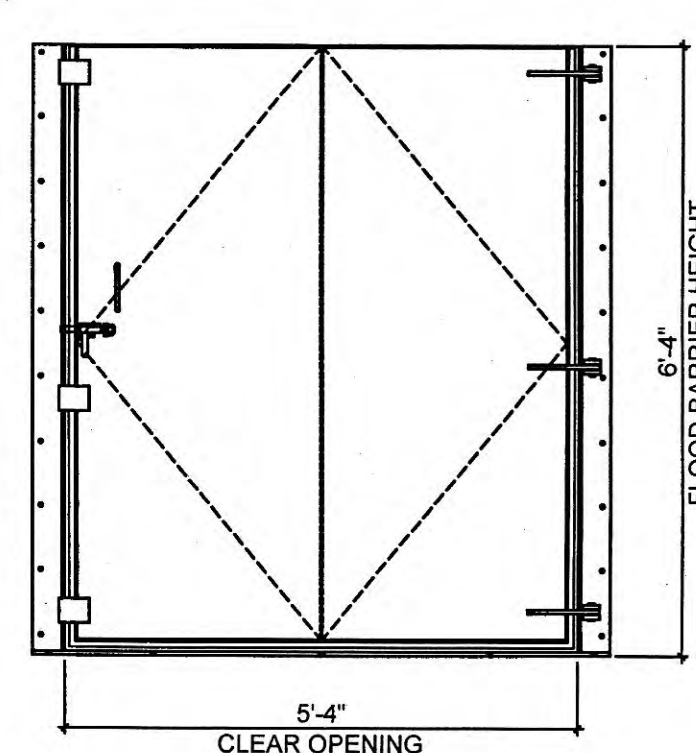
NOTES:
PROVIDE (1) FRP ASTRAGAL TO NEW FRP DOOR - ASTRAGAL TO BE INSTALLED ON INTERIOR SIDE OF DOOR



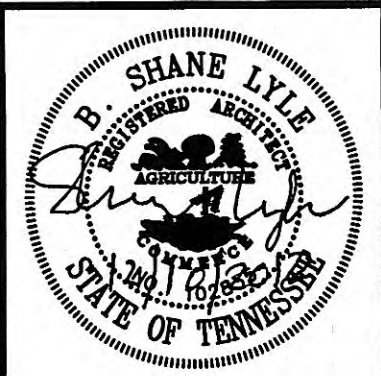
13 DOOR ELEVATION - (A)
SCALE: 1/2"=1'-0"



17 DOOR FRAME ELEVATION - (1)
SCALE: 1/2"=1'-0"



18 FLOOD BARRIER ELEVATION
SCALE: 1/2"=1'-0"



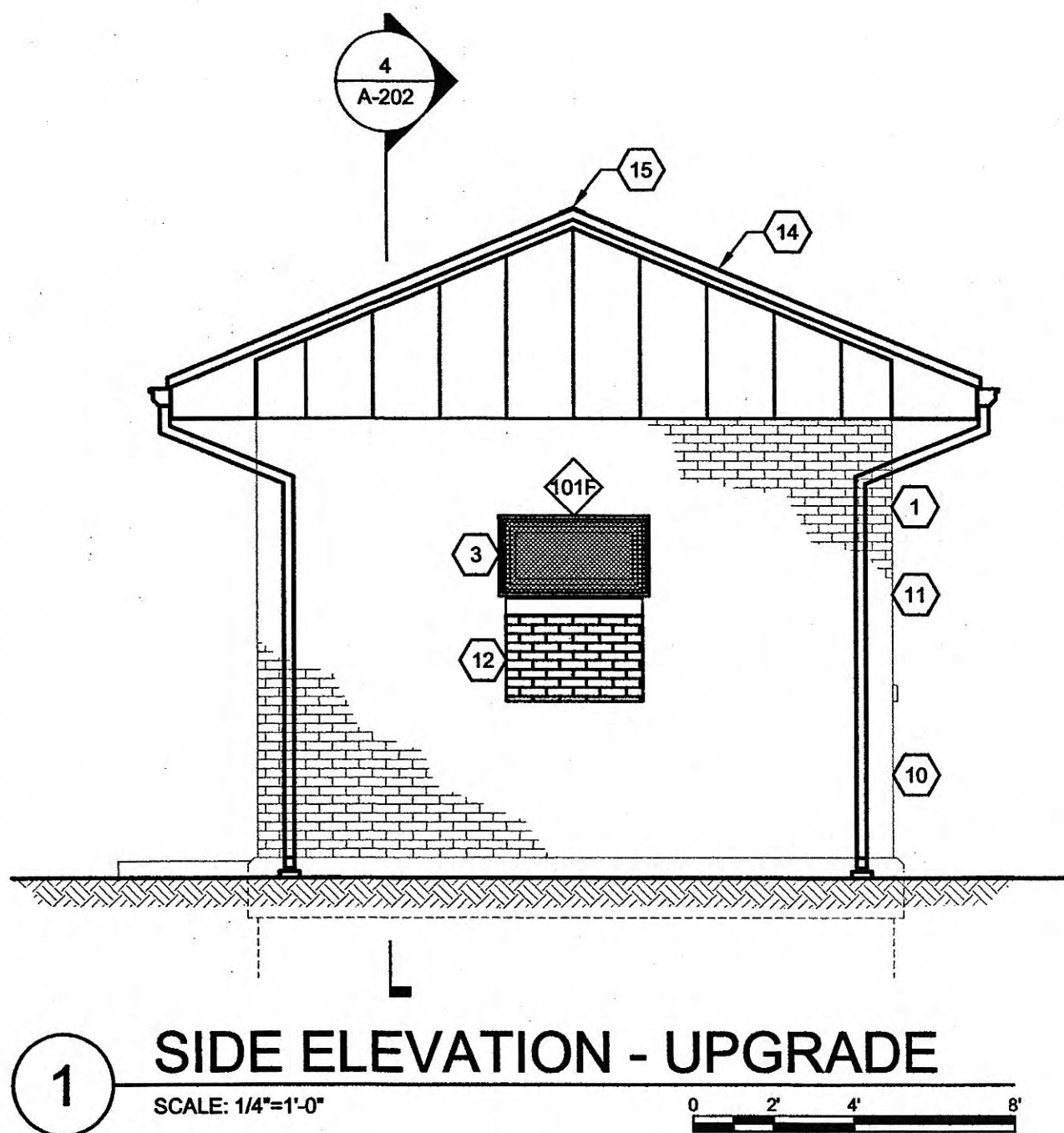
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CLIENT PROJECT NO.
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EXISTING LADD PUMP STATION
DEMOLITION AND UPGRADE FLOOR PLANS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

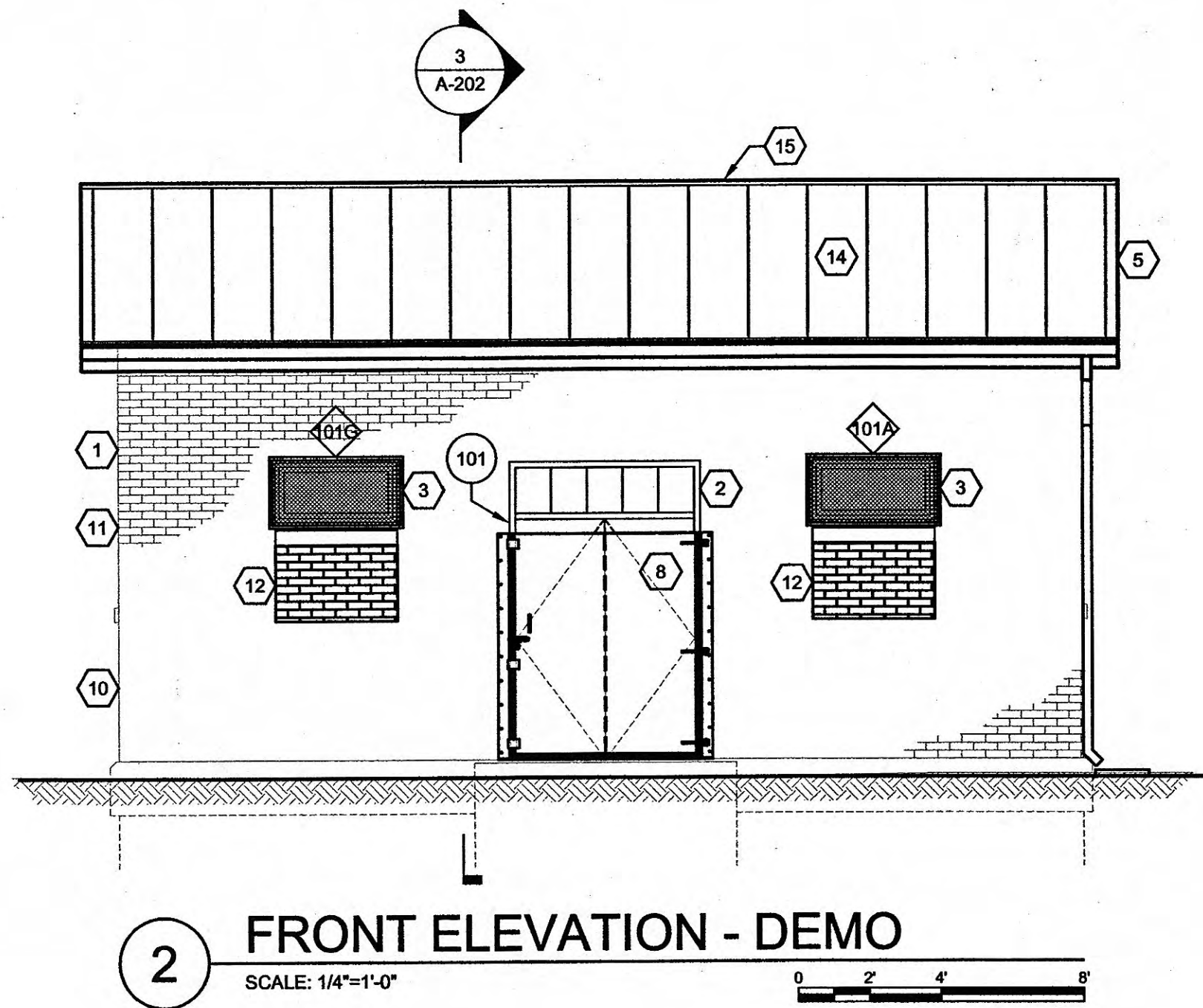
REVISIONS	DATE	BY	TMCH	BSL
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DATE: DECEMBER 2012
SCALE: 1/4" = 1'-0"
SHEET NO.
A-1-301



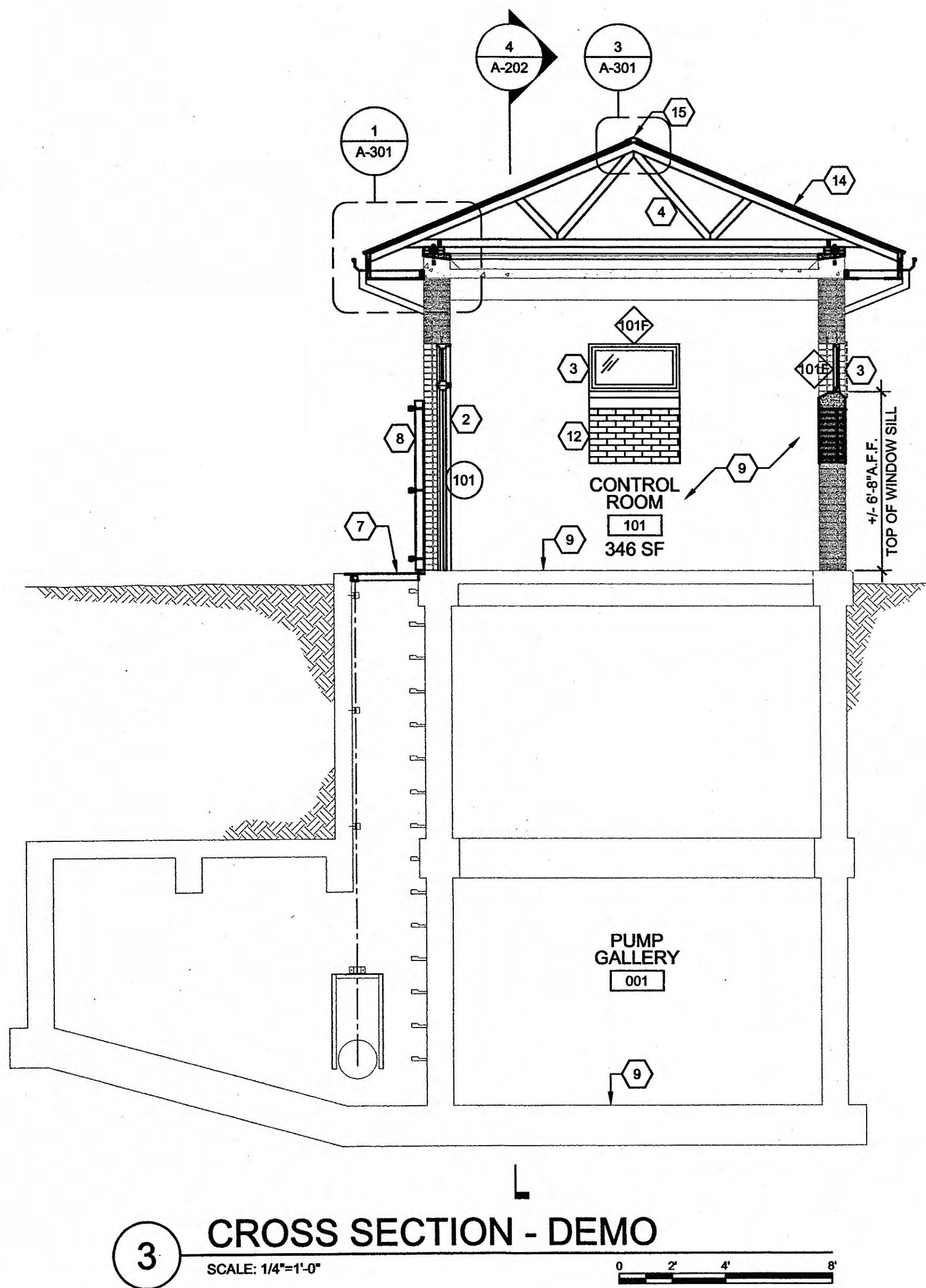
1 SIDE ELEVATION - UPGRADE

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



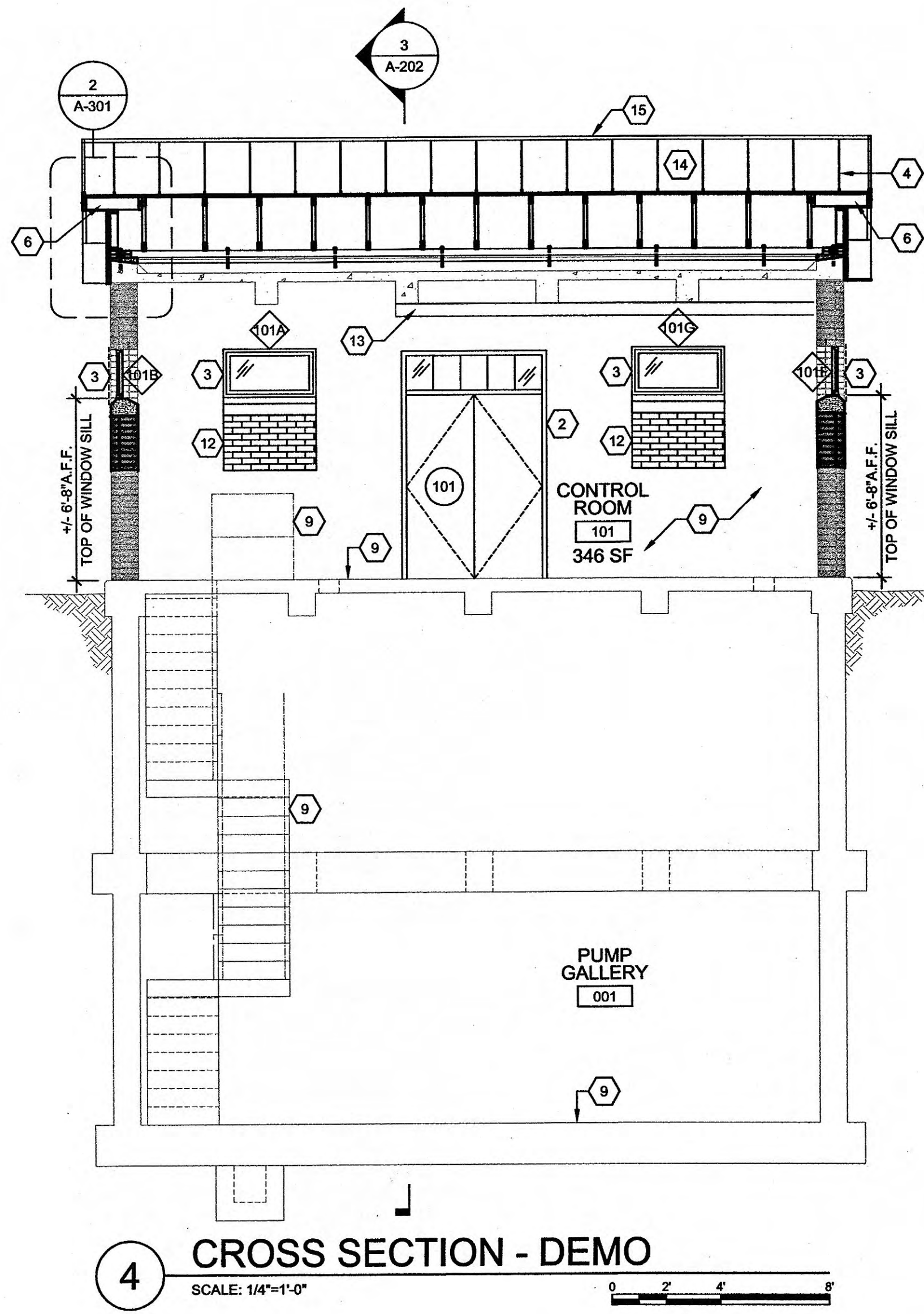
2 FRONT ELEVATION - DEMO

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



3 CROSS SECTION - DEMO

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



4 CROSS SECTION - DEMO

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

GENERAL NOTES:

- DOORS & WINDOWS ARE SHOWN FOR REFERENCE PURPOSES ONLY. SEE WINDOW & DOOR SCHEDULE FOR ACTUAL SIZES.
- SEE ARCHITECTURAL GENERAL SHEET A-0-001 FOR TYPICAL WALL TYPE DESCRIPTIONS.
- MECHANICAL, ELECTRICAL AND PLUMBING FIXTURES ILLUSTRATED AND NOT NOTED ON DRAWINGS ARE FOR ARCHITECTURAL LAYOUT PURPOSES ONLY. REFER TO RESPECTIVE DISCIPLINE DRAWINGS FOR EQUIPMENT IN CONTRACT.
- ROOM NUMBERS NOTED ON DRAWING ARE FOR DOCUMENT COORDINATION ONLY. ROOM NUMBERS NOTED ON DRAWINGS MAY NOT REFLECT THE ROOM NUMBERS ON SITE.
- PATCH ALL DISTURBED SURFACES TO MATCH ADJACENT CONSTRUCTION AND FINISH.

SYMBOL KEY:

- SEE SHEET A-0-001 FOR TYPICAL ARCHITECTURAL SYMBOLS

KEYNOTES:

- EXISTING BRICK COMPOSITE WALL - REMOVE BRICK AT LOCATIONS DESIGNATED FOR NEW LOUVER OPENINGS - SEE MECHANICAL
- PROVIDE NEW FRP DOOR PANELS, TRANSOM, AND DOOR FRAME - FIELD VERIFY WALL OPENING - PATCH EXISTING OPENING AS REQUIRED TO RECEIVE NEW DOOR
- PROVIDE NEW FRP WINDOWS - PATCH OPENING AS REQUIRED TO RECEIVE NEW WINDOWS
- PROVIDE PRE-ENGINEERED WOOD TRUSS ROOF FRAMING SYSTEM @ 24" O.C. - SEE SPEC SECTION 083950
- PROVIDE WOOD BLOCKING FASCIA
- PROVIDE NOMINAL 2x4 OUTLOOKER @ 18" O.C.
- PROVIDE NEW WATERTIGHT ALUMINUM ACCESS DOORS - SEE DETAIL 1/A-1-601 AND SPECIFICATION 083950
- PROVIDE NEW FLOOD BARRIER - SEE DETAIL 18/A-1-301 AND SPECIFICATION 083950
- PAINT INTERIOR WALLS, STAIRS, RAILINGS, STEEL FLOORS, AND CEILINGS AT ALL LEVELS - SEE SPECIFICATION 099611
- EXISTING EXTERIOR WALLS TO BE CLEANED AND SEALER APPLIED - SEE SPECIFICATION SECTIONS 049010 AND 071900
- REPOINT ALL CRACKS IN MORTAR JOINTS, AND PATCH HOLES WHERE EQUIPMENT, SCUPPERS, OR PIPING HAS BEEN REMOVED
- FILL AND PATCH EXISTING OPENING WITH BRICK TO ACCOMMODATE NEW WINDOW - MATCH BRICK COLOR AND CONSTRUCTION TO THAT OF THE EXISTING STRUCTURE
- EXISTING STEEL BEAM - SANDBLAST AND PREPARE FOR NEW PAINT
- PROVIDE STANDING SEAM METAL ROOF
- PROVIDE CONTINUOUS RIDGE VENT TO MATCH COLOR AND FINISH OF STANDING SEAM METAL ROOF - SEE DETAIL 3/A-1-301



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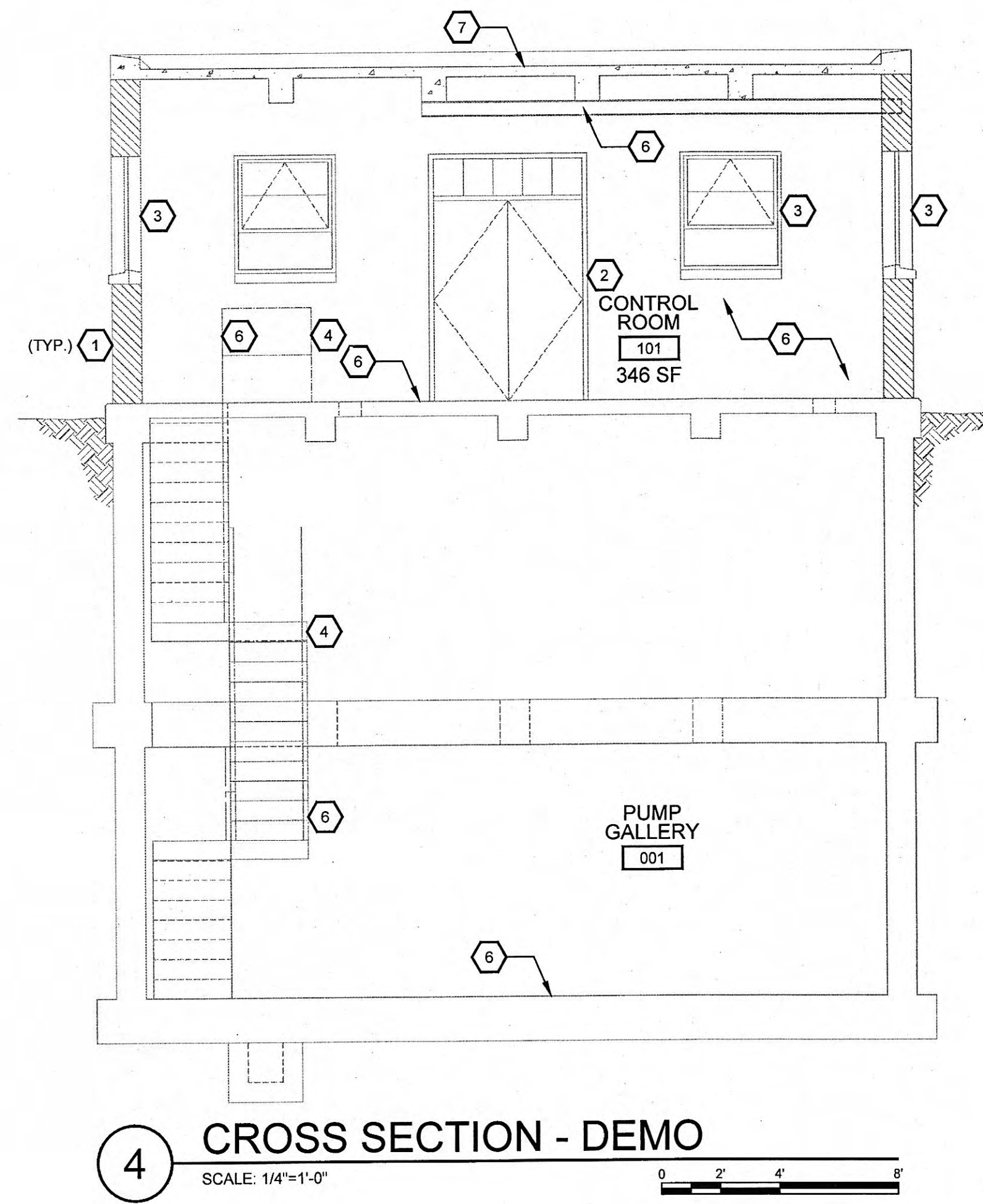
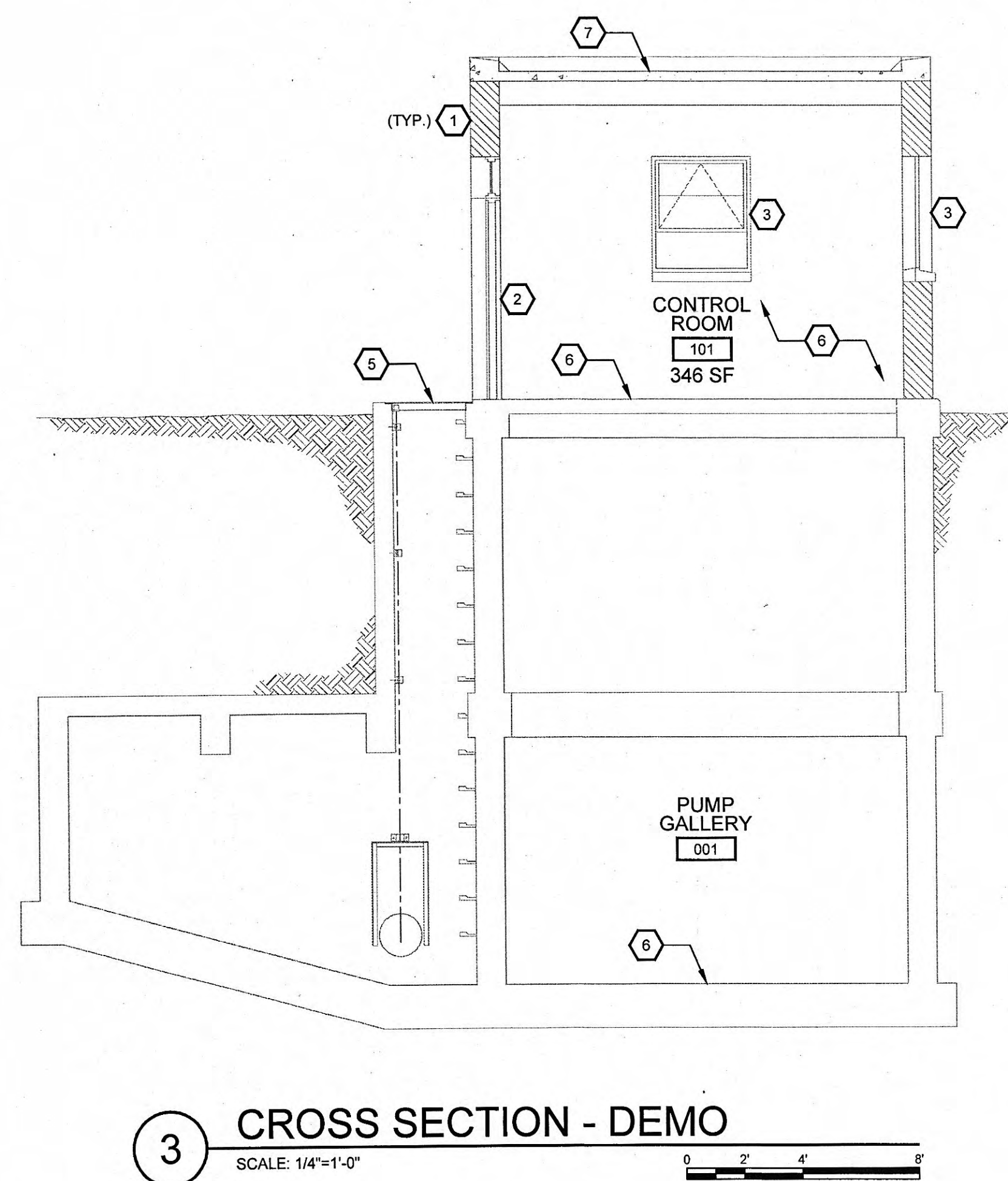
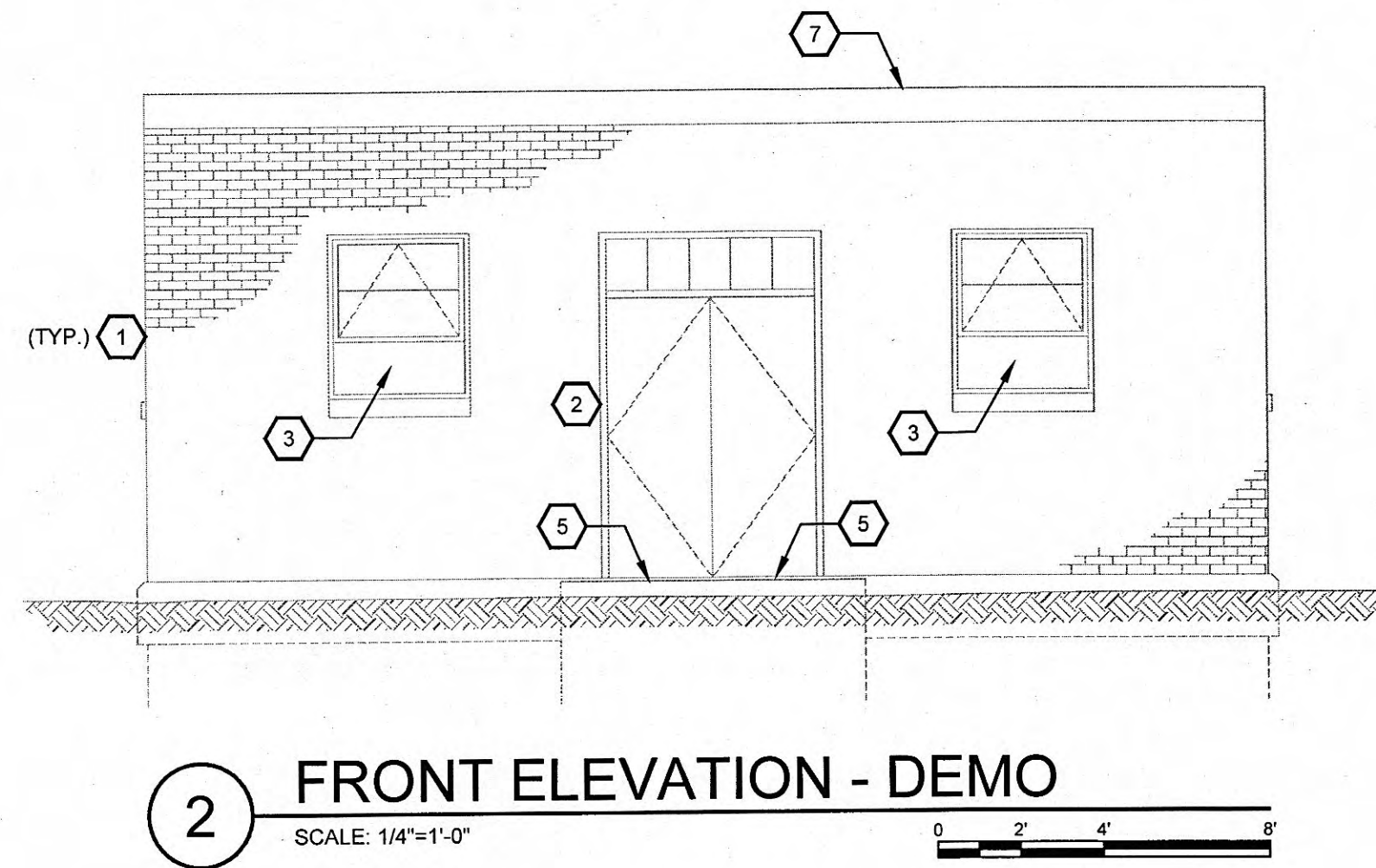
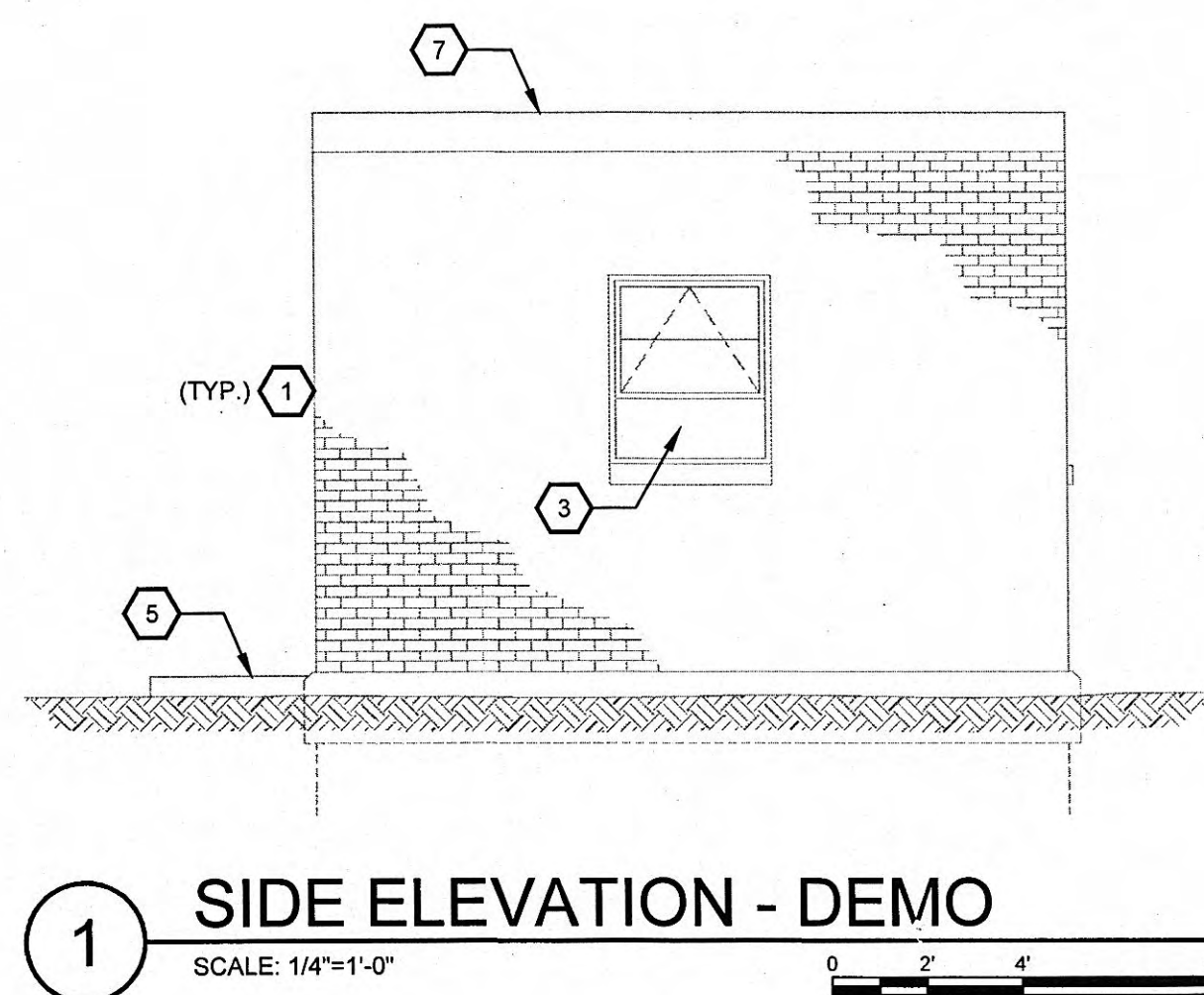
EXISTING LADD PUMP STATION DEMOLITION AND UPGRADE FLOOR PLANS PUMP STATION REHABILITATION CITY OF HARRIMAN, TENNESSEE

DESIGNED:	TMCH
DRAWN:	TMCH
REVIEWED:	BSL
APPROVED:	BSL

NO.	DATE	DESCRIPTION

DATE: DECEMBER 2012
SCALE: 1/4" = 1'-0"
SHEET NO.

A-1-202



GENERAL NOTES:

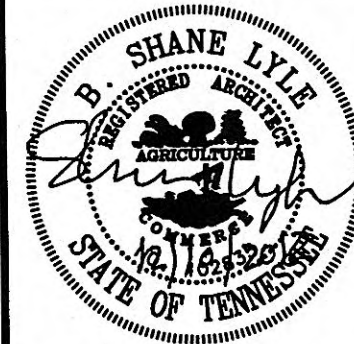
- DOORS & WINDOWS ARE SHOWN FOR REFERENCE PURPOSES ONLY. SEE WINDOW & DOOR SCHEDULE FOR ACTUAL SIZES.
- SEE ARCHITECTURAL GENERAL SHEET A-0-001 FOR TYPICAL WALL TYPE DESCRIPTIONS.
- MECHANICAL, ELECTRICAL AND PLUMBING FIXTURES ILLUSTRATED AND NOT NOTED ON DRAWINGS ARE FOR ARCHITECTURAL LAYOUT PURPOSES ONLY. REFER TO RESPECTIVE DISCIPLINE DRAWINGS FOR EQUIPMENT IN CONTRACT.
- ROOM NUMBERS NOTED ON DRAWING ARE FOR DOCUMENT COORDINATION ONLY. ROOM NUMBERS NOTED ON DRAWINGS MAY NOT REFLECT THE ROOM NUMBERS ON SITE.
- PATCH ALL DISTURBED SURFACES TO MATCH ADJACENT CONSTRUCTION AND FINISH.

SYMBOL KEY:

- SEE SHEET A-0-001 FOR TYPICAL ARCHITECTURAL SYMBOLS

KEYNOTES:

- EXISTING BRICK COMPOSITE WALL - REMOVE BRICK AT LOCATIONS DESIGNATED FOR NEW LOUVER OPENINGS - SEE MECHANICAL
- REMOVE EXISTING DOOR PANELS, DOOR FRAME, TRANSOM, AND DOOR THRESHOLD
- REMOVE EXISTING WINDOWS - SANDBLAST ALL SILLS BEFORE INSTALLATION OF NEW WINDOWS.
- EXISTING STAIR AND RAILING TO REMAIN
- REMOVE EXISTING STEEL PLATE DOORS
- SANDBLAST EXISTING INTERIOR WALLS, STAIRS, FLOORS, RAILINGS, STEEL, AND CEILINGS AT ALL LEVELS - PREP FOR PAINTING
- REMOVE EXISTING ROOFING MATERIAL DOWN TO EXISTING CONCRETE ROOF DECK - PATCH AND LEVEL AS REQUIRED FOR NEW ROOF INSTALLATION



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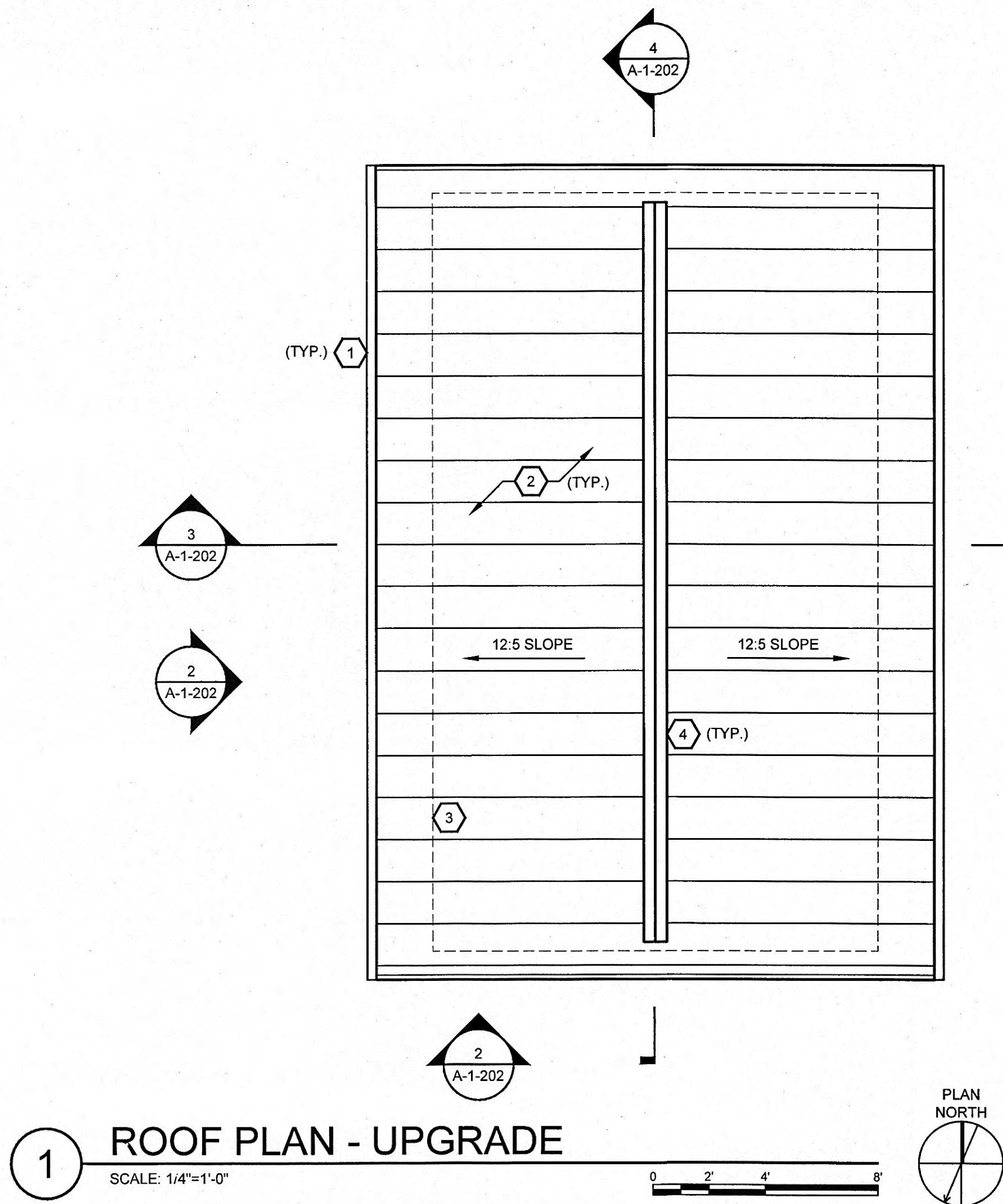
EXISTING LADD PUMP STATION DEMOLITION ELEVATIONS & SECTIONS PUMP STATION REHABILITATION CITY OF HARRIMAN, TENNESSEE

DESIGNED:	TMCH
DRAWN:	TMCH
REVIEWED:	BSL
APPROVED:	BSL

DATE
DECEMBER 2012
SCALE:
1/4" = 1'-0"

SHEET NO.

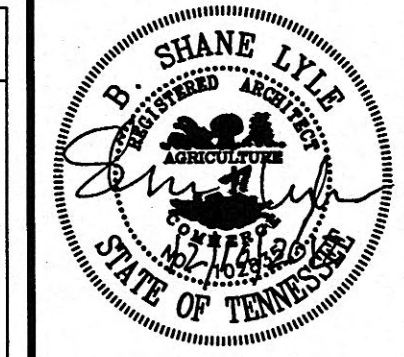
A-1-201



- GENERAL NOTES:**
- DOORS & WINDOWS ARE SHOWN FOR REFERENCE PURPOSES ONLY, SEE WINDOW & DOOR SCHEDULE FOR ACTUAL SIZES.
 - SEE ARCHITECTURAL GENERAL SHEET A-0-001 FOR TYPICAL WALL TYPE DESCRIPTIONS.
 - MECHANICAL, ELECTRICAL AND PLUMBING FIXTURES ILLUSTRATED AND NOT NOTED ON DRAWINGS ARE FOR ARCHITECTURAL LAYOUT PURPOSES ONLY. REFER TO RESPECTIVE DISCIPLINE DRAWINGS FOR EQUIPMENT IN CONTRACT.
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 - PATCH ALL DISTURBED SURFACES TO MATCH ADJACENT CONSTRUCTION AND FINISH.

- SYMBOL KEY:**
- SEE SHEET A-0-001 FOR TYPICAL ARCHITECTURAL SYMBOLS

- KEYNOTES:**
- PROVIDE PRE-FINISHED NEW GUTTERS
 - PROVIDE NEW PRE-FINISHED STANDING SEAM METAL ROOF
 - EXISTING BUILDING OUTLINE BEYOND
 - PROVIDE NEW RIDGE VENT TO MATCH ROOF COLOR AND FINISH - SEE DETAIL 3/A-1-301



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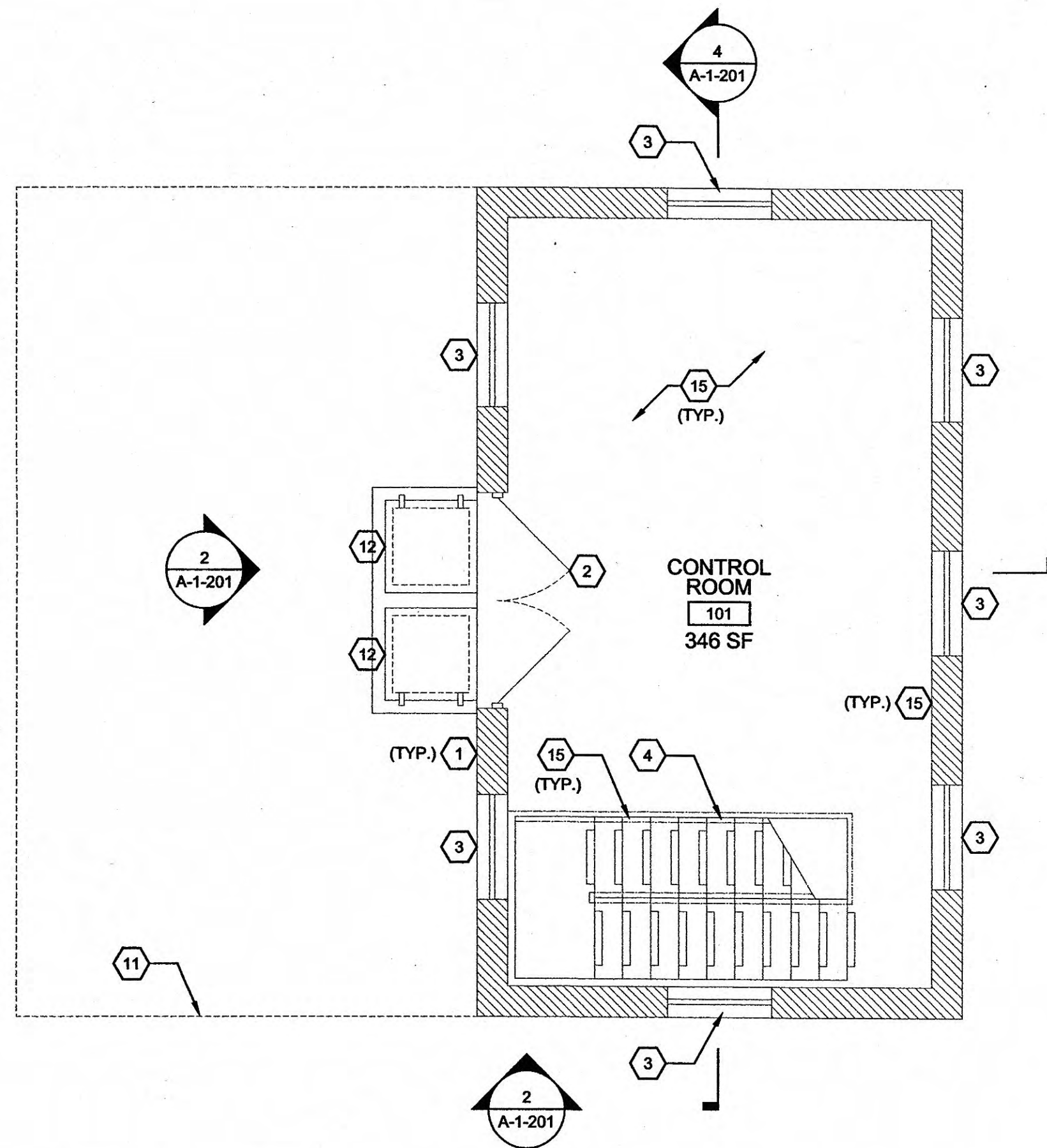
**EXISTING LADD PUMP STATION
DEMOLITION AND UPGRADE FLOOR PLANS II**
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

DESIGNED:	TMCH
DRAWN:	TMCH
REVIEWED:	BSL
APPROVED:	BSL

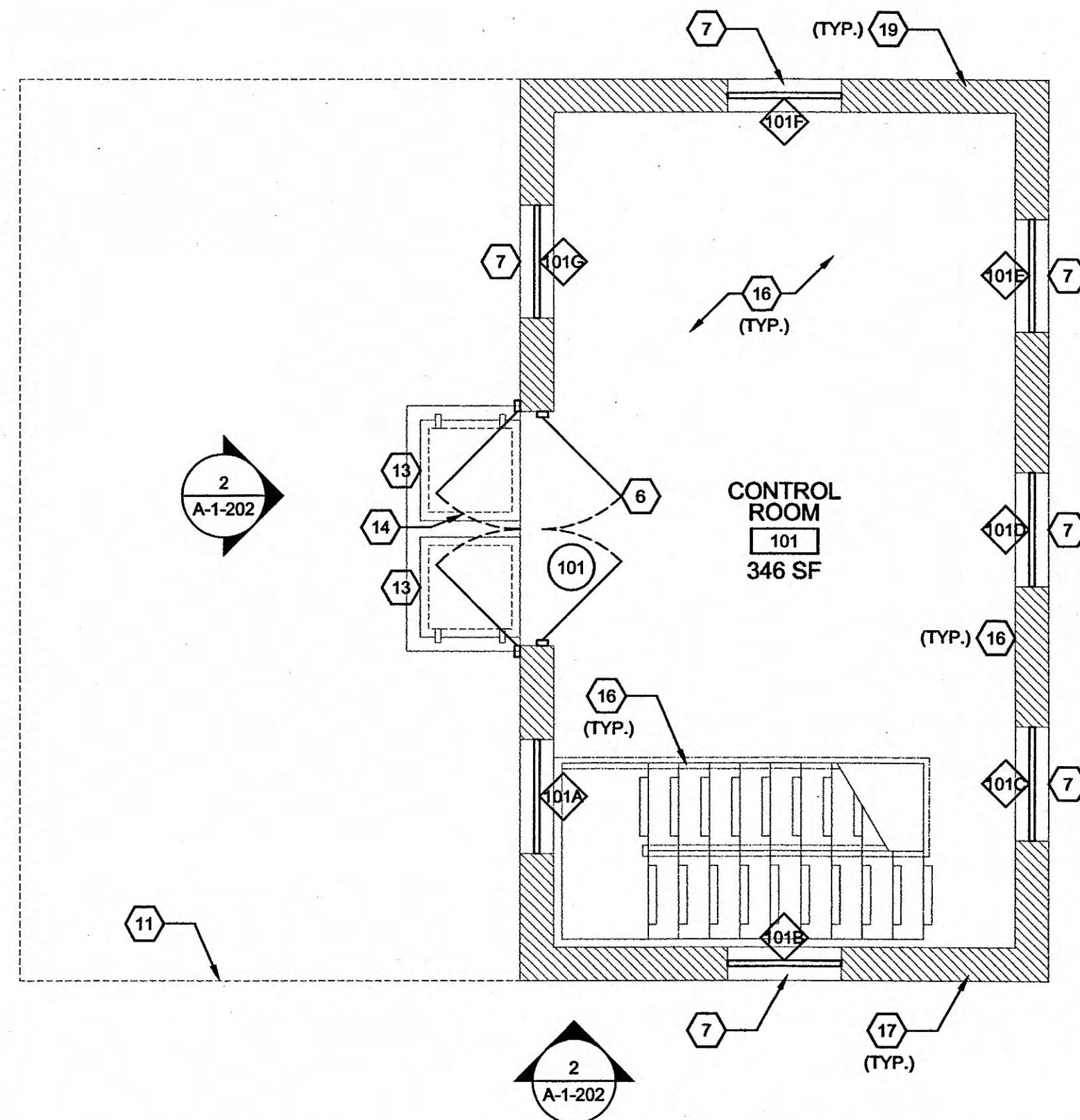
NO.	REVISIONS DESCRIPTION	DATE	BY

SCALE CHECK: _____ THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

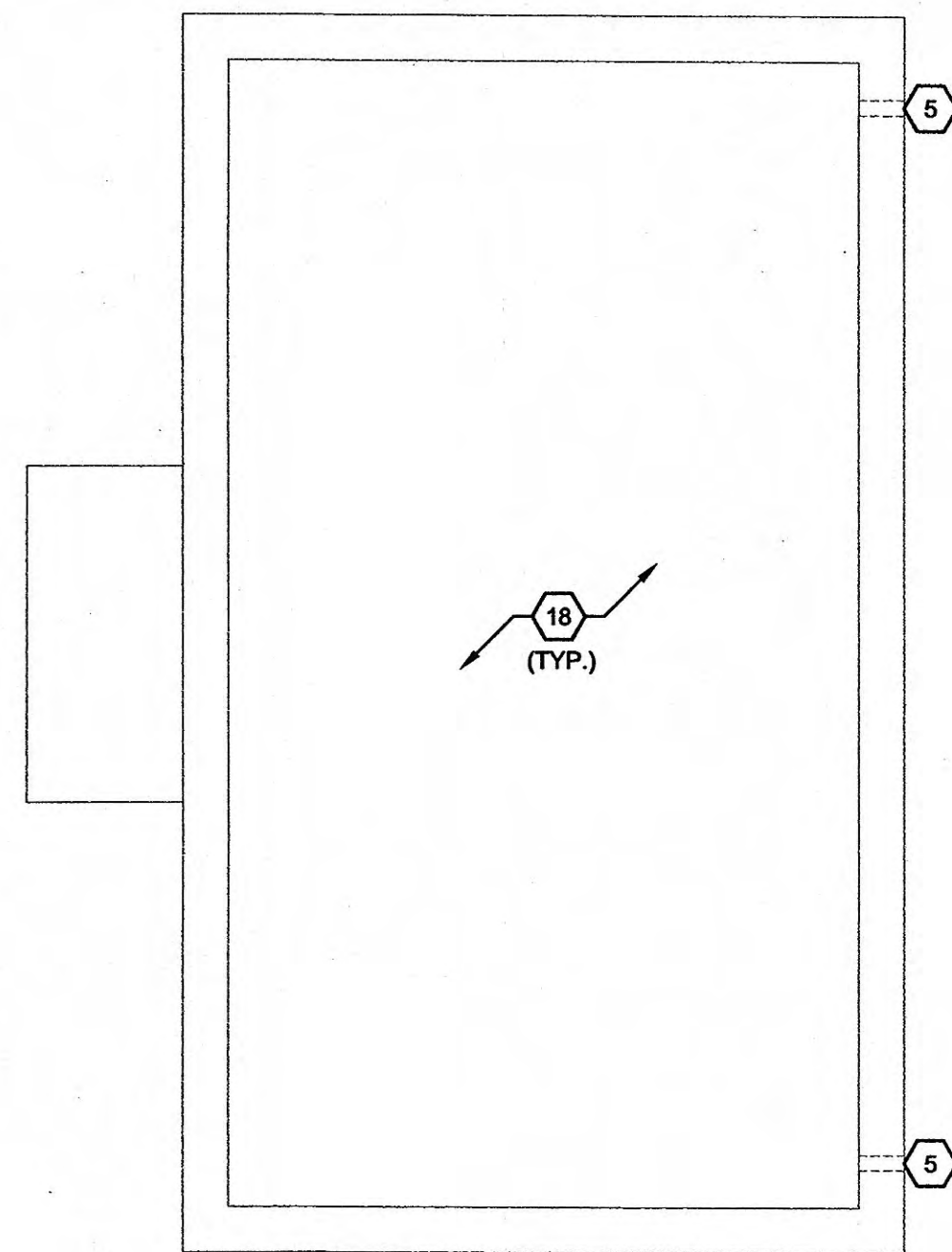
DATE: DECEMBER 2012
SCALE: 1/4" = 1'-0"
SHEET NO. A-1-102



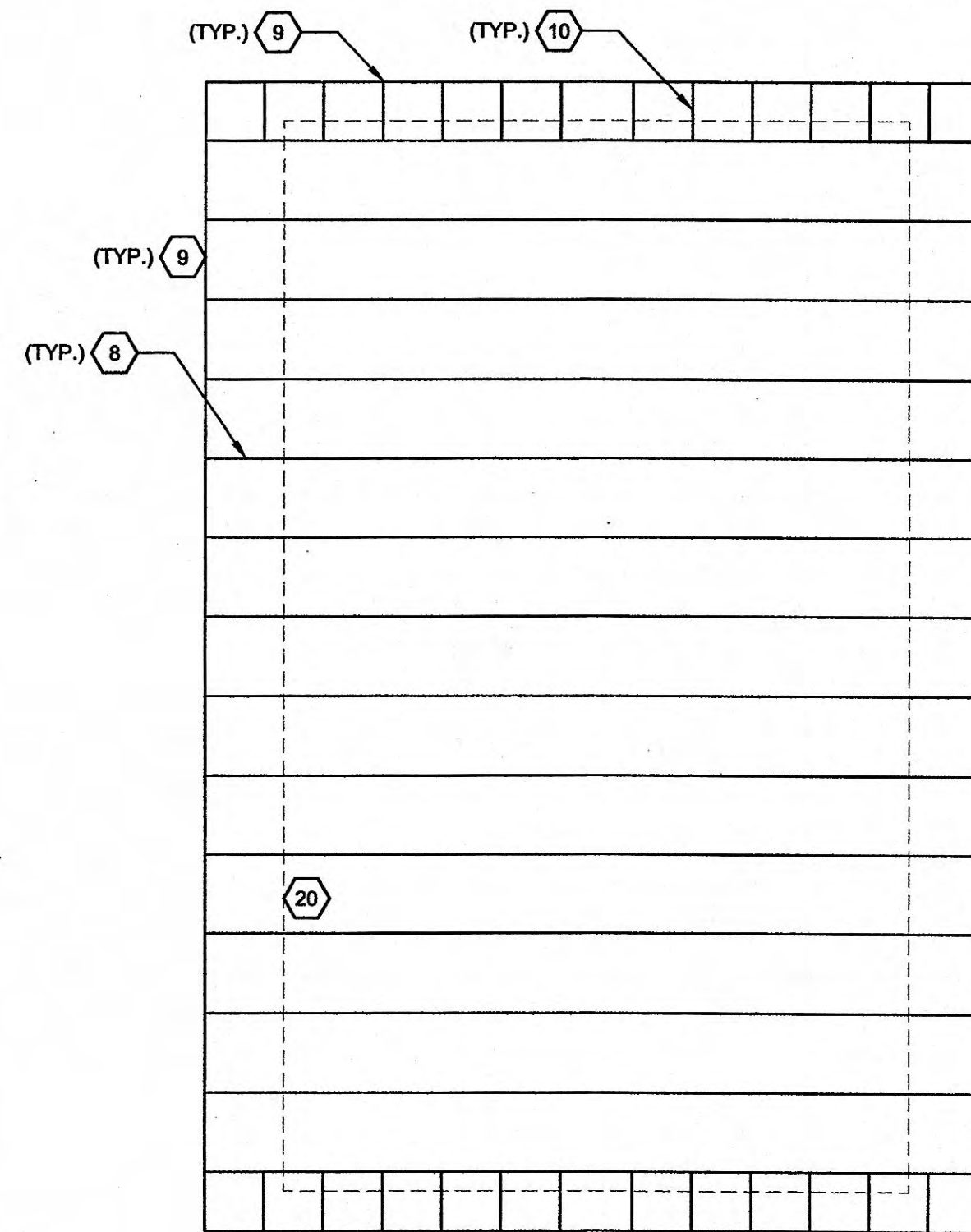
1 ENTRANCE FLOOR PLAN - DEMO
SCALE: 1/4"=1'-0"



2 ENTRANCE FLOOR PLAN - UPGRADE
SCALE: 1/4"=1'-0"



3 ROOF PLAN - DEMO
SCALE: 1/4"=1'-0"



4 ROOF PLAN - UPGRADE
SCALE: 1/4"=1'-0"

GENERAL NOTES:

- DOORS & WINDOWS ARE SHOWN FOR REFERENCE PURPOSES ONLY. SEE WINDOW & DOOR SCHEDULE FOR ACTUAL SIZES.
- SEE ARCHITECTURAL GENERAL SHEET A-0-001 FOR TYPICAL WALL TYPE DESCRIPTIONS.
- MECHANICAL, ELECTRICAL AND PLUMBING FIXTURES ILLUSTRATED AND NOT NOTED ON DRAWINGS ARE FOR ARCHITECTURAL LAYOUT PURPOSES ONLY. REFER TO RESPECTIVE DISCIPLINE DRAWINGS FOR EQUIPMENT IN CONTRACT.
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SYMBOL KEY:

- SEE SHEET A-0-001 FOR TYPICAL ARCHITECTURAL SYMBOLS

KEYNOTES:

- EXISTING BRICK COMPOSITE WALL - REMOVE BRICK AT LOCATIONS DESIGNATED FOR NEW LOUVER OPENINGS - SEE MECHANICAL
- REMOVE EXISTING DOOR PANELS, DOOR FRAME, TRANSOM, AND DOOR THRESHOLD
- REMOVE EXISTING WINDOWS - SANDBLAST ALL SILLS AND LINTELS BEFORE INSTALLATION OF NEW WINDOWS.
- EXISTING STAIR AND RAILING TO REMAIN
- REMOVE EXISTING SCUPPERS
- PROVIDE NEW FRP DOOR PANELS, TRANSOM, AND DOOR FRAME - FIELD VERIFY WALL OPENING - PATCH EXISTING OPENING AS REQUIRED TO RECEIVE NEW DOOR
- PROVIDE NEW FRP WINDOWS - PATCH OPENING AS REQUIRED TO RECEIVE NEW WINDOWS
- PROVIDE PRE-ENGINEERED WOOD TRUSS ROOF FRAMING SYSTEM @ 24" O.C. - SEE SPEC SECTION
- PROVIDE WOOD BLOCKING FASCIA
- PROVIDE NOMINAL 2x4 OUTLOOKER @ 18" O.C.
- CONCRETE BASIN BELOW
- REMOVE EXISTING STEEL PLATE DOORS
- PROVIDE NEW WATERTIGHT ALUMINUM ACCESS DOORS - SEE DETAIL 1/A-1-801 AND SPECIFICATION 083950
- PROVIDE NEW FLOOD BARRIER - SEE DETAIL 17/A-1-301 AND SPECIFICATION 083950.
- SANDBLAST EXISTING INTERIOR WALLS, STAIRS, RAILINGS, STEEL, AND CEILINGS AT ALL LEVELS - PREP FOR PAINTING
- PAINT INTERIOR WALLS, STAIRS, RAILINGS, STEEL, FLOORS, AND CEILINGS AT ALL LEVELS - SEE SPECIFICATION 099611
- EXISTING EXTERIOR WALLS TO BE CLEANED AND SEALER APPLIED - SEE SPECIFICATION SECTIONS 049010 & 071900
- REMOVE EXISTING ROOFING MATERIAL DOWN TO EXISTING CONCRETE ROOF DECK - PATCH AND LEVEL AS REQUIRED FOR NEW ROOF INSTALLATION
- REPOINT ALL CRACKS IN MORTAR JOINTS, AND PATCH HOLES WHERE EQUIPMENT, SCUPPERS, OR PIPING HAS BEEN REMOVED
- EXISTING BUILDING OUTLINE BELOW



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**EXISTING LADD PUMP STATION
DEMOLITION AND UPGRADE FLOOR PLANS I**
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

DESIGNED	BY	DATE	DESCRIPTION	REVISIONS
TMCH				
TMCH				
BSL				
BSL				

DATE: DECEMBER 2012
SCALE: 1/4" = 1'-0"
SHEET NO.

A-1-101

GENERAL ARCHITECTURAL NOTES:

- 1. CONTRACTOR AND SUB-CONTRACTORS TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO BEGINNING CONSTRUCTION OR ORDERING MATERIALS
- 2. EACH TRADE SHALL BE RESPONSIBLE FOR COORDINATING AND SEQUENCING ALL WORK WITH OTHER TRADES
- 3. CONTRACTOR SHALL PROVIDE ALL FURNISHINGS AND OTHER BUILDING COMPONENTS UNLESS NOTED OTHERWISE

APPLICABLE BUILDING & FIRE CODES:

2006 INTERNATIONAL BUILDING CODE (EXCLUDING CHAPTERS 11 & 27)
INTERNATIONAL CODE COUNCIL, INC.
900 MONTCLAIR ROAD
BIRMINGHAM, AL 35213-1206

2006 NFPA 101 LIFE SAFETY CODE
NATIONAL FIRE PROTECTION ASSOCIATION
1 BATTERYMARCH PARK
QUINCY, MA 02269-9101

2006 INTERNATIONAL FIRE CODE
INTERNATIONAL CODE COUNCIL, INC.
900 MONTCLAIR ROAD
BIRMINGHAM, AL 35213-1206

2002 NORTH CAROLINA ACCESSIBILITY CODE WITH THE 2004 AMENDMENTS

CHAPTER 3:
OCCUPANCY TYPE (U) Utility

CHAPTER 5:
ALLOWABLE BUILDING HEIGHT / ACTUAL BUILDING HEIGHT 1 / 1
ALLOWABLE BUILDING AREA / ACTUAL BUILDING AREA 5,500 SF / 692 SF

CHAPTER 6:
CONSTRUCTION TYPE V-B (UNPROTECTED)

ARCHITECTURAL SYMBOL KEY:

#

REVISION SCHEDULE TAG

#

KEYNOTE SCHEDULE TAG

###

EQUIPMENT SCHEDULE TAG

#

WINDOW SCHEDULE TAG

#

DOOR SCHEDULE TAG

#

WALL SCHEDULE TAG

#

COLUMN LINE TAG

F.F.E.
EL. ###

ELEVATION TAG

###

SPOT ELEVATION TAG

#-#-###

SECTION CUT TAG

#-#-###

EXTERIOR ELEVATION TAG

#-#-###

INTERIOR ELEVATION TAG

PLAN
NORTH

NORTH ARROW

#-#-###

DETAIL INDICATOR

#

DETAIL INDICATOR

#-#-###

DETAIL INDICATOR WITH AREA

STATE OF TENNESSEE
REGISTERED ARCHITECT
P. SHANE LILL
12162
12/10/2012

GRV PROJECT NO. 3947.01

CLIENT PROJECT NO.

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GENERAL ARCHITECTURAL SHEET
NOTES AND SYMBOLS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

DESIGNER: TMCH

BY: DATE:

REVISIONS

DESCRIPTION

NO.

DATE

BY

TMCH

TMCH

BSL

BSL

APPROVED

APPROVED

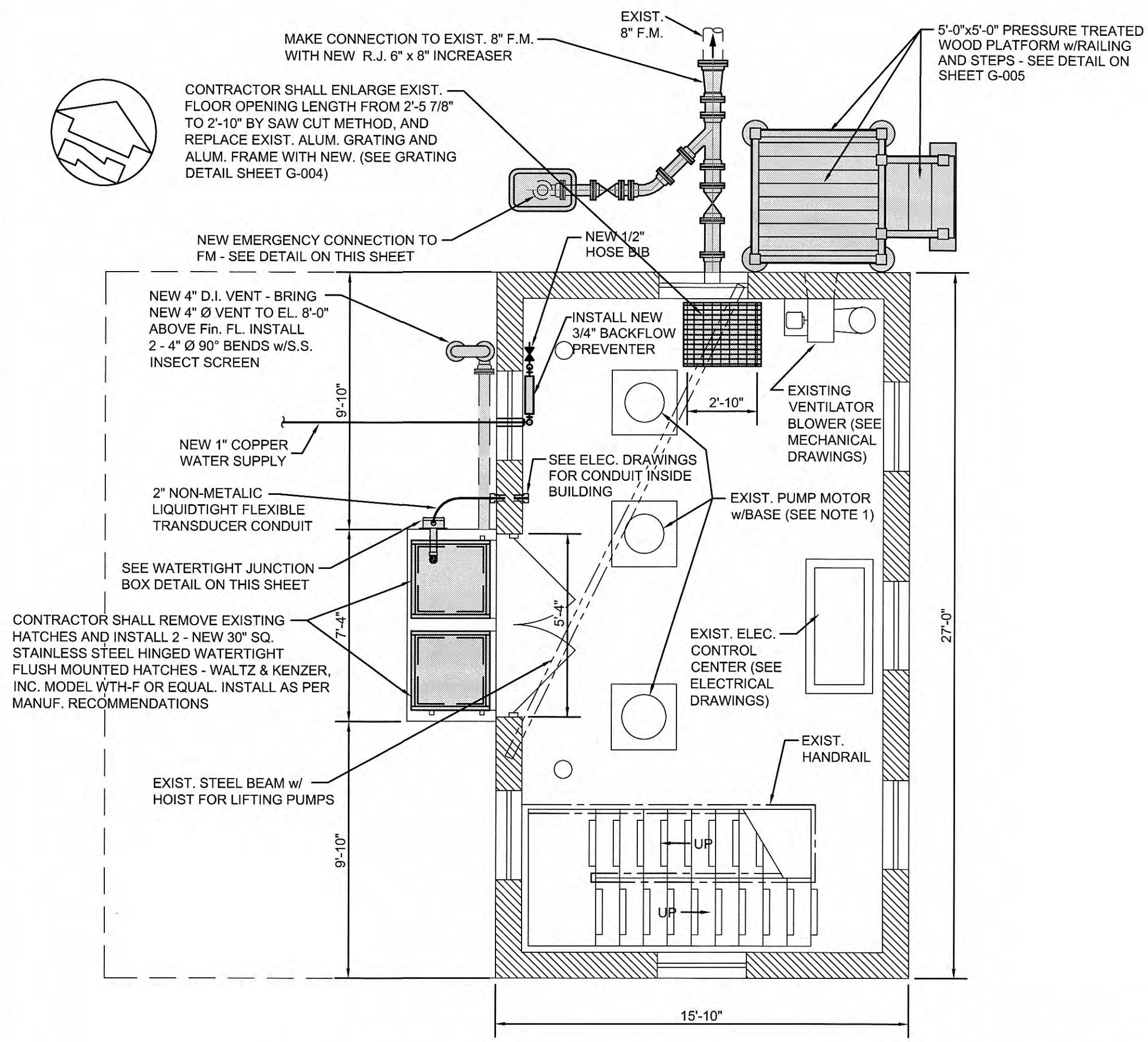
SCALE CHECK

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: DECEMBER 2012

SCALE: N/A

SHEET NO. A-0-001

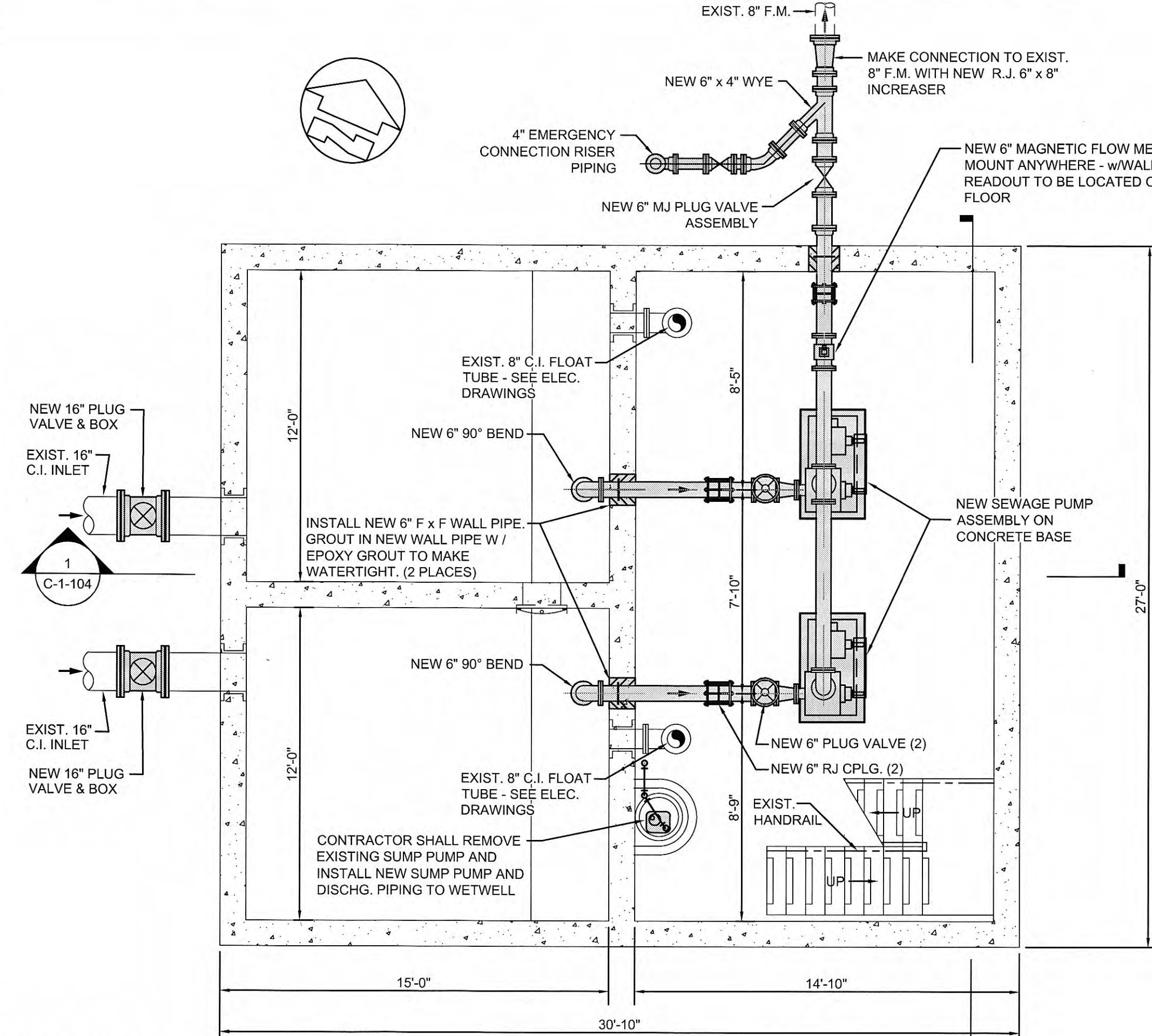


ENTRANCE FLOOR PLAN

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

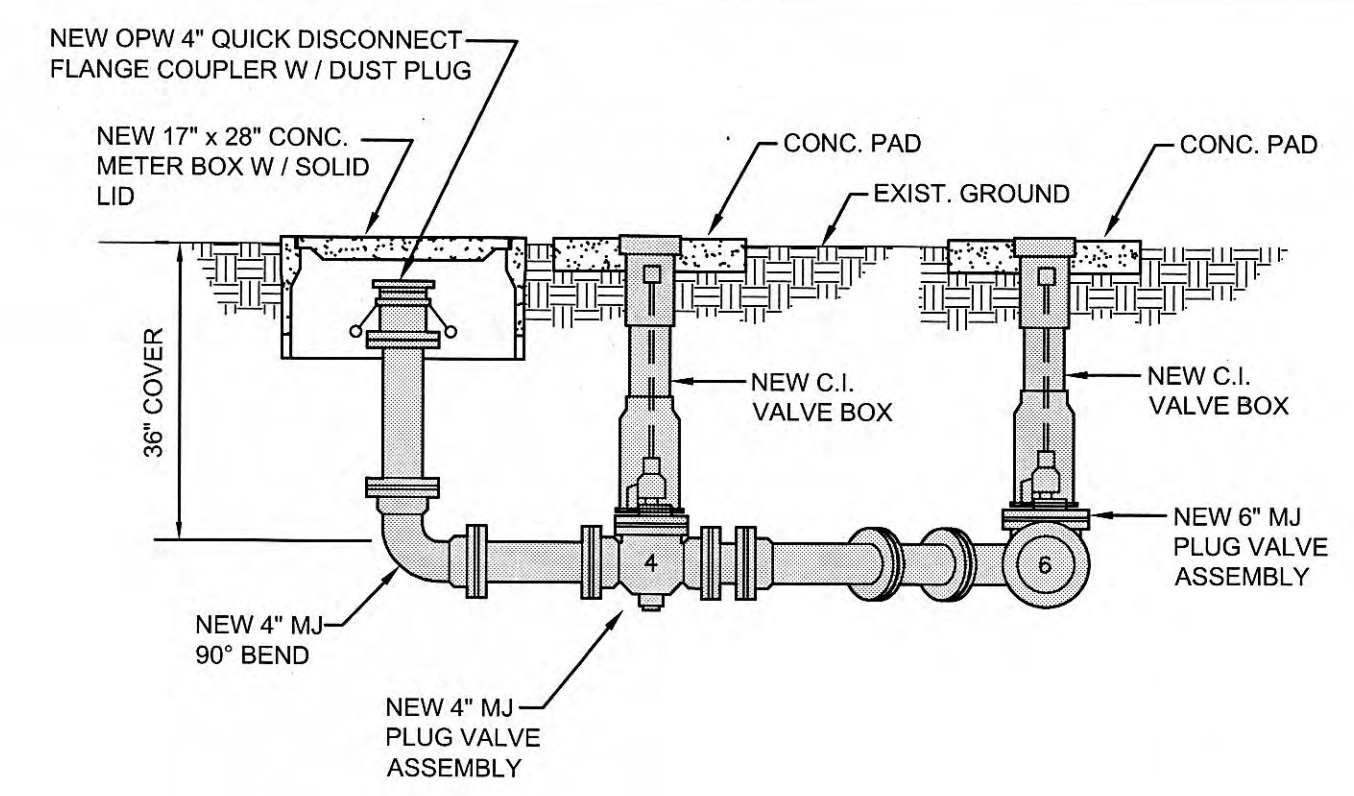
UPGRADE LEGEND

- INDICATES NEW EQUIPMENT / PIPING
- INDICATES EXISTING CONC. STRUCTURE
- INDICATES EXISTING EQUIPMENT / PIPING TO REMAIN



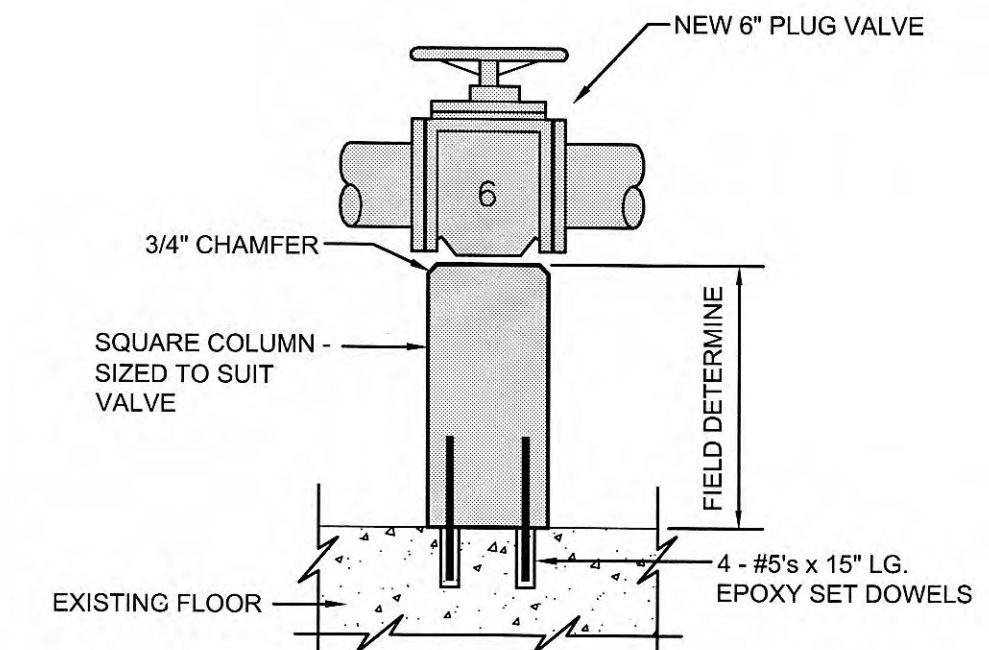
PUMP ROOM PLAN

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



EMERGENCY CONNECTION DETAIL

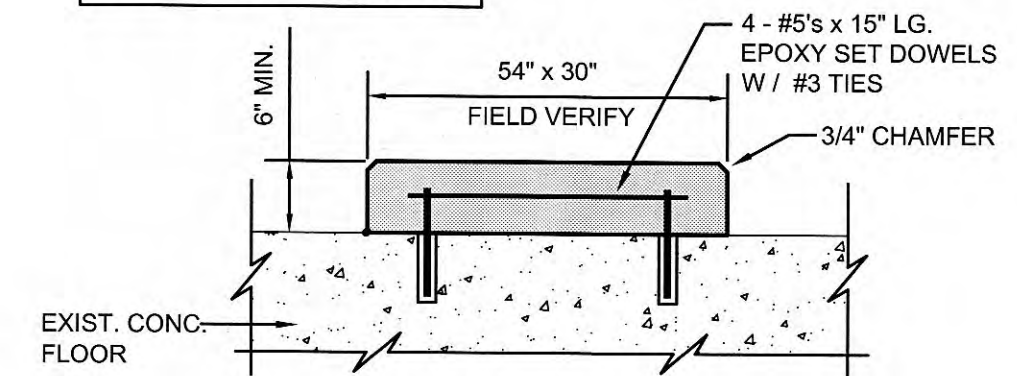
SCALE: 1/2"=1'-0"



VALVE SUPPORT DETAIL

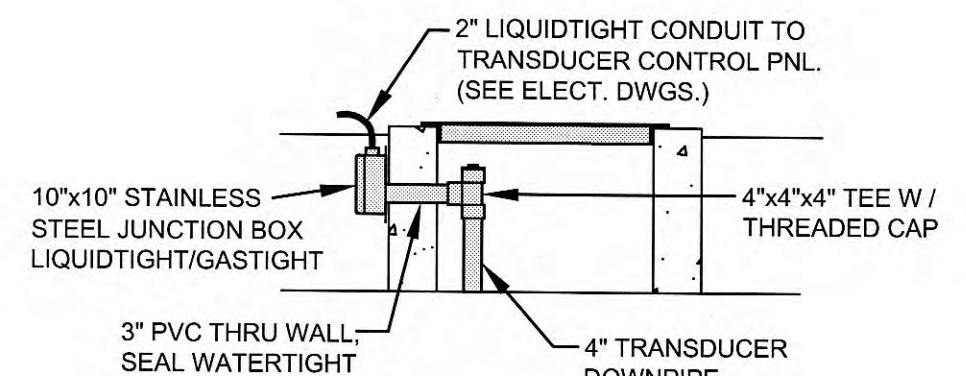
SCALE: 3/4"=1'-0"

ANCHOR PUMPS AS PER MANUF. RECOMMENDATIONS



PUMP BASE DETAIL

SCALE: 3/4"=1'-0"

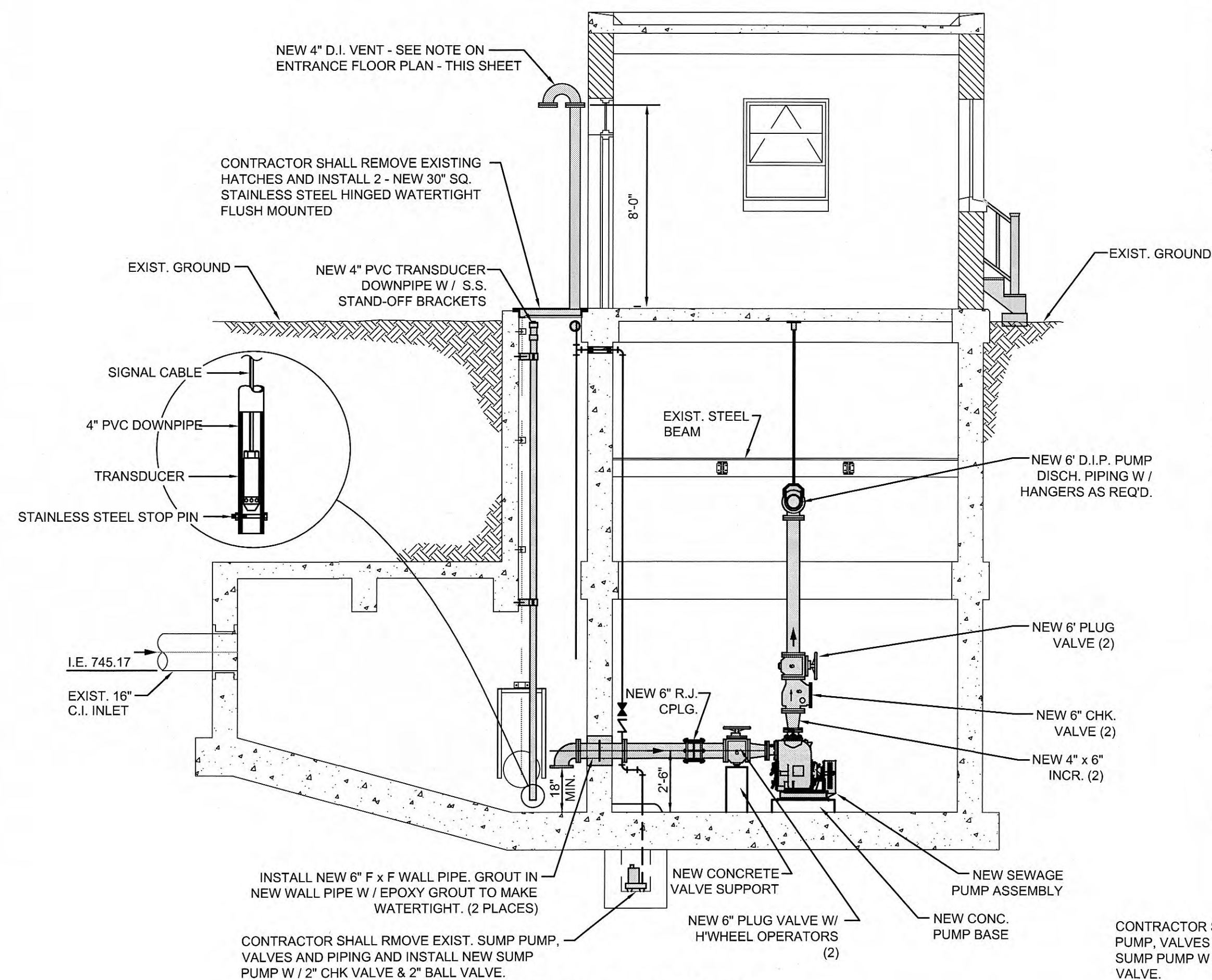


WATERTIGHT J.B. DETAIL

SCALE: 3/8"=1'-0"

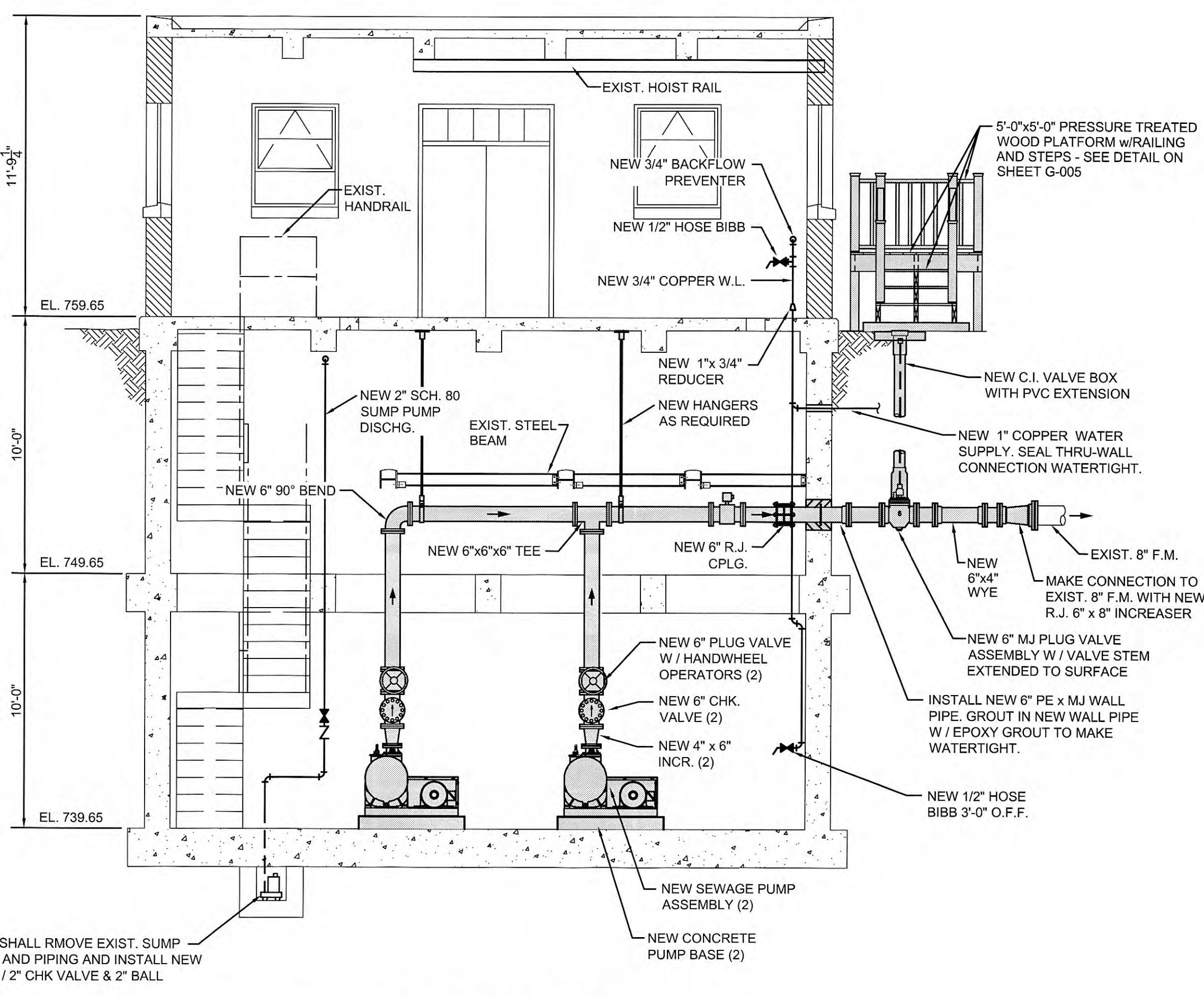
NOTES:

- CONTRACTOR SHALL REMOVE EXISTING SEWAGE PUMPS, PIPING, VALVES, BASE SLABS, AND PIERS.
- CONTRACTOR SHALL PATCH, CLEAN AND SEAL FLOORS AFTER REMOVAL OF PUMP MOTORS AND BASE PLATES.
- CONTRACTOR SHALL REMOVE EXISTING WALL SLEEVE AND GROUT OPENING TO MAKE WATERTIGHT.
- SEE ARCHITECTURAL DRAWINGS FOR MODIFICATIONS TO EXISTING PUMP STATION BUILDING.
- FIELD LOCATE NEW SEWAGE PUMPS SO AS TO NOT INTERFERE WITH THE OPERATION OF THE EXISTING FLOOR DRAINS.
- ALL EMERGENCY CONNECTION PIPING AND CONNECTION TO EXISTING F.M. SHALL BE RESTRAINED JOINT.



SECTION VIEW 1

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



SECTION VIEW 2

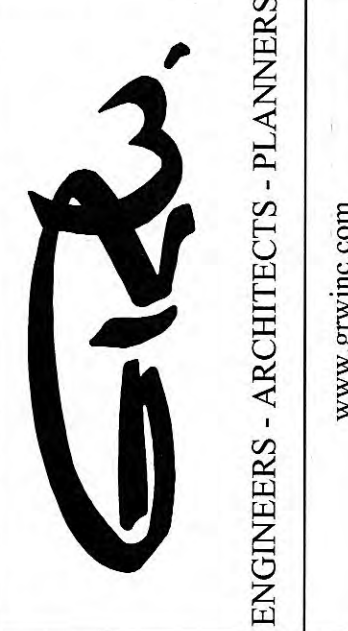
SCALE: 1/4"=1'-0"



GRW PROJECT NO. 3947-01

CLIENT PROJECT NO.

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EXISTING LADD PUMP STATION
NEW EQUIPMENT, PLAN & SECTIONS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

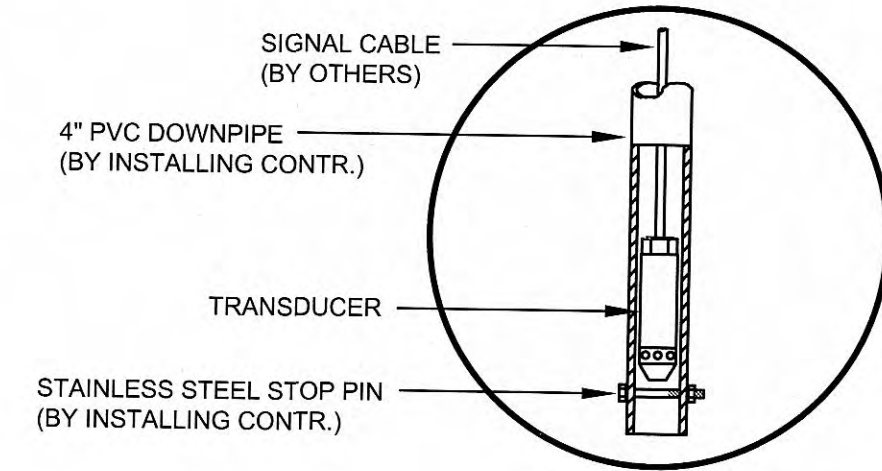
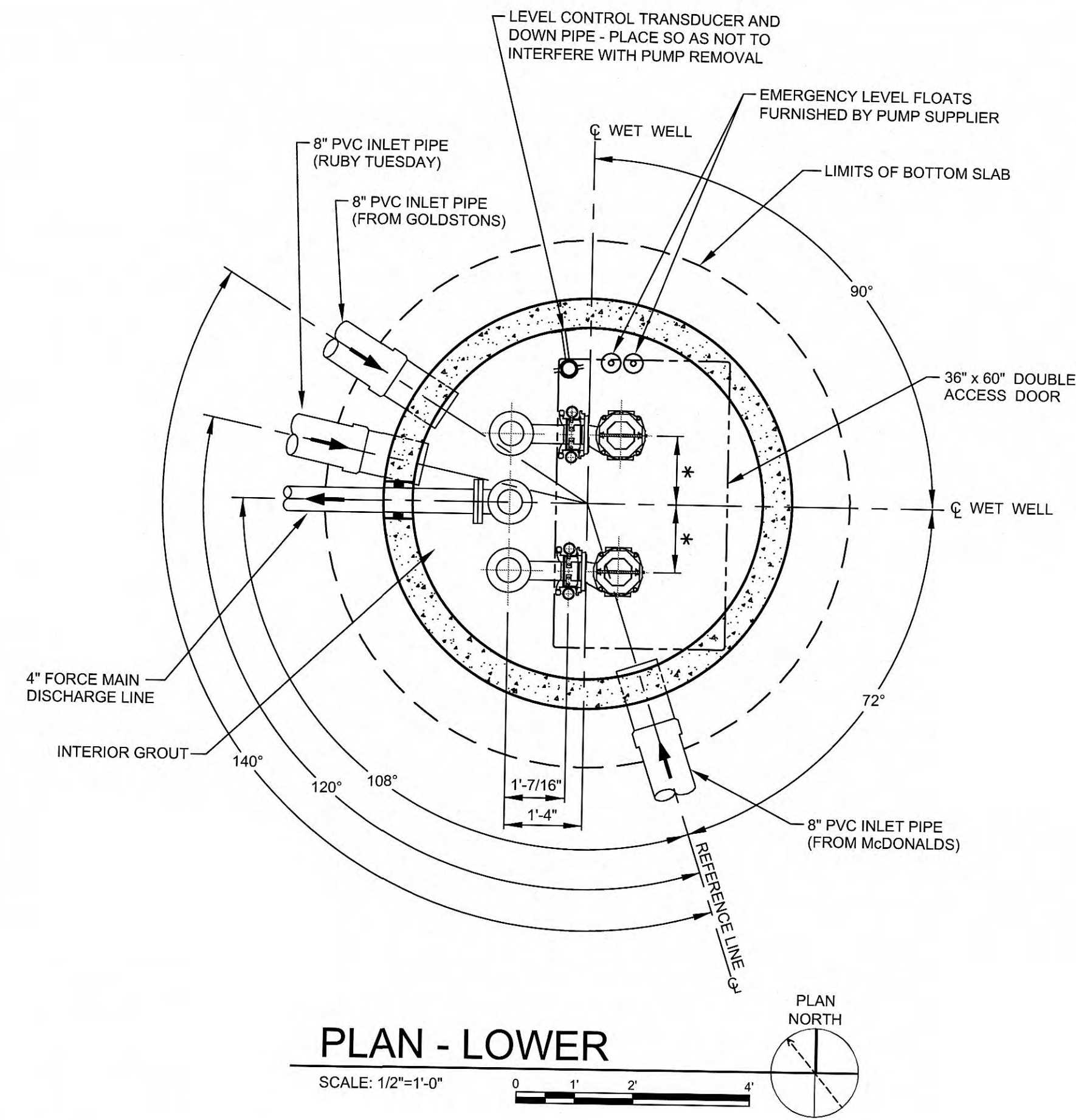
DESIGNED	RG	RG	RG	RG
DRAWN	RG	RG	RG	RG
CHECKED	RG	RG	RG	RG
APPROVED	RG	RG	RG	RG
DATE				

DECEMBER 2012

SCALE: AS NOTED

SHEET NO.

C-1-104

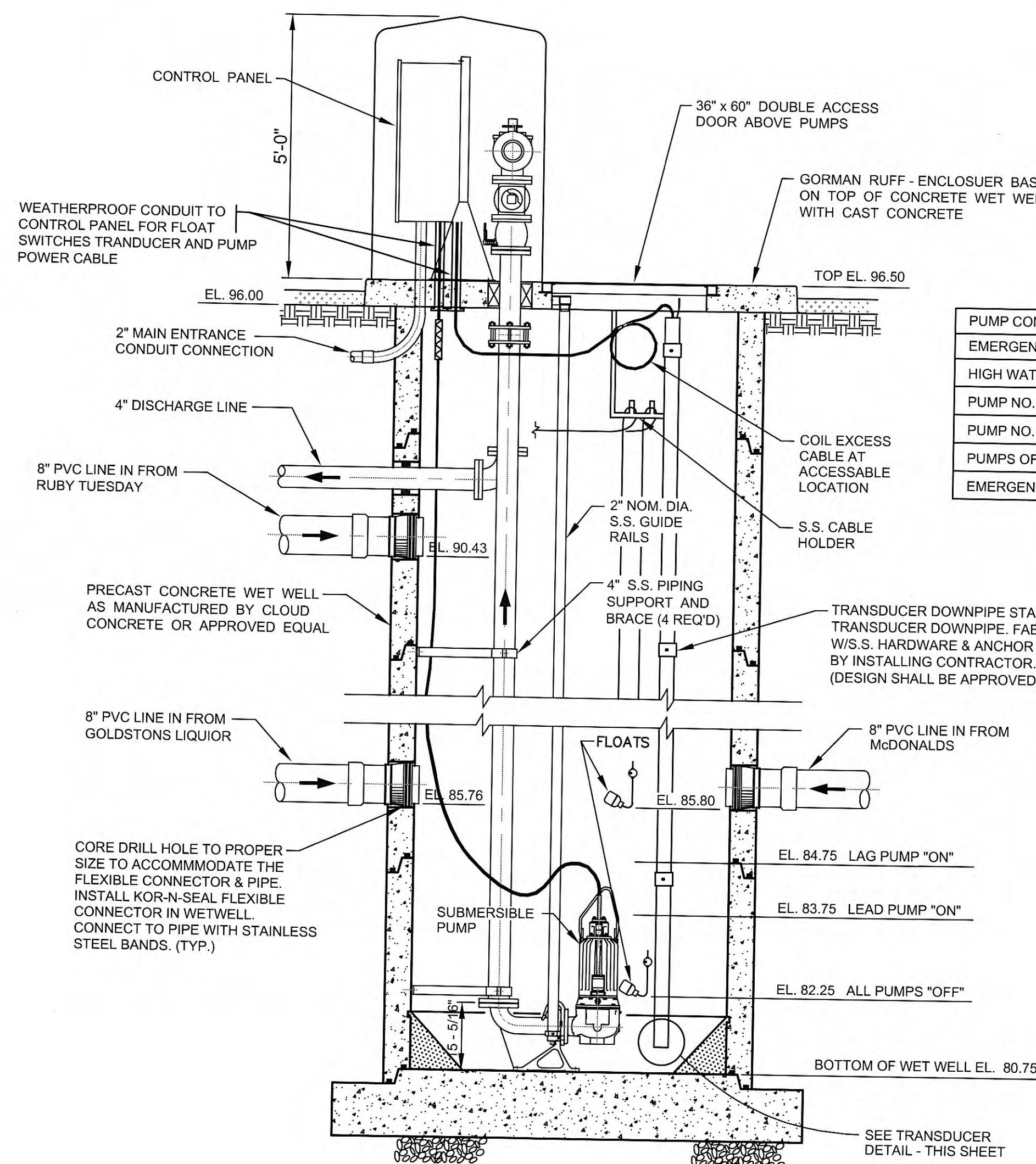
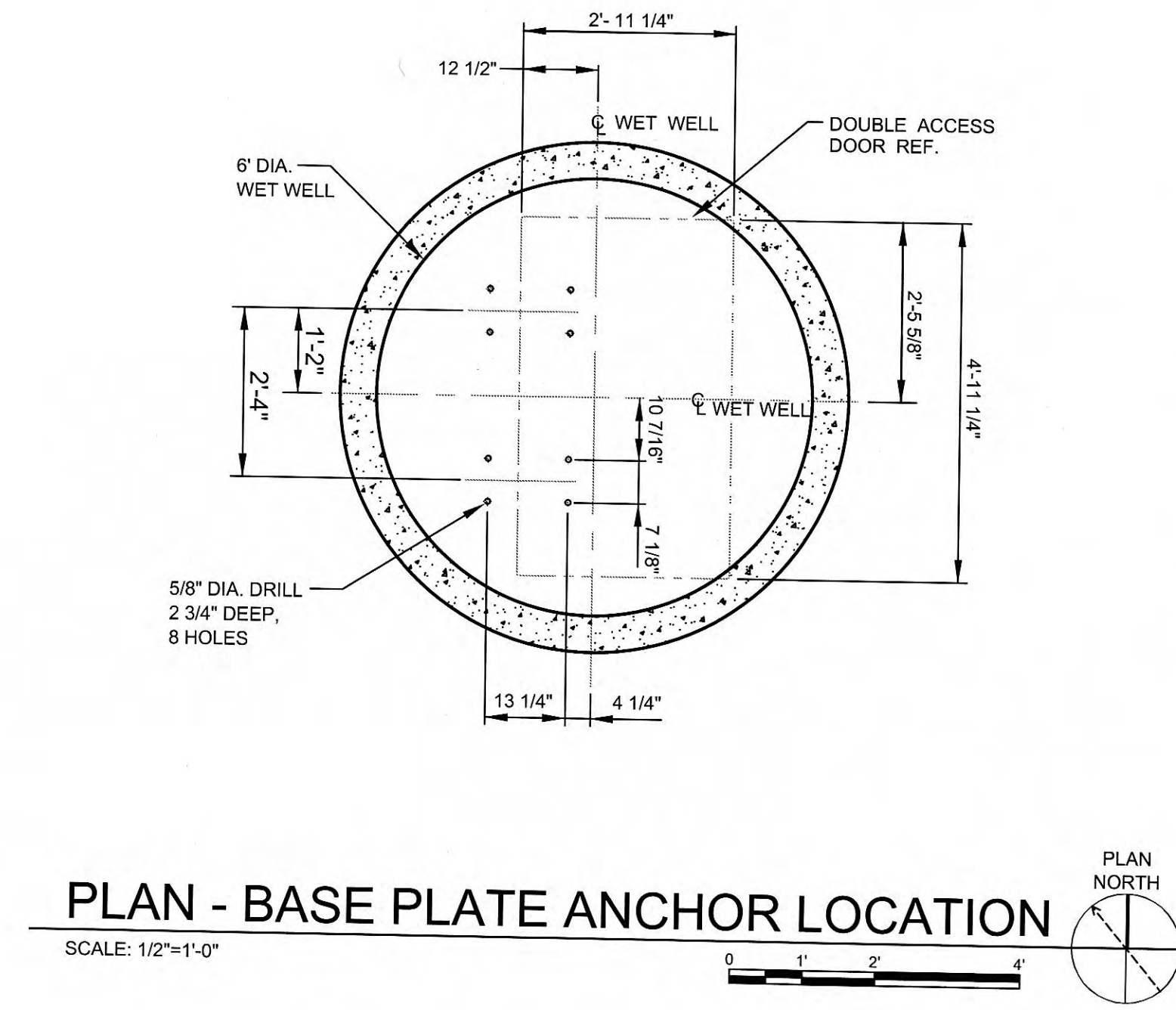
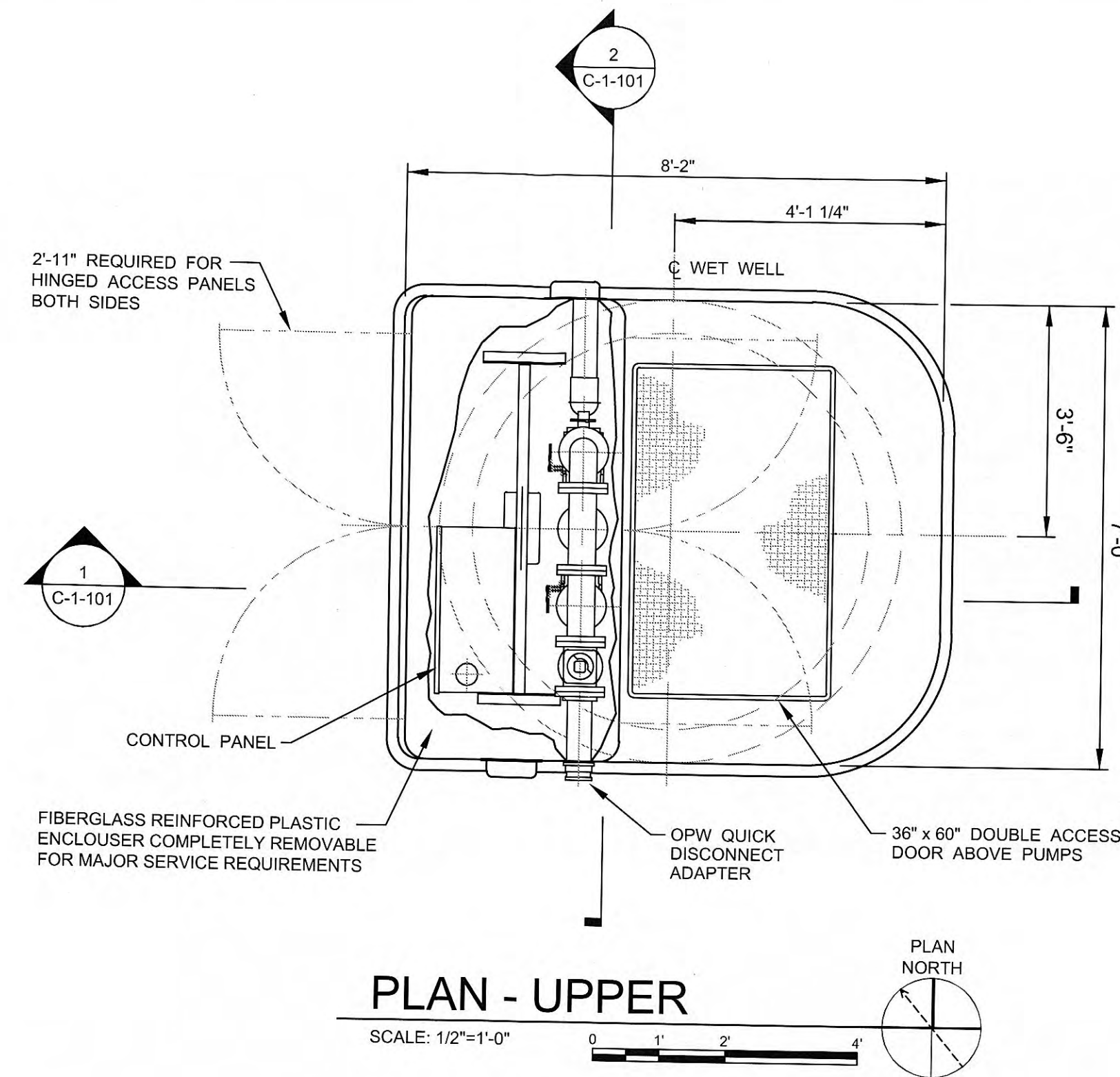


TRANSDUCER DETAIL
NOT TO SCALE

- NOTE:
- (A) ALL ANCHOR BOLTS AND FASTNERS USED IN PUMP STATION WET WELL & VALVE VAULT SHALL BE STAINLESS STEEL.
 - (B) PUMPS AND STATION HATCH SHALL BE LOCATED AND INSTALLED AS RECOMMENDED BY PUMP MANUFACTURER.
 - (C) ALL PRECAST ELEMENTS OF PUMP STATION SHALL MEET OR EXCEED LATEST A.S.T.M. SPECS.
 - (D) PROVIDE INTERMEDIATE GUIDE RAIL SUPPORT BRACKET AS RECOMMENDED BY PUMP MANUF.
 - (E) PROPOSED PIPE HOLES THRU WET WELL WALL SHALL BE CORE DRILLED AND SEALED WATERTIGHT WITH LINK-SEAL - BY THUNDERLINE.
 - (F) PROVIDE ALUM. LADDER WITH SAF-T-CLIMB REMOVABLE EXTENSION KIT.
 - (G) NEW WET WELL TO BE COATED INSIDE WITH STRONG-SEAL HIGH PERFORMANCE MIX 100% PURE FUSED CALCIUM ALUMINATE WITH ALKALINE-RESISTANT FIBERGLASS REINFORCEMENT.

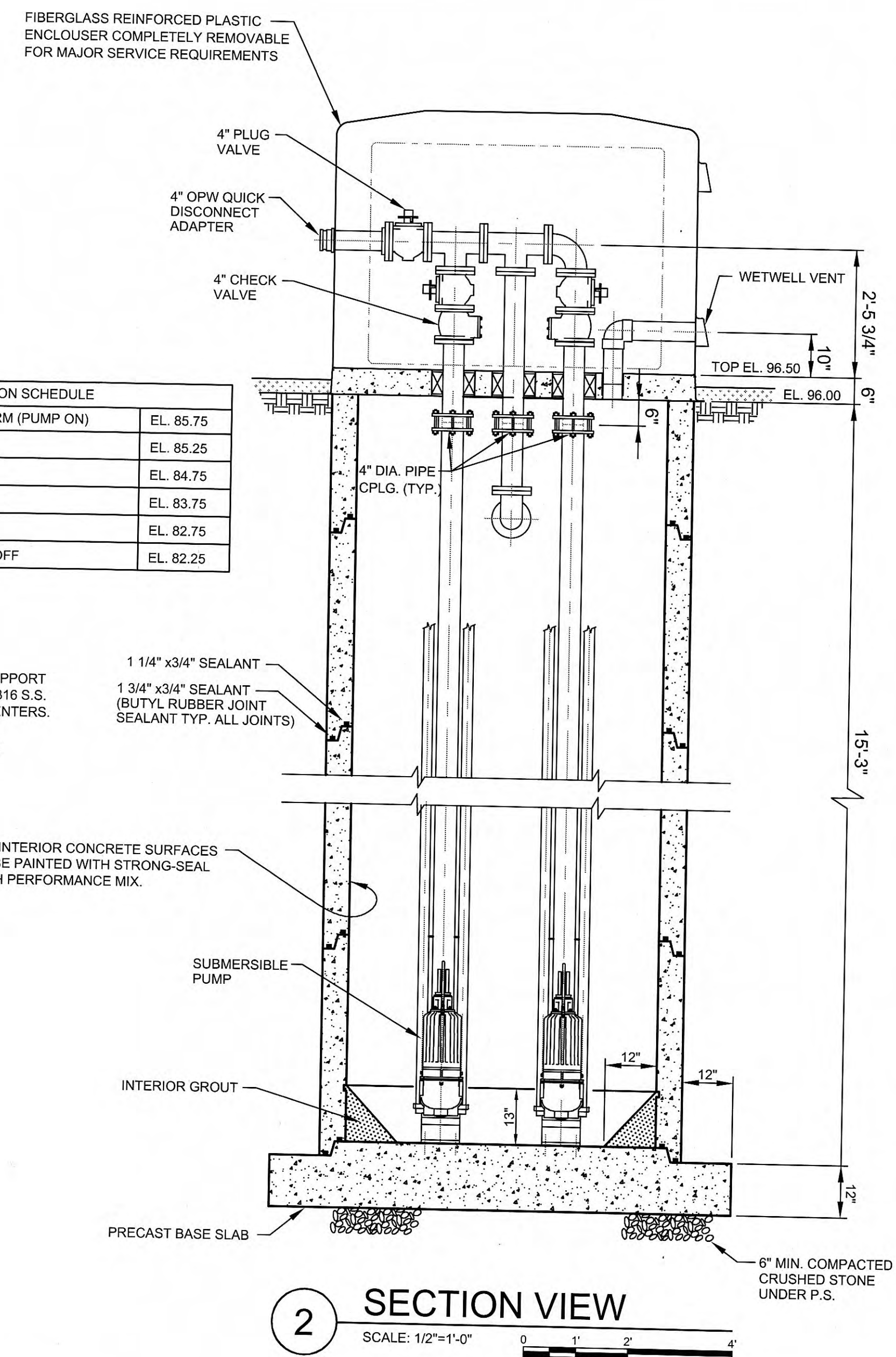
LEGEND

- NEW POURED IN PLACE CONC.
- NEW GROUT
- NEW GRAVEL BACKFILL
- PRECAST CONCRETE
- FCA FLANGED COUPLING ADAPTER
- * DIMENSIONS AS PER PUMP MANUF.



1 SECTION VIEW (SOME ELEMENTS ROTATED FOR CLARITY)
SCALE: 1/2"=1'-0"

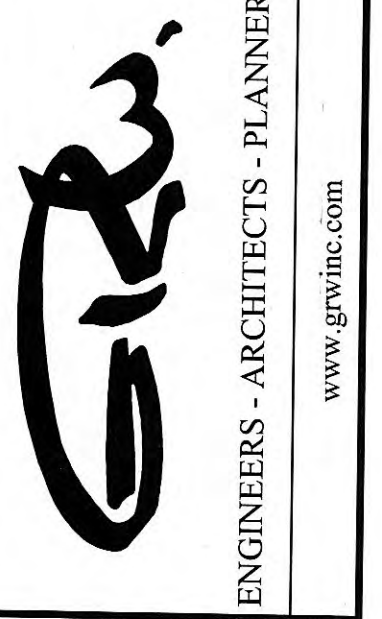
PUMP CONTROL ELEVATION SCHEDULE	
EMERGENCY FLOAT ALARM (PUMP ON)	EL. 85.75
HIGH WATER ALARM	EL. 85.25
PUMP NO. 2 ON	EL. 84.75
PUMP NO. 1 ON	EL. 83.75
PUMPS OFF	EL. 82.75
EMERGENCY FLOAT CUTOFF	EL. 82.25



2 SECTION VIEW
SCALE: 1/2"=1'-0"



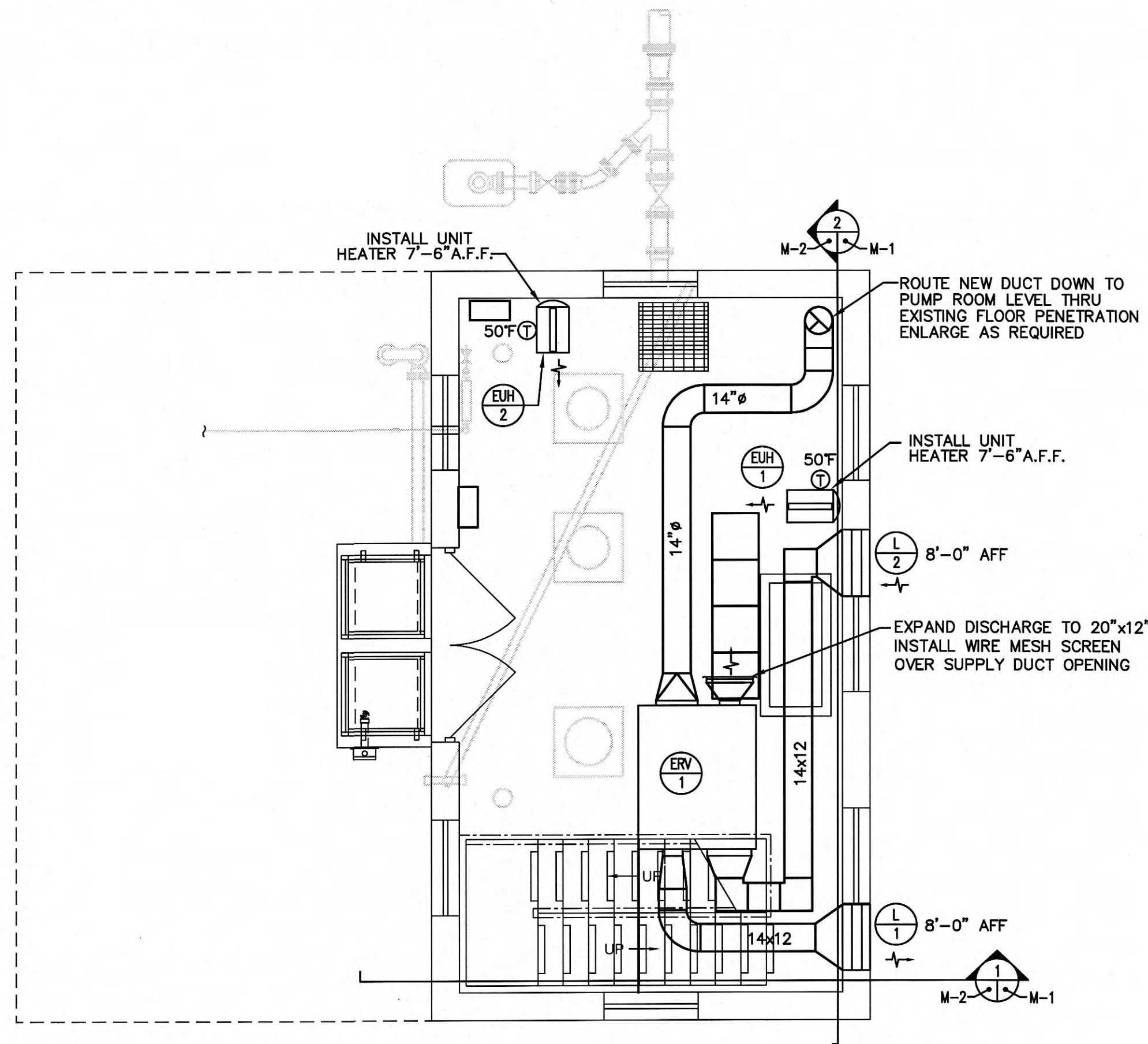
GRW PROJECT NO. 3947-01
CLIENT PROJECT NO.



NEW McDONALD PUMP STATION NEW EQUIPMENT, PLAN AND SECTIONS PUMP STATION REHABILITATION CITY OF HARRIMAN, TENNESSEE

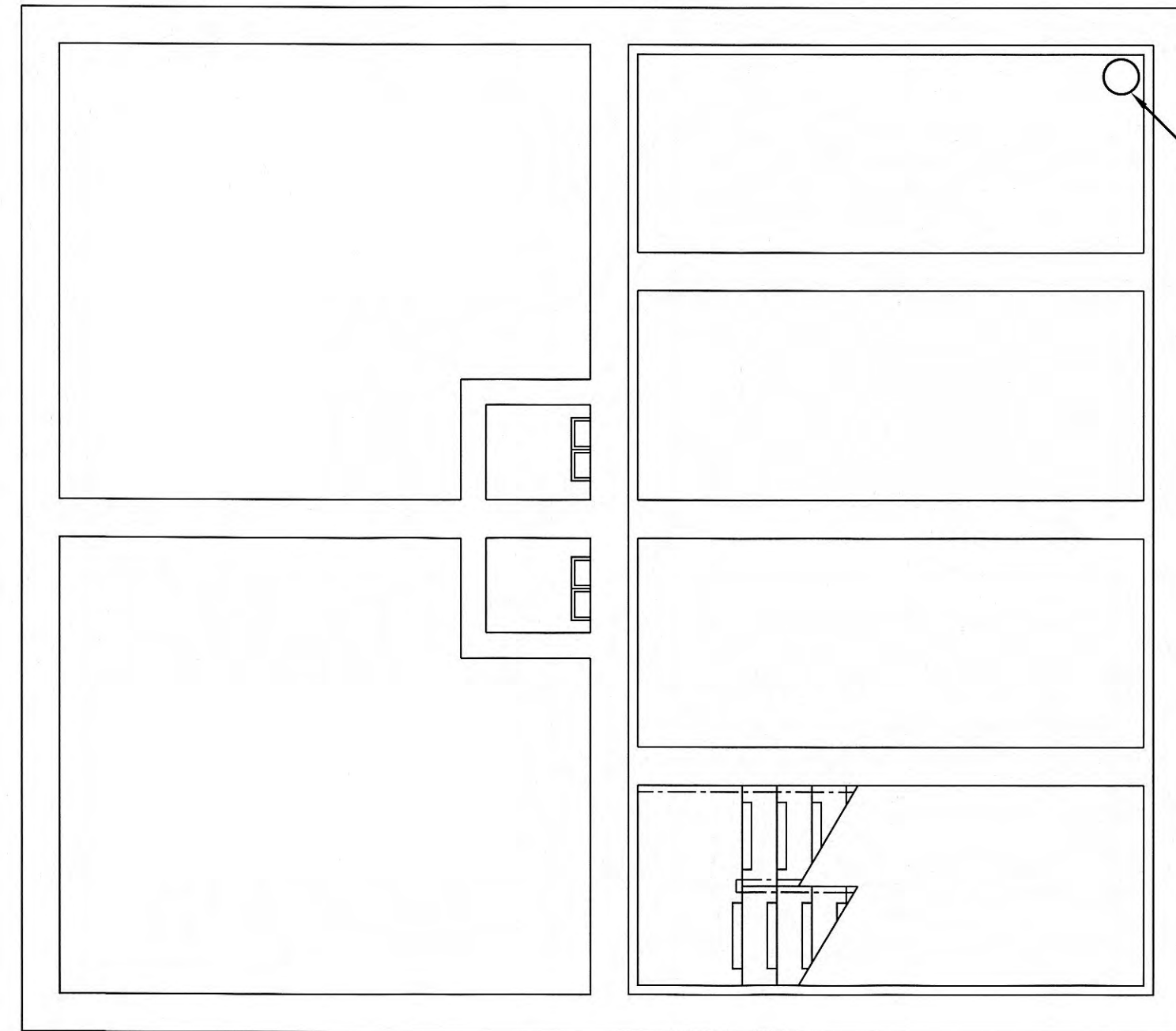
REVISIONS	DATE	BY	DESCRIPTION
NO.			
1			
2			
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10			

DATE: DECEMBER 2012
SCALE: AS NOTED
SHEET NO.



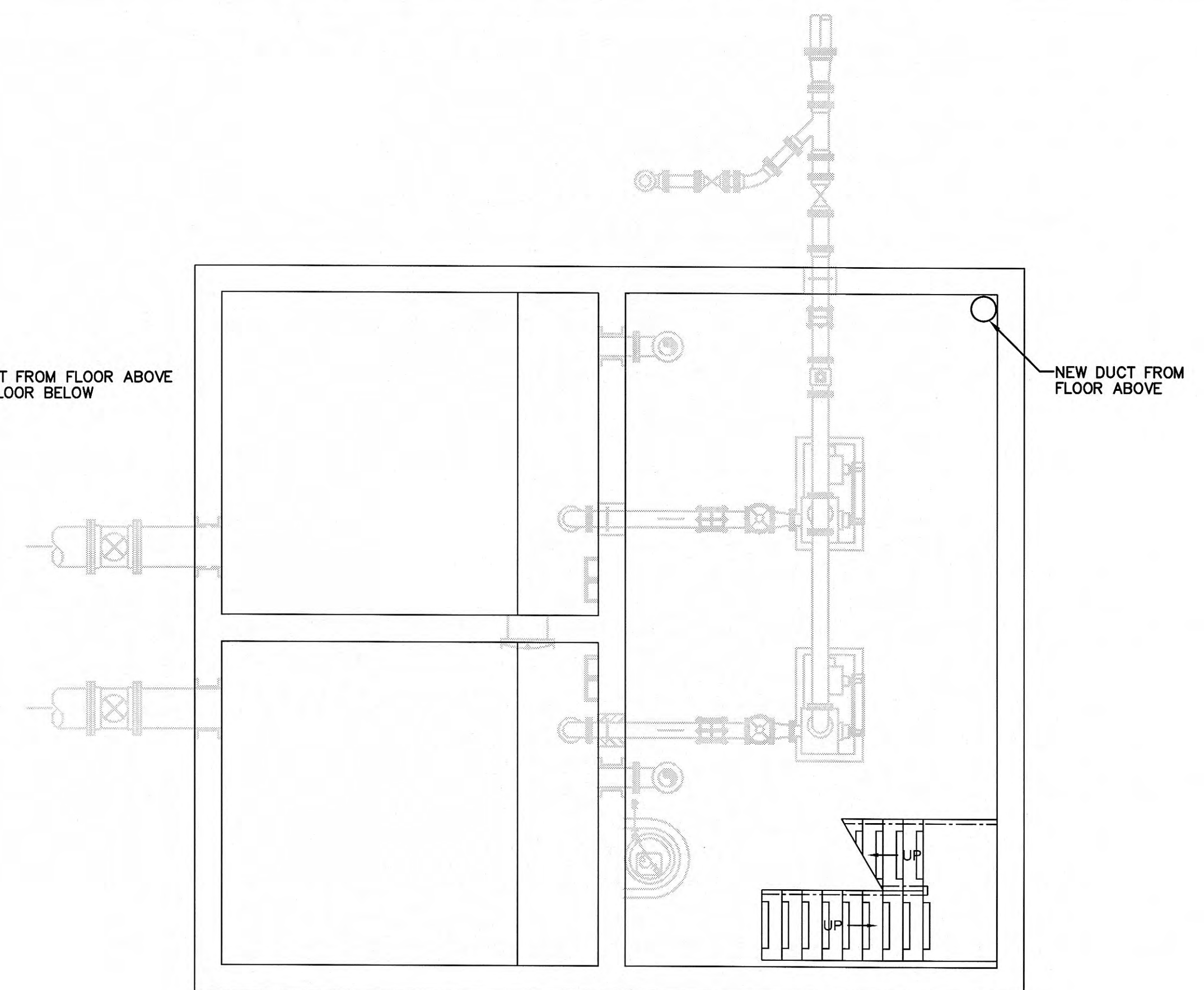
ENTRANCE FLOOR PLAN - HVAC

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



INTERMEDIATE FLOOR PLAN - HVAC

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



PUMP FLOOR PLAN - HVAC

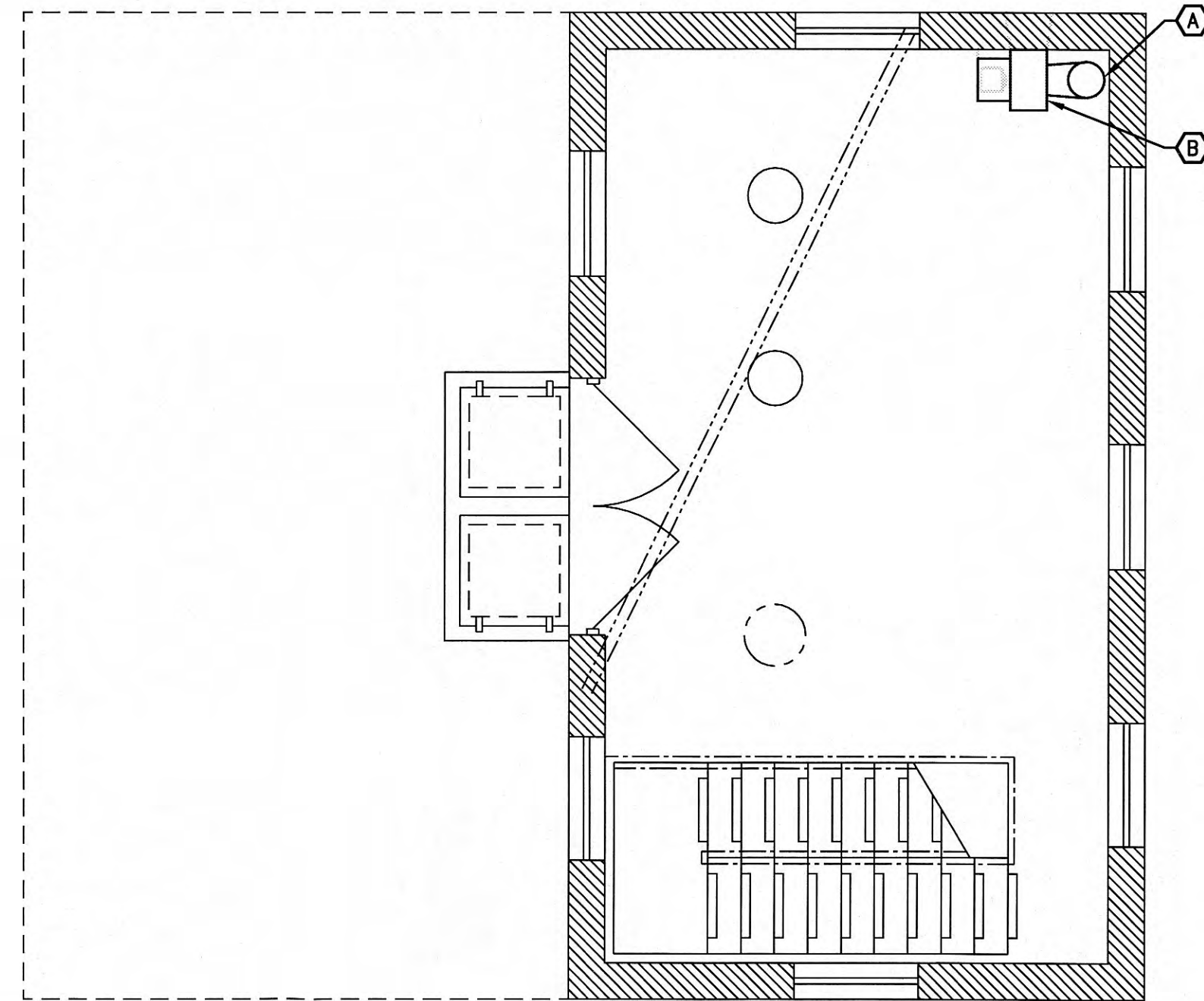
SCALE: 1/4"=1'-0"

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND CONTRACT DOCUMENTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ANY WORK RELATING TO THOSE CONDITIONS IS PERFORMED.
2. CONTRACTOR SHALL MAINTAIN A SET OF PROJECT RECORD DRAWINGS AT THE JOB SITE AND SHALL BE RESPONSIBLE FOR MAKING CLEAR, NEAT CHANGES TO THE DRAWINGS REFLECTING CHANGES TO THE WORK AND VARIANCES IN EXISTING CONDITIONS.
3. PROVIDE ALL MISCELLANEOUS STEEL, AS REQUIRED, TO SUPPORT ALL MECHANICAL DUCT SYSTEMS AND EQUIPMENT. HANG ALL EQUIPMENT FROM STRUCTURE WITH MINIMUM OF TWO TRAPEZE ASSEMBLIES OR FOUR SUPPORTS DO NOT HANG ANYTHING FROM STEEL COMPOSITION OR WOODEN DECKS. NON-ROOF CONCRETE DECKS MAY BE USED ONLY WITH PERMISSION OF THE ENGINEER. DO NOT HANG ANYTHING FROM MECHANICAL OR ELECTRICAL ITEMS.
4. NO CONCRETE RIBS OR JOISTS SHALL BE CUT WITHOUT SPECIFIC PERMISSION FROM THE ENGINEER. ALL ROOF OR FLOOR DECK PENETRATIONS IN WAFFLE STRUCTURE SHALL BE IN THIN SLAB DEPRESSIONS IN THE STRUCTURE, UNLESS NOTED OTHERWISE.
5. NO STEEL STRUCTURAL MEMBERS SHALL BE CUT, BURNED, WELDED OR DRILLED WITHOUT SPECIFIC PERMISSION OF THE ENGINEER.
6. NO WOODEN STRUCTURE MEMBERS SHALL BE CUT OR DRILLED EXCEPT AS INDICATED IN THE CONTRACT DOCUMENTS, OR AS APPROVED BY THE ENGINEER.
7. DO NOT CHANGE PATH OF DUCT RUNS, ADD TURNS OR OFFSETS OR CHANGE DUCT DIMENSIONS WITHOUT FIRST CONSULTING THE ENGINEER. ALL DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE DIMENSIONS FOR SHOP OR FIELD-FABRICATED DUCT AND NOMINAL SIZES FOR FACTORY FABRICATED DUCT.
8. ALL EXISTING EQUIPMENT SHUTDOWNS OR INTERRUPTIONS OF UTILITY SERVICES REQUIRED FOR COMPLETION OF THE WORK SHALL BE SCHEDULED IN ADVANCE, AS REQUIRED BY THE OWNER.
9. COORDINATE ALL DUCTWORK WITH BOTH NEW AND EXISTING WORK INCLUDING STRUCTURE, HVAC, PLUMBING, ELECTRICAL, FIRE ALARM, AND COMMUNICATIONS.
10. FANS SHALL BE PROVIDED AS INDICATED COOK, GREENHECK, CARNES OR APPROVED EQUAL. LOUVERS SHALL BE PROVIDED AS INDICATED BY RUSKIN, GREENHECK, AIRSTREAM LOUVERS AND DAMPERS, CARNES, OR APPROVED EQUAL.
11. ANY AND ALL DAMAGE DUE TO DEMOLITION OR CONSTRUCTION SHALL BE REPAIRED OR REPLACED AS APPROPRIATE, SUBJECT TO ENGINEER'S APPROVAL AND AT NO ADDITIONAL COST OF THE OWNER.

DEMOLITION NOTES:

- (A) REMOVE ENTIRE LENGTH OF EXISTING EXHAUST DUCT.
- (B) REMOVE EXISTING EXHAUST FAN DUCT AND WALL LOUVER. SEE ARCHITECTURAL DRAWINGS FOR INFILL.

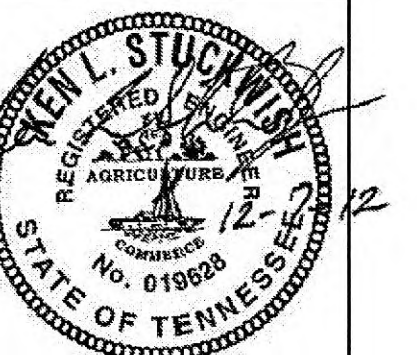


ENTRANCE FLOOR PLAN - DEMOLITION

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

WWR 5417 Ball Camp Pike
ENGINEERS INC. Knoxville, TN 37921
Phone: (865) 588-2431
Fax: (865) 588-2434
West, Welch, Reed Engineers, Inc.
WWR PROJECT# 112025

THIS DRAWING IS GENERALLY DIAGRAMMATIC AND, EXCEPT WHERE SPECIFICALLY DIMENSIONED OR DETAILED, INDICATES THE GENERAL ARRANGEMENT OF THE WORK. THE CONTRACTOR SHALL INSTALL HIS WORK TO CONFORM AS NEARLY AS POSSIBLE TO THE LOCATIONS AND ARRANGEMENTS SHOWN, WITH ONLY SUCH MINOR ADJUSTMENTS AS NECESSARY TO COORDINATE THE WORK WITH ALL OTHER TRADES TO AVOID INTERFERENCES.



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**LADD PUMP STATION FLOOR PLANS -
HVAC**
**PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE**

DESIGNED: KLS

DRAWN: RTB

REVIEWED: KLS

APPROVED: KLS

REVISIONS

DESCRIPTION

DATE

BY

DATE:

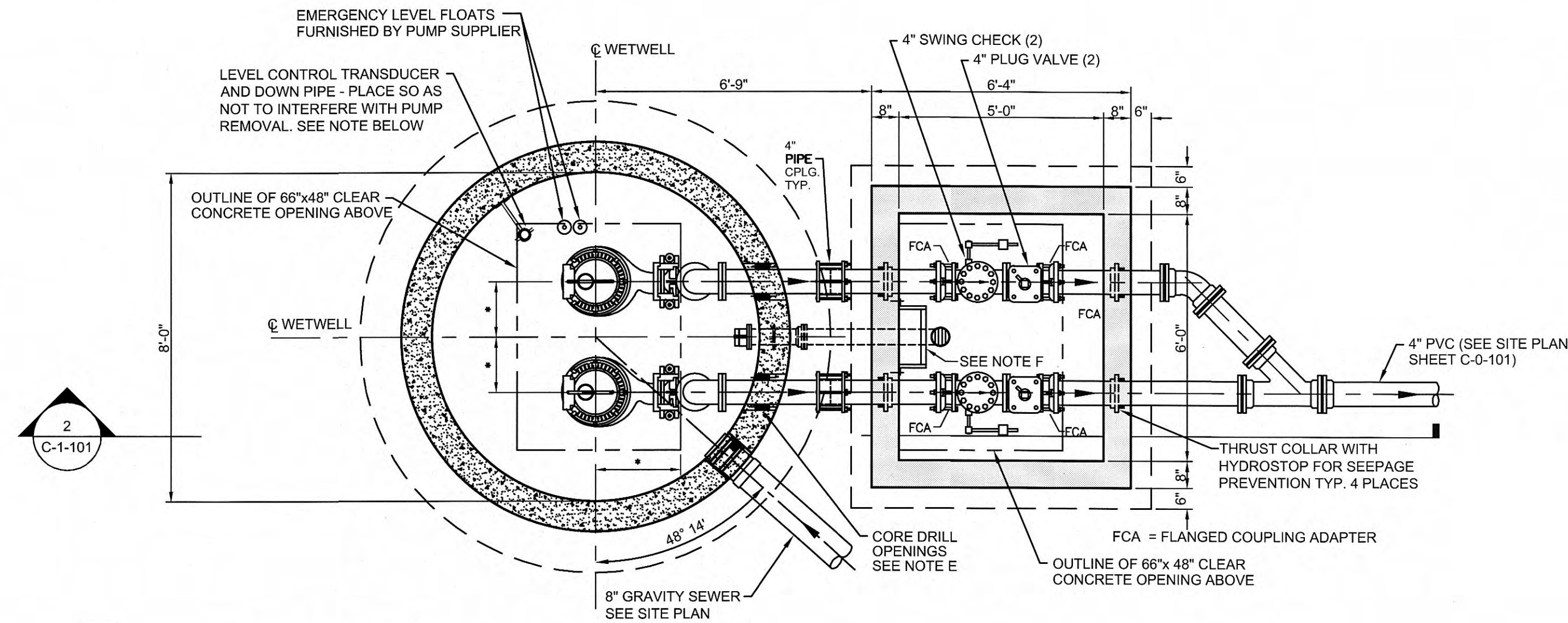
DECEMBER 2012

SCALE:

AS NOTED

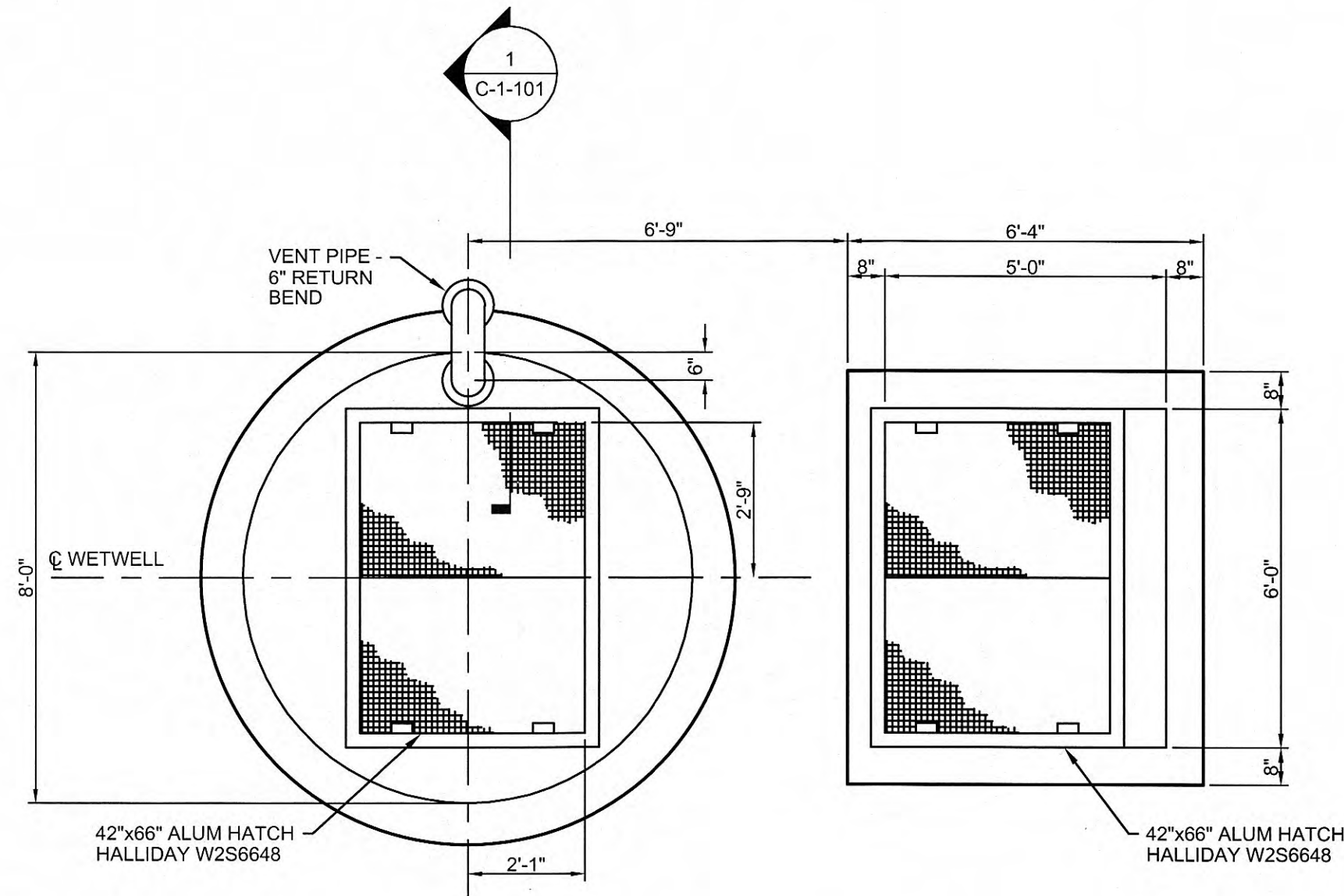
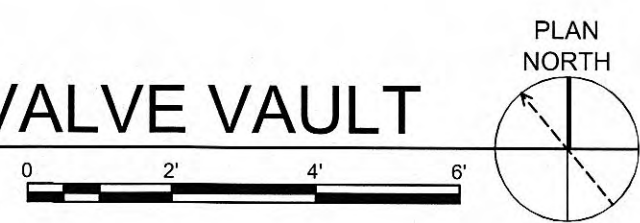
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M-2



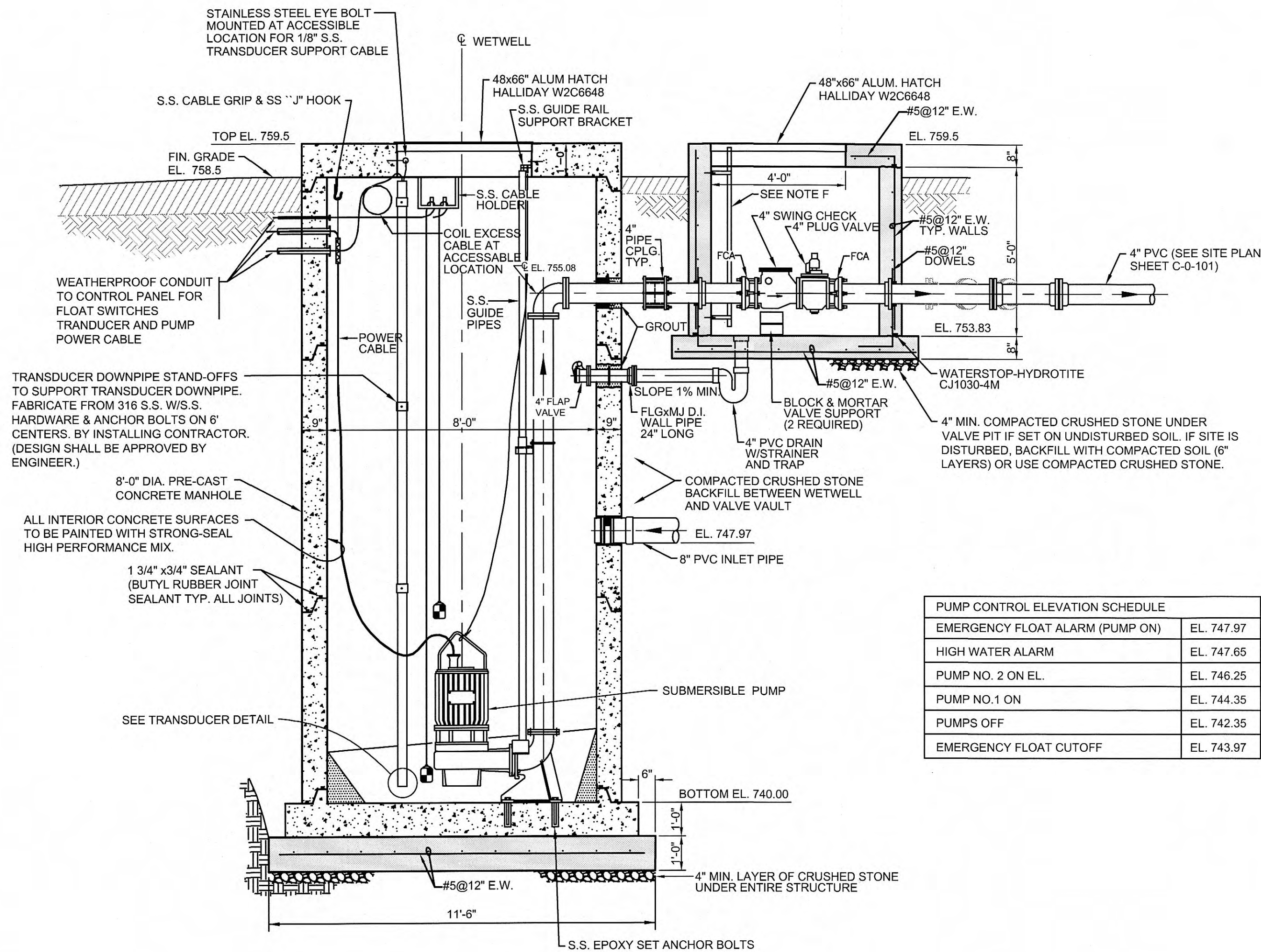
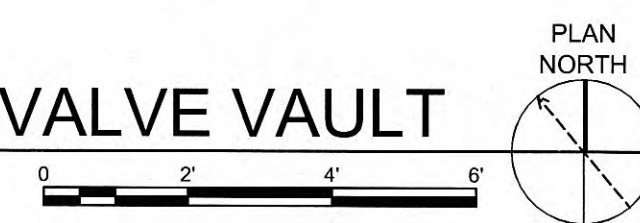
PLAN VIEW
CARDIFF SEWAGE LIFT STATION & VALVE VAULT

SCALE: 3/8"=1'-0"



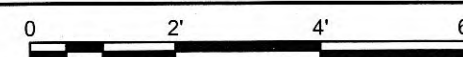
TOP VIEW
CARDIFF SEWAGE LIFT STATION & VALVE VAULT

SCALE: 3/8"=1'-0"

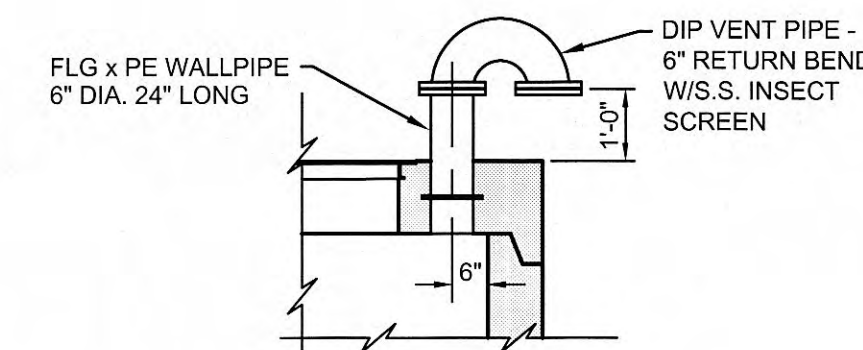


SECTION VIEW (SOME ELEMENTS ROTATED FOR CLARITY)

SCALE: 3/8"=1'-0"

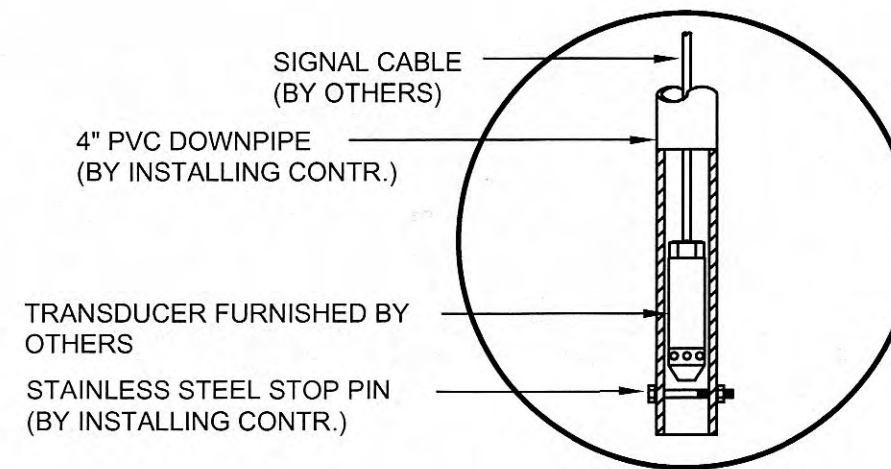
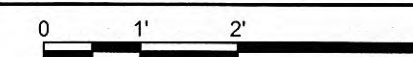


PUMP CONTROL ELEVATION SCHEDULE	
EMERGENCY FLOAT ALARM (PUMP ON)	EL. 747.97
HIGH WATER ALARM	EL. 747.65
PUMP NO. 2 ON EL.	EL. 746.25
PUMP NO. 1 ON	EL. 744.35
PUMPS OFF	EL. 742.35
EMERGENCY FLOAT CUTOFF	EL. 743.97



SECTION VIEW
DIP WET WELL VENT PIPE

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



TRANSDUCER DETAIL

NOT TO SCALE

LEGEND

- NEW POURED IN PLACE CONC.
- NEW GROUT
- NEW GRAVEL BACKFILL
- PRECAST CONCRETE
- FCA FLANGED COUPLING ADAPTER
- * DIMENSIONS AS PER PUMP MANUF.

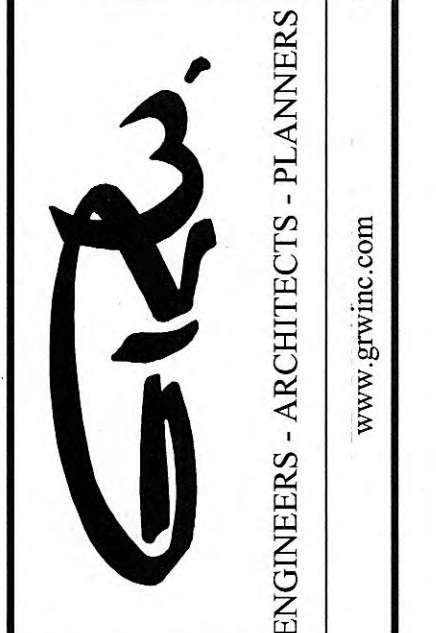
- NOTE:
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 - PUMPS AND STATION HATCH SHALL BE LOCATED AND INSTALLED AS RECOMMENDED BY PUMP MANUFACTURER.
 - ALL PRECAST ELEMENTS OF PUMP STATION SHALL MEET OR EXCEED LATEST A.S.T.M. SPECS.
 - PROVIDE INTERMEDIATE GUIDE RAIL SUPPORT BRACKET AS RECOMMENDED BY PUMP MANUF.
 - PROPOSED PIPE HOLES THRU WET WELL WALL SHALL BE CORE DRILLED AND SEALED WATERTIGHT WITH LINK-SEAL - BY THUNDERLINE.
 - PROVIDE ALUM. LADDER WITH SAF-T-CLIMB REMOVABLE EXTENSION KIT.
 - NEW WET WELL AND MANHOLE TO BE COATED INSIDE WITH STRONG-SEAL HIGH PERFORMANCE MIX 100% PURE FUSED CALCIUM ALUMINATE WITH ALKALINE-RESISTANT FIBERGLASS REINFORCEMENT.



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NEW CARDIFF PUMP STATION NEW EQUIPMENT, PLAN AND SECTIONS PUMP STATION REHABILITATION CITY OF HARRIMAN, TENNESSEE

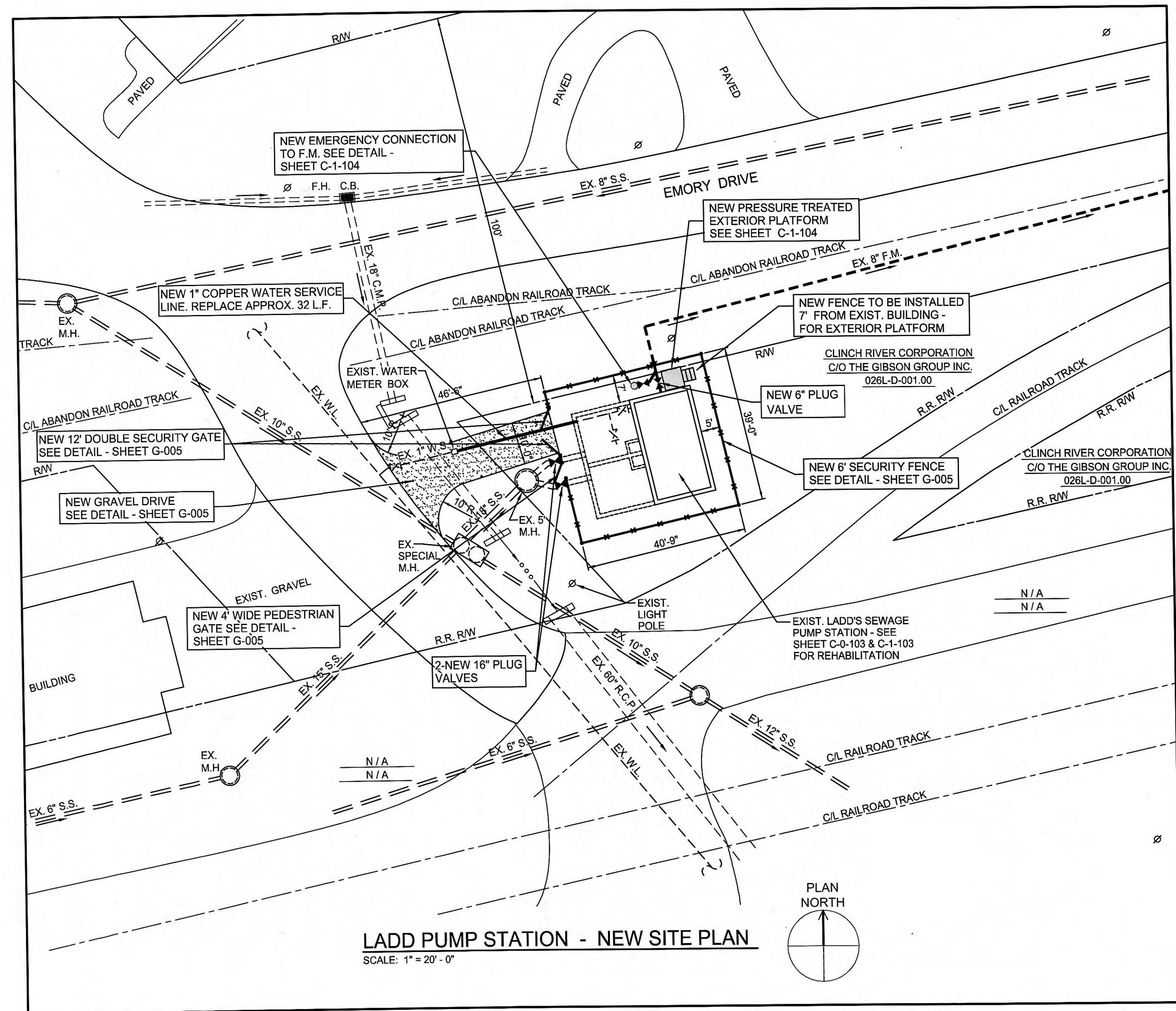
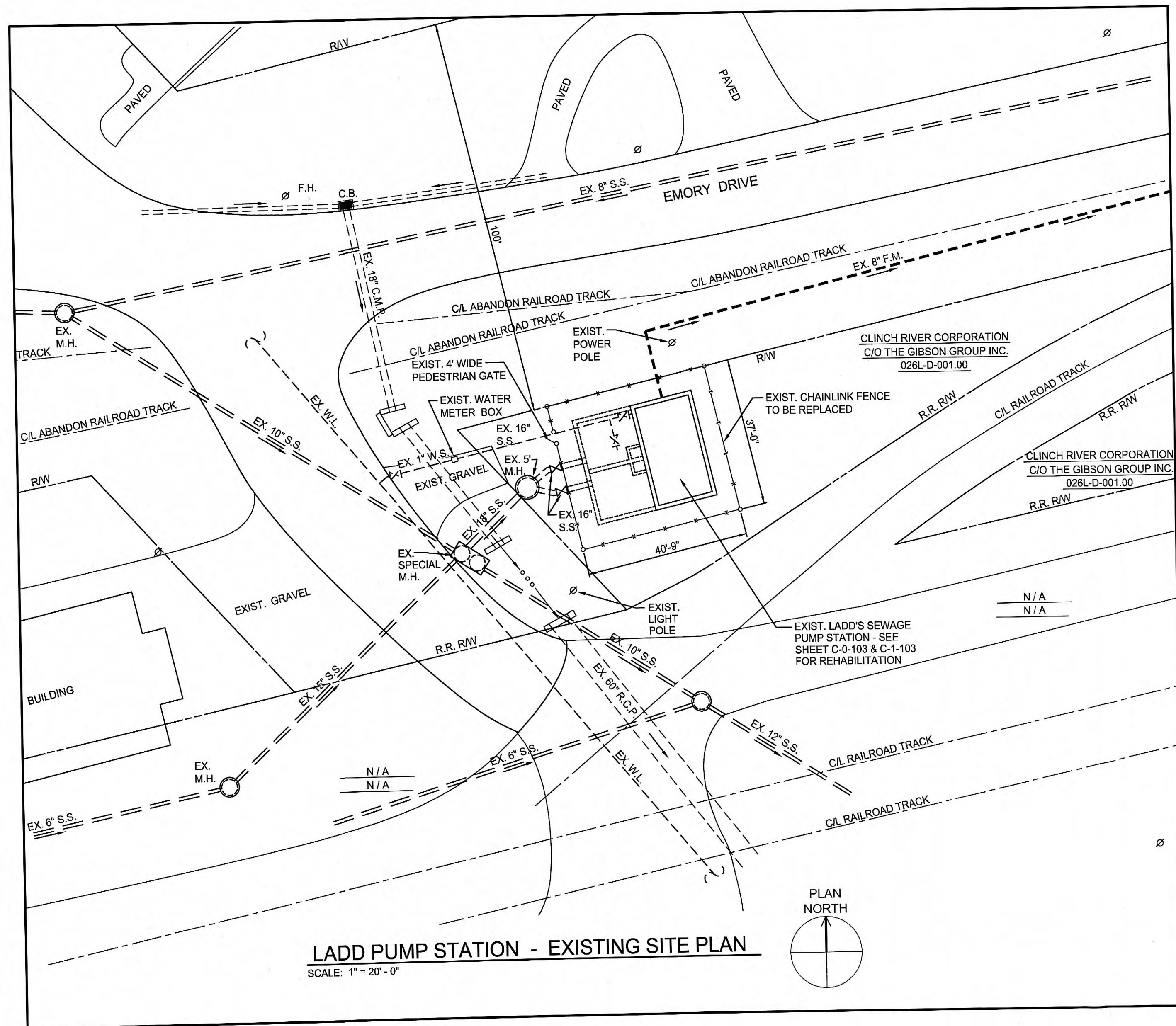
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BY	RG	CJ	RG	RG
DATE				
REVISIONS	DESCRIPTION	DATE	BY	APPROVED
1				

DATE:
DECEMBER 2012
SCALE:
AS NOTED
SHEET NO.

C-1-101

PRINTED: 3/11/2013 @ 12:34PM

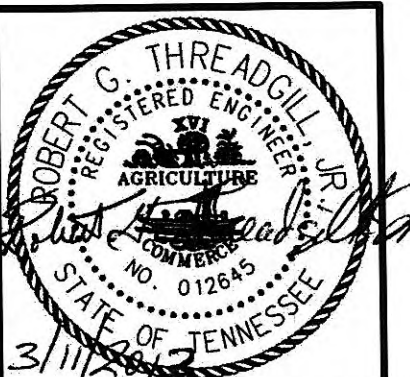
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1. REMOVE EXISTING CHAINLINK FENCE AND RETURN MATERIALS TO OWNER FOR REUSE. INSTALL NEW CHAINLINK FENCE AND WALK GATE. (SEE DETAIL ON THIS SHEET).
2. RESTORE GRAVEL ACCESS DRIVE TO APPROX. 4" THICKNESS AS SHOWN.
3. RESTORE GRASSY AREAS BOTH INSIDE AND OUTSIDE FENCE w/SEED & SOD.



CALL BEFORE YOU DIG
IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION. THE LOCATION OF UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND POSSIBLY INCOMPLETE. THEREFORE CERTIFICATION TO THE LOCATION OF ALL UNDERGROUND UTILITIES IS WITHHELD.
IN TENNESSEE DIAL 811
OR 1-800-351-1111
THREE WORKING DAYS BEFORE YOU DIG



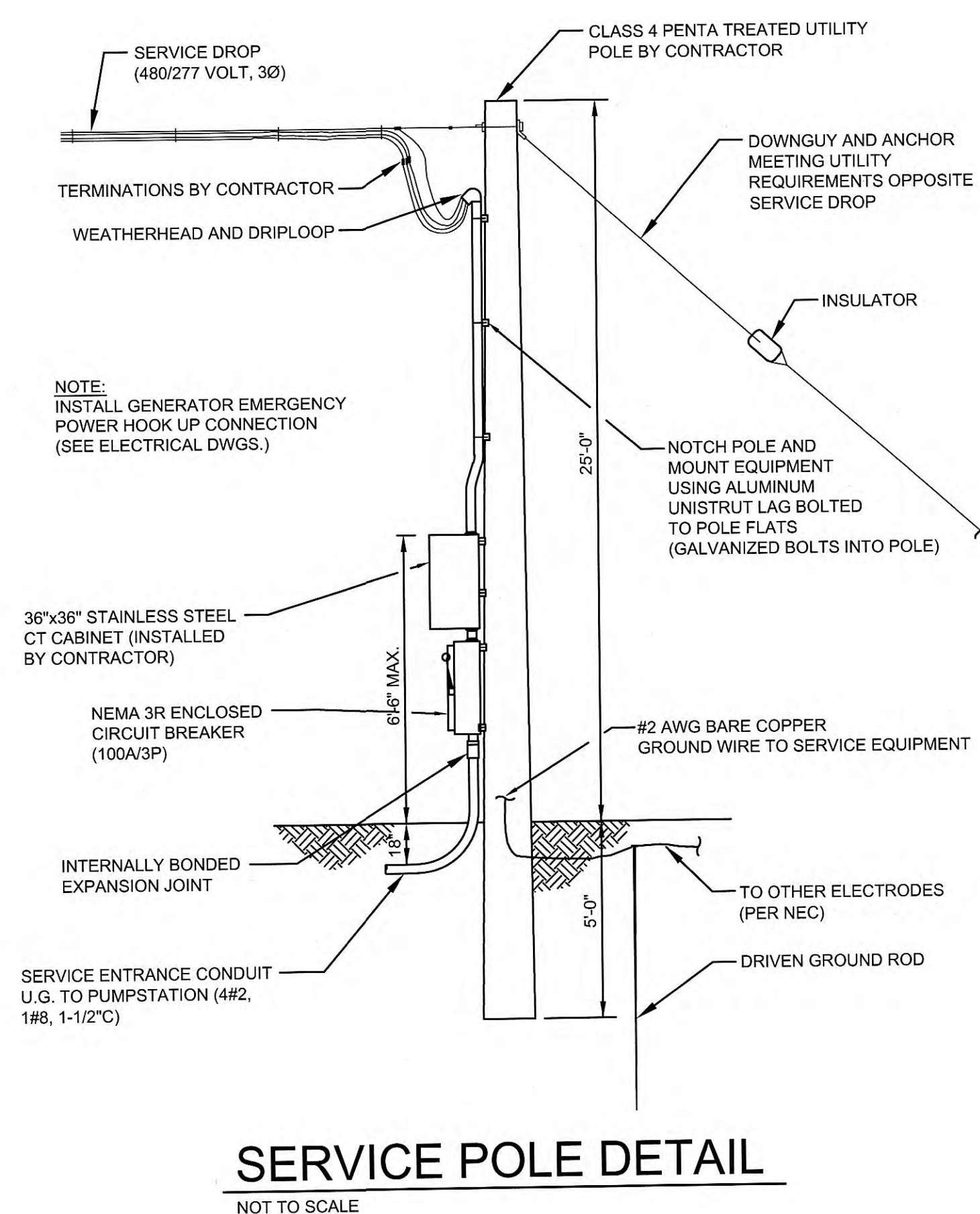
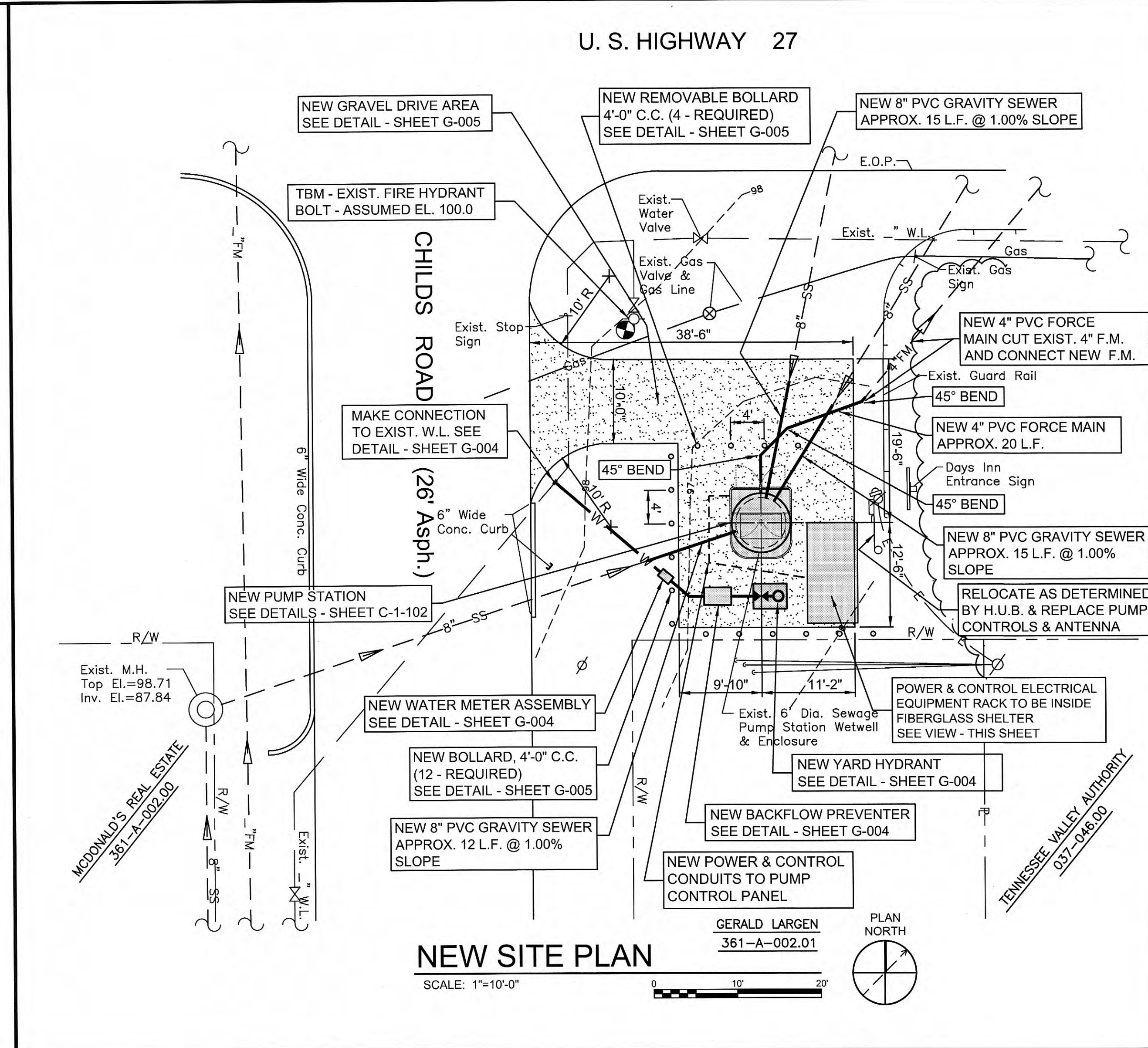
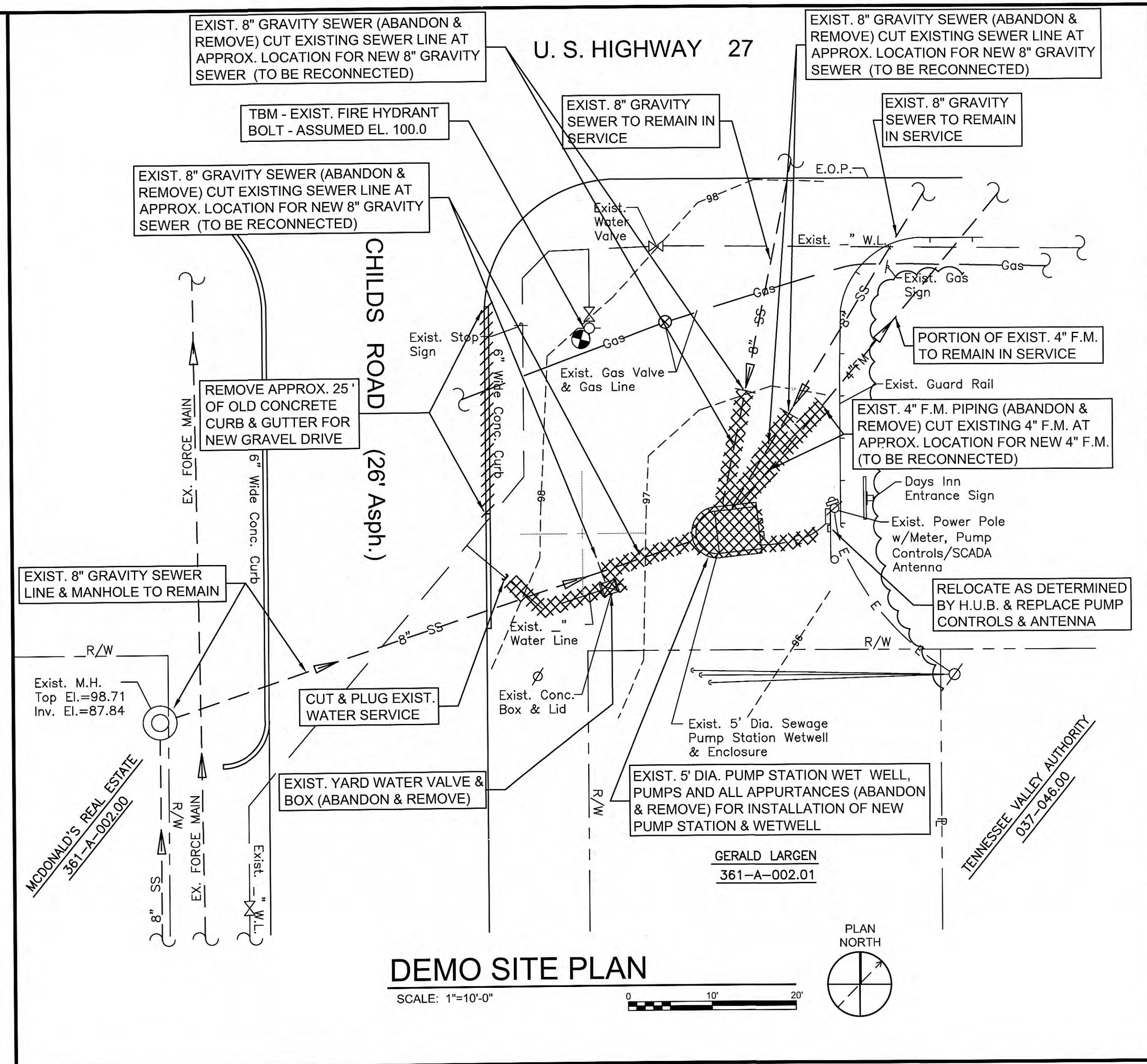
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Gibson
ENGINEERS - ARCHITECTS - PLANNERS
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LADD PUMP STATION - EXISTING SITE PLAN
LADD PUMP STATION - NEW SITE PLAN
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

REVISIONS	NO.	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED	APPROVED
				RG	SH	RG	RG

DATE: DECEMBER 2012
SCALE: AS NOTED
SHEET NO. C-0-103

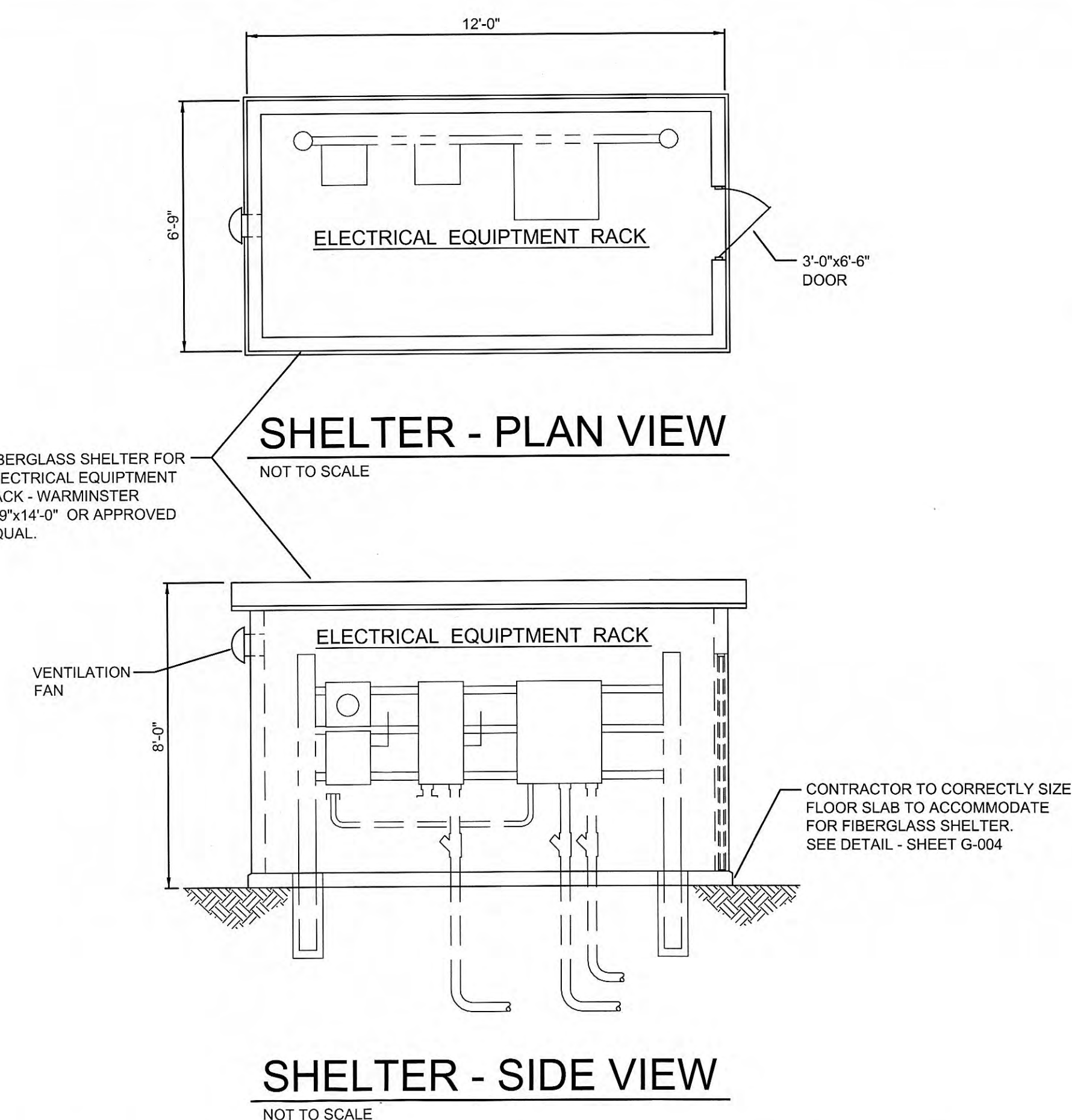


CONSTRUCTION NOTES:

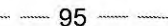
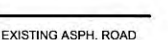
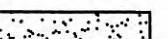
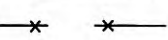
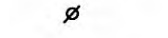
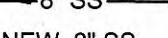
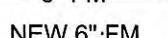
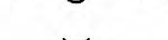
BEFORE DEMO OF EXISTING PUMP STATION CONTRACTOR SHALL
INSTALL TEMPORARY 4' DIA. MANHOLE AND CONNECTIONS w/BYPASS
PUMPING AND NOT TO DAMAGE OR INTERFERE WITH ALL EXISTING
OVERHEAD AND UNDERGROUND UTILITIES ACCORDINGLY AS SHOWN
ON SHEET G-003.

EXISTING PUMP STATION, WETWELL AND APPURTENANCES SHALL BE DEMOLISHED AND REMOVED WITH CARE.

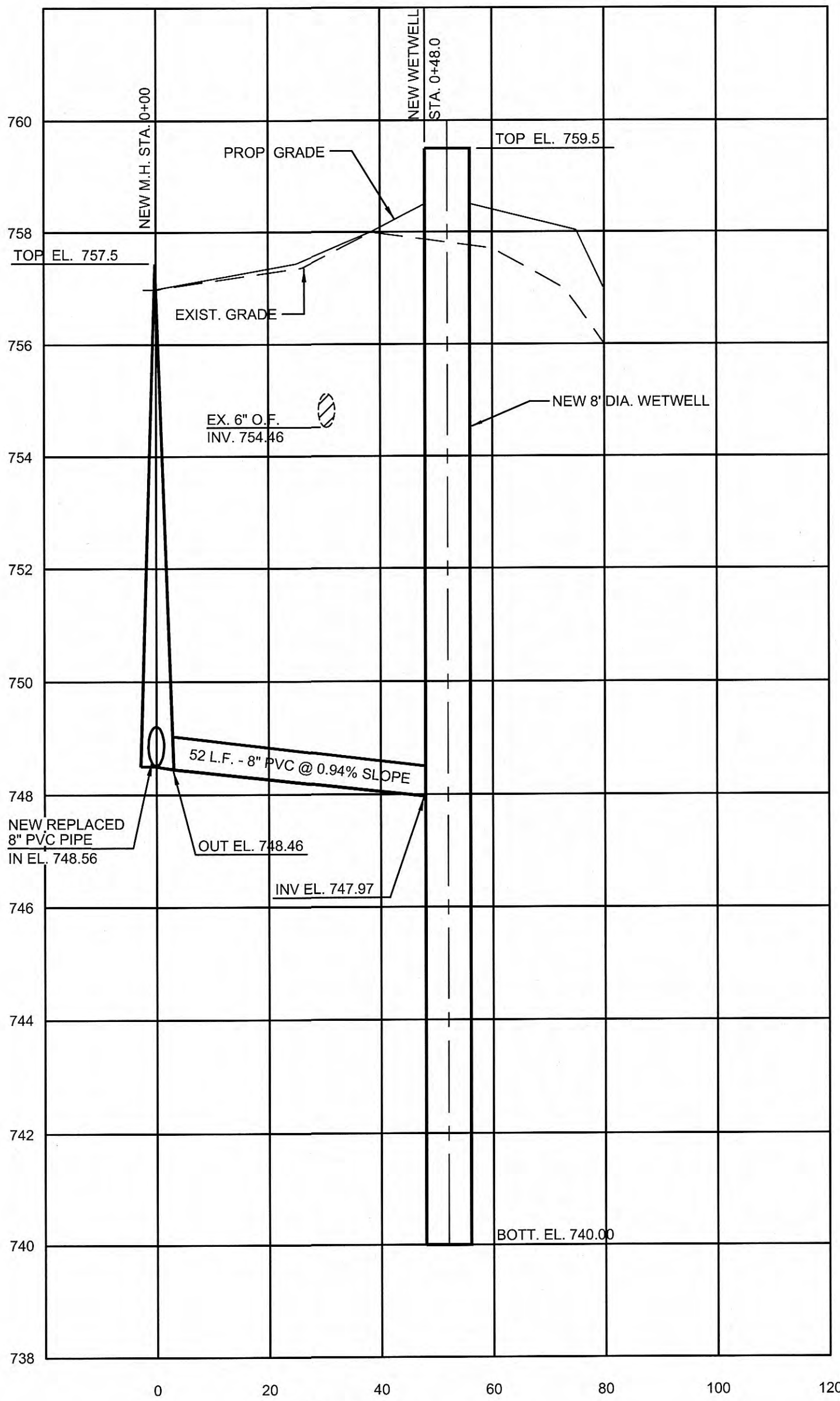
THE NEW PUMP STATION WITH THE CENTER OF NEW WETWELL TO BE PLACED AT THE SAME CENTER POINT OF THE EXISTING WETWELL.



LEGEND

- | | |
|---|---|
|  | EXIST. CONTOUR |
|  | NEW CONTOUR |
|  | EXISTING STRUCTURE |
|  | NEW STRUCTURE / POURED
IN PLACE CONC. |
|  | EXISTING ASPH. ROAD/DRIVE |
|  | NEW ASPHAL DRIVE |
|  | EXISTING CHAINLINK FENCE |
|  | NEW FENCE |
|  | EXISTING POWER POLE |
|  | NEW POWER POLE |
|  | EXISTING GRAVITY SEWER |
|  | NEW 8" SS |
|  | NEW 6" FM |
|  | NEW 6" FM |
|  | EXISTING EQUIPMENT / PIPING
TO BE ABANDON OR REMOVED |
|  | EXISTING MANHOLE |
|  | NEW MANHOLE |
|  | EXISTING PLUG VALVE |
|  | NEW PLUG VALVE |
|  | EXISTING WATER VALVE |
|  | NEW WATER VALVE |

FILE NAME: I:\3947-Harriman Utility\01-SRF Sewer Rehab\Working Drawings\Design Drawings\Con S12-01_Pump Station\3947-01-C-0-101.dwg
PRINTED: 3/11/2013 @ 11:55AM

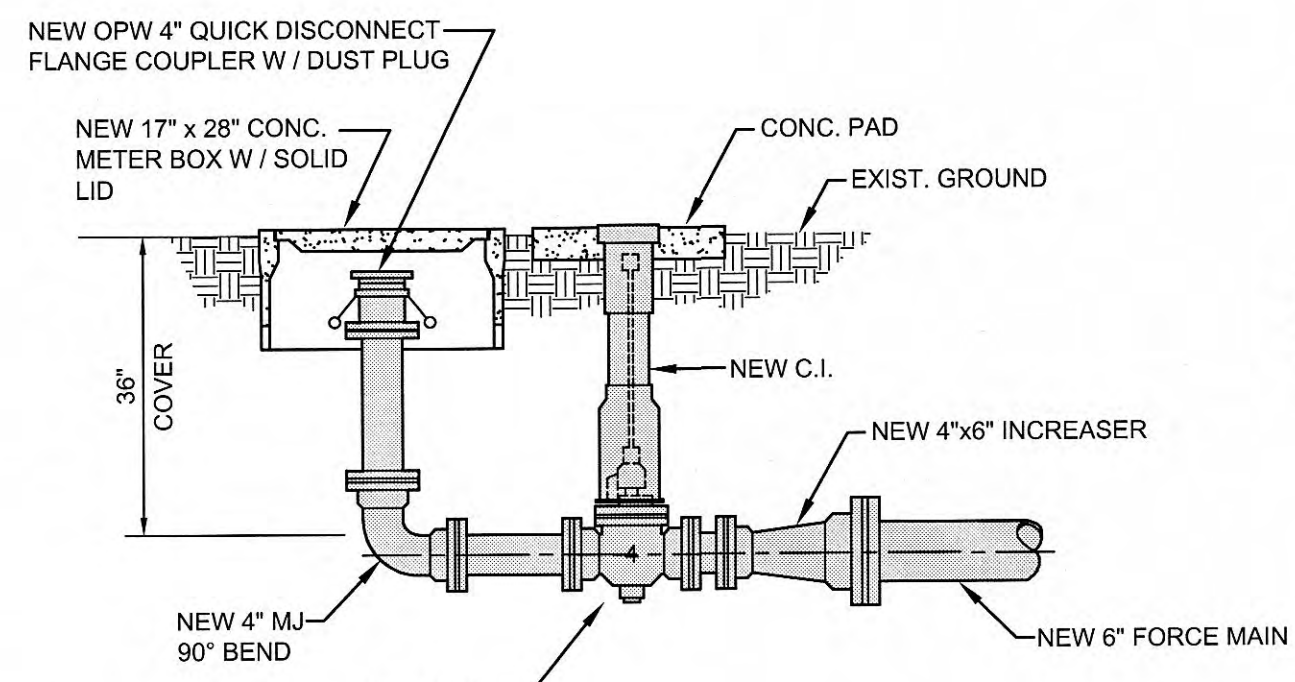


PROFILE
GRAVITY LINE

SCALE: 1"=20'-0" Vert.
1"= 2'-0" Horz.

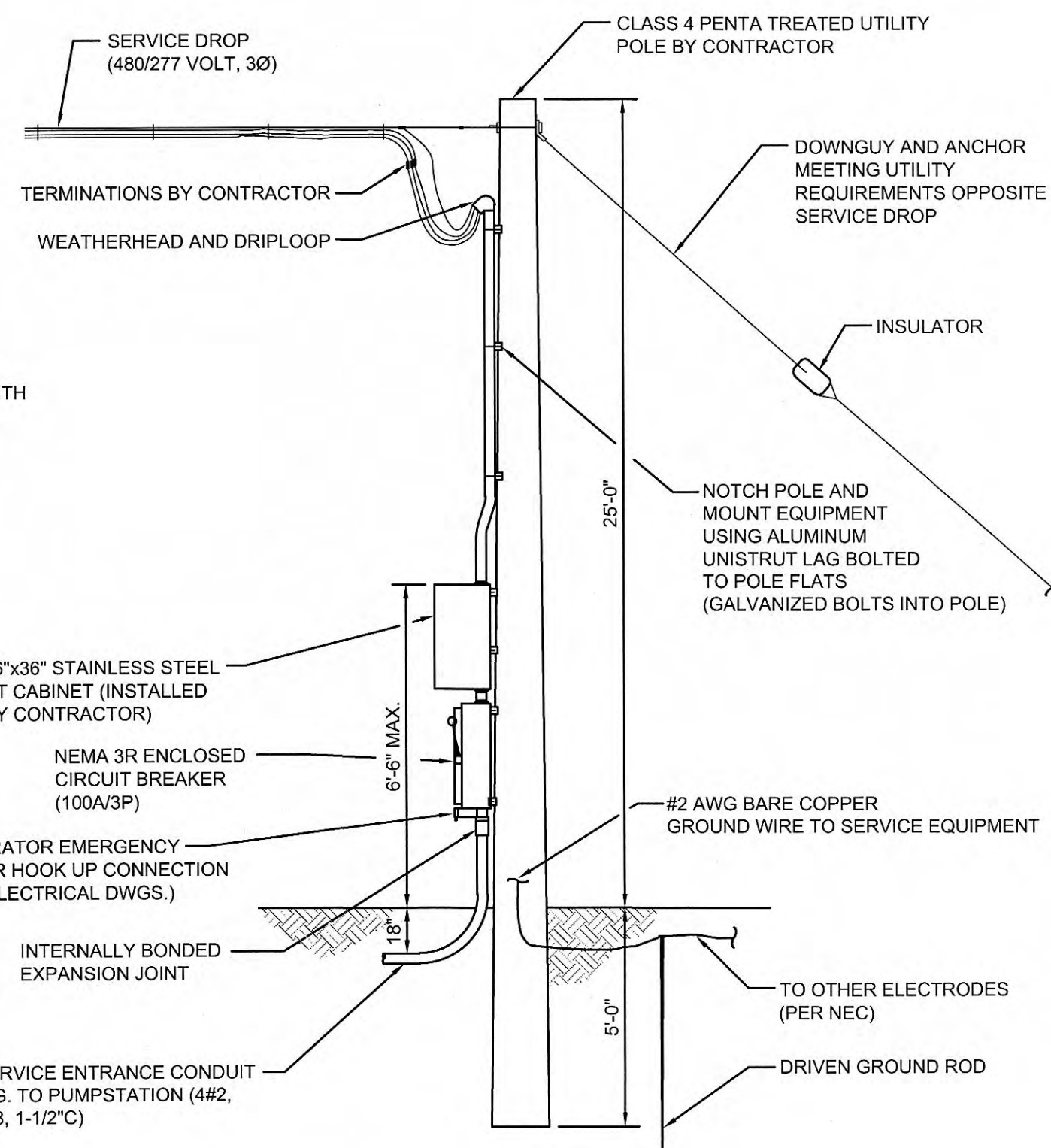
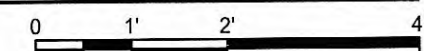
CONSTRUCTION NOTES:

- 1) CONTRACTOR SHALL LEAVE EXISTING SEWER AND PUMP STATION IN SERVICE UNTIL NEW STATION IS INSTALLED.
- 2) AFTER NEW STATION IS IN SERVICE CONTRACTOR SHALL DEMOLISH THE EXISTING MANHOLE AND BACKFILL.
- 3) EXISTING ABOVE GROUND PUMP STATION SHALL BE REMOVED WITH CARE AND PLACED AT LOCATION SELECTED BY THE HARRIMAN UTILITY BOARD. EXISTING PUMP STATION WILL BE USED IN THE FUTURE AT A DIFFERENT LOCATION. CARE SHOULD BE TAKEN NOT TO DAMAGE EXISTING PUMP STATION WHEN DISMOUNTING OR TRANSPORTING.
- 4) EXISTING ABOVE GROUND PUMP STATIONS CONCRETE SLAB TO BE DEMOLISH & REMOVED
- 5) EXISTING OLD BELOW GROUND WETWELL, PUMP STATION AND ENTRANCE TUBE SHALL BE FILLED WITH EXCAVATED MATERIAL FROM NEW WETWELL.
- 6) THE EXISTING OVERFLOW PIPE AND HEADWALL SHALL BE ABANDONED.
- 7) AT NEW PRECAST BOX CULVERT CONTRACTOR SHALL ADJUST DRAINAGE DITCH BOTTOM TO FLOW FLUSH WITH UPPER AND LOWER INVERTS OF NEW PRECAST BOX CULVERT. CONTRACTOR NEEDS MIN. 2'-0" OF COVER ON TOP OF NEW PRECAST BOX CULVERT.



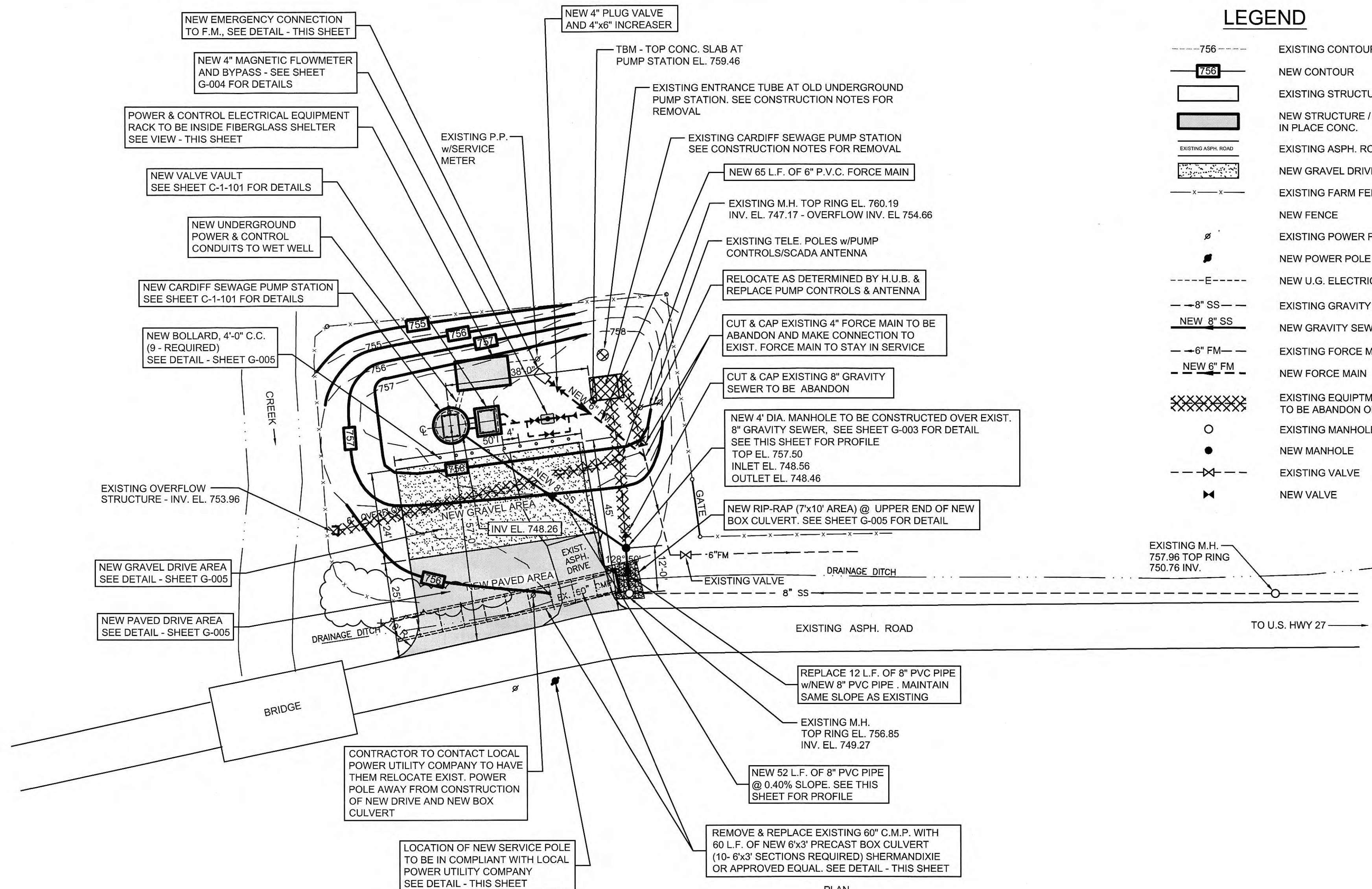
EMERGENCY CONNECTION DETAIL

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



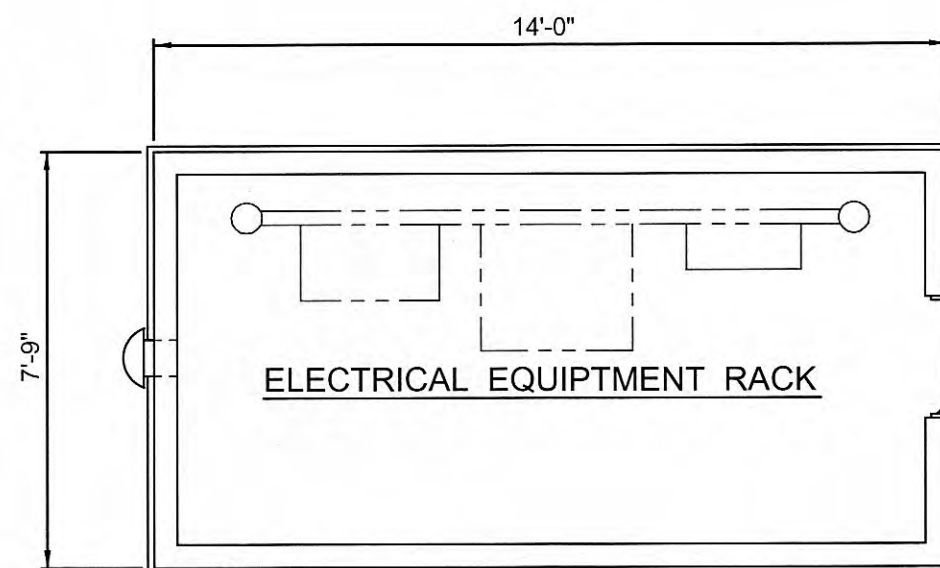
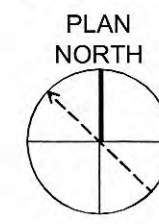
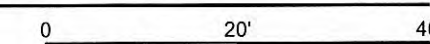
SERVICE POLE DETAIL

NOT TO SCALE



SITE PLAN

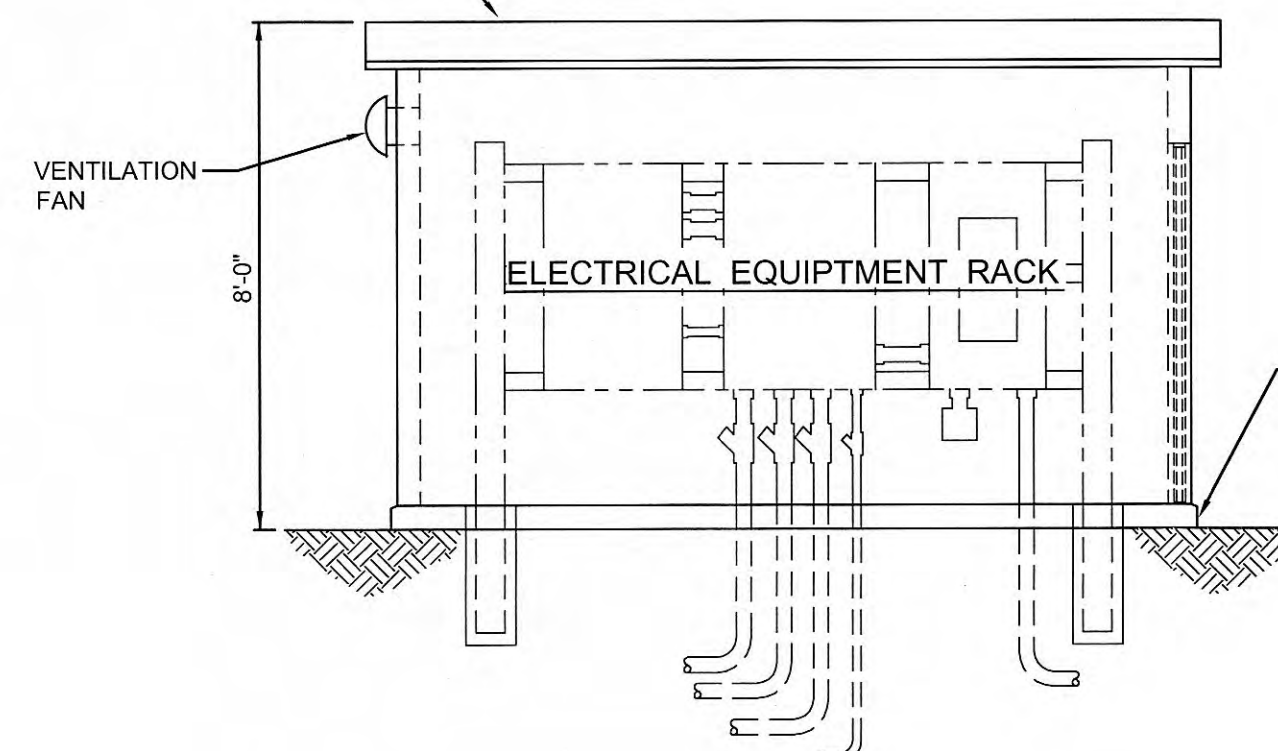
SCALE: 1"=20'-0"



SHELTER - PLAN VIEW

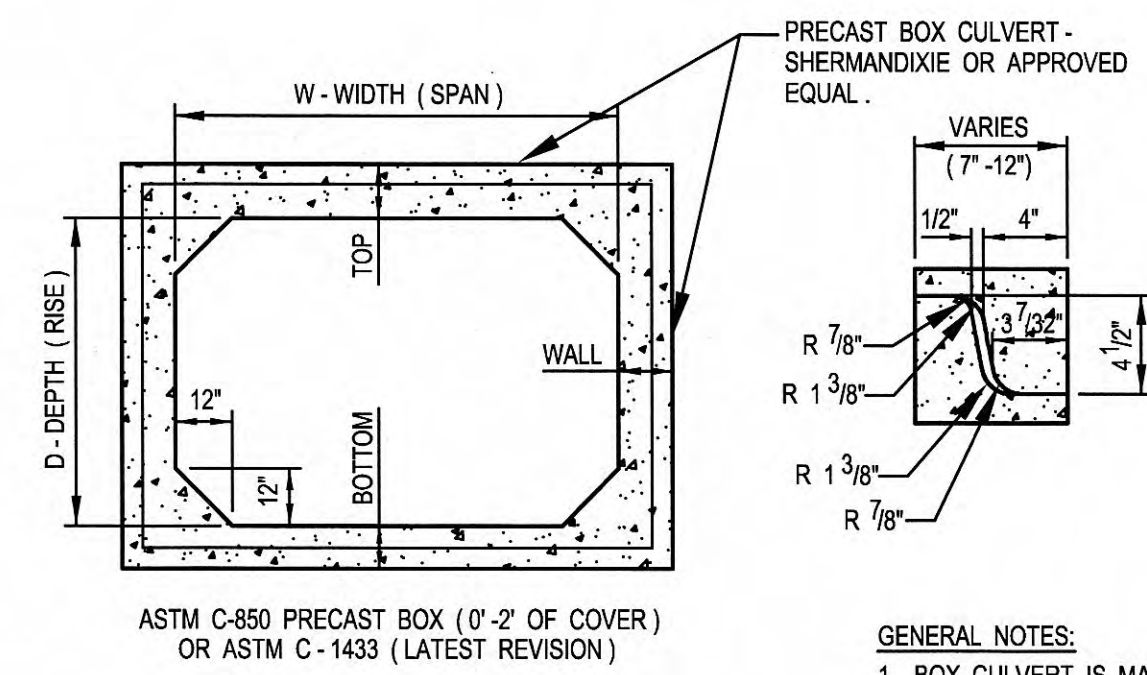
NOT TO SCALE

FIBERGLASS SHELTER FOR ELECTRICAL EQUIPMENT RACK - WARMINSTER 7'-9"x14'-0" OR APPROVED EQUAL.



SHELTER - SIDE VIEW

NOT TO SCALE



SECTION VIEW

SIZE W x D	TOP SLAB	BOTTOM & WALLS	WT. / FT.	WT / 6' SECT.	AREA (SQ. FT.)
6' x 3'	8"	7"	2,170	13,020	16

BOX CULVERT DETAIL

NOT TO SCALE

LEGEND

- 756--- EXISTING CONTOUR
- 756 NEW CONTOUR
- EXISTING STRUCTURE
- NEW STRUCTURE / POURED IN PLACE CONC.
- EXISTING ASPH. ROAD/DRIVE
- NEW GRAVEL DRIVE
- EXISTING FARM FENCE
- NEW FENCE
- EXISTING POWER POLE
- NEW POWER POLE
- NEW U.G. ELECTRICAL SERVICE
- 8" SS--- EXISTING GRAVITY SEWER
- NEW 8" SS NEW GRAVITY SEWER
- 6" FM--- EXISTING FORCE MAIN
- NEW 6" FM NEW FORCE MAIN
- XXXXXX EXISTING EQUIPMENT / PIPING TO BE ABANDON OR REMOVED
- O EXISTING MANHOLE
- NEW MANHOLE
- X-X--- EXISTING VALVE
- NEW VALVE

GENERAL NOTES:

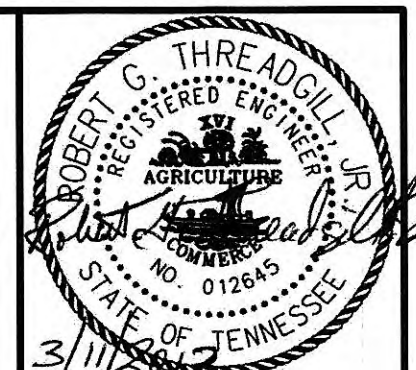
1. BOX CULVERT IS MANUFACTURED TO MEET OR EXCEED ASTM C-850 (LATEST REVISION); STANDARD SPECIFICATION FOR PRECAST REINFORCED CONCRETE BOX SECTIONS FOR CULVERTS.
2. BOX CULVERT MAY USE BUTYL MASTIC, MORTAR, OR OVERWAP FOR SEALING JOINT.
3. EACH SECTION HAS A 6'-0" LAYING LENGTH.



CALL BEFORE YOU DIG

IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION. THE LOCATION OF UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND POSSIBLY INCOMPLETE. THEREFORE CERTIFICATION TO THE LOCATION OF ALL UNDERGROUND UTILITIES IS WITHHELD.

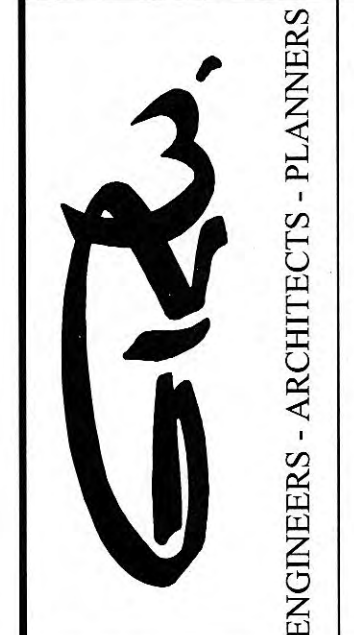
IN TENNESSEE DIAL 811
OR 1-800-351-1111
THREE WORKING DAYS BEFORE YOU DIG



GRW PROJECT NO. 3947-01

CLIENT PROJECT NO.

ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT SHALL BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT WRITTEN PERMISSION.



EXISTING CARDIFF PUMP STATION
DEMOLITION / NEW SITE PLAN, GRAVITY LINE
PROFILE AND DETAILS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

DESIGNED: RGT
DRAWN: CUSH
REVIEWED: RGT
APPROVED: RGT

DATE: 12/20/12

SCALE: AS NOTED

SHEET NO.

REVISIONS

NO. BY DATE DESCRIPTION

1. THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK

DATE: DECEMBER 2012

SCALE: AS NOTED

SHEET NO.

REVISIONS

NO. BY DATE DESCRIPTION

1. THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK

DATE: DECEMBER 2012

SCALE: AS NOTED

SHEET NO.

REVISIONS

NO. BY DATE DESCRIPTION

1. THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

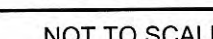
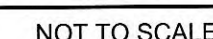
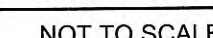
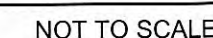
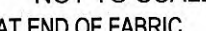
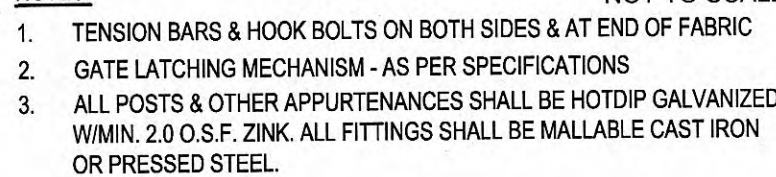
SCALE CHECK

DATE: DECEMBER 2012

SCALE: AS NOTED

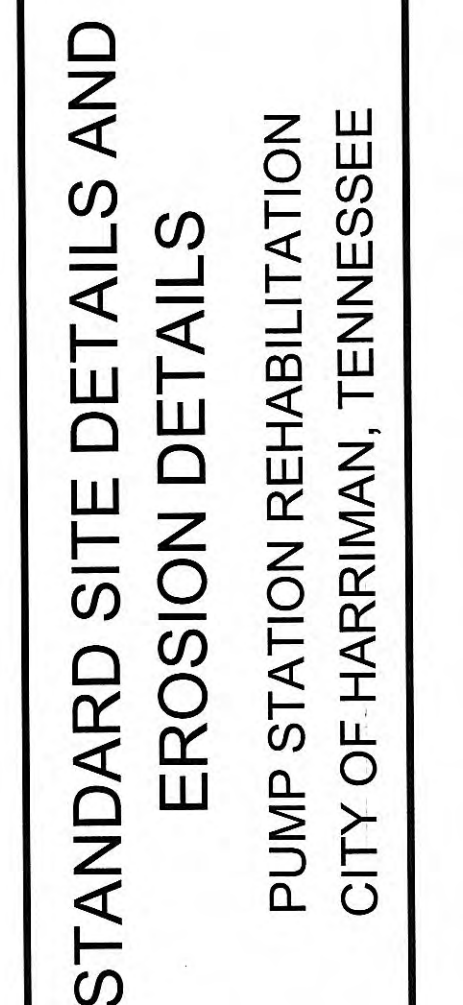
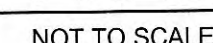
SHEET NO.

C-0-101

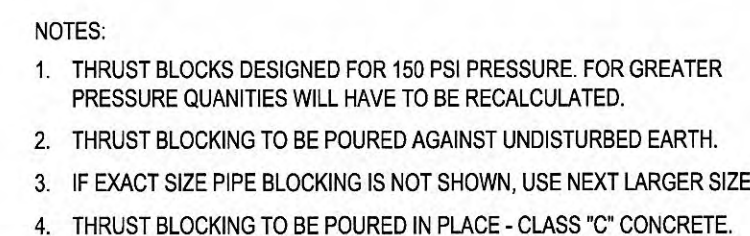


(1) MINIMUM ROLL AVERAGE OF FIVE SPECIMENS.
(2) PERCENT OF REQUIRED INITIAL MINIMUM TENSILE STRENGTH

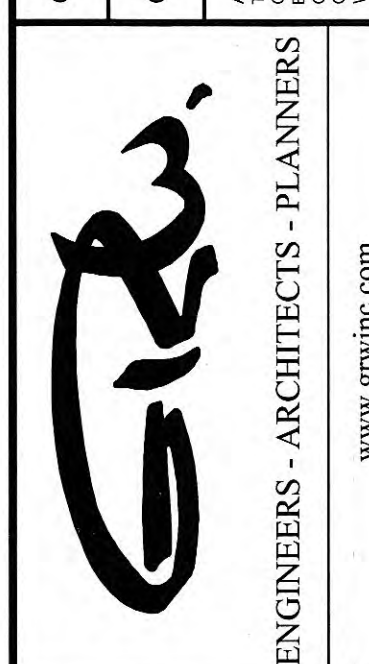
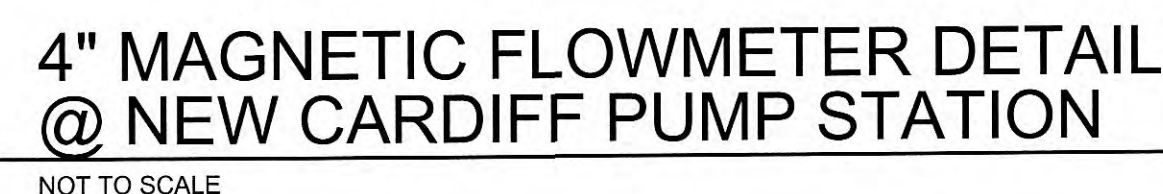
NOT TO SCALE



G-005



DIMENSIONS ARE IN INCHES



STANDARD PRESSURE PIPE DETAILS

PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

REVISIONS					
NO.	DATE	DESCRIPTION	BY	DRAWN:	DESIGNED:
					RGT
					SH
					RGT
					APPROVED:
					RGT

DATE: DECEMBER 2012

SCALE:
AS NOTED

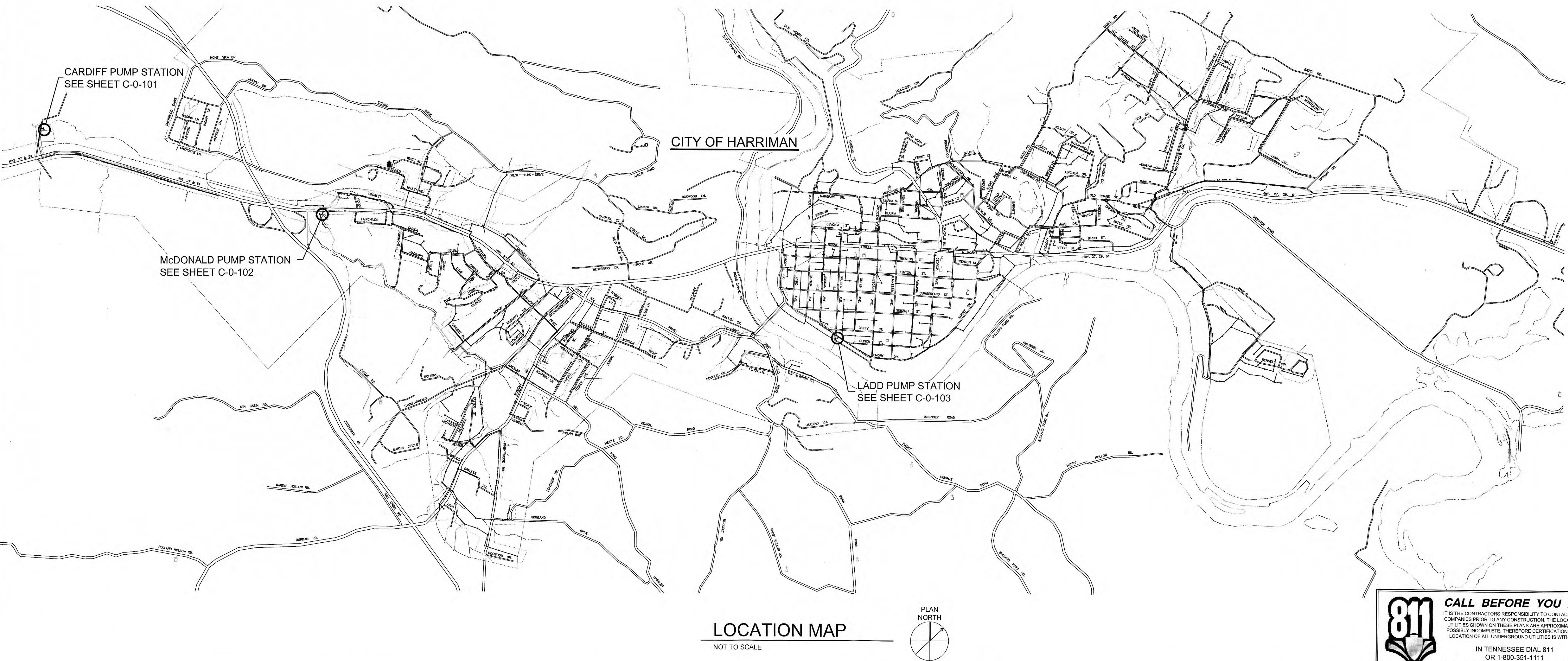
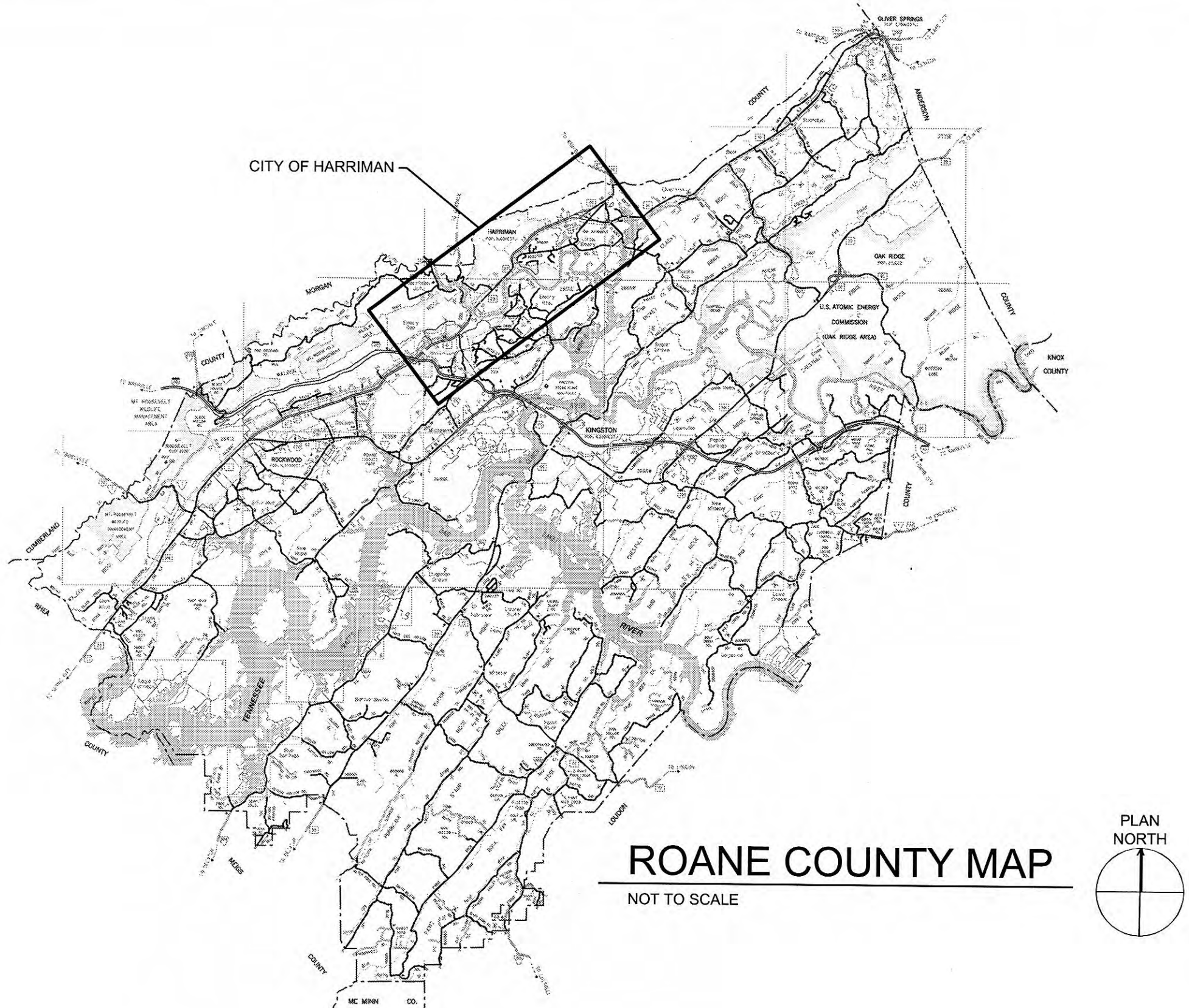
SHEET NO.

G-004

GENERAL NOTES:

1. THE GENERAL CONTRACTOR SHALL VERIFY THE DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK ON THE EXISTING STRUCTURES AND CONCRETE. THE OWNER'S REPRESENTATIVE SHALL BE NOTIFIED OF ANY DISCREPANCY.
2. THE CONTRACTOR SHALL COORDINATE THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL WORKS WITH THE STRUCTURAL CONTRACT DOCUMENTS. THE OWNER'S REPRESENTATIVE SHALL BE NOTIFIED OF ANY DISCREPANCIES OR OMISSIONS.
3. THE CONTRACTOR SHALL RESTORE ALL CULVERTS, FENCES, WALLS, SMALL ORNAMENTAL TREES, CULTIVATED SHRUBS, FLOWERS, SIGNS, LIGHTS AND POWER POLES, STREET MARKERS, MAIL BOXES, WATER AND GAS LINES, WATER AND GAS METERS AND BOXES INCLUDING SHUT-OFFS, AND LAWNS DISTURBED BY CONSTRUCTION OPERATIONS TO THEIR ORIGINAL CONDITIONS. THE COST OF THIS WORK SHALL BE INCLUDED IN THE CONTRACT PRICE.
4. WHERE IN EASEMENTS THE CONTRACTOR SHALL PROTECT AND RESTORE SAID PROPERTY TO CONDITION SIMILAR OR EQUAL TO THAT EXISTING AT THE COMMENCEMENT OF CONSTRUCTION, EXCEPT AS NOTED.
5. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK IN EACH AREA. HE/SHE AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES. BEFORE CONSTRUCTION, CONTRACTOR SHALL CONTACT:

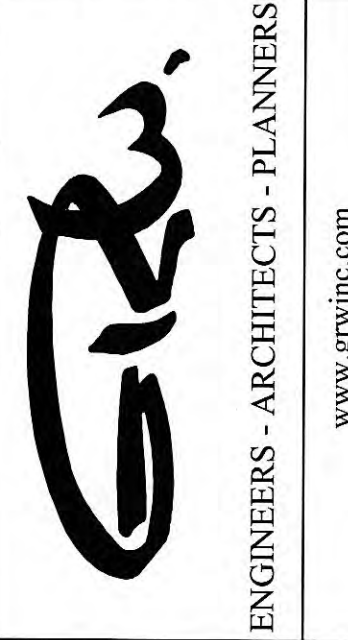
TENNESSEE ONE CALL SYSTEM
DIAL 811 OR 1-800-351-1111
THREE WORKING DAYS BEFORE YOU DIG
6. THE OWNER DOES NOT ASSUME RESPONSIBILITY FOR THE POSSIBILITY THAT DURING CONSTRUCTION, UTILITIES OTHER THAN THOSE SHOWN MAY BE ENCOUNTERED OR THAT ACTUAL LOCATION OF THOSE SHOWN MAY BE DIFFERENT FROM THE LOCATIONS DESIGNATED ON THE CONTRACT DRAWINGS. IN AREAS WHERE IT IS NECESSARY THAT EXACT LOCATIONS BE KNOWN OF UNDERGROUND FACILITIES, THE CONTRACTOR SHALL, AT HIS/HER OWN EXPENSE, FURNISH ALL LABOR AND TOOLS TO EITHER VERIFY AND SUBSTANTIATE OR DEFINITELY ESTABLISH THE POSITION OF UNDERGROUND UTILITY LINES. THIS INCLUDES STORM SEWERS, LOCATION OF EXISTING UTILITIES SHALL NOT BE CAUSE FOR CLAIM AGAINST THE OWNER.
7. IF ANY EXISTING STORM SEWERS ARE SUBSTANTIALLY DAMAGED AS DETERMINED BY THE DESIGNER AND OR OWNER, THE REPAIR SHALL BE MADE WITH R.C.P. PIPE FROM STRUCTURE-TO-STRUCTURE, PIPE SIZE SHALL BE EQUAL TO EXISTING.
8. SUFFICIENT PRECAUTIONS SHALL BE TAKEN DURING CONSTRUCTION TO MINIMIZE THE RUN-OFF OF POLLUTING SUBSTANCES SUCH AS SILT, CLAY, FUELS, OIL, BITUMENS, CALCIUM CHLORIDE, OR OTHER POLLUTING MATERIALS HARMFUL TO HUMANS, FISH OR OTHER LIFE, INTO THE SUPPLIES AND SURFACE WATERS OF THE STATE. CONTROL MEASURES MUST BE ADEQUATE TO ASSURE THAT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS ARE MET. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT THE LAWS AND REGULATIONS ARE MET AND IS RESPONSIBLE FOR ENSURING THAT CONSTRUCTION DOES NOT HARM THE WATERS OF TENNESSEE. THE PROTECTION OF THE SITE SHALL CONTINUE THROUGH THE CONSTRUCTION PERIOD. SPECIAL PRECAUTIONS SHALL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT OPERATIONS WHICH PROMOTE EROSION.
9. THE TEMPORARY POLLUTION CONTROL PROVISIONS SHALL BE COORDINATED WITH THE PERMANENT EROSION CONTROL MEASURES, TO ENSURE ECONOMICAL EFFECTIVE AND CONTINUOUS EROSION CONTROL THROUGH THE CONSTRUCTION AND POST - CONSTRUCTION PERIOD OF THE PROJECT. NATURAL COVER SHOULD BE MAINTAINED AS LONG AS POSSIBLE AND GRADED AREAS SHOULD BE STABILIZED AS SOON AS POSSIBLE.
10. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FROM THE APPROPRIATE FEDERAL, STATE, COUNTY AND / OR LOCAL AGENCIES TO CROSS ALL HIGHWAYS, STREETS, STREAMS, EASEMENTS, ETC...



GRW PROJECT NO. 3947-01

CLIENT PROJECT NO.

ALL RIGHTS RESERVED. THE COMPANY OF GRW ENGINEERS, INC. AND SHALL NOT BE USED FOR CONSTRUCTION OF OTHER THAN THIS SPECIFIC PROJECT WITHOUT THE WRITTEN CONSENT OF GRW ENGINEERS, INC.



COUNTY MAP, LOCATION MAP AND
GENERAL NOTES
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

DESIGNED: RGT
DRAWN: SH
REVIEWED: RGT
APPROVED: RGT

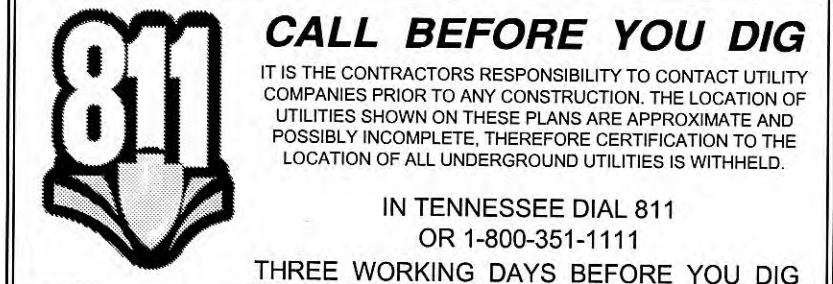
NO.	DATE	BY	REVISIONS

DATE: DECEMBER 2012

SCALE: AS NOTED

SHEET NO.

G-002



ENERGY RECOVERY VENTILATION SCHEDULE

DRAWING SYMBOL	SUPPLY SIDE				EXHAUST SIDE				VOLT/PHASE	MCA	MOCF	WEIGHT	MANUFACTURER MODEL NUMBER
	CFM	E.S.P.	HP	WHEEL EFFICIENCY	CFM	E.S.P.	HP	WHEEL EFFICIENCY					
ERV 1	1,080	0.5	1/2	80.8%	1,080	0.5	1/2	80.8%	120/1	23.8	30.0	780	GREENHECK ERV-361S-15-A

NOTES AND FEATURES:

- * DUCT FLANGES.
- * REMOTE PANEL WITH ON-OFF SWITCH.
- * OUTSIDE AIR AND EXHAUST AIR FILTERS, 2" PLEATED, 30% EFFICIENCY.
- * TIMED EXHAUST FROST CONTROL.

- * OUTDOOR AIR TEMPERATURE:
-SUMMER: 92.0/74.0 F.
-WINTER: 5.0 F.

- * INDOOR AIR TEMPERATURE:
-SUMMER: 85.0 F.
-WINTER: 50.0 F.

LOUVER SCHEDULE

DRAWING SYMBOL	LOUVER SIZE (WIDTH X HEIGHT)	CFM	MINIMUM SQ/FT FREE AREA	MAXIMUM PRESSURE DROP (IN. WG)	MANUFACTURER AND MODEL NUMBER	NOTES
L 1	24x18	1,080	1.40	0.14	RUSKIN ELF 375DXH	SEE BELOW
L 2	24x18	1,080	1.40	0.14	RUSKIN ELF 375DXH	SEE BELOW

NOTES AND FEATURES:

- * LOUVERS SHALL BE BEAR AMCA SEAL AND SHALL BE TESTED IN ACCORDANCE WITH AMCA 5111.
- * KYNAR COATING
- * WATER PENETRATION THROUGH LOUVER SHALL NOT OCCUR BELOW 1000 FPM (FREE AREA)
- * ALUMINUM CONSTRUCTION

ELECTRIC HEATER SCHEDULE

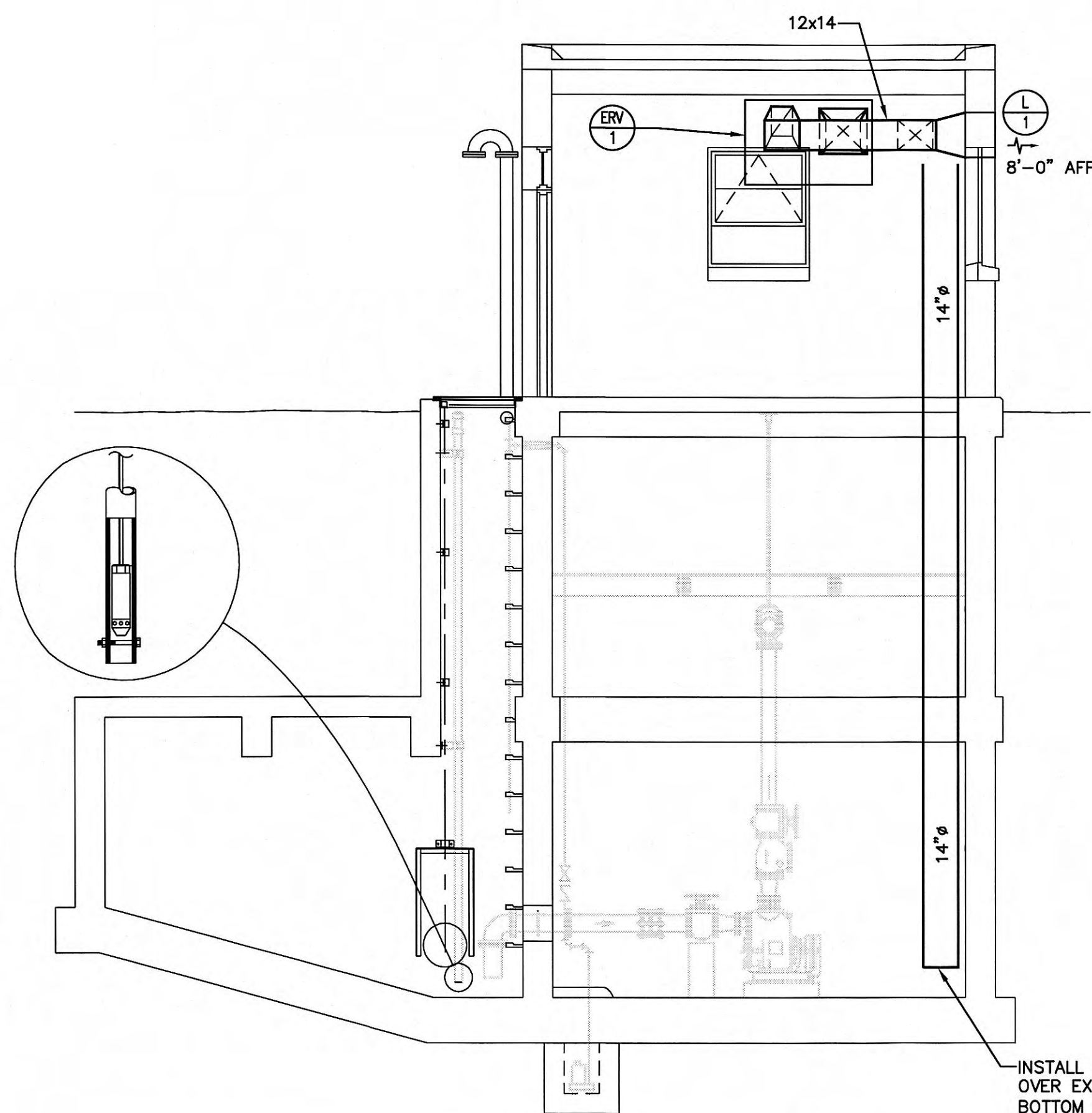
DRAWING SYMBOL	TYPE	KW	CFM	VOLTAGE/PHASE	FAN R.P.M.	FAN WATTS	MANUFACTURER & MODEL NO.
EUH 1	HOSE-DOWN	10	700	480/3	1550	35	TRANE UHRA
EUH 2	HOSE-DOWN	7.5	400	480/3	1550	35	TRANE UHRA

HEATERS

- * TRANSFORMER FOR 24V. THERMOSTAT
- * LOW VOLTAGE THERMOSTAT WITH HEAT-OFF-FAN SWITCH, MOUNTED ON UNIT.
- * THERMAL OVERLOAD PROTECTION.
- * 18-GAUGE, 304 STAINLESS STEEL CASING.
- * DISCONNECT SWITCH.
- * CONTROLS SHALL BE IN A NEMA 4x ENCLOSURE ON UNIT.
- * MOUNT 7'-0" A.F.F.
- * STAINLESS STEEL WALL/CEILING MOUNTING BRACKET.

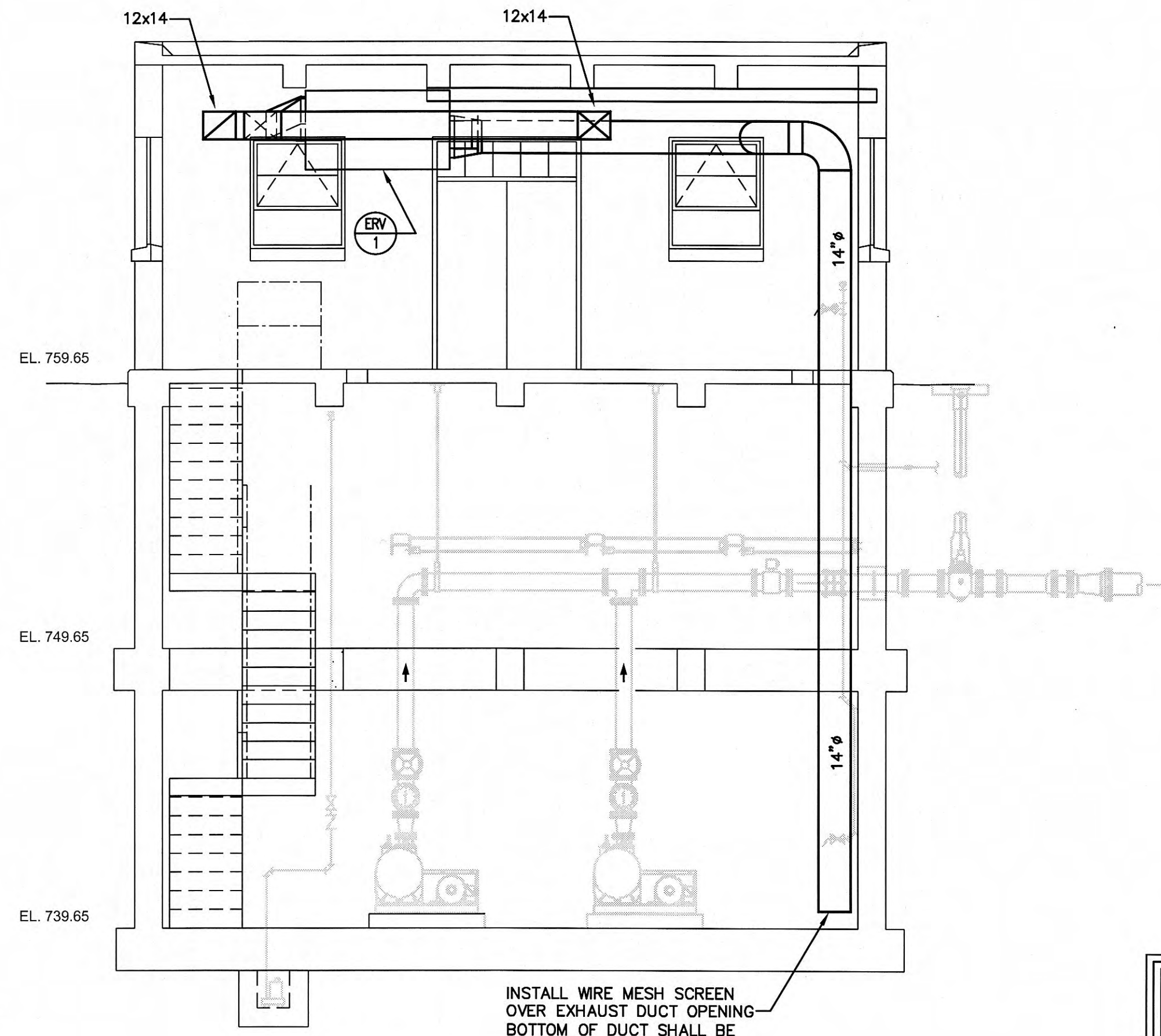
MECHANICAL LEGEND

STANDARD ABBREVIATIONS AND NOTATIONS	
FFE FINISHED FLOOR ELEVATION	NIC NOT IN CONTRACT
FA FROM ABOVE	SU SUPPLY DUCTWORK
DN DOWN	RE RETURN DUCTWORK
CD CEILING DIFFUSER	EX EXHAUST DUCTWORK
CR CEILING RETURN	OA OUTDOOR AIR DUCTWORK
CE CEILING EXHAUST	
SR SUPPLY REGISTER	
RR RETURN REGISTER	
ER EXHAUST REGISTER	
SYMBOL	DESCRIPTION
	RECTANGULAR DUCT: MANUAL OPPOSED BLADE DAMPER WITH LOCKING QUADRANT. LEVER OPERATOR, OF STEEL CONSTRUCTION. LOUVERS & DAMPERS MODEL CD-400; KRUEGER MODEL OBD-DM TYPE 2 OPERATION FOR LESS THAN 10" WIDE.
	ROUND DUCT: ROUND BLADE CONTROL DAMPER OF STEEL CONSTRUCTION WITH MANUAL OPERATOR LOUVERS AND DAMPERS MODEL CD-600.
	SHEET METAL CONNECTORS, INC. HIGH EFFICIENCY TAKEOFF WITH DAMPER AND LOCKING QUADRANT FOR ROUND DUCT TAKEOFFS FROM RECTANGULAR DUCTWORK. INCREASE MAIN DUCT SIZE AT FITTING TO ACCOMMODATE ITS INSTALLATION IF REQUIRED TO MEET SMACNA AND MANUFACTURER'S INSTRUCTIONS. ALL BRANCH TAKEOFFS SHALL HAVE BALANCING DAMPERS FOR BALANCING PURPOSES. DIMENSION: D = RUNOUT DIAMETER (6"-14")
	RECTANGULAR ELBOW WITH SINGLE THICKNESS TURNING VANES OF STEEL CONSTRUCTION.
	EQUIPMENT TAG
	ELECTRICAL PANEL - AVOID INSTALLING EQUIPMENT IN PANEL BOARD SPACE PER ARTICLE 110 OF THE NATIONAL ELECTRIC CODE.
	WALL SWITCH - XXX-1



SECTION 1 - HVAC

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



SECTION 2 - HVAC

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

WWR ENGINEERS INC.
5417 Ball Camp Pike
Knoxville, TN 37921
Phone: (865) 588-2431
Fax: (865) 588-2434
West, Welch, Reed Engineers, Inc.
WWR PROJECT# 112025

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LADD PUMP STATION SECTIONS & SCHEDULES - HVAC PUMP STATION REHABILITATION CITY OF HARRIMAN, TENNESSEE

DESIGNED BY	DATE	REVISIONS	DESCRIPTION	NO.	BY	DATE	REVIEWED BY	DATE	APPROVED BY	SCALE	SHEET NO.
KLS											
RTB											
KLS											
KLS											

DATE: DECEMBER 2012
SCALE: AS NOTED
SHEET NO. M-1

LEVEL CONTROL DIAIGRAM

SCALE: NONE

ELECTRICAL LEGEND

STANDARD ABBREVIATIONS AND NOTATIONS			
A	AMPERE (AMPS)	HP	HORSEPOWER
AC	INDICATES DEVICE SHALL BE MOUNTED ABOVE COUNTERTOP	IMC	INTERMEDIATE METALLIC CONDUIT
AFB	ABOVE FINISHED FLOOR	KMIL	1000 CIRCULAR MILS. SAME AS "MCM".
AFG	ABOVE FINISHED GRADE	KV	KILOVOLT-AMPS
AFI	ARC FAULT INTERRUPTER (AT CKT. BKR.)	KW	KILOWATT
AMS	AMPS INTERRUPTING CURRENT	MCA	MINIMUM CIRCUIT AMPS
BKR	BREAKER	MCC	MOTOR CONTROL CENTER
C	CONDUIT	MCM	1000 CIRCULAR MILS. SAME AS "KMIL".
CKT	CIRCUIT	N	NEUTRAL
CU	COPPER CONDUCTOR	NL	NOT IN CONTRACT
DISC.	DISCONNECT	NL	NIGHT LIGHT. LUMINAIRE SHALL BE UNSWITCHED EXCEPT FOR CIRCUIT BREAKER.
DN	DOWN	PC	INDICATES DEVICE IS CONTROLLED BY PHOTOCELL OR TIMECLOCK
EM	CONNECTED TO EMERGENCY POWER	PVC	POLYVINYLCHLORIDE CONDUIT. CLASSIFIED AS RIGID NONMETALLIC CONDUIT PER NEC. SCHEDULE 40 UN.
EMT	ELECTRICAL METALLIC TUBING	QR	INDICATES LUMINAIRE SHALL BE PROVIDED WITH QUARTZ RESTRIKE
FLA	FULL LOAD AMPS	SCOR	SHORT-CIRCUIT CURRENT RATING
G	GROUND (ALSO "GND")	TR	TAMPER RESISTANT
GI	GROUND-FAULT CIRCUIT-INTERRUPTER (ALSO "GFI")		
GRS	GALVANIZED RIGID STEEL CONDUIT		
UC	UNDER COUNTER. INDICATES DEVICE SHALL BE LOCATED BELOW THE COUNTERTOP.	TC	TWISTED SHIELDED PAIR
UN	UNLESS OTHERWISE NOTED	V	VOLTS
W	WATTS	WG	INDICATES DEVICE SHALL BE PROVIDED WITH WIRE GUARD
WP	WEATHERPROOF	WP	WEATHERPROOF
XFMR	TRANSFORMER	4X	SS DEVICES SHALL BE STAINLESS STEEL AND RATED NEMA 4X
			EXISTING DEVICE NOTATIONS
EX	EXISTING DEVICE TO REMAIN	EX	EXISTING DEVICE TO BE MOVED TO NEW LOCATION SHOWN
EXR	EXISTING DEVICE TO BE REMOVED. REMOVE CONDUCTORS AND CONDUIT BACK TO SUPPLY SOURCE.		
SYMBOL		DESCRIPTION	
	GROUND FAULT CIRCUIT INTERRUPTING DUPLEX RECEPTACLE - 120-VOLT, 20-AMP WITH GFCI PROTECTION IN THE RECEPTACLE. MOUNTING HEIGHT AND NOTATIONS SAME AS FOR DUPLEX RECEPTACLE. wp INDICATES CAST WEATHERPROOF. USE COVER HUBBELL OR EQUAL.		
	ELECTRIC MOTOR - PROVIDE CONNECTION AS INDICATED. VERIFY EXACT CONNECTION REQUIREMENTS WITH SUBMITTAL INFORMATION PRIOR TO ROUGH-IN TO ENSURE PROPER SERVICE SIZE AND CONNECTION LOCATION. USE FLEXIBLE CONDUIT WITHIN 18" OF EQUIPMENT.		
	FUSED DISCONNECT SWITCH - RATING TO MATCH THE REQUIREMENTS OF THE EQUIPMENT BEING SERVED. HEAVY DUTY NEMA 4XSS UNLESS NOTED OTHERWISE.		
	MAGNETIC MOTOR STARTER - PROVIDE COMBINATION STARTER/DISCONNECT WHEN INSTALLED OUT OF SIGHT OF SUPPLYING PANELBOARD. NEMA 4XSS		
	WALL SWITCH - RATED FOR 20-AMP OPERATION AT LINE VOLTAGE. SINGLE POLE UNLESS NOTED 3-WAY OR 4-WAY. MOUNT 48" ABOVE FINISHED FLOOR EXCEPT IN MASONRY WHERE THE HEIGHT SHALL BE ADJUSTED TO HAVE EDGE OCCUR AT NEAREST JOINT.		
	JUNCTION BOX - SIZE AND USE AS REQUIRED. WHEN RECESSED COVERPLATE SHALL OVERLAP THE BOX EDGE BY 1/2".		
	CONDUIT INSTALLED IN CEILING OR WALL CONSTRUCTION.		
	CONDUIT INSTALLED UNDERGROUND OR BELOW THE FLOOR CONSTRUCTION.		
	HOMERUN - EXTEND CONDUIT TO THE PANELBOARD OR DEVICE INDICATED. NUMBER OF CROSSHATCHED LINES INDICATES THE QUANTITY OF CURRENT CARRYING CONDUCTORS (NOT INCLUDING THE GROUND CONDUCTOR) WHERE MORE THAN TWO. CIRCUITS SHALL ALL HAVE SEPARATE NEUTRALS AND SHALL BE CONNECTED TO DIFFERENT PHASES WITHIN THE PANELBOARD REGARDLESS OF THE NUMBERING ON THE DRAWINGS. ALL CONDUIT RUNS SHALL BE PROVIDED WITH A GREEN CODE SIZE EQUIPMENT GROUNDING CONDUCTOR THAT SHALL BOND TO THE GROUNDING BUS BAR IN THE PANELBOARD.		

CONTROL & MONITORING CONNECTION SCHEDULE

DESCRIPTION	FROM	TO	# OF LOCATIONS	CONDUCTOR SIZE & QUANTITY FOR EACH LOCATION
PUMP CONTROLS	MCC	RTU	(1)	17#12, 1 1/2"C
PUMP CONTROLS	MCC	RTU	(1)	3 PAIR #16 TSP, 1 1/2"C
LEVEL CONTROLS	PCP	RTU	(1)	2 PAIR #16 TSP, 1"C
LEVEL CONTROLS	PCP	RTU	(1)	6#12, 1"C
PUMP CONTROLS	PCP	MCC	(1)	12#12, 1 1/4"C
PUMP CONTROLS	PCP	MCC	(1)	3 PAIR #16 TSP, 1 1/2"C
FLOW METER	METER	RTU	(1)	4 PAIR #16 TSP, 1 1/2"C
FLOW METER	METER	RTU	(1)	4 #14, 3/4"C

CONNECTION SCHEDULE NOTES:

1. "MCC" INDICATES MOTOR CONTROL CENTER.
2. "RTU" INDICATES REMOTE TERMINAL UNIT.
3. "PCP" INDICATES PUMP CONTROL PANEL.

"A" PANEL DESIGNATION	RATING: 100 AMPS MAIN: BREAKER PHASE: 1 WIRE: 3 SCCR: 10,000 AIC				VOLTAGE: 120/240 MOUNTING: MCC ENCLOSURE: SIZE (WxD): 20"x6"				FEEDER: SEE RISER DIAGRAM				LOAD SUMMARY #A: 5.9KW #B: 2.9KW TOTAL: 8.8 KW																				
LOAD DESCRIPTION																	LOAD DESCRIPTION																
LIGHTING — UPPER LEVEL																	20/1 1.3 1 2 1.8 30/1 ERV-1																
RECEPTACLES — UPPER AND LOWER LEVELS																	20/1 0.8 3 4 0.5 30/2 FLUOREMETER																
EXTERIOR LIGHTING																	20/1 1.2 5 6 1.0 20/1 RTU																
SPARE																	20/1 7 8 1.0 20/1 PUMP CONTROL PANEL																
SPARE																	20/1 9 10 0.6 20/1 SUMP PUMP																
SPARE																	20/1 11 12 0.6 2 2																
SPARE																	20/1 13 14 20 SPARE																
SPARE																	20/1 15 16 2																
SPARE																	20/1 17 18 20 SPARE																
SPARE																	20/1 19 20 2																

LIGHTING FIXTURE SCHEDULE

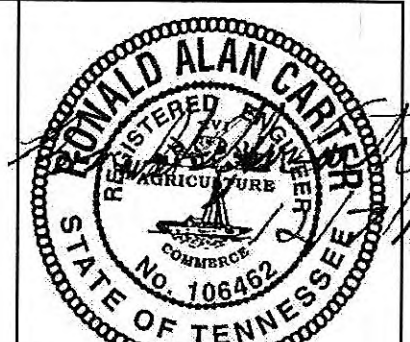
DESIGNATION	LAMPS		MOUNTING						LAMP TYPES		GENERAL NOTES	
	LAMP TYPE	QUANTITY	WATTAGE EACH	CEILING		WALL		GROUND		FLR = FLUORESCENT INC = INCANDESCENT HPS = HIGH PRESSURE SODIUM MH = METAL HALIDE QTZ = QUARTZ	1) FIXTURES SHALL BE AS SPECIFIED OR APPROVED EQUAL. 2) CONTRACTOR SHALL VERIFY CEILING TYPE AND MOUNTING REQUIREMENTS PRIOR TO INSTALLATION.	
				PENDANT	STEM LENGTH	SURFACE RECESSED	HEIGHT ABOVE FINISHED FLOOR OR GRADE	POLE HEIGHT	SURFACE RECESSED			
GENERAL DESCRIPTION										MANUFACTURER		
										COMPANY	CATALOG NUMBER	
A	FLR	1	150				*			WALL MOUNTED LUMINAIRE	HOLOPHANE	WL2K-150HF-12-BZ
B	FLR	2	32		*					2X4 ACRYLIC LENS TROFFER. HINGED AND LATCHED.	HOLOPHANE	7200-4-12-J-F
C	FLR	2	36		*					NEMA 4X EMERGENCY LIGHTING	HOLOPHANE	DM5-C-36-T-NN-2-L-2L

CONTROL DIAGRAMS LEGEND

SYMBOL	DESCRIPTION
•	INDICATES DEVICE IS LOCATED AT MOTOR, PUMP, EQUIPMENT OR IN THE FIELD.
—□—	TERMINAL IN MAIN OR PLANT CONTROL PANELS.
	NORMALLY OPEN CONTACT IN A PLC CONTROL PANEL.
	NORMALLY CLOSED CONTACT IN A PLC CONTROL PANEL.
	NORMALLY OPEN MOMENTARY PUSHBUTTON SWITCH.
	NORMALLY CLOSED MOMENTARY PUSHBUTTON SWITCH.
	NORMALLY OPEN CONTACT CONTROLLED BY A STARTER OR RELAY COIL. "M" INDICATES THE COIL.
	NORMALLY CLOSED CONTACT CONTROLLED BY A STARTER OR RELAY COIL. "M" INDICATES THE COIL.
	COIL FOR A MOTOR STARTER OR CONTROL RELAY. "M" INDICATES MOTOR STARTER, "VFD" INDICATES VARIABLE FREQUENCY DRIVE AND "SS" INDICATES REDUCED VOLTAGE STARTER (SOFT START).
	PILOT LIGHT. "G" INDICATES GREEN, "R" INDICATES RED AND "A" INDICATES AMBER.
	ELAPSED TIME METER.
	HAND-OFF-AUTOMATIC SWITCH.

CONTROL DIAGRAMS GENERAL NOTES:

1. ALL DEVICES ARE LOCATED IN MCC UNLESS OTHERWISE NOTED.



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LEGEND SCHEDULES AND DETAILS

PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

REVISIONS				DESIGNED:	RAC
NO.	DESCRIPTION	DATE	BY	DRAWN:	
				REWORKED:	
SCALE CHECK: _____ THIS MARK SHOULD MEASURE EXACTLY 1" WHEN UNLOTTED				APPROVED:	RAC

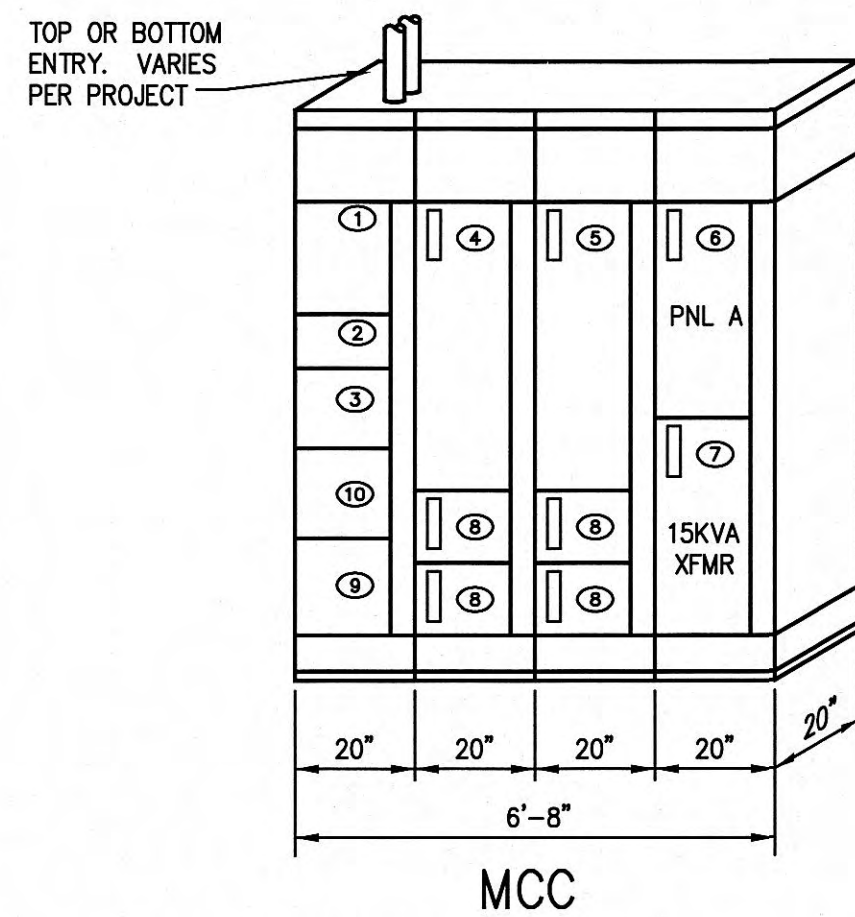
DATE:	DECEMBER 2012
SCALE:	NONE
SHEET NO.	

E-6

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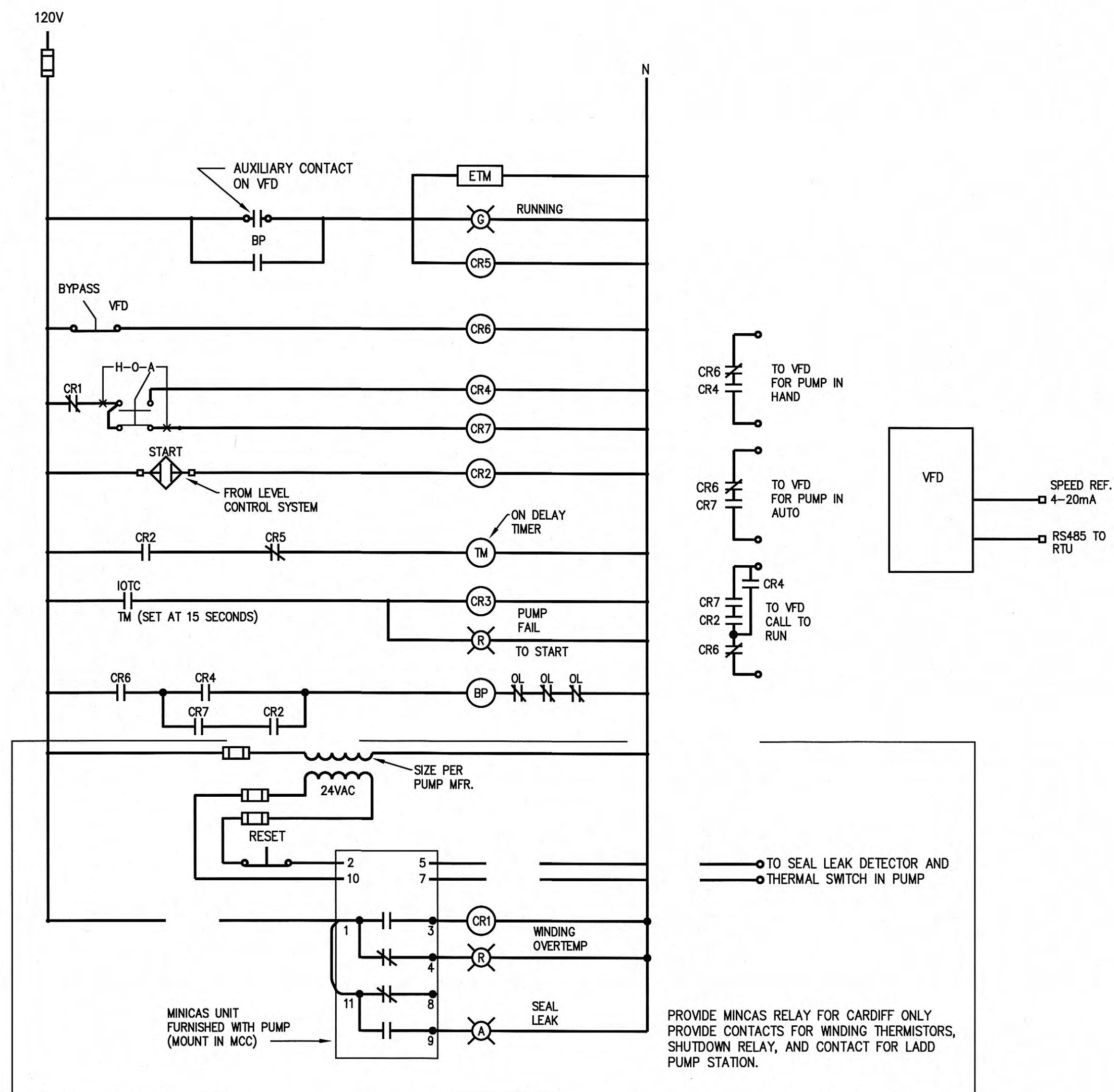


- MCC**
- 200-AMP BREAKER, 600-AMP BUS, 480-VOLTS, 3φ, 4W NEMA 12 ENCLOSURE.
- MOTOR CONTROL CENTER NOTES:**
- 1) EACH MOTOR DISCONNECT SHALL BE CAPABLE OF BEING LOCKED IN THE OPEN POSITION.
 - 2) STARTERS SHALL BE FULL-VOLTAGE, NON-REVERSING WITH MOTOR CIRCUIT PROTECTOR, UNLESS NOTED OTHERWISE. SQUARE D MAGGARD SERIES OR EQUAL.
 - 3) MOTOR CONTROL CENTERS SHALL BE OUTLER OR EQUAL.
 - 4) ALL MOTOR CONTROL CENTERED RATED 42,000-AIC MINIMUM.
 - 5) ONLY THE STARTERS IN THE M.C.C. SHALL BE PROVIDED BY SECTION 16. OTHER STARTERS PROVIDED BY OTHER TRADES.

- MOTOR CONTROL CENTER "A" DETAIL NOTES:**
- ① 200A MAIN BREAKER SERVICE ENTRANCE RATED
 - ② METER
 - ③ TVSS 160KA
 - ④ PUMP #1 DANFOSS VFD WITH BYPASS, 25HP
 - ⑤ PUMP #2 DANFOSS VFD 25HP
 - ⑥ PANEL "A"
 - ⑦ 15KVA TRANSFORMER
 - ⑧ EQUIPPED SPACE
 - ⑨ 10KW UNIT HEATER 20/3 BREAKER
 - ⑩ 7.5KW UNIT HEATER 20/3 BREAKER

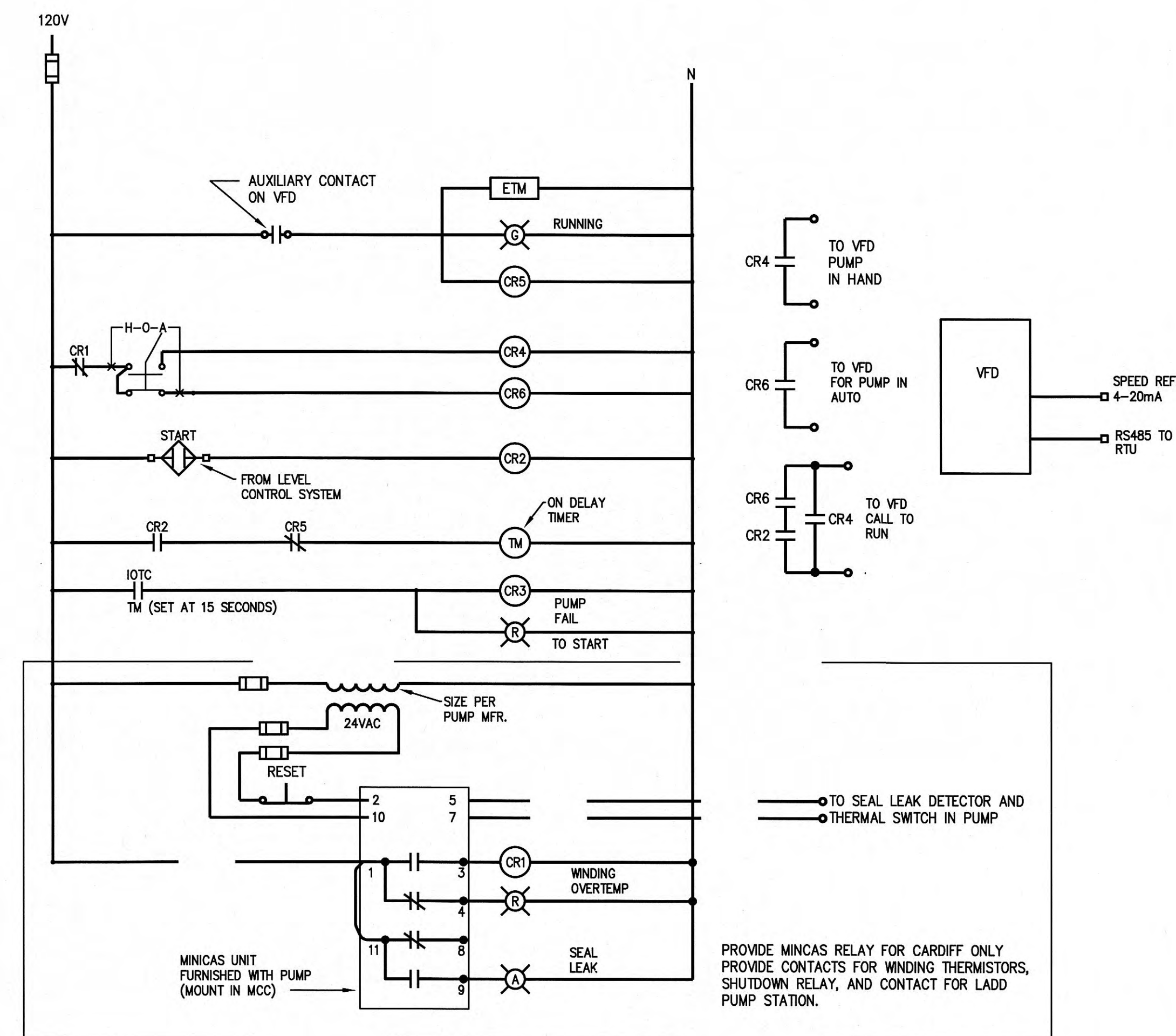
MOTOR CONTROL CENTER

SCALE: NONE



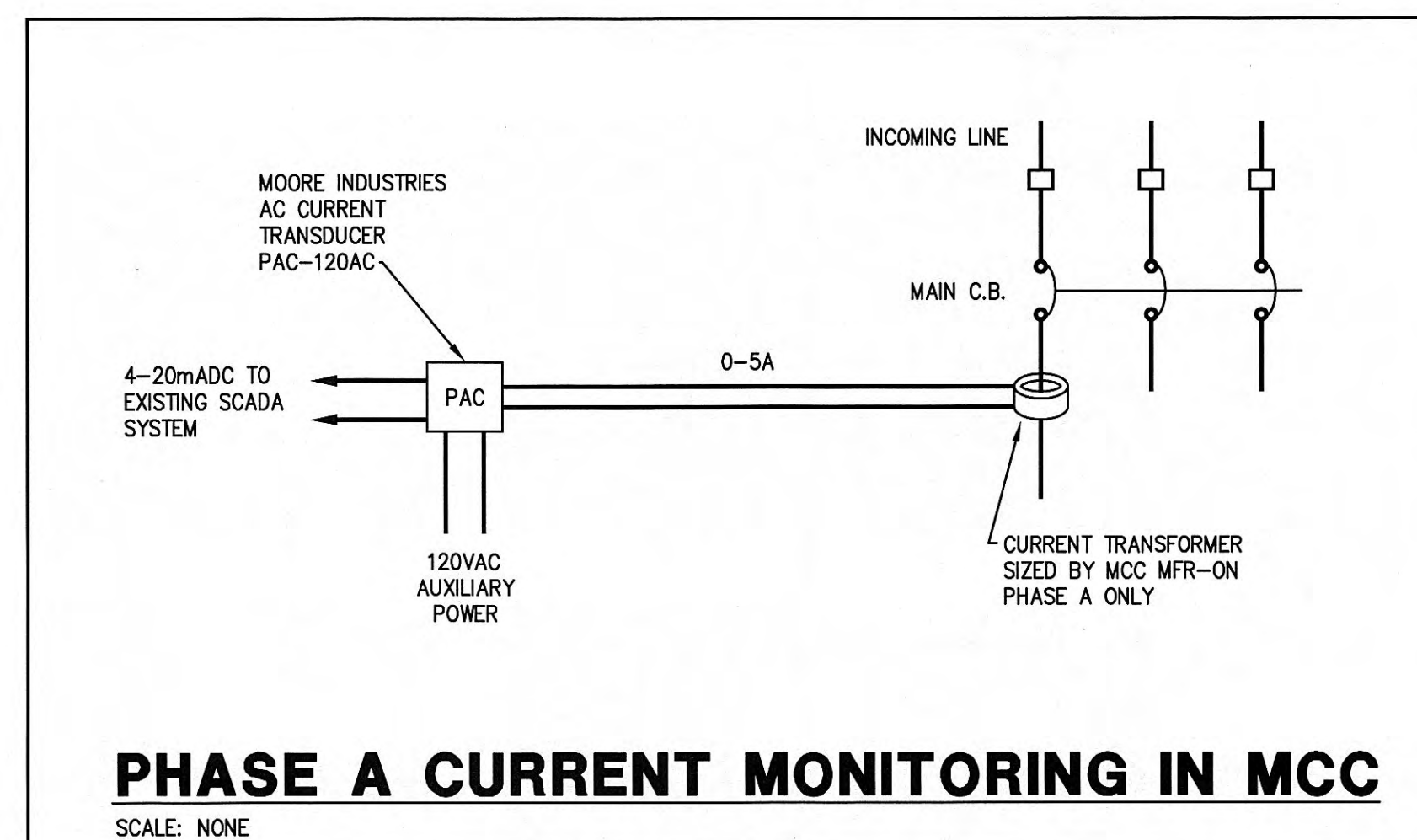
WASTEWATER PUMP #1 CONTROL DIAGRAM

SCALE: NONE



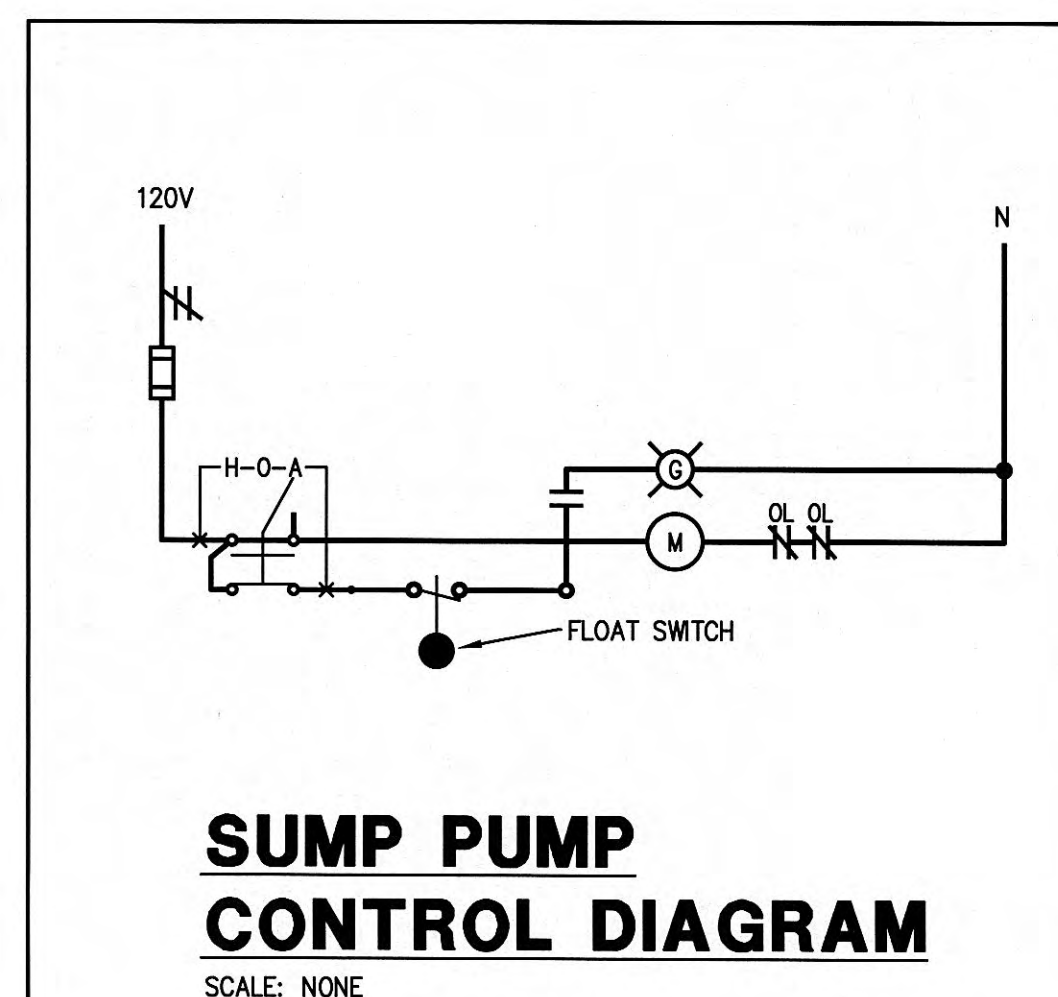
WASTEWATER PUMP #2 CONTROL DIAGRAM

SCALE: NONE



PHASE A CURRENT MONITORING IN MCC

SCALE: NONE

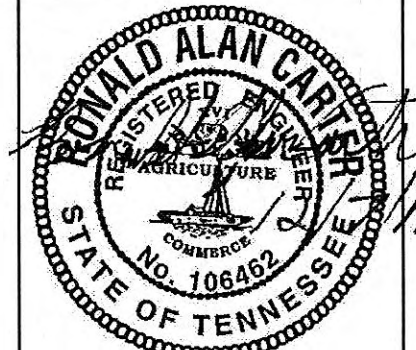


SUMP PUMP CONTROL DIAGRAM

SCALE: NONE

WWR ENGINEERS INC.
5417 Ball Camp Pike
Knoxville, TN 37921
Phone: (865) 588-2431
Fax: (865) 588-2434
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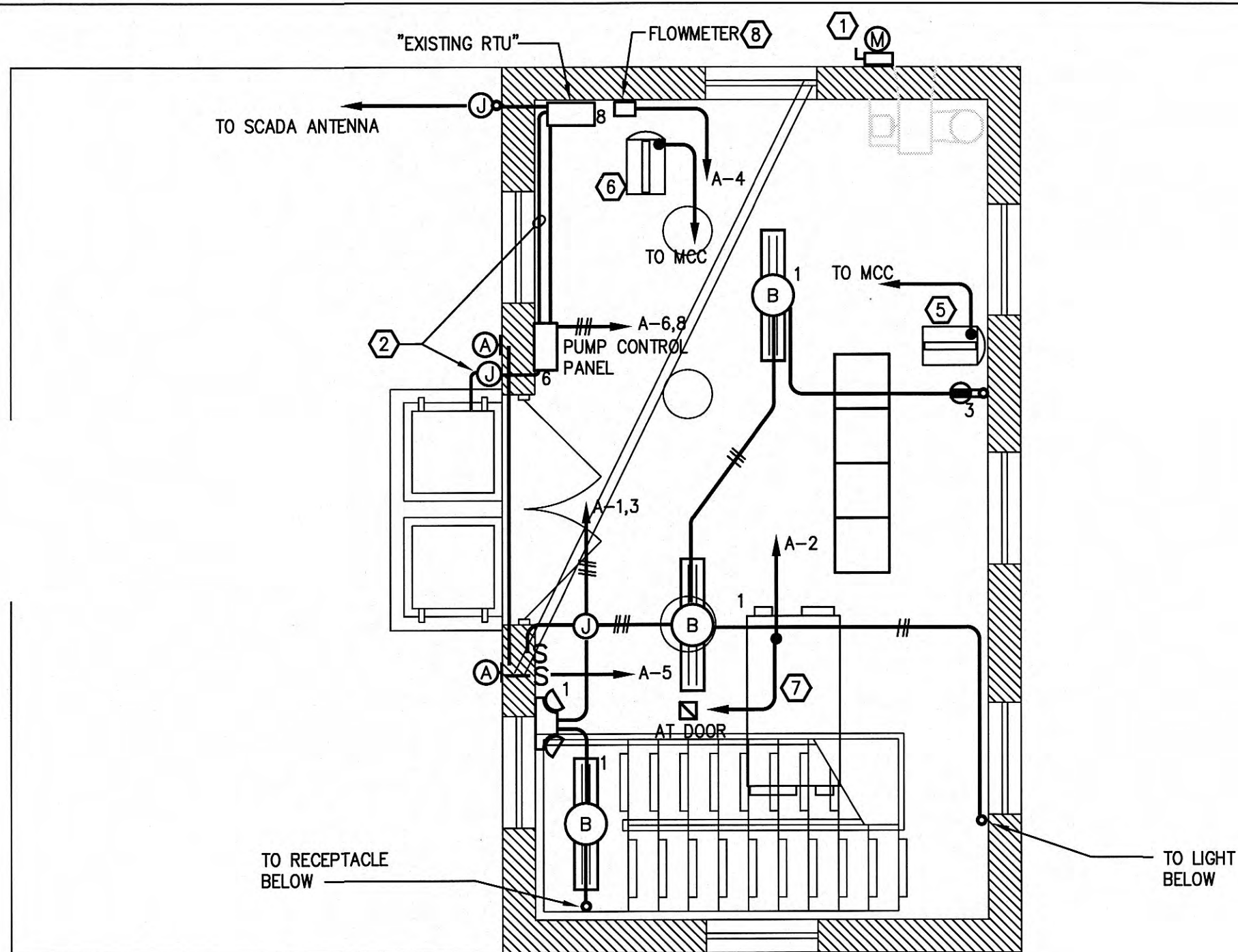
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**CARDIFF & LADD PUMP STATION
CONTROL DIAGRAMS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE**

DESIGNED	RAC
DRAWN	RAC
REVIEWED	RAC
APPROVED	RAC
DATE	DECEMBER 2012
SCALE	NONE
SHEET NO.	E-5

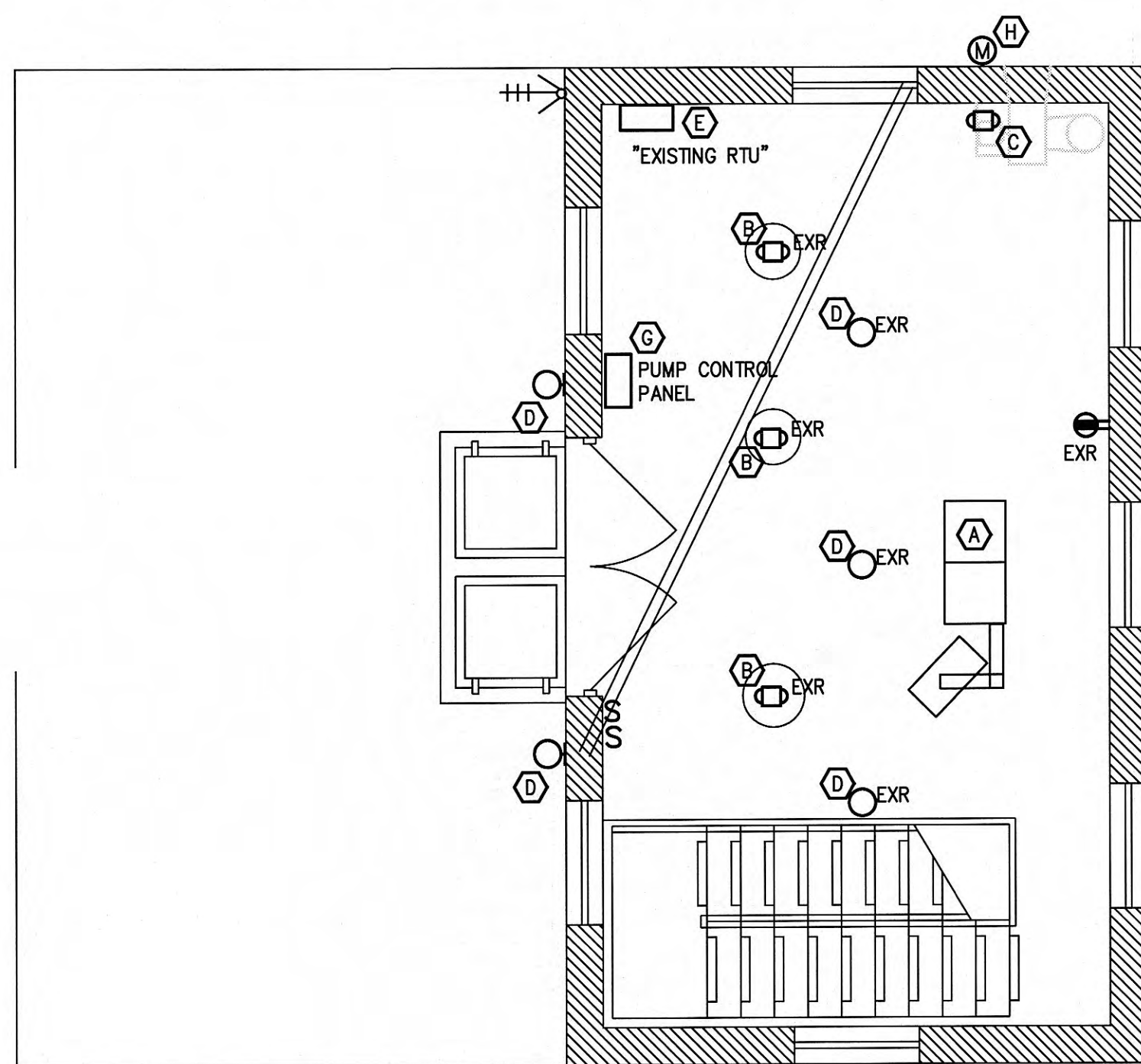


NEW WORK FLOOR PLAN - ENTRANCE

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

DRAWING NOTES:

- ① LOCATION OF NEW ELECTRIC METER AND SERVICE DISCONNECT. SEE FEEDER DIAGRAM. MAINTAIN ELEVATION OF DISCONNECTS, CT CABINETS AND METER GREATER THAN 766 FEET.
- ② 2" C, WITH FLOAT SWITCH AND PRESSURE TRANSDUCER. PROVIDE NEMA 4XSS JUNCTION BOX ON EXTERIOR OF BUILDING AND EXTEND UNDERGROUND TO WETWELL. PROVIDE BELL BUSHING ON CONDUIT PENETRATING WETWELL. SEAL OFF CONDUIT OUTSIDE OF WETWELL. INSTALL PER ARTICLE 500 OF NEC. PROVIDE STAINLESS STEEL SUPPORT BRACKET AND KELLUM STRAIN RELIEF CABLE GRIPS FOR CABLES.
- ③ PUMP DISCONNECT 30/3 NEMA 4XSS NON FUSED. PROVIDE INTERLOCK KIT FOR VFD SHUTDOWN CONTACT.
- ④ SUMP PUMP WITH NEMA 4XSS STARTER AND DISCONNECT 208V, 1PH. SEE CONTROL DIAGRAM E5.
- ⑤ UNIT HEATER 10KW, 480V, 3Ø, 3/4"C, 3#12, #12GND.
- ⑥ UNIT HEATER 7.5KW, 480V, 3Ø, 3/4"C, 3#12, #12GND.
- ⑦ ERV, 2-1/2HP, 120V, 3/4"C, 2#10, #10GND. PROVIDE MANUAL MOTOR STARTER WITH OVERLOADS PER NAMEPLATE.
- ⑧ FLOWMETER RECEIVER, CONNECT TO 120V AS INDICATED. PROVIDE CONTROL WIRING AND CONDUIT TO RTU AS SHOWN ON SHEET E6. PROVIDE GROUNDING AT METER PER MANF. RECOMMENDATIONS.

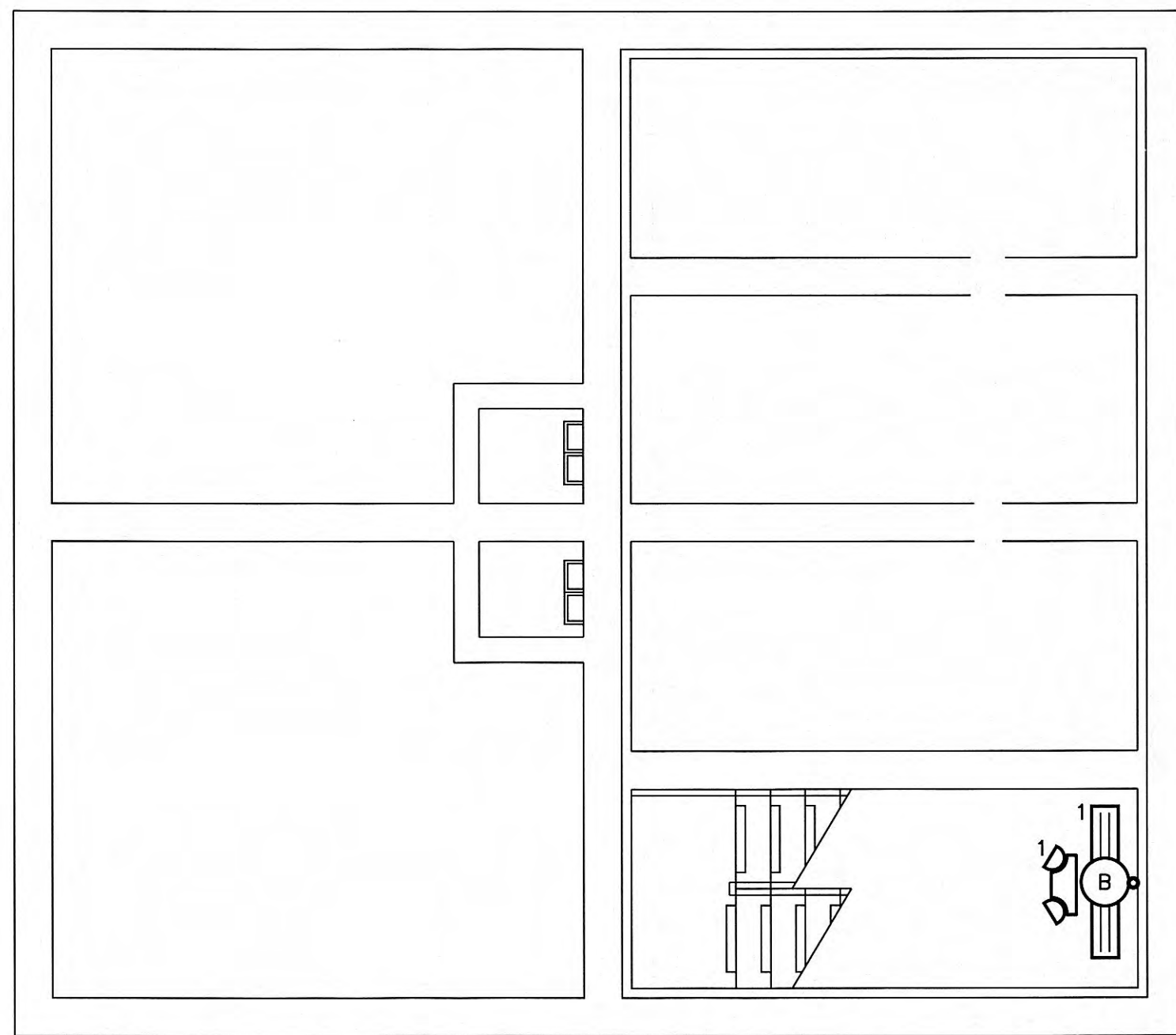


DEMOLITION FLOOR PLAN - ENTRANCE

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

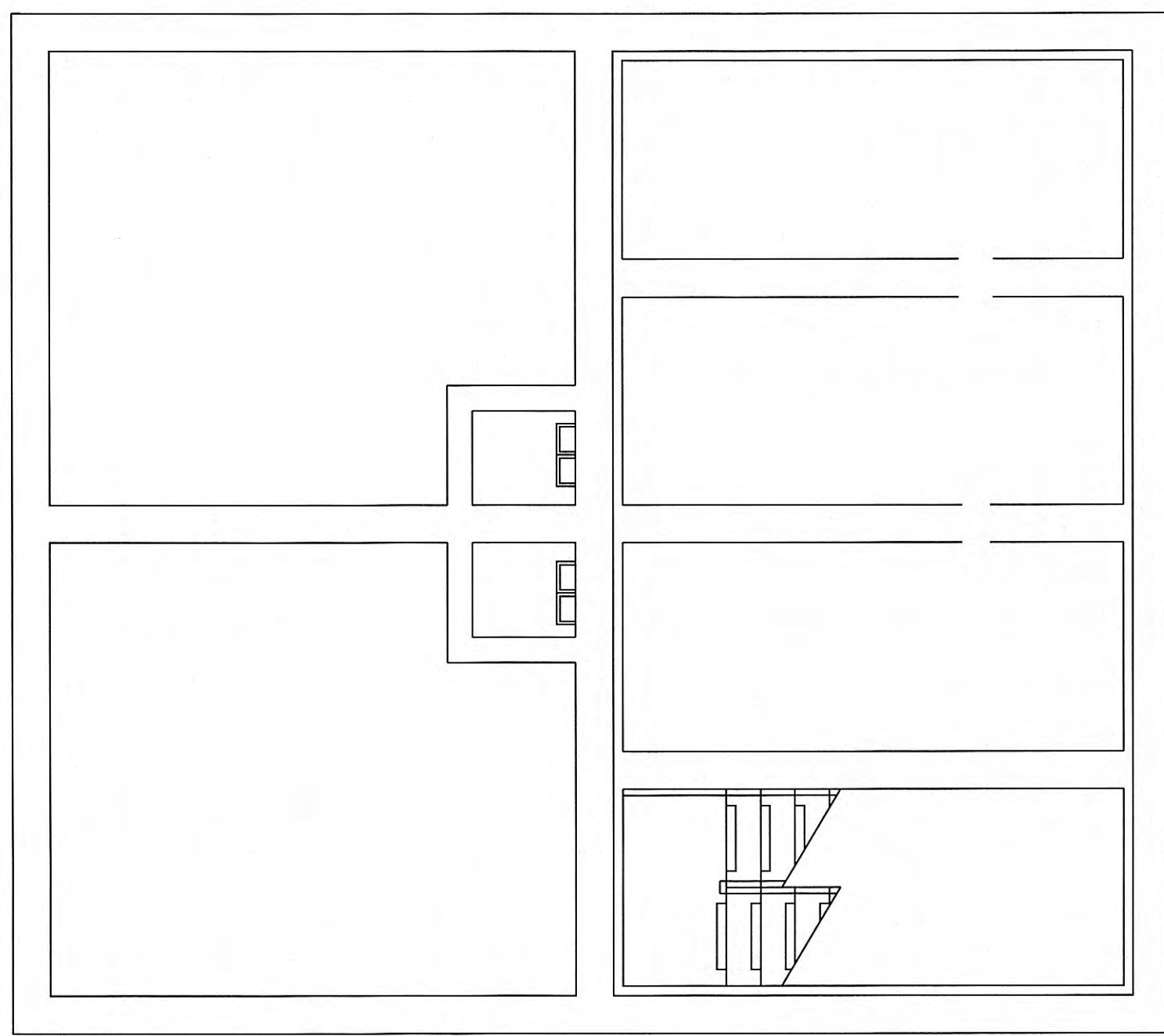
DEMOLITION NOTES:

- Ⓐ EXISTING MCC TO BE REMOVED AND REPLACED WITH NEW. REMOVE ALL ACCESSIBLE CONDUIT AND WIRING BACK TO SUPPLY SOURCE. ALL BRANCH WIRING FROM MCC TO BE REMOVED AND REPLACED WITH NEW.
- Ⓑ EXISTING WASTEWATER PUMP MOTOR TO BE REMOVED AND REPLACED WITH NEW. REMOVE WIRING AND CONDUIT BACK TO SUPPLY SOURCE.
- Ⓒ EXISTING EXHAUST FAN TO BE REMOVED AND REPLACED WITH NEW. REMOVE WIRING AND ACCESSIBLE CONDUIT BACK TO SUPPLY SOURCE. PROVIDE NEW SWITCHES AS INDICATED.
- Ⓓ EXISTING LIGHTING TO BE REMOVED AND REPLACED WITH NEW. REMOVE WIRING AND ACCESSIBLE CONDUIT BACK TO SUPPLY SOURCE. PROVIDE NEW SWITCHES AS INDICATED.
- Ⓔ EXISTING RTU TO REMAIN.
- Ⓕ EXISTING SUMP PUMP TO BE REMOVED AND REPLACED WITH NEW. REMOVE STARTER, WIRING AND CONDUIT BACK TO SUPPLY SOURCE.
- Ⓖ EXISTING PUMP CONTROL PANEL TO BE REPLACED.
- Ⓗ EXISTING METER AND SECONDARY TO BE REPLACED WITH NEW. SEE FEEDER DIAGRAM AND SITE PLAN.
- Ⓘ REMOTE HOA STATIONS TO BE REMOVED AND REPLACED WITH DISCONNECTS. REMOVED CONDUIT AND WIRING BACK TO SUPPLY SOURCE.



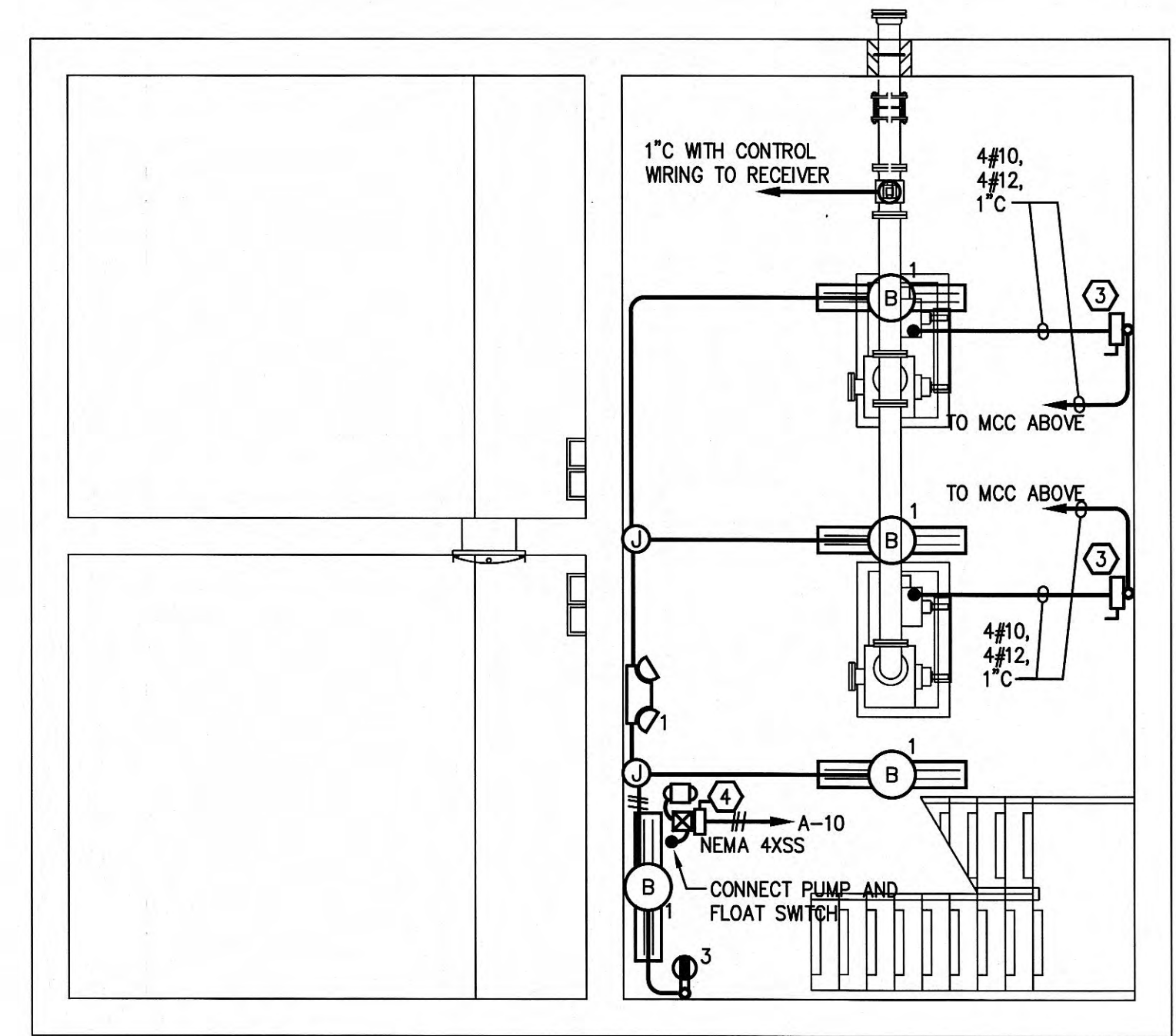
NEW WORK FLOOR PLAN - INTERMEDIATE

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



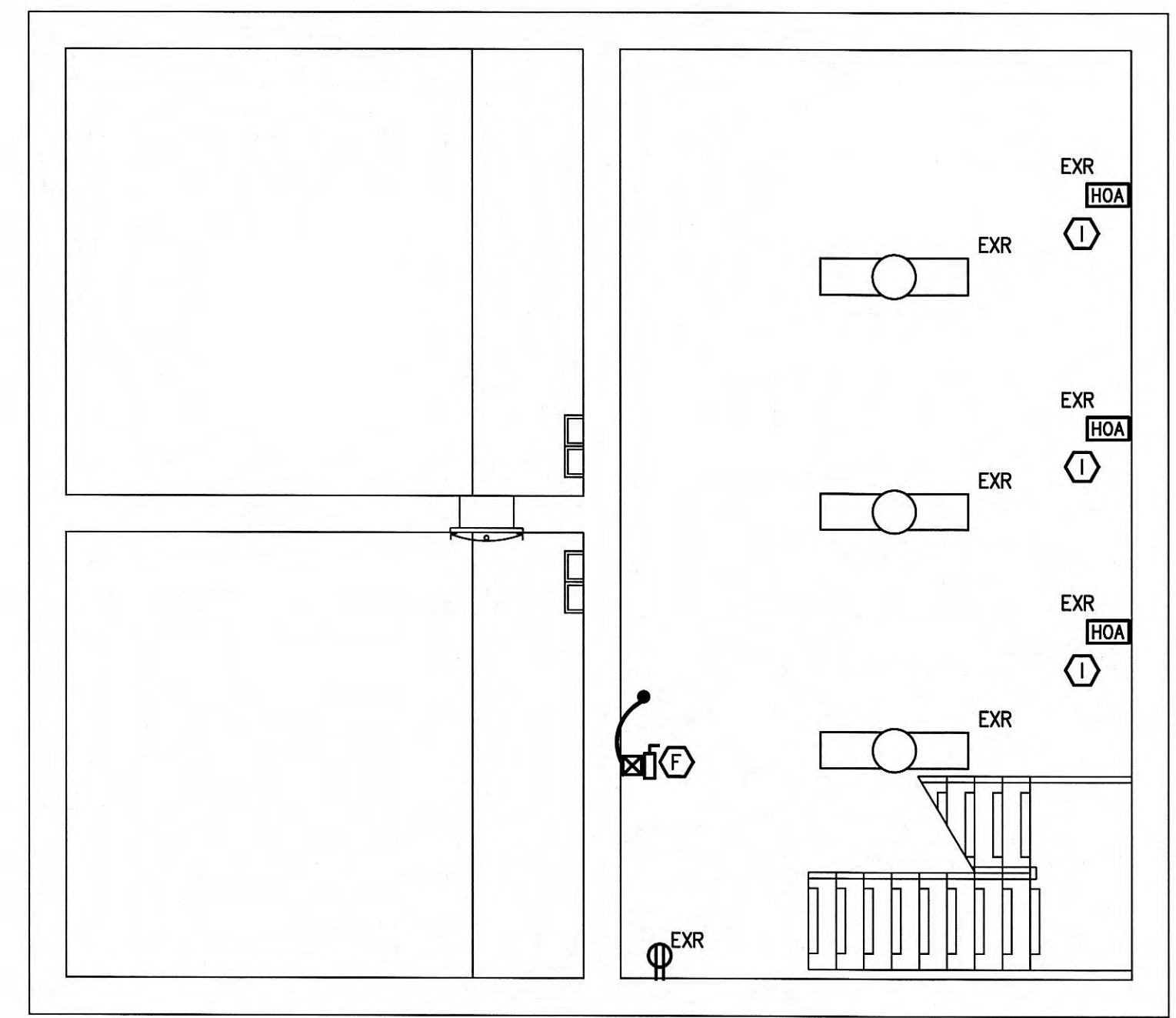
DEMOLITION FLOOR PLAN - INTERMEDIATE

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



NEW WORK FLOOR PLAN - PUMP ROOM

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

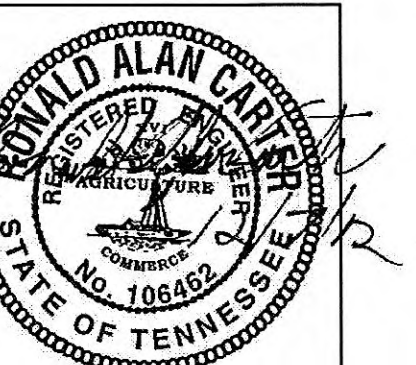


DEMOLITION FLOOR PLAN - PUMP ROOM

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

WWR ENGINEERS INC.
5417 Ball Camp Pike
Knoxville, TN 37921
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Fax: (865) 588-2434
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LADD PUMP STATION FLOOR PLANS - ELECTRICAL PUMP STATION REHABILITATION CITY OF HARRIMAN, TENNESSEE

DESIGNED BY	DATE	BY	DATE	BY	DATE	BY	DATE
RAC		RAC		RAC		RAC	
REVIEWED BY		REVIEWED BY		REVIEWED BY		REVIEWED BY	
APPROVED BY		APPROVED BY		APPROVED BY		APPROVED BY	
NO.		NO.		NO.		NO.	

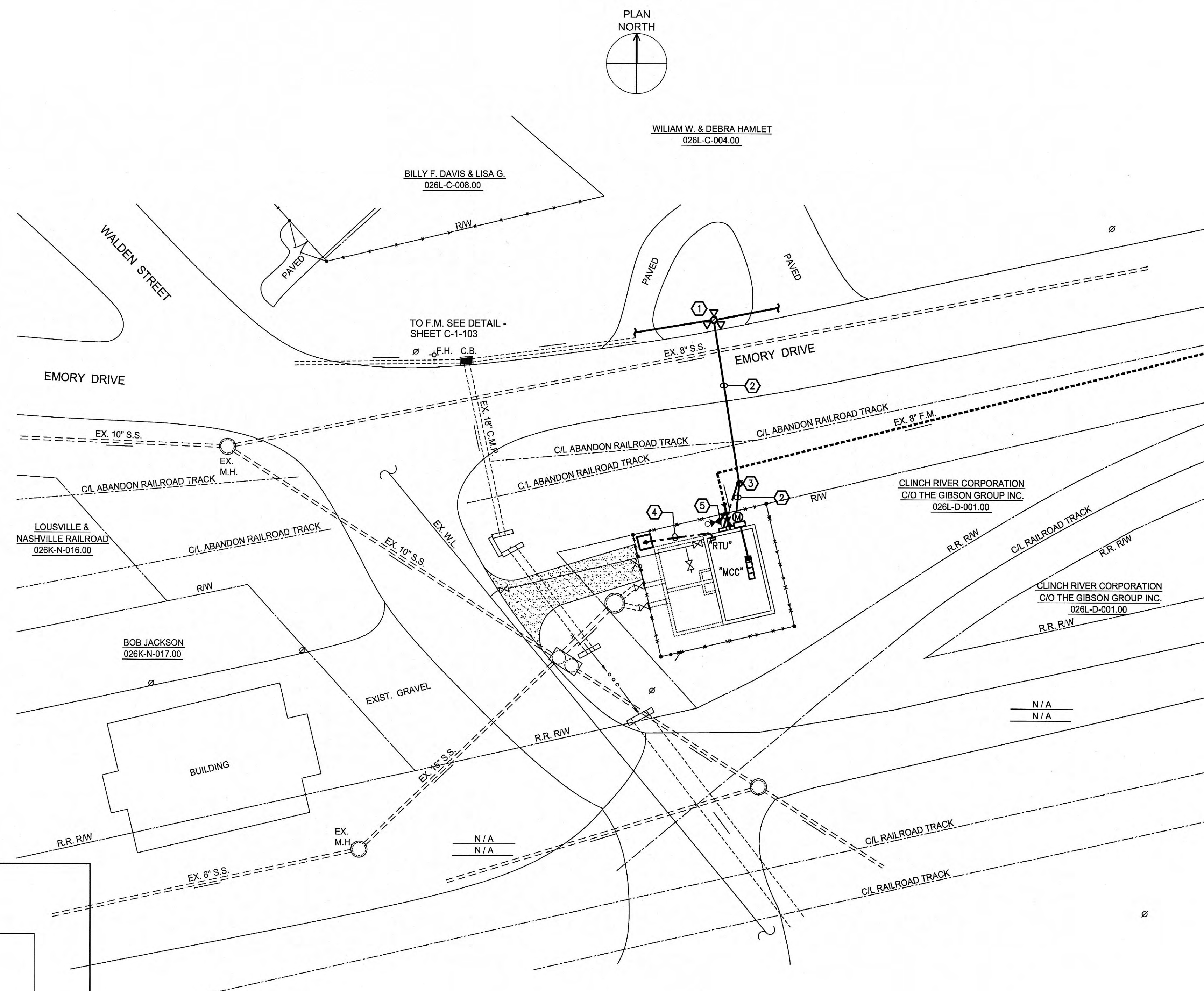
DATE: DECEMBER 2012

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

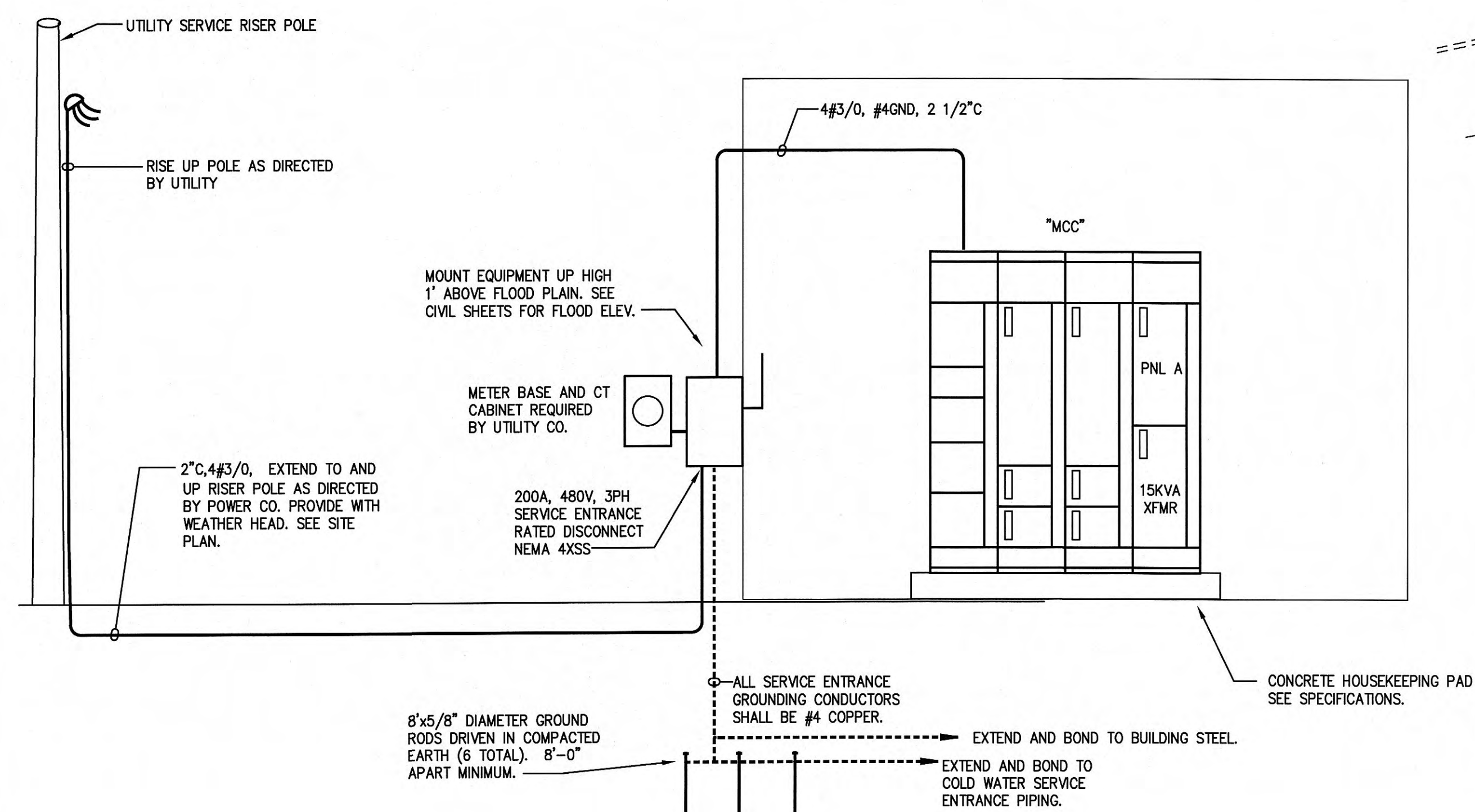
SHEET NO.

E-4

- ① LOCATION OF EXISTING SERVICE POLE TO RECEIVE NEW 480V TRANSFORMER BANK. COORDINATE WITH UTILITY COMPANY.
- ② NEW OVERHEAD SECONDARY AND PHONE LINE TO BE INSTALLED BY CONTRACTOR.
- ③ EXISTING STUB POLE TO BE CONVERTED TO NEW RISER POLE.
- ④ EXTEND COAX CABLE, 2" TO NEW ANTENNA POLE PROVIDED BY OWNER. VERIFY EXACT LOCATION AND CABLE REQUIREMENTS PRIOR TO ROUGHIN. GROUND ANTENNA AS REQUIRED BY MANUFACTURER.
- ⑤ EXISTING OVERHEAD TELEPHONE SERVICE TO BE REPLACED WITH NEW UNDERGROUND SERVICE. INSTALL 1" AS DIRECTED BY UTILITY COMPANY.



SCALE: 1" = 20'



NO SCALE

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**LADD PUMP STATION SITE PLAN -
ELECTRICAL**

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NO.	DESCRIPTION	DATE	BY	DRAWN:	RAC
				REVIEWED:	RAC
					RAC
				APPROVED:	RAC
SCALE CHECK: _____				THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED	

DATE: DECEMBER 2012

SCALE: 1" = 20'

SHEET NO.

E-3

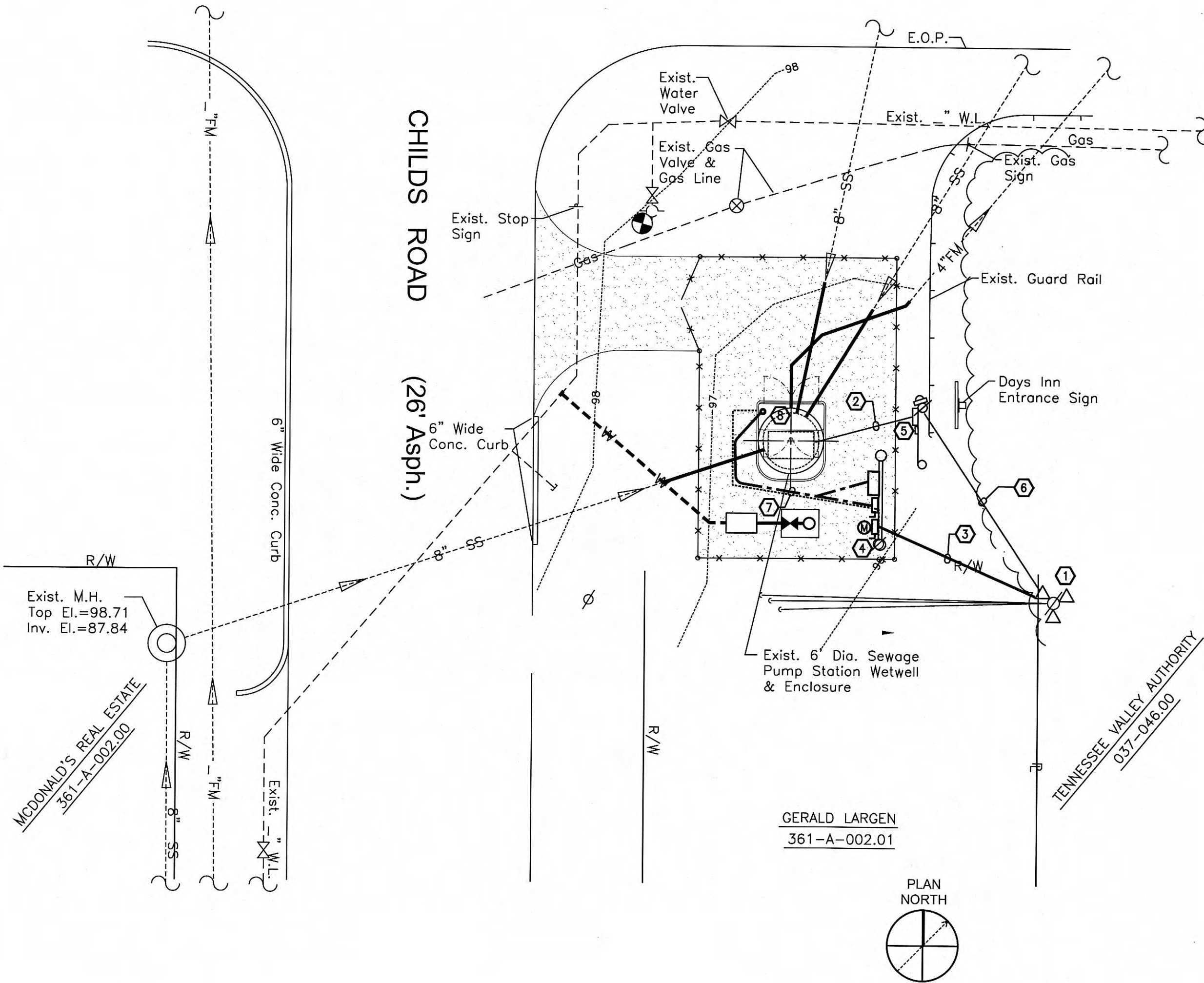
WWR
ENGINEERS INC.

5417 Ball Camp Pike
Knoxville, TN 37922
Phone: (865) 588-2431
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WWR PROJECT# 112025

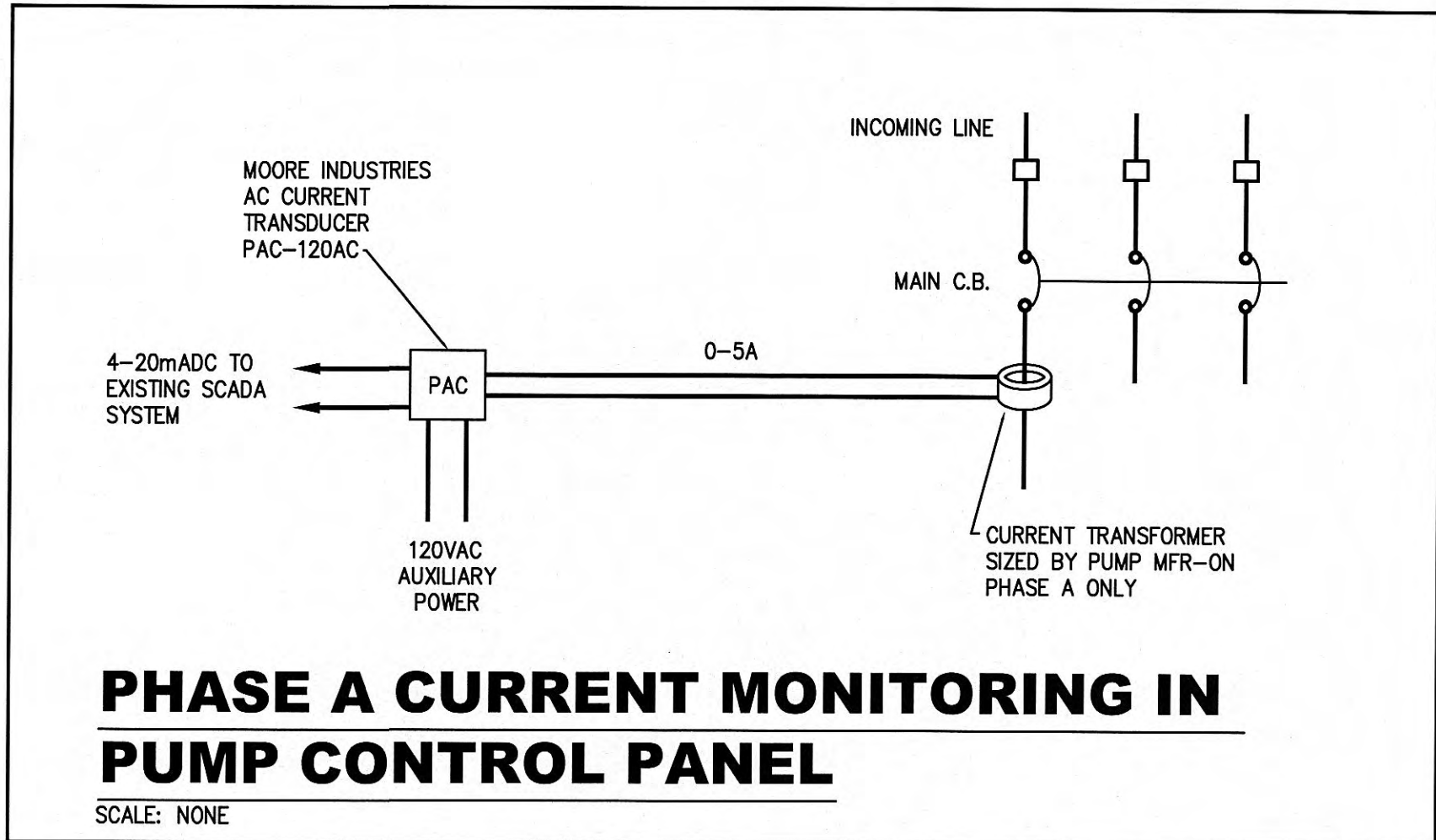
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U. S. HIGHWAY 27

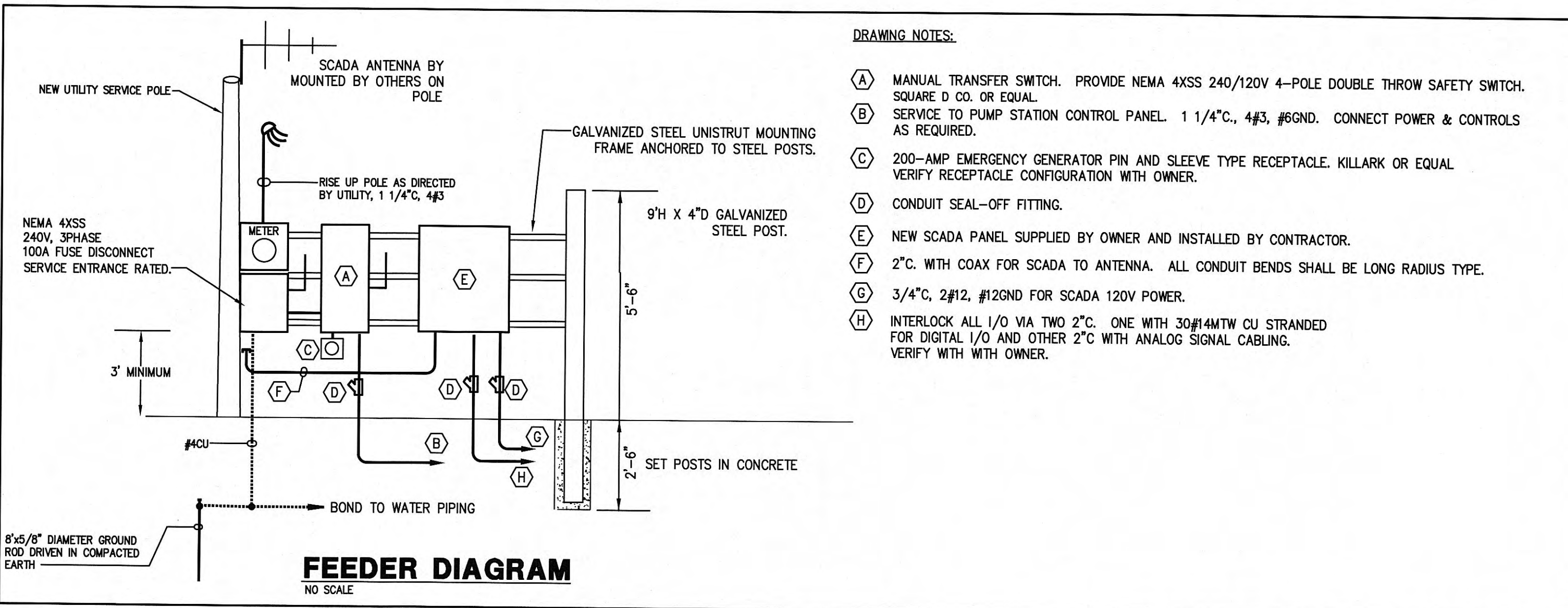


- DRAWING NOTES:
- 1 LOCATION OF EXISTING POLE MOUNTED 240V TRANSFORMER BANK
 - 2 EXISTING UNDERGROUND SECONDARY SERVICE BE REMOVED.
 - 3 NEW OVERHEAD SECONDARY SERVICE. SEE FEEDER DIAGRAM.
 - 4 NEW SERVICE DISCONNECT AND METER BASE ON NEW WOOD RISER POLE.
 - 5 EXISTING PUMP CONTROL PANEL AND RTU TO BE TURNED OVER TO THE OWNER. REMOVE SUPPORTS AND POLES.
 - 6 EXISTING OVERHEAD SECONDARY, TO BE REMOVED AFTER NEW IS INSTALLED COMPLETE.
 - 7 POWER AND CONTROL CONDUITS TO PUMP CONTROL PANEL. SEE EQUIPMENT RACK DETAIL THIS SHEET.
 - 8 PUMP CONTROL PANEL PROVIDED BY PUMP SUPPLIER.

MCDONALD PUMP STATION SITE PLAN - ELECTRICAL
SCALE: 1" = 10'



PHASE A CURRENT MONITORING IN PUMP CONTROL PANEL
SCALE: NONE



- DRAWING NOTES:
- A MANUAL TRANSFER SWITCH. PROVIDE NEMA 4XSS 240/120V 4-POLE DOUBLE THROW SAFETY SWITCH. SQUARE D CO. OR EQUAL.
 - B SERVICE TO PUMP STATION CONTROL PANEL. 1 1/4" C, 4#3, #6GND. CONNECT POWER & CONTROLS AS REQUIRED.
 - C 200-AMP EMERGENCY GENERATOR PIN AND SLEEVE TYPE RECEPTACLE. KILLARK OR EQUAL. VERIFY RECEPTACLE CONFIGURATION WITH OWNER.
 - D CONDUIT SEAL-OFF FITTING.
 - E NEW SCADA PANEL SUPPLIED BY OWNER AND INSTALLED BY CONTRACTOR.
 - F 2" C. WITH COAX FOR SCADA TO ANTENNA. ALL CONDUIT BENDS SHALL BE LONG RADIUS TYPE.
 - G 3/4" C, 2#12, #12GND FOR SCADA 120V POWER.
 - H INTERLOCK ALL I/O VIA TWO 2" C. ONE WITH 30#14MTW CU STRANDED FOR DIGITAL I/O AND OTHER 2" C WITH ANALOG SIGNAL CABLING. VERIFY WITH WITH OWNER.

FEEDER DIAGRAM
NO SCALE

SITE UTILITIES NOTE
PRIOR TO STARTING SERVICE ENTRANCE WORK, THE CONTRACTOR SHALL CONTACT THE LOCAL POWER COMPANY & SHALL DETERMINE ALL REQUIREMENTS. PROVIDE NECESSARY LABOR AND MATERIALS UNDER THE CONTRACT TO INSTALL EACH SERVICE ENTRANCE COMPLETE. CONTRACTOR SHALL PAY ALL FEES & CONTRIBUTIONS TO CONSTRUCTION REQUIRED BY THE LOCAL POWER COMPANY.

WWR ENGINEERS INC.
6417 Ball Camp Pike
Knoxville, TN 37921
Phone: (865) 588-2431
Fax: (865) 588-2434
West, Welch, Reed Engineers, Inc.
WWR PROJECT# 112025
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ENGINEERS - ARCHITECTS - PLANNERS
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MCDONALD PUMP STATION SITE PLAN - ELECTRICAL
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

DESIGNED	RAC	BY	DATE	REVIEWED	RAC	APPROVED	RAC

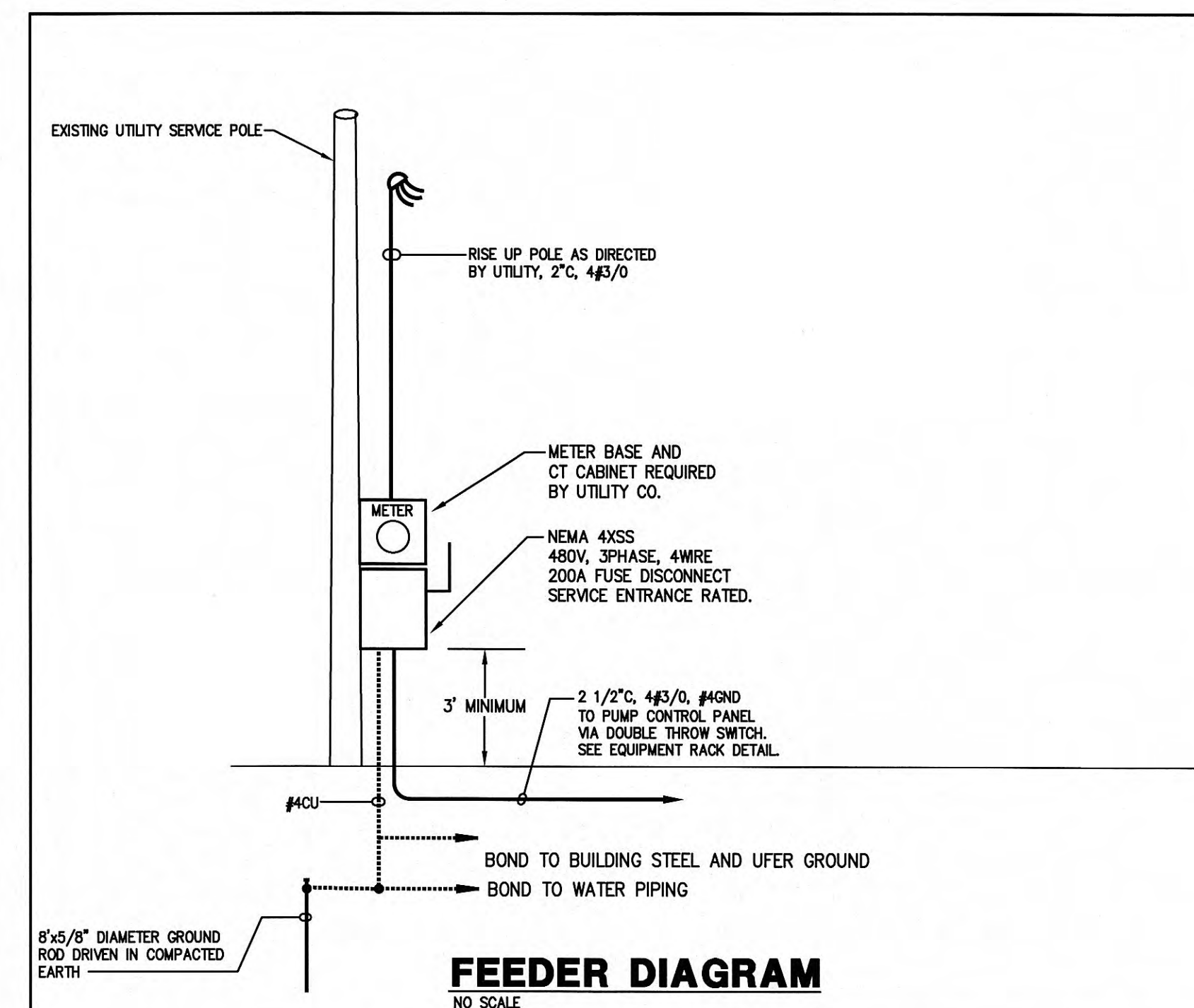
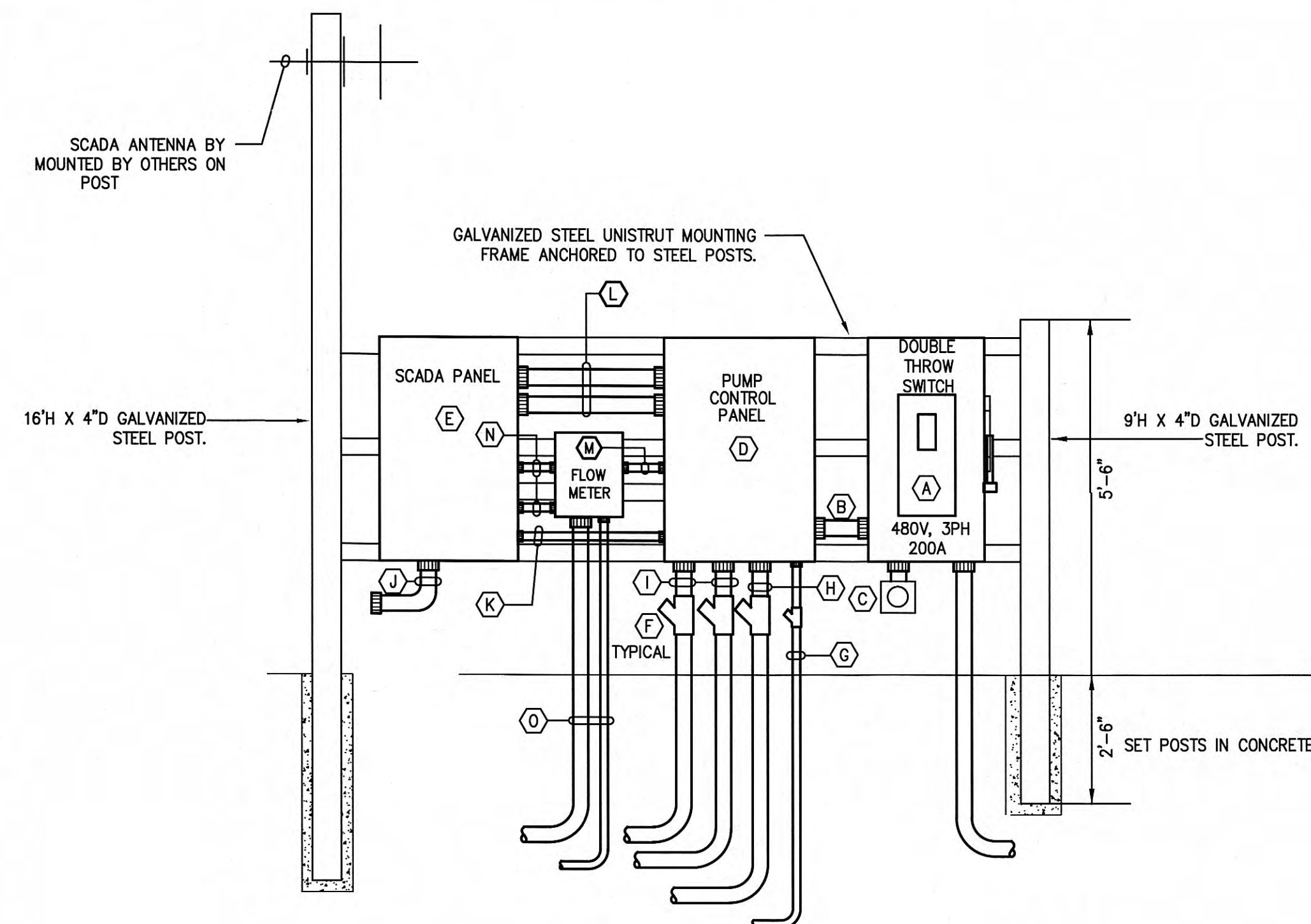
REVISIONS

NO.	DESCRIPTION

DATE: DECEMBER 2012
SCALE: 1" = 10'
SHEET NO.

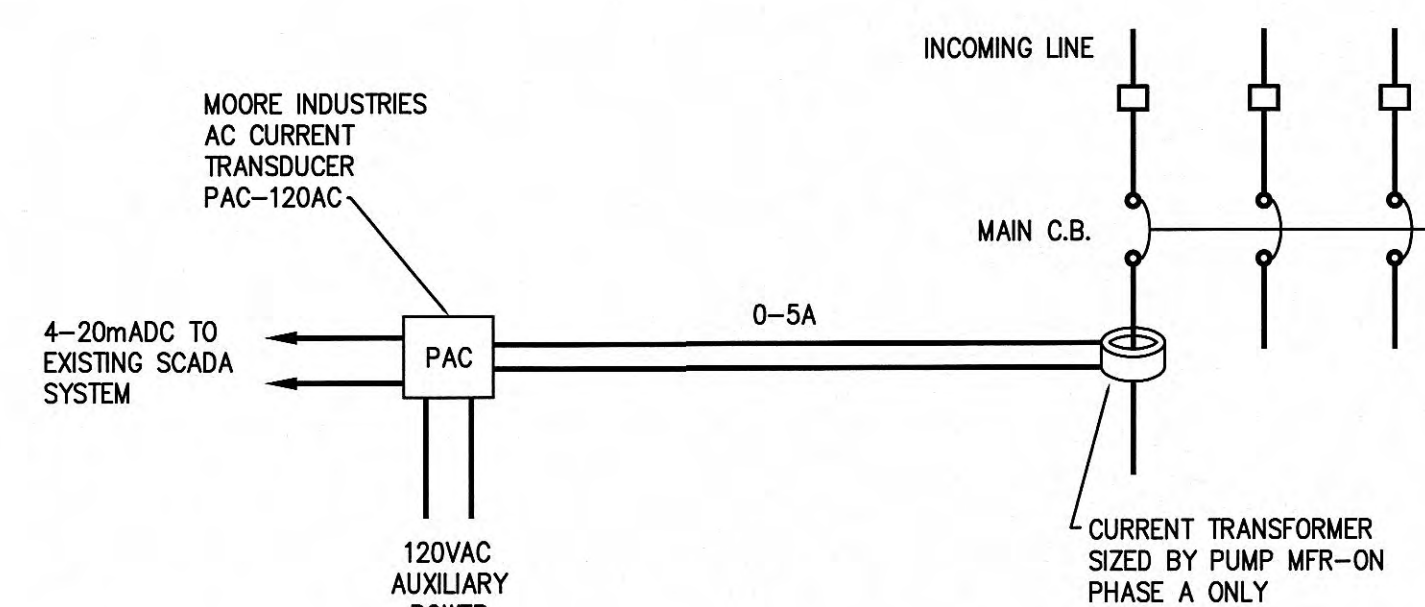
E-2

- (A) MANUAL TRANSFER SWITCH. PROVIDE NEMA 4XSS 480/277V 4-POLE DOUBLE THROW SAFETY SWITCH. SQUARE D CO. OR EQUAL.
- (B) SERVICE TO PUMP STATION CONTROL PANEL. 2 1/2"2", 4#3/0, #6GND. CONNECT POWER & CONTROLS AS REQUIRED.
- (C) 200-AMP EMERGENCY GENERATOR PIN AND SLEEVE TYPE RECEPTACLE. KILLARK OR EQUAL. VERIFY RECEPTACLE CONFIGURATION WITH OWNER.
- (D) NEW PACKAGED PUMP STATION SUPPLIED BY PUMP STATION SUPPLIER AND INSTALLED BY CONTRACTOR.
- (E) NEW SCADA PANEL SUPPLIED BY OWNER AND INSTALLED BY CONTRACTOR.
- (F) CONDUIT SEAL-OFF FITTING.
- (G) 1"C., WITH CONTROL CABLES TO FLOAT SWITCHES. VERIFY CABLES WITH VENDORS.
- (H) 2"C., WITH CONTROL CABLES TO PRESSURE LEVEL. VERIFY CABLES WITH VENDORS.
- (I) 2"C. WITH PUMP LEADS.
- (J) 2"C. WITH COAX FOR SCADA TO TOWER. ALL CONDUIT BENDS SHALL BE LONG RADIUS TYPE.
- (K) 3/4"C, 2#12, #12GND FOR SCADA 120V POWER.
- (L) INTERLOCK ALL 1/0 VIA TWO 2"C. ONE WITH 30#14MTW CU STRANDED FOR DIGITAL 1/0 AND OTHER 2"C WITH ANALOG SIGNAL CABLING. VERIFY WITH OWNER.
- (M) FLOWMETER RECEIVER 3/4"C, 2#12, #12GND 120V POWER.
- (N) FLOWMETER ANALOG AND DISCRETE CONTROL SIGNALS TO SCADA 1"C EACH ONE WITH 4C#615P AND OTHER WITH 4#14, #14GND.
- (O) FLOWMETER SIGNAL WIRING TO TRANSMITTER 1 1/4"C WITH SIGNAL CABLE AND 3/4" WITH 4#14, #14GND.



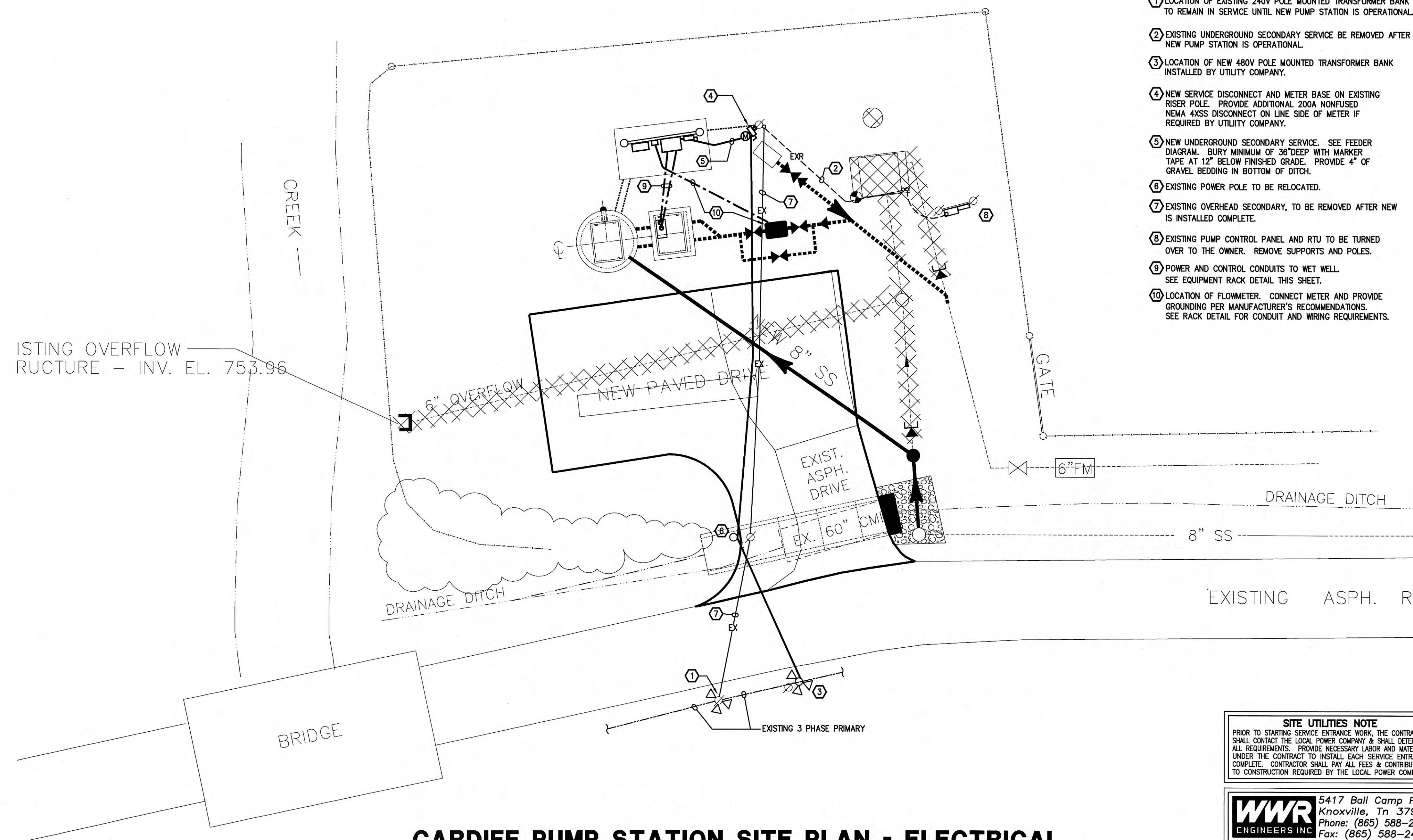
ELECTRICAL EQUIPMENT RACK DETAIL

SCALE: NONE



PHASE A CURRENT MONITORING IN PUMP CONTROL PANEL

SCALE: NONE



CARDIFF PUMP STATION SITE PLAN - ELECTRICAL

SCALE: 1" = 10'

- 1) LOCATION OF EXISTING 240V POLE MOUNTED TRANSFORMER BANK TO REMAIN IN SERVICE UNTIL NEW PUMP STATION IS OPERATIONAL.
- 2) EXISTING UNDERGROUND SECONDARY SERVICE BE REMOVED AFTER NEW PUMP STATION IS OPERATIONAL.
- 3) LOCATION OF NEW 480V POLE MOUNTED TRANSFORMER BANK INSTALLED BY UTILITY COMPANY.
- 4) NEW SERVICE DISCONNECT AND METER BASE ON EXISTING RISER POLE. PROVIDE ADDITIONAL 200A NONFUSED NEMA 4XSS DISCONNECT ON LINE SIDE OF METER IF REQUIRED BY UTILITY COMPANY.
- 5) NEW UNDERGROUND SECONDARY SERVICE. SEE FEEDER DIAGRAM. BURY MINIMUM OF 36" DEEP WITH MARKER TAPE AT 12" BELOW FINISHED GRADE. PROVIDE A 4" OF GRAVEL BEDDING IN BOTTOM OF DITCH.
- 6) EXISTING POWER POLE TO BE RELOCATED.
- 7) EXISTING OVERHEAD SECONDARY, TO BE REMOVED AFTER NEW IS INSTALLED COMPLETE.
- 8) EXISTING PUMP CONTROL PANEL AND RTU TO BE TURNED OVER TO THE OWNER. REMOVE SUPPORTS AND POLES.
- 9) POWER AND CONTROL CONDUITS TO MET WELL.
SEE EQUIPMENT RACK DETAIL THIS SHEET.
- 10) LOCATION OF FLOWMETER. CONNECT METER AND PROVIDE GROUNDING PER MANUFACTURER'S RECOMMENDATIONS. SEE RACK DETAIL FOR CONDUIT AND WIRING REQUIREMENTS.

SITE UTILITIES NOTE
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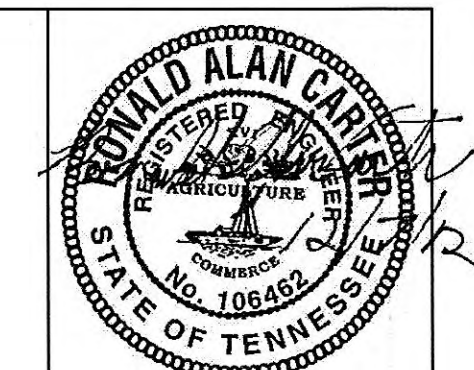
WWR
ENGINEERS INC

5417 Ball Camp Pike
Knoxville, Tn 3792
Phone: (865) 588-243
Fax: (865) 588-2434

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[illegible]

CARDIFF PUMP STATION SITE PLAN -

ELECTRICAL

PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

DATE:		REVISIONS		DESIGNED:	RAC
NO.	DESCRIPTION	DATE	BY		
				DRAWN:	RAC
				REVIEWED:	RAC
				APPROVED:	RAC

SHEET NO. _____

SCALE:
1" = 10'

E-1