1-21-11 LETTING ITEM 155

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	1
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

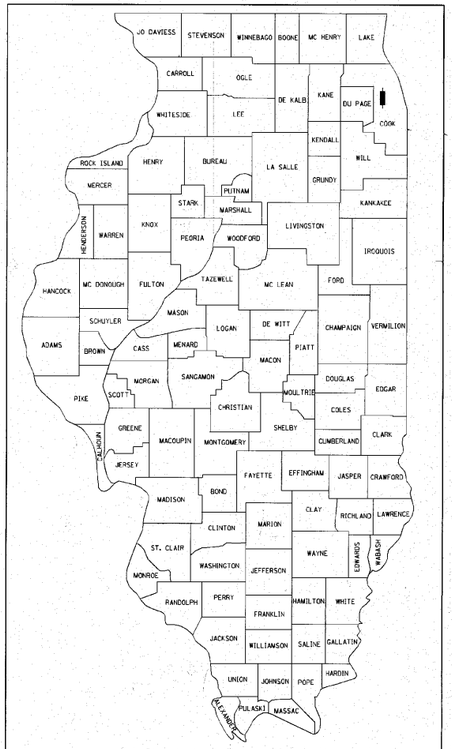
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED FEDERAL AID HIGHWAY

FAI RTE. 190 KENNEDY EXPRESSWAY
PUMP STATION RELOCATION
PUMP STATION NO. 24
I–190 AT I–294
SECTION: 0102.1 S

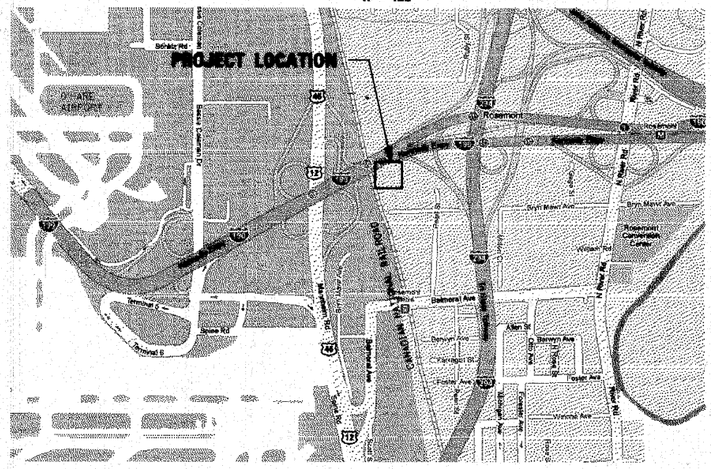
D–91–057–02
COOK COUNTY

C–91–057–02



LOCATION OF SECTION INDICATED THUS: –■–

R – 12E


PROJECT LOCATION
O'HARE AIRPORT
Schiller Rd
Higgins Rd
Devon Ave
Touhy Ave
Lee St
Des Plaines River Rd
Mannheim Rd
Rosemont
Bryn Mawr Ave
Pratt Blvd
Lincoln Ave
Pearson St
Touhy Ave
Rosemont Convention Center
Balmoral Ave
Chicago Ave
Oakton St
Greenwood Ave
Howard St
Main St
Ridge Ave
Washington St
Grove St
Prairie Ave
Forest Ave
Lake St
Central Ave
Oak Park Ave
Harlem Ave
Thatcher Ave
Park Blvd
Austin Blvd
Cicero Ave
Laramie Ave
Pulaski Rd
Kostner Ave
Kilpatrick Ave
Keeler Ave
Central Park Ave
Kedzie Ave
Homan Ave
Sacramento Blvd
Crawford Ave
Kedvale Ave
Springfield Ave
Central Park Blvd
Kenton Ave
Keystone Ave
Karlov Ave
Lavergne Ave
Laramie Ave
Cicero Ave
Central Ave
Austin Blvd
Harlem Ave
Oak Park Ave
Thatcher Ave
Park Blvd

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	2
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

INDEX OF SHEETS /DRAWINGS

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2.	G1	INDEX
3.	G2	SUMMARY OF QUANTITIES
4.	G3	EXISTING SITE PLAN
5.	G4	PROPOSED SITE PLAN
6.	G5	ENLARGED SITE PLAN
7.	G6	ACCESS ROAD PLAN AND PROFILE
8.	G7	GENERAL DETAILS
9.	G8	PRECAST TUMBLING BASIN DETAILS
10	G9	ACCESS ROAD CROSS SECTIONS
11	G10	SOIL BORING LOGS FOR PUMP STATION
12.	S1	STRUCTURAL PLAN
13.	S2	STRUCTURAL PLAN
14.	S3	STRUCTURAL PLAN
15.	S4	STRUCTURAL PLAN
16.	S5	STRUCTURAL PLAN
17.	S6	STRUCTURAL SECTION
18.	S7	STRUCTURAL SECTIONS
19.	S8	STRUCTURAL SECTION
20.	S9	STRUCTURAL SECTION
21.	S10	REINFORCEMENT DETAILS – WALLS KEY PLAN AND NOTES
22.	S11	REINFORCEMENT DETAILS – FLOOR SLAB @ EL. 597.50
23.	S12	REINFORCEMENT DETAILS – FLOOR SLAB @ EL. 611.25
24.	S13	REINFORCEMENT DETAILS – FLOOR SLAB @ EL. 627.00
25.	S14	REINFORCEMENT DETAILS – FLOOR SLAB @ EL. 640.50
26.	S15	REINFORCEMENT DETAILS – ROOF SLAB @ EL. 655.67
27.	S16	REINFORCEMENT DETAILS – ROOF SLAB @ EL. 655.67
28.	S17	REINFORCEMENT DETAILS – SECTIONS
29.	S18	REINFORCEMENT DETAILS – SECTION
30.	S19	REINFORCEMENT DETAILS – SECTION
31.	S20	REINFORCEMENT DETAILS – WALL
32.	S21	REINFORCEMENT DETAILS – WALL
33.	S22	REINFORCEMENT DETAILS – WALL
34.	S23	REINFORCEMENT DETAILS – WALL
35.	S24	REINFORCEMENT DETAILS – WALL AND DRILLED SHAFT
36.	S25	REINFORCEMENT DETAILS – WALLS
37.	S26	REINFORCEMENT DETAILS – WALLS AND COLUMNS
38.	S27	STRUCTURAL DETAILS
39.	S28	STRUCTURAL DETAILS
40.	S29	STRUCTURAL DETAILS
41.	A1	ARCHITECTURAL ELEVATIONS – EAST AND WEST
42.	A2	ARCHITECTURAL ELEVATIONS – NORTH AND SOUTH
43.	A3	ARCHITECTURAL PLAN
44.	A4	ARCHITECTURAL ROOF PLAN
45.	A5	ARCHITECTURAL STAIR PLANS AND SECTIONS
46.	A6	WALL SECTIONS AND DETAILS
47.	A7	ARCHITECTURAL DETAILS
48.	A8	ARCHITECTURAL DETAILS
49.	A9	ARCHITECTURAL DETAILS
50.	A10	ARCHITECTURAL DETAILS
51.	A11	ARCHITECTURAL DETAILS
52.	A12	ARCHITECTURAL DETAILS
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54.	M1	MECHANICAL PLAN
55.	M2	MECHANICAL PLAN
56.	M3	MECHANICAL PLAN
57.	M4	MECHANICAL PLAN
58.	M5	MECHANICAL SECTION
59.	M6	MECHANICAL SECTION
60.	M7	MECHANICAL SECTION
61.	M8	MECHANICAL SECTION
62.	M9	SLIDE GATE DETAILS
63.	M10	HVAC PLAN
64.	M11	HVAC PLAN
65.	M12	HVAC PLAN
66.	M13	HVAC PLAN
67.	M14	HVAC PLAN
68.	M15	HVAC SECTION
69.	M16	HVAC SECTION
70.	M17	EQUIPMENT SCHEDULE AND PUMPING OPERATING ELEVATION
71.	M18	HVAC SCHEDULE AND OPERATING SEQUENCE
72.	M19	MECHANICAL DETAILS AND SCHEMATIC
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76.	E3	ELECTRICAL SITE PLAN
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79.	E6	MCC & SWGR ELEVATIONS
80.	E7	ELECTRICAL SCHEDULES
81.	E8	ELECTRICAL SCHEDULES
82.	E9	MAIN PUMP CONTROL SCHEMATIC
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88.	E15	ELECTRICAL POWER PLAN, SHEET 1.
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92.	E19	ELECTRICAL LIGHTING PLAN, SHEET 3.
93.	E20	I & C PLAN, SHEET 1.
94.	E21	I & C PLAN, SHEET 2.
95.	E22	I & C PLAN, SHEET 3.
96.	E23	I & C PLAN, SHEET 4.
97.	E24	CONTROL PANEL TERMINAL SCHEDULE
98.	E25	CONTROL PANEL EQUIPMENT LAYOUT
99.	E26	PROCESS, INSTRUMENTATION AND CONTROL DIAGRAM
100.	E27	PROCESS, INSTRUMENTATION AND CONTROL DIAGRAM
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102.	E29	SCADA SYSTEM DIAGRAMS
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DONOHUE & ASSOCIATES

G1

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

INDEX

SCALE: N/A
DRAWN BY: HFF
DATE: 11-22-10
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	3
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SUMMARY OF QUANTITIES

URBAN 100% STATE

	CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION TYPE CODE 0040	
	20200100	EARTH EXCAVATION	CU YD	1,100	1,100	
	35102400	AGGREGATE BASE COURSE, TYPE B 12"	SQ YD	2,060	2,060	
	40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	206	206	
	40603080	HOT-MIX ASPHALT BINDER COURSE, IL-90.0, N50	TON	290	290	
	40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	175	175	
	50300225	CONCRETE STRUCTURES	CU YD	3,200	3,200	
	50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	3,000	3,000	
	50800205	REINFORCING BARS, EPOXY COATED	POUND	434,500	434,500	
*	51603000	DRILLED SHAFT IN SOIL	CU YD	60	60	
	66400305	CHAIN LINK FENCE, 6'	FOOT	420	420	
	X6640570	CHAIN LINK FENCE, 8' (SPECIAL)	FOOT	500	500	
	66404600	CHAIN LINK GATES, 8'X3' SINGLE	EACH	1	1	
	66408200	CHAIN LINK GATES, 6'X24' DOUBLE	EACH	1	1	
	66409800	CHAIN LINK GATES, 8'X20' DOUBLE	EACH	1	1	
	67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	24	24	
	67100100	MOBILIZATION	L SUM	1	1	
	X2020502	BRACED EXCAVATION	CU YD	12,000	12,000	
	X0301028	PUMP STATION SCADA EQUIPMENT	L SUM	1	1	
	X0325162	CHAIN LINK CANTILEVER SLIDE GATE, 8' X 20'	EACH	1	1	
	X0335700	PUMP STATION GENERAL WORK	L SUM	1	1	
	X0783300	PUMP STATION ELECTRICAL WORK	L SUM	1	1	
*	X0783500	PUMP STATION MECHANICAL WORK	L SUM	1	1	
	X8040305	ELECTRIC SERVICE CONNECTION	L SUM	1	1	

* SPECIALTY ITEMS

GENERAL NOTES

1. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS, SITE ACCESS, POWER SUPPLY AND OTHER ITEMS THAT AFFECT THE CONTRACT AND THE CONSTRUCTION OF THE IMPROVEMENT.

2. 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 SUCH 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.

3. 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 ESSENTIALLY CORRECT, BUT THE DEPARTMENT AND OTHERS ASSOCIATED WITH THESE PLANS DO NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR WILL BE REQUIRED TO VERIFY THE EXACT LOCATION OF EACH FACILITY WITH THE UTILITY COMPANY WHEN THE POTENTIAL EXISTS FOR INVOLVEMENT 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.

4. THE CONTRACTOR SHALL COMPLY WITH APPLICABLE OSHA REGULATIONS WHILE AT THE CONSTRUCTION SITE.

5. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾" EXCEPT AT SIDEWALKS AND CURBS WHERE ROUNDED CORNERS ARE REQUIRED.

6. CLASS SI CONCRETE SHALL BE USED THROUGHOUT.

7. REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31, M-42 OR M-53 GRADE 60. EPOXY COATED REINFORCEMENT BARS ARE USED IN THIS WORK.

8. FOR BACKFILLING AND COMPACTION SEE STANDARD SPECIFICATIONS.

9. STRUCTURAL DESIGN DATA:

   REINFORCING STEEL fy = 60,000 psi
   CONCRETE f'c = 3,500psi 14 DAYS
   STRUCTURAL STEEL fy = 36.0 ksi

   MINIMUM SLAB AND STAIR LIVE LOADING = 100 psf
   MINIMUM ROOF LIVE LOADING = 25 psf

10. UNLESS OTHERWISE INDICATED ALL ITEMS AND WORK SHOWN ON THESE SHEETS ARE PROPOSED NEW ITEMS AND WORK.

11. THE PUMPING CAPACITY OF THE EXISTING STATION MUST BE MAINTAINED AT ALL TIMES (SPECIFIED STATION PUMPING CAPACITY 111,000 gpm). THE CONTRACTOR SHALL OBTAIN APPROVAL OF THE ENGINEER FOR ALL TEMPORARY WORK. REFER TO DIVISION 1 OF THE SPECIFICATIONS.

12. NOTE THAT DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE PUMPING STATION ACCORDING TO THE REQUIREMENTS OF THE STATE'S ELECTRICAL MAINTENANCE CONTRACT. SHORT-TERM SHUTDOWN WILL BE PERMMITED WITH SPECIFIC WRITTEN PERMISSION (SEE SPECIFICATIONS).

13. ALL SHOP DRAWINGS, MATERIAL SAMPLES ETC. MUST BE SUBMITTED AND APPROVED BY THE ENGINEER BEFORE INSTALLATION.

14. CRUSHED SLAG SHALL NOT BE USED AS AN AGGREGATE MATERIAL.

15. BEFORE STARTING EXCAVATION THE CONTRACTOR SHALL CALL JULIE AT 1-800-892-0123 FOR FIELD LOCATION OF BURIED UNDERGROUND UTILITIES (48 HOURS NOTIFICATION REQUIRED)

16. COORDINATE EXACT LOCATION OF ALL MAJOR COMPONENTS WITH THE ENGINEER BEFORE INSTALLATION.

DONOHUE & ASSOCIATES

G2

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

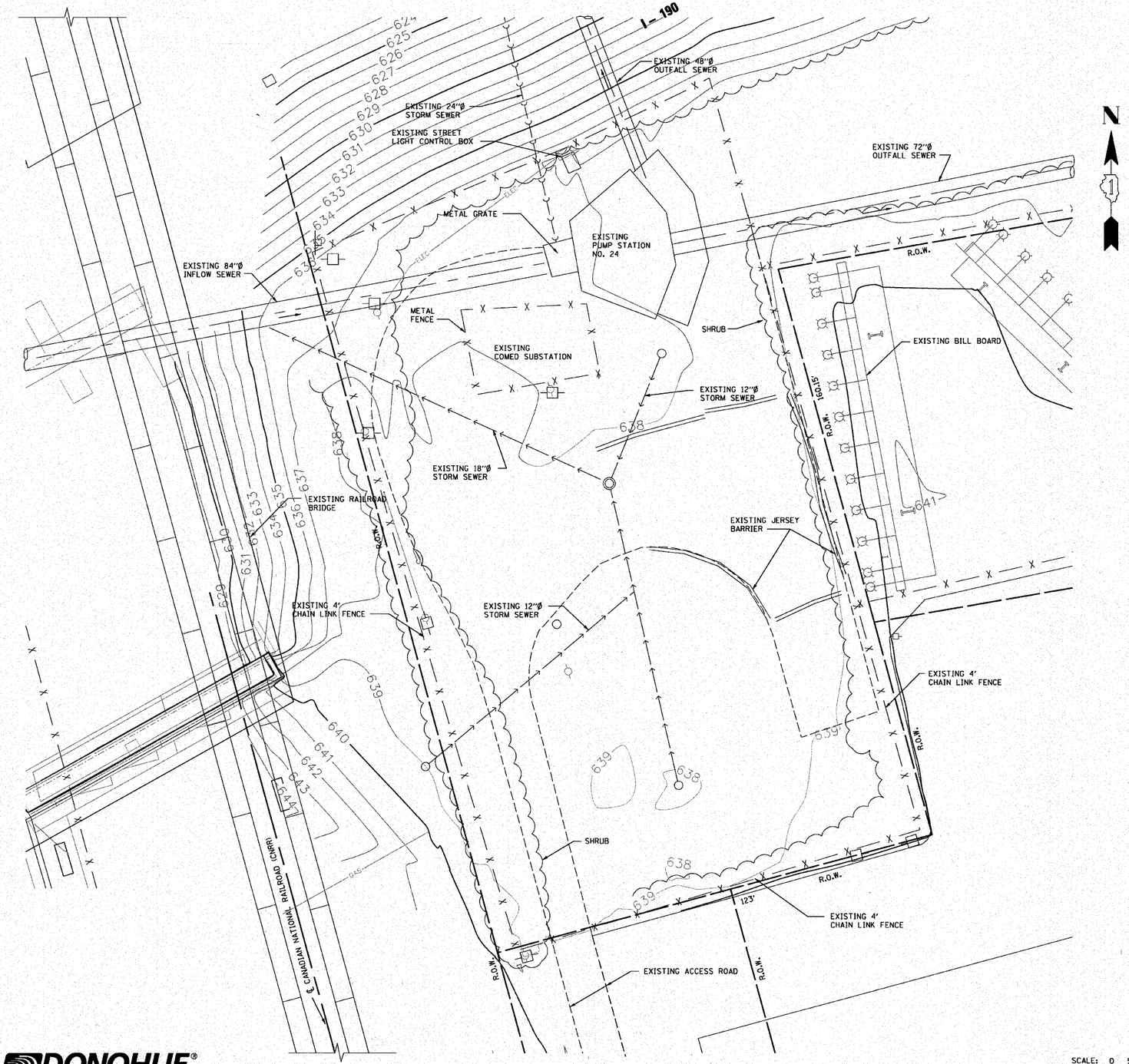
PUMP STATION NO. 24
RELOCATION

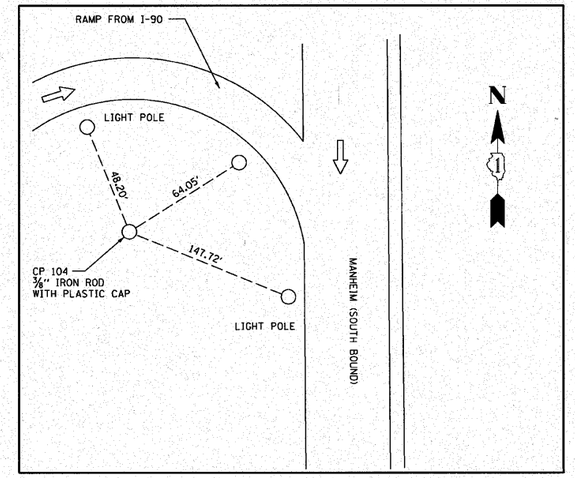
SUMMARY OF QUANTITIES

SCALE: N/A
DATE: 11-22-10

DRAWN BY: HFF
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	4
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		





SURVEY TIE

NOT TO SCALE

BENCHMARK C.P. 104 ELEVATION 636.99

⅝" IRON ROD WITH PLASTIC CAP AT SOUTHEAST CORNER OF RAMP FROM I-90 AND WEST OF MANHEIM ROAD SOUTH BOUND LANE.

TEMPORARY BENCH MARK #1 ELEVATION 643.99

CUT ON TOP OF WALL AT SOUTHEAST CORNER OF SOUTH ABUTMENT BACKWALL FOR R.R. BRIDGE OVER I-190 EAST OF MANHEIM ROAD.

LEGEND:

- EXISTING EDGE OF PAVED AREA
- 638 EXISTING CONTOUR LINE
- X X EXISTING CHAIN LINK FENCE
- EXISTING STORM SEWER
- EXISTING CATCH BASIN
- EXISTING MANHOLE
- EXISTING POWER POLE
- RIGHT OF WAY
- EXISTING SHRUB

SCALE: 0 5 10 15 30 45

DONOHUE & ASSOCIATES

G3

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

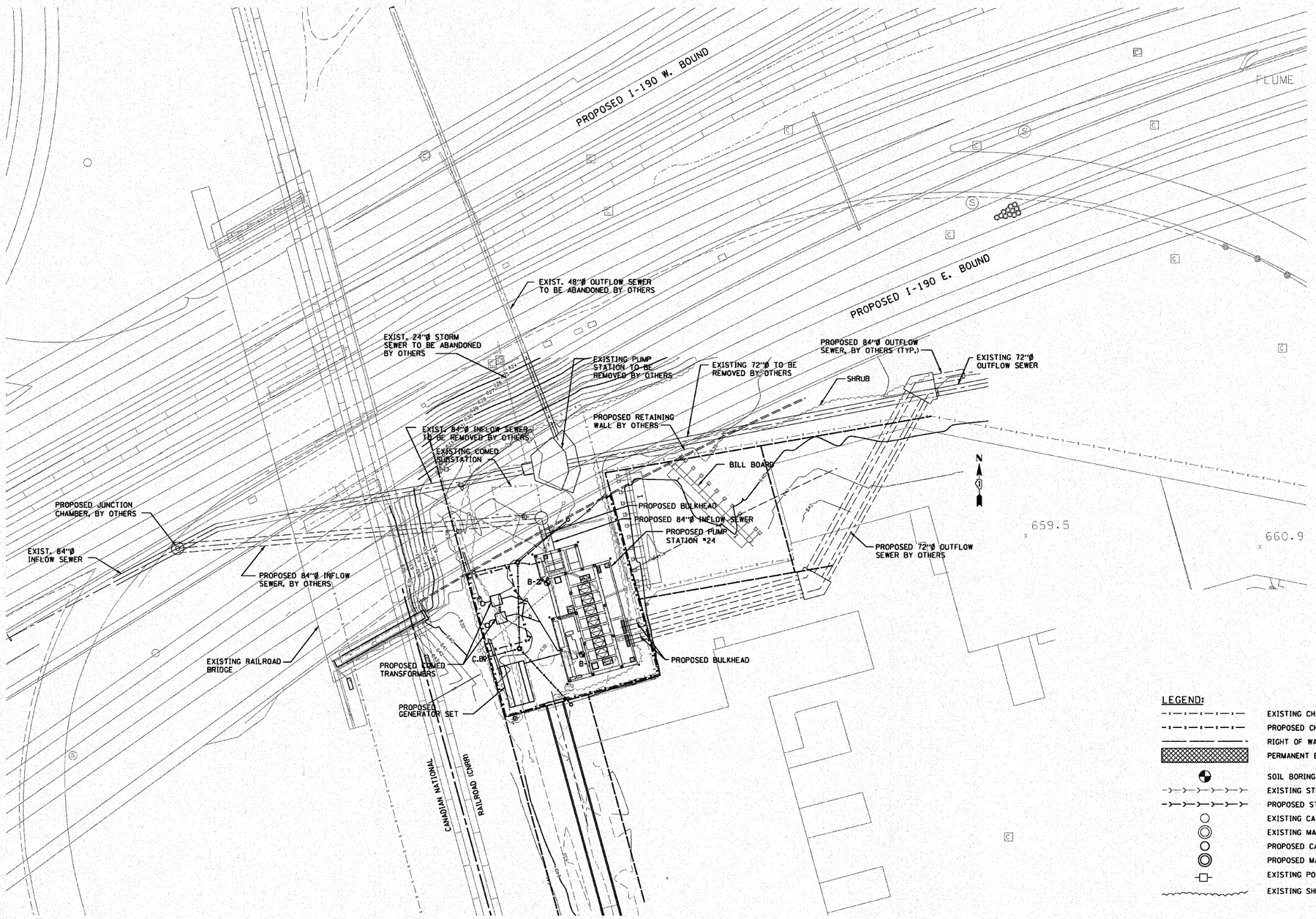
PUMP STATION NO. 24 RELOCATION

EXISTING SITE PLAN

SCALE: AS SHOWN DRAWN BY: HFF

DATE: 11-22-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	5
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



LEGEND:

- EXISTING CHAIN LINK FENCE
- PROPOSED CHAIN LINK FENCE
- RIGHT OF WAY
- PERMANENT EASEMENT REQUIRED
- SOIL BORING LOCATION
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- EXISTING CATCH BASIN
- EXISTING MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED MANHOLE
- EXISTING POWER POLE
- EXISTING SHRUB

SCALE: 0 20 40 80 120 FT.

G4

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

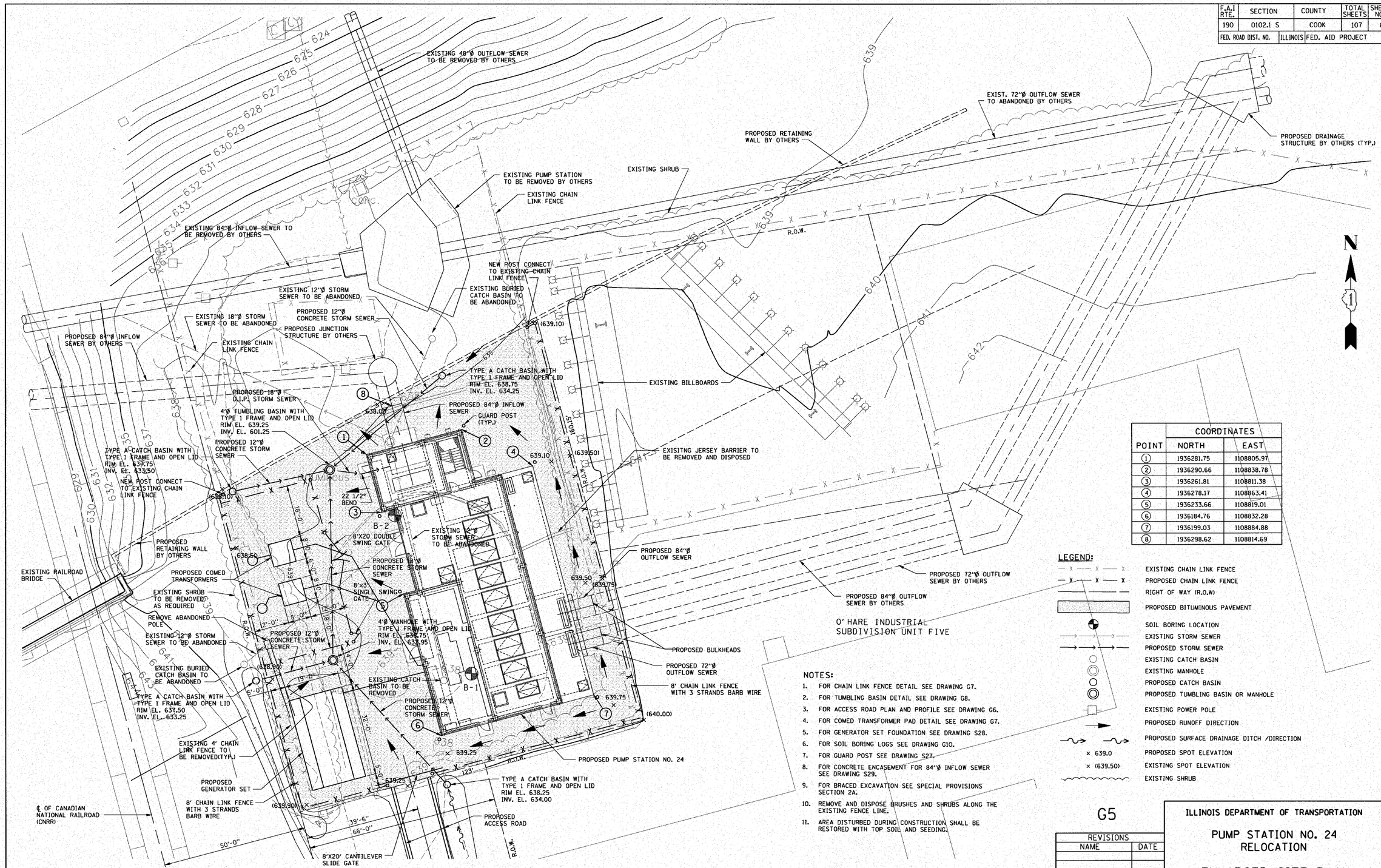
PUMP STATION NO. 24 RELOCATION

PROPOSED SITE PLAN

SCALE: AS SHOWN
DRAWN BY: HFF
DATE: 11-22-10
CHECKED BY: KHC

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	6
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



POINT	COORDINATES NORTH	EAST
①	1936281.75	1108805.97
②	1936290.66	1108838.78
③	1936261.81	1108811.38
④	1936278.17	1108863.41
⑤	1936233.66	1108819.01
⑥	1936184.76	1108832.28
⑦	1936199.03	1108884.88
⑧	1936298.62	1108814.69

LEGEND:

- EXISTING CHAIN LINK FENCE
- PROPOSED CHAIN LINK FENCE
- RIGHT OF WAY (R.O.W)
- PROPOSED BITUMINOUS PAVEMENT
- SOIL BORING LOCATION
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- EXISTING CATCH BASIN
- EXISTING MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED TUMBLING BASIN OR MANHOLE
- EXISTING POWER POLE
- PROPOSED RUNOFF DIRECTION
- PROPOSED SURFACE DRAINAGE DITCH /DIRECTION
- × 639.0 PROPOSED SPOT ELEVATION
- × (639.50) EXISTING SPOT ELEVATION
- EXISTING SHRUB

NOTES:

1. FOR CHAIN LINK FENCE DETAIL SEE DRAWING G7.
2. FOR TUMBLING BASIN DETAIL SEE DRAWING G8.
3. FOR ACCESS ROAD PLAN AND PROFILE SEE DRAWING G6.
4. FOR COMED TRANSFORMER PAD DETAIL SEE DRAWING G7.
5. FOR GENERATOR SET FOUNDATION SEE DRAWING S28.
6. FOR SOIL BORING LOGS SEE DRAWING G10.
7. FOR GUARD POST SEE DRAWING S27.
8. FOR CONCRETE ENCASEMENT FOR 84"Ø INFLOW SEWER SEE DRAWING S29.
9. FOR BRACED EXCAVATION SEE SPECIAL PROVISIONS SECTION 2A.
10. REMOVE AND DISPOSE BRUSHES AND SHRUBS ALONG THE EXISTING FENCE LINE.
11. AREA DISTURBED DURING CONSTRUCTION SHALL BE RESTORED WITH TOP SOIL AND SEEDING.

SCALE: 0 5 10 15 30 45

G5

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

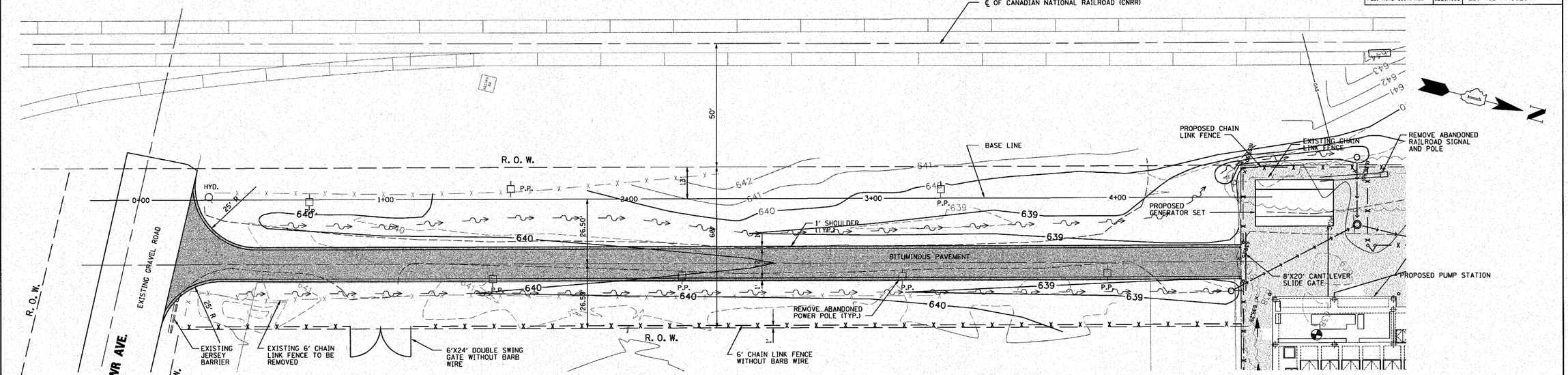
ENLARGED SITE PLAN

SCALE: AS SHOWN DRAWN BY: HFF

DATE: 11-22-10 CHECKED BY: KHC

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	7
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

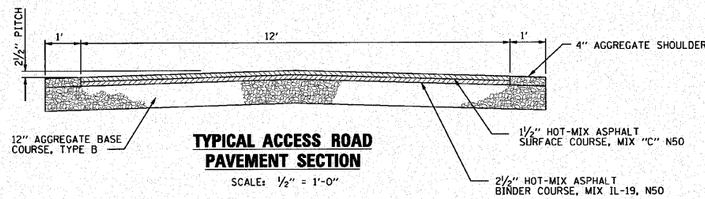


PLAN

HMA MIX REQUIREMENT CHART	
MIXTURE TYPE	AIR VOIDS @ Ndes
HMA SURFACE COURSE, MIX "C" N50 (IL 9.5mm), 1½"	4% @ 50 GYRATIONS
HMA BINDER COURSE, IL-19.0, N50, 2½"	4% @ 50 GYRATIONS

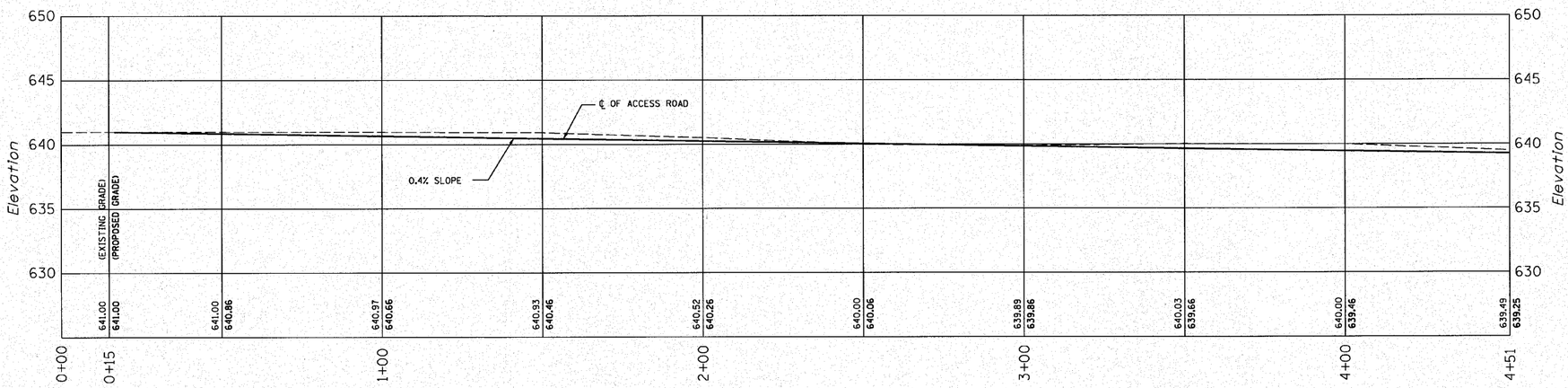
NOTES:

1. THE UNIT WEIGHT USED TO CALCULATE ALL HMA SURFACE MIXTURE QUANTITES IS 112 LBS/SQ YD/IN.
2. THE "AC TYPE" FOR POLYMERIZED HMA MIXES SHALL BE "SBS/SBR PG 70-22" AND FOR NON-POLYMERIZED HMA THE "AC TYPE" SHALL BE "PG 64-22" UNLESS MODIFIED BY DISTRICT ONE SPECIAL PROVISIONS. FOR "PERCENT OF RAP" SEE DISTRICT ONE SPECIAL PROVISIONS.



TYPICAL ACCESS ROAD PAVEMENT SECTION

SCALE: ½" = 1'-0"



PROFILE

LEGEND:

- RIGHT-OF-WAY
- EXISTING CHAIN LINK FENCE
- PROPOSED CHAIN LINK FENCE
- EXISTING EDGE OF GRAVEL ROAD
- PROPOSED SURFACE DRAINAGE DITCH/DIRECTION
- PROPOSED ACCESS ROAD BITUMINOUS PAVEMENT
- EXISTING SHRUB

NOTES:

1. DISTURBED AREA WITHIN THE R.O.W. DURING CONSTRUCTION SHALL BE RESTORED WITH TOP SOILING ANG SEEDING.
2. FOR HOT-MIX ASPHALT MIX REQUIREMENT SEE THIS DRAWING.
3. FOR ACCESS ROAD CROSS SECTION SEE DRAWING G9.
4. FOR PROPOSED CATCH BASIN AND STORM SEWER SEE DRAWING G5.
5. FOR CHAIN LINK FENCE DETAIL SEE DRAWING G7.

VERT. SCALE: 0 1 2 3 4 5 10 15

HORIZ. SCALE: 0 10 20 40 60

G6

REVISIONS	
NAME	DATE

DONOHUE & ASSOCIATES

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

ACCESS ROAD PLAN AND PROFILE

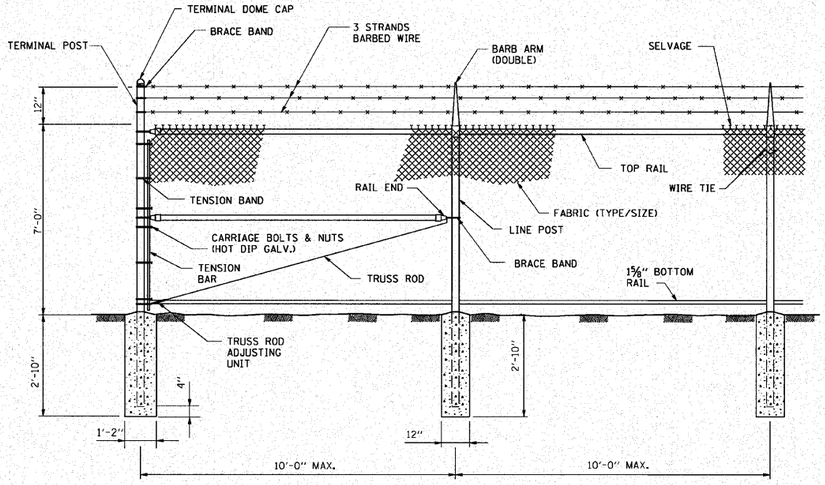
SCALE: AS SHOWN

DRAWN BY: HFF

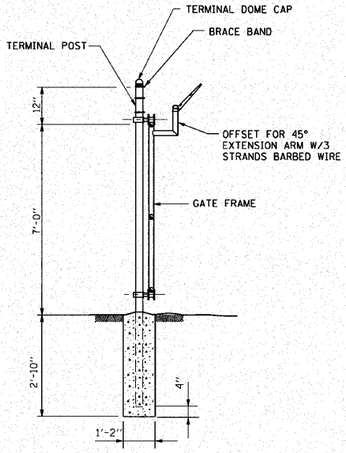
DATE: 11-22-10

CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	8
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

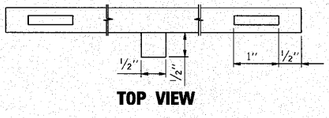


FENCE DETAIL
NOT TO SCALE

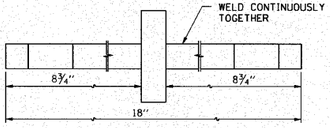


SECTION 1-1
NOT TO SCALE

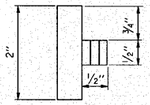
NOTES:
1. ALL MATERIALS SHALL BE HOT DIP GALVANIZED
2. ALL FITTINGS SHALL BE PRESSED STEEL.



TOP VIEW

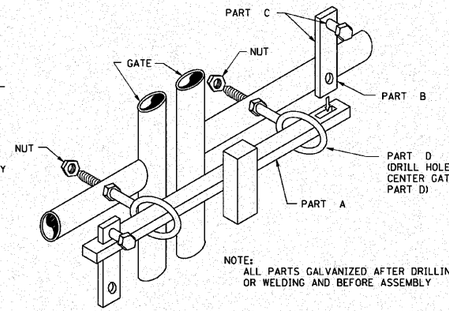


FRONT VIEW



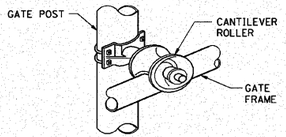
END VIEW

PART A

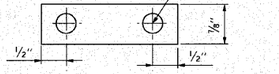


NOTE:
ALL PARTS GALVANIZED AFTER DRILLING OR WELDING AND BEFORE ASSEMBLY

SWING GATE LOCKING DEVICE
NOT TO SCALE

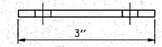


CANTILEVER ROLLER ASSEMBLY (4 REQ'D)



TOP VIEW

END VIEW

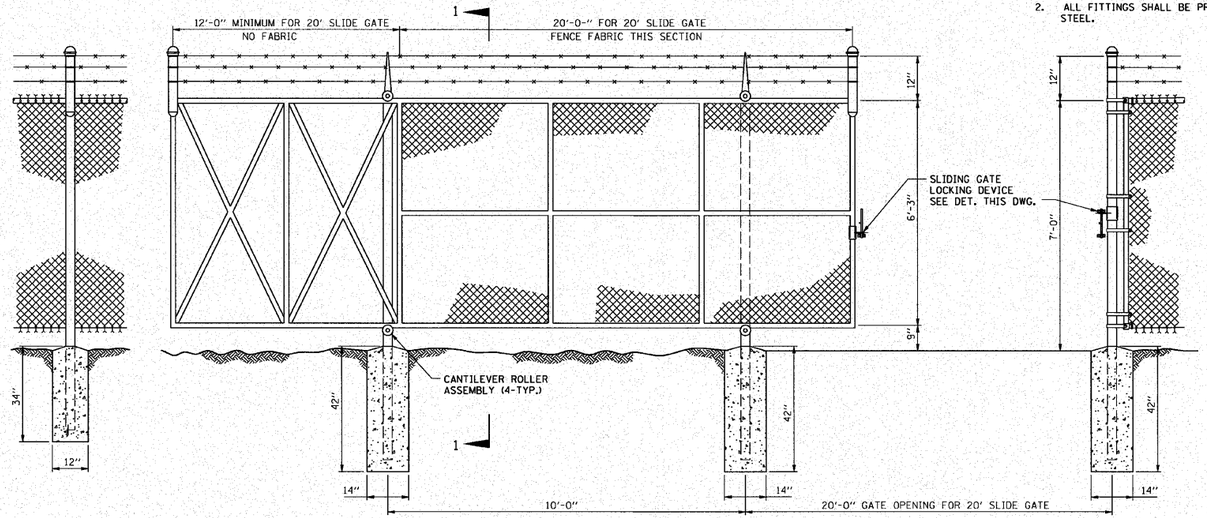


FRONT VIEW

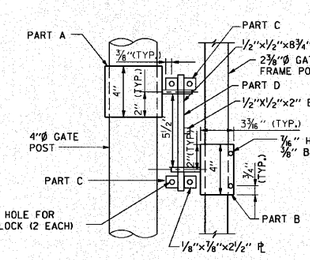
PART B

PART C IS FABRICATED THE SAME WITH A BOLT INTO EACH HOLE

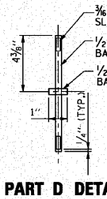
PART C



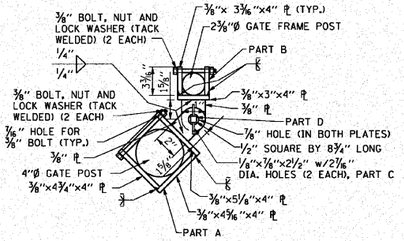
CANTILEVER SLIDE GATE
NOT TO SCALE



ELEVATION



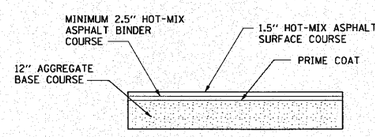
PART D DETAIL



PLAN

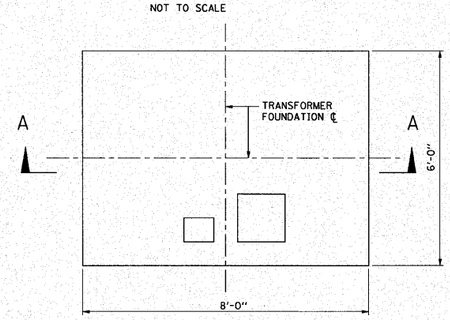
SLIDE GATE LOCKING DEVICE
NOT TO SCALE

NOTES:
LOCKING DEVICE SHALL BE GALVANIZED STEEL IN ACCORDANCE WITH ASTM A123-97

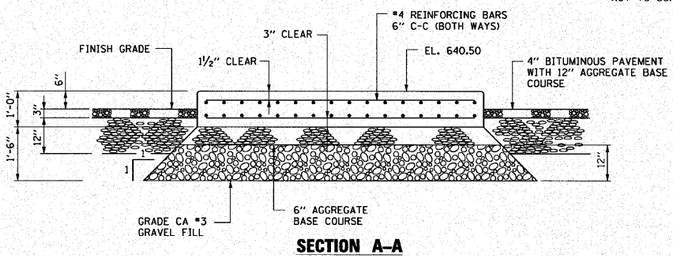


NEW SITE PAVEMENT
NOT TO SCALE

SPECIFICATIONS			
FABRIC	MESH	GAUGE	SELVAGE
ALUM.	2"	9	K+B
BARBED WIRE	TYPE 4 PT.	3 STR. ☒	6 STR.. ☐
FRMWRK.	O.D.	WALL	LBS/LF
TOP & BOT. RAIL	1⅝"	.140	2.27
LINE POSTS	2⅜"	.154	3.65
BRACE RAIL	1⅝"	.140	2.27
CORNER POSTS	2⅞"	.203	5.79
END POSTS	2⅞"	.203	5.79



PLAN



SECTION A-A

COMED TRANSFORMER FOUNDATION
SCALE: ½" = 1'-0"

NOTE: COORDINATE WITH COMED FOR THE OFFSETS/SETBACKS OPENINGS/CONDUITS.

DONOHUE & ASSOCIATES

G7

REVISIONS	
NAME	DATE

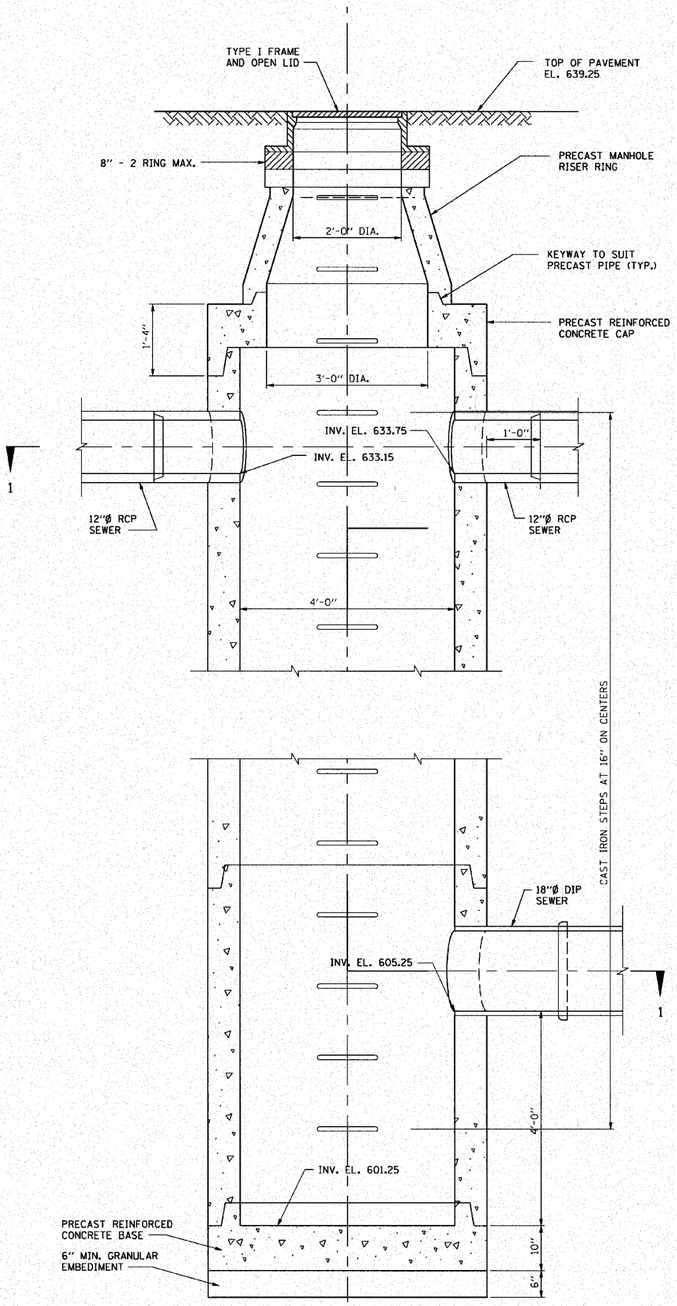
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

GENERAL DETAILS

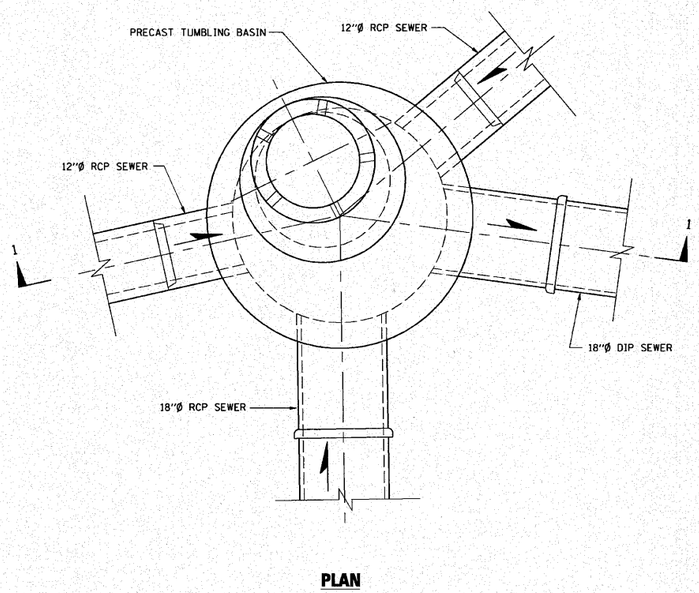
SCALE: AS SHOWN
DRAWN BY: HFF
DATE: 11-22-10
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	9
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



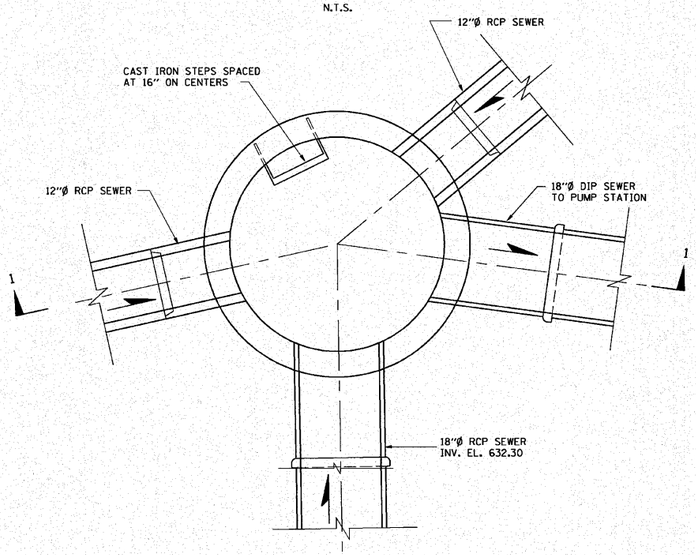
SECTION 1-1

N.T.S.



PLAN

N.T.S.



SECTIONAL PLAN 1-1

N.T.S.

NOTES:

1. FOR LOCATION SEE DRAWING G5.
2. PRECAST PIPE AND FITTINGS MUST CONFORM TO ASTM DESIGNATION C 76, OR "REINFORCED CONCRETE CULVERT STORM DRAIN AND SEWER PIPE" TABLE V, WALL B OR C.
3. CAST IRON STEPS SHALL CONFORM TO IDOT STANDARD 602701.

DONOHUE & ASSOCIATES

G8

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

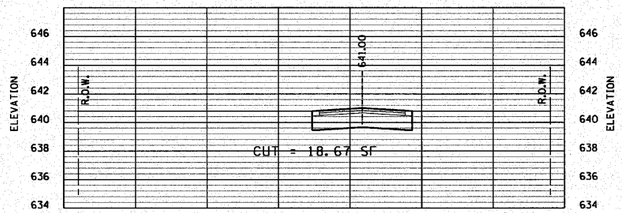
PUMP STATION NO. 24 RELOCATION

PRECAST TUMBLING BASIN DETAILS

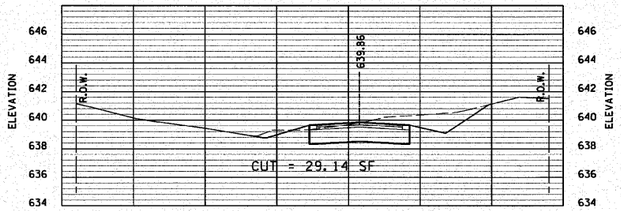
SCALE: AS SHOWN DRAWN BY: HFF

DATE: 11-22-10 CHECKED BY: KHC

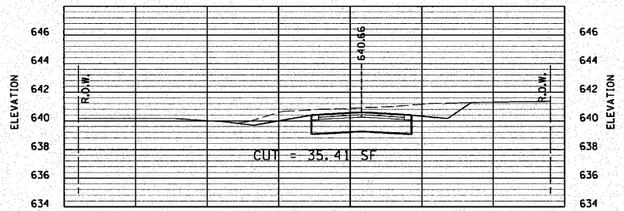
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	10
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



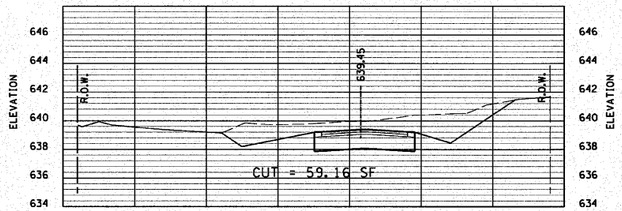
STA. 0+15



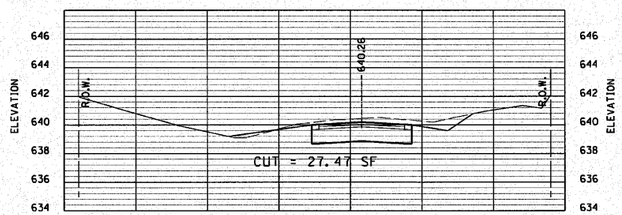
STA. 3+00



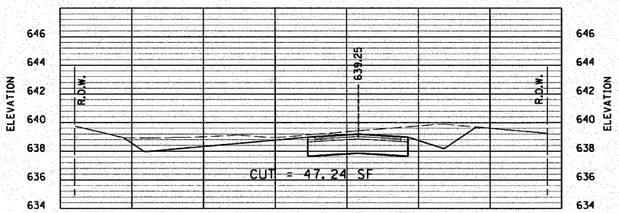
STA. 1+00



STA. 4+00



STA. 2+00



STA. 4+51

VERT SCALE: 0 1 2 3 4 5 10 20

HORIZ. SCALE: 0 2 4 6 8 10 20 40

G9

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

ACCESS ROAD CROSS SECTIONS

SCALE: AS SHOWN DRAWN BY: HFF

DATE: 11-22-10 CHECKED BY: KHC

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	11
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

Wang Engineering, Inc.
Geoptics Geotechnical and Environmental Engineers
wangeng@wangeng.com
1145 N. Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG B-1

Page 1 of 2

WEI Job No.: 200-24-01

Client: Alvord, Burdick & Howson, LLC
Project: IDOT Pump Station No. 24
Location: Rosemont, IL

Datum: NGVD
Elevation: 638.00 ft
North: 1936209.44 ft
East: 1108829.57 ft
Station:
Offset:

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (bw/6 in)	Qp (tsf)	Moisture Content (%)
637.5	Black CLAY LOAM						
	--TOPSOIL--						
	Hard, gray CLAY to CLAY LOAM			1	6 6 6	> 4.50 P	18
	--FILL--						
634.5	Very stiff to hard, brown and gray CLAY	5		2	6 6 8	3.77 B	20
				3	3 7 11	4.92 B	17
		10		4	4 6 8	2.46 B	19
				5	4 6 8	2.38 B	20
		15		6	3 5 7	2.13 B	26
623.3	Medium dense, gray medium SAND			7	5 4 6	2.46 B	17
620.5	Very stiff to hard, gray CLAY	20		8	6 8 9	2.62 B	14
				9	5 8 12	2.05 B	16
		25		10	6 9 11	4.10 B	18

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (bw/6 in)	Qp (tsf)	Moisture Content (%)
611.0	Medium dense to dense, gray SILT			11	12 15 33	2.25 B	14
		30		12	20 25 30	NP	19
				13	12 13 16	NP	18
601.3	Very stiff to hard, gray SILTY CLAY	40					
	--A-4 (3)			14	9 8 11	2.46 B	13
	--LL=27% PL=13%						
		45		15	8 11 14	4.26 B	13
		50		16	6 11 19	6.64 B	18

GENERAL NOTES

Begin Drilling: 10-21-2005 Complete Drilling: 10-21-2005
Drilling Contractor: DLZ Drill Rig: D-120
Driller: J & E Logger: K.J. Checked by: E. Dotz
Drilling Method: 3.25" IDA HSA

WATER LEVEL DATA

While Drilling: ▽ 58.50 ft
At Completion of Drilling: ▽ 58.50 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WASHDOC_2005001.GPJ WASHDOC.GDT 11/30/05

Wang Engineering, Inc.
Geoptics Geotechnical and Environmental Engineers
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1145 N. Main Street
Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG B-2

Page 1 of 2

WEI Job No.: 200-24-01

Client: Alvord, Burdick & Howson, LLC
Project: IDOT Pump Station No. 24
Location: Rosemont, IL

Datum: NGVD
Elevation: 638.00 ft
North: 1936254.92 ft
East: 1108799.32 ft
Station:
Offset:

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (bw/6 in)	Qp (tsf)	Moisture Content (%)
637.8	5-inch thick, gray CLAY LOAM						
638.0	--TOPSOIL--						
	Hard, gray SILTY CLAY			1	4 6 7	> 4.50 P	9
	--FILL--						
	Very stiff to hard, brown and gray CLAY	5		2	6 6 8	2.95 B	22
				3	6 8 11	6.15 B	18
		10		4	6 8 11	5.58 B	18
				5	6 8 10		
		15		6	5 6 8	3.69 B	19
621.8	Medium dense, gray, fine SAND			7	4 5 8	NP	24
620.0	Very stiff, gray CLAY	20		8	3 4 8	3.03 B	15
				9	5 6 10	2.50 P	17
		25		10	7 8 10	3.77 B	17

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (bw/6 in)	Qp (tsf)	Moisture Content (%)
623.5	Medium dense, to very dense, gray SILT			11	22 25 34	NP	14
		30		12	11 15 28	NP	17
	--A-4 (0)			13	8 11 10	NP	20
601.3	Very stiff, gray SILTY CLAY	40					
		45		14	5 7 9	2.46 B	13
		50		15	7 9 12	6.56 B	15
				16	18 17 22		

GENERAL NOTES

Begin Drilling: 10-21-2005 Complete Drilling: 10-21-2005
Drilling Contractor: DLZ Drill Rig: D-120
Driller: J & E Logger: K.J. Checked by: E. Dotz
Drilling Method: 3.25" IDA HSA

WATER LEVEL DATA

While Drilling: ▽ 57.00 ft
At Completion of Drilling: ▽ 58.50 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WASHDOC_2005001.GPJ WASHDOC.GDT 11/30/05

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BORING LOG B-1

Page 2 of 2

WEI Job No.: 200-24-01

Client: Alvord, Burdick & Howson, LLC
Project: IDOT Pump Station No. 24
Location: Rosemont, IL

Datum: NGVD
Elevation: 638.00 ft
North: 1936209.44 ft
East: 1108829.57 ft
Station:
Offset:

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (bw/6 in)	Qp (tsf)	Moisture Content (%)
		55		17	8 12	5.33 B	18
588.0	Dense, gray, medium SAND						
578.8	Hard, gray SILTY CLAY	60		18	24 28 36	4.50 P	10
575.0	Boring terminated at 60.00 ft						
		65					
		70					
		75					

GENERAL NOTES

Begin Drilling: 10-21-2005 Complete Drilling: 10-21-2005
Drilling Contractor: DLZ Drill Rig: D-120
Driller: J & E Logger: K.J. Checked by: E. Dotz
Drilling Method: 3.25" IDA HSA

WATER LEVEL DATA

While Drilling: ▽ 58.50 ft
At Completion of Drilling: ▽ 58.50 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WASHDOC_2005001.GPJ WASHDOC.GDT 11/30/05

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Lombard, IL 60148
Telephone: (630) 953-9928
Fax: (630) 953-9938

BORING LOG B-2

Page 2 of 2

WEI Job No.: 200-24-01

Client: Alvord, Burdick & Howson, LLC
Project: IDOT Pump Station No. 24
Location: Rosemont, IL

Datum: NGVD
Elevation: 638.00 ft
North: 1936254.92 ft
East: 1108799.32 ft
Station:
Offset:

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (bw/6 in)	Qp (tsf)	Moisture Content (%)
		55		17	10 13 16	4.26 B	18
				18	7 10 13	4.51 B	18
588.0	Dense, gray SAND to SANDY LOAM			19	8 12 16	2.95 B	15
578.8	Boring terminated at 60.00 ft	60		20	9 15 17	NP	9
		65					
		70					
		75					

GENERAL NOTES

Begin Drilling: 10-21-2005 Complete Drilling: 10-21-2005
Drilling Contractor: DLZ Drill Rig: D-120
Driller: J & E Logger: K.J. Checked by: E. Dotz
Drilling Method: 3.25" IDA HSA

WATER LEVEL DATA

While Drilling: ▽ 57.00 ft
At Completion of Drilling: ▽ 58.50 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WASHDOC_2005001.GPJ WASHDOC.GDT 11/30/05

DONOHUE & ASSOCIATES

G10

REVISIONS	
NAME	DATE

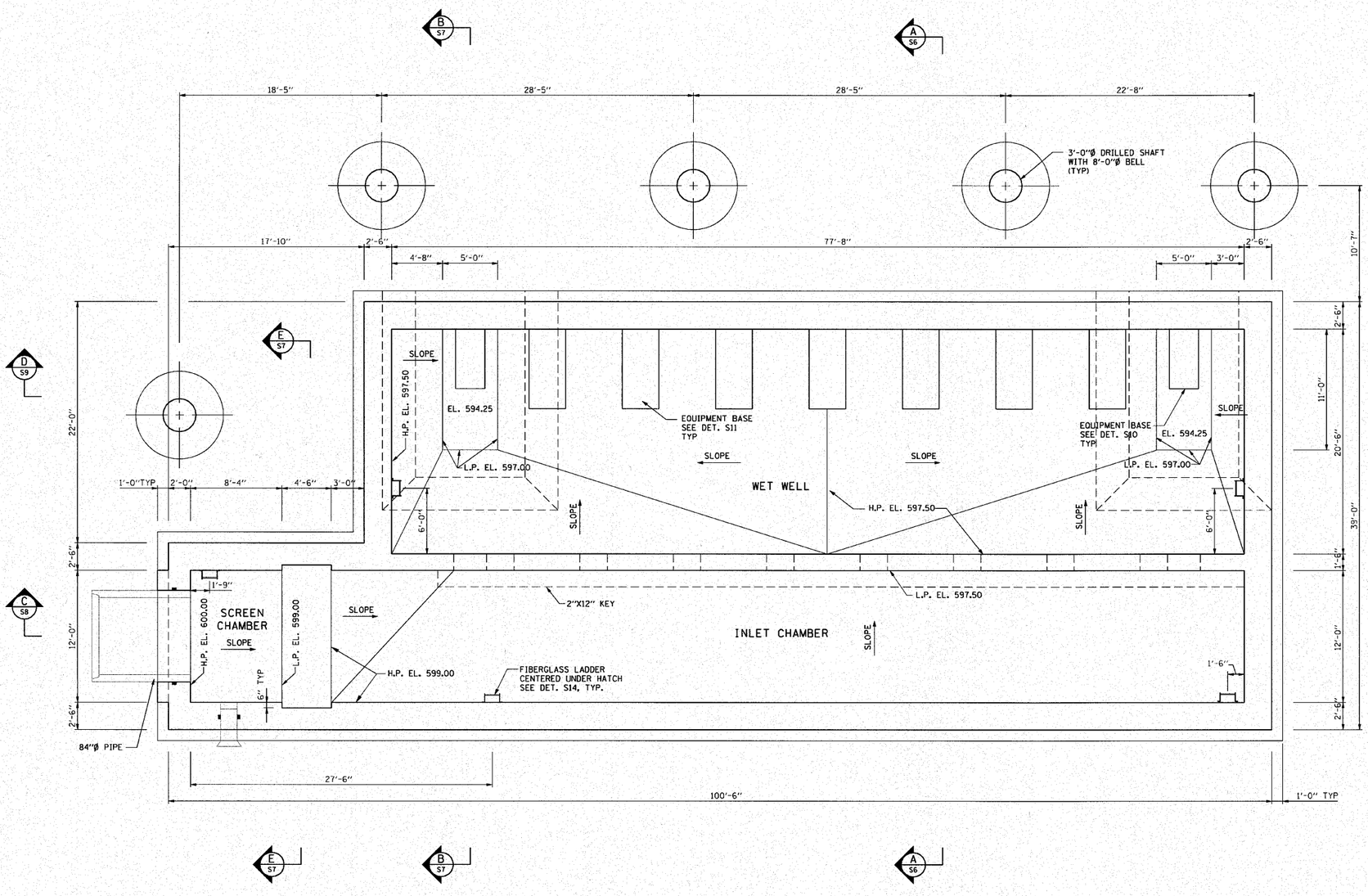
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

SOIL BORING LOGS
FOR PUMP STATION

SCALE: N/A
DRAWN BY: HFF
DATE: 11-22-10
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	12
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 597.50

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
10/28/10

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

S1

REVISIONS	
NAME	DATE

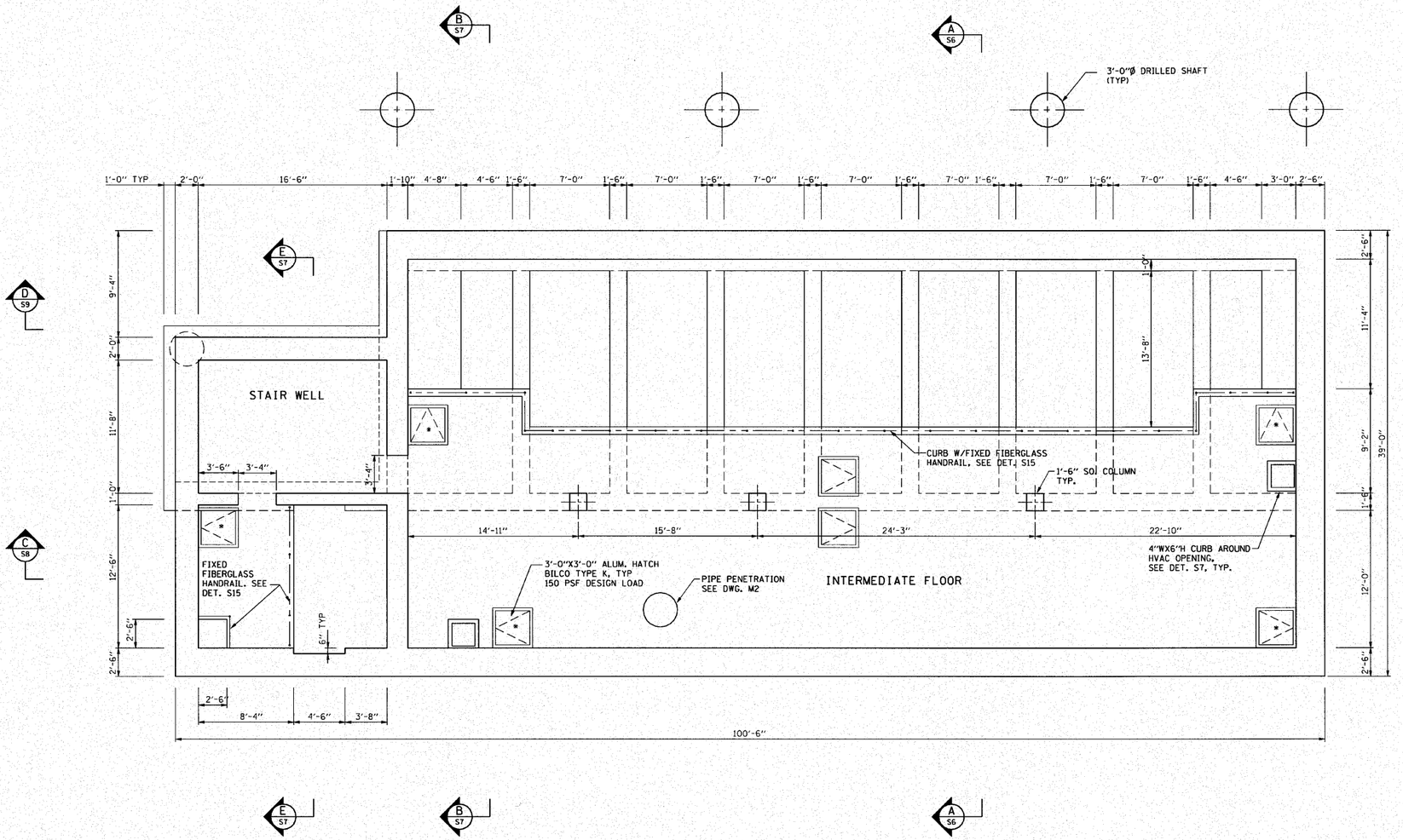
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

STRUCTURAL PLAN

SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: FL
CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	13
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 611.25

* CENTER HATCH ON LADDER BELOW.

STATE OF ILLINOIS
PHILIP J. ENGLEBERT 81-4056
LICENSED STRUCTURAL ENGINEER
10/28/10

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

S2

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

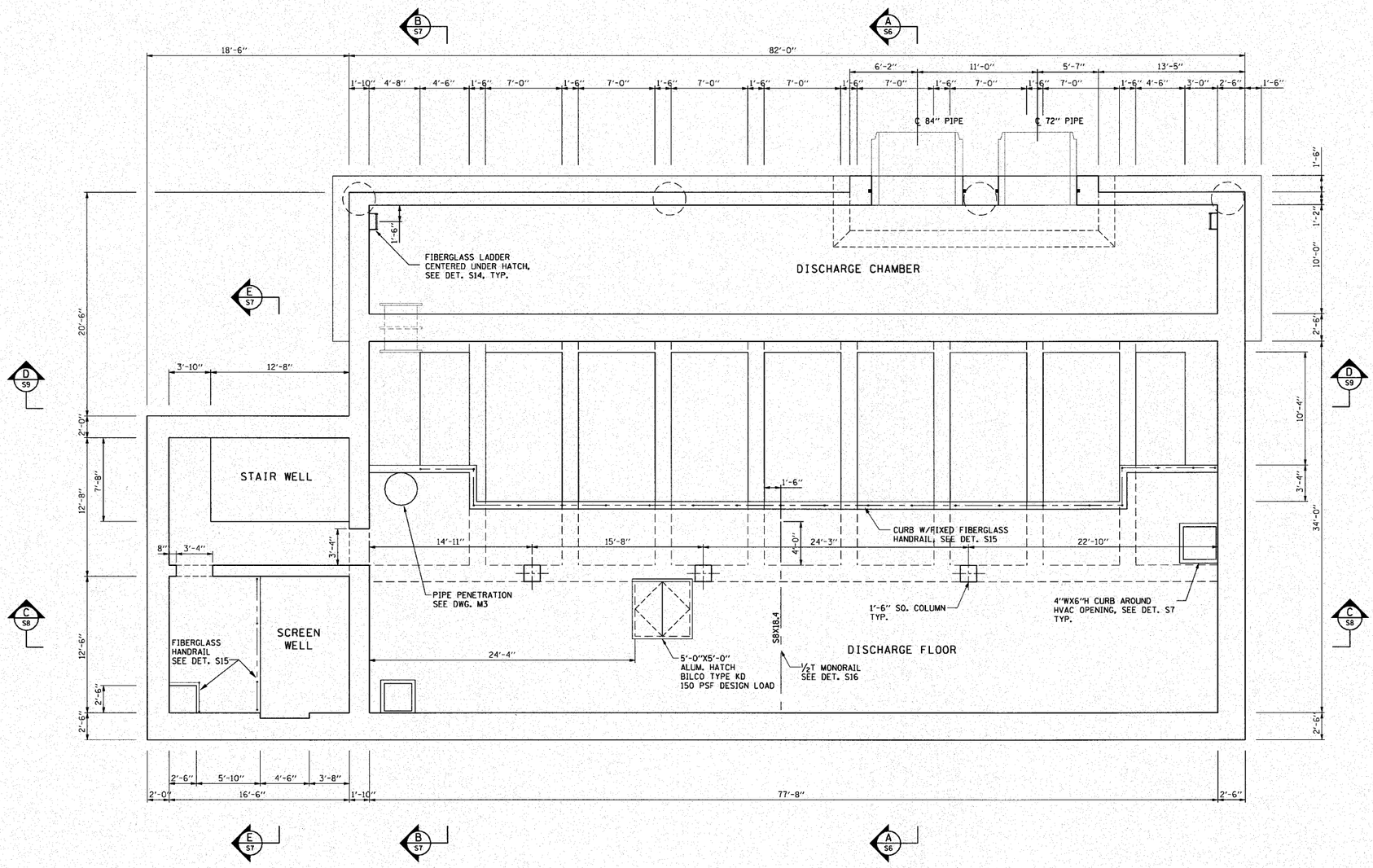
PUMP STATION NO. 24 RELOCATION

STRUCTURAL PLAN

SCALE: AS SHOWN DRAWN BY: FL

DATE: 11-22-10 CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	14
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 627.00

STATE OF ILLINOIS
PHILIP J. ENGLEBERT 81-4066
LICENSED STRUCTURAL ENGINEER
10/28/10

S3

SCALE: 0 4 8 12

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

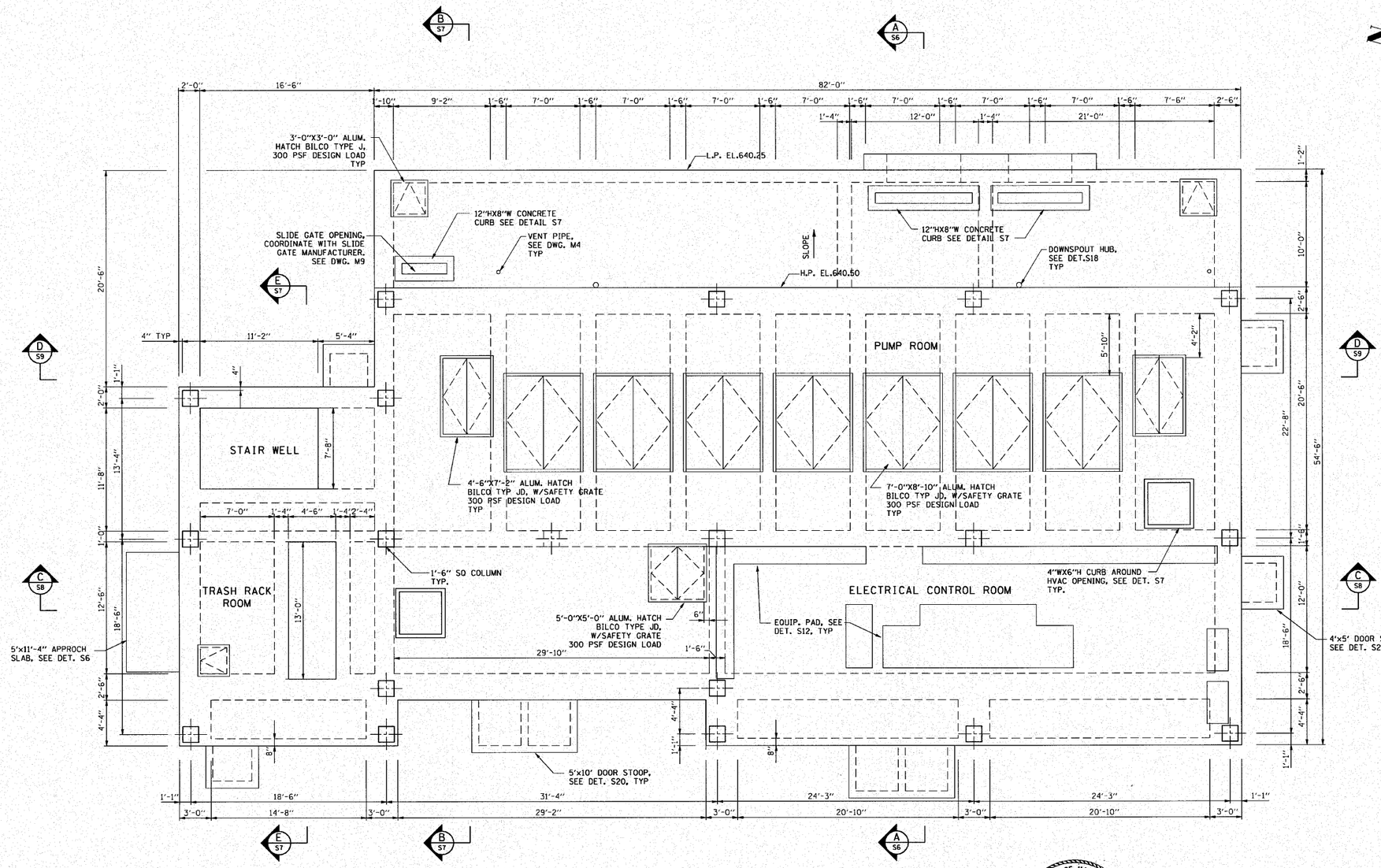
PUMP STATION NO. 24 RELOCATION

STRUCTURAL PLAN

SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: FL
CHECKED BY: PJE

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	15
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 640.50

NOTES:
1. VERIFY HATCH SIZE AND LOCATION WITH PUMP MANUFACTURER.
2. FOR DOOR STOOPS AND APPROACH SLAB LOCATION, SEE DWG. A3.

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81—4066
LICENSED STRUCTURAL ENGINEER
10/28/10

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

S4

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

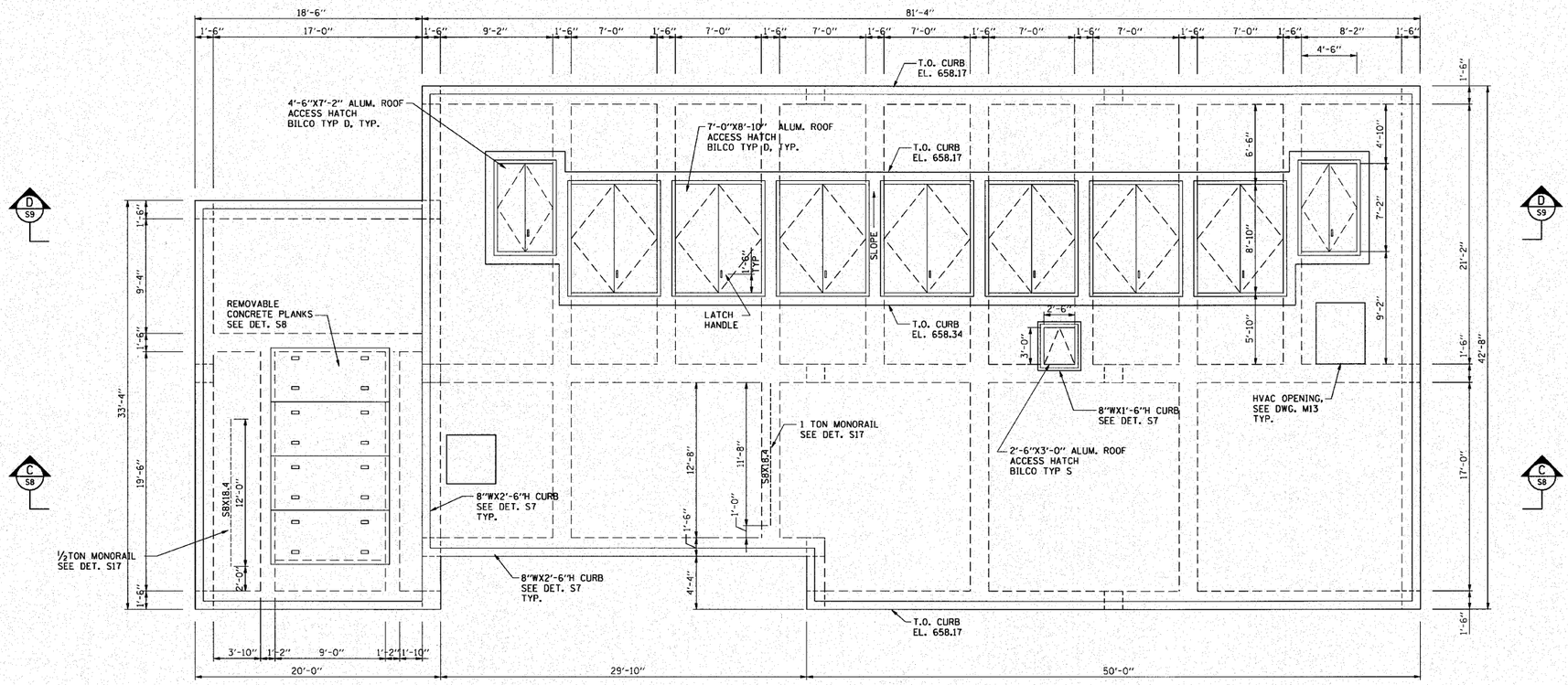
PUMP STATION NO. 24 RELOCATION

STRUCTURAL PLAN

SCALE: AS SHOWN DRAWN BY: FL

DATE: 11-22-10 CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	16
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 655.67

SCALE: 0 4 8 12

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81—4066
LICENSED STRUCTURAL ENGINEER
10/28/10

S5

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

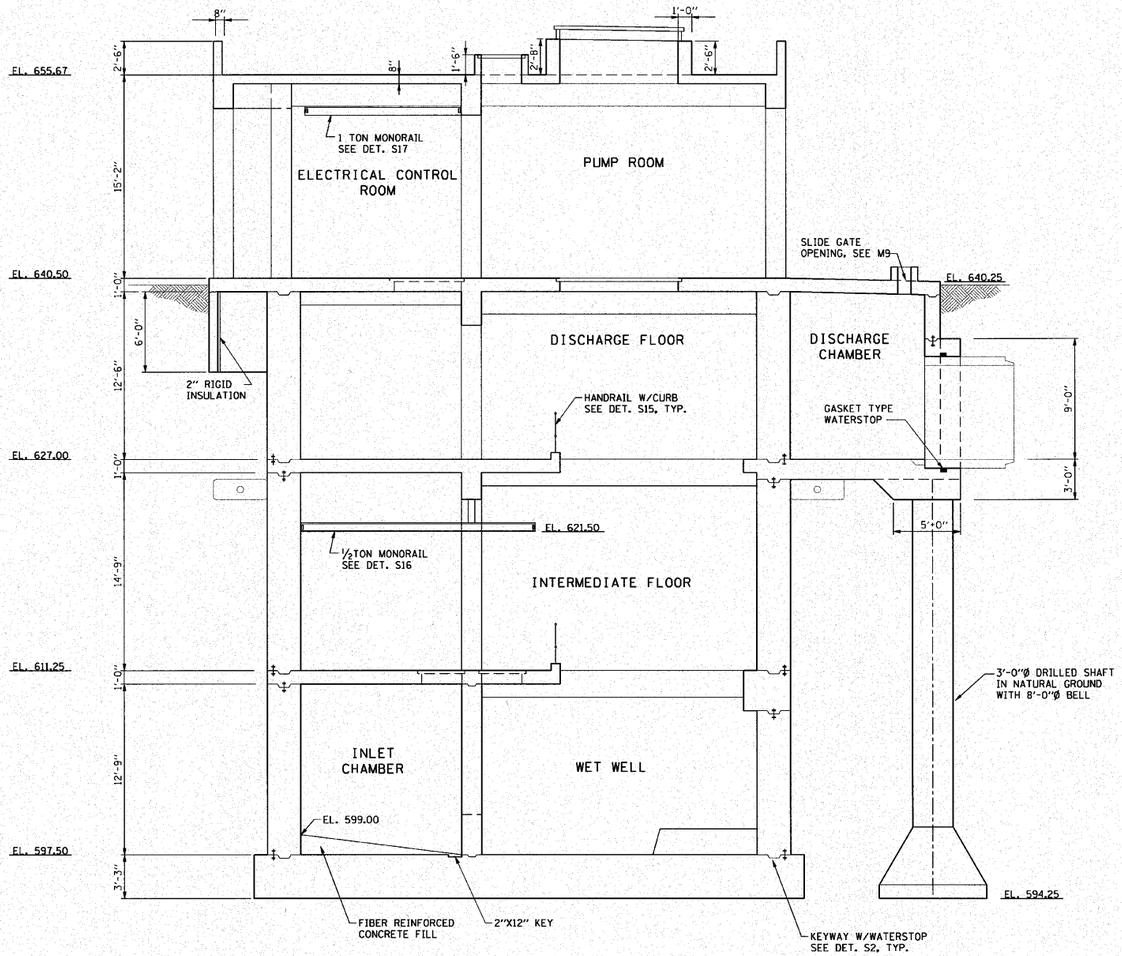
PUMP STATION NO. 24 RELOCATION

STRUCTURAL PLAN

SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: FL
CHECKED BY: PJE

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	17
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION A–A

STATE OF ILLINOIS
PHILIP
J.
ENGLEBERT
81–4066
LICENSED STRUCTURAL ENGINEER
10/20/10

SCALE: 0 4 8 12

S6

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

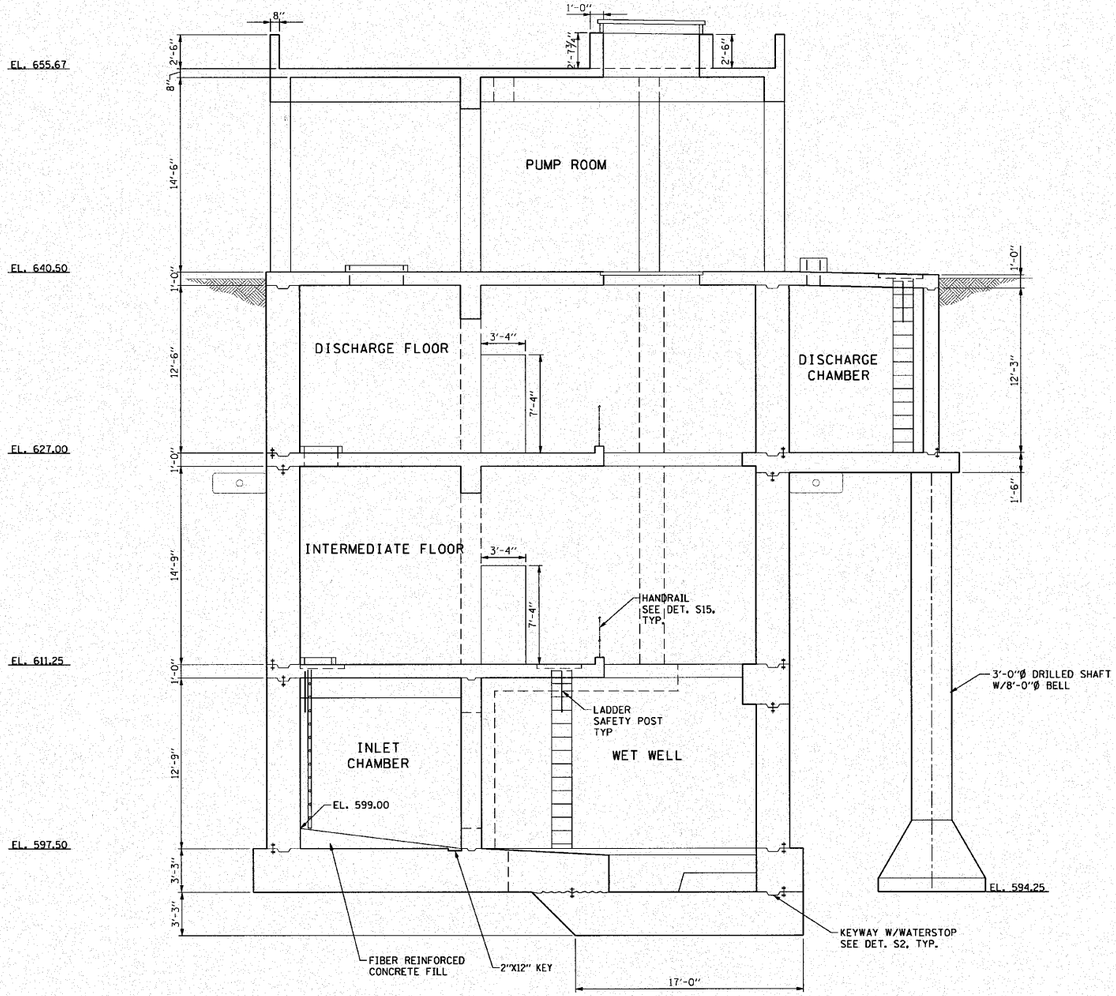
PUMP STATION NO. 24
RELOCATION

STRUCTURAL SECTION

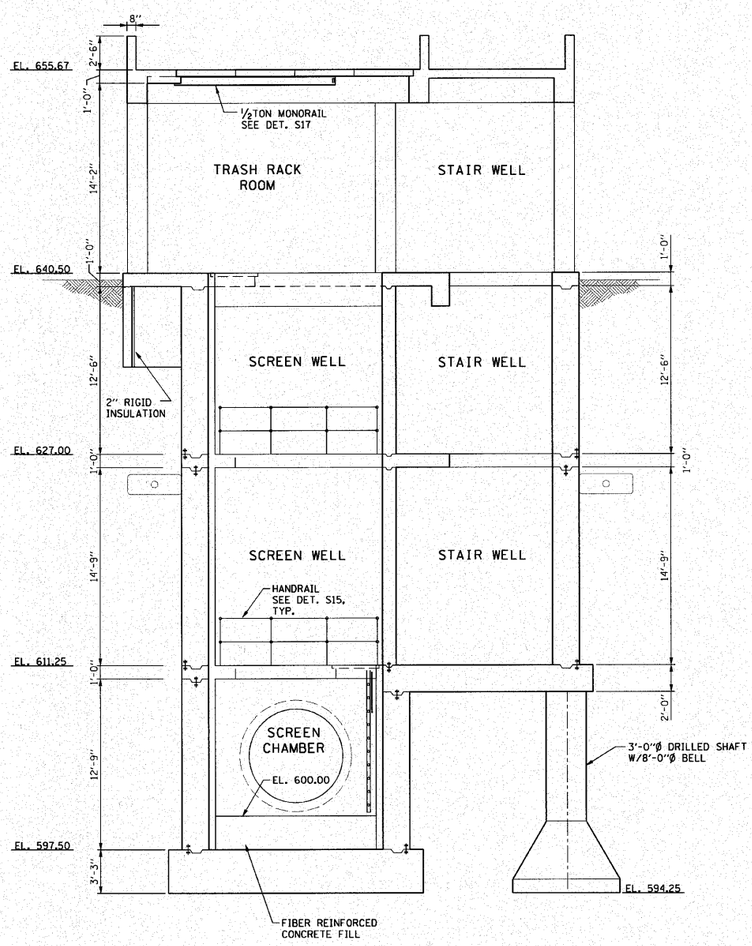
SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	18
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION B–B



SECTION E–E

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
10/28/10

SCALE: 0 4 8 12

S7

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

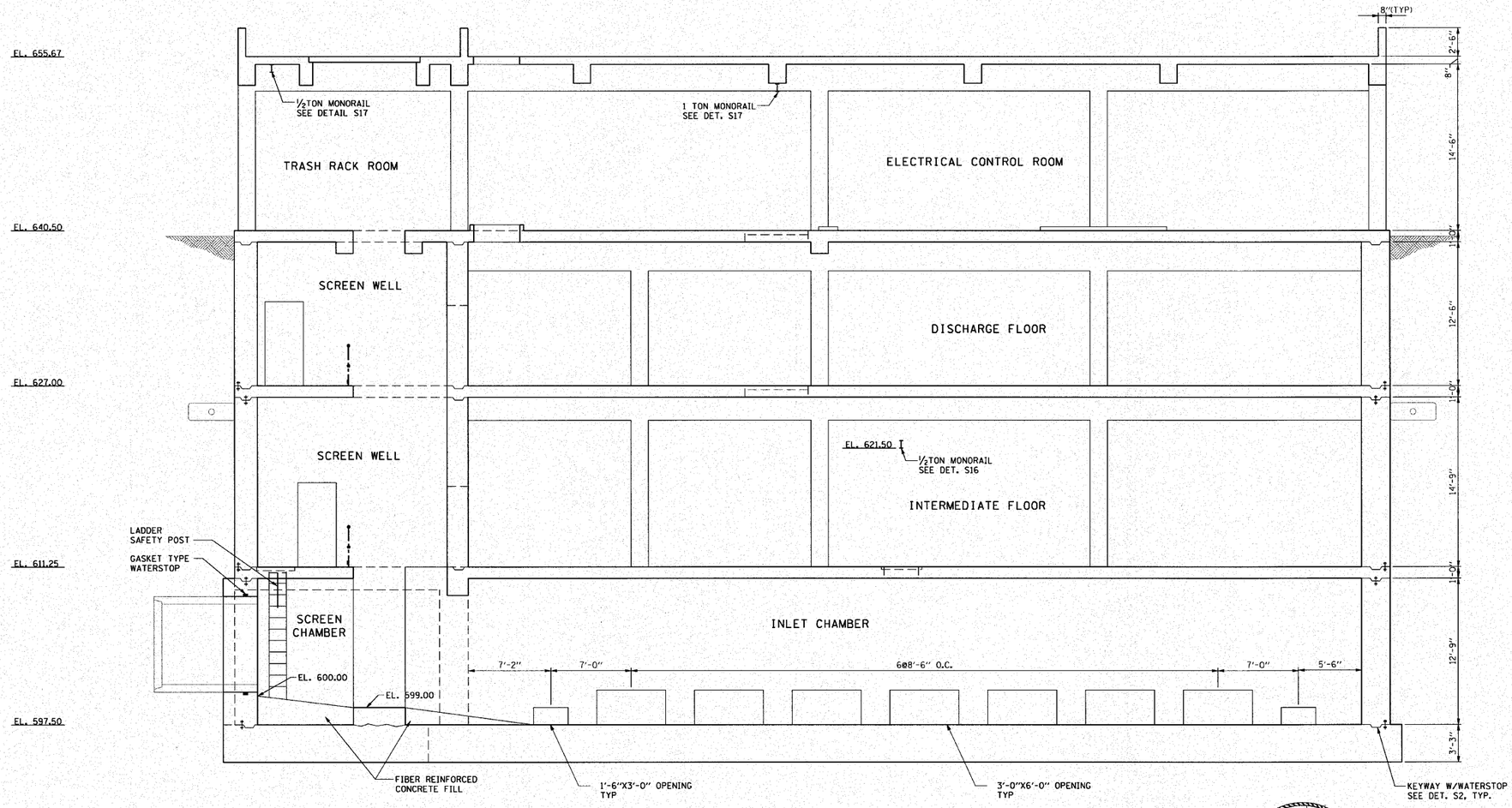
PUMP STATION NO. 24 RELOCATION

STRUCTURAL SECTIONS

SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: FL
CHECKED BY: PJE

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	19
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION C–C

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
10/20/10

SCALE: 0 4 8 12

S8

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

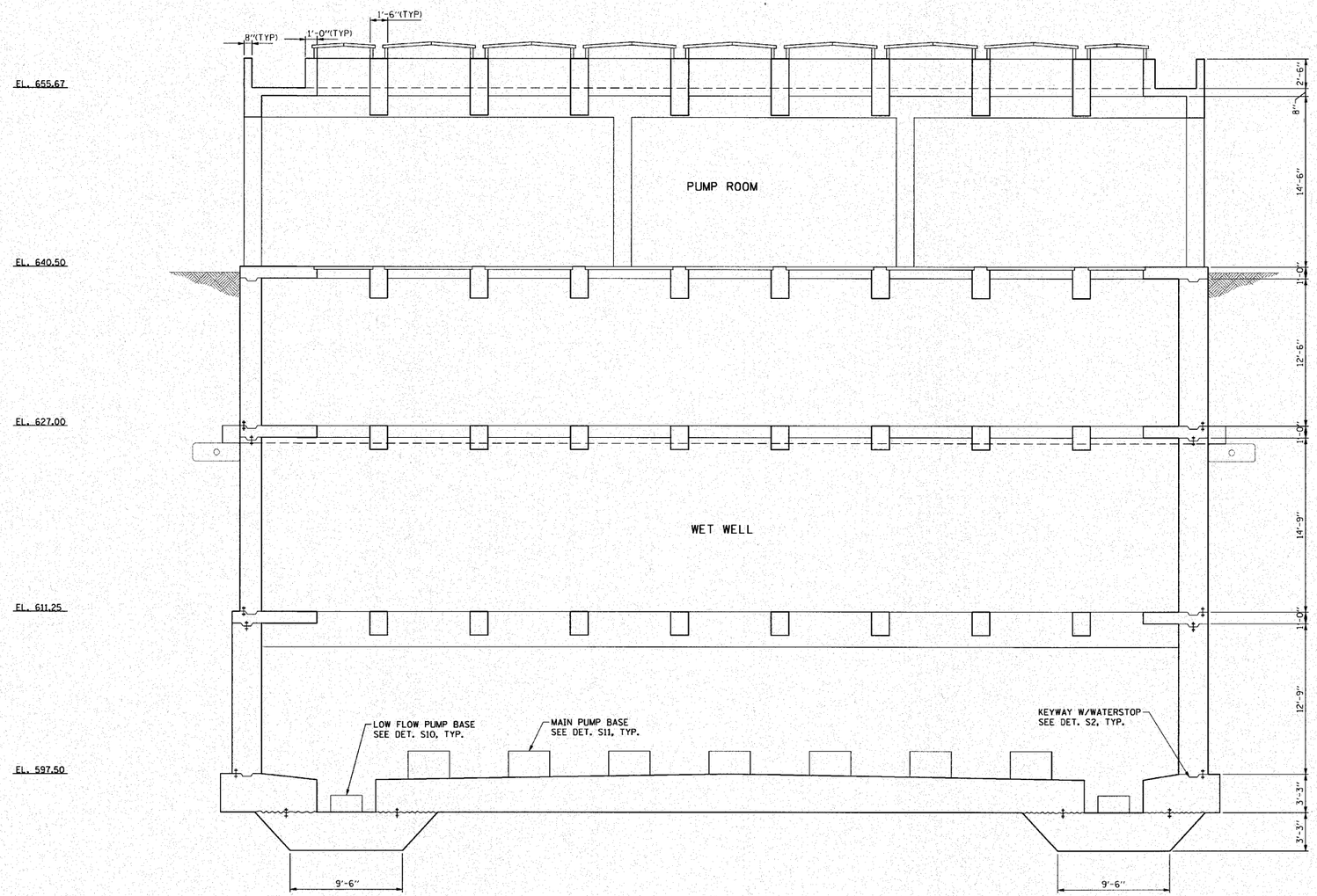
STRUCTURAL SECTION

SCALE: AS SHOWN DRAWN BY: FL

DATE: 11-22-10 CHECKED BY: PJE

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	20
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION D–D

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81–4066
LICENSED STRUCTURAL ENGINEER
10/28/10

S9

SCALE: 0 4 8 12

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

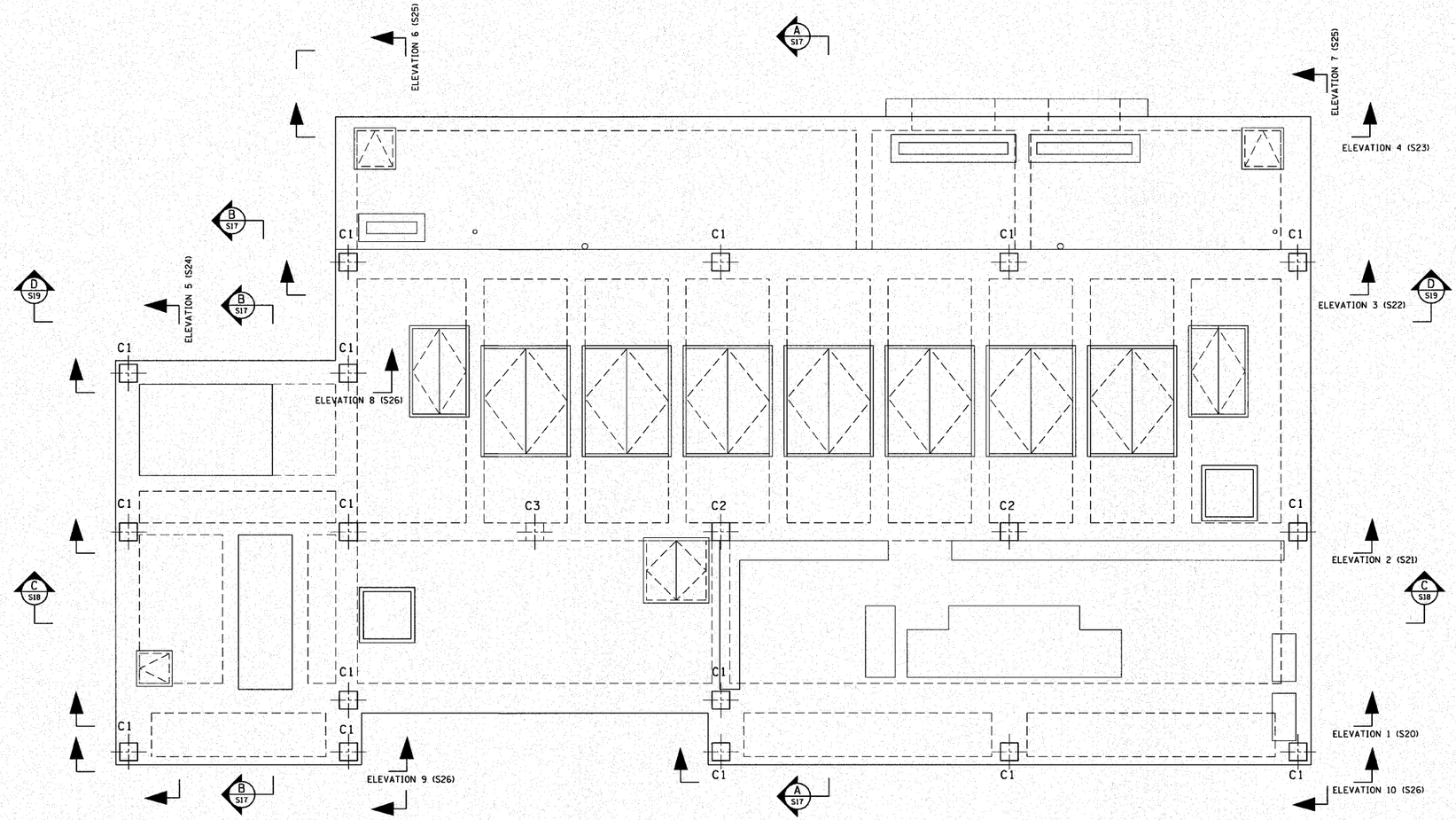
PUMP STATION NO. 24
RELOCATION

STRUCTURAL SECTION

SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: FL
CHECKED BY: PJE

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	21
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



REINFORCEMENT KEY PLAN

ABBREVIATIONS:
ALT - ALTERNATE
B - BOT
BM - BEAM
CB - CORNER BAR
CL - CLEAR
COL- COLUMN
DWL- DOWEL
EF- EACH FACE
EW- EACH WAY
FF- FAR FACE
FTG- FOOTING
HOR- HORIZONTAL
IF - INSIDE FACE
INC.- INCREMENTS
LONG.- LONGITUDINAL
LW - LONG WAY
NF - NEAR FACE
OF - OUTSIDE FACE
SD - SLAB DOWEL
SW - SHORT WAY
T - TOP
TOS - TOP OF SLAB
TS - THICKENED SLAB
TR - TRANSVERSE
UNO - UNLESS NOTED OTHERWISE
THRD - THREADED

DONOHUE & ASSOCIATES

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
10/28/10

SCALE: 0 4 8 12

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REVISIONS	
NAME	DATE

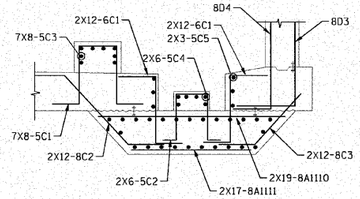
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

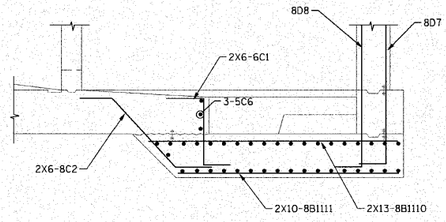
REINFORCEMENT DETAILS
WALLS KEY PLAN AND NOTES

SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

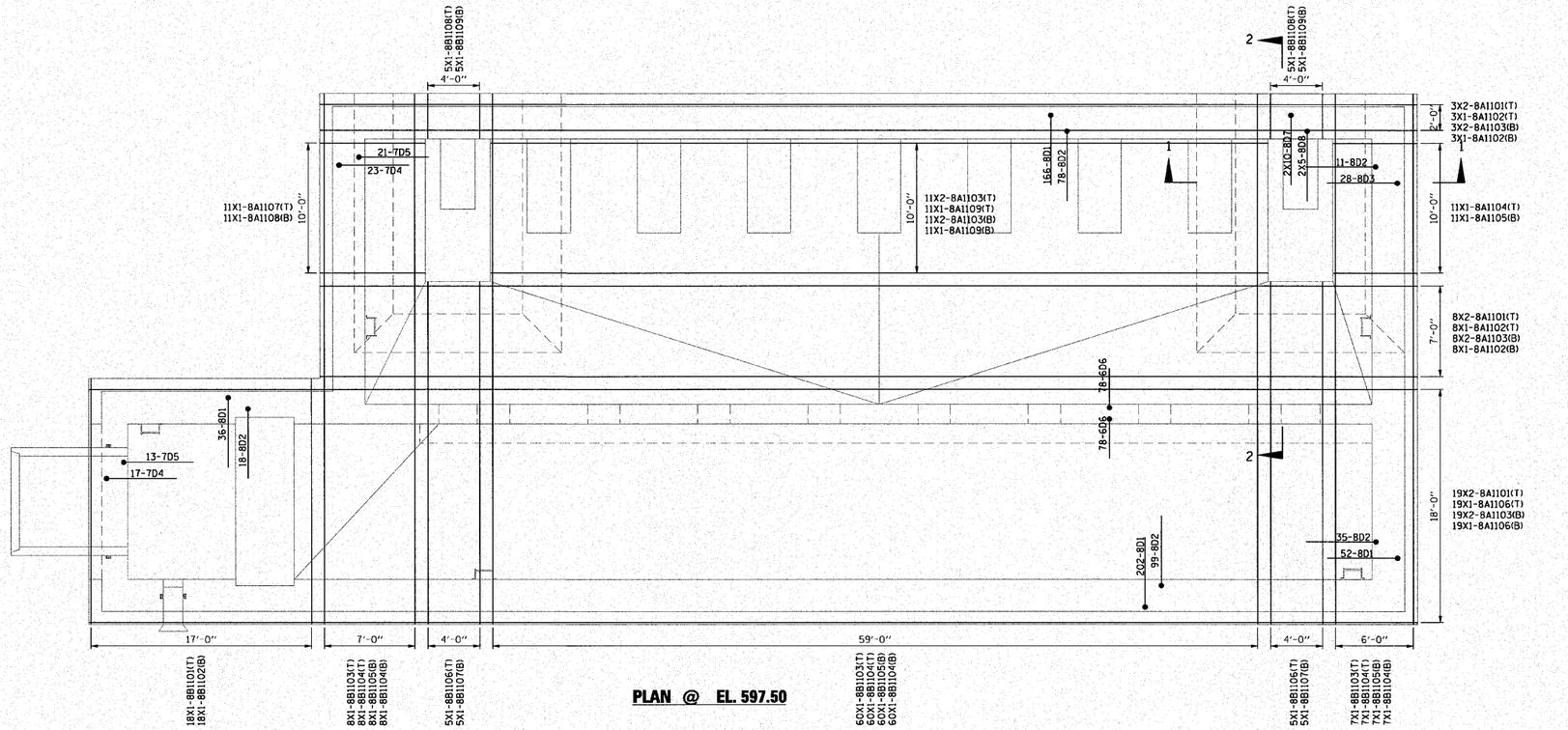
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	22
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION 1



SECTION 2



PLAN @ EL. 597.50

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

SCALE: 0 4 8 12

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
8A1101	60	8	40'-0"	
8A1102	22	8	8'-8"	
8A1103	104	8	40'-0"	
8A1104	22	8	6'-2"	
8A1105	22	8	6'-2"	
8A1106	38	8	24'-6"	
8A1107	22	8	7'-10"	
8A1108	22	8	7'-10"	
8A1109	44	8	17'-6"	
8A1110	38	8	14'-0"	
8A1111	34	8	9'-0"	
8B1101	18	8	18'-8"	
8B1102	18	8	18'-8"	
8B1103	75	8	20'-0"	
8B1104	150	8	18'-6"	
8B1105	75	8	20'-0"	
8B1106	10	8	26'-2"	
8B1107	10	8	26'-2"	
8B1108	10	8	3'-2"	
8B1109	10	8	3'-2"	
8B1110	26	8	19'-6"	
8B1111	20	8	16'-6"	
8D1	456	8	15'-6"	
8D2	241	8	9'-6"	
8D3	28	8	13'-0"	
7D4	40	7	13'-4"	
7D5	34	7	7'-7"	
6D6	156	6	6'-7"	
8D7	20	8	12'-7"	
8D8	10	8	12'-1"	
6C1	60	6	7.51	
8C2	36	8	9.34	
8C3	24	8	6.67	
5C1	56	5	13.00	
5C2	12	5	12.17	
5C3	56	5	6.92	
5C4	12	5	5.08	
5C5	12	5	13.0	
5C6	6	5	9.0	
REINFORCEMENT BARS EPOXY COATED			POUND	87,800
CONCRETE STRUCTURES			CU YD	580

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
10/28/10

S11

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

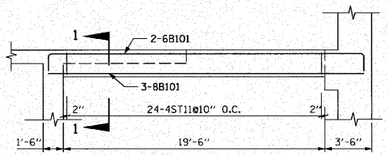
PUMP STATION NO. 24
RELOCATION

REINFORCEMENT DETAILS
FLOOR SLAB @ EL. 597.50

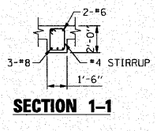
SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

DONOHUE & ASSOCIATES

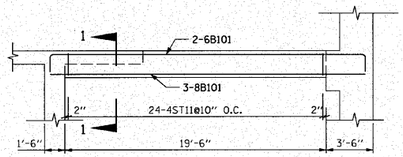
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	23
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



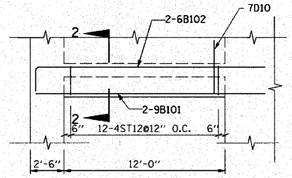
FB1 – 1



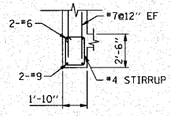
SECTION 1–1



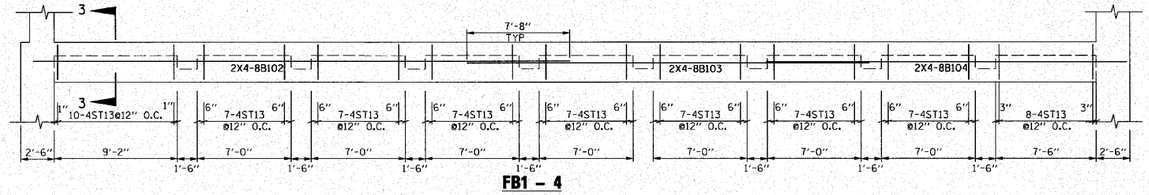
FB1 – 2



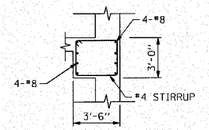
FB1 – 3



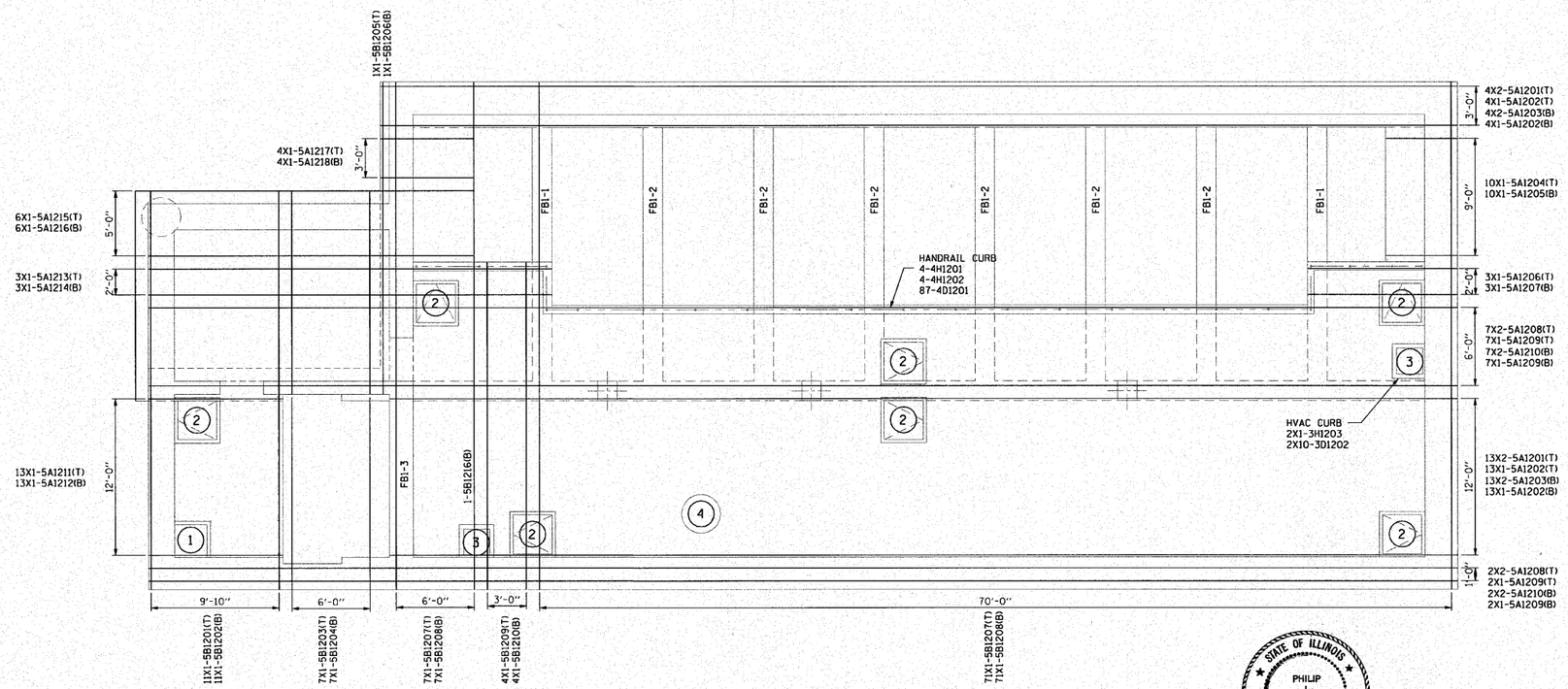
SECTION 2–2



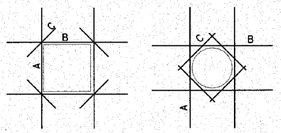
FB1 – 4



SECTION 3–3



PLAN @ EL. 611.25



OPENING	A	B	C
1	9'-8"	9'-8"	3'-0"
2	10'-8"	10'-8"	3'-0"
3	8'-8"	8'-8"	3'-0"
4	10'-8"	10'-8"	3'-3"

BAR 1A = OPENING 1, BAR A

FLOOR OPENINGS

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
9B101	2	9	17'-0"	
8B101	24	8	24'-2"	
8B102	8	8	40'-0"	
8B103	8	8	30'-0"	
8B104	8	8	27'-8"	
6B101	16	6	27'-2"	
6B102	2	6	20'-2"	
7D10	24	7	6'-0"	
4ST11	192	4	6'-10"	
4ST12	12	4	8'-2"	
4ST13	67	4	12'-10"	
5A1201	34	5	30'-0"	
5A1202	34	5	26'-8"	
5A1203	21	5	30'-0"	
5A1204	10	5	5'-2"	
5A1205	10	5	5'-2"	
5A1206	3	5	11'-6"	
5A1207	3	5	11'-6"	
5A1208	18	5	40'-0"	
5A1209	18	5	24'-6"	
5A1210	18	5	40'-0"	
5A1211	13	5	10'-0"	
5A1212	13	5	10'-0"	
5A1213	3	5	30'-8"	
5A1214	3	5	30'-8"	
5A1215	6	5	24'-8"	
5A1216	6	5	24'-8"	
5A1217	4	5	6'-10"	
5A1218	4	5	6'-10"	
5B1201	7	5	30'-4"	
5B1202	9	5	30'-4"	
5B1203	8	5	15'-4"	
5B1204	3	5	15'-4"	
5B1205	6	5	23'-8"	
5B1206	6	5	23'-8"	
5B1207	3	5	38'-8"	
5B1208	3	5	38'-8"	
5B1209	4	5	24'-10"	
5B1210	3	5	24'-10"	
6D1201	34	6	5.17	
1A	8	5	9'-8"	
1B	8	5	9'-8"	
1C	8	5	3'-0"	
2A	56	5	10'-8"	
2B	56	5	10'-8"	
2C	56	5	3'-0"	
3A	16	5	8'-8"	
3B	16	5	8'-8"	
3C	16	5	3'-0"	
4A	8	5	10'-8"	
4B	8	5	10'-8"	
4C	8	5	3'-3"	
4H1201	8	4	40'-0"	
4H1202	4	4	13'-0"	
3H1203	4	3	10'-0"	
4D1201	87	4	4'-0"	
3D1202	20	3	1'-6"	
REINFORCEMENT BARS EPOXY COATED			POUNDS	17,800
CONCRETE STRUCTURES			CU YD	190

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81—4066
LICENSED STRUCTURAL ENGINEER
10/26/10

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

S12

REVISIONS	
NAME	DATE

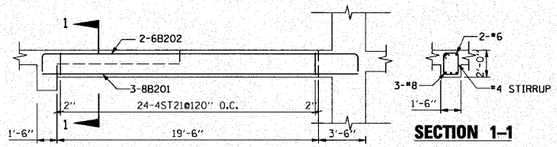
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

REINFORCEMENT DETAILS
FLOOR SLAB @ EL. 611.25

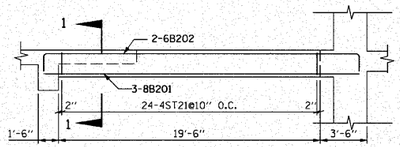
SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	24
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

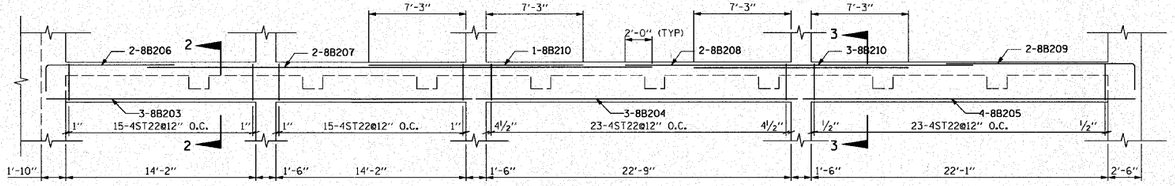


FB2-1

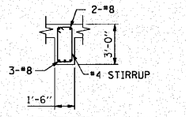
SECTION 1-1



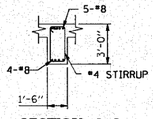
FB2-2



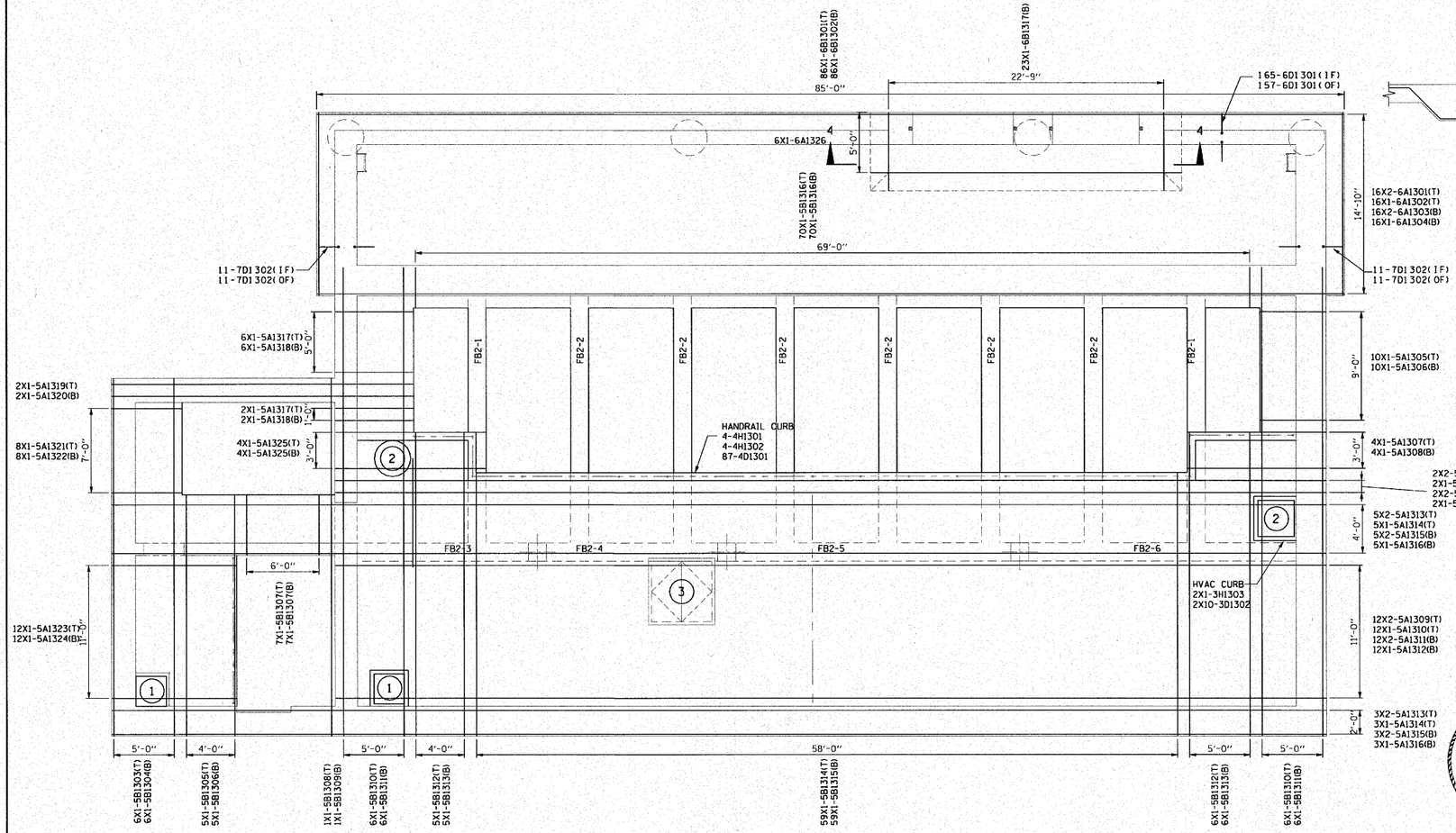
FB2-3 FB2-4 FB2-5 FB2-6



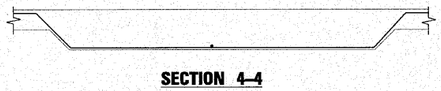
SECTION 2-2



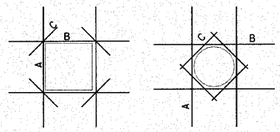
SECTION 3-3



PLAN @ EL. 627.00



SECTION 4-4



OPENING	A	B	C
1	9'-8"	9'-8"	3'-0"
2	10'-8"	10'-8"	3'-3"
3	14'-8"	14'-8"	3'-0"
4	10'-8"	10'-8"	3'-0"

BAR 1A = OPENING 1, BAR A

FLOOR OPENINGS

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
8B201	24	8	24'-2"	
6B202	16	6	27'-2"	
8B203	3	8	32'-2"	
8B204	3	8	24'-3"	
8B205	4	8	25'-2"	
8B206	2	8	12'-7"	
8B207	2	8	37'-8"	
8B208	2	8	26'-0"	
8B209	2	8	17'-3"	
8B210	4	8	16'-0"	
4ST21	192	4	6'-6"	
4ST22	76	4	8'-6"	
6A1301	32	6	30'-0"	
6A1302	16	6	32'-10"	
6A1303	3	6	30'-0"	
6A1304	16	6	30'-10"	
5A1305	10	5	5'-2"	
5A1306	10	5	5'-2"	
5A1307	4	5	11'-2"	
5A1308	4	5	11'-2"	
5A1309	28	5	30'-0"	
5A1310	14	5	26'-0"	
5A1311	28	5	30'-0"	
5A1312	14	5	26'-0"	
5A1313	16	5	40'-0"	
5A1314	8	5	24'-6"	
5A1315	16	5	40'-0"	
5A1316	8	5	24'-6"	
5A1317	8	5	6'-2"	
5A1318	8	5	6'-2"	
5A1319	2	5	24'-8"	
5A1320	2	5	24'-8"	
5A1321	8	5	5'-6"	
5A1322	8	5	5'-6"	
5A1323	12	5	10'-0"	
5A1324	12	5	10'-0"	
5A1325	8	5	12'-2"	
6A1325	6	6	29'-9"	
6B1301	86	6	14'-10"	
6B1302	86	6	14'-10"	
5B1303	6	5	29'-4"	
5B1304	6	5	29'-4"	
5B1305	5	5	19'-8"	
5B1306	5	5	19'-8"	
5B1307	14	5	4'-8"	
5B1308	1	5	29'-4"	
5B1309	1	5	29'-4"	
5B1310	12	5	38'-6"	
5B1311	12	5	38'-6"	
5B1312	11	5	24'-10"	
5B1313	11	5	24'-10"	
5B1314	59	5	21'-6"	
5B1315	59	5	21'-6"	
5B1316	140	5	3'-0"	
6B1318	23	6	8'-4"	
6D1301	322	6	5'-3"	
7D1302	44	7	6'-8"	
1A	16	5	9'-8"	
1B	16	5	9'-8"	
1C	16	5	3'-0"	
2A	8	5	10'-8"	
2B	8	5	10'-8"	
2C	8	5	3'-3"	
3A	8	5	14'-8"	
3B	8	5	14'-8"	
3C	8	5	3'-0"	
4A	8	5	10'-8"	
4B	8	5	10'-8"	
4C	8	5	3'-0"	
4H1301	8	4	40'-0"	
4H1302	4	4	13'-0"	
3H1303	4	3	10'-0"	
4D1301	87	4	4'-0"	
3D1302	20	3	1'-6"	
REINFORCEMENT BARS EPOXY COATED		POUNDS	31,900	
CONCRETE STRUCTURES		CU YD	275	

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
10/28/10

SCALE: 0 4 8 12

S13

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

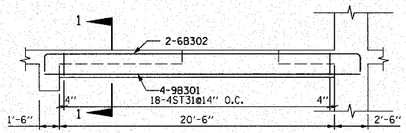
PUMP STATION NO. 24
RELOCATION

REINFORCEMENT DETAILS
FLOOR SLAB @ EL. 627.00

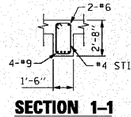
SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

DONOHUE & ASSOCIATES

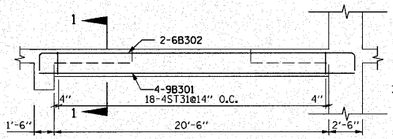
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	25
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



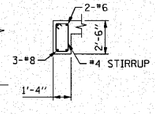
FB3-1



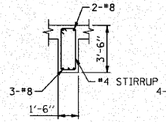
SECTION 1-1



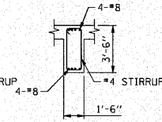
FB3-2



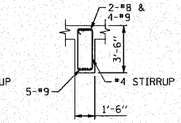
SECTION 2-2



SECTION 3-3



SECTION 4-4



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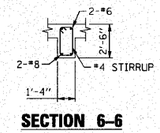
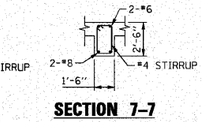
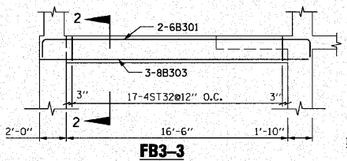


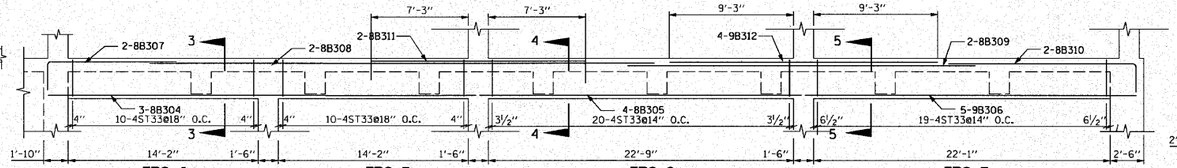
SECTION 6-6



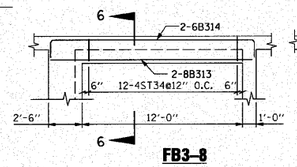
SECTION 7-7



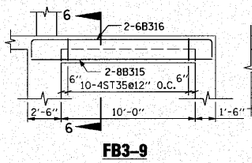
FB3-3



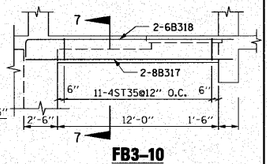
FB3-4 FB3-5 FB3-6 FB3-7



FB3-8



FB3-9



FB3-10

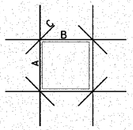
OPENING 2:
2X1-3H1401
2X20-3D1401

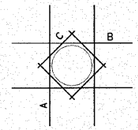
OPENING 5:
2X4-4H1402
2X16-4D1402

OPENING 7:
2X4-4H1403
2X26-4D1402

2X4-4H1404
2X24-4D1402

CURBS

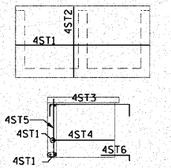


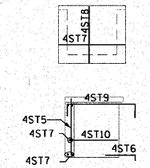


OPENING	A	B	C
1	9'-8"	9'-8"	3'-0"
2	12'-8"	12'-8"	3'-0"
3	14'-8"	14'-8"	3'-0"
4	19'-0"	13'-8"	3'-0"
5	6'-8"	13'-2"	3'-0"
6	10'-8"	10'-8"	3'-0"
7	6'-8"	26'-4"	3'-0"

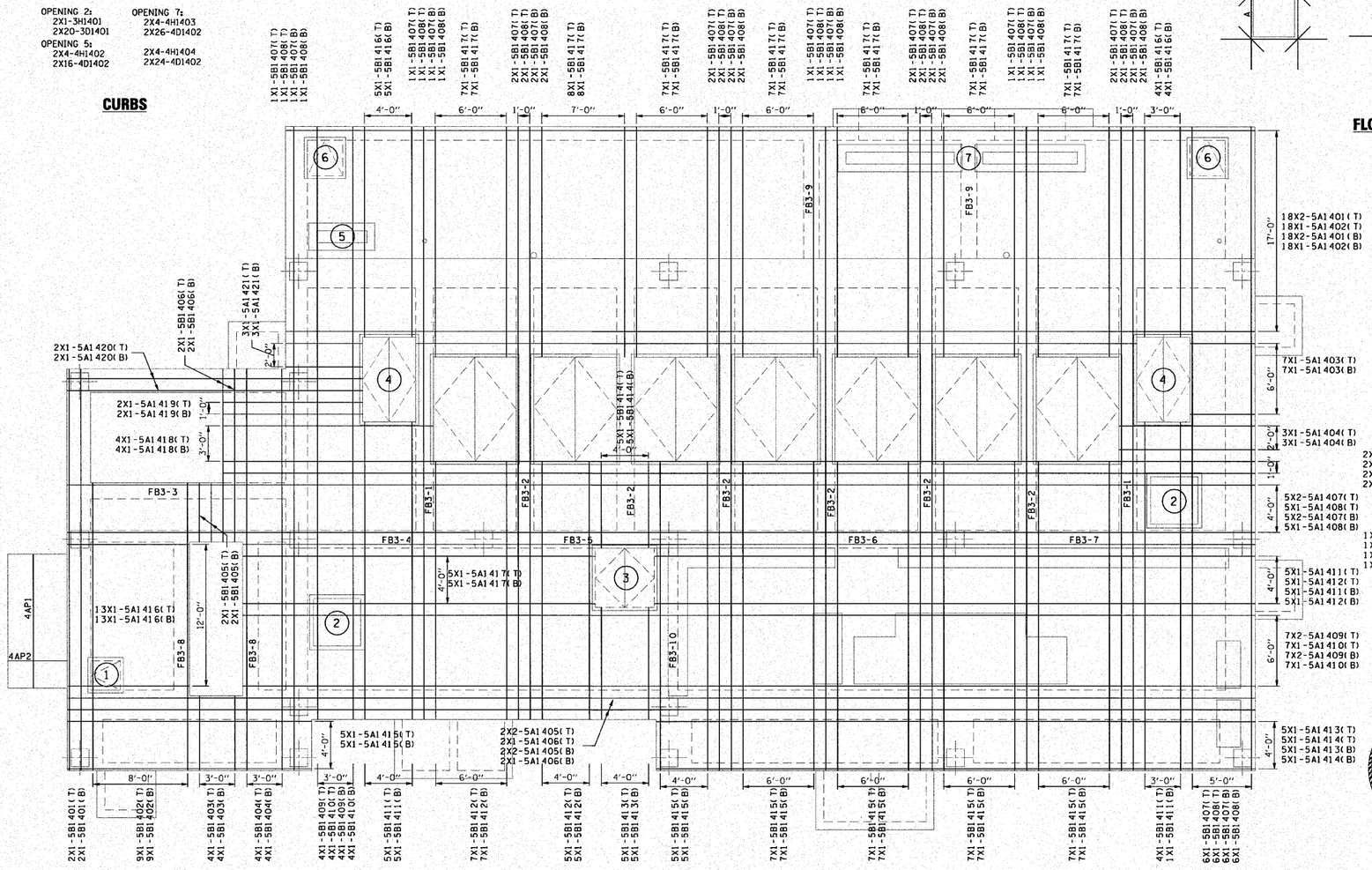
BAR 1A = OPENING 1, BAR A

FLOOR OPENINGS





DOOR STOOPS



PLAN @ EL. 640.50

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
9B301	32	9	24'-2"	
6B301	2	6	24'-4"	
6B302	16	6	28'-10"	
8B303	3	8	20'-0"	
8B304	3	8	32'-2"	
8B305	4	8	24'-3"	
9B306	5	9	25'-2"	
8B307	2	8	12'-7"	
8B308	2	8	37'-8"	
8B309	2	8	26'-0"	
8B310	2	8	17'-3"	
8B311	2	8	16'-0"	
9B312	24	9	20'-0"	
8B313	4	8	15'-8"	
6B314	4	6	20'-0"	
8B315	4	8	13'-8"	
6B316	4	6	18'-0"	
8B317	2	8	15'-8"	
6B318	2	6	17'-10"	
4ST31	144	4	7'-10"	
4ST32	17	4	7'-2"	
4ST33	59	4	9'-6"	
4ST34	26	4	7'-2"	
4ST35	42	4	7'-2"	
5A1401	72	5	30'-0"	
5A1402	14	5	26'-0"	
5A1403	6	5	5'-2"	
5A1404	6	5	11'-2"	
5A1405	16	5	30'-0"	
5A1406	8	5	31'-0"	
5A1407	20	5	40'-0"	
5A1408	10	5	24'-6"	
5A1409	32	5	30'-0"	
5A1410	16	5	29'-8"	
5A1411	10	5	30'-0"	
5A1412	10	5	18'-4"	
5A1413	10	5	30'-0"	
5A1414	10	5	18'-2"	
5A1415	10	5	20'-4"	
5A1416	26	5	10'-0"	
5A1417	10	5	29'-6"	
5A1418	8	5	17'-6"	
5A1419	4	5	11'-6"	
5A1420	4	5	24'-8"	
5A1421	6	5	6'-2"	
5B1401	4	5	33'-8"	
5B1402	18	5	24'-0"	
5B1403	8	5	6'-0"	
5B1404	8	5	33'-8"	
5B1405	4	5	4'-8"	
5B1406	4	5	14'-4"	
5B1407	36	5	30'-0"	
5B1408	36	5	22'-0"	

BAR	NO.	SIZE	LENGTH	SHAPE
5B1409	8	5	30'-0"	
5B1410	8	5	17'-8"	
5B1411	15	5	24'-10"	
5B1412	24	5	21'-6"	
5B1413	10	5	9'-2"	
5B1414	10	5	7'-0"	
5B1415	66	5	25'-10"	
5B1416	18	5	17'-6"	
5B1417	100	5	19'-2"	
1A	8	5	9'-8"	
1B	8	5	9'-8"	
1C	8	5	3'-0"	
2A	16	5	12'-8"	
2B	16	5	12'-8"	
2C	16	5	3'-0"	
3A	8	5	14'-8"	
3B	8	5	14'-8"	
3C	8	5	3'-0"	
4A	16	5	19'-0"	
4B	16	5	13'-8"	
4C	16	5	3'-0"	
5A	8	5	6'-8"	
5B	8	5	13'-2"	
5C	8	5	3'-0"	
6A	16	5	10'-8"	
6B	16	5	10'-8"	
6C	16	5	3'-0"	
7A	8	5	6'-8"	
7B	8	5	26'-4"	
7C	8	5	3'-0"	
4AP1	6	4	11'-0"	
4AP2	12	4	4'-8"	
4ST1	10	4	9'-8"	
4ST2	20	4	5'-0"	
4ST3	12	4	7'-0"	
4ST4	30	4	5'-0"	
4ST5	18	4	9'-6"	
4ST6	14	4	3'-6"	
4ST7	16	4	4'-8"	
4ST8	20	4	4'-0"	
4ST9	16	4	6'-0"	
4ST10	40	4	4'-0"	
4ST11	36	4	4'-6"	
4ST12	40	4	4'-0"	
3H1401	2	3	17'-6"	
3D1401	40	3	1'-6"	
4H1402	8	4	7'-3"	
4H1403	8	4	12'-2"	
4H1404	8	4	13'-0"	
4D1402	132	4	2'-4"	
MISC.	15	3	40'-0"	
REINFORCEMENT BARS EPOXY COATED			POUNDS	34,000
CONCRETE STRUCTURES			CU YD	265

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
10/28/10

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

S14

REVISIONS	
NAME	DATE

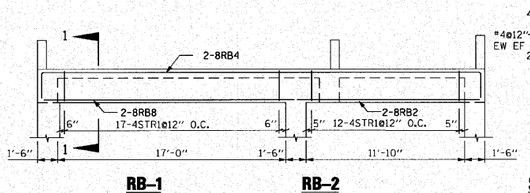
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

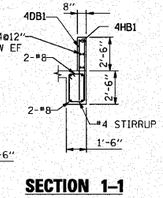
REINFORCEMENT DETAILS
FLOOR SLAB @ EL. 640.50

SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

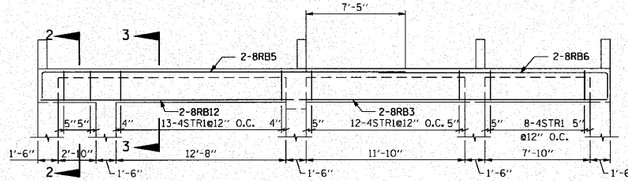
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	26
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



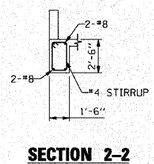
RB-1 RB-2



SECTION 1-1



RB-3a RB-3 RB-4 RB-5



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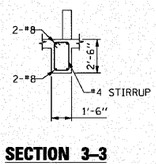
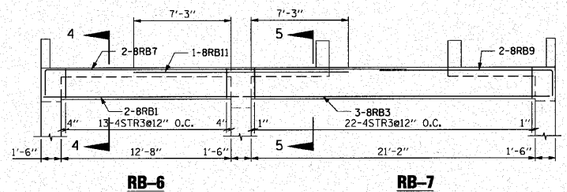
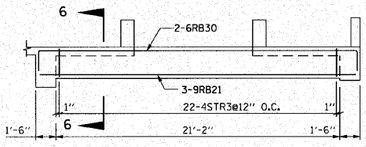


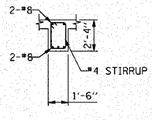
SECTION 3-3



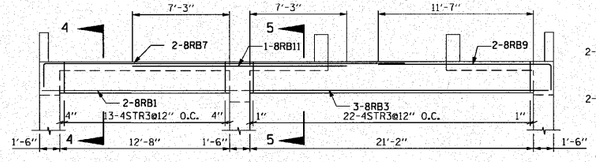
RB-6 RB-7



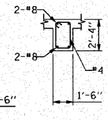
RB-8



SECTION 6-6



RB-9 RB-10



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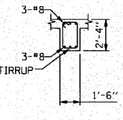
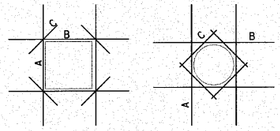


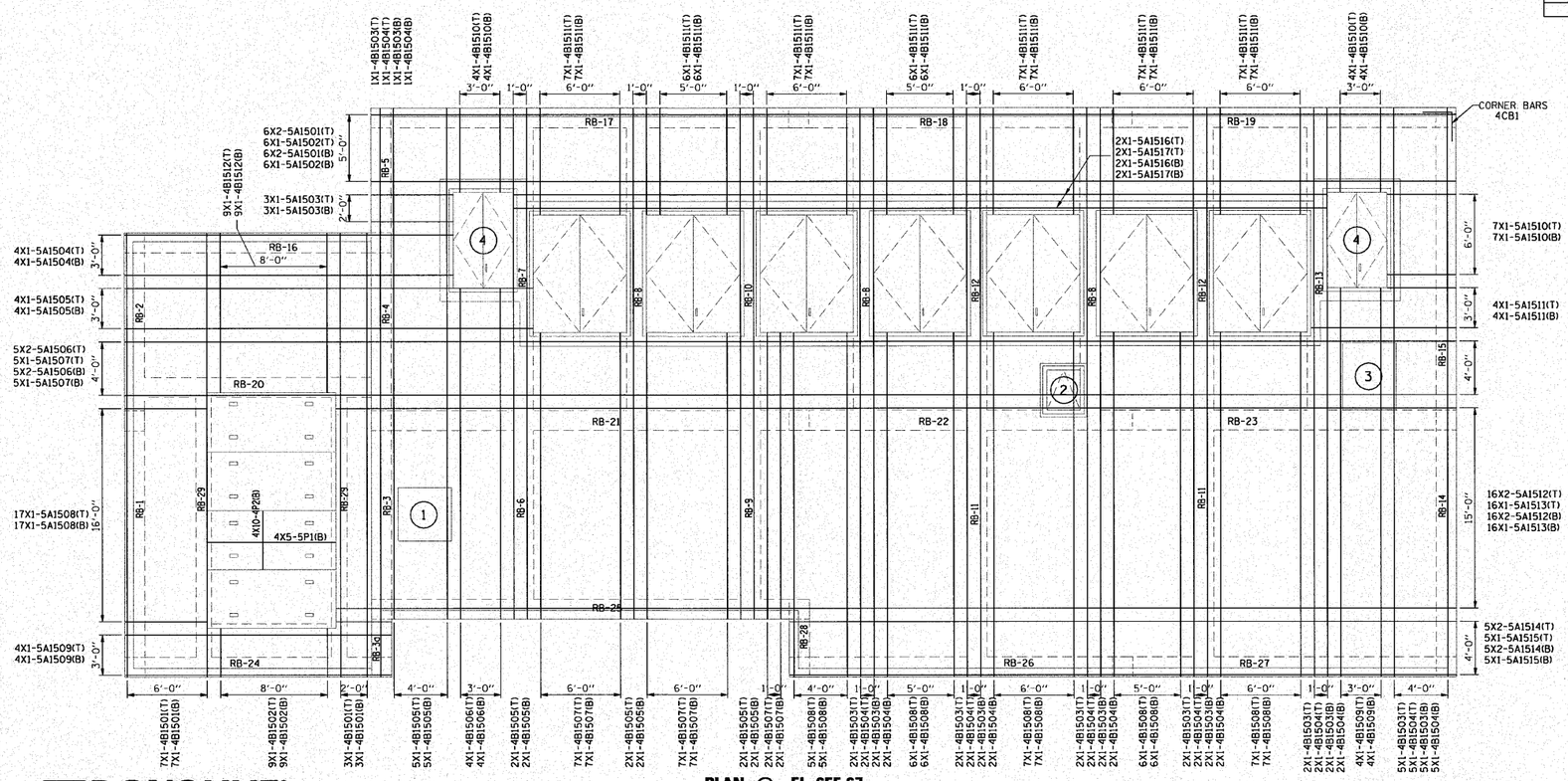
SECTION 5-5



OPENING	A	B	C
1	12'-8"	12'-8"	3'-0"
2	10'-8"	9'-8"	3'-0"
3	14'-8"	12'-8"	3'-0"
4	19'-0"	13'-8"	3'-0"

BAR 1A = OPENING 1, BAR A

ROOF OPENINGS



PLAN @ EL. 655.67

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

SCALE: 0 4 8 12

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
8RB1	4	8	14'-8"	
8RB2	2	8	12'-10"	
8RB3	17	8	23'-2"	
8RB4	2	8	25'-6"	
8RB5	2	8	29'-0"	
8RB6	2	8	12'-0"	
8RB7	4	8	29'-3"	
8RB8	11	8	19'-0"	
8RB9	10	8	15'-0"	
8RB10	4	8	35'-0"	
8RB11	13	8	11'-0"	
8RB12	2	8	18'-2"	
8RB13	13	8	23'-5"	
8RB15	7	8	32'-6"	
8RB16	4	8	24'-1"	
8RB17	9	8	24'-8"	
8RB18	11	8	19'-8"	
9RB19	6	9	31'-10"	
8RB20	6	8	24'-10"	
9RB21	12	9	23'-10"	
8RB22	6	8	22'-2"	
8RB23	2	8	5'-6"	
8RB24	4	8	19'-6"	
8RB25	4	8	29'-10"	
8RB26	4	8	26'-3"	
8RB27	6	8	16'-0"	
8RB28	2	8	40'-0"	
8RB29	7	6	24'-0"	
6RB30	6	6	27'-10"	
6RB31	6	6	26'-6"	
6RB32	2	6	9'-10"	
8RB33	4	8	17'-0"	
8RB34	3	8	18'-0"	
9RB35	5	9	31'-10"	
6RB36	2	6	36'-10"	
4STR1	288	4	7'-6"	
4STR2	55	4	6'-4"	
4STR3	236	4	7'-2"	
4STR5	66	4	8'-6"	

BAR	NO.	SIZE	LENGTH	SHAPE
4A1501	24	4	30'-0"	
4A1502	12	4	24'-6"	
4A1503	6	4	5'-10"	
4A1504	8	4	24'-4"	
4A1505	8	4	30'-4"	
4A1506	20	4	40'-0"	
4A1507	10	4	23'-0"	
4A1508	34	4	5'-10"	
4A1509	8	4	19'-10"	
4A1510	14	4	4'-10"	
4A1511	8	4	10'-6"	
4A1512	64	4	30'-0"	
4A1513	32	4	27'-2"	
4B1501	20	4	33'-0"	
4B1502	18	4	3'-4"	
4B1503	32	4	30'-0"	
4B1504	32	4	10'-7"	
4B1505	22	4	38'-0"	
4B1506	8	4	24'-6"	
4B1507	32	4	21'-6"	
4B1508	62	4	25'-6"	
4B1509	8	4	28'-10"	
4B1510	16	4	6'-0"	
4B1511	94	4	7'-8"	
4B1512	18	4	11'-8"	
4CB1	60	4	4'-10"	
4DB1	602	4	4'-8"	
4HB1	20	4	40'-0"	
5P1	20	5	9'-4"	
4P2	40	4	4'-2"	
1A	8	5	12'-8"	
1B	8	5	12'-8"	
1C	8	5	3'-0"	
2A	8	5	10'-8"	
2B	8	5	9'-8"	
2C	8	5	3'-0"	
3A	8	5	14'-8"	
3B	8	5	12'-8"	
3C	8	5	3'-0"	
4A	16	5	19'-0"	
4B	16	5	12'-8"	
4C	16	5	3'-0"	
REINFORCEMENT BARS EPOXY COATED			POUNDS	30,500
CONCRETE STRUCTURES			CU YD	210

STATE OF ILLINOIS
PHILIP J. ENGLEBERT 81-4066
LICENSED STRUCTURAL ENGINEER
10/26/10

S15

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

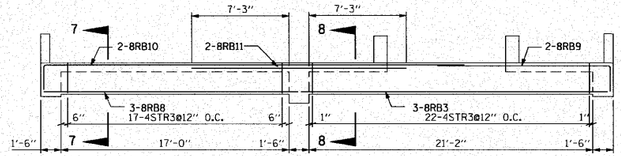
PUMP STATION NO. 24
RELOCATION

REINFORCEMENT DETAILS
ROOF SLAB @ EL. 655.67

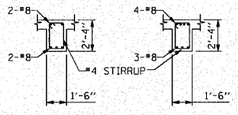
SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

DONOHUE & ASSOCIATES

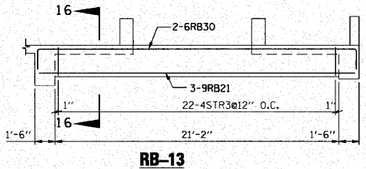
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	27
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



RB–11 **RB–12**



SECTION 7–7 **SECTION 8–8**



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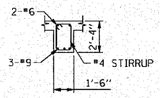
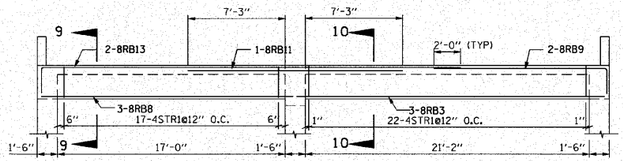
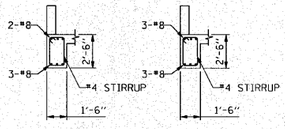


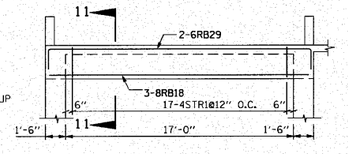
SECTION 16–16



RB–14 **RB–15**



SECTION 9–9 **SECTION 10–10**



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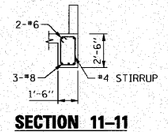
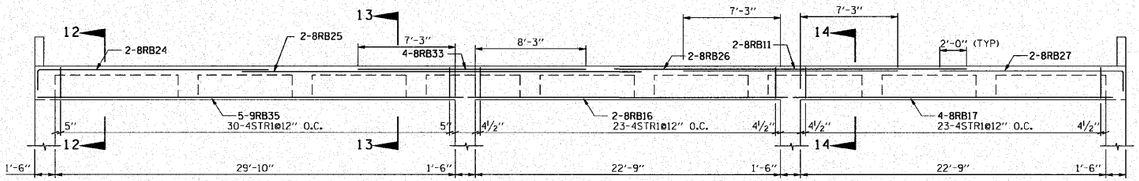
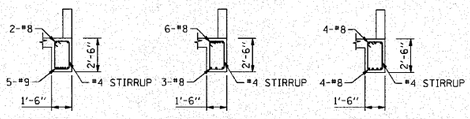


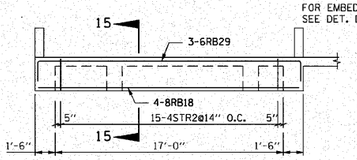
SECTION 11–11



RB–17 **RB–18** **RB–19**



SECTION 12–12 **SECTION 13–13** **SECTION 14–14**



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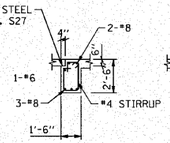
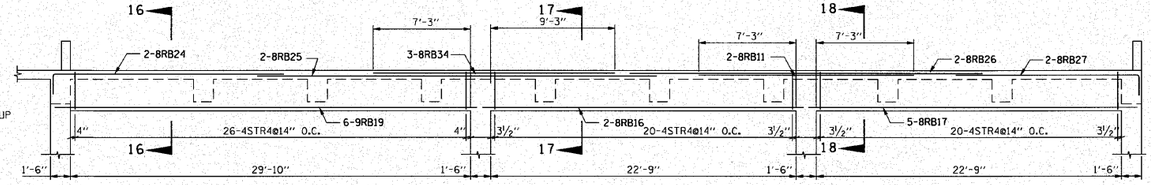


SECTION 15–15



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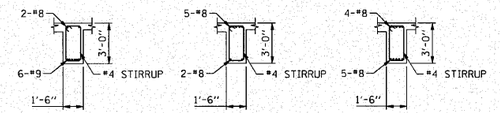
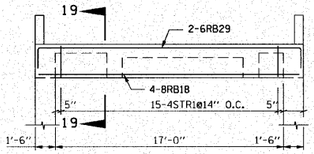


SECTION 16–16 **SECTION 17–17** **SECTION 18–18**



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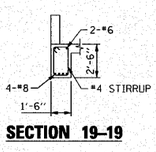
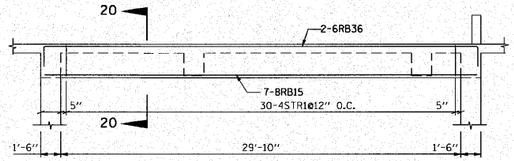


SECTION 19–19



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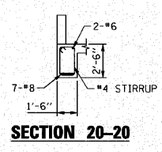
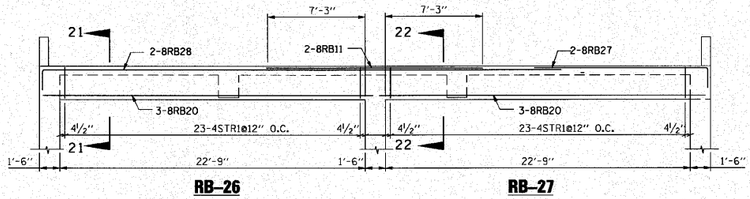
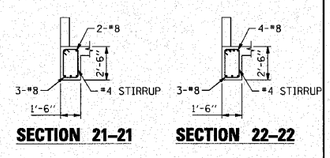


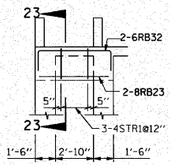
SECTION 20–20



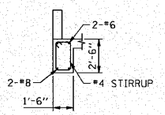
RB–26 **RB–27**



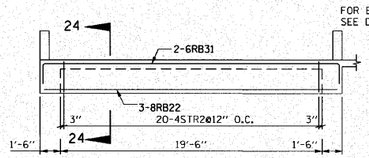
SECTION 21–21 **SECTION 22–22**



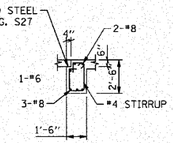
RB–28



SECTION 23–23

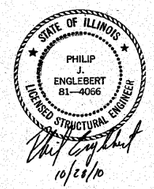


RB–29



SECTION 24–24

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.



SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

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REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

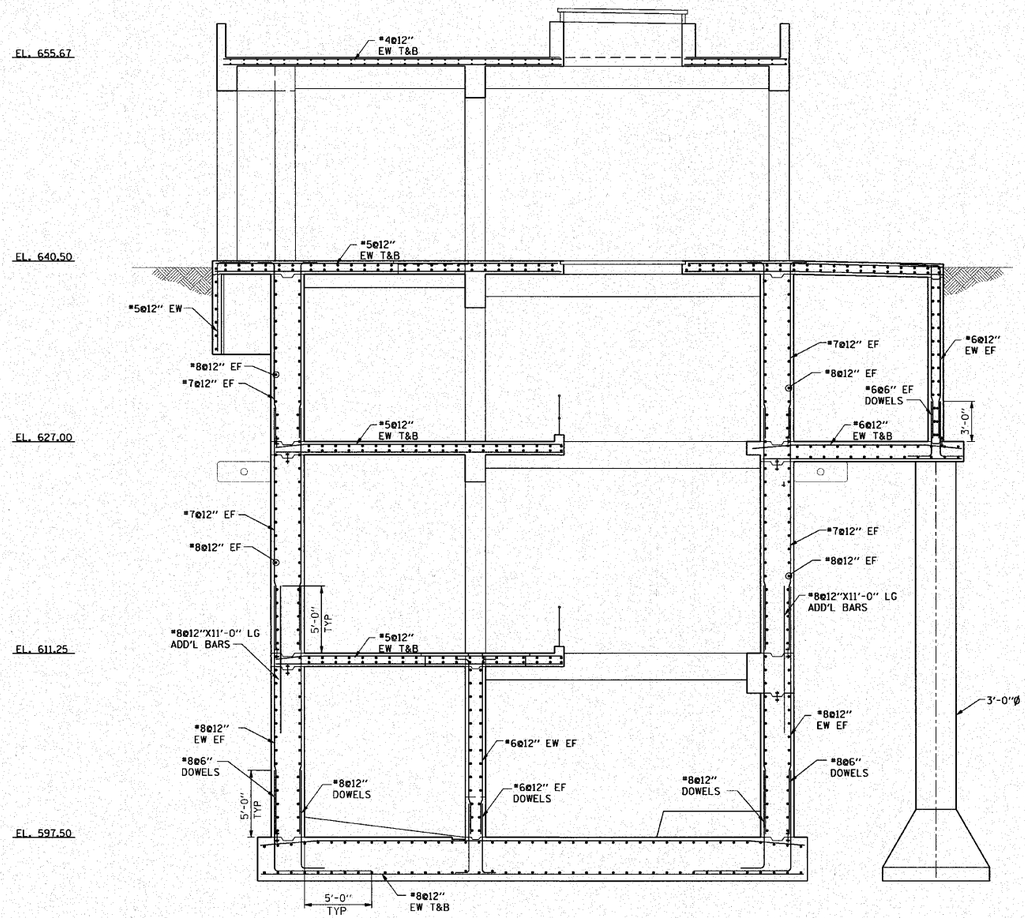
PUMP STATION NO. 24
RELOCATION

REINFORCEMENT DETAILS
ROOF SLAB @ EL. 655.67

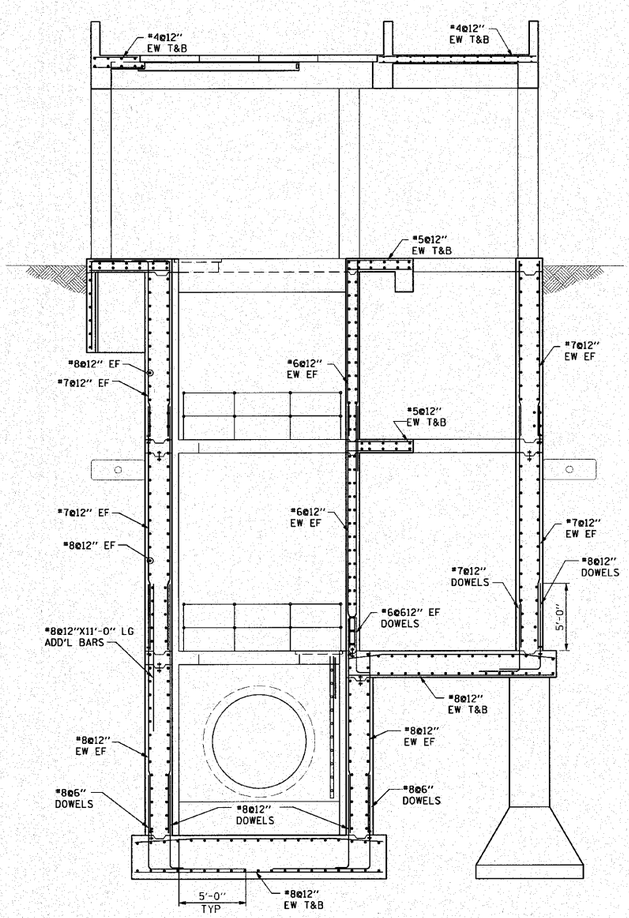
SCALE: AS SHOWN DRAWN BY: FL

DATE: 11-22-10 CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	28
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION A–A



SECTION B–B

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

STATE OF ILLINOIS
PHILIP J. ENGLEBERT 81–4066
LICENSED STRUCTURAL ENGINEER
10/26/10

SCALE: 0 4 8 12

S17

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

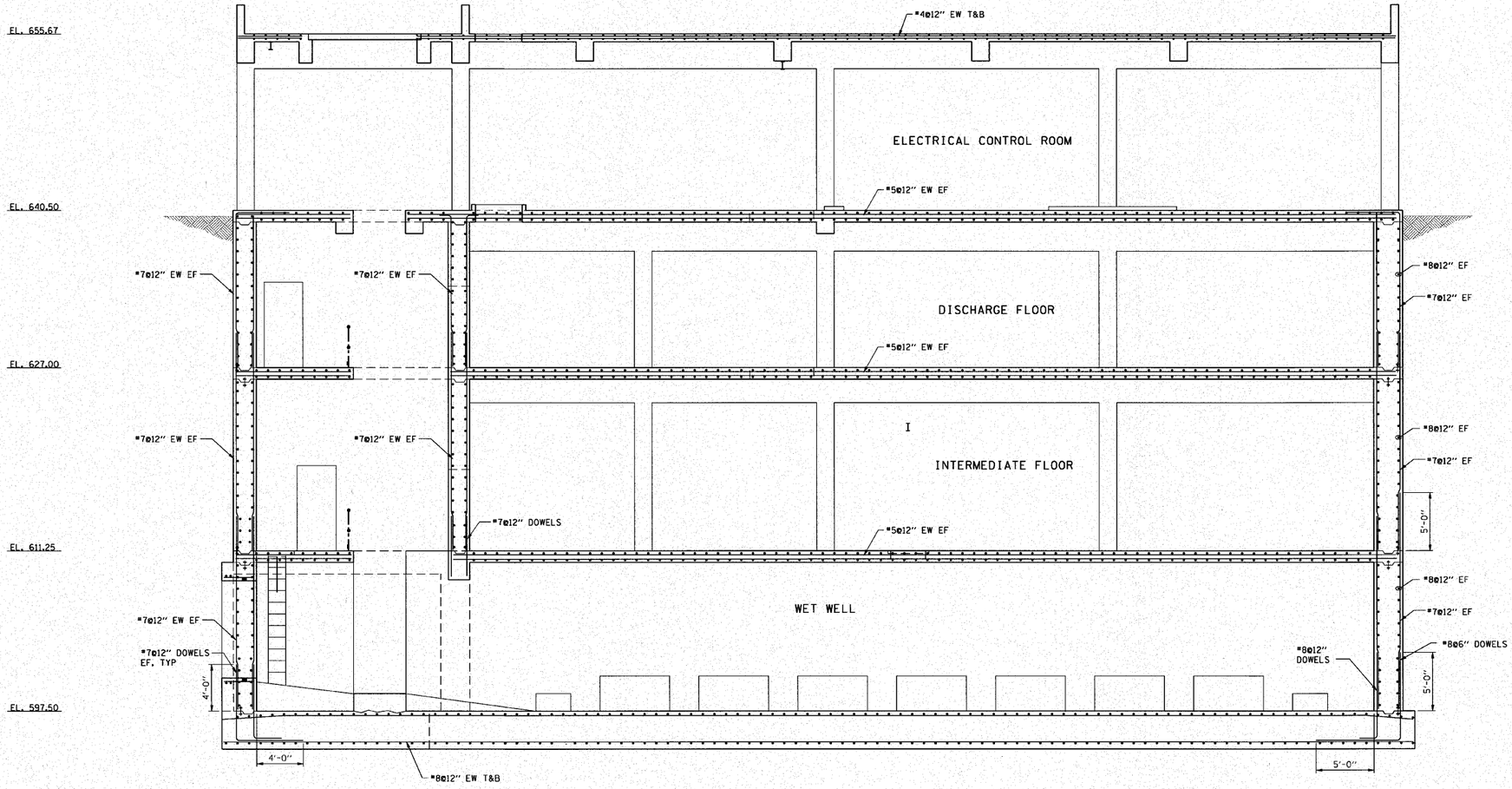
PUMP STATION NO. 24 RELOCATION

REINFORCEMENT DETAILS SECTIONS

SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	29
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION C-C

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

STATE OF ILLINOIS
PHILIP J. ENGLEBERT 81-4066
LICENSED STRUCTURAL ENGINEER
10/28/10

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

S18

REVISIONS	
NAME	DATE

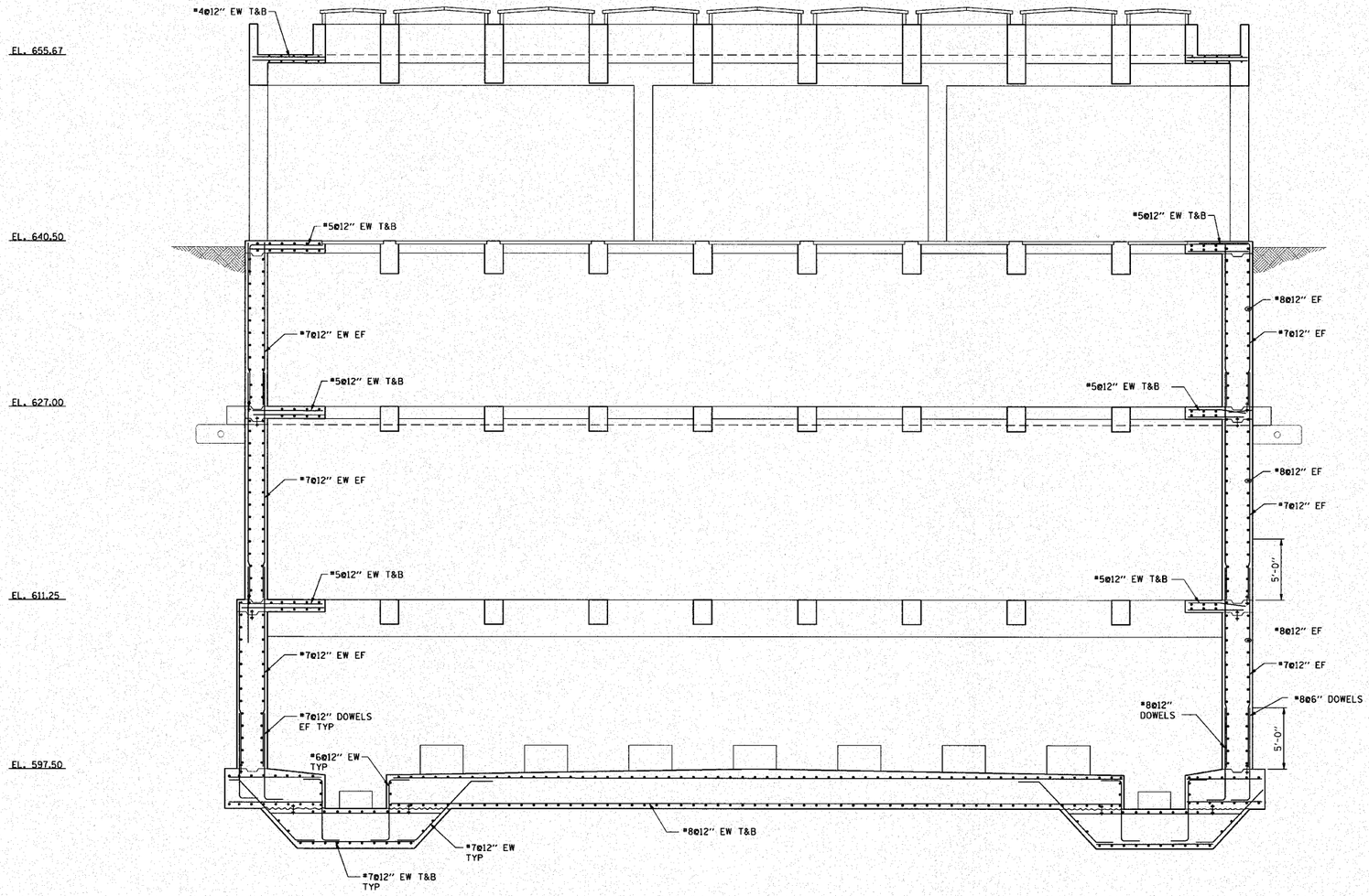
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

REINFORCEMENT DETAILS SECTION

SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	30
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION D–D

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

SCALE: 0 4 8 12

STATE OF ILLINOIS
PHILIP J. ENGLEBERT 81—4066
LICENSED STRUCTURAL ENGINEER
10/28/10

DONOHUE & ASSOCIATES

S19

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

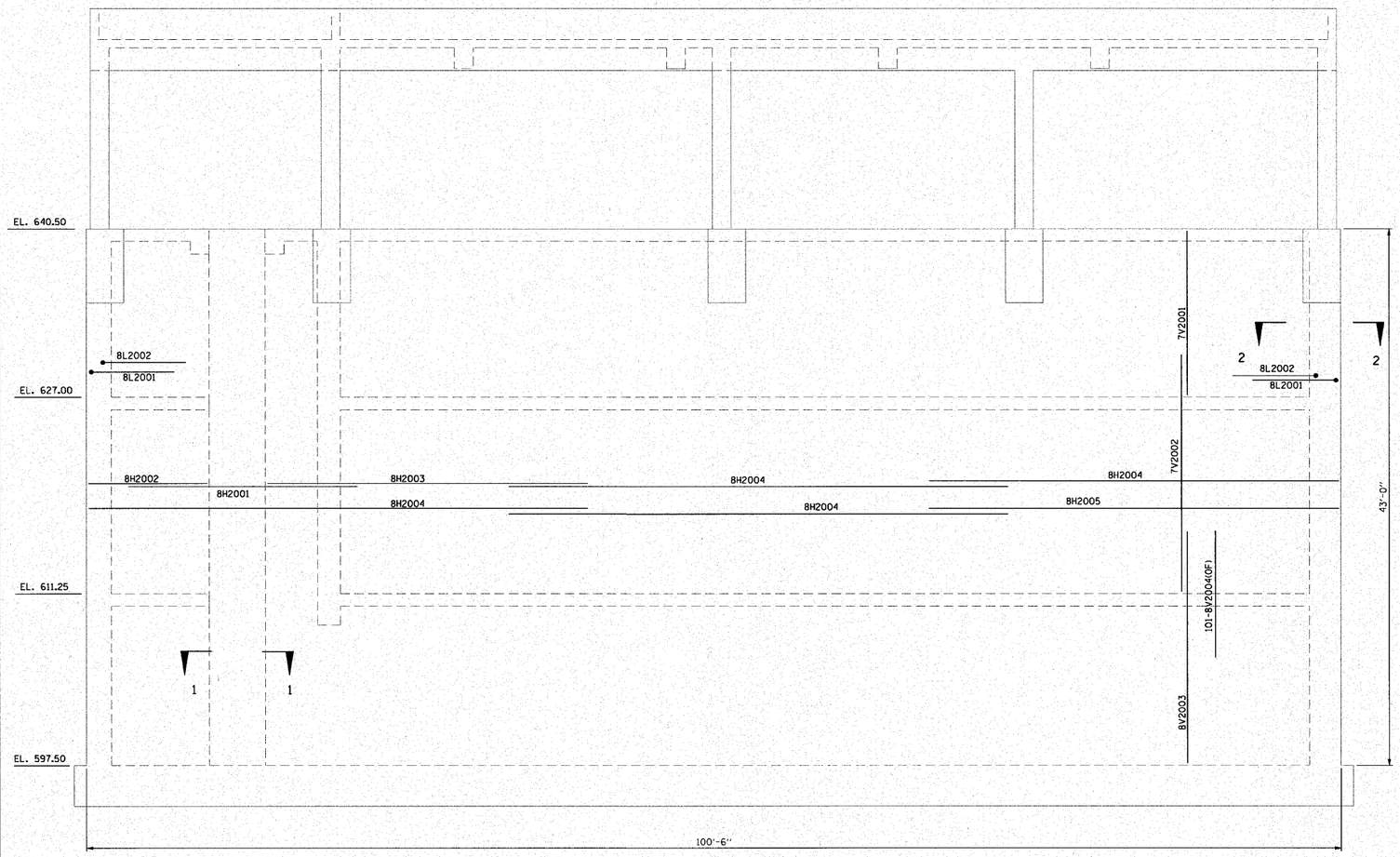
PUMP STATION NO. 24 RELOCATION

REINFORCEMENT DETAILS SECTION

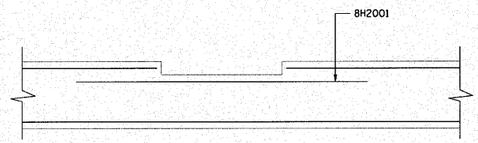
SCALE: AS SHOWN DRAWN BY: FL

DATE: 11-22-10 CHECKED BY: PJE

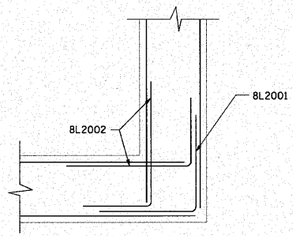
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	31
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



ELEVATION 1



SECTION 1–1



SECTION 2–2

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
7V2001	202	7	14'-4"	
7V2002	202	7	19'-0"	
8V2003	202	8	18'-7"	
8V2004	101	8	11'-0"	
8H2001	43	8	18'-4"	
8H2002	43	8	10'-0"	
8H2003	43	8	25'-8"	
8H2004	172	8	40'-0"	
8H2005	43	8	32'-10"	
8L2001	86	8	12'-8"	
8L2002	172	8	12'-8"	
REINFORCEMENT BARS EPOXY COATED			POUNDS	70,200
CONCRETE STRUCTURES			CU YD	402

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81—4066
LICENSED STRUCTURAL ENGINEER
10/28/10

SCALE: 0 4 8 12

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REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

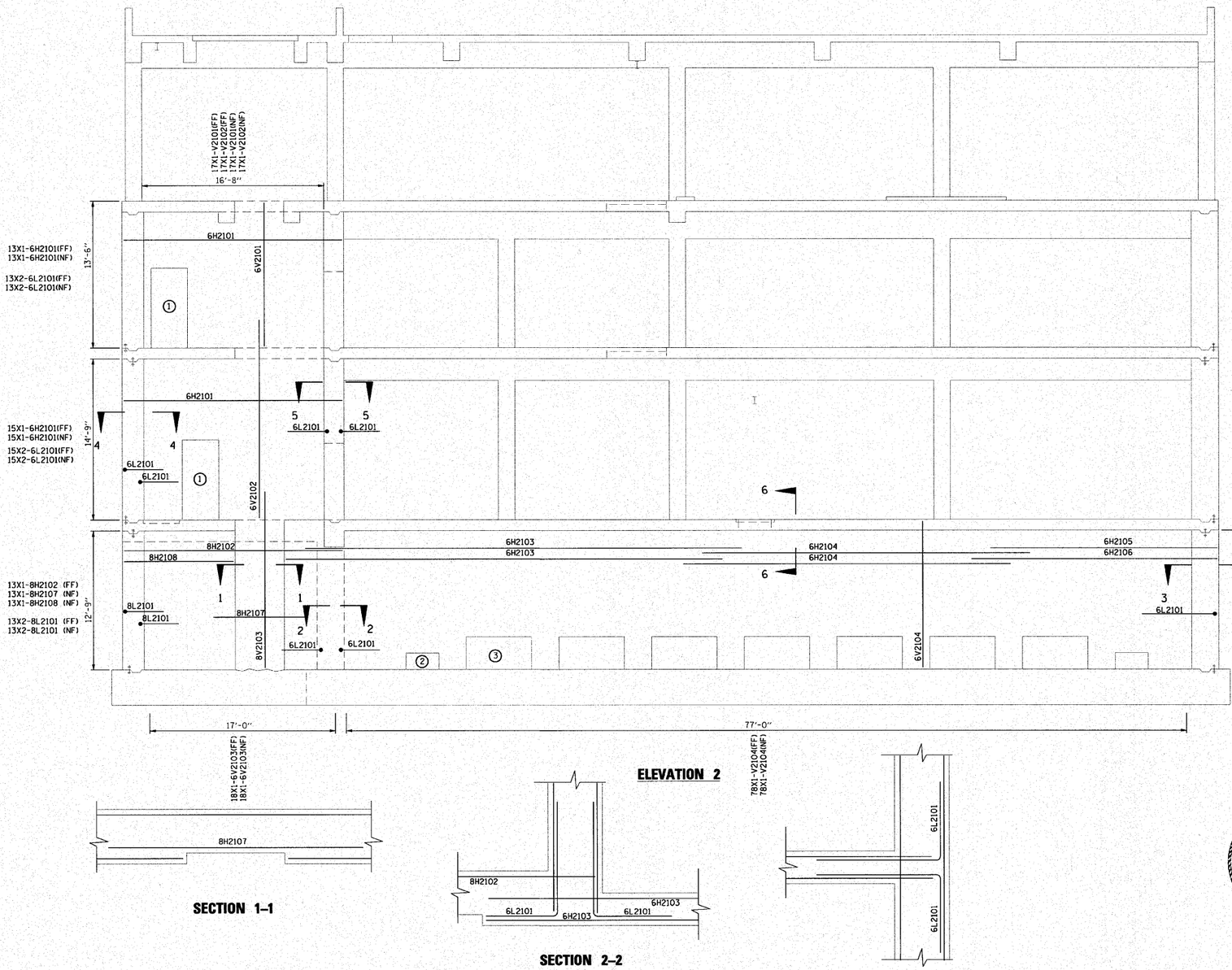
REINFORCEMENT DETAILS WALL

SCALE: AS SHOWN DRAWN BY: FL

DATE: 11-22-10 CHECKED BY: PJE

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	32
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

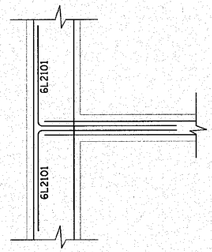


ELEVATION 2

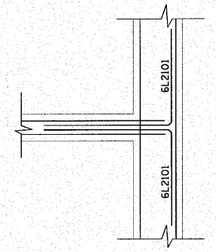
SECTION 1–1

SECTION 2–2

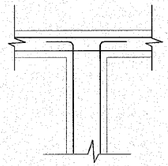
SECTION 3–3



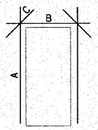
SECTION 4–4



SECTION 5–5



SECTION 6–6



OPENING	A	B	C
1	10'-8"	7'-4"	3'-0"
2	5'-7"	7'-4"	3'-0"
3	6'-8"	13'-4"	3'-0"

WALL OPENINGS

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
6V2101	34	6	14'-2"	
6V2102	34	6	18'-2"	
8V2103	36	8	18'-7"	
6V2104	156	6	14'-5"	
6H2101	56	6	20'-0"	
8H2102	13	8	20'-0"	
6H2103	26	6	40'-0"	
6H2104	26	6	30'-0"	
6H2105	13	6	20'-9"	
6H2106	13	6	22'-6"	
8H2107	13	8	18'-4"	
8H2108	13	8	10'-0"	
8L2101	52	8	12'-8"	
6L2101	168	6	7'-2"	
1A	4	5	10'-8"	
1B	2	5	7'-4"	
1C	4	5	3'-0"	
2A	4	5	5'-7"	
2B	2	5	7'-4"	
2C	4	5	3'-0"	
3A	14	5	6'-8"	
3B	7	5	13'-4"	
3C	14	5	3'-0"	
REINFORCEMENT BARS EPOXY COATED			POUNDS	19,500
CONCRETE STRUCTURES			CU YD	90

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81—4066
LICENSED STRUCTURAL ENGINEER
10/28/10

SCALE: 0 4 8 12

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REVISIONS	
NAME	DATE

DONOHUE & ASSOCIATES

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

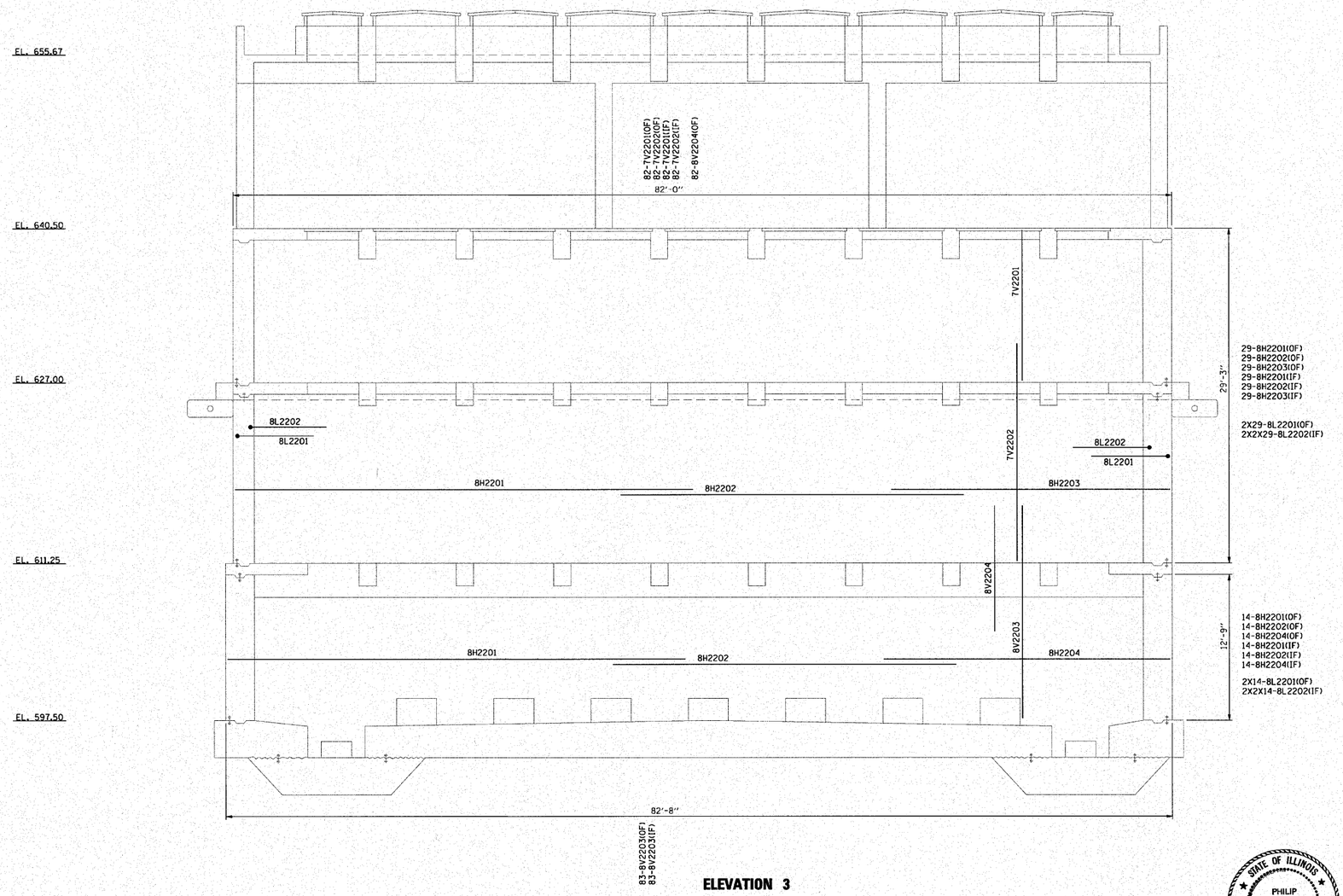
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

REINFORCEMENT DETAILS WALL

SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	33
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



ELEVATION 3

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
7V2201	164	7	14'-4"	⌐¬
7V2202	164	7	19'-0"	——
8V2203	166	8	18'-7"	——
8V2204	82	8	11'-0"	——
8H2201	86	8	30'-0"	——
8H2202	86	8	30'-0"	——
8H2203	58	8	33'-8"	——
8H2204	28	8	35'-0"	——
8L2201	86	8	12'-8"	⌐¬
8L2202	172	8	12'-8"	⌐¬
REINFORCEMENT BARS EPOXY COATED			POUNDS	57,400
CONCRETE STRUCTURES			CU YD	335

STATE OF ILLINOIS
PHILIP J. ENGLEBERT 81—4066
LICENSED STRUCTURAL ENGINEER
10/28/10

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

S22

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

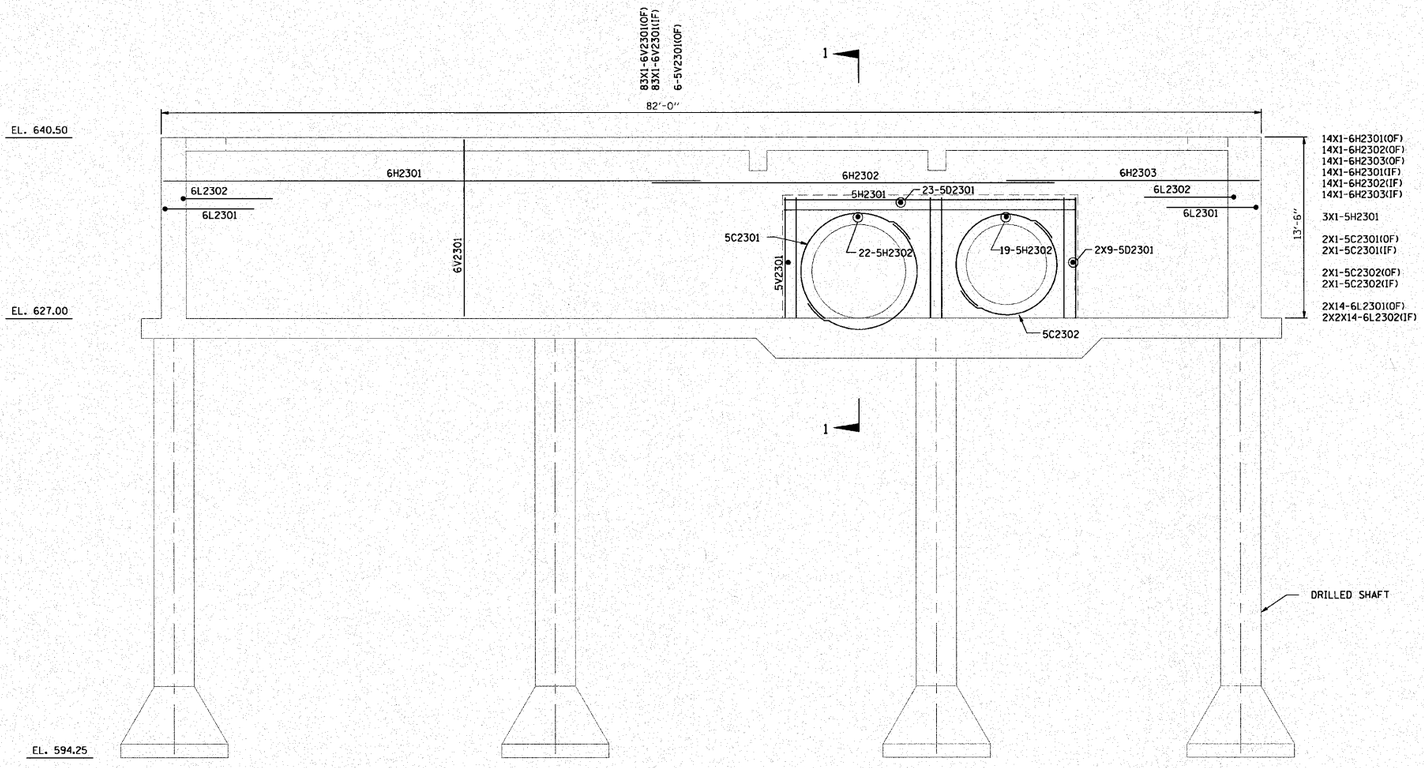
PUMP STATION NO. 24 RELOCATION

REINFORCEMENT DETAILS WALL

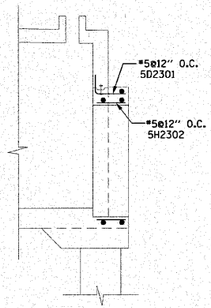
SCALE: AS SHOWN DRAWN BY: FL

DATE: 11-22-10 CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	34
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



ELEVATION 4



SECTION 1–1

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
5V2301	6	5	8'-8"	
6V2301	166	6	14'-2"	
5H2301	3	5	21'-6"	
5H2302	41	5	2'-4"	
6H2301	28	6	40'-0"	
6H2302	28	6	30'-0"	
6H2303	28	6	18'-10"	
6L2301	28	6	7'-2"	
6L2302	56	6	7'-2"	
5C2301	4	5	15'-7"	
5C2302	4	5	13'-10"	
5D2301	41	5	4'-10"	
REINFORCEMENT BARS EPOXY COATED			POUNDS	9,600
CONCRETE STRUCTURES			CU YD	60

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81—4066
LICENSED STRUCTURAL ENGINEER
10/28/10

SCALE: 0 4 8 12

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REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

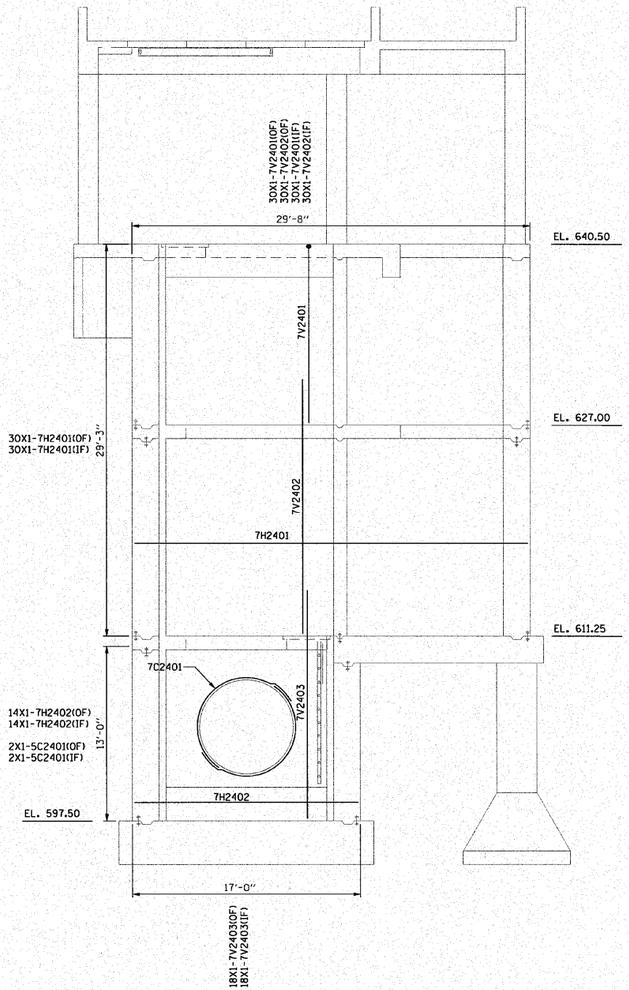
PUMP STATION NO. 24
RELOCATION

REINFORCEMENT DETAILS
WALL

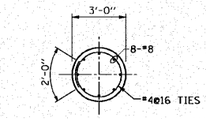
SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: FL
CHECKED BY: PJE

DONOHUE & ASSOCIATES

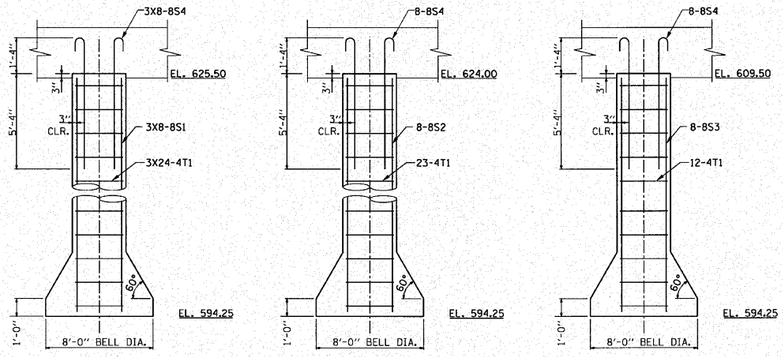
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	35
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



ELEVATION 5



PLAN



DRILLED SHAFT DETAIL

NOTES:
1. PROVIDE TEMPORARY CASING TO MINIMUM EL. 600.00.
2. DESIGN ALLOWABLE BEARING PRESSURE: 12,000 PSF.

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
7V2401	60	7	14'-4"	
7V2402	60	7	19'-0"	
7V2403	36	7	17'-0"	
7H2401	60	7	29'-4"	
7H2402	28	7	16'-8"	
5C2401	4	7	15'-7"	
8S1	24	8	31'-2"	
8S2	8	8	29'-6"	
8S3	8	8	15'-2"	
8S4	40	8	7'-9"	
4T1	108	4	9'-10"	
REINFORCEMENT BARS EPOXY COATED			POUNDS	17,100
CONCRETE STRUCTURES			CU YD	90

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
10/28/10

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

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REVISIONS	
NAME	DATE

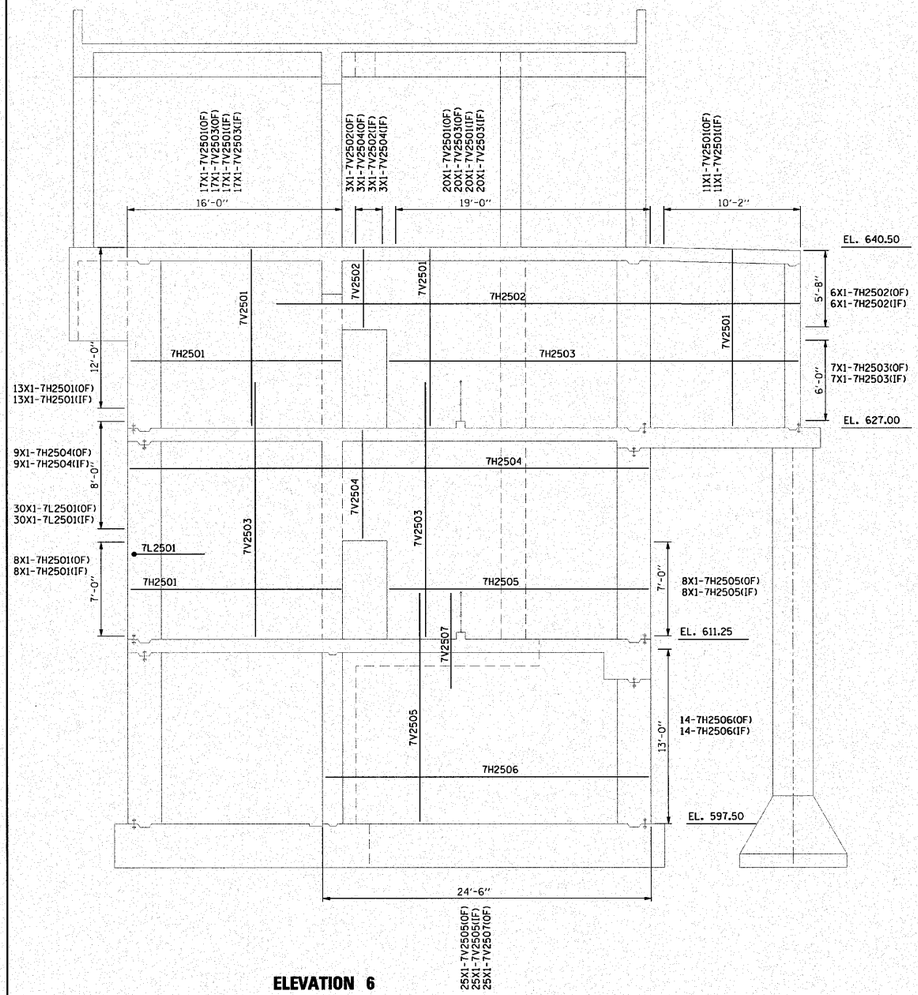
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

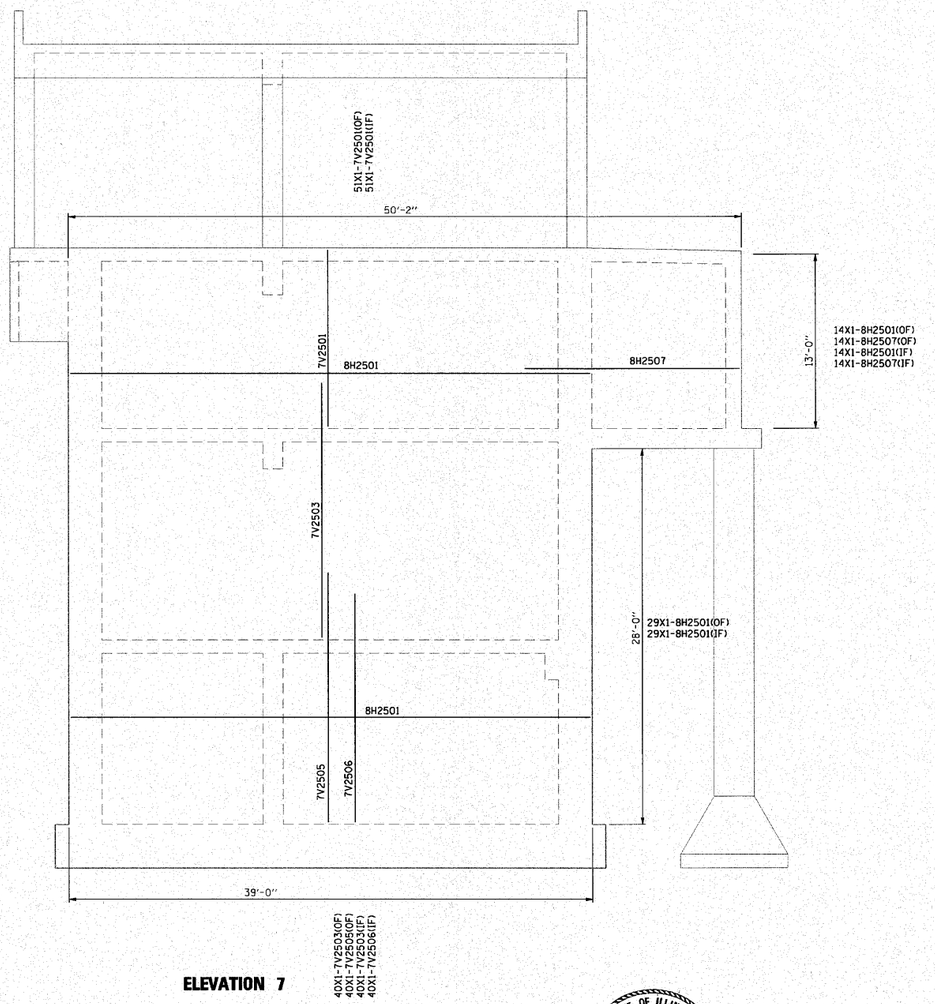
REINFORCEMENT DETAILS
WALL AND DRILLED SHAFT

SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	36
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



ELEVATION 6



ELEVATION 7

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
7V2501	198	7	14'-4"	
7V2502	6	7	7'-0"	
7V2503	154	7	19'-0"	
7V2504	6	7	9'-3"	
7V2505	90	7	18'-7"	
7V2506	40	7	17'-0"	
7V2507	25	7	6'-10"	
7H2501	42	7	15'-8"	
7H2502	12	7	39'-0"	
7H2503	14	7	30'-6"	
7H2504	18	7	38'-8"	
7H2505	16	7	19'-4"	
7H2506	28	7	24'-2"	
7H2507	25	7	6'-10"	
8H2507	28	8	16'-0"	
8H2501	66	8	38'-8"	
7L2501	60	7	9'-8"	
REINFORCEMENT BARS EPOXY COATED			POUNDS	38,200
CONCRETE STRUCTURES			CU YD	281

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
10/28/10

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

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REVISIONS	
NAME	DATE

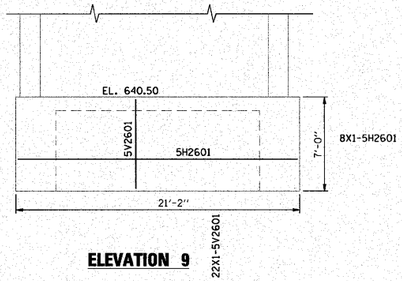
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

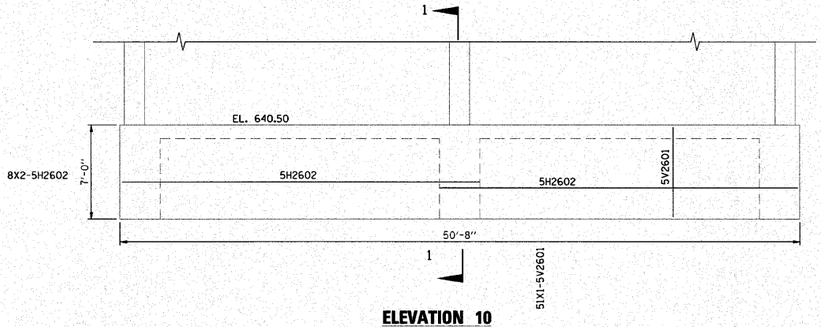
REINFORCEMENT DETAILS
WALLS

SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

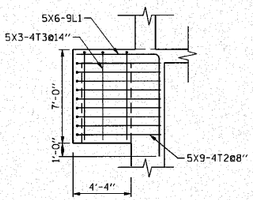
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	37
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



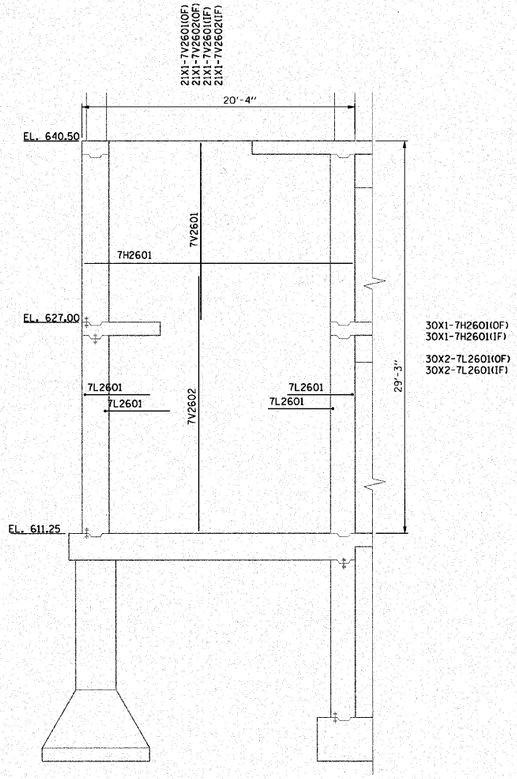
ELEVATION 9



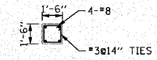
ELEVATION 10



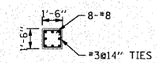
SECTION 1–1



ELEVATION 8

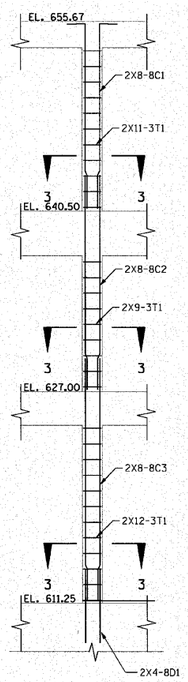


SECTION 2–2

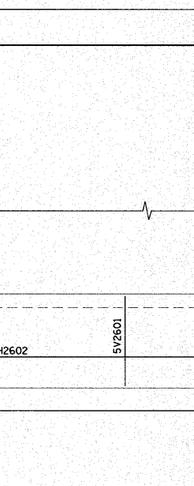


SECTION 3–3

COLUMN C1

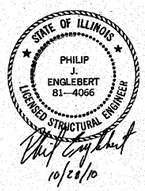


COLUMN C2



COLUMN C3

NOTES:
1. ALL SPLICES LOCATIONS SHALL BE STAGGERED.
2. ALL REINFORCING BARS SHALL BE PRE-CUT AT SHOP AT OPENING LOCATIONS.



SCALE: 0 4 8 12

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
5V2601	73	5	7'-6"	
7V2601	42	7	14'-4"	
7V2602	42	7	19'-0"	
7H2601	60	7	20'-0"	
7L2601	120	7	9'-8"	
5H2601	14	5	20'-10"	
5H2602	28	5	26'-8"	
8C1	80	8	16'-4"	
8C2	16	8	16'-4"	
8C3	24	8	18'-1"	
8C4	8	8	14'-8"	
8D1	76	8	5'-0"	
3T1	261	3	5'-6"	
4T1	15	4	18'-4"	
4T2	35	4	15'-8"	
9L1	30	9	14'-6"	
REINFORCEMENT BARS EPOXY COATED			POUNDS	20,500
CONCRETE STRUCTURE			CU YD	80

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REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

REINFORCEMENT DETAILS WALLS AND COLUMNS

SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	38
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

TENSION SPLICES - BASIC LAP

BAR SIZE	CLASS A	CLASS B	CLASS C
	1.0 LD	1.3 LD	1.7 LD
4	1'-6"	2'-0"	2'-7"
5	1'-11"	2'-6"	3'-3"
6	2'-3"	3'-0"	3'-10"
7	3'-1"	3'-11"	5'-2"
8	4'-0"	5'-2"	6'-9"
9	5'-1"	6'-7"	8'-7"
10	6'-5"	8'-4"	10'-10"
11	7'-10"	10'-2"	13'-4"

TENSION SPLICES - TOP BARS LAP (1.4 X BASIC LAP)

BAR SIZE	CLASS A	CLASS B	CLASS C
4	1'-9"	2'-3"	2'-11"
5	2'-2"	2'-10"	3'-8"
6	2'-7"	3'-4"	4'-5"
7	3'-5"	4'-6"	5'-10"
8	4'-6"	5'-10"	7'-8"
9	5'-9"	7'-5"	9'-8"
10	7'-3"	9'-5"	12'-4"
11	8'-11"	11'-7"	15'-1"

COMPRESSION SPLICES

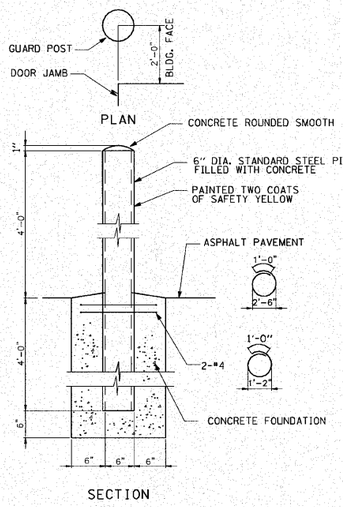
BAR SIZE	STANDARD LAP	LAP WITHIN TIES
4	1'-3"	1'-1"
5	1'-7"	1'-4"
6	1'-11"	1'-7"
7	2'-2"	1'-10"
8	2'-6"	2'-1"
9	2'-10"	2'-4"
10	3'-2"	2'-8"
11	3'-6"	2'-11"

NOTES:

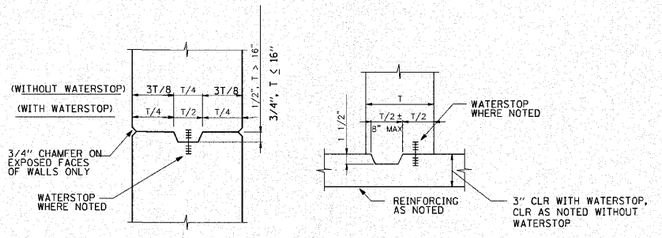
1. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW.
2. USE CLASS B SPLICES - NO MORE THAN ½ OF THE BARS ARE LAP SPLICED WITHIN A REQUIRED LAP LENGTH.
3. USE CLASS C SPLICES - MORE THAN ½ OF THE BARS ARE LAP SPLICED WITHIN A REQUIRED LAP LENGTH.
4. HOOKS SHALL BE ACI STANDARD UNLESS OTHERWISE NOTED.
5. LD = EMBEDMENT LENGTH.
6. EMBEDMENT LENGTH IS MINIMUM LENGTH OF EMBEDMENT FOR STRAIGHT DOWELS WHERE END HOOK IS NOT SHOWN, UNLESS NOTED OTHERWISE.
7. BAR COVER TO BE AS FOLLOWS (UNLESS SHOWN OTHERWISE):

CAST AGAINST GROUND	3"
CAST AGAINST SKIN COAT	2"
FORMED SURFACES	
#6 & LARGER	2"
#5 & SMALLER	1½"
BASE SLAB TOP REINFORCING EXCEPT @ FLOOR AND WALL INTERSECTIONS 2¼" OR ¼" UNDER KEY WAYS	2"
COLUMN TIES & BEAM STIRRUPS	1½"
ROOF SLAB, TOP & BOT	¾"

8. BILL OF MATERIAL IS FOR INFORMATION ONLY. PUMP STATION WILL BE PAID FOR UNDER CONTRACT UNIT PRICE.
9. CHAIRS, BOLSTER AND STANDEES ARE NOT INCLUDED IN BAR SCHEDULE AND SHALL BE INCIDENTAL TO REINFORCING BARS PAY ITEM.



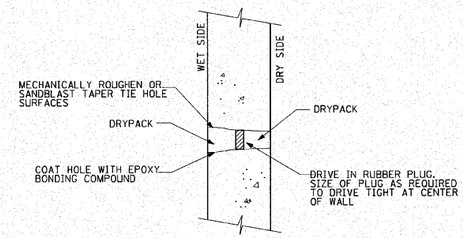
GUARD POST DETAIL-S1



JOINT IN WALLS OR SLABS

BASE OF WALL

CONSTRUCTION JOINTS DETAIL-S2



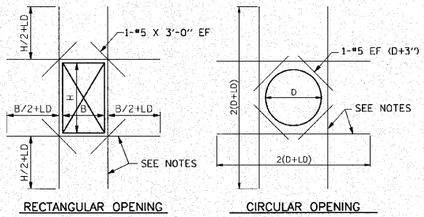
NOTES:

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. APPLY EPOXY BONDING COMPOUND WET SIDE AND WHILE EPOXY IS TACKY, DRYPACK WITH NONSHRINK GROUT.
4. APPLY EPOXY BONDING COMPOUND DRY SIDE AND WHILE EPOXY IS TACKY, DRYPACK WITH NONSHRINK GROUT.

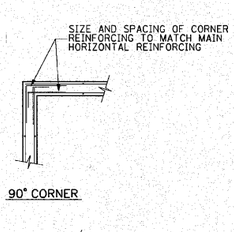
FORM TIE THROUGH BOLT DETAIL-S3



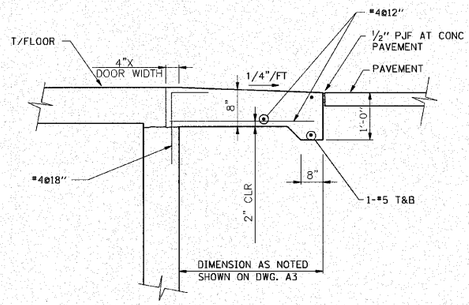
NOTES:

1. THESE DETAILS APPLY TO ALL OPENINGS IN CONCRETE WALLS AND SLABS WHEN THE LARGEST OPENING DIMENSION IS GREATER THAN TWO TIMES SECTION THICKNESS OR GREATER THAN REINFORCING SPACING IN THE SECTION, UNLESS OTHERWISE INDICATED IN THE DRAWINGS.
2. THE AREA OF ADDITIONAL REINFORCING REQUIRED IN EACH FACE ON EACH SIDE OF AN OPENING SHALL EQUAL OR EXCEED ONE-HALF OF THE AREA OF THE INTERCEPTED BARS IN EACH FACE, IN EACH DIRECTION, RESPECTIVELY WITH A MINIMUM OF 1-#5 BAR EACH FACE.
3. PLACE THE ADDED BARS IN THE SAME LAYERS AS THE WALL OR SLAB REINFORCING.

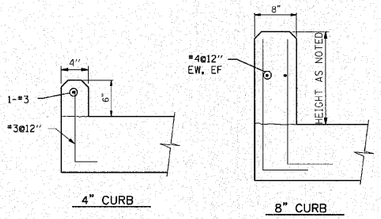
ADDITIONAL REINFORCEMENT AT OPENINGS IN WALLS AND SLABS DETAIL-S4



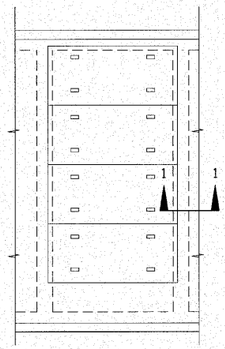
HORIZONTAL REINFORCEMENT DETAIL-S5

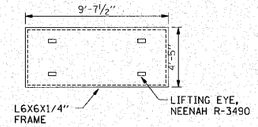


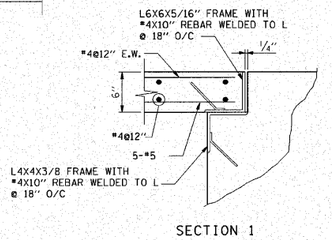
APPROACH SLAB DETAIL-S6



CURBS DETAIL-S7







ALL METALS SHALL BE HOT-DIPPED GALVANIZED

REMOVABLE CONCRETE PLANK DETAIL-S8

N.T.S.

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
10/28/10

DONOHUE & ASSOCIATES

S27

REVISIONS	
NAME	DATE

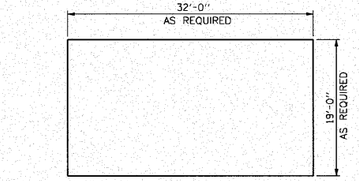
ILLINOIS DEPARTMENT OF TRANSPORTATION

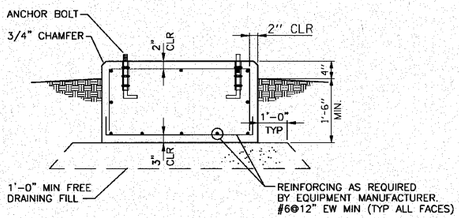
PUMP STATION NO. 24 RELOCATION

STRUCTURAL DETAILS

SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	39
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



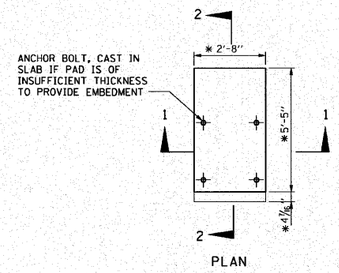


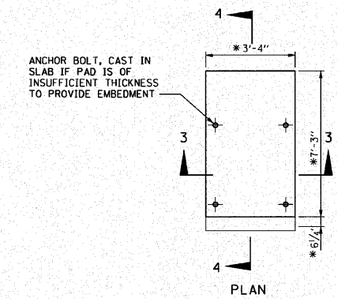
NOTES:

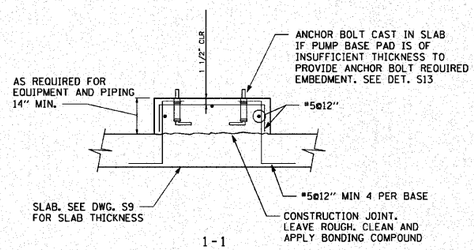
1. CONCRETE BASE AS REQUIRED BY EQUIPMENT MANUFACTURER. MINIMUM OF 2 TIMES THE MASS OF EQUIPMENT SUPPORTED OR 10 TIMES THE MASS OF MOVING PARTS, WHICHEVER IS GREATER.

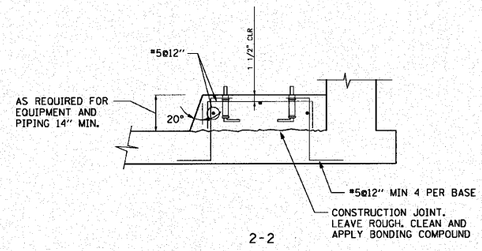
ENGINE GENERATOR PAD DETAIL–S9

N.T.S.

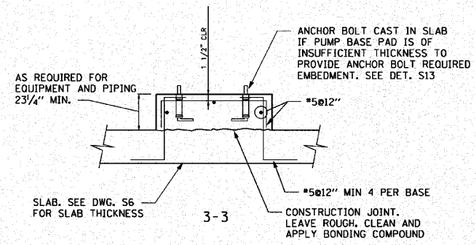


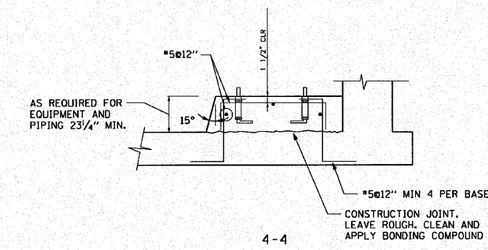






LOW FLOW PUMP BASE DETAIL–S10

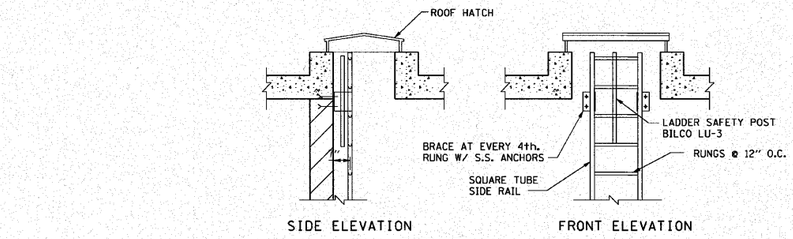




MAIN PUMP BASE DETAIL–S11

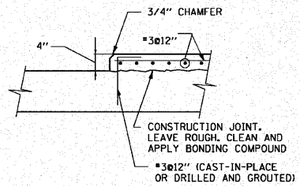
N.T.S.

NOTE:
ALL PUMP BASE DIMENSIONS AND ANCHOR SIZES WITH ASTERISKS (*) ARE FOR BID PURPOSES AND SHALL BE ADJUSTED TO MATCH APPROVED MANUFACTURER SHOP DRAWINGS AND MANUFACTURER RECOMMENDATION.



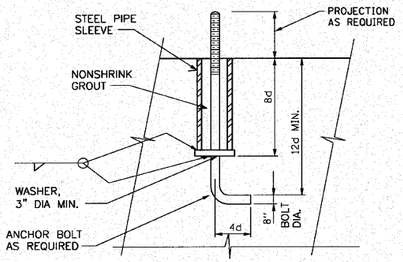
FIBERGLASS LADDER DETAIL–S14

N.T.S.



EQUIPMENT PAD DETAIL–S12

N.T.S.



EQUIPMENT ANCHOR BOLT DETAIL–S13

N.T.S.

DONOHUE & ASSOCIATES

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
10/28/10

S28

REVISIONS	
NAME	DATE

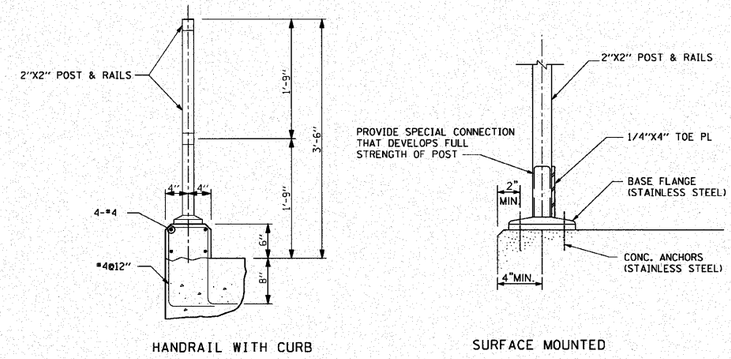
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

STRUCTURAL DETAILS

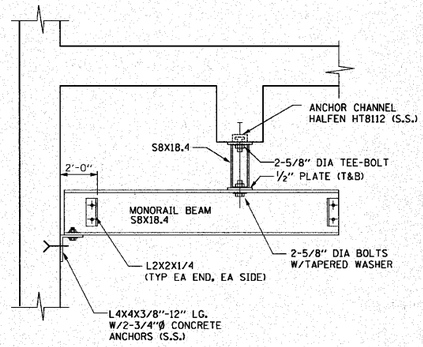
SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	40
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

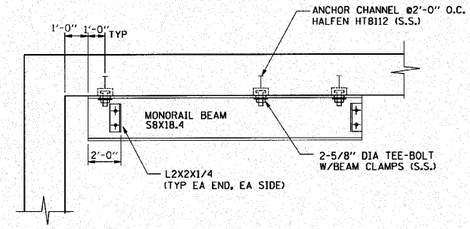


FIBERGLASS HANDRAIL DETAIL–S15

N.T.S.

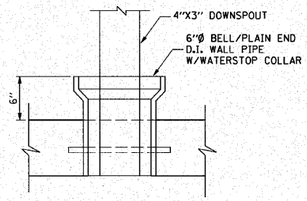


TYPE 1 MONORAIL DETAIL–S16



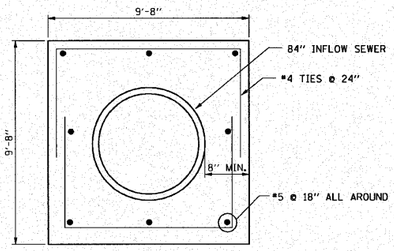
TYPE 2 MONORAIL DETAIL–S17

N.T.S.



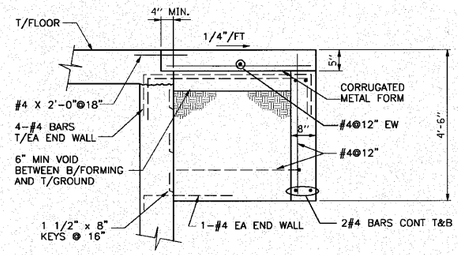
DOWNSPOUT HUB DETAIL–S18

N.T.S.



PIPE CONCRETE ENCASEMENT DETAIL–S19

N.T.S.



NOTE:
WHERE STOOP LENGTH NOTED IS GREATER THAN 6'-0", PROVIDE ADDITIONAL VERTICAL WALL.

DOOR STOOP DETAIL–S20

N.T.S.

DONOHUE & ASSOCIATES

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81–4066
LICENSED STRUCTURAL ENGINEER
10/28/10

S29

REVISIONS	
NAME	DATE

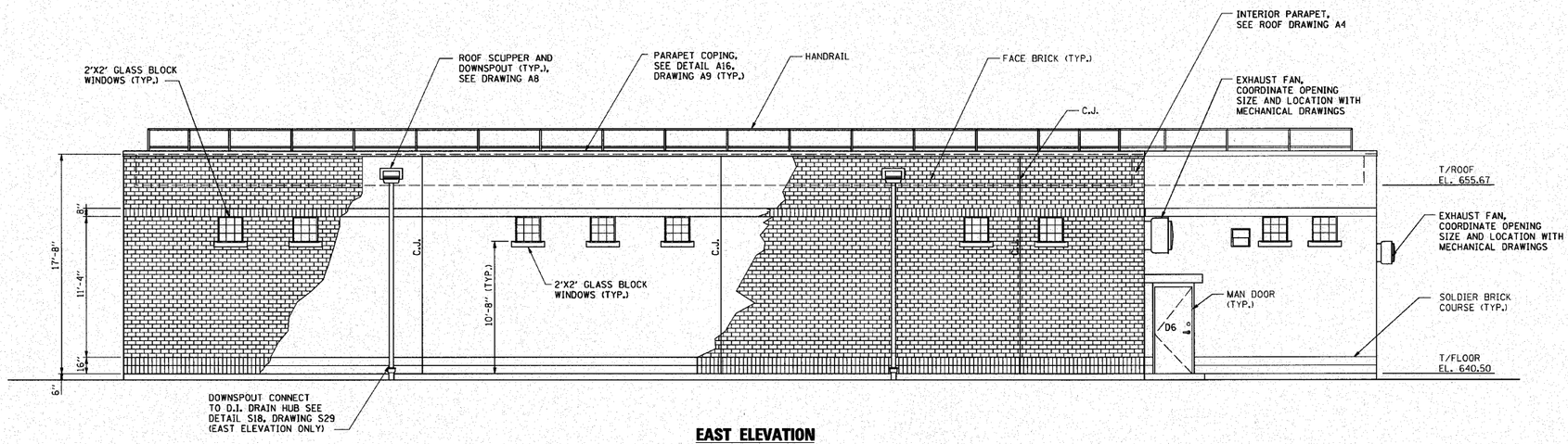
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

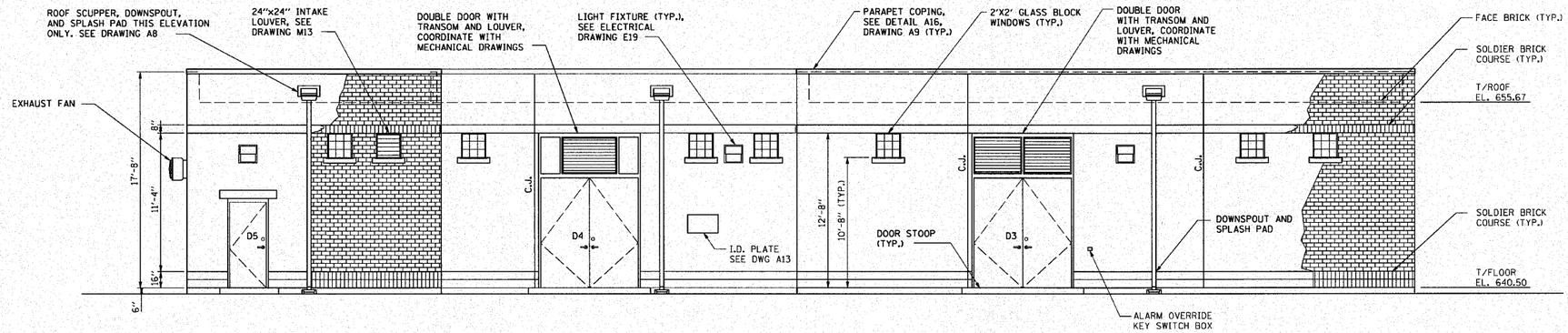
STRUCTURAL DETAILS

SCALE: AS SHOWN
DRAWN BY: FL
DATE: 11-22-10
CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	41
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



EAST ELEVATION



WEST ELEVATION

NOTE:

1. C.J. = CONTROL JOINT. REFER TO DETAIL A30, DRAWING A10
2. COORDINATE FINAL HEIGHT AND LOCATION OF MECHANICAL EXHAUST FANS AND LOUVERS WITH MECHANICAL DRAWINGS AND SPECIFICATIONS.
3. COORDINATE FINAL HEIGHT AND LOCATION OF LIGHT FIXTURES WITH ELECTRICAL DRAWINGS AND SPECIFICATIONS.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

A1

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

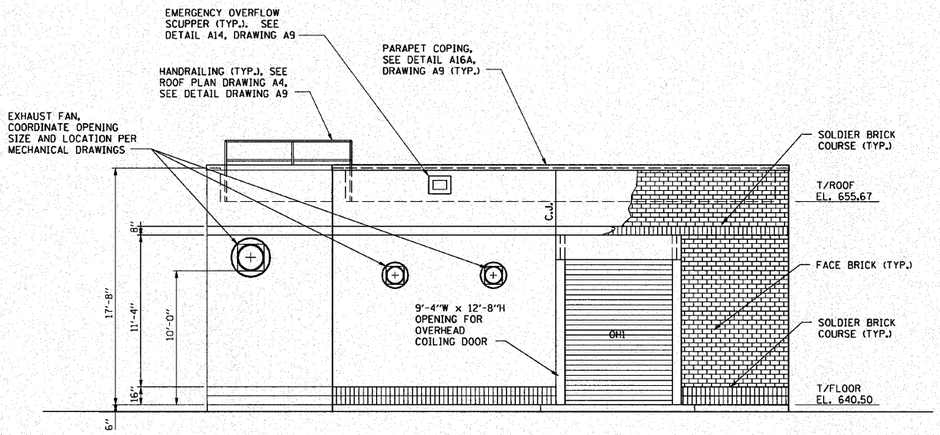
PUMP STATION NO. 24 RELOCATION

ARCHITECTURAL ELEVATIONS EAST AND WEST

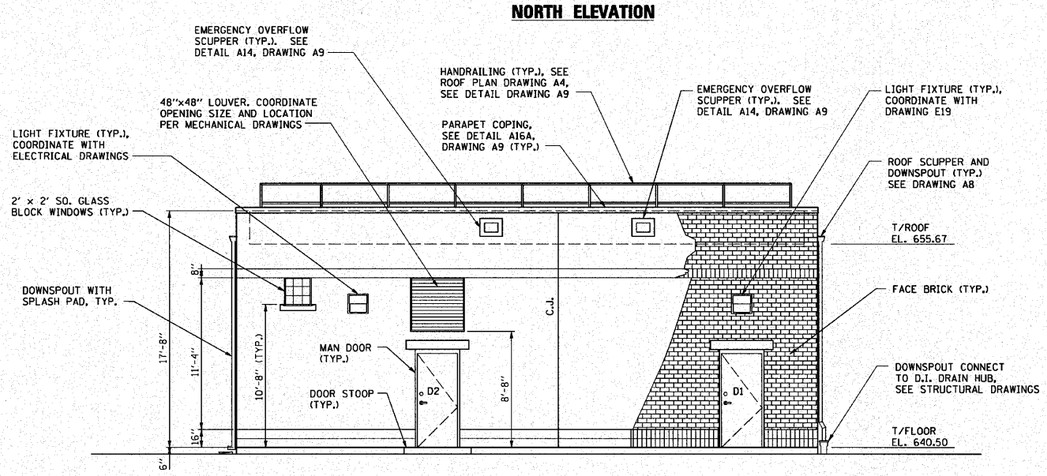
SCALE: AS SHOWN DRAWN BY: MW

DATE: 11-22-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	42
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



NORTH ELEVATION



SOUTH ELEVATON

NOTE:

1. C.J. = CONTROL JOINT. REFER TO DETAIL A30, DRAWING A10
2. COORDINATE FINAL HEIGHT AND LOCATION OF MECHANICAL EXHAUST FANS AND LOUVERS WITH MECHANICAL DRAWINGS AND SPECIFICATIONS.
3. COORDINATE FINAL HEIGHT AND LOCATION OF LIGHT FIXTURES WITH ELECTRICAL DRAWINGS AND SPECIFICATIONS.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

A2

REVISIONS	
NAME	DATE

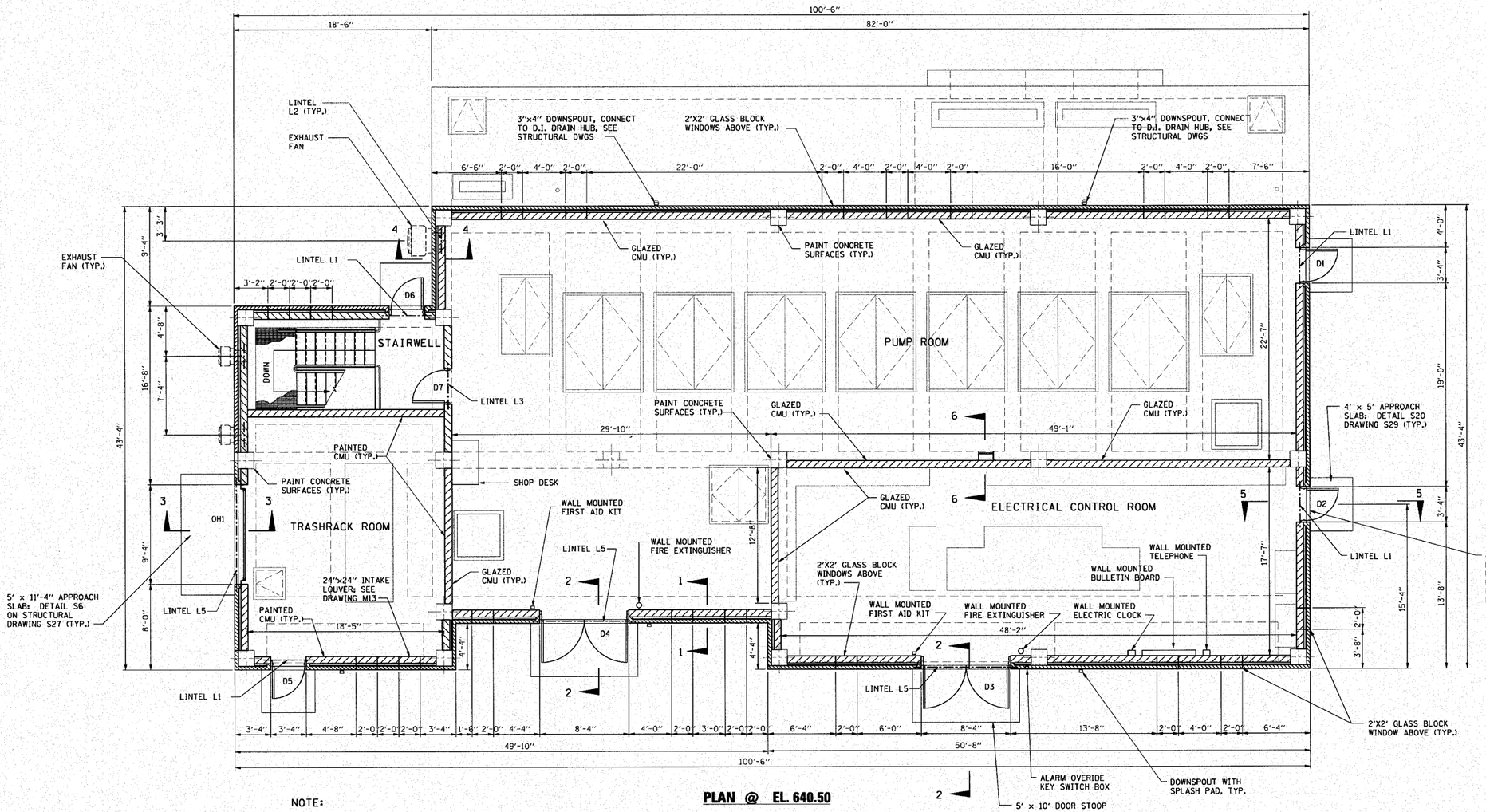
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

ARCHITECTURAL ELEVATIONS
NORTH AND SOUTH

SCALE: AS SHOWN
DRAWN BY: MW
DATE: 11-22-10
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	43
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 640.50

NOTE:

1. TYPICAL WALL VERTICAL REINFORCING: #5 @ 32" O.C.
2. TYPICAL HORIZONTAL REINFORCING: GALV. WIRE-ROD TRUSS REINFORCING @ 16" O.C. VERTICAL.
3. PROVIDE SHELF ANGLE LINTEL L5 AT ALL WINDOW, LOUVER AND WALL OPENINGS WHERE TOP OF WALL OPENING IS AT 12'-8" ABOVE FINISHED FLOOR (BOTTOM OF CONCRETE ROOF BEAM).
4. CONCRETE SURFACES: (I.E. EXPOSED COLUMNS AND CEILINGS) CONCRETE SURFACES SHALL BE RUBBED AND GROUT CLEANED. FINISH PAINT EXPOSED CONCRETE SURFACES WITH COLOR TO MATCH GLAZED CMU BLOCK. ENGINEER TO SELECT FROM MANUFACTURER'S AVAILABLE COLOR SELECTION. SEE ROOF FINISH SCHEDULE DRAWING A13.
5. SEE ELEVATION DRAWINGS A1 AND A2 FOR GLASS BLOCK WINDOW HEIGHT LOCATIONS ALONG THE EXTERIOR WALLS.
6. SEE ELEVATION DRAWINGS FOR EXHAUST FAN HEIGHT LOCATIONS ALONG EXTERIOR WALLS; COORDINATE WITH MECHANICAL DRAWINGS AND SPECIFICATIONS FOR FINAL LOCATION.

SCALE: 0 4 8 12

A3

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

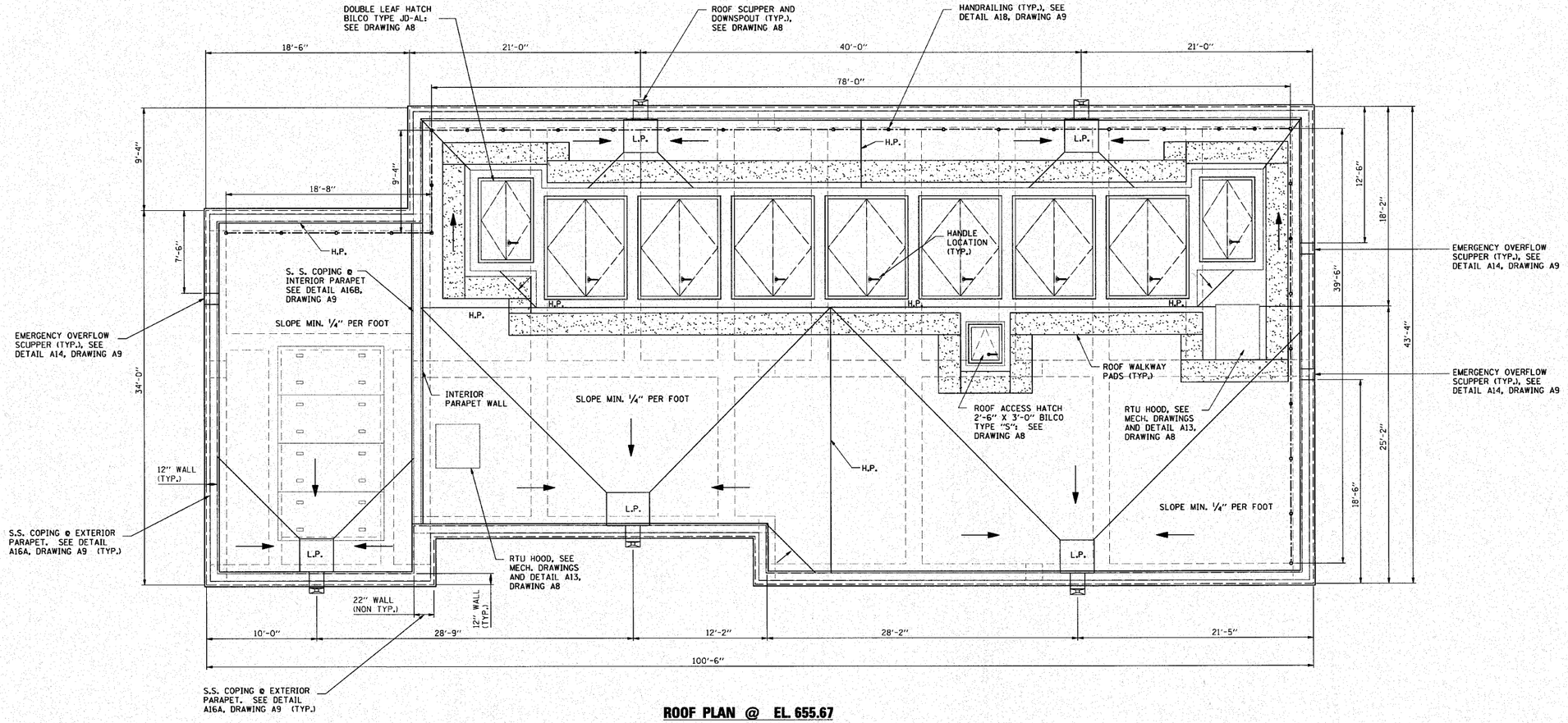
PUMP STATION NO. 24 RELOCATION

ARCHITECTURAL PLAN

SCALE: AS SHOWN
DRAWN BY: MW
DATE: 11-22-10
CHECKED BY: KHC

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	44
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



ROOF PLAN @ EL. 655.67

NOTE:

1. ROOFING MEMBRANE: 60 MIL EPDM FULLY ADHERED MEMBRANE SYSTEM.
2. TAPERED INSULATION SLOPED: MIN. 1/4" PER FOOT.
3. ROOF SCUPPERS, DOWNSPOUTS TO BE STAINLESS STEEL.
4. EMERGENCY OVERFLOW SCUPPER AT HIGH POINT OF INSULATION.
5. PARAPET WALL COPING TO BE STAINLESS STEEL.
6. ROOF HANDRAIL TO BE ALUMINUM. SEE SPECIFICATIONS.
7. L.P. = LOW POINT; H.P. = HIGH POINT

DONOHUE & ASSOCIATES

A4

REVISIONS	
NAME	DATE

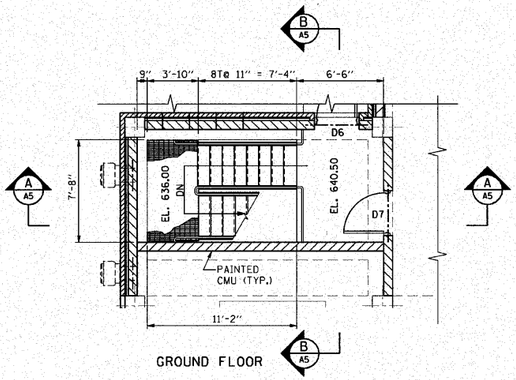
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

ARCHITECTURAL ROOF PLAN

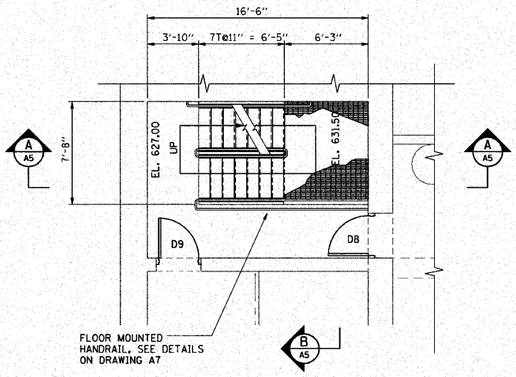
SCALE: AS SHOWN
DRAWN BY: MW
DATE: 11-22-10
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	45
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



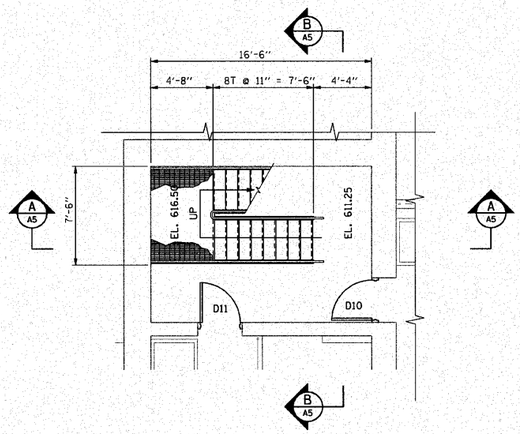
GROUND FLOOR

STAIR WELL PLAN @ EL. 640.50 & EL. 636.00



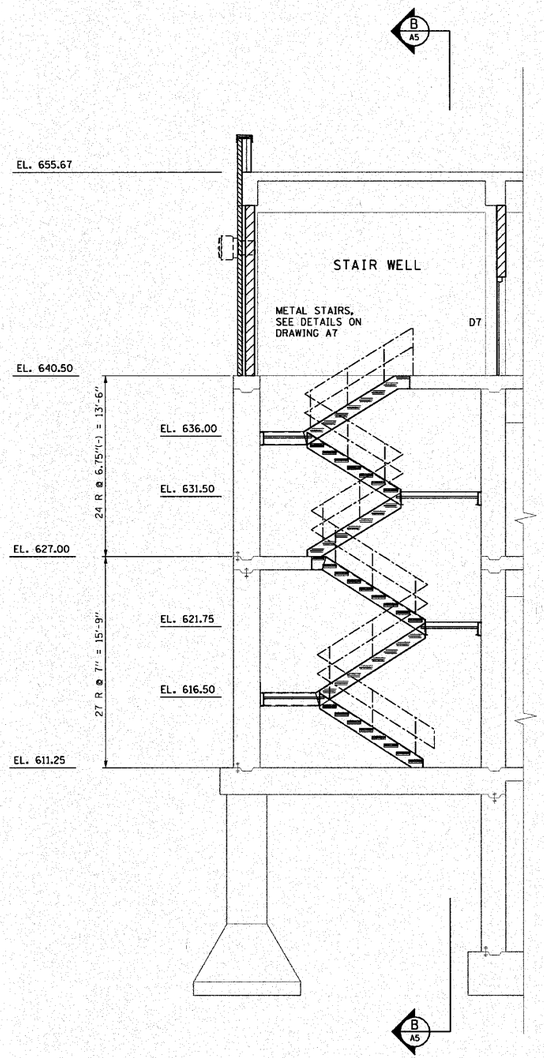
DISCHARGE FLOOR

STAIR WELL PLAN @ EL. 627.00 & EL. 631.50

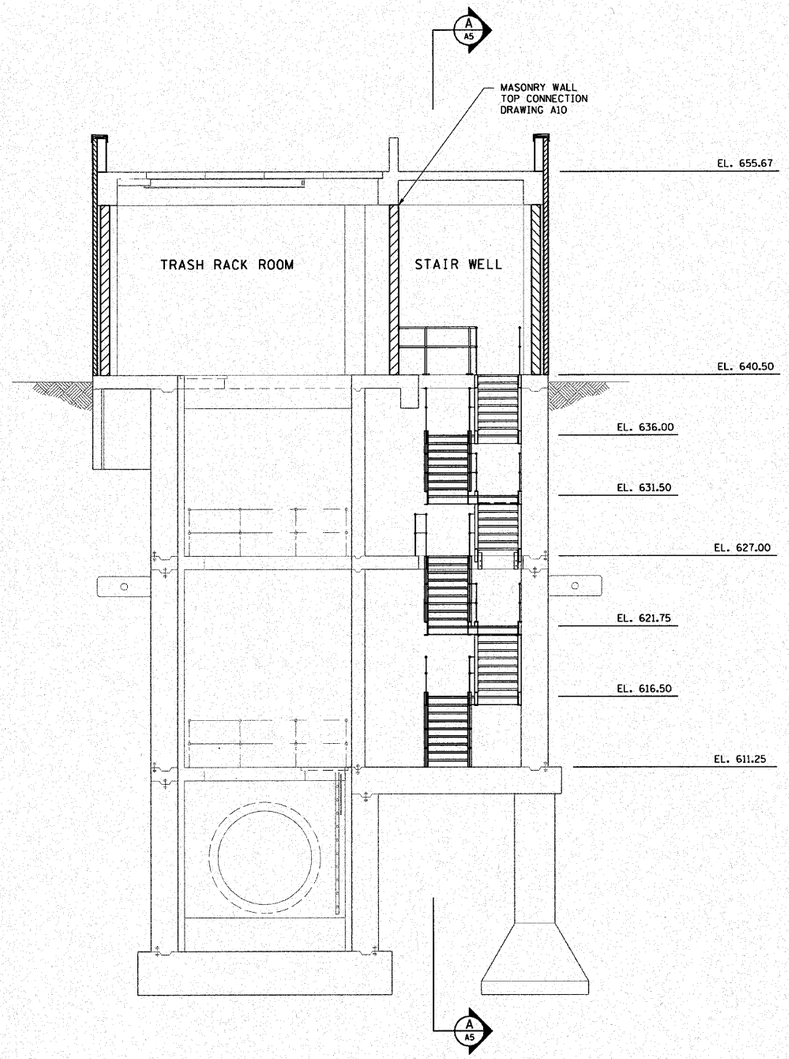


INTERMEDIATE FLOOR

STAIR WELL PLAN @ EL. 611.25 & EL. 616.50



SECTION A–A



SECTION B–B

NOTES:

1. SEE DRAWING A7 FOR STAIR DETAILS.

SCALE: 0 4 8 12

A5

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

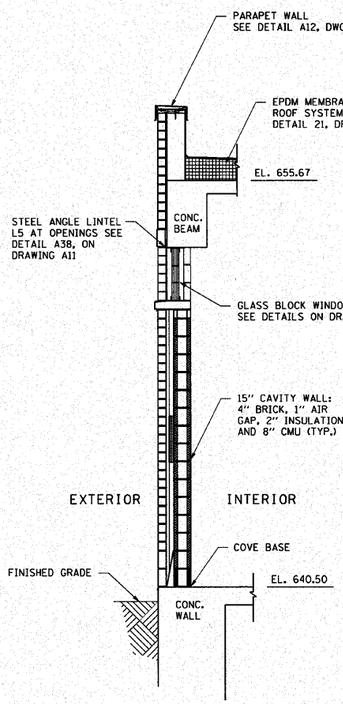
PUMP STATION NO. 24
RELOCATION

ARCHITECTURAL STAIR PLANS AND SECTIONS

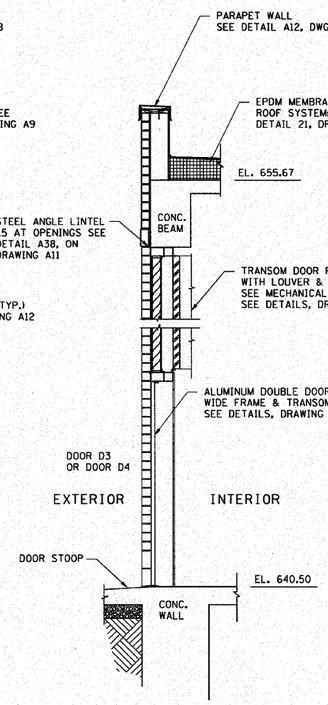
SCALE: AS SHOWN
DRAWN BY: MW
DATE: 11-22-10
CHECKED BY: KHC

DONOHUE & ASSOCIATES

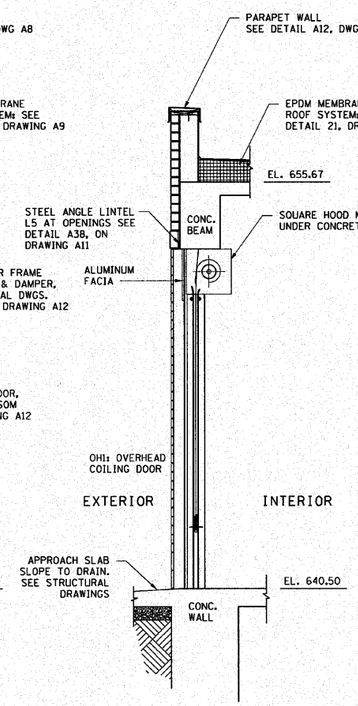
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	46
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



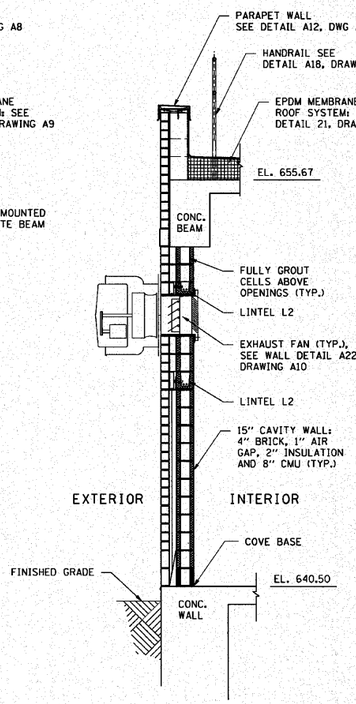
SECTION 1



SECTION 2



SECTION 3



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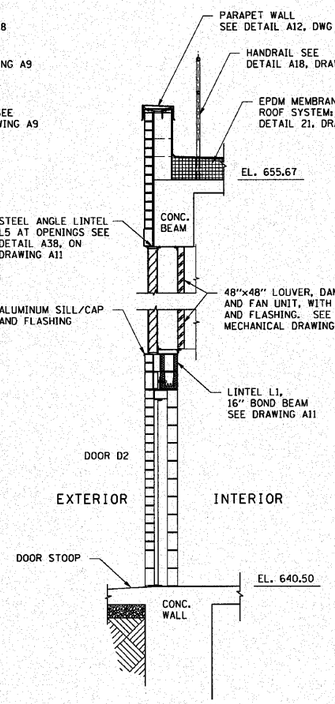
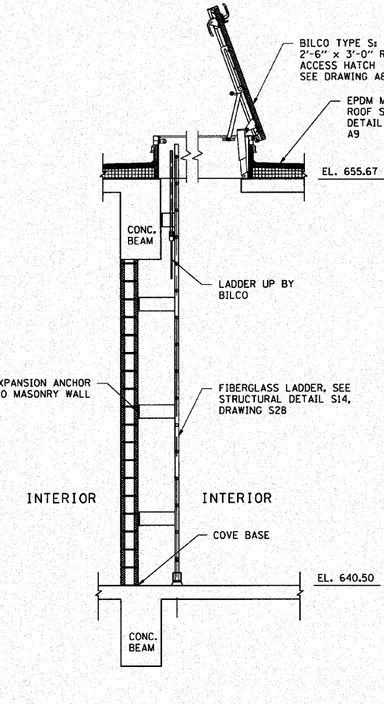


SECTION 5



SECTION 6

DONOHUE & ASSOCIATES

A6

REVISIONS	
NAME	DATE

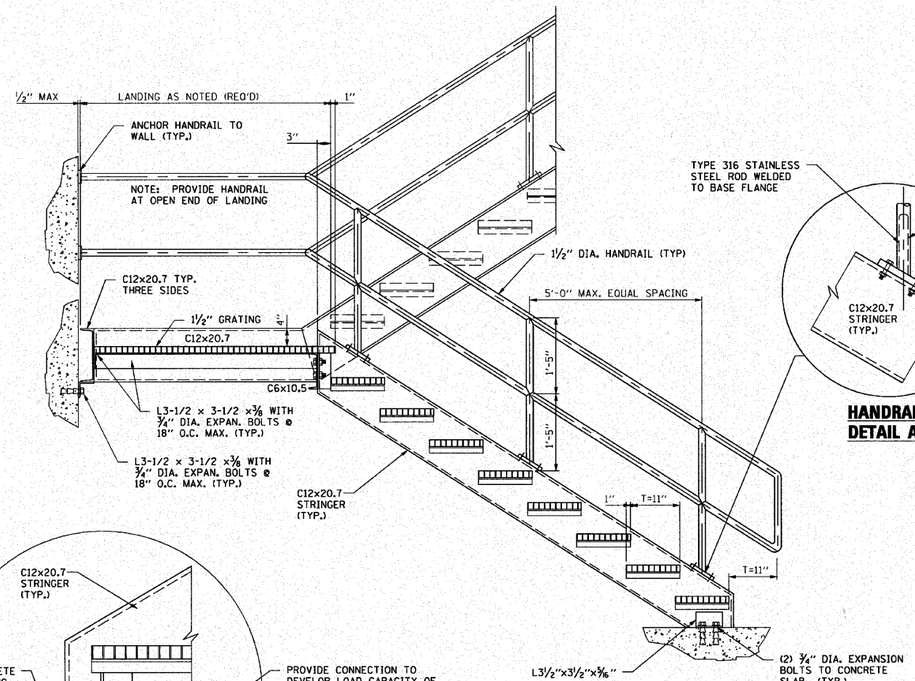
ILLINOIS DEPARTMENT OF TRANSPORTATION

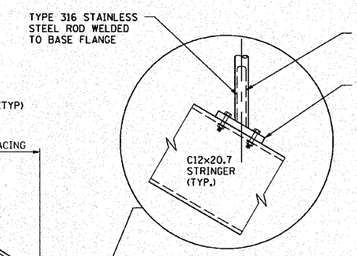
PUMP STATION NO. 24 RELOCATION

WALL SECTIONS AND DETAILS

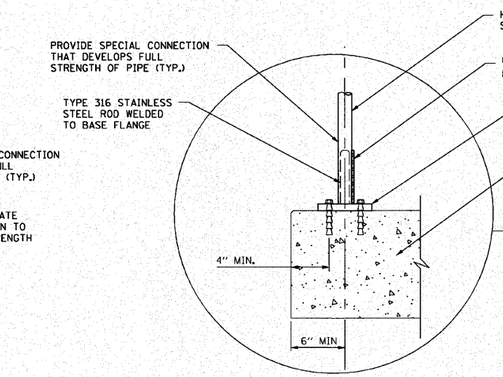
SCALE: AS SHOWN
DRAWN BY: MW
DATE: 11-22-10
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	47
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

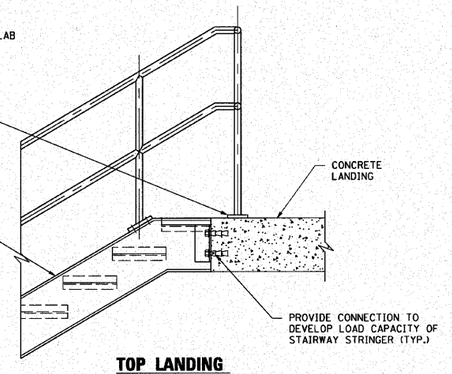




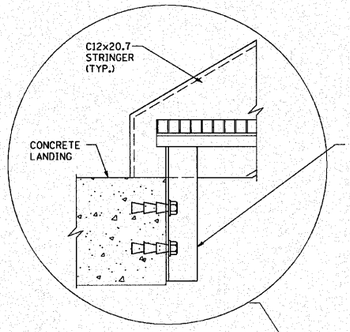
HANDRAIL MOUNT DETAIL A2

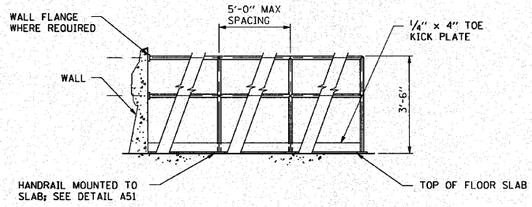


HANDRAIL MOUNT DETAIL A3

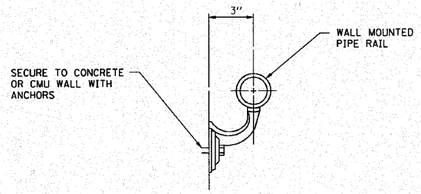


TOP LANDING STAIR DETAIL A4

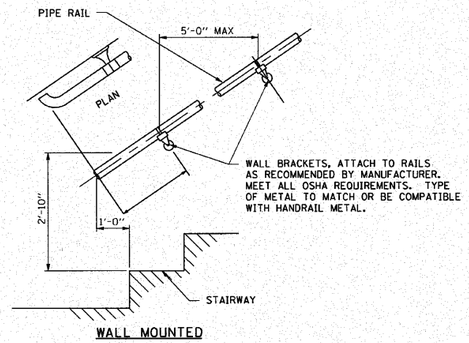




HORIZONTAL RAILING ELEVATION DETAIL A5

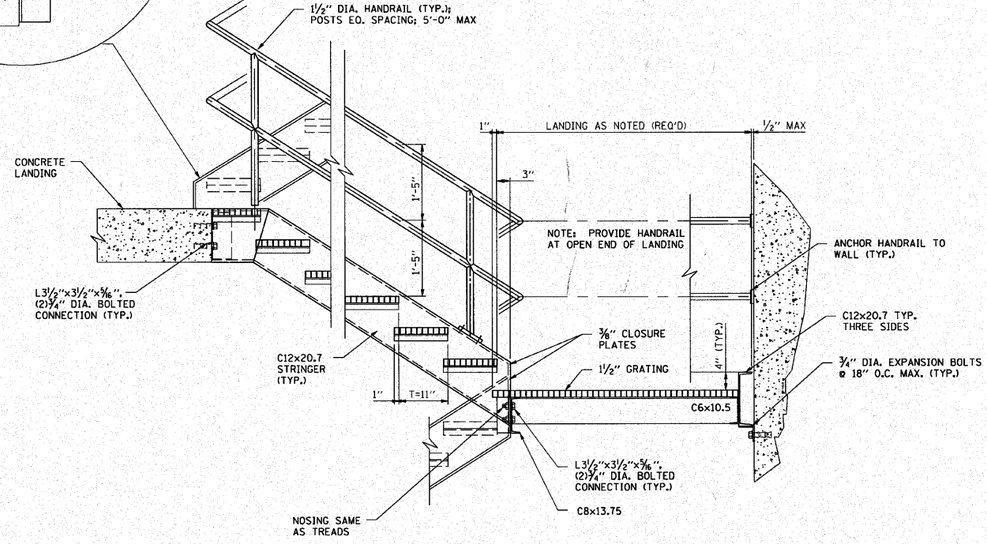


SECTION



WALL MOUNTED

WALL MOUNTED HANDRAIL DETAIL A6



METAL STAIR DETAILS A1

NOTE:
1. ALL STEEL HOT DIP GALVANIZED.
2. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

DONOHUE & ASSOCIATES

A7

REVISIONS	
NAME	DATE

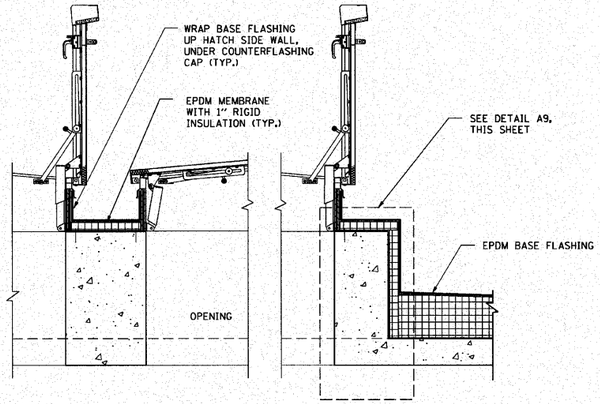
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

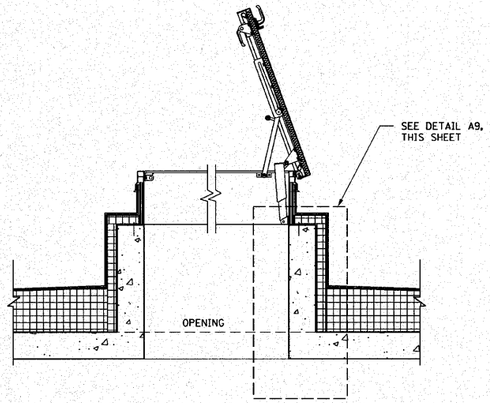
ARCHITECTURAL DETAILS

SCALE: AS SHOWN
DRAWN BY: MW
DATE: 11-22-10
CHECKED BY: KHC

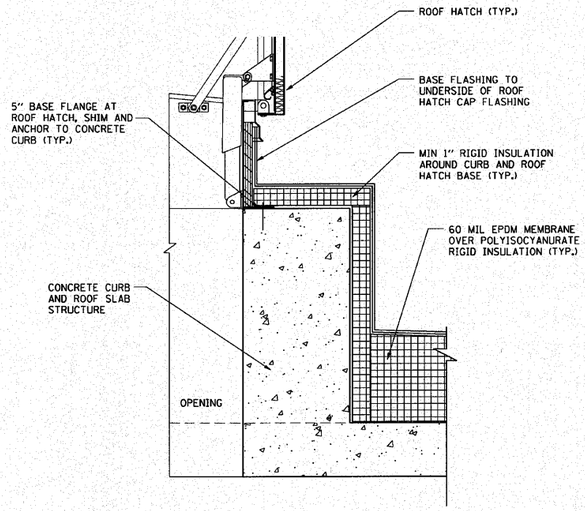
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	48
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



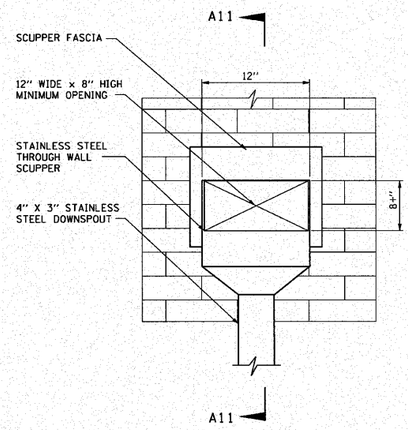
DOUBLE LEAF ROOF ACCESS HATCH DETAIL A7



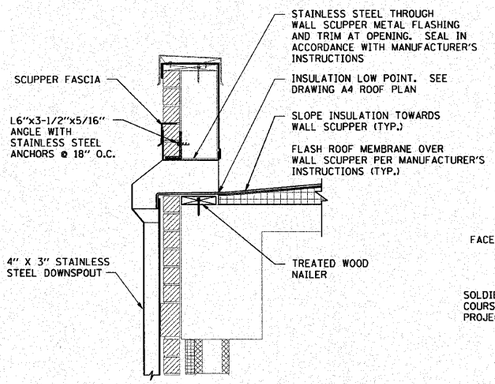
SINGLE LEAF ROOF ACCESS HATCH DETAIL A8



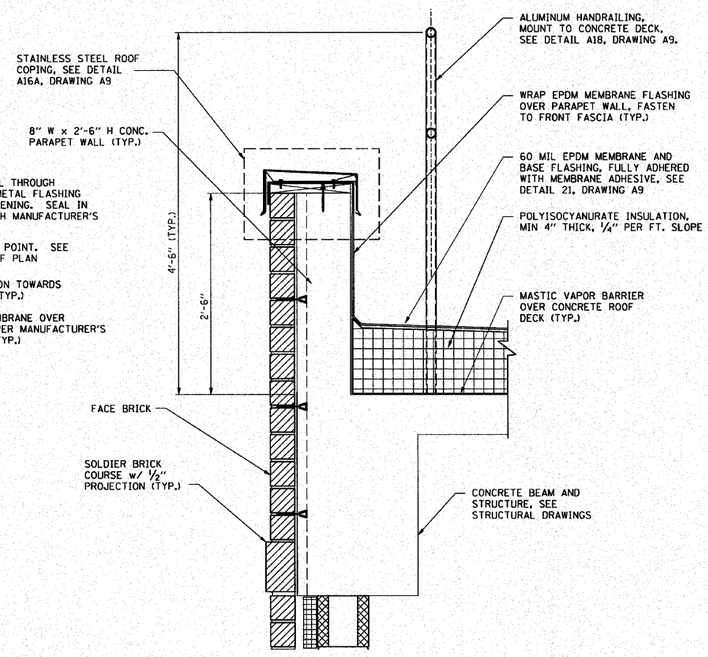
ROOF HATCH CURB DETAIL A9



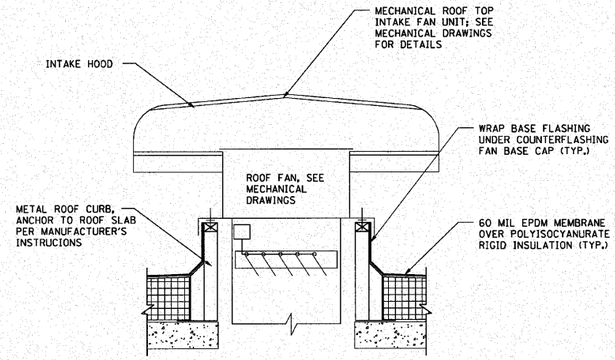
SCUPPER DETAIL A10



ROOF SCUPPER DETAIL A11



GENERAL ROOF EDGE DETAIL A12



METAL ROOF FAN CURB DETAIL A13

DONOHUE & ASSOCIATES

A8

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

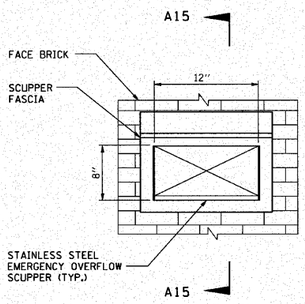
PUMP STATION NO. 24 RELOCATION

ARCHITECTURAL DETAILS

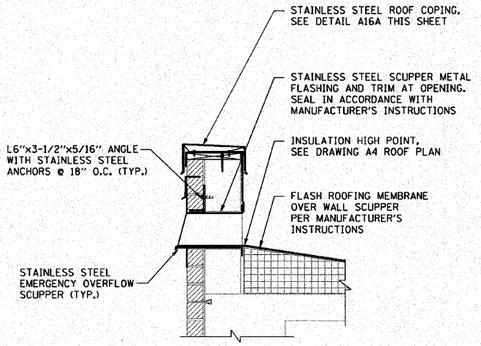
SCALE: AS SHOWN DRAWN BY: MW

DATE: 11-22-10 CHECKED BY: KHC

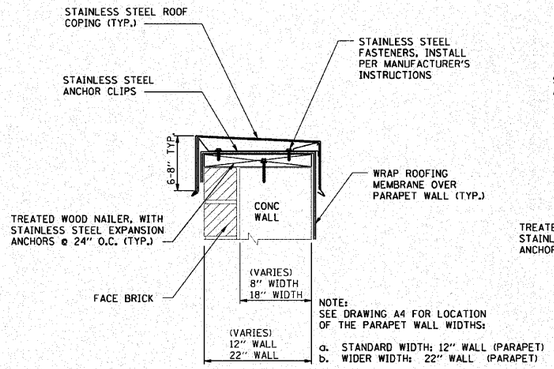
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	49
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



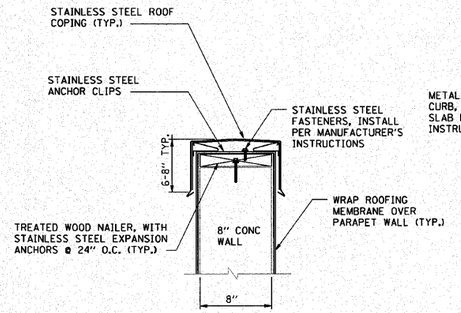
EMERGENCY OVERFLOW SCUPPER FRONT VIEW
DETAIL A14



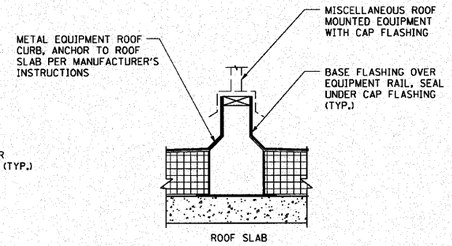
EMERGENCY OVERFLOW SCUPPER SECTION VIEW
DETAIL A15



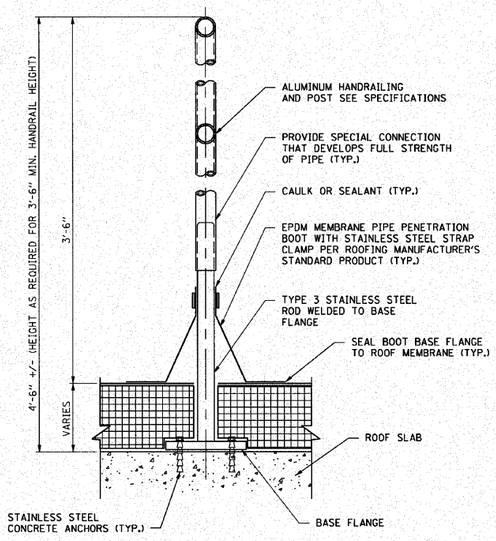
STAINLESS STEEL COPING EXTERIOR PARAPET WALL
DETAIL A16A



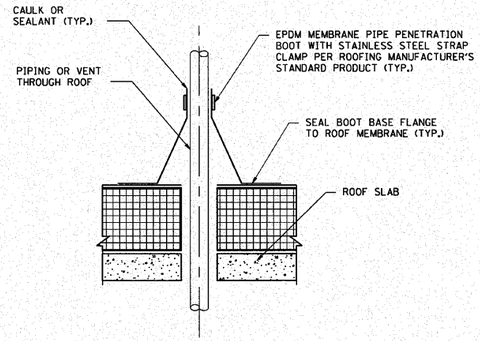
STAINLESS STEEL COPING INTERIOR PARAPET WALL
DETAIL A16B



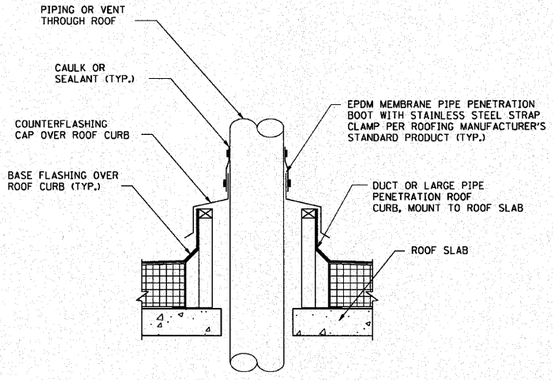
EQUIPMENT RAIL
DETAIL A17



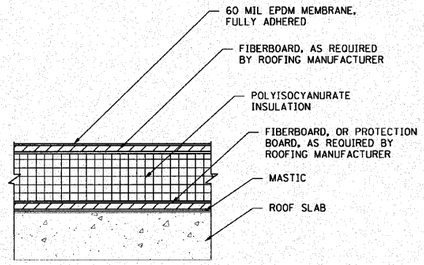
HANDRAIL: ROOF MOUNT
DETAIL A18



PIPE PENETRATION
DETAIL A19



LARGE PIPE OR VENT PENETRATION
DETAIL A20



GENERAL MEMBRANE ROOF DETAIL
DETAIL A21

DONOHUE & ASSOCIATES

A9

REVISIONS	
NAME	DATE

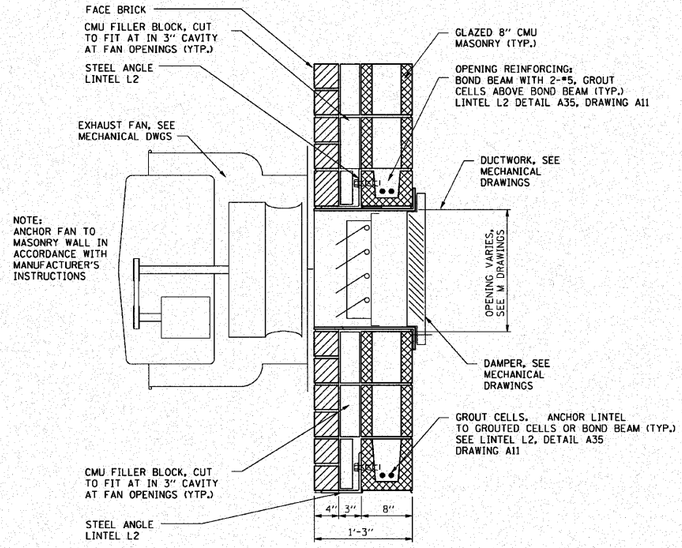
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

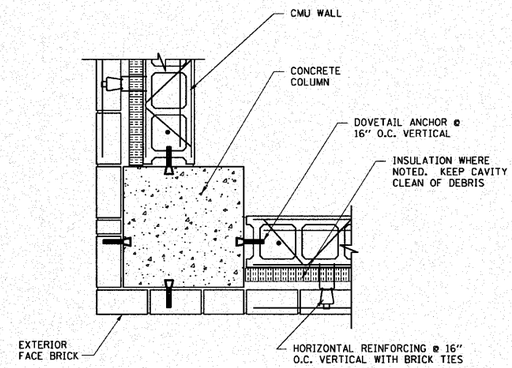
ARCHITECTURAL DETAILS

SCALE: AS SHOWN DRAWN BY: MW
DATE: 11-22-10 CHECKED BY: KHC

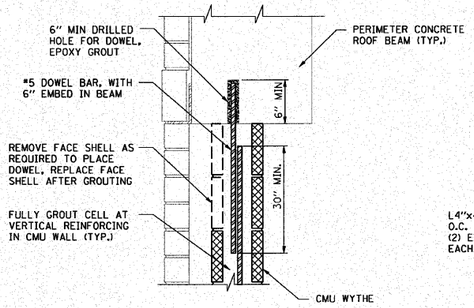
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	50
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



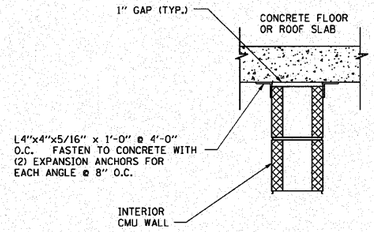
TYPICAL FAN WALL PENETRATION
DETAIL A22



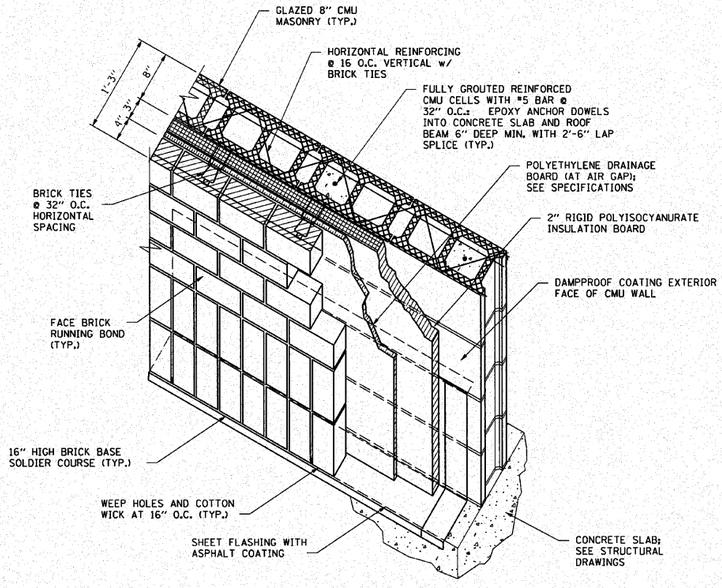
MASONRY WALL ANCHOR
DETAIL A23



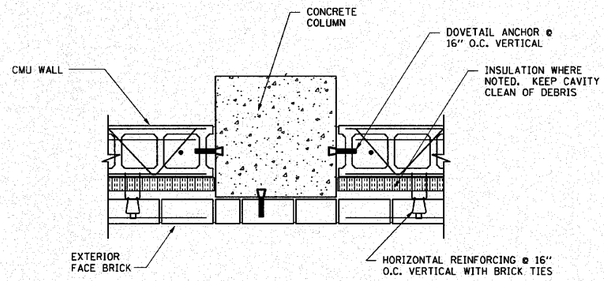
CMU WALL ANCHOR AT ROOF BEAM
DETAIL A24



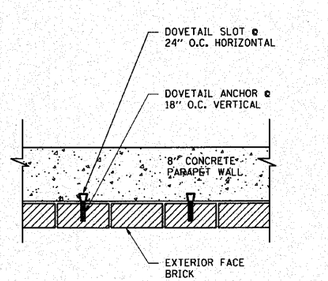
MASONRY WALL TO CEILING
ANCHOR DETAIL A25



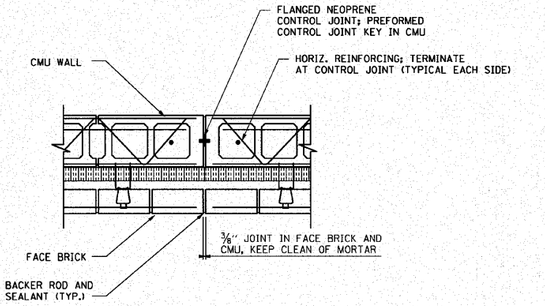
MASONRY WALL GENERAL
DETAIL A29



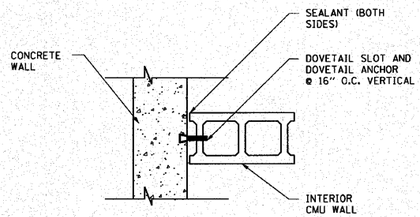
MASONRY WALL
DETAIL A26



PARAPET WALL ANCHOR
DETAIL A27



BRICK AND CMU CONTROL JOINT
DETAIL A30



MASONRY WALL ANCHOR
DETAIL A31

DONOHUE & ASSOCIATES

A10

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

ARCHITECTURAL DETAILS

SCALE: AS SHOWN
DRAWN BY: MW
DATE: 11-22-10
CHECKED BY: KHC

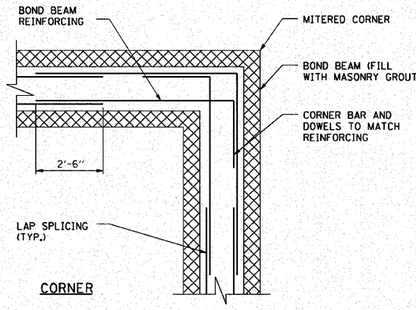
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	51
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

LINTEL SCHEDULE

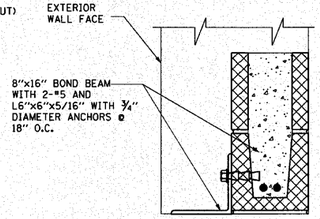
LINTEL NO.	DESCRIPTION	LINTEL TYPE	REMARKS
L1	(1) L6" x 6" x 5/16" WITH A.B. 18" O.C. (2) 8" x 16" BOND BEAM WITH 2-#5'S		8" MINIMUM BEARING EACH END, SEE DETAIL A34
L2	(1) L6" x 6" x 5/16" WITH A.B. @ 18" O.C. (2) 8" x 8" BOND BEAM WITH 2-#5'S		8" MINIMUM BEARING EACH END
L3	(1) 8" x 8" BOND BEAM WITH 2-#5'S		8" MINIMUM BEARING EACH END
L4	(1) W8 x 24		8" MINIMUM BEARING EACH END
L5	(1) L6"x3-1/2"x5/16" w/ 3/4" DIA. A.B. @ 18" O.C. MAX.		SHELF ANGLE AT WINDOWS, DOORS, AND OTHER OPENINGS: LENGTH VARIES. FASTEN TO PERIMETER CONCRETE ROOF BEAM (TYP.)
L6	(1) W8 x 24 (2) 5/8" BASE PLATE (3) 1/4" GUSSET PLATES EACH END AND AT 32" O.C.		8" MINIMUM BEARING EACH END; BENT BASE PLATE
L7	(1) W8 x 24 (2) 5/8" BASE PLATE (3) 1/4" GUSSET PLATES EACH END AND AT 32" O.C.		8" MINIMUM BEARING EACH END; WITH BASE PLATE

NOTES:

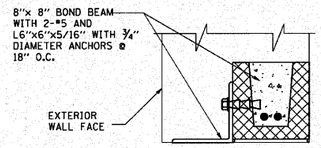
1. MASONRY OPENINGS LESS THAN 4'-0" IN WIDTH THAT DO NOT HAVE A LINTEL SCHEDULE SHALL HAVE A BOND BEAM WITH 2-#5 OR STEEL ANGLE LINTEL WITH A TOTAL WIDTH OF HORIZONTAL LEGS APPROXIMATELY 1" LESS THAN WALL THICKNESS.
2. PROVIDE A MINIMUM OF 8" BEARING AT EACH END FOR STEEL BEAM AND ANGLE LINTELS, AND BOND BEAM LINTELS UNLESS NOTED OTHERWISE.



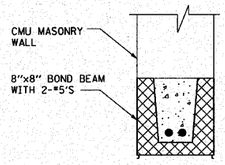
BOND BEAM REINFORCING DETAIL A32



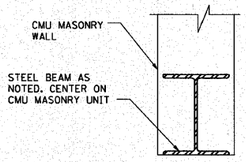
LINTEL: L1 DETAIL A34



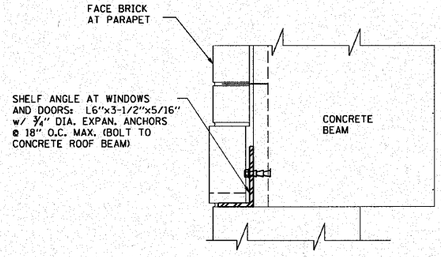
LINTEL: L2 DETAIL A35



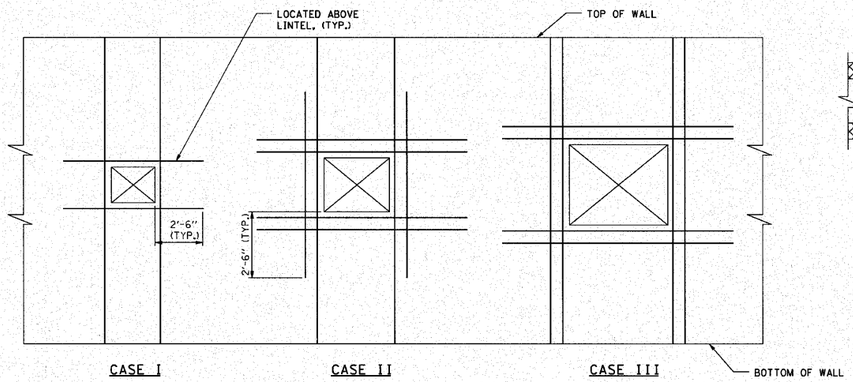
LINTEL: L3 DETAIL A36



LINTEL: L4 DETAIL A37



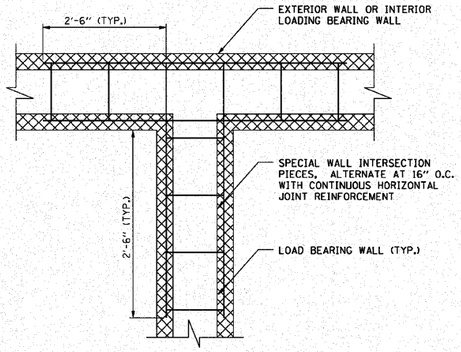
LINTEL: L5 SHELF ANGLE DETAIL A38



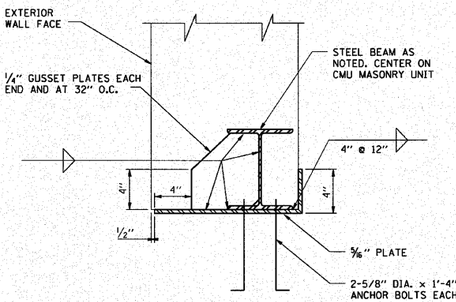
NOTES:

1. ALL REINFORCING SHOWN TO BE #5'S, SEE S450 AND S451.
2. CASE I APPLIES TO ALL OPENINGS GREATER THAN 100 SQ INCHES WITH LARGEST DIMENSION LESS THAN 2'-0".
3. CASE II APPLIES TO ALL OPENINGS WITH ANY DIMENSION GREATER THAN OR EQUAL TO 2'-0" BUT LESS THAN 4'-0".
4. CASE III APPLIES TO ALL OPENINGS WITH ANY DIMENSION GREATER THAN OR EQUAL TO 4'-0".

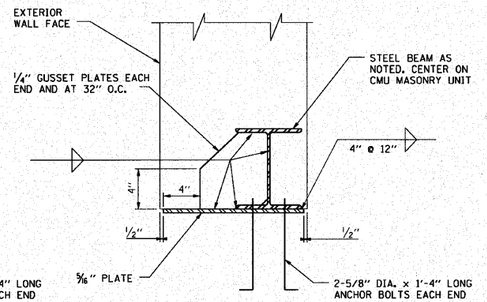
ADDITIONAL MASONRY REINF AT OPENINGS DETAIL A41



LOAD BEARING MASONRY WALL INTERSECTION REINFORCING DETAIL A33



LINTEL: L6 DETAIL A39



LINTEL: L7 DETAIL A40

DONOHUE & ASSOCIATES

A11

REVISIONS	
NAME	DATE

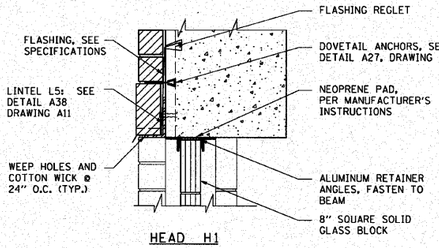
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

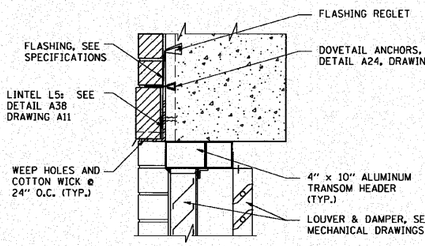
ARCHITECTURAL DETAILS

SCALE: AS SHOWN
DRAWN BY: MW
DATE: 11-22-10
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	52
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



HEAD H1



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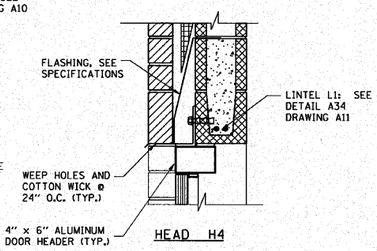
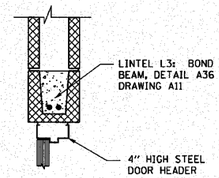
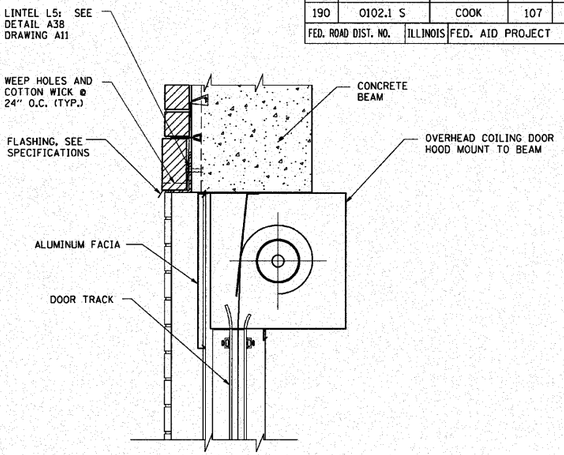


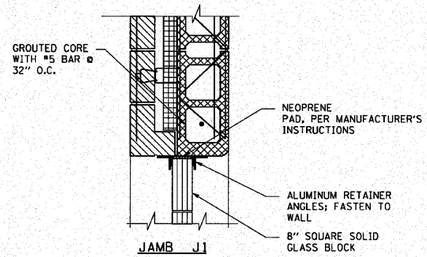
HEAD H4



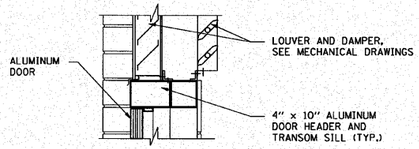
HEAD H3



HEAD H5



JAMB J1



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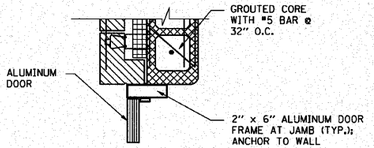
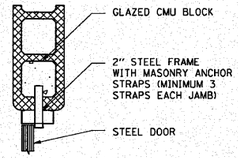
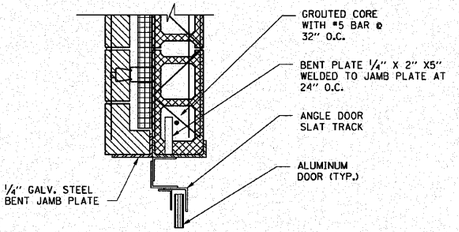


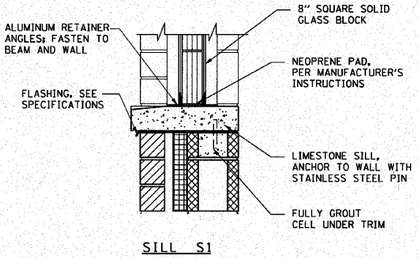
JAMB J4



JAMB J3

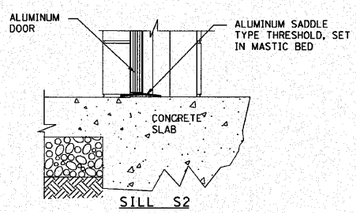


JAMB J5



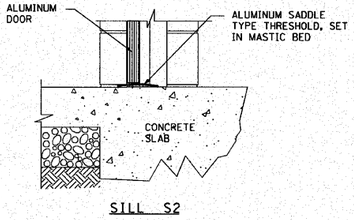
SILL S1

GLASS BLOCK WINDOW DETAIL A42



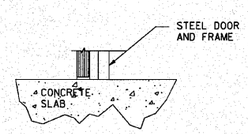
SILL S2

EXTERIOR WALL DETAIL 43



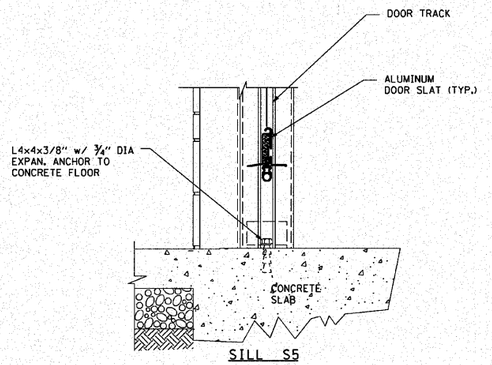
SILL S2

EXTERIOR WALL DETAIL A44



SILL S3

INTERIOR WALL DETAIL A45



SILL S5

COILING DOOR DETAIL A46

DONOHUE & ASSOCIATES

A12

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

ARCHITECTURAL DETAILS

SCALE: AS SHOWN
DRAWN BY: MW
DATE: 11-22-10
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	53
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

ROOM FINISH SCHEDULE

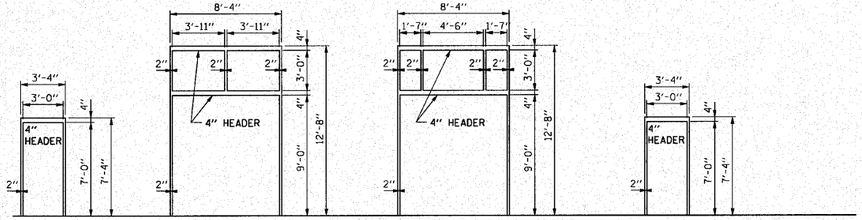
ROOM NAME	FLOOR		WALL				CEILING		REMARKS
	MATERIAL	FINISH	WALL BASE	WALL	FINISH		MATERIAL	FINISH	
PUMP ROOM: EL. 640.50	CONCRETE	EPOXY PAINT SEE SPECS	GLAZED CMU	GLAZED CMU AND CONCRETE	GLAZED CMU: COLOR: SEE REMARKS	CONCRETE: RUB SMOOTH EPOXY PAINT SEE REMARKS	CONCRETE	RUB SMOOTH EPOXY PAINT SEE REMARKS	GLAZED BASE: ASTRAGLAZE "COOL CREAM" GLAZED WALL: ASTRAGLAZE "WHITMAN WHITE" CONCRETE: PAINT TO MATCH "WHITMAN WHITE" CEILING "OFF WHITE" COLOR SELECTED BY ENGR.
ELECTRICAL CONTROL ROOM: EL. 640.50	CONCRETE	EPOXY PAINT SEE SPECS	GLAZED CMU	GLAZED CMU AND CONCRETE	GLAZED CMU: COLOR: SEE REMARKS	CONCRETE: RUB SMOOTH EPOXY PAINT SEE REMARKS	CONCRETE	RUB SMOOTH EPOXY PAINT SEE REMARKS	GLAZED BASE: ASTRAGLAZE "COOL CREAM" GLAZED WALL: ASTRAGLAZE "WHITMAN WHITE" CONCRETE: PAINT TO MATCH "WHITMAN WHITE" CEILING "OFF WHITE" COLOR SELECTED BY ENGR.
TRASH RACK ROOM: EL. 640.50	CONCRETE	EPOXY PAINT SEE SPECS	CMU AND CONCRETE	CMU AND CONCRETE	CMU BLOCK: EPOXY PAINT	CONCRETE: RUB SMOOTH EPOXY PAINT SEE REMARKS	CONCRETE	RUB SMOOTH EPOXY PAINT SEE REMARKS	CMU WALL/BASE AND CONCRETE SURFACES: PAINT TO MATCH "WHITMAN WHITE"; CEILING "OFF WHITE"
STAIRWELL: EL. 640.50 MAIN FLOOR	CONCRETE	EPOXY PAINT SEE SPECS	CMU AND CONCRETE	CMU AND CONCRETE	CMU BLOCK: EPOXY PAINT	CONCRETE: RUB SMOOTH EPOXY PAINT SEE REMARKS	CONCRETE	RUB SMOOTH EPOXY PAINT SEE REMARKS	CMU WALL/BASE AND CONCRETE SURFACES: PAINT TO MATCH "WHITMAN WHITE"; CEILING "OFF WHITE"
STAIRWELL: EL. 627.00 DISCHARGE FLOOR	CONCRETE	NONE	CONCRETE	CONCRETE	NONE		CONCRETE	NONE	CONCRETE WALLS, FLOOR AND CEILING: NO FINISH PAINT
DISCHARGE FLOOR EL. 627.00	CONCRETE	NONE	CONCRETE	CONCRETE	NONE		CONCRETE	NONE	CONCRETE WALLS, FLOOR AND CEILING: NO FINISH PAINT
STAIRWELL: EL. 611.25 INTERMEDIATE FLOOR	CONCRETE	NONE	CONCRETE	CONCRETE	NONE		CONCRETE	NONE	CONCRETE WALLS, FLOOR AND CEILING: NO FINISH PAINT
INTERMEDIATE FLOOR EL. 611.25	CONCRETE	NONE	CONCRETE	CONCRETE	NONE		CONCRETE	NONE	CONCRETE WALLS, FLOOR AND CEILING: NO FINISH PAINT
SCREEN CHAMBER EL. 611.25	CONCRETE	NONE	CONCRETE	CONCRETE	NONE		CONCRETE	NONE	CONCRETE WALLS, FLOOR AND CEILING: NO FINISH PAINT

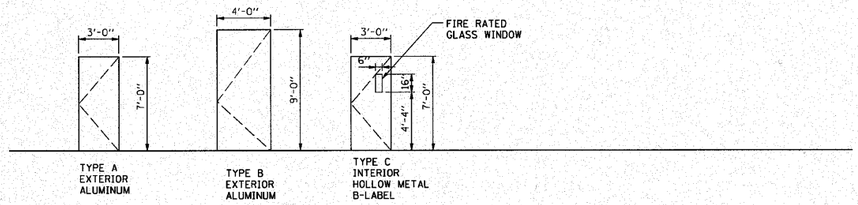
DOOR SCHEDULE

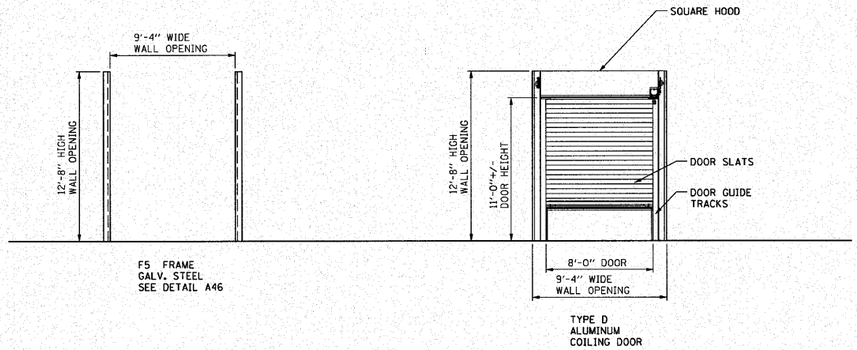
DOOR NO.	LOCATION (ROOM NO.)	DOOR AND FRAME SIZE	EXTERIOR INTERIOR	FIRE LABEL	DOOR TYPE	FRAME TYPE	MATERIAL		FINISH	WALL DETAILS				HARDWARE REQUIRED	REMARKS
							DOOR	FRAME		HEAD	JAMB	SILL	LINTEL		
D1	PUMP ROOM EL. 640.50	DOOR: 3'-0" x 7'-0" x 1-3/4" FRAME: 3'-4"W x 7'-4"H	EXTERIOR	NONE	A	F1	ALUMINUM	ALUMINUM	CLEAR ANODIZED	H4	J4	S2	L1	SEE SPECIFICATIONS	EXIT DEVICE WITH LEVER TYPE ACTIVATION AND KEYED OUTSIDE
D2	ELEC ROOM EL. 640.50	DOOR: 3'-0" x 7'-0" x 1-3/4" FRAME: 3'-4"W x 7'-4"H	EXTERIOR	NONE	A	F1	ALUMINUM	ALUMINUM	CLEAR ANODIZED	H4	J4	S2	L1	SEE SPECIFICATIONS	EXIT DEVICE WITH LEVER TYPE ACTIVATION AND KEYED OUTSIDE
D3	ELEC ROOM EL. 640.50	DOORS: (2) 4'-0" x 9'-0" x 1-3/4" FRAME: 8'-4"W x 12'-8"H	EXTERIOR	NONE	B	F2	ALUMINUM	ALUMINUM	CLEAR ANODIZED	H2A/B	J2	S2	L5	SEE SPECIFICATIONS	TRANSOM WITH 2 LOUVERS AND DAMPERS (SEE MECHANICAL DRAWINGS)
D4	PUMP ROOM EL. 640.50	DOORS: (2) 4'-0" x 9'-0" x 1-3/4" FRAME: 8'-4"W x 12'-8"H	EXTERIOR	NONE	B	F3	ALUMINUM	ALUMINUM	CLEAR ANODIZED	H2A/B	J2	S2	L5	SEE SPECIFICATIONS	TRANSOM WITH 1 LOUVER/DAMPER, AND INSULATED PANELS
D5	TRASHRACK EL. 640.50	DOOR: 3'-0" x 7'-0" x 1-3/4" FRAME: 3'-4"W x 7'-4"H	EXTERIOR	NONE	A	F1	ALUMINUM	ALUMINUM	CLEAR ANODIZED	H4	J4	S2	L1	SEE SPECIFICATIONS	EXIT DEVICE WITH LEVER TYPE ACTIVATION AND KEYED OUTSIDE
D6	STAIRWELL EL. 640.50	DOOR: 3'-0" x 7'-0" x 1-3/4" FRAME: 3'-4"W x 7'-4"H	EXTERIOR	NONE	A	F1	ALUMINUM	ALUMINUM	CLEAR ANODIZED	H4	J4	S2	L1	SEE SPECIFICATIONS	EXIT DEVICE WITH LEVER TYPE ACTIVATION AND KEYED OUTSIDE
OH1	TRASHRACK EL. 640.50	DOOR: 8'-0"W x 11'-0"H OPENING FRAME: MISC STL IN MASONRY	EXTERIOR	NONE	D	F5	ALUMINUM	STEEL/ ALUMINUM	CLEAR ANODIZED	H5	J5	S5	L5	SEE SPECIFICATIONS	OVERHEAD DOOR: MANUAL OPERATION, DOOR WIDTH 8'-0" CLEAR
D7	STAIRWELL EL. 640.50	DOOR: 3'-0" x 7'-0" x 1-3/4" FRAME: 3'-4"W x 7'-4"H	INTERIOR	B	C	F4	H. METAL	H. METAL	PAINTED LIGHT BLUE	H3	J3	S3	L3	SEE SPECIFICATIONS	FIRE RATED GLASS WINDOW; INTERIOR PASSAGE SET (LATCHSET) HARDWARE
D8	STAIRWELL EL. 627.00	DOOR: 3'-0" x 7'-0" x 1-3/4" FRAME: 3'-4"W x 7'-4"H	INTERIOR	B	C	F4	H. METAL	H. METAL	PAINTED LIGHT BLUE	N/A	N/A	N/A	NONE	SEE SPECIFICATIONS	FIRE RATED GLASS WINDOW; INTERIOR PASSAGE SET (LATCHSET) HARDWARE
D9	STAIRWELL EL. 627.00	DOOR: 3'-0" x 7'-0" x 1-3/4" FRAME: 3'-4"W x 7'-4"H	INTERIOR	B	C	F4	H. METAL	H. METAL	PAINTED LIGHT BLUE	N/A	N/A	N/A	NONE	SEE SPECIFICATIONS	FIRE RATED GLASS WINDOW; INTERIOR PASSAGE SET (LATCHSET) HARDWARE
D10	STAIRWELL EL. 611.25	DOOR: 3'-0" x 7'-0" x 1-3/4" FRAME: 3'-4"W x 7'-4"H	INTERIOR	B	C	F4	H. METAL	H. METAL	PAINTED LIGHT BLUE	N/A	N/A	N/A	NONE	SEE SPECIFICATIONS	FIRE RATED GLASS WINDOW; INTERIOR PASSAGE SET (LATCHSET) HARDWARE
D11	STAIRWELL EL. 611.25	DOOR: 3'-0" x 7'-0" x 1-3/4" FRAME: 3'-4"W x 7'-4"H	INTERIOR	B	C	F4	H. METAL	H. METAL	PAINTED LIGHT BLUE	N/A	N/A	N/A	NONE	SEE SPECIFICATIONS	FIRE RATED GLASS WINDOW; INTERIOR PASSAGE SET (LATCHSET) HARDWARE

NOTE:

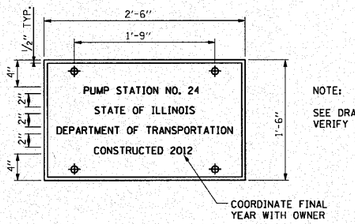
1. FIELD VERIFY ALL OPENING DIMENSIONS FOR DOORS AND FRAMES PRIOR TO FABRICATION AND INSTALLATION.
2. COORDINATE AND VERIFY LOUVER OPENING SIZE WITH MECHANICAL, PRIOR TO FABRICATION AND INSTALLATION OF DOORS AND FRAMES.
3. ALL MISCELLANEOUS STEEL AND STEEL FRAMING TO BE HOT DIP GALVANIZED. FINISH PAINTED AFTER INSTALLATION.
4. 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.







DOOR AND FRAME ELEVATION DETAILS



NOTE:

SEE DRAWING A1 FOR MOUNTING LOCATION. VERIFY WITH OWNER PRIOR TO MOUNTING

IDENTIFICATION PLATE DETAIL A48

DONOHUE & ASSOCIATES

A13

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

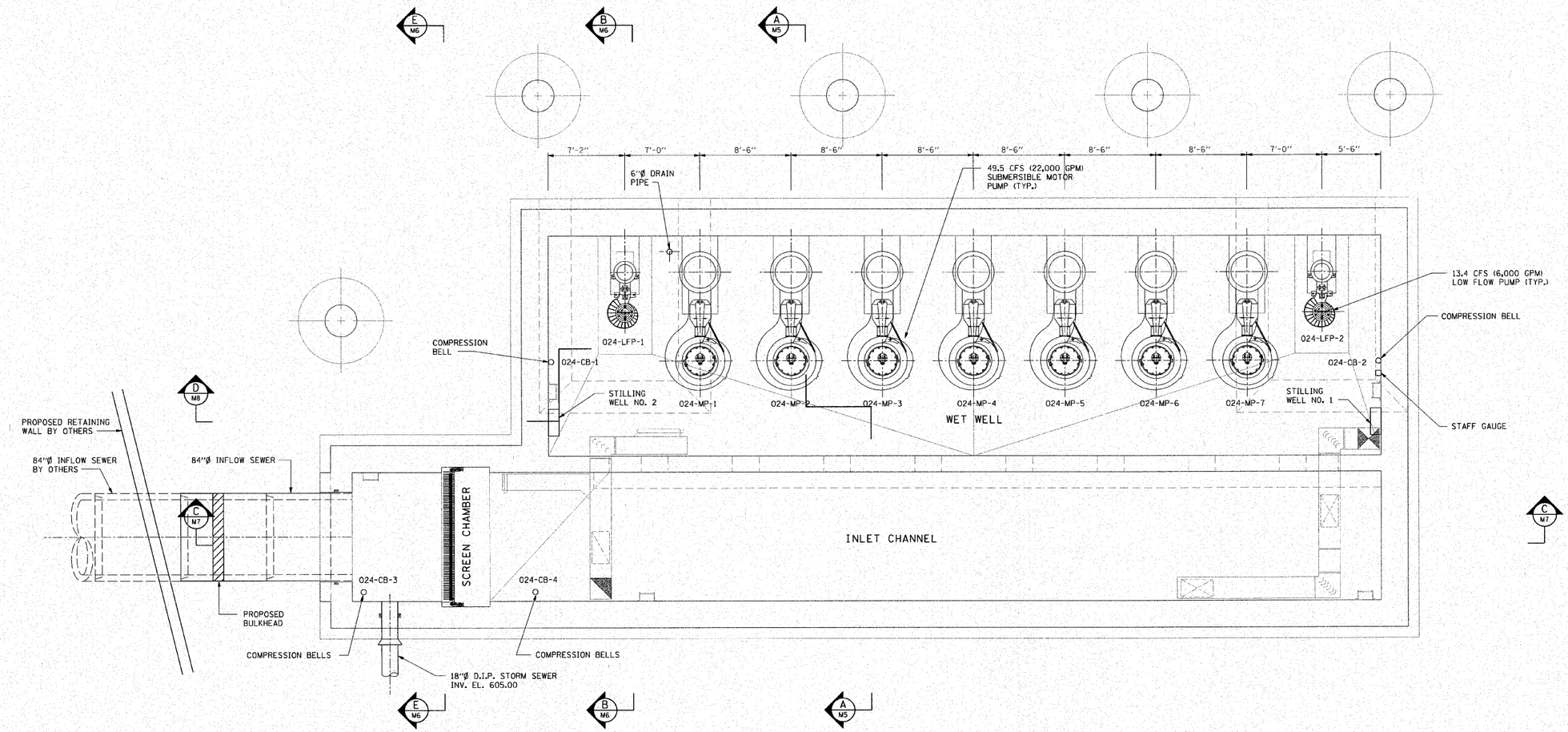
PUMP STATION NO. 24 RELOCATION

ARCHITECTURAL SCHEDULES

SCALE: AS SHOWN DRAWN BY: MW

DATE: 11-22-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	54
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 597.5

NOTES:

1. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.
2. SEE DRAWING M10 FOR HVAC ITEM DESCRIPTIONS.

SCALE: 0 4 8 12

M1

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

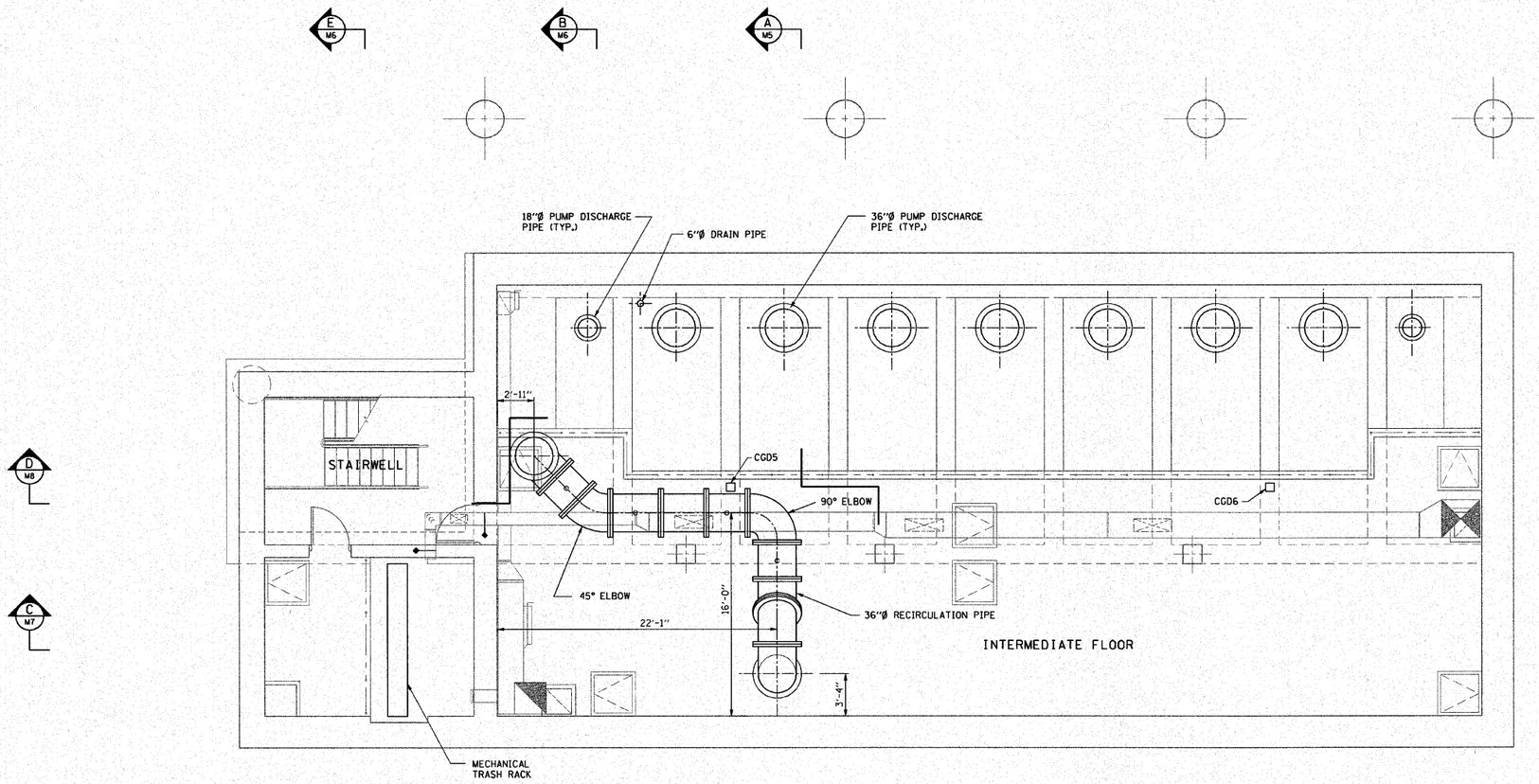
PUMP STATION NO. 24
RELOCATION

MECHANICAL PLAN

SCALE: AS SHOWN
DRAWN BY: HFF
DATE: 11-22-10
CHECKED BY: KHC

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	55
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 611.25

NOTES:

1. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.
2. SEE DRAWING M11 FOR HVAC ITEM DESCRIPTIONS.

SCALE: 0 4 8 12

M2

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

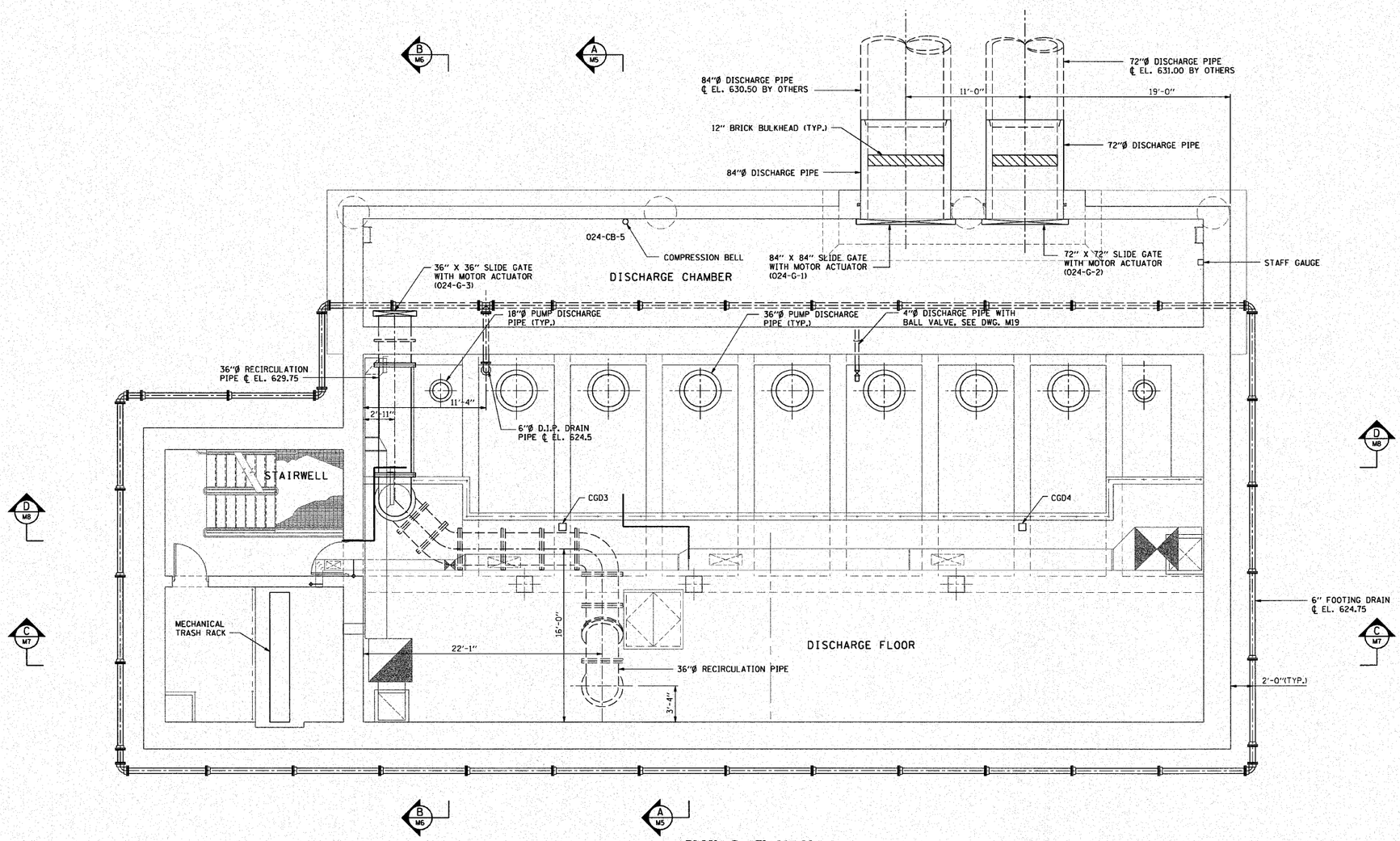
MECHANICAL PLAN

SCALE: AS SHOWN DRAWN BY: HFF

DATE: 11-22-10 CHECKED BY: KHC

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	56
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 627.00

NOTES:

1. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.
2. SEE DRAWING M12 FOR HVAC ITEM DESCRIPTIONS.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

M3

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

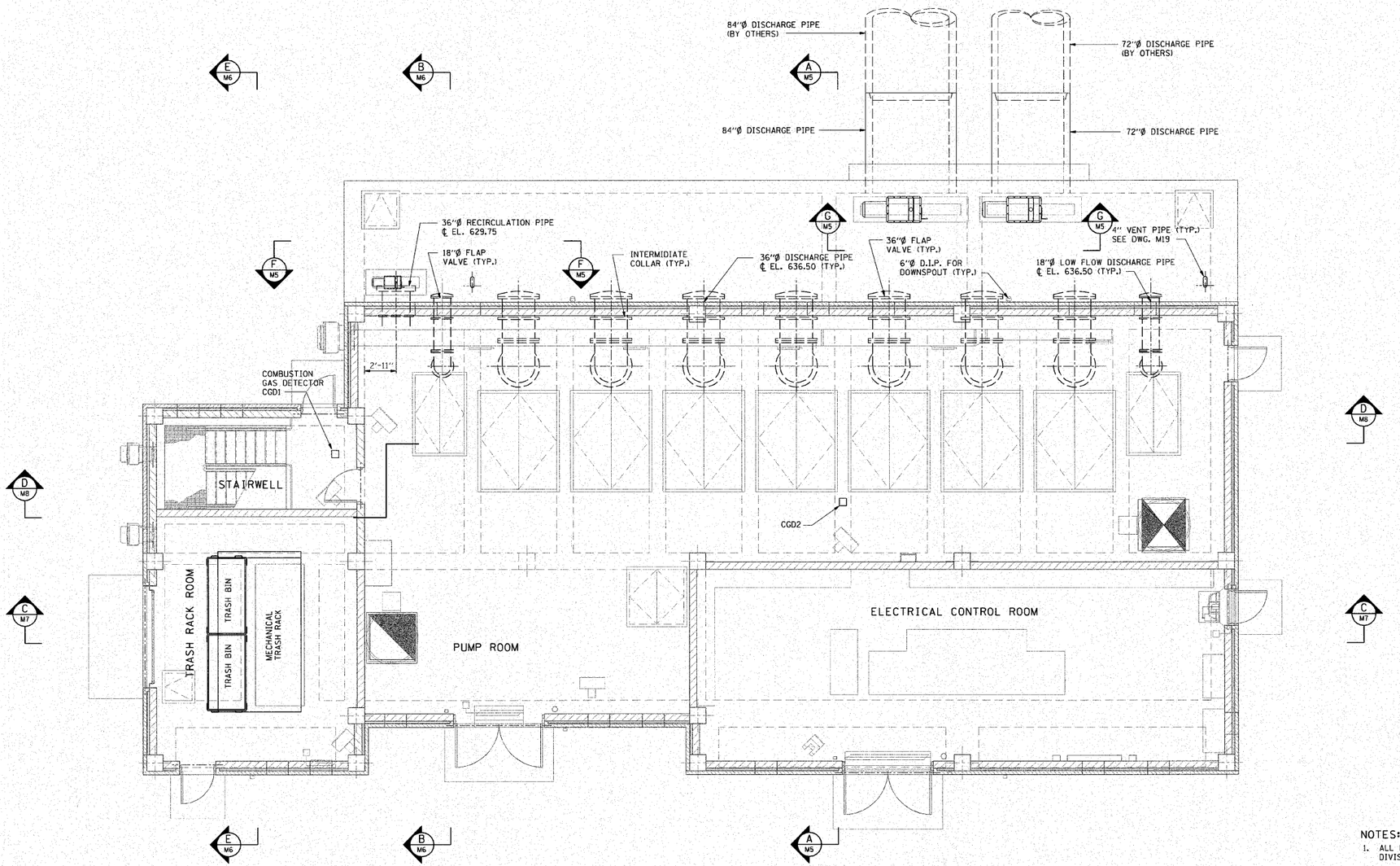
PUMP STATION NO. 24 RELOCATION

MECHANICAL PLAN

SCALE: AS SHOWN DRAWN BY: HFF

DATE: 11-22-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	57
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 640.50

NOTES:

1. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.
2. SEE DRAWING M13 FOR HVAC ITEM DESCRIPTIONS.

SCALE: 0 4 8 12

M4

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

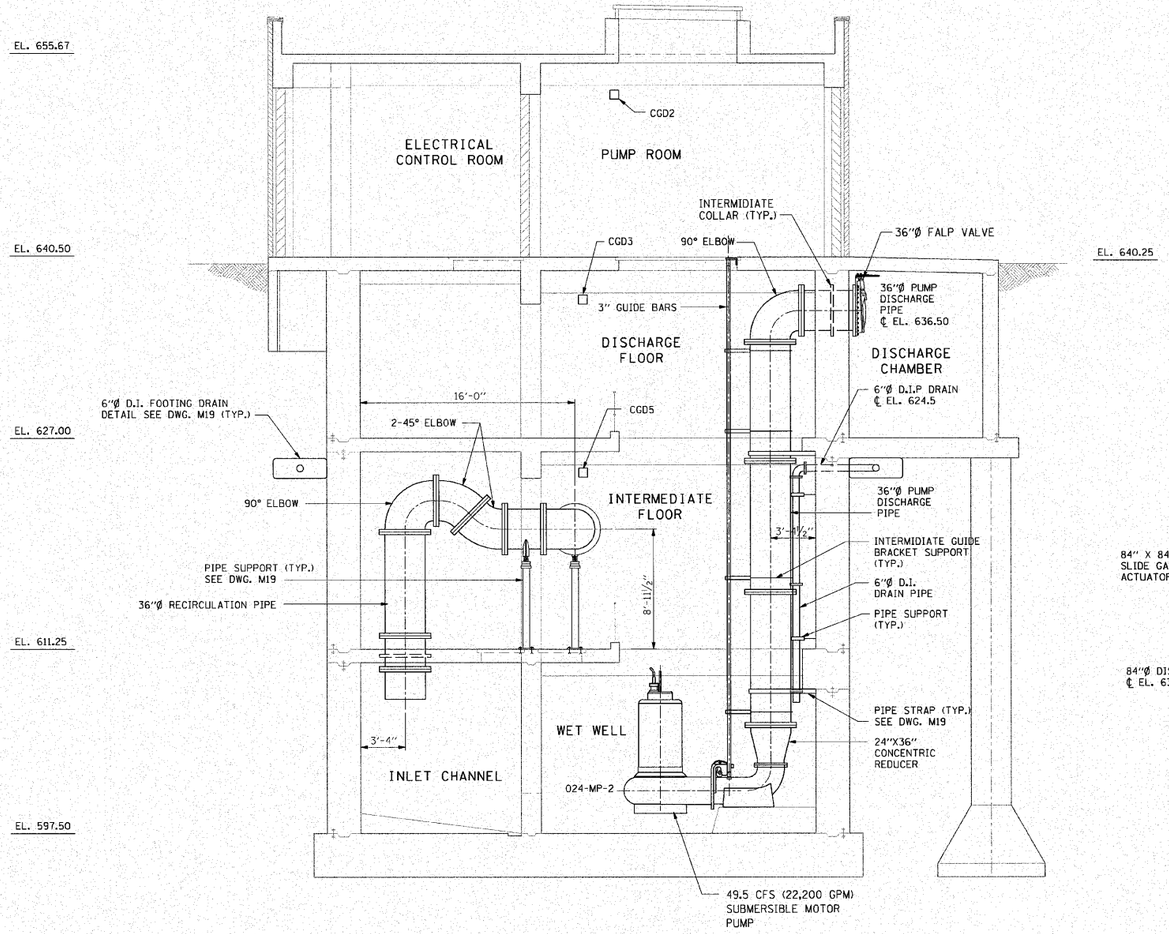
MECHANICAL PLAN

SCALE: AS SHOWN DRAWN BY: HFF

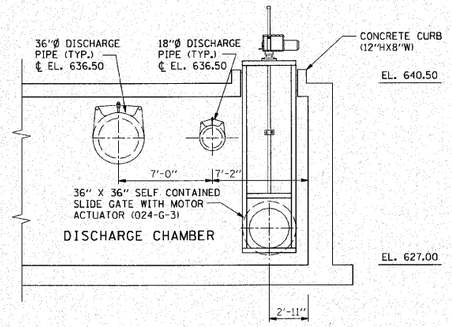
DATE: 11-22-10 CHECKED BY: KHC

DONOHUE & ASSOCIATES

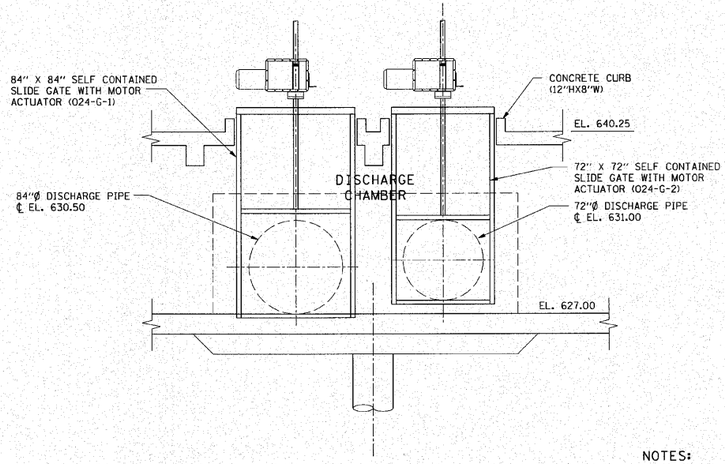
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	58
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION A – A



SECTION F – F



SECTION G – G

NOTES:

1. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 1, GROUP D EXPLOSION PROOF.
2. HVAC ITEMS AND DESCRIPTIONS NOT SHOWN FOR SECTION A-A.
3. SEE DRAWING RW9 FOR UNDERDRAINS FOR STRUCTURES.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

M5

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

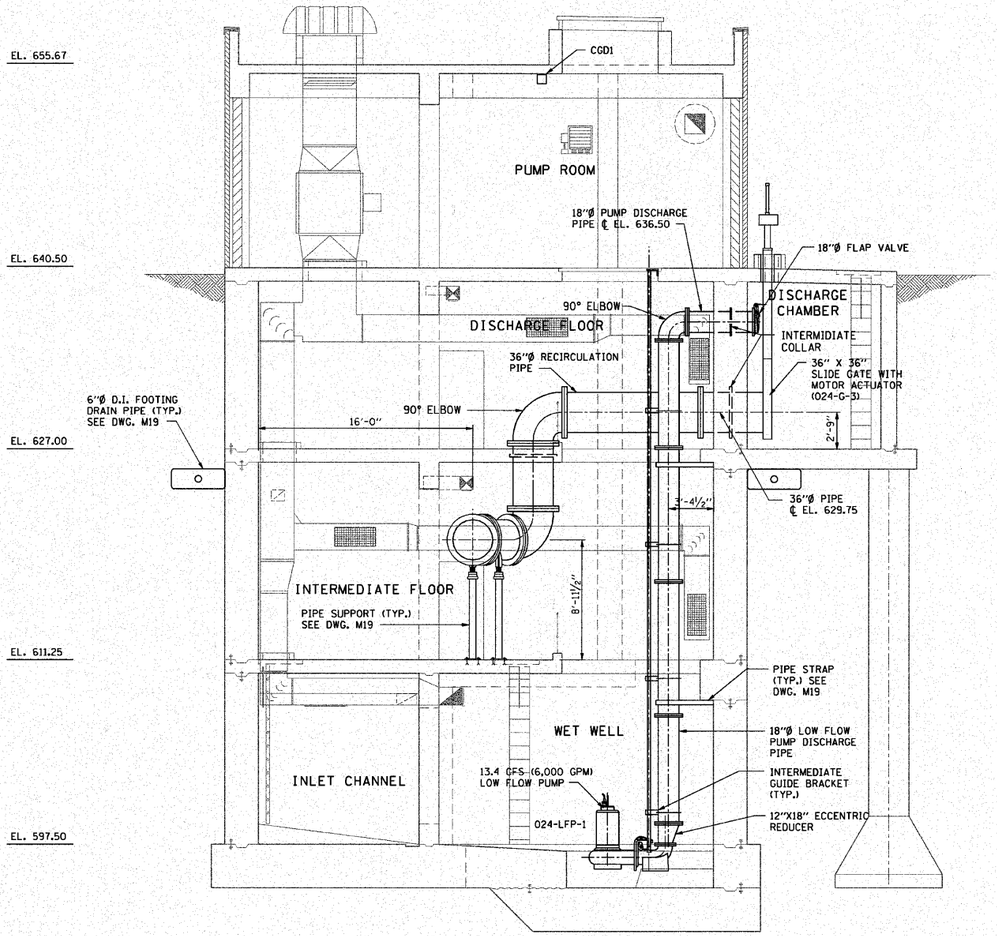
PUMP STATION NO. 24 RELOCATION

MECHANICAL SECTION

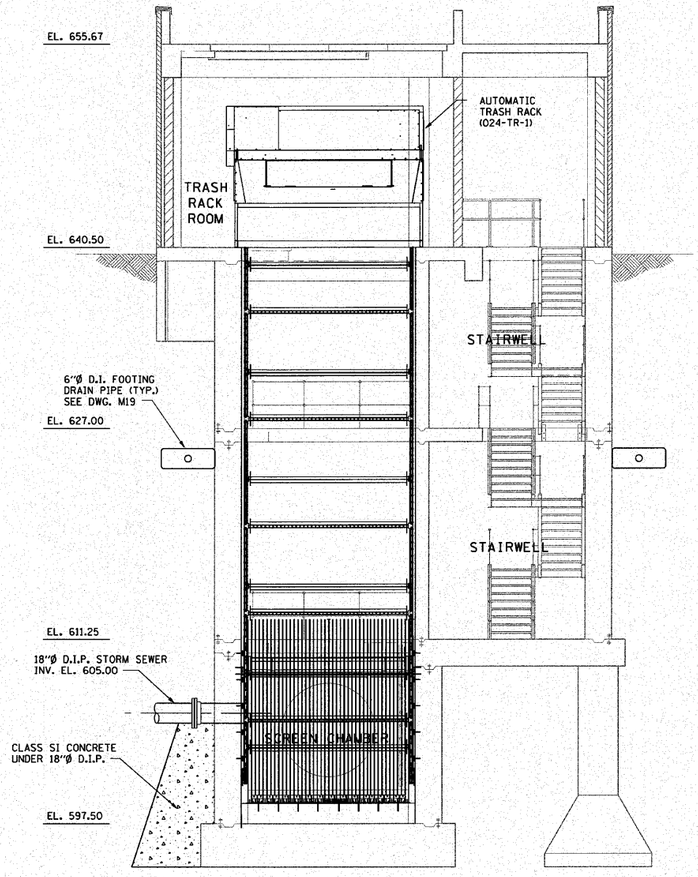
SCALE: AS SHOWN DRAWN BY: HFF

DATE: 11-22-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	59
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION B – B



SECTION E – E

NOTES:

1. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.
2. SEE SECTION B-B AT DRAWING M14 FOR HVAC ITEM DESCRIPTIONS.
3. HVAC ITEMS AND DESCRIPTIONS NOT SHOWN FOR SECTION E-E.
4. SEE DRAWING S28 FOR SLIDE GATE DETAILS.
5. SEE DRAWING RW9 FOR UNDERDRAINS FOR STRUCTURES AND CONCRETE ENCASEMENT.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

M6

REVISIONS	
NAME	DATE

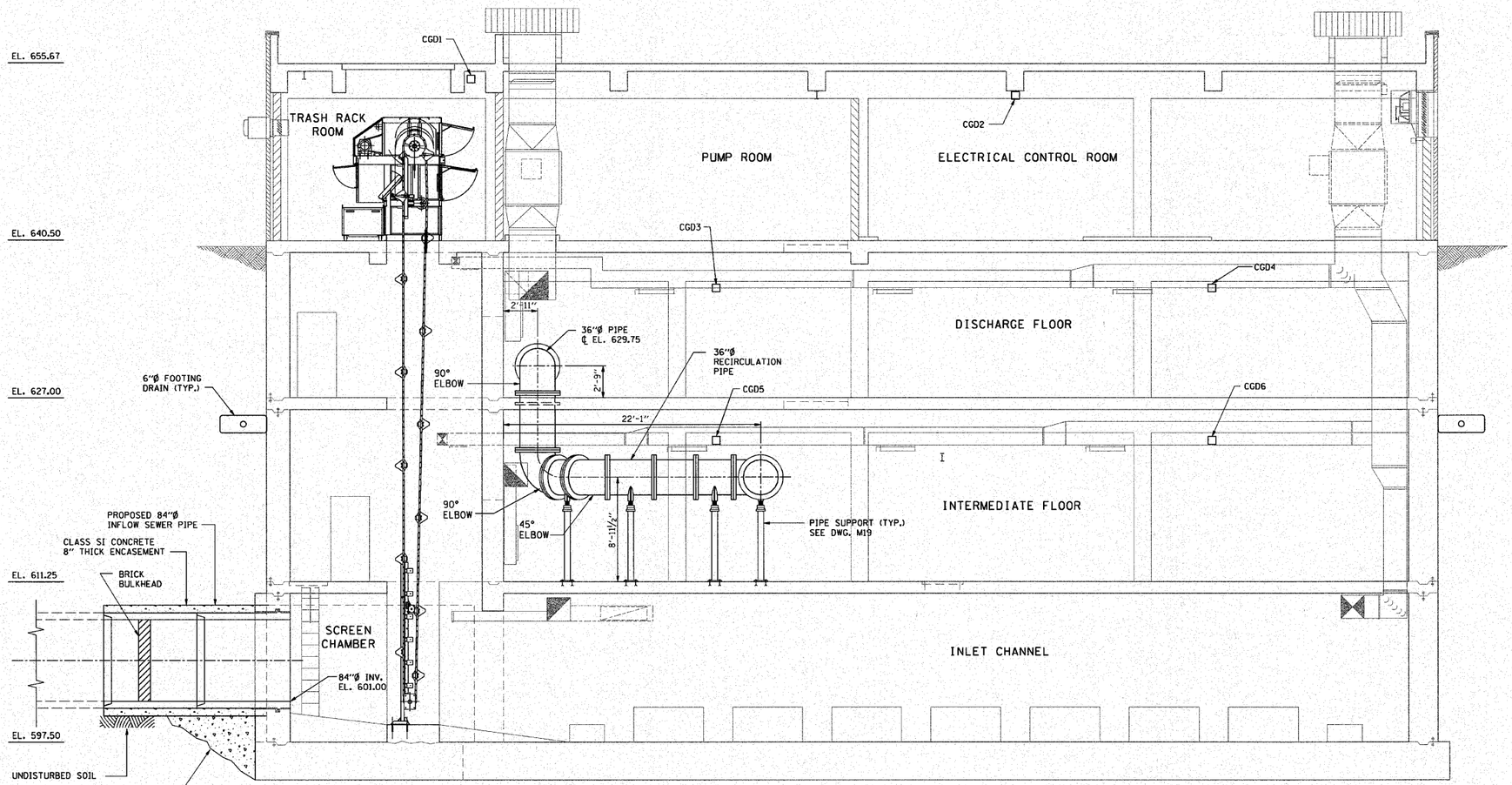
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

MECHANICAL SECTION

SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: HFF
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	60
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION C – C

NOTES:

1. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.
2. SEE DRAWING M15 FOR HVAC ITEM DESCRIPTIONS.

SCALE: 0 4 8 12

M7

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

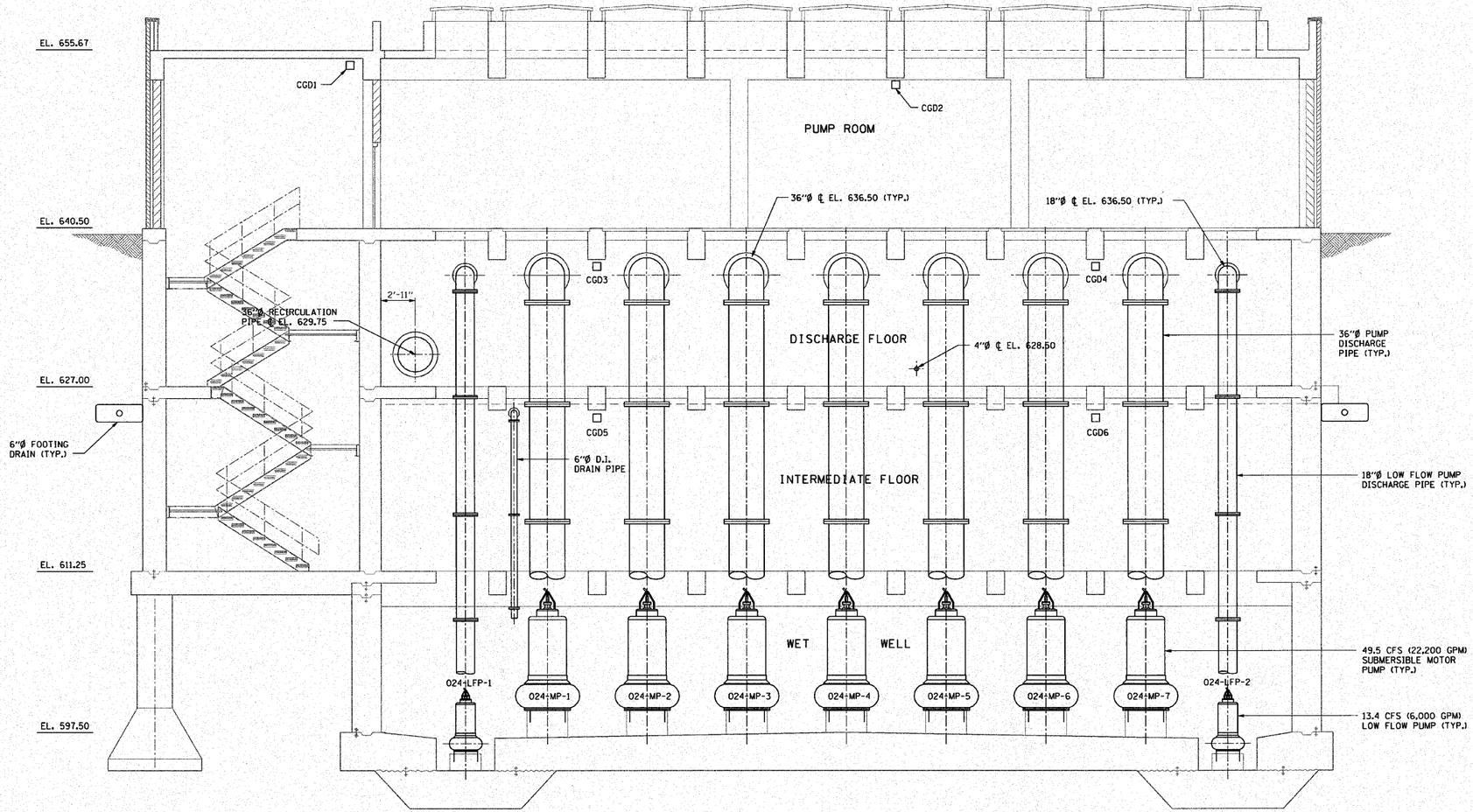
MECHANICAL SECTION

SCALE: AS SHOWN DRAWN BY: HFF

DATE: 11-22-10 CHECKED BY: KHC

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	61
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION D – D

NOTES:
1. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.
2. HVAC ITEMS AND DESCRIPTIONS NOT SHOWN FOR SECTION D-D.
3. 4"/6"Ø PIPE SUPPORT SEE DRAWING M19.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

M8

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

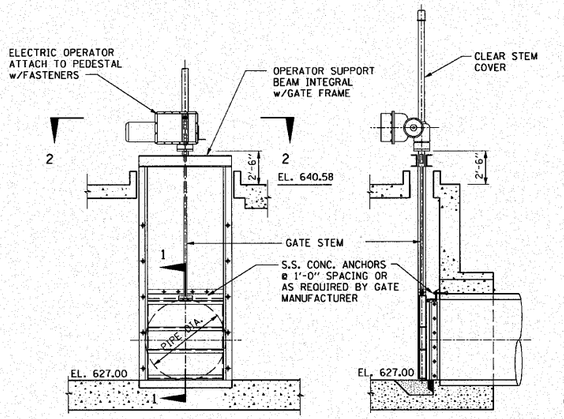
PUMP STATION NO. 24 RELOCATION

MECHANICAL SECTION

SCALE: AS SHOWN DRAWN BY: HFF

DATE: 11-22-10 CHECKED BY: KHC

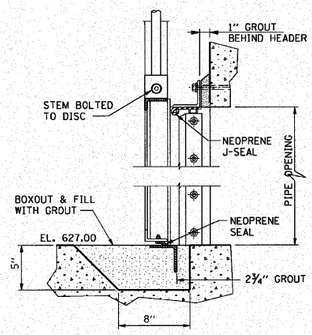
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	62
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



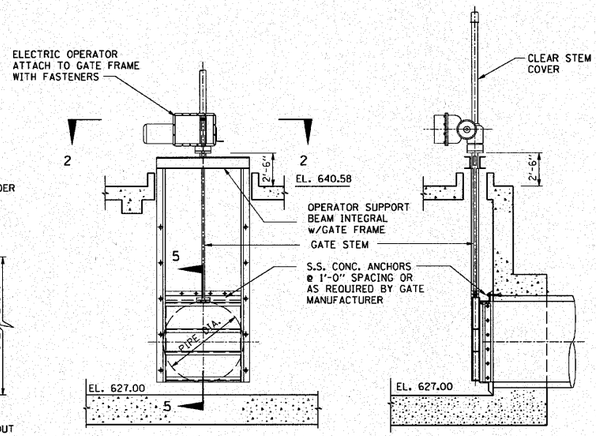
FRONT ELEVATION **SIDE ELEVATION**

84"X84" FLUSH BOTTOM SLIDE GATE DETAIL–S16

N.T.S.



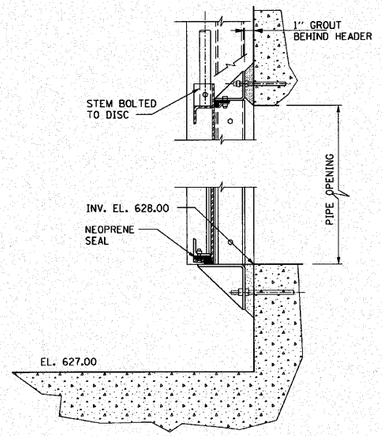
SECTION 1–1



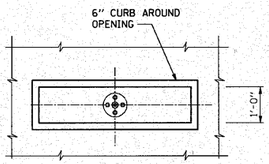
FRONT ELEVATION **SIDE ELEVATION**

72"X72" WALL MOUNTED INVERT SLIDE GATE DETAIL–S19

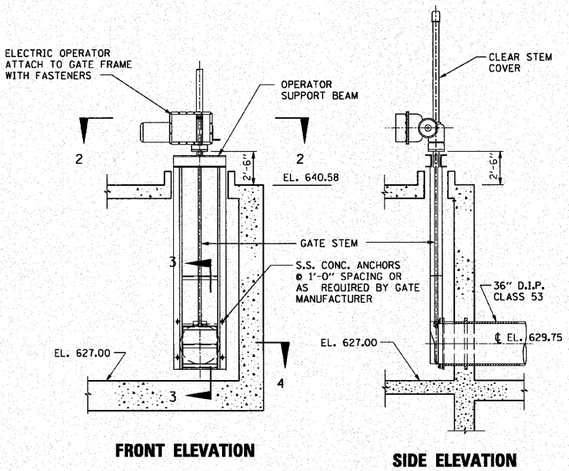
N.T.S.



SECTION 5–5



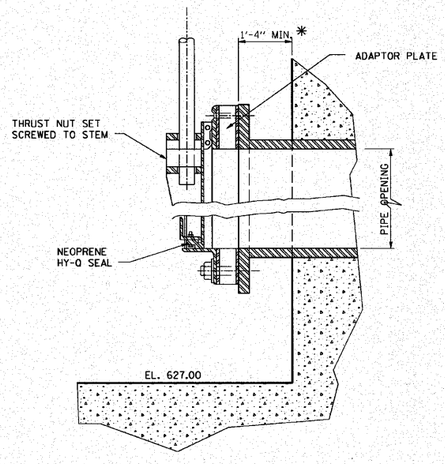
SECTION 2–2



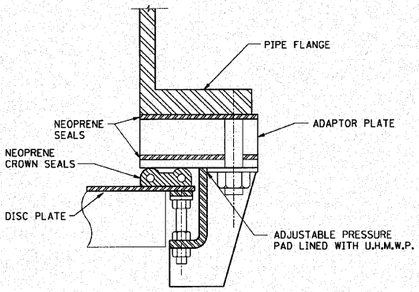
FRONT ELEVATION **SIDE ELEVATION**

36"X36" FLANGE MOUNT SLIDE GATE DETAIL–S17

N.T.S.



SECTION 3–3



SECTION 4–4

NOTES:

1. * OR AS REQUIRED BY GATE MANUFACTURER
2. PROVIDE GATE STEM SUPPORT BRACKET AS REQUIRED.

DONOHUE & ASSOCIATES

M9

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

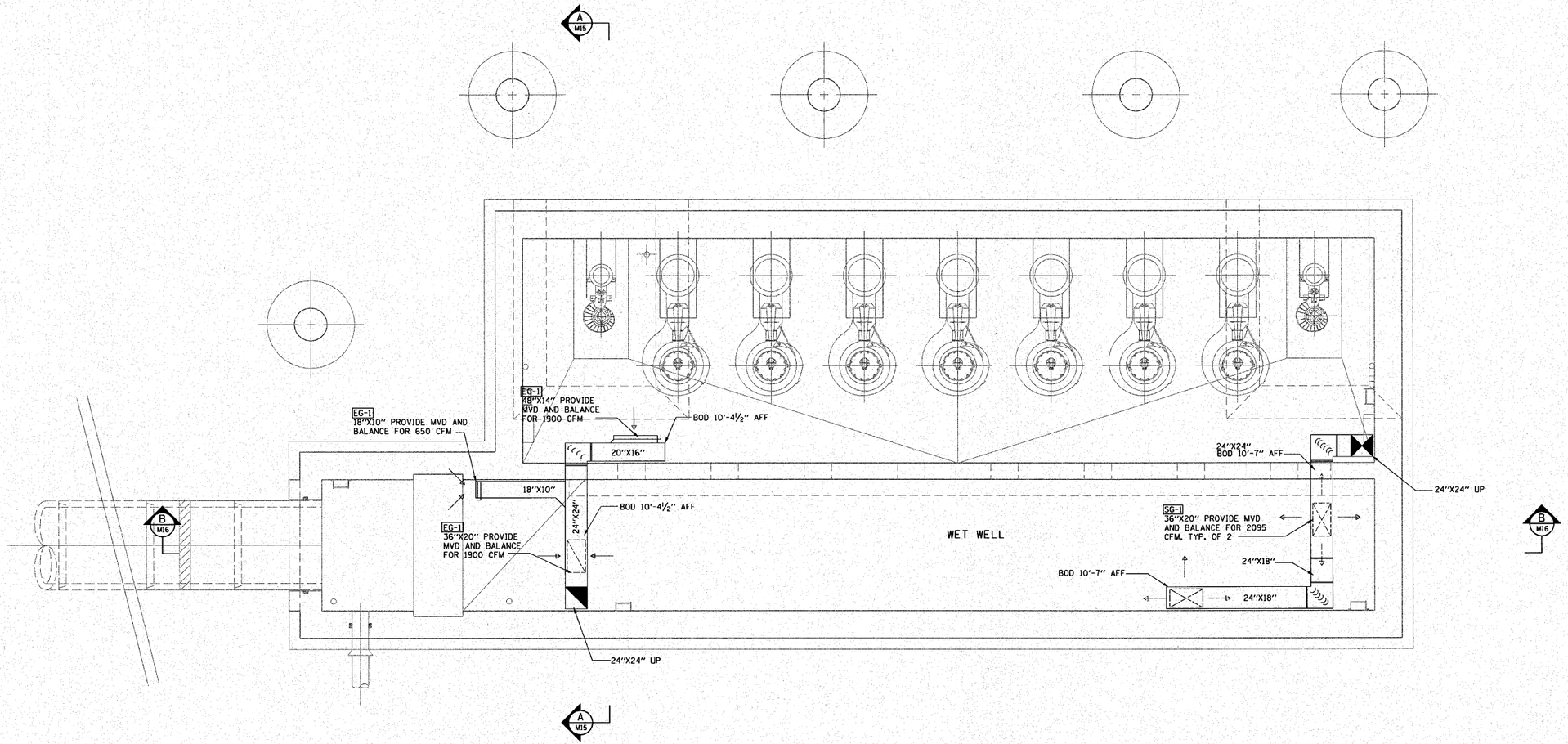
PUMP STATION NO. 24 RELOCATION

SLIDE GATE DETAILS

SCALE: AS SHOWN DRAWN BY: HFF

DATE: 11-22-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	63
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 597.5

GENERAL NOTE:

1. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.
2. COORDINATE DUCTWORK ROUTING WITH CABLE TRAY SEE E15.

SCALE: 0 4 8 12

M10

REVISIONS	
NAME	DATE

DONOHUE & ASSOCIATES

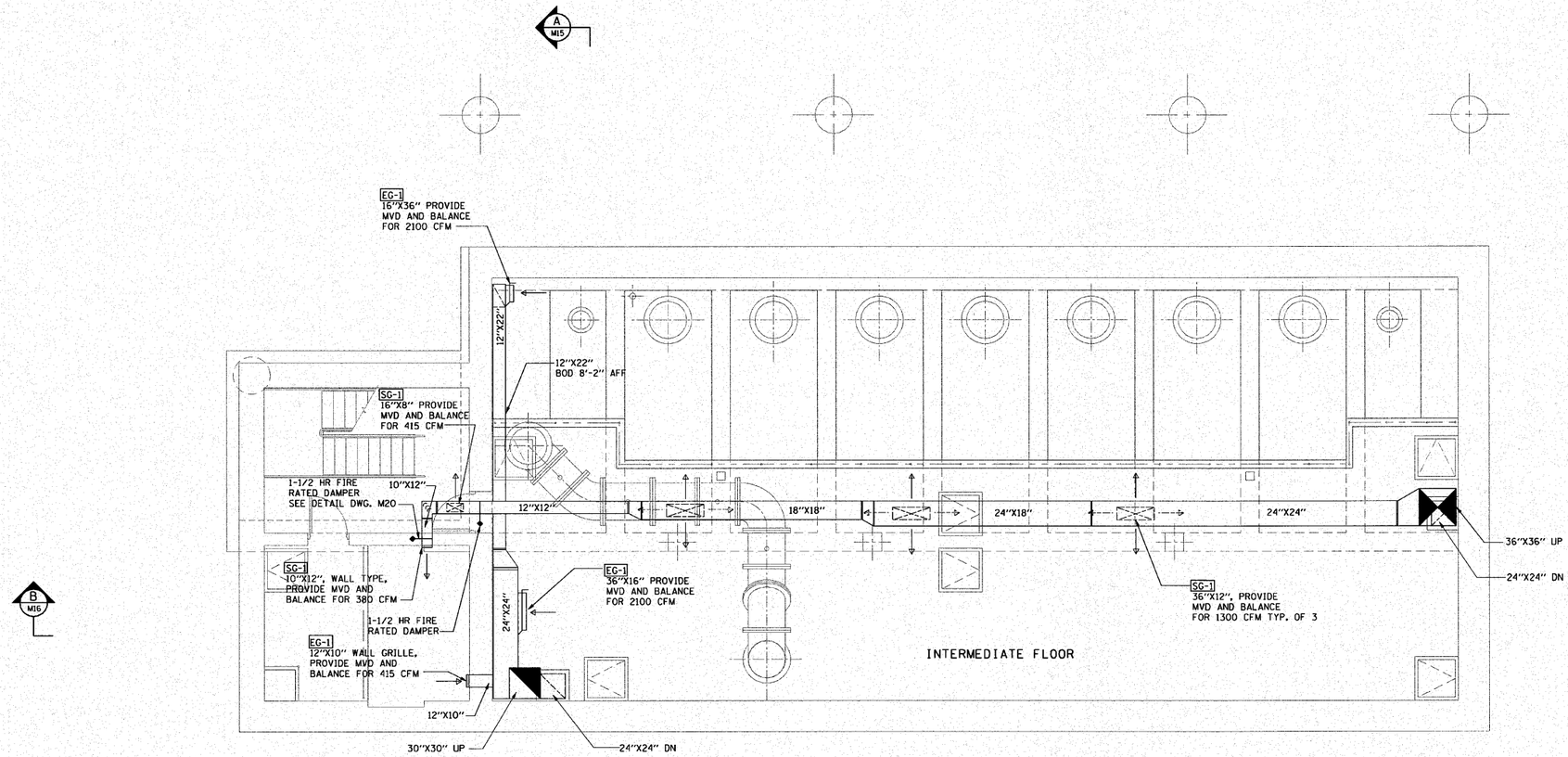
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

HVAC PLAN

SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: MJH
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	64
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 611.25

NOTE:
ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

M11

REVISIONS	
NAME	DATE

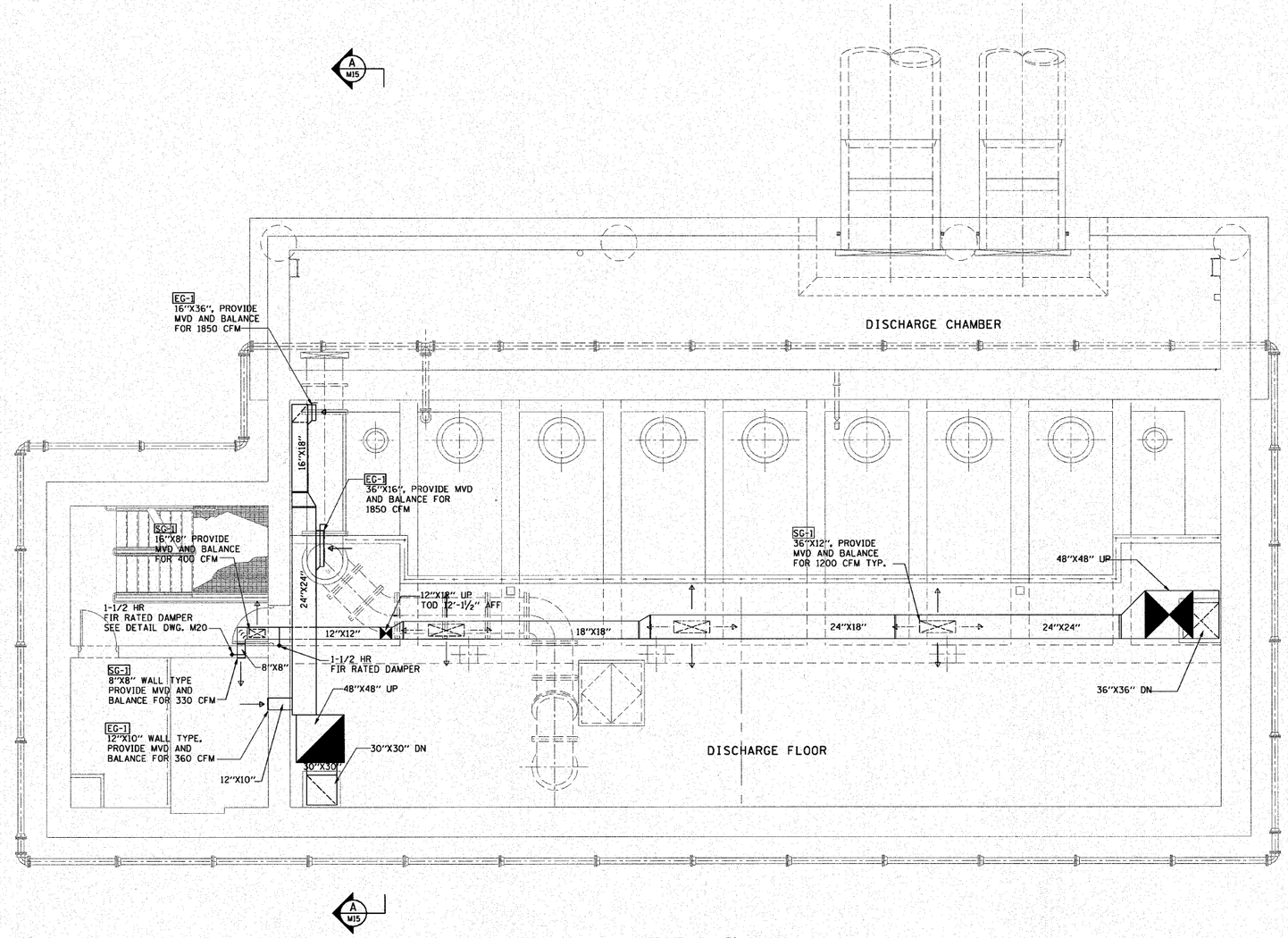
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

HVAC PLAN

SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: MJH
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	65
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 627.00

NOTE:
ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

M12

REVISIONS	
NAME	DATE

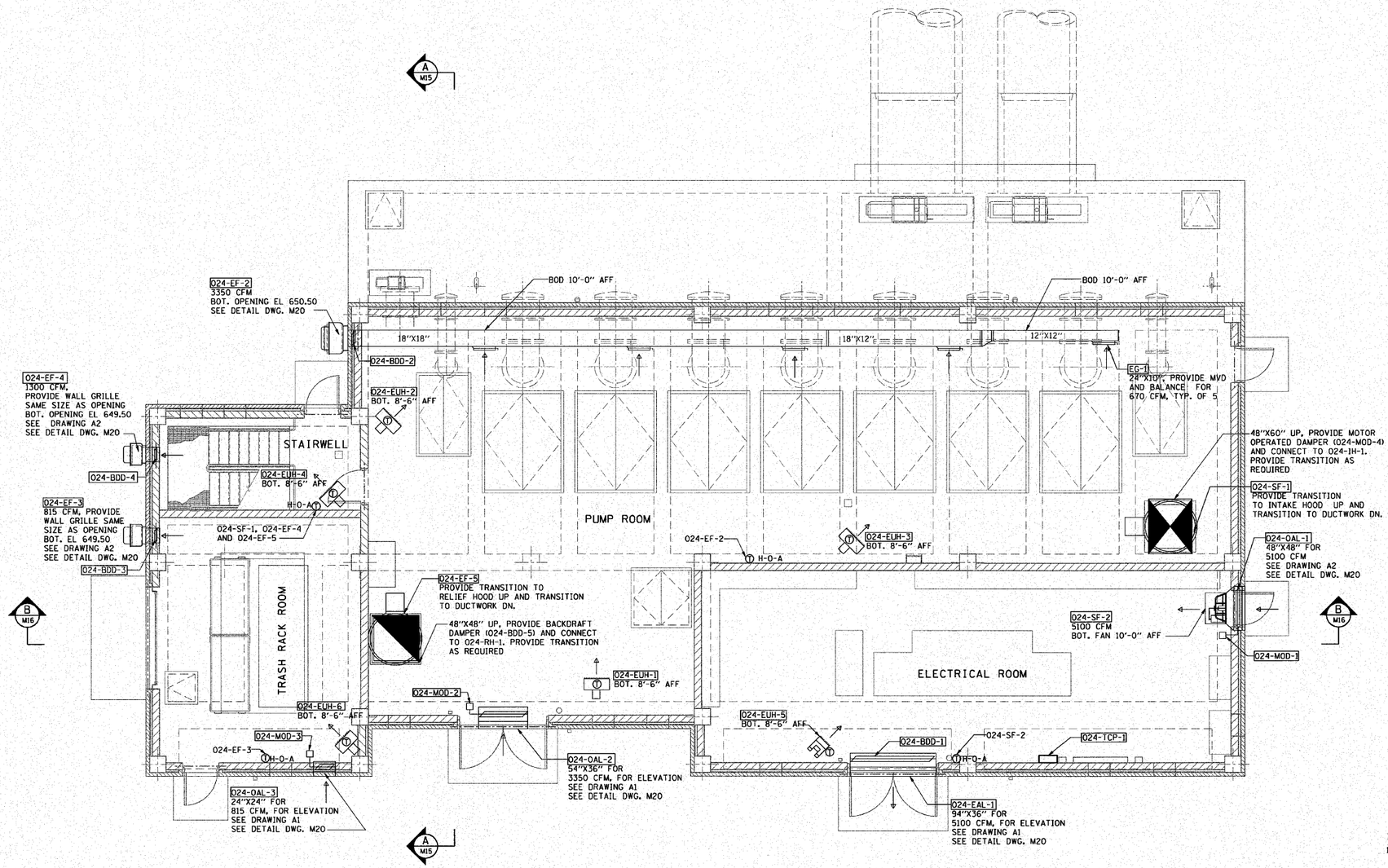
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

HVAC PLAN

SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: MJH
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	66
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 640.50

NOTE:
1. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.

SCALE: 0 4 8 12

M13

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

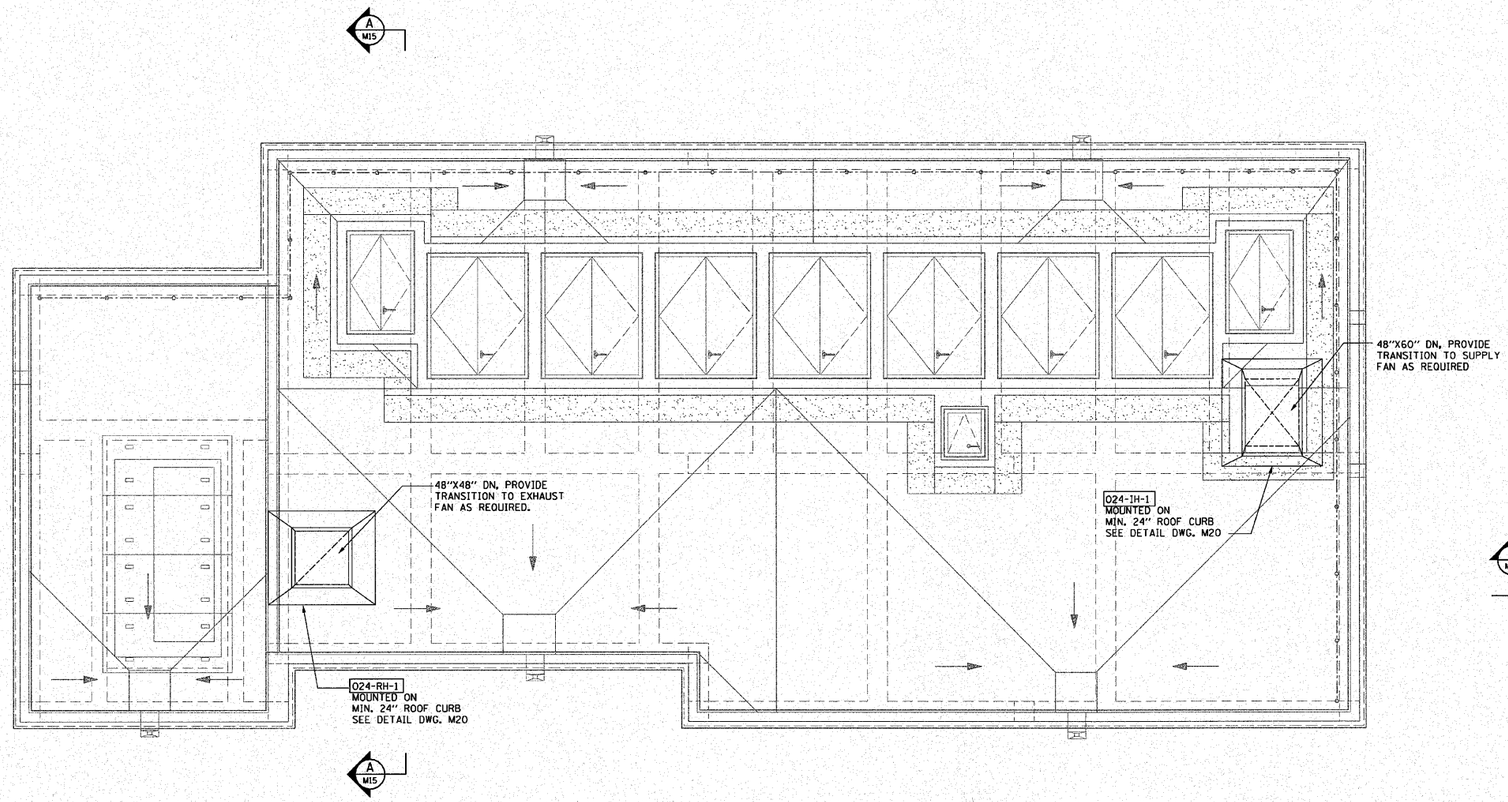
PUMP STATION NO. 24
RELOCATION

HVAC PLAN

SCALE: AS SHOWN
DRAWN BY: MJH
DATE: 11-22-10
CHECKED BY: KHC

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	67
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



ROOF PLAN @ EL. 655.67

NOTE:
ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.

SCALE: 0 4 8 12

M14

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

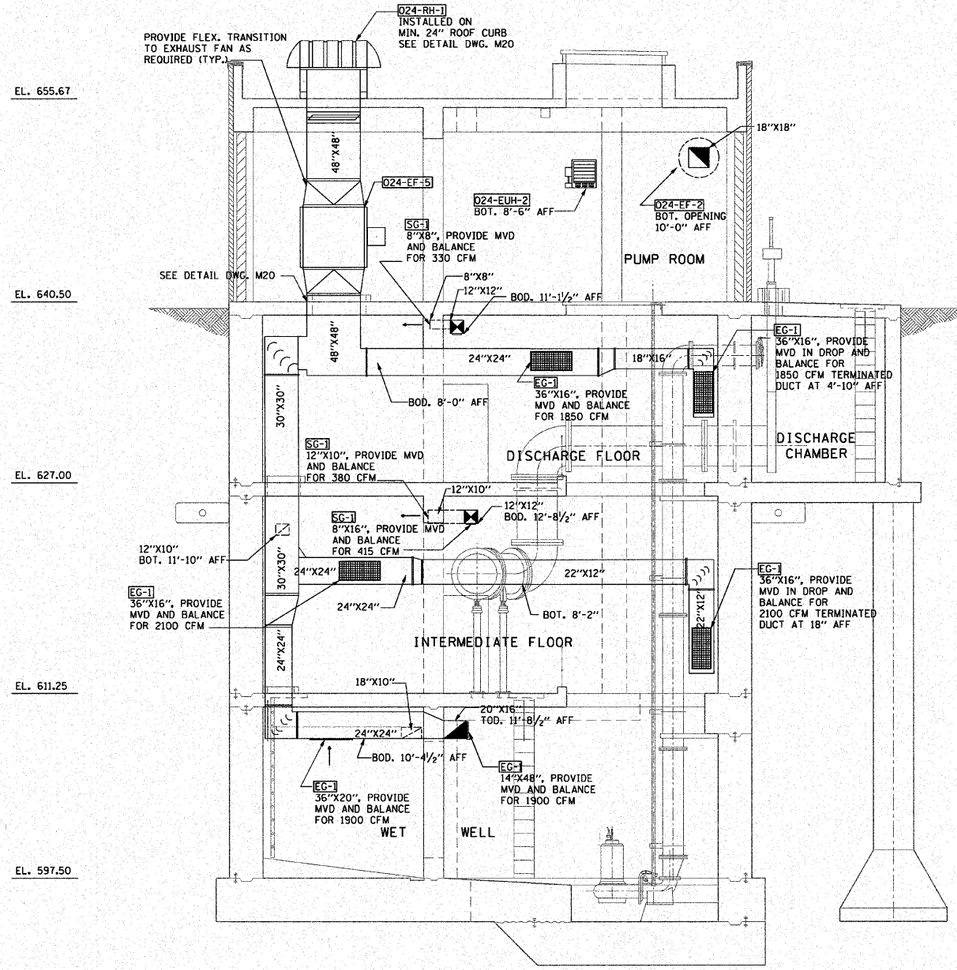
PUMP STATION NO. 24 RELOCATION

HVAC PLAN

SCALE: AS SHOWN
DRAWN BY: MJH
DATE: 11-22-10
CHECKED BY: KHC

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	68
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION A – A

NOTE:
ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

M15

REVISIONS	
NAME	DATE

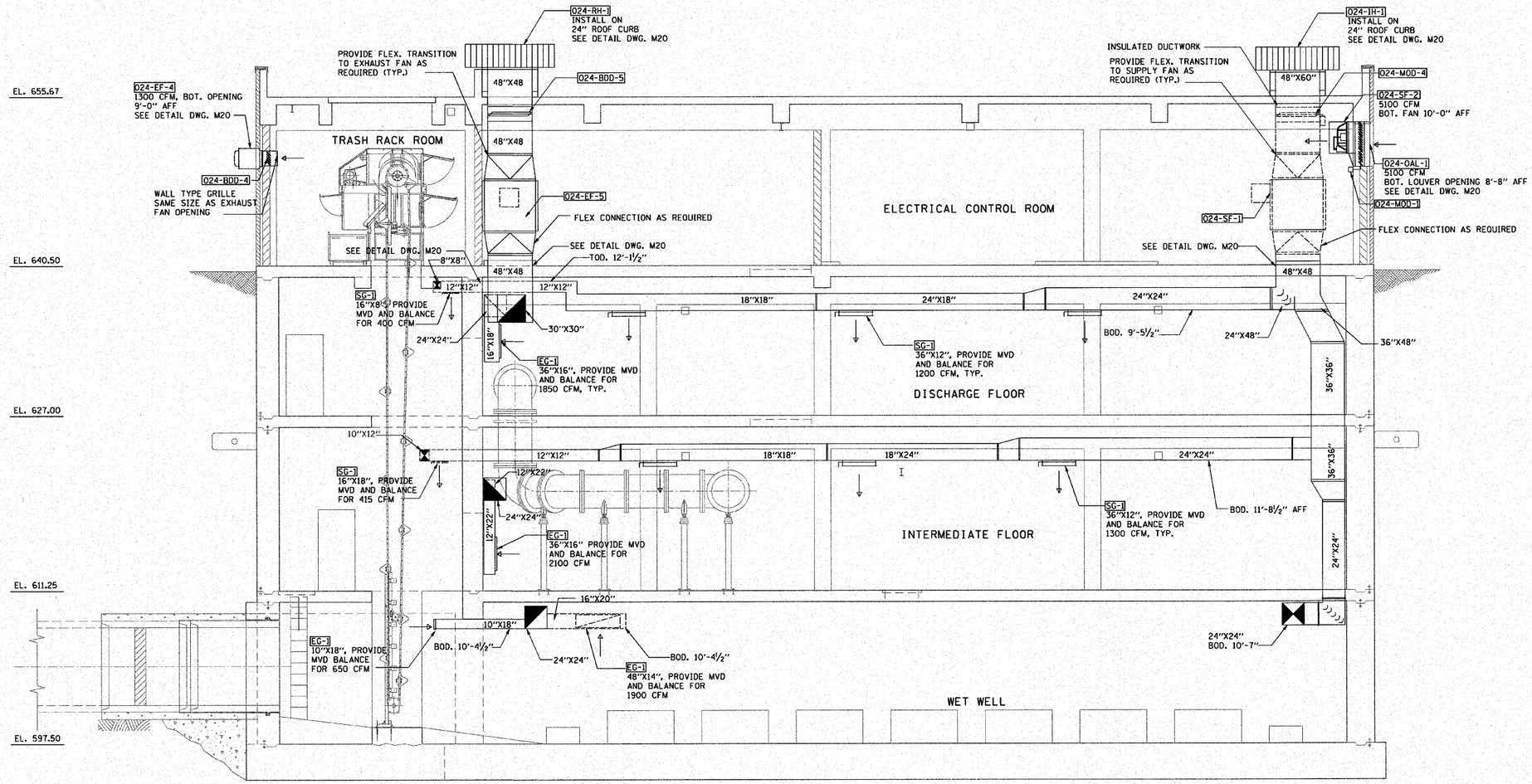
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

HVAC SECTION

SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: MJH
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	69
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION B – B

NOTE:
ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS 1, DIVISION 1, GROUP D EXPLOSION PROOF.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

M16

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

HVAC SECTION

SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: MJH
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	70
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PUMPING OPERATION RANGES WITH RISING WATER

FUNCTION	SCADA (BUBBLER)		FLOAT	
	ELEVATION	LEVEL ABOVE WET PIT FLOOR	ELEVATION	LEVEL ABOVE WET PIT FLOOR
	(USGS)	(FT)	(USGS)	(FT)
LOW FLOW LEAD START	601.5	4.0	602.0	4.5
LOW FLOW LAG START	602.5	5.0	603.0	5.5
LEAD MAIN START AND ALL LOW FLOW STOP	604.0	6.5	604.5	7.0
LAG 1 MAIN START	604.5	7.0	605.0	7.5
LAG 2 MAIN START	605.0	7.5	605.5	8.0
LAG 3 MAIN START	605.5	8.0	606.0	8.5
LAG 4 MAIN START	606.0	8.5	606.5	9.0
LAG 5 MAIN (STANDBY 1) START	606.5	9.0	607.0	9.5
LAG 6 MAIN (STANDBY 2) START	607.0	9.5	607.5	10.0
HIGH WATER ALARM	608.0	10.5	608.0	10.5

PUMPING OPERATION RANGES WITH FALLING WATER

FUNCTION	SCADA (BUBBLER)		FLOAT	
	ELEVATION	LEVEL ABOVE WET PIT FLOOR	ELEVATION	LEVEL ABOVE WET PIT FLOOR
	(USGS)	(FT)	(USGS)	(FT)
LEAD, AND ALL LAG MAIN PUMPS, STOP AND ALL LOW FLOW START	602.0	4.5	602.5	5.0
MAIN PUMP FAILURE TO STOP ALRM	601.0	3.5	601.5	4.0
ALL LOW FLOW STOP	600.0	2.5	600.5	3.0
LOW WATER ALARM	599.5	2.0	599.5	2.0

EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	LOCATION	ELECTRICAL MOTOR CHARACTERISTICS						PUMP		REMARKS
			KW	HP	RPM	VOLTS	PHASE	HZ	CAPACITY (GPM)	HEAD (FT)	
024-MP-1	MAIN PUMP #1	WET PIT	242**	325**	710**	460	3	60	22,200	38.5	SEE NOTES 1 & 2
024-MP-2	MAIN PUMP #2	WET PIT	242**	325**	710**	460	3	60	22,200	38.5	SEE NOTES 1 & 2
024-MP-3	MAIN PUMP #3	WET PIT	242**	325**	710**	460	3	60	22,200	38.5	SEE NOTES 1 & 2
024-MP-4	MAIN PUMP #4	WET PIT	242**	325**	710**	460	3	60	22,200	38.5	SEE NOTES 1 & 2
024-MP-5	MAIN PUMP #5	WET PIT	242**	325**	710**	460	3	60	22,200	38.5	SEE NOTES 1 & 2
024-MP-6	MAIN PUMP #6	WET PIT	242**	325**	710**	460	3	60	22,200	38.5	SEE NOTES 1 & 2
024-MP-7	MAIN PUMP #7	WET PIT	242**	325**	710**	460	3	60	22,200	38.5	SEE NOTES 1 & 2
024-LFP-1	LOW FLOW PUMP #1	WET PIT	75**	100**	1,160**	460	3	60	6,000	40	SEE NOTES 1 & 2
024-LFP-2	LOW FLOW PUMP #	WET PIT	75**	100**	1,160**	460	3	60	6,000	40	SEE NOTES 1 & 2
024-G-1	DISCHARGE GATE ACTUATOR	OUTSIDE ABOVE GRADE	1.5	2		460	3	60			
024-G-2	DISCHARGE GATE ACTUATOR	OUTSIDE ABOVE GRADE	0.9	1.2		460	3	60			
024-G-3	RECIRCULATION GATE ACTUATOR	OUTSIDE ABOVE GRADE	0.82	1.1		460	3	60			

* MINIMUM

** MAXIMUM

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 HIS FINAL SELECTED PUMPS AT NO ADDITIONAL COST.
2. EQUIPMENT SHALL BE CLASS 1, DIV. 1 GROUP D EXPLOSION PROOF.
3. STAND-BY PUMP STARTS ONLY WHEN MOTOR OVERLOADS OR STARTING SEQUENCE FAILS FOR ANY MAIN PUMP

DONOHUE & ASSOCIATES

M17

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

EQUIPMENT SCHEDULE AND PUMPING OPERATING ELEVATION

SCALE: N/A DRAWN BY: HFF

DATE: 11-22-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	71
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

FAN SCHEDULE

SECTION 15E

TAG	MANUF.	MODEL	TYPE	SERVICE	AIR FLOW DATA CFM	AIR FLOW DATA ESP (IN WC)	AIR FLOW DATA BHP	FAN RPM	DRIVE	SONES	ELECTRICAL DATA HP/WATTS	ELECTRICAL DATA VOLT	ELECTRICAL DATA PH.	ELECTRICAL DATA RPM	REMARKS
024-SF-1	GREENHECK	TCB-2-36	INLINE CENTRI	SUPPLY	13,215	1.10	5.13	680	BELT	17.2	7½	460	3	1725	1,2,3,4,5,9,11,12,13,14,15,16
024-SF-2	GREENHECK	SBCS-3H24	AXIAL FAN SIDEWALL	SUPPLY	5,100	0.40	0.73	1193	BELT	23	1.0	460	3	1725	1,2,6,18
024-EF-2	GREENHECK	CWB-200	CENTRI SIDEWALL	EXHAUST	3,350	0.50	0.59	800	BELT	10.7	¾	460	3	1725	1,2,3,4,5,7,8,9
024-EF-3	GREENHECK	CWB-101	CENTRI SIDEWALL	EXHAUST	815	0.35	0.10	1223	BELT	6.8	¼	115	1	1725	1,2,3,4,5,7,8,9,10
024-EF-4	GREENHECK	CWB-141	CENTRI SIDEWALL	EXHAUST	1,300	0.35	0.16	947	BELT	8.0	¼	115	1	1725	1,2,3,4,5,7,8,9,10
024-EF-5	GREENHECK	TCB-2-36	INLINE CENTRI	EXHAUST	13,225	1.00	4.83	667	BELT	16.9	7½	460	3	1725	1,2,3,4,5,9,11,12,13,14,15,16

1. = ALUMINUM CONSTRUCTION.
2. = STAINLESS STEEL FAN SHAFT AND FASTENERS.
3. = EXPLOSION PROOF MOTOR
4. = AMCA TYPE B SPARK RESISTANT CONSTRUCTION.
5. = EXPLOSION PROOF INTEGRAL DISCONNECT SWITCH AND INSTALLED IN ACCORDANCE WITH DIVISION 16.
6. = NEMA 4X INTEGRAL DISCONNECT SWITCH AND INSTALLED IN ACCORDANCE WITH DIVISION 16.
7. = ALUMINUM BIRDSCREEN.
8. = GRAVITY OPERATED DAMPER.
9. = HI-PRO POLYESTER (HERESITE) COATING ON FAN AND DAMPER.
10. = ALUMINUM WALL GRILLE.
11. = MOTOR COVER AND BELT GUARD.
12. = SPRING BASE, HANGING VIBRATION AND NEOPRENE ISOLATORS.
13. = EASY ACCESS DOOR.
14. = FLEX DUCT CONNECTIONS.
15. = INLET AND OUTLET COMPANION FLANGES.
16. = MOUNTING RAILS
17. = INSPECTION SECTION
18. = WALL HOUSING WITH OSHA MOTOR SIDE GUARD

ELECTRIC HEATER SCHEDULE

SECTION 15E

TAG	MANUF.	MODEL	TYPE	OUTPUT (MBH)	MOUNT. HEIGHT (FT)	AIR DATA CFM	AIR DATA THROW (FT)	AIR DATA ΔT (F)	ELECTRICAL DATA KW	ELECTRICAL DATA VOLT/Φ	ELECTRICAL DATA AMP	MOTOR DATA HP	MOTOR DATA VOLT/Φ	MOTOR DATA RPM	REMARKS
024-EUH-1	MARLEY	XP2000	EXP PROOF	68.24	8'-6"	1400	43		20.0	460/3	24.8	½	460/3	1725	1,2,3,4,6,9
024-EUH-2	MARLEY	XP2000	EXP PROOF	68.24	8'-6"	1400	43		20.0	460/3	24.8	½	460/3	1725	1,2,3,4,6,9
024-EUH-3	MARLEY	XP2000	EXP PROOF	68.24	8'-6"	1400	43		20.0	460/3	24.8	½	460/3	1725	1,2,3,4,6,9
024-EUH-4	MARLEY	XP750	EXP PROOF	25.59	8'-6"	840	32		7.5	460/3	9.7	½	460/3	1725	1,2,3,4,6,9
024-EUH-5	MARLEY	JUW1250	CORR UNIT	42.65	8'-6"	700			12.5	460/3	15.1	½	460/3	1725	3,4,5,7,8,9
024-EUH-6	MARLEY	XP2000	EXP PROOF	68.24	8'-6"	1400	43		20.0	460/3	24.8	½	460/3	1725	1,2,3,4,6,9

1. = EXPLOSION PROOF UNIT
2. = NEMA 7 DISCONNECT SWITCH AND INSTALLED IN ACCORDANCE WITH DIV. 16.
3. = CONTROLS AS SPECIFIED.
4. = MANUFACTURES MOUNTING ACCESSORIES.
5. = STAINLESS STEEL CORROSION RESISTANCE CONSTRUCTION.
6. = BUILT IN EXPLOSION PROOF THERMOSTAT.
7. = NEMA 4X DISCONNECT SWITCH AND INSTALLED IN ACCORDANCE WITH DIV. 16.
8. = BUILT-IN THERMOSTAT.
9. = EPOXY COATED.

WALL LOUVER SCHEDULE

SECTION 15E

TAG	MANUF.	MODEL	SERVICE	CFM	WIDTH (IN)	HEIGHT (IN)	DEPTH (IN)	MAX. APD (IN WC)	MAX. FREE AREA VEL. (FPM)	REMARKS
024-OAL-1	GREENHECK	ESD-403	INTAKE	5100	48	48	4	0.062	640	1,2,3,5,6
024-OAL-2	GREENHECK	ESD-403	INTAKE	3350	54	36	4	0.045	530	1,2,4,5,6
024-OAL-3	GREENHECK	ESD-403	INTAKE	815	24	24	4	0.040	460	1,2,4,5,6
024-EAL-1	GREENHECK	ESD-403	EXHAUST	5100	94	36	4	0.035	500	1,2,5,6,7

1. = ALUMINUM BIRDSCREEN.
2. = EXTENDED SILL.
3. = INSULATED BLADE MOTOR OPERATED DAMPER TO BE FURNISHED BY TEMPERATURE CONTROLS CONTRACTOR.
4. = EXPLOSION PROOF MOTOR OPERATED DAMPER TO BE FURNISHED BY TEMPERATURE CONTROLS CONTRACTOR.
5. = EXTERNALLY MOUNTED STAINLESS STEEL REMOVABLE INSECT SCREEN.
6. = KYNAR FINISH.
7. = GRAVITY OPERATED DAMPER

GRAVITY VENTILATOR SCHEDULE

SECTION 15E

TAG	MANUF.	MODEL	SERVICE	CFM	THROAT SIZE (INXIN)	MAX. THROAT VEL. (FPM)	MAX. FREE AREA VEL. (FPM)	REMARKS
024-IH-1	GREENHECK	FGI	INTAKE	13215	48"X60"	700	0.115	1,2,3,4,6,7
024-RH-1	GREENHECK	FGI	EXHAUST	13225	48"X48"	850	0.17	2,3,4,5,7

ADP= MAX AIR PRESSURE DROP INCLUDES LOSSES ASSOCIATED WITH INSECT SCREEN IF SCHEDULED TO BE PROVIDED.

1. = EXPLOSSION PROOF MOTOR OPERATED DAMPER INSTATLLED IN ACCORDANCE WITH DIV. 16. PROVIDED BY TEMPERATURE CONTROL CONTRACTOR.
2. = 24" TALL ALUMINUM ROOF CURB WITH INSULATION AND ALUMINUM LINER.
3. = INSULATED HOOD.
4. = ALUMINUM BIRD SCREEN.
5. = GRAVITY RELIEF DAMPER.
6. = ALUMINUM MESH INSECT SCREEN ON THROAT.
7. = ALUMINUM HOOD.

AIR INLET AND OUTLET SCHEDULE

SECTION 15E

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	
EG-2	CARNES	RATA	EXHAUST	0.10	30	EGGCRATE	ANOD	ALUM	
SG-1	AJ MANUF	250 LT V	SUPPLY	0.10	35	LDD	MATTE	SST	

LDD = 1-1/2" BLADE DOUBLE DEFLECTION.
SD = ¾" BLADE SINGLE DEFLECTION.
ANOD= ANODIZED FINISH.

DONOHUE & ASSOCIATES

DAMPERS SCHEDULE

ITEM	SIZE	ACTUATOR TYPE	ACTUATOR VOLTAGE	ACTUATOR PH	CONFIGURATION	REMARKS
024-MOD-1	48"X48"	ELECTRIC MOTOR	115	1	SUPPLY	MOTOR OPERATED DAMPER ASSOCIATED WITH LOUVER OAL-1
024-MOD-2	54"X36"	ELECTRIC MOTOR	115	1	SUPPLY	EXP. PROOF MOTOR OPERATED DAMPER ASSOCIATED WITH LOUVER OAL-2
024-MOD-3	36"X16"	ELECTRIC MOTOR	115	1	SUPPLY	EXP. PROOF MOTOR OPERATED DAMPER ASSOCIATED WITH LOUVER OAL-3
024-MOD-4	48"X60"	ELECTRIC MOTOR	115	1	SUPPLY	EXP. PROOF MOTOR OPERATED DAMPER ASSOCIATED WITH INTAKE HOOD IH-1
024-BDD-1	94"X36"	GRAVITY	---	---	EXHAUST	BACK DRAFT DAMPER ASSOCIATED WITH LOUVER EAL-1
024-BDD-2	17"X17"	GRAVITY	---	---	EXHAUST	BACK DRAFT DAMPER EF-2
024-BDD-3	12"X12"	GRAVITY	---	---	EXHAUST	BACK DRAFT DAMPER EF-3
024-BDD-4	12"X12"	GRAVITY	---	---	EXHAUST	BACK DRAFT DAMPER EF-4
024-BDD-5	48"X48"	GRAVITY	---	---	EXHAUST	BACK DRAFT DAMPER RH-1

NOTE: MOD'S TO BE FURNISHED BY TEMPERATURE CONTROL CONTRACTOR. BDD'S TO BE FURNISHED BY EQUIPMENT SUPPLIER

HEATING AND VENTILATION CONTROLS SCHEDULE

AREA	HEATING/ VENTILATION	VENTILATION MANUAL	VENTILATION AUTOMATIC THERMOSTAT	VENTILATION AUTOMATIC COMBUSTIBLE GAS SENSOR	VENTILATION AUTOMATIC LIGHT INTERLOCK SWITCH
PUMP ROOM	THERMOSTAT	YES	YES	YES	YES
STAIRS, AND PUMPS LEVELS	THERMOSTAT	YES	YES	YES	YES
ELECTRICAL ROOM	THERMOSTAT	YES	YES	NA	NA
TRASH RACK ROOM	THERMOSTAT	YES	YES	YES	YES

ELECTRICAL ROOM VENTILATION CONTROL

EXHAUST FAN 024-SF-2 WILL BE CONTROLLED BY THE H-O-A SWITCH WITH THE THERMOSTAT SET AT (85° F, ADJUSTABLE).

AUTO MODE:
ON CALL FOR COOLING FROM THERMOSTAT THE STARTER WILL RUN THE FAN, 024-SF-2 AND MOTOR OPERATED DAMPER (024-MOD-1) ASSOCIATED WITH 024-SF-2 WILL OPEN.

OFF MODE:
024-SF-2 STOP AND 024-MOD-1 CLOSED.

HAND MODE:
024-SF-2 RUN CONTINUOUSLY AND 024-MOD-1 OPEN.

PUMP ROOM VENTILATION

EXHAUST FAN 024-EF-2 WILL BE CONTROLLED BY THE H-O-A SWITCH WITH THE THERMOSTAT SET AT (85° F, ADJUSTABLE).

AUTO MODE:
THE STARTER WILL ENERGIZE 024-EF-2, FAN WILL RUN CONTINUOUSLY AND MOTOR OPERATED DAMPER (024-MOD-2) ASSOCIATED WITH 024-OAL-2 WILL OPEN UNDER ANYONE OF THESE FOLLOWING CONDITIONS:
1. WHEN THE THERMOSTAT SENSES A ROOM TEMPERATURE ABOVE THE THERMOSTAT SET POINT.
2. WHEN THE GAS SENSOR DETECTS COMBUSTIBLE GAS ABOVE THE SETPOINT.
3. WHEN THE PUMP ROOM LIGHTS ARE TURNED ON.

OFF MODE:
024-EF-2 STOP AND 024-MOD-2 CLOSED.

HAND MODE:
024-EF-2 RUN CONTINUOUSLY AND 024-MOD-2 OPENED

ACCESS STAIRWAY, DISCHARGE LEVEL, INTERMEDIATE LEVEL AND WET WELL

SUPPLY FAN 024-SF-1, EXHAUST FAN 024-EF-5 AND 024-EF-4 WILL BE CONTROLLED BY THE H-O-A SWITCH WITH THE COMBUSTIBLE GAS SENSORS IN PUMP LEVELS.

AUTO MODE:
FAN 024-SF-1, 024-EF-4 AND 024-EF-5 SHALL ENERGIZED AND 024-MOD-4 SHALL OPEN AND FANS RUN CONTINUOUSLY WHEN:
1. THE THERMOSTAT SENSES A ROOM TEMPERATURE ABOVE THE THERMOSTAT SETPOINT.
2. COMBUSTIBLE GAS SENSORS DETECT GAS LEVEL ABOVE SETPOINT IN ANY LEVELS OF THE PUMP STATION OR THE STAIRWAY.
3. THE STAIRWAY LIGHTS ARE TURNED ON.

OFF MODE;
FANS STOP AND MOTOR OPERATED DAMPER (024-MOD-4) CLOSED

HAND MODE:
024-SF-1, 024-EF-4 AND 024-EF-5 SHALL ENERGIZED AND 024-MOD-4 SHALL OPEN AND FANS RUN CONTINUOUSLY.

TRASH RACK ROOM VENTILATION

EXHAUST FAN 024-EF-3 WILL BE CONTROLLED BY THE H-O-A SWITCH WITH THE THERMOSTAT SET AT (85° F, ADJUSTABLE).

AUTO MODE:
THE STARTER WILL ENERGIZE 024-EF-3, FAN WILL RUN CONTINUOUSLY AND MOTOR OPERATED DAMPER (024-MOD-3) ASSOCIATED WITH 024-OAL-3 WILL OPEN UNDER ANYONE OF THESE FOLLOWING CONDITIONS:
1. WHEN THE THERMOSTAT SENSES A ROOM TEMPERATURE ABOVE THE THERMOSTAT SET POINT. OR
2. WHEN THE GAS SENSOR DETECTS COMBUSTIBLE GAS ABOVE THE SETPOINT.
3. WHEN THE TRASHRACK ROOM LIGHTS ARE TURNED ON.

OFF MODE:
024-EF-3 STOP AND 024-MOD-3 CLOSED.

HAND MODE:
024-EF-3 RUN CONTINUOUSLY AND 024-MOD-3 OPENED

ELECTRIC UNIT HEATERS

024-EUH-1, 024-EUH-2, 024-EUH-3, 024-EUH-4, 024-EUH-5 AND 024-EUH-6 UNIT HEATERS WILL RUN IN RESPONSE TO SPACE TEMPERATURE, WHEN UNIT BUILT-IN THEMOSTAT DETECTS A TEMPERATURE BELOW THE SETPOINT TEMPERATURE.
UPON SATISFACTION OF SPACE TEMPERATURE UNIT HEATER SHALL STOP.

M18

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

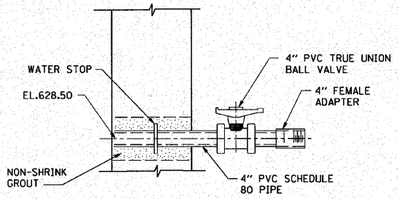
PUMP STATION NO. 24 RELOCATION

HVAC SCHEDULE AND OPERATING SEQUENCE

SCALE: N/A DRAWN BY: MJH

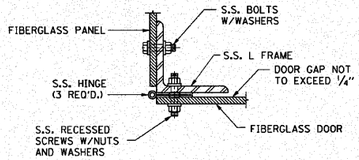
DATE: 11-22-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	72
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



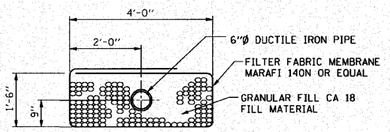
MAINTENANCE PUMP DISCHARGE PIPE DETAIL

NOT TO SCALE



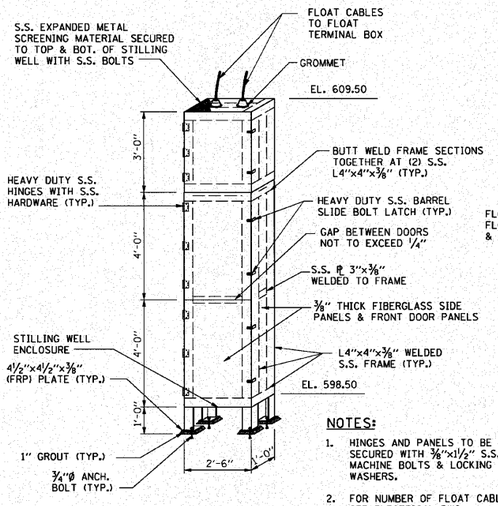
STAINLESS STEEL DOOR HINGE DETAIL

SCALE: 0 3" 6" 1 FT.



PIPE FOOTING DRAIN DETAIL

NOT TO SCALE

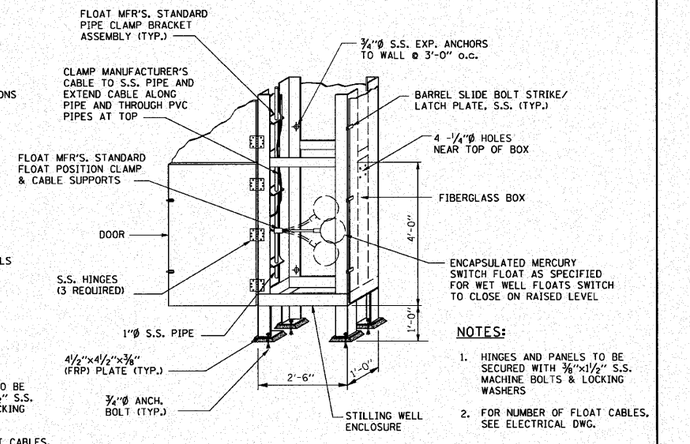


NOTES:

1. HINGES AND PANELS TO BE SECURED WITH 3/8"x1 1/2" S.S. MACHINE BOLTS & LOCKING WASHERS.
2. FOR NUMBER OF FLOAT CABLES, SEE ELECTRICAL DWG.

FLOAT STILLING WELL DETAIL FOR PUMP FLOAT CONTROL

SCALE: 0 1 2 4 6 FT.



NOTES:

1. HINGES AND PANELS TO BE SECURED WITH 3/8"x1 1/2" S.S. MACHINE BOLTS & LOCKING WASHERS
2. FOR NUMBER OF FLOAT CABLES, SEE ELECTRICAL DWG.

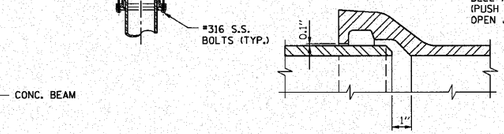
NOTE:

CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWING FOR ENGINEER APPROVAL.

FLOAT DETAIL IN STILLING WELL ENCLOSURES

SCALE: 0 1 2 4 FT.

REVERSE HINGE AND DOOR HATCH

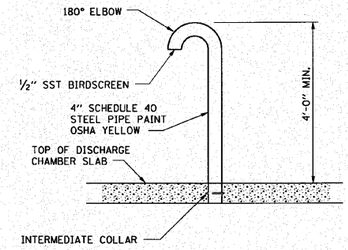


NOTES:

1. ALL STRAIGHT PIPES - OPEN JOINT
2. ALL FITTINGS - TIGHT JOINT WITH GASKET

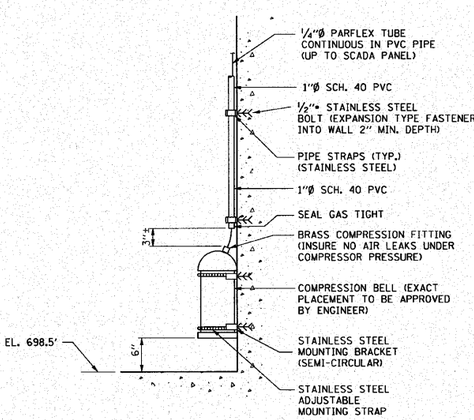
6" DIA. D.I. PIPE FOOTING DRAIN DETAIL

NOT TO SCALE



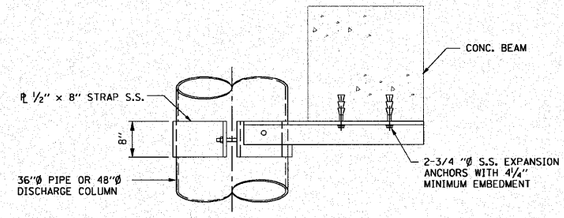
AIR VENT PIPE DETAIL

NOT TO SCALE



COMPRESSION BELL MOUNTING DETAIL

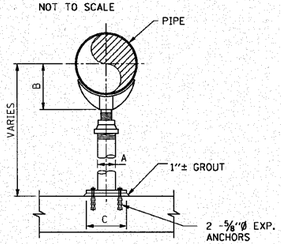
NOT TO SCALE



ELEVATION

18" / 36" DIA. PIPE STRAP DETAIL

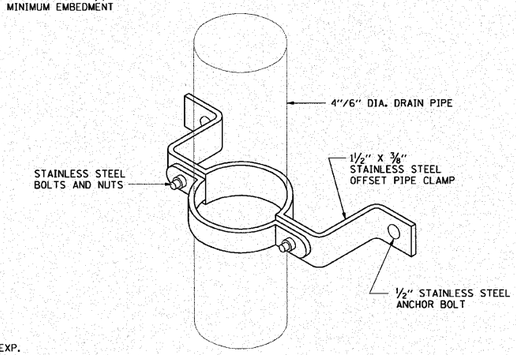
NOT TO SCALE



TYPICAL PIPE SUPPORT

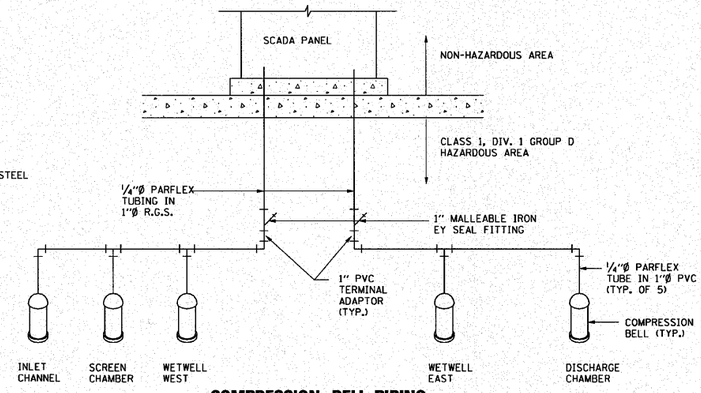
NOT TO SCALE

PIPE SIZE	SUPPORT DIMENSION		
	A	B	C
36"	6"	24 1/2"	13 1/2"



4"/6" DIA. DRAIN PIPE SUPPORT

NOT TO SCALE



COMPRESSION BELL PIPING SCHEMATIC

NOT TO SCALE

DONOHUE & ASSOCIATES

M19

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

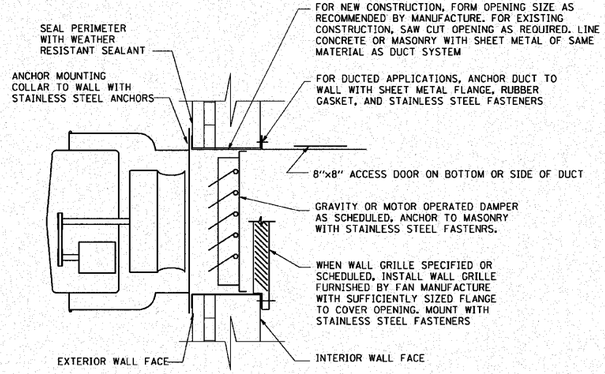
PUMP STATION NO. 24 RELOCATION

MECHANICAL DETAILS AND SCHEMATIC

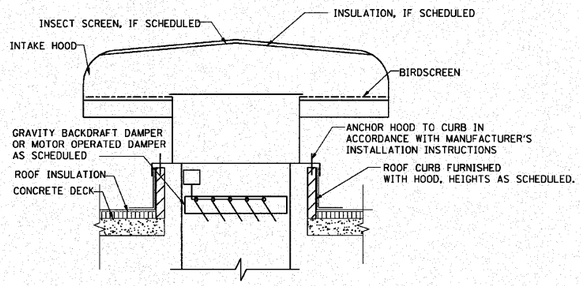
SCALE: AS SHOWN DRAWN BY: HFF

DATE: 11-22-10 CHECKED BY: KHC

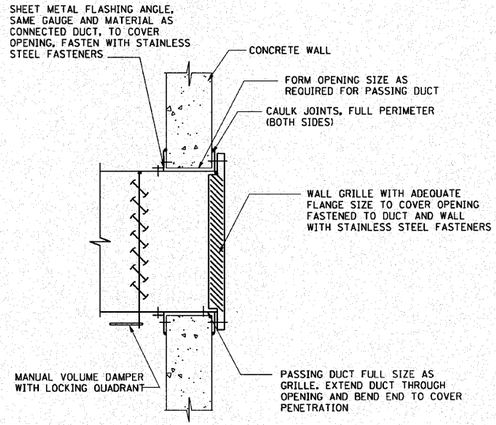
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	73
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



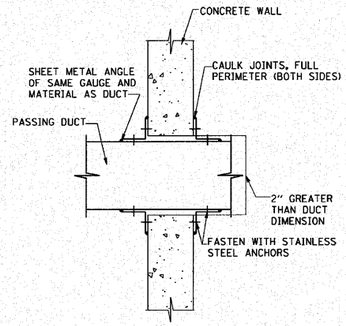
WALL MOUNTED EXHAUST FAN DETAIL



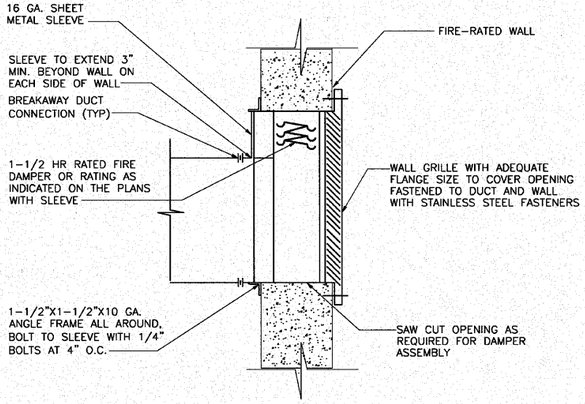
INTAKE HOOD ON ROOF CURB DETAIL



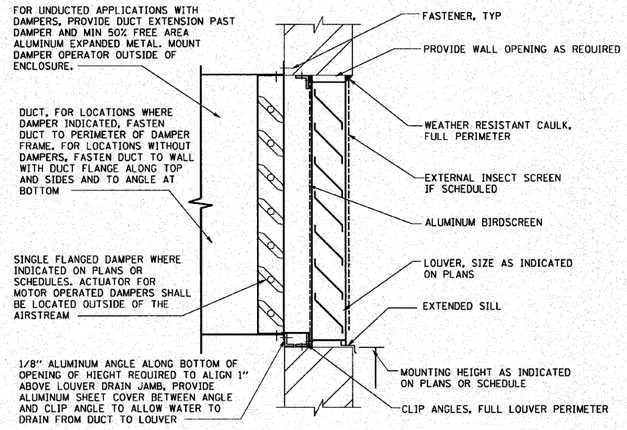
THROUGH WALL GRILLE DETAIL



TYPICAL DUCT WALL PENETRATION DETAIL

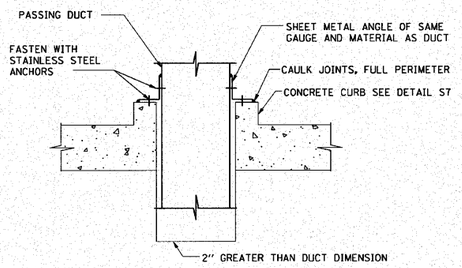


FIRE DAMPER OPENING WITH GRILLE DETAIL



NOTE: ALL FASTENERS SHALL BE OF STAINLESS STEEL CONSTRUCTION

TYPICAL LOUVER DETAIL



TYPICAL DUCT FLOOR PENETRATION DETAIL

DONOHUE & ASSOCIATES

M20

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

HVAC DETAILS

SCALE: AS SHOWN
DATE: 11-22-10
DRAWN BY: MJH
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	74
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

ELECTRICAL ABBREVIATIONS AND SYMBOLS

ABBREVIATIONS

A	AMPERE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
AQ	AUXILIARY, INSTANT-ON, QUARTZ SYSTEM
C	CONTACTOR/CONDUIT/COIL
CB	CIRCUIT BREAKER
CKT, CCT	CIRCUIT
DISC	DISCONNECT
EP	EXPLOSION PROOF
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GRD	GROUND
GRS	GALVANIZED RIGID STEEL
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
J	JUNCTION BOX
KVA	KILOVOLT AMPERE
KW	KILOWATT
LCP	LOCAL CONTROL PANEL
LP	LIGHTING PANEL
MCC	MOTOR CONTROL CENTER
MFC	MANUFACTURER
MH	MANHOLE
NEC	NATIONAL ELECTRICAL CODE (ANSI/NFPA-70)
NEUT, N	NEUTRAL
NF	NON FUSED
OL	OVERLOAD RELAY
PC	PHOTOCELL
PP	POWER PANEL
PVC	POLY VINYL CHLORIDE
SW	SWITCH
V	VOLTS
WP	WEATHERPROOF
XFMR	TRANSFORMER

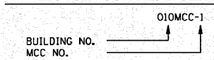
PLAN SYMBOLS

- A — FLUORESCENT FIXTURE - RECESSED (LETTER DENOTES TYPE)
- A — FLUORESCENT FIXTURE - SURFACE OR SUSPENDED (LETTER DENOTES TYPE)
- A — FLUORESCENT FIXTURE - WALL MOUNTED (LETTER DENOTES TYPE)
- A — INCANDESCENT OR HID FIXTURE - WALL MOUNTED (LETTER DENOTES TYPE)
- A — POLE MOUNTED FIXTURE (LETTER DENOTES TYPE)
- A AQ — CEILING MOUNTED FIXTURE (LETTER DENOTES TYPE) (AQ DENOTES AUXILIARY QUARTZ)
- EMERGENCY BATTERY LIGHT
- REMOTE HEAD FOR EMERGENCY BATTERY LIGHT
- EXIT LIGHT WITH INDICATING DIRECTIONAL ARROW
- S, S_2, S_3, S_4 — SWITCH (SINGLE POLE, 2-POLE, 3-WAY, 4-WAY)
- S_{MC} — MOMENTARY CONTACT SWITCH - CENTER OFF
- S_P — SWITCH / PILOT LIGHT
- DUPLEX GROUNDED RECEPTACLE - 120V
- EXPLOSIONPROOF SIMPLEX GROUNDED RECEPTACLE - 120V
- TELEPHONE OUTLET, WALL MOUNT WITH 3/4" CONDUIT TO TELEPHONE TERMINAL CABINET
- C — COMPUTER DATA OUTLET
- RECESSED CEILING SPEAKER
- V — VOLUME CONTROL
- WALL SPEAKER
- S — SMOKE DETECTOR
- F — FIRE ALARM SIGNAL
- FS — FIRE ALARM SIGNAL AND STROBE
- F — FIRE ALARM PULL STATION
- H — HEAT DETECTOR
- F FS — FLOW SWITCH
- MD — MOTION DETECTOR
- CONNECTION TO EQUIPMENT
- SPECIAL PURPOSE RECEPTACLE, NEMA TYPE AND AMPERE RATING AS INDICATED
- MANUAL STARTER WITH PILOT LIGHT
- THREE PHASE MAGNETIC STARTER
- THREE PHASE COMBINATION MAGNETIC STARTER AND DISCONNECT SWITCH
- SINGLE PHASE MAGNETIC STARTER
- J 30 — NON-FUSED DISCONNECT SWITCH (NUMERAL INDICATES SWITCH RATING)
- FJ 60/40 — FUSED DISCONNECT SWITCH - 3 POLE UNLESS OTHERWISE INDICATED (UPPER NUMERAL INDICATES SWITCH RATING) (LOWER NUMERAL INDICATES FUSE RATING)
- $ — 3-PHASE MANUAL MOTOR SWITCH
- LIGHTING PANEL
- T — TRANSFORMER
- POWER PANEL
- TERMINAL CABINET (ITC - INDICATES INSTRUMENTATION) (TTC - INDICATES TELEPHONE)
- M — MOTOR
- J — JUNCTION BOX
- HH — HANDHOLE
- MH — MANHOLE
- SURVEILLANCE CAMERA
- GROUND ROD
- CONDUIT STUB
- CONDUIT TURNING UP OR TO OBSERVER
- CONDUIT TURNING DOWN OR AWAY FROM OBSERVER
- FLEXIBLE CONDUIT CONNECTION
- HOMERUN CIRCUIT OR CONDUCTORS
- E — DIRECT BURIAL CABLE
- UNDERGROUND ELECTRICAL DUCT, CONCRETE ENCASED.
- ELECTRICAL DUCT ENCASED/ROUTED IN CONCRETE WALL, FLOOR, CEILING, OR SLAB

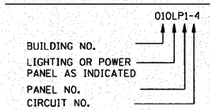
ONE-LINE SYMBOLS

- 15 M (OR) CL 600/500 — MOLDED CASE CIRCUIT BREAKER (UPPER NUMERAL INDICATES FRAME SIZE) (LOWER NUMERAL INDICATES TRIP SETTING) (CL - INDICATES CURRENT LIMITING CIRCUIT BREAKER) (M - INDICATES MOTOR CIRCUIT PROTECTOR)
- FVNR 2a 1b 2 — MAGNETIC STARTER AND MOLDED CASE CIRCUIT BREAKER (FVNR - INDICATES FULL VOLTAGE NON-REVERSING) (RVNR - INDICATES REDUCED VOLTAGE NON-REVERSING) (2SPD - INDICATES TWO SPEED) (AUXILIARY CONTACTS - (2a TWO N.O.X1b ONE N.C.) (NUMERAL INDICATES NEMA SIZE)
- T — TRANSFORMER
- FVNR 2a 1b 2 — COMBINATION MAGNETIC STARTER WITH MOLDED CASE CIRCUIT BREAKER (FVNR - INDICATES FULL VOLTAGE NON-REVERSING) (RVNR - INDICATES REDUCED VOLTAGE NON-REVERSING) (2SPD - INDICATES TWO SPEED) (AUXILIARY CONTACTS - (2a TWO N.O.X1b ONE N.C.) (NUMERAL INDICATES NEMA SIZE)
- GROUND
- 75 — MOTOR (NUMERAL INDICATES HORSEPOWER)
- GENERATOR

MOTOR CONTROL CENTER



PANEL BOARDS



NOTE:

1. THIS LIST OF ABBREVIATIONS SHOWN IS A STANDARD LIST. NOT ALL ABBREVIATIONS AND SYMBOLS ARE USED IN THESE CONTRACT DRAWINGS.

DONOHUE & ASSOCIATES

E1

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

ELECTRICAL SYMBOL LIST

SCALE: N/A DRAWN BY: MS

DATE: 11-22-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	75
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

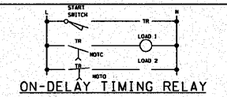
SCHEMATIC SYMBOLS

SYMBOL	DESCRIPTION
	CONDUCTOR CONNECTION
	NO CONNECTION
	TERMINAL ON A DEVICE
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	SINGLE POLE, SINGLE THROW SWITCH
	SINGLE POLE, DOUBLE THROW SWITCH
	DOUBLE POLE, SINGLE THROW SWITCH
	DOUBLE POLE, DOUBLE THROW SWITCH
	THREE WAY ROTARY SWITCH
	NORMALLY CLOSED MOMENTARY PUSH BUTTON SWITCH
	NORMALLY OPEN MOMENTARY PUSH BUTTON SWITCH
	2 POSITION PUSH BUTTON (EXTRA CONTACT BLOCK)
	NORMALLY OPEN DOUBLE BREAK SINGLE THROW CONTACT BLOCK
	NORMALLY CLOSE DOUBLE BREAK SINGLE THROW CONTACT BLOCK
	DOUBLE BREAK DOUBLE THROW CONTACT BLOCK
	MUSHROOM HEAD PUSH BUTTON
	MAINTAINED CONTACT PUSHBUTTON
	2 OR 3 POSITIONS SELECTOR SWITCH (CLOSED CONTACTS INDICATED BY " X")
	MULTI-POSITION, MULTI-CONTACT SELECTOR SWITCH (CLOSED CONTACTS INDICATED BY " X")
	TEMPERATURE SWITCH - CLOSES ON RISING TEMPERATURE
	TEMPERATURE SWITCH - OPENS ON RISING TEMPERATURE
	PRESSURE SWITCH - CLOSES ON RISING PRESSURE
	PRESSURE SWITCH - OPENS ON RISING PRESSURE
	DIFFERENTIAL PRESSURE SWITCH - CLOSES WHEN THE DIFFERENTIAL IN PRESSURE BETWEEN TWO DIAPHRAGMS EXCEEDS A SET POINT
	DIFFERENTIAL PRESSURE SWITCH - OPENS WHEN THE DIFFERENTIAL IN PRESSURE BETWEEN TWO DIAPHRAGMS EXCEEDS A SET POINT
	TIME DELAY RELAY SWITCH - CLOSES ON TIME DELAY AFTER ENERGIZATION OF RELAY COIL.
	TIME DELAY RELAY SWITCH - OPENS ON TIME DELAY AFTER ENERGIZATION OF RELAY COIL.
	TIME DELAY RELAY SWITCH - CLOSES ON TIME DELAY AFTER DE-ENERGIZATION OF RELAY COIL.
	TIME DELAY RELAY SWITCH - OPENS ON TIME DELAY AFTER DE-ENERGIZATION OF RELAY COIL.
	LIMIT SWITCH - NORMALLY OPEN
	LIMIT SWITCH - NORMALLY CLOSED
	LIMIT SWITCH - NORMALLY OPEN HELD CLOSED

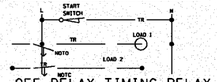
SCHEMATIC SYMBOLS

SYMBOL	DESCRIPTION
	LIMIT SWITCH - NORMALLY CLOSED HELD OPEN
	LEVEL SWITCH - CLOSES ON RISING LEVEL
	LEVEL SWITCH - OPENS ON RISING LEVEL
	FLOW SWITCH - CLOSES ON FLOW
	FLOW SWITCH - OPENS ON FLOW
	TRANSFORMER - (TYPE AND RATING AS INDICATED)
	CONNECTION TO GROUND
	LIGHTNING OR SURGE ARRESTER
	THERMAL OVERLOAD ELEMENT
	FUSE
	CIRCUIT BREAKER
	HEATING ELEMENT
— SV —	SOLENOID VALVE
— M —	COIL C - CLOSE CR - CONTROL RELAY F - FAST OR FORWARD M - MOTOR STARTER MX - MOTOR STARTER AUXILIARY 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
R	INDICATOR LIGHT (SEE SCHEMATIC DIAGRAM DEVICE TABLE FOR COLOR SYMBOLS)
R	INDICATOR LIGHT (PUSH TO TEST TYPE)
	DEVICE ENCLOSURE
ANN	ANNUNCIATOR
COUNT	COUNTER
ETM	ELAPSED TIME METER
TMR	ELECTRONIC TIMER
TOT	TOTALIZER

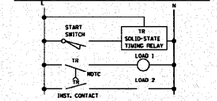
TIMING RELAY SAMPLE DIAGRAMS



ON-DELAY TIMING RELAY



OFF-DELAY TIMING RELAY



SOLID STATE, ON-DELAY TIMING RELAY

ABBREVIATIONS

SYMBOL	DESCRIPTION
AC	ALTERNATING CURRENT
ACK	ACKNOWLEDGE
A/C	AERIAL CABLE
AFG	ABOVE FINISHED GRADE
AFF	ABOVE FINISHED FLOOR
ANN	ANNUNCIATOR
ATS	AUTOMATIC TRANSFER SWITCH
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CM	CENTIMETER
CT	CURRENT TRANSFORMER
CP	CONTROL PANEL
DC	DIRECT CURRENT
DIA	DIAMETER
DP	DISTRIBUTION PANEL
EF	EXHAUST FAN
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
FT	FEET OR FOOT
FND CON	FOUNDATION CONCRETE
FU	FUSE
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFR	GROUND FAULT RELAY
GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
IG	ISOLATED GROUND
JB	JUNCTION BOX
KVA	KILOVOLT AMPERE
KW	KILOWATTS
LP	LIGHTING PANEL
M	METER
MCC	MOTOR CONTROL CENTER
MM	MILLIMETER
MTG HT	MOUNTING HEIGHT
MTS	MANUAL TRANSFER SWITCH
NL	NIGHT LIGHT
NO, #	NUMBER
PB	PUSH BUTTON
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PT	POTENTIAL TRANSFORMER
RECP	RECEPTACLE
RGC	RIGID GALVANIZED CONDUIT
RVS	REDUCED VOLTAGE STARTER
SCADA	SUPERVISORY CONTROL AND DATA AQUISITION
SEL SW	SELECTOR SWITCH
SF	SUPPLY FAN
SPARE	SPARE
SPACE	SPACE
SS	STAINLESS STEEL
STA	STATION
SWGR	SWITCHGEAR
TMP	TEMPORARY
TEMP	TEMPERATURE
T' STAT	THERMOSTAT
TEFC	FULLY ENCLOSED FAN COOLED
UH	UNIT HEATER
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
XFER	TRANSFER
XFMR	TRANSFORMER
XP	EXPLOSION-PROOF (CLASS 1, DIV 1, GROUP C & D UNLESS NOTED OTHERWISE)

NOTICE:

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

EQUIPMENT AND VALVE TAG IDENTIFICATION

TAG NUMBER

W-001
**

W: EQUIPMENT OR SELF CONTAINED VALVE ABBREVIATION
001: DEVICE NUMBER
** COMPONENT DESIGNATOR

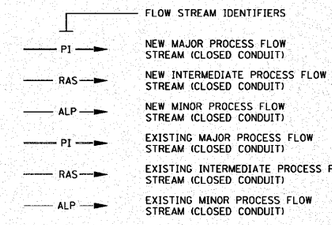
EQUIPMENT ABBREVIATIONS

E	EJECTOR
G	GATE
M	MECHANICAL EQUIPMENT
P	PUMP
T	TANK
LCP	LOCAL CONTROL PANEL
CS	CONTROL STATION
ITC	INTERCONNECTING TERMINATION CABINET
AFD	ADJUSTABLE FREQUENCY DRIVE
AP	ALARM PANEL

SELF CONTAINED VALVE ABBREVIATIONS

ARV	AIR RELEASE VALVE
AVRV	AIR AND VACUUM RELIEF VALVE
LCV	LEVEL CONTROL VALVE
PCV	PRESSURE CONTROL VALVE
TCV	TEMPERATURE CONTROL VALVE
PSV	PRESSURE SAFETY (RELIEF) VALVE

PROCESS FLOW IDENTIFICATION



STRUCTURE/EQUIPMENT IDENTIFICATION

NEW OR RELOCATED ITEM

EXISTING ITEM

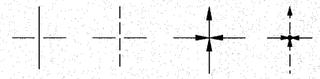
NEW OR RELOCATED STRUCTURE

EXISTING STRUCTURE

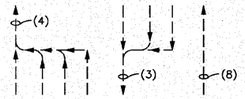
SIGNAL IDENTIFICATION

DISCRETE (ON/OFF ETC.)

A MODULATED (4 TO 20 mADC ETC.)

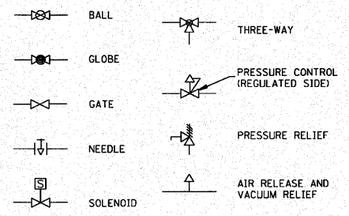


NON-CONNNECTING LINES CONNECTING LINES

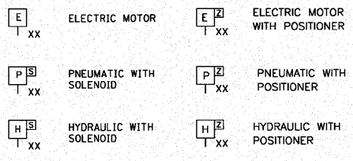


PARALLELING LINES.
(PARENTHETICAL NUMBER INDICATES THE NUMBER OF SIGNALS REPRESENTED)

VALVE SYMBOLS



VALVE AND GATE POWER ACTUATOR SYMBOLS



NOTE ON 'XX':

ON LOSS OF PRIMARY POWER (PNEUMATIC OR ELECTRICAL)

XX:

FC = FAIL CLOSED POSITION
FIP = FAIL INTERMEDIATE POSITION
FLP = FAIL LAST POSITION
FO = FAIL OPEN POSITION

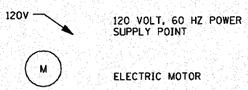
COMPONENT DESIGNATORS

◆ PROVIDE COMPONENT IN ACCORDANCE WITH DIVISION 16D.

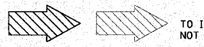
● PROVIDE COMPONENT IN ACCORDANCE WITH DIVISION 16C.

COMPONENT DESIGNATORS ARE NOT INTENDED TO ENCOMPASS PIPING, CONDUIT, WIRING OR CONCRETE STRUCTURES.

MISCELLANEOUS SYMBOLS



INTERFACE SYMBOLS



SCHEMATIC DIAGRAM DEVICE DESIGNATIONS

SYMBOL	DESCRIPTION
	DESIGNATION DESCRIBING DEVICE OPERATION OR FUNCTION
A AUTO	AUTOMATIC
ACK	ACKNOWLEDGE
CL	CLOSE
F	FAST
FWD	FORWARD
HI	HIGH
H	HAND
INST	INSTANTANEOUS
L	LOW
LOS	LOCKOUT-STOP
LOC	LOCAL
HR	HAND RESET
HS	HIGH SPEED
LSP	LOW SPEED
N	NORMAL
NC	NORMALLY CLOSED
NCTC	NORMALLY CLOSED TIMED CLOSED
NCTO	NORMALLY CLOSED TIMED OPEN
NO	NORMALLY OPEN
NOTC	NORMALLY OPEN TIMED CLOSED
NOTO	NORMALLY OPEN TIMED OPEN
O	OFF
OP	OPEN
REM	REMOTE
REV	REVERSE
S	SLOW
A	AMBER
BL	BLUE
C	CLEAR
G	GREEN
R	RED
W	WHITE
Y	YELLOW

E2

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

I & C SYMBOL LIST

SCALE: N/A
DATE: 11-22-10

DRAWN BY: MS
CHECKED BY: MS

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	76
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

EXISTING PUMP STATION TO BE REMOVED BY OTHERS

EXISTING 84"Ø INFLOW SEWER TO BE REMOVED BY OTHERS

SEE DETAIL E457 (TYP SWING GATE)

ROUTE 5" GRS CONDUIT FROM XFMR TO NEW COM ED UTILITY POLE. COORDINATE WITH COM ED ON LOCATION AND REQUIREMENTS.

COMED TRANSFORMERS 024-XFMR-1 & 024-XFMR-2 SEE DETAIL E700 FOR GROUNDING. COORDINATE WITH COM ED. PROVIDE PADS/ FOUNDATIONS AND GROUNDING PER COM ED REQUIREMENTS. SEE SECTION 16A FOR CONSTRAINTS.

EXISTING RAILROAD BRIDGE

ROUTE 5" GRS CONDUIT FROM XFMR TO NEW COM ED UTILITY POLE. COORDINATE WITH COM ED ON LOCATION AND REQUIREMENTS.

℄ OF CANADIAN NATIONAL RAILROAD (CNRR)

EMERGENCY GENERATOR GENERATOR SIDE

EMERGENCY GENERATOR 024-EG-1 WITH ACCESS CATWALK SEE DETAIL E700 FOR GROUNDING

EMERGENCY GENERATOR ENGINE SIDE

8'X20' CANTILEVER SLIDE GATE

PROPOSED PUMP STATION NO. 24

SEE DETAIL E458 (TYP SITE AND UTILITY FENCELINE)

O'HARE INDUSTRIAL SUBDIVISION UNIT FIVE

NOTES:

1. SEE DRAWING E34 FOR CONDUCTOR AND CONDUIT REQUIREMENTS.
2. CONDUITS CONTAINING PRIMARY UTILITY CONDUCTORS SHALL BE DIRECT BURIED.
3. DUCT BANKS FROM COM ED TRANSFORMERS TO SWITCHGEAR SHALL BE CONFIGURED AS SHOWN ON DRAWING E8. CONFIGURATION MINIMIZES THE DEPTH OF THE DUCT BANK THAT ENTERS THE DISCHARGE FLOOR.

SCALE: 0 5 10 15 30 45

DONOHUE & ASSOCIATES

E3

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

ELECTRICAL SITE PLAN

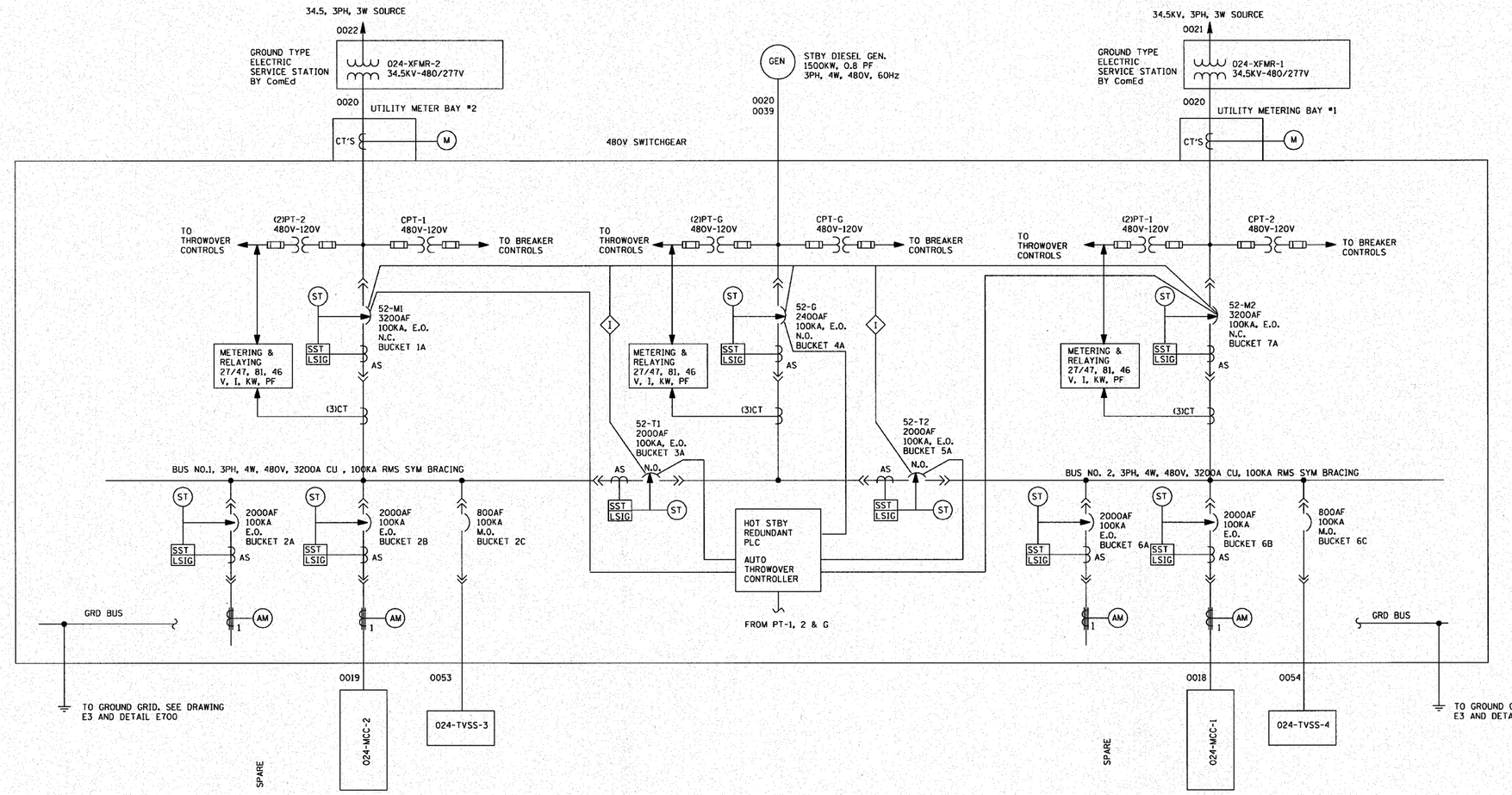
SCALE: AS SHOWN

DRAWN BY: HFF

DATE: 11-22-10

CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	77
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



024-SWGR-1 ONE LINE DIAGRAM

SEE DRAWING E6 FOR 024-SWGR-1 ELEVATION

LEGEND:

AS	CURRENT SENSOR
CT	CURRENT TRANSFORMER
EO	ELECTRIC OPERATOR
MO	MANUALLY OPERATED
MCCB	MOLDED CASE CIRCUIT BREAKER
PT	POTENTIAL TRANSFORMER
CPT	CONTROL POWER TRANSFORMER
CLF	INDICATES CURRENT LIMITING TYPE
	HIGH VOLTAGE CABLE LOAD BREAK CONNECTOR
	FUSE
AS	DRAW OUT TYPE LOW VOLTAGE POWER CIRCUIT BREAKER WITH BUILT-IN CURRENT SENSOR
SST LSIG	SOLID STATE TRIP DEVICE LOWER LETTERS: L - LONG TIME DELAY S - SHORT TIME DELAY I - INSTANTANEOUS G - GROUND FAULT
ST	SHUNT TRIP
AM	AMMETER

NOTES:

1. SEE DRAWING E34 FOR CONDUCTOR AND CONDUIT REQUIREMENTS.
2. UTILITY TRANSFORMER PADS/FOUNDATIONS BY CONTRACTOR IN ACCORDANCE WITH ELECTRIC UTILITY REQUIREMENTS. ALL TERMINATIONS ON UTILITY TRANSFORMERS BY ELECTRIC UTILITY. PRIMARY CONDUCTORS BY ELECTRIC UTILITY. CONTRACTOR SHALL ROUTE CONDUIT FROM GROUND TYPE ESS TO LOCATIONS AS SHOWN ON DRAWING E-3 FOR UTILITY PRIMARY CONDUCTORS. SIZE CONDUIT BASED ON UTILITY REQUIREMENTS. COORDINATE WITH ELETRIC UTILITY.
3. INCOMING NEUTRAL FOR EACH ELECTRIC SERVICE AND GENERATOR SHALL BE BONDED TO GROUND IN CORRESPONDING CIRCUIT BREAKER SECTION OF SWITCHGEAR.

DONOHUE & ASSOCIATES

E4

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

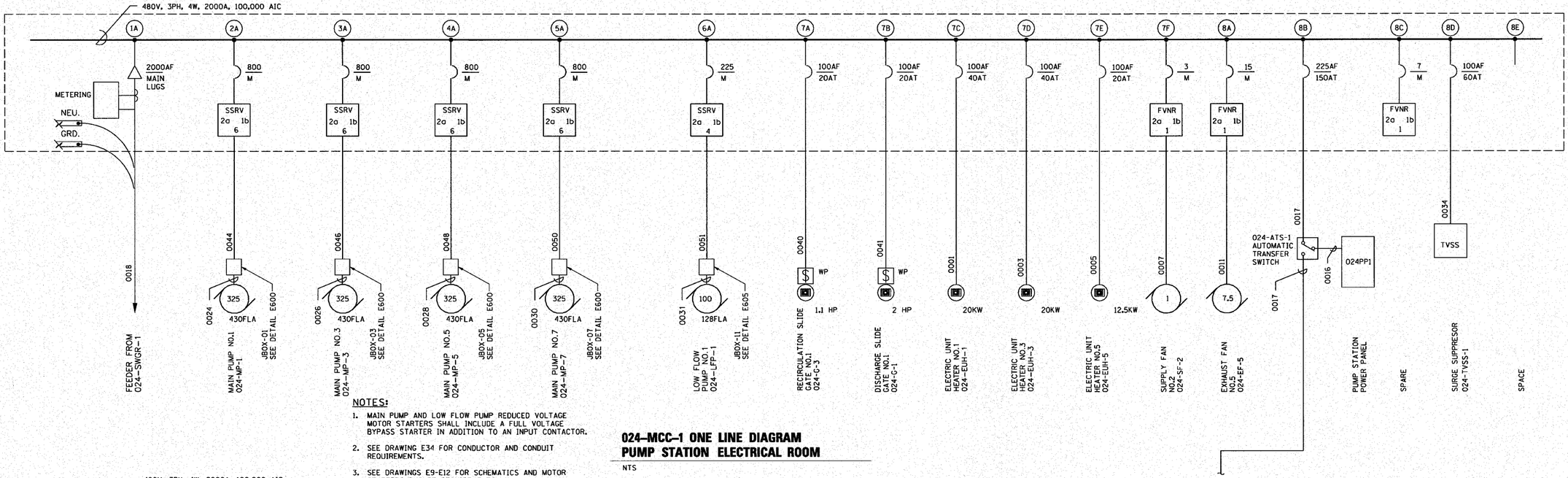
PUMP STATION NO. 24 RELOCATION

SWITCHGEAR ONE LINE DIAGRAM

SCALE: N/A DRAWN BY: MS

DATE: 11-22-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	78
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

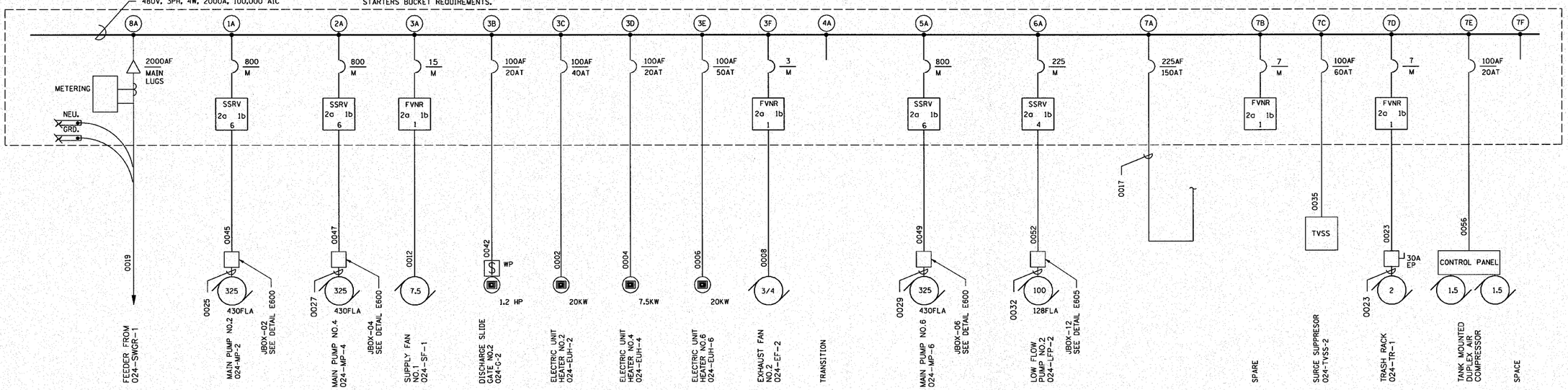


NOTES:

1. MAIN PUMP AND LOW FLOW PUMP REDUCED VOLTAGE MOTOR STARTERS SHALL INCLUDE A FULL VOLTAGE BYPASS STARTER IN ADDITION TO AN INPUT CONTACTOR.
2. SEE DRAWING E34 FOR CONDUCTOR AND CONDUIT REQUIREMENTS.
3. SEE DRAWINGS E9-E12 FOR SCHEMATICS AND MOTOR STARTERS BUCKET REQUIREMENTS.

024-MCC-1 ONE LINE DIAGRAM
PUMP STATION ELECTRICAL ROOM

NTS



024-MCC-2 ONE LINE DIAGRAM
PUMP STATION ELECTRICAL ROOM

NTS

DONOHUE & ASSOCIATES

E5

REVISIONS	
NAME	DATE

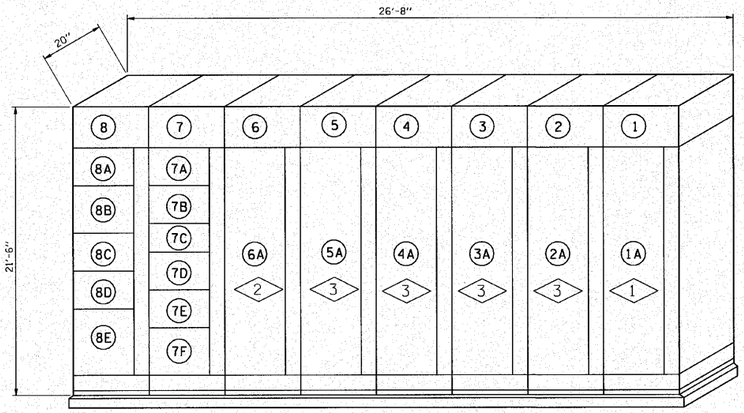
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

MCC ONE LINE DIAGRAMS

SCALE: N/A
DRAWN BY: MS
DATE: 11-22-10
CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	79
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

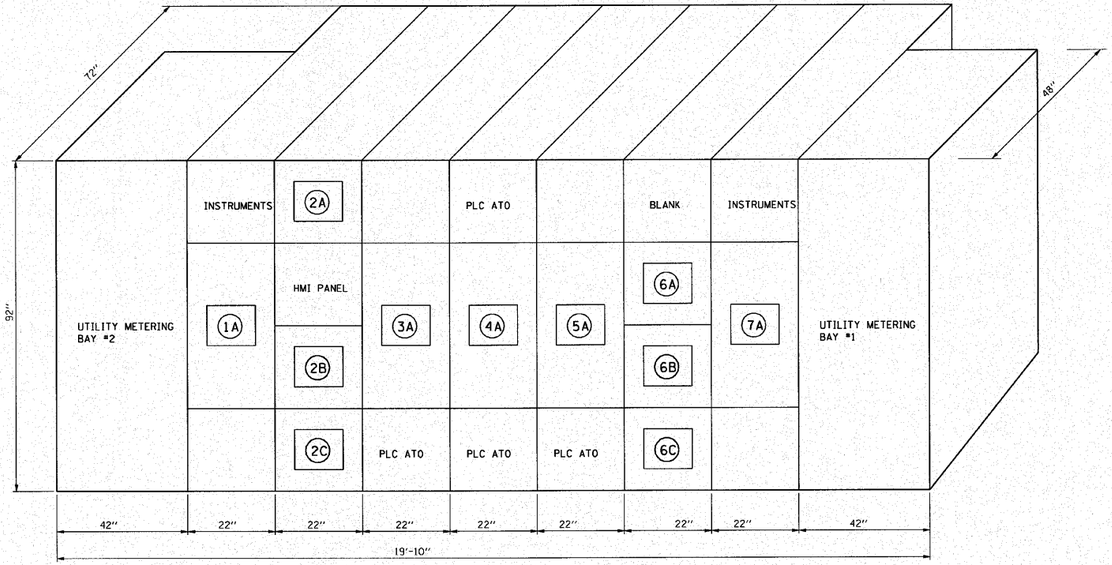


024–MCC–1
ELEVATION
PUMP STATION ELECTRICAL ROOM

NTS

PLAN NOTES:

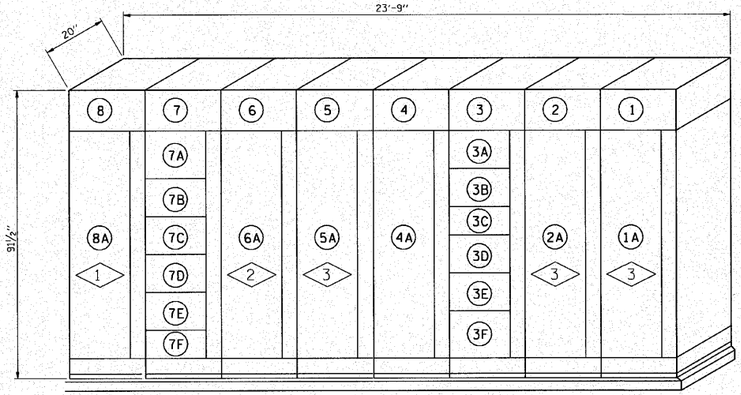
1. SECTION IS 25" WIDE.
2. SECTION IS 35" WIDE.
3. SECTION IS 55" WIDE.



NOTE: SEE DRAWING E4 FOR 024-SWGR-1 ONE-LINE DIAGRAM. SWITCHGEAR SHALL BE PROVIDED WITH ROLLER HOIST ON TOP OF GEAR, SEE SECTION 16C-2.2.

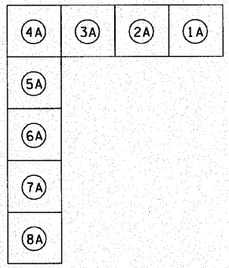
024–SWGR–1 ELEVATION
PUMP STATION ELECTRICAL ROOM

NTS



024–MCC–2
ELEVATION
PUMP STATION ELECTRICAL ROOM

NTS



024-MCC-2 PLAN VIEW

DONOHUE & ASSOCIATES

E6

REVISIONS	
NAME	DATE

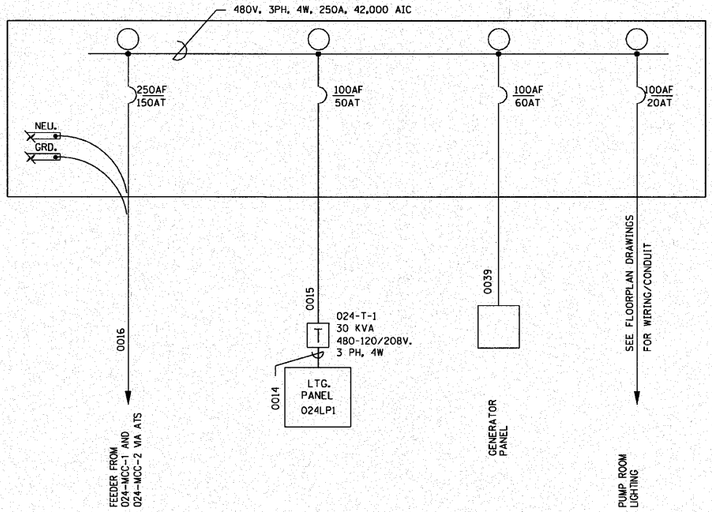
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

MCC & SWGR ELEVATIONS

SCALE: AS SHOWN
DRAWN BY: MS
DATE: 11-22-10
CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	80
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



024-PP-1 ONE-LINE DIAGRAM
PUMP STATION ELECTRICAL ROOM

NTS

SURFACE MOUNTED NEMA 1
277 / 480 V, 3 PHASE, 4 WIRE
RATING 42,000 A.I.C.

PANEL SCHEDULE
024-PP-1

150A MAIN BREAKER
250A MAIN BUS
100A GRD. BUS

CKT. NO.	TRIP/P	DESCRIPTION	PHASE A	PHASE B	PHASE C	DESCRIPTION	TRIP/P	CKT. NO.
1			•					2
3	50/3	024-T-1		•		GENERATOR PANEL	60/3	4
5					•			6
7	30/1	PUMP ROOM LIGHTING	•					8
9	20/1	INTERMEDIATE LEVEL LIGHTING		•		SPARE	20/3	10
11	20/1	DISCHARGE LEVEL LIGHTING			•			12
13			•					14
15	20/3	SPARE		•		SPARE	20/3	16
17					•			18
19			•					20
21	20/3	SPARE		•		SPARE	20/3	22
23					•			24
25			•					26
27		SPACE		•		SPACE		28
29					•			30
31			•					32
33		SPACE		•		SPACE		34
35					•			36
37			•					38
39		SPACE		•		SPACE		40
41					•			42
TOTALS:			-	-	-	-		

SURFACE MOUNTED NEMA 1
120 / 208 V, 3 PHASE, 4 WIRE
RATING 10,000 A.I.C.

PANEL SCHEDULE
024-LP-1

100A MAIN BREAKER
225A MAIN BUS
100A GRD. BUS

CKT. NO.	TRIP/P	DESCRIPTION	PHASE A	PHASE B	PHASE C	DESCRIPTION	TRIP/P	CKT. NO.
1	20/1	PLC PANEL 024-RTU-1	•			MASTER PLC PANEL 024-PLC-1	20/1	2
3	20/1	EXHAUST FAN #3 024-EF-3		•		EXHAUST FAN #4 024-EF-4	20/1	4
5	20/1	TEMP CONTROL PANEL 024-TCP-1			•	ELECTRICAL ROOM LIGHTING	20/1	6
7	20/1	ELECTRICAL ROOM RECEPTACLES	•			TRASHRACK ROOM LIGHTING	20/1	8
9	20/1	PUMP ROOM RECEPTACLES		•		STRAIRWELL LIGHTING	20/1	10
11	20/1	LOWER LEVEL LIGHTING			•	LOWER LEVEL RECEPTACLES	20/1	12
13	30/1	DISCHARGE FLOOR - TRASH ROOM	•			INT/DISCHARGE LVL RECEPTACLES	20/1	14
15	20/1	FIRE ALARM PANEL 024-FP-1		•		INTRUSION PANEL 024-IP-1	20/1	16
17	30/1	INTERMEDIATE FLOOR - TRASH RM			•	EXTERIOR LIGHT FIXTURES	20/1	18
19	20/1	WET WELL LIGHTING	•			LIGHTING CONTACTOR 024-CNT-1	20/1	20
21	20/1	ELECTRICAL ROOM LIGHTING		•		ELECTRICAL ROOM RECEPTACLES	20/1	22
23	20/1	PUMP ROOM LIGHTING			•	TRASHRACK ROOM RECEPTACLES	20/1	24
25	20/1	PURGE PANEL NO.1	•			PURGE PANEL NO.2	20/1	26
27	20/1	PURGE PANEL NO.3		•		PURGE PANEL NO.4	20/1	28
29	20/1	PURGE PANEL NO.5			•	PURGE PANEL NO.6	20/1	30
31	20/1	PURGE PANEL NO.7	•			PURGE PANEL NO.11	20/1	32
33	20/1	PURGE PANEL NO.12		•		SPACE	20/1	34
35	20/1	SPARE			•	SPARE	20/1	36
37	20/1	SPARE	•			SPARE	20/1	38
39	20/1	SPARE		•		SPARE	20/1	40
41	20/1	SPARE			•	SPARE	20/1	42
TOTALS:			-	-	-	-		

NOTES:

1. SEE DRAWING E34 FOR CONDUCTOR AND CONDUIT REQUIREMENTS.
2. CIRCUIT BREAKER, CONDUIT, AND CONDUCTORS FEEDING GENERATOR PANEL SHALL BE SIZED AND COORDINATED WITH GENERATOR REQUIREMENTS.
3. GENERATOR PANEL AND TRANSFORMER SHALL BE FURNISHED AND INSTALLED BY GENERATOR MANUFACTURER AND LOCATED IN GENERATOR ENCLOSURE. SEE SECTION 16E.

DONOHUE & ASSOCIATES

E7

REVISIONS	
NAME	DATE

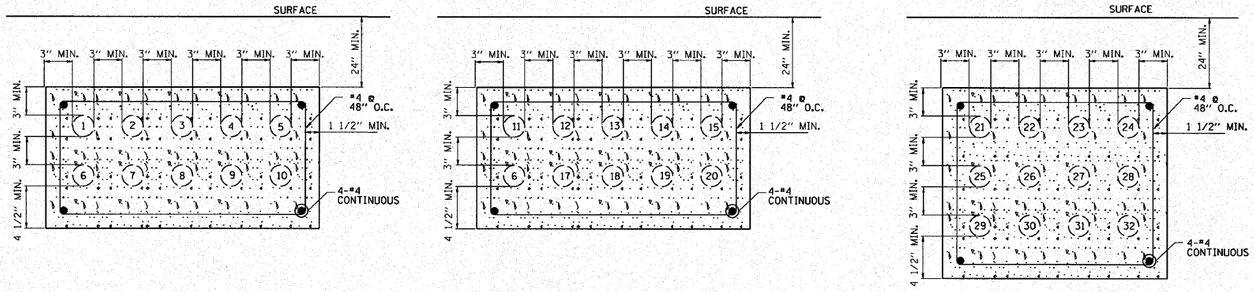
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

ELECTRICAL SCHEDULES

SCALE: N/A
DATE: 11-22-10
DRAWN BY: MS
CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	81
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



DUCT BANK SECTION A

NTS E3

DUCTBANK SCHEDULE

NUMBER	SIZE	FROM	TO	CONTENTS	REMARKS
1	4"	UTILITY XFMR 1	O24-SWGR-1	POWER	480V
2	4"	UTILITY XFMR 1	O24-SWGR-1	POWER	480V
3	4"	UTILITY XFMR 1	O24-SWGR-1	POWER	480V
4	4"	UTILITY XFMR 1	O24-SWGR-1	POWER	480V
5	4"	UTILITY XFMR 1	O24-SWGR-1	POWER	480V
6	4"	UTILITY XFMR 1	O24-SWGR-1	POWER	480V
7	4"	UTILITY XFMR 1	O24-SWGR-1	POWER	480V
8	4"	UTILITY XFMR 1	O24-SWGR-1	POWER	480V
9	4"	UTILITY XFMR 1	O24-SWGR-1	POWER	480V
10	4"	UTILITY XFMR 1	O24-SWGR-1	SPARE	-
11	4"	UTILITY XFMR 2	O24-SWGR-1	POWER	480V
12	4"	UTILITY XFMR 2	O24-SWGR-1	POWER	480V
13	4"	UTILITY XFMR 2	O24-SWGR-1	POWER	480V
14	4"	UTILITY XFMR 2	O24-SWGR-1	POWER	480V
15	4"	UTILITY XFMR 2	O24-SWGR-1	POWER	480V
16	4"	UTILITY XFMR 2	O24-SWGR-1	POWER	480V
17	4"	UTILITY XFMR 2	O24-SWGR-1	POWER	480V
18	4"	UTILITY XFMR 2	O24-SWGR-1	POWER	480V
19	4"	UTILITY XFMR 2	O24-SWGR-1	POWER	480V
20	4"	UTILITY XFMR 2	O24-SWGR-1	SPARE	-
21	4"	O24-EG-1	O24-SWGR-1	POWER	480V
22	4"	O24-EG-1	O24-SWGR-1	POWER	480V
23	4"	O24-EG-1	O24-SWGR-1	POWER	480V
24	4"	O24-EG-1	O24-SWGR-1	POWER	480V
25	4"	O24-EG-1	O24-SWGR-1	POWER	480V
26	4"	O24-EG-1	O24-SWGR-1	POWER	480V
27	4"	O24-EG-1	O24-SWGR-1	POWER	480V
28	4"	O24-EG-1	O24-SWGR-1	SPARE	-
29	2"	O24-EG-1	O24-PP-1	POWER	480V - GENERATOR DEVICES
30	2"	O24-EG-1	O24-PLC-1	INSTRUMENTATION	IN GRS CONDUIT
31	2"	O24-EG-1	O24-PLC-1	CONTROLS	-
32	2"	O24-EG-1	O24-SWGR-1	CONTROLS	-

NOTES:

1. "-" REPRESENTS A SPACE IN THE DUCT BANK.
2. CONDUIT ELBOWS IN UNDERGROUND DUCT BANKS SHALL BE PVC COATED GRS CONDUIT.
3. EXTERIOR ABOVE GRADE CONDUIT SHALL BE PVC COATED GRS CONDUIT.

DONOHUE & ASSOCIATES

E8

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

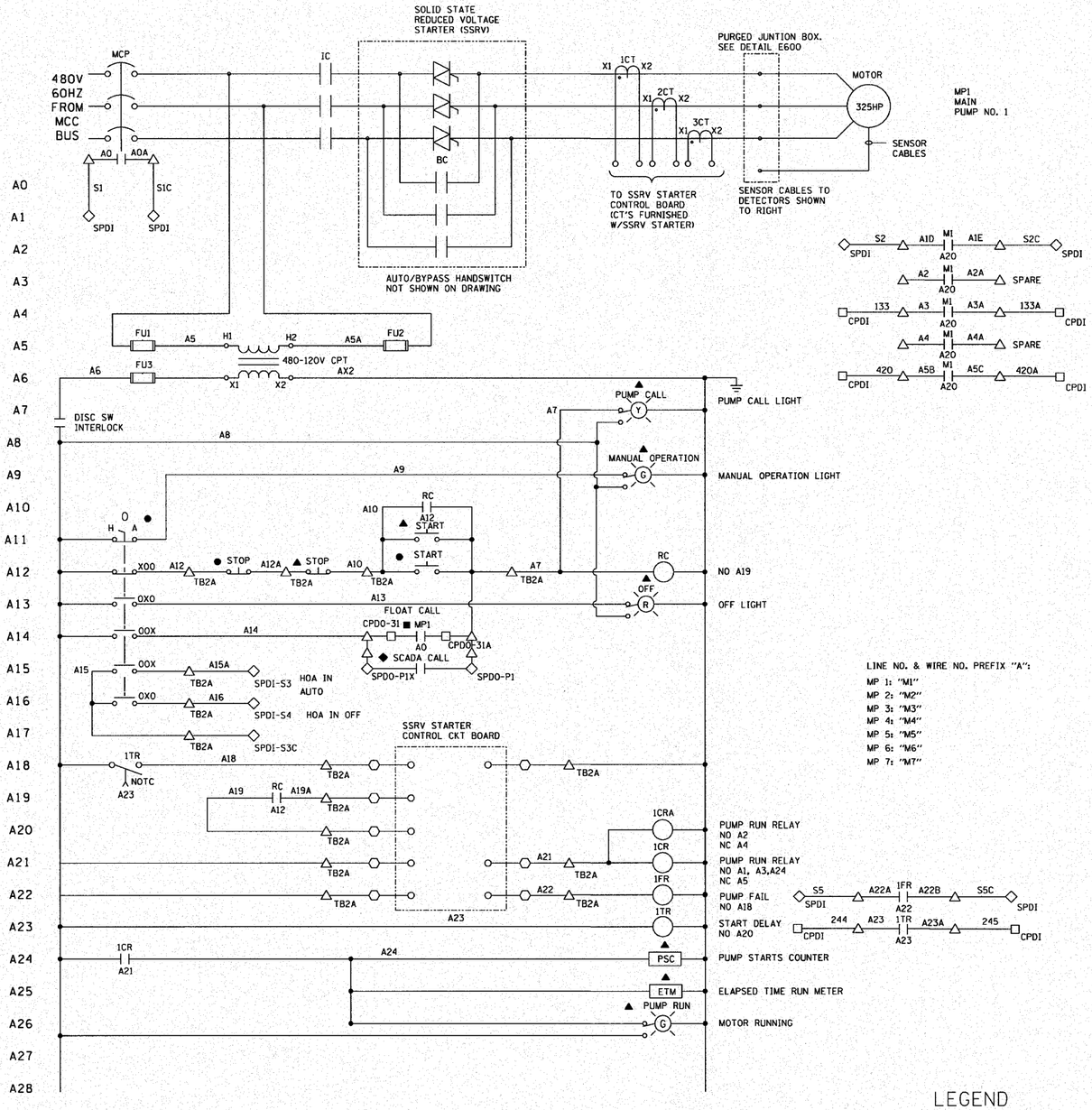
PUMP STATION NO. 24 RELOCATION

ELECTRICAL SCHEDULES

SCALE: N/A DRAWN BY: MS

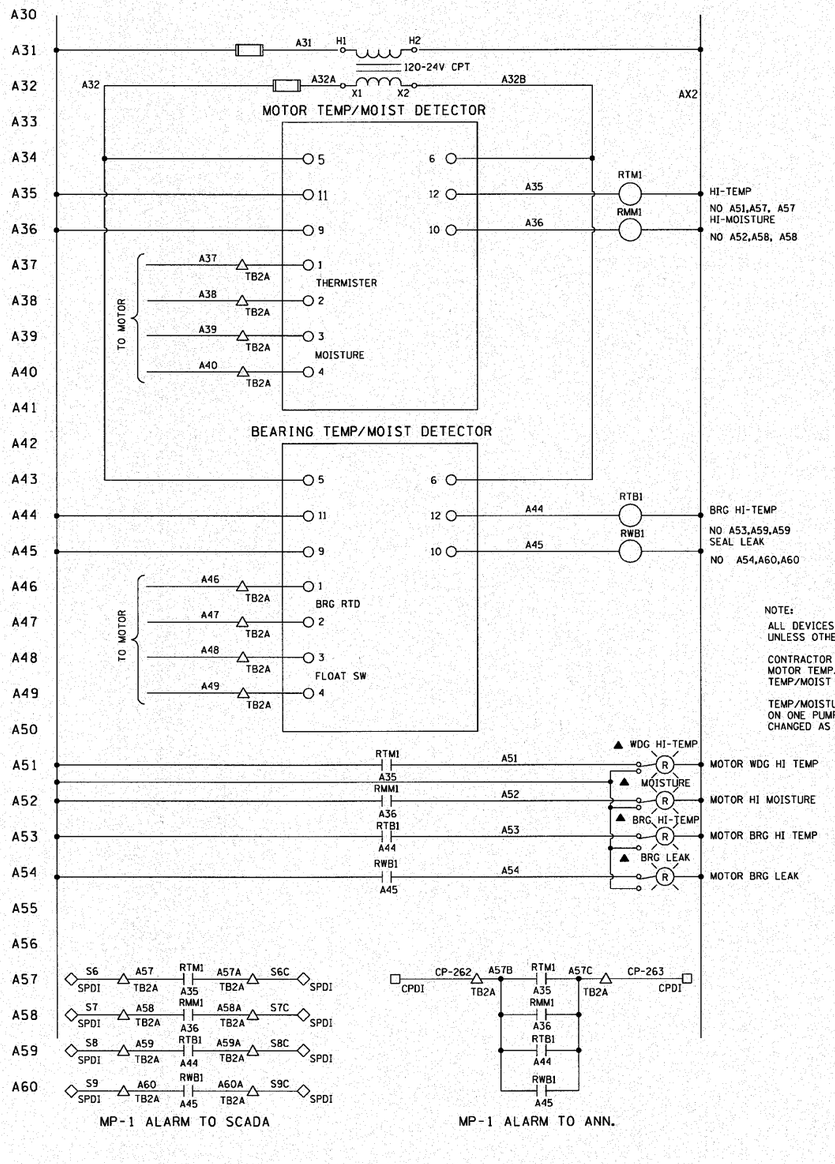
DATE: 11-22-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	82
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



LINE NO. & WIRE NO. PREFIX "A":

MP 1: "M1"
MP 2: "M2"
MP 3: "M3"
MP 4: "M4"
MP 5: "M5"
MP 6: "M6"
MP 7: "M7"



NOTE:

ALL DEVICES MOUNTED IN MOTOR STARTER UNLESS OTHERWISE NOTED

CONTRACTOR IS RESPONSIBLE FOR MOUNTING MOTOR TEMP/MOIST DETECTOR AND BEARING TEMP/MOIST DETECTOR IN MOTOR STARTER

TEMP/MOISTURE DETECTORS ARE BASED ON ONE PUMP MANUFACTURER. WIRING MAY BE CHANGED AS PER ACTUAL DETECTORS FURNISHED.

MP-1 ALARM TO SCADA

MP-1 ALARM TO ANN.

LEGEND

- TERMINAL AT SSRV STARTER
- TERMINAL IN STARTER BUCKET
- TERMINAL IN CONTROL PANEL
- TERMINAL IN SCADA PANEL
- DEVICE LOCATED ON STARTER BUCKET DOOR
- DEVICE MOUNTED LOCALLY
- DEVICE IN CONTROL PANEL
- DEVICE IN SCADA PANEL

MAIN PUMP 1 CONTROL SCHEMATIC

(TYPICAL FOR MAIN PUMPS 2, 3, 4, 5, 6 & 7)

E9

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

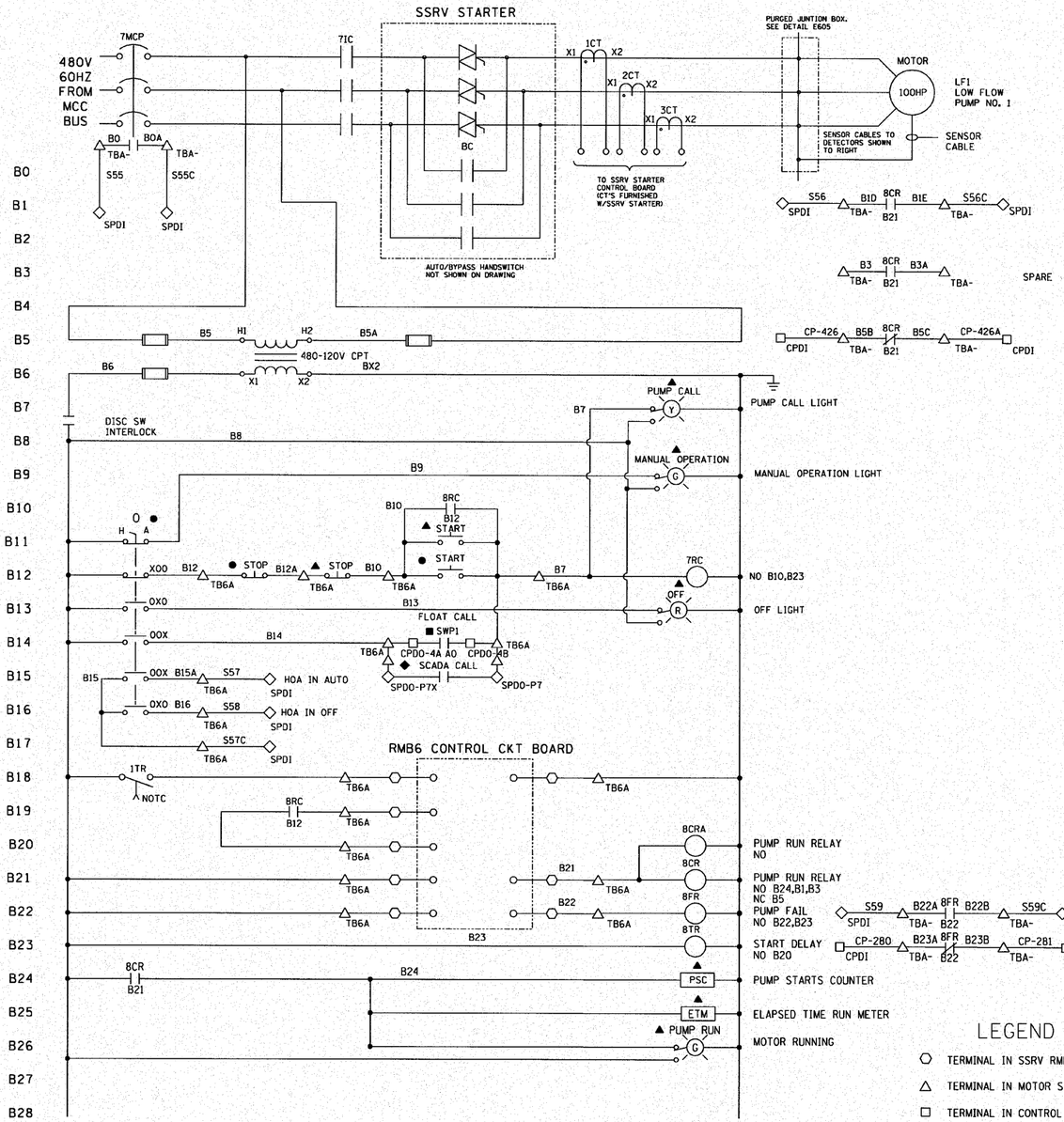
MAIN PUMP CONTROL SCHEMATIC

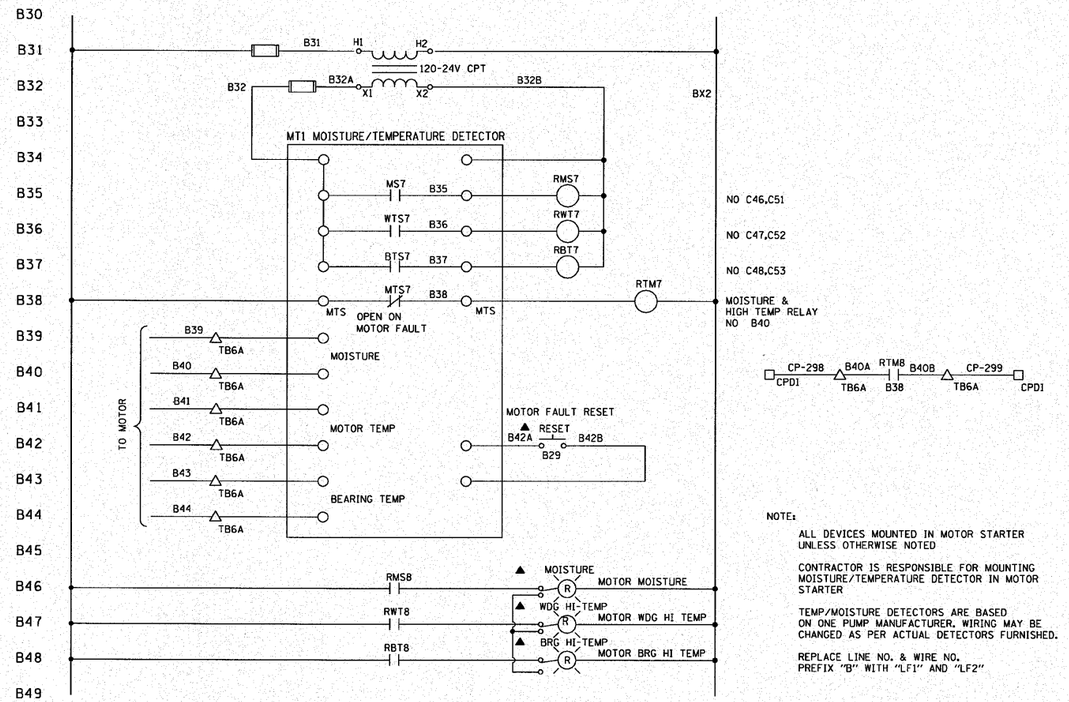
SCALE: N/A DRAWN BY: MS

DATE: 11-22-10 CHECKED BY: MS

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	83
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		





NOTE:

ALL DEVICES MOUNTED IN MOTOR STARTER UNLESS OTHERWISE NOTED

CONTRACTOR IS RESPONSIBLE FOR MOUNTING MOISTURE/TEMPERATURE DETECTOR IN MOTOR STARTER

TEMP/MOISTURE DETECTORS ARE BASED ON ONE PUMP MANUFACTURER. WIRING MAY BE CHANGED AS PER ACTUAL DETECTORS FURNISHED.

REPLACE LINE NO. & WIRE NO. PREFIX "B" WITH "LF1" AND "LF2"

LEGEND

- TERMINAL IN SSRV RMB6
- TERMINAL IN MOTOR STARTER
- TERMINAL IN CONTROL PANEL
- TERMINAL IN SCADA PANEL
- DEVICE LOCATED ON STARTER DOOR
- DEVICE LOCALLY MTD
- DEVICE IN CONTROL PANEL
- DEVICE IN SCADA PANEL

LOW FLOW PUMP 1 CONTROL SCHEMATIC

(TYPICAL FOR LOW FLOW PUMP 2)

DONOHUE & ASSOCIATES

E10

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

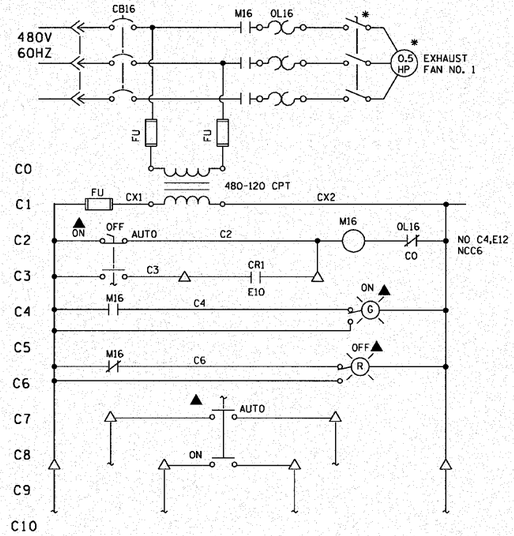
PUMP STATION NO. 24 RELOCATION

LOW FLOW PUMP CONTROL SCHEMATIC

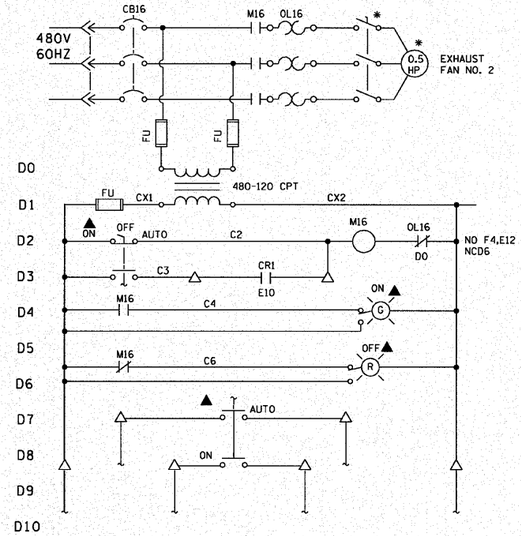
SCALE: N/A DRAWN BY: CRP

DATE: 11-22-10 CHECKED BY: KHC

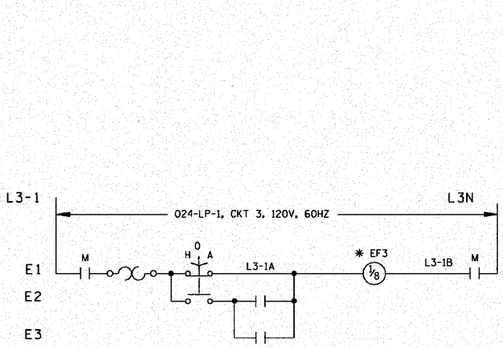
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	84
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



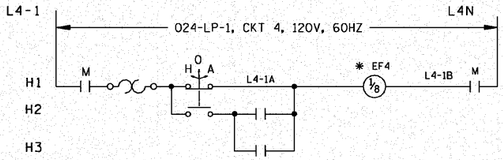
ELECTRICAL ROOM EXHAUST FAN EF-1



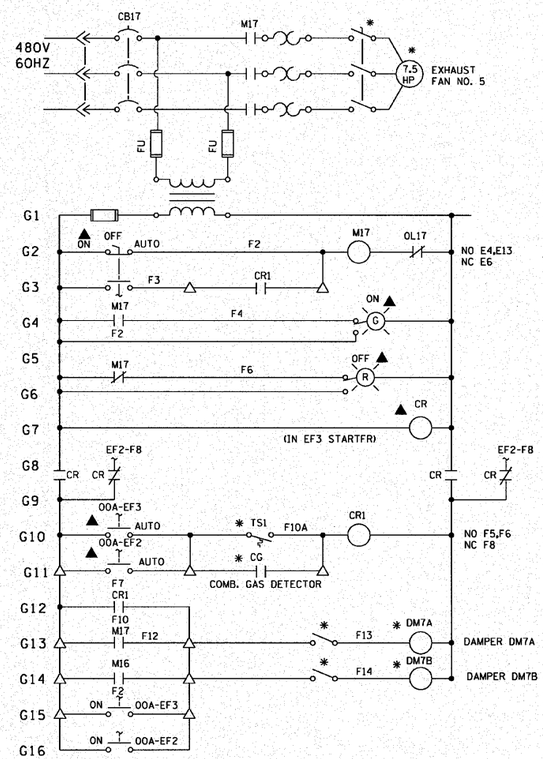
PUMP ROOM EXHAUST FAN EF-2



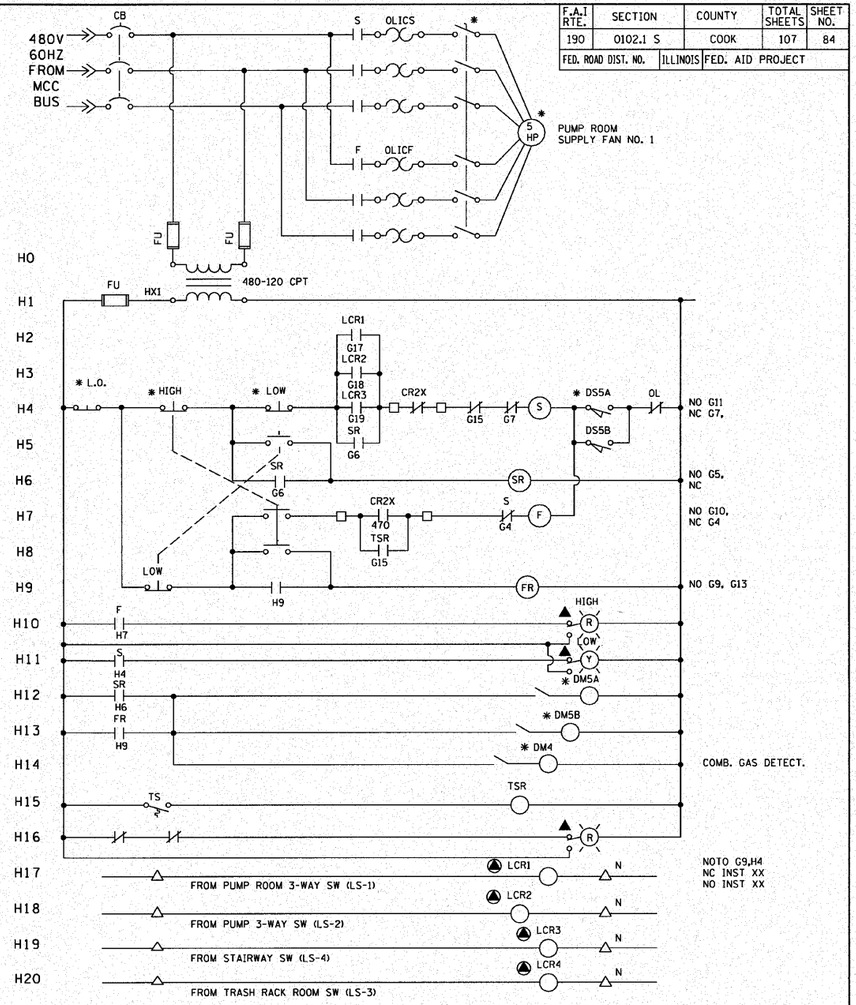
TRASHRACK ROOM EXHAUST FAN EF-3



STAIRWELL EXHAUST FAN EF-4



PUMP STATION EXHAUST FAN EF-5



NOTE: SEE DRAWING E19 FOR LIGHT SWITCH LOCATIONS

PUMP ROOM SUPPLY FAN SF-1

LEGEND:

- △ : TERMINAL LOCATED IN MOTOR STARTER
- □ : TERMINAL LOCATED IN CONTROL PANEL
- ◇ : TERMINAL LOCATED IN SCADA PANEL
- ▲ : DEVICE LOCATED ON MOTOR STARTER DOOR
- ✱ : LOCALLY MOUNTED
- ▨ : TERMINAL LOCATED IN E/G CONTROL PANEL

DONOHUE & ASSOCIATES

E11

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

VENTILATION FAN CONTROL SCHEMATIC

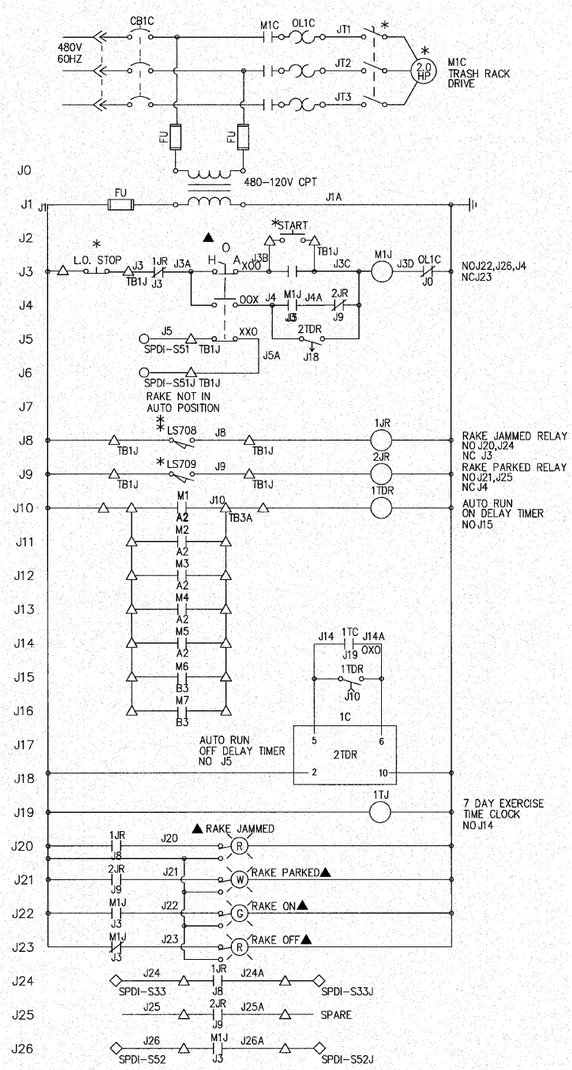
SCALE: N/A

DRAWN BY: CRP

DATE: 11-22-10

CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90	0102.1 S	COOK	107	85
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

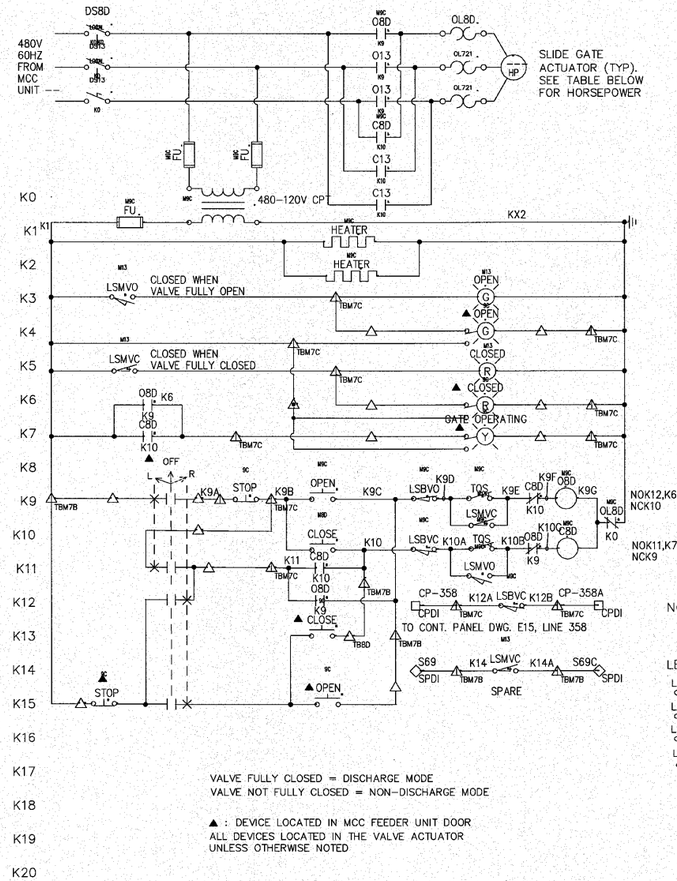


TRASH RACK DRIVE

LEGEND:

△ : TERMINAL LOCATED IN MOTOR STARTER
□ : TERMINAL LOCATED IN CONTROL PANEL
◇ : TERMINAL LOCATED IN SCADA PANEL
▲ : DEVICE LOCATED ON MOTOR STARTER DOOR
◬ : DEVICE LOCATED ON EF4 MOTOR STARTER DOOR
✳ : LOCALLY MOUNTED

ALL DEVICES MOUNTED AT MOTOR STARTER
UNLESS OTHERWISE NOTED



VALVE FULLY CLOSED = DISCHARGE MODE
VALVE NOT FULLY CLOSED = NON-DISCHARGE MODE

▲ : DEVICE LOCATED IN MCC FEEDER UNIT DOOR
ALL DEVICES LOCATED IN THE VALVE ACTUATOR
UNLESS OTHERWISE NOTED

PUMP STATION SLIDE GATE CONTROL SCHEMATIC

LINE NUMBER & WIRE NUMBER PREFIX		
EQUIPMENT	PREFIX SHOWN ON DRAWING	ACTUATOR HORSEPOWER
RECIRCULATION SLIDE GATE 024-G-3	K	1.1 HP
DISCHARGE SLIDE GATE NO.1 024-G-1	L	2 HP
DISCHARGE SLIDE GATE NO.2 024-G-2	M	1.2 HP

NOTE: ALL DEVICES MOUNTED IN MOTOR STARTER UNLESS OTHERWISE NOTED

LEGEND:

LSBVC : LIMIT SWITCH CONTACT BREAKS WHEN GATE IS FULLY CLOSED.
LSBVO : LIMIT SWITCH CONTACT BREAKS WHEN GATE IS FULLY OPEN.
LSMVO : LIMIT SWITCH CONTACT MAKES WHEN GATE IS FULLY OPEN.
LSMVC : LIMIT SWITCH CONTACT MAKES WHEN GATE IS FULLY CLOSED.
△ : TERMINAL LOCATED IN MCC STARTER OR FEEDER UNIT
◬ : TERMINAL LOCATED IN LOCAL MOTOR STARTER
□ : TERMINAL LOCATED IN CONTROL PANEL
◇ : TERMINAL LOCATED IN SCADA PANEL
✳ : DEVICE LOCALLY MOUNTED

DONOHUE & ASSOCIATES

E12

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

TRASH RACK AND SLIDE GATE
CONTROL SCHEMATIC

SCALE: N/A DRAWN BY: CRP
DATE: 11-22-10 CHECKED BY: MM

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	86
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CPP, CKT 8, 120V, 60HZ

PFR — CONT. CKT. PWR. FAIL — NO 152,16,162 NC 2

RTU-1 FLEXLOGIX PUMP ALTERNATOR

RTU-1 OUTPUT ENABLE

START LF-1 NO 7, 17

START MP1 NO 31

START MP3 NO 41

START MP5 NO 51

START MP7 NO 61

START LF-2 NO 4,411

START MP2 NO 36

START MP4 NO 46

START MP6 NO 56

MPFS — MAIN PUMP FAIL TO STOP — NO 148

INTRINSICALLY SAFE RELAY (ISR) 1 FORM A (NO) 1 FORM B (NC) (TYPICAL)

ISR1	HIGH WATER ALARM
ISR2	MAIN LAG 6 START
ISR3	MAIN LAG 5 START
ISR4	MAIN LAG 4 START
ISR5	MAIN LAG 3 START
ISR6	MAIN LAG 2 START
ISR7	NO 156 NC 209
ISR8	MAIN LEAD START, ALL LOW FLOW STOP
ISR9	MAIN LAGS 4-6 STOP
ISR10	LOW FLOW LAG START
ISR11	MAIN LEAD, LAGS 1-3 STOP, ALL LOW FLOW START
ISR12	LOW FLOW LEAD START
ISR13	MAIN PUMP FAIL TO STOP
ISR14	ALL LOW FLOW STOP
ISR15	LOW WATER ALARM

GENERAL PURPOSE RELAY (GPR) 4 FORM C (NO/NC) (TYPICAL)

FLH	FLOAT HIGH WATER ALARM — NO 332,152,16,162 NC
FL2	FLOAT MAIN LAG 6 START — NO 27 NC
FL3	FLOAT MAIN LAG 5 START — NO 27 NC
FL4	FLOAT MAIN LAG 4 START — NO 27 NC
FL5	FLOAT MAIN LAG 3 START — NO 27 NC
FL6	FLOAT MAIN LAG 2 START — NO 27 NC
FL7	FLOAT MAIN LAG 1 START — NO 27 NC
FL8	FLOAT MAIN LEAD START, ALL LOW FLOW STOP — NO 27 NC
FL9	FLOAT MAIN LAGS 4-6 STOP — NO 27 NC
FL10	FLOAT LOW FLOW LAG START — NO 27 NC
FL11	FLOAT MAIN LEAD, LAGS 1-3 STOP, ALL LOW FLOW START — NO 27 NC
FL12	FLOAT LOW FLOW LEAD START — NO 27 NC
FL13	FLOAT MAIN PUMP FAIL TO STOP — NO 27 NC
FL14	FLOAT ALL LOW FLOW STOP — NO 27 NC
FLL	FLOAT LOW WATER ALARM — NO 27 NC

201	FLOAT HIGH WATER ALARM
202	FLOAT MAIN LAG 6 START
203	FLOAT MAIN LAG 5 START
204	FLOAT MAIN LAG 4 START
205	FLOAT MAIN LAG 3 START
206	FLOAT MAIN LAG 2 START
207	FLOAT MAIN LAG 1 START
208	FLOAT MAIN LEAD START
209	FLOAT MAIN LAGS 4-6 STOP ALL LOW FLOW STOP
210	FLOAT LOW FLOW LAG START
211	FLOAT MAIN LEAD, LAGS 1-3 STOP, ALL LOW FLOW START
212	FLOAT LOW FLOW LEAD START
213	FLOAT MAIN PUMP FAIL TO STOP
214	FLOAT ALL LOW FLOW STOP
215	FLOAT LOW WATER ALARM
216	TO EF1 STARTER
217	FLOAT MAIN LEAD CALL
218	FLOAT MAIN LAG 1 CALL
219	FLOAT MAIN LAG 2 CALL
220	FLOAT MAIN LAG 3 CALL
221	FLOAT MAIN LAG 4 CALL
222	FLOAT MAIN LAG 5 CALL
223	FLOAT MAIN LAG 6 CALL
	FLOAT LOW FLOW LEAD CALL
	FLOAT LOW FLOW LAG CALL
	SCADA LD CALL
	SCADA LAG 1 CALL
	SCADA LAG 2 CALL
	SCADA LAG 3 CALL
	SCADA LAG 4 CALL
	SCADA LAG 5 CALL
	SCADA LAG 6 CALL
	SCADA LD LF CALL
	SCADA LF LAG CALL

DONOHUE & ASSOCIATES

E13

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

CONTROL PANEL SCHEMATIC SHEET 1

REVISIONS	
NAME	DATE

SCALE: N/A — DRAWN BY: CRP

DATE: 11-22-10 — CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	87
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CPP, CKT 10, 120V 60 HZ

ANNUNCIATOR

AN-1 MAIN PUMP 1 FAILURE
AN-2 MAIN PUMP 2 FAILURE
AN-3 MAIN PUMP 3 FAILURE
AN-4 MAIN PUMP 4 FAILURE
AN-5 MAIN PUMP 5 FAILURE
AN-6 MAIN PUMP 6 FAILURE
AN-7 MAIN PUMP 7 FAILURE
AN-8 MAIN PUMP 1 OVER TEMP/ MOISTURE
AN-9 MAIN PUMP 2 OVER TEMP/ MOISTURE
AN-10 MAIN PUMP 3 OVER TEMP/ MOISTURE
AN-11 MAIN PUMP 4 OVER TEMP/ MOISTURE
AN-12 MAIN PUMP 5 OVER TEMP/ MOISTURE
AN-13 MAIN PUMP 6 OVER TEMP/ MOISTURE
AN-14 MAIN PUMP 7 OVER TEMP/ MOISTURE
AN-15 LOW FLOW PUMP 1 FAILURE
AN-16 LOW FLOW PUMP 2 FAILURE
AN-22 LOW FLOW PUMP 1 OVER TEMP/ MOISTURE
AN-23 LOW FLOW PUMP 2 OVER TEMP/ MOISTURE

AN-29 HIGH WATER LEVEL
AN-30 INC LINE 1 NORMAL SOURCE POWER FAILURE
AN-31 INC LINE 2 EMERGENCY SOURCE POWER FAILURE
AN-32 GENERATOR ALARM
AN-33 SCADA PNL POWER FAILURE
AN-34 SCADA PANEL ALARM
AN-36 LOW WATER LEVEL
AN-37 COMBUSTIBLE GAS ALARM
AN-38 COMBUSTIBLE GAS WARNING
AN-39 COMBUSTIBLE GAS DET. TROUBLE
AN-40 FIRE ALARM
AN-41 INTRUSION ALARM

ALARM ACK
RAA RELAY ALARM ACK NO 382,384,391
TDAA TIME DELAY ALARM ACK NO 382
ALARM ACKNOWLEDGED

24V DC FROM SCADA PANEL
PUMP STATION — NO 403 NC 365
ELEC. CONT. ROOM — *DS5 *DS6 *DS7
GENERATOR ROOM — *DS8 *DS9 *DS10 — NO 403 NC 365
CR1 395 CR1 CR2 400

INTRUSION ALARM PANEL CIRCUITRY

TDF1 TIME DELAY FAIL 1 NO 421
TDF2 TIME DELAY FAIL 2 NO 422
TDF3 TIME DELAY FAIL 3 NO 423
TDF4 TIME DELAY FAIL 4 NO 424
TDF5 TIME DELAY FAIL 5 NO 425
TDF6 TIME DELAY FAIL 6 NO 426
TDF7 TIME DELAY FAIL 7 NO 427
TDF8 TIME DELAY FAIL 8 NO 428
TDF9 TIME DELAY FAIL 9 NO 429

MAIN PUMP 1 FAIL NO 245
MAIN PUMP 2 FAIL NO 245
MAIN PUMP 3 FAIL NO 245
MAIN PUMP 4 FAIL NO 245
MAIN PUMP 5 FAIL NO 245
MAIN PUMP 6 FAIL NO 245
MAIN PUMP 7 FAIL NO 245
LF PUMP 1 FAIL NO 245
LF PUMP 2 FAIL NO 245

CPP, CKT 3, 120V, 60 HZ

ELEC CONT/ GEN BLDG EOL
PUMP ROOM EL. 408.0 EOL
DISCH. FLOOR EL. 393.0 EOL
INTM. FLOOR EL. 380.0 EOL
FIRE ALARM PANEL
FAP-489

ELEC CONT GEN BLDG STROBE
PUMP ROOM STROBE
DISCHARGE LEVEL STROBE
INTERMEDIATE LEVEL STROBES

FIRE ALARM PANEL CIRCUITRY

CPP, CKT 12, 120V 60 HZ

COMBUSTIBLE GAS MONITOR

CGO1 GAS SENSOR — INTERMED. FLR EL. 611.25
CGO2 GAS SENSOR — DISCHARGE FLR EL. 627.00
CGO3 GAS SENSOR — ENTRANCE EL. 641.50
CGO4 GAS SENSOR — TRASH RACK RM EL. 641.50
CGO5 GAS SENSOR — PUMP ROOM EL. 641.58
CGO6 GAS SENSOR — ROOF STAIR ACC. EL. 641.58

GR1 CAUTION — NO 356, 481
GR2 WARNING — NO G10, 482, 484 NO G4
GR3 ALARM — NO 355, H5, EF1, SF4
GR4 TROUBLE — NO 359, 483
HR HORN RELAY
RC SNUBBER / MOV

H1 OPR ROOM
H2 PUMP ROOM
H3 DISCH FLOOR
H4 INTM FLOOR

LEGEND:
● : NON LOCK-IN TYPE ANNUNCIATOR POINT

ALL ANNUNCIATOR POINTS SHALL BE SET AS LOCK-IN TYPE UNLESS OTHERWISE INDICATED AS NON LOCK-IN TYPE.

DONOHUE & ASSOCIATES

E14

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

CONTROL PANEL SCHEMATIC SHEET 2

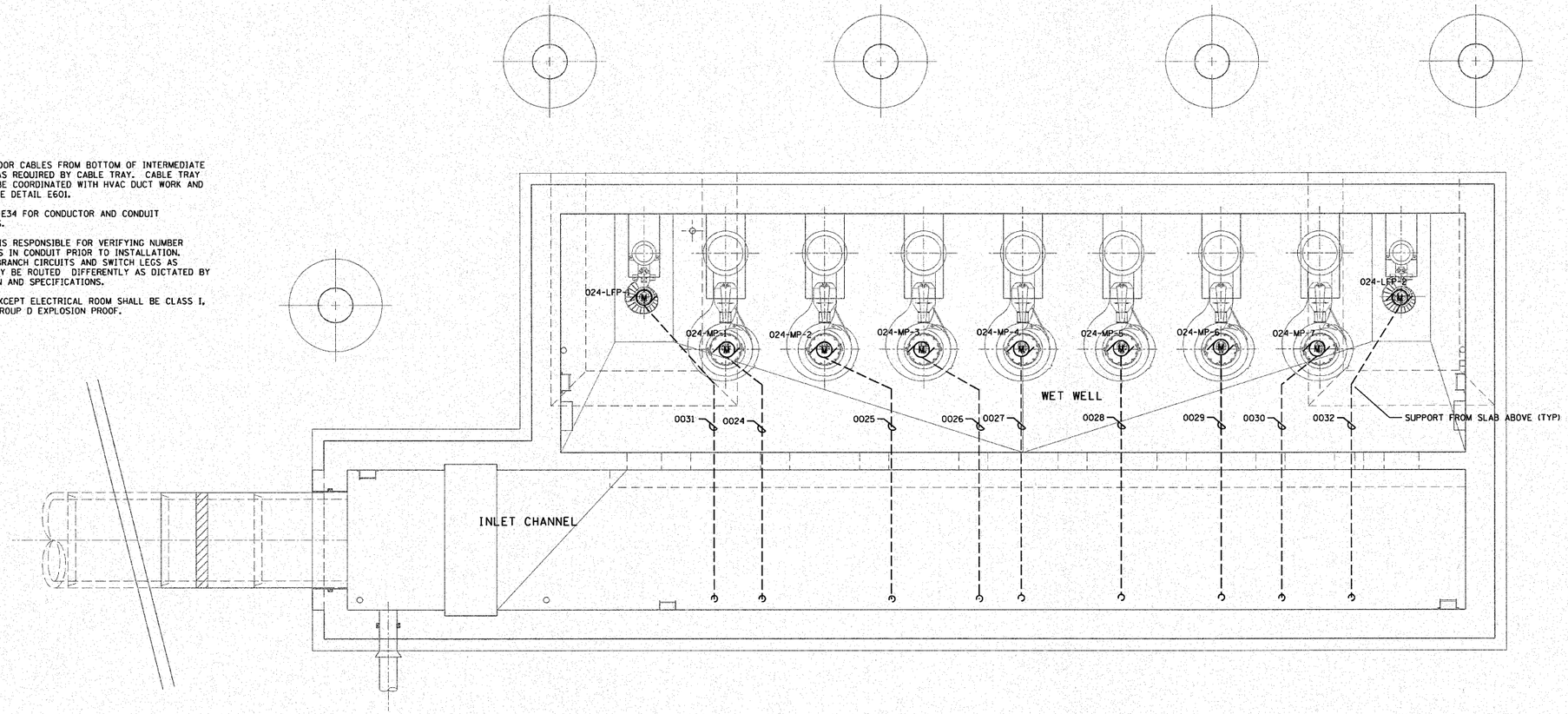
SCALE: N/A — DRAWN BY: CRP

DATE: 11-22-10 — CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	88
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

NOTES:

1. SUPPORT VENDOR CABLES FROM BOTTOM OF INTERMEDIATE LEVEL SLAB AS REQUIRED BY CABLE TRAY. CABLE TRAY ROUTING TO BE COORDINATED WITH HVAC DUCT WORK AND SUPPORTS. SEE DETAIL E601.
2. SEE DRAWING E34 FOR CONDUCTOR AND CONDUIT REQUIREMENTS.
3. CONTRACTOR IS RESPONSIBLE FOR VERIFYING NUMBER OFCONDUCTORS IN CONDUIT PRIOR TO INSTALLATION. LOCATION OFBRANCH CIRCUITS AND SWITCH LEGS AS INDICATED MAY BE ROUTED DIFFERENTLY AS DICTATED BY CONSTRUCTION AND SPECIFICATIONS.
4. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 1, GROUP D EXPLOSION PROOF.



PLAN @ EL. 597.5

SCALE: 0 4 8 12

E15

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

ELECTRICAL POWER PLAN
SHEET 1.

SCALE: AS SHOWN DRAWN BY: MS

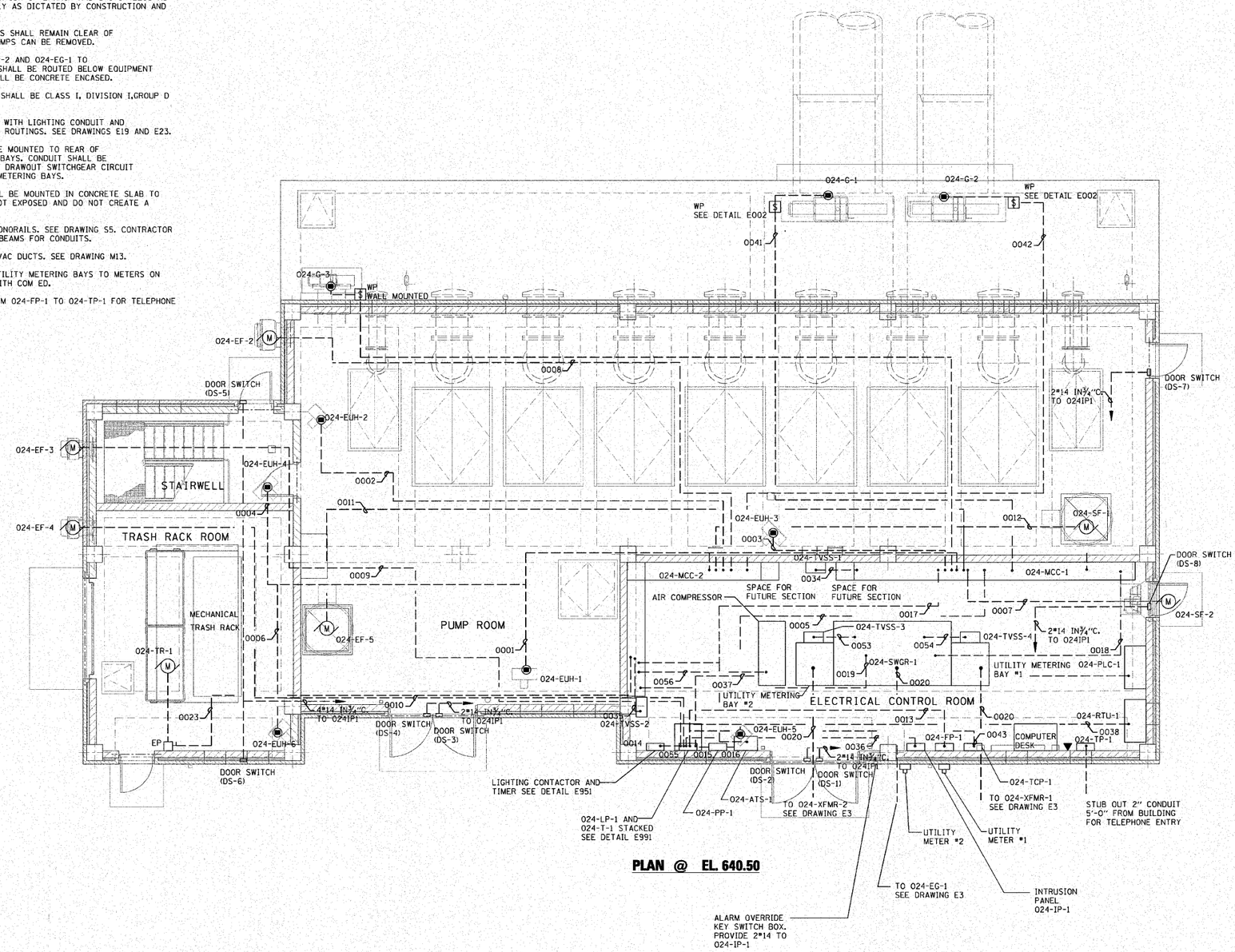
DATE: 11-22-10 CHECKED BY: MS

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	89
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

NOTES:

1. SEE DRAWING E34 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.
3. THE AREAS BENEATH THE ROOF HATCHES SHALL REMAIN CLEAR OF CONDUITS AND EQUIPMENT SO THAT PUMPS CAN BE REMOVED.
4. CONDUITS FROM O24-XFMR-1, O24-XFMR-2 AND O24-EG-1 TO O24-SWGR-1,024-PLC-1, AND O24-PP-1 SHALL BE ROUTED BELOW EQUIPMENT THRU DISCHARGE LEVEL. CONDUITS SHALL BE CONCRETE ENCASED.
5. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION I,GROUP D EXPLOSION PROOF.
6. COORDINATE POWER CONDUIT ROUTINGS WITH LIGHTING CONDUIT AND INSTRUMENTATION & CONTROL CONDUIT ROUTINGS. SEE DRAWINGS E19 AND E23.
7. O24-TVSS-3 AND O24-TVSS-4 SHALL BE MOUNTED TO REAR OF SWITCHBOARD CONSTRUCTED METERING BAYS. CONDUIT SHALL BE ROUTED FROM TVSS UNIT DIRECTLY TO DRAWOUT SWITCHGEAR CIRCUIT BREAKER. CONDUIT SHALL NOT ENTER METERING BAYS.
8. CONDUITS FROM EXTERIOR GATES SHALL BE MOUNTED IN CONCRETE SLAB TO BUILDING SUCH THAT CONDUITS ARE NOT EXPOSED AND DO NOT CREATE A TRIPPING HAZARD.
9. COORDINATE CONDUIT ROUTING WITH MONORAILS. SEE DRAWING S5. CONTRACTOR IS NOT ALLOWED TO DRILL CONCRETE BEAMS FOR CONDUITS.
10. COORDINATE CONDUIT ROUTING WITH HVAC DUCTS. SEE DRAWING M13.
11. PROVIDE A 1½" GRS CONDUIT FROM UTILITY METERING BAYS TO METERS ON EXTERIOR OF BUILDING. COORDINATE WITH COM ED.
12. PROVIDE A DEDICATED¾" CONDUIT FROM O24-FP-1 TO O24-TP-1 FOR TELEPHONE LINE TO FIRE PANEL.



PLAN @ EL. 640.50

SCALE: 0 4 8 12

E16

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

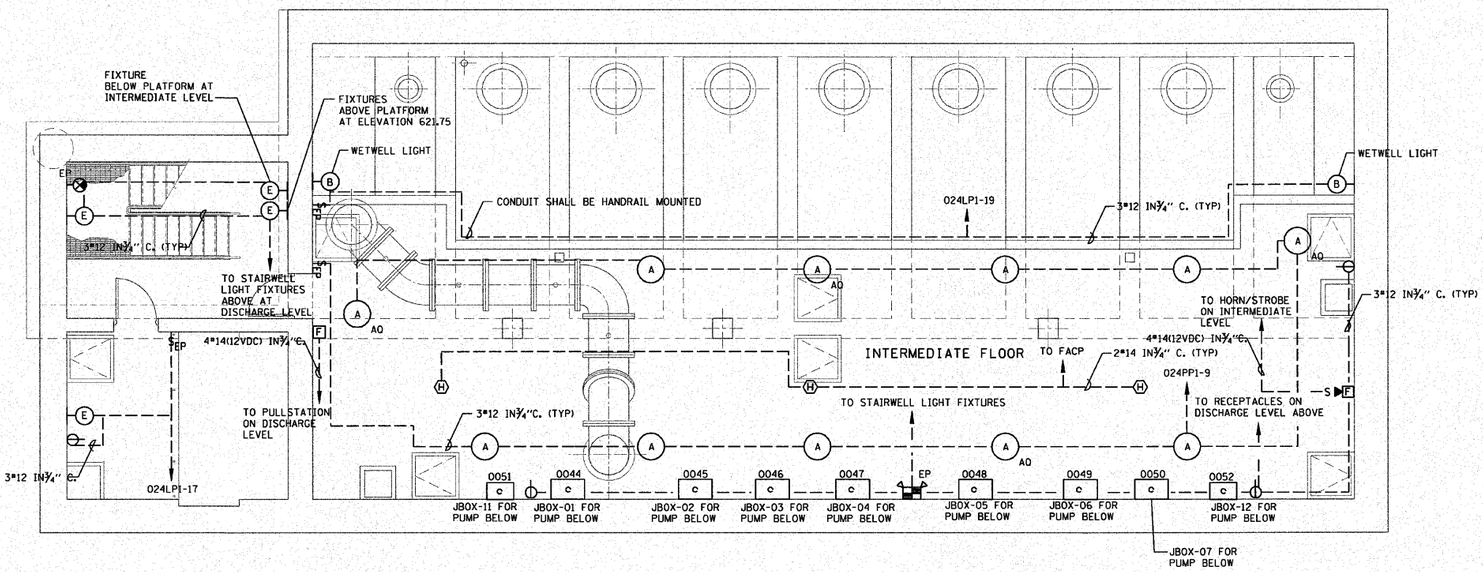
ELECTRICAL POWER PLAN SHEET 2.

SCALE: AS SHOWN DRAWN BY: MS

DATE: 11-22-10 CHECKED BY: MS

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	90
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 611.25

NOTES:

1. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION I, GROUP D EXPLOSION PROOF.
2. WET WELL LIGHTS SHALL BE MOUNTED 10'-6" AFF OF WET WELL.
3. CONDUIT FOR WET WELL LIGHTS SHALL BE MOUNTED TO HANDRAIL.
4. STAIRWELL SHALL HAVE ONE LIGHT FIXTURE ABOVE EACH LANDING, TOTAL OF 7 FIXTURES. SEE SECTIONS.
5. SEE DRAWING E34 FOR CONDUCTOR AND CONDUIT REQUIREMENTS.
6. 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.
7. JBOX CONDUITS SHALL BE ROUTED UP WALL TO DISCHARGE FLOOR.
8. MOUNT EXPLOSIONPROOF EMERGENCY LIGHT NEXT TO EACH EXIT LIGHT IN STAIRWELL AND WIRE TO SAME CIRCUIT AS WALL MOUNTED FIXTURE "E", TYPICAL OF 3 ON THIS DRAWING.
9. ALL FIRE ALARM EQUIPMENT SHOWN SHALL BE EXPLOSION PROOF.
10. COORDINATE CONDUIT ROUTINGS WITH HVAC DUCTS. SEE DRAWING M11.
11. SEE DETAILS E600 AND E605 FOR PURGE PANELS AND JBOXES. SEE DRAWINGS E18 AND E32.
12. PROVIDE 3*12 IN ¾" CONDUIT FROM EACH PURGE PANEL TO 024LP1, TYPICAL OF 9. SEE DRAWING E7 FOR CIRCUIT REQUIREMENTS.
13. EXIT LIGHTS AND EMERGENCY LIGHTING UNITS SHALL BE WIRED TO NON-SWITCHED PORTION OF LOCAL LIGHTING CIRCUITS.
14. INTERMEDIATE FLOOR LIGHTS SHALL BE 277VOLT, SINGLE PHASE.
15. COORDINATE CONDUIT ROUTINGS AND LIGHT FIXTURE LOCATIONS WITH MONORAILS. SEE DRAWING S3.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

E17

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

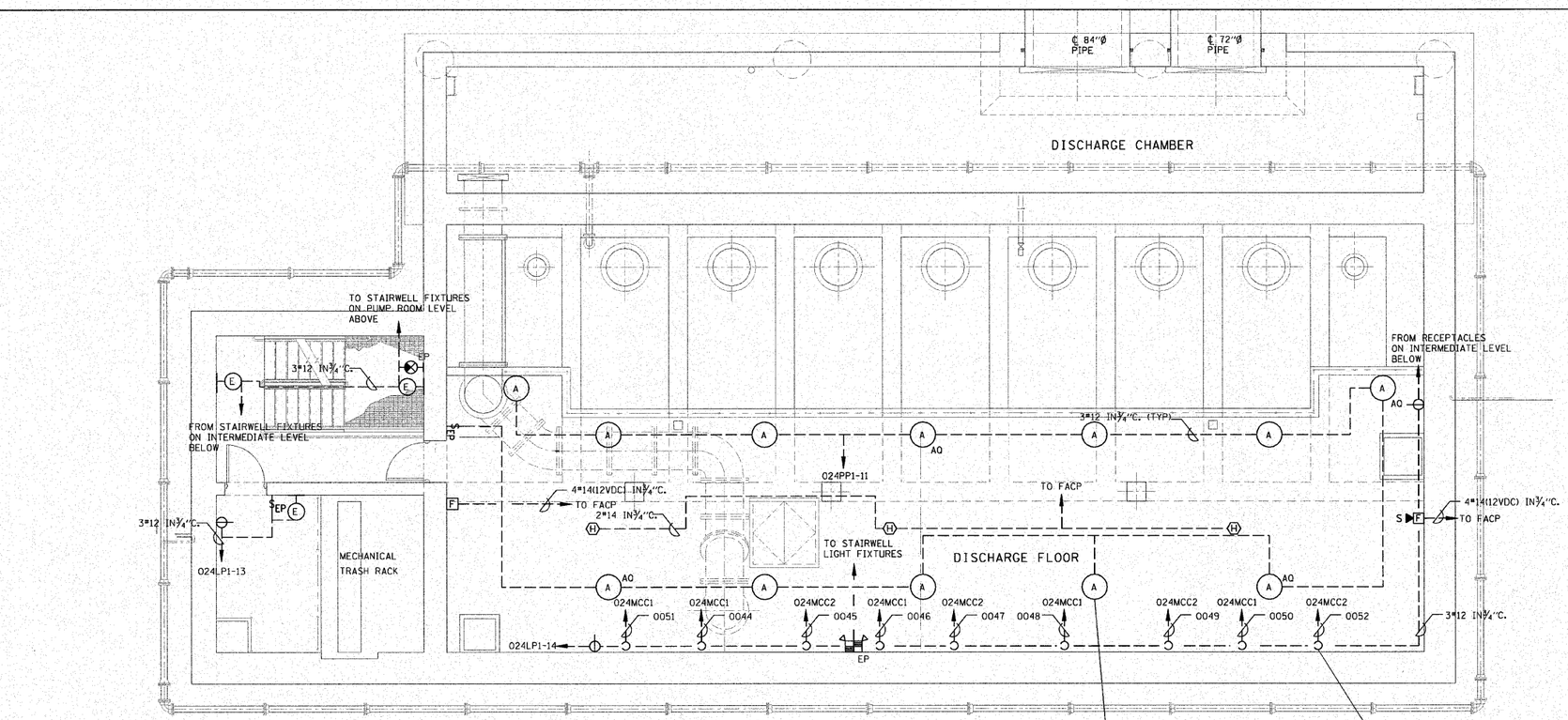
PUMP STATION NO. 24 RELOCATION

ELECTRICAL POWER/LIGHTING PLAN SHEET 1.

SCALE: AS SHOWN DRAWN BY: MS

DATE: 11-22-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	91
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

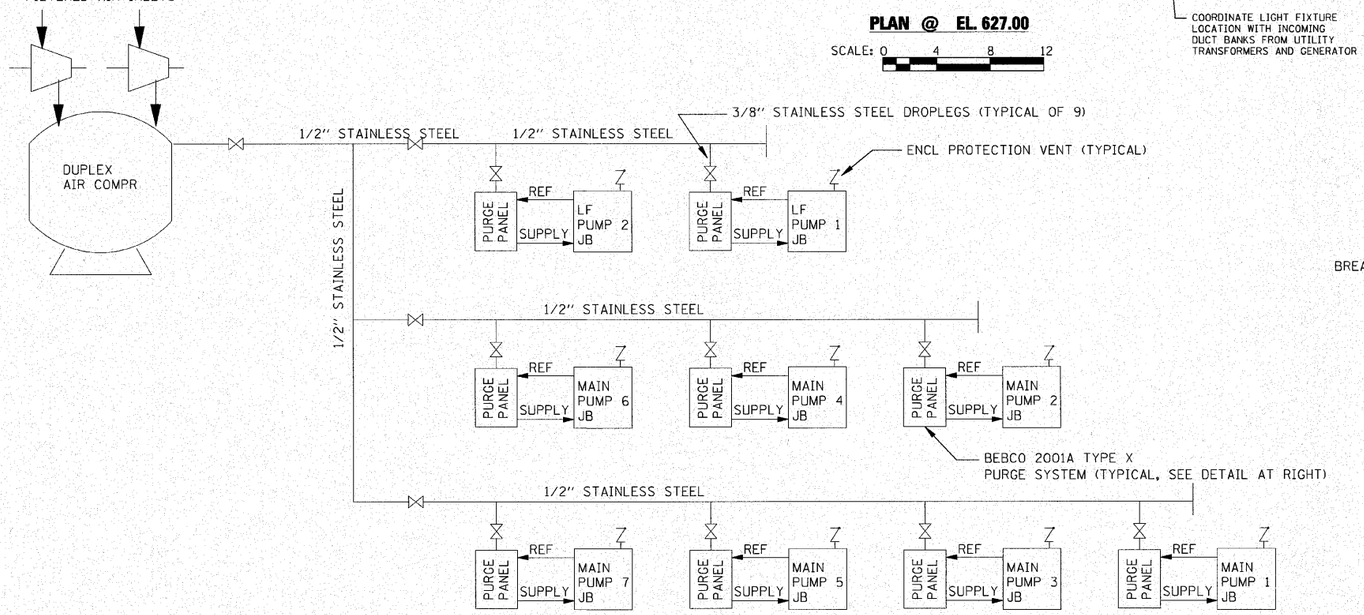


PLAN @ EL. 627.00

SCALE: 0 4 8 12

NOTES:

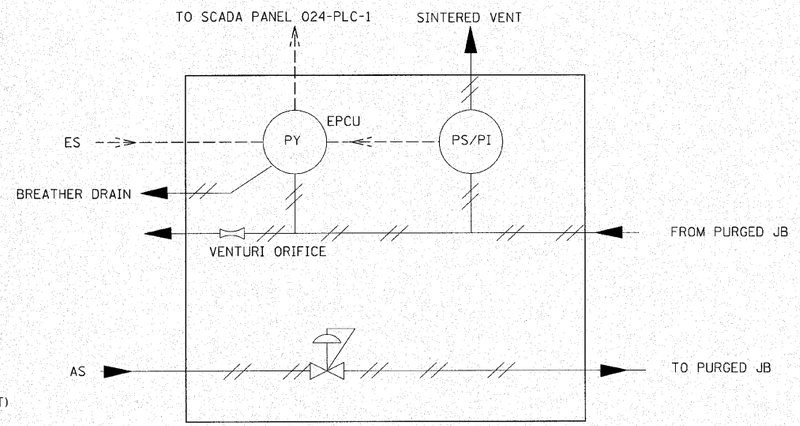
1. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION I, GROUP D EXPLOSION PROOF.
2. STAIRWELL SHALL HAVE A LIGHT FIXTURES ABOVE EACH LANDING, TOTAL OF 7 FIXTURES. SEE SECTIONS.
3. MOUNT EXPLOSIONPROOF EMERGENCY LIGHT IN STAIRWELL NEXT TO EXIT LIGHT AND WIRE TO SAME CIRCUIT AS WALL MOUNTED FIXTURE "E", TYPICAL OF 3 ON THIS DRAWING.
4. ALL FIRE ALARM EQUIPMENT SHOWN SHALL BE EXPLOSION PROOF.
5. SEE DRAWING E34 FOR CONDUIT AND CONDUCTOR REQUIREMENTS.
6. COORDINATE CONDUIT ROUTING WITH HVAC DUCTS. SEE DRAWING M12.
7. COORDINATE CONDUIT ROUTING WITH MONORAILS.
8. EXIT LIGHT AND EMERGENCY LIGHTING UNITS SHALL BE WIRED TO NON-SWITCHED PORTION OF LOCAL LIGHTING CIRCUITS.
9. DISCHARGE FLOOR LIGHTS SHALL BE 277VOLT, SINGLE PHASE.



PUMP MOTOR CABLE JUCTION BOX PURGE SYSTEM

N.T.S.

NOTE: PURGE SYSTEM PIPING TO BE FURNISHED UNDER DIVISION 16 AND INSTALLED UNDER DIVISION 15.



DETAIL – PURGE PANEL

N.T.S.

DONOHUE & ASSOCIATES

E18

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

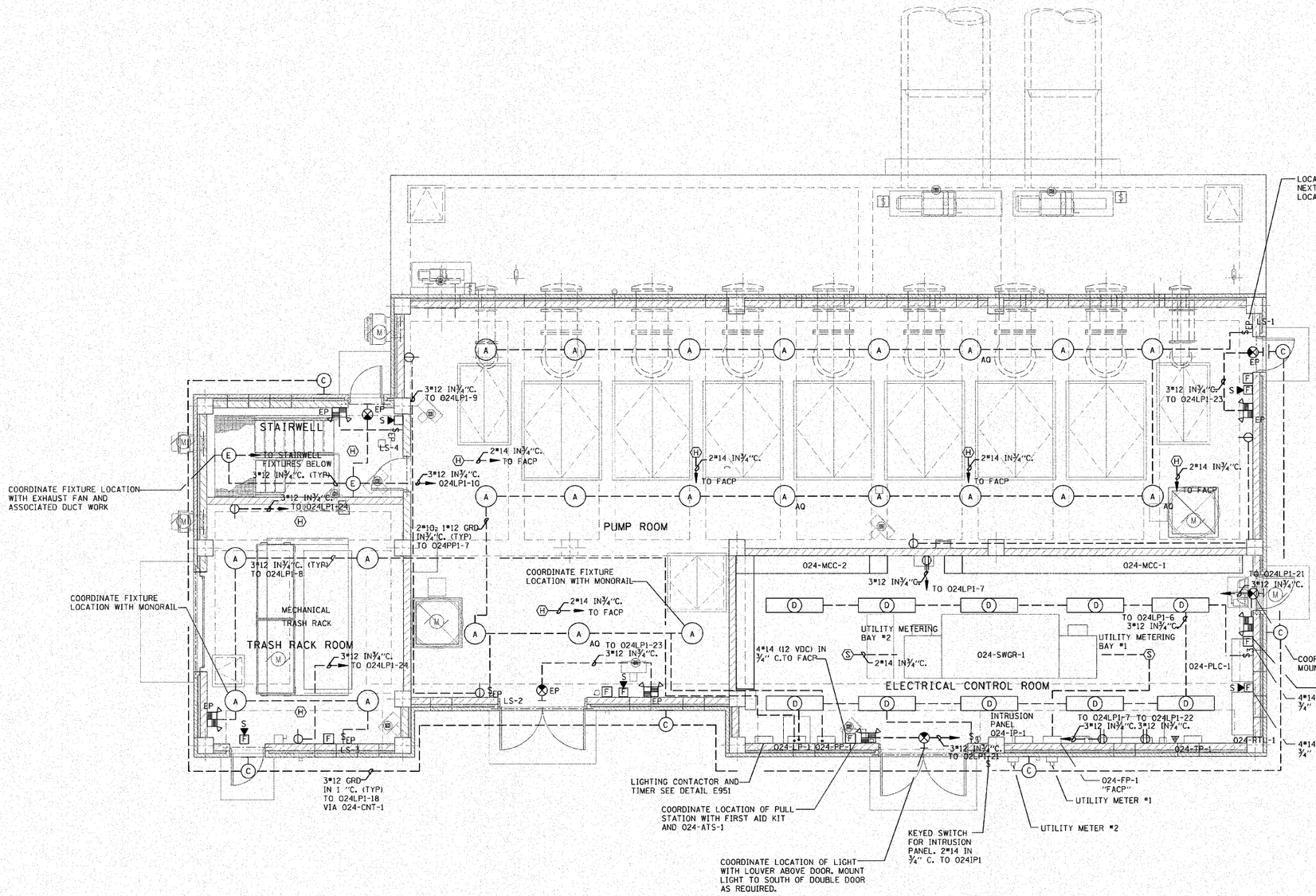
PUMP STATION NO. 24 RELOCATION

ELECTRICAL LIGHTING PLAN SHEET 2.

SCALE: AS SHOWN DRAWN BY: MS

DATE: 11-22-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	92
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. 640.50

NOTES:

1. FLUORESCENT LIGHTS IN ELECTRICAL ROOM SHALL BE MOUNTED 9'-6" AFF. FIXTURES SHALL BE SUPPORTED FROM CEILING.
2. ALL ROOMS EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 1, GROUP D EXPLOSIONPROOF.
3. PUMP ROOM LIGHT FIXTURES SHALL BE 277VOLT, SINGLE PHASE.
4. CONDUITS FOR EXTERIOR LIGHT FIXTURES SHALL BE ROUTED ON THE INTERIOR OF THE BUILDING AND STUB OUT AT FIXTURE LOCATIONS. CONDUIT IS SHOWN ROUTED ON THE OUTSIDE OF THE BUILDING FOR CLARITY.
5. FIRE ALARM PULL STATION NEAR ELECTRICAL ROOM DOUBLE DOOR SHALL BE COORDINATED WITH 024-ATS-1 AND FIRST AID KIT LOCATION.
6. ALL FIRE ALARM EQUIPMENT SHOWN IN PUMP ROOM, STAIRWELL, AND TRASH RACK ROOM SHALL BE EXPLOSION PROOF AND WIRED TO FACP WITH 4#14 (12 VDC) IN¾" CONDUIT.
7. COORDINATE CONDUIT ROUTING WITH MONORAILS. SEE DRAWING S5. CONTRACTOR IS NOT ALLOWED TO DRILL CONCRETE BEAMS FOR CONDUIT.
8. COORDINATE CONDUIT ROUTING AND LIGHT FIXTURE LOCATIONS WITH HVAC DUCTS. SEE DRAWING M13.
9. COORDINATE CONDUIT ROUTING WITH INSTRUMENTATION AND CONTROL CONDUIT AND POWER CONDUIT. SEE DRAWINGS E16 AND E23.
10. THE AREAS BENEATH THE ROOF HATCHES SHALL REMAIN CLEAR OF CONDUIT AND EQUIPMENT SO THAT THE PUMPS CAN BE REMOVED.
11. HEAT DETECTORS IN STAIRWELL AND TRASH RACK ROOM SHALL BE WIRED TO FACP WITH 2#14 IN¾" CONDUIT.
12. EXIT LIGHTS AND EMERGENCY LIGHTING UNITS SHALL BE WIRED TO THE NON-SWITCHED PORTION OF THE LOCAL LIGHTING CIRCUITS.

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

E19

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

ELECTRICAL LIGHTING PLAN SHEET 3.

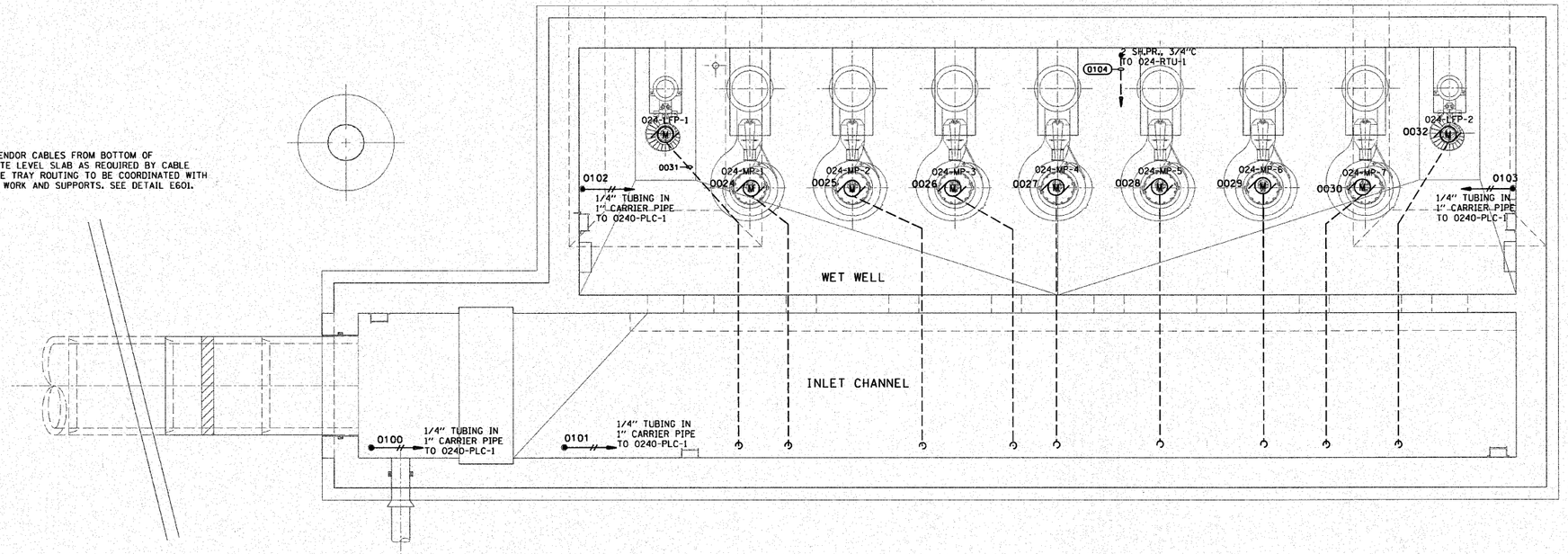
SCALE: AS SHOWN DRAWN BY: MS

DATE: 11-22-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	93
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

NOTES:

1. SUPPORT VENDOR CABLES FROM BOTTOM OF INTERMEDIATE LEVEL SLAB AS REQUIRED BY CABLE TRAY. CABLE TRAY ROUTING TO BE COORDINATED WITH HVAC DUCT WORK AND SUPPORTS. SEE DETAIL E601.



ID	TAG NAME	DETAIL	WIRING	CONDUIT	DESTINATION	ID	COMMENTS
0024	024-MP-1	N/A	2 VFC	N/A	JBX-01	0044	
0025	024-MP-2	N/A	2 VFC	N/A	JBX-02	0045	
0026	024-MP-3	N/A	2 VFC	N/A	JBX-03	0046	
0027	024-MP-4	N/A	2 VFC	N/A	JBX-04	0047	
0028	024-MP-5	N/A	2 VFC	N/A	JBX-05	0048	
0029	024-MP-6	N/A	2 VFC	N/A	JBX-06	0049	
0030	024-MP-7	N/A	2 VFC	N/A	JBX-07	0050	
0031	024-LFP-1	N/A	2 VFC	N/A	JBX-11	0051	
0032	024-LFP-2	N/A	2 VFC	N/A	JBX-12	0052	
0100	024-CB-3	SHT M19	N/A	N/A	024-PLC-1	0038	COMP. BELL
0101	024-CB-4	SHT M19	N/A	N/A	024-PLC-1	0038	COMP. BELL
0102	024-CB-1	SHT M19	N/A	N/A	024-PLC-1	0038	COMP. BELL
0103	024-CB-2	SHT M19	N/A	N/A	024-PLC-1	0038	COMP. BELL
0104	024-CGD-1	N004	2 SH.PR.	3/4"	024-RTU-1	0037	

PLAN @ EL. 597.5

SCALE: 0 4 8 12

E20

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

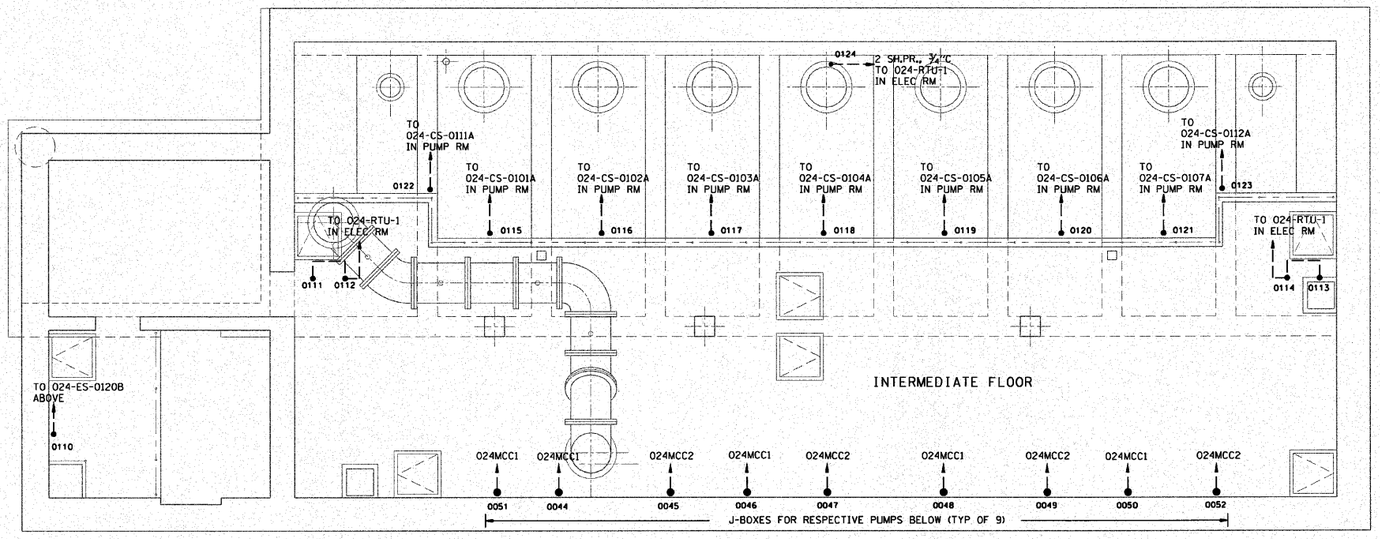
I&C PLAN SHEET 1.

SCALE: AS SHOWN OR N/A) DRAWN BY: MS

DATE: 11-22-10 CHECKED BY: MS

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	94
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



NOTES:

1. ALL ROOM EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION I, GROUP D EXPLOSION PROOF.
2. COORDINATE INSTRUMENTATION & CONTROL CONDUIT ROUTINGS WITH POWER AND LIGHTING CONDUIT ROUTINGS.
3. SEE DETAILS E600 AND E605 FOR JBOXES AND PURGE PANELS. SEE DRAWINGS E18 AND E31.
4. COORDINATE CONDUIT ROUTING WITH HVAC DUCTS. SEE DRAWING M11.

ID	TAG NAME	DETAIL	WIRING	CONDUIT SIZE	DESTINATION	ID	COMMENTS
0044	JBX-01	E600	8*14	3/4"	024-MCC1-2A	0018	
0045	JBX-02	E600	8*14	3/4"	024-MCC2-2A	0019	
0046	JBX-03	E600	8*14	3/4"	024-MCC1-3A	0018	
0047	JBX-04	E600	8*14	3/4"	024-MCC2-3A	0019	
0048	JBX-05	E600	8*14	3/4"	024-MCC1-4A	0018	
0049	JBX-06	E600	8*14	3/4"	024-MCC2-4A	0019	
0050	JBX-07	E600	8*14	3/4"	024-MCC1-5A	0018	
0051	JBX-11	E600	8*14	3/4"	024-MCC1-6B	0018	
0052	JBX-12	E600	8*14	3/4"	024-MCC2-5B	0019	
0110	024-ES-0120A	N002	4*14	3/4"	024-ES-0120B	0200	
0111	024-FS-MP-11A-J	N013	10 VFC	3/4"	JBX-21	0112	
0112	JBX-21	N001	20*14	3/4"	024-RTU-1	0037	
0113	024-FS-MP-11K-0	N013	5 VFC	3/4"	JBX-22	0114	
0114	JBX-22	N001	10*14	3/4"	024-RTU-1	0037	
0115	024-CS-0101B	N002	8*14	3/4"	024-CS-0101A	0401	
0116	024-CS-0102B	N002	8*14	3/4"	024-CS-0102A	0402	
0117	024-CS-0103B	N002	8*14	3/4"	024-CS-0103A	0403	
0118	024-CS-0104B	N002	8*14	3/4"	024-CS-0104A	0404	
0119	024-CS-0105B	N002	8*14	3/4"	024-CS-0105A	0405	
0120	024-CS-0106B	N002	8*14	3/4"	024-CS-0106A	0406	
0121	024-CS-0107B	N002	8*14	3/4"	024-CS-0107A	0407	
0122	024-CS-0111B	N002	8*14	3/4"	024-CS-0111A	0411	
0123	024-CS-0112B	N002	8*14	3/4"	024-CS-0112A	0412	
0124	024-CGD-2	N004	2 SH.PR.	3/4"	024-RTU-1	0037	

PLAN @ EL. 611.25

SCALE: 0 4 8 12

E21

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

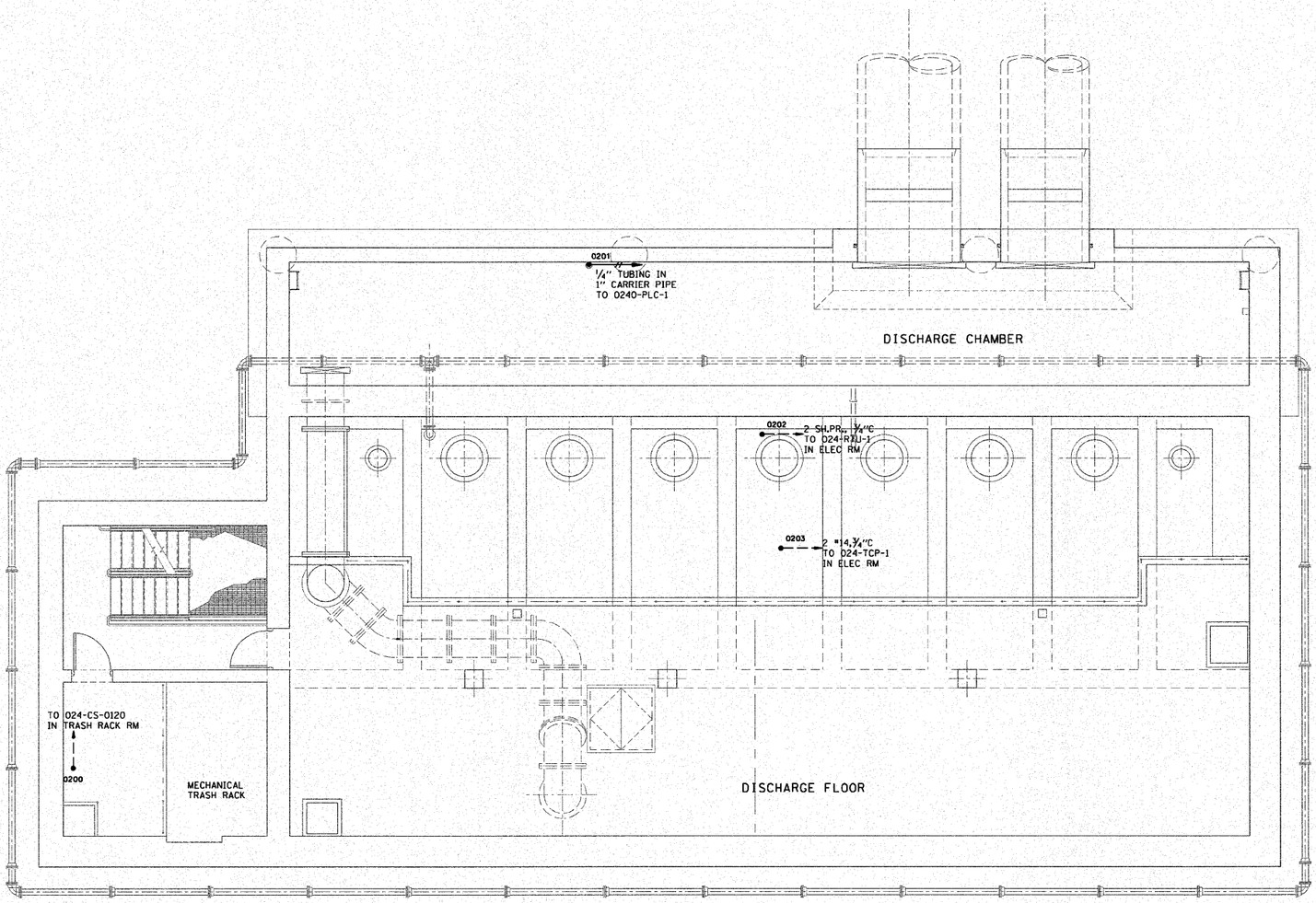
I&C PLAN,
SHEET 2.

SCALE: AS SHOWN DRAWN BY: MS

DATE: 11-22-10 CHECKED BY: MS

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	95
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



ID	TAG NAME	DETAIL	WIRING	CONDUIT	DESTINATION	ID	COMMENTS
0200	024-ES-0120B	N002	4#14	3/4"	024-CS-0120	0400	
0201	024-CB-5	SHT. M19		N/A			COMP. BELL
0202	024-CGD-3	N004	2 SH.PR.	3/4"	024-RTU-1	0037	
0203	024-TSH-1	MNFC	4#14	3/4"	024-TCP-1	0043	

PLAN @ EL 627.00

NOTES:

1. ALL ROOM EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION I, GROUP D EXPLOSION PROOF.
2. COORDINATE INSTRUMENTATION & CONTROL CONDUIT ROUTINGS WITH POWER AND LIGHTING CONDUIT ROUTINGS.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

E22

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

I&C PLAN
SHEET 3.

SCALE: ~~AS SHOWN~~ OR N/A) DRAWN BY: MS

DATE: 11-22-10 CHECKED BY: MS

ID	TAG NAME	DETAIL	WIRING	CONDUIT	DESTINATION	ID	COMMENTS
0007	024-EF-1	N/A					
0008	024-EF-2	N/A					
0009	024-EF-3	N/A					
0010	024-EF-4	N/A					
0011	024-EF-5	N/A					
0012	024-SF-1	N/A					
0013	024-FP-1	N/A	2*14	3/4"	024-RTU-1	0037	
			2*14	3/4"	024-PLC-1	0038	
0014	024-LP-1	N/A					
0017	024-ATS-1	N/A	2*14	3/4"	024-PLC-1	0038	
0018	024-MCC-1	N/A	60*14	3/4"	024-RTU-1	0037	
0019	024-MCC-2	N/A	48*14	3/4"	024-RTU-1	0037	
0020	024-SWGR-1	N/A	8*14	3/4"	024-PLC-1	0038	
			10*14	3/4"	024-EG-1	0039	
			2* CAT6	3/4"	024-PLC-1	0038	
0023	024-TR-1	N/A					
0033	024-TP-1	N/A					
0034	024-TVSS-1	N/A	2*14	3/4"	024-PLC-1	0038	
0035	024-TVSS-2	N/A	2*14	3/4"	024-PLC-1	0038	
0036	024-IP-1	N/A	4*14	3/4"	024-RTU-1	0037	
		N/A	4*14	3/4"	024-PLC-1	0038	
0037	024-RTU-1	N003					
0038	024-PLC-1	N003					
0039	024-EG-1	N/A					
0040	024-G-3	N/A	10*14	3/4"	024-PLC-1	0038	
			1 SH.PR.	3/4	024-PLC-1	0038	
0041	024-G-1	N/A	10*14	3/4"	024-PLC-1	0038	
			1 SH.PR.	3/4	024-PLC-1	0038	
0042	024-G-2	N/A	10*14	3/4"	024-PLC-1	0038	
			1 SH.PR.	3/4	024-PLC-1	0037	
0043	024-TCP-1	N/A	2*14	3/4"	024-PLC-1	0038	
0400	024-CS-0120	N002	4*14	3/4"	024-PLC-1	0038	
			4*14	3/4"	024-MCC2-7D	0018	
0401	024-CS-0101A	N002	4*14	3/4"	024-RTU-1	0037	
			6*14	3/4"	024-MCC1-2A	0018	
0402	024-CS-0102A	N002	4*14	3/4"	024-RTU-1	0037	
			6*14	3/4"	024-MCC2-1A	0019	
0403	024-CS-0103A	N002	4*14	3/4"	024-RTU-1	0037	
			6*14	3/4"	024-MCC-1-3A	0018	
0404	024-CS-0104A	N002	4*14	3/4"	024-RTU-1	0037	
			6*14	3/4"	024-MCC2-2A	0019	
0405	024-CS-0105A	N002	4*14	3/4"	024-RTU-1	0037	
			6*14	3/4"	024-MCC1-4A	0018	

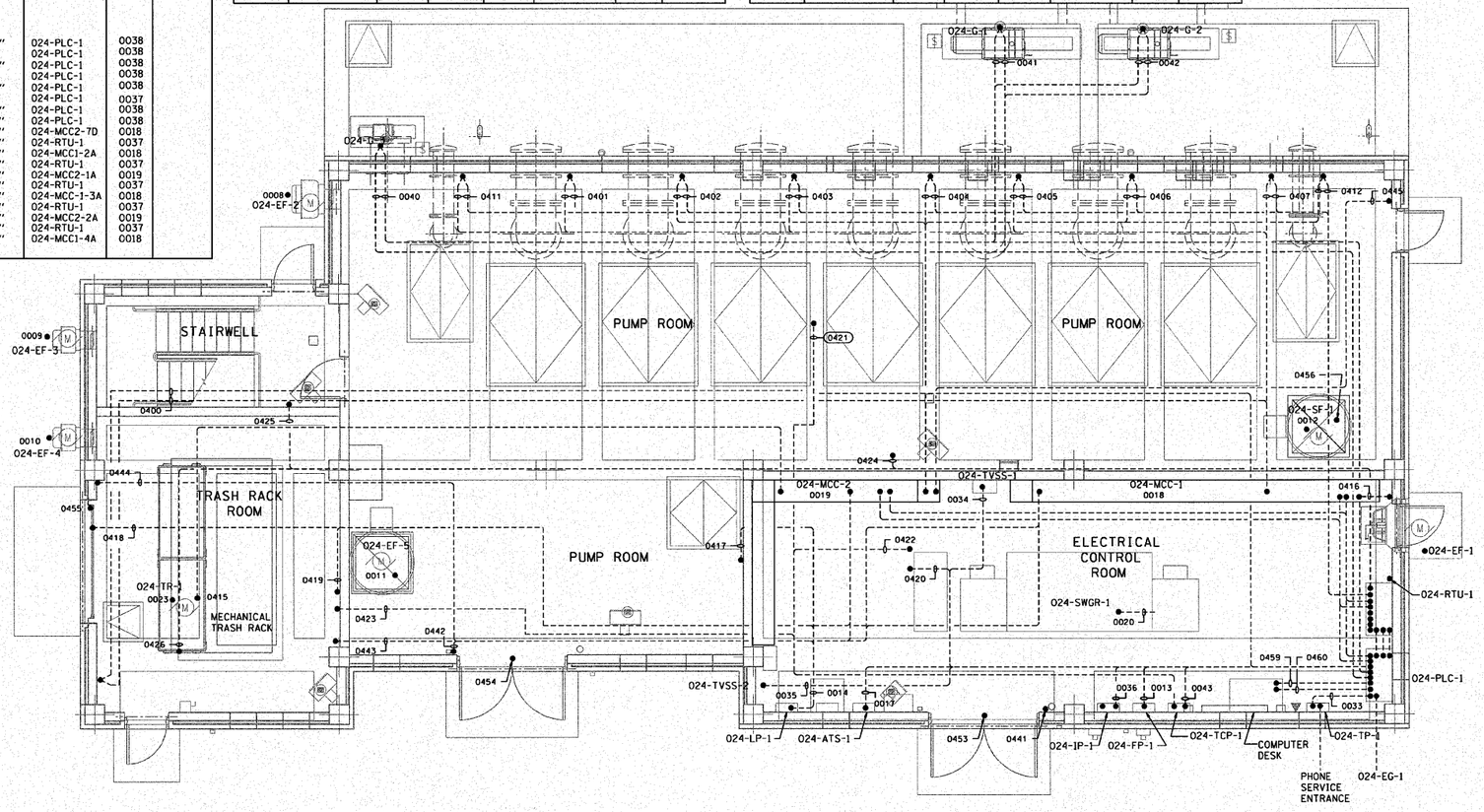
ID	TAG NAME	DETAIL	WIRING	CONDUIT	DESTINATION	ID	COMMENTS
0406	024-CS-0106A	N002	4*14	3/4"	024-RTU-1	0037	
			6*14	3/4"	024-MCC2-5A	0019	
0407	024-CS-0107A	N002	4*14	3/4"	024-RTU-1	0037	
			6*14	3/4"	024-MCC-1-5A	0018	
0411	024-CS-0111A	N002	4*14	3/4"	024-RTU-1	0037	
			6*14	3/4"	024-MCC1-6A	0018	
0412	024-CS-0112A	N002	4*14	3/4"	024-RTU-1	0037	
			6*14	3/4"	024-MCC2-6A	0019	
0415	024-WSH-1	MNFC	3*14	3/4"	024-MCC2-7D	0019	
0416	024-HS-EF-1	N/A	3*14	3/4"	024-MCC1-7F	0018	
0417	024-HS-EF-2	N/A	3*14	3/4"	024-MCC2-3F	0019	
0418	024-HS-EF-3	N/A	3*14	3/4"	024-LP1-3	0014	
0419	024-HS-E/SF-4/5	N/A	3*14	3/4"	024-MCC1-8A	0018	
0420	024-ASH-1	N/A	2*14	3/4"	024-PLC-1	0038	
0421	024-TSH-2	N/A	2*14	3/4"	024-TCP-1	0043	
0422	024-TSH-3	N/A	2*14	3/4"	024-TCP-1	0043	
0423	024-TSH-4	N/A	2*14	3/4"	024-TCP-1	0043	
0424	024-CGD-4	N004	2 SH.PR.	3/4"	024-RTU-1	0037	
0425	024-CGD-5	N004	2 SH.PR.	3/4"	024-RTU-1	0037	
0426	024-CGD-6	N004	2 SH.PR.	3/4"	024-RTU-1	0037	
0427							
0428							
0429							
0430							

ID	TAG NAME	DETAIL	WIRING	CONDUIT	DESTINATION	ID	COMMENTS
0431							
0432							
0433							
0434							
0441	024-LS-1	N/A					
0442	024-LS-2	N/A	2*14	3/4"	024-MCC2-3F	0019	
0443	024-LS-3	N/A	2*14	3/4"	024-MCC1-8A	0018	
0444	024-LS-4	N/A	2*14	3/4"	024-LP1-3	0014	
0445	024-LS-5	N/A	2*14	3/4"	024-MCC2-3F	0019	
0446	024-LS-6	N/A					
0453	024-MOD-1	N/A					
0454	024-MOD-2	N/A					
0455	024-MOD-3	N/A					
0456	024-MOD-4	N/A					IN VERTICAL
0457	024-UTIL-1	N/A					
0458	024-UTIL-2	N/A					

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	96
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

NOTES:

1. ALL ROOM EXCEPT ELECTRICAL ROOM SHALL BE CLASS I, DIVISION 1, GROUP D EXPLOSION PROOF.
2. COORDINATE INSTRUMENTATION & CONTROL CONDUIT ROUTINGS WITH POWER AND LIGHTING CONDUIT ROUTINGS.
3. CONDUITS FROM EXTERIOR GATES SHALL BE MOUNTED IN CONCRETE SLAB TO BUILDING SUCH THAT CONDUITS ARE NOT EXPOSED AND DO NOT CREATE A TRIPPING HAZARD.
4. THE AREAS BENEATH THTE ROOF HATCHES SHALL REMAIN CLEAR OF CONDUITS AND EQUIPMENT SO THAT PUMPS CAN BE REMOVED. SOME CONDUITS ARE SHOWN ROUTED THRU HATCHES FOR GRAPHICAL CLARIFICATION PURPOSES ONLY.
5. COORDINATE CONDUIT ROUTING WITH HVAC DUCTS. SEE DRAWING M13.
6. COORDINATE CONDUIT ROUTING WITH MONORAILS. SEE DRAWING S5. CONTRACTOR IS NOT ALLOWED TO DRILL CONCRETE BEAMS FOR CONDUITS.



PLAN @ EL. 640.50

SCALE: 0 4 8 12

E23

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

I&C PLAN, SHEET 4.

SCALE: AS SHOWN DRAWN BY: MS

DATE: 11-22-10 CHECKED BY: MS

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	97
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CONTROL PANEL DIGITAL INPUTS(TBDI)

TERM #	WIRE #	ORIGINATIION	DESCRIPTION OF INPUTS
32	CP-32	FLOAT 1	HIGH WATER ALARM
32A	CP-32A	FLOAT 1	HIGH WATER ALARM
37	CP-37	FLOAT 2	START LAG 6 MAIN PUMP
37A	CP-37A	FLOAT 2	START LAG 6 MAIN PUMP
42	CP-42	FLOAT 3	START LAG 5 MAIN PUMP
42A	CP-42A	FLOAT 3	START LAG 5 MAIN PUMP
47	CP-47	FLOAT 4	START LAG 4 MAIN PUMP
47A	CP-47A	FLOAT 4	START LAG 4 MAIN PUMP
52	CP-52	FLOAT 5	START LAG 3 MAIN PUMP
52A	CP-92A	FLOAT 5	START LAG 3 MAIN PUMP
57	CP-57	FLOAT 6	START LAG 2 MAIN PUMP
57A	CP-57A	FLOAT 6	START LAG 2 MAIN PUMP
62	CP-62	FLOAT 7	START LAG 1 MAIN PUMP
62A	CP-62A	FLOAT 7	START LAG 1 MAIN PUMP
67	CP-67	FLOAT 8	START LEAD MAIN PUMP, STOP LF PUMPS
67A	CP-67A	FLOAT 8	START LEAD MAIN PUMP, STOP LF PUMPS
72	CP-72	FLOAT 9	STOP LAG 4-6 MAIN PUMPS
72A	CP-72A	FLOAT 9	STOP LAG 4-6 MAIN PUMPS
77	CP-77	FLOAT 10	START LAG LOW FLOW PUMP
77A	CP-77A	FLOAT 10	START LAG LOW FLOW PUMP
82	CP-82	FLOAT 11	STOP LEAD, LAG 1-3 MAIN PUMPS AND START LOW FLOW PUMPS
82A	CP-82A	FLOAT 11	STOP LEAD, LAG 1-3 MAIN PUMPS AND START LOW FLOW PUMPS
87	CP-87	FLOAT 12	START LEAD LOW FLOW PUMP
87A	CP-87A	FLOAT 12	START LEAD LOW FLOW PUMP
92	CP-92	FLOAT 13	MAIN PUMPS FAIL TO STOP
92A	CP-92A	FLOAT 13	MAIN PUMPS FAIL TO STOP
97	CP-97	FLOAT 14	STOP LOW FLOW PUMPS
97A	CP-97A	FLOAT 14	STOP LOW FLOW PUMPS
102	CP-102	FLOAT 15	LOW WATER ALARM
102A	CP-102A	FLOAT 15	LOW WATER ALARM
107	CP-107		
107A	CP-107A		
112	CP-112		
112A	CP-112A		
117	CP-117		
117A	CP-117A		
122	CP-122		
122A	CP-122A		
5	CP-5	SP-DO-P26	ENABLE RTU-1 OUTPUT
11	CP-166	SP-DO-P26X	ENABLE RTU-1 OUTPUT
1	CP-1	SP-DO-P15	SCADA LEAD CALL
166	CP-11	SP-DO-P15X	SCADA LEAD CALL
1	CP-1	SP-DO-P16	SCADA LAG 1 CALL
167	CP-167	SP-DO-P16X	SCADA LAG 1 CALL
1	CP-1	SP-DO-P17	SCADA LAG 2 CALL
168	CP-168	SP-DO-P17X	SCADA LAG 2 CALL
1	CP-1	SP-DO-P18	SCADA LAG 3 CALL
169	CP-169	SP-DO-P18X	SCADA LAG 3 CALL
1	CP-1	SP-DO-P19	SCADA LAG 4 CALL
168	CP-168	SP-DO-P19X	SCADA LAG 4 CALL
1	CP-1	SP-DO-P20	SCADA LAG 5 CALL
169	CP-169	SP-DO-P20X	SCADA LAG 5 CALL
1	CP-1	SP-DO-P21	SCADA LAG 6 CALL
170	CP-170	SP-DO-P21X	SCADA LAG 6 CALL
1	CP-1	SP-DO-P22	SCADA LEAD LOW FLOW PUMP CALL
171	CP-171	SP-DO-P22X	SCADA LEAD LOW FLOW PUMP CALL
1	CP-1	SP-DO-P23	SCADA LAG LOW FLOW PUMP CALL
172	CP-172	SP-DO-P23X	SCADA LAG LOW FLOW PUMP CALL
244	CP-240	M1-22A	MAIN PUMP 1 FAIL
246	CP-242	M1-22B	MAIN PUMP 1 FAIL
247	CP-244	M2-22A	MAIN PUMP 2 FAIL
249	CP-246	M2-22B	MAIN PUMP 2 FAIL
250	CP-247	M3-22A	MAIN PUMP 3 FAIL
252	CP-249	M3-22B	MAIN PUMP 3 FAIL
253	CP-250	M4-22A	MAIN PUMP 4 FAIL
255	CP-252	M4-22B	MAIN PUMP 4 FAIL
256	CP-253	M5-22A	MAIN PUMP 5 FAIL
258	CP-255	M5-22B	MAIN PUMP 5 FAIL
259	CP-256	M6-22A	MAIN PUMP 6 FAIL
261	CP-258	M6-22B	MAIN PUMP 6 FAIL
262	CP-259	M7-22A	MAIN PUMP 7 FAIL
264	CP-260	M7-22B	MAIN PUMP 7 FAIL
265	CP-261	M1-57	MAIN PUMP 1 OVER TEMP/MOIST
267	CP-262	M1-57A	MAIN PUMP 1 OVER TEMP/MOIST
268	CP-263	M2-57	MAIN PUMP 2 OVER TEMP/MOIST
270	CP-264	M2-57A	MAIN PUMP 2 OVER TEMP/MOIST
271	CP-265	M3-57	MAIN PUMP 3 OVER TEMP/MOIST
273	CP-267	M3-57A	MAIN PUMP 3 OVER TEMP/MOIST
274	CP-268	M4-57	MAIN PUMP 4 OVER TEMP/MOIST
276	CP-270	M4-57A	MAIN PUMP 4 OVER TEMP/MOIST
277	CP-271	M5-57	MAIN PUMP 5 OVER TEMP/MOIST
279	CP-273	M5-57A	MAIN PUMP 5 OVER TEMP/MOIST
280	CP-274	M6-57A	MAIN PUMP 6 OVER TEMP/MOIST
282	CP-276	M6-57B	MAIN PUMP 6 OVER TEMP/MOIST
283	CP-277	M7-57A	MAIN PUMP 7 OVER TEMP/MOIST
285	CP-279	M7-57B	MAIN PUMP 7 OVER TEMP/MOIST
286	CP-280	M8-22A	LOW FLOW PUMP 1 FAIL
288	CP-282	M8-22B	LOW FLOW PUMP 1 FAIL
289	CP-283	M9-22A	LOW FLOW PUMP 2 FAIL
291	CP-285	M9-22B	LOW FLOW PUMP 2 FAIL
292	CP-286	M8-57A	LOW FLOW PUMP 1 TEMP/MOIST
294	CP-287	M8-57B	LOW FLOW PUMP 1 TEMP/MOIST
295	CP-288	M9-57A	LOW FLOW PUMP 2 TEMP/MOIST
297	CP-289	M9-57B	LOW FLOW PUMP 2 TEMP/MOIST

CONTROL PANEL DIGITAL INPUTS(TBDI)

TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
298	CP-292		
300	CP-293		
301	CP-341		
302	CP-342		
304			
306			
307			
309			
310			
312			
313			
315			
334	CP-349	SWGR-19	INC. LINE 1 NORM SOURCE POWER FAIL
336	CP-350	SWGR-20	INC. LINE 1 NORM SOURCE POWER FAIL
337	CP-292	SWGR-21	INC. LINE 2 EMER SOURCE POWER FAIL
339	CP-293	SWGR-22	INC. LINE 2 EMER SOURCE POWER FAIL
340	CP-292	GEN-7	GENERATOR ALARM
342	CP-293	GEN-8	GENERATOR ALARM
343	CP-341	SP-DO-P28	SCADA PANEL AC POWER FAILURE
345	CP-342	SP-DO-P28X	SCADA PANEL AC POWER FAILURE
343	CP-343	SP-DO-P27	SCADA PANEL ALARM
344	CP-344	SP-DO-P27X	SCADA PANEL ALARM
361	CP-346	FIRE ALARM PANEL	FIRE ALARM
363	CP-347	FIRE ALARM PANEL	FIRE ALARM
367	CP-344	CO-5	COMBUSTIBLE GAS ALARM
369	CP-346	CO-6	COMBUSTIBLE GAS ALARM
370	CP-347	CO-7	COMBUSTIBLE GAS DETECTOR FAIL
372	CP-347	CO-8	COMBUSTIBLE GAS DETECTOR FAIL
376	CP-343	SP-DO-P24	ALARM ACKNOWLEDGE
376A	CP-344	SP-DO-P24X	ALARM ACKNOWLEDGE
391	CP-346	SPDI-120	ALARM ACKNOWLEDGED
391A	CP-347	SPDI-120C	ALARM ACKNOWLEDGED
420	CP-349	M1-5B	MAIN PUMP 1 FAILURE
420A	CP-350	M1-5C	MAIN PUMP 1 FAILURE
421	CP-349	M2-5B	MAIN PUMP 2 FAILURE
421A	CP-350	M2-5C	MAIN PUMP 2 FAILURE
422	CP-349	M3-5B	MAIN PUMP 3 FAILURE
422A	CP-350	M3-5C	MAIN PUMP 3 FAILURE
423	CP-349	M4-5B	MAIN PUMP 4 FAILURE
423A	CP-350	M4-5C	MAIN PUMP 4 FAILURE
424	CP-349	M5-5B	MAIN PUMP 5 FAILURE
424A	CP-350	M5-5C	MAIN PUMP 5 FAILURE
425	CP-349	M6-5B	MAIN PUMP 6 FAILURE
425A	CP-350	M6-5C	MAIN PUMP 6 FAILURE
426	CP-349	M7-5B	MAIN PUMP 7 FAILURE
426A	CP-350	M7-5C	MAIN PUMP 7 FAILURE
427	CP-349	M8-5B	LOW FLOW PUMP 1 FAILURE
427A	CP-350	M8-5C	LOW FLOW PUMP 1 FAILURE
428	CP-349	M9-5B	LOW FLOW PUMP 2 FAILURE
428A	CP-350	M9-5C	LOW FLOW PUMP 2 FAILURE
428			
429			
428			
430			
428			
431			
463	CP-463	GSD1 +	COMBUSTIBLE GAS SENSOR 1
463A	CP-463	GSD1 -	COMBUSTIBLE GAS SENSOR 1
464	CP-463	GSD1 S	COMBUSTIBLE GAS SENSOR 1
466	CP-463	GSD2 +	COMBUSTIBLE GAS SENSOR 2
466A	CP-463	GSD2 -	COMBUSTIBLE GAS SENSOR 2
467	CP-463	GSD2 S	COMBUSTIBLE GAS SENSOR 2
469	CP-463	GSD3 +	COMBUSTIBLE GAS SENSOR 3
469A	CP-463	GSD3 -	COMBUSTIBLE GAS SENSOR 3
470	CP-463	GSD3 S	COMBUSTIBLE GAS SENSOR 3
472	CP-463	GSD4 +	COMBUSTIBLE GAS SENSOR 4
472A	CP-463	GSD4 -	COMBUSTIBLE GAS SENSOR 4
473	CP-463	GSD4 S	COMBUSTIBLE GAS SENSOR 4
475	CP-463	GSD5 +	COMBUSTIBLE GAS SENSOR 5
475A	CP-463	GSD5 -	COMBUSTIBLE GAS SENSOR 5
476	CP-463	GSD5 S	COMBUSTIBLE GAS SENSOR 5
478	CP-463	GSD6 +	COMBUSTIBLE GAS SENSOR 6
478A	CP-463	GSD6 -	COMBUSTIBLE GAS SENSOR 6
479	CP-463	GSD6 S	COMBUSTIBLE GAS SENSOR 6
484	CP-484	FAP-3	FIRE ALARM
484A	CP-484A	FAP-4	FIRE ALARM

CONTROL PANEL DIGITAL OUTPUTS(TBDO)

TERM #	WIRE #	DESTINATION	DESCRIPTION OF OUTPUTS
2	SP-119	SPDI-119	PUMP CONTROL CKT POWER FAIL
2A	SP-119C	SPDI-119C	PUMP CONTROL CKT POWER FAIL
9	M7-7	M7-7	START LOW FLOW PUMP 1
9A	M7-14	M7-14	START LOW FLOW PUMP 1
12	M8-7	M8-7	START LOW FLOW PUMP 2
12A	M8-14	M8-14	START LOW FLOW PUMP 2
31	M1-7	M1-7	START MAIN PUMP 1
31A	M1-14	M1-14	START MAIN PUMP 1
36	M2-7	M2-7	START MAIN PUMP 2
36A	M2-14	M2-14	START MAIN PUMP 2
41	M3-7	M3-7	START MAIN PUMP 3
41A	M3-14	M3-14	START MAIN PUMP 3
46	M4-7	M4-7	START MAIN PUMP 4
46A	M4-14	M4-14	START MAIN PUMP 4
51	M5-7	M5-7	START MAIN PUMP 5
51A	M5-14	M5-14	START MAIN PUMP 5
56	M6-7	M6-7	START MAIN PUMP 6
56A	M6-14	M6-14	START MAIN PUMP 6
61	M7-7	M7-7	START MAIN PUMP 7
61A	M7-14	M7-14	START MAIN PUMP 7
145	SP-XXX	SPDI-XXX	MAIN PUMP FAIL TO START
145A	SP-XXX	SPDI-XXX	MAIN PUMP FAIL TO START
201	SP-100	SPDI-100	WETWELL LVL BELOW FLOAT EL. 608.0'
201A	SP-100C	SPDI-100C	WETWELL LVL BELOW FLOAT EL. 608.0'
202	SP-101	SPDI-101	WETWELL LVL BELOW FLOAT EL. 607.0'
202A	SP-101C	SPDI-101C	WETWELL LVL BELOW FLOAT EL. 607.0'
203	SP-102	SPDI-102	WETWELL LVL BELOW FLOAT EL. 606.5'
203A	SP-102C	SPDI-102C	WETWELL LVL BELOW FLOAT EL. 606.5'
204	SP-103	SPDI-103	WETWELL LVL BELOW FLOAT EL. 606.0'
204A	SP-103C	SPDI-103C	WETWELL LVL BELOW FLOAT EL. 606.0'
205	SP-104	SPDI-104	WETWELL LVL BELOW FLOAT EL. 605.5'
205A	SP-104C	SPDI-104C	WETWELL LVL BELOW FLOAT EL. 605.5'
206	SP-105	SPDI-105	WETWELL LVL BELOW FLOAT EL. 605.0'
206A	SP-105C	SPDI-105C	WETWELL LVL BELOW FLOAT EL. 605.0'
207	SP-106	SPDI-106	WETWELL LVL BELOW FLOAT EL. 604.5'
207A	SP-106C	SPDI-106C	WETWELL LVL BELOW FLOAT EL. 604.5'
208	SP-107	SPDI-107	WETWELL LVL BELOW FLOAT EL. 604.0'
208A	SP-107C	SPDI-107C	WETWELL LVL BELOW FLOAT EL. 604.0'
209	SP-108	SPDI-108	WETWELL LVL BELOW FLOAT EL. 603.0'
209A	SP-108C	SPDI-108C	WETWELL LVL BELOW FLOAT EL. 603.0'
210	SP-109	SPDI-109	WETWELL LVL BELOW FLOAT EL. 602.5'
210A	SP-109C	SPDI-109C	WETWELL LVL BELOW FLOAT EL. 602.5'
211	SP-110	SPDI-110	WETWELL LVL BELOW FLOAT EL. 602.0'
211A	SP-110C	SPDI-110C	WETWELL LVL BELOW FLOAT EL. 602.0'
212	SP-111	SPDI-111	WETWELL LVL BELOW FLOAT EL. 601.5'
212A	SP-111C	SPDI-111C	WETWELL LVL BELOW FLOAT EL. 601.5'
213	SP-112	SPDI-112	WETWELL LVL BELOW FLOAT EL. 601.0'
213A	SP-112C	SPDI-112C	WETWELL LVL BELOW FLOAT EL. 601.0'
214	SP-113	SPDI-113	WETWELL LVL BELOW FLOAT EL. 600.0'
214A	SP-113C	SPDI-113C	WETWELL LVL BELOW FLOAT EL. 600.0'
215	SP-114	SPDI-114	WETWELL LVL BELOW FLOAT EL. 599.5'
215A	SP-114C	SPDI-114C	WETWELL LVL BELOW FLOAT EL. 599.5'
221			
221A			
391	SP-120	SPDI-120	ALARM ACKNOWLEDGED
391A	SP-120C	SPDI-120C	ALARM ACKNOWLEDGED
481	SP-121	SPDI-121	COMBUSTIBLE GAS WARNING
481A	SP-121C	SPDI-121C	COMBUSTIBLE GAS WARNING
482	SP-122	SPDI-122	COMBUSTIBLE GAS ALARM
482A	SP-122C	SPDI-122C	COMBUSTIBLE GAS ALARM
483	SP-123	SPDI-123	COMBUSTIBLE GAS DETECTOR FAIL
483A	SP-123C	SPDI-123C	COMBUSTIBLE GAS DETECTOR FAIL
484A	HORN1-1	HORN-1	ALARM HORN, OPERATOR'S ROOM
484B	HORN1-2	HORN-2	ALARM HORN, OPERATOR'S ROOM
484A	HORN2-1	HORN-1	ALARM HORN, PUMP ROOM
484B	HORN2-2	HORN-2	ALARM HORN, PUMP ROOM
484A	HORN3-1	HORN-1	ALARM HORN, INTERMEDIATE LEVEL
484B	HORN3-2	HORN-2	ALARM HORN, INTERMEDIATE LEVEL
484A	HORN4-1	HORN-1	ALARM HORN DISCHARGE LEVEL
484B	HORN4-2	HORN-2	ALARM HORN DISCHARGE LEVEL

DONOHUE & ASSOCIATES

E24

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

CONTROL PANEL
TERMINAL SCHEDULE

SCALE: N/A DRAWN BY: CRP

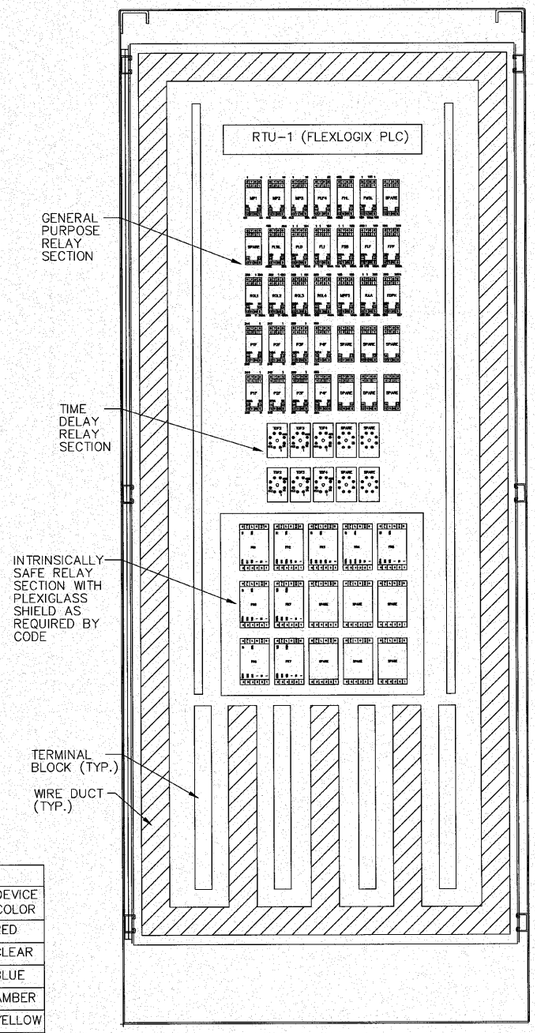
DATE: 11-22-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90	0102.1 S	COOK	107	98
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

1	MAIN PUMP 1 FAILURE	MAIN PUMP 2 FAILURE	MAIN PUMP 3 FAILURE	MAIN PUMP 4 FAILURE	MAIN PUMP 5 FAILURE	MAIN PUMP 6 FAILURE	MAIN PUMP 7 FAILURE	7
8	MAIN PUMP 1 OVER TEMP/ MOISTURE	MAIN PUMP 2 OVER TEMP/ MOISTURE	MAIN PUMP 3 OVER TEMP/ MOISTURE	MAIN PUMP 4 OVER TEMP/ MOISTURE	MAIN PUMP 5 OVER TEMP/ MOISTURE	MAIN PUMP 6 OVER TEMP/ MOISTURE	MAIN PUMP 7 OVER TEMP/ MOISTURE	14
15	LOW FLOW PUMP 1 FAILURE	LOW FLOW PUMP 2 FAILURE	SPARE	SPARE	SPARE	SPARE	SPARE	21
22	LF PUMP 1 OVER TEMP/ MOISTURE	LF PUMP 2 OVER TEMP/ MOISTURE	SPARE	SPARE	SPARE	SPARE	SPARE	28
29	HIGH WATER LEVEL	INC LINE 1 NORM SOURCE PWR FAILURE	INC LINE 2 EMER SOURCE PWR FAILURE	GENERATOR ALARM	SCADA PANEL POWER FAILURE	SCADA PANEL ALARM	SPARE	35
36	LOW WATER LEVEL	COMBUSTIBLE GAS ALARM	COMBUSTIBLE GAS WARNING	COMBUSTIBLE GAS DET. TROUBLE	FIRE ALARM	INTRUSION ALARM	SPARE	42

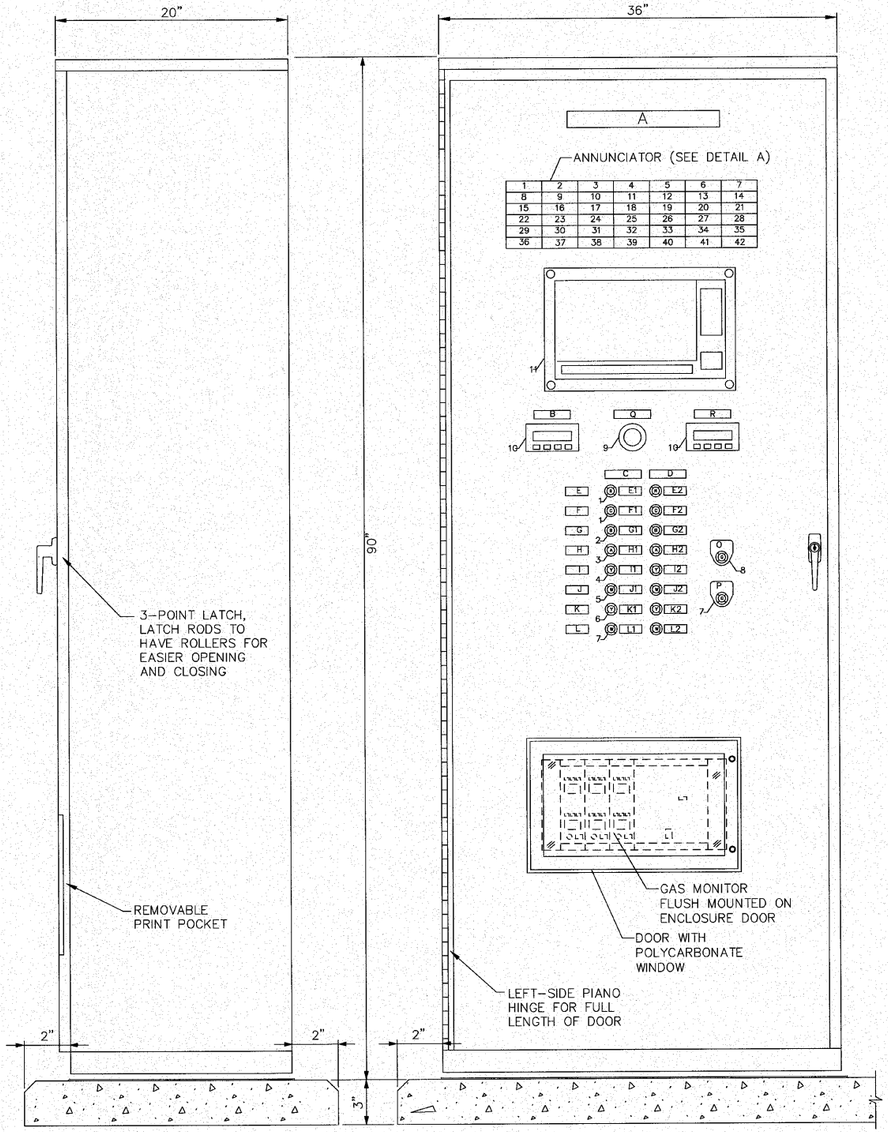
DETAIL A

ITEM	NAMEPLATE SCHEDULE
A	CONTROL PANEL 024-RTU-1
B	WET WELL LEVEL LIT-100 FT ABOVE WET WELL FLR
C	SCADA PUMP CALL, FEET ABOVE WET WELL FLOOR
D	FLOAT PUMP CALL, FEET ABOVE WET WELL FLOOR
E	LAG 6 MAIN PUMP CALL
F	LAG 5 MAIN PUMP CALL
G	LAG 4 MAIN PUMP CALL
H	LAG 3 MAIN PUMP CALL
I	LAG 2 MAIN PUMP CALL
J	LAG 1 MAIN PUMP CALL
K	LEAD MAIN PUMP CALL
L	LAG LOW FLOW PUMP CALL
M	LEAD LOW FLOW PUMP CALL
N	
O	ALARM ACKNOWLEDGE
P	LAMP TEST
Q	ALARM BUZZER
R	WET WELL LEVEL LIT-101 FT ABOVE WET WELL FLR
E1	10.0 FEET
E2	10.0 FEET
F1	9.0 FEET
F2	9.5 FEET
G1	8.0 FEET
G2	8.5 FEET
H1	7.0 FEET
H2	7.5 FEET
I1	5.5 FEET
I2	6.0 FEET
J1	4.5 FEET
J2	5.0 FEET
K1	3.0 FEET
K2	4.0 FEET
L1	
L2	2.0 FEET



INSIDE PANEL ENCLOSURE

DEVICE LEGEND		
ITEM	DEVICE DESCRIPTION	DEVICE COLOR
1	INDICATING LIGHT	RED
2	INDICATING LIGHT	CLEAR
3	INDICATING LIGHT	BLUE
4	INDICATING LIGHT	AMBER
5	INDICATING LIGHT	YELLOW
6	INDICATING LIGHT	WHITE
7	PUSH BUTTON	YELLOW
8	PUSH BUTTON	GREEN
9	ALARM BUZZER	
10	DIGITAL METER	
11	GRAPHICAL INTERFACE	



SIDE VIEW

CONTROL PANEL - FRONT VIEW

CONTROL PANEL 024-RTU-1

NOTE:
THE CONTROL PANEL SHALL BE OF SUFFICIENT DEPTH TO ACCOMODATE THE GAS MONITOR, ANNUNCIATOR AND OTHER DEVICES. PROPER CLEARANCE SHALL BE PROVIDED BETWEEN DOOR MOUNTED DEVICES AND PANEL MOUNTED DEVICES.

DONOHUE & ASSOCIATES

E25

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

CONTROL PANEL EQUIPMENT LAYOUT

SCALE: N/A DRAWN BY: CRP

DATE: 11-22-10 CHECKED BY: MM

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90	0103.1 S	COOK	107	99
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

SCADA PANEL HMI
024-PLC-1
(PARTIAL)

PS 24 LEVELS: LI 1, LI 3, LI 3, LI 4, LI 5, LDAH
TRASH RACK: HS MA, HS INIT, HS START, HS STOP, ETM, II AMPS, YL LR, YL RUN, YA FAIL (X4), YA ESTOP, YA TRIP
PS 24 RECIRCULATION SLIDE GATE: YL LR, ZLO, ZLC, HS MA, HS OPEN, HS CLOSE
WETWELL (X3): LI, LLL, LLH, LAHH, LHK LEVEL SETPOINTS, YA LOSS OF ECHO
PS 24 DISCHARGE SLIDE GATE (X3): YL LR, HS MA, ZLO, ZLC, HS OPEN/STOP, HS CLOSE/STOP, ZI
PS 24 PUMP (X9): YL LR, ETM, YL RUN, YA FAIL, HS SEQ, HS MA, HS START, HS STOP, HS FAULT RESET, TAH MOTOR OVER TEMP, YA SEAL FAIL

120V
120V

PUMP STATION 24 CONTROL PANELS
024-RTU-1/024-PLC-1
(PARTIAL)

DIFF. LEVEL: LDSH INITIATE SCREEN & PUMP
TRASH RACK: KC INT, KT RUNTIME ACCUM, KC RESTART DELAY
WETWELL (X3): LSL, LSH, LSHH, LC 5 PUMP ZONE
PS 24 DISCHARGE SLIDE GATE (X3): ZSH MAX CLAMP, ZSL MIN CLAMP
PS 24 PUMP (X9): KT RUNTIME ACCUM, SSL MIN, KC LO LEV DELAY STOP, KC RESTART DELAY, KC BACKSPIN DELAY, PUMP SEQ/CNTRL

PLC, UPS

(6) PS 024 COMB GAS → 024-CGD -(1-6)
(6) PS 024 COMB GAS → 024-AH -(1-6)
(10) LEVEL SWITCH PUMP START
TRASH RACK TRIP
RECYCLE GATE LOCAL/REMOTE
RECYCLE GATE OPEN/CLOSE
RECYCLE GATE OPENED/CLOSED
(4) PS 024 HIGH TEMP → 024-TSH -(1-4)
AEGIS SYSTEM COMMON ALARM → 024-IP-1
TRASH RACK LOCAL/REMOTE
REMOTE SS POWER
INFLUENT GATE ESTOP
(3) PS 024 HIGH TEMP → 024-ASH-1
TRASH RACK REMOTE START/STOP
FIRE PANEL COMMON ALARM → 024-FP-1
(5) LEVEL SWITCH PUMP STOP
(2) PS 24 EFF GATE OPENED/CLOSED
PS 24 EFF GATE A- POSITION FEEDBACK
PS 24 EFF GATE OPEN/STOP/CLOSE
PS 24 EFF GATE LOCAL/REMOTE
(3) PS 24 EFF GATE OPEN/STOP/CLOSE
PS 24 EFF GATE A- POSITION FEEDBACK
PS 24 EFF GATE OPENED/CLOSED
(7) REMOTE SS POWER
MAIN PUMP LOCAL/REMOTE
CONTROL POWER (7)
LOCAL START/STOP (7)
LOCAL SEAL-IN (7)
(9) PS 24 PUMP REMOTE START/STOP
(27) PS 24 PUMP MOT/BRNG OT/SEAL FAIL
CONTROL POWER (2)
LOCAL START/STOP (2)
LOCAL SEAL-IN (2)
(2) REMOTE SS POWER
LOW FLOW PUMP LOCAL/REMOTE

TRASH RACK CONTROL STATION ◆ 024-CS-0130
HS LR, HS START, HS STOP, HS JOG

P.S. NO. 34 MOTOR CONTROL CENTER
024-MCC-1 ●
(PARTIAL)
TRASH RACK MS, MOR, HS RESET

024 L/R HS 0132A OSC HS 0132B E
024 L/R HS 0133A OSC HS 0133B E

LOCAL START/STOP
LOCAL SEAL-IN
HOME INTERLOCK

TRASH RACK ESTOP STATION
024-ES-0130A
(TYPICAL OF 3)
HS ESTOP

CONTROL POWER
CONTROL POWER

TO OUTFALL
TO OUTFALL
SW
SW

DISCHARGE GATE NO.1 024-G-1 FLP
DISCHARGE GATE NO.2 024-G-2 FLP

RECIRCULATION GATE 024-G-3 FLP
024 L/R HS 0131 OSC HS 0131 E
024 CB 5
024 FS 1 (10)
024 CB 1
024 FS 11 (5)
024 CB 3

DISCHARGE CHAMBER

FROM INLET SEWER
SW
SCREEN CHAMBER
024 CB 3
024 CB 4
024 ZS TR-1 PARKED/TRIP ** (3)
RCY

COMPRESSION BELL (TYP OF 5)
JBX-11, JBX-01, JBX-02, JBX-03, JBX-04, JBX-05, JBX-06, JBX-07, JBX-13
SW
WETWELL
SUBMERSIBLE PUMP (TYP) (3)

LOW FLOW PUMP NO.1	MAIN PUMP NO.1	MAIN PUMP NO.2	MAIN PUMP NO.3	MAIN PUMP NO.4	MAIN PUMP NO.5	MAIN PUMP NO.6	MAIN PUMP NO.7	LOW FLOW PUMP NO.2
024-LFP-1	024-MP-1	024-MP-2	024-MP-3	024-MP-4	024-MP-5	024-MP-6	024-MP-7	024-LFP-2
CS-1	CS-1	CS-1	CS-1	CS-1	CS-1	CS-1	CS-1	CS-1

DESIGNATES CONSTANT SPEED/ SINGLE SPEED (TYP)
RCY
TRASH RACK 024-TR-1 CS-1 **
COMPRESSION BELL (TYP)
INLET CHANNEL

MTR/BRNG OVERTEMP, SEAL FAIL (9)

MAIN PUMP CONTROL STATION NO.1A ◆ 024-CS-0101A ◆ (TYPICAL OF 7)
MAIN PUMP HS LR, HS START, HS STOP
CONTROL POWER (7) STATION INTERLOCK (7)
LOCAL/REMOTE (7)
REMOTE START/STOP POWER (7)
LOCAL START/STOP (7)
LOCAL SEAL-IN (7)

MAIN PUMP CONTROL STATION NO.1B ◆ 024-CS-0101B ◆ (TYPICAL OF 7)
MAIN PUMP HS LR, HS START, HS STOP

PUMP STATION NO.024 MOTOR CONTROL CENTER 024-MCC-1/3 ●
MAIN PUMP (X7) SSRV MS, MOR, MOR RESET, SSRV/BYP
LOW FLOW PUMP (X2) SSRV MS, MOR, MOR RESET, SSRV/BYP
MPR, MPR RESET
SEE ELECTRICAL ONE-LINE DIAGRAM E5 FOR MCC ALLOCATION OF PUMP POWER FEEDS

LOW FLOW PUMP CONTROL STATION NO.11A ◆ 024-CS-0111A ◆ (TYPICAL OF 2)
LOW FLOW PUMP HS LR, HS START, HS STOP
CONTROL POWER (2) STATION INTERLOCK (2)
LOCAL/REMOTE (2)
REMOTE START/STOP POWER (2)
LOCAL START/STOP (2)
LOCAL SEAL-IN (2)

LOW FLOW PUMP CONTROL STATION NO.11B ◆ 024-CS-0111B ◆ (TYPICAL OF 2)
LOW FLOW PUMP HS LR, HS START, HS STOP

INPUTS & OUTPUTS I/O TO PLC

(X) EQUIPMENT — FUNCTION
UNIVERSAL INPUT/OUPUT (I/O = I/O POINT TYPE)
AI = ANALOG INPUT 4-20mAdc
AO = ANALOG OUTPUT 4-20mAdc
DI = DISCRETE INPUT 120VAC
RO = ISOLATED RELAY OUTPUT

NOTE ON 'X':
X = TOTAL NUMBER OF I/O WHERE MORE THAN ONE I/O IS REQUIRED. IF QUANTITY IS NOT SHOWN THEN ONE I/O IS REQUIRED.

GENERAL NOTES:

1. SEE DRAWING M17 FOR PUMPING OPERATION RANGES PERTAINING TO THE BUBBLER AND FLOAT LEVEL SYSTEMS.

E26

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 34 RELOCATION

PROCESS, INSTRUMENTATION AND CONTROL DIAGRAM

SCALE: N/A
DRAWN BY: CRP
DATE: 11-22-10
CHECKED BY: MM

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90	0102.1 S	COOK	107	100
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

SCADA PANEL HMI

024–PLC–1

(PARTIAL)

◆

STANDBY GENERATOR SYSTEM

COMMON ALARM — YA

ESTOP — YA

NOT IN AUTO — YL

GENERATOR LOADED — YL

SWGR IN TEST MODE — YL

UTILITY POWER ON — YL

UTILITY POWER FAIL — YA

PUMP STATION 24 CONTROL PANELS

024–RTU–1/024–PLC–1

(PARTIAL)

◆

S — MODBUS

DI — SWITCHGEAR IN TEST MODE

DI — UTILITY POWER AVAILABLE

DI — GENERATOR LOADED

DI — GENERATOR RUNNING

A — GENERATOR FUEL TANK LEVEL

DI — GENERATOR FUEL TANK LEVEL LOW

DI — GENERATOR NOT IN AUTO

DI — GENERATOR COMMON ALARM

DI — GENERATOR ESTOP

DI — GENERATOR FUEL TANK LEAK DETECTION

PS 024 SWITCHGEAR

024–SWGR–1 ●

REMOTE START →

READY TO LOAD ←

REMOTE STOP →

EMERGENCY GENERATOR

024–EG–1 ●

DONOHUE & ASSOCIATES

E27

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

PROCESS, INSTRUMENTATION AND CONTROL DIAGRAM

SCALE: N/A

DRAWN BY: CRP

DATE: 11–22–10

CHECKED BY: MM

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	101
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SCADA PANEL DIGITAL INPUTS TERMINAL BLOCK TBDI

TERM #	WIRE #	ORIGINATIION	DESCRIPTION OF INPUTS
S0	S0	CP-D0-398	ALARM ACKNOWLEDGE
S0C	S0C	CP-D0-398A	ALARM ACKNOWLEDGE
S1	S1	M1-0	MAIN PUMP 1 BREAKER OPEN
S1C	S1C	M1-0A	MAIN PUMP 1 BREAKER OPEN
S2	S2	M1-1D	MAIN PUMP 1 RUNNING
S2C	S2C	M1-1E	MAIN PUMP 1 RUNNING
S3	S3	M1-15A	MAIN PUMP 1 HOA IN AUTO
S3C	S3C	M1-15	MAIN PUMP 1 HOA IN AUTO
S4	S4	M1-16	MAIN PUMP 1 HOA IN OFF
S4C	S4C	M1-15	MAIN PUMP 1 HOA IN OFF
S5	S5	M1-22A	MAIN PUMP 1 FAIL
S5C	S5C	M1-22B	MAIN PUMP 1 FAIL
S6	S6	M1-57	MAIN PUMP 1 MOTOR WDG HI-TEMP
S6C	S6C	M1-57A	MAIN PUMP 1 MOTOR WDG HI-TEMP
S7	S7	M1-58	MAIN PUMP 1 MOTOR HI-MOISTURE
S7C	S7C	M1-58A	MAIN PUMP 1 MOTOR HI-MOISTURE
S8	S8	M1-59	MAIN PUMP 1 BEARING HI-TEMP
S8C	S8C	M1-59A	MAIN PUMP 1 BEARING HI-TEMP
S9	S9	M1-60	MAIN PUMP 1 SEAL LEAK
S9C	S9C	M1-60A	MAIN PUMP 1 SEAL LEAK
S10	S10	M2-0	MAIN PUMP 2 BREAKER OPEN
S10C	S10C	M2-0A	MAIN PUMP 2 BREAKER OPEN
S11	S11	M2-1D	MAIN PUMP 2 RUNNING
S11C	S11C	M2-1E	MAIN PUMP 2 RUNNING
S12	S12	M2-15A	MAIN PUMP 2 HOA IN AUTO
S12C	S12C	M2-15	MAIN PUMP 2 HOA IN AUTO
S13	S13	M2-16	MAIN PUMP 2 HOA IN OFF
S13C	S13C	M2-15	MAIN PUMP 2 HOA IN OFF
S14	S14	M2-22A	MAIN PUMP 2 FAIL
S14C	S14C	M2-22B	MAIN PUMP 2 FAIL
S15	S15	M2-57	MAIN PUMP 2 MOTOR WDG HI-TEMP
S15C	S15C	M2-57A	MAIN PUMP 2 MOTOR WDG HI-TEMP
S16	S16	M2-58	MAIN PUMP 2 MOTOR HI-MOISTURE
S16C	S16C	M2-58A	MAIN PUMP 2 MOTOR HI-MOISTURE
S17	S17	M2-59	MAIN PUMP 2 BEARING HI-TEMP
S17C	S17C	M2-59A	MAIN PUMP 2 BEARING HI-TEMP
S18	S18	M2-60	MAIN PUMP 2 SEAL LEAK
S18C	S18C	M2-60A	MAIN PUMP 2 SEAL LEAK
S19	S19	M3-0	MAIN PUMP 3 BREAKER OPEN
S19C	S19C	M3-0A	MAIN PUMP 3 BREAKER OPEN
S20	S20	M3-1D	MAIN PUMP 3 RUNNING
S20C	S20C	M3-1E	MAIN PUMP 3 RUNNING
S21	S21	M3-15A	MAIN PUMP 3 HOA IN AUTO
S21C	S21C	M3-15	MAIN PUMP 3 HOA IN AUTO
S22	S22	M3-16	MAIN PUMP 3 HOA IN OFF
S22C	S22C	M3-15	MAIN PUMP 3 HOA IN OFF
S23	S23	M3-22A	MAIN PUMP 3 FAIL
S23C	S23C	M3-22B	MAIN PUMP 3 FAIL
S24	S24	M3-57	MAIN PUMP 3 MOTOR WDG HI-TEMP
S24C	S24C	M3-57A	MAIN PUMP 3 MOTOR WDG HI-TEMP
S25	S25	M3-58	MAIN PUMP 3 MOTOR HI-MOISTURE
S25C	S25C	M3-58A	MAIN PUMP 3 MOTOR HI-MOISTURE
S26	S26	M3-59	MAIN PUMP 3 BEARING HI-TEMP
S26C	S26C	M3-59A	MAIN PUMP 3 BEARING HI-TEMP
S27	S27	M3-60	MAIN PUMP 3 SEAL LEAK
S27C	S27C	M3-60A	MAIN PUMP 3 SEAL LEAK
S28	S28	M4-0	MAIN PUMP 4 BREAKER OPEN
S28C	S28C	M4-0A	MAIN PUMP 4 BREAKER OPEN
S29	S29	M4-1D	MAIN PUMP 4 RUNNING
S29C	S29C	M4-1E	MAIN PUMP 4 RUNNING
S30	S30	M4-35A	MAIN PUMP 4 HOA IN AUTO
S30C	S30C	M4-35	MAIN PUMP 4 HOA IN AUTO
S31	S31	M4-36A	MAIN PUMP 4 HOA IN OFF
S31C	S31C	M4-35	MAIN PUMP 4 HOA IN OFF
S32	S32	M4-22A	MAIN PUMP 4 FAIL
S32C	S32C	M4-22B	MAIN PUMP 4 FAIL
S33	S33	M4-57	MAIN PUMP 4 MOTOR WDG HI-TEMP
S33C	S33C	M4-57A	MAIN PUMP 4 MOTOR WDG HI-TEMP
S34	S34	M4-58	MAIN PUMP 4 MOTOR HI-MOISTURE
S34C	S34C	M4-58A	MAIN PUMP 4 MOTOR HI-MOISTURE
S35	S35	M4-59	MAIN PUMP 4 BEARING HI-TEMP
S35C	S35C	M4-59A	MAIN PUMP 4 BEARING HI-TEMP
S36	S36	M4-60	MAIN PUMP 4 SEAL LEAK
S36C	S36C	M4-60A	MAIN PUMP 4 SEAL LEAK
S37	S37	M5-0	MAIN PUMP 5 BREAKER OPEN
S37C	S37C	M5-0A	MAIN PUMP 5 BREAKER OPEN
S38	S38	M5-1E	MAIN PUMP 5 RUNNING
S38C	S38C	M5-1D	MAIN PUMP 5 RUNNING
S39	S39	M5-15A	MAIN PUMP 5 HOA IN AUTO
S39C	S39C	M5-15	MAIN PUMP 5 HOA IN AUTO
S40	S40	M5-16	MAIN PUMP 5 HOA IN OFF
S40C	S40C	M5-15	MAIN PUMP 5 HOA IN OFF
S41	S41	M5-22A	MAIN PUMP 5 FAIL
S41C	S41C	M5-22B	MAIN PUMP 5 FAIL
S42	S42	M5-57	MAIN PUMP 5 MOTOR WDG HI-TEMP
S42C	S42C	M5-57A	MAIN PUMP 5 MOTOR WDG HI-TEMP
S43	S43	M5-58	MAIN PUMP 5 MOTOR HI-MOISTURE
S43C	S43C	M5-58A	MAIN PUMP 5 MOTOR HI-MOISTURE
S44	S44	M5-59	MAIN PUMP 5 BEARING HI-TEMP
S44C	S44C	M5-59A	MAIN PUMP 5 BEARING HI-TEMP
S45	S45	M5-60	MAIN PUMP 5 SEAL LEAK
S45C	S45C	M5-60A	MAIN PUMP 5 SEAL LEAK
S46	S46	M6-0	MAIN PUMP 6 BREAKER OPEN
S46C	S46C	M6-0A	MAIN PUMP 6 BREAKER OPEN
S47	S47	M6-1D	MAIN PUMP 6 RUNNING
S47C	S47C	M6-1E	MAIN PUMP 6 RUNNING

SCADA PANEL DIGITAL INPUTS TERMINAL BLOCK TBDI

TERM #	WIRE #	ORIGINATIION	DESCRIPTION OF INPUTS
S48	S48	M6-15A	MAIN PUMP 6 HOA IN AUTO
S48C	S48C	M6-15	MAIN PUMP 6 HOA IN AUTO
S49	S49	M6-16	MAIN PUMP 6 HOA IN OFF
S49C	S49C	M6-15	MAIN PUMP 6 HOA IN OFF
S50	S50	M6-22A	MAIN PUMP 6 FAIL
S50C	S50C	M6-22B	MAIN PUMP 6 FAIL
S51	S51	M6-57	MAIN PUMP 6 MOTOR WDG HI-TEMP
S51C	S51C	M6-57A	MAIN PUMP 6 MOTOR WDG HI-TEMP
S52	S52	M6-58	MAIN PUMP 6 MOTOR HI-MOISTURE
S52C	S52C	M6-58A	MAIN PUMP 6 MOTOR HI-MOISTURE
S53	S53	M6-59	MAIN PUMP 6 BEARING HI-TEMP
S53C	S53C	M6-59A	MAIN PUMP 6 BEARING HI-TEMP
S54	S54	M6-60	MAIN PUMP 6 SEAL LEAK
S54C	S54C	M6-60A	MAIN PUMP 6 SEAL LEAK
S55	S55	M7-0	MAIN PUMP 7 BREAKER OPEN
S55C	S55C	M7-0A	MAIN PUMP 7 BREAKER OPEN
S56	S56	M7-1D	MAIN PUMP 7 RUNNING
S56C	S56C	M7-1E	MAIN PUMP 7 RUNNING
S57	S57	M7-15A	MAIN PUMP 7 HOA IN AUTO
S57C	S57C	M7-15	MAIN PUMP 7 HOA IN AUTO
S58	S58	M7-16	MAIN PUMP 7 HOA IN OFF
S58C	S58C	M7-15	MAIN PUMP 7 HOA IN OFF
S59	S59	M7-22A	MAIN PUMP 7 FAIL
S59C	S59C	M7-22B	MAIN PUMP 7 FAIL
S60	S60	M7-50	MAIN PUMP 7 MOTOR WDG HI-TEMP
S60C	S60C	M7-50A	MAIN PUMP 7 MOTOR WDG HI-TEMP
S61	S61	M7-51	MAIN PUMP 7 MOTOR HI-MOISTURE
S61C	S61C	M7-51A	MAIN PUMP 7 MOTOR HI-MOISTURE
S62	S62	M7-52	MAIN PUMP 7 BEARING HI-TEMP
S62C	S62C	M7-52A	MAIN PUMP 7 BEARING HI-TEMP
S63	S63	M8-0	LOW FLOW PUMP 1 BREAKER OPEN
S63C	S63C	M8-0A	LOW FLOW PUMP 1 BREAKER OPEN
S64	S64	M8-1D	LOW FLOW PUMP 1 RUNNING
S64C	S64C	M8-1E	LOW FLOW PUMP 1 RUNNING
S65	S65	M8-15A	LOW FLOW PUMP 1 HOA IN AUTO
S65C	S65C	M8-15	LOW FLOW PUMP 1 HOA IN AUTO
S66	S66	M8-16	LOW FLOW PUMP 1 HOA IN OFF
S66C	S66C	M8-15	LOW FLOW PUMP 1 HOA IN OFF
S67	S67	M8-22A	LOW FLOW PUMP 1 FAIL
S67C	S67C	M8-22B	LOW FLOW PUMP 1 FAIL
S68	S68	M8-50	LOW FLOW PUMP 1 MOTOR WDG HI-TEMP
S68C	S68C	M8-50A	LOW FLOW PUMP 1 MOTOR WDG HI-TEMP
S69	S69	M8-51	LOW FLOW PUMP 1 MOTOR HI-MOISTURE
S69C	S69C	M8-51A	LOW FLOW PUMP 1 MOTOR HI-MOISTURE
S70	S70	M8-52	LOW FLOW PUMP 1 BEARING HI-TEMP
S70C	S70C	M8-52A	LOW FLOW PUMP 1 BEARING HI-TEMP
S71	S71	M9-0	LOW FLOW PUMP 2 BREAKER OPEN
S71C	S71C	M9-0A	LOW FLOW PUMP 2 BREAKER OPEN
S72	S72	M9-1D	LOW FLOW PUMP 2 RUNNING
S72C	S72C	M9-1E	LOW FLOW PUMP 2 RUNNING
S73	S73	M9-15A	LOW FLOW PUMP 2 HOA IN AUTO
S73C	S73C	M9-15	LOW FLOW PUMP 2 HOA IN AUTO
S74	S74	M9-16	LOW FLOW PUMP 2 HOA IN OFF
S74C	S74C	M9-15	LOW FLOW PUMP 2 HOA IN OFF
S75	S75	M9-22A	LOW FLOW PUMP 2 FAIL
S75C	S75C	M9-22B	LOW FLOW PUMP 2 FAIL
S76	S76	M9-50	LOW FLOW PUMP 2 MOTOR WDG HI-TEMP
S76C	S76C	M9-50A	LOW FLOW PUMP 2 MOTOR WDG HI-TEMP
S77	S77	M9-51	LOW FLOW PUMP 2 MOTOR HI-MOISTURE
S77C	S77C	M9-51A	LOW FLOW PUMP 2 MOTOR HI-MOISTURE
S78	S78	M9-52	LOW FLOW PUMP 2 BEARING HI-TEMP
S78C	S78C	M9-52A	LOW FLOW PUMP 2 BEARING HI-TEMP
S79	S79	CPDO-2	PUMP CONTROL CKT POWER FAIL
S79C	S79C	CPDO-2A	PUMP CONTROL CKT POWER FAIL
S80	S80	CPDO-145	MAIN PUMP FAIL TO STOP
S80C	S80C	CPDO-145A	MAIN PUMP FAIL TO STOP
S81	S81	CPDO-391	ALARM ACKNOWLEDGED
S81C	S81C	CPDO-391A	ALARM ACKNOWLEDGED
S82	S82	CPDO-481	COMBUSTIBLE GAS WARNING
S82C	S82C	CPDO-481A	COMBUSTIBLE GAS WARNING
S81	S81	CPDO-482	COMBUSTIBLE GAS ALARM
S81C	S81C	CPDO-482A	COMBUSTIBLE GAS ALARM
S82	S82	CPDO-483	COMBUSTIBLE GAS DETECTOR FAIL
S82C	S82C	CPDO-483A	COMBUSTIBLE GAS DETECTOR FAIL
S83	S83	SWGR-1	UTILITY LINE 1 POWER FAIL
S83C	S83C	SWGR-1C	UTILITY LINE 1 POWER FAIL
S84	S84	SWGR-2	UTILITY LINE 1 TVSS ALARM
S84C	S84C	SWGR-2C	UTILITY LINE 1 TVSS ALARM
S85	S85	SWGR-3	UTILITY LINE 1 BREAKER CLOSED
S85C	S85C	SWGR-3C	UTILITY LINE 1 BREAKER CLOSED
S86	S86	SWGR-4	UTILITY LINE 2 POWER FAIL
S86C	S86C	SWGR-4C	UTILITY LINE 2 POWER FAIL
S81	S81	SWGR-5	UTILITY LINE 2 TVSS ALARM
S81C	S81C	SWGR-5C	UTILITY LINE 2 TVSS ALARM
S82	S82	SWGR-6	UTILITY LINE 2 BREAKER CLOSED
S82C	S82C	SWGR-6C	UTILITY LINE 2 BREAKER CLOSED
S83	S83	SWGR-7	BUS TIE 1 BREAKER CLOSED
S83C	S83C	SWGR-7C	BUS TIE 1 BREAKER CLOSED
S84	S84	SWGR-8	BUS TIE 2 BREAKER CLOSED
S84C	S84C	SWGR-8C	BUS TIE 2 BREAKER CLOSED
S85	S85	SWGR-9	GENERATOR BREAKER CLOSED
S85C	S85C	SWGR-9C	GENERATOR BREAKER CLOSED
S86	S86	GEN-1	GENERATOR RUNNING
S86C	S86C	GEN-1C	GENERATOR RUNNING
S87	S87	GEN-2	GENERATOR ALARM
S87C	S87C	GEN-2C	GENERATOR ALARM
S88	S88	GEN-3	GENERATOR DC POWER FAILURE
S88C	S88C	GEN-3C	GENERATOR DC POWER FAILURE

SCADA PANEL DIGITAL INPUTS TERMINAL BLOCK TBDI

TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
S97	S82		
S97C	S82C		
S98	S86		
S98C	S86C		
S99	S86		
S99C	S86C		
S100	S82		
S100C	S82C		
S101	CP-201	CPDO-201	WETWELL LVL BELOW FLOAT EL. 608.0'
S101C	CP-201A	CPDO-201A	WETWELL LVL BELOW FLOAT EL. 608.0'
S102	CP-202	CPDO-202	WETWELL LVL BELOW FLOAT EL. 607.0'
S102C	CP-202A	CPDO-202A	WETWELL LVL BELOW FLOAT EL. 607.0'
S103	CP-203	CPDO-203	WETWELL LVL BELOW FLOAT EL. 606.5'
S103C	CP-203A	CPDO-203A	WETWELL LVL BELOW FLOAT EL. 606.5'
S104	CP-204	CPDO-204	WETWELL LVL BELOW FLOAT EL. 606.0'
S104C	CP-204A	CPDO-204A	WETWELL LVL BELOW FLOAT EL. 606.0'
S105	CP-205	CPDO-205	WETWELL LVL BELOW FLOAT EL. 605.5'
S105C	CP-205A	CPDO-205A	WETWELL LVL BELOW FLOAT EL. 605.5'
S106	CP-206	CPDO-206	WETWELL LVL BELOW FLOAT EL. 605.0'
S106C	CP-206A	CPDO-206A	WETWELL LVL BELOW FLOAT EL. 605.0'
S107	CP-207	CPDO-207	WETWELL LVL BELOW FLOAT EL. 604.5'
S107C	CP-207A	CPDO-207A	WETWELL LVL BELOW FLOAT EL. 604.5'
S108	CP-208	CPDO-208	WETWELL LVL BELOW FLOAT EL. 604.0'
S108C	CP-208A	CPDO-208A	WETWELL LVL BELOW FLOAT EL. 604.0'
S109	CP-209	CPDO-209	WETWELL LVL BELOW FLOAT EL. 603.0'
S109C	CP-209A	CPDO-209A	WETWELL LVL BELOW FLOAT EL. 603.0'
S110	CP-210	CPDO-210	WETWELL LVL BELOW FLOAT EL. 602.5'
S110C	CP-210A	CPDO-210A	WETWELL LVL BELOW FLOAT EL. 602.5'
S111	CP-211	CPDO-211	WETWELL LVL BELOW FLOAT EL. 602.0'
S111C	CP-211A	CPDO-211A	WETWELL LVL BELOW FLOAT EL. 602.0'
S112	CP-212	CPDO-212	WETWELL LVL BELOW FLOAT EL. 601.5'
S112C	CP-212A	CPDO-212A	WETWELL LVL BELOW FLOAT EL. 601.5'
S113	CP-213	CPDO-213	WETWELL LVL BELOW FLOAT EL. 601.0'
S113C	CP-213A	CPDO-213A	WETWELL LVL BELOW FLOAT EL. 601.0'
S114	CP-214	CPDO-214	WETWELL LVL BELOW FLOAT EL. 600.0'
S114C	CP-214A	CPDO-214A	WETWELL LVL BELOW FLOAT EL. 600.0'
S115	CP-215	CPDO-215	WETWELL LVL BELOW FLOAT EL. 599.5'
S115C	CP-215A	CPDO-215A	WETWELL LVL BELOW FLOAT EL. 599.5'
S116	S116		
S116C	S116C		
S117	S117		
S117C	S117C		
S118	S118		
S118C	S118C		
S119	S119		
S119C	S119C		
S120	S120		
S120C	S120C		
S121	S121		
S121C	S121C		
S122	S122		
S122C	S122C		
S123	S123		
S123C	S123C		
S124	S124		
S124C	S124C		
S125	S125		
S125C	S125C		
S126	S126		
S126C	S126C		
S127	S127		
S127C	S127C		
S128	S128		
S128C	S128C		
S129	S129		
S129C	S129C		
S130	S130		
S130C	S130C		
S131	S131		
S131C	S131C		
S131	S131		
S131C	S131C		
S132	S132		
S132C	S132C		
S133	S133		
S133C	S133C		
S132	S132		
S132C	S132C		
S133	S133		
S133C	S133C		
S134	S134		
S134C	S134C		
S135	S135		
S135C	S135C		
S136	S136	MCC1-1	MCC 1 POWER FAILURE
S136C	S136C	MCC1-1C	MCC 1 POWER FAILURE
S137	S137	MCC1-2	MCC 1 TVSS ALARM
S137C	S137C	MCC1-2C	MCC 1 TVSS ALARM
S138	S138	MCC2-1	MCC 2 POWER FAILURE
S138C	S138C	MCC2-1C	MCC 2 POWER FAILURE
S139	S139	MCC2-2	MCC 2 TVSS ALARM
S139C	S139C	MCC2-2C	MCC 2 TVSS ALARM
S140	S140	FAP-1	FIRE ALARM
S140C	S140C	FAP-1A	FIRE ALARM
S141	S141	PS-1	PUMP STATION INTRUSION
S141C	S141C	PS-1A	PUMP STATION INTRUSION
S142	S142	PS-2	PUMP STATION KEY SWITCH BYPASS
S142C	S142C	PS-2A	PUMP STATION KEY SWITCH BYPASS

SCADA PANEL DIGITAL INPUTS TERMINAL BLOCK TBDI

TERM #	WIRE #	ORIGINATIION	DESCRIPTION OF INPUTS
S143	S143	CB-1	CONTROL BLDG INTRUSION
S143C	S143C	CB-1A	CONTROL BLDG INTRUSION
S144	S144	CB-2	CONTROL BLDG KEY SWITCH BYPASS
S144C	S144C	CB-2A	CONTROL BLDG KEY SWITCH BYPASS
S145	S145	UPS-1	UPS POWER FEEDER FAIL
S145C	S145C	UPS-2	UPS POWER FEEDER FAIL
S146	S146	UPS-3	UPS ALARM
S146C	S146C	UPS-4	UPS ALARM
S147	S147	DCPS-1	24VDC POWER SUPPLY ALARM
S147C	S147C	DCPS-2	24VDC POWER SUPPLY ALARM
S148	S148	TSH-1	CONTROL BUILDING HIGH TEMP ALARM
S148C	S148C	TSH-2	CONTROL BUILDING HIGH TEMP ALARM
S149	S149	CPP-1	CONTROL POWER PANEL TVSS ALARM
S149C	S149C	CPP-2	CONTROL POWER PANEL TVSS ALARM

SCADA PANEL DIGITAL INPUTS TERMINAL BLOCK TBDO

TERM #	WIRE #	DESTINATION	DESCRIPTION OF OUTPUTS
P1	M1-7	M1-7	MAIN PUMP 1 CALL
P1X	M1-14	M1-14	MAIN PUMP 1 CALL
P2	M2-7	M2-7	MAIN PUMP 2 CALL
P2X	M2-14	M2-14	MAIN PUMP 2 CALL
P3	M3-7	M3-7	MAIN PUMP 3 CALL
P3X	M3-14	M3-14	MAIN PUMP 3 CALL
P4	M4-7	M4-7	MAIN PUMP 4 CALL
P4X	M4-14	M4-14	MAIN PUMP 4 CALL
P5	M5-7	M5-7	MAIN PUMP 5 CALL
P5X	M5-14	M5-14	MAIN PUMP 5 CALL
P6	M6-7	M6-7	MAIN PUMP 6 CALL
P6X	M6-14	M6-14	MAIN PUMP 6 CALL
P7	M7-7	M7-7	MAIN PUMP 7 CALL
P7X	M7-14	M7-14	MAIN PUMP 7 CALL
P8	M8-7	M8-7	LOW FLOW PUMP 1 CALL
P8X	M8-14	M8-14	LOW FLOW PUMP 1 CALL
P9	M9-7	M9-7	LOW FLOW PUMP 2 CALL
P9X	M9-14	M9-14	LOW FLOW PUMP 2 CALL
P10	CP-1	CPDI-1	LEAD PUMP CALL
P10X	CP-181	CPDI-181	LEAD PUMP CALL
P11	CP-1	CPDI-1	LAG 1 PUMP CALL
P11X	CP-182	CPDI-182	LAG 1 PUMP CALL
P12	CP-1	CPDI-1	LAG 2 PUMP CALL
P12X	CP-183	CPDI-183	LAG 2 PUMP CALL
P13	CP-1	CPDI-1	LAG 3 PUMP CALL
P13X	CP-184	CPDI-184	LAG 3 PUMP CALL
P14	CP-1	CPDI-1	LAG 4 PUMP CALL
P14X	CP-185	CPDI-185	LAG 4 PUMP CALL
P15	CP-1	CPDI-1	LAG 5 PUMP CALL
P15X	CP-186	CPDI-186	LAG 5 PUMP CALL
P16	CP-1	CPDI-1	LAG 6 PUMP CALL
P16X	CP-187	CPDI-187	LAG 6 PUMP CALL
P17	CP-1	CPDI-1	LEAD LOW FLOW PUMP CALL
P17X	CP-188	CPDI-188	LEAD LOW FLOW PUMP CALL
P18	CP-1	CPDI-1	LAG LOW FLOW PUMP CALL
P18X	CP-189	CPDI-189	LAG LOW FLOW PUMP CALL
P19	CP-376	CPDI-376	ALARM ACKNOWLEDGE
P19X	CP-376A	CPDI-376A	ALARM ACKNOWLEDGE
P20	CP-5	CPDI-5	ENABLE RTU-1 OUTPUT
P20X	CP-11	CPDI-11	ENABLE RTU-1 OUTPUT

SCADA PANEL DIGITAL INPUTS TERMINAL BLOCK TBAI

TERM #	WIRE #	ORIGINATIION	DESCRIPTION OF INPUTS
L1	CP-100	CPDO-100	WETWELL LEVEL, PRIMARY
L1C	CP-100C	CPDO-100C	WETWELL LEVEL, PRIMARY
L1S	SHIELD	CPDO-100S	
L2	CP-101	CPDO-101	WETWELL LEVEL, SECONDARY
L2C	CP-101C	CPDO-101C	WETWELL LEVEL, SECONDARY
L2S	SHIELD	CPDO-101S	
L3	CP-101	CPDO-101	WETWELL LEVEL, PRIMARY
L3C	CP-101C	CPDO-101C	WETWELL LEVEL, PRIMARY
L3S	SHIELD	CPDO-101S	
L4	CP-101	CPDO-101	WETWELL LEVEL, SECONDARY
L4C	CP-101C	CPDO-101C	WETWELL LEVEL, SECONDARY
L4S	SHIELD	CPDO-101S	
L5	CP-101	CPDO-101	WETWELL LEVEL, SECONDARY
L5C	CP-101C	CPDO-101C	WETWELL LEVEL, SECONDARY
L5S	SHIELD	CPDO-101S	

DONOHUE & ASSOCIATES

E28

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

SCADA PANEL TERMINAL SCHEDULE

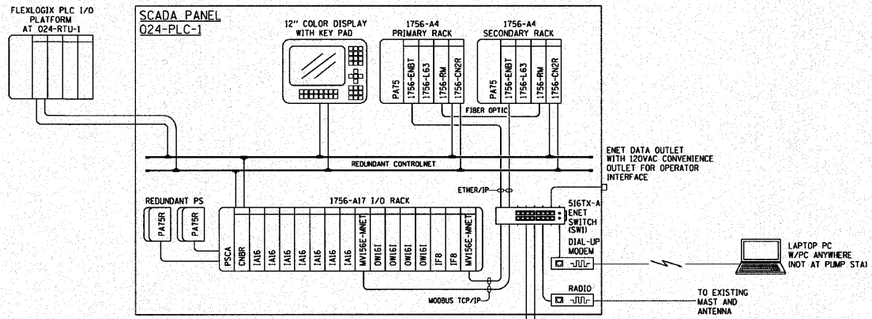
SCALE: N/A

DRAWN BY: CRP

DATE: 11-22-10

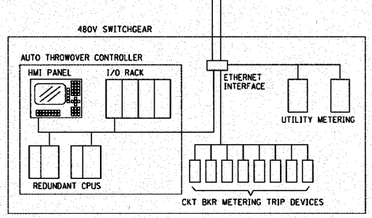
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	102
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



NOTE:
ALL EQUIPMENT SHOWN ON THIS DRAWING IS LOCATED IN ELECTRICAL ROOM UNLESS NOTED OTHERWISE.

SCADA SYSTEM DATA NETWORK



DONOHUE & ASSOCIATES

E29

REVISIONS	
NAME	DATE

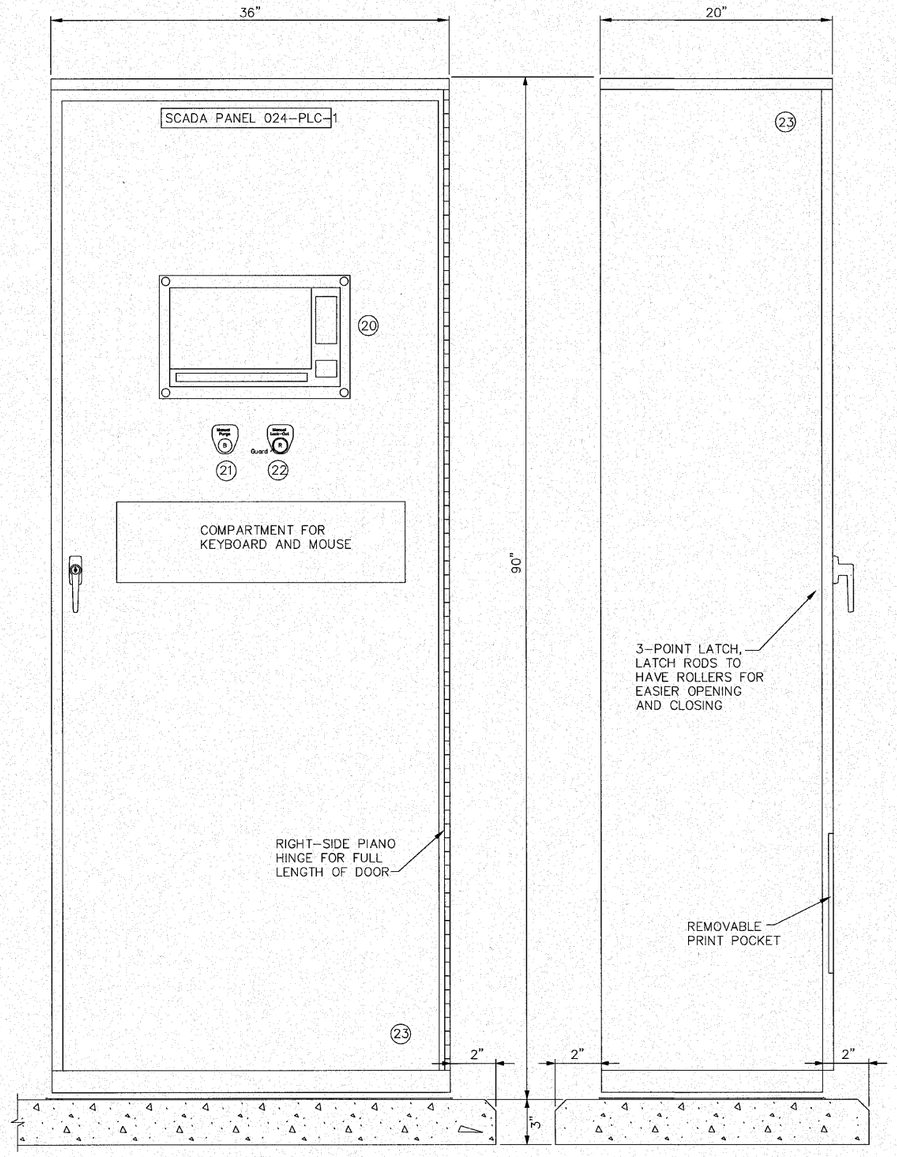
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

SCADA SYSTEM DIAGRAMS

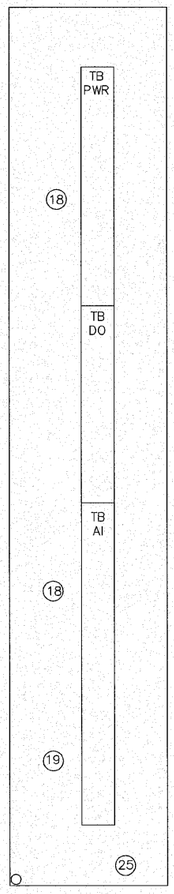
SCALE: N/A
DATE: 11-22-10
DRAWN BY: MS
CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90	0102.1 S	COOK	107	103
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

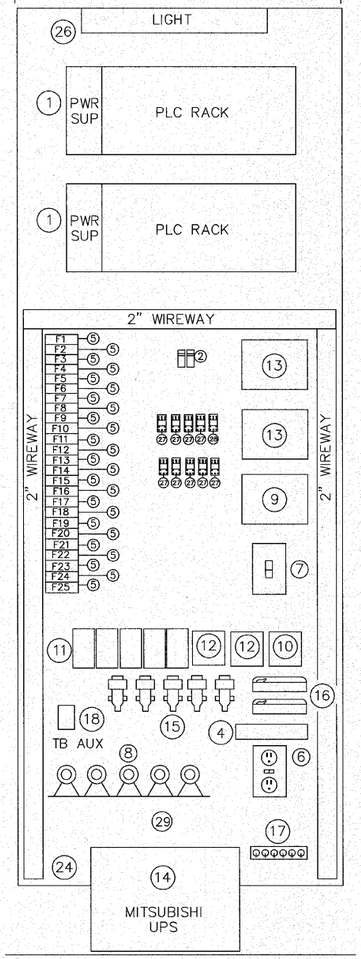


SCADA PANEL – FRONT VIEW

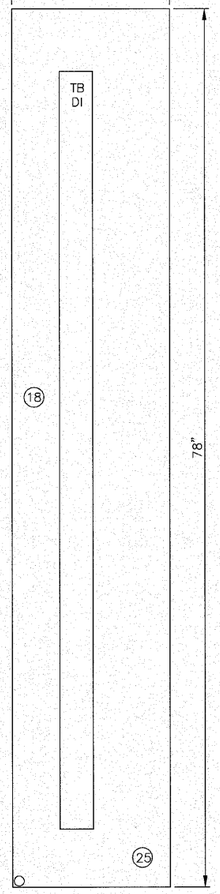
SIDE VIEW



LEFT SIDE



INSIDE PANEL ENCLOSURE



RIGHT SIDE

BILL OF MATERIALS

DESCRIPTION

1. 1756-A17 17-SLOT PLC RACK

   MODULE TYPE:
   A. 1756L1M3 CONTROLLER
   B. 1756-ENBT ETHERNET CARD
   C. MODBUS COMMUNICATIONS MODULE
   D. 1756- IB16 DIGITAL INPUT
   E. 1756-OW16I DIGITAL OUTPUT
   F. 1756-IF8 ANALOG INPUT
   G. OPEN SLOT

2. BREAKER
3. NOT USED
4. N-TRON 508TX-A ETHERNET SWITCH
5. FUSE
6. GFCI OUTLET, 125V, 20A, IN HANDY BOX
7. LIGHT SWITCH, 125V, 20A, IN HANDY BOX
8. GAST COMPRESSOR, MOA-P101-CA
9. CROMPTON CURRENT TRANSDUCER, 256-TALU-LSHGO-C6-BC
10. DITEK MRJ11SCP-RUV PHONE LINE SUPPRESSOR
11. MOORE INDUSTRIES PRESSURE TRANSDUCER PIT 3-27PSIG 4-20MA 12-28VDC ISB-DIN
12. POWER INTEGRITY SURGE SUPPRESSOR, ZTAS-03-15-0
13. SOLA 12 VOLT DC POWER SUPPLY, SFL6-12-100
14. MITSUBISHI UPS, 120 VAC, 1 KV A, DOUBLE CONVERSION TYPE, 7011A
15. ASCO SOLENOID VALVE, 8360G77
16. US ROBOTICS 56K MODEMS, 5686 (ONE LEASE-LINE, ONE DIAL-UP)
17. GROUND BUS
18. TERMINAL BLOCKS, 300 V, SCREW TYPE
19. TERMINAL BLOCKS, 300 V, FUSE HOLDER, SCREW TYPE
20. PLC DISPLAY, AB PANEL VIEW PLUS 1250
21. OILTIGHT PUSH BUTTON WITH NAMEPLATE, AB 800T-A2A
22. OILTIGHT LOCKING PUSH BUTTON WITH SHROUD & NAMEPLATE AB 800T-FX6AL
23. ENCLOSURE, NEMA 12, FREE STANDING WITH HINGED DOOR AND THREE-POINT LATCH
24. BACK PANEL
25. SIDE PANEL
26. FLOURESCENT LIGHT 120 V, 20 W
27. AUXILIARY RELAY, DPDT, 120 V AC COIL
28. AUXILIARY RELAY, DPTP, 12 VDC COIL
29. SEE DETAIL N020 FOR PURGE STATION PIPING AND COMPONENTS

SCADA PANEL 024-PLC-1

DONOHUE & ASSOCIATES

E30

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

SCADA PANEL EQUIPMENT LAYOUT

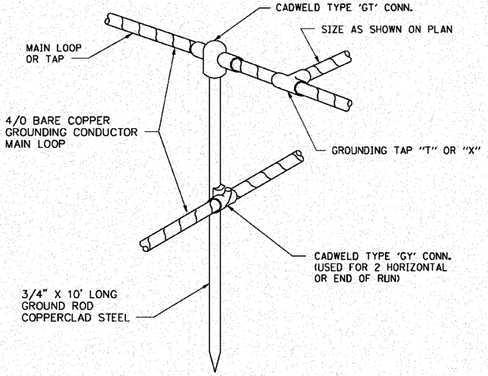
SCALE: N/A DRAWN BY: CRP

DATE: 11-22-10 CHECKED BY: MM

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	104
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

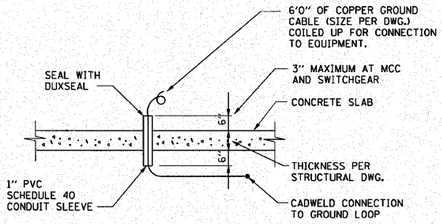
FIXTURE SCHEDULE

TYPE	DESCRIPTION	LAMPS NO	LAMPS ORD ABB	MANUFACTURER	CATALOG NUMBER	REMARKS
A	CEILING MOUNTED PULSE START METAL HALIDE FIXTURE SUITABLE FOR C1 D1 LOCATION	1	175MH	APPLETON	CPC1775-MT-CMR-4ST	SEE (E500) PROVIDE WITH QUARTZ AUXILIARY EMERGENCY LAMP AND SOCKET WHERE INDICATED ON DRAWINGS
B	WALL MOUNTED PULSE START METAL HALIDE FIXTURE SUITABLE FOR C1 D1 LOCATION	1	175MH	APPLETON	CPB1775-MT-CMR-4AN	SEE (E500)
C	PULSE START METAL HALIDE WALL PACK	1	175MH	LITHONIA	TWP-175M-120-SCWA-LPI	WALL MOUNTED AS INDICATED FIXTURES SHALL BE LOCATED AT LEAST 3'-0" FROM BLDG OPENINGS
D	1X4 ENCLOSED AND GASKETED FLUORESCENT FIXTURE	2	T8 32W	LITHONIA	DMW-2-32-120-GEB10IS	MOUNTED 9'-6" AFF
E	WALL MOUNTED 100 WATT INCANDESCENT SUITABLE FOR C1 D1 LOCATION	1	100W	APPLETON	ALB1075-AAGL-1PR-AAGU-1	SEE (E550)
	EXIT LIGHT WITH LED LAMPS RED LETTERS/WHITE HOUSING	-	WITH UNIT	LITHONIA	LOM-S-W-3-R-120/277- EL N	MOUNTED ABOVE DOOR UNLESS OTHERWISE NOTED
EP	EXIT LIGHT WITH LED LAMPS RED LETTERS/WHITE HOUSING SUITABLE FOR C1 D1 ENVIRONMENT	-	WITH UNIT	LITHONIA	D-S-W-1-R-20-AA	MOUNTED ABOVE DOOR
	EMERGENCY BATTERY LIGHT WITH TWO UNIT MOUNTED LAMP HEADS AND CAPACITY FOR REMOTE HEADS	2	WITH UNIT	LITHONIA	ETL180	WALL MOUNTED 8'-0" ABOVE FLOOR
EP	EMERGENCY BATTERY LIGHT WITH TWO UNIT MOUNTED LAMP HEADS SUITABLE FOR C1 D1 ENVIRONMENT	2	WITH UNIT	LITHONIA	ZX685-ELA-SEA-ELA-ZX-H1212-PM	WALL MOUNTED 8'-0" ABOVE FLOOR



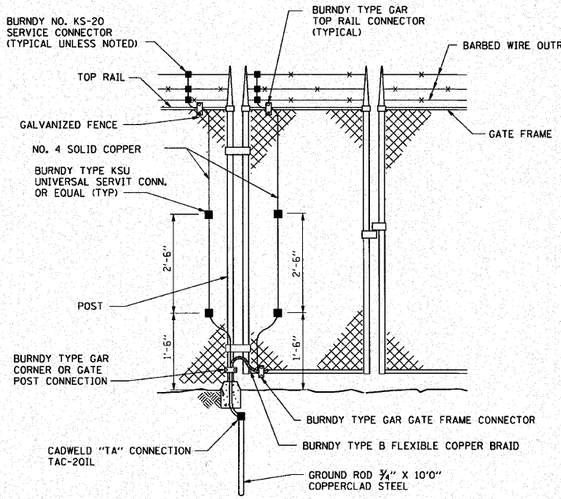
CONDUCTOR TO GROUND ROD CONNECTION DETAIL E451

NTS



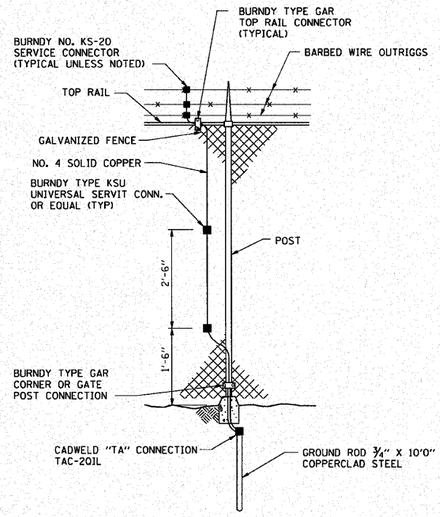
EQUIPMENT GROUND CABLE STUB-UP E452

NTS



GATE AND HINGE POST GROUNDING E457

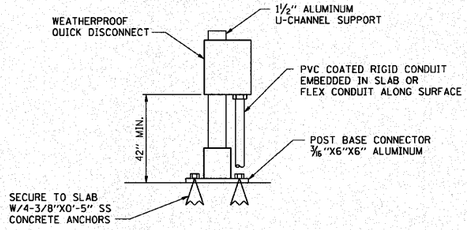
NTS



LINE POST GROUNDING E458

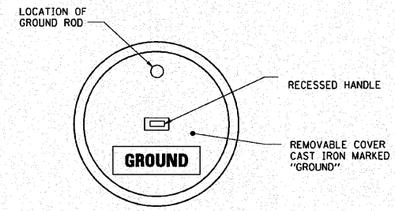
NTS

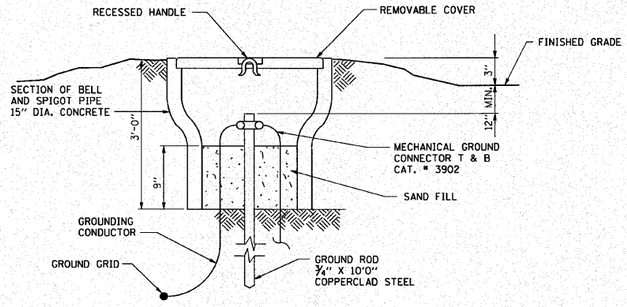
U-CHANNEL MOUNT



DISCONNECT INSTALLATION E002

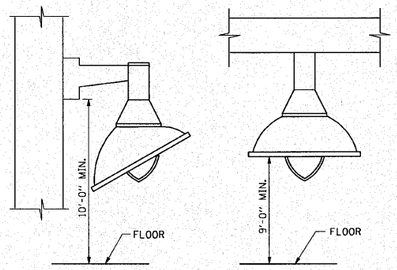
NTS





GROUNDING TEST STATION DETAIL E455

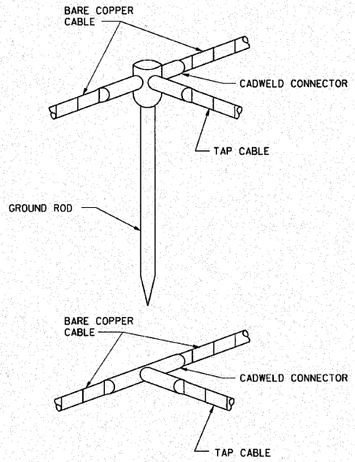
NTS



NOTE:
FIXTURES IN PUMP AND TRASH RACK ROOM SHALL BE MOUNTED 10'-0" AFF.

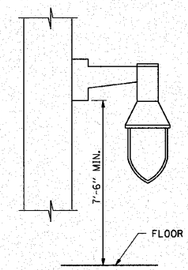
FIXTURE MOUNTING DETAIL E500

NTS



GROUNDING CONNECTION DETAIL E451

NTS



FIXTURE MOUNTING DETAIL E550

NTS

DONOHUE & ASSOCIATES

E31

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

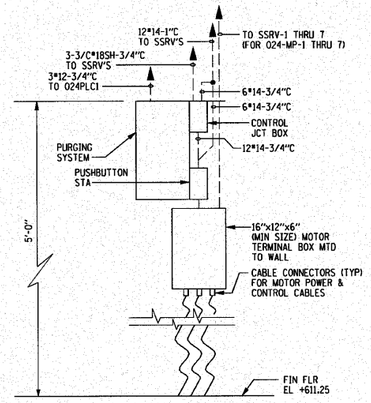
PUMP STATION NO. 24 RELOCATION

ELECTRICAL DETAILS

SCALE: AS SHOWN DRAWN BY: MS

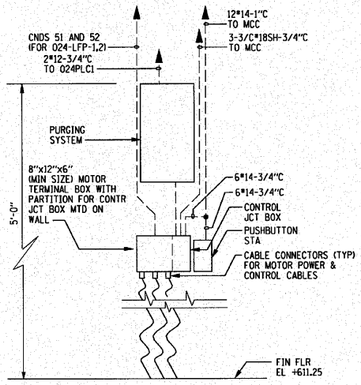
DATE: 11-22-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	105
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



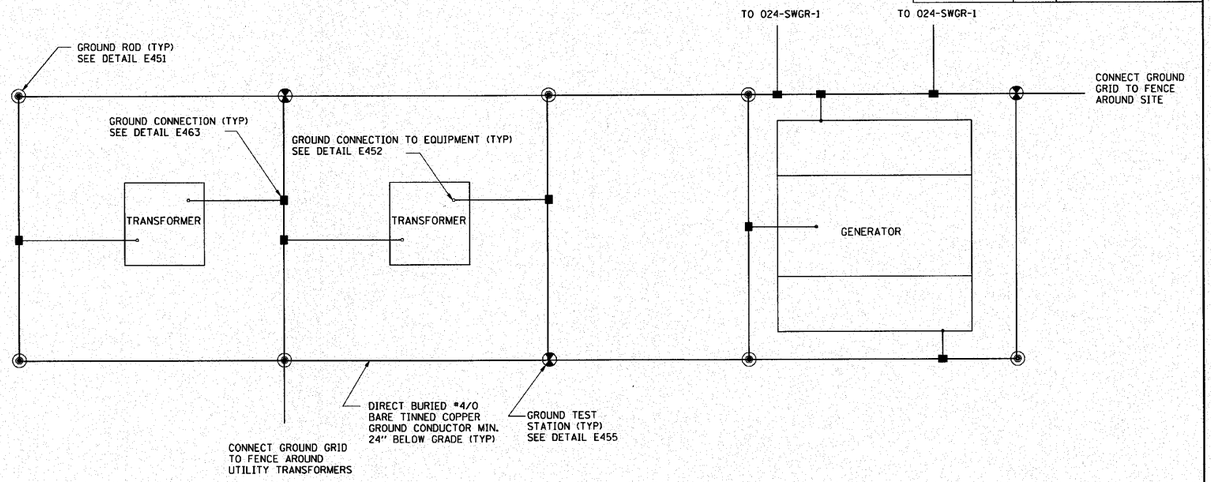
NOTE: COORDINATE DIMENSIONS OF BOXES WITH PROVIDED SUBMERSIBLE PUMP CABLES.

MOTOR TERMINAL BOX DETAIL E600
(TYP. FOR 024-MP-1 THRU MP-7)
NOT TO SCALE

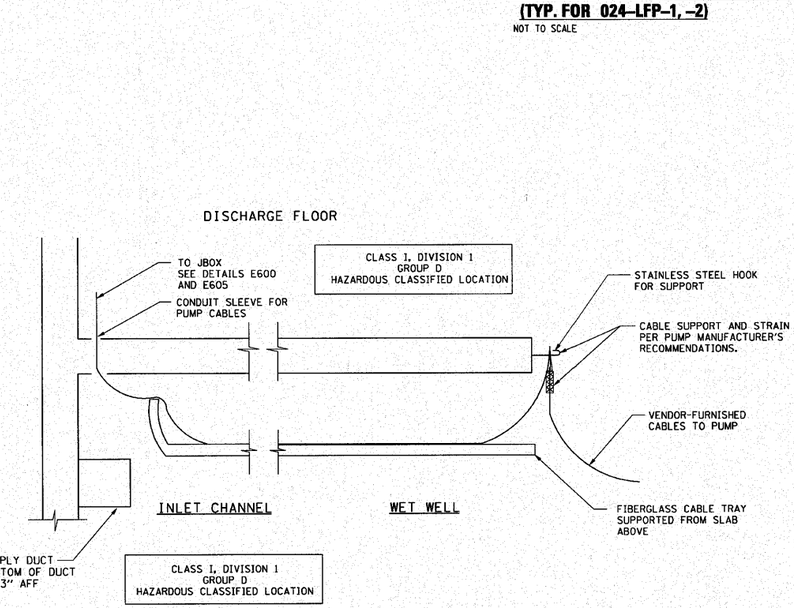


NOTE: COORDINATE DIMENSIONS OF BOXES WITH PROVIDED SUBMERSIBLE PUMP CABLES.

MOTOR TERMINAL BOX DETAIL E605
(TYP. FOR 024-LFP-1, -2)
NOT TO SCALE

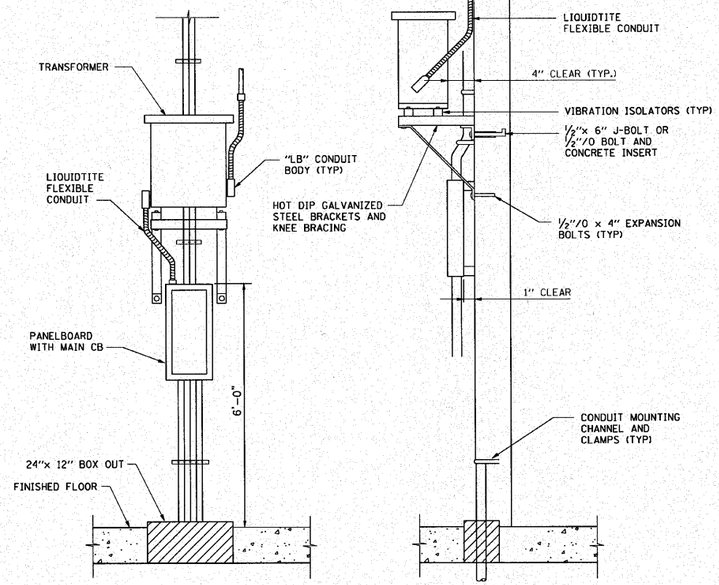


NOTE: COORDINATE GROUNDING OF TRANSFORMERS WITH COM ED

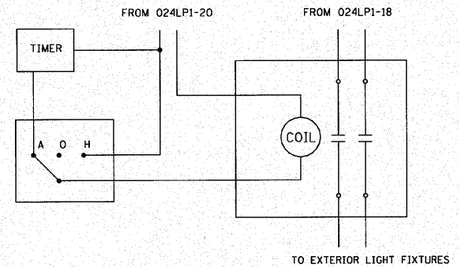


NOTE: MAINTAIN 6" BETWEEN DUCTS AND CABLE TRAY. COORDINATE CABLE TRAY ROUTING FOR 024-LFP-2 AND 024-MP-7 WITH SUPPLY DUCT. CABLE TRAY FOR OTHER PUMPS CAN BE ROUTED TO WEST WALL.

CABLE TRAY DETAIL E601
NTS



WALL MOUNTED TRANSFORMER AND PANEL BOARD E991
NTS



NOTE: NEMA 1 CONTACTOR WITH H-O-A SWITCH ON OUTER ENCLOSURE

LIGHTING CONTACTOR AND TIMER WIRING DIAGRAM E951
NTS

DONOHUE & ASSOCIATES

E32

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24
RELOCATION

ELECTRICAL DETAILS

SCALE: N/A DRAWN BY: MS
DATE: 11-22-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	106
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

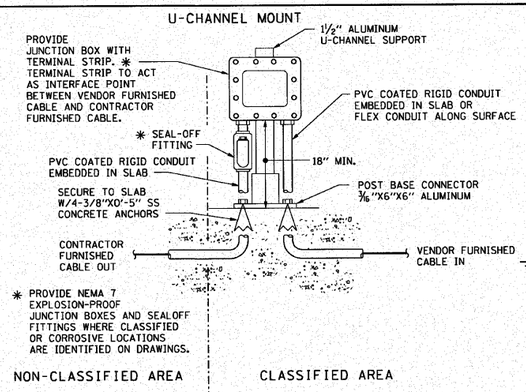
INSTRUMENT PLAN GENERAL NOTES

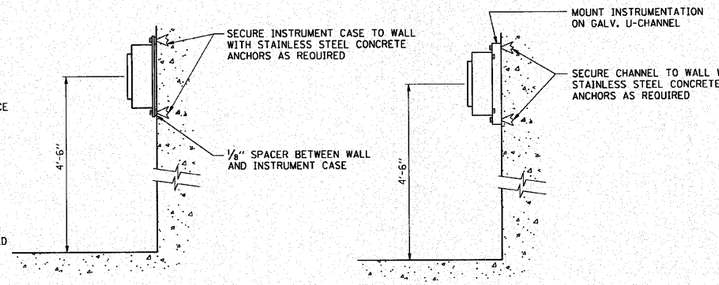
1. DRAWING SHOWS CONTROL, SIGNAL AND ASSOCIATED SINGLE PHASE POWER WIRING REQUIREMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRING, WHETHER SHOWN OR NOT, NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.
3. THIS DRAWING SHOWS APPROXIMATE LOCATIONS OF DEVICES AND PANELS AND IS DRAWN TO SCALE.
4. SHIELDED AND UNSHIELDED CONDUCTORS SHALL BE RUN IN CONDUIT. SHIELDED CONDUCTORS SHALL NOT BE COMBINED WITH UNSHIELDED CONDUCTORS IN ANY CONDUIT. NEITHER SHIELDED NOR UNSHIELDED CONDUCTORS SHALL BE INCLUDED IN THE SAME CONDUIT AS POWER WIRING.
5. SHIELDED AND UNSHIELDED CONDUCTORS SHALL HAVE A MINIMUM OF 6" SEPARATION BETWEEN CONDUIT ON PARALLEL RUNS.
6. SHIELDED AND UNSHIELDED CONDUCTORS SHALL BE SEPARATED BY STEEL BARRIERS IN ALL COMBINED SIGNAL JUNCTION BOXES AND INSTRUMENT TERMINATION CABINETS.
7. CONDUCTORS SHALL NOT BE SPLICED EXCEPT AT TERMINALS OR AS DESIGNATED BY ENGINEER.
8. ONLY REQUIRED CONDUCTORS ARE SHOWN ON PLAN. SPARE CONDUCTORS NOT SHOWN.
9. FOR EACH CONDUIT CONTAINING MORE THAN TWO CONDUCTORS, PROVIDE A MINIMUM OF TWO CONDUCTORS OR 10% OF TOTAL CONDUCTORS IN CONDUIT, WHICHEVER IS GREATER AS SPARES. TAG BOTH ENDS OF EACH SPARE. TERMINATE EACH END OF SPARE CONDUCTOR AT TERMINALS WHENEVER POSSIBLE.
10. CONDUIT SHALL BE SIZED TO ACCOMODATE REQUIRED CONDUCTORS AND ANTICIPATED SPARES.
11. THIS DRAWING DOES NOT SHOW CONDUIT SYSTEMS. PROVIDE, AS A MINIMUM, PULL BOXES AS RECOMMENDED BY CONDUCTOR MANUFACTURER. CONDULETS SHALL NOT BE USED AS PULL BOXES.
12. PROVIDE EXPLOSION-PROOF SEAL-OFF FITTINGS ON ALL CONDUIT EXITING CLASSIFIED OR RATED LOCATIONS. FITTINGS SHALL BE INSTALLED IN THE CLASSIFIED OR RATED LOCATION.

INSTRUMENT PLAN LEGEND

NTS

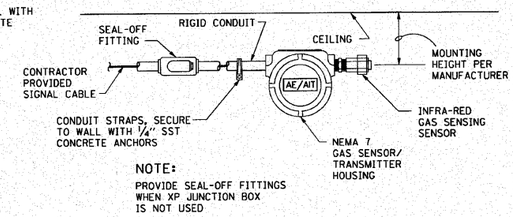
( ) #14	(QUANTITY)	#14 THWN CONDUCTORS
( ) SH.PR.	(QUANTITY)	#16 SHIELDED PAIR
( ) TEL	(QUANTITY)	#18 TELEPHONE CABLE 4 - CONDUCTOR
( ) CAT6	(QUANTITY)	DATA HIGHWAY CABLE
( ) RG62	(QUANTITY)	RG62 A/U COAXIAL CABLE
( ) VFC	(QUANTITY)	VENDOR FURNISHED CABLE





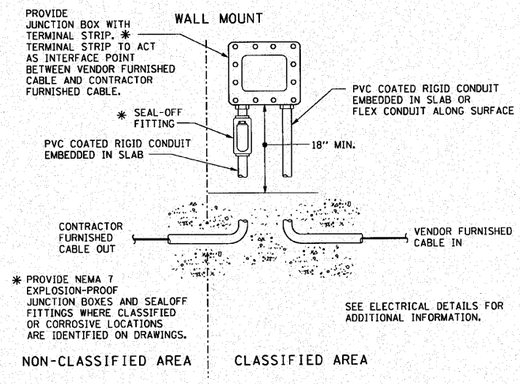
WALL MOUNT SMALL SMALL CASEINSTRUMENTATION N002

NTS



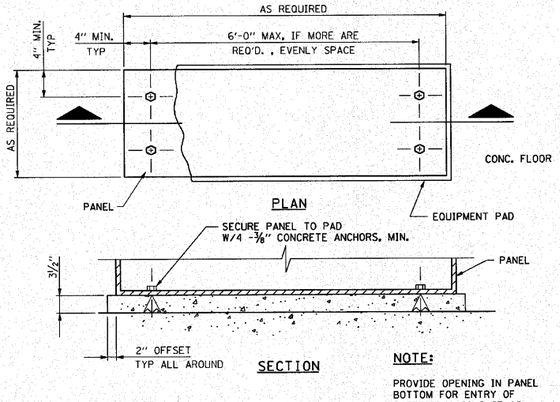
COMBUSTIBLE GAS SENSOR/ TRANSMITTER-INFRA-RED N004

NTS



I&C JUNCTION BOX (xxx-JBOX-x) INSTALLATION N001

NTS

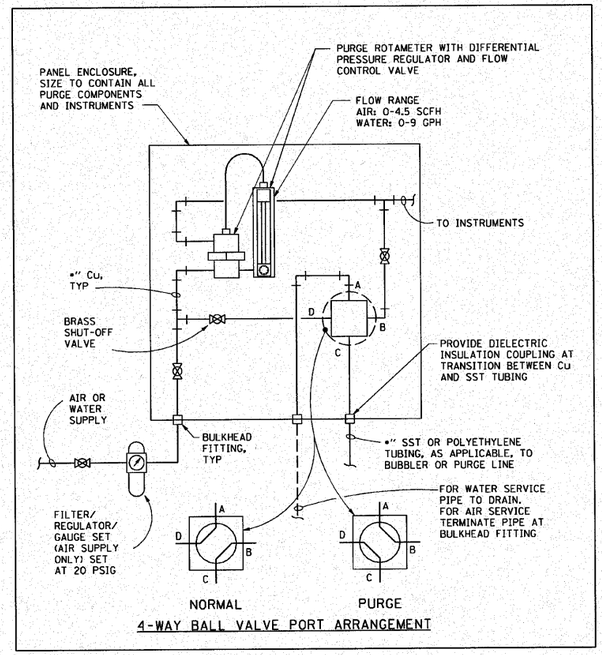


NOTE:

PROVIDE OPENING IN PANEL BOTTOM FOR ENTRY OF ELECTRICAL CONDUIT AS REQUIRED, OR AS SHOWN.

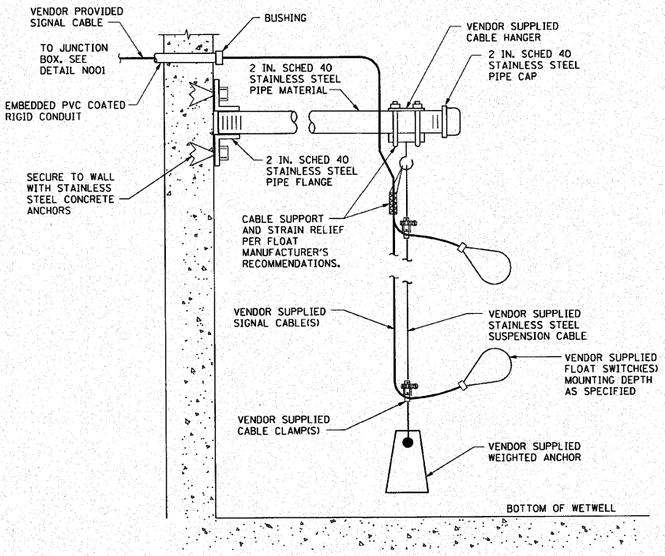
FREE STANDING OR FLOOR MOUNT CONTROL PANEL N003

NTS



BUBBLER LEVEL SYSTEM PURGE STATION N020

NTS



LEVEL INSTRUMENTATION N013

NTS

DONOHUE & ASSOCIATES

E33

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

I & C DETAILS

SCALE: AS SHOWN DRAWN BY: CRP

DATE: 11-22-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
190	0102.1 S	COOK	107	107
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

ID	TAG NAME	DETAIL	WIRING	CONDUIT SIZE	DESTINATION	ID	COMMENTS
0001	024-EUH-1	N/A	3*8,1*10 G.	1"	024MCC1-7C	0018	
0002	024-EUH-2	N/A	3*8,1*10 G.	1"	024MCC2-3C	0019	
0003	024-EUH-3	N/A	3*8,1*10 G.	1"	024MCC1-7D	0018	
0004	024-EUH-4	N/A	4*12	¾"	024MCC2-3D	0019	
0005	024-EUH-5	N/A	4*12	¾"	024MCC1-7E	0018	
0006	024-EUH-6	N/A	3*8,1*10 G.	1"	024MCC2-3E	0019	
0007	024-SF-2	N/A	4*12	¾"	024MCC1-7F	0018	
0008	024-EF-2	N/A	4*12	¾"	024MCC2-3F	0019	
0009	024-EF-3	N/A	3*12	¾"	024LP1-3	0014	
0010	024-EF-4	N/A	3*12	¾"	024LP1-4	0014	
0011	024-EF-5	N/A	4*12	¾"	024MCC1-8A	0018	
0012	024-SF-1	N/A	4*12	¾"	024MCC2-3A	0019	
0013	024-FP-1	WALL MOUNT	3*12	¾"	024LP1-15	0014	DEDICATED PHONE LINE IN¾" CONDUIT
0014	024-LP-1	WALL MOUNT	4*3,1*8 G.	1½"	024T1	0015	
0015	024-T-1	FLOOR MOUNT	3*8,1*10 G.	1"	024PP1-1,3,5	0016	
0016	024-PP-1	WALL MOUNT	4*1/0,1*6 G.	1½"	024ATS1	0017	
0017	024-ATS-1	WALL MOUNT	4*1/0,1*6 G.	1½"	024MCC1-8B	0018	
			4*1/0,1*6 G.	1½"	024MCC2-7A	0019	
0018	024-MCC-1	FREESTANDING	4*500KCMIL, 1*250KCMIL G.	3"	024SWGR1-6B	0020	6 SETS
0019	024-MCC-2	FREESTANDING	4*500KCMIL, 1*250KCMIL G.	3"	024SWGR1-2A	0020	6 SETS
0020	024-SWGR-1	FREESTANDING	4*500KCMIL, 1*500KCMIL G.	4"	024XFMR1	0021	9 SETS - 1 SPARE
			4*500KCMIL, 1*500KCMIL G.	4"	024XFMR2	0022	9 SETS - 1 SPARE
			4*500KCMIL, 1*350KCMIL G.	4"	024EG1	0039	7 SETS - 1 SPARE
			10*14	2"	024EG1	0039	
0021	024-XFMR-1	PADMOUNT	UTILITY COND.	5"	UTILITY POLE	-	DIRECT BURIED
0022	024-XFMR-2	PADMOUNT	UTILITY COND.	5"	UTILITY POLE	-	DIRECT BURIED
0023	024-TR-1	N/A	4*12	¾"	024MCC2-7D	0019	VIA DISC
0024	024-MP-1	N/A	2 VFC	-	JBOX-01	0044	
0025	024-MP-2	N/A	2 VFC	-	JBOX-02	0045	
0026	024-MP-3	N/A	2 VFC	-	JBOX-03	0046	
0027	024-MP-4	N/A	2 VFC	-	JBOX-04	0047	
0028	024-MP-5	N/A	2 VFC	-	JBOX-05	0048	

ID	TAG NAME	DETAIL	WIRING	CONDUIT SIZE	DESTINATION	ID	COMMENTS
0029	024-MP-6	N/A	2 VFC	-	JBOX-07	0049	
0030	024-MP-7	N/A	2 VFC	-	JBOX-07	0050	
0031	024-LFP-1	N/A	2 VFC	-	JBOX-11	0051	
0032	024-LFP-2	N/A	2 VFC	-	JBOX-12	0052	
0033	024-TP-1	WALL MOUNT	-	2"	-	-	CONDUIT STUB OUT
0034	024-TVSS-1	WALL MOUNT	MFC HPI CABLE	2"	024MCC1-8D	0018	
0035	024-TVSS-2	WALL MOUNT	MFC HPI CABLE	2"	024MCC2-7C	0019	
0036	024-IP-1	WALL MOUNT	3*12	¾"	024LP1-16	0014	
0037	024-PLC-1	N003	3*12	¾"	024LP1-2	0014	
0038	024-RTU-1	N003	3*12	¾"	024LP1-1	0014	
0039	024-EG-1	N/A	3*6,1*10 G.	2"	024PP1-1,3,5	0016	
			2 SH. PR.	2"	024-PLC-1	0037	
			10*14	2"	024-PLC-1	0037	
			6*14	2"	024-SWGR-1	0020	
0040	024-G-3	N/A	4*12	1"	024MCC1-7A	0018	VIA 3PHASE MOTOR SWITCH
0041	024-G-1	E002	4*12	1"	024MCC1-7B	0018	VIA 3PHASE MOTOR SWITCH
0042	024-G-2	E002	4*12	1"	024MCC2-3B	0019	VIA 3PHASE MOTOR SWITCH
0043	024-TCP-1	WALL MOUNT	3*12	¾"	024LP1-5	0014	
0044	JBOX-01	E600	3*350KCMIL, 1*1/0 G.	3"	024MCC1-2A	0018	2 SETS
0045	JBOX-02	E600	3*350KCMIL, 1*1/0 G.	3"	024MCC2-1A	0019	2 SETS
0046	JBOX-03	E600	3*350KCMIL, 1*1/0 G.	3"	024MCC1-3A	0018	2 SETS
0047	JBOX-04	E600	3*350KCMIL, 1*1/0 G.	3"	024MCC2-2A	0019	2 SETS
0048	JBOX-05	E600	3*350KCMIL, 1*1/0 G.	3"	024MCC1-4A	0018	2 SETS
0049	JBOX-06	E600	3*350KCMIL, 1*1/0 G.	3"	024MCC2-5A	0019	2 SETS
0050	JBOX-07	E600	3*350KCMIL, 1*1/0 G.	3"	024MCC1-5A	0018	2 SETS
0051	JBOX-11	E600	3*4/0,1*6 GRD.	2"	024MCC1-6A	0018	
0052	JBOX-12	E600	3*4/0,1*6 GRD.	2"	024MCC2-6A	0019	
0053	024-TVSS-3	EQUIP MOUNT	MFC HPI CABLE	2"	024SWGR1-2C	0020	
0054	024-TVSS-4	EQUIP MOUNT	MFC HPI CABLE	2"	024SWGR1-6C	0020	
0055	024-CNT-1	WALL MOUNT	3*12	¾"	024LP1-20	0014	
0056	AIR COMPRESSOR	N/A	3*12,1*12 G.	¾"	024MCC2-7E	0019	

DONOHUE & ASSOCIATES

E34

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 24 RELOCATION

CONDUCTOR AND CONDUIT SCHEDULE

DRAWN BY: MS

DATE: 11-22-10

CHECKED BY: MS