06-10-2016 LETTING ITEM 040

## STATE OF ILLINOIS

## **DEPARTMENT OF TRANSPORTATION**

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# PROPOSED HIGHWAY PLANS

ROUTE (ASHLAND AVE.) F.A.U. 2857 (ASHLAND AVENUE AT 138TH STREET)

SECTION 146SA&SBI-R C -91-136-16

PROJ.NO. ACSTP-2857 (012)

PUMP STATION NO. 14 REHABILITATION

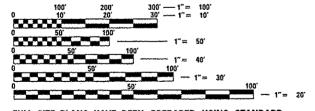
**COOK COUNTY** 









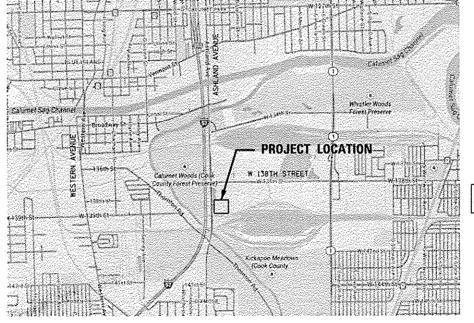


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

**PROJECT MANAGER: MARK JENKINS** 

847-705-4350



PROJECT LOCATED IN VILLAGE OF RIVERDALE

**VILLAGE OF RIVERDALE** 

**DONOHUE** 

LOCATION MAP

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED

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73. E26 ELECTRICAL PLAN 74. E27 ELECTRICAL PLAN 75. E28 ELECTRICAL PLAN 76. E29 CONTROLS PLAN 77. E30 CONTROLS PLAN 78. E31 CONTROLS PLAN 79. E32 ELECTRICAL DETAILS 80. E33 ELECTRICAL DETAILS 81. E34 PANEL AND DUCT BANK SCHEDULES 82. E35 I & C DETAILS 83. E36 I & C DETAILS				72.		ELECTRICAL PLAN
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83. E36 I & C DETAILS						
				83. 84.	E37	POWER AND CONTROL CONDUIT SCHEDULE



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	USER NAME . BUSER*	DESIGNED	-	KHC	REVISED		
SPANAIME		DRAWN	-	LRE	REVISED		
DONOHUE	PLOT SCALE + #SCALE*	CHECKED	-	PS	REVISED	_	
		DATE	-	02-26-16	REVISED	-	
	<u> </u>						

SCALE

### **ABBREVIATIONS** AGG - AGGREGATE B/C - BACK OF CURB BIT - BITUMINOUS/ASPHALT CIP - CAST IRON PIPE CO - CLEANOUT CONC- CONCRETE CMP - CORRUGATED METAL PIPE CSP - CONCRETE SEWER PIPE DIA - DIAMETER DIP - DUCTILE IRON PIPE FXTG - FXISTING EOP - EDGE OF PAVEMENT F&C - FRAME AND COVER F/C - FACE OF CURB F-F - FACE TO FACE F/G - FINISHED GRADE FES - FLARED END SECTION FL ~ FLANGE I - LENGTH OF CURVE LF - LINEAR FT LT - LEFT MJ - MECHANICAL JOINT NG - NATURAL GAS OH - OVERHEAD UTILITY PC - POINT OF CURVATURE PE - POLYETHYLENE PIPE PI - POINT OF INTERSECTION PL - PROPERTY LINE PT -- POINT OF TANGENCY PVC - POLYVINYL CHLORIDE PIPE PVI - POINT OF VERTICAL INTERSECTION R - RADIUS RCP - REINFORCED CONCRETE PIPE RIM - TOP OF CASTING ELEVATION ROW - RIGHT OF WAY RT - RIGHT SAN - SANITARY SEWER STM - STORM SEWER SD - SUMP DISCHARGE T/C - TOP OF CURS T/W - TOP OF WALL UD - UNDERDRAIN

	······································
PROPOSED	
	BENCHMARK
•	CATCH BASIN
<del></del>	CULVERT
	CULVERT OVER 24" (SHOWN ACTUAL SIZE)
M	GAS VALVE
	GUY WIRE
<del></del>	HAY BALES
	HEADWALL
₩	HYDRANT
■	INLET
	IRON PIPE
•	MANHOLE
· ·	MARSH
	UTILITY POLE
	SECTION CORNER
þ	SIGN
200	
x X X	SPOT ELEVATION
•	SOIL BORING
	SURVEY CONTROL POINT
	PROPERTY MARKER
	TREE CONIFEROUS, DECIDIOUS
$\otimes$	TREE REMOVAL
	TREE/SHRUB LINE
⊗	WATER VALVE
	●

### **GENERAL NOTES:**

**LEGEND** 

- 1. ALL WORK IS PROPOSED NEW WORK UNLESS SPECIFICALLY CALLED OUT AS EXISTING,
- THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE ITSELF WITH THE EXISTING CONDITIONS, SITE ACCESS, POWER SUPPLY AND OTHER ITEMS THAT AFFECT THE CONTRACT AND THE CONSTRUCTION OF THE IMPROVEMENT.
- 3. PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING STRUCTURE HAVE BEEN TAKEN FROM EXISTING PLANS AND ARE SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND DETAILS IN THE FIELD AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING OF MATERIALS, SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION OR A CHANGE IN THE SCOPE OF THE WORK.
- 4. THE LOCATIONS OF UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS HAVE BEEN OBTAINED BY FIELD SURVEYS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THIS DATA IS CORRECT, BUT THE DEPARTMENT AND OTHERS ASSOCIATED WITH THESE PLANS DO NOT GUARANTEE THEIR ACCURACY OR COMPETENESS, ANY VARIATIONS SHALL NOT CAUSE FOR ADDITIONAL COMPENSATION OR A CHANGE IN THE SCOPE OF WORK. THE CONTRACTOR SHALL BE REQUIRED TO VERIFY THE EXACT LOCATION OF EACH FACILITY WITH THE UTILITY COMPANY AND SHALL TAKE DUE CARE IN ALL PHASES OF THE CONSTRUCTION TO PROTECT ANY SUCH FACILITIES WHICH MAY BE AFFECTED BY THE WORK, ANY DAMAGES TO THE UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- 5. THE CONTRACTOR SHALL COMPLY WITH APPLICABLE OSHA REGULATIONS WHILE AT THE CONSTRUCTION SITE.
- 6. UNLESS OTHERWISE INDICATED ALL ITEMS AND WORK SHOWN ON THESE SHEETS ARE PROPOSED NEW ITEMS AND WORK.
- THE PUMPING CAPACITY OF THE EXISTING STATION MUST BE MAINTAINED AT ALL TIMES (SPECIFIED STATION PUMPING CAPACITY 11,000 gpm). THE
  CONTRACTOR SHALL OBTAIN APPROVAL OF THE ENGINEER FOR ALL TEMPORARY WORK. REFER TO DIVISION 1 OF THE SPECIFICATIONS.
- 8. NOTE THAT DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE EXISTING PUMPING STATION ACCORDING TO THE REQUIREMENTS OF THE STATE'S ELECTRICAL MAINTENANCE CONTRACT. SHORT-TERM SHUTDOWN WILL BE PERMAITED WITH SPECIFIC WRITTEN PERMISSION (SEE SPECIFICATIONS), REFER TO DIVISION 1 OF THE SPECIFICATIONS FOR THE CONTINUOUS OPERATION REQUIREMENTS AND SUGGESTED TEMPORARY PUMPING SPOLIEPINGS.
- 9. ALL SHOP DRAWINGS, MATERIAL SAMPLES ETC. MUST BE SUBMITTED AND APPROVED BY THE ENGINEER BEFORE INSTALLATION.
- BEFORE STARTING EXCAVATION THE CONTRACTOR SHALL CALL EMC AT 1-708-588-2500 FOR FIELD LOCATION OF BURIED UNDERGROUND UTILITIES. CALL J.U.L.I.E. AT 1-800-892-0123 (48 HOURS NOTIFICATION REQUIRED) PRIOR TO CONSTRUCTION FOR CONFIRMATION.
- 11. COORDINATE EXACT LOCATION OF ALL MAJOR EQUIPMENT WITH THE ENGINEER BEFORE INSTALLATION.
- 12. SPECIAL WASTE WHEN ENCOUNTERED WILL BE PAID FOR ACCORDING TO ARTICLE 109.04.

### LINE TYPE IDENTIFICATION

EXISTING	PROPOSED	
CATV		CABLE TV
		CENTERLINE OF ROAD
100	100	CONTOUR
··· <del>&gt;</del> ···	···	DITCH/SWALE
XX	xx	FENCE
——ε——	ε	ELECTRIC
F0	FO	FIBER OPTIC
G	G	GAS
<del>-u u u-</del>		GUARDRAIL
—— ОН ——		OVERHEAD ELECTRIC
		PIPE, ABANDON
-0-0-		PIPE, PREVIOUSLY ABANDONED
	* * * * * *	PIPE, REMOVE
<del></del>		PROPERTY LINE (EXISTING RIGHT OF WAY)
	דד דד דד ד	PROPOSED TEMPORARY CONSTRUCTION EASEMENT
		R.O.W. MARKER
<del>{}}}}}</del>		RAILROAD
SAN	SAN	SANITARY SEWER
	<del></del>	SILT FENCE
		STORM SEWER OR FORCE MAIN
		TELEPHONE
		WATER

### **MATCHING PATTERNS**

PROPOSED ASPHALTIC PAVEMENT

PROPOSED CONCRETE PAVEMENT

REMOVE EXISTING APSHALTIC PAVEMENT

REMOVE EXISTING CONCRETE PAVEMENT

RIP RAP

STRUCTURE DEMOLITION

E-gaine (1-30-2017)
THIS IS STANDARD LEGEND. NOT ALL OF
THE INFORMATION SHOWN ON THIS LEGEND
IS NEEDED IN THESE CONTRACT DRAWINGS.

G2



VC - VERTICAL CURVE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCALE:

PUMP STATION NO.14 REHABILITATION
GENERAL
CIVIL LEGEND
SHEET OF SHEETS STA. TO STA.

1	URBAN
	80%.FED.
	20% STATE

URBAN 80% FED. 20% STATE

	SUMMARY OF C				
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUC	CTION TYPE CODE
20200100	EARTH EXCAVATION	CU YO	177	177	
20900110	POROUS GRANULAR BACKFILL	CU YD	3	3	
28000400	PERIMETER EROSION BARRIER	FOOT	370	370	
35102400	ACCREGATE BASE COURSE, TYPE B 12"	SQ YD	300	300	
44201297	DOWEL BARS I"	EACH	82	82	
50102400	CONCRETE REMOVAL	CU YD	20	20	
50200100	STRUCTURE EXCAVATION	CU YD	255	255	
50300225	CONCRETE STRUCTURES	CU YD	100	100	na de la companya dela companya dela companya dela companya de la companya de la companya de la companya dela companya de la companya dela compa
50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	680	680	
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	25,000	25,000	
59100100	GEOCOMPOSITE WALL DRAIN	SO YD	44	44	
60221100	MANHOLE, TYPE A, 5'-DIA, TYPE 1 FRAME, CLOSED LID	EACH	1	1	
66404600	CHAIN LINK GATE, 8'X3' SINGLE	EACH	1	1	
66409600	CHAIN LINK GATE, 8'X16' DOUBLE	EACH	2	2	
67000400	SPECIAL WASTE PLANS AND REPORTS ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	24	24	
67100100	MOBILIZATION	LSUM	1	1	The state of the s
80400100	ELECTRICAL SERVICE INSTALLATION	EACH	1	1	
X0301028	PUMP STATION SCADA EQUIPMENT	LSUM	1	1	
x0323880	COMPLETE SPARE MAIN PUMP ASSEMBLY	LSUM	1	1	
-X0323881	COMPLETE SPARE LOW FLOW PUMP ASSEMBLY	LSUM	1	1	
X0335700	PUMP STATION GENERAL WORK	LSUM	1	1	
X0783300	PUMP STATION ELECTRICAL WORK	LSUM	1	1	
	PUMP STATION MECHANICAL WORK	LSUM	1	1	
X5860110	GRANULAR BACKFILL FOR STRUCTURES	CU YD	195	195	
	CHAIN LINK FENCE, 8' (SPECIAL)	FOOT	240	240	
X8040305		LSUM	1	1	
	RAILROAD PROTECTIVE LIABILITY INSURANCE	LSUM	1	1	
	STORM SEWERS, DJP, 24"	FOOT	10	10	
	TELEPHONE SERVICE INSTALLATION AND CONNECTION	LSUM	1	1	
	DEMOLITION OF EXISTING PUMP STATION	LSUM	1	1	
	MAINTENANCE OF EXISTING PUMP STATION DURING	CAL MO		24	
P 2 7 0 0 2	CONSTRUCTION	-	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		
X140016	PUMP STATION PACKAGE ENGINE GENERATOR SYSTEMS	LSUM	1	1	
X032003	HEATING AND VENTILATION	LSUM	1	1	
X032003;	LOW FLOW PUMP	EACH	1	1	
X032003	MAIN PUMPS	EACH	2	5	
XIHOOIS	PUMP STATION MOTOR CONTROL CENTER	LSUM	1	1	

_	SUMMARY C	F QUANTIT	IES	1		
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION TYPE COD		
X1400163	AEGIS PANEL	LSUM	1	1		
X140016 <i>4</i>	FIRE DETECTION PANEL	LSUM	1	1		
X1400165	GAS DETECTION PANEL	LSUM	1	1		
X1400166	REMOVE SCADA WOOD POLE	LSUM	1	1		
X1400167	RELOCATION OF UTILITY METERING EQUIPMENT	LSUM	1	1		
103100 <b>3</b> 7	TEMPORARY PUMPING SYSTEM	LSUM	1	1		
		_	<u> </u>	<del> </del>		

-1

SO 002-0008 X

\* SPECIALTY ITEM

G3

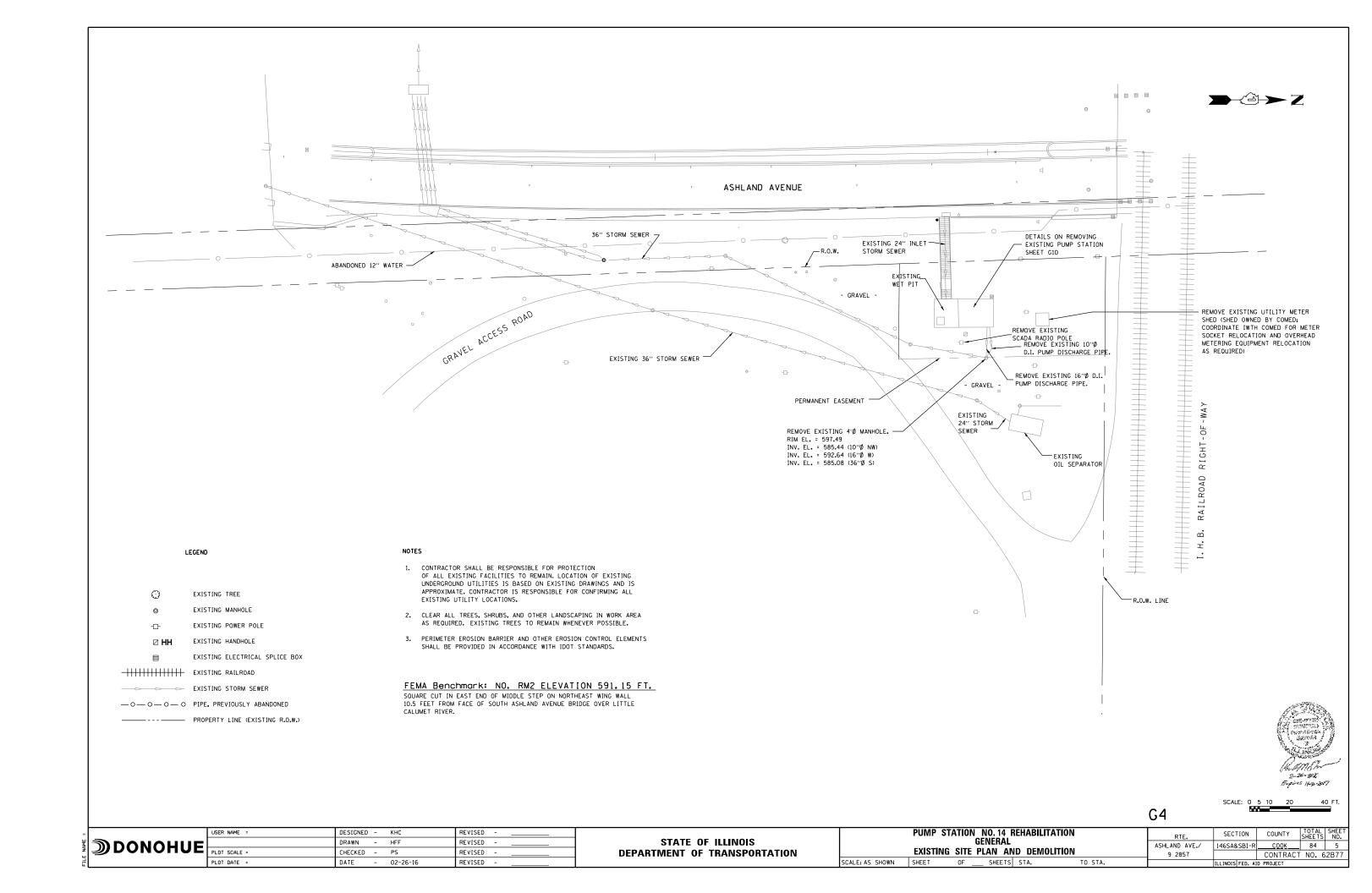
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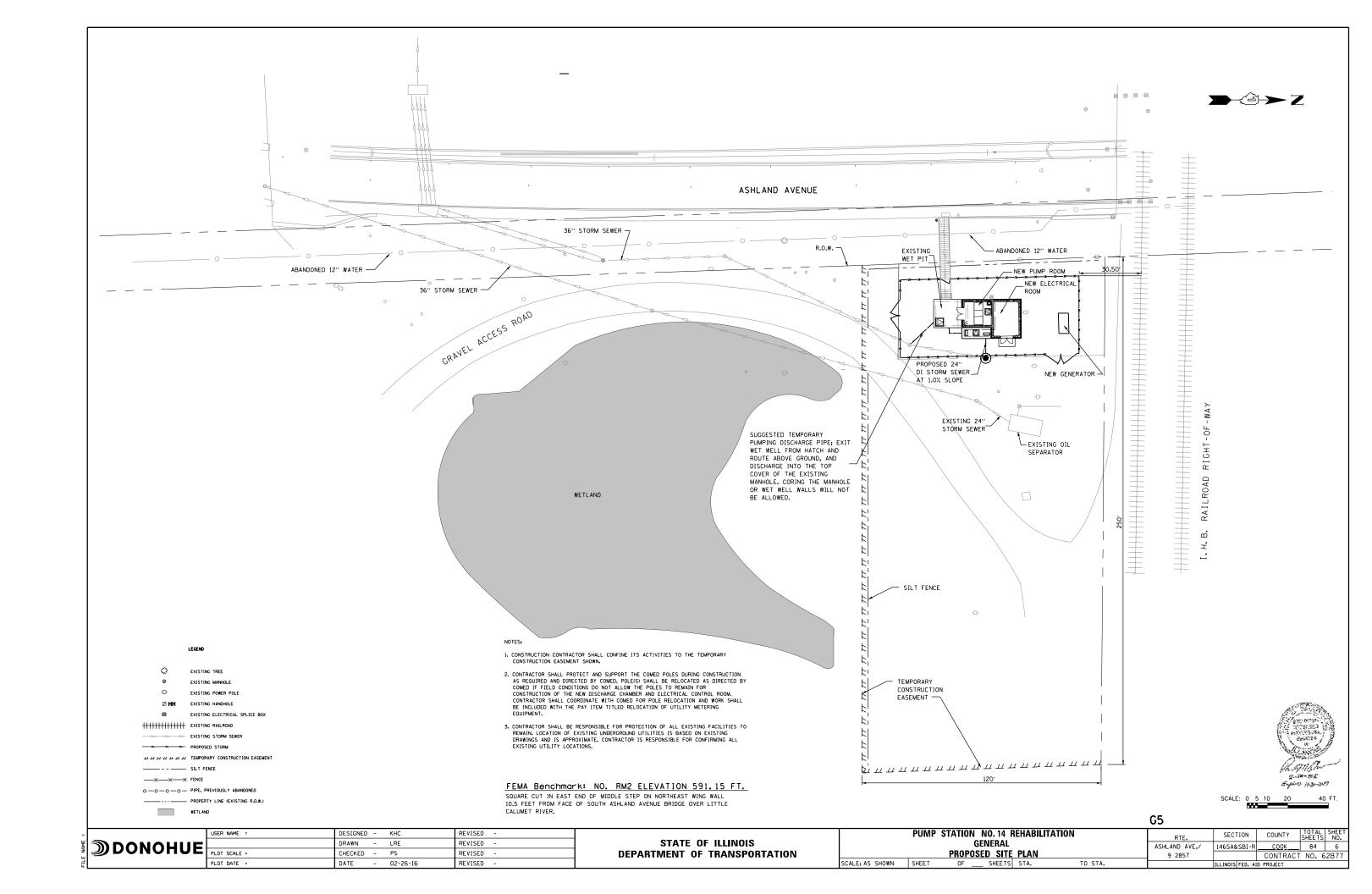
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		DRAWN	-	LRE	REVISED	-				
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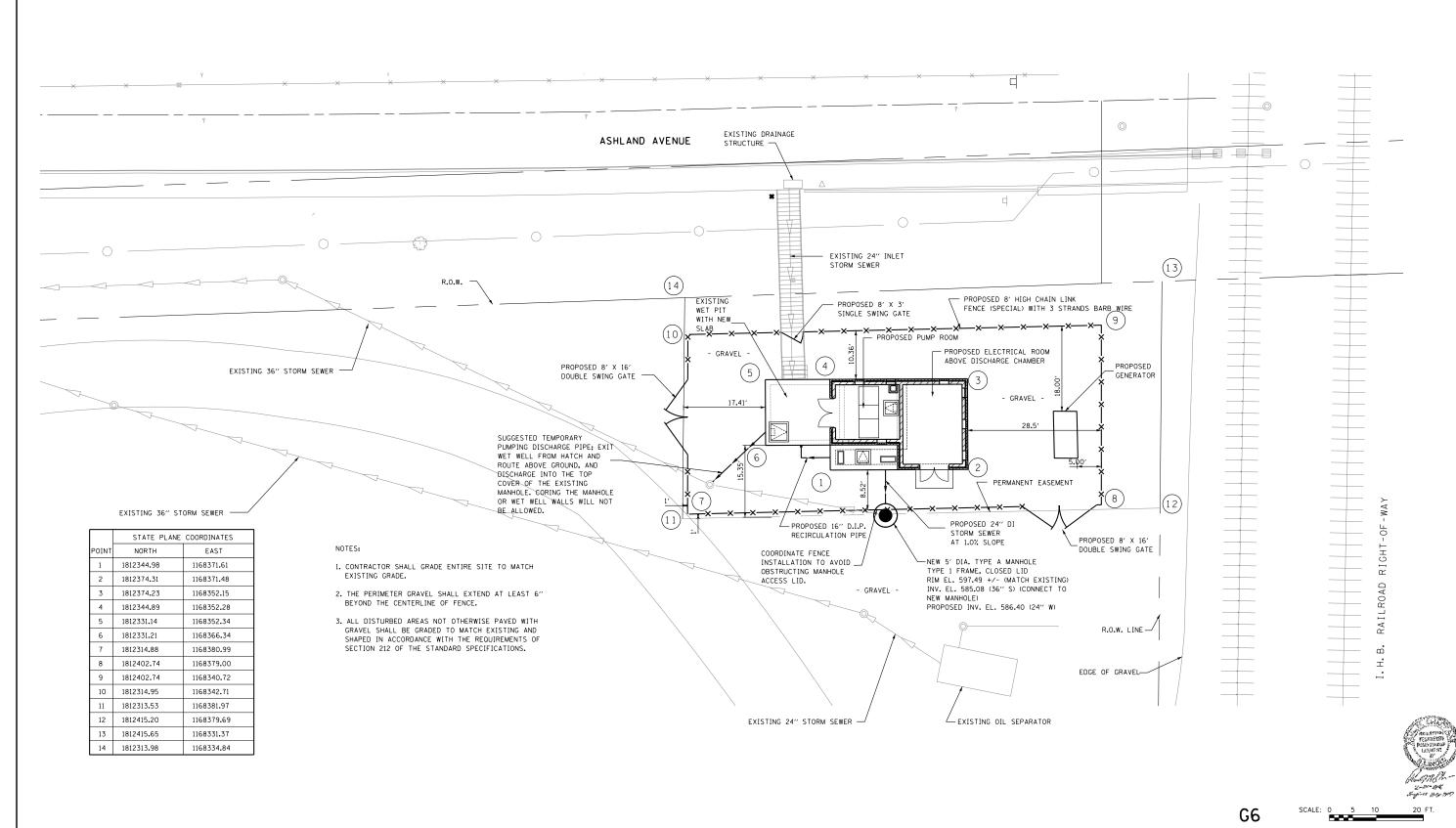
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SCALE









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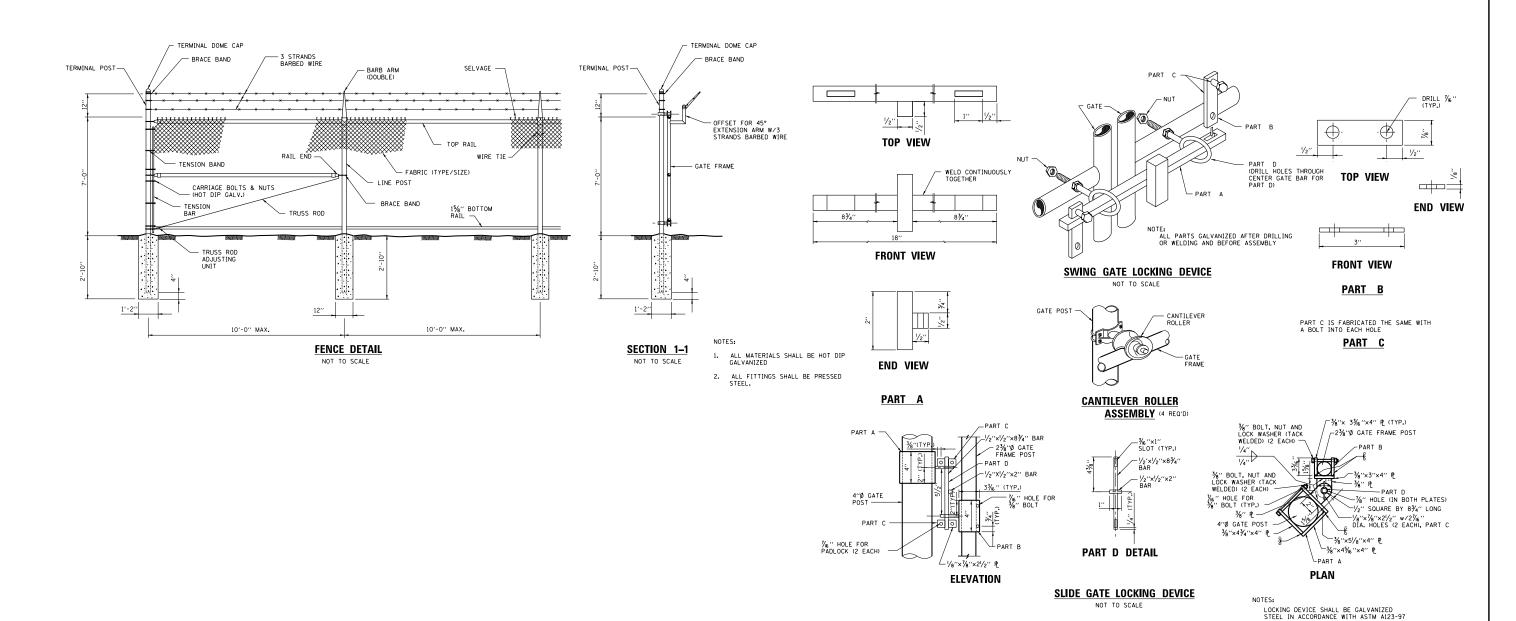
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	PUMP STATION NO.14 REHABILITATION GENERAL						RTE.	SECTION	COUNTY
							ASHLAND AVE./	146SA&SBI-R	COOK
	ENLARGED SITE PLAN					9 2857		CONTRA	
	SCALE: AS SHOWN	SHEET	0F	SHEETS	STA.	TO STA.		ILLINOIS FED. AI	D PROJECT

TOTAL SHEET SHEETS NO.

COOK 84 7
CONTRACT NO. 62B77

COUNTY



SPECIFICATIONS								
FABRIC	MESH	GAUGE	SELVAGE					
ALUM.	2"	9	K+B					
BARBED WIRE	TYPE 4 PT.	3 STR. ⊠	6 STR					
FRMWRK.	0.D.	WALL	LBS/LF					
TOP & BOT. RAIL	15%"	.140	2.27					
LINE POSTS	23/8''	.154	3.65					
BRACE RAIL	15%''	.140	2.27					
CORNER POSTS	21/8''	.203	5.79					
END POSTS	21/8"	.203	5.79					

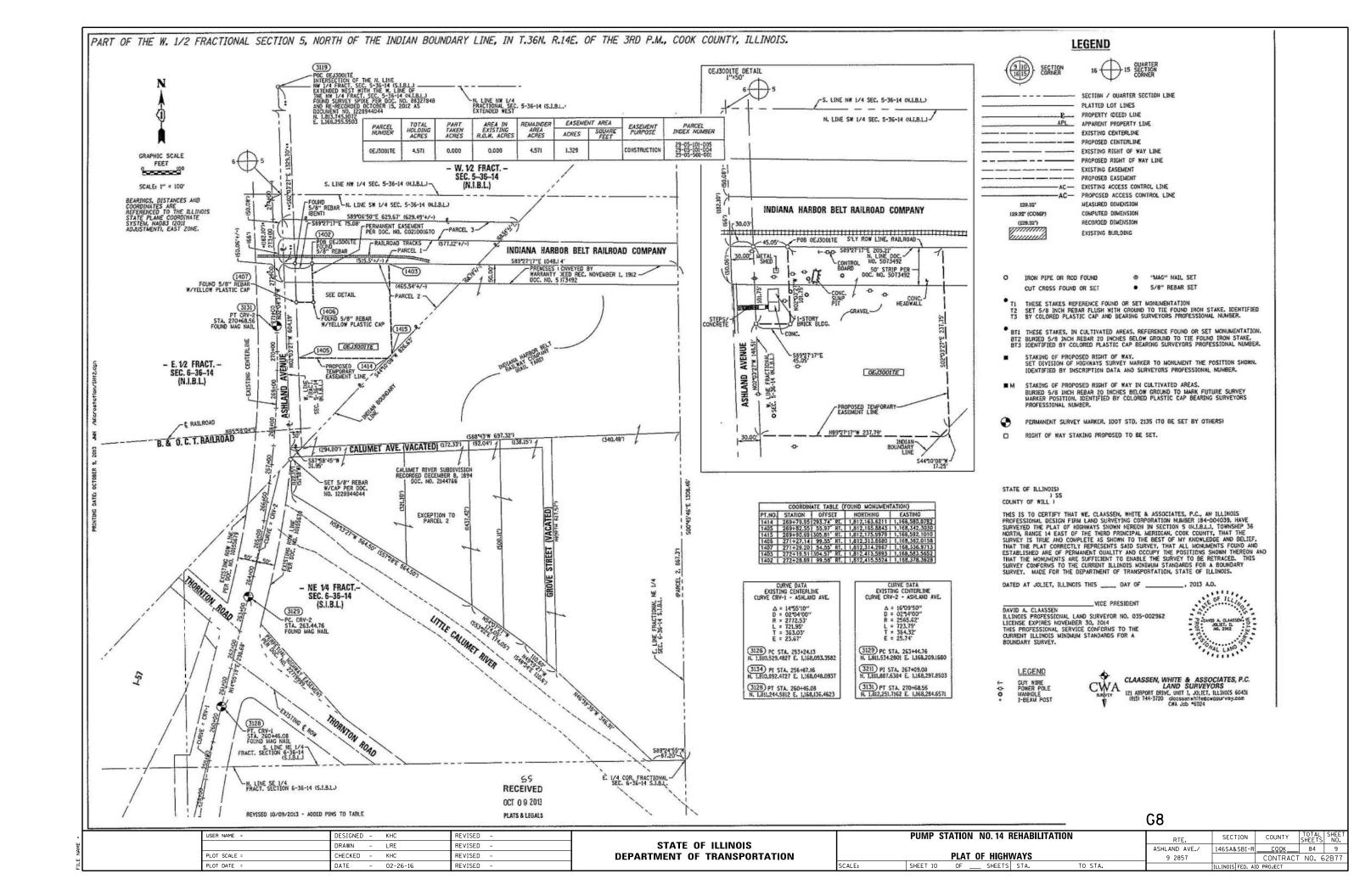


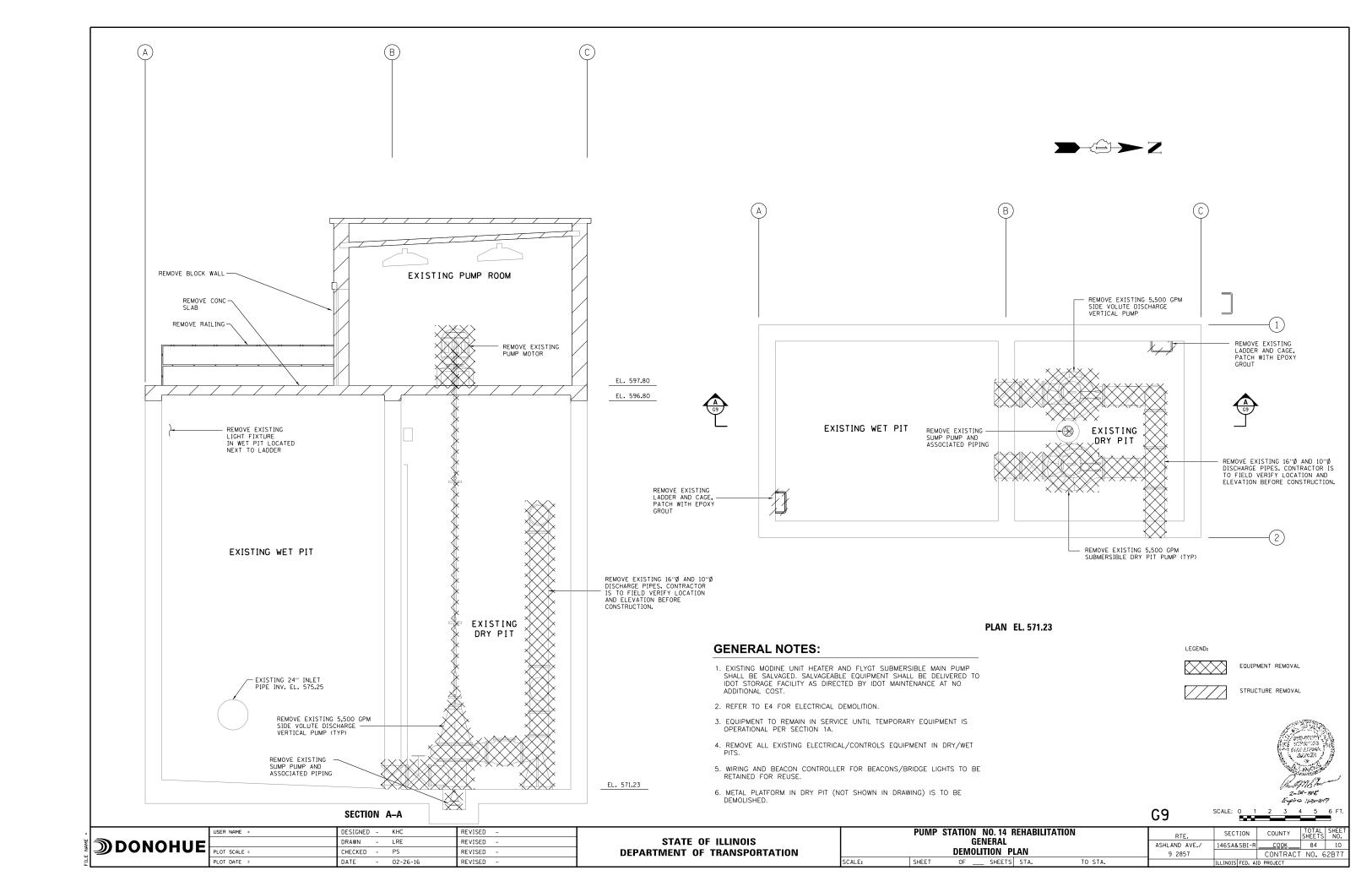
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DEPARTMENT	0F	TRANSPORTATION





### STRUCTURAL LEGEND

### **ABBREVIATIONS**

ADDL	ADDITIONAL	MFR	MANUFACTURER
AL	ALUMINUM	MH	MANHOLE
ALT	ALTERNATE	MIN	MINIMUM
B/	BOTTOM OF	мо	MASONRY OPENING
BLDG	BUILDING	NO. or #	NUMBER
BLK	BLOCK	NTS	NOT TO SCALE
BOT	BOTTOM	oc	ON CENTER
¢	CENTERLINE	OPNG	OPENING
CJT	CONTROL JOINT	PL .	PLATE
CLR	CLEAR	PJF	PREFORMED JOINT FILLER
CMU	CONCRETE MASONRY UNIT	R	RISER
COL	COLUMN	RAD	RADIUS
CONC	CONCRETE	RD	ROOF DRAIN
CONT	CONTINUOUS	REINF	REINFORCING
CONTR JT	CONTRACTION JOINT	REQD	REQUIRED
DBL	DOUBLE	SIM	SIMILAR
DIA	DIAMETER	SPA	SPACE OR SPACING
DIP	DUCTILE IRON PIPE	SS	STAINLESS STEEL
DN	DOWN	STL	STEEL
DWG	DRAWING	SQ	SQUARE
EA	EACH	T	TREAD
EF	EACH FACE	T/	TOP OF
EL	ELEVATION	T/S	TOP OF STEEL
EQUIP	EQUIPMENT	T&B	TOP AND BOTTOM
EW	EACH WAY	TYP	TYPICAL
EXP	EXPANSION	UNO	UNLESS NOTED OTHERWISE
EXP JT	EXPANSION JOINT	VERT	VERTICAL
EXT	EXTERIOR	W/	WITH
FD	FLOOR DRAIN	WD	WOOD
FTG	FOOTING	WWF	WELDED WIRE FABRIC
GA	GAUGE	WS	WATERSTOP
GALV	GALVANIZED		
HORZ	HORIZONTAL		
HP	HIGH POINT		
INSUL	INSULATION		
INT	INTERIOR		

LONG LEG HORIZONTAL

LONG LEG VERTICAL

**SYMBOLS** 

ROCK

**REINFORCING CALL-OUT IDENTIFIER** 

CONCRETE

FARTH OR BACKFILL

TOP & BOTTOM

BAR IDENTIFIER
(SEE BAR SCHEDULE)

LOW POINT

LLH

LLV

ΙP

A 2 MULTIPLIER -DEPICTS PROVIDING BARS TOP &

ONE FACE

BAR SIZE -

### GENERAL STRUCTURAL NOTES

### GENERAL

1. THE GENERAL STRUCTURAL NOTES AND STANDARD STRUCTURAL DETAILS APPLY TO THE ENTIRE PROJECT UNLESS SPECIFICALLY NOTED OTHERWISE.

### DESIGN CRITERIA

- 1. DESIGN AND CONSTRUCT IN CONFORMANCE WITH THE IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE INTERNATIONAL BUILDING CODE, 2012 EDITION.
- 2. SUPERIMPOSED DESIGN LOADS

A. WIND LOAD:	90 MPH	
B. SNOW LOAD (ROOF):	22 PSF	
C. ROOFING DEAD LOAD:	30 PSF(EQUIP AND PIPING ADDL)	

D. MECHANICAL EQUIPMENT: VERIFY WITH EQUIPMENT SUPPLIER
E. STAIRS: 100 PSF OR 1000 LBS CONCENTRATED

F. FLOOR SLABS (OTHER THAN SLABS ON GRADE)
PUMP ROOM: 150 PSF

ELECTRICAL CONTROL ROOM: 200 PSF

3. SEISMIC DESIGN CRITERIA

A. ZIP CODE 60827

B. IMPORTANCE FACTOR, I 1.25

C. MAPPED SPECTRAL RESPONSE ACCELERATIONS
SS 0.142g
S1 0.065g

D. SITE CLASS D

E. SPECTRAL RESPONSE COEFFICIENTS
Sds 0.151g
Sd1 0.104g

F. SEISMIC DESIGN CATEGORY A

### FOUNDATIONS

- 1. GEOTECHNICAL INVESTIGATION BY PSI DATED MAY 6 1999.
- 2. NET SOIL BEARING CAPACITIES : 1500 PSF.
- 3. PLACE FOOTINGS ON NATURAL UNDISTURBED EARTH OR STRUCTURAL FILL.
- 4. PLACE FILL AGAINST FOUNDATION WALLS ENCLOSING INTERIOR SPACES AFTER CONSTRUCTION SUCH AS CROSS WALLS, BEAMS, OR SLABS ARE IN PLACE TO BRACE WALL AND SUCH CONSTRUCTION HAS REACHED ITS DESIGN STRENGTH.
- 5. TO MINIMIZE LATERAL FORCES AGAINST THE STRUCTURE DUE TO WEDGING ACTION OF THE SOIL, BEGIN COMPACTION OF EACH LAYER AT THE STRUCTURE WALL.

### REINFORCEMENT

1. REINFORCING STEEL-ALL REINFORCING STEEL TO BE EPOXY COATED

A. DEFORMED BARS: ASTM A706-GRADE 60
B. WELDED WIRE FABRIC: AASHTO M55
C. BAR MAT FABRIC: AASHTO M54

2. UNLESS NOTED OTHERWISE PROVIDE CLEAR COVER FOR REINFORCEMENT AS FOLLOWS:

1 1/2 INCHES

A. CAST AGAINST

EARTH: 3 INCHES
 MUD SLAB: 2 INCHES

B. EXPOSED TO EARTH, WEATHER, OR WATER

SLABS

1. "5 BARS OR SMALLER: 1 1/2 INCHES
2. "6 THROUGH " 11 BARS: 2 INCHES
WALLS, BEAMS, AND COLUMNS 2 INCHES
NOT EXPOSED TO EARTH, WEATHER, OR WATER
SLABS AND WALLS
1. "3 THROUGH "7 BARS: 1 INCH
2. "8 THROUGH "11 BARS: 1 1/2 INCHES

3. PLACE DOWELS BEFORE PLACING CONCRETE.

BEAMS AND COLUMNS:

4. DO NOT FIELD WELD OR FIELD BEND REINFORCING BARS.

### CONCRETE

- DESIGN STRENGTH
  - A. CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ILLINOIS DEPARTMENT OF TRANSPORTION STANDARD SPECIFICATIONS SECTION 503.
  - B. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS SI, f'c = 3,500 psi AT 14 DAYS.
- 2. PROVIDE WATERSTOP IN CONSTRUCTION JOINTS IN
  - A. WALLS AND SLABS SEPARATING DRY INTERIOR FROM EARTH OR LIQUID.
  - B. EXTERIOR WALLS AND SLABS OF LIQUID HOLDING TANKS.
  - C. SLABS ABOVE OCCUPIED AREAS.
  - D. OTHER LOCATIONS SHOWN.
- 3. CONSTRUCTION JOINTS NOT SHOWN SHALL BE APPROVED BY ENGINEER.
- 4. LIMIT SIZE OF CONCRETE POURS. MAXIMUM LENGTH OF WALL AND SLAB POURS SHALL NOT EXCEED 60 FT.
- 5. LOCATE CONSTRUCTION JOINTS IN FLOORS WITHIN MIDDLE THIRD OF SPAN, CONSTRUCTION JOINTS IN FLOORS SUPPORTED BY WALLS MAY BE LOCATED AT
- 6. CONSTRUCTION JOINTS IN BEAMS SHALL BE OFFSET MIN DISTANCE OF 2 TIMES WIDTH OF INTERSECTING BEAM.
- 7. LOCATE VERTICAL JOINTS IN WALL A MIN OF ONE- HALF WALL HEIGHT FROM CORNERS OR OTHER INTERSECTING WALLS. LOCATE HORIZONTAL JOINTS IN WALL WITHIN THE MIDDLE THIRD OF WALL HEIGHT.
- 8. BEAMS AND HAUNCHES SHALL BE PLACED MONOLITHICALLY AS PART OF SLAB SYSTEM, UNLESS DETAILED OTHERWISE.
- 9. CONSTRUCTION JOINTS SHALL HAVE KEYS OR ROUGHENED SURFACES. WHERE ROUGHENED SURFACE USED, SURFACE SHALL HAVE AMPLITUDE OF 1/4 IN. MIN.
- 10. PROVIDE 3/4 IN. CHAMFER ON EXTERNAL CORNERS OF EXPOSED CONCRETE WALLS, BEAMS, COLUMNS, EQUIPMENT BASES AND EXPOSED EDGES OF CONSTRUCTION JOINTS.
- 11. CONTRACTOR SHALL VERIFY EQUIPMENT PAD AND CURB LOCATIONS, DIMENSIONS, AND ELEVATIONS WITH EQUIPMENT MANUFACTURERS.

### METALS

- STEEL
  - A. STRUCTURAL STEEL: ASTM A36 OR A992
  - B. SQUARE OR RECTANGULAR TUBE: ASTM A500
  - C. PIPE: ASTM A53
  - D. BOLTED CONNECTIONS: ASTM A325
- 2. WELD STRUCTURAL STEEL WITH E70XX ELECTRODES IN ACCORDANCE WITH AWS REQUIREMENTS.
- 3. WELD ALUMINUM IN ACCORDANCE WITH AWS AND ALUMINUM ASSOCIATION REQUIREMENTS.
- 4. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE IN ACCORDANCE WITH AA REQUIREMENTS, UNDER NO CIRCUMSTANCES SHALL ALUMINUM CONTACT DISSIMILAR METALS.

### MISCELLANEOUS

SCALE:

- 1. CONTRACTOR SHALL VERIFY PERTINENT EXISTING CONDITIONS AND DIMENSIONS BEFORE STARTING CONSTRUCTION AND/OR FABRICATION.
- 2. FOR ADDITIONAL OPENINGS, ANCHORS, AND EMBEDDED ITEMS SEE ARCHITECTURAL, PROCESS, PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS.



S1

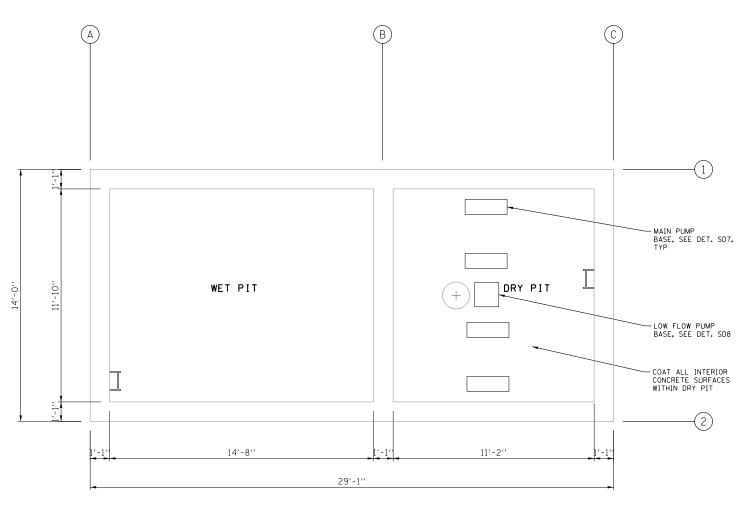
<b>DONOHUE</b>	USER NAME =	DESIGNED	-	KHC	REVISED -
		DRAWN	-	TJB	REVISED -
	PLOT SCALE =	CHECKED	-	KHC	REVISED -
	PLOT DATE =	DATE	-	02-26-16	REVISED -

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION PUMP STATION NO. 14 REHABILITATION
STRUCTURAL
LEGEND/GENERAL NOTES
SHEET OF SHEETS STA. TO STA.



### NOTES:

1. ALL AREAS WITHIN THE BUILDING EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 2,GROUP D EXPLOSION PROOF.



PLAN ELEV. 571.23



<b>C</b> O	SCALE:	0	1	2	3	4	5
52			-				_

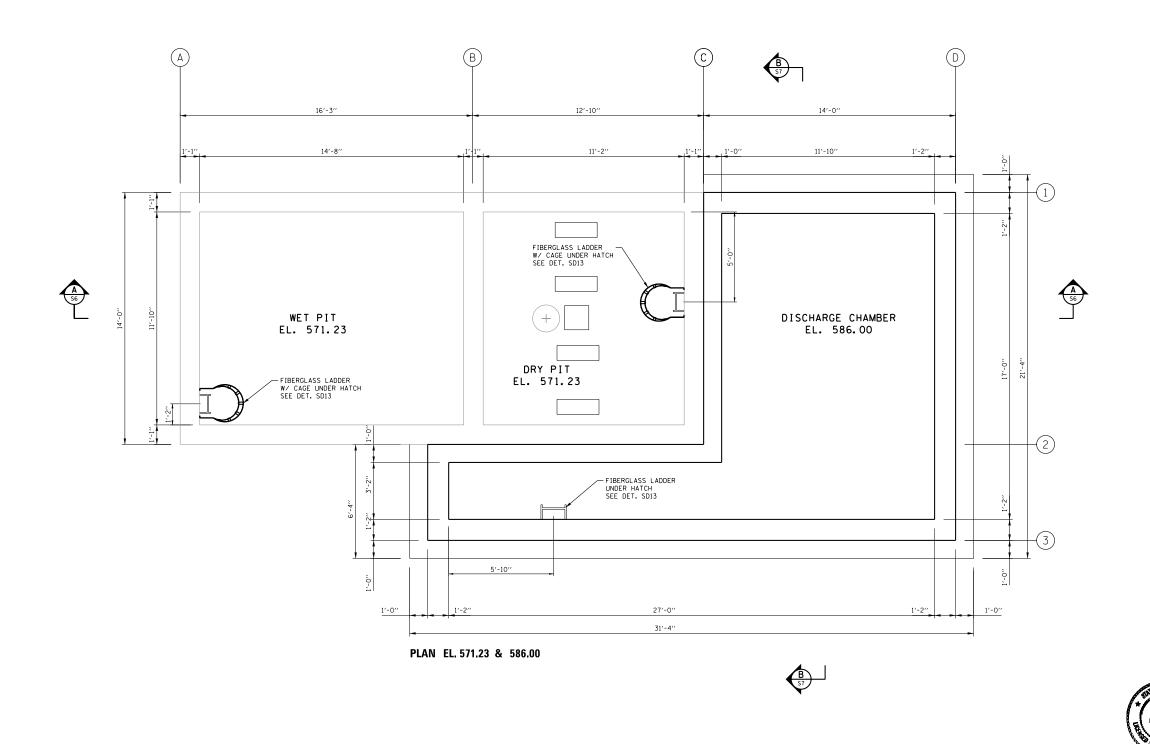
		USER NAME =	DESIGNED	-	KHC	REVISED -
1	<b>DONOHUE</b>		DRAWN	-	LRE	REVISED -
	DONORDE	PLOT SCALE =	CHECKED	-	KHC	REVISED -
Ĭ		PLOT DATE =	DATE	-	02-26-16	REVISED -

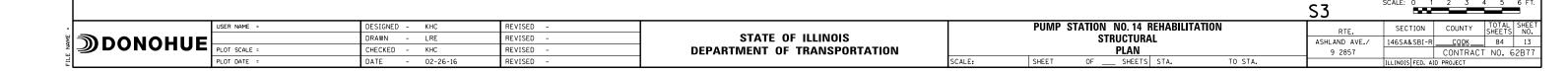
	PUMP ST	ATI0			ITATION		RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
STRUCTURAL							ASHLAND AVE./	146SA&SBI-R	<u> </u>	84	12
			PLAN				9 2857		CONTRACT	NO. 6	2B77
ALE:	SHEET	OF	SHEETS	STA.	TO STA.			ILLINOIS FED. AI	D PROJECT		

### NOTES:

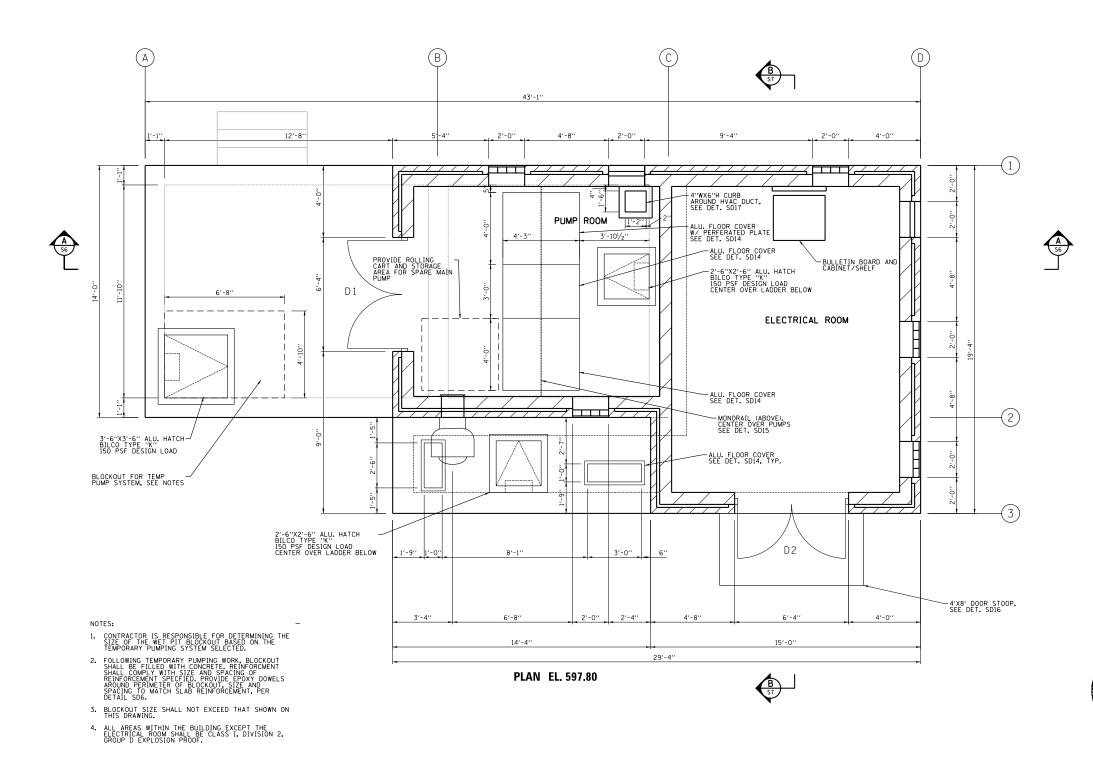
1. ALL AREAS WITHIN THE BUILDING EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 2,GROUP D EXPLOSION PROOF.











**S4** 

COUNTY SECTION TOTAL SHEET SHEETS NO. 146SA&SBI-R

USER NAME = DESIGNED - KHC REVISED -DRAWN - LRE REVISED -**DONOHUE** PLOT SCALE = CHECKED - KHC REVISED -PLOT DATE = DATE - 02-26-16 REVISED -

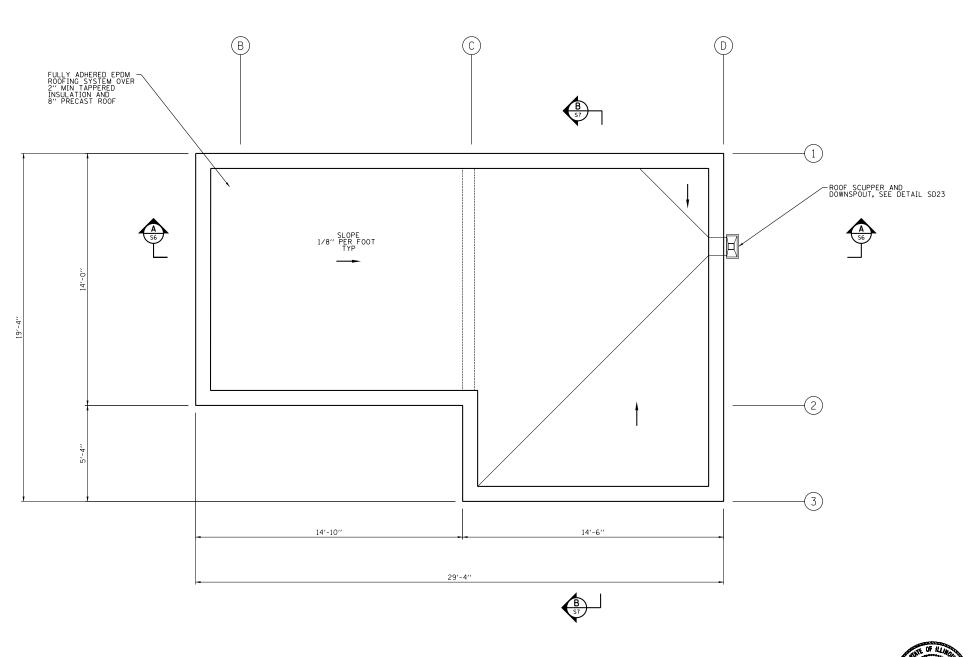
STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

PUMP STATION NO. 14 REHABILITATION STRUCTURAL PLAN SCALE: SHEET TO STA. OF \_\_\_\_ SHEETS STA.

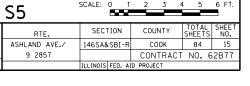
RTE. COOK 84 14

CONTRACT NO. 62B77 ASHLAND AVE./ 9 2857





### ROOF PLAN EL. 612.47

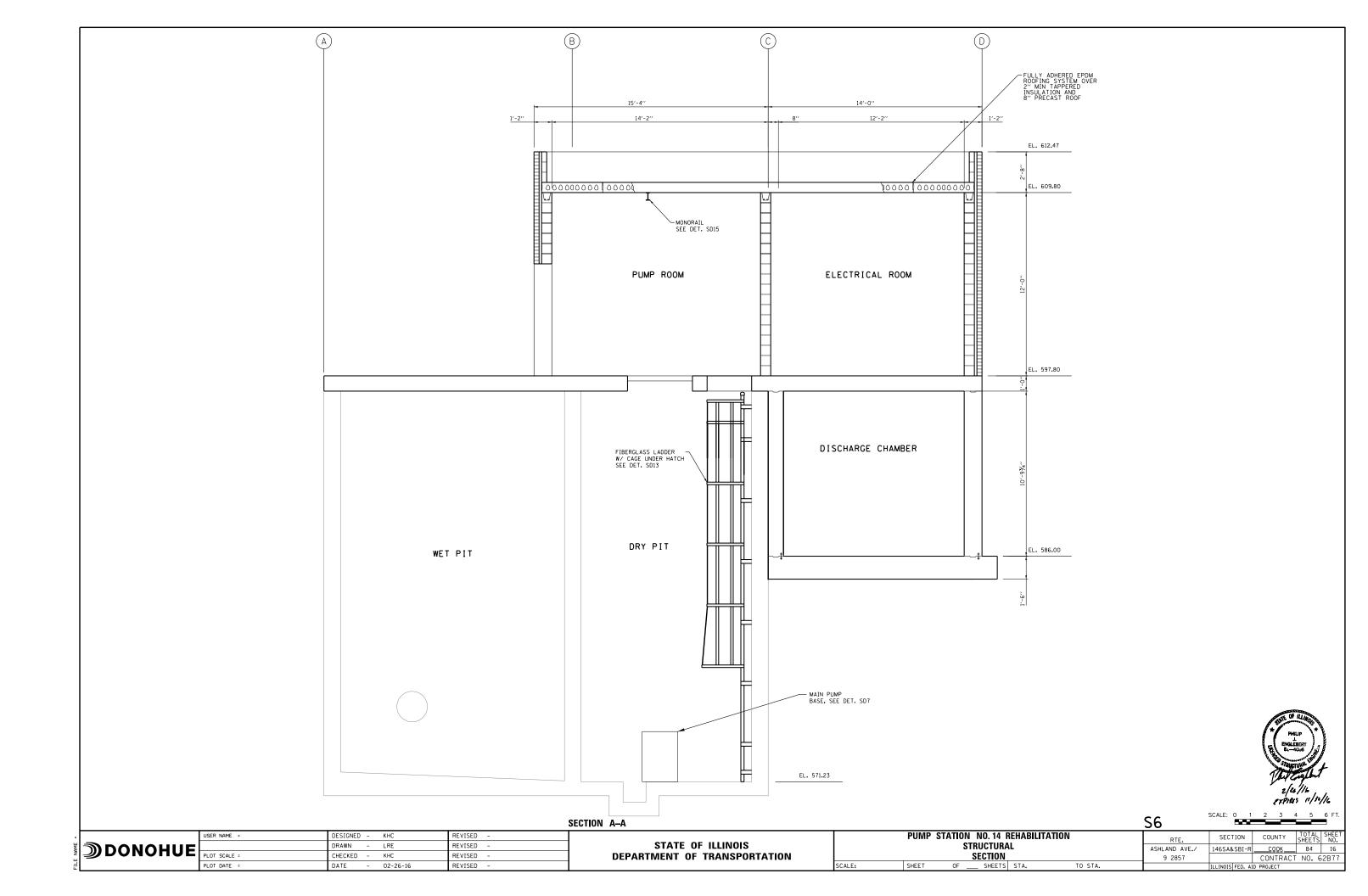


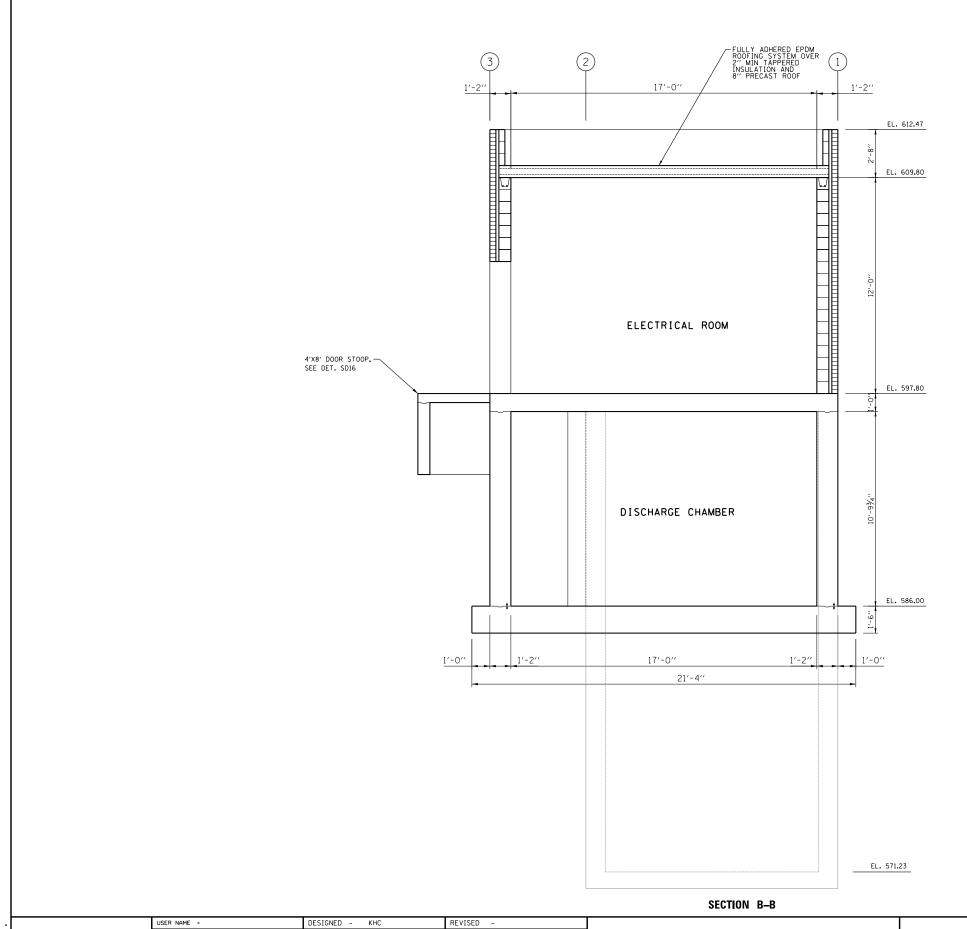
	USER NAME =	DESIGNED -	REVISED -
DONOHU	E	DRAWN -	REVISED -
# DONOHU	PLOT SCALE =	CHECKED -	REVISED -
	PLOT DATE =	DATE - 02-26-16	REVISED -

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO.14 REHABILITATION STRUCTURAL PLAN TO STA. SCALE: SHEET OF SHEETS STA.

9 2857





REVISED -

REVISED -

REVISED -

DRAWN - LRE

CHECKED - KHC

DATE - 02-26-16

**DONOHUE**PLOT SCALE =

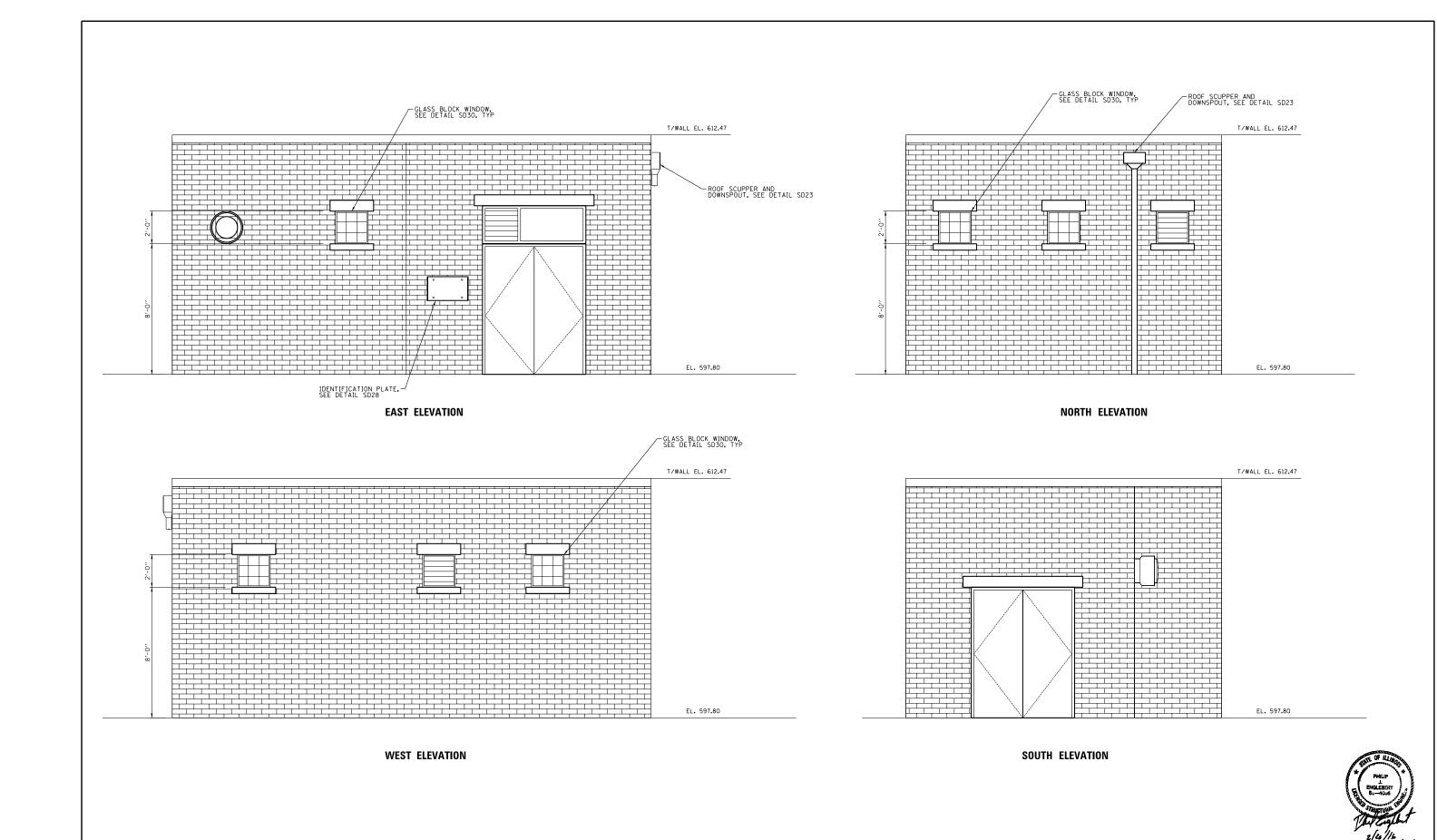
PLOT DATE =



STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

**S**7

	PUMP			EHABILITATION		RTE.	SECTION	COUNTY	SHEETS	NO.
			RUCTURA	L		ASHLAND AVE./	146SA&SBI-R	<u> </u>	84	17
			SECTION			9 2857		CONTRACT	NO. 6	52B77
SCALE:	SHEET	OF	_ SHEETS	STA.	TO STA.		ILLINOIS FED. AI	D PROJECT		



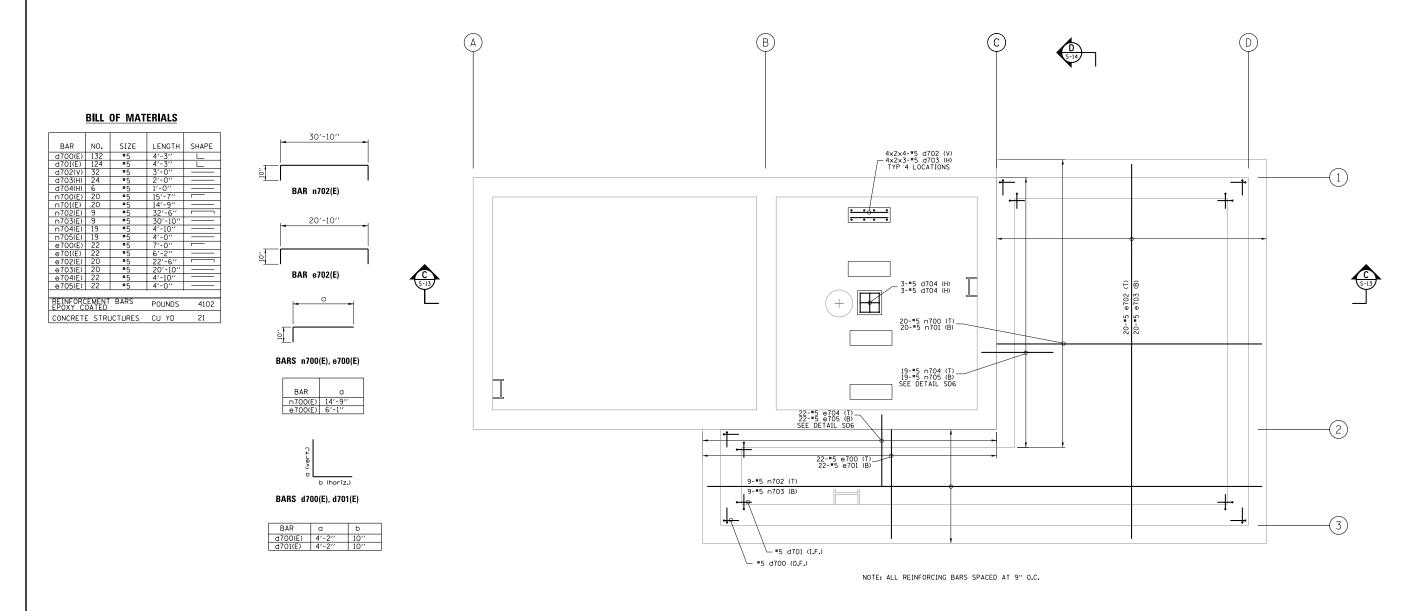
							S8	SCALE: 0 1 2 3 4 5 6 FT.
		USER NAME =	DESIGNED - KHC	REVISED -		PUMP STATION NO. 14 REHABILITATION	RTF.	SECTION COUNTY TOTAL SHEET
¥I⊸	DONOHUE		DRAWN - LRE	REVISED -	STATE OF ILLINOIS	STRUCTURAL	ASHLAND AVE./	146SA&SBI-R COOK 84 18
1	DONORUE	PLOT SCALE =	CHECKED - KHC	REVISED -	DEPARTMENT OF TRANSPORTATION	ELEVATIONS	9 2857	CONTRACT NO. 62B77
- EL		PLOT DATE =	DATE - 02-26-16	REVISED -		SCALE: SHEET OF SHEETS STA. TO STA.		ILLINOIS FED. AID PROJECT

6 ELEVATION 6 WET PIT EL. 571.23 DISCHARGE CHAMBER EL. 586.00 DRY PIT EL. 571.23 ELEVATION 5 (S18) ELEVATION 4 4 3 — ELEVATION 1 (S15) ELEVATION 2 (S15) ELEVATION 3 (S16) REINFORCEMENT KEY PLAN **S9** USER NAME = DESIGNED - KHC REVISED -RTE. DONOHUE PLOT SCALE : DRAWN - TJB REVISED -ASHLAND AVE./ CHECKED - KHC REVISED -9 2857

PUMP STATION NO.14 REHABILITATION REINFORCEMENT DETAILS WALLS KEY PLAN

SHEET OF \_\_\_\_ SHEETS STA. STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION PLOT DATE = DATE - 02-26-16 REVISED -SCALE: SHEET TO STA.

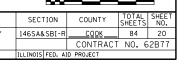




### PLAN AT EL. 586.00

SCALE:





11		,
NAME	<b>DONOHUE</b>	F
۳		-

	USER NAME =	DESIGNED	-	KHC	REVISED	-
•		DRAWN	-	TJB	REVISED	-
•	PLOT SCALE =	CHECKED	-	KHC	REVISED	-
	PLOT DATE =	DATE	-	02-26-16	REVISED	-

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

PUMP	STATION	NO. 14 R	EHABII	LITATION	
S.	TRUCTUR/	AL REINFO	RCEME	NT	
DETA	ILS - FLO	OR SLAB	AT E	L. 586.00	
SHEET	OF _	SHEETS	STA.	T	O STA.

RTE. ASHLAND AVE./ 9 2857

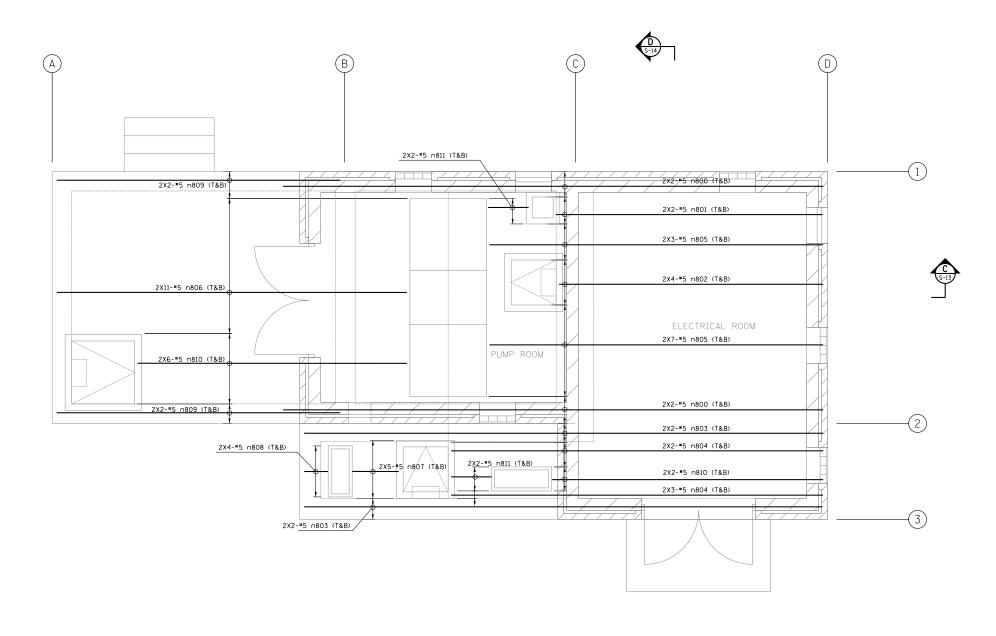
S10



### BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
n800(E)	8	#5	30'-0''	
n801(E)	4	#5	14'-10''	
n802(E)	8	#5	14'-8''	
n803(E)	8	#5	28'-10''	
n804(E)	10	#5	20'-8"	
n805(E)	20	#5	18'-6"	
n806(E)	22	#5	19'-6''	
n807(E)	10	#5	2'-7''	
n808(E)	8	#5	1'-4''	
n809(E)	8	#5	15'-9''	
n810(E)	16	#5	15'-0''	
n811(E)	8	#5	2'-3''	
e900(E)	58	#5	18'-10''	
e901(E)	10	#5	8'-10''	
e902(E)	4	#5	4'-6''	
e903(E)	10	#5	1'-4''	
e904(E)	6	#5	6'-5''	_
e905(E)	12	#5	1'-1''	
e906(E)	10	#5	2'-5''	
e907(E)	8	#5	1'-0''	
e908(E)	4	#5	15'-0''	
e909(E)	10	#5	1'-2''	
e910(E)	30	#5	13'-6''	
e911(E)	10	<b>#</b> 5	9'-0''	
e912(E)	6	<b>#</b> 5	2'-0''	
e913(E)	2	<b>#</b> 5	14'-10''	
REINFORG EPOXY C			POUNDS	4143
		RUCTURES	CU YD	26
2311011E 1				





NOTE: ALL REINFORCING BARS SPACED AT 9" O.C.



PLAN EL. 597.80-N/S REINF



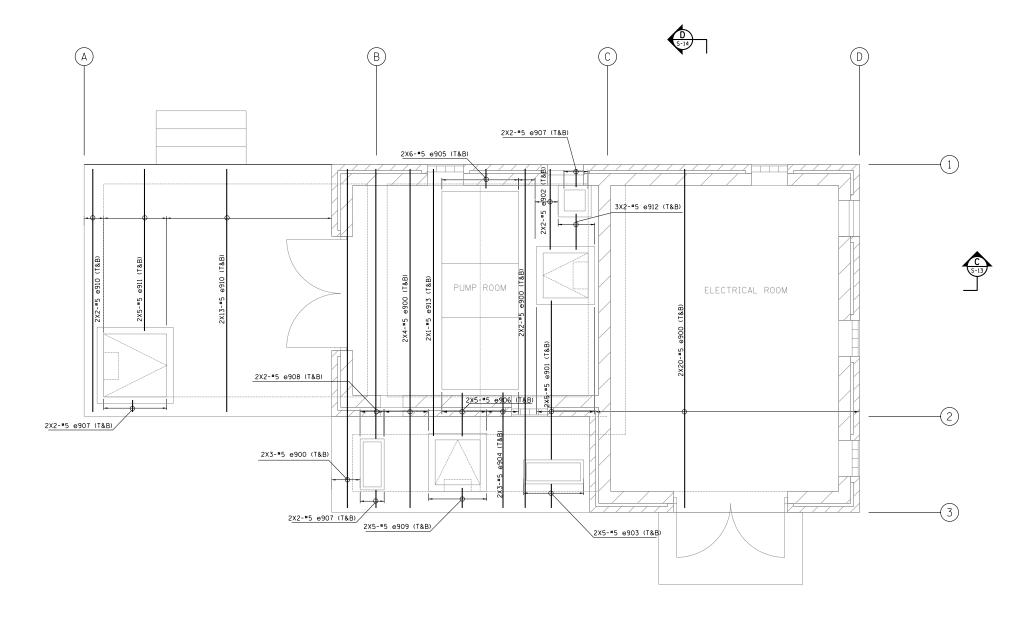
							S11	SCALE: 0 1 2 3 4	4 5 6 FT.
п	USER NAME =	DESIGNED - KHC	REVISED -			PUMP STATION NO. 14 REHABILITATION	RTF.	SECTION COUNTY	TOTAL SHEET
<b>₹DONOHIIE</b>		DRAWN - TJB	REVISED -	STATE OF ILLINOIS		STRUCTURAL REINFORCEMENT	ASHLAND AVE./	146SA&SBI-R COOK	84 21
	PLOT SCALE =	CHECKED - KHC	REVISED -	DEPARTMENT OF TRANSPORTATION		DETAILS - FLOOR SLAB AT EL 597.80	9 2857	CONTRACT	T NO. 62B77
11	PLOT DATE =	DATE - 02-26-16	REVISED -		SCALE:	SHEET OF SHEETS STA. TO STA.		ILLINOIS FED. AID PROJECT	



### BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
n800(E)	8	#5	30'-0''	
∩801(E)	4	#5	14'-10''	
n802(E)	8	#5	14'-8''	
n803(E)	8	#5	28'-10"	-
n804(E)	10	#5	20'-8''	
n805(E)	20	#5	18'-6''	
n806(E)	22	#5	19'-6''	
n807(E)	10	#5	2'-7''	
n808(E)	8	#5	1'-4''	
∩809(E)	8	#5	15'-9''	
∩810(E)	16	#5	15'-0''	
n811(E)	8	#5	2'-3''	
e900(E)	58	#5	18'-10"	
e901(E)	10	#5	8'-10''	
e902(E)	4	#5	4'-6''	
e903(E)	10	#5	1'-4''	
e904(E)	6	#5	6'-5''	
e905(E)	12	#5	1'-1''	
e906(E)	10	#5	2'-5"	
e907(E)	8	#5	1'-0''	
e908(E)	4	#5	15'-0''	
e909(E)	10	#5	1'-2''	
e910(E)	30	#5	13'-6''	
e911(E)	10	#5	9'-0''	
e912(E)	6	#5	2'-0''	
e913(E)	2	#5	14'-10''	
REINFORG EPOXY C			POUNDS	4143
		RUCTURES	CU YD	26

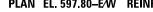




NOTE: ALL REINFORCING BARS SPACED AT 9" O.C.



PLAN EL. 597.80-E/W REINF





	SECTION		COUNTY	TOTAL SHEETS	SHEET NO.				
./	146SA&SBI-R		COOK	84	22				
			CONTRACT	NO. 6	2B77				
	ILLINOIS FED. AID PROJECT								

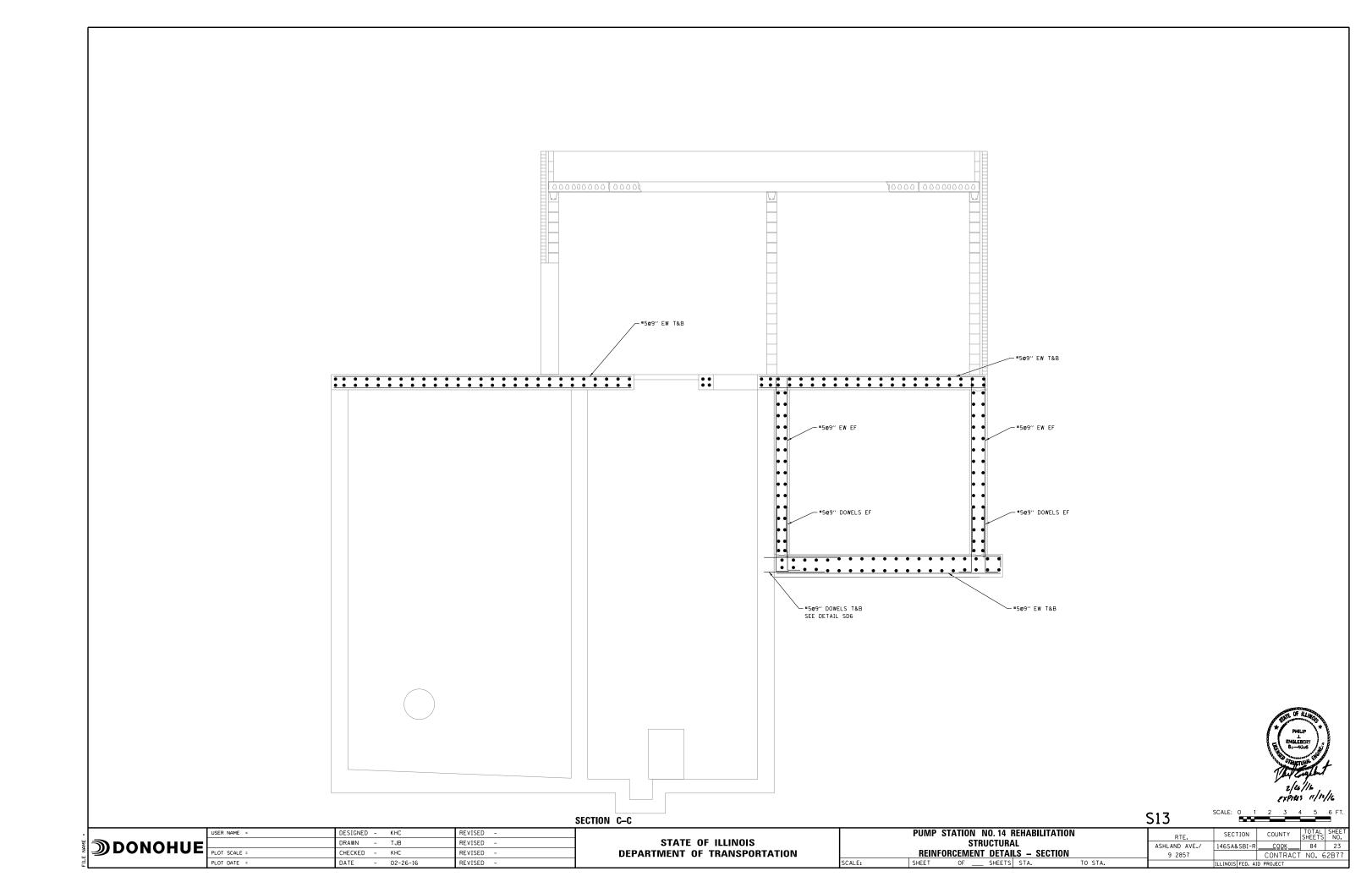
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Ä	<b>⋑DONOHUE</b>	
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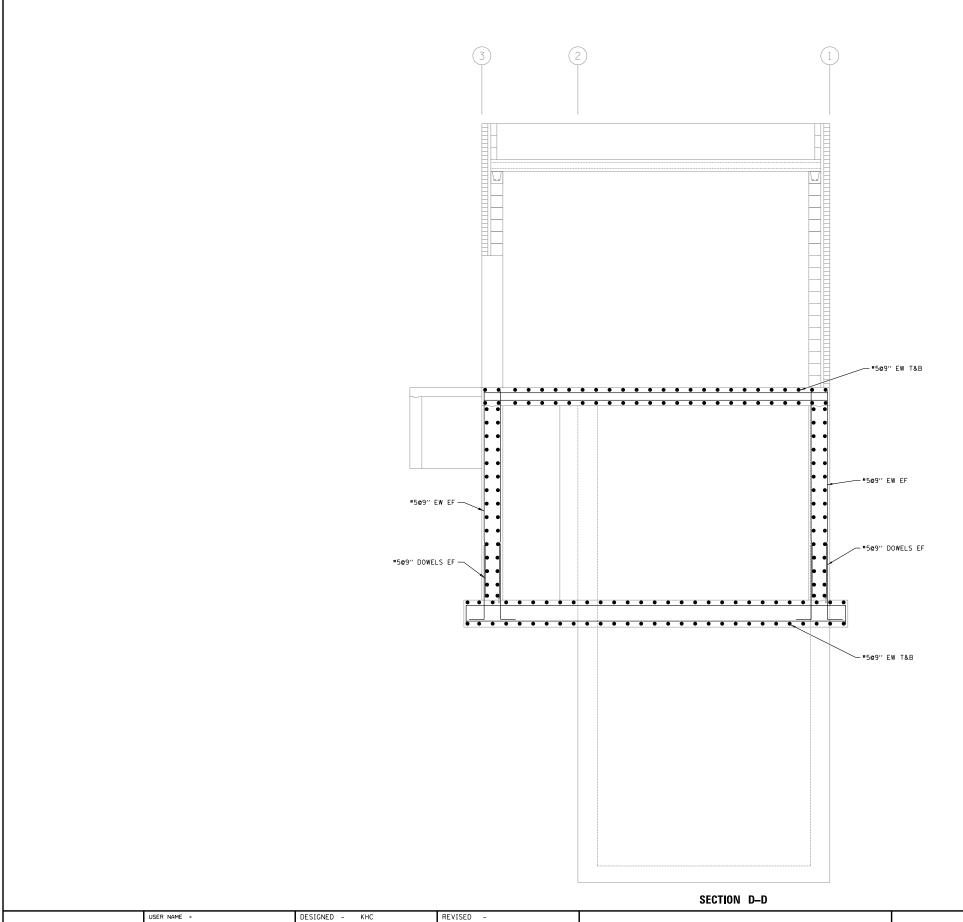
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	DRAWN - LRE	REVISED -
PLOT SCALE =	CHECKED - KHC	REVISED -
PLOT DATE =	DATE - 08-26-1156	REVISED -

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

PUMP STATION NO. 14 REHABILITATION
STRUCTURAL REINFORCEMENT
DETAILS - FLOOR SLAB AT EL 597.80
SHEET OF \_\_\_\_ SHEETS STA. SCALE:

RTE. 9 2857





REVISED -

REVISED -

REVISED -

DRAWN - TJB

CHECKED - KHC

DATE - 02-26-16



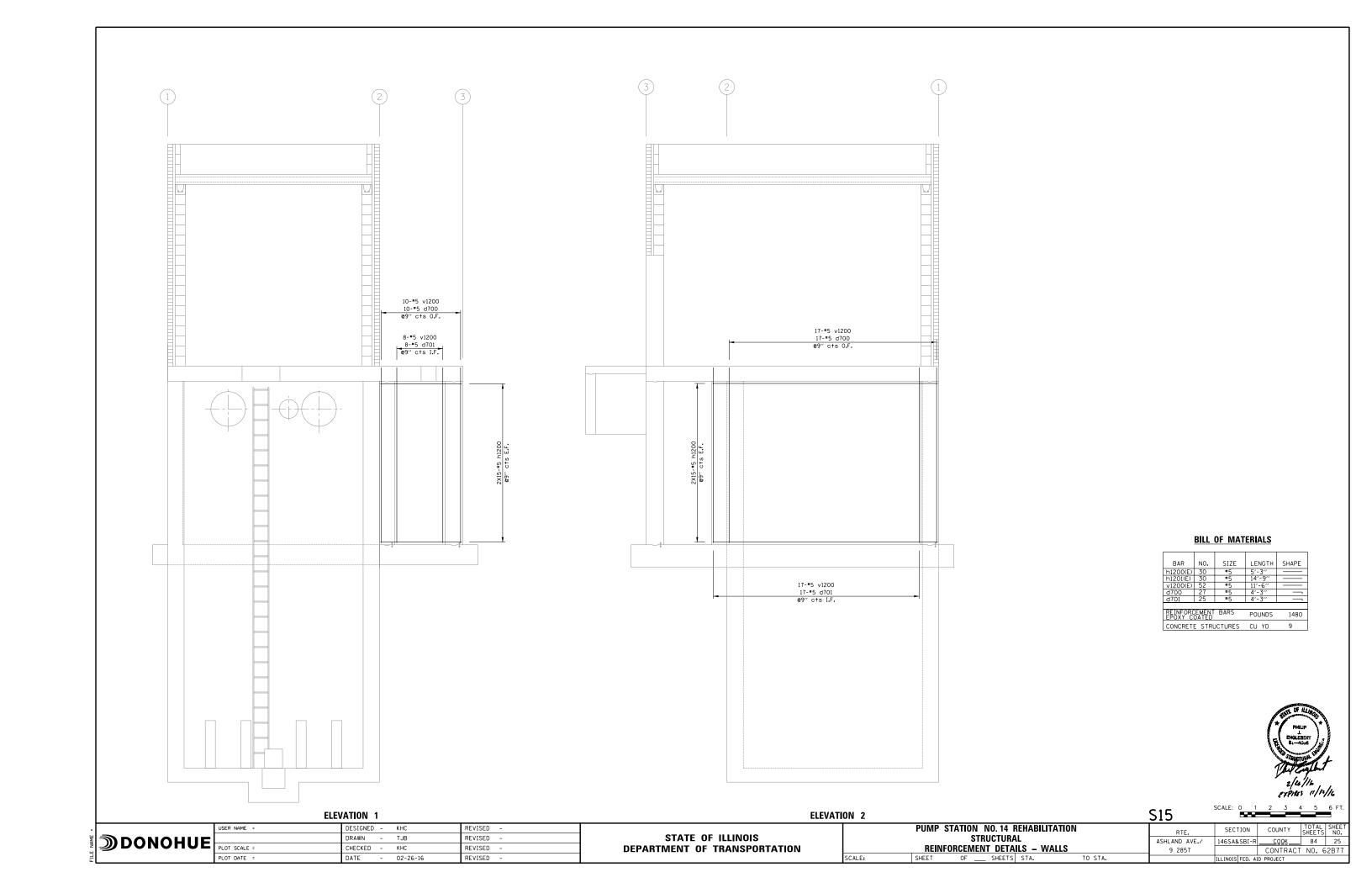
S14

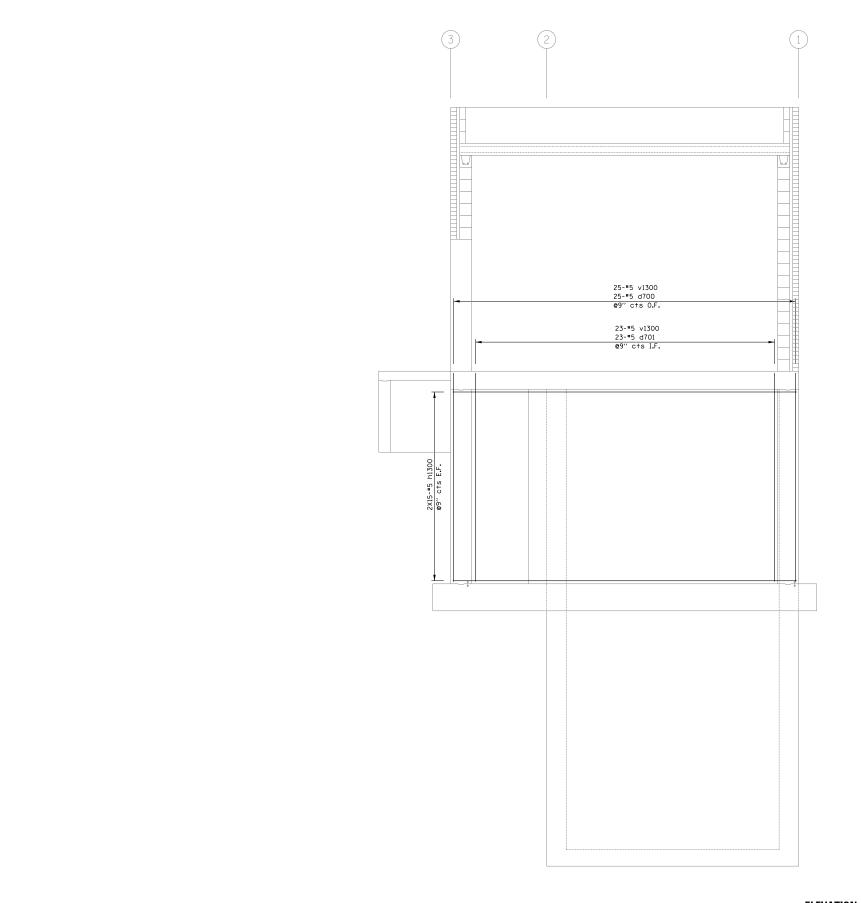
TO STA.

RTE. ASHLAND AVE./ 146SA&SBI-R 9 2857

STATE OF	ILLINOIS
DEPARTMENT OF 1	TRANSPORTATION

PLOT DATE =





### **BILL OF MATERIALS**

BAR	NO.	SIZE	LENGTH	SHAPE
h1300(E)	30	#5	19'-0''	
v1300(E)	48	#5	11'-6''	
d700	25	#5	4'-3''	ſ
d700	23	#5	4'-3''	Γ
REINFORG	`FMFNT	RARS	0011100	4707

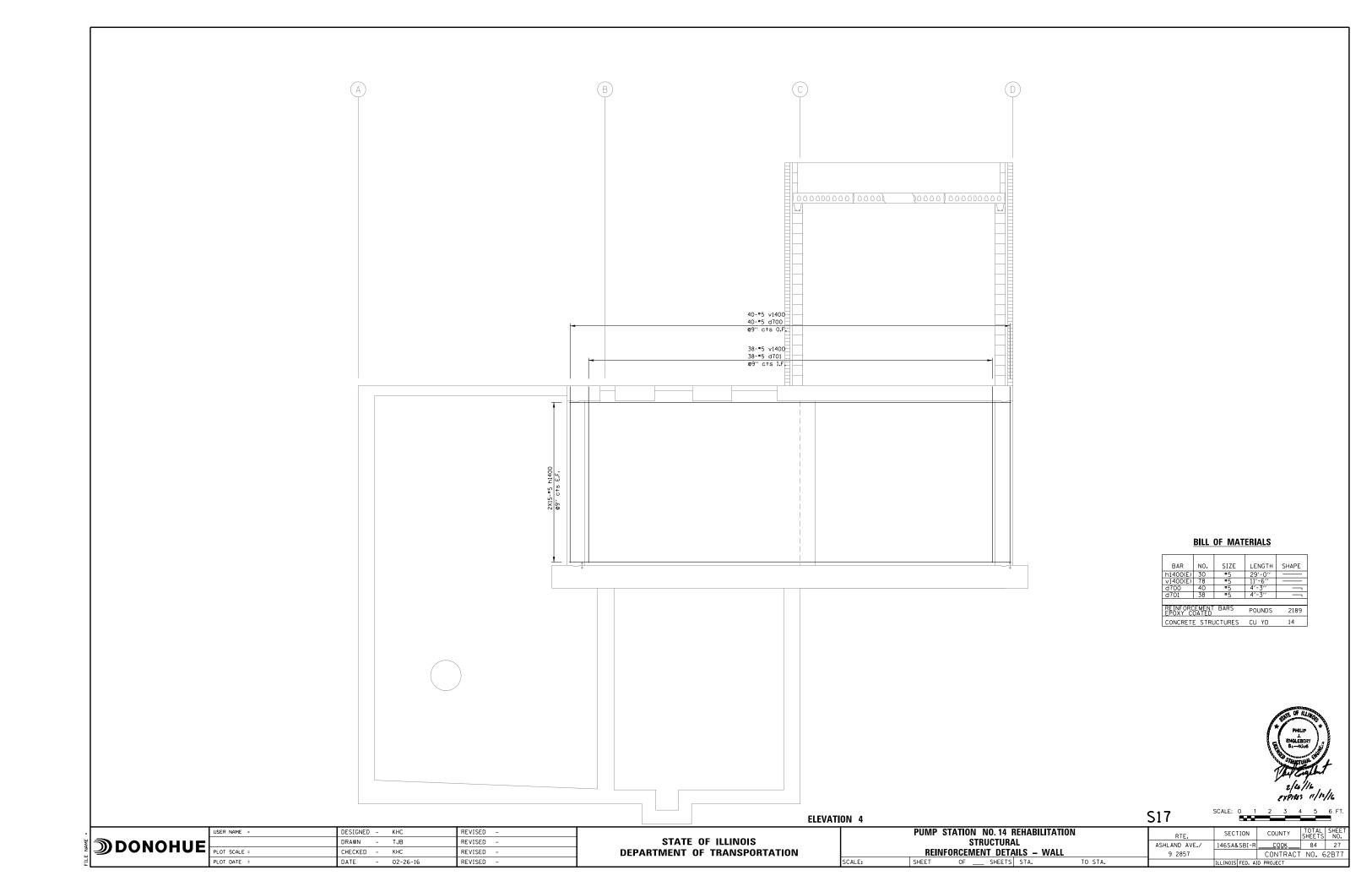
REINFORCEMENT BARS POUNDS 1383
EPOXY COATED
CONCRETE STRUCTURES CU YD 9

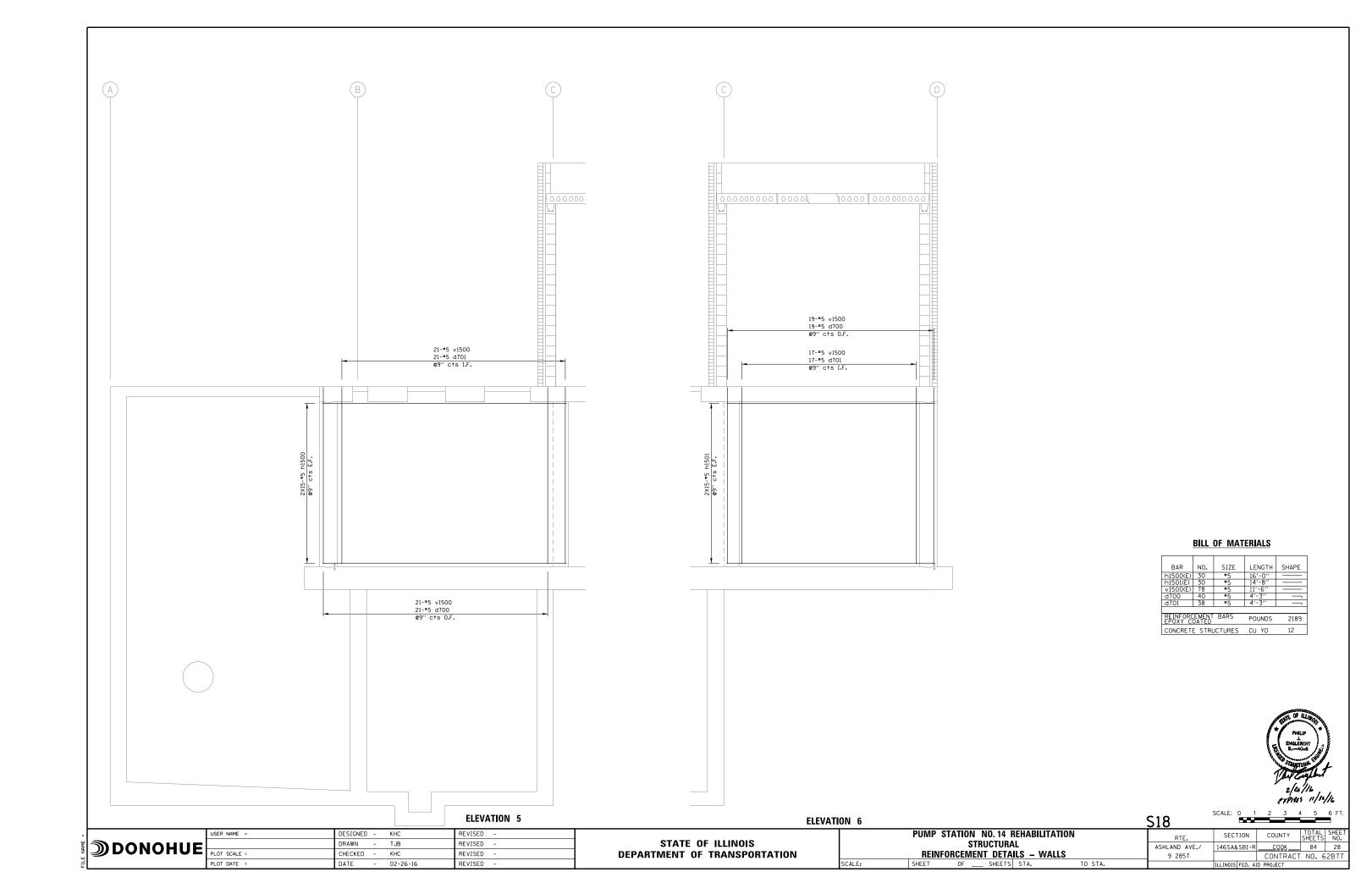
**ELEVATION 3** 

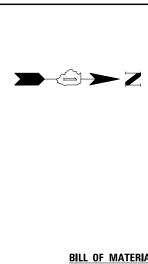
SCALE:

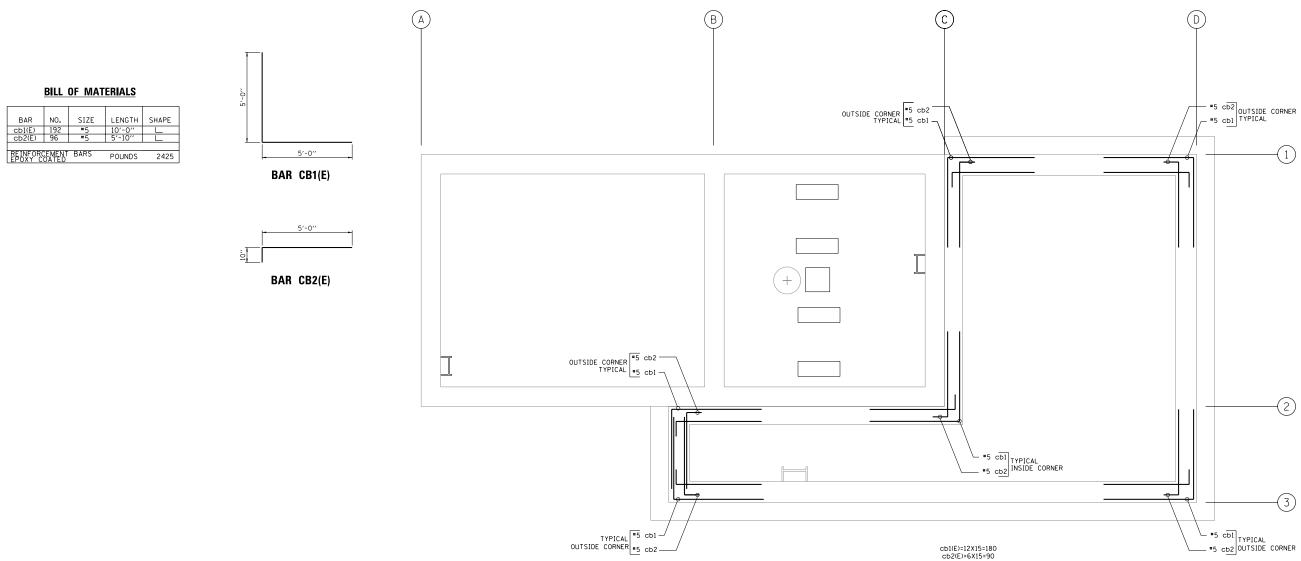
S16

	USER NAME =	DESIGNED	-	KHC	REVISED -
<b>DONOHUE</b>		DRAWN	-	TJB	REVISED -
# DONORGE	PLOT SCALE =	CHECKED	-	KHC	REVISED -
	PLOT DATE =	DATE	-	02-26-16	REVISED -









## EL 586.00 TO 596.80 WALL CORNER BAR

NOTE: ALL CORNER BAR SPACING AT 9" O.C. (MATCH WITH HORIZONTAL REINFORCING BARS)



|--|

SCALE: 0 1	2 3	4 5	6 F I. ■
SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
146SA&SBI-R	COOK	84	29
	CONTRACT	NO. 6	2B77
ILLINOIS FED. A	ID PROJECT		

"		USER
AME	<b>DONOHUE</b>	
ž	DONORGE	PLOT S
ĩ۱		PLOT C

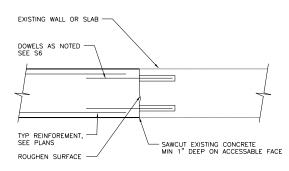
USEN NAME -	DESTONED	_	KIIC	NEVISED -
	DRAWN	-	TJB	REVISED -
PLOT SCALE =	CHECKED	-	KHC	REVISED -
PLOT DATE =	DATE	-	02-26-16	REVISED -

PUMP STATION NO. 14 REHABILITATION	RTE.	
STRUCTURAL REINFORCEMENT DETAILS – WALL CORNER BARS	ASHLAND AVE./ 9 2857	146
ALE: SHEET OF SHEETS STA. TO STA.		ILLI

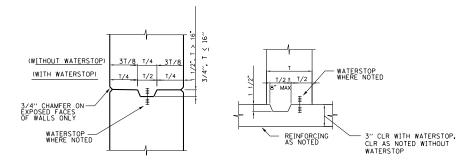
### MINIMUM REINFORCEMENT BAR SPLICE AND ANCHORAGE LENGTH (INCHES) EPOX **EPOXY COATED**

BAR SIZE		SPLICE IGTH	EMBEI LEN	OMENT GTH	COMPRESSION LAP LENGTH
	TOP BARS	OTHERS	TOP BARS	OTHERS	
3	29	23	23	18	12
4	39	30	30	23	15
5	48	38	38	29	19
6	58	45	45	35	23
7	84	65	65	51	26
8	96	75	75	58	30
9	110	84	84	65	34
10	123	94	94	74	38
11	136	105	105	81	42

- . TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.
- FOR BARS SPACED LESS THAN 6 BAR DIAMETER OC INCREASE LENGTH BY 25%.
- . WHEN LAPPING TWO DIFFERENT SIZE BARS USE THE LAP LENGTH OF THE SMALLER BAR UNLESS NOTED OTHERWISE.
- EMBEDMENT LENGTH IS MINIMUM LENGTH OF EMBEDMENT FOR STRAIGHT DOWELS WHERE END HOOK IS NOT SHOWN, UNLESS OTHERWISE NOTED.
- . COMPRESSION LAP LENGTH FOR VERTICAL COLUMN BARS ONLY.
- 6. HOOKS SHALL BE ACI STANDARD UNLESS OTHERWISE NOTED.



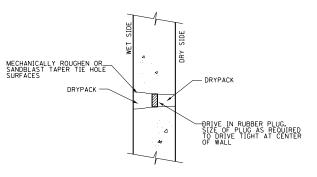
**NEW CONCRETE TO EXISTING CONCRETE DETAIL-SD1** 



**JOINT IN WALLS OR SLABS** 

BASE OF WALL

CONSTRUCTION JOINTS DETAIL-SD2

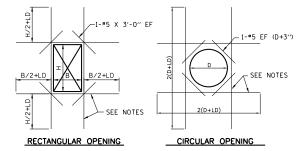


1. MIN DIA AT DRY SIDE = 1". TAPER HOLE SO THAT MINIMUM WET SIDE DIA = DRY SIDE DIA PLUS 1/4"

- CONSTRUCTION STEPS:

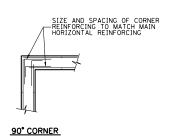
  1. SANDBLAST OR MECHANICALLY ROUGHEN TAPER TIE HOLE SURFACES AND BLOW TIE HOLE CLEAN WITH COMPRESSED AIR.
- 2. DRIVE RUBBER PLUG.
- 3. DRYPACK WITH NONSHRINK GROUT.

### FORM TIE THROUGH BOLT DETAIL-SD3

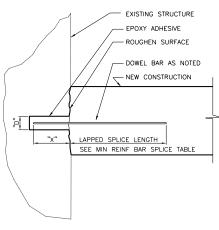


- 3. PLACE THE ADDED BARS IN THE SAME LAYERS AS THE WALL OR SLAB REINFORCING.

### ADDITIONAL REINFORCEMENT AT OPENINGS IN WALLS AND SLABS DETAIL-SD4



**HORIZONTAL REINFORCEMENT DETAIL-SD5** 



- 1. EMBEDMENT "X"=16 BAR DIAMETERS MIN.
- 2. HOLE DIAMETER "D"= DIAMETER + 1/4" MAX.

### DRILLED IN DOWEL DETAIL-SD6



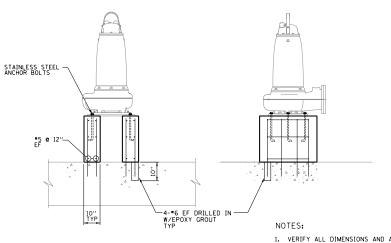
S20

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JHH.	<b>DONOHUE</b>	Pi
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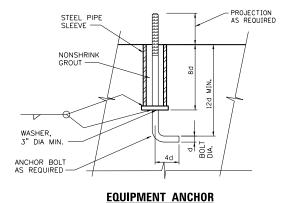
	USER NAME =	DESIGNED	-	KHC	REVISED -
•		DRAWN	-	TJB	REVISED -
•	PLOT SCALE =	CHECKED	-	KHC	REVISED -
	PLOT DATE =	DATE	-	02-26-16	REVISED -

**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION** 

			)				
PUMP STATION NO. 1	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
STRUCTU			ASHLAND AVE./	146SA&SBI-R	COOK	84	30
DETAII	9 2857		CONTRACT	. NO. 6	52B77		
SCALE: SHEET OF SHEE	TS STA.	TO STA.		ILLINOIS FED. AI	D PROJECT		

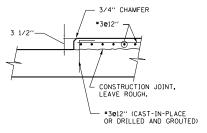


DRILLED IN STAINLESS STEEL ANCHOR BOLTS W/EPOXY GROUT



**BOLT DETAIL-SD9** 

N.T.S.



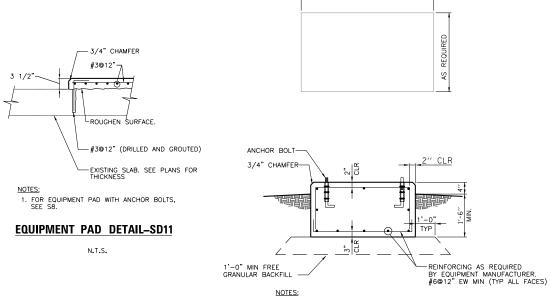
### **EQUIPMENT PAD DETAIL-SD10**

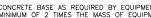
N.T.S.

- VERIFY ALL DIMENSIONS AND ANCHOR BOLTS WITH EXISTING EQUIPMENT.
- 2. VERIFY ALL DIMENSIONS AND ANCHOR BOLTS WITH EQUIPMENT MANUFACTURES.

### MAIN PUMP BASE DETAIL-SD7

N.T.S.





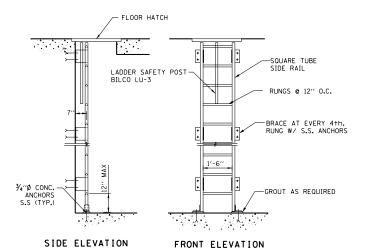
AS REQUIRED

1. CONCRETE BASE AS REQUIRED BY EQUIPMENT MANUFACTURER.
MINIMUM OF 2 TIMES THE MASS OF EQUIPMENT SUPPORTED OR
10 TIMES THE MASS OF MOVING PARTS, WHICHEVER IS GREATER.

### LOW FLOW PUMP BASE DETAIL-SD8

CONCRETE BASE

N.T.S.

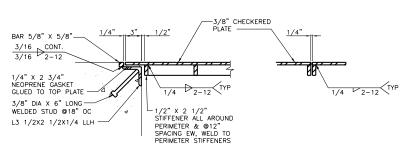


1. FIBERGLASS LADDER CAGE NOT SHOWN FOR CLARITY.

N.T.S.

FIBERGLASS LADDER DETAIL-SD13

SCALE:



- GRIND ALL EXPOSED EDGES AND WELDS SMOOTH.
   ALUMINUM TO HAVE MILL FINISH.
   SURFACES IN CONTACT WITH CONCRETE AND DISSIMILAR METAL TO BE COATED AS SPECIFIED.
- 4. WHERE NOTED, PROVIDE PERFERATED PLATE W/
  1/8" X 3/4" ROUND END SLOT, SIDE STAGGERED
  MIN 40% OPEN AREA

### ALUMINUM FLOOR COVER DETAIL-SD14

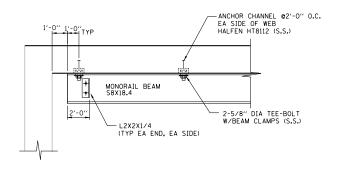
### **ENGINE GENERATOR PAD DETAIL—SD12**

EXPIRES 11/15/16

	USER NAME =	DESIGNED - KHC	REVISED -
DONOHUE		DRAWN - TJB	REVISED -
DONORGE	PLOT SCALE =	CHECKED - KHC	REVISED -
	PLOT DATE =	DATE - 02-26-16	REVISED -

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

	521				
PUMP STATION NO. 14 REHABILITATION	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
STRUCTURAL	ASHLAND AVE./	146SA&SBI-R	COOK	84	31
DETAILS	9 2857		CONTRACT	NO. 6	2B77
SHEET OF SHEETS STA. TO STA.		ILLINOIS FED. AII	PROJECT		-

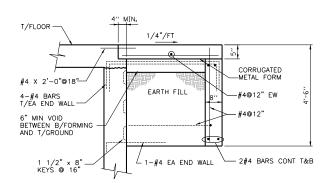


## TYPE 2 MONORAIL DETAIL—SD15

BONDING AGENT -NON-SHRINK, NON-METALLIC, CEMENTITIOUS GROUT LOCKSTOP WATERSTOP AS MANUF. BY GREENSTREAK ALL AROUND INSTALLED TO MANUF. RECOMMENDATION SECTION

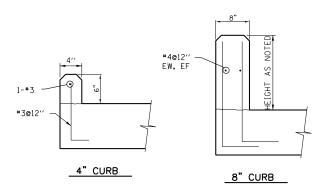
PIPE PENETRATION DETAIL—SD18

N.T.S.



NOTE: WHERE STOOP LENGTH NOTED IS GREATER THAN 6'-O', PROVIDE ADDITIONAL VERTICAL WALL.

### **DOOR STOOP DETAIL-SD16**



CURBS DETAIL—SD17



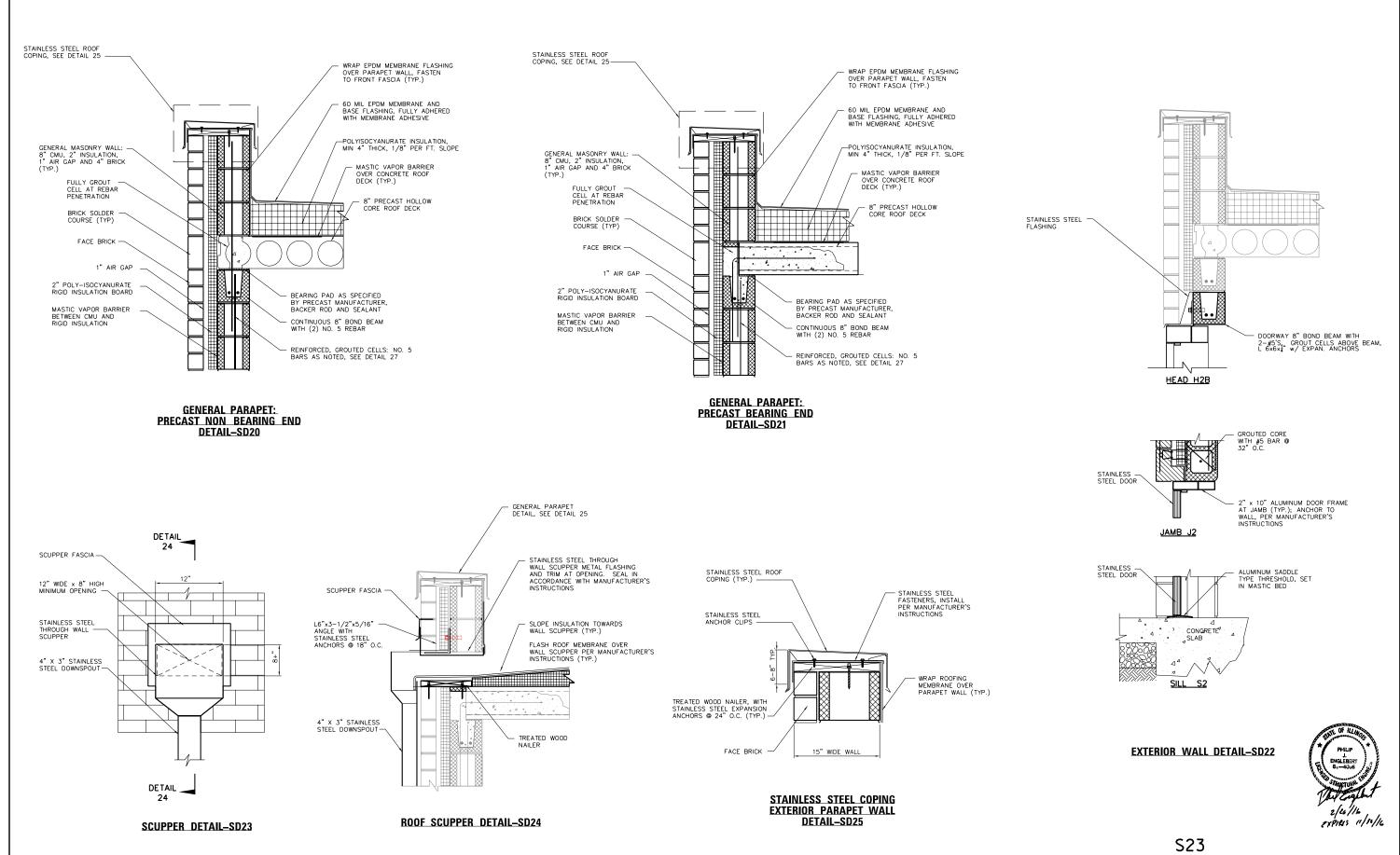


S22

	USER NAME =	DESIGNED - KHC	REVISED -
<b>DONOHUE</b>		DRAWN - TJB	REVISED -
DONOUSE	PLOT SCALE =	CHECKED - KHC	REVISED -
	PLOT DATE =	DATE - 02-26-16	REVISED -

STAT	E 0	F ILLINOIS
DEPARTMENT	0F	TRANSPORTATION

	PUMP S		NO. 14 P	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.			
		S	TRUCTURA	ASHLAND AVE./	146SA&SBI-R	COOK	84	32			
			DETAILS		9 2857		CONTRACT	NO.	62B77		
SCALE:	SHEET	OF .	SHEETS		ILLINOIS FED. AI	D PROJECT					



DONOHUE

USER NAME =

DRAWN REVISED PLOT SCALE = CHECKED REVISED PLOT DATE = DATE 02-26-16 REVISED

REVISED -

DESIGNED

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

SCALE:

PUMP STATION NO. 14 REHABILITATION SECTION RTE. **STRUCTURAL** ASHLAND AVE./ **DETAILS** 9 2857 SHEET OF \_\_\_\_ SHEETS STA. TO STA.

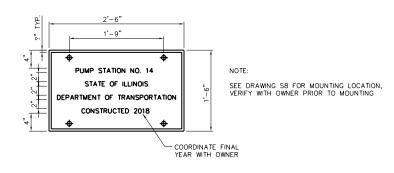
COUNTY SHEETS NO. 84 33 146SA&SBI-R COOK CONTRACT NO. 62B77

	ROOM FINISH SCHEDULE													
ROOM NAME	F	LOOR		WA	<b>NLL</b>		CEIL	ING	REMARKS					
	MATERIAL	FINISH	WALL BASE	WALL	FINISH N		MATERIAL	FINISH						
ELECTRICAL ROOM: EL. 597.80	CONCRETE	EPOXY PAINT SEE SPECS	GLAZED CMU	GLAZED CMU AND CONCRETE	GLAZED CMU: COLOR: SEE REMARKS	CONCRETE: RUB SMOOTH EPOXY PAINT SEE REMARKS	PRECAST	EPOXY PAINT SEE REMARKS	GLAZED BASE: ASTRAGLAZE "BEIGE" GLAZED WALL: ASTRAGLAZE "BEIGE" CONCRETE FLOOR: "GRAY" CEILING "WHITE"					
PUMP ROOM: EL. 597.80	CONCRETE	EPOXY PAINT SEE SPECS	GLAZED CMU	GLAZED CMU AND CONCRETE	GLAZED CMU: COLOR: SEE REMARKS	CONCRETE: RUB SMOOTH EPOXY PAINT SEE REMARKS	PRECAST	EPOXY PAINT SEE REMARKS	GLAZED BASE: ASTRAGLAZE "BEIGE" GLAZED WALL: ASTRAGLAZE "BEIGE" CONCRETE FLOOR: "GRAY" CEILING "WHITE"					

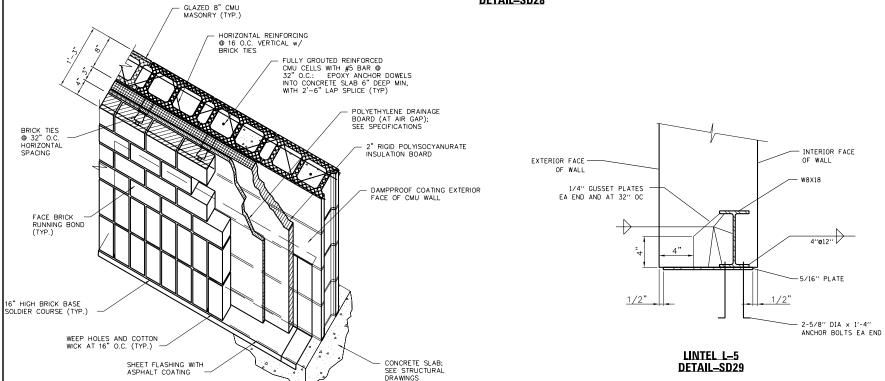
	DOOR SCHEDULE														
NO. (ROOM NO.)		WALL DETAILS			HARDWARE REQUIRED	REMARKS									
							DOOR	FRAME		HEAD	JAMB	SILL	LINTEL		
D1	PUMP ROOM EL. 597.80	DOORS: (2) 3'-0" x 7'-10" x 1-3/4" FRAME: 6'-4"W x 8'-0"H	EXTERIOR	NONE	А	F1	STAINLESS STEEL	STAINLESS STEEL	MILL FINISH	H2B	J2	S2	L5	SEE SPECIFICATIONS	
D2	PUMP ROOM EL. 597.800	DOORS: (2) 3'-0" x 7'-10" x 1-3/4" FRAME: 6'-4"W x 10'-0"H	EXTERIOR	NONE	В	F2	STAINLESS STEEL	STAINLESS STEEL	MILL FINISH	H2B	J2	S2	L5	SEE SPECIFICATIONS	TRANSOM WITH LOUVERS AND DAMPERS (SEE MECHANICAL DRAWINGS)

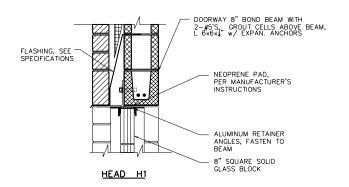
### NOTE:

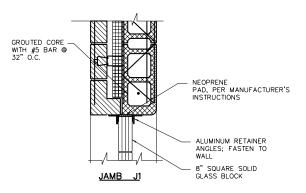
- FIELD VERIFY ALL OPENING DIMENSIONS FOR DOORS AND FRAMES PRIOR TO FABRICATION AND INSTALLATION.
- COORDINATE AND VERIFY LOUVER OPENING SIZE WITH MECHANICAL, PRIOR TO FABRICATION AND INSTALLATION OF DOORS AND FRAMES.
- 3. ALL MISCELLANEOUS STEEL AND STEEL FRAMING TO BE HOT DIP GALVANIZED. FINISH PAINTED AFTER INSTALLATION.
- . ALL ALUMINUM DOORS AND FRAMES TO BE CLEAR ANODIZED FINISH. MISCELLANEOUS STEEL TO BE HOT DIP GALVANIZED AND FINISH PAINTED IN COLOR AS SELECTED BY ENGINEER.
- 5. ALL HOLLOW METAL (STEEL) DOORS AND FRAMES TO BE FINISHED PAINTED AFTER INSTALLATION. COLOR AS INDICATED IN SCHEDULE.

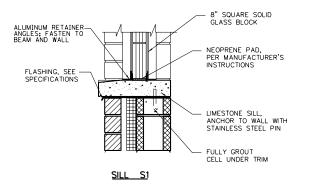


## IDENTIFICATION PLATE DETAIL—SD28









GLASS BLOCK WINDW DETAIL—SD30



S24

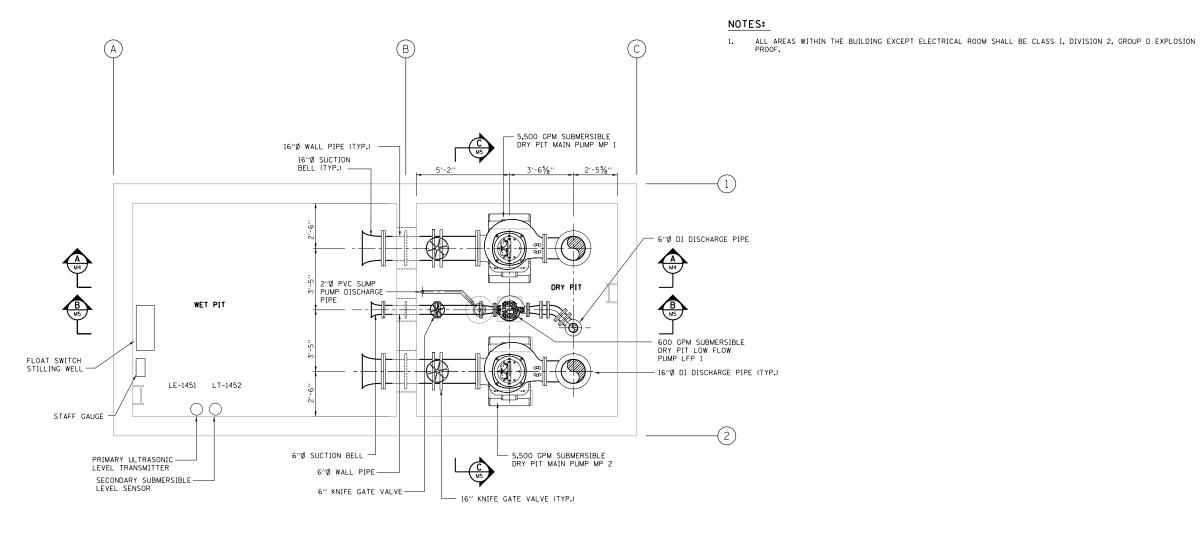
	MASONRY WALL GENE DETAIL—SD27	RAL			
	USER NAME =	DESIGNED - KHO	RE	REVISED -	
DONORILE		DRAWN - TJE	RE RE	REVISED -	STA
DONOHUE	PLOT SCALE =	CHECKED - KHC	RE	REVISED -	DEPARTMEN
	0. 07 0.75	0.75			

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCALE:

					<u> </u>							
PUMP S		NO. 14 F		LITATION	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.			
		RUCTURA	L		ASHLAND AVE./	146SA&SBI-R	COOK	84	34			
		<u>DETAILS</u>			9 2857		CONTRACT	. NO. 6	2B77			
SHEET	OF	SHEETS	STA.	TO STA.		ILLINOIS FED. AI	D PROJECT					





PLAN EL. 571.23

M1	SCALE:	0	1	2	3	4 5	6 FT.
RTE.	SEC	TION		COU	NTY	TOTAL SHEET:	SHEET NO.
ASHLAND AVE./	146SA	&SBI-F	R.	CC	<u> 00K</u>	84	35
9 2857				CON	TRAC	T NO.	62B77
	THE TWO IS	FED A	ATE	PPO IE	CT		

SCALE: 0 1 2 3 4 5 6 FT.

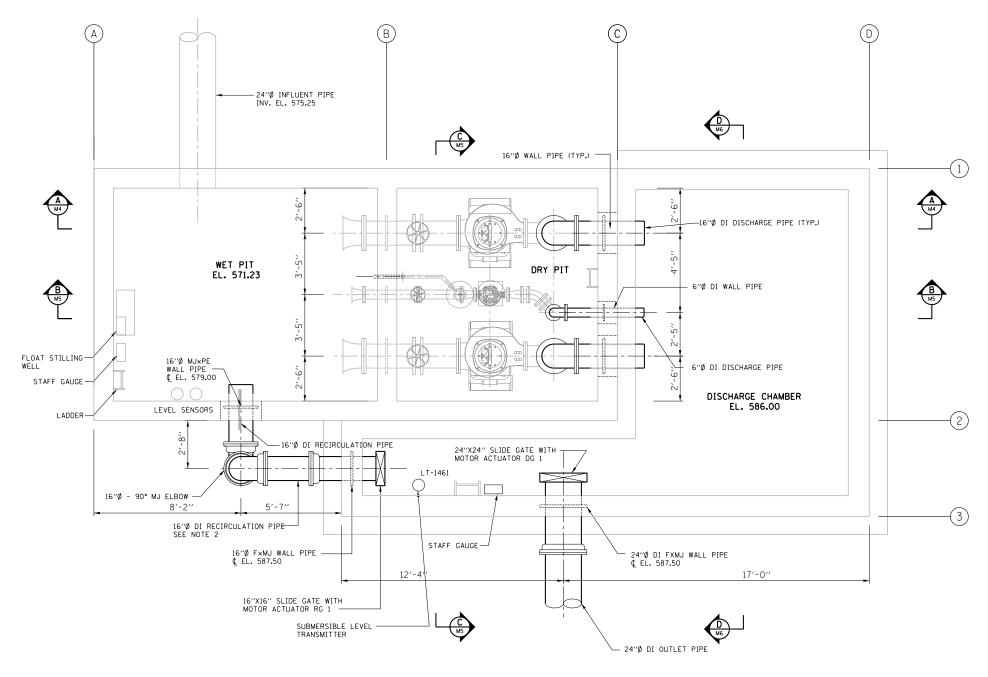
	USER NAME =	DESIGNED -	KHC	REVISED -
DONOHUE	16	DRAWN -	LRE	REVISED -
	PLOT SCALE =	CHECKED -	PS	REVISED -
	PLOT DATE =	DATE -	02-26-16	REVISED -

TO STA.

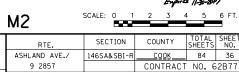


### NOTES:

- 1. ALL AREAS WITHIN THE BUILDING EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 2, GROUP D EXPLOSION PROOF.
- 2. PROVIDE RESTRAINED JOINTS AND PIPE SUPPORTS AS NECESSARY FOR 16" DIAMETER RECIRCULATION PIPE.



PLAN EL. 571.23 & 586.00



· <b> </b>		USER NAME =	DESIGNED -	KHC	REVISED -
<b>DONOHUE</b>		DRAWN -	LRE	REVISED -	
	PLOT SCALE =	CHECKED -	PS	REVISED -	
177		PLOT DATE =	DATE -	02-26-16	REVISED -

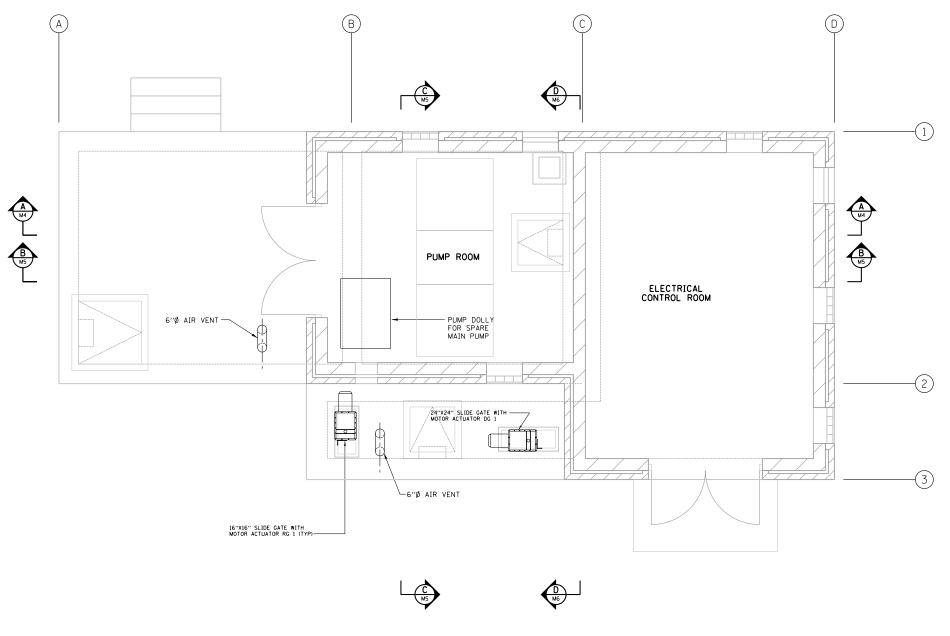
STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

	PUMP STATION NO. 14 REHABILITATION					RTE.	SECTION	СО	
MECHANICAL PLAN					ASHLAND AVE./ 9 2857	146SA&SBI-R	COI		
	SCALE:	SHEET	OF _	SHEETS	STA.	TO STA.		ILLINOIS FED. AI	

### NOTES:

1. ALL AREAS WITHIN THE BUILDING EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 2,GROUP D EXPLOSION PROOF.





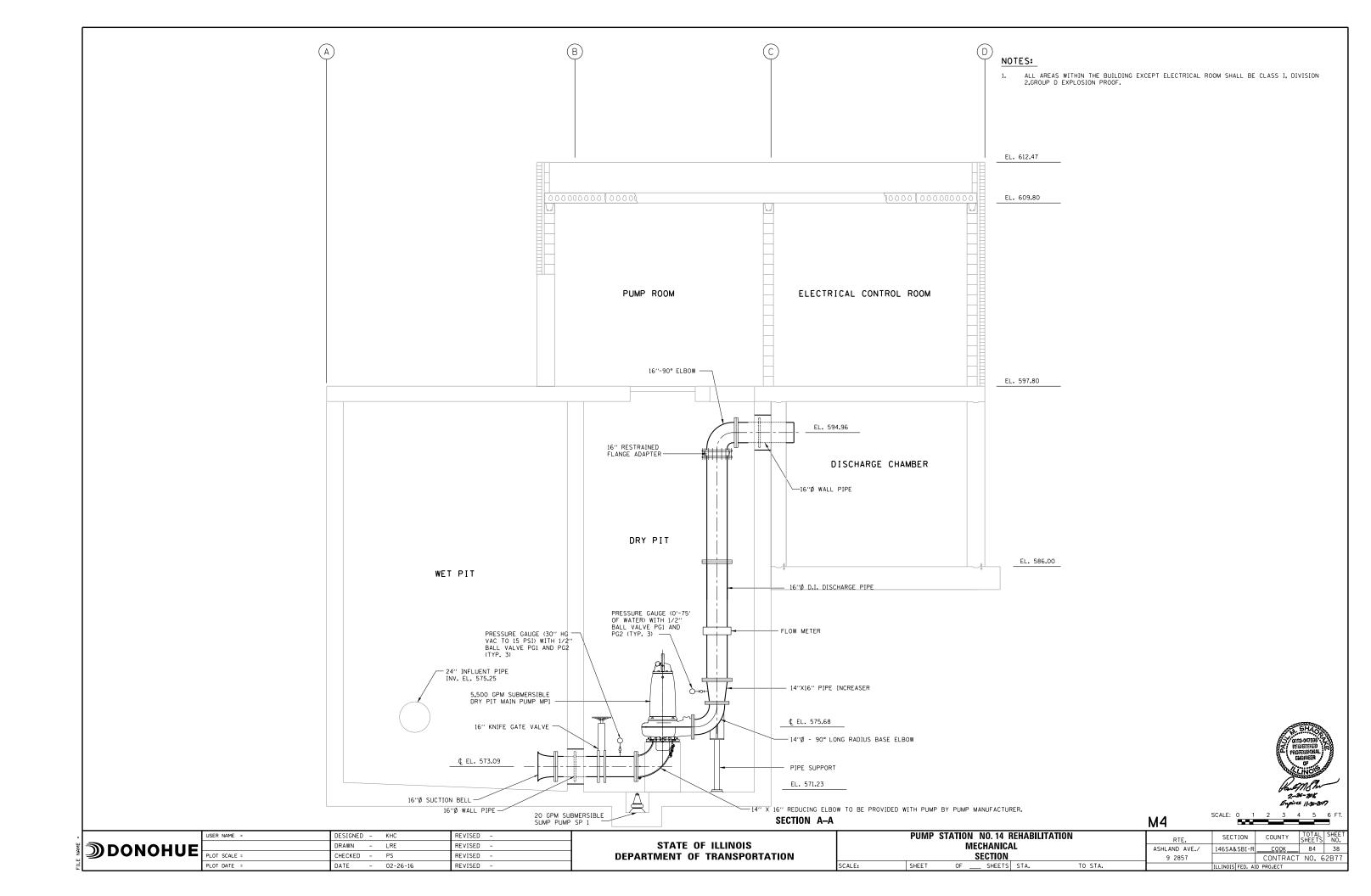
PLAN EL. 597.80

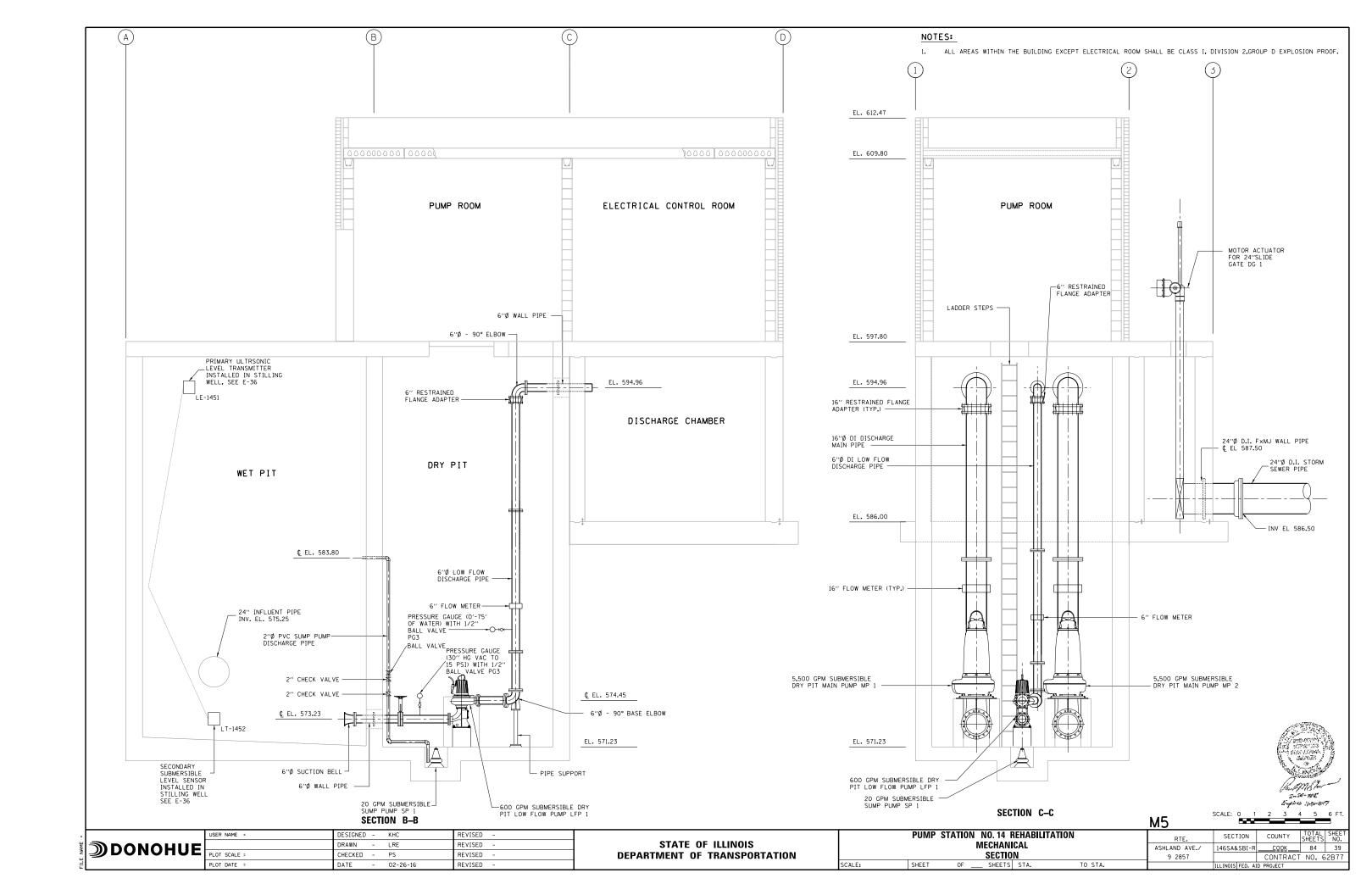


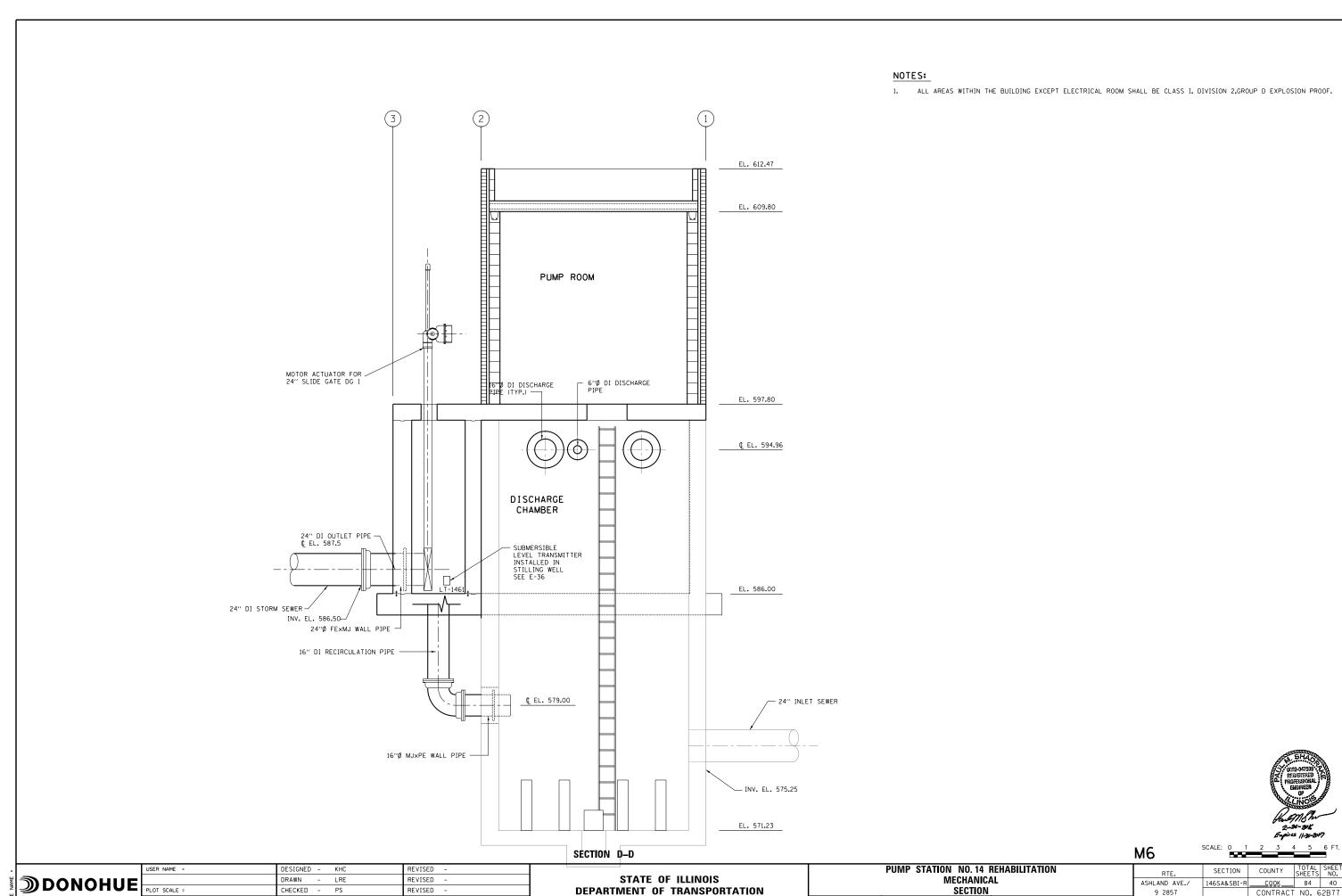
		USER NAME =	DESIGNED	-	KHC	REVISED -	i
Ä	<b>DONOHUE</b>		DRAWN	-	LRE	REVISED -	ĺ
ž	<b>DONORUE</b>	PLOT SCALE =	CHECKED	-	PS	REVISED -	i
Ē		PLOT DATE =	DATE	-	02-26-16	REVISED -	ĺ

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

	PUMP S		NO. 14 R		ITATION	RTE.	SECTION	COUNT
		IVI	ECHANICA	\L		ASHLAND AVE./	146SA&SBI-	
			PLAN			9 2857		CONT
SCALE:	SHEET	OF _	SHEETS	STA.	TO STA.		ILLINOIS FED.	AID PROJECT







PLOT DATE =

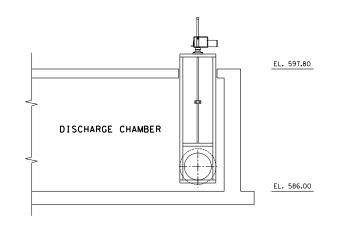
DATE - 02-26-16

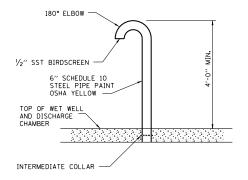
REVISED

SECTION
OF \_\_\_ SHEETS STA. 9 2857 SCALE: SHEET TO STA.

 COOK
 84
 40

 CONTRACT
 NO. 62B77





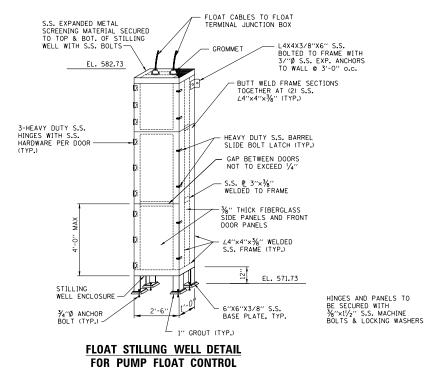
### AIR VENT PIPE DETAIL

NOT TO SCALE

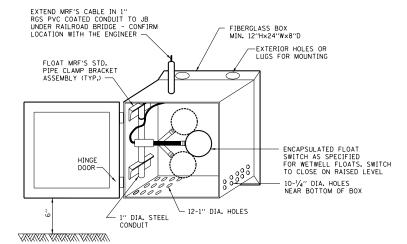
NOTE:

1. AIR VENT PIPES SEE M3



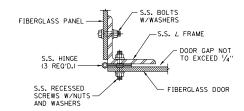


N.T.S.



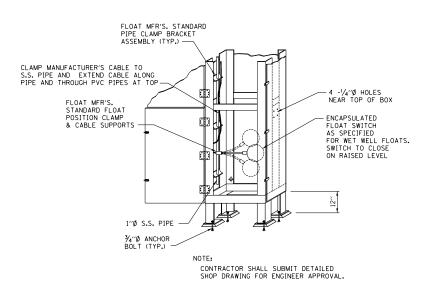
#### PAVEMENT FLOODED FLOAT ALARM BOX

NOT TO SCALE



# STAINLESS STEEL DOOR HINGE DETAIL

N.T.S.



EL. 583.23

ENLARGED FLOAT DETAIL IN STILLING WELL ENCLOSURES

N.T.S.



М7

	USER NAME =	DESIGNED - YTL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION  SCALE:	PUMI	RTE.	SECTION	COUNTY S	TOTAL SHEET SHEETS NO.
<b>DONOHUE</b>		DRAWN - LRE	REVISED -			ASHLAND AVE./	146SA&SBI-R	COOK_	84 41
	PLOT SCALE = PLOT DATE =	CHECKED - PS  DATE - 02-26-16	REVISED - REVISED -		SCALE: SHEET	DETAILS  OF SHEETS STA. TO STA.	9 2857	ILLINOIS FED. A	CONTRACT ID PROJECT

	PUMPING OPERATION RANGES WITH RISING WATER											
SCADA FUNCTION	ELEVATION	LEVEL ABOVE WET PIT FLOOR	FLOAT FUNCTION									
	(FT)	(FT)										
HIGH WATER ALARM	581.23	10.0	HIGH WATER ALARM									
START LAG MAIN PUMP	580.23	9.0	START MAIN PUMP 2									
START LEAD MAIN PUMP & STOP LOW FLOW PUMP	579.73	8.5	START MAIN PUMP 1 STOP LOW FLOW PUMP									
START LOW FLOW PUMP	575.23	4.0	START LOW FLOW PUMP									
PAVEMENT FLOOD ALARM	584.23	13.0	PAVEMENT FLOOD ALARM									

PUMPING OPERATION RANGES WITH FALLING WATER										
SCADA FUNCTION	ELEVATION	LEVEL ABOVE WET PIT FLOOR	FLOAT FUNCTION							
	(FT)	(FT)								
STOP MAIN PUMPS AND START LOW FLOW PUMP	575.73	4.5	STOP MAIN PUMPS AND START LOW FLOW PUMP							
STOP LOW FLOW PUMP	574.73	3.5	STOP LOW FLOW PUMP							
LOW WATER ALARM	574.23	3.0	LOW WATER ALARM							

		EQUI	PMENT	SCH	EDULE					
		STICS		PUMP						
ITEM	DESCRIPTION	LOCATION	KW	HP	RPM	VOLTS	PHASE	HZ	CAPACITY (GPM)	HEAD (FT)
MP 1	MAIN PUMP #1	DRY PIT	45	60	885	480	3	60	5,500	28
MP 2	MAIN PUMP #2	DRY PIT	45	60	885	480	3	60	5,500	28
LFP 1	LOW FLOW PUMP #1	DRY PIT	4.1	5 <b>.</b> 5	1800	480	3	60	600	23
SP 1	SUMP PUMP #2	DRY PIT	0.37	0.5	1750	480	3	60	20	18
DG 1	DISCHARGE SLIDE GATE ACTUATOR	EXTERIOR	0.75	1		480	3	60		
RG 1	RECIRCULATION SLIDE GATE ACTUATOR	EXTERIOR	0.75	1		480	3	60		
	TROLLEY MOTOR			5		480	3	60		
	HOIST MOTOR			0.5		480	3	60		

SCALE:

#### NOTES:

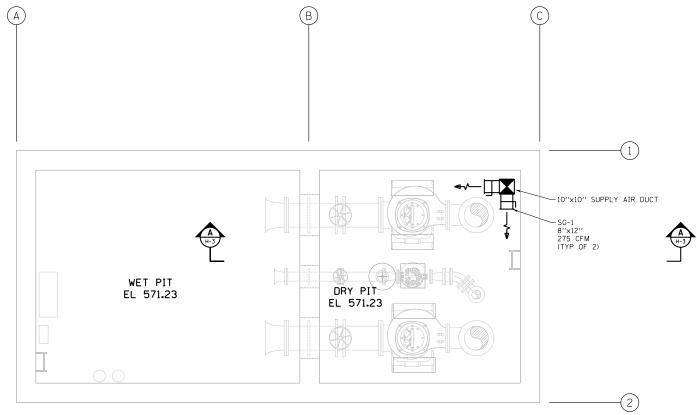
- 1. THE DESIGN OF THE PUMP STATION HAS BEEN BASED ON A SPECIFIC PUMP. OTHER PUMPS PRODUCING THE SAME HYDRAULIC CHARACTERISTIC ARE ACCEPTABLE. IT SHALL BE THE CONTRACTOR'S RESPONSIBLITY TO MAKE ALL ADJUSTMENTS TO THE STATION DESIGN REQUIRED TO ADOPT ITS FINAL SELECTED PUMPS AT NO ADDITIONAL COST.
- 2. EQUIPMENT SHALL BE CLASS I, DIV. 2 GROUP D EXPLOSION PROOF.
- 3. MAIN PUMP FAIL TO STOP ALARM ON FALLING WATER SHALL BE GENERATED IF A PUMP IS RUNNING AND LOW WATER LEVEL FLOAT IS ACTIVATED INTERNAL IN PLC AND WILL GENERATE AN ALARM AT SCADA WHICH WILL COMMUNICATE A COMMON ALARM TO AEGIS.



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IVI	•

	USER NAME =	DESIGNED -	YTL	REVISED -
<b>DONOHUE</b>		DRAWN -	LRE	REVISED -
# DONORUE	PLOT SCALE =	CHECKED -	PS	REVISED -
	PLOT DATE =	DATE -	02-26-16	REVISED -





### NOTES:

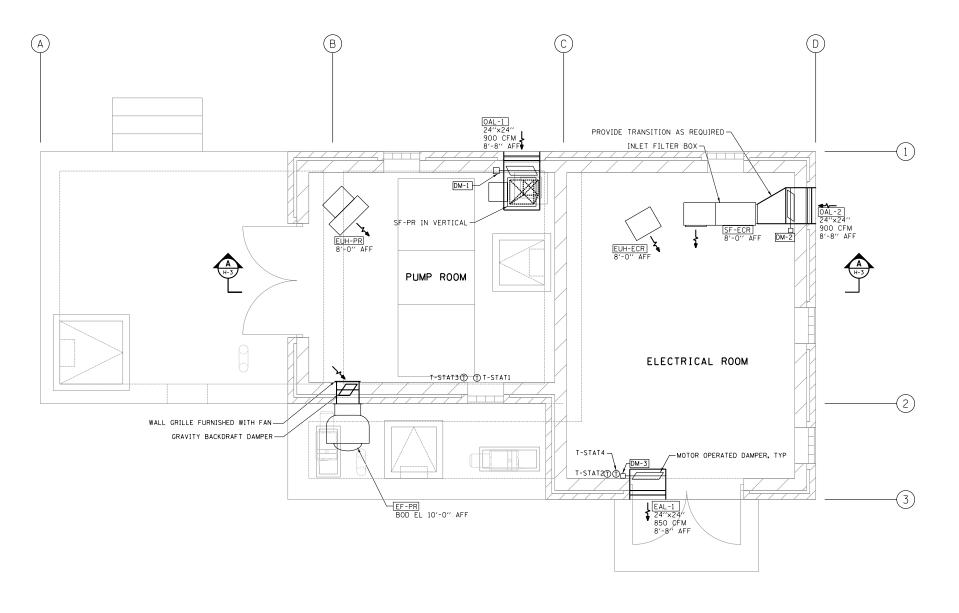
- ALL AREAS WITHIN BUILDING EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 2, GROUP D EXPLOSION PROOF.
- COORDINATE EQUIPMENT LOCATIONS AND DUCTWORK ROUTING WITH ELECTRICAL CONDUITS. SEE DRAWINGS E25 AND E30.

PLAN EL. 571.23



							H1	SCALE: 0 1 2 3 4 5 6 FT.
Г	_	USER NAME =	DESIGNED - JLW	REVISED -		PUMP STATION NO.14 REHABILITATION	RTF.	SECTION COUNTY TOTAL SHEET
AM -	DONOHUE		DRAWN - JLW	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	MECHANICAL	ASHLAND AVE./	146SA&SBI-R <u>COOK</u> 84 43
Ζ.		PLOT SCALE =	CHECKED - EPC	REVISED -		HVAC PLAN	9 2857	CONTRACT NO. 62B77
Ē.		PLOT DATE =	DATE - 02-26-16	REVISED -		SCALE: SHEET OF SHEETS STA. TO STA.		ILLINOIS FED. AID PROJECT





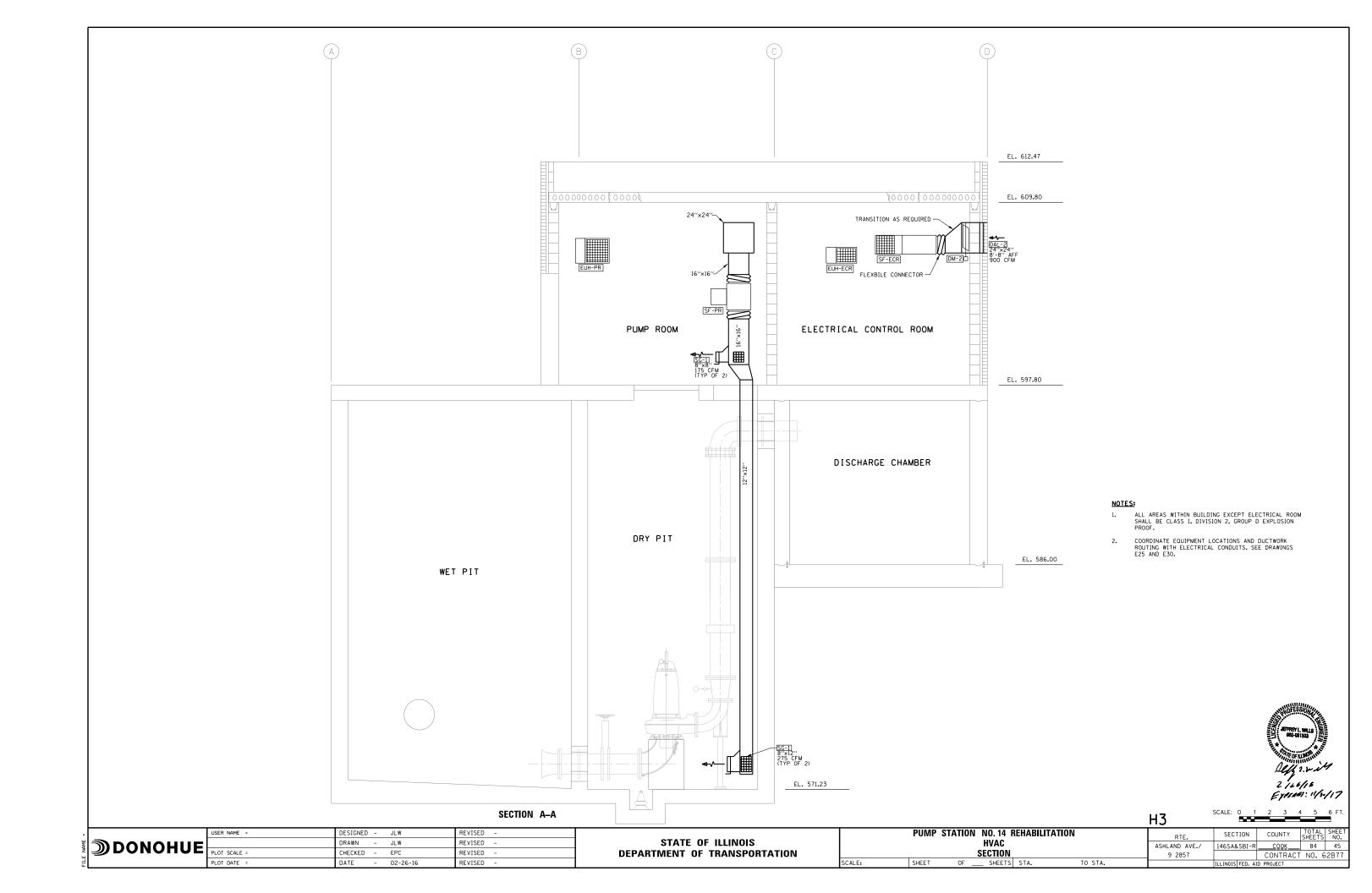
### NOTES:

- 1. ALL AREAS WITHIN BUILDING EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 2, GROUP D EXPLOSION PROOF.
- 2. COORDINATE EQUIPMENT LOCATIONS AND DUCTWORK ROUTING WITH ELECTRICAL CONDUITS. SEE DRAWINGS E25 AND E30.

PLAN EL.597.80



								H2	SCALE: 0 1	2 3 4	4 5 6 FT.
	USER NAME =	DESIGNED -	JLW	REVISED -			PUMP STATION NO. 14 REHABILITATION	RTE.	SECTION	COUNTY	TOTAL SHEET SHEETS NO.
<b>DONOHUE</b>		DRAWN -	JLW	REVISED -	STATE OF ILLINOIS		MECHANICAL	ASHLAND AVE./	146SA&SBI-R	COOK	84 44
<b>DONOTION</b>	PLOT SCALE =	CHECKED -	EPC	REVISED -	DEPARTMENT OF TRANSPORTATION		HVAC PLAN	9 2857		CONTRACT	NO. 62B77
	PLOT DATE =	DATE -	02-26-16	REVISED -		SCALE:	SHEET OF SHEETS STA. TO STA.		ILLINOIS FED. AI	PROJECT	



	DAMPERS SCHEDULE											
		ACT	UATOR			251112112						
ITEM	SIZE	TYPE	VOLTAGE	PH	CONFIGURATION	REMARKS						
DM-1	DM-1 24"x24" NEMA 7 ELECTRIC		115	1	INTAKE	INSULATED BLADE TYPE PROVIDE WITH LIMIT SWITCH LM-1 ASSOCIATED WITH LOUVER OAL-1						
DM-2	24''×24''	NEMA 2 ELECTRIC	115	1	INTAKE	INSULATED BLADE TYPE PROVIDE WITH LIMIT SWITCH LM-2 ASSOCIATED WITH LOUVER OAL-2						
DM-3	24''×24''	NEMA 2 ELECTRIC	115	1	RELIEF	INSULATED BLADE TYPE PROVIDE WITH LIMIT SWITCH LM-3 ASSOCIATED WITH LOUVER EAL-1						

	HEATING AND VENTILATION CONTROLS SCHEDULE											
			VENTILATION									
			AUTOMATIC									
AREA	HEATING/ VENTILATION	MANUAL	THERMOSTAT	COMBUSTIBLE GAS SENSOR	LIGHT INTERLOCK SWITCH							
PUMP ROOM AND DRY PIT	THERMOSTAT	YES	YES	YES	YES							
ELECTRICAL ROOM	THERMOSTAT	YES	YES	NA	NA							

	THERMOSTAT SCHEDULE									
THERMOSTAT	NEMA RATING	LOCATION	EQUIPMENT SERVED							
T-STAT1	7	PUMP ROOM	EF-PR, SF-PR							
T-STAT2	4X	ELECTRICAL CONTROL ROOM	SF-ECR							
T-STAT3	7	PUMP ROOM	EUH-PR. FURNISHED WITH UNIT							
T-STAT4	4X	ELECTRICAL CONTROL ROOM	EUH-ECR. FURNISHED WITH UNIT							

	FAN SCHEDULE SECTION 15E														
					AIR	FLOW DA	TA				EL	ECTRIC.	AL DA	AΤΑ	
TAG	MANUF.	MODEL		SERVICE	CFM	(IN WC)	ВНР	F A N RPM	DRIVE	SONES	HP/ WATTS	VOLT	PH.	RPM	REMARKS
EF-PR	GREENHECK	CWB-141	CENTRI WALL	EXHAUST	900	0.25	0.09	725	BELT	5	1/4	115	1	1725	1,2,3,4,5,6,7
SF-ECR	GREENHECK	BSQ-100	CENTRI INLINE	SUPPLY	900	0.40•	0.19	1365	BELT	10	1/4	115	1	1725	1,2,8,9,10,11
SF-PR	GREENHECK	BSQ-120	CENTRI INLINE	SUPPLY	900	0.35	0.15	1065	BELT	8	1/4	115	1	1725	1,2,3,4,8,9
3. 4. 5. 6. 7. 8. 9.	1. = ALUMINUM CONSTRUCTION. 2. = STAINLESS STEEL FAN SHAFT AND FASTENERS. 3. = EXPLOSION PROOF MOTOR 4. = SPARK RESISTANT FAN CONSTRUCTION. 5. = ALUMINUM BIRDSCREEN. 6. = GRAVITY OPERATED DAMPER. 7. = 15"x15" ALUMINUM WALL GRILLE. 8. = MOTOR COVER AND BELT GUARD. 9. = SPRING BASE, HANGING VIBRATION AND NEOPRENE ISOLATORS. 10. = FILTERED INLET WITH WASHABLE ALUMINUM FILTERS. 11. = EXTERNAL STATIC PRESSURE (ESP*) INCLUDES LOSSES EXTERNAL TO THE FAN SYSTEM ONLY, MANUFACTURE SHALL INCLUDE ALL LOSSES ASSOCIATED WITH FILTERS AND HOUSING FOR FAN SELECTION, (ADPROX, 0.50-IN W.C. TSP)														

SCALE:

	ELECTRIC HEATER SCHEDULE												SECTION 15E		
	MOUNT. AIR DATA ELECTRICAL DATA MOTOR DATA								٨						
TAG	MANUF.	MODEL	TYPE	OUTPUT (MBH)	HEIGHT (FT)	CFM	THROW (FT)	ΔŢ ( F )	ΚW	VOLT/•	AMP	HP	VOLT/*	RPM	REMARKS
EUH-PR	MARLEY	PX750	EXP PROOF	25.5	8'-0''	840			7.5	460/3	9.7	1/2	460/3	1725	1,2,3,4,6
EUH-ECR	MARLEY	PUH5	PROP UNIT	17.0	8'-0''	270			5.0	460/3	7.8	1/2	460/3	1725	2,3,5

- 1. = EXPLOSION PROOF UNIT
  2. = CONTROLS AS SPECIFIED.
  3. = MANUFACTURES MOUNTING ACCESSORIES.
  4. = WALL MOUNTED EXPLOSION PROOF THERMOSTAT.
  5. = WALL MOUNTED THERMOSTAT.
  6. = EPOXY COATED.

	WALL LOUVER SCHEDULE SECTION 15E													
TAG	MANUF.	MODEL	SERVICE	CFM	WIDTH (IN)	HEIGHT	DEPTH (IN)	MAX. APD (IN WC)	MAX. FREE AREA VEL. (FPM)	REMARKS				
OAL-1	GREENHECK	ESD-403	INTAKE	900	24	24	4	0.09	550	1,2,4,5				
OAL-2	GREENHECK	ESD-403	INTAKE	900	24	24	4	0.09	550	1,2,3,5				
EAL-1	GREENHECK	ESD-403	RELIEF	900	24	24	4	0.09	550	1,2,3,5				

- 1. = ALUMINUM BIRDSCREEN.
  2. = EXTENDED SILL.
  3. = INSULATED BLADE MOTOR OPERATED DAMPER.
  4. = EXPLOSION PROOF INSULATED BLADE MOTOR OPERATED DAMPER.
  5. = KYNAR FINISH.

	AIR INLET AND OUTLET SCHEDULE SECTION 1											
TAG	MANUF.	MODEL	SERVICE	MAX. APD. (IN.W.C)	MAX. NC	PATTERN	FINISH	MATERIAL	REMARKS			
EG-1	AJ MANUF	550 H	EXHAUST	0.10	30	SD	MATTE	SST				
SG-1	AJ MANUF	250	SUPPLY	0.10	35	DD	MATTE	SST				

DD = 3/4" BLADE, DOUBLE DEFLECTION.
SD = 3/4" BLADE, SINGLE DEFLECTION, O DEGREE BLADE ANGLE.
ANOD = ANODIZED FINISH.

### ELECTRICAL CONTROL ROOM VENTILATION CONTROL

SUPPLY FAN (SF-ECR), RELIEF LOUVER (EAL-1) AND OUTSIDE AIR LOUVER (OAL-2) SHALL BE CONTROLLED BY H-O-A SWITCH AND SPACE COOLING THERMOSTAT (T2) SET AT (85%, ADJUSTABLE).

AUTO MODE: ON CALL FOR COOLING, MOTORIZED DAMPERS (DM-2 AND DM-3) SHALL OPEN. UPON PROOF OF OPENING, SUPPLY FAN (SF-ECR) SHALL ENERGIZE AND RUN CONTINUOUSLY. UPON SATISFACTION OF SPACE COOLING REQUIREMENTS, FAN SHALL STOP AND DAMPERS SHALL CLOSE.

OFF MODE: SUPPLY FAN (SF-ECR) OFF AND DAMPERS (DM-2 AND DM-3) CLOSED.

HAND MODE: SUPPLY FAN (SF-ECR) RUN CONTINUOUSLY AND DAMPERS (DM-2 AND DM-3) OPEN.

UNDER ALL MODES OF OPERATION, FIRE ALARM SIGNAL SHALL DISABLE ALL VENTILATION EQUIPMENT.

### PUMP ROOM AND DRY PIT VENTILATION

SUPPLY FAN (SF-PR), EXHAUST FAN (EF-PR) AND OUTSIDE AIR LOUVER (OAL-1) SHALL BE CONTROLLED BY H-O-A SWITCH.

AUTO MODE:
MOTORIZED DAMPER (DM-1) SHALL OPEN AND PROVE OPEN, THAN SUPPLY FAN (SF-PR) AND EXHAUST FAN (EF-PR) SHALL ENERGIZE
AND RUN CONTINUOUSLY UNDER ANY OF THE FOLLOWING CONDITIONS:

- 1. WHEN SPACE THERMOSTAT (TI) SENSES A ROOM TEMPERATURE ABOVE THERMOSTAT SETPOINT. (85°F. ADJUSTABLE).
  2. WHEN GAS SENSOR DETECTS COMBUSTIBLE GAS ABOVE SETPOINT WITHIN ANY LOWER LEVEL SPACE. FANS SHALL REMAIN ON FOR AN ADJUSTABLE TIME PERIOD (5-MINUTES) UPON CLEARING OF ALARM CONDITION.
  3. WHEN THE PUMP ROOM OR DRY PIT LIGHTS ARE ENERGIZED.

OFF MODE: SUPPLY FAN (SF-PR), EXHAUST FAN (EF-PR) OFF AND DAMPER (DM-1) CLOSED.

HAND MODE: SUPPLY FAN (SF-PR) AND EXHAUST FAN (EF-PR) RUN CONTINUOUSLY AND DAMPER (DM-1) OPEN.

UNDER ALL MODES OF OPERATION, FIRE ALARM SIGNAL SHALL DISABLE ALL VENTILATION EQUIPMENT.

#### ELECTRIC UNIT HEATERS

EUH-PR AND EUH-ECR

UNIT HEATERS SHALL OPERATE ON CALL FROM WALL MOUNTED SPACE HEATING THERMOSTAT. ON CALL FOR HEAT, UNIT FAN SHALL RUN AND HEATER SHALL EXERGIZE. UPON SATISFACTION OF SPACE TEMPERATURE UNIT HEATER SHALL STOP.

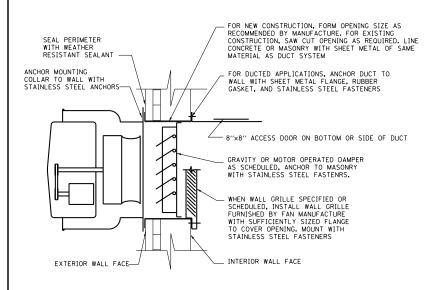
2/26/16 EYALAGI: 11/5-/17

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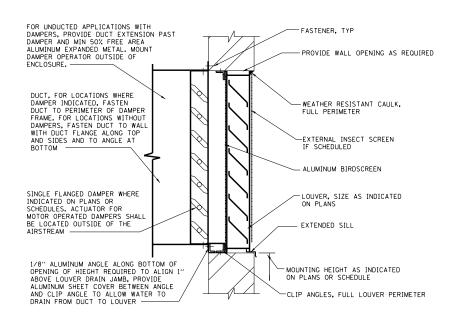
	USER NAME =	DESIGNED - JLW	REVISED -
<b>DONOHUE</b>		DRAWN - JLW	REVISED -
# DONORGE	PLOT SCALE =	CHECKED - EPC	REVISED -
	PLOT DATE =	DATE - 02-26-16	REVISED -

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

							H4				
PUMP	STATION	NO. 14 R	EHABILI	TATION			RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEE NO.
	_	HVAC				ſ	ASHLAND AVE./	146SA&SBI-R	COOK	84	46
	S	<u>CHEDULES</u>	<u> </u>				9 2857		CONTRACT	NO. 6	2B77
SHEET	OF	SHEETS	STA.	T	TO STA.	1		ILLINOIS FED. AT	D PROJECT		

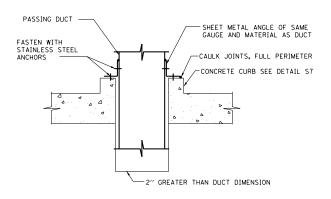


WALL MOUNTED EXHAUST FAN DETAIL



NOTE: ALL FASTENERS SHALL BE OF STAINLESS STEEL CONSTRUCTION

#### TYPICAL LOUVER DETAIL

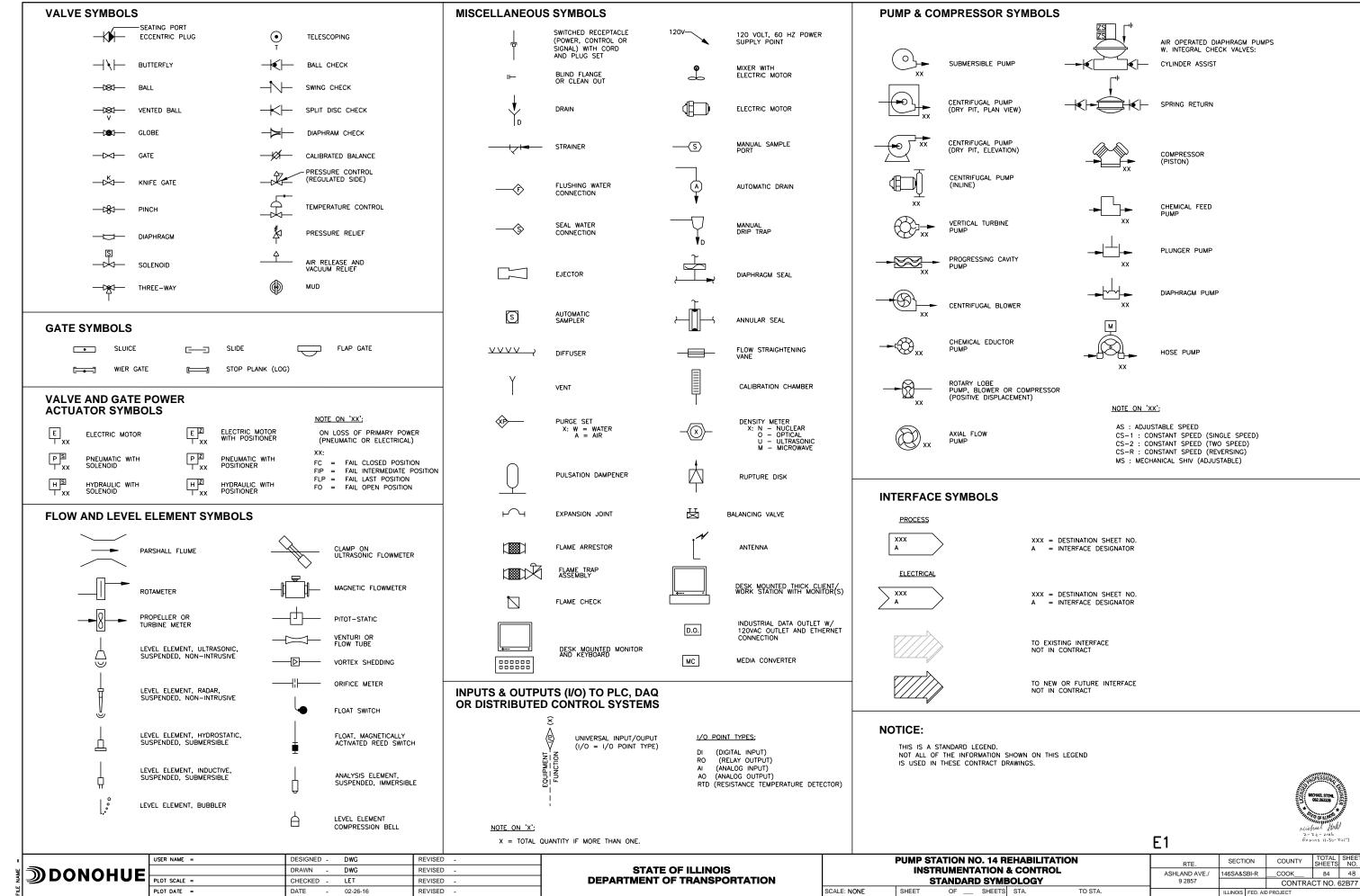


TYPICAL DUCT FLOOR PENETRATION DETAIL



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<b>⋑DONOHUE</b>	USER NAME =	DESIGNED - JLW	REVISED -
		DRAWN - JLW	REVISED -
DONORDE	PLOT SCALE =	CHECKED - EPC	REVISED -
	PLOT DATE =	DATE - 02-26-16	REVISED -



SCALE: NONE

TO STA

PLOT DATE =

DATE

02-26-16

REVISED

#### **INSTRUMENT TAG IDENTIFICATION**

TAG	
FUNCTION	→ HOA
ŢÁG TYPĘ	, HS `,
TAG NUMBER	MP3
(QTY)	$\smile_{(2)}$

COMPONENT DESIGNATOR

TAG TYPE FIRST LETTER, SEE ISA TABLE BELOW AH: SUCCEEDING LETTERS, SEE ISA TABLE BELOW

TAG NUMBER 12:

LOOP NUMBER EQUIPMENT NUMBER

A: DEVICE LETTER IF MULTIPLE DEVICES

PROGRAMMABLE CONTROLLER-BASED FUNCTIONS

PANEL MOUNTED

FUNCTIONS

PC BASED HM WORKSTATION FUNCTIONS

PROCESS OR INITIATING VARIABLE

BURNER COMBUSTION USERS CHOICE (\*

USERS CHOICE (\*

ANALYSIS (\*)

VOL TAGE

FLOW RATE

HAND (MANUAL)

USERS CHOICE (\*)

USERS CHOICE (\*) P PRESSURE OR VACUUM

S SPEED OR FREQUENCY

TEMPERATURE

W WEIGHT, FORCE, TORQUE

POSITION, DIMENSION

VIBRATION

X UNCLASSIFIED (\*)

UNIVERSAL/MULTIVARIABLE (\*)

G USERS CHOICE (\*)

CURRENT

K TIME OR SCHEDULE

POWER

LEVEL

M MOTOR

Q QUANTITY

R RADIATION

LETTER

Α

В

TAG FUNCTION HOA: TAG FUNCTION ABBREVIATION, SEE LISTING AT RIGHT

(QUANTITY)

TOTAL NUMBER OF DEVICES WHERE MORE THAN ONE DEVICE IS REQUIRED. DEVICE NUMBERS ARE SEQUENTIAL BEGINNING WITH THE TAG THEN ONE DEVICE ONLY IS REQUIRED.

FIELD MOUNTED

**INSTRUMENT SOCIETY OF AMERICA TABLE** 

MODIFIER

DIFFERENTIAL

MOMENTARY

INTEGRATE

SAFETY

7 AXIS

RATIO

#### **TAG FUNCTION ABBREVIATIONS**

CURRENT-TO-PNEUMATIC

LOE

LOR

LOS

L/R

**⊢** − − 1

 $\langle -- \rangle$ 

READOUT OR PASSIVE FUNCTION

ALARM (W. LOGGING)

USERS CHOICE (\*)

PRIMARY ELEMENT

GLASS

LIGHT (PILOT)

USERS CHOICE (\*)

POINT (TEST CONNECTION)

RECORD, TREND, LOG

MULTIFUNCTION (\*

UNCLASSIFIED (\*)

TIME RATE OF CHANGE KEYPAD (DATA ENTRY)

**TAG SYMBOLS** 

LEAD-LAG (MAINTAINED CONTACT)

LOSS OF ECHO (ULTRASONIC SENSOR FAILURE)

LOCKOUT STOP (LOCKABLE IN "STOP" POSITION. MOMENTARY CONTACT)

LOCAL-OFF-REMOTE (MAINTAINED CONTACT)

LOCAL-REMOTE (MAINTAINED CONTACT)

ALRT	ALERT
ALT	ALTERNATE
С	CLOSE(D)
СОММ	COMMUNICATIONS
СМ	COMPUTER-MANUAL
DIFF	DIFFERENCE OR DIFFERENTIAL
DN	DEVICENET
DO	DISSOLVED OXYGEN
ESTP	ESTOP (EMERGENCY STOP)
F	FAIL
F(X)	CHARACTERIZED
FOR	FORWARD-STOP(OFF)-REVERSE (MAINTAINED CONTACT)
FSR	FORWARD-STOP-REVERSE (MOMENTARY CONTACT)
FWD	FORWARD
F/R	FORWARD/REVERSE (MOTOR STARTER COILS)
HOA	HAND-OFF-AUTOMATIC (MAINTAINED CONTACT)
HOR	HAND-OFF-REMOTE (MAINTAINED CONTACT)
II	CURRENT-TO-CURRENT

ON-OFF (MAINTAINED CONTACT) OOA ON-OFF-AUTOMATIC (MAINTAINED CONTACT) OOR ON-OFF-REMOTE (MAINTAINED CONTACT) RUN REV REVERSE RSET RESET SPEED POT

MOA

OCA

OC

SLUDGE BLANKET INTERFACE LEVEL SPD SPFFD SQRT SQUARE ROOT START-STOP (MOMENTARY CONTACT) SSA START-STOP-AUTOMATIC (MOMENTARY CONTACT)

SSL START-STOP-LOCK (LOCKABLE IN "STOP" POSITION. MOMENTARY CONTACT) START

MANUAL-AUTOMATIC (MAINTAINED CONTACT)

OFF-AUTOMATIC

TO CENTER POSITION)

MANUAL-OFF-AUTOMATIC (MAINTAINED CONTACT)

OPEN-CLOSE-AUTOMATIC (MAINTAINED CONTACT)

OPEN-STOP-CLOSE (MOMENTARY CONTACT SPRING RETURN

OPEN-CLOSE(D) (MAINTAINED CONTACT)

STRT SUM SUMMATION SUSP SUSPEND VIB VIBRATION MULTIPLY

#### **EQUIPMENT AND VALVE** TAG IDENTIFICATION

### TAG NUMBER W-XYZ

W: EQUIPMENT - SEE LIST BELOW

X: P&ID NUMBER LOOP NUMBER

Z: EQUIPMENT NUMBER \*\* COMPONENT DESIGNATOR

#### EQUIPMENT LIST E - EJECTOR

G - GATE M - MECHANICAL EQUIPMENT

P - PUMP T - TANK

ATS - AUTOMATIC TRANSFER SWITCH EPS - EMERGENCY POWER SYSTEM

#### SELF CONTAINED VALVE ABBREVIATIONS

ARV AIR RELEASE VALVE AIR AND VACUUM RELIEF VALVE LEVEL CONTROL VALVE

PRESSURE SAFETY (RELIEF) VALVE

NEW OR RELOCATED EQUIPMENT

NEW OR RELOCATED STRUCTURE

EXISTING EQUIPMENT

EXISTING STRUCTURE

#### **LOCAL CONTROL PANEL** TAG IDENTIFICATION

X: EQUIPMENT - SEE LIST AT RIGHT

Z: PANEL NUMBER

EQUIPMENT LIST X-Y

LCP - LOCAL CONTROL PANEL CS - CONTROL STATION

ITC - INSTRUMENT TERM. CABINET

ASD - ADJUSTABLE SPEED DRIVE

AP - ALARM PANEL SP1-LCP SUMP PUMP CONTROL PANEL

NETWORK RACK

#### **DATA HIGHWAY SCHEMATIC ABBREVIATIONS**

SERIAL LINK (RS232/485) DATA HIGHWAY (FIBER OPTIC) — CE -COPPER ETHERNET OIU OPERATOR INTERFACE UNIT

МС FIBER OPTIC/ COPPER MEDIA CONVERTER NIC

NETWORK INTERFACE CARD D DATA OUTLET

STRUCTURES AND EQUIPMENT

PRESSURE CONTROL VALVE PCV TEMPERATURE CONTROL VALVE

**⊭** = = **∃** 

**←=⇒** 

 $\Leftarrow = = \Rightarrow$ 

SUCCEEDING LETTERS

ANNUNCIATE

OUTPUT FUNCTION

USERS CHOICE (\*)

CONTROL STATION

USERS CHOICE (\*)

MULTIFUNCTION (\*

UNCLASSIFIED (\*)
RELAY OR COMPUTE (\*)

VALVE

(\*) WHEN USED. EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL.

MODIFIER

USERS CHOICE (\*)

USERS CHOICE (\*)

MULTIFUNCTION (\*)

UNCLASSIFIED (\*)

FEEDBACK

### LINE IDENTIFICATION

#### **PROCESS FLOW**

# FLOW STREAM IDENTIFIERS. SEE PROCESS MECHANICAL LEGEND FOR LIST OF FLOW STREAM IDENTIFIERS

NEW MAJOR PROCESS FLOW STREAM (CLOSED CONDUIT) - RAS -NEW INTERMEDIATE PROCESS FLOW STREAM (CLOSED CONDUIT)

—— ALP —► NEW MINOR PROCESS FLOW STREAM (CLOSED CONDUIT)

RAS -EXISTING INTERMEDIATE PROCESS FLOW STREAM (CLOSED CONDUIT) —— ALP —► EXISTING MINOR PROCESS FLOW STREAM (CLOSED CONDUIT)

NEW MAJOR PROCESS FLOW STREAM (OPEN CONDUIT) — PI —►

— PI —►

---- DISCRETE (ON/OFF ETC.) MODULATED (4 TO 20 mADC ETC.) DATA HIGHWAY (COPPER OR FIBER)

SERIAL LINK (RS-232, RS-485) FILLED SYSTEM (CAPILLARY TUBING ETC.) PNUEMATIC

ELECTROMAGNETIC OR SONIC (GUIDED) ELECTROMAGNETIC OR SONIC (UNGUIDED) MECHANICAL LINK

HYDRAULIC

CONNECTING LINES

NON-CONNNECTING LINES

(PARENTHETICAL NUMBER INDICATES NUMBER OF

SCALE:

1. HALF-TONED PORTIONS OF P&ID'S

**GENERAL NOTES** 

INDICATE EXISTING DEVICES AND FACILITIES WHICH ARE NOT A PART OF THIS CONTRACT.

2. HALF-TONED RECTANGULAR SHAPES ON P&ID'S

REPRESENT EXISTING CONTROL PANELS WHICH ARE NOT A PART OF THIS CONTRACT. THERE IS NO INTENT TO SHOW ALL EXISTING FACILITIES OR EQUIPMENT ON THE P&ID'S.

### NOTICE:

THIS IS A STANDARD LEGEND. NOT ALL OF THE INFORMATION SHOWN ON THIS LEGEND IS USED IN THESE CONTRACT

USER NAME = DESIGNED -DWG PLOT SCALE = CHECKED -LET PLOT DATE = DATE

**STATE OF ILLINOIS ○** DEPARTMENT OF TRANSPORTATION **PUMP STATION NO. 14 REHABILITATION INSTRUMENTATION & CONTROL** STANDARD LEGEND SHEETS STA. OF TO STA

SHEETS NO. COUNTY SECTION RTE. ASHLAND AVE./ 46SA&SBI-R \_COOK\_ 9 2857 CONTRACT NO. 62B77

))) DONOHUE

REVISED -02-26-16 REVISED

SPECIAL CASES:

JBX - JUNCTION BOX NDX - INDEX #

ETM - ELAPSED TIME METER MS - MOTOR STARTER

REVISED

MOR - MOTOR OVERLOAD RELAY
MPR - MOTOR PROTECTION RELAY

**SIGNALS** 

#### **ELECTRICAL ABBREVIATIONS AND SYMBOLS**

USER NAME =

PLOT SCALE =

PLOT DATE =

**DONOHUE** 

DESIGNED - MBS

CHECKED - JAB

DATE - 02-26-16

REVISED -

REVISED -

REVISED -

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_ABBREVIA			ONO / NED OTHERDOLO					
A AFF	AMPERE ABOVE FINISHED FLOOR	PLAN SY	MBOLS		INFORMATION OUTLET		SCHEMATIC SYMBOLS	
AFG AIC AP	ABOVE FINISHED GRADE AMPERE INTERRUPTING CAPACITY AEGIS PANEL	А	FLUORESCENT FIXTURE - RECESSED	$\boxtimes$	SINGLE PHASE MAGNETIC STARTER	0	TERMINAL ON A DEVICE	<i>∞</i> <sub>6</sub>
ATS	AUTOMATIC TRANSFER SWITCH CONTACTOR/CONDUIT/COIL		(LETTER DENOTES TYPE)  FLUORESCENT FIXTURE — SURFACE OR SUSPENDED	□'30	NON-FUSED DISCONNECT SWITCH (NUMERAL INDICATES SWITCH RATING)	⊣⊢	NORMALLY OPEN CONTACT	%
CB	CIRCUIT BREAKER	A	(LETTER DENOTES TYPE)	E	FUSED DISCONNECT SWITCH - 3 POLE			6
CGD CKT, CCT	COMBUSTIBLE GAS DETECTOR CIRCUIT	( A	FLUORESCENT FIXTURE — WALL MOUNTED (LETTER DENOTES TYPE)	60 40	UNLESS OTHERWISE INDICATED (UPPER NUMERAL INDICATES SWITCH RATING)	**	NORMALLY CLOSED CONTACT	To
CP CT	CONTROL PANEL CURRENT TRANSFORMER		-,	40	(LOWER NUMERAL INDICATES FUSE RATING)	0 0	SINGLE POLE, SINGLE THROW SWITCH	0,0
DSC DS	DISCONNECT DOOR SWITCH	A	INCANDESCENT OR HID FIXTURE — WALL MOUNTED (LETTER DENOTES TYPE)	[\$]	3-PHASE MANUAL MOTOR SWITCH	هــه	SINGLE POLE, DOUBLE THROW SWITCH	Z
EF FAHS	EXHAUST FAN FIRE ALARM HORN STROBE	(A)	POLE MOUNTED FIXTURE	_	LIGHTING PANEL FIRE PANEL	_		oto
FAPS FAS	FIRE ALARM PULL STATION FIRE ALARM STROBE	•	(LETTER DENOTES TYPE)	LLP FP	AEGIS PANEL	0-0	DOUBLE POLE, SINGLE THROW SWITCH	<u> </u>
FIX FP	LIGHT FIXTURE FIRE PANEL		EMERGENCY BATTERY LIGHT	T AP	TRANSFORMER	Q.		3
FU	FUSE	⊳⊸	REMOTE HEAD FOR EMERGENCY BATTERY LIGHT	$\square_{PP}$	POWER PANEL	010	DOUBLE POLE, DOUBLE THROW SWITCH	
GFCI GFR/GFP	GROUND FAULT CIRCUIT INTERRUPTER GROUND FAULT RELAY/PROTECTION	$\stackrel{ ightharpoonup}{igotimes}$	EXIT LIGHT WITH INDICATING		TERMINAL CABINET (ITC — INDICATES INSTRUMENTATION)	0		Ţ
GRD GRS	GROUND GALVANIZED RIGID STEEL	1	DIRECTIONAL ARROW	<i>↔</i>	(TTC - INDICATES TELEPHONE)	0.7°0	THREE WAY ROTARY SWITCH	1
GS HD	GAS SENSOR HEAT DETECTOR	\$ \$ <sub>2</sub> \$ <sub>3</sub> \$ <sub>4</sub>	SWITCH (SINGLE POLE, 2-POLE, 3-WAY, 4-WAY)	(M)	MOTOR	مله	NORMALLY CLOSED MOMENTARY	1
HF HH	HARMONIC FILTER HANDHOLE	\$ <sub>MC</sub>	MOMENTARY CONTACT SWITCH - CENTER OFF	(1)	JUNCTION BOX	1	PUSH BUTTON SWITCH NORMALLY OPEN MOMENTARY	<del>-</del> ~
HID HP	HIGH INTENSITY DISCHARGE HORSEPOWER	\$ <sub>P</sub>	SWITCH / PILOT LIGHT		HANDHOLE	<del>0 0</del>	PUSH BUTTON SWITCH	-X-
HR HZ	HORN RELAY HERTZ	$\oplus$	DUPLEX GROUNDED RECEPTACLE - 120V		MANHOLE	0 0 1 2	2 POSITION PUSH BUTTON	
J KVA	JUNCTION BOX KILOVOLT AMPERE	_	EXPLOSIONPROOF SIMPLEX GROUNDED	⊔ <sub>мн</sub>	WATER CELE	σ⁺σ 1 <b>√,</b> 2	(EXTRA CONTACT BLOCK)	
KW	KILOWATT	Φ	RECEPTACLE - 120V	ď	SURVEILLANCE CAMERA	010	NORMALLY OPEN DOUBLE BREAK SINGLE THROW CONTACT BLOCK	
LCP LED	LOCAL CONTROL PANEL LIGHT EMITTING DIODE	▼	TELEPHONE OUTLET, WALL MOUNT WITH 3/4" CONDUIT TO TELEPHONE TERMINAL CABINET		GROUND ROD	0 0 1  2	SINGLE TIMON CONTACT BEOCK	
LP MCC	LIGHTING PANEL MOTOR CONTROL CENTER	D	COMPUTER DATA OUTLET; RUN CAT 5E CABLE TO PLO	c =		0 0	NORMALLY CLOSE DOUBLE BREAK SINGLE THROW CONTACT BLOCK	—(sv)—
MH MPR	MANHOLE MOTOR PROTECTOR RELAY	⊗	RECESSED CEILING SPEAKER		CAPPED CONDUIT STUB		SINGLE THROW CONTACT BLOCK	-(W)-
MV NEC	MEDIUM VOLTAGE MANHOLE NATIONAL ELECTRICAL CODE (ANSI/NFPA-70)	<b>⊗</b> □<	VOLUME CONTROL WALL SPEAKER		CONDUIT TURNING UP OR TO OBSERVER	0 0	DOUBLE BREAK DOUBLE THROW CONTACT BLOCK	
NEU, N NF	NEUTRAL NON FUSED	\$	SMOKE DETECTOR	•	CONDUIT TURNING DOWN OR AWAY FROM OBSERVER	ം o ഫ്	MUSHROOM HEAD PUSH BUTTON	
OL PB	OVERLOAD RELAY PUSHBUTTON	F◀	FIRE ALARM HORN		FLEXIBLE CONDUIT CONNECTION		MOSINGON TEAD 1831 BUTTON	
PC PMG	PHOTOCELL PADMOUNT GEAR	E¶s □4s	FIRE ALARM HORN AND STROBE		HOMERUN CIRCUIT OR CONDUCTORS	0000	MAINTAINED CONTACT PUSHBUTTON	
РМТ	PADMOUNT TRANSFORMER	□ <b>∢</b> s	FIRE ALARM STROBE	—E——	DIRECT BURIAL ELECTRICAL CABLE	1 2 *0 0 +	2 OR 3 POSITIONS SELECTOR SWITCH	
PP PVC	POWER PANEL POLY VINYL CHLORIDE	F Ĥ	FIRE ALARM PULL STATION HEAT DETECTOR		UNDERGROUND ELECTRICAL DUCT,	<del>- o'o*</del>	(CLOSED CONTACTS INDICATED BY " X" )	
RECP SCADA	RECEPTACLE SUPERVISORY CONTROL AND DATA ACQUISITION	(T)	THERMOSTAT		CONCRETE ENCASED.	<del>*   *  </del>  - <del>  *    </del>  -	MULTI-POSITION, MULTI-CONTACT SELECTOR	
SD SF	SMOKE DETECTOR SUPPLY FAN			ONE-LINE	SYMBOLS		SWITCH (CLOSED CONTACTS INDICATED BY " X" )	
SS SW	SELECTOR SWITCH SWITCH	•	CONNECTION TO EQUIPMENT		MOLDED CASE CIRCUIT BREAKER  UPPER NUMERAL INDICATES FRAME SIZE)  LOWER NUMERAL INDICATES TRIP SETTING	%	TEMPERATURE SWITCH - CLOSES ON	R
SWGR SPD	SWITCHGEAR SURGE PROTECTIVE DEVICE	•	SPECIAL PURPOSE RECEPTACLE, NEMA TYPE AND AMPERE RATING AS INDICATED	M SOUAL (	LOWER NOMERAL INDICATES TRIF SETTING)	7	RISING TEMPERATURE	
TBM TDR	TEMPORARY BENCHMARK TIME DELAY RELAY		MANUAL STARTER WITH PILOT LIGHT	,	CL - INDICATES CURRENT LIMITING CIRCUIT BREAKER)  M - INDICATES MOTOR CIRCUIT PROTECTOR)	~5°	TEMPERATURE SWITCH - OPENS ON RISING TEMPERATURE	
UH UPS	UNIT HEATER UNINTERRUPTABLE POWER SUPPLY		THREE PHASE MAGNETIC STARTER THREE PHASE COMBINATION MAGNETIC	,	,	ر. مره	TIME DELAY RELAY SWITCH - NORMALLY OPEN,	
V VFD	VOLTS VARIABLE FREQUENCY DRIVE	<b>H</b> ⁴	STARTER AND DISCONNECT SWITCH	L.	MAGNETIC STARTER AND MOLDED CASE CIRCUIT BREAKER FVNR — INDICATES FULL VOLTAGE NON—REVERSING)	NOTC	CLOSES ON TIME DELAY AFTER ENERGIZATION OF RELAY COIL.	<u> </u>
WP XFMR	WEATHERPROOF TRANSFORMER			·	FVR - INDICATES FULL VOLTAGE REVERSING)	970	TIME DELAY RELAY SWITCH - NORMALLY CLOSE OPENS ON TIME DELAY AFTER ENERGIZATION	ED,
XP	EXPLOSION PROOF			1	SSRV - INDICATES SOLID STATE REDUCED VOLTAGE)  TSTW - INDICATES TWO SPEED TWO WINDING)	NCTO	OF RELAY COIL.	
ELECTRICA	AL GENERAL NOTES	мото	OR CONTROL CENTER	` ا د ا	TSSW - INDICATES TWO SPEED SINGLE WINDING)	oto	TIME DELAY RELAY SWITCH - NORMALLY CLOSE CLOSES ON TIME DELAY AFTER DE-ENERGIZATION	
	SHALL BE RESPONSIBLE FOR ALL WIRING, WHETHER SHOWN OR NO LETE SYSTEM.		MCC-1		CONT — INDICATES CONTACTOR)  AUXILIARY CONTACTS — (2a TWO N.O.)(1b ONE N.C.)	NCTC O_O	RELAY COIL.  TIME DELAY RELAY SWITCH - NORMALLY OPEN,	ЕТМ
2. PROVIDE EXP	PLOSION PROOF SEAL-OFF FITTINGS ON ALL CONDUITS EXITING CL		†		NUMERAL INDICATES NEMA SIZE)	<b>V</b> NOTO	OPENS ON TIME DELAY AFTER DE-ENERGIZATION OF RELAY COIL.	[=·-=]
	TIONS. FITTINGS SHALL BE INSTALLED IN THE CLASSIFIED OR RAT		NO. ————————————————————————————————————	T	TRANSFORMER	∞6	LIMIT SWITCH - NORMALLY CLOSED HELD OPEN	N TMR
<ol><li>CONTRACTOR INSTALLATION</li></ol>	IS RESPONSIBLE FOR VERIFYING NUMBER OF CONDUCTORS IN CON ${\sf N.}$	NDUIT PRIOR TO NOTE:		<u></u>	COMBINATION MAGNETIC STARTER WITH	0.0	LIMIT SWITCH - NORMALLY OPEN HELD CLOSED	тот
	EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 2,GROUP	D EXPLOSION 1. THIS L	IST OF ABBREVIATIONS SHOWN IS ANDARD LIST. NOT ALL ABBREVIATIONS		MOLDED CASE CIRCUIT BREAKER FVNR — INDICATES FULL VOLTAGE NON—REVERSING)	040		
PROOF.	COUNTY DE LABELED WITH AN ADVECTIVE TO IDENTIFY THE CONT	AND	SYMBOLS ARE USED IN THESE CONTRACT	E/MP	FVR - INDICATES FULL VOLTAGE REVERSING)	040	LIMIT SWITCH - NORMALLY CLOSED	
	'S SHALL BE LABELED WITH AN ADHESIVE TO IDENTIFY THE CONTE ONS. LABEL CONDUIT NUMBER AT EACH TERMINATING END AND ON	ENIS PER		2a 1b	SSRV - INDICATES SOLID STATE REDUCED VOLTAGE) TSTW - INDICATES TWO SPEED TWO WINDING)			
	AND EQUIPMENT MOUNTED DEVICES SHALL HAVE	PAN	EL BOARDS		AUXILIARY SPARE CONTACTS - (20 TWO N.O.)(16 ONE N.C.)			
	PER SPECIFICATIONS.  FIXTURE SHALL HAVE AN UNIQUE NAMEPLATE WHICH IDENTIFIES T		LP1-4		NUMERAL INDICATES NEMA SIZE)			
	FIXTURE SHALL HAVE AN UNIQUE NAMEPLATE WHICH IDENTIFIES TO DM, LOCATION (I.E. PUMP ROOM), AND QUANTITY WITHIN THE CIRCL		<b>† † †</b>	<u>_</u>	GROUND			
CIRCUIT 4			HTING OR POWER	(75)	MOTOR			
FIXTURE 1 PUMP ROOM		PAN	IEL AS INDICATED IEL NO.	75)	(NUMERAL INDICATES HORSEPOWER)			
	G G3 AND M1 FOR ADDITIONAL GENERAL NOTES.		CUIT NO.					E
	USER NAME = DESIGNED -	MBC	EVISED -			DUMD CTATE	ON NO 14 REHABILITATION	$\overline{}$



LIMIT SWITCH - NORMALLY OPEN HELD CLOSE LEVEL SWITCH - CLOSES ON RISING LEVEL

LEVEL SWITCH - OPENS ON RISING LEVEL FLOW SWITCH - CLOSES ON FLOW

FLOW SWITCH - OPENS ON FLOW

LIGHTNING OR SURGE ARRESTER

THERMAL OVERLOAD ELEMENT

COIL
C - CLOSE
CR - CONTROL RELAY
F - FAST OR FORWARD
M - MOTOR STARTER COIL
MX - MOTOR STARTER AUXILIARY
RELAY

RELAY N - NORMAL O - OPEN

OL - OVERLOAD RELAY R - REVERSE S - SLOW

TD - TIME DELAY RELAY
TDAE - TIME DELAY AFTER
ENERGIZATION TDAD - TIME DELAY AFTER DE-ENERGIZATION

INDICATOR LIGHT (SEE SCHEMATIC DIAGRAM DEVICE TABLE FOR COLOR SYMBOLS)

INDICATOR LIGHT (PUSH TO TEST TYPE)

DEVICE ENCLOSURE

ELAPSED TIME METER

ELECTRONIC TIMER

ANNUNCIATOR

COUNTER

TOTALIZER

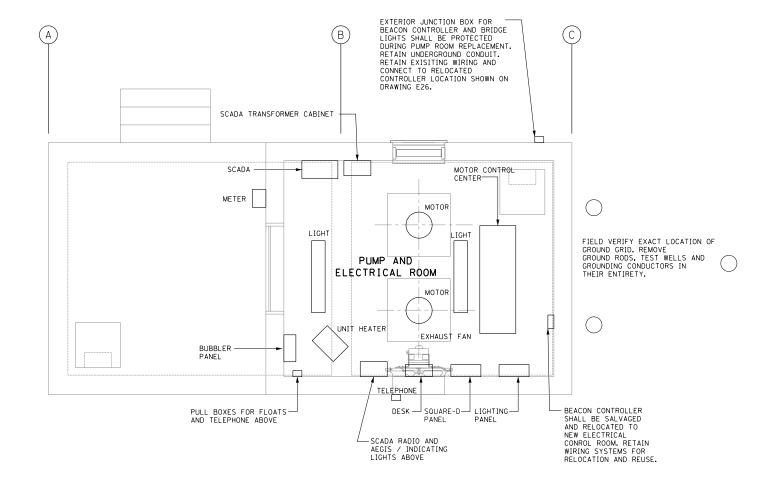
FUSE \_\_\_\_ CIRCUIT BREAKER \_\_\_\_ HEATING ELEMENT \_\_\_\_\_SV\_\_\_ SOLENOID VALVE

TRANSFORMER - (TYPE AND RATING AS INDICATED) CONNECTION TO GROUND

E3 PUMP STATION NO. 14 REHABILITATION SECTION COUNTY TOTAL SHEET NO.

COOK 84 50 COUNTY RTE. STATE OF ILLINOIS ELECTRICAL ASHLAND AVE./ 146SA&SBI-R ABBREVIATIONS AND SYMBOLS
SHEET OF SHEETS STA. **DEPARTMENT OF TRANSPORTATION** 9 2857 CONTRACT NO. 62B77 SCALE: TO STA.





PLAN EL.597.80

#### NOTES:

- 1. ALL EQUIPMENT, PIPING, AND VALVE LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS AND ELEVATIONS PRIOR TO CONSTRUCTION AND/OR FABRICATION.
- . WHERE EQUIPMENT IS INDICATED TO BE REMOVED (ALL EQUIPMENT IDENTIFIED ON THIS DRAWING), REMOVE ALL ASSOCIATED POWER AND CONTROL WIRING AND CONDUIT BACK TO SOURCE.
- 3. SEE SECTION 1A FOR PROJECT CONSTRAINTS.
- 4. MAJOR EQUIPMENT IDENTIFIED. ALL MISCALLENEOUS ELECTRICAL, CONTROL AND HVAC SHALL BE REMOVED INCLUDING BUT NOT LIMITED TO CONTROL STATIONS, THERMOSTATS, LIGHT SWITCHES, RECEPTACLES, JUNCTION BOXES AND GANG BOXES.
- 5. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF REMOVED EQUIPMENT. SEE DRAWING G9 FOR LIST OF ITEMS TO BE SALVAGED AND DELIVERED TO IDOT MAINTENANCE FACILITY.
- 6. REMOVE OF ALL EXISTING ELECTRICAL AND CONTROL DEVICES LOCATED WITHIN THE WET AND DRY PITS. REMOVE ALL ASSOCIATED WIRING AND CONDUIT. REMOVE ALL ASSOCIATED SUPPORTING DEVICES AND PATCH WALLS AND FLOORS.
- 7. SCADA PANEL AND AEGIS PANEL WITH ASSOCIATED REMOTE COMMUNICATIONS SHALL REMAIN ACTIVE UNTIL NEW REMOTE COMMUNICATIONS HAVE BEEN INSTALLED AND ARE OPERATIONAL. RELOCATE EXISTING OVERHEAD TELEPHONE SERVICE AS REQUIRED TO ACCOMODATE THE CONSTRUCTION OF THE NEW ELECTRICAL CONTROL ROOM. TEMPORARY PUMPS SHALL BE CONNECTED TO THE EXISTING SCADA PANEL FOR MONITORING AND REMOTE ALARMING INCLUDING RUN STATUS AND FAIL STATUS.



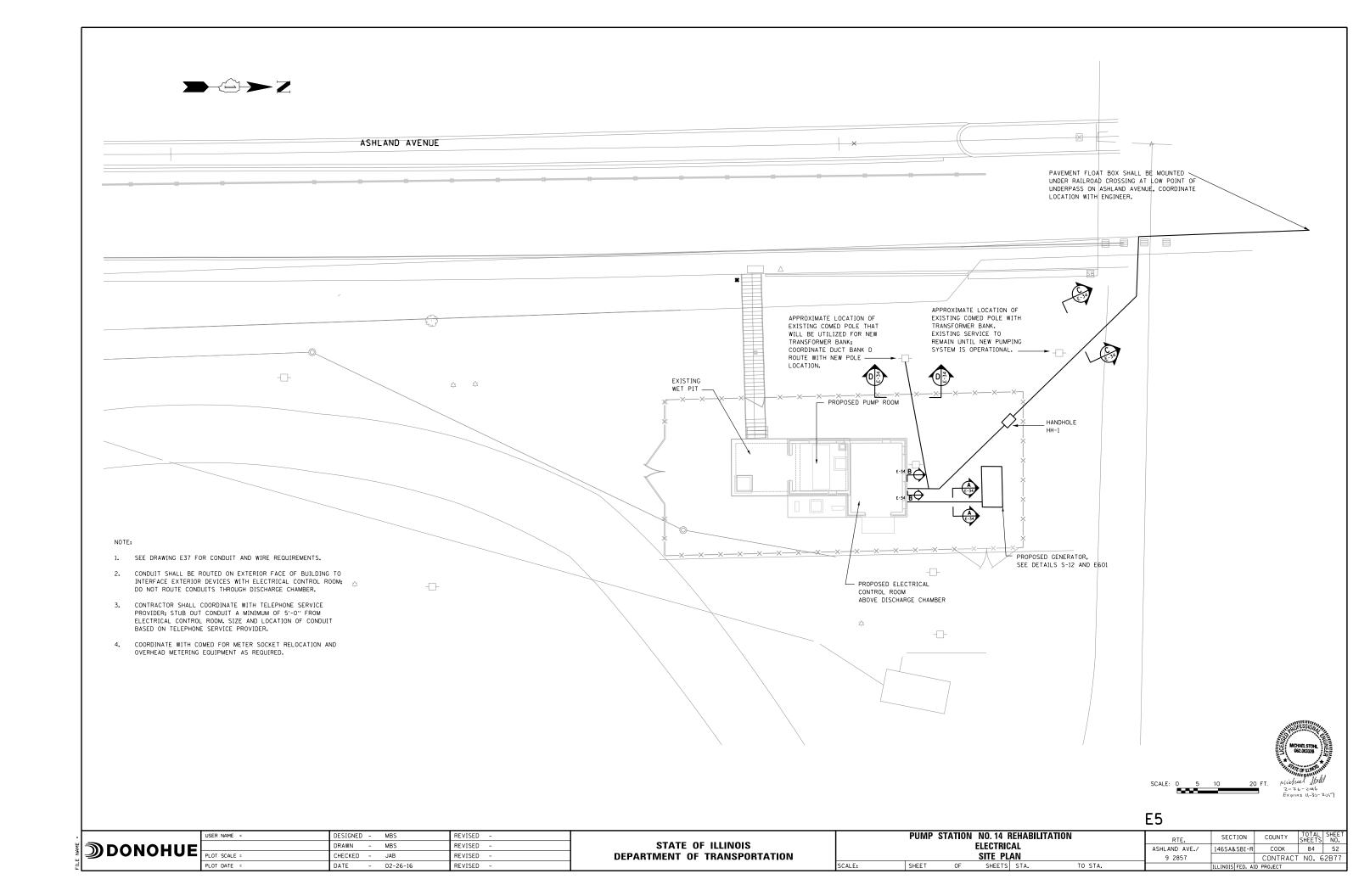
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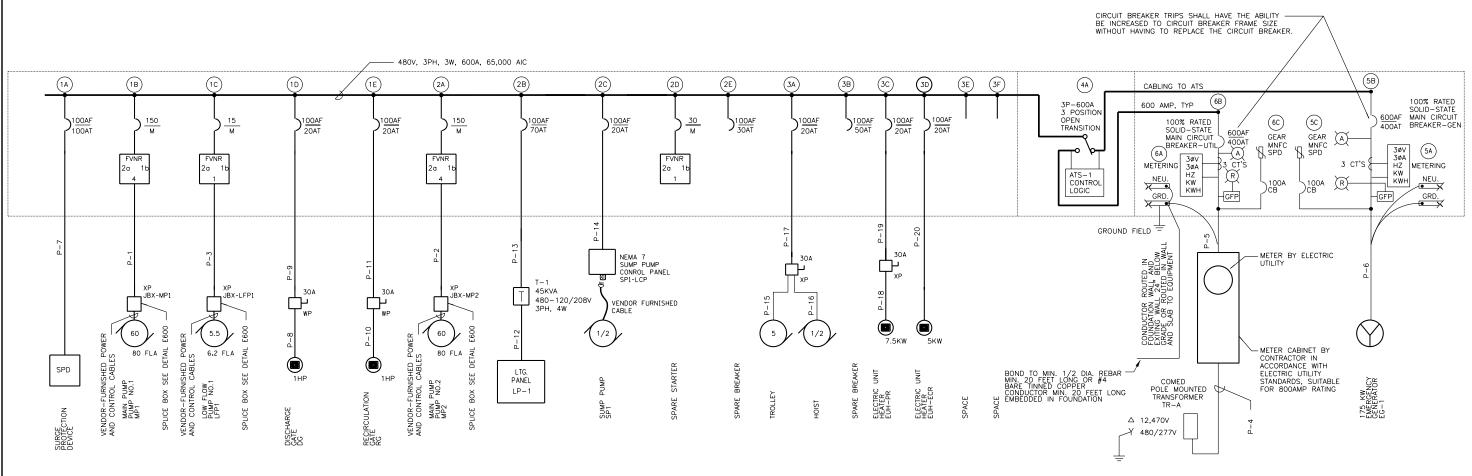
1	USER NAME =	DESIGNED - MBS	REVISED -
DONOHUE		DRAWN - MBS	REVISED -
DONORUE	PLOT SCALE =	CHECKED - JAB	REVISED -
	PLOT DATE =	DATE - 02-26-16	REVISED -

STATI	E 01	F ILLINOIS
DEPARTMENT	0F	TRANSPORTATION

SCALE:

	PUMP STATION NO. 14 REHABILITATION					RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
ELECTRICAL						ASHLAND AVE./	146SA&SBI-R	соок	84	51
DEMOLITION PLAN						9 2857		CONTRACT	NO. 6	2B77
	SHEET	OF	SHEETS	STA.	TO STA.		TILINOIS FED AT	D PROJECT		





# MCC-1 ONE-LINE DIAGRAM ELECTRICAL CONTROLS ROOM

#### NOTES:

SCALE:

- 1. COORDINATE WITH COMED FOR INCOMING POWER REQUIREMENTS. PROVIDE CONDUIT TO POLE AND A MINIMUM OF 10'-0" ABOVE GRADE. PROVIDE ADEQUATE CONDUCTOR LENGTH TO REACH TRANSFORMER; TERMINATIONS ON TRANSFORMER BY COMED.
- AMBER INDICATING LIGHTS IN MAIN BREAKER SECTION SHALL ENERGIZE WHEN BUS BARS ARE ENERGIZED.
- 3. MCC MANUFACTURER SHALL BE RESPONSIBLE FOR SIZING AND PROVIDING CABLING TO AND FROM ATS.
- 4. SEE DRAWING E7 FOR MCC ELEVATION AND DRAWING E8 FOR FRONT OF BUCKET DEVICES AND NAMEPLATE REQUIREMENTS.
- 5. EQUIPMENT SHOWN AS SPARE AND SPACE IN MCC SHALL BE INCLUDED IN THE POSITIONS SHOWN, MCC MANUFACTURER IS RESPONSIBLE FOR PROVIDING ONE LINE DIAGRAM AND DETAILED WIRING DIAGRAMS PREPARED BY MANUFACTURER AS
- 6. DISCONNECTS AND BREAKERS WITHIN MCC AND PANELS SHALL INCLUDE PROVISIONS TO BE PAD-LOCKED IN THE OFF POSITION. DISCONNECTS LOCATED OUTSIDE OF THE BUILDING SHALL INCLUDE PROVISIONS TO BE LOCKED IN BOTH THE OFF AND ON POSITIONS.
- 7. SEE DRAWING E37 FOR CONDUIT SCHEDULE.
- 8. PROVIDE UFER GROUND FROM SERVICE ENTRANCE INTO BUILDING FOUNDATION PER NEC. SERVICE ENTRANCE SHALL BE GROUNDED TO BUILDING GROUND GRID. MCC SHALL HAVE A COMMON GROUND ON NEUTRAL BUS WITH A SINGLE BOND FOR THE MAIN BREAKERS. GENERATOR SHALL BE CONFIGURED AS A NOT SEPERATELY DERIVED SYSTEM WITH NO GROUND-NEUTRAL BOND IN THE GENERATOR.
- 9. MCC, BREAKERS AND TRANSFER SWITCH (POWER FAILURE AND LOSS OF BUS VOLTAGE) SHALL BE PROVIDED WITH DRY CONTACTS PER SPECIFICATIONS FOR I/O TO SCADA.



10. MAIN BREAKER SPD'S AND CONNECTING CIRCUIT BREAKERS SHALL BE SERVICE ENTRANCE RATED.

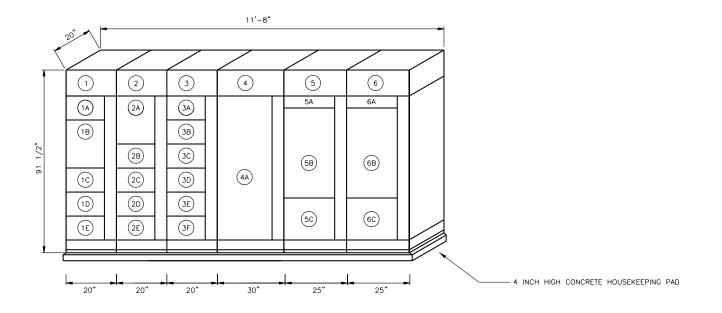
PUMP STATION NO. 14 REHABILITATION					RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		ELECTRIC			ASHLAND AVE./	146SA&SBI-R	COOK	84	53
ONE-LINE DIAGRAM					9 2857		CONTRACT	NO. 6	52B77
SHEET	OF	SHEETS	STA.	TO STA.		ILLINOIS FED. AT	D. PROJECT		

	USER	MHME	-
<b>DONOHUE</b>			
# DONORGE	PLOT	SCALE	=
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	DRAWN -	MBS	REVISED -
PLOT SCALE =	CHECKED -	MBS	REVISED -
PLOT DATE =	DATE -	02-26-16	REVISED -

REVISED -

DESIGNED - MRS



MCC-1
ELEVATION
ELECTRICAL CONTROLS ROOM

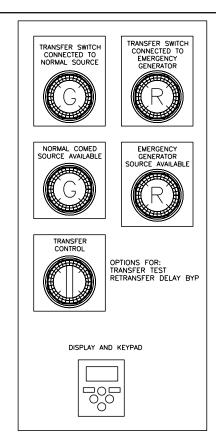
NTS



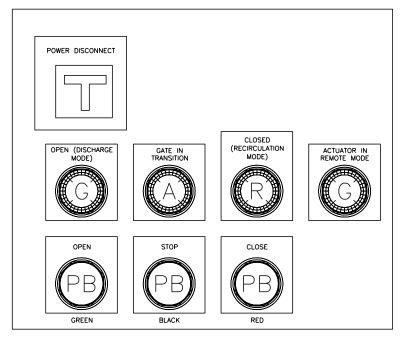
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# DONORUE	PLOT SCALE =	CHECKED - JAB	REVISED -
	PLOT DATE =	DATE - 02-26-16	REVISED -

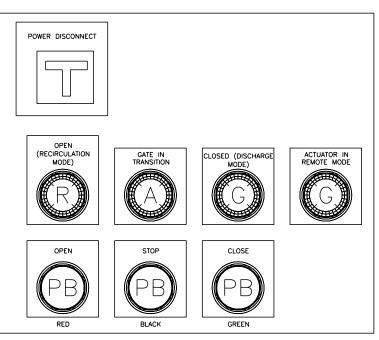
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



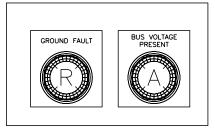
AUTOMATIC TRANSFER SWITCH ATS-1



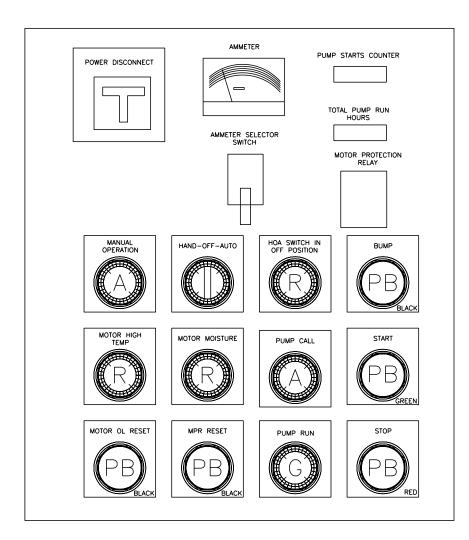




RECIRCULATION GATE ACTUATOR - RG



MAIN BREAKERS



PUMP STARTER

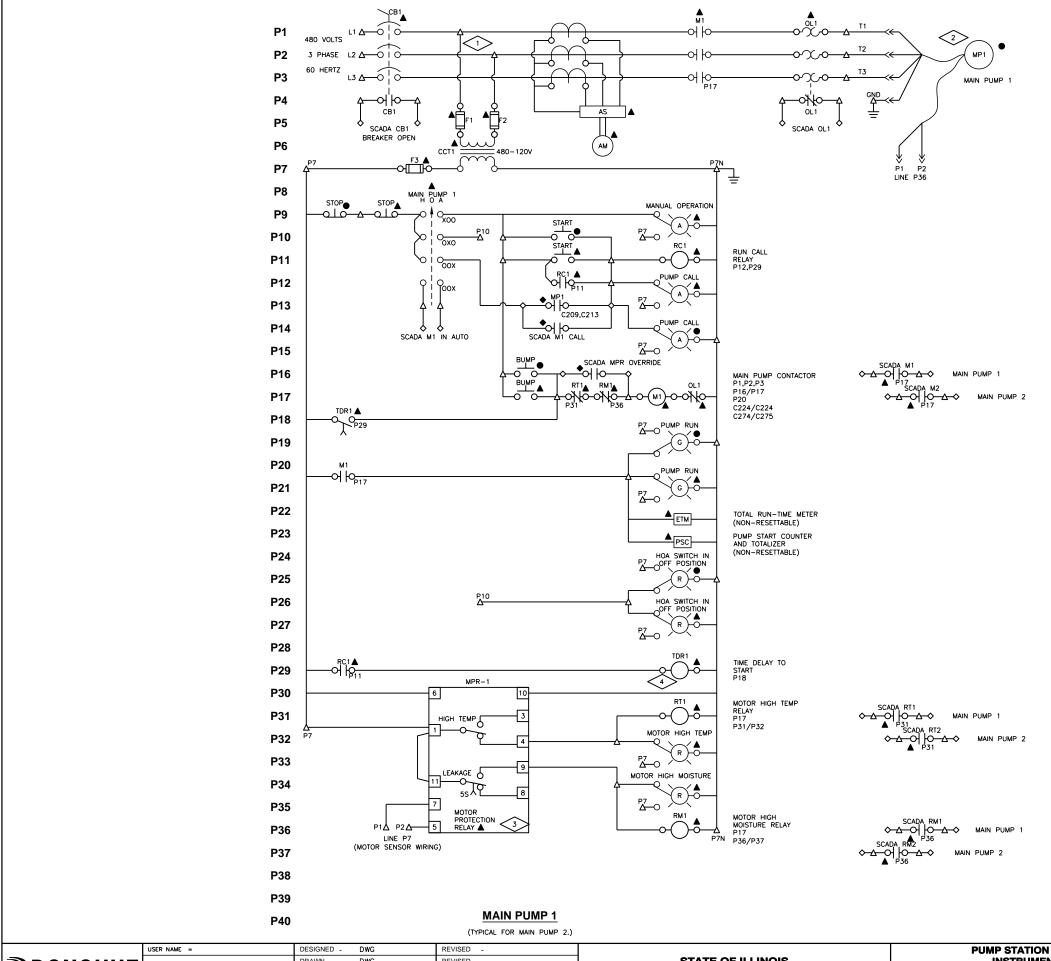


E8

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NAME	<b>DONOHUE</b>	
삘		Γ

	USER NAME =	DESIGNED -	DWG	REVISED -
•		DRAWN -	DWG	REVISED -
•	PLOT SCALE =	CHECKED -	LET	REVISED -
	PLOT DATE =	DATE -	02-26-16	REVISED -

SCALE:



CONTRACTOR SHALL PROVIDE CONTROL SCHEMATIC SHOP DRAWINGS DEPICTING AND IDENTIFYING TERMINALS AND WIRE NUMBERS ASSOCIATED WITH SCADA PANEL AND TERMINAL NUMBERS AS THEY ARE DEPICTED ON MANUFACTURERS EQUIPMENT TERMINAL BLOCKS. COORDINATE PRIOR TO SUBMITTING SHOP DRAWINGS. ALL WIRED DEVICES SHALL BE COORDINATED, DEPICTED, AND IDENTIFIED.

#### **PLAN NOTES:**



- PLAN NOTES:

  1. EACH CONTROL CIRCUIT TRANSFORMER SHALL DERIVE PRIMARY VOLTAGE FROM PHASE PAIRS AS FOLLOWS:

  (PUMP 1 = L1-L2)
  (PUMP 2 = L2-L3)
  (LOW FLOW PUMP = L1-L3)

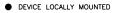
  2. SOME PUMP MANUFACTURERS HAVE POWER AND MONITORING WIRES IN ONE CABLE. CONTRACTOR SHALL COORDINATE WITH PUMP MANUFACTURER.

  3. MOTOR PROTECTION RELAY (MPR) PROVIDED BY PUMP MANUFACTURER. TERMINATIONS MAY VARY WITH MANUFACTURER. CONTACTS ARE SHOWN WITH THE DEVICE UN-POWERED. CONTRACTS ARE SHOWN WITH THE DEVICE UN-POWERED. CONTRACTS ARE SHOWN WITH SHALL BE SET FOR AUTO-RESET OPERATION. WHEN POWERED, OVERTEMP RELAY CONTACTS: 1-3 CLOSED, 1-4 OPEN, AND LEAKAGE RELAY CONTACTS: 11-8 CLOSED, 11-9 OPEN.

  4. TIME DELAY RELAYS SHALL BE SET FOR 10, AND 15 SECONDS FOR PUMPS MP1, AND MP2 RESPECTIVELY.

### LEGEND:

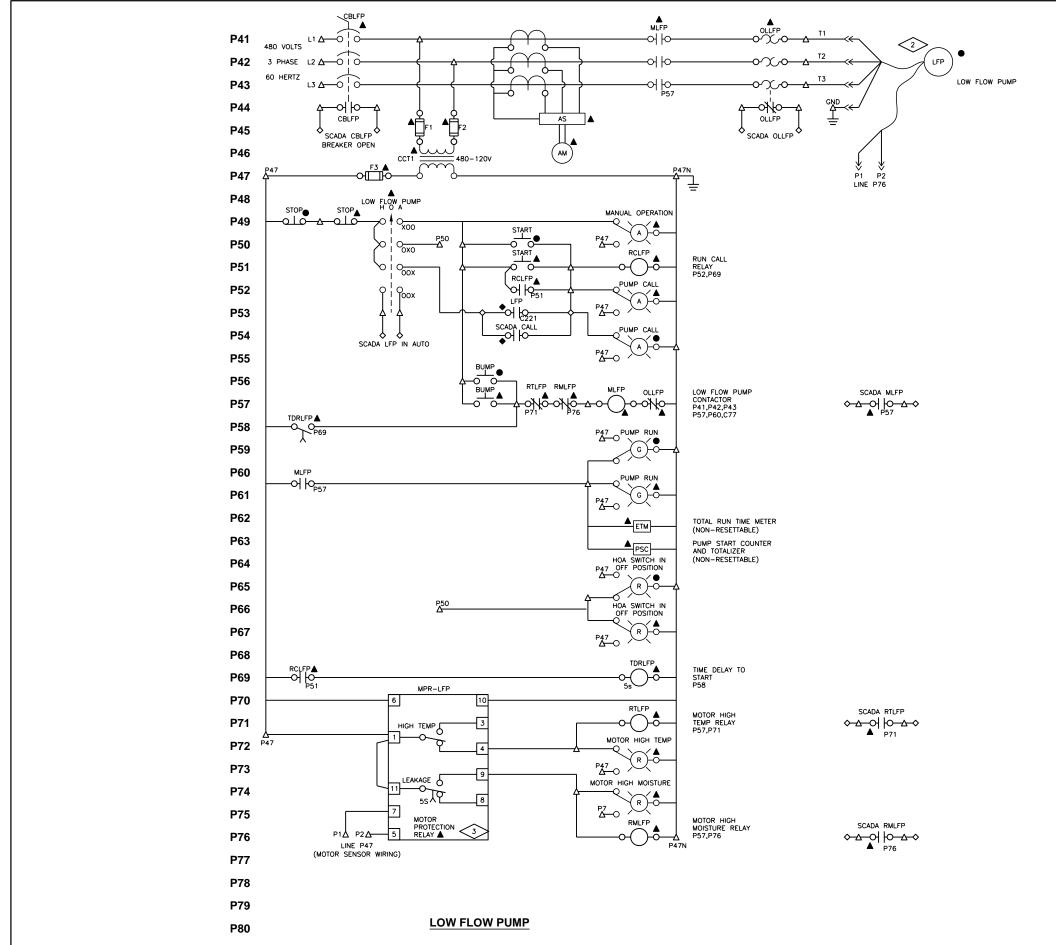
- △ TERMINAL IN MCC
- ♦ TERMINAL IN SCADA PANEL ▲ DEVICE IN MCC
- DEVICE IN SCADA PANEL





E9

<b>DONOHUE</b>	USER NAME =	DESIGNED -	DWG	REVISED -			PUMP STATION NO. 14 REHABILITATION INSTRUMENTATION & CONTROL			COUNTY TOTAL SHEET NO.
	PLOT SCALE =	DRAWN - CHECKED -	DWG LET	REVISED - REVISED -	STATE OF ILLINOIS  DEPARTMENT OF TRANSPORTATION		ASHLAND AVE./ 9 2857	146SA&SBI-R	COOK 84 56 CONTRACT NO. 62B77	
	PLOT DATE =	DATE -	02-26-16	REVISED -		SCALE:	SHEET OF SHEETS STA. TO STA.		ILLINOIS FED. AID	PROJECT



CONTRACTOR SHALL PROVIDE CONTROL SCHEMATIC SHOP DRAWINGS DEPICTING AND IDENTIFYING TERMINALS AND WIRE NUMBERS ASSOCIATED WITH SCADA PANEL AND TERMINAL NUMBERS AS THEY ARE DEPICTED ON MANUFACTURERS EQUIPMENT TERMINAL BLOCKS. COORDINATE PRIOR TO SUBMITTING SHOP DRAWINGS. ALL WIRED DEVICES SHALL BE COORDINATED, DEPICTED, AND IDENTIFIED.

#### **PLAN NOTES:**



- 1. NOT USED.
  2. SOME PUMP MANUFACTURERS HAVE POWER AND MONITORING WIRES IN ONE CABLE. CONTRACTOR SHALL COORDINATE WITH PUMP MANUFACTURER.
  3. MOTOR PROTECTION RELAY (MPR) PROVIDED BY PUMP MANUFACTURER. TERMINATIONS MAY VARY WITH MANUFACTURER. CONTACTS ARE SHOWN WITH THE DEVICE UN-POWERED. CONTRACTOR SHALL COORDINATE WITH PUMP MANUFACTURER. MPR'S SHALL BE SET FOR AUTO-RESET OPERATION. WHEN POWERED, OVERTIEMP RELAY CONTACTS: 1-3 CLOSED, 1-4 OPEN, AND LEAKAGE RELAY CONTACTS: 11-8 CLOSED, 11-9 OPEN.

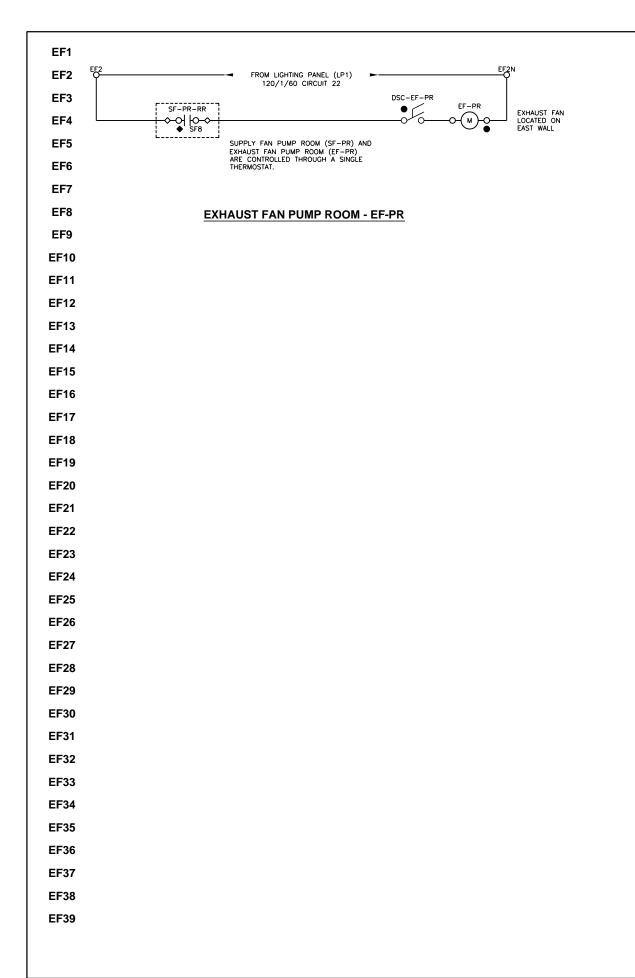
### LEGEND:

- △ TERMINAL IN MCC
- TERMINAL IN SCADA PANEL
- ▲ DEVICE IN MCC ◆ DEVICE IN SCADA PANEL
- DEVICE LOCALLY MOUNTED



E10

<b>DONOHUE</b>	USER NAME =	DESIGNED - DWG	REVISED -			RTE.	SECTION	COUNTY	TOTAL SHEET NO.
	PLOT SCALE =	DRAWN - DWG CHECKED - LET	REVISED -	STATE OF ILLINOIS  O DEPARTMENT OF TRANSPORTATION  SCA		ASHLAND AVE./ 9 2857	146SA&SBI-R	COOK	84 57 CT NO. 62B77
	PLOT DATE =	DATE - 02-26-16	REVISED -		SCALE: SHEET OF SHEETS STA. TO STA.			ILLINOIS FED. AID	PROJECT

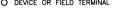


1. CONTRACTOR SHALL PROVIDE CONTROL SCHEMATIC SHOP DRAWINGS DEPICTING AND IDENTIFYING TERMINALS AND WIRE NUMBERS ASSOCIATED WITH SCADA PANEL AND TERMINAL NUMBERS AS THEY ARE DEPICTED ON MANUFACTURERS EQUIPMENT TERMINAL BLOCKS. CORDINATE PRIOR TO SUBMITTING SHOP DRAWINGS. ALL WIRED DEVICES SHALL BE COORDINATED, DEPICTED, AND IDENTIFIED.

SCALE:

#### LEGEND:

- △ TERMINAL IN MCC TERMINAL IN SCADA PANEL
- ▲ DEVICE IN MCC
- DEVICE IN SCADA PANEL
- DEVICE LOCALLY MOUNTED
- O DEVICE OR FIELD TERMINAL





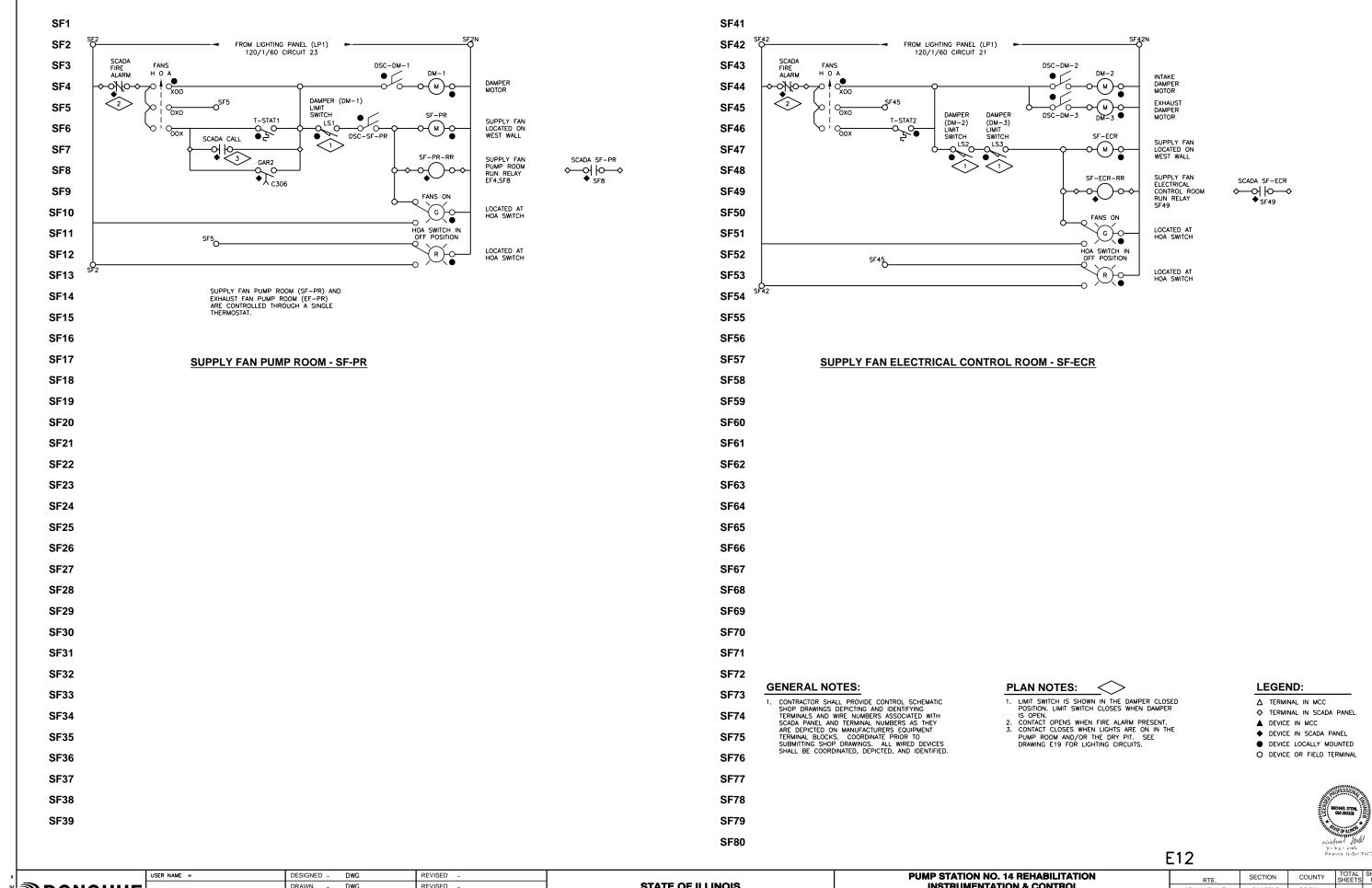
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	PLOT DATE =	DATE - 02-26-16	REVISED -	

TATE OF ILLINOIS NT OF TRANSPORTATION

PUMP STATION NO. 14 REHABILITATION										
	INSTI	RUMEN	TATION 8	& CONT	ROL					
	EXHAUST	FANS	CONTRO	L SCHE	MATICS					
	SHEET	OF	SHEETS	STA.	TO STA.					

TOTAL SHEET NO. 84 58 SECTION COUNTY RTE. ASHLAND AVE./ 9 2857 146SA&SBI-R \_COOK\_\_ CONTRACT NO. 62B77



)) DONOHUE

DRAWN -DWG REVISED PLOT SCALE = LET REVISED CHECKED -PLOT DATE = DATE 02-26-16 REVISED

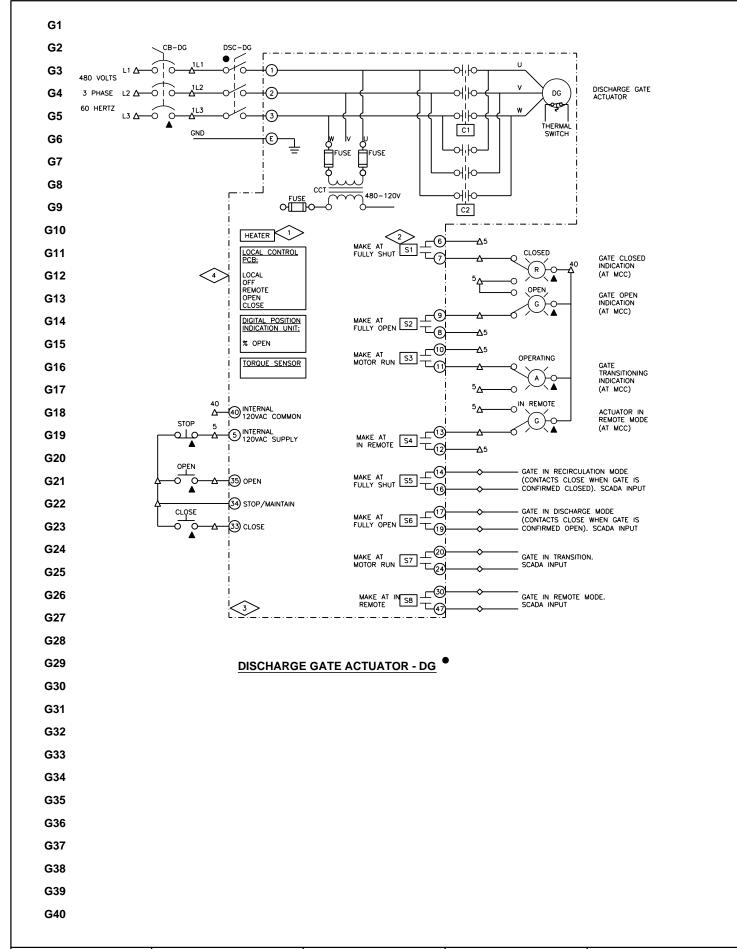
**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION** 

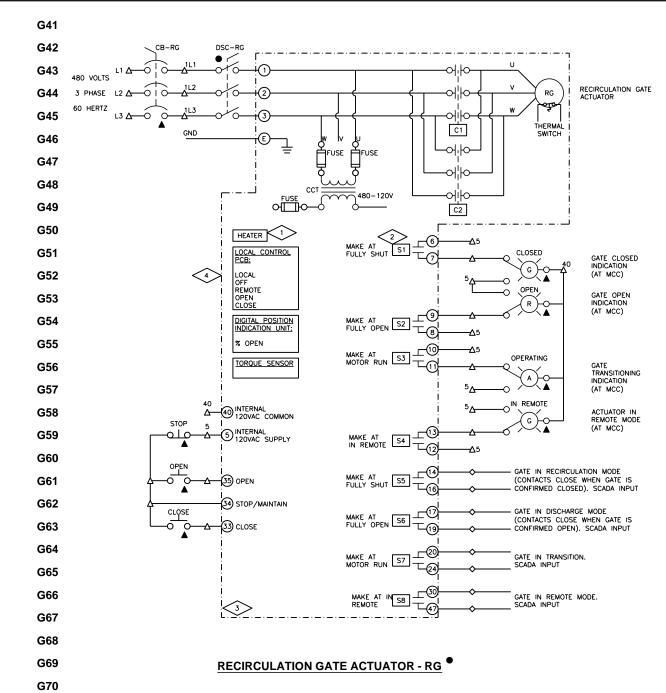
SCALE:

**INSTRUMENTATION & CONTROL** SUPPLY FANS CONTROL SCHEMATICS
SHEET OF \_\_\_\_ SHEETS STA. TO STA SHEET

ASHLAND AVE./ \_COOK\_ 46SA&SBI-R 9 2857 CONTRACT NO. 62B77

TOTAL SHEET NO. 84 59





G71 G72

**STATE OF ILLINOIS** 

CONTRACTOR SHALL PROVIDE CONTROL SCHEMATIC SHOP DRAWINGS DEPICTING AND IDENTIFYING TERMINALS AND WIRE NUMBERS ASSOCIATED WITH SCADA PANEL AND TERMINAL NUMBERS AS THEY ARE DEPICTED ON MANUFACTURERS EQUIPMENT TERMINAL BLOCKS. COORDINATE PRIOR TO SUBMITTING SHOP DRAWINGS. ALL WIRED DEVICES SHALL BE COORDINATED, DEPICTED, AND IDENTIFIED.

#### PLAN NOTES:

- 1. SEE SPECIFICATIONS FOR HEATER REQUIREMENTS.
  2. S1 THROUGH S8 ARE CONFIGURABLE OUTPUTS, AND SHALL BE CONFIGURED AS SHOWN.
  3. GATE ACTUATOR WIRING DIAGRAM IS REPRESENTATIVE OF MANUFACTURER ROTORK. IF ANOTHER MANUFACTURER IS APPROVED, THEN CONTRACTOR SHALL PROVIDE SIMILAR FUNCTIONALITY AND COORDINATE WIRING REQUIREMENTS WITH VENDOR.
  4. LOCAL-OFF-REMOTE SWITCH SHALL BE PAD-LOCKABLE.

#### LEGEND:

- △ TERMINAL IN MCC TERMINAL IN SCADA PANEL
- ▲ DEVICE IN MCC DEVICE IN SCADA PANEL

DEVICE LOCALLY MOUNTED

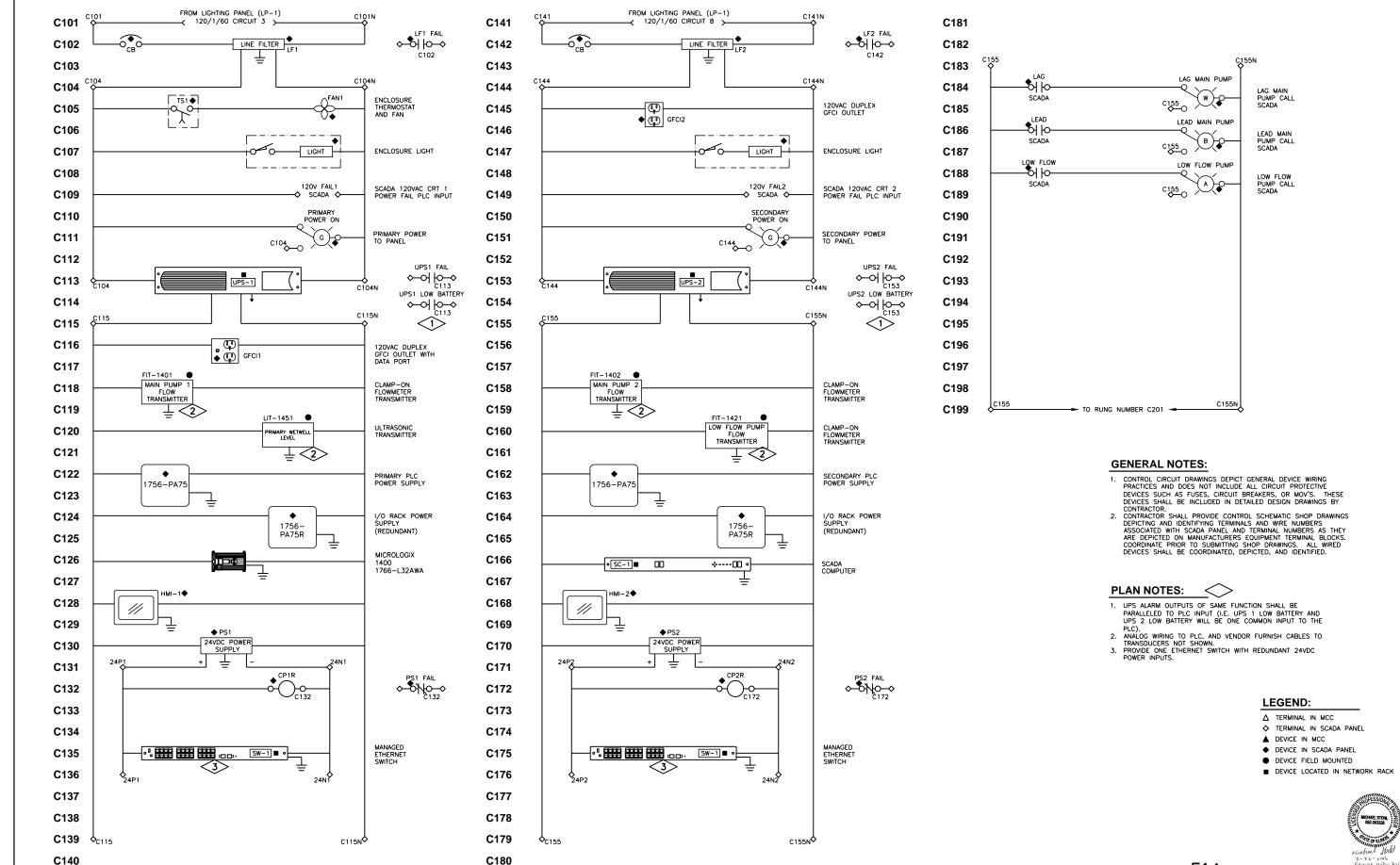


	USER NAME =	DESIGNED	-	DWG	REVISED	-
DONOHUE		DRAWN	-	DWG	REVISED	-
DONORGE	PLOT SCALE =	CHECKED	-	LET	REVISED	-
	PLOT DATE =	DATE		02-26-16	REVISED	-



	PUMP STATION NO. 14 REHABILITATION									
	INSTRUMENTATION & CONTROL									
	RECIRC AND DISCHARGE GATE ACTUATOR SCHEMATICS									
<u>.                                      </u>		CHEET	OF	CHEETO	CTA	TO OTA				

RTE.	SECT	ON	COUNTY	TOTAL SHEETS	SHE
ASHLAND AVE./	146SA&SBI-R		cook	84	60
9 2857			CONTRA	CT NO.	32B7
	ILLINOIS	FED. AII	PROJECT		



**STATE OF ILLINOIS** 

DEPARTMENT OF TRANSPORTATION

SCALE:

USER NAME =

PLOT SCALE =

PLOT DATE =

**DONOHUE** 

DESIGNED -

DRAWN -

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02-26-16

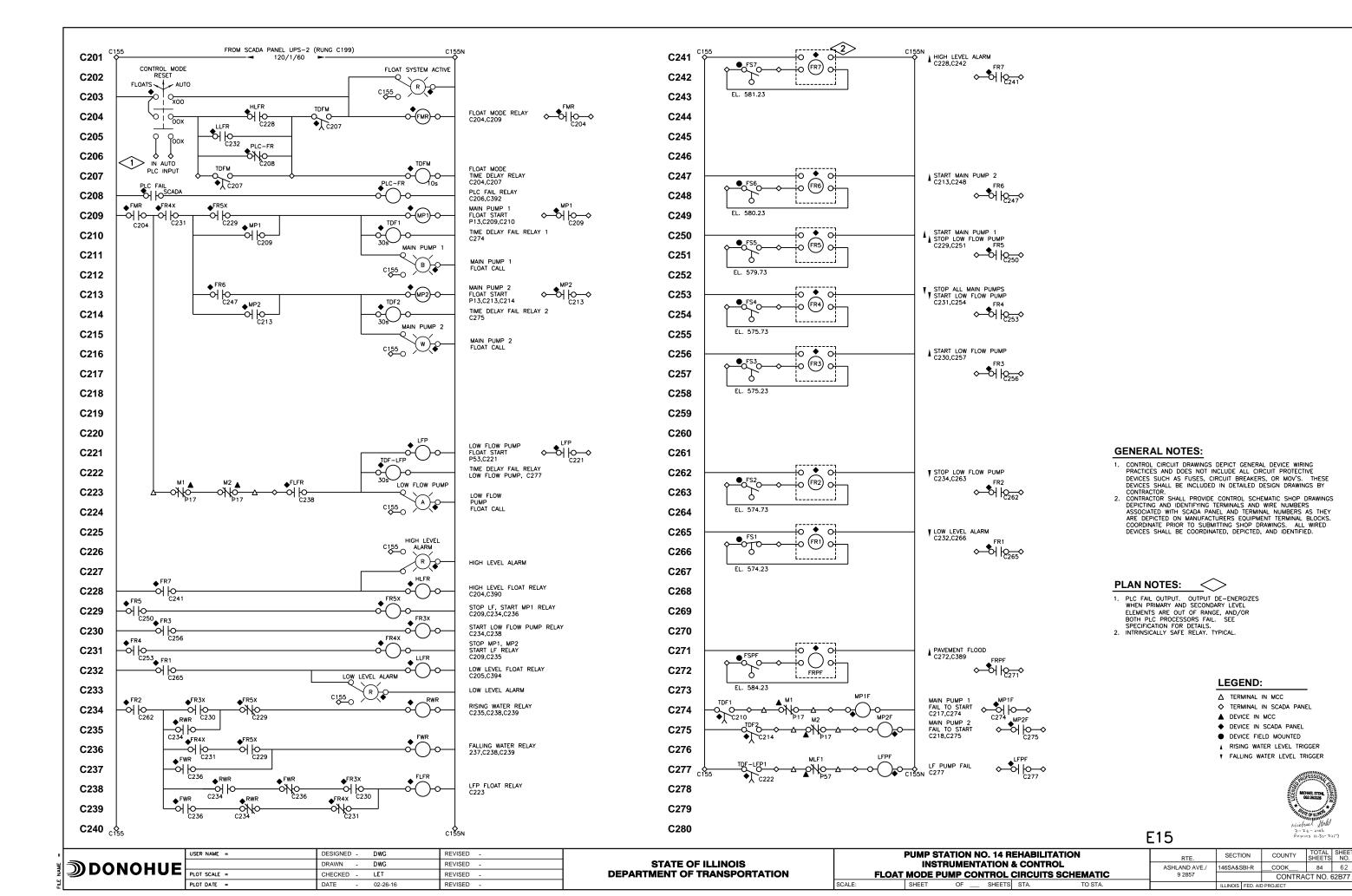
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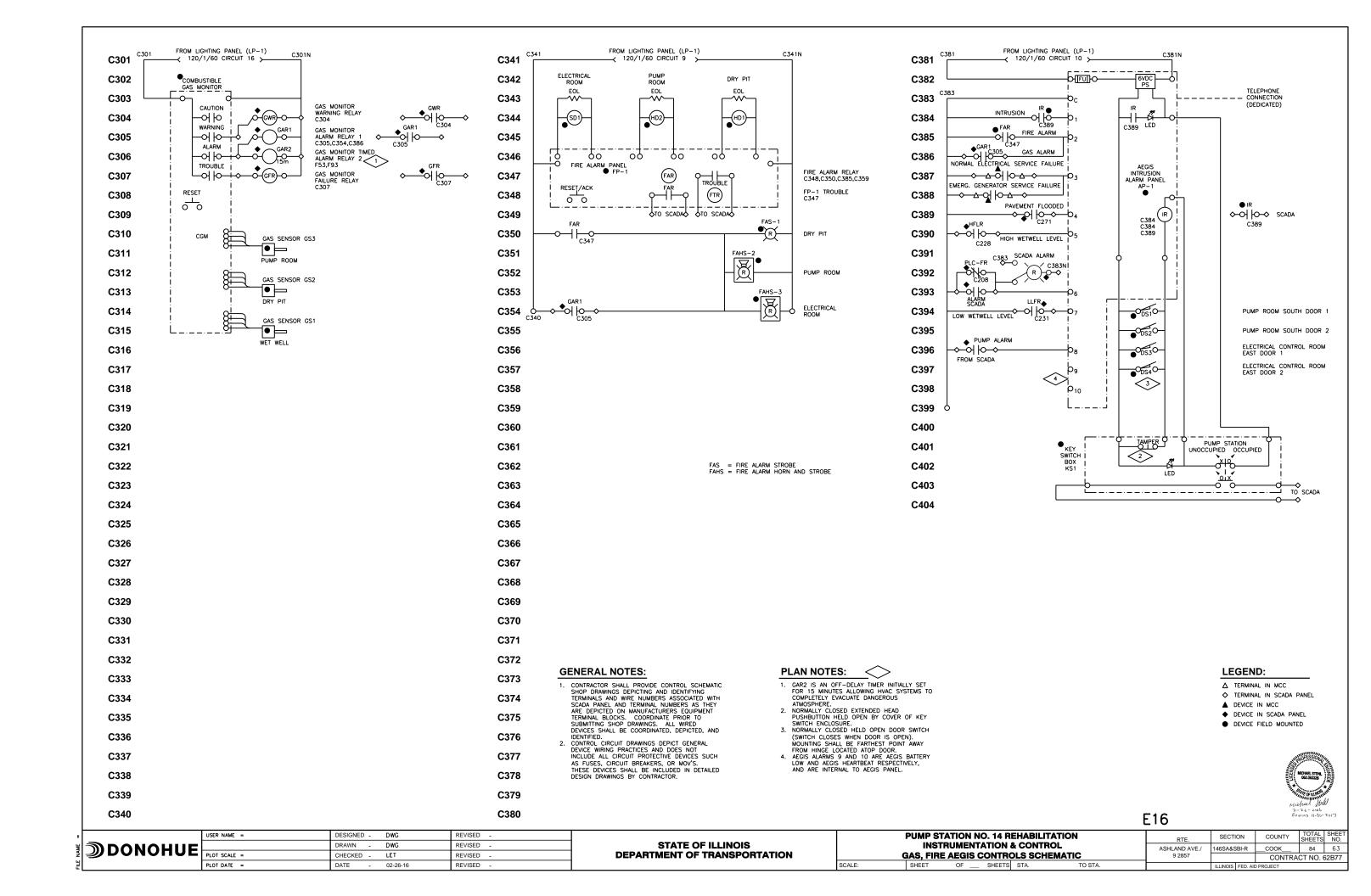
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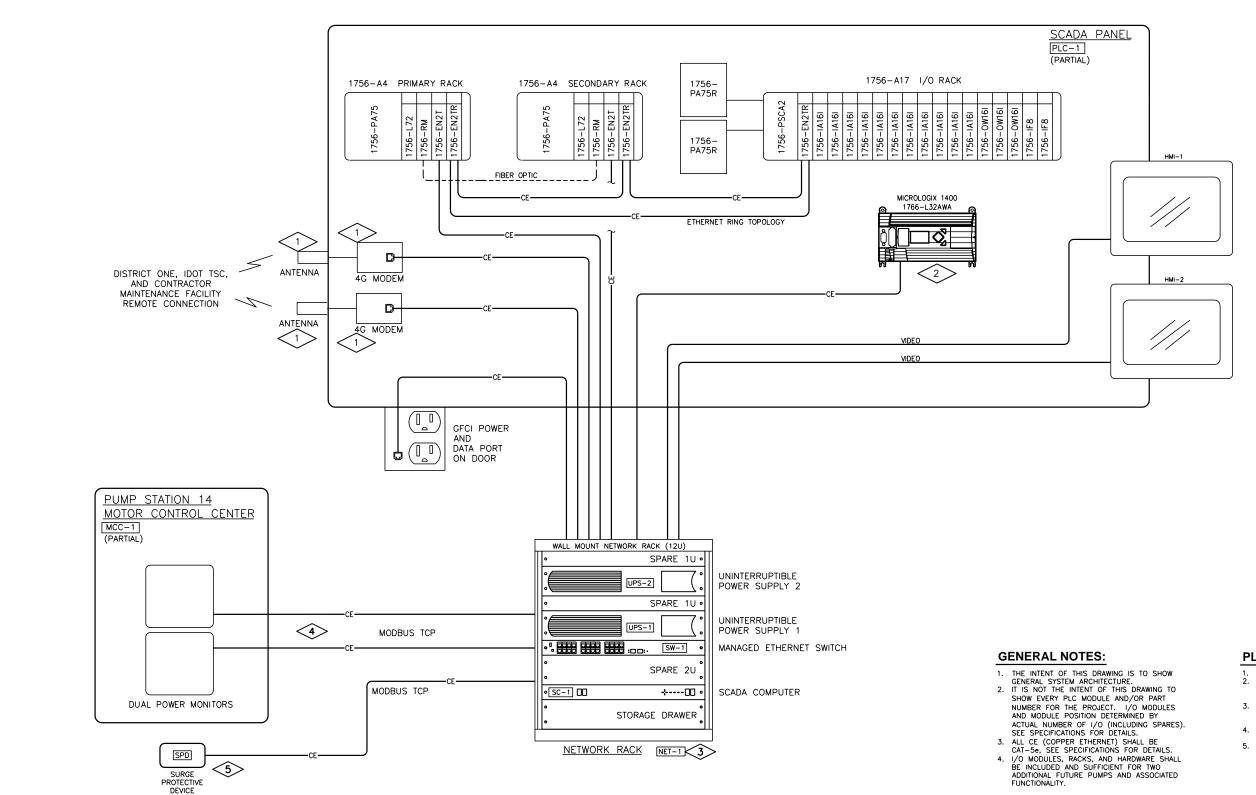
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TOTAL SHEET NO.

84 62





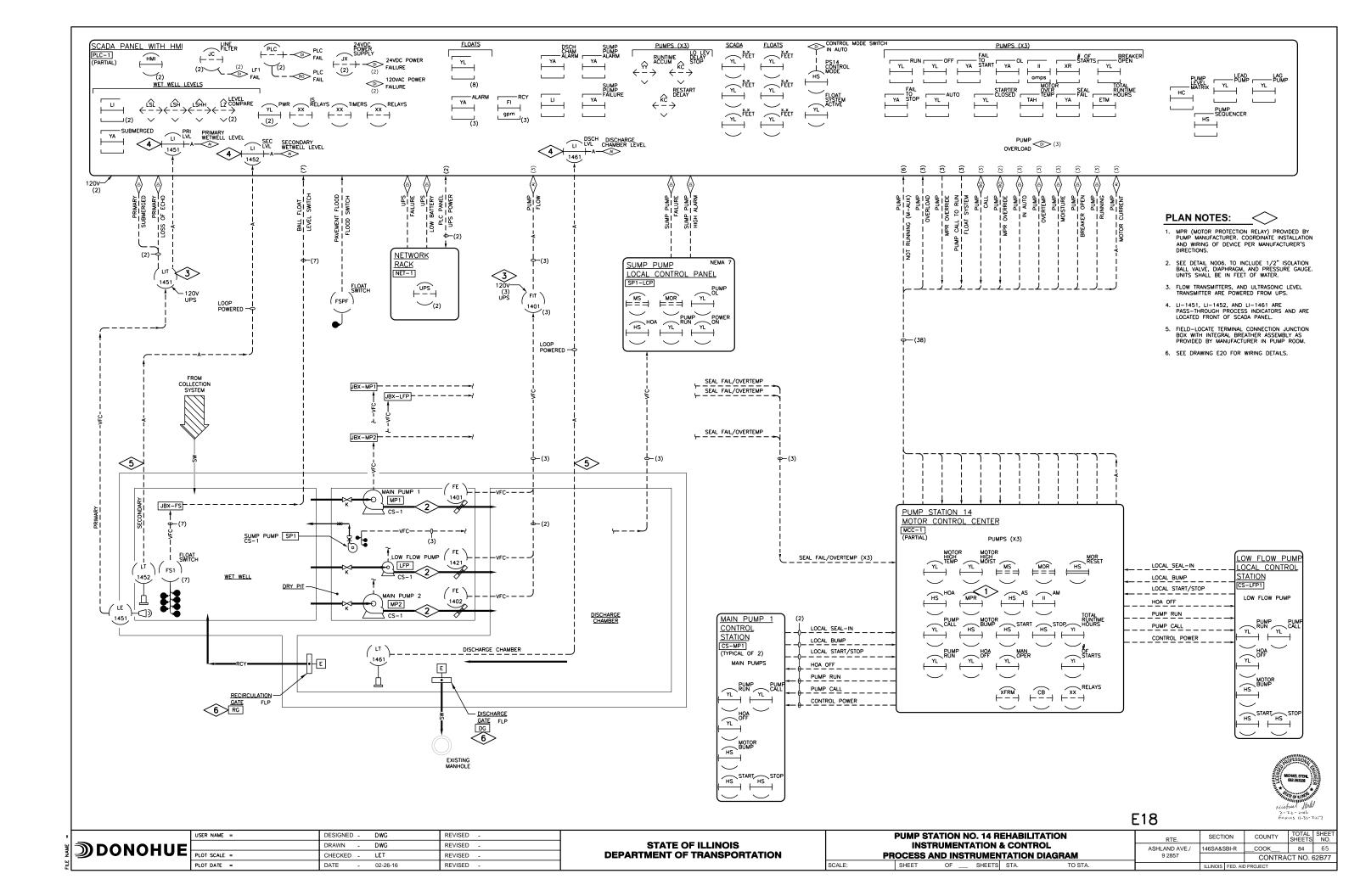
### **PLAN NOTES:**

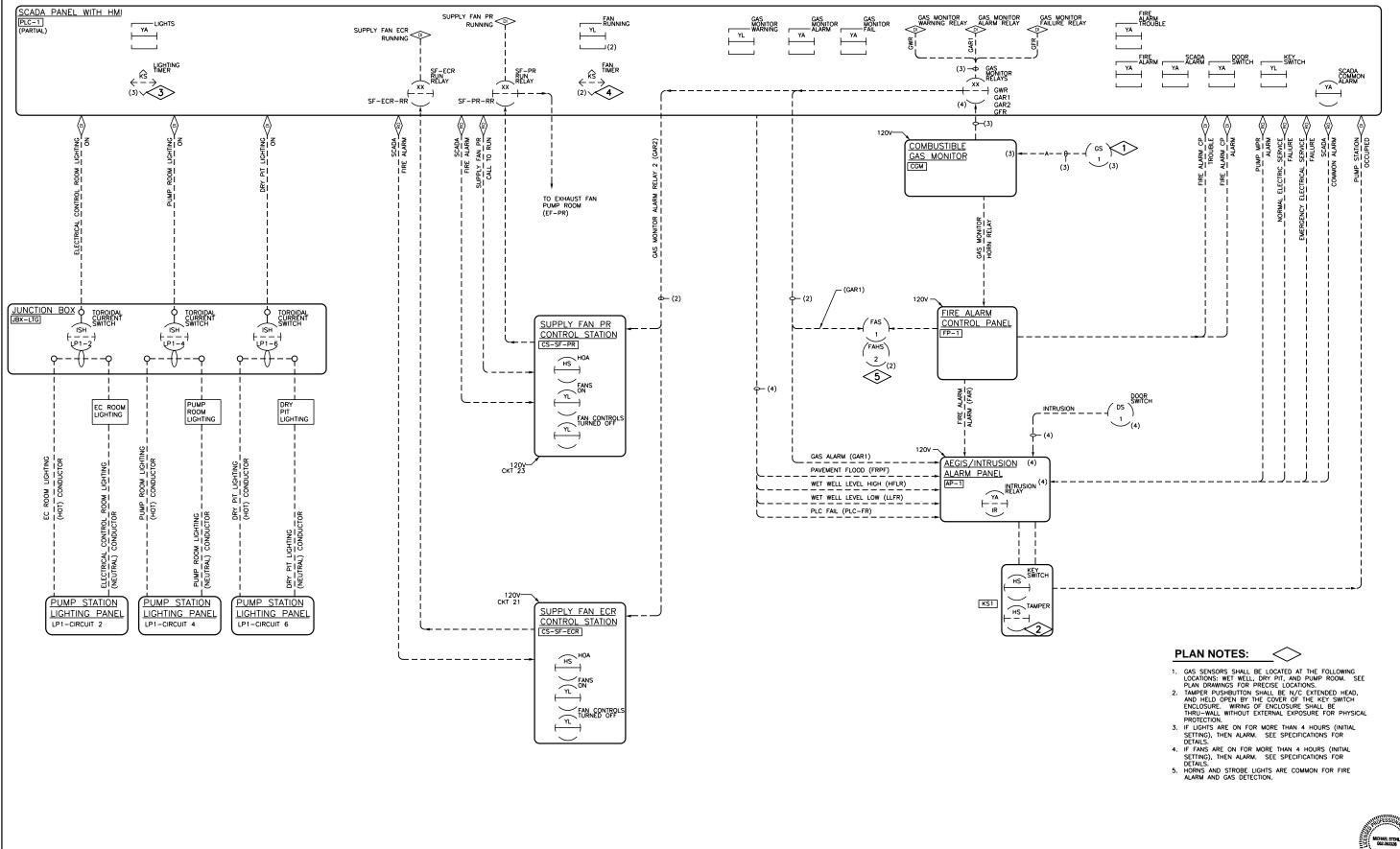
- 1. DEVICES PROVIDED BY IDOT MAINTENANCE.
  2. MICROLOGIX CONTROLLER USED PRIMARILY FOR MODBUS TCP TO ETHERNET/IP CONVERSION.
  3. TWIN UPS PROVIDES POWER FOR ALL COMPONENTS IN NETWORK RACK AND RESPECTIVE SCADA PANEL.
  4. SEE SPECIFICATIONS FOR POWER MONITORING DATA TO SCADA.
  5. SEE SPECIFICATIONS FOR SURGE PROTECTIVE DEVICE MONITORING DATA TO SCADA.



E17

		USER NAME =	DESIGNED - DWG	REVISED -			PUMP STATION NO. 14 REHABILITATION	RTE.	SECTION	COUNTY	TOTAL SHEET NO.
NAME	<b>DONOHUE</b>	PLOT SCALE =	DRAWN - DWG CHECKED - RJN	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		INSTRUMENTATION & CONTROL SYSTEM ARCHITECTURE	ASHLAND AVE./ 9 2857	146SA&SBI-R	COOK	84 64 ACT NO. 62B77
Ⅱ		PLOT DATE =	DATE - 02-26-16	REVISED -		SCALE:	SHEET OF SHEETS STA. TO STA.		ILLINOIS FED. AII	PROJECT	







E19

	USER NAME =	DESIGNED - DWG	REVISED -
DONOHUE		DRAWN - DWG	REVISED -
	PLOT SCALE =	CHECKED - LET	REVISED -
	PLOT DATE =	DATE - 02-26-16	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCALE:

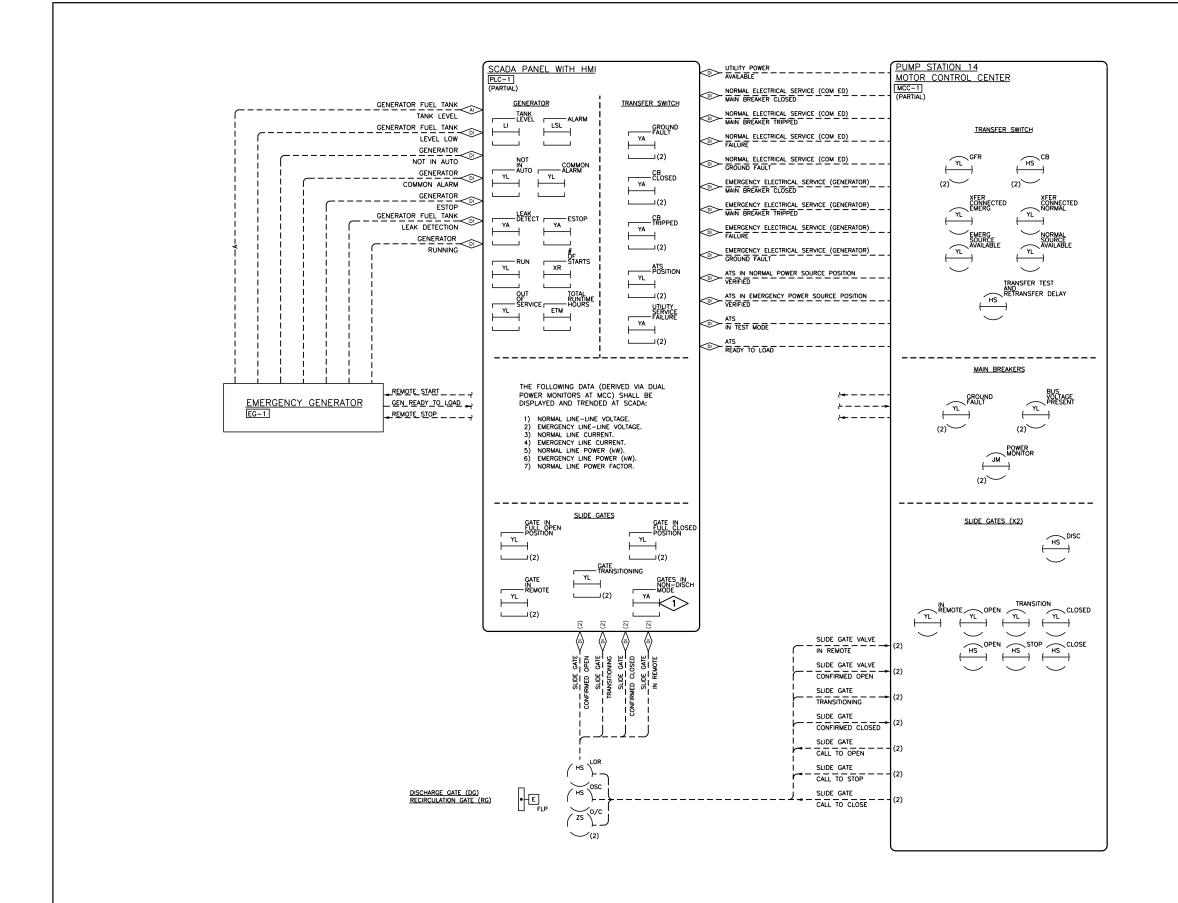
PUMP STATION NO. 14 REHABILITATION									
		TRUMENTA							
PR	PROCESS AND INSTRUMENTATION DIAGRAM								
	SHEET	OF	SHEETS	STA.	TO STA.				

 
 RTE.
 SECTION
 COUNTY
 TOTAL SHEETS NO.

 ASHLAND AVE./ 9 2857
 146SA&SBI-R
 \_\_COOK\_\_\_\_\_
 84
 66

 CONTRACT NO. 62B77

 ILLINOIS | FED. AID PROJECT



### PLAN NOTES:

 "GATES IN NON-DISCHARGE MODE" ALARM RESULTS WHEN RE-CIRCULATION GATE IS NOT CLOSED, AND/OR DISCHARGE GATE IS NOT OPEN. SEE SPECIFICATIONS FOR DETAILS.



E20

¥	<b>DONOHUE</b>	
NAME	DOMOROE	PLOT
끮		PLOT

USER NAME =

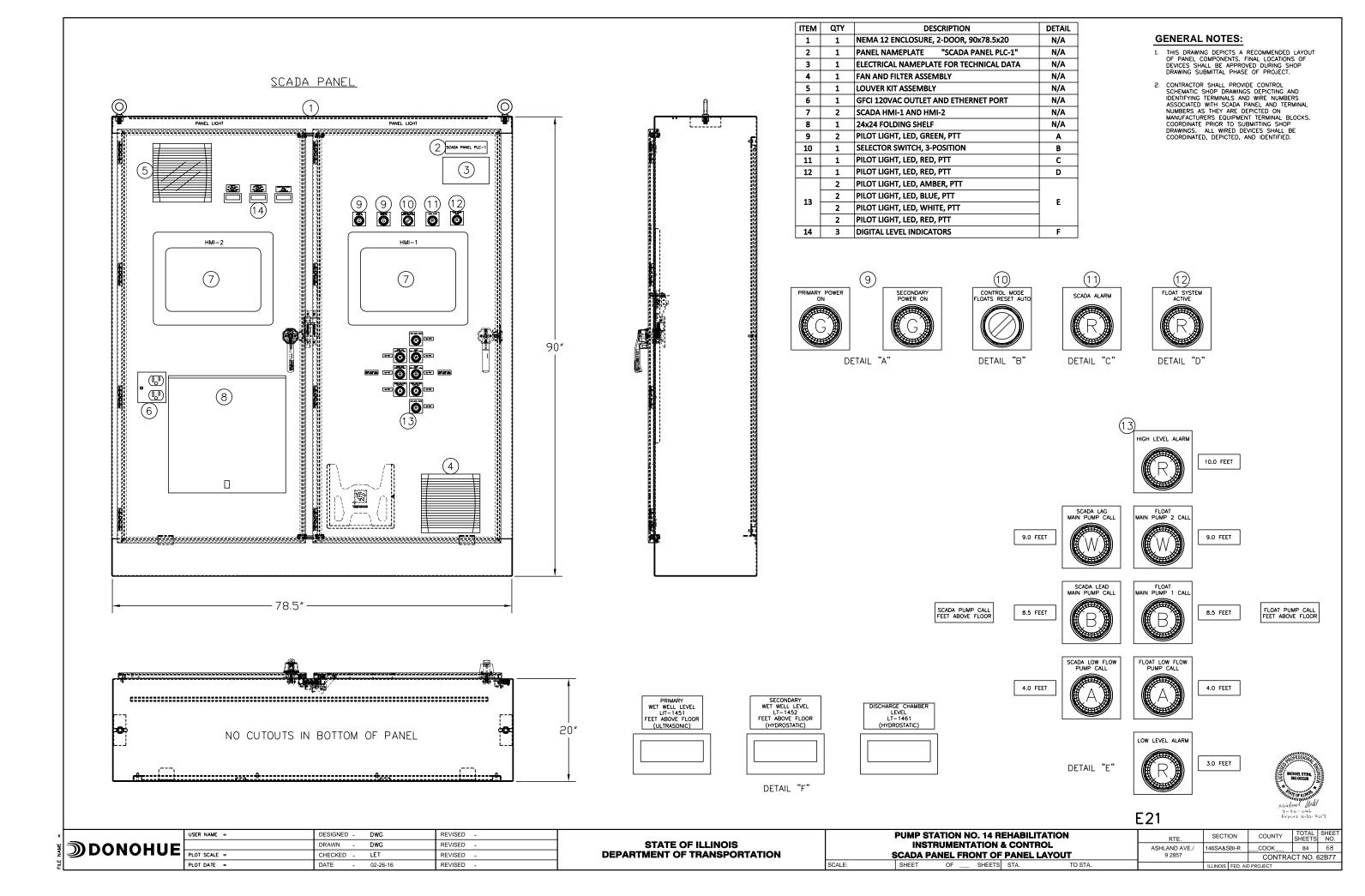
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PLOT SCALE =	CHECKED -	LET	REVISED -
PLOT DATE =	DATE -	02-26-16	REVISED -

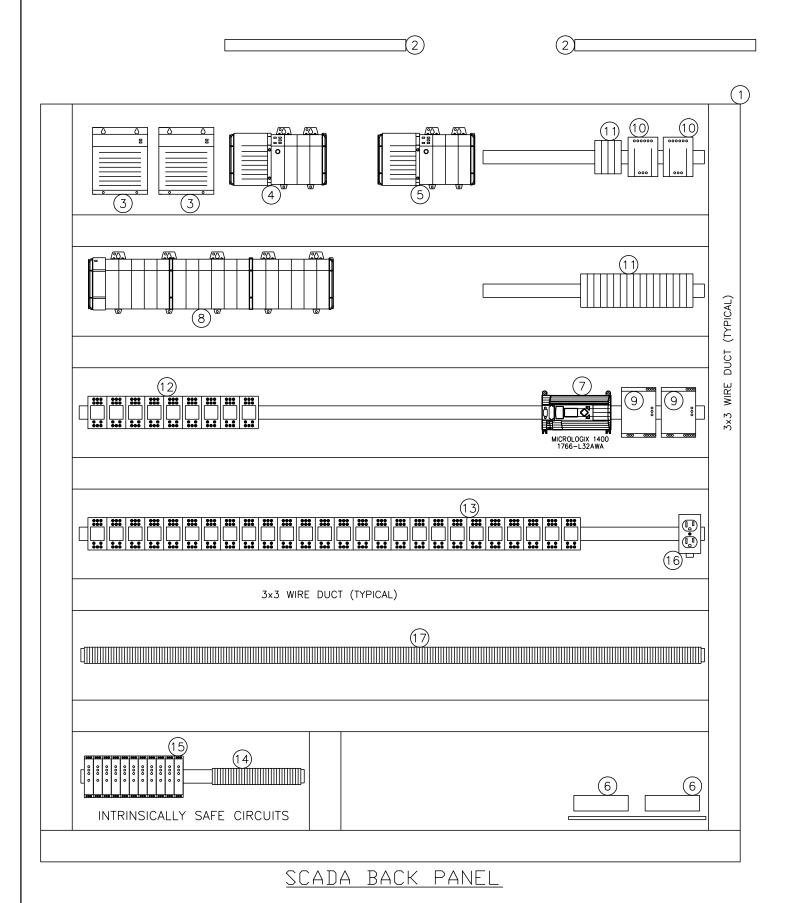
REVISED -

DESIGNED - DWG

SCALE:

RTE.	SECTI	ON	COUNTY	TOTAL SHEETS	SHEET NO.
ASHLAND AVE./	146SA&SBI-R		COOK	84	67
9 2857			CONTRA	CT NO. 6	62B77
	ILLINOIS FED. AID PROJECT				





ITEM	QTY	DESCRIPTION
1	1	78x72 PANEL
2	2	LED LIGHT & DOOR SWITCH
3	2	PLC POWER SUPPLY
4	1	PRIMARY CONTROLLOGIX PROCESSOR AND RACK
5	1	SECONDARY CONTROLLOGIX PROCESSOR AND RACK
6	2	4G MODEM (PROVIDED BY IDOT MAINTENANCE)
7	1	MICROLOGIX 1766-L32AWA
8	AS REQ'D	PLC REMOTE RACK AND MODULES
9	2	24VDC POWER SUPPLY (PS1, PS2)
10	2	120VAC LINE FILTER (LF1, LF2)
11	AS REQ'D	CIRCUIT BREAKERS AND FUSES
12	AS REQ'D	TIME DELAY RELAYS
13	AS REQ'D	RELAYS
14	AS REQ'D	TERMINAL BLOCK FOR FLOAT SYSTEM CONTROLS
15	AS REQ'D	INTRINSICALLY SAFE RELAYS
16	1	GFCI, 120VAC, 20A
17	AS REQ'D	TERMINAL BLOCK FOR SCADA COMPONENTS

CP1R	(14)	12
CP1R		
	TDFM	CB1
CP2R	TDF1	CB2
FMR	TDF2	CB3
PLC-FR	TDFLP	CB4
MP1	GAR2	CB5
MP2	SPARE1	CB6
LFP	SPARE2	CB7
HLFR	SPARE3	CB8
FR5X		CB9
FR4X		CB10
FR3X		CB11
LLFR		CB12
RWR		CB13
FWR		CB14
FLFR		SPARE1
MP1F		SPARE2
MP2F		SPARE3
LFPF		
GWR		
GAR1		
GFR		
SPARE1		
SPARE2		
SPARE3		
SPARE4		
SPARE5		
SPARE6		
	FMR PLC-FR MP1 MP2 LFP HLFR FR5X FR4X FR3X LLFR RWR FWR FUFF GWR GAR1 GFR SPARE1 SPARE2 SPARE3 SPARE4 SPARE5	FMR TDF2 PLC-FR TDFLP MP1 GAR2 MP2 SPARE1 LFP SPARE2 HLFR SPARE3 FR5X FR4X FR3X LLFR RWR FWR FLFR MP1F MP2F LFPF GWR GAR1 GFR SPARE1 SPARE2 SPARE3 SPARE4 SPARE5

- 1. THIS DRAWING DEPICTS A RECOMMENDED LAYOUT OF PANEL COMPONENTS. FINAL LOCATIONS OF DEVICES AND WIRE BENDING SPACE SHALL BE APPROVED DURING SHOP DRAWING SUBMITTAL PHASE OF PROJECT.
- 2. ALL FIELD TERMINATIONS SHALL BE MADE AT TERMINAL BLOCKS, AND DESIGNATED AS SUCH.
- 3. SEGREGATE INTRINSICALLY SAFE (1/S) CIRCUITS WITH NO. 20 GAUGE (IR THICKER) SHEET METAL PARTITION: 1/S CIRCUITS SHALL BE ROUTED IN SEPARATE COMBUIT FROM ALL DITHER CONDUCTORS. INSTALL IN ACCORDANCE WITH ARTICLE 504 OF NEC (LATEST EDITION).
- 4. CONTRACTOR SHALL PROVIDE CONTROL SCHEMATIC SHOP DRAWINGS DEPICTING AND IDENTIFYING TERMINALS AND WIRE NUMBERS ASSOCIATED WITH SCADA PANEL AND TERMINAL NUMBERS AS THEY ARE DEPICTED ON MANUFACTURERS EQUIPMENT TERMINAL BLOCKS. COORDINATE PRIOR TO SUBMITTING SHOP DRAWINGS. ALL WIRED DEVICES SHALL BE COORDINATED, DEPICTED, AND IDENTIFIED.



E22

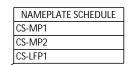
<b>⋑DONOHUE</b>	USER NAME =	DESIGNED -	DWG	REVISED -
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	PLOT SCALE =	CHECKED -	LET	REVISED -
	PLOT DATE =	DATE -	02-26-16	REVISED -

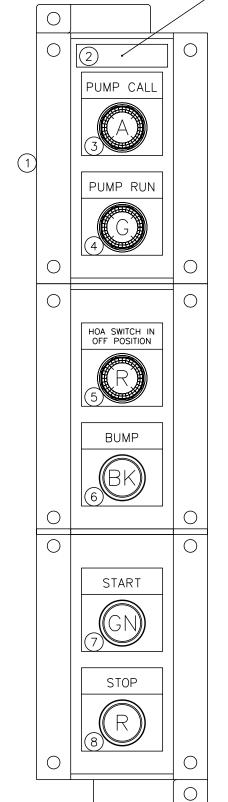
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCALE:

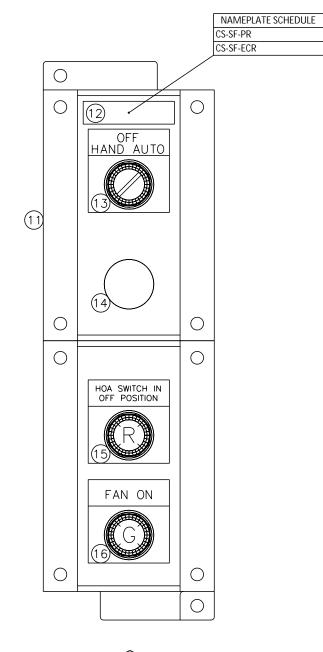
PUMP STATION NO. 14 REHABILITATION INSTRUMENTATION & CONTROL					
	SCADA	PANEL REA	AR OF	<b>PANEL</b>	. LAYOUT
	SHEET	OF	SHEETS	STA.	TO ST

RTE.	SECTION		COUNTY	TOTAL SHEETS	SHEET NO.
ASHLAND AVE./	146SA&SBI-R		COOK	84	69
9 2857			CONTRACT NO. 62B7		
	SIONLLII	EED AIR	DPO IECT		





	MATERIAL LIST (TYPICAL FOR EACH PUMP)					
ITEM	QTY	DESCRIPTION				
1	AS REQ'D	NEMA 7 PUSHBUTTON ENCLOSURE				
2	1	NAMEPLATE (SEE SCHEDULE)				
3	1	NEMA 7 PILOT LIGHT, LED, AMBER				
4	1	NEMA 7 PILOT LIGHT, LED, GREEN				
5	1	NEMA 7 PILOT LIGHT, LED, RED				
6	2	NEMA 7 PUSHBUTTON, BLACK				
7	1	NEMA 7 PUSHBUTTON, GREEN				
8	1	NEMA 7 PUSHBUTTON, RED				
	AS REQ'D	LEGEND PLATES				



	$\bigcirc$						
MA	MATERIAL LIST (TYPICAL FOR EACH CONTROL STATION)						
ITEM	QTY	DESCRIPTION					
11	AS REQ'D	NEMA 7 PUSHBUTTON ENCLOSURE					
12	1	NAMEPLATE (SEE SCHEDULE)					
13	1	NEMA 7 3-POS SELECTOR SWITCH					
14	1	NEMA 7 PLUG					
15	1	NEMA 7 PILOT LIGHT, LED, RED					
16	2	NEMA 7 PILOT LIGHT, LED, GREEN					
	AS REQ'D	LEGEND PLATES					

SCALE:

PLAN NOTES:

1. ELECTRICAL CONTROL ROOM SUPPLY FAN CONTROL STATION (CS-SF-ECR) TO BE NEMA 12 AS IT IS A NON-RATED SPACE.

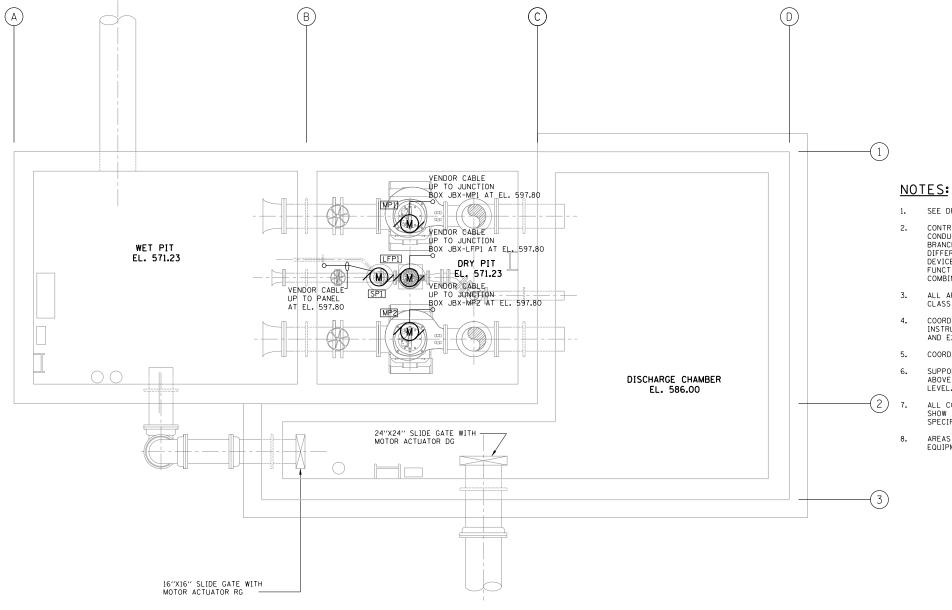


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<b>DONOHUE</b>	PLOT SCALE =
	PLOT DATE =

USER NAME =	DESIGNED - DWG	REVISED -
	DRAWN - DWG	REVISED -
PLOT SCALE =	CHECKED - LET	REVISED -
PLOT DATE =	DATE - 02-26-16	REVISED -





- SEE DRAWING E37 FOR CONDUCTOR AND CONDUIT REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING NUMBER OF CONDUCTORS IN CONDUIT PRIOR TO INSTALLATION. LOCATION OF BRANCH AND SWITCH LEGS AS INDICATED MAY BE ROUTED DIFFERENTLY AS DICTATED BY CONSTRUCTION AND SPECIFICATIONS. DEVICES SHOWN WIRED SEPARATELY TO SOURCE; SIGNALS WITH SAME FUNCTION INCLUDING 120 VOLT DEVICES AND BELOW MAY BE COMBINED IN RACEWAYS PER NEC.
- ALL AREAS WITHIN BUILDING EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 2,GROUP D EXPLOSION PROOF.
- COORDINATE POWER CONDUIT ROUTINGS WITH LIGHTING CONDUIT AND INSTRUMENTATION & CONTROL CONDUIT ROUTINGS. SEE DRAWINGS E27
- 5. COORDINATE CONDUIT ROUTING WITH HVAC DUCTS. SEE DRAWING H1.
- SUPPORT VENDOR PUMP CABLES WITH STRESS RELIEF IN PUMP ROOM ABOVE SUCH THAT STRESS RELIEF IS ACCESSIBLE FROM GRADE LEVEL. INSTALL PER DETAIL E600.
- ALL CONDUITS SHALL BE IDENTIFIED BY UNIOUE CONDUIT NUMBER, SHOW ON ADHESIVE LABEL. INSTALL PER DRAWING E3 AND SPECIFICATIONS.
- AREAS BENEATH HATCHES SHALL REMAIN CLEAR OF CONDUITS AND EQUIPMENT SO THAT PUMPS CAN BE REMOVED.

PLAN EL. 571.23 & 586.00

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<b>⋑DONOHUE</b>	USER NAME =	DESIGNED	-	MBS
		DRAWN	-	MBS
	PLOT SCALE =	CHECKED	-	JAB
	PLOT DATE =	DATE	-	02-26-16

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

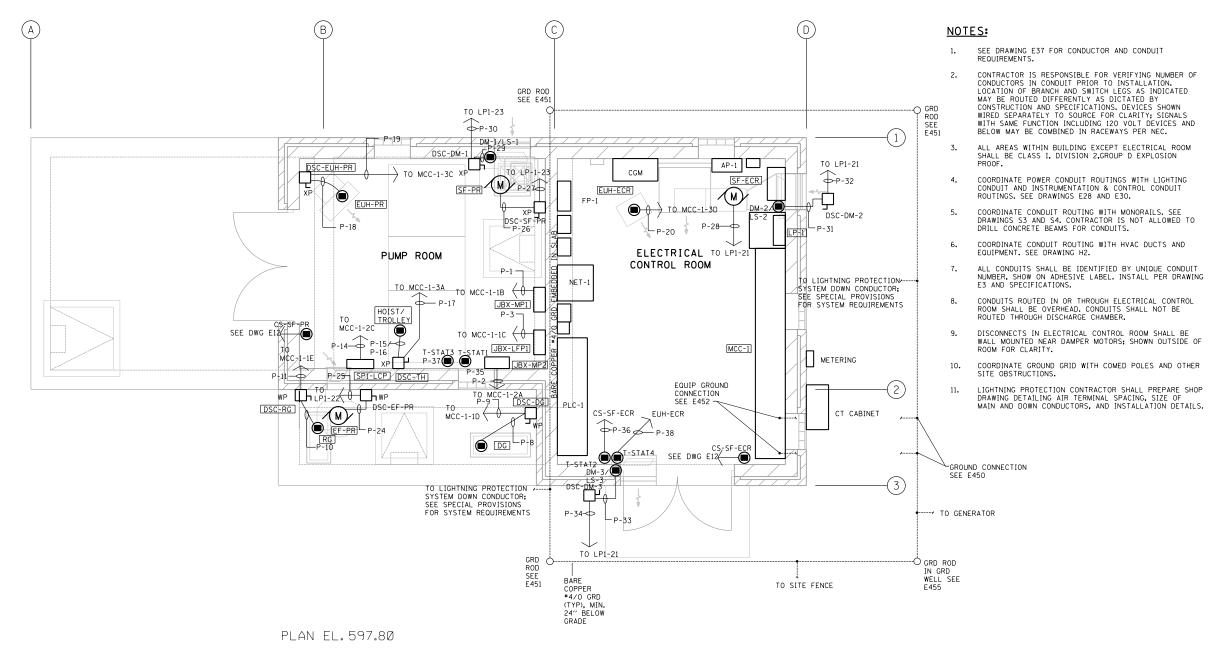
PUMP STATION NO. 14 REHABILITATION ELECTRICAL PLAN SHEET SHEETS STA. TO STA.

SCALE:

COUNTY SHEETS NO.

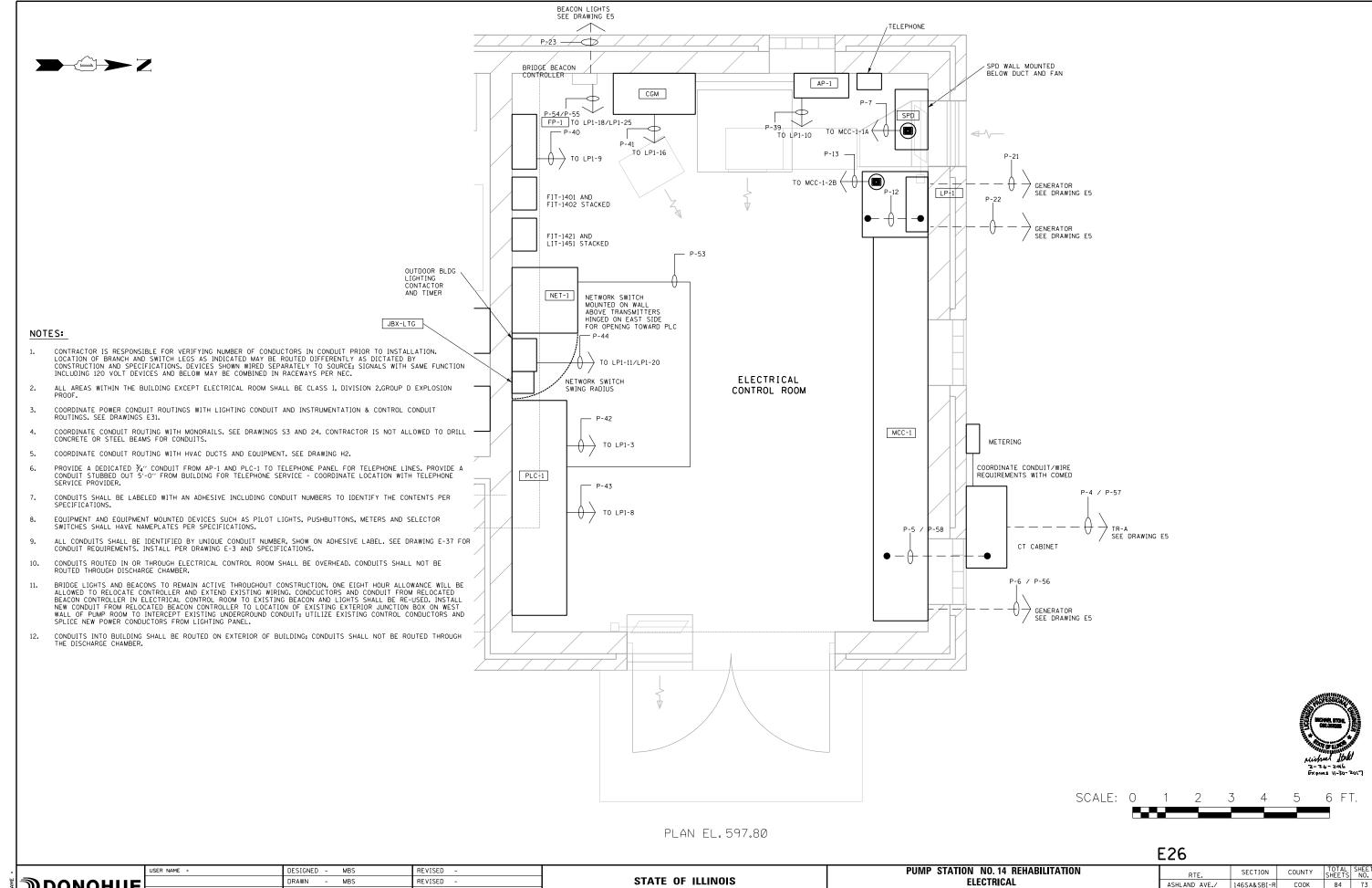
COOK 84 71 SECTION RTE. ASHLAND AVE./ 146SA&SBI-R CONTRACT NO. 62B77 9 2857







SCALE: 0 1 2 3 4 5 6 FT PUMP STATION NO. 14 REHABILITATION USER NAME = DESIGNED - MBS REVISED -SECTION COUNTY SHEETS NO. RTE. STATE OF ILLINOIS ELECTRICAL REVISED **DONOHUE** COOK 84 72 ASHLAND AVE./ 146SA&SBI-R PLOT SCALE = CHECKED - JAB REVISED **DEPARTMENT OF TRANSPORTATION** PLAN 9 2857 CONTRACT NO. 62B77 PLOT DATE = DATE - 02-26-16 REVISED SCALE: SHEET SHEETS STA. TO STA.



)) DONOHUE

DRAWN REVISED PLOT SCALE = CHECKED -JAB REVISED PLOT DATE = DATE 02-26-16 REVISED

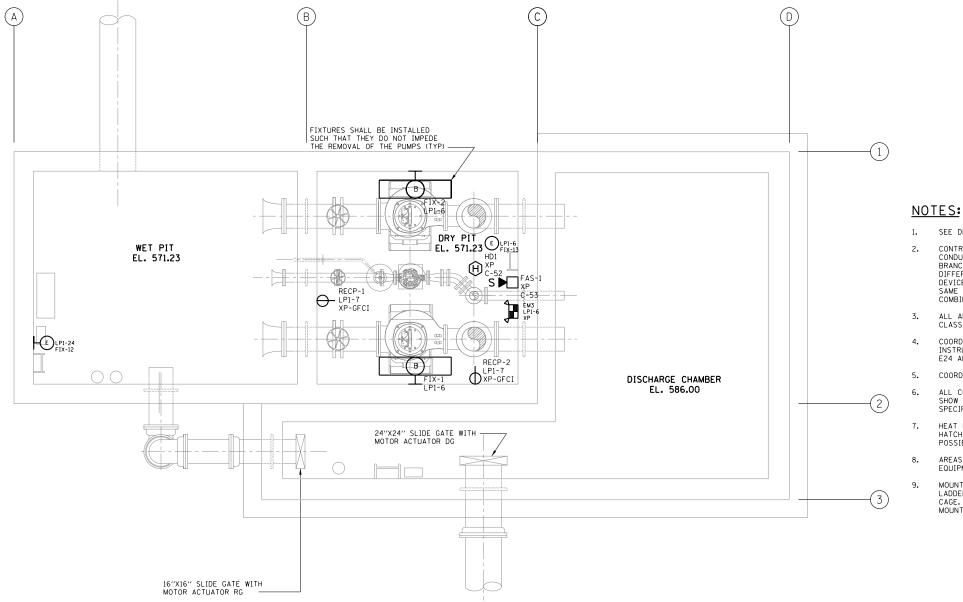
**DEPARTMENT OF TRANSPORTATION** 

SCALE:

ELECTRICAL ASHLAND AVE./ PLAN 9 2857 SHEET SHEETS STA. TO STA.

CONTRACT NO. 62B77





- SEE DRAWING E37 FOR CONDUCTOR AND CONDUIT REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING NUMBER OF CONDUCTORS IN CONDUIT PRIOR TO INSTALLATION. LOCATION OF BRANCH AND SWITCH LEGS AS INDICATED MAY BE ROUTED DIFFERENTLY AS DICTATED BY CONSTRUCTION AND SPECIFICATIONS. DEVICES SHOWN WIRED SEPARATELY TO SOURCE; SIGNALS WITH SAME FUNCTION INCLUDING 120 VOLT DEVICES AND BELOW MAY BE COMBINED IN RACEWAYS PER NEC.
- ALL AREAS WITHIN BUILDING EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 2,GROUP D EXPLOSION PROOF.
- COORDINATE LIGHTING CONDUIT ROUTINGS WITH POWER CONDUIT AND INSTRUMENTATION & CONTROL CONDUIT ROUTINGS. SEE DRAWINGS
- COORDINATE CONDUIT ROUTING WITH HVAC DUCTS. SEE DRAWING H1.
- ALL CONDUITS SHALL BE IDENTIFIED BY UNIQUE CONDUIT NUMBER, SHOW ON ADHESIVE LABEL. INSTALL PER DRAWING E3 AND SPECIFICATIONS.
- HEAT DETECTOR SHALL BE MOUNTED TO UNDERSIDE OF SLAB NEAR HATCH OPENING. MOUNT HD1 AS CLOSE TO LADDER CAGE AS POSSIBLE FOR EASE OF MAINTENANCE.
- AREAS BENEATH HATCHES SHALL REMAIN CLEAR OF CONDUITS AND EQUIPMENT SO THAT PUMPS CAN BE REMOVED.
- MOUNT FIXTURE TYPE E IN DRY PIT TO CEILING ADJACENT TO LADDER CAGE, LOCATE SO THAT FIXTURE CAN BE RE-LAMPED FROM CAGE, PROVIDE MANUFACTURER'S JUNCTION BOX AS REQUIRED FOR

PLAN EL. 571.23 & 586.00

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E	27	SCALE: 0 1	2 3	4 5	6 FT
	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEE NO.
	ASHLAND AVE./	146SA&SBI-R	COOK	84	74
	9 2857		CONTRACT	L NU C	2B77

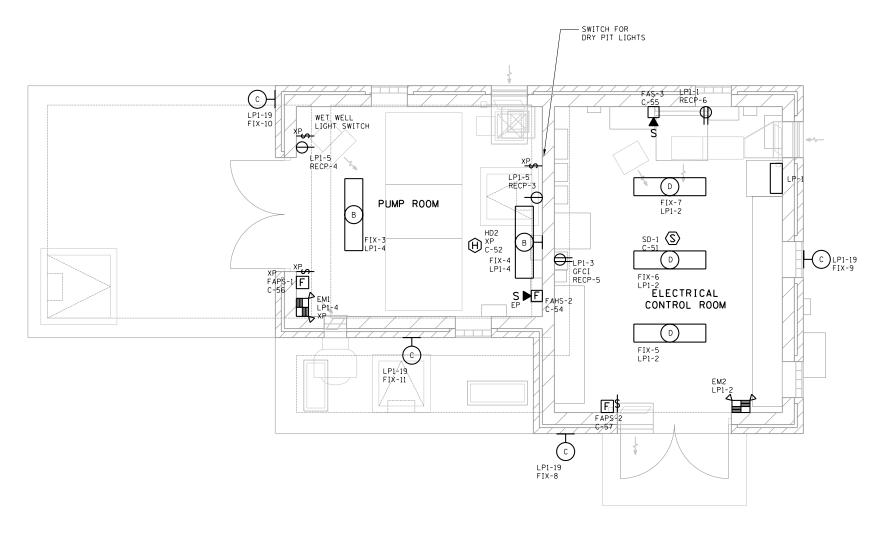
	USER NAME =	DESIGNED	-	MBS
<b>DONOHUE</b>		DRAWN	-	MBS
DONORGE	PLOT SCALE =	CHECKED	-	JAB
	PLOT DATE =	DATE	-	02-26-16

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

PUMP STATION NO. 14 REHABILITATION ELECTRICAL LIGHTING PLAN SHEET SHEETS STA. TO STA.

SCALE:





- 1. SEE DRAWING E37 FOR CONDUCTOR AND CONDUIT REQUIREMENTS.
- 2. CONTRACTOR IS RESPONSIBLE FOR VERIFYING NUMBER OF CONDUCTORS IN CONDUIT PRIOR TO INSTALLATION. LOCATION OF BRANCH AND SWITCH LEGS AS INDICATED MAY BE ROUTED DIFFERENTLY AS DICTATED BY CONSTRUCTION AND SPECIFICATIONS. DEVICES SHOWN WIRED SEPARATELY TO SOURCE; SIGNALS WITH SAME FUNCTION INCLUDING 120 VOLT DEVICES AND BELOW MAY BE COMBINED IN RACEWAYS PER NEC.
- 3. ALL AREAS WITHIN BUILDING EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 2,GROUP D EXPLOSION PROOF.
- COORDINATE LIGHTING CONDUIT ROUTINGS WITH POWER CONDUIT AND INSTRUMENTATION & CONTROL CONDUIT ROUTINGS. SEE DRAWINGS E25 AND E30.
- 5. COORDINATE CONDUIT ROUTING WITH MONORAILS. SEE DRAWINGS S3 AND S4. CONTRACTOR IS NOT ALLOWED TO DRILL CONCRETE BEAMS FOR CONDUITS.
- 6. COORDINATE CONDUIT ROUTING WITH HVAC DUCTS AND EQUIPMENT. SEE DRAWING H2.
- 79. ALL CONDUITS SHALL BE IDENTIFIED BY UNIQUE CONDUIT NUMBER, SHOW ON ADHESIVE LABEL. INSTALL PER DRAWING E3 AND SPECIFICATIONS.
- 8. CONDUITS ROUTED IN OR THROUGH ELECTRICAL CONTROL ROOM SHALL BE OVERHEAD. CONDUITS SHALL NOT BE ROUTED THROUGH DISCHARGE CHAMBER
- 9. HEAT AND SMOKE DETECTORS SHALL BE MOUNTED TO CEILING.

E28

PLAN EL.597.80



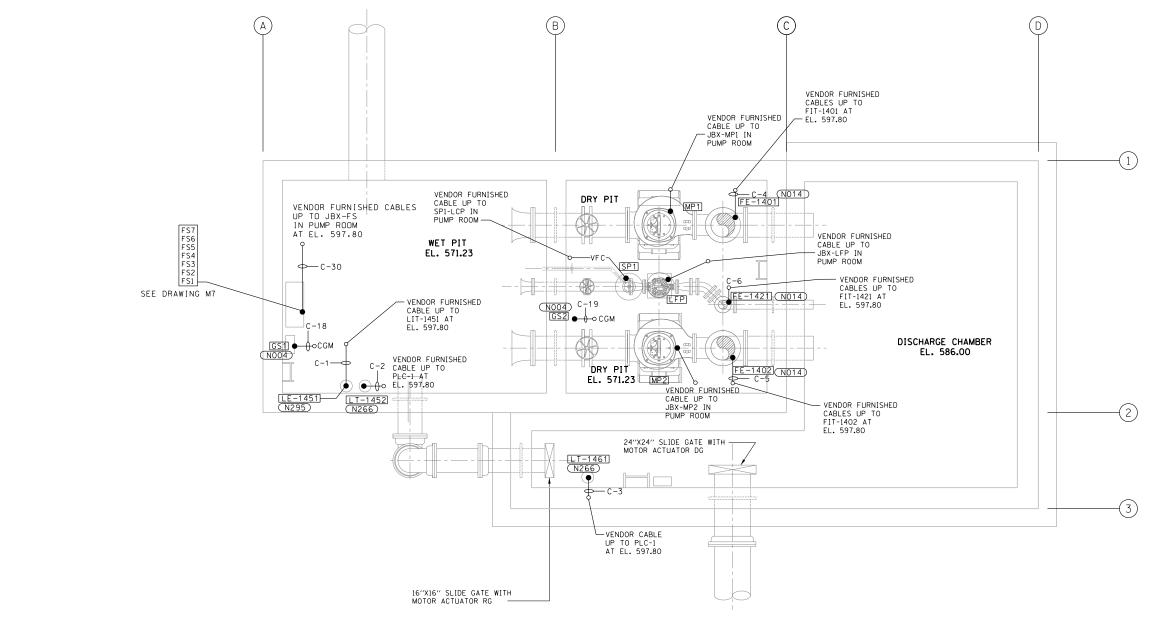
DESIGNED -	MBS	REVISED -		PUMP STATION NO.14 REHABILITATION	RTF.	SECTION	COUNTY	TOTAL S	SHEET
DRAWN -	MBS	REVISED -	STATE OF ILLINOIS	ELECTRICAL	ASHLAND AVE./	146SA&SBI-R	соок	84	75
CHECKED -	JAB	REVISED -	DEPARTMENT OF TRANSPORTATION	LIGHTING PLAN	9 2857		CONTRACT	NO. 62	B77
DATE	02-26-16	DEVISED	1	SCALE. SHEET OF SHEETS STA TO STA	<u>.</u>		DD0 IFOT		

**DONOHUE** 

USER NAME =

PLOT SCALE =





- 1. SEE DRAWING E37 FOR CONDUCTOR AND CONDUIT REQUIREMENTS.
- 2. CONTRACTOR IS RESPONSIBLE FOR VERIFYING NUMBER OF CONDUCTORS IN CONDUIT PRIOR TO INSTALLATION. LOCATION OF BRANCH AND SWITCH LEGS AS INDICATED MAY BE ROUTED DIFFERENTLY AS DICTATED BY CONSTRUCTION AND SPECIFICATIONS. DEVICES SHOWN WIRED SEPARATELY TO SOURCE; SIGNALS WITH SAME FUNCTION INCLUDING 120 VOLT DEVICES AND BELOW MAY BE COMBINED IN RACEWAYS PER NEC.
- 3. ALL AREAS WITHIN BUILDING EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 2, GROUP D EXPLOSION PROOF.
- COORDINATE INSTRUMENTATION & CONTROL CONDUIT ROUTINGS WITH LIGHTING CONDUIT AND POWER CONDUIT ROUTINGS. SEE DRAWINGS E24 AND E27.
- COORDINATE CONDUIT ROUTING WITH HVAC DUCTS. SEE DRAWING H1.
- 6. SUPPORT VENDOR CABLES FROM UNDERSIDE OF GRADE LEVEL SLAB
- ALL CONDUITS SHALL BE IDENTIFIED BY UNIQUE CONDUIT NUMBER, AND SHOWN ON ADHESIVE LABELS. INSTALL PER DRAWING E3 AND SPECIFICATIONS.
- 8. ALL INSTRUMENTATION JUNCTION BOXES SHALL BE MOUNTED AT ELEVATION 597.80 OR HIGHER

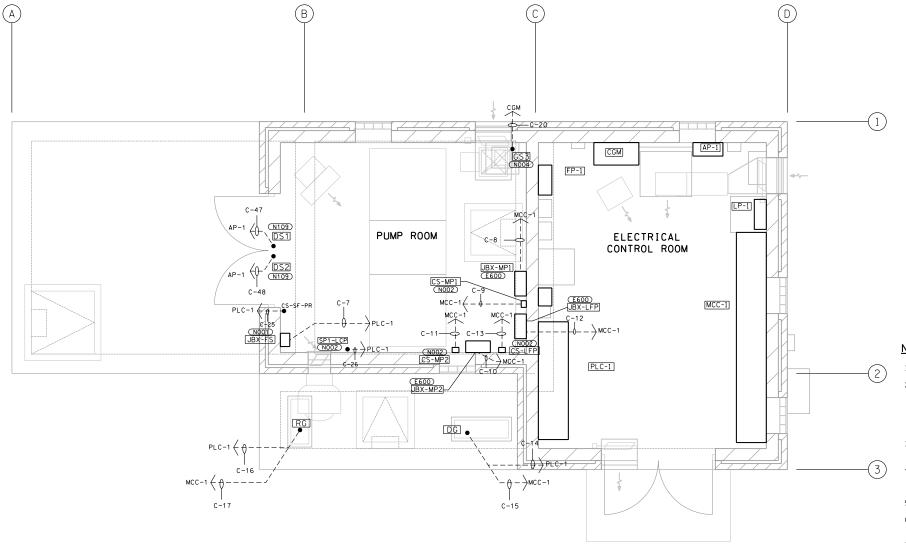
F29

PLAN EL.571.23 & 586.00



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п	USER NAME =	DESIGNED - DWG	REVISED -			PUMP STATION NO.14 REHABILITATION	RTF.	SECTION	COUNTY TOTAL SHEET
<b>DONOF</b>	IUF	DRAWN - DWG	REVISED -	STATE OF ILLINOIS		CONTROLS	ASHLAND AVE./	146SA&SBI-R	COOK 84 76
	PLOT SCALE =	CHECKED - LET	REVISED -	DEPARTMENT OF TRANSPORTATION		PLAN	9 2857	TIOSAGSDITA	CONTRACT NO. 62B77
II.	PLOT DATE =	DATE - 02-26-16	REVISED -	SCALE		SHEET OF SHEETS STA. TO STA.		ILLINOIS FED. A	D PROJECT





PLAN EL.597.80

- SEE DRAWING E37 FOR CONDUCTOR AND CONDUIT REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING NUMBER OF CONDUCTORS IN CONDUIT PRIOR TO INSTALLATION. LOCATION OF BRANCH AND SWITCH LEGS AS INDICATED MAY BE ROUTED DIFFERENTLY AS DICTATED BY CONSTRUCTION AND SPECIFICATIONS. DEVICES SHOWN WIRED SEPARATELY TO SOURCE; SIGNALS WITH SAME FUNCTION INCLUDING 120 VOLT DEVICES AND BELOW MAY BE COMBINED IN RACEWAYS PER NEC.
- ALL AREAS WITHIN BUILDING EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 2, GROUP D EXPLOSION PROOF.
- COORDINATE INSTRUMENTATION & CONTROL CONDUIT ROUTINGS WITH LIGHTING CONDUIT AND POWER CONDUIT ROUTINGS. SEE DRAWINGS E25 AND E28.
- COORDINATE CONDUIT ROUTING WITH MONORAILS. SEE DRAWINGS S3 AND S4. CONTRACTOR IS NOT ALLOWED TO DRILL CONCRETE BEAMS FOR CONDUITS. COORDINATE CONDUIT ROUTING WITH HVAC DUCTS AND EQUIPMENT. SEE
- ALL CONDUITS SHALL BE IDENTIFIED BY UNIQUE CONDUIT NUMBER, AND SHOWN ON ADHESIVE LABELS. INSTALL PER DRAWING E3 AND SPECIFICATIONS.
- CONDUITS ROUTED IN OR THROUGH ELECTRICAL CONTROL ROOM SHALL BE OVERHEAD. CONDUITS SHALL NOT BE ROUTED THROUGH DISCHARGE CHAMBER.



RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
ASHLAND AVE./	146SA&SBI-R	соок	84	77
9 2857		CONTRACT	NO 6	2R77

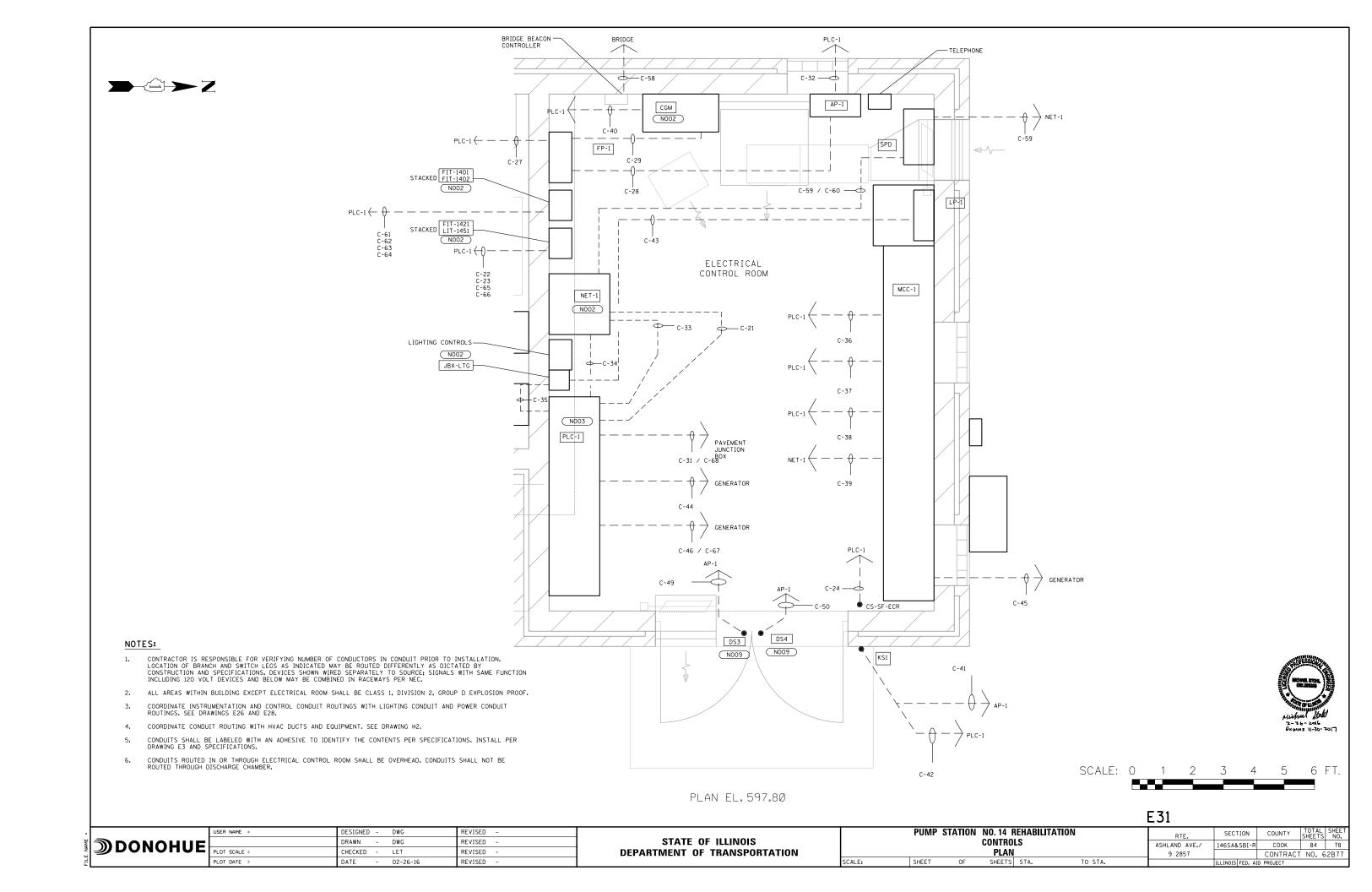
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DESIGNED - DWG REVISED -REVISED CHECKED - LET REVISED DATE - 02-26-16 REVISED

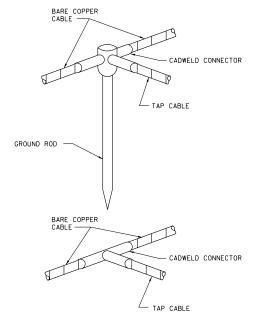
STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

PUMP STATION NO. 14 REHABILITATION CONTROLS PLAN SCALE: SHEET SHEETS STA. TO STA.

E30

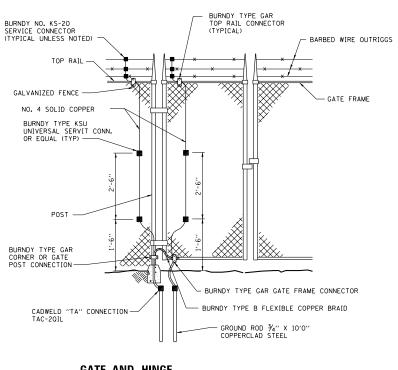


				T		I
	255221271011		LAMPS		0.700	25
TYPE	DESCRIPTION	NO	ORD ABB	MANUFACTURER	CATALOG NUMBER	REMARKS
A	CEILING MOUNTED LED FIXTURE SUITABLE FOR CLASS 1 DIVISION 2 LOCATION	1	42 LED	HOLOPHANE	HPLED-42-350-5K-AS-UN-G-L5-50C	SEE (E500)
В	WALL MOUNTED LED FOR CLASS 1 DIVISION 2 LOCATION	1	LED	HOLOPHANE	HMRL-8L-4-12-TW-F1	MOUNTED 7'-6" AFF
С	LED WALL PACK WITH FULL SHIELD	1	10 LED	HOLOPHANE	W4PLED-10C-700-50K-T3M-MV0LT-BK	MOUNTED 10'-0" ABOVE GRADE/LANDI
D	1X4 ENCLOSED AND GASKETED LED FIXTURE	1	39 W LED	HOLOPHANE	EMS4-LED-3L-35-1MACD-BLANK-BLANK-CS89-DIM	MOUNTED 9'-6" AFF
E	MARINE FLOODLIGHT CLASS 1 DIVISION 2 LOCATION	1	400W PSMH	APPLETON	CFP400CA-MT	WALL MOUNTED UNLESS NOTED NEAR LADDER AS CLOSE TO HATCH AS POSSIBLE
፟	EXIT LIGHT WITH LED LAMPS RED LETTERS/WHITE HOUSING	-	WITH UNIT	LITHONIA	LOM-S-W-3-R-120/277-EL N-SD	MOUNTED ABOVE DOOR UNLESS OTHERWISE NOTED
▼ XP	EXIT/EMERGENCY LIGHT WITH LED LAMPS RED LETTERS/WHITE HOUSING SUITABLE FOR C1 D2 ENVIRONMENT	-	WITH UNIT	LITHONIA	LZ-S-1-R-120/277-EL N-SD-TD	MOUNTED ABOVE DOOR OR AS SHOWN
	EMERGENCY BATTERY LIGHT WITH TWO UNIT MOUNTED LAMP HEADS AND CAPACITY FOR REMOTE HEADS	2	20W, 12V HALOGEN WITH UNIT	LITHONIA	IND1254-H2012-SEL	WALL MOUNTED 8'-0" ABOVE FLOOR
<b>₩</b> XP	EMERGENCY BATTERY LIGHT WITH TWO UNIT MOUNTED LAMP HEADS SUITABLE FOR CLASS I DIVISION 2 ENVIRONMENT	2	12W, 12V HALOGEN WITH UNIT	LITHONIA	Z12125N-H1212-SD-TD	WALL MOUNTED 8'-0" ABOVE FLOOR

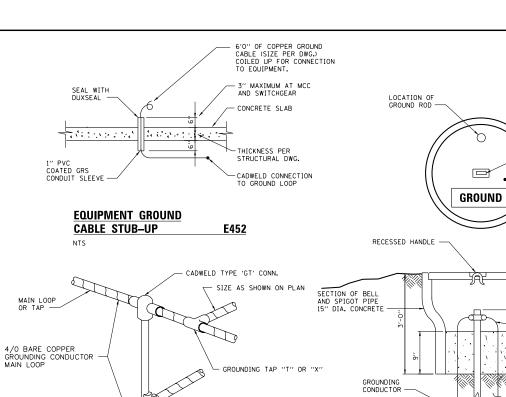


### GROUNDING CONNECTION DETAIL E450

GALVANIZED FENCE NO. 4 SOLID COPPER BURNDY TYPE KSU UNIVERSAL SERVIT CONN. OR EQUAL (TYP) POST BURNDY TYPE GAR CORNER OR GATE POST CONNECTION -BURNDY TYPE GAR GATE FRAME CONNECTOR BURNDY TYPE B FLEXIBLE COPPER BRAID CADWELD "TA" CONNECTION -



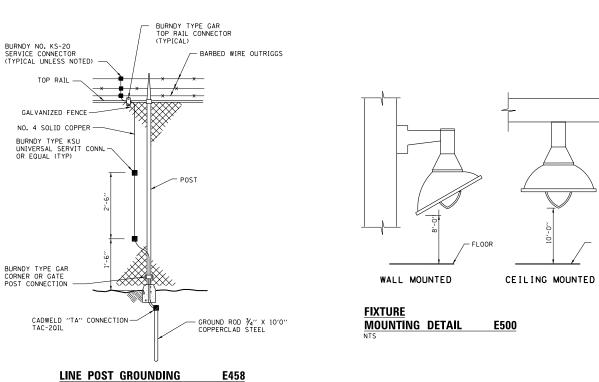
GATE	AND HINGE	
<b>POST</b>	GROUNDING	E457
NTS		



CADWELD TYPE 'GY' CONN. (USED FOR 2 HORIZONTAL OR END OF RUN)

E451

NTS



GROUND GRID -

**GROUNDING TEST** STATION DETAIL



FLOOR

RECESSED HANDLE

REMOVABLE COVER CAST IRON MARKED "GROUND"

- REMOVABLE COVER

- MECHANICAL GROUND CONNECTOR T & B CAT. # 3902

- SAND FILL

GROUND ROD 3/4" X 10'0" COPPERCLAD STEEL

E455

/- FINISHED GRADE

E32

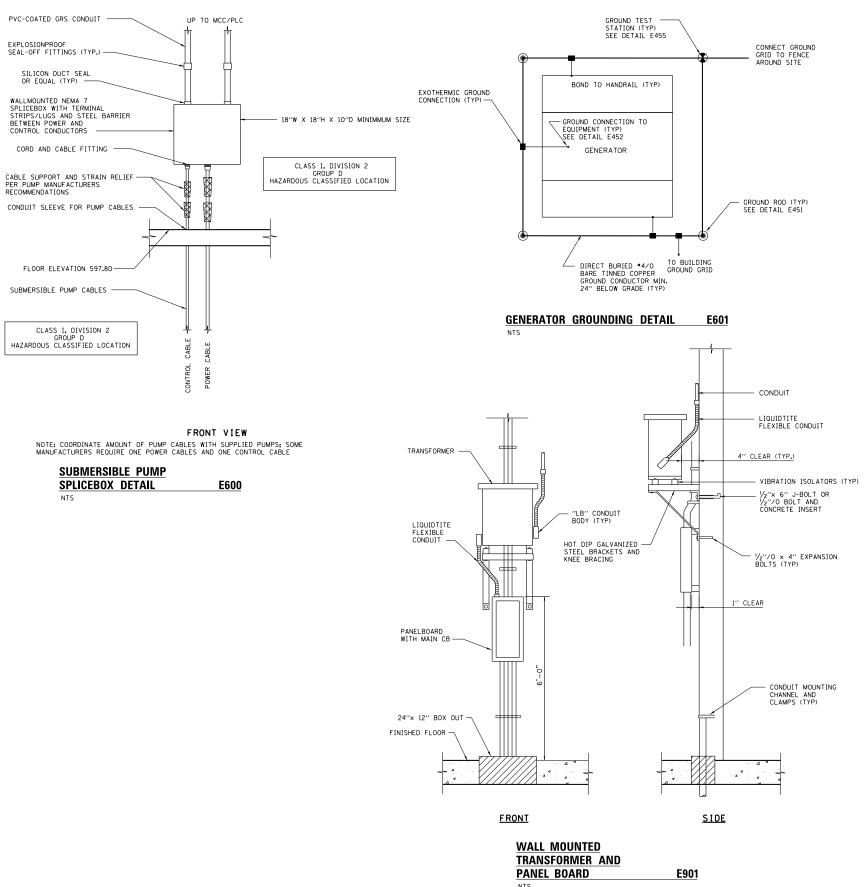
ı		US
1	<b>⋑DONOHUE</b>	
2	DONORGE	PL
Ĭ		PI

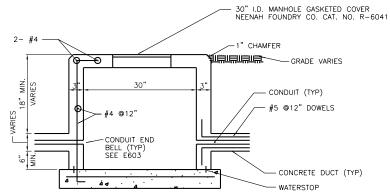
	USER NAME =	DESIGNED	-	MBS	REVISED -
=		DRAWN	-	MBS	REVISED -
=	PLOT SCALE =	CHECKED	-	JAB	REVISED -
	PLOT DATE =	DATE	-	02-26-16	REVISED -

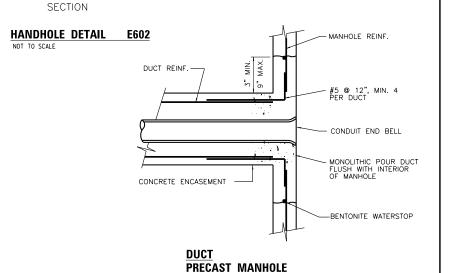
3/4" X 10' LONG GROUND ROD COPPERCLAD STEEL

CONDUCTOR TO GROUND **ROD CONNECTION DETAIL** 

PUMP STATION NO.14 REHABILITATION ELECTRICAL						RTE.	SECTION	COUNTY	TOTAL SHEETS	
						ASHLAND AVE./	146SA&SBI-R	COOK	84	79
DETAILS					9 2857		CONTRACT	NO. 6	62B77	
SCALE:	SHEET	OF	SHEETS	STA.	TO STA.		ILLINOIS FED. AI	D PROJECT		



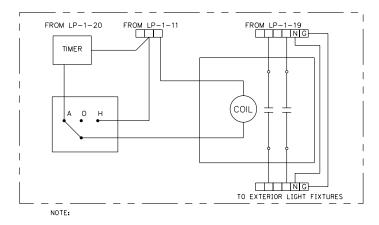




INTERFACE DETAIL

NOT TO SCALE

E603



- NEMA 1 CONTACTOR WITH H-O-A SWITCH ON OUTER ENCLOSURE. TIME SHALL UTILIZE ASTRONOMICAL TIME SWITCH.
- 2. CIRCUITS SHOWN FOR BUILDING LIGHTING. REFER TO PANEL SCHEDULE FOR STREET LIGHTING CIRCUIT REQUIREMENTS.

LIGHTING CONTACTOR AND TIMER WIRING DIAGRAM E951

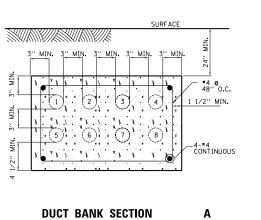


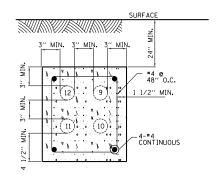
E33

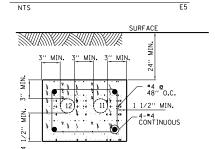
	USER NAME =	DESIGNED - MBS	REVISED -	0747F 05 HUNDIO		PUMP STATION NO. 14 REHABILITATION						SECTION	COUNTY	TOTAL SHEET SHEETS NO.
DONOHUE	PLOT SCALE -	DRAWN - MBS  CHECKED - JAB	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION SCALE	ELECTRICAL DETAILS						ASHLAND AVE./	146SA&SBI-R	соок	84 80
PL	PLOT DATE =	DATE - 02-26-16	REVISED -		SCALE:	SHEET	OF	SHEET	S STA.	TO STA.	9 2857	ILLINOIS FED. AI	CONTRACT D PROJECT	NO. 62B77

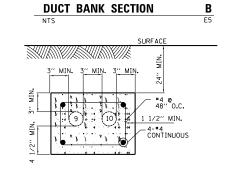
			_MOUNTED NEMA <u>1</u> <b>PAI</b> _v, <u>3</u> PHASE, <u>4</u> WIRE	٧E	_	S( LP				?		
	RAT	ING <u>2</u>	2,000 A.I.C.						100A MIN. GRD. BUS			
VA	CKT. NO.	TRIP/P	DESCRIPTION	_		PH,		С	DESCRIPTION TF		CKT. NO.	VA
540	1	20/1	ELECTRICAL CONTROLS ROOM RECPT	H	,				ELECTRICAL CONTROLS ROOM LIGHTS	20/1	2	200
1200	3	20/1	SCADA PANEL SOURCE 1 PLC-1	П		•	)		PUMP ROOM LIGHTS	20/1	4	200
540	5	20/1	PUMP ROOM RECPT	П				•	DRY PIT LIGHTS	20/1	6	548
360	7	20/1	DRY PIT RECPT	-	•				SCADA PANEL SOURCE 2 PLC-1	20/1	8	1200
120	9	20/1	FIRE ALARM PANEL FP-1			ŀ	,		AEGIS PANEL AP-1	20/1	10	120
120	11	20/1	EXTER. BLDG. LIGHT CONTACTOR COIL	П				•	SPARE		12	
800	13	20/1	GENERATOR STRIP HEATER/RECP'S	-	,					20/2		
600	15	20/1	GENERATOR BATTERY CHARG/HEAT	П		•			COMB GAS PANEL CGM	20/1	16	120
1500	17	20/1	GENERATOR COOLANT HEATER	П				•	EXISTING BRIDGE LIGHTS	20/1	18	400
160	19	20/1	EXTERIOR BLDG LIGHTS	•	•				EXTER. BLDG. TIMER-CLOCK MOTOR	20/1	20	120
120	21	20/1	ELECTRICAL CNTRL RM FAN SF-ECR			•	,		PUMP ROOM FAN EF-PR	20/1	22	120
120	23	20/1	DRY PIT FAN SF-PR					•	WET WELL LIGHT	20/1	24	400
120	25	20/1	EXISTING BEACON CONTROLLER	•	•				SPARE	20/1	26	-
-	27	20/1	SPARE			•	,		SPARE	20/1	28	-
-	29	20/1	SPARE					•	SPARE	30/1	30	-
-	25	20/1	SPARE	•	•							
-	27	20/1	SPARE			•			LIGHTING PANEL SURGE PROTECTION	60/3	34	_
	29	20/1	SPARE									
300			TOTALS:	330	00	280	00	3628	_			3428

TOTAL	PANEL	CONNECTED	LOAD:	9728VA,	27A	0	208V	









DUCT	BANK	SECTION	C
NTS			E5

DUCT	<b>BANK</b>	SECTION	D
NTS			E5

			DUCTBANK	SCHEDULE	
NUMBER	SIZE	FROM	то	CONTENTS	REMARKS
1	4"	EG1	MCC1	SPARE	CAP EACH END P-56
2	2"	EG1	PLC1	SPARE	CAP EACH END C-67
3	4"	EG1	MCC1	POWER	480V - P-6
4	2"	EG1	PLC1	CONTROLS	C-44
5	1"	EG1	PLC1	INSTRUMENTATION	GRS CONDUIT - C-46
6	1"	EG1	MCC1	CONTROLS	C-45
7	1"	EG1	LP1	POWER	120V - COOLANT HTR - P-21
8	1"	EG1	LP1	POWER	120V - CHARGER/STRIP - P-22
9	4"	UTILITY XFMR	METERING CAB.	SPARE	P-57
10	4"	UTILITY XFMR	METERING CAB.	POWER	P-4
11	2"	PAVEMENT FLOAT BOX	PLC1 VIA HH	CONTROLS	C-31
12	2"	PAVEMENT FLOAT BOX	PLC1 VIA HH	SPARE	CAP IN PLC1; TERM IN BOX C-68

- 1. CONDUIT ELBOWS IN UNDERGROUND DUCT BANKS SHALL BE PVC COATED GRS CONDUIT.
- 2. EXTERIOR ABOVE GRADE CONDUIT SHALL BE PVC COATED GRS CONDUIT.
- 3. CONDUITS ENCASED IN CONCRETE SHALL BE PVC UNLESS NOTED IN SCHEDULE.
- 4. SEE DRAWING E-37 FOR POWER AND CONTROL CONDCUCTOR REQUIREMENTS.



E34

Ų	<b>⋑</b> ВОМО!!!!Е	
ΝΨ	<b>DONOHUE</b>	PLOT SCALE =
		PLOT DATE =

	USER NAME =	DESIGNED	-	MBS	REVISED	=
-		DRAWN	-	MBS	REVISED	-
-	PLOT SCALE =	CHECKED	-	JAB	REVISED	-
	PLOT DATE =	DATE	-	02-26-16	REVISED	_

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

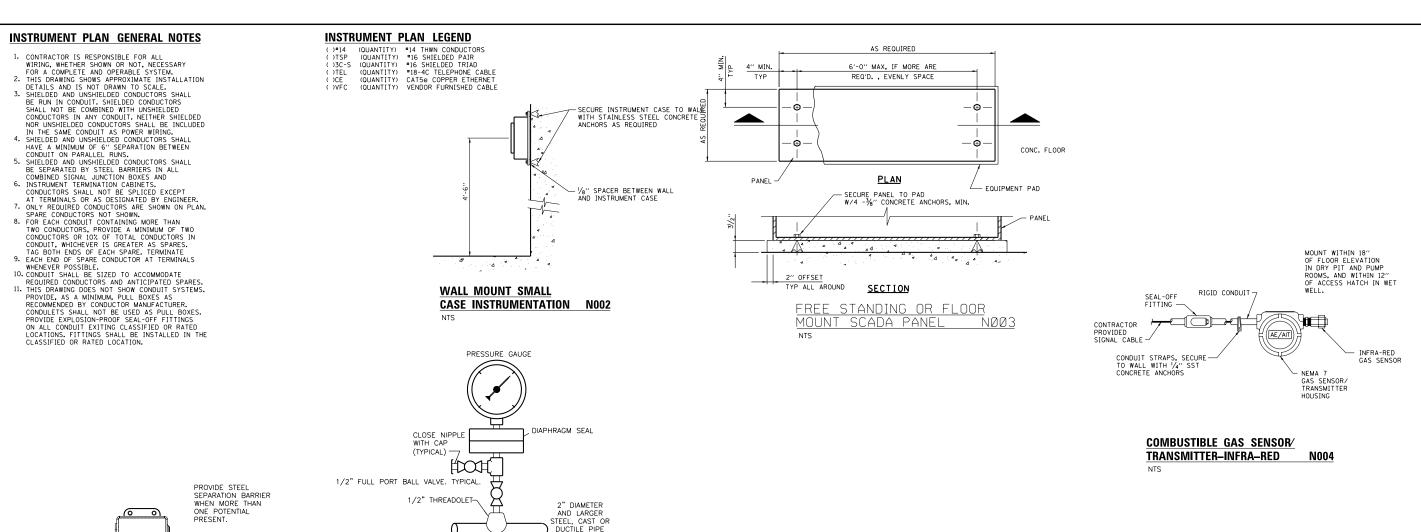
	PUMP S	<b>FATION</b>	NO. 14 F	REHABILITATION				
ELECTRICAL								
	NK SCHEDULE							
SCALE:	SHEET	OF	SHEETS	STA.	TO STA.			

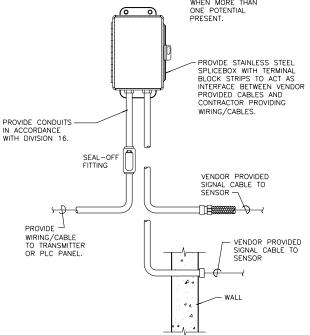
RTE. SECTION COUNTY TOTAL SHEETS NO.

ASHLAND AVE./ 146SA&SBI-R COOK 84 81

9 2857 CONTRACT NO. 62B77

ILLINOIS FED. AID PROJECT

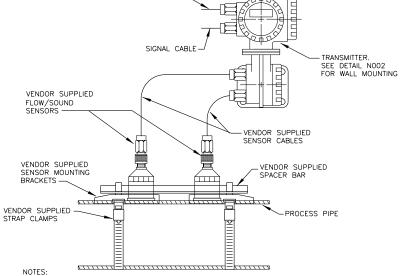




N001

**I&C JUNCTION BOX** 

(JBX-xx) INSTALLATION



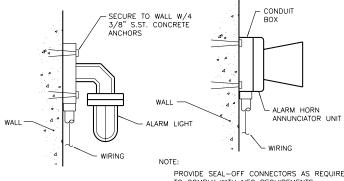
RETAIN SERVICES OF VENDOR TRAINED FIELD TECHNICIAN FOR MOUNTING OF SENSORS ON PROCESS PIPING.

3. KEEP SENSOR LEADS AS SHORT AS POSSIBLE.

120VAC POWER

REFER TO VENDOR'S LITERATURE FOR NUMBER OF TRAVERSES REQUIRED FOR PARTICULAR PIPE DIAMETER.

FLOW ELEMENT/TRANSMITTER NTS



PROVIDE SEAL-OFF CONNECTORS AS REQUIRED TO COMPLY WITH NEC REQUIREMENTS. MOUNTING HEIGHT PER SPECIAL PROVISIONS

ALARMLIGHT/HORN N015

E35



JSER NAME = DESIGNED -DWG REVISED STATE OF ILLINOIS DRAWN REVISED **DONOHUE** PLOT SCALE = CHECKED -LET REVISED **DEPARTMENT OF TRANSPORTATION** PLOT DATE = DATE 02-26-16 REVISED

PRESSURE GAUGE

N006

	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.					
	ASHLAND AVE./	146SA&SBI-R	COOK	84	82					
			DETAIL	9 2857		CONTRACT	r NO. 6	52B77		
ALE:	SHEET	OF	SHEETS	STA.	TO STA.		ILLINOIS FED. AI	D PROJECT		

### **INSTRUMENT PLAN GENERAL NOTES**

- INSTRUMENT PLAN GENERAL NOTES

  1. CONTRACTOR IS RESPONSIBLE FOR ALL WIRING, WHETHER SHOWN OR NOT, NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.

  2. THIS DRAWING SHOWS APPROXIMATE INSTALLATION DETAILS AND IS NOT DRAWN TO SCALE.

  3. SHIELDED AND UNSHIELDED CONDUCTORS SHALL BE RUN IN CONDUIT, SHELDED CONDUCTORS SHALL NOT BE COMBINED WITH UNSHIELDED CONDUCTORS SHALL NOT BE COMBINED WITH UNSHIELDED IN THE SAME COMBINED WITH UNSHIELDED IN SHELDED AND UNSHIELDED CONDUCTORS SHALL BE INCLUDED IN THE SAME CONDUIT AS POWER WIRING.

  4. SHIELDED AND UNSHIELDED CONDUCTORS SHALL HAVE A MINIMUM OF 6" SEPARATION BETWEEN CONDUIT ON PARALLEL RUNS.

  5. SHIELDED AND UNSHIELDED CONDUCTORS SHALL BE SEPARATED BY STELL BARRIERS IN ALL COMBINED SIGNAL JUNCTION BOXES AND

  6. INSTRUMENT TERMINATION CABINETS.

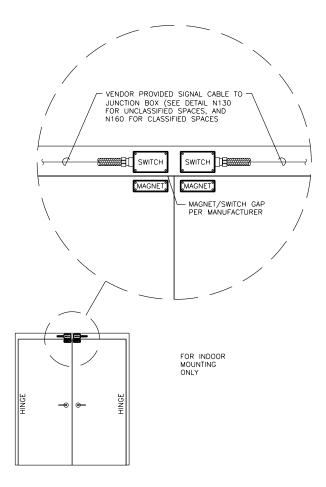
  CONDUCTORS SHALL NOT BE SPLICED EXCEPT AT TERMINALS OR AS DESIGNATED BY ENGINEER.

  7. ONLY REQUITED CONDUCTORS ARE SHOWN ON PLAN. SPARE CONDUCTORS, PROVIDE A MINIMUM OF TWO CONDUCTORS OR 10% OF TOTAL CONDUCTORS IN CONDUCTORS, PROVIDE A MINIMUM OF TWO CONDUCTORS OR 10% OF TOTAL CONDUCTORS IN CONDUCTORS, PROVIDE A MINIMUM OF TWO CONDUCTORS OR 10% OF TOTAL CONDUCTORS IN CONDUCTORS, PROVIDE A MINIMUM OF TWO CONDUCTORS OR 10% OF TOTAL CONDUCTORS IN CONDUCTORS PROVIDE A MINIMUM OF TWO CONDUCTORS OR 10% OF TOTAL CONDUCTORS IN CONDUCTORS OR 10% OF TOTAL CONDUCTORS IN CONDUCTORS PROVIDE A MINIMUM OF TWO CONDUCTORS OR 10% OF TOTAL CONDUCTORS IN CONDUCTORS OR 10% OF TOTAL CONDUCTORS IN THE REQUIRED CONDUCTORS AND ANTICIPATED SPARES.

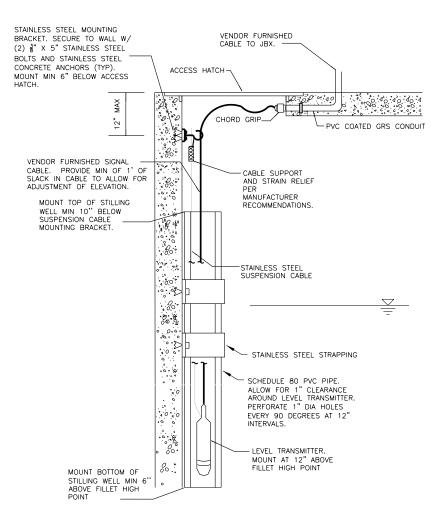
  11. THIS DRAWING DOES NOT SHOW CONDUCT SYSTEMS. PROVIDE EXPLOSION-PROOF SEAL-OFF FITTINGS ON ALL CONDUCT EXTINGS ON ALL CONDUCT EXTINGS CLASSIFIED OR RATED LOCATIONS, FITTINGS SHALL BE INSTALLED IN THE CLASSIFIED OR RATED LOCATIONS. CLASSIFIED OR RATED LOCATION.

### **INSTRUMENT PLAN LEGEND**

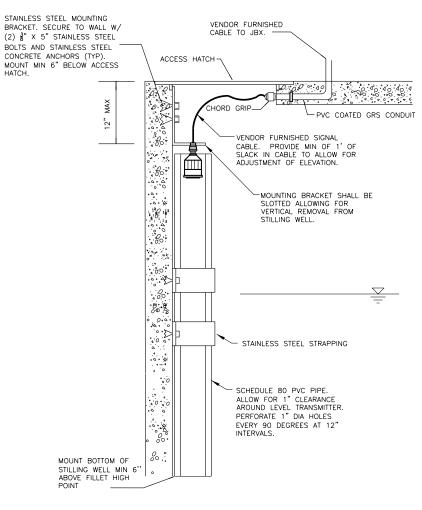
( )\*14 (OUANTITY) \*14 THWN CONDUCTORS ( )3C-5 (OUANTITY) \*16 SHIELDED PAIR ( )3C-5 (OUANTITY) \*16 SHIELDED TRIAD ( )TEL ( OUANTITY) \*18-4C TELEPHONE CABLE ( )CE ( OUANTITY) ( CAT56 COPPER ETHERNET ( )VFC ( OUANTITY) VENDOR FURNISHED CABLE



**DOOR INTRUSION SWITCH N109** 



SUBMERSIBLE LEVEL TRANSMITTER N266



**ULTRASONIC LEVEL SENSOR** SIDEWALL STILLING WELL N295



E36

E NAME =	<b>DONOHUE</b>
4	

USER NAME =	DESIGNED	-	DWG	REVISED -
	DRAWN	-	DWG	REVISED -
PLOT SCALE =	CHECKED	-	LET	REVISED -
PLOT DATE =	DATE	-	02-26-16	REVISED -

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

	PUMP S	TATION	NO. 14	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
1&C						ASHLAND AVE./	146SA&SBI-R	COOK	84	83
			DETAIL	9 2857		CONTRACT	NO. 6	2B77		
CALE:	SHEET	OF	SHEETS	STA.	TO STA.		ILLINOIS FED. AI	D PROJECT		

DOM	VER CONI	OUIT	T	I				
POV	MIN SIZE	l	CONDUCTOR QUANTITY AND SIZE	COND /CARLE				
NUMBER	(IN.)	TYPE	(AWG-KCMIL)	INSULATION	FROM	то		
P-1	1 1/2	PVC-GRS	3-1/C#3 & 1-1/C#6 GRD XHHW-2		JBX-MP1	MCC-1 (SECTION 1B)		
P-2	1 1/2	PVC-GRS		XHHW-2	JBX-MP2	MCC-1 (SECTION 2A)		
P-3	3/4	PVC-GRS				MCC-1 (SECTION 1C)		
P-4	4	PVC	4-1/C#600 KCMIL & 1-1/C#1/0 GRD	XHHW-2	TR-A	METERING CABINET		
		1 10	4 1/O#OOO ROIVILE & 1 1/O#1/O GRD	ATTIVV Z	METERING	IVIETERII VO ONDII VET		
P-5	4	PVC-GRS	4-1/C#600 KCMIL & 1-1/C#1/0 GRD	XHHW-2	CABINET	MCC-1 (SECTION 6B)		
P-6	4	PVC	4-1/C#600 KCMIL & 1-1/C#1/0 GRD	XHHW-2	GENERATOR	MCC-1 (SECTION 5B)		
P-7	2	GRS	MANUFACTURER'S HPI CABLE	AIIIIV-Z	SPD	MCC-1 (SECTION 1A)		
P-8	3/4	PVC-GRS	3-1/C#12 & 1-1/C#12 GRD	THHN	DG	DSC-DG		
P-9	1	PVC-GRS	3-1/C#12 & 1-1/C#12 GRD	THHN	DSC-DG	MCC-1 (SECTION 1D)		
P-10	3/4	PVC-GRS	3-1/C#12 & 1-1/C#12 GRD	THHN	RG	DSC-RG		
P-11	1	PVC-GRS	3-1/C#12 & 1-1/C#12 GRD	THHN	DSC-RG	MCC-1 (SECTION 1E)		
P-12	1 1/2	GRS	4-1/C#1 & 1-1/C#6 GRD	THHN	LP-1	T-1		
P-13	1	GRS	3-1/C#4 & 1-1/C#6 GRD	THHN	T-1	MCC-1 (SECTION 2B)		
P-14	3/4	PVC-GRS	3-1/C#12 & 1-1/C#12 GRD	THHN	SP1-LCP	MCC-1 (SECTION 2C)		
P-14	3/4	PVC-GRS	3-1/C#12 & 1-1/C#12 GRD	THHN	TROLLEY	DSC-TH		
P-15	3/4	PVC-GRS		THHN	HOIST	DSC-TH		
		PVC-GRS	3-1/C#12 & 1-1/C#12 GRD					
P-17	3/4		3-1/C#12 & 1-1/C#12 GRD 3-1/C#12 & 1-1/C#12 GRD	THHN THHN	DSC-TH EUH-PR	MCC-1 (SECTION 3A) DSC-EUH-PR		
P-18 P-19	3/4	GRS GRS		THHN				
			3-1/C#12 & 1-1/C#12 GRD 3-1/C#12 & 1-1/C#12 GRD	THHN	DSC-EUH-PR EUH-ECR	MCC-1 (SECTION 3C) MCC-1 (SECTION 3D)		
P-20	3/4	GRS	3-1/U#12 & 1-1/U#12 GKD	IHHN		IVICC-1 (SECTION 3D)		
D 04		D) (O	0.4/0.440.0.4.4/0.440.000	T	GENCOOLANT	LD 4 (OIDOLIIT 47)		
P-21	1	PVC	2-1/C#12 & 1-1/C#12 GRD	THHN	HTR	LP-1 (CIRCUIT 17)		
		-1.60			GEN STRIP HTR			
P-22	1	PVC	4-1/C#12 & 2-1/C#12 GRD	THHN		LP-1 (CIRCUITS 13 & 15)		
			EXISTING WIRING IN EXISTING		BEACON			
P-23	1	PVC	CONDUIT	THHN	CONTROLLER	BRIDGE LIGHTS		
P-24	3/4	PVC-GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	EF-PR	DSC-EF-PR		
P-25	3/4	PVC-GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	DSC-EF-PR	LP-1 (CIRCUIT 22)		
P-26	3/4	PVC-GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	SF-PR	DSC-SF-PR		
P-27	3/4	PVC-GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	DSC-SF-PR	LP-1 (CIRCUIT 23)		
P-28	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	SF-ECR	LP-1 (CIRCUIT 21)		
P-29	3/4	PVC-GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	DM-1	DSC-DM-1		
P-30	3/4	PVC-GRS	4-1/C#12 & 1-1/C#12 GRD	THHN	DSC-DM-1/LS1	LP-1 (CIRCUIT 23)		
P-31	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	DM-2	DSC-DM-2		
P-32	3/4	GRS	4-1/C#12 & 1-1/C#12 GRD	THHN	DSC-DM-2/LS2	LP-1 (CIRCUIT 21)		
P-33	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	DM-3	DSC-DM-3		
P-34	3/4	GRS	4-1/C#12 & 1-1/C#12 GRD	THHN	DSC-DM-3/LS3	LP-1 (CIRCUIT 21)		
P-35	3/4	PVC-GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	T-STAT1	CS-EF-PR, SF-PR		
P-36	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	T-STAT2	CS-SF-ECR		
P-37	3/4	PVC-GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	T-STAT3	EUH-PR		
P-38	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	T-STAT4	EUH-ECR		
P-39	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	AP-1	LP-1 (CIRCUIT 10)		
P-40	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	FP-1	LP-1 (CIRCUIT 9)		
P-41	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	CGM	LP-1 (CIRCUIT 16)		
P-42	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	PLC-1	LP-1 (CIRCUIT 3)		
P-43	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	PLC-1	LP-1 (CIRCUIT 8)		
P-44	3/4	GRS	4-1/C#12 & 2-1/C#12 GRD	THHN		LP-1 (CIRCUITS 11 & 20)		
					WET WELL			
P-45	3/4	PVC-GRS		THHN	LIGHT	LP-1 (CIRCUIT 24)		
P-46	3/4	PVC-GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	DRY PIT LIGHTS	LP-1 (CIRCUIT 6)		
P-47	3/4	PVC-GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	DRY PIT RECP	LP-1 (CIRCUIT 7)		
	I	1			PUMP RM			
P-48	1	PVC-GRS	2-1/C#10 & 1-1/C#10 GRD	THHN	LIGHTS	LP-1 (CIRCUIT 4)		
P-49	3/4	PVC-GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	PUMP RM RECP	LP-1 (CIRCUIT 5)		
					ELECT RM			
P-50	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	LIGHTS	LP-1 (CIRCUIT 2)		
					ELECT RM			
P-51	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	RECP	LP-1 (CIRCUIT 1)		
P-52	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	EXT LIGHTS	LP-1 (CIRCUIT 19)		
P-53	3/4	GRS	4-1/C#12 & 1-1/C#12 GRD	THHN	PLC-1	NETWORK		
					BEACON			
P-54	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	CONTROLLER	LP-1 (CIRCUIT 25)		
					BEACON	. ,		
P-55	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	CONTROLLER	LP-1 (CIRCUIT 18)		
P-56	4	PVC	SPARE		GENERATOR	MCC-1 (SECTION 5B)		
P-57	4	PVC	SPARE		TR-A	METERING CABINET		
					METERING			
P-58	4	PVC-GRS	SPARE		CABINET	MCC-1 (SECTION 6B)		
			•					

CONI	ROLS COI	NDUIT							
	MIN SIZE		CONDUCTOR QUANTITY AND SIZE						
NUMBER	(IN.)	TYPE	(AWG-KCMIL)	INSULATION	FROM	TO			
C-1	3/4	PVC-GRS	VENDOR FURNISHED CABLE	-	LE-1451	LIT-1451			
C-2	3/4	PVC-GRS	VENDOR FURNISHED CABLE	PVC	LT-1452	PLC-1			
C-3	3/4	PVC-GRS	VENDOR FURNISHED CABLE	PVC	LT-1461	PLC-1			
C-4	1	PVC-GRS	VENDOR FURNISHED CABLES	-	FE-1401	FIT-1401			
C-5	1	<b>PVC-GRS</b>	VENDOR FURNISHED CABLES	-	FE-1402	FIT-1402			
C-6	1	PVC-GRS	VENDOR FURNISHED CABLES	-	FE-1421	FIT-1421			
C-7	1 1/2	PVC-GRS	14-1/C#14 & 1-1/C#14 GRD	THHN	JBX-FS	PLC-1			
C-8	1	PVC-GRS	4-1/C#14 & 1-1/C#14 GRD	THHN	JBX-MP1	MCC-1 (SECTION 1B)			
C-9	1	PVC-GRS	10-1/C#14 & 1-1/C#14 GRD	THHN	CS-MP1	MCC-1 (SECTION 1B)			
C-10	1	PVC-GRS	4-1/C#14 & 1-1/C#14 GRD	THHN	JBX-MP2	MCC-1 (SECTION 2A)			
C-11	1	PVC-GRS	10-1/C#14 & 1-1/C#14 GRD	THHN	CS-MP2	MCC-1 (SECTION 2A)			
C-12	1	PVC-GRS	4-1/C#14 & 1-1/C#14 GRD	THHN	JBX-LFP	MCC-1 (SECTION 1C)			
C-12	1	PVC-GRS	10-1/C#14 & 1-1/C#14 GRD	THHN	CS-LFP	MCC-1 (SECTION 1C)			
C-13	3/4	PVC-GRS	8-1/C#14 & 1-1/C#14 GRD	THHN	DG	PLC-1			
						_			
C-15	3/4	PVC-GRS	10-1/C#14 & 1-1/C#14 GRD	THHN	DG	MCC-1 (SECTION 1D)			
C-16	3/4	PVC-GRS	8-1/C#14 & 1-1/C#14 GRD	THHN	RG	PLC-1			
C-17	3/4	PVC-GRS	10-1/C#14 & 1-1/C#14 GRD	THHN	RG	MCC-1 (SECTION 1E)			
C-18	3/4	PVC-GRS	3C-S & 1-1/C#14 GRD	PVC	GS1	CGM			
C-19	3/4	PVC-GRS	3C-S & 1-1/C#14 GRD	PVC	GS2	CGM			
C-20	3/4	PVC-GRS	3C-S & 1-1/C#14 GRD	PVC	GS3	CGM			
C-21	1	GRS	6 X 1 COPPER ETHERNET CABLES	CAT-5e	NET-1	PLC-1			
C-22	3/4	GRS	1 X 1 TWISTED SH PR CABLE	PVC	LIT-1451	PLC-1			
C-23	3/4	GRS	4-1/C#14 & 1-1/C#14 GRD	THHN	LIT-1451	PLC-1			
C-24	3/4	GRS	8-1/C#14 & 1-1/C#14 GRD	THHN	CS-SF-ECR	PLC-1			
C-25	3/4	PVC-GRS	8-1/C#14 & 1-1/C#14 GRD	THHN	CS-SF-PR	PLC-1			
C-26	3/4	PVC-GRS	4-1/C#14 & 1-1/C#14 GRD	THHN	SP1-LCP	PLC-1			
				THHN	5P1-LCP FP-1	PLC-1			
C-27	3/4	GRS	6-1/C#14 & 1-1/C#14 GRD						
C-28	3/4	GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	FP-1	AP-1			
C-29	3/4	GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	FP-1	CGM			
C-30	-	-	VENDOR FURNISHED CABLES	-	FS1-FS7	JBX-FS			
C-31	2	PVC-GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	FSPF	PLC-1			
C-32	3/4	GRS	18-1/C#14 & 1-1/C#14 GRD	THHN	AP-1	PLC-1			
C-33	1	GRS	14-1/C#14 & 4-1/C#14 GRD	THHN	NET-1	PLC-1			
C-34	1	GRS	2 X 1 VIDEO CABLES	PVC	NET-1	PLC-1			
C-35	3/4	GRS	6-1/C#14 & 1-1/C#14 GRD	THHN	JBX-LTG	PLC-1			
C-36	2	GRS	50-1/C#14 & 1-1/C#14 GRD	THHN	MCC-1	PLC-1			
C-37	1 1/2	GRS	3 X 1 TWISTED SH PR CABLE	PVC	MCC-1	PLC-1			
C-38	2	GRS	50-1/C#14 & 1-1/C#14 GRD	THHN	MCC-1	PLC-1			
C-39	3/4	GRS		CAT-5e		NET-1			
			2 COPPER ETHERNET		MCC-1				
C-40	3/4	GRS	4-1/C#14 & 1-1/C#14 GRD	THHN	CGM	PLC-1			
C-41	3/4	PVC-GRS	4-1/C#14 & 1-1/C#14 GRD	THHN	KS-1	AP-1			
C-42	3/4	PVC-GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	KS-1	PLC-1			
C-43	3/4	GRS	6-1/C#14 & 1-1/C#14 GRD	THHN	LP-1	JBX-LTG			
C-44	2	PVC	12-1/C#14 & 1-1/C#14 GRD	THHN	GENERATOR	PLC-1			
C-45	1	PVC	6-1/C#14 & 1-1/C#14 GRD	THHN	GENERATOR	MCC-1 (SECTION 5B)			
C-46	1	GRS	1 X 2 TWISTED SH PR CABLE	PVC	GENERATOR	PLC-1 (1 PR SPARE)			
C-47	3/4	PVC-GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	DS-1	AP-1			
C-48	3/4	PVC-GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	DS-2	AP-1			
C-49	3/4	GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	DS-3	AP-1			
C-50	3/4	GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	DS-4	AP-1			
C-51	3/4	GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	SD-1	FP-1			
C-51	3/4	PVC-GRS	4-1/C#14 & 1-1/C#14 GRD	THHN	HD-1, HD-2	FP-1			
C-52 C-53	3/4	GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	FAS-1	FP-1 FP-1			
						FP-1 FP-1			
C-54	3/4	PVC-GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	FAHS-2	FP-1			
C EE	2/4	CDC	2 1/0#14 9 4 4/0#44 000	TLILIN	EAC 2	ED 4			
C-55	3/4	GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	FAS-3	FP-1			
C-56	3/4	GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	FAPS-1	FP-1			
C-57	3/4	PVC-GRS	2-1/C#14 & 1-1/C#14 GRD	THHN	FAPS-2	FP-1			
_			EXISTING WIRING IN EXISTING	_	BEACON	FOR BEACON UNDER			
C-58	1	PVC	CONDUIT	THHN	CONTROLLER	RAILROAD BRIDGE			
C-59	3/4	GRS	1 COPPER ETHERNET	CAT-5e	SPD	NET-1			
C-60	3/4	GRS	SPARE		SPD	NET-1			
C-61	3/4	GRS	1 X 1 TWISTED SH PR CABLE	PVC	FIT-1401	PLC-1			
C-62	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	FIT-1401	PLC-1			
C-63	3/4	GRS	1 X 1 TWISTED SH PR CABLE	PVC	FIT-1402	PLC-1			
			2-1/C#12 & 1-1/C#12 GRD	THHN	FIT-1402 FIT-1402	PLC-1			
C-64	3/4	GRS							
C-65	3/4	GRS	1 X 1 TWISTED SH PR CABLE	PVC	FIT-1421	PLC-1			
C-66	3/4	GRS	2-1/C#12 & 1-1/C#12 GRD	THHN	FIT-1421	PLC-1			
C-67	2	PVC	SPARE		GENERATOR	PLC-1 PLC-1			
C-68	2	<b>PVC-GRS</b>	SPARE		FSPF				

- 1. PVC-GRS IS PVC COATED GRS CONDUIT
- 2. TWISTED SH PR IS \*16AWG TWISTED SHIELDED PAIR
- 3. 3C-S IS #16 TWISTED TRIAD CABLE
- 4. CE IS COPPER ETHERNET



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					EST								
DONOHUE	USER NAME =	DESIGNED - MBS	REVISED -		PUMP STATION NO. 14 REHABILITATION		RTF.	SECTION	COUNTY	TOTAL SHEE	Æ.		
		DRAWN - MBS	REVISED -	STATE OF ILLINOIS	ELECTRICAL				ASHLAND AVE./	146SA&SBI-R	соок	84 84	1
	PLOT SCALE =	CHECKED - JAB	REVISED -	DEPARTMENT OF TRANSPORTATION		POWER AND CONTROL CONDUIT SCHEDULE					CONTRACT	T NO. 62B77	7
	PLOT DATE =	DATE - 02-26-16	REVISED -		SCALE:	SHEET OF	SHEETS STA.	TO STA.		D PROJECT		╛	