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- CONDUIT RUN EXPOSED
- - - - - CONDUIT OR DUCTBANK RUN CONCEALED UNDERGROUND
- ——— CONDUIT RUN CONCEALED IN FLOOR, SLAB OR WALL
- • — • — • — GROUNDING ELECTRODE CONDUCTOR

└ CONDUIT STUB OUT AND CAP

⊙ GROUND ROD

○ JUNCTION BOX

⤿ JUNCTION BOX WITH FLEXIBLE CONNECTION

480V
15 KVA, 1*
120/240V

TRANSFORMER, 480V INDICATED PRIMARY VOLTAGE, 120/240V INDICATES SECONDARY VOLTAGE, 15 KVA REPRESENTS POWER RATING, AND 1* INDICATES SINGLE PHASE (THREE PHASE IF NOT INDICATED)

3P
30A

THERMAL MAGNETIC CIRCUIT BREAKER WITH NUMBER OF POLES AND AMPERE RATING

COMBINATION MAGNETIC STARTER WITH CONTROL POWER TRANSFORMER (SIZED FOR LOAD). LETTERS INDICATE TYPE :

N	-	NON-REVERSING
R	-	REVERSING
2S	-	TWO-SPEED
C	-	CONTACTOR
SS	-	SOLID STATE SOFT START

XXX

XXX DEVICE

DESCRIPTION

HLS	HIGH LEVEL SWITCH
HOA	HAND-OFF-AUTO
LD	LEAK DETECTION
LLS	LOW LEVEL SWITCH
LOR	LOCAL-OFF-REMOTE
PB	PUSH BUTTON
RTU	REMOTE TERMINAL UNIT
SS	SOFT STARTER
SS/B	SOFT START OR BYPASS
TS	TEMPERATURE SWITCH
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
ZS	POSITION SENSOR (LIMIT SWITCH)

FUSE

FUSE

MOTOR

THERMAL OVERLOAD

UTILITY METER

TRANSFER SWITCH

ELECTRIC PANELBOARD

DISCONNECT OR SAFETY SWITCH

FIELD WIRING

FLOAT SWITCH. OPENS ON LOW LEVEL.

FLOAT SWITCH. CLOSSES ON LOW LEVEL.

NORMALLY OPEN (N.O.) CONTACT

NORMALLY CLOSED (N.C.) CONTACT

FUSE

GROUND CONNECTION

INDICATING PILOT LIGHT LETTER INDICATES COLOR OF LENS

DISCONNECT OR TOGGLE SWITCH

NORMALLY OPEN MOMENTARY CIRCUIT CLOSING
PUSH-BUTTON SWITCH SPRING OPEN. NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC

NORMALLY CLOSED MOMENTARY CIRCUIT OPENING
PUSH-BUTTON SWITCH SPRING CLOSE. NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC

LIMIT SWITCH NORMALLY CLOSED CONTACT CONTACT OPENS WHEN ACTUATED

TORQUE SWITCH NORMALLY CLOSED CONTACT CONTACT OPENS WHEN ACTUATED

PUMP THERMAL SENSOR

FAN THERMOSTAT

EXAMPLE OF SECTION CUT AND DETAIL

SECTION

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

SHEET NUMBER
WHERE SECTION IS
CUT

SECTION (LETTERS USED)

SHEET NUMBER
WHERE SECTION IS
SHOWN

SHEET NUMBER
WHERE SECTION IS
CUT

SECTION (LETTERS USED)

SHEET NUMBER
WHERE SECTION IS
SHOWN

DETAIL

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

SHEET NUMBER
WHERE DETAIL IS
SHOWN

DETAIL (NUMBERS USED)

SHEET NUMBER
WHERE DETAIL IS
ENLARGED

ABBREVIATIONS:

A	AMPS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
DFS	DATA FLOW SYSTEMS
DIA	DIAMETER
EX	EXISTING
ELEC	ELECTRICAL
GFI	GROUND FAULT INTERRUPTER
GND	GROUNDING CONDUCTOR
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
KVA	KILOVOLT AMPERES
KW	KILOWATTS
MAX	MAXIMUM
MIN	MINIMUM
N/A	NOT APPLICABLE
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
RECP	RECEPTACLE
RPM	REVOLUTIONS PER MINUTE
RTU	REMOTE TERMINAL UNIT
SPD	SURGE PROTECTION DEVICE
SS	STAINLESS STEEL
TYP	TYPICAL
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
XFMR	TRANSFORMER

TRICON
ENGINEERING

777 S. Harbour Island Blvd. STE 670, TAMPA, FL 33602
813.227.9190 FAX 813.227.9195
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655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602
PHONE: 813-620-1460
WWW.KIMLEY-HORN.COM CA 00000696

KHA PROJECT
148400020

DATE
4/23/2018

SCALE AS SHOWN

DESIGNED BY TDT

DRAWN BY JLH

CHECKED BY TDT



IMG POND CONTROL

MANATEE COUNTY

LICENSED PROFESSIONAL

TIMOTHY THOMAS, P.E.

FL LICENSE NUMBER
47079

FL DATE:

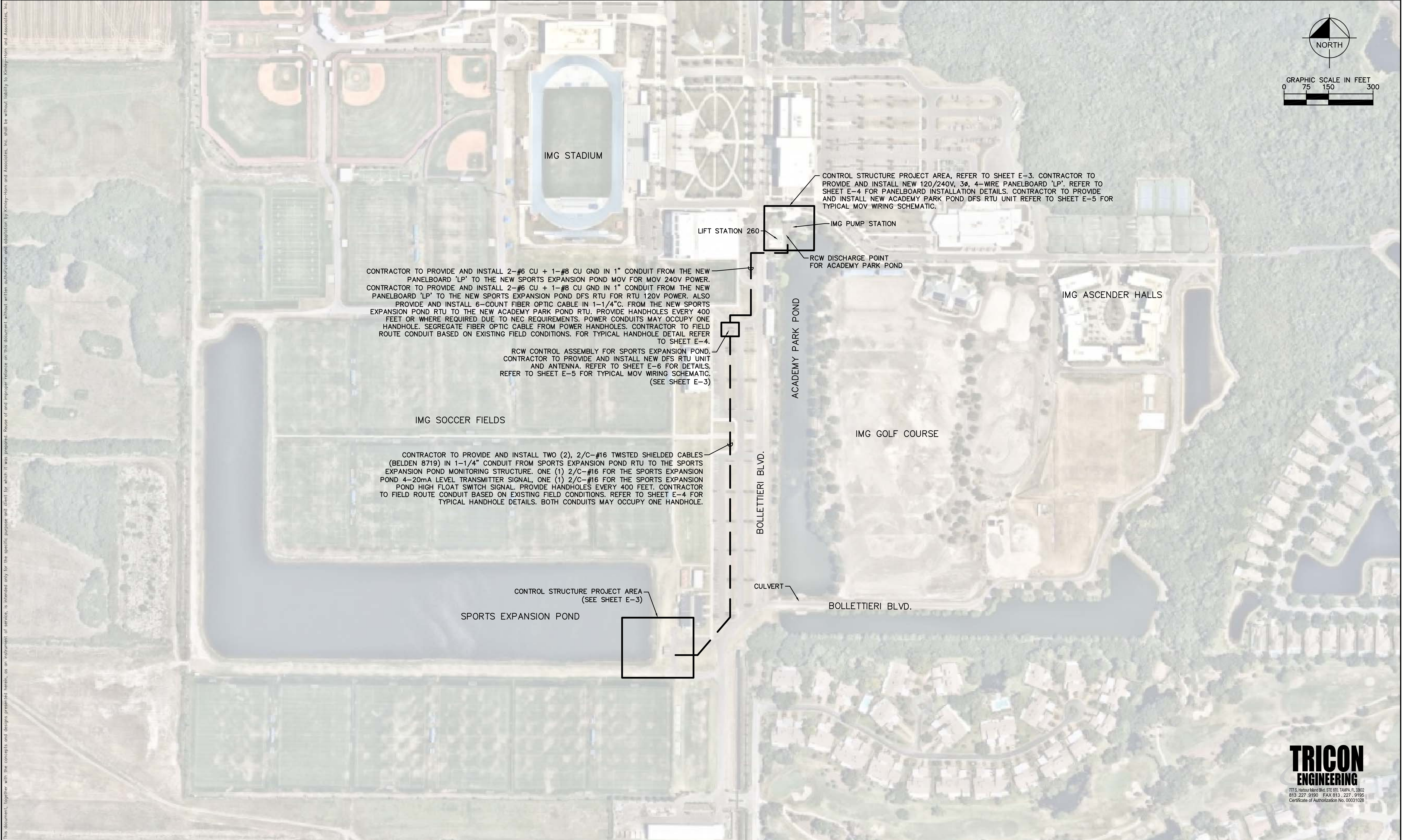
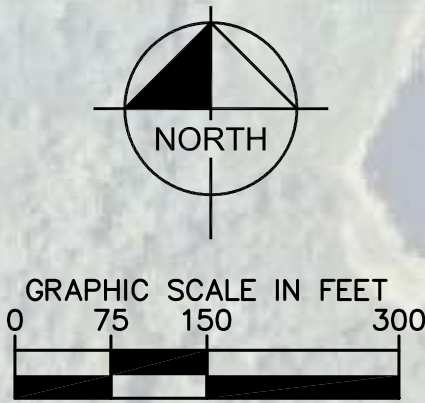
ELECTRICAL LEGEND AND ABBREVIATIONS

SHEET NUMBER



E-1

No.	REVISIONS	DATE	BY
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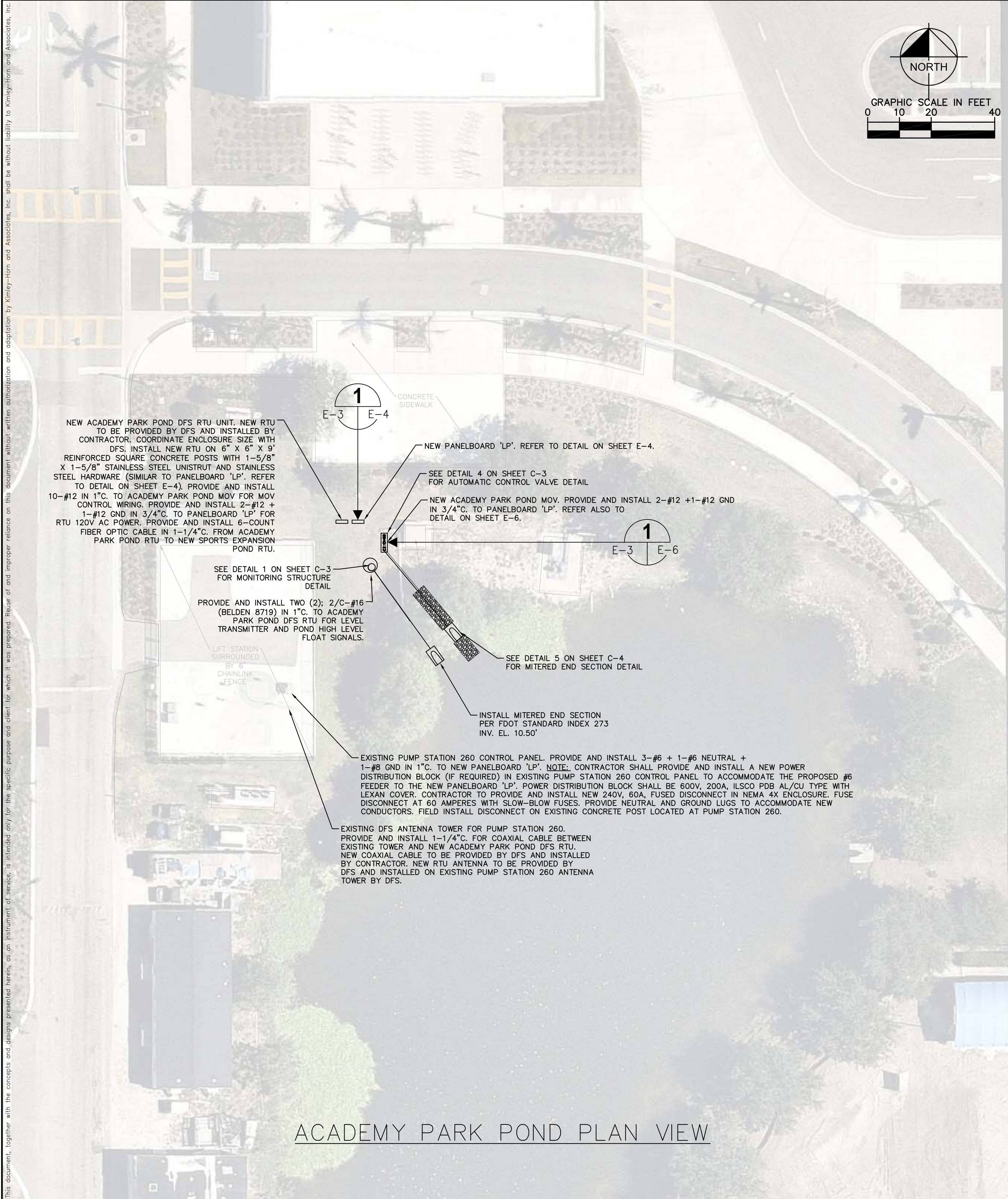
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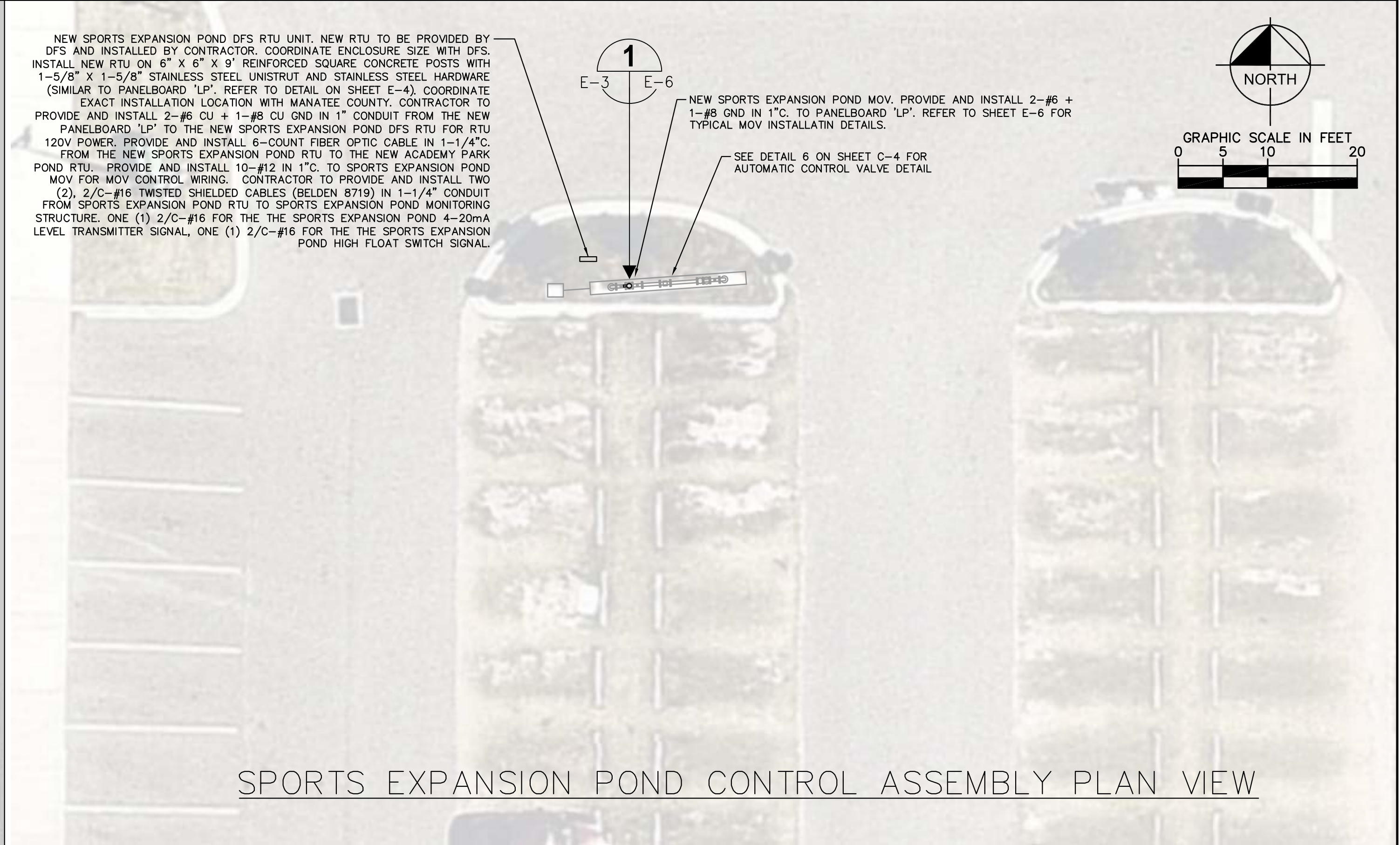
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777 S. Harbour Island Blvd., STE 600, TAMPA, FL 33602
813.227.9190 FAX 813.227.9195
Certificate of Authorization No. 00031028

				 © 2017 KIMLEY-HORN AND ASSOCIATES, INC. 655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602 PHONE: 813-620-1460 WWW.KIMLEY-HORN.COM CA 00000696	KHA PROJECT 148400020 DATE 4/23/2018 SCALE AS SHOWN DESIGNED BY TDT DRAWN BY JLH CHECKED BY TDT	 IMG POND CONTROL MANATEE COUNTY	LICENSED PROFESSIONAL TIMOTHY THOMAS, P.E. FL LICENSE NUMBER 47079	ELECTRICAL SITE PLAN	SHEET NUMBER E-2
No.	REVISIONS	DATE	BY			FL	DATE:		

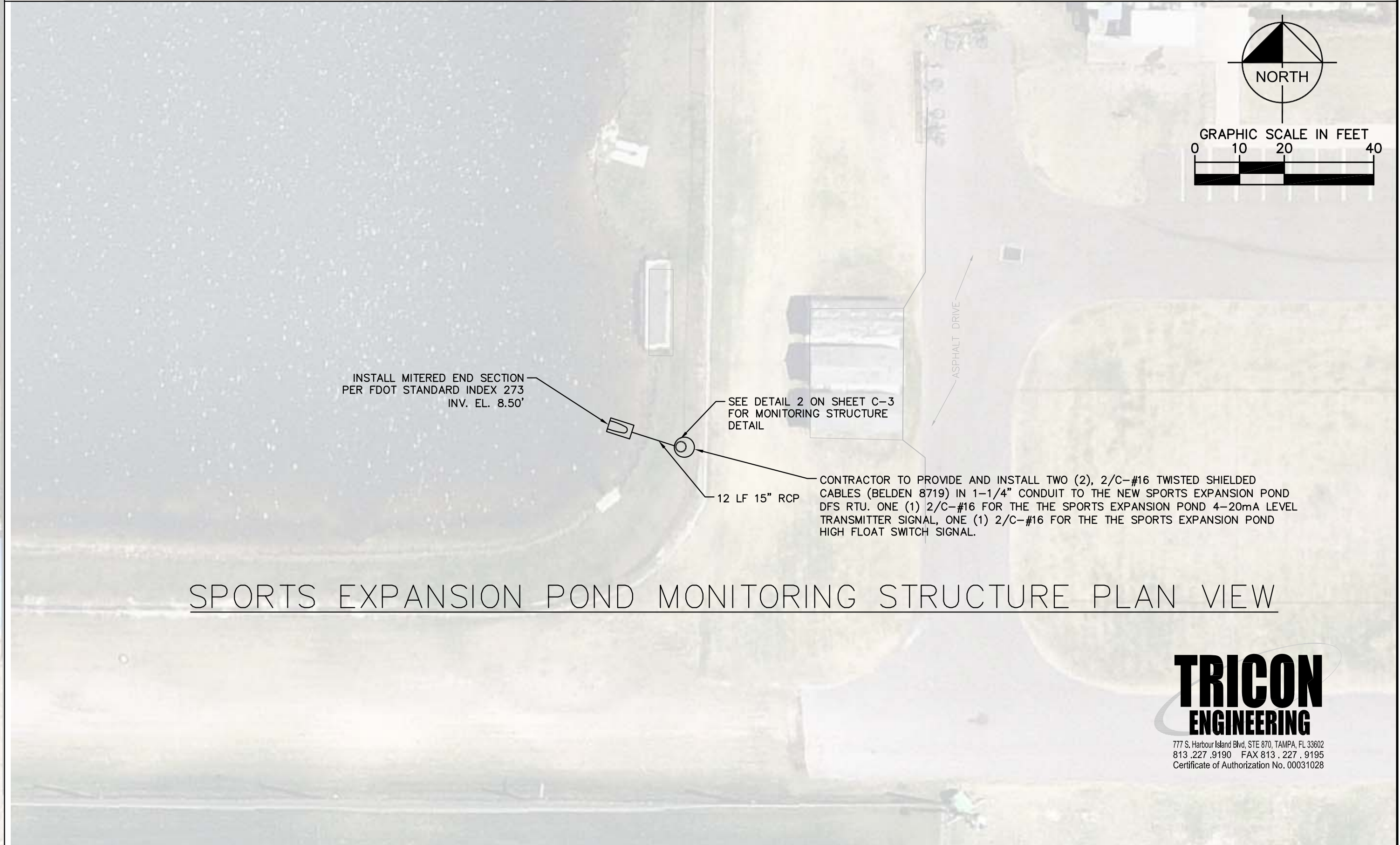
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ACADEMY PARK POND PLAN VIEW



SPORTS EXPANSION POND CONTROL ASSEMBLY PLAN VIEW



SPORTS EXPANSION POND MONITORING STRUCTURE PLAN VIEW



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MANATEE COUNTY

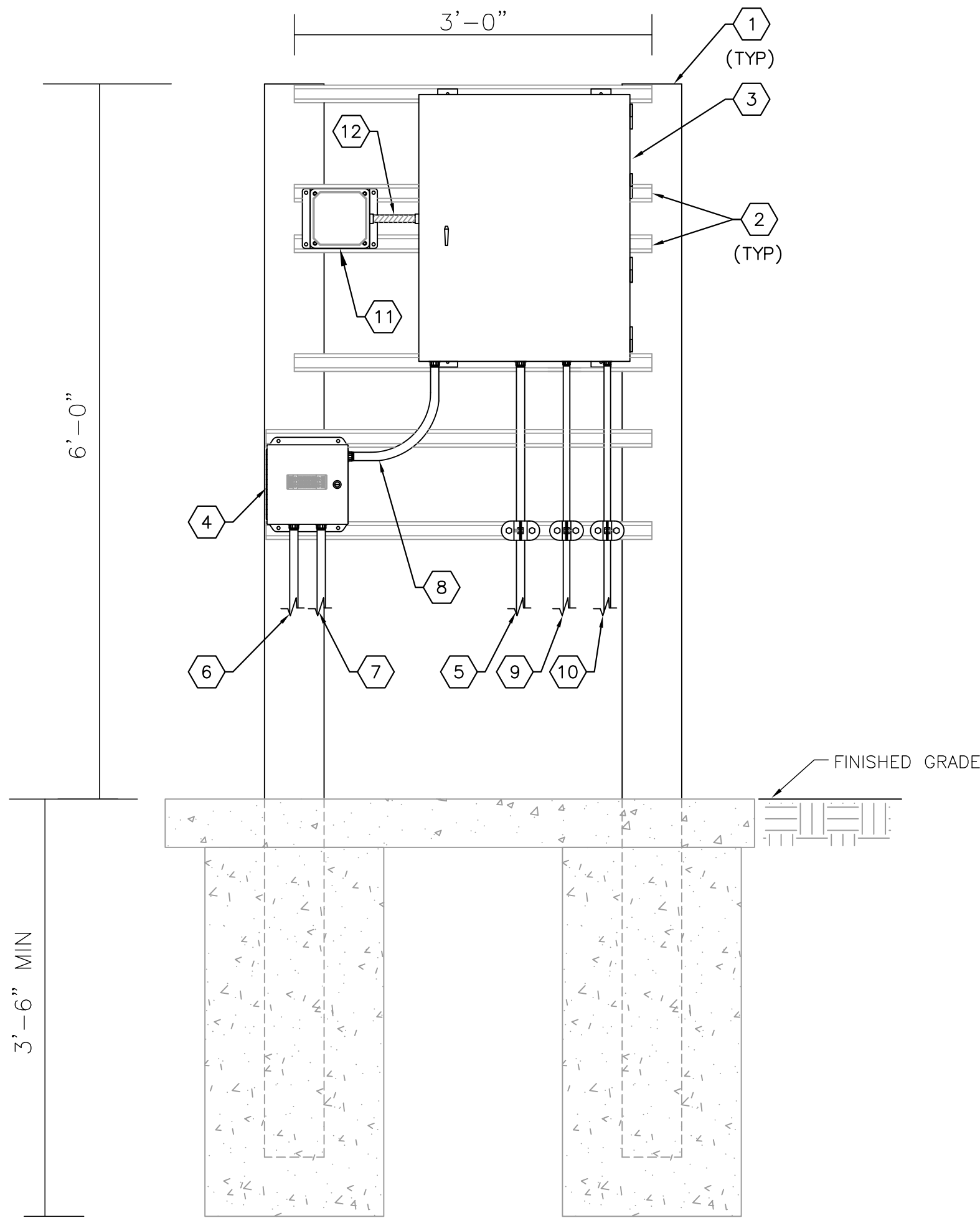
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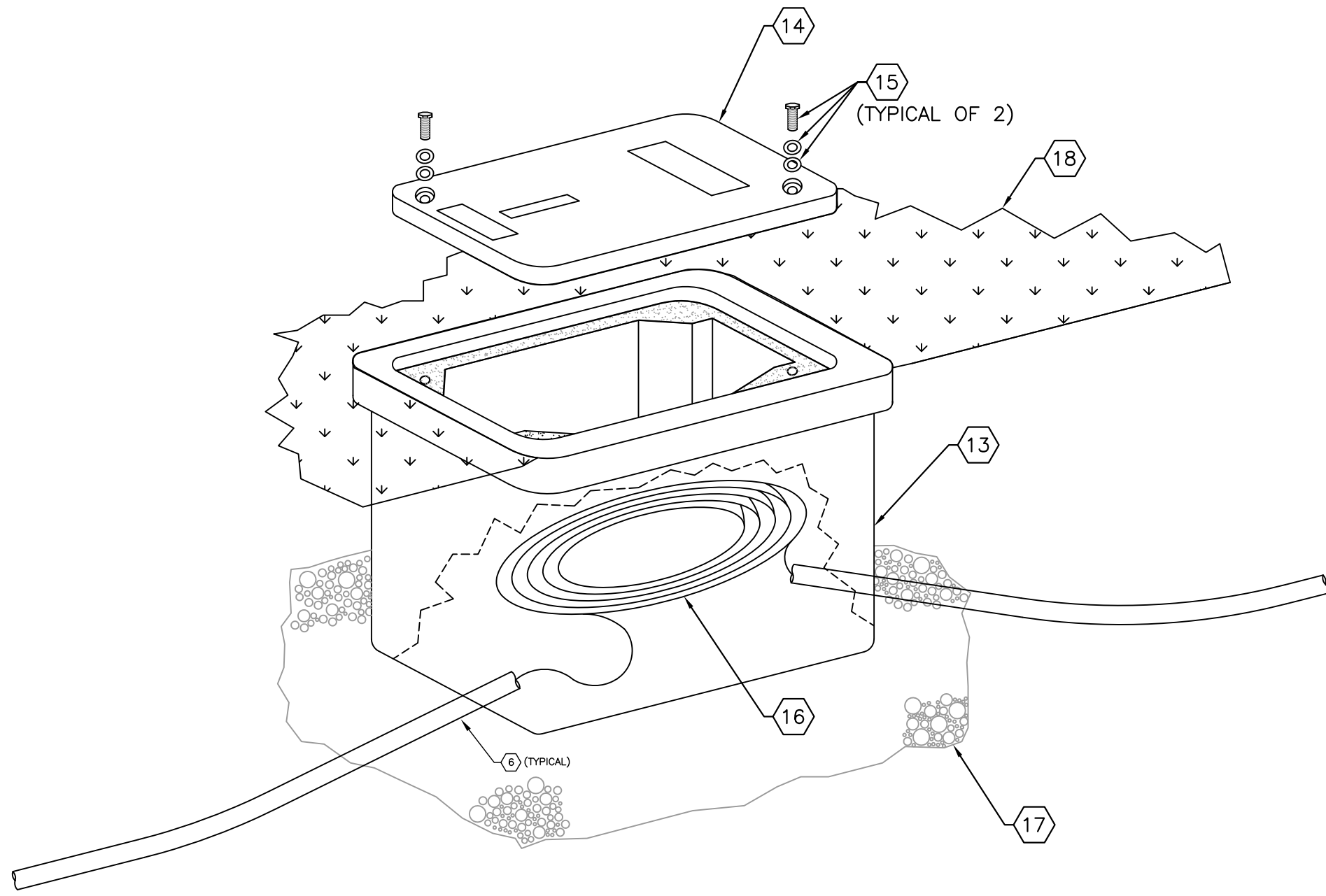
PROPOSED IMPROVEMENTS

SHEET NUMBER
E-3

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1'-6"
SQUARE BASE
(TYPICAL)
PANELBOARD 'LP' DETAIL 1
SCALE : N.T.S. E-3 E-4



TYPICAL HANDHOLE DETAIL 1
SCALE : N.T.S. E-2 E-4

PROPOSED PANEL 'LP' SCHEDULE

PANEL 'LP' ; SQUARE D CO. ; 120/208 VOLTS, 3Ø, 4W ; 100 AMP MAIN LUGS ONLY ; 35K AIC RATING ; PROVIDE ISOLATED CU GROUND BUS ; SURFACE ENCLOSURE TOP AT 5'-6" AFF															
EQUIPMENT SERVED	CIRCUIT BREAKER			KVA/PHASE			CIRC. NO.	CIRC. NO.	KVA/PHASE			CIRCUIT BREAKER			EQUIPMENT SERVED
	POLE	AMPS	FRAME	A	B	C			A	B	C	POLE	AMPS	FRAME	
ACADEMY PARK MOV	2	15	QOB	0.8			1	2	0.5			1	20	QOB	ACADEMY PARK DFS RTU
" "	--	--	--		0.8		3	4				1	20	QOB	SPARE
SPORTS EXPANSION MOV	2	15	QOB			0.8	5	6				--	--	--	SPACE
" "	--	--	--		0.8		7	8				--	--	--	SPACE
SPACE	--	--	--		0.8		9	10				--	--	--	SPACE
SPORTS EXPANSION DFS RTU	1	20	QOB			0.5	11	12				--	--	--	SPACE
SURGE PROTECTION DEVICE	3	30	QOB				13	14				--	--	--	SPACE
" "	--	--	--				15	16				--	--	--	SPACE
" "	--	--	--				17	18				--	--	--	SPACE
SUB-TOTAL KVA				1.6	0.8	1.3				0.5					
TOTAL CONNECTED LOAD = 4.2 KVA															
TOTAL DEMAND LOAD = 4.2 KVA															
NOTES: 1. ALL CIRCUIT BREAKERS TO BE BOLT ON TYPE. 2. INSURE NO 120V BRANCH CIRCUITS ARE CONNECTED TO 'HIGH LEG' OF PANELBOARD.															

GENERAL NOTES:

- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.

KEY NOTES:

- PROVIDE AND INSTALL 6" X 6" X 9' REINFORCED SQUARE CONCRETE POST.
- PROVIDE AND INSTALL 1-5/8" X 1-5/8" STAINLESS STEEL UNISTRUT WITH STAINLESS STEEL HARDWARE. NOTE: INSTALL ALL BOLTS FOR UNISTRUT COMPLETELY THROUGH CONCRETE POSTS.
- PROVIDE AND INSTALL NEW 240V, 3Ø, 4-WIRE PANELBOARD 'LP' IN NEMA 3R ENCLOSURE. PROVIDE 60 AMPERE MAIN CIRCUIT BREAKER. SQAURE D TYPE NQ OR EQUAL. REFER ALSO TO THIS SHEET FOR PANEL SCHEDULE.
- PROVIDE AND INSTALL 8" X 8" X 4" NEMA 4X STAINLESS STEEL JUNCTION BOX. HAMMOND EJ884S16 WITH STAINLESS STEEL BACKPANEL. PROVIDE AND INSTALL BARRIER TERMINAL BLOCK, COPPER BUSSMAN 14002-6 OR EQUAL TO TRANSITION #6 FEEDER CONDUCTORS TO #10 CONDUCTORS.
- PROVIDE AND INSTALL 3-#6 CU + 1-#6 CU NEUTRAL + 1-#8 CU GND. IN 1-1/4"C. FROM PUMP STATION 260 CONTROL PANEL TO NEW PANELBOARD 'LP'.
- PROVIDE AND INSTALL 2-#6 CU + 1-#8 CU GND IN 1"C. FROM PANELBOARD 'LP' (VIA TERMINAL BLOCK) TO NEW SPORTS EXPANSION CONTROL ASSEMBLY MOTOR OPERATED VALVE FOR 240V POWER.
- PROVIDE AND INSTALL 2-#6 CU + 1-#8 CU GND IN 1"C. FROM PANELBOARD 'LP' (VIA TERMINAL BLOCK) TO NEW SPORTS EXPANSION CONTROL ASSEMBLY DFS RTU CABINET FOR 120V POWER.
- PROVIDE AND INSTALL 4-#10 CU + 2-#10 CU GND IN 1"C. FROM TERMINAL BLOCK TO PANELBOARD 'LP'. 2-#10 CU + 1-#10 CU GND FOR SPORTS EXPANSION CONTROL ASSEMBLY MOTOR OPERATED VALVE 240V POWER, 2-#10 CU + 1-#10 CU GND FOR SPORTS EXPANSION CONTROL ASSEMBLY DFS RTU CABINET 120V POWER.
- PROVIDE AND INSTALL 2-#12 CU + 1-#12 CU GND IN 3/4"C. FROM PANELBOARD 'LP' TO NEW ACADEMY PARK CONTROL ASSEMBLY MOTOR OPERATED VALVE FOR 240V POWER.
- PROVIDE AND INSTALL 2-#12 CU + 1-#12 CU GND IN 3/4"C. FROM PANELBOARD 'LP' TO NEW ACADEMY PARK DFS RTU CABINET FOR 120V POWER.
- PROVIDE AND INSTALL SURGE PROTECTION DEVICE (SPD) UNIT, 120/240V, 3Ø, TYPE 1, ASCO SERIES 400, IN NEMA 4X ENCLOSURE.
- PROVIDE AND INSTALL 3-#10 THWN + 1-#10 THWN CU NEUTRAL + 1-#10 THWN CU GND IN 3/4" SEAL-TITE CONDUIT TO SPD CIRCUIT BREAKER.
- 24" x 36" x 30" FIBER-REINFORCED POLYMER CONCRETE HANDHOLE.
- "HH" TRAFFIC-RATED LID. PROVIDE RECESSED IDENTIFICATION MARKING OF "FIBER OPTIC" PERMANENTLY INDENTED IN THE COVER. LID SHALL BE PROVIDED WITH NON-SKID SURFACE.
- STAINLESS STEEL BOLTS AND ASSOCIATED HARDWARE. BOLTS SHALL BE A MINIMUM OF 5/8".
- PROVIDE A MINIMUM OF 10 FEET OF SLACK CONDUCTOR(S). CONDUCTOR QUANTITY/TYPE VARY BY LOCATION.
- PROVIDE A BED OF PEA ROCK GRAVEL (6" MINIMUM DEPTH, 3" MINIMUM EXTERIOR OF HANDHOLE) INSIDE THE BOTTOM OF THE HANDHOLE.
- FINISHED GRADE.

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777 S. Harbour Island Blvd. STE 670, TAMPA, FL 33602
813.227.9190 FAX 813.227.9195
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IMG POND CONTROL

MANATEE COUNTY

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TIMOTHY THOMAS, P.E.
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ELECTRICAL DETAILS

SHEET NUMBER

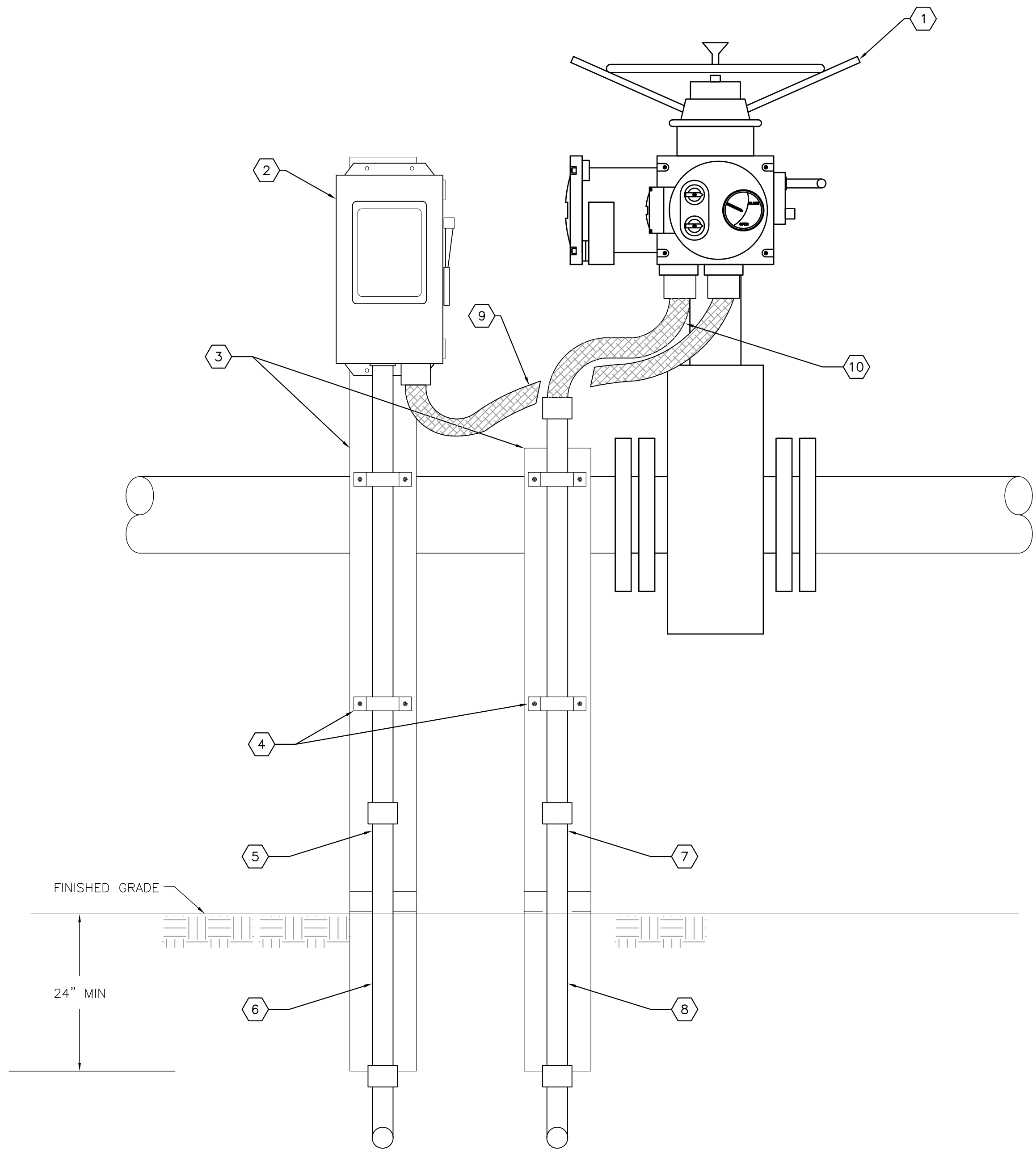
E-4



1. WIRING SCHEMATIC SHOWN IS BASED ON INFORMATION PROVIDED BY A SPECIFIC MOV MANUFACTURER AND DEPICTS THE I/O AND CONTROLS REQUIRED. THE CONTRACTOR SHALL COORDINATE WITH THE MANUFACTURER OF THE MOV SELECTED/PROVIDED TO INSURE THE PROPER FUNCTIONS ARE PROVIDED.

☐ TERMINAL BLOCK ON MOV
☒ TERMINAL BLOCK IN DFS RTU CABINET
 - - - - - FIELD WIRING

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TYPICAL MOTOR OPERATED VALVE DETAIL **1**
SCALE : N.T.S. E-3 E-6

GENERAL NOTES:

1. MOTOR OPERATED VALVE DETAIL SHOWN IS BASED ON INFORMATION PROVIDED BY A SPECIFIC MOV MANUFACTURER AND DEPICTS THE DIMENSIONS, CONDUIT ENTRY LOCATIONS, ETC. SPECIFIC TO A CERTAIN MANUFACTURER. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION DETAILS WITH THE MOV SELECTED/PROVIDED.

KEY NOTES:

- 1 NEW MOTOR OPERATED VALVE.
- 2 PROVIDE AND INSTALL NEW 30A, 2-POLE, NON-FUSED DISCONNECT IN NEMA 4X STAINLESS STEEL ENCLOSURE.
- 3 PROVIDE AND INSTALL 4" X 4" SQUARE CONCRETE POST
- 4 PROVIDE AND INSTALL CONDUIT STRAPS AS REQUIRED (TYPICAL).
- 5 PROVIDE AND INSTALL 2-#6 CU + 1-#8 CU GND IN 1" RIGID ALUMINUM CONDUIT TO PANELBOARD 'LP' FOR SPORTS EXPANSION POND MOV 240V POWER. PROVIDE AND INSTALL 2-#12 CU + 1-#12 CU GND IN 3/4" RIGID ALUMINUM CONDUIT TO PANELBOARD 'LP' FOR ACADEMY PARK POND MOV 240V POWER.
- 6 PROVIDE AND INSTALL 2-#6 CU + 1-#8 CU GND IN 1" PVC CONDUIT TO PANELBOARD 'LP' FOR SPORTS EXPANSION POND MOV 240V POWER. PROVIDE AND INSTALL 2-#12 CU + 1-#12 CU GND IN 3/4" PVC CONDUIT TO PANELBOARD 'LP' FOR ACADEMY PARK POND MOV 240V POWER.
- 7 PROVIDE AND INSTALL 10-#12 CU + 1-#12 CU GND IN 1" RIGID ALUMINUM CONDUIT TO SPORTS EXPANSION POND DFS RTU FOR MOV CONTROL WIRING.
- 8 PROVIDE AND INSTALL 10-#12 CU + 1-#12 CU GND IN 1" PVC CONDUIT TO ACADEMY PARK POND DFS RTU FOR MOV CONTROL WIRING.
- 9 PROVIDE AND INSTALL 2-#12 CU + 1-#12 CU GND IN 3/4" NON-METALLIC WEATHERPROOF, FLEXIBLE CONDUIT FOR ACADEMY PARK POND MOV 240V POWER. PROVIDE AND INSTALL 2-#10 CU + 1-#10 CU GND IN 3/4" NON-METALLIC WEATHERPROOF, FLEXIBLE CONDUIT FOR SPORTS EXPANSION POND MOV 240V POWER.
- 10 PROVIDE AND INSTALL CONTROL CONDUCTORS IN 1" NON-METALLIC WEATHERPROOF, FLEXIBLE CONDUIT.

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TYPICAL MOTOR OPERATED
VALVE INSTALLATION DETAILS

SHEET NUMBER

E-6