

ATTACHMENT F
LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION DRAWINGS, MAY 2019
(Sheets C-1 through C-22)

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION

ORANGE COUNTY, FLORIDA



PREPARED FOR



MAY 2019

100% DRAWINGS

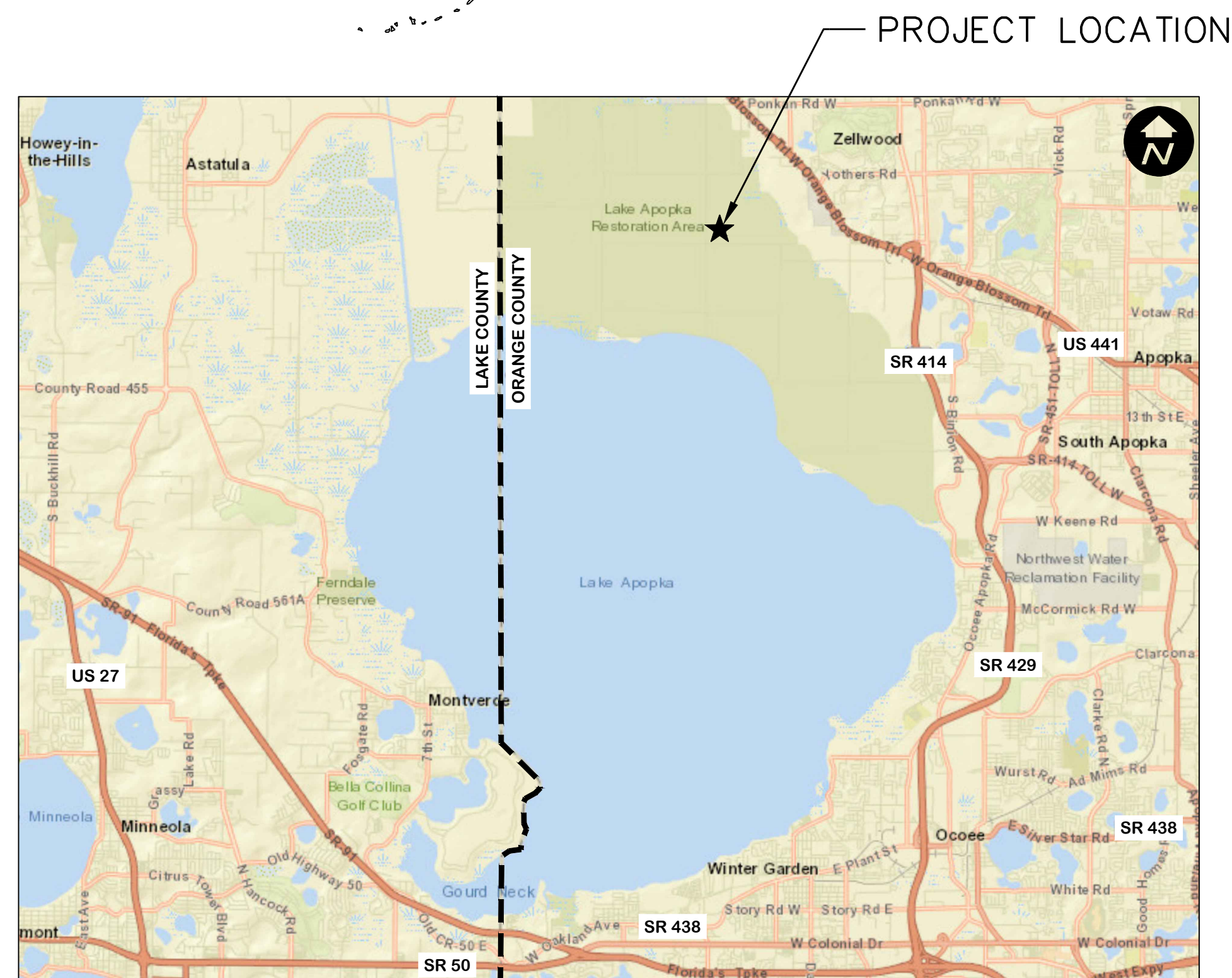
IFB NO. 34718

REI Project No. 1910

DRAWING INDEX

SHEET	DRAWING	DESCRIPTION
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22	E04	ELECTRICAL DETAILS

DATUM:
ALL ELEVATIONS ARE NAVD88.



LOCATION MAP
SCALE: NOT TO SCALE

Parent Sheet: Sect:1910-SRWMD Lx App: NSR&V/Plot by: JMY MILLER Rev. on: 7/12/2019 8:28 AM Individual File Path: R:\Projects\1910 - Lake Apopka N. Shore Phase 4\PS\Design\Drawings\Final\Design\1910.dwg

REV	DATE	DESCRIPTION	BY
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B	04/2019	90% DRAWINGS	AJM
A	03/2019	60% DRAWINGS	AJM

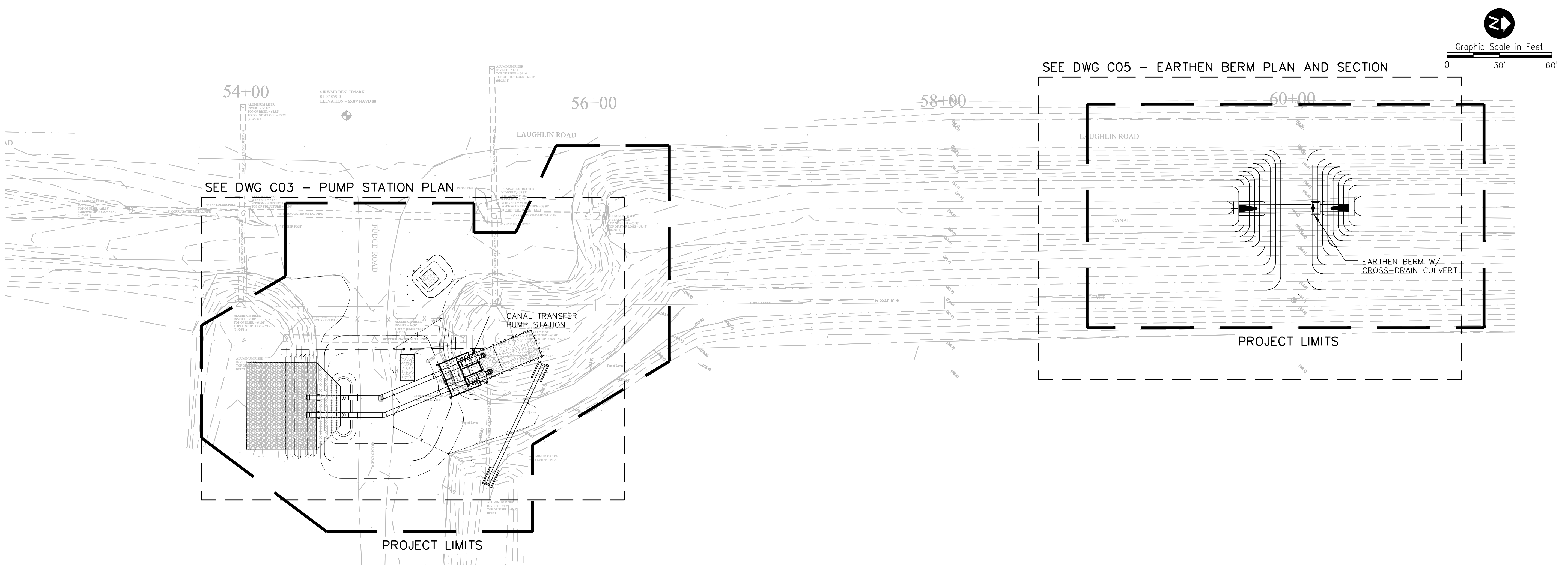


REISS ENGINEERING, INC.
CONSULTING ENGINEERS

1016 SPRING VILLAS POINT
WINTER SPRINGS, FLORIDA 32708
TEL: (407) 679-5358
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CERTIFICATE OF AUTHORIZATION NO. 8181

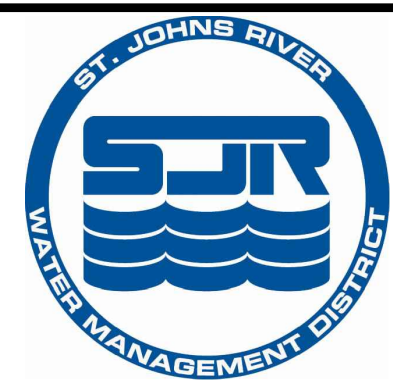


Parent Sheet Set: 1910 - SJRWMD Lk. Apopka N. Shore Phase 4 Pump Station by: JAY MILLER
 Rev on: 5/24/2019 1:59 PM
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CIVIL NOTES

1. CONTRACTOR SHALL COORDINATE DEWATERING DURING CONSTRUCTION WITH THE DISTRICT PROJECT MANAGER. CONTRACTOR SHALL SUBMIT A DETAILED DEWATERING PLAN FOR CONSTRUCTION TO THE DISTRICT PROJECT MANAGER FOR REVIEW AND APPROVAL. CIVIL AND STRUCTURAL CONSTRUCTION WORK SHALL BE PERFORMED IN DRY CONDITIONS WITH NO STANDING WATER INCLUDING ALL PIPING, CONCRETE, RIP-RAP, ENGINEERED TURF, GRAVEL ROAD, EXCAVATION, BACKFILLING, AND COMPACTION WORK.
2. THE LOCATION OF ALL EXISTING UTILITIES AND STORM DRAINAGE SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR INACCURACY. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE VARIOUS UTILITIES AND TO MAKE THE NECESSARY ARRANGEMENTS FOR ALL RELOCATION OF THESE UTILITIES WITH THE OWNER OF THE UTILITY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING AN UNDERGROUND UTILITY, WHETHER SHOWN ON THE PLAN OR LOCATED BY THE UTILITY COMPANY. ALL UTILITIES WHICH INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. ALL FEES ASSOCIATED WITH UTILITY RELOCATIONS SHALL BE BORNE BY THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE UTILITIES ARE RELOCATED IN ACCORDANCE WITH RESPECTIVE UTILITY COMPANY STANDARDS. IT IS REQUESTED THAT UTILITY COMPANIES MOVE THEIR PARTICULAR UTILITIES. ALL DELAYS OR INCONVENIENCE CAUSED TO THE CONTRACTOR BY THE RELOCATION OF THE VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT AND NO EXTRA COMPENSATION SHALL BE ALLOWED.
3. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST FIVE (5) DAYS PRIOR TO BEGINNING CONSTRUCTION AND AT LEAST FIVE (5) DAYS BEFORE REQUIRING INSPECTION ON EACH AND EVERY PHASE OF WORK. THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF FIVE (5) DAYS PRIOR TO ALL SCHEDULED TESTING.
4. ALL DEWATERING COSTS ASSOCIATED WITH THE INSTALLATION AND CONSTRUCTION OF ALL PROJECTS OR THESE PROJECTS AND ASSOCIATED APPURTENANCES SHALL BE INCLUDED IN THE CONSTRUCTION COSTS INCLUDING OBTAINING ALL WATER USE PERMITS THAT MAY BE REQUIRED FOR DEWATERING ACTIVITIES DURING CONSTRUCTION.
5. ALL EXCESS FILL FROM THE SITE SHALL BE STOCKPILED BY THE CONTRACTOR IN A LOCATION DETERMINED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL MATERIALS AND DEBRIS REMOVED FROM THE PROJECT SITE. DISPOSAL OF THE MATERIALS AND DEBRIS SHALL CONFORM TO ALL LOCAL, STATE, AND FEDERAL REGULATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO DISPOSE OF OR REUSE ALL STOCKPILED MATERIAL AT HIS OWN EXPENSE.
6. THE CONTRACTOR SHALL SEED AND MULCH ALL UNPAVED DISTURBED AREAS WITHIN THE CONSTRUCTION AREA UNLESS SODDING, LANDSCAPING, OR OTHER MORE READILY EFFECTIVE STABILIZATION PRACTICES ARE SPECIFIED OR SHOWN ON THE DRAWINGS.



REV	DATE	DESCRIPTION	BY
C	05/2019	100% DRAWINGS	AJM
B	04/2019	90% DRAWINGS	AJM
A	03/2019	60% DRAWINGS	AJM

Issue Certification	
DESIGNED	BY
Designed	SWH
Drawn	AJM
Checked	DAY
Reviewed	JRV
Approved	SWH
Scott Warner Hoxworth, P.E. Florida P.E. No. 58643	

Designed	SWH
Drawn	AJM
Checked	DAY
Reviewed	JRV
Approved	SWH
1" = 1" AT FULL SIZE	

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION

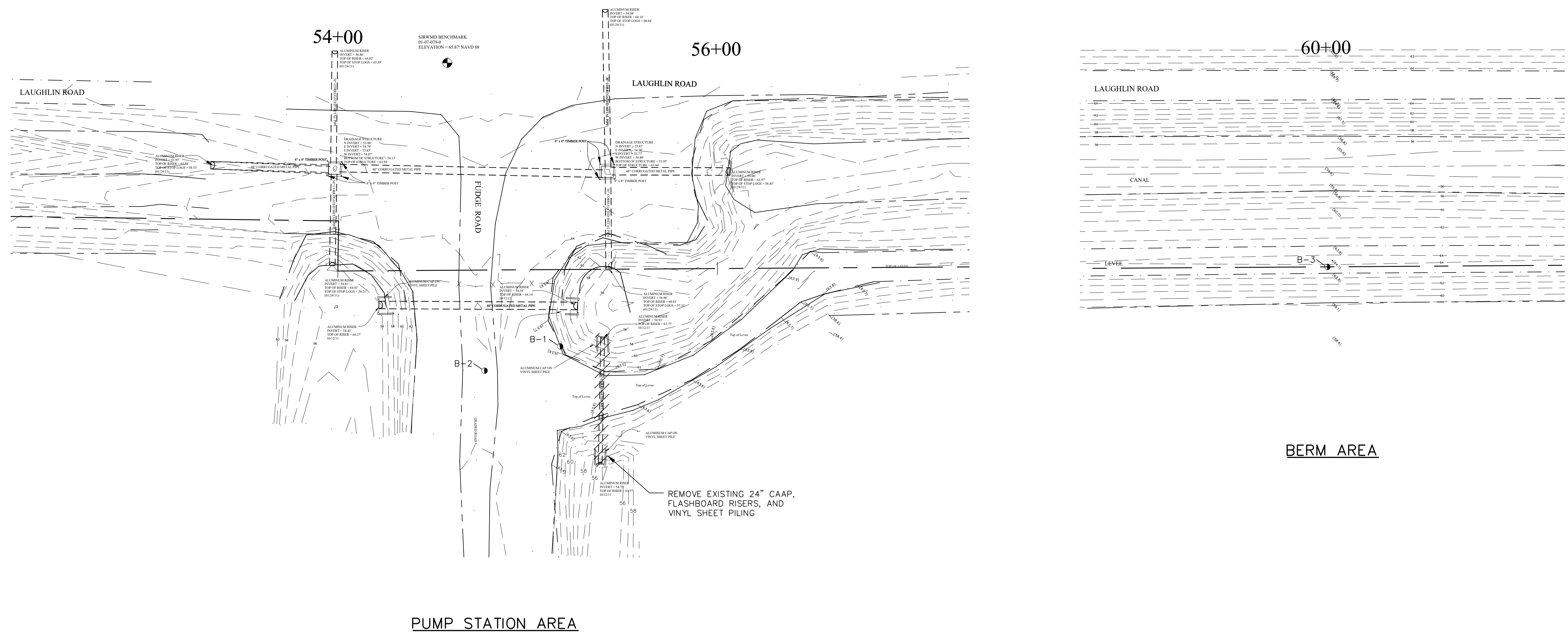
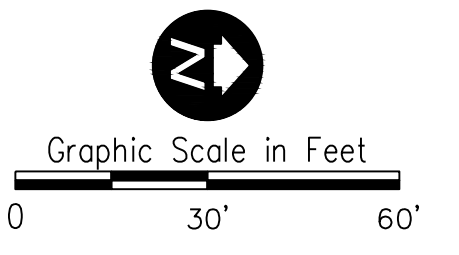
CIVIL

OVERALL SITE KEY PLAN AND CIVIL NOTES

PROJECT NO.: 1910	
SCALE: NOTED	REVISION: C
DRAWING NO. C01	SHEET NO.: 05 OF 22

REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT.
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Parent Sheet Set: 1910-SJR WMD Lk Apopka N. Shore Phase 4 Pump Station - Lake Apopka N. Shore Phase IV PS Design Drawings\FinalDesign\C02.dwg
 Rev on: 5/15/2019 7:13 AM
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 by: JAY MILLER



NOTES
 1. EXISTING SITE CONDITIONS TO REMAIN UNLESS OTHERWISE NOTED IN THE DRAWINGS.

LEGEND

- SURVEY BENCHMARK
- SOIL BORING LOCATION
- ELEVATION CONTOUR
- SPOT ELEVATION
- TOP OF BANK
- TOE OF SLOPE
- EXISTING PIPE
- EDGE OF ROAD



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Issue Certification

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Checked	DAY
Reviewed	JRV
Approved	SWH

Scott Warner Hoxworth, P.E.
 Florida P.E. No. 58643

Scale	1" = 40'
Line Size	1/8" AT FULL SIZE

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION

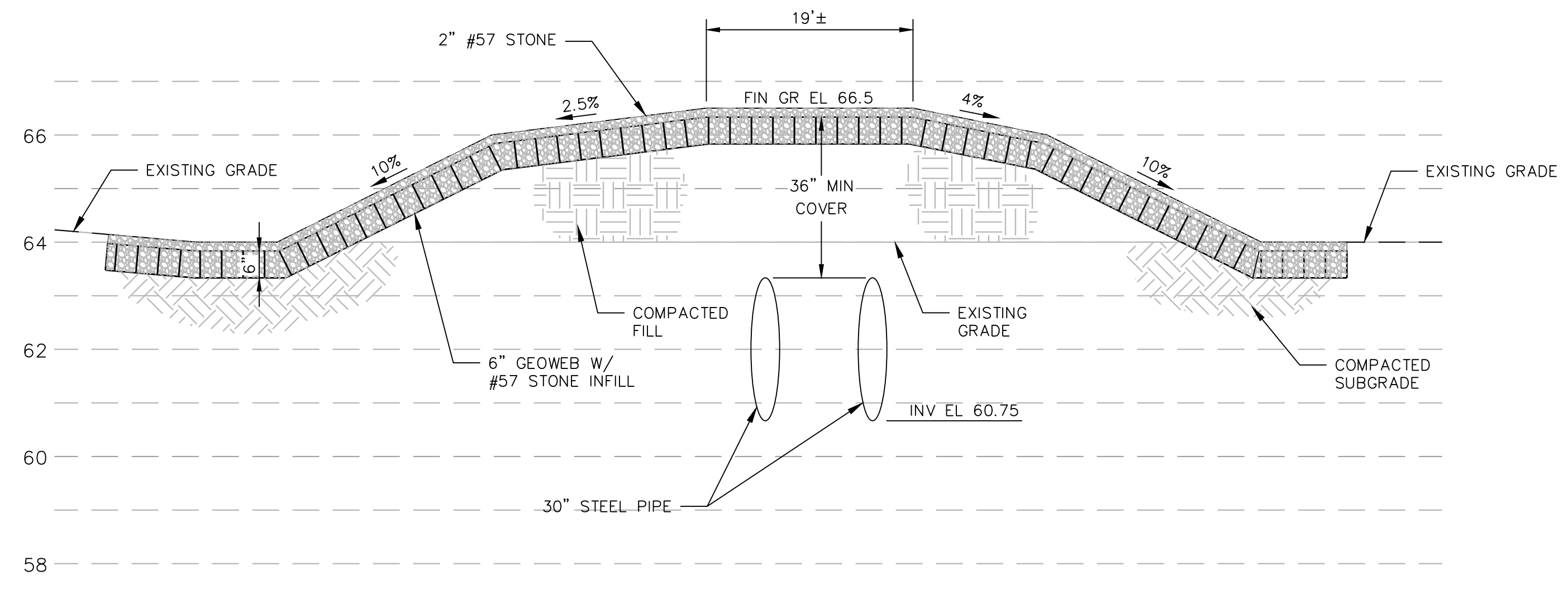
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EXISTING SITE CONDITIONS AND DEMOLITION PLAN

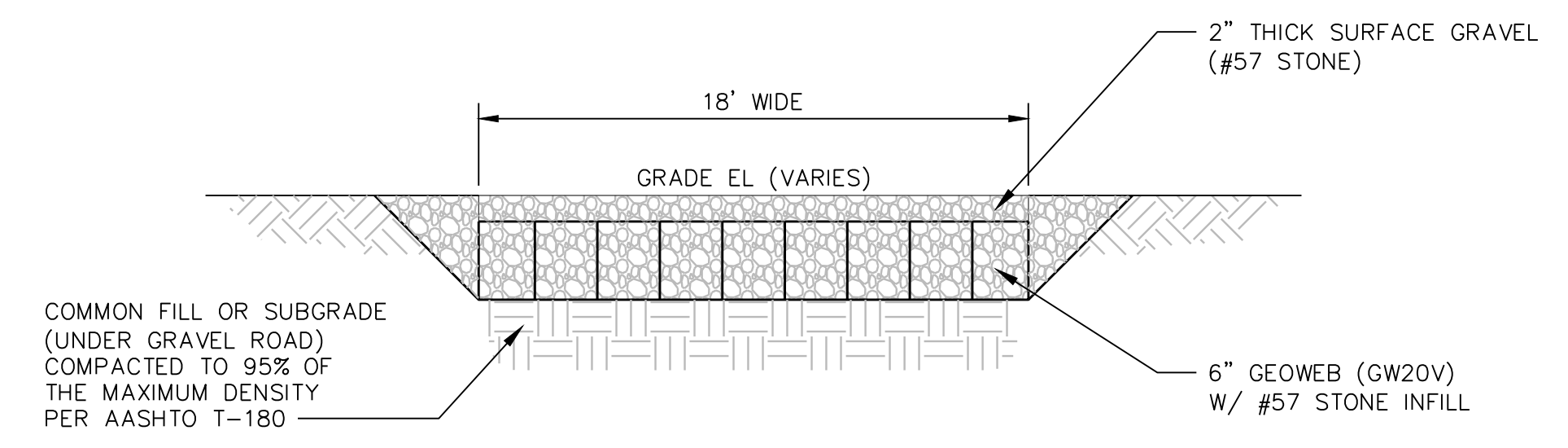
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DRAWING NO. C02	SHEET NO.: 06 OF 22

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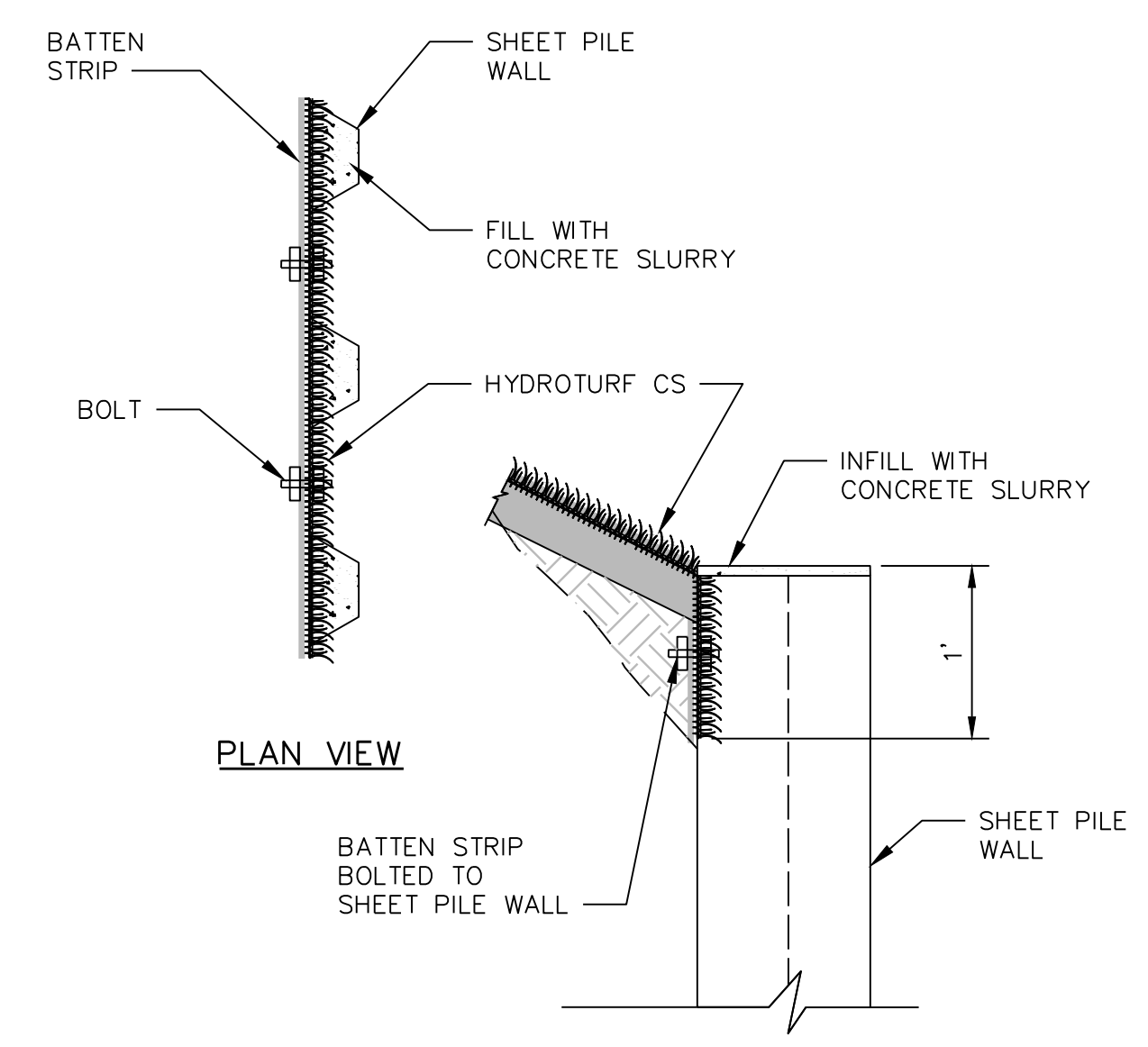
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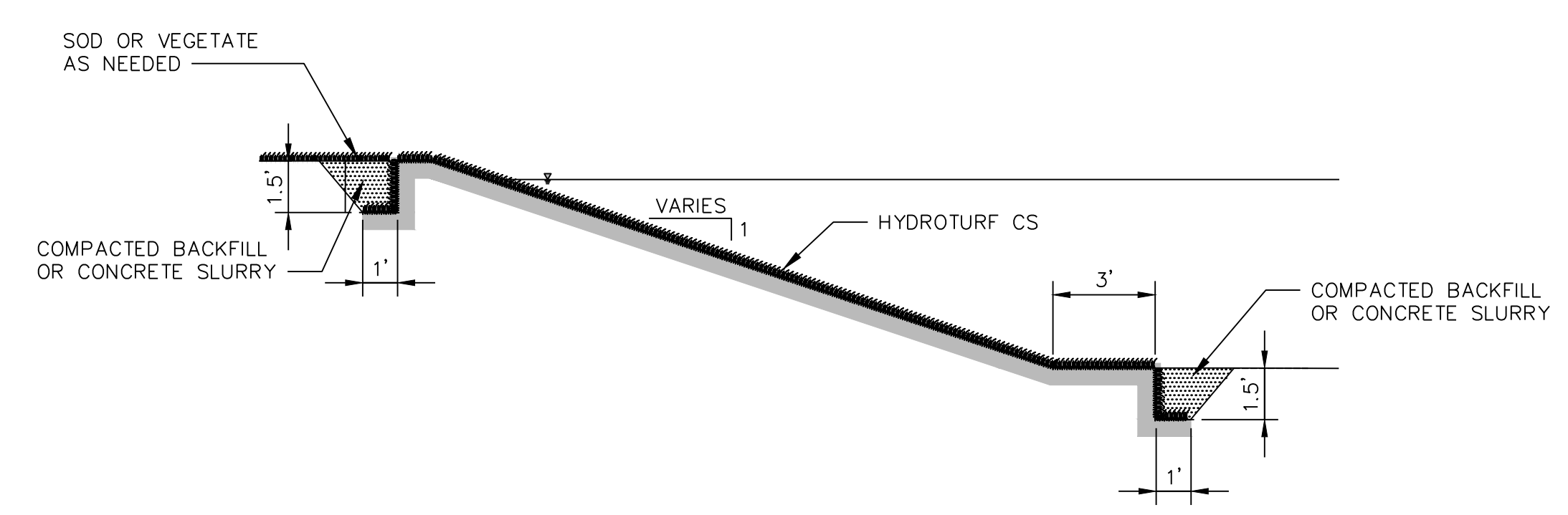
(A) FUDGE ROAD SECTION
 C03 SCALE: Graphic Scale in Feet
 0 10' 20'



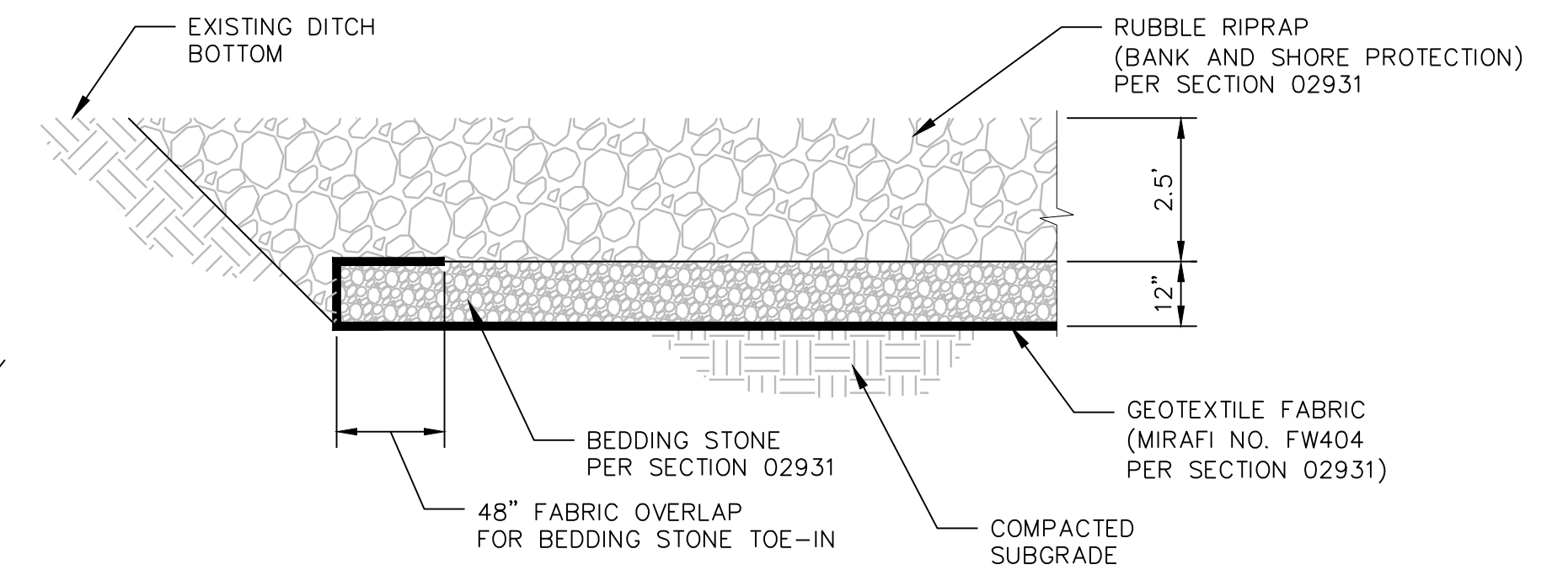
(1) GEOWEB GRAVEL ROAD DETAIL
 C03 SCALE: N.T.S.



(2) HYDROTURF CONNECTION TO SHEET PILE WALL
 -- SCALE: N.T.S.



(3) HYDROTURF BANK PROTECTION
 -- SCALE: N.T.S.



(4) RIPRAP DETAIL
 C03 SCALE: N.T.S.



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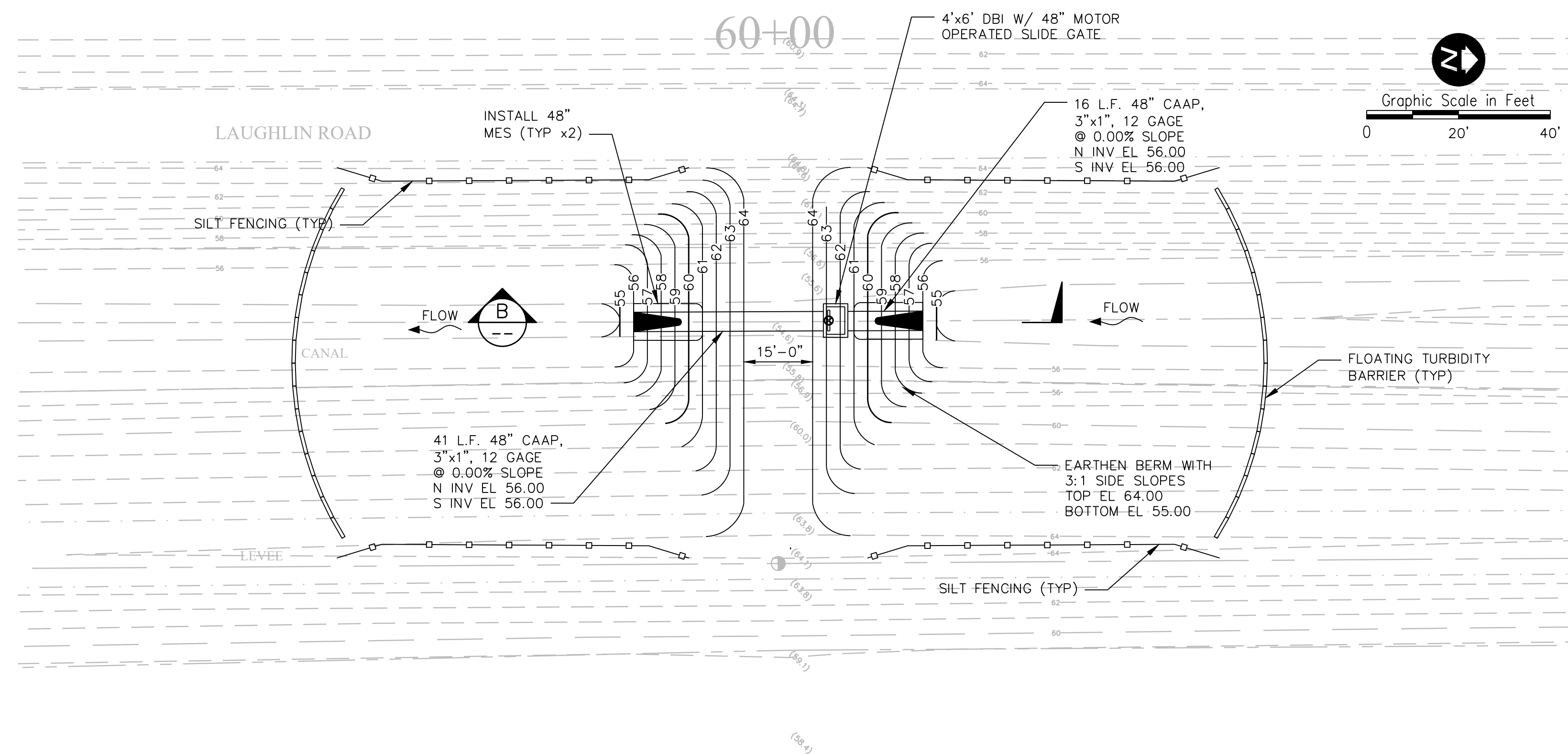
Designed SWH
 Drawn AJM
 Checked DAY
 Reviewed JRV
 Approved SWH
 LINE IS 1" AT FULL SIZE

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION
 CIVIL
 PUMP STATION SECTIONS AND DETAILS

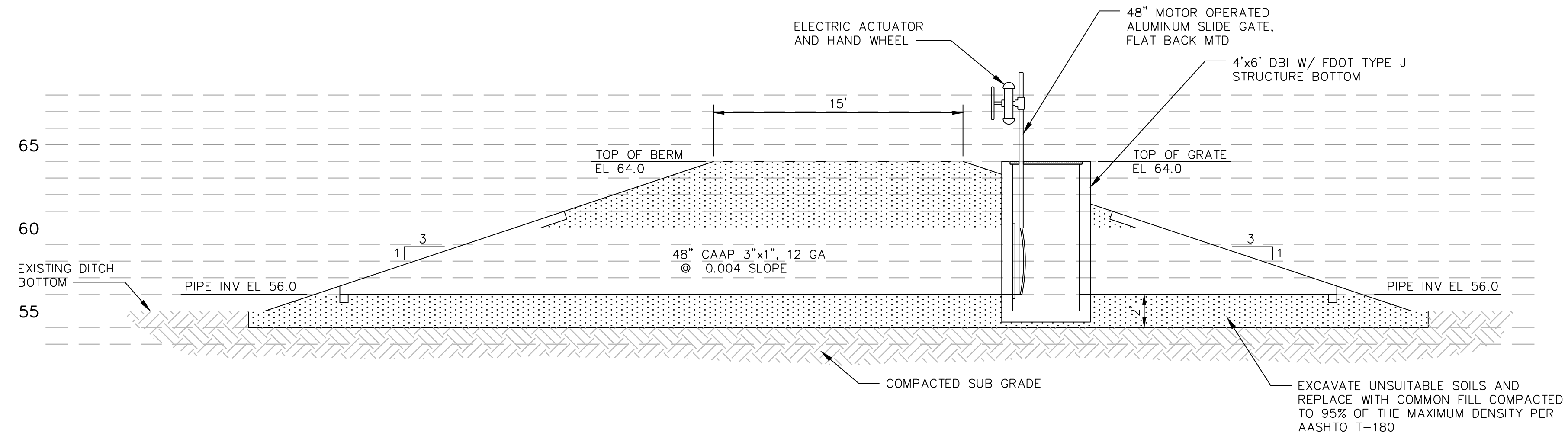
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SHEET NO.:	08 OF 22



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 Rev on: 4/12/2019 11:56 AM
 Individual File Path: R:\Projects\1910 - Lake Apopka N. Shore Phase 4 Pump Station\Drawings\FinalDesign\C05.dwg
 by: JAY MILLER



EARTHEN BERM PLAN
SCALE:



EARTHEN BERM SECTION
SCALE:

SHEET NOTES

- SOD ALL AREAS ON BERM ABOVE 60.0 ELEVATION AND SOD ALL GRASSED LEVEE AREAS DISTURBED BY CONSTRUCTION. SODDING TO BE INSTALLED PRIOR TO REMOVAL OF EROSION AND SEDIMENTATION CONTROLS.
- REPAIR ALL UNPAVED ROAD SURFACE DAMAGED DURING CONSTRUCTION.



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Designed SWH
 Drawn AJM
 Checked DAY
 Reviewed JRV
 Approved SWH

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION

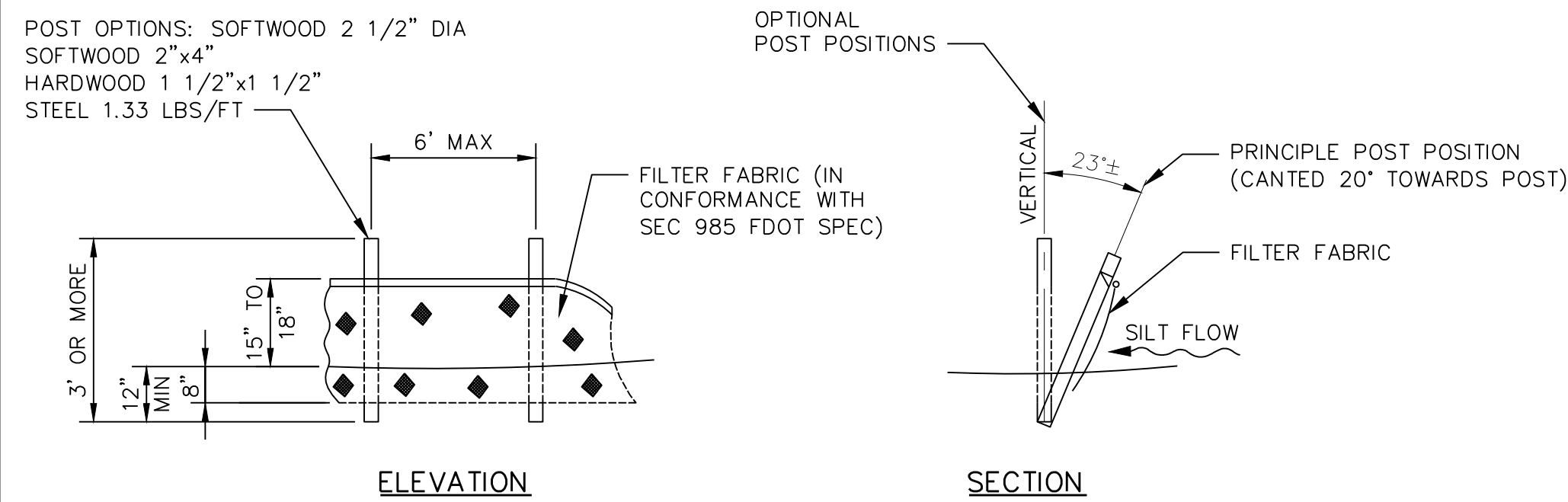
CIVIL

EARTHEN BERM PLAN AND SECTION

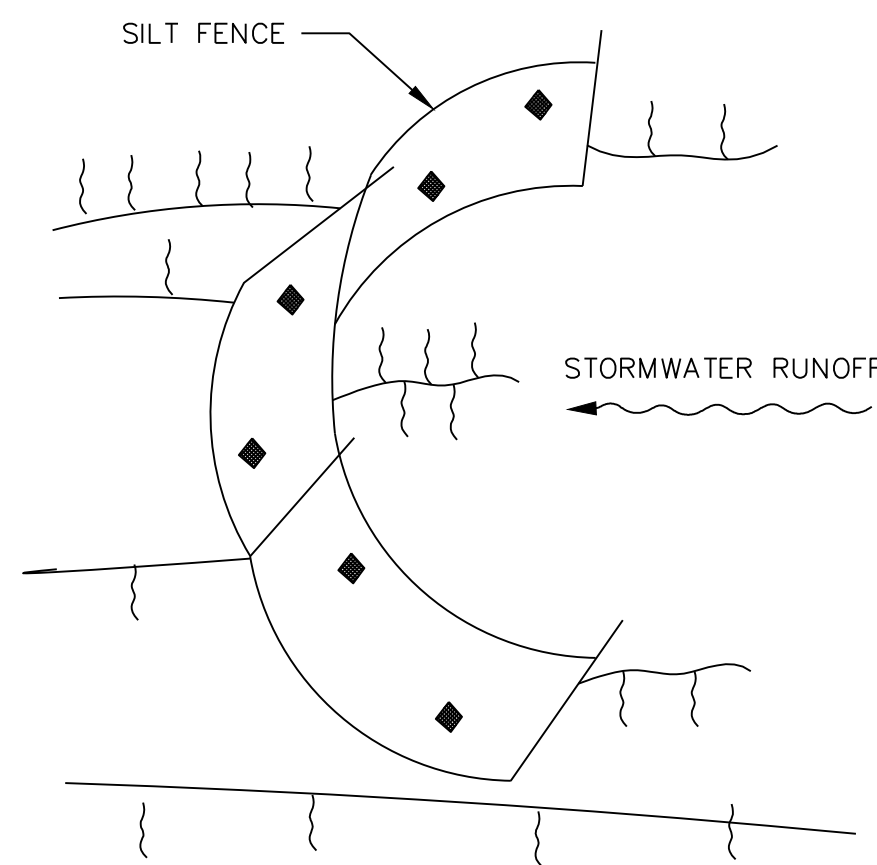
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SHEET NO.:	09 OF 22



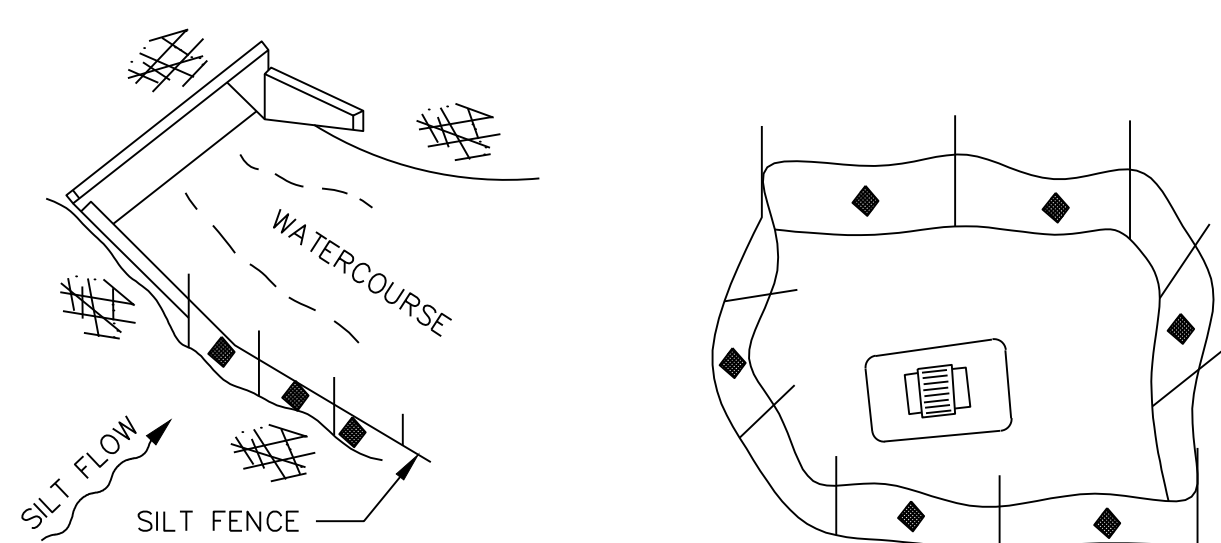
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TYPE III SILT FENCE



SILT FENCE PROTECTION IN DITCHES WITH INTERMITTENT FLOW



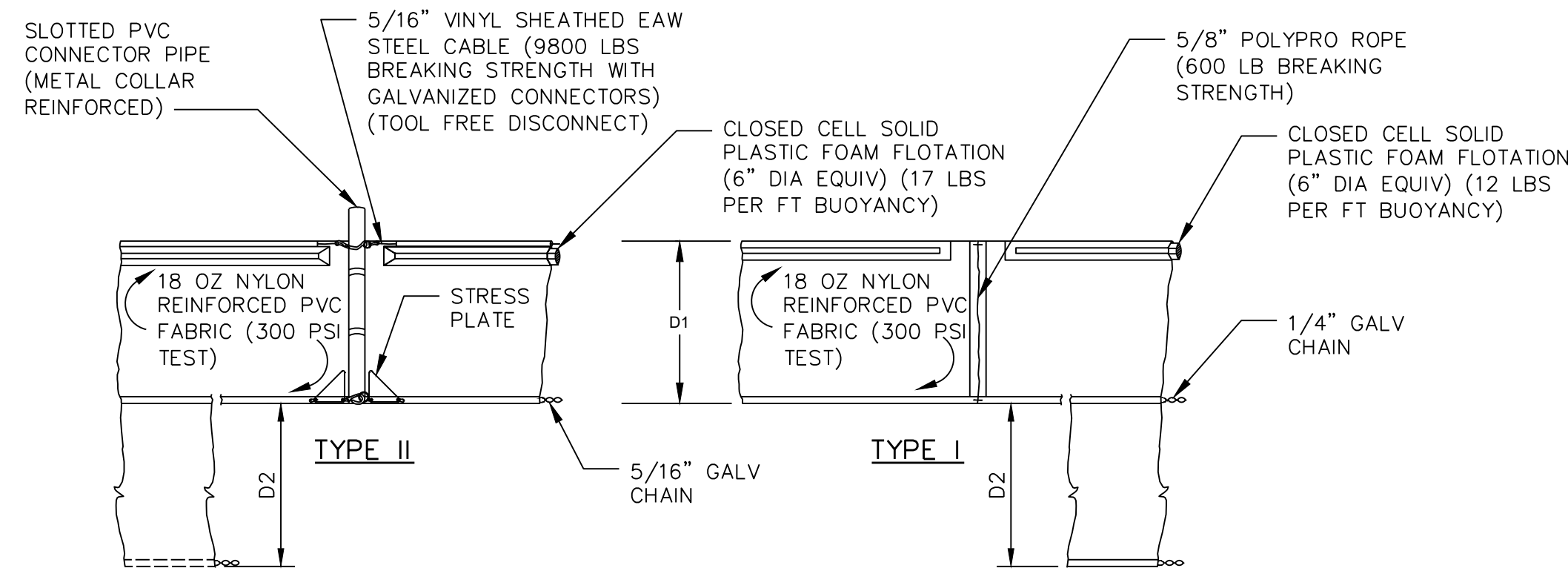
TYPE III SILT FENCE APPLICATIONS

NOTES FOR SILT FENCES

- TYPE III SILT FENCE TO BE USED AT MOST LOCATIONS. WHERE USED IN DITCHES, THE SPACING FOR TYPE III SILT FENCE SHALL BE IN ACCORDANCE WITH CHART 1, SHEET 1 (2010 FDOT DESIGN STANDARDS, INDEX NO. 102).
- TYPE IV SILT FENCE TO BE USED WHERE LARGE SEDIMENT LOADS ARE ANTICIPATED. SUGGESTED USE IS WHERE FILL SLOPE IS 1:2 OR STEEPER AND LENGTH OF SLOPE EXCEEDS 25 FEET. AVOID USE WHERE THE DETAINED WATER MAY BACK INTO TRAVEL LANES OR OFF THE RIGHT OF WAY.
- DO NOT CONSTRUCT SILT FENCES ACROSS PERMANENT FLOWING WATERCOURSES. SILT FENCES ARE TO BE AT UPLAND LOCATIONS AND TURBIDITY BARRIERS USED AT PERMANENT BODIES OF WATER.
- WHERE USED AS SLOPE PROTECTION, SILT FENCE IS TO BE CONSTRUCTED ON 0% LONGITUDINAL GRADE TO AVOID CHANNELIZING RUNOFF ALONG THE LENGTH OF THE FENCE.
- SILT FENCE TO BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR STAKED SILT FENCE, (LF).

TEMPORARY SILT FENCE DETAIL

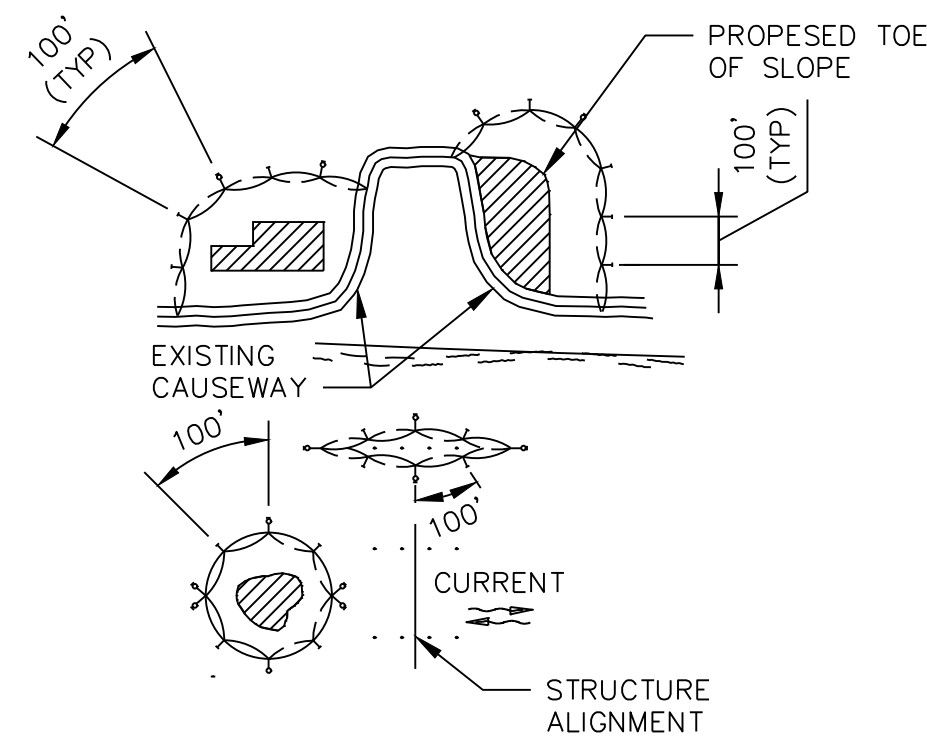
SCALE: N.T.S.



NOTICE: COMPONENTS OF TYPE I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGN. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.

FLOATING TURBIDITY BARRIERS

SCALE: N.T.S.

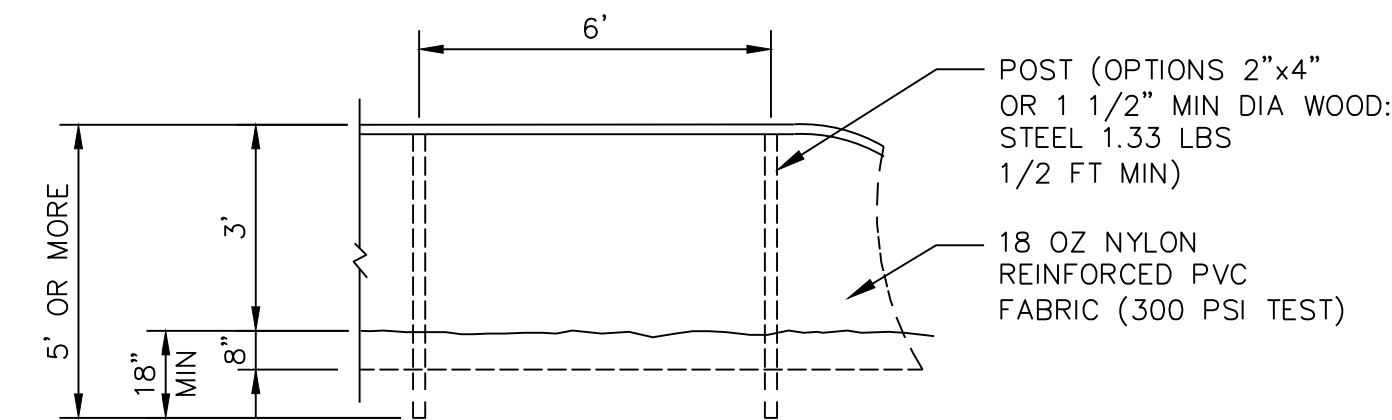


NOTES

- TURBIDITY BARRIERS ARE TO BE USED IN ALL PERMANENT BODIES OF WATER REGARDLESS OF WATER DEPTH.
- NUMBER AND SPACING OF ANCHORS DEPENDENT ON CURRENT VELOCITIES.
- DEPLOYMENT OF BARRIER AROUND PILE LOCATIONS MAY VARY TO ACCOMMODATE CONSTRUCTION OPERATIONS.
- NAVIGATION MAY REQUIRE SEGMENTING BARRIER DURING CONSTRUCTION OPERATIONS.
- TURBIDITY BARRIERS SHALL CONFORM TO SECTION 104 OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.

TURBIDITY BARRIER APPLICATIONS

SCALE: N.T.S.



STAKED TURBIDITY BARRIER

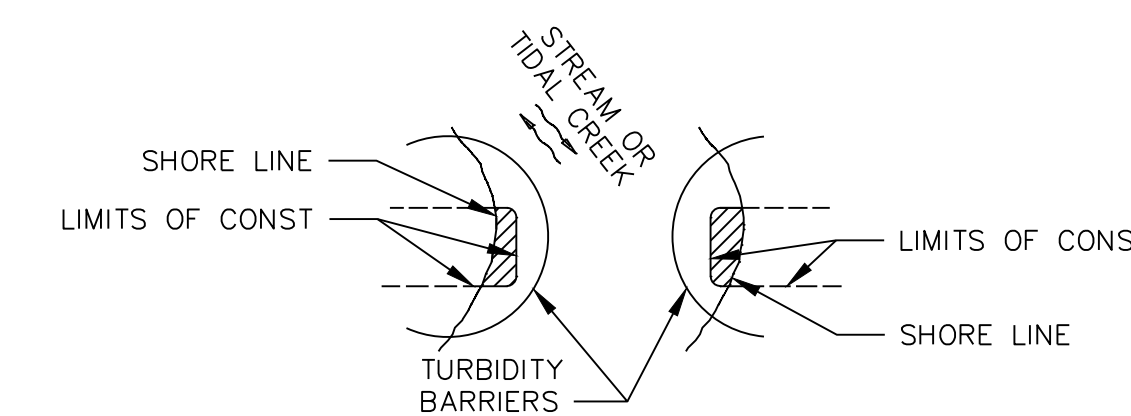
SCALE: N.T.S.

NOTES:

TURBIDITY BARRIERS FOR FLOWING STREAMS AND TIDAL CREEKS MAY BE EITHER FLOATING, OR STAKED TYPES OR ANY COMBINATIONS OF TYPES THAT WILL SUIT SITE CONDITIONS AND MEET EROSION CONTROL AND WATER QUALITY REQUIREMENTS. THE BARRIER TYPE(S) WILL BE AT THE CONTRACTORS OPTIONS UNLESS OTHERWISE SPECIFIED IN THE PLANS, HOWEVER PAYMENT WILL BE UNDER THE PAY ITEM(S) ESTABLISHED IN THE PLANS FOR FLOATING TURBIDITY BARRIERS TO BE INSTALLED IN VERTICAL POSITION UNLESS OTHERWISE DIRECTED BY THE DISTRICT.

GENERAL NOTES

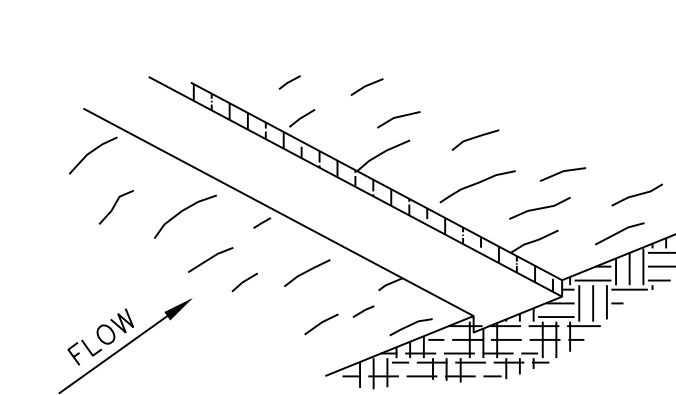
- FLOATING TURBIDITY BARRIERS ARE TO BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR FLOATING TURBIDITY BARRIER, LF.
- STAKED TURBIDITY BARRIERS ARE TO BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR STAKED TURBIDITY BARRIER, LF.



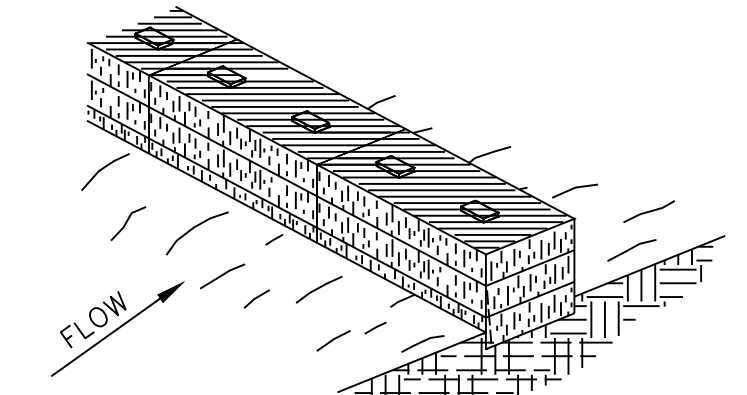
LEGEND

- PILE LOCATIONS
- ▨ DREDGE OR FILL AREA
- MOORING BUOY W/ANCHOR
- ANCHOR
- BARRIER MOVEMENT DUE TO CURRENT ACTION

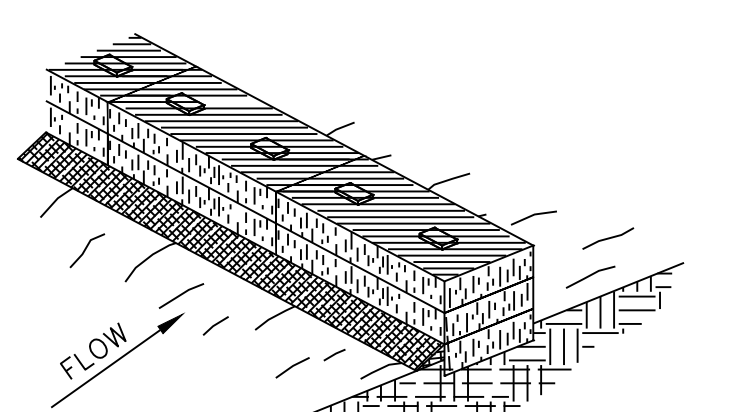
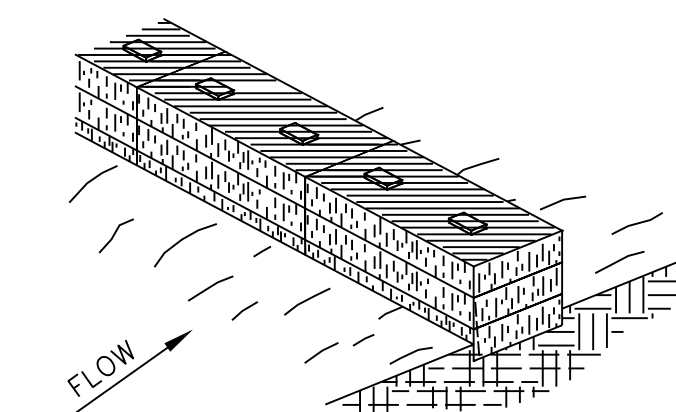
- EXCAVATE THE TRENCH. 4" DEEP BY THE BALE WIDTH.
- PLACE AND STAKE BALES.



- PLACE AND STAKE BALES.
- BACKFILL AND COMPACT THE EXCAVATED SOIL.



- WEDGE LOOSE STRAW BETWEEN THE BALES.
- BACKFILL AND COMPACT THE EXCAVATED SOIL.



NOTES

- INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

HAY BARRIER

SCALE: N.T.S.

EROSION AND SEDIMENT CONTROL NOTES

- THE CONTRACTOR IS RESPONSIBLE FOR REMOVING SILT FROM SITE IF NOT REUSABLE ON-SITE AND ASSURING PLAN ALIGNMENT AND GRADE IN ALL WORK AT COMPLETION OF CONSTRUCTION.
- ON-SITE PROTECTION ADDITION TO THE ABOVE MUST BE PROVIDED THAT WILL NOT PERMIT SILT TO LEAVE THE PROJECT CONFINES DUE TO UNSEEN CONDITIONS OR ACCIDENTS.
- THE FILTER BARRIER SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED TO A MINIMUM DEPTH OF 8 INCHES. THE EXCAVATED SOIL SHALL BE BACKFILLED AND COMPACTED AGAINST THE FILTER BARRIER.
- SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED IMMEDIATELY.
- ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND GRASSED.
- THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING THE BEST EROSION AND SEDIMENT CONTROL PRACTICES AS OUTLINED IN THE PLANS, SPECIFICATIONS, PERMITS, AND ST. JOHNS RIVER WATER MANAGEMENT DISTRICT CRITERIA.
- FOR ADDITIONAL INFORMATION ON SEDIMENT AND EROSION CONTROL REFER TO THE FLORIDA DEVELOPMENT MANUAL - A GUIDE TO SOUND LAND AND WATER MANAGEMENT FROM THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (F.D.E.P.) CHAPTER 6, LATEST EDITION.
- ALL DISTURBED AREAS SHALL BE GRASSED, FERTILIZED, WATERED AND MAINTAINED UNTIL A PERMANENT VEGETATIVE COVER IS ESTABLISHED. GRASSING SHALL CONFORM TO THE REQUIREMENTS OF SECTIONS 570 AND 981 THRU 933 OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITIONS. NOTE THAT OTHER GRASSING ALTERNATIVES MAY BE USED WITH PRIOR DISTRICT APPROVAL.



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Florida P.E. No. 58643

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LINE IS 1" AT FULL SIZE

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION

CIVIL

EROSION CONTROL DETAILS

PROJECT NO.:

1910

SCALE:

NOTED

REVISION:

C

DRAWING NO.

C06

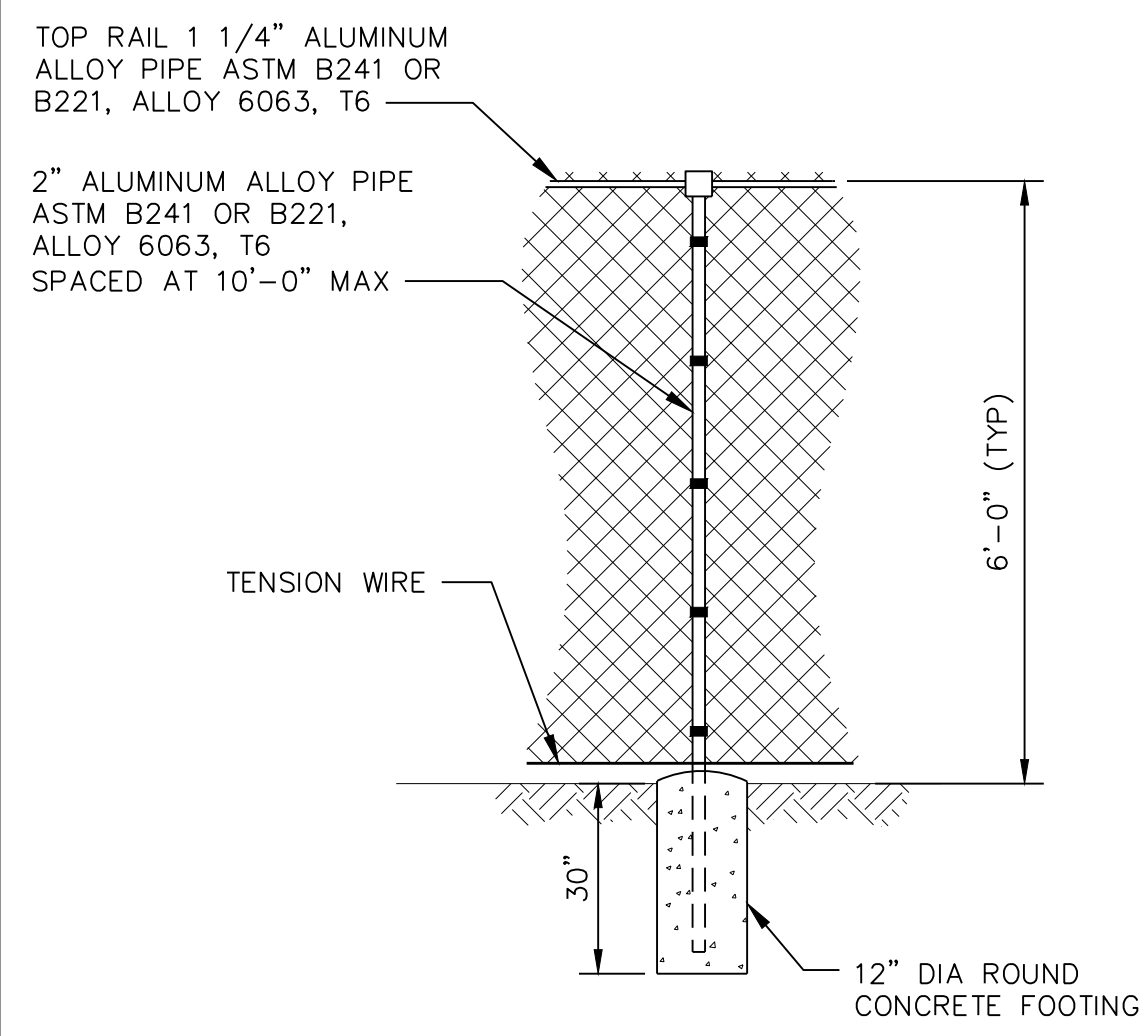
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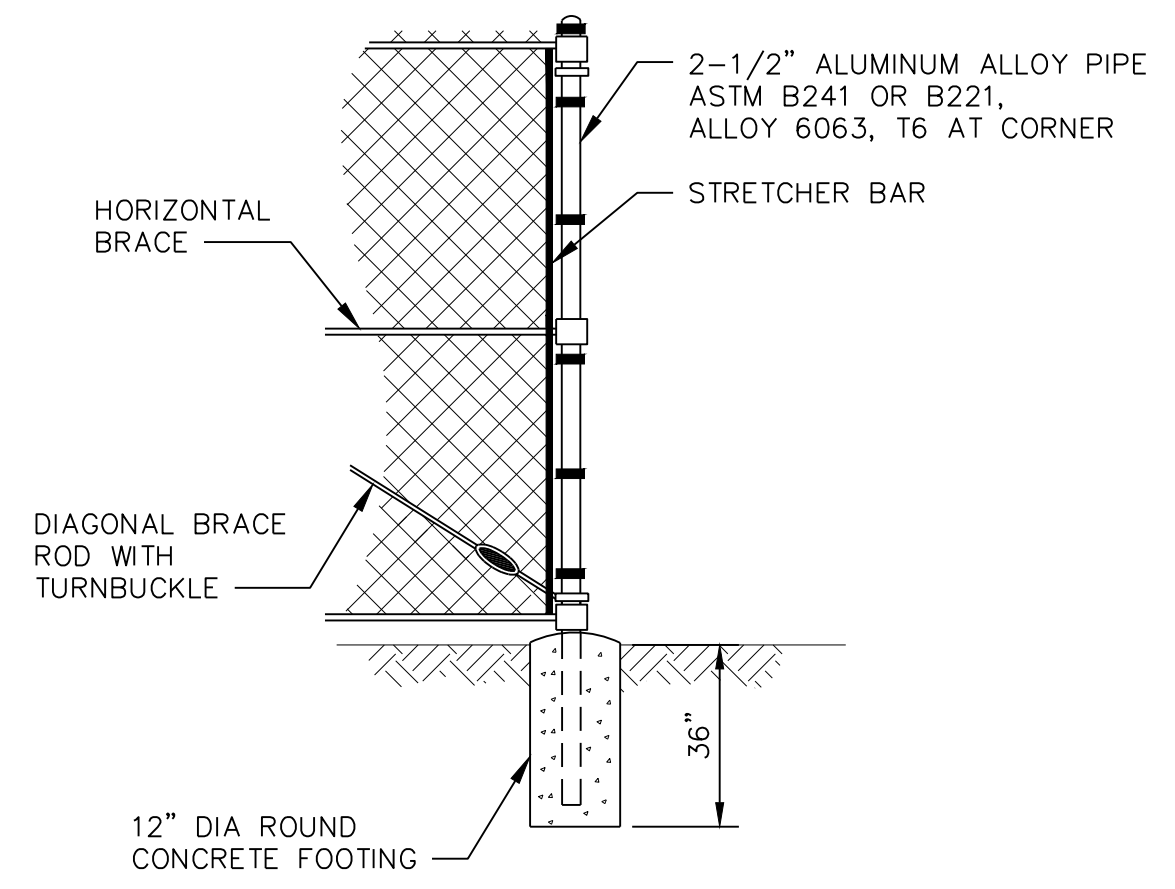


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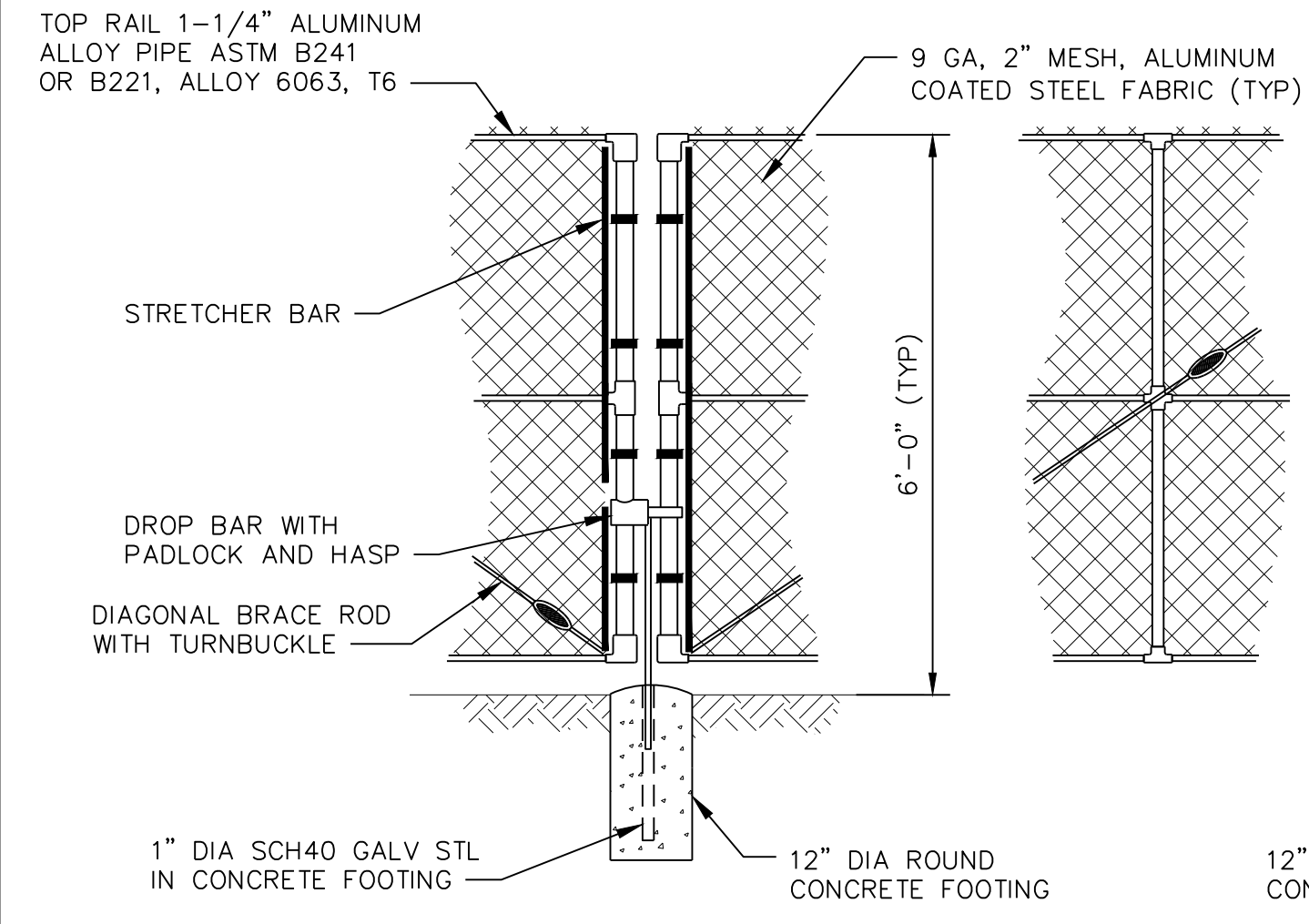
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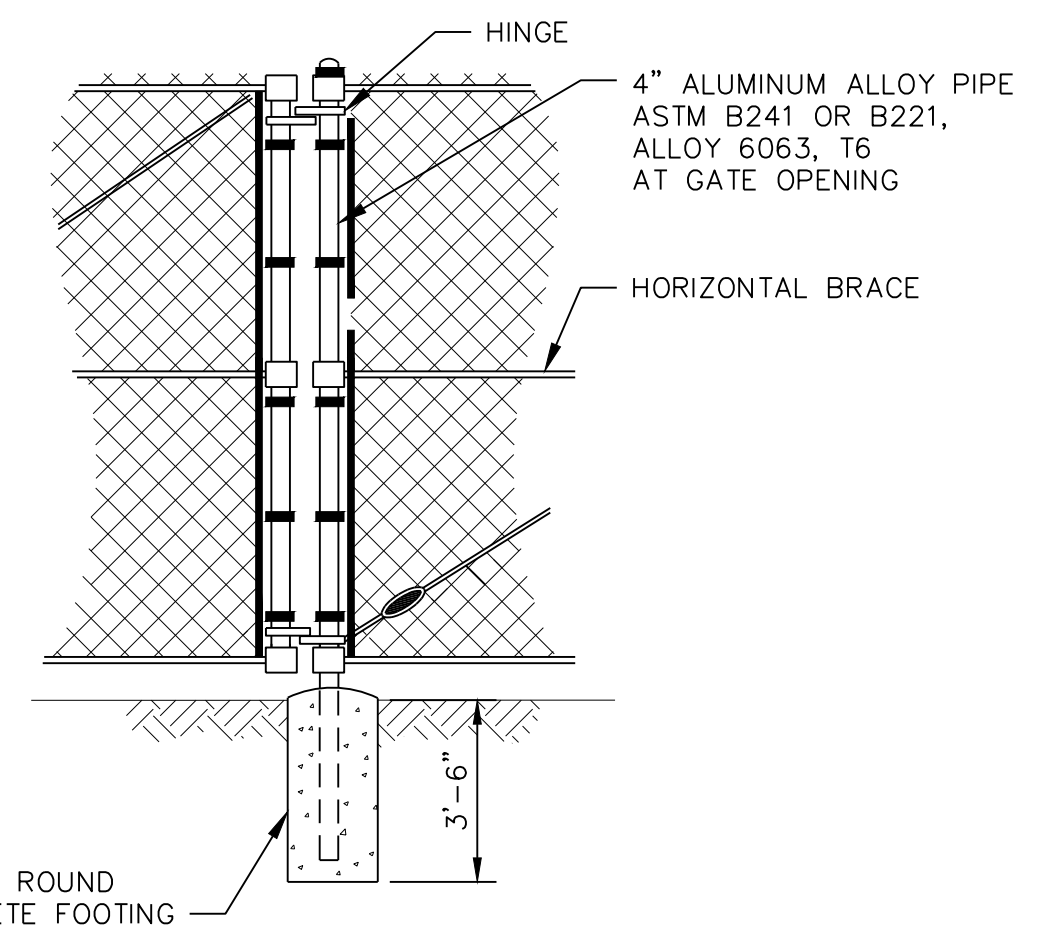
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CORNER POST



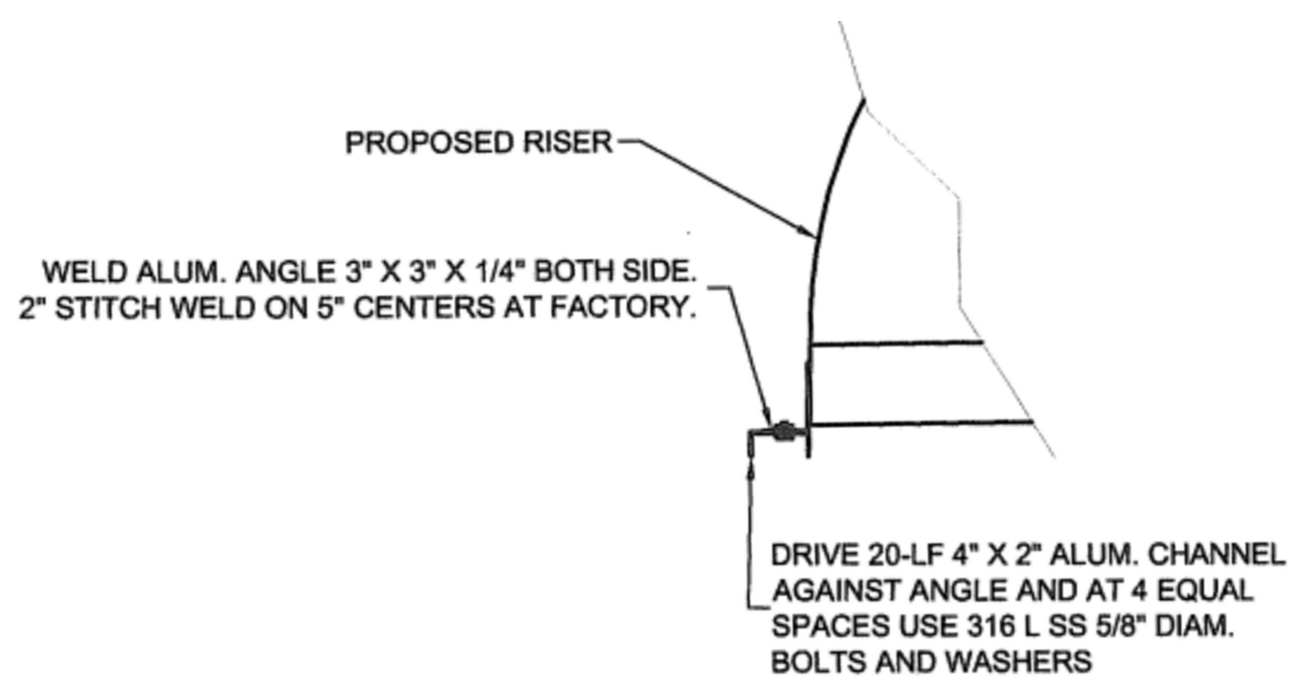
GATE



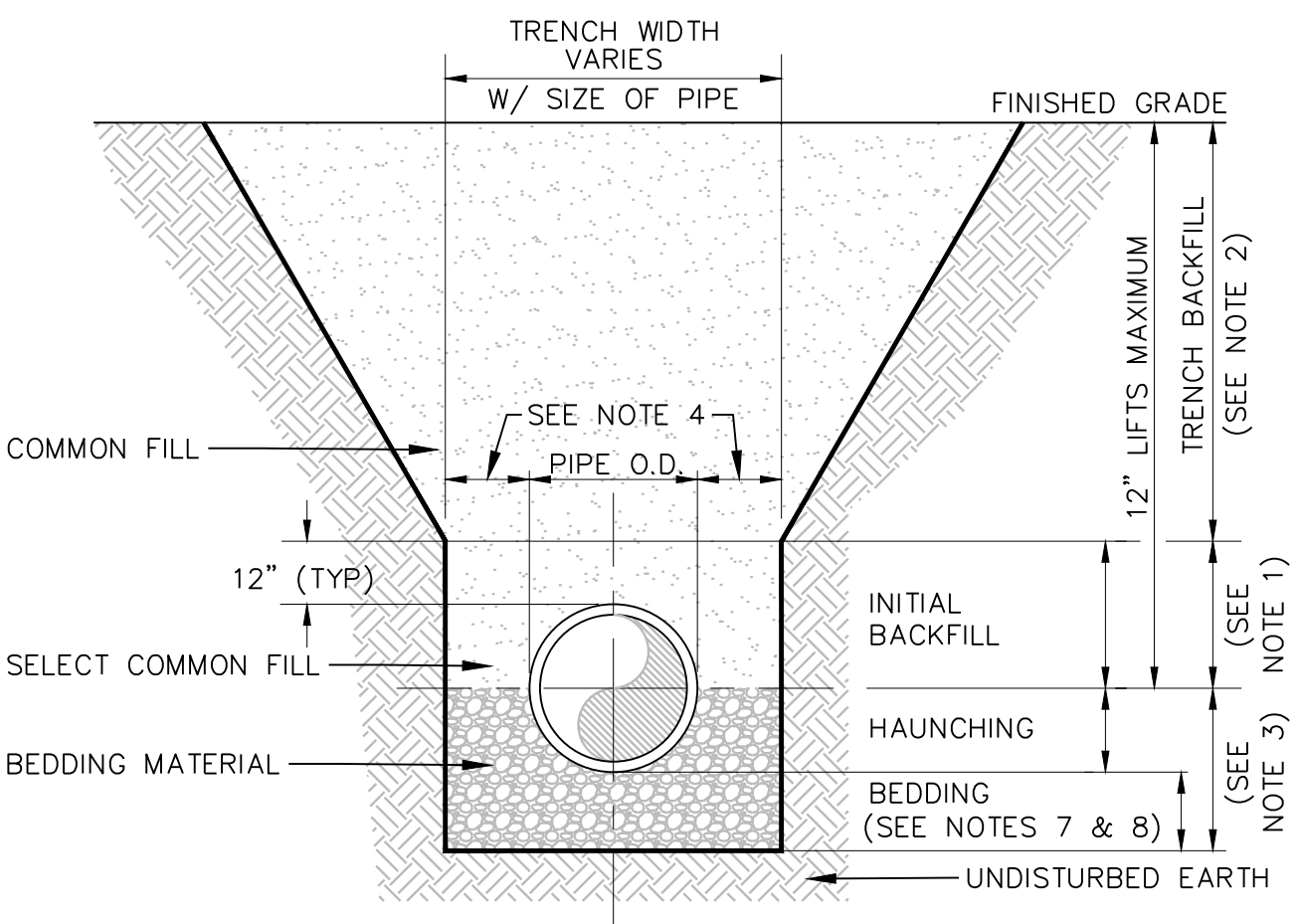
GATE POST

- NOTES:**
- 2-6' GATES TO HAVE A CLEAR OPENING OF 12'-0".
 - ALUMINUM COATED STEEL WOVEN WIRE FABRIC SHALL BE STRETCHED TAUT WITH STRETCHER BARS AND STRAPS AND FASTENED TOP AND BOTTOM AT LINE POSTS WITH HOG RING TIES.
 - FENCING TO INCLUDE FENCE TYPE B BARB WIRE ATTACHMENT PER INDEX 452, FDOT DESIGN STANDARDS (LATEST EDITION).
 - TENSION WIRE: ALUMINUM ALLOY WIRE, 0.1875" DIAMETER OR LARGER CONFORMING TO ASTM B211, ALLOY 5056 TEMPER H192.
 - TIE WIRE AND HOG RINGS: ALUMINUM ALLOY WIRE, 0.1443" DIAMETER OR LARGER CONFORMING TO ASTM B211, ALLOY 5056 TEMPER H38, OR ALCLAD ALLOY 5056, TEMPER H192.

5 FENCE POST DETAIL
SCALE: N.T.S.

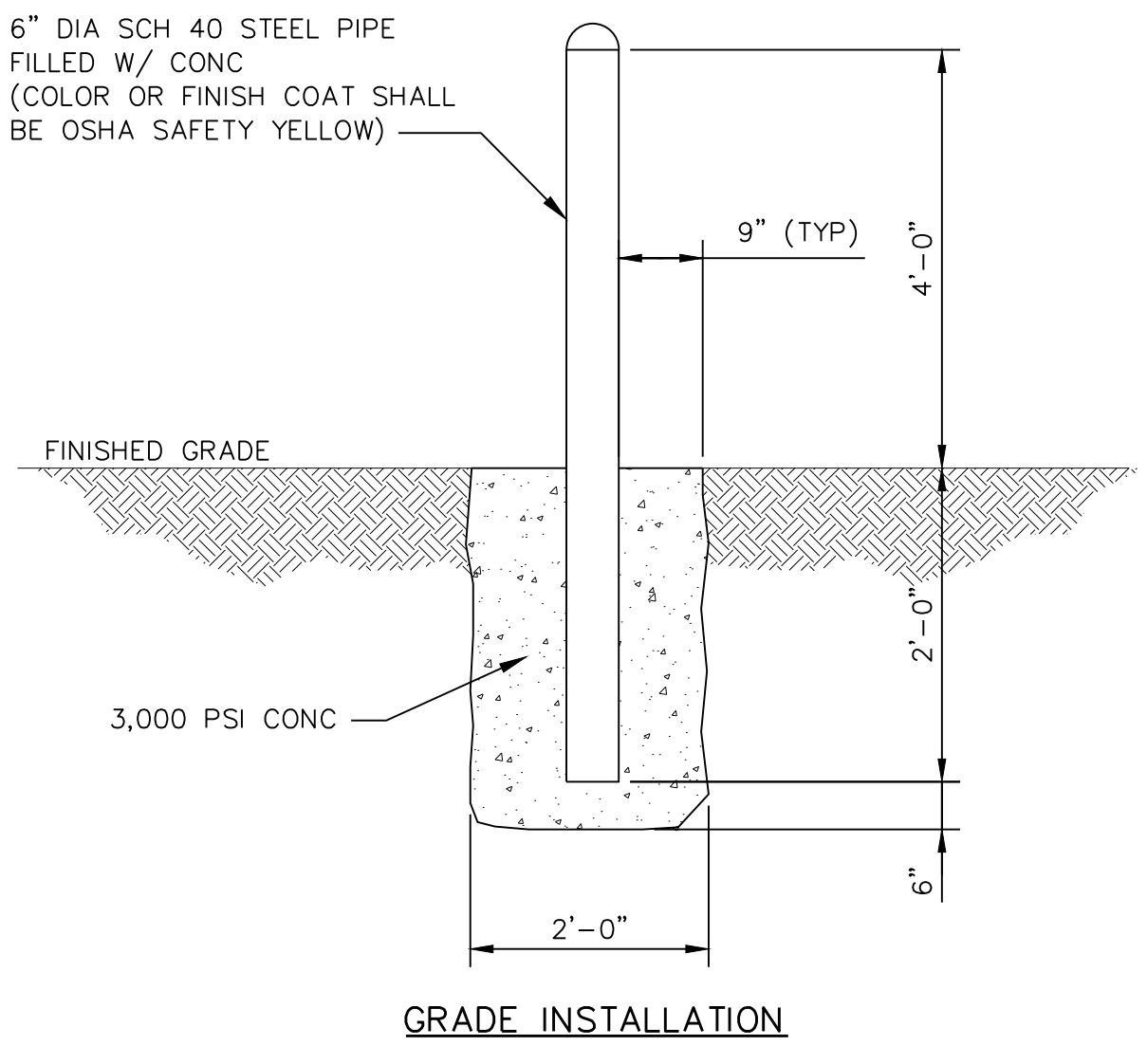


9 FLASH BOARD RISER CONNECTION DETAIL
C03 SCALE: N.T.S.

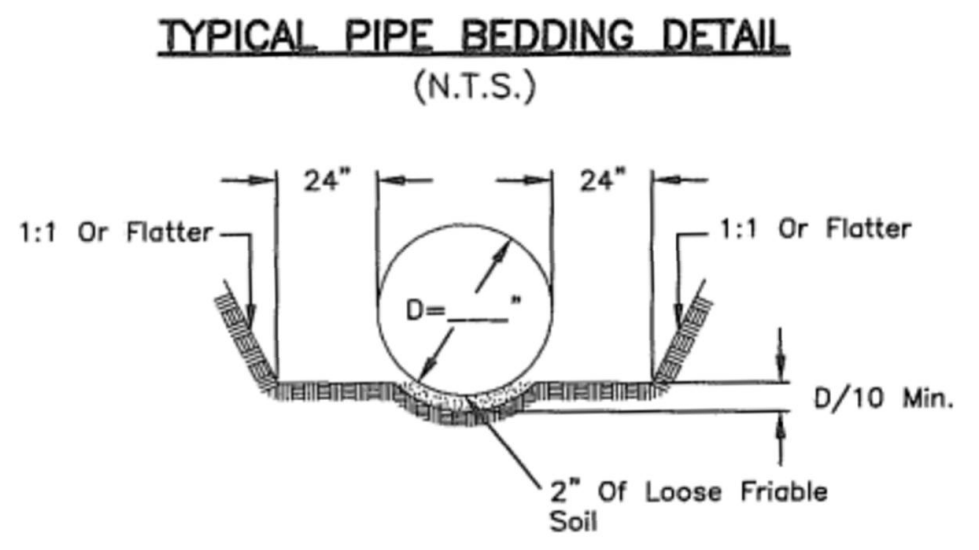


- NOTES:**
- INITIAL BACKFILL: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
 - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
 - BEDDING MATERIAL SHALL BE SELECT GRANULAR BEDDING PER SECTION 02370.
 - 15" MAXIMUM (12" MINIMUM) FOR PIPE DIAMETER LESS THAN 24" AND 24" MAXIMUM (12" MINIMUM) FOR PIPE DIAMETER 24" AND LARGER.
 - WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
 - ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
 - BEDDING DEPTH SHALL BE 4" MINIMUM FOR PIPE DIAMETER UP TO 12" AND 6" MINIMUM FOR PIPE DIAMETER 16" AND LARGER.
 - DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL GOVERN DEPTH OF BEDDING MATERIAL BELOW THE PIPE. UTILITIES SHALL DETERMINE IN THE FIELD REQUIRED REMOVAL OF UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION.
 - FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN THE RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION PERMIT.

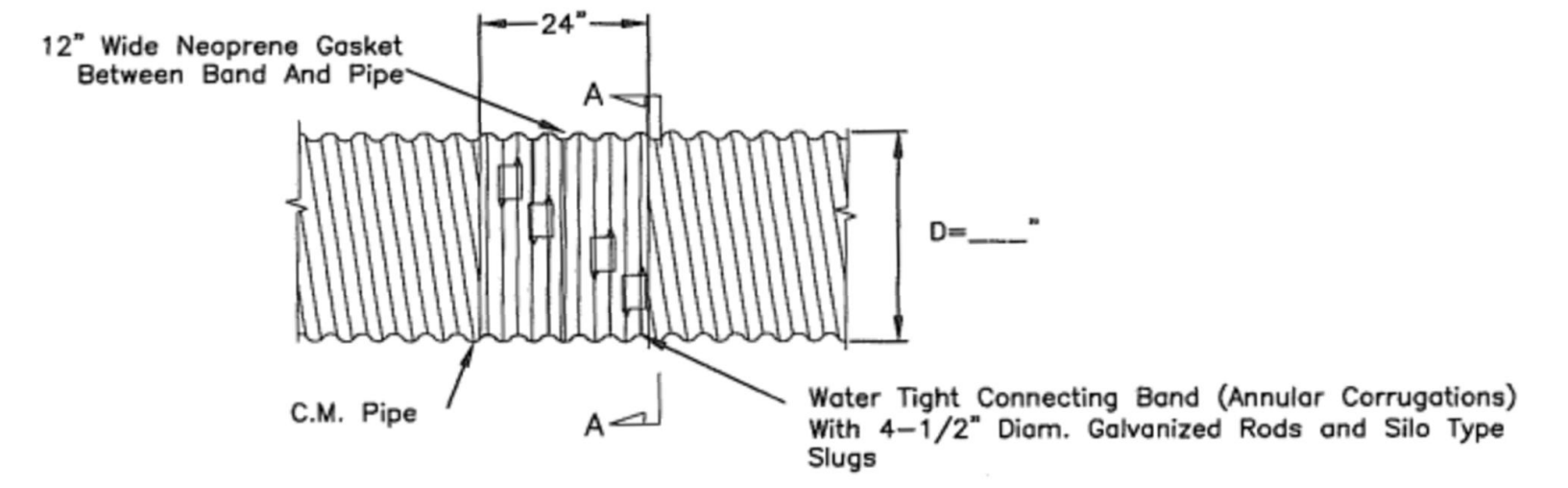
6 BEDDING AND TRENCHING - TYPE A
SCALE: N.T.S.



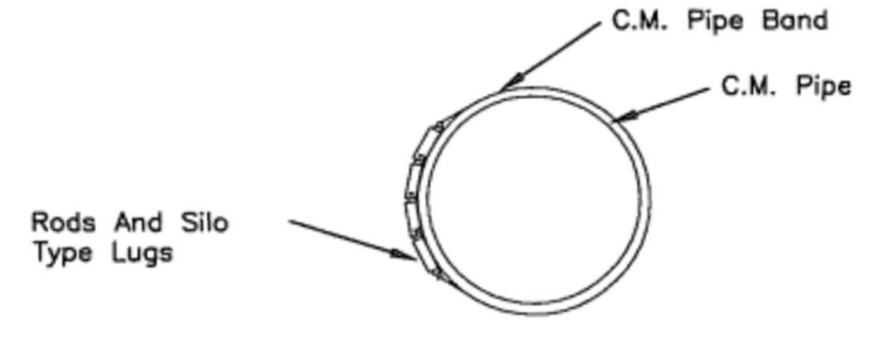
7 BOLLARD GRADE INSTALLATION DETAIL
C03 SCALE: N.T.S.



SIDE VIEW
(N.T.S.)

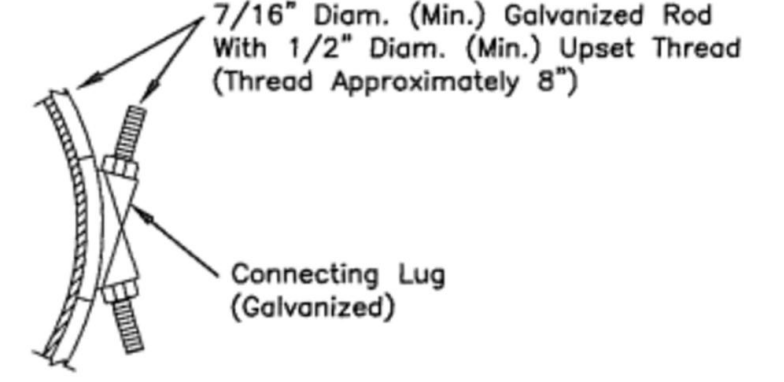


DETAIL OF CORRUGATED METAL CONNECTING BAND
(N.T.S.)



SECTION A-A

CONNECTING LUG
(N.T.S.)



8 CORRUGATED METAL PIPE DETAILS
C03 SCALE: N.T.S.



REV	DATE	DESCRIPTION	BY
C	05/2019	100% DRAWINGS	AJM
B	04/2019	90% DRAWINGS	AJM
A	03/2019	60% DRAWINGS	AJM

Issue Certification
Scott Warner Hoxworth, P.E. Florida P.E. No. 58643

Designed	SWH
Drawn	AJM
Checked	DAY
Reviewed	JRV
Approved	SWH

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION

CIVIL

CIVIL DETAILS

PROJECT NO.:	1910
SCALE:	NOTED
REVISION:	C
DRAWING NO.:	C07
SHEET NO.:	11 OF 22

RE

REISS ENGINEERING, INC.
1016 SPRING VILLAS PT.
WINTER SPRINGS, FL 32708
(407) 679-5358
CERTIFICATE OF AUTH. 8181

GENERAL STRUCTURAL NOTES

GENERAL CONDITIONS

- ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE MECHANICAL, CIVIL, ELECTRICAL, AND SHOP DRAWINGS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL REVIEW AND VERIFY DIMENSIONS SHOWN IN ALL PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT THE WORK DEPICTED ON THE DRAWINGS. SHOULD DISCREPANCIES APPEAR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING TO OBTAIN ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH THE WORK.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT EXISTING STRUCTURES FROM DAMAGE WHEN WORKING IN AND AROUND EXISTING STRUCTURES PERFORMING WORK SUCH AS DEMOLITION, FOUNDATION EXCAVATIONS, AND OTHERS.
- SIZE AND LOCATION OF EQUIPMENT PADS AND ANCHOR BOLTS SHALL BE PER EQUIPMENT MANUFACTURER'S REQUIREMENTS.
- ANY CONSTRUCTION EQUIPMENT THAT MAY INDUCE VIBRATION TO THE STRUCTURE SHALL BE ADEQUATELY ISOLATED FROM THE STRUCTURE.
- ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE ON THE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.

DESIGN CRITERIA

BUILDING CODES AND REFERENCES:

- 2017 FLORIDA BUILDING CODE (FBC) SIXTH EDITION
- REINFORCED CONCRETE: ACI 318-11 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
- STRUCTURAL STEEL: AISC MANUAL OF STEEL CONSTRUCTION 14TH EDITION
- LIVE LOADS:

ROOF	20 PSF
PLATFORM	100 PSF
- WIND DESIGN CRITERIA:

RISK CATEGORY	III
ULTIMATE DESIGN WIND SPEED, V_{ULT}	142 MPH
NOMINAL DESIGN WIND SPEED, V_{ASD}	102 MPH
EXPOSURE CATEGORY	C

FOUNDATIONS

GEOTECHNICAL REPORT:

- GEOTECHNICAL ENGINEERING REPORT "LAKE APOPKA NORTH SHORE PUMPING STATION" PREPARED BY TERRACON CONSULTANTS, INC., TERRACON PROJECT NUMBER H1185305. DATED JANUARY 14, 2019. ANY INTERPRETATION OF THE CONTENTS OF THE GEOTECHNICAL REPORT IS THE RESPONSIBILITY OF THE CONTRACTOR.

FOUNDATION DESIGN:

- PILE COMPRESSIVE CAPACITY: 25 KIPS
- PILE LATERAL CAPACITY: 4 KIPS

CONCRETE (CAST-IN-PLACE)

- ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318 REQUIREMENTS.
- ALL CONCRETE SHALL BE AIR-ENTRANED WITH A MINIMUM OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS UNLESS OTHERWISE NOTED.
- WATER REDUCING AGENT SHALL BE IN ACCORDANCE WITH ASTM C494.
- ALL CONCRETE SURFACES EXPOSED TO AIR, UNLESS OTHERWISE NOTED IN THE SPECIFICATIONS, SHALL BE TREATED WITH AN APPROPRIATE CURING COMPOUND AS SOON AS FINISHING IS COMPLETED OR FORMS ARE REMOVED.
- ALL EXPOSED CORNERS SHALL HAVE A MINIMUM CHAMFER OF 3/4" UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL FOR THE LOCATIONS OF CONSTRUCTION JOINTS THAT ARE NOT SHOWN ON THE DRAWINGS.

REINFORCING STEEL

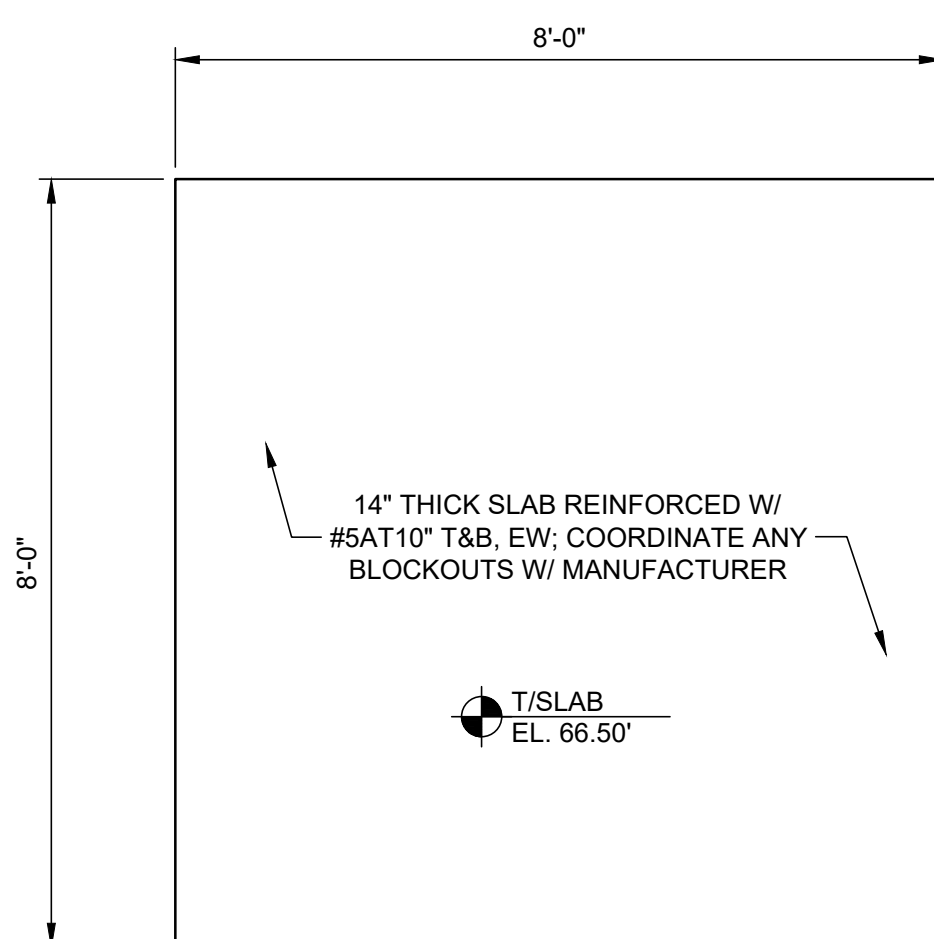
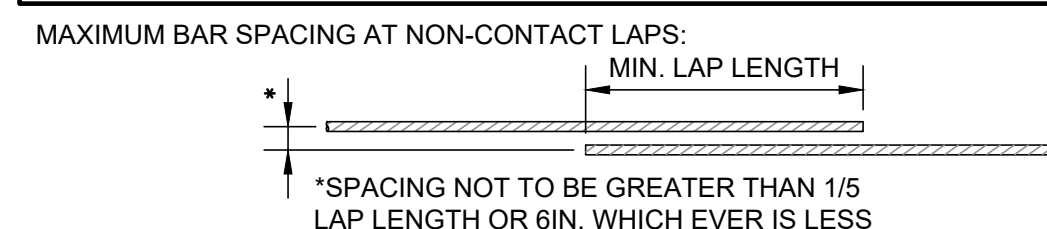
- REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 REQUIREMENTS. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064 REQUIREMENTS. ALL ACCESSORIES SHALL BE IN CONFORMANCE WITH ACI 315 REQUIREMENTS.
- REINFORCING STEEL SHALL HAVE THE FOLLOWING CLEAR COVER UNLESS OTHERWISE NOTED:
 - CONCRETE CAST AGAINST EARTH 4"
 - FORMED SURFACE IN CONTACT WITH SOIL, SEWAGE, WATER OR EXPOSED TO WEATHER 3"

STRUCTURAL STEEL

- DESIGN, FABRICATION, ERECTION MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST AISC SPECIFICATIONS AND THE DESIGN DRAWINGS.
- ALL STEEL SHOWN IN THE DRAWINGS SHALL BE PAINTED UNO.
- STEEL MATERIAL:
 - W-SHAPED SECTIONS : ASTM A992, GRADE 50
 - HOLLOW STRUCTURAL SECTIONS: ASTM A500, GRADE B
 - ALL OTHER STRUCTURAL STEEL: ASTM A36
 - ALL PIPE: ASTM A53, GRADE B
- WELDED CONNECTIONS SHALL BE IN ACCORDANCE WITH THE LATEST AWS STRUCTURAL WELDING CODE REQUIREMENTS. ELECTRODES SHALL BE E-70XX.
- BOLTED CONNECTIONS:
 - MAIN CONNECTIONS: 3/4" DIA, ASTM A325 BOLTS. HOLES: 13/16" DIA CONNECTION SHALL BE "BEARING" TYPE WITH THREADS EXCLUDED FROM THE SHEAR PLANE.
 - SECONDARY CONNECTION: 3/4" DIA, ASTM A307 GRADE A BOLTS.
 - ALL CONNECTION SHALL HAVE A MINIMUM OF TWO BOLTS. GUSSET PLATES SHALL BE A MINIMUM OF 3/8" THICK.
 - ALL COLUMNS AND POSTS SHALL HAVE MILLED ENDS FOR FULL BEARING AT BASE PLATES.

REBAR MINIMUM TENSION DEVELOPMENT & LAP LENGTHS					
CONCRETE STRENGTH $f'_c = 4,000$ PSI OR GREATER					
BAR SIZE	DEVELOPMENT LENGTH, l_d		LAP LENGTH (CLASS B SPLICE)		BAR SIZE
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	
#3	1'-7"	1'-3"	2'-0"	1'-7"	#3
#4	2'-1"	1'-7"	2'-8"	2'-0"	#4
#5	2'-7"	2'-0"	3'-4"	2'-7"	#5
#6	3'-1"	2'-4"	4'-0"	3'-1"	#6
#7	4'-6"	3'-6"	5'-10"	4'-6"	#7
#8	5'-2"	3'-11"	6'-8"	5'-2"	#8
#9	5'-10"	4'-6"	7'-6"	5'-10"	#9
#10	6'-6"	5'-0"	8'-6"	6'-6"	#10
#11	7'-3"	5'-7"	9'-6"	7'-3"	#11

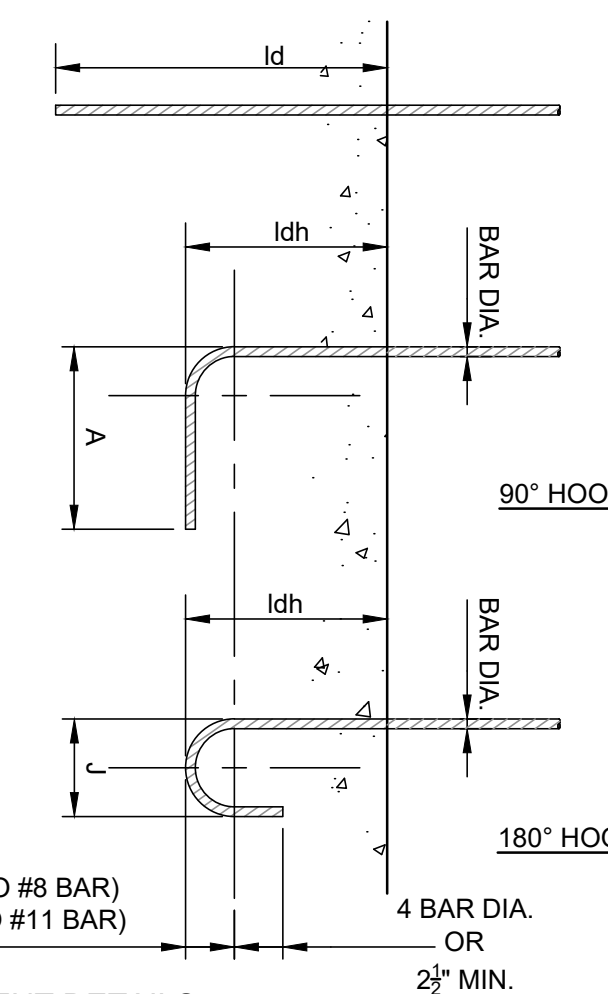
NOTES:
 1. GRADE 60 UNCOATED REINFORCEMENT
 2. SPLICE LENGTHS GIVEN ABOVE ARE TO BE USED UNLESS NOTED OTHERWISE ON DESIGN DRAWINGS.



TRANSFORMER PAD
PLAN
 1/2"=1'-0"

STANDARD HOOK DEVELOPMENT LENGTH			
BAR SIZE	90° STD HOOK "A"	180° STD HOOK "J"	DEVELOPMENT LENGTH, l_{dh}
#3	6"	3"	6"
#4	8"	4"	7"
#5	10"	5"	9"
#6	1'-0"	6"	10"
#7	1'-2"	7"	1'-0"
#8	1'-4"	8"	1'-2"
#9	1'-7"	11 3/4"	1'-3"
#10	1'-10"	1'-1 3/4"	1'-5"
#11	2'-0"	1'-2 3/4"	1'-7"

*FOR STD HOOK BAR GEOMETRY NOT SHOWN REFER TO MINIMUM ACI REQUIREMENTS



STANDARD REINFORCEMENT DETAILS
DETAIL
 NTS

STRUCTURAL ABBREVIATIONS

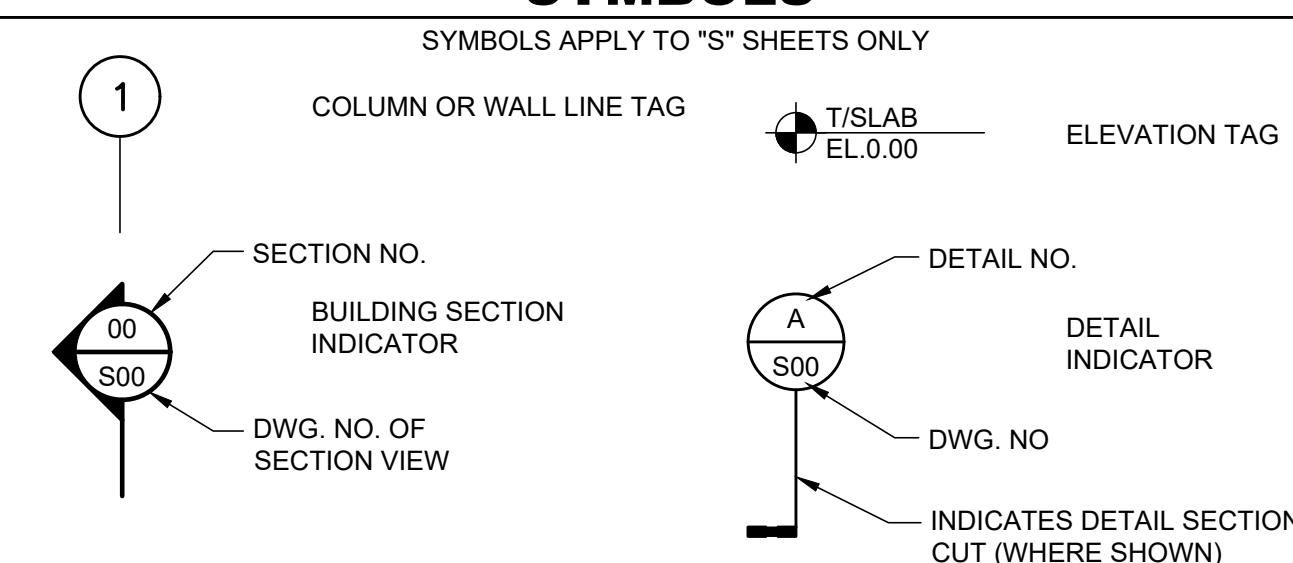
&	AND	FE	FIRE EXTINGUISHER	PERP	PERPENDICULAR
@	AT	FF	FAR FACE, FINISHED	PL	PLATE
#	NUMBER	FG	FLOOR	PLF	POUND PER LINEAR
ADDTL	ADDITIONAL	FRP	FINISHED GRADE	PT	FOOT
ALUM	ALUMINUM	FRP	FIBER REINFORCED	PROJ	PROJECTION
AEWS	AUTOMATIC END	FT	PLASTIC	PSF	POUNDS PER SQUARE
ALT	WELDED STUD(S)	FTG	FOOTING	PSI	POUNDS PER SQUARE
APROX	ALTERNATE	FV	FIELD VERIFY	PVC	POLYVINYL CHLORIDE
BLD	APPROXIMATE(LY)	GA	GAGE	R	RADIUS
BM	BUILDING	GALV	GALVANIZED	REINF	REINFORCING
BOT	BEAM	GYP	GYPNUM BOARD	REQD	REQUIRED
CJ	BOTTOM	HK	HOOK	RO	ROUGH OPENING
CL	CONTROL JOINT	HORIZ	HORIZONTAL	SCHED	SCHEDULE(D)
CLR	CENTER LINE	HSS	HOLLOW STRUCTURAL	SIM	SIMILAR
CMU	CLEAR	HP	SECTION	SJ	SAWCUT JOINT
COL	CONCRETE MASONRY UNIT	ID	HIGH POINT	SMS	SHEET METAL SCREW
CONC	COLUMN	JT	INSIDE DIAMETER	SPECS	SPECIFICATIONS
CONN	CONCRETE CONNECTION	LB(S)	JOINT	SQ	SQUARE
CONST JT	CONSTRUCTION JOINT	LONG	POUND(S)	SS	STAINLESS STEEL
CONT	CONTINUOUS	LP	LONGITUDINAL	STD	STANDARD
DIA	DIAMETER	MANUF	LOW POINT	STL	STEEL
DIM	DIMENSION	MATL	MANUFACTURER	T/	TOP OF
DEG	DEGREE(S)	MATL	MATERIAL	TB	TIE BEAM
DO	DITTO	MAX	MAXIMUM	T&B	TOP AND BOTTOM
DWG	DRAWING	MECH	MECHANICAL	THK	THICK
DWL	DOWEL(S)	MFR	MANUFACTURER	THRU	THROUGH
(E)	EXISTING	MIN	MINIMUM	TOC	TOP OF CONCRETE
EA	EACH	MISC	MISCELLANEOUS	TOS	TOP OF STEEL
EF	EACH FACE	MO	MASONRY OPENING	TYP	TYPICAL
EJ	EXPANSION JOINT	MTL	METAL	UNO	UNLESS NOTED
EL	ELEVATION	NO	NUMBER		OTHERWISE
ELEC	ELECTRICAL	NTS	NOT TO SCALE		VERTICAL
EMBED	EMBEDMENT	OC	ON CENTER		WEIGHT
EOC	EDGE OF CONCRETE	OD	OUTSIDE DIAMETER		WELDED WIRE FABRIC
EQ	EQUAL	OH	OPPOSITE HAND		
EW	EACH WAY	OPNG	OPENING		
EXIST	EXISTING	PCS	PIECES		
EXP	EXPANSION	PEMB	PRE-ENGINEERED METAL BUILDING		

LEGEND

STRUCTURAL LEGEND APPLIES TO "S" SHEETS ONLY

	EARTH FILL		CONCRETE
	UNDISTURBED EARTH		EXISTING CONCRETE
	COMPACTED GRANULAR FILL		DEMOLITION
	GROUT OR SAND (AS NOTED)		STEEL

SYMBOLS



REV	DATE	DESCRIPTION	BY
C	05/2019	100% DRAWINGS	JS
B	04/2019	90% DRAWINGS	JS
A	03/2019	60% DRAWINGS	JS

Designed	JS
Drawn	JS
Checked	DSM
Reviewed	JC
Approved	SWH

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION

STRUCTURAL

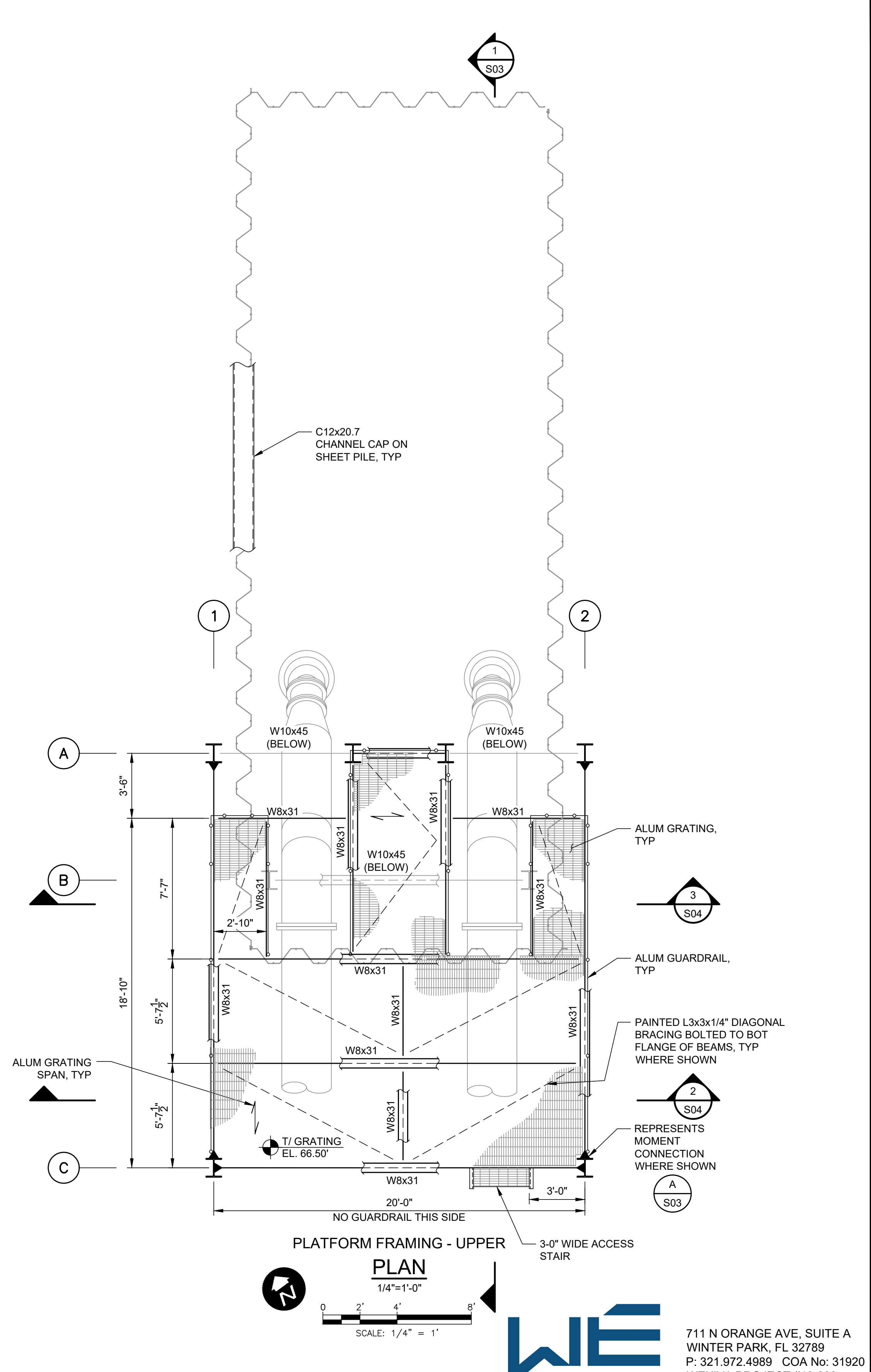
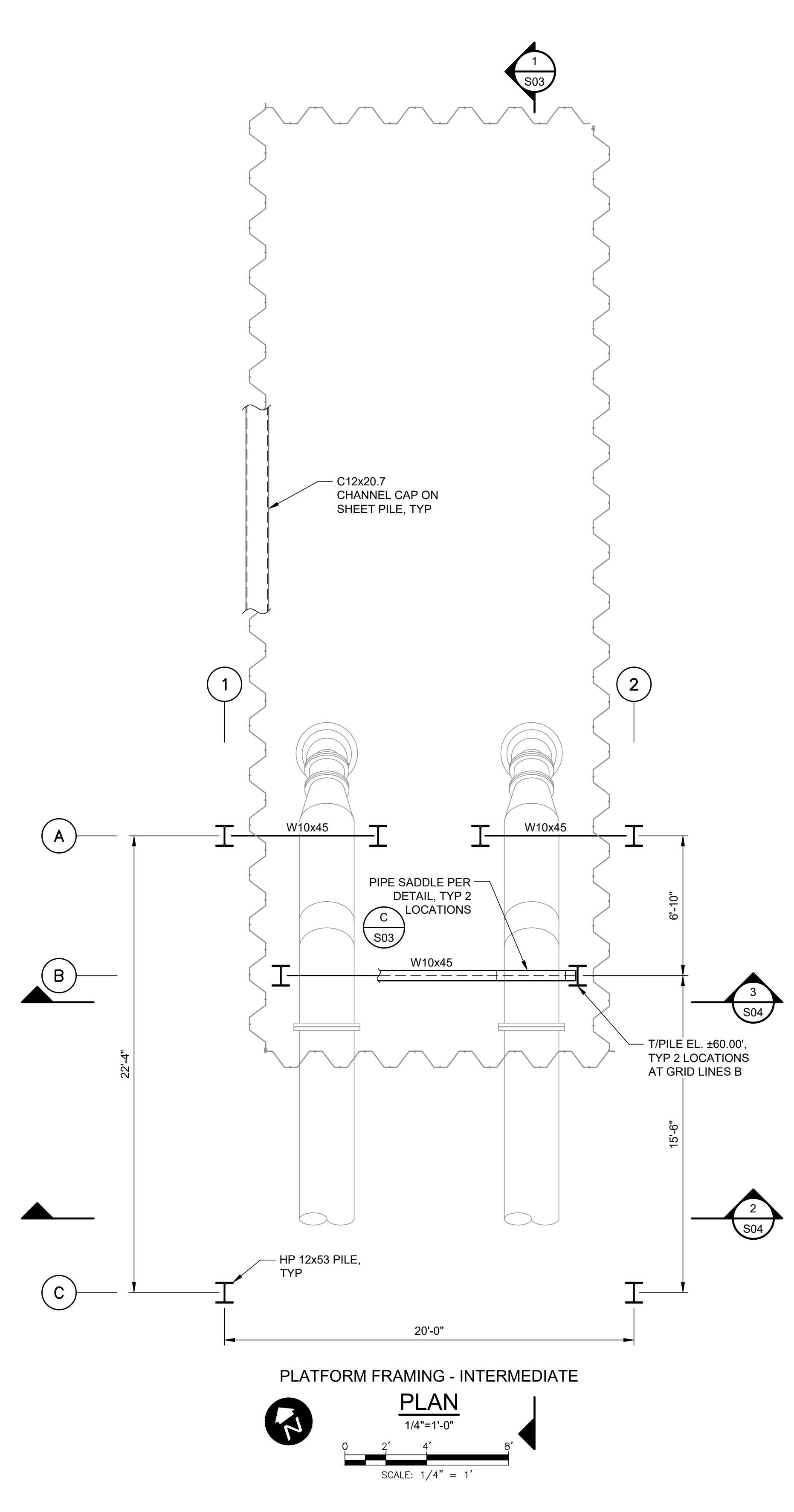
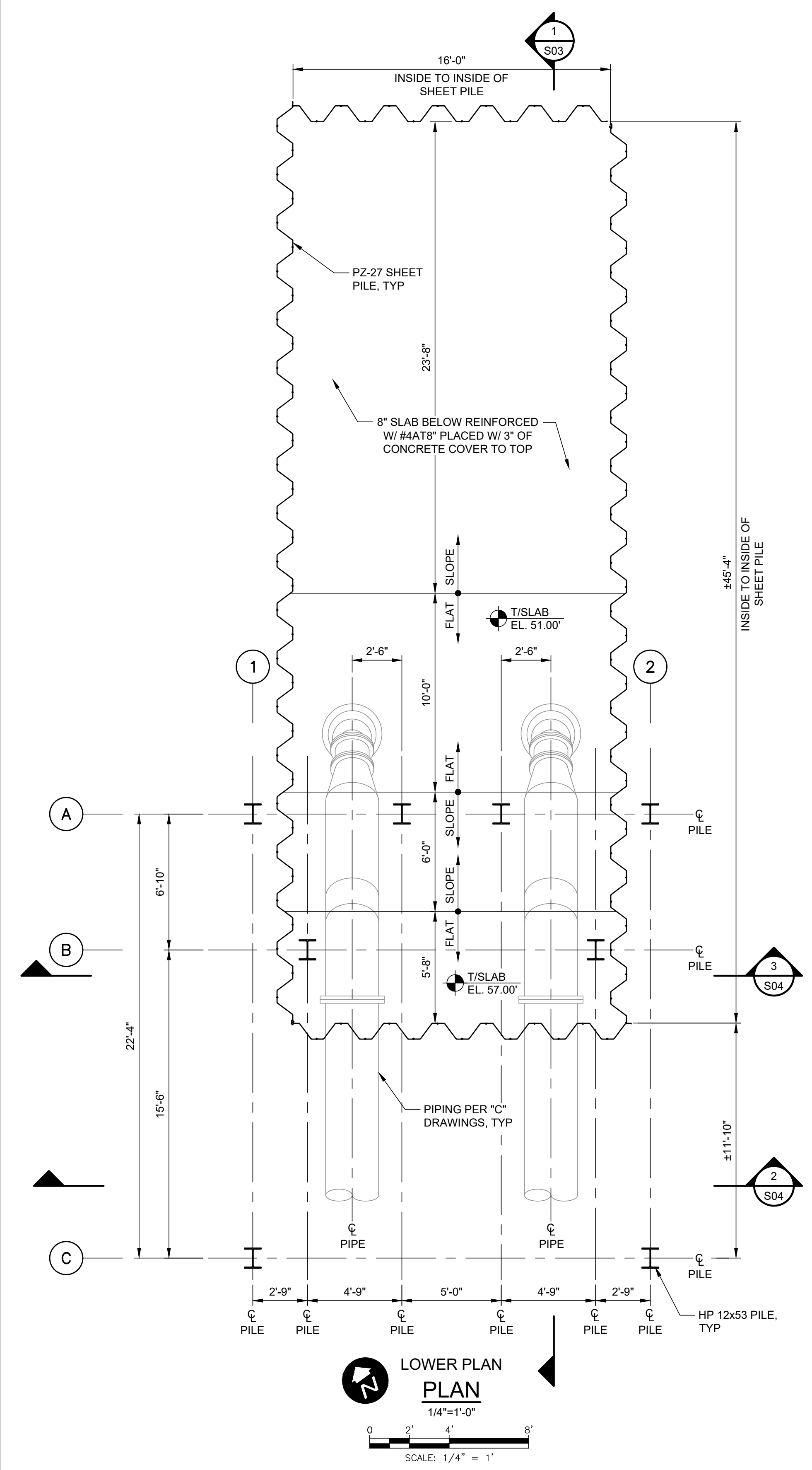
GENERAL NOTES, ABBREVIATIONS, LEGEND AND SYMBOLS

PROJECT NO.:	1910
SCALE:	NOTED
REVISION:	C
DRAWING NO.:	S01
SHEET NO.:	12 OF 22

REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT.
 WINTER SPRINGS, FL 32708
 (407) 679-5358

Rev on: 5/23/2019 2:26 PM Individual File Path: R:\Projects\1910 - Lake Apopka N. Shore Phase 4 Pump Station\Drawings\FinalDesign\S01.dwg
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Parent Sheet Set: 1910 - SURWMD Lk. ApRev: P&ID by: JAY MILLER
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B	04/2019	90% DRAWINGS	JS
A	03/2019	60% DRAWINGS	JS

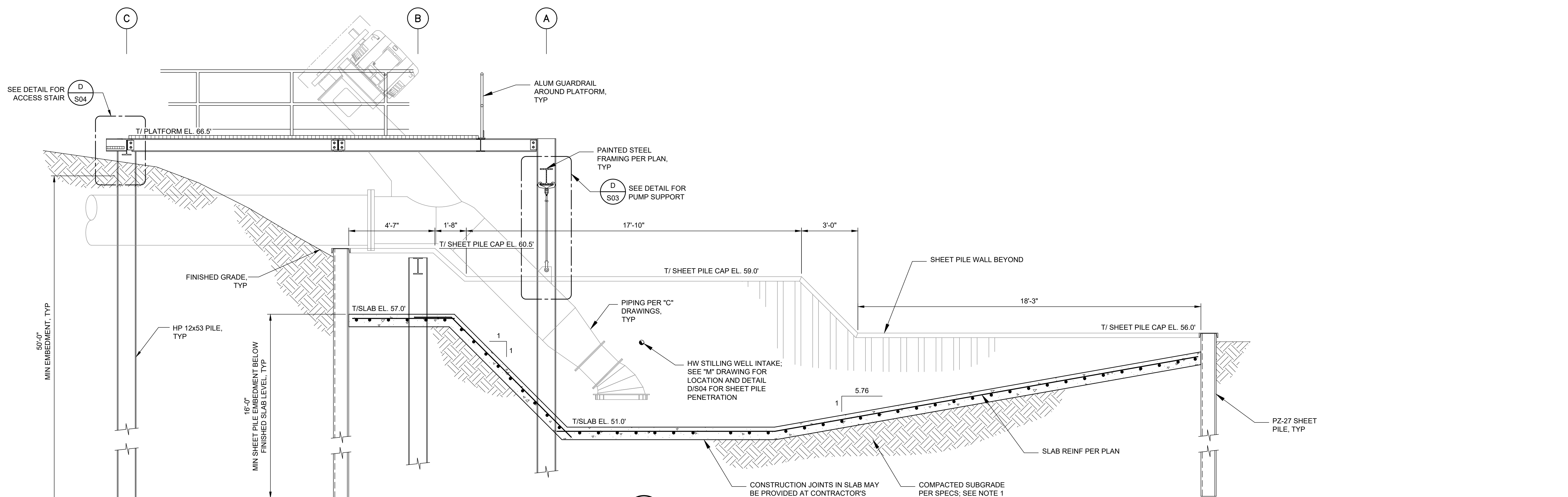
Designed	JS
Drawn	JS
Checked	DSM
Reviewed	JC
Approved	SWH

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION
 STRUCTURAL
PUMP STATION PLANS

PROJECT NO.:	1910
SCALE:	NOTED
REVISION:	C
DRAWING NO.:	S02
SHEET NO.:	13 OF 22



Parent Sheet Set: 1910-SURWMD Lk. ApRwMWB1. by: JAY MILLER
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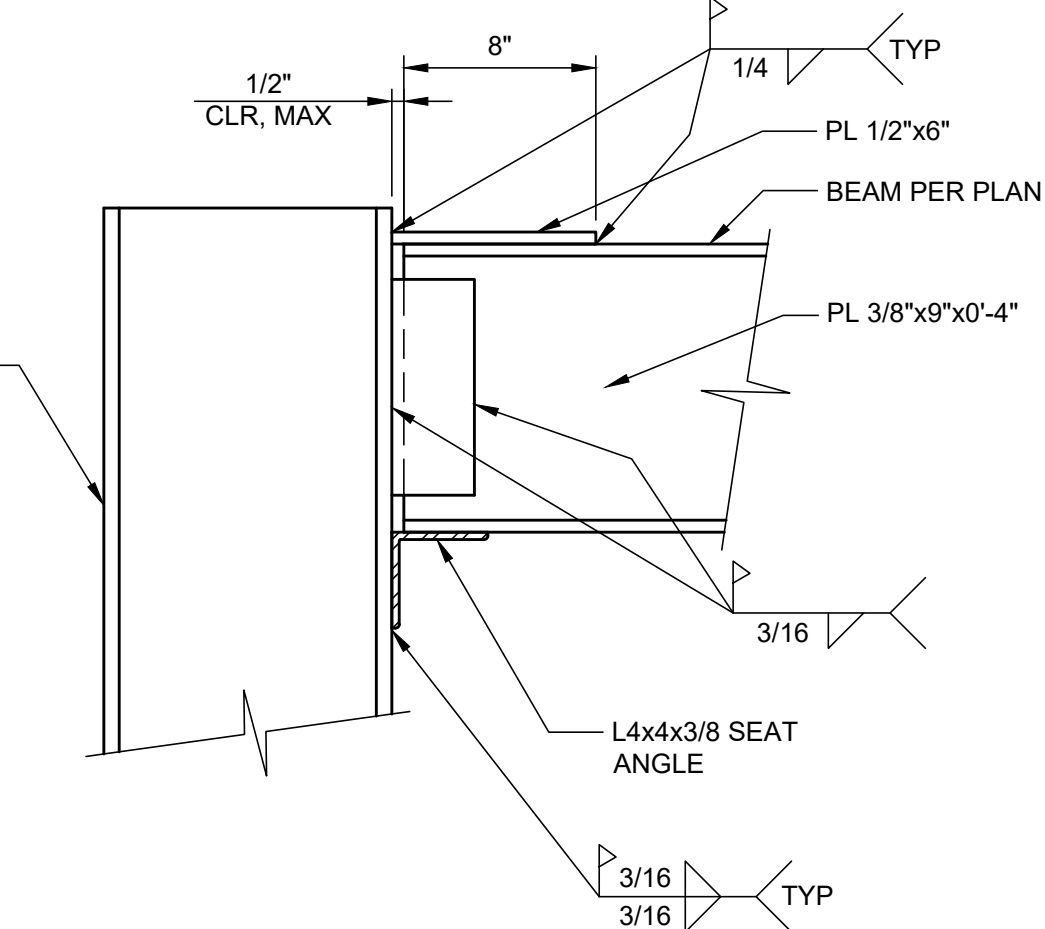
NOTES:

- CONTRACTOR SHALL DEWATER THE AREA WITHIN THE SHEET PILE AS REQUIRED TO ACHIEVE PROPER COMPACTION. DEWATERING SHALL BE MAINTAINED UNTIL THE AREA WITHIN THE SHEET PILE CAN BE PUT INTO SERVICE. THE PROPOSED SLAB IS NOT DESIGNED TO BE NON-BUOYANT THUS THE CONTRACTOR SHALL TAKE MEASURES TO ENSURE THAT THE SLAB DOES NOT EXPERIENCE UPLIFT FORCES DUE TO GROUNDWATER.

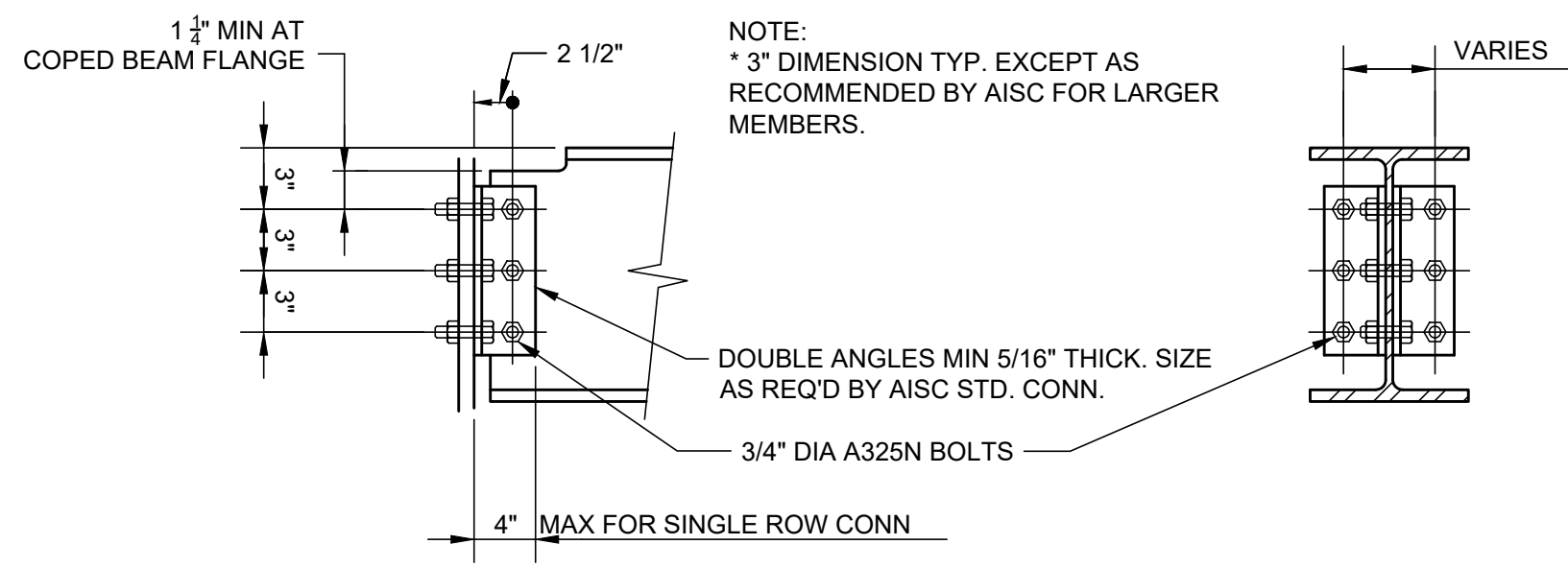
NOTES:

- NUMBER OF ROWS IS EQUAL TO NUMBER OF BOLTS TO ENCLOSE WEB.
- ALL FRAMING CONNECTIONS SHALL CONFORM TO SCHEDULE UNLESS DETAILED OTHERWISE ON FRAMING DRAWINGS.
- USE WASHERS ON NUTS.

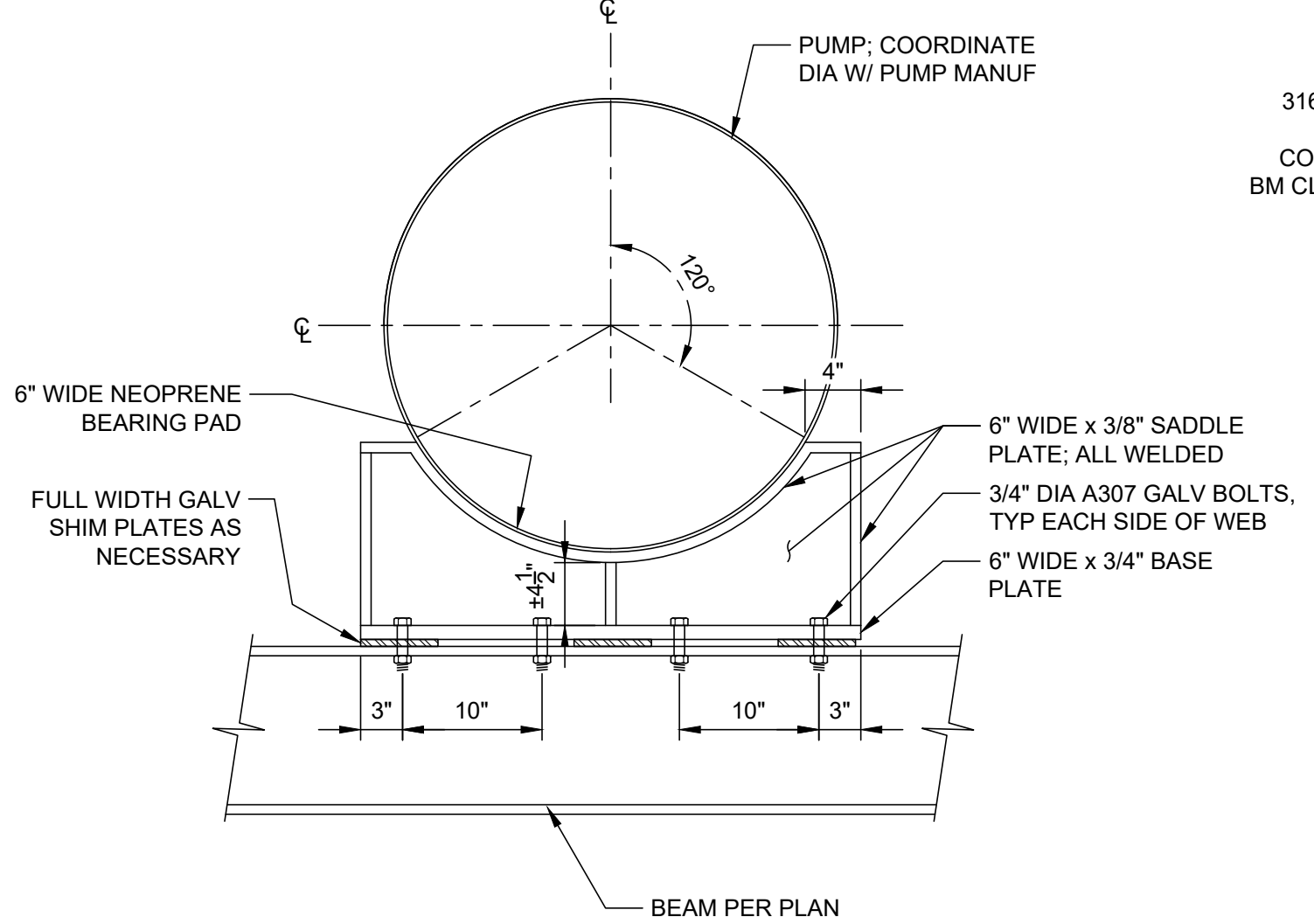
NOMINAL BEAM DEPTH, INCHES	ROWS OF BOLTS	LENGTH (3) OF ANGLE
8-10	2	5 1/2"
6	1	3"



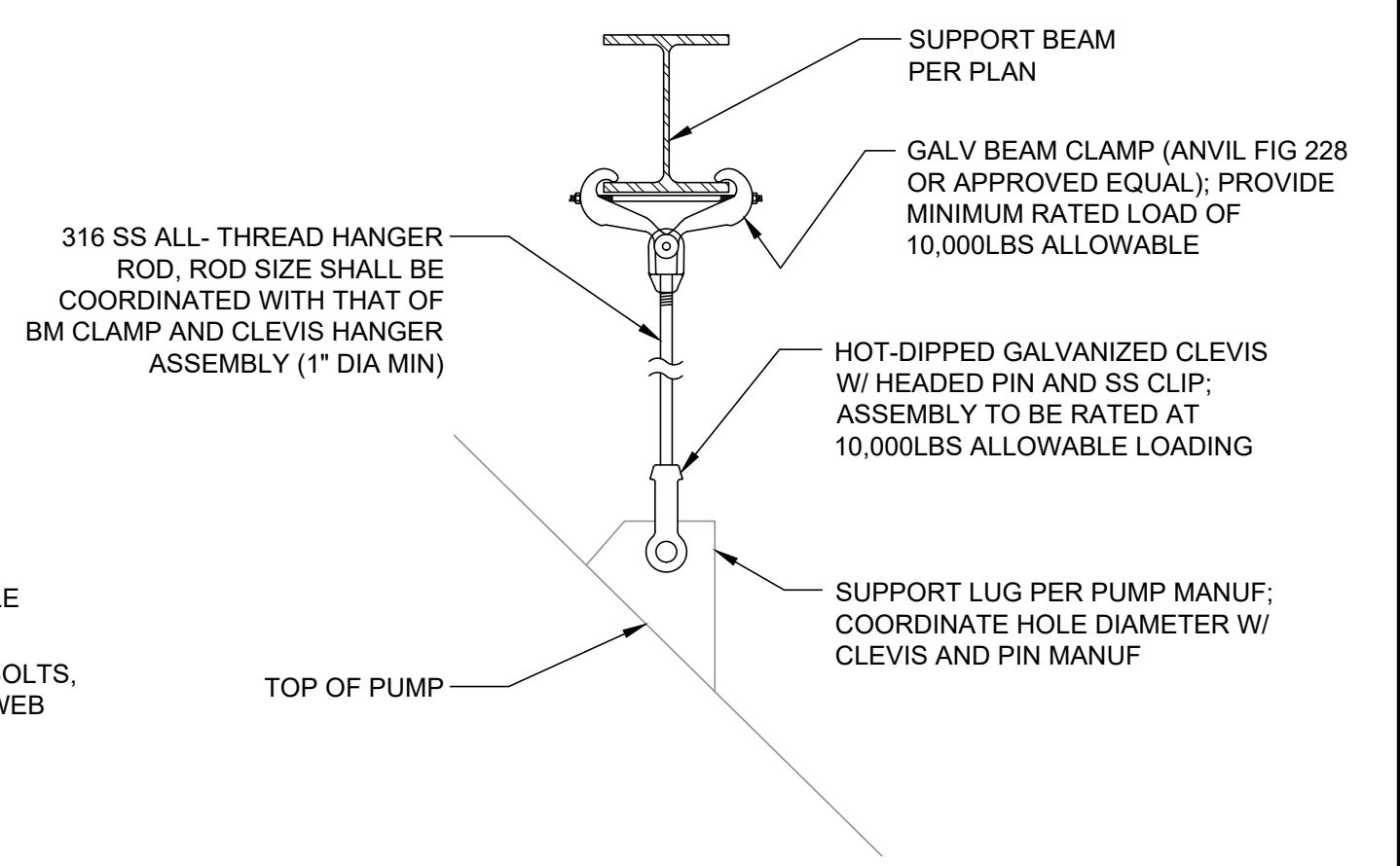
DETAIL A
1-1/2"=1'-0"
S02



DETAIL B
TYP
S02



DETAIL C
S02



DETAIL D
S03



REV	DATE	DESCRIPTION	BY
C	05/2019	100% DRAWINGS	JS
B	04/2019	90% DRAWINGS	JS
A	03/2019	60% DRAWINGS	JS

Designed JS
 Drawn JS
 Checked DSM
 Reviewed JC
 Approved SWH

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION
 STRUCTURAL
PUMP STATION SECTION

PROJECT NO.: 1910
 SCALE: NOTED
 DRAWING NO. S03
 REVISION: C
 SHEET NO.: 14 OF 22

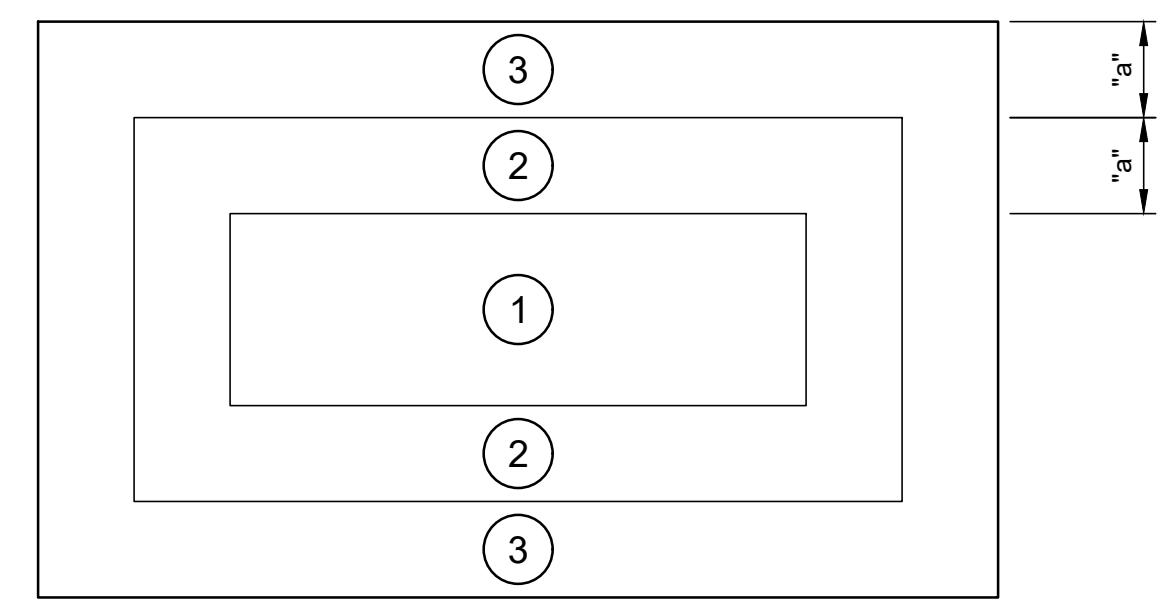
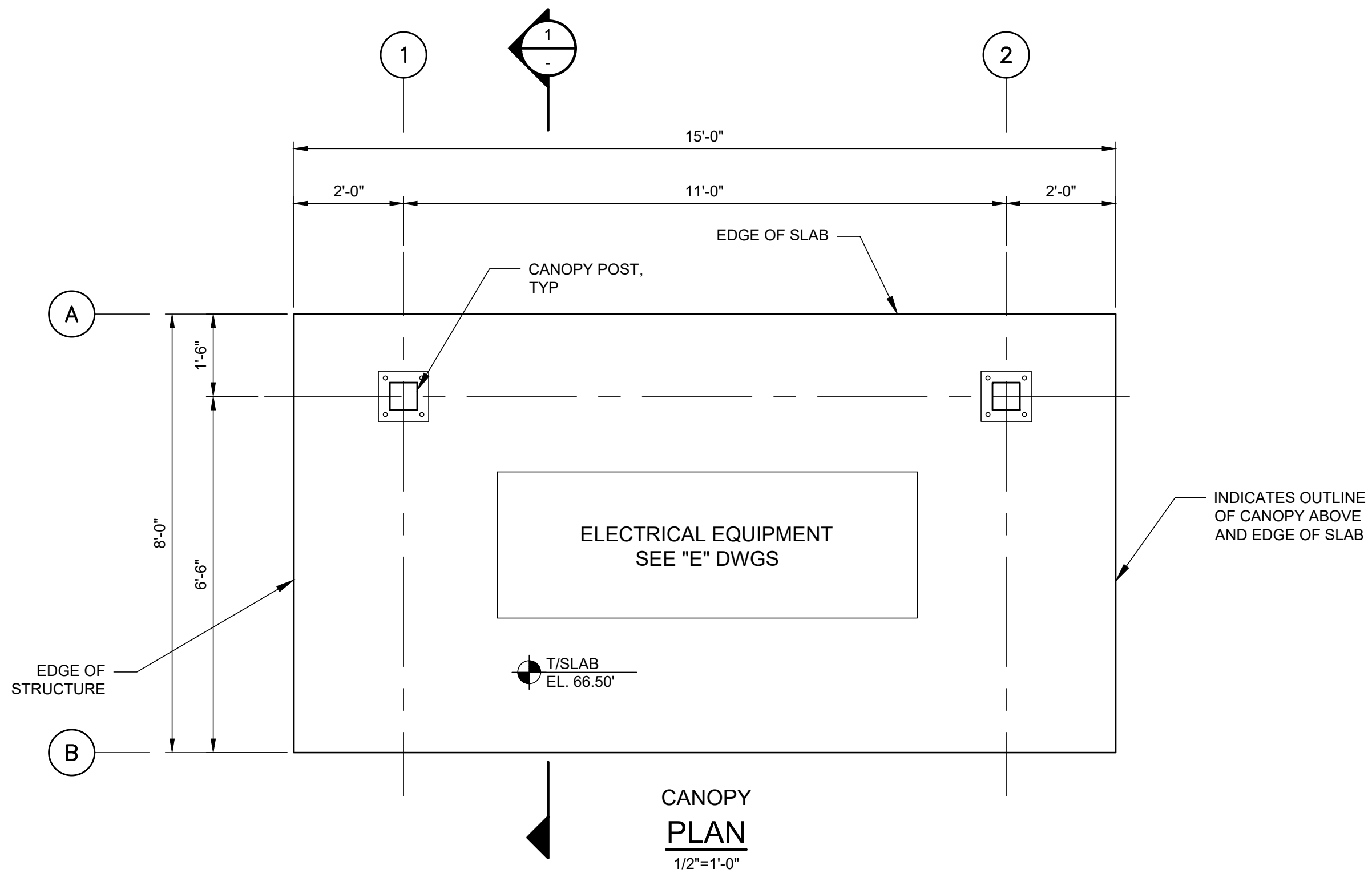


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711 N ORANGE AVE, SUITE A
 WINTER PARK, FL 32789
 P: 321.972.4989 COA No: 31920
 WEKIVA PROJECT #18-283

Parent Sheet Set: 1910-SURWMD Lk. ApRev.dwg by: JAY MILLER
 Rev on: 5/23/2019 2:26 PM Individual File Path: R:\Projects\1910 - Lake Apopka N. Shore Phase 4 PS\Design\Drawings\FinalDesign\S05.dwg



ROOF ZONE
KEY PLAN

WIND DESIGN PRESSURES COMPONENTS CLADDING (+, -) PSF							
ROOF							
EFFECTIVE AREA (SF)		ZONE 1		ZONE 2		ZONE 3	
		(+)	(-)	(+)	(-)	(+)	(-)
≤ a ²	9 SF	16	-35	24	-53	32	-104
2a ²	18 SF	16	-35	24	-53	24	-53
> 4a ²	36.1 SF	16	-35	16	-35	16	-35

NOTES:

- FOR WIND DESIGN CRITERIA SEE "WIND DESIGN CRITERIA" NOTES IN THE GENERAL STRUCTURAL NOTES THIS SHEET DESIGN PRESSURES ARE PROVIDED AT ULTIMATE DESIGN WIND SPEEDS. TO CONVERT TO NOMINAL DESIGN WIND SPEEDS (ASD) MULTIPLE PRESSURE BY A FACTOR OF 0.60.
- THE EFFECTIVE AREA SHALL BE DETERMINED AS FOLLOWS UNLESS OTHERWISE NOTED:
 - THE SPAN LENGTH MULTIPLIED BY AN EFFECTIVE WIDTH THAT NEED NOT BE LESS THAN ONE THIRD THE SPAN LENGTH.
 - THE AREA THAT IS TRIBUTARY TO AN INDIVIDUAL FASTENER.
- NEGATIVE SIGN INDICATES PRESSURE ACTING OUTWARD FROM SURFACE.
- CORNER ZONE WIDTH: "a" : a = 3 FT

PRE-ENGINEERED GALVANIZED STEEL CANOPY

LOADING:

- ROOF COLLATERAL 3 PSF
- ROOF LIVE 20 PSF
- WIND LOADS SEE TABLE THIS SHEET, OPEN STRUCTURE CLASSIFICATION, OBSTRUCTED WIND FLOW, SEE S01 FOR GENERAL WIND DESIGN CRITERIA

GENERAL:

FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED TO DESIGN, FABRICATE, DELIVER TO JOB SITE AND ERECT THE PRE-ENGINEERED CANOPY AS NOTED AND SHOWN ON THE DRAWINGS.

THE PRE-ENGINEERED CANOPY SHALL BE A CANTILEVERED SYSTEM THAT CONSIST OF A ROOF DECK, POSTS, PURLINS, FLASHING, AND OTHER MISCELLANEOUS FRAMING. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL PLAN DIMENSIONS WITH PRE-ENGINEERED CANOPY DIMENSIONS AND RESOLVING DIMENSIONS AND SPATIAL CONFLICTS PRIOR TO SECURING MATERIALS.

DESIGN AND FABRICATION REQUIREMENTS:

DESIGN, FABRICATION, MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH LATEST BUILDING CODE. ERECT CANOPY IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

CANOPY SHALL BE DESIGNED BY A STATE OF FLORIDA REGISTERED ENGINEER RETAINED BY THE MANUFACTURER IN COMPLIANCE WITH BUILDING CODE REQUIREMENTS AND FOR WIND PRESSURE AS SPECIFIED ON THIS SHEET. DETAILED SIGNED AND SEALED SHOP DRAWINGS SHALL BE SUBMITTED FOR ENGINEER'S REVIEW. DEFLECTION SHALL BE LIMITED TO L/180 FOR ROOF MEMBERS (WIND OR LIVE). LATERAL DRIFT SHALL BE LIMITED TO H/60 (WIND).

SPECIALTY ENGINEER TO PREPARE COMPLETE STRUCTURAL DESIGN CALCULATIONS FOR CANOPY MEMBERS EXCEPT CANOPY ANCHORAGE. PROVIDE REACTIONS AS REQUIRED FOR ANCHORAGE DESIGN BY THE ENGINEER OF RECORD.

THE FABRICATOR SHALL DESIGN AND DETAIL ALL PARTS OF CONNECTIONS NOT FULLY DETAILED ON THE DESIGN DRAWINGS. THE NUMBER OF FASTENERS AND OTHER SIMILAR ELEMENTS WHEN SHOWN ON THE DRAWINGS ARE PICTORIAL ONLY.

USE SECTIONS TRUE TO DETAILS WITH CLEAN, STRAIGHT, SHARPLY DEFINED PROFILES AND SMOOTH SURFACES OF UNIFORM COLOR AND TEXTURES, FREE FROM DEFECTS IMPAIRING STRENGTH AND DURABILITY.

SHOP AND ERECTION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.

NUMBER CODE COMPONENTS FOR EASE OF FIELD INSTALLATION.

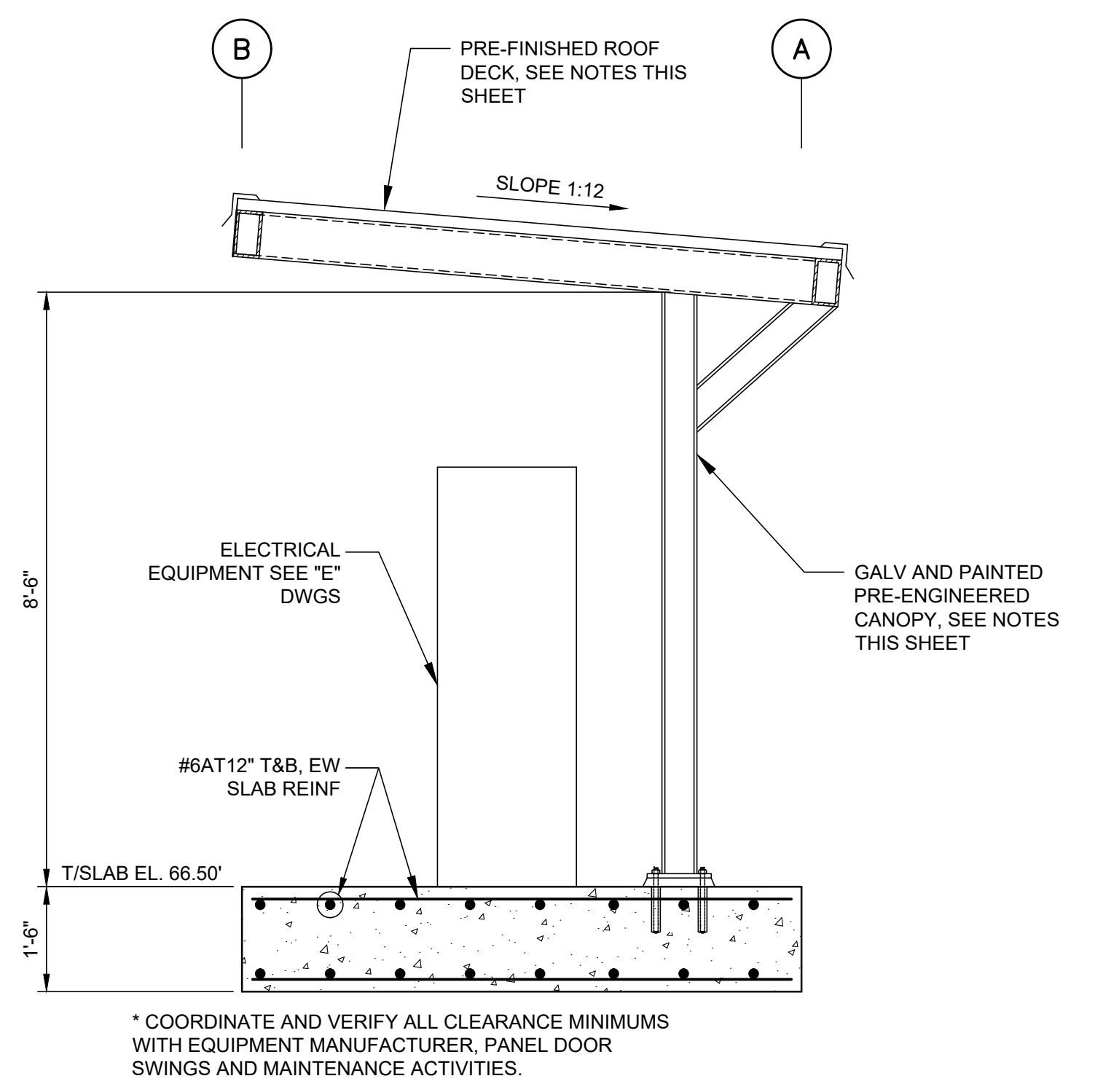
SUBMIT COLOR CHARTS OF COLORS AVAILABLE FOR POST, BEAMS, TRIM, AND ROOF PANELS; HOWEVER, CONTRACTOR TO INCLUDE THE COST TO CUSTOM COLOR MATCH OWNERS' PREFERRED COLOR.

MATERIALS:

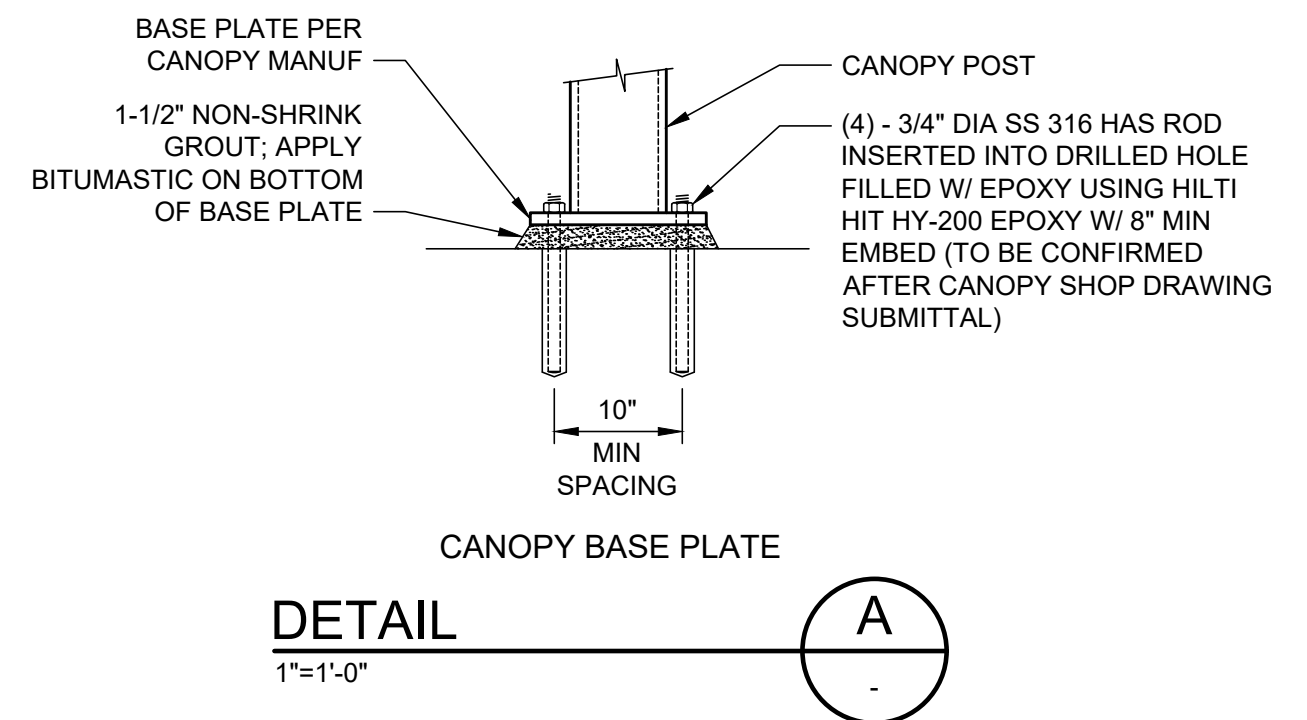
- STRUCTURAL STEEL - ASTM A36
- ALL BOLTS, NUTS AND WASHERS TO BE HOT-DIPPED GALVANIZED UNO.

WARRANTY:

MANUFACTURER SHALL WARRANT THE ENTIRE SYSTEM AGAINST DEFECTS IN LABOR AND MATERIALS FOR A PERIOD OF 2 YEARS COMMENCING ON THE DATE OF SUBSTANTIAL COMPLETION. THIS WARRANTY REQUIRES THE MANUFACTURER TO DO ALL THAT IS NECESSARY TO EFFECTIVELY CORRECT ANY DEFICIENCIES IN A TIMELY MANNER AT NO EXPENSE TO THE OWNER.



SECTION
1
1/2"=1'-0"



DETAIL
A
1"=1'-0"



REV	DATE	DESCRIPTION	BY
C	05/2019	100% DRAWINGS	JS
B	04/2019	90% DRAWINGS	JS
A	03/2019	60% DRAWINGS	JS

Designed	JS
Drawn	JS
Checked	DSM
Reviewed	JC
Approved	SWH

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION
 STRUCTURAL
CONTROL PANEL CANOPY PLAN, SECTION AND DETAIL

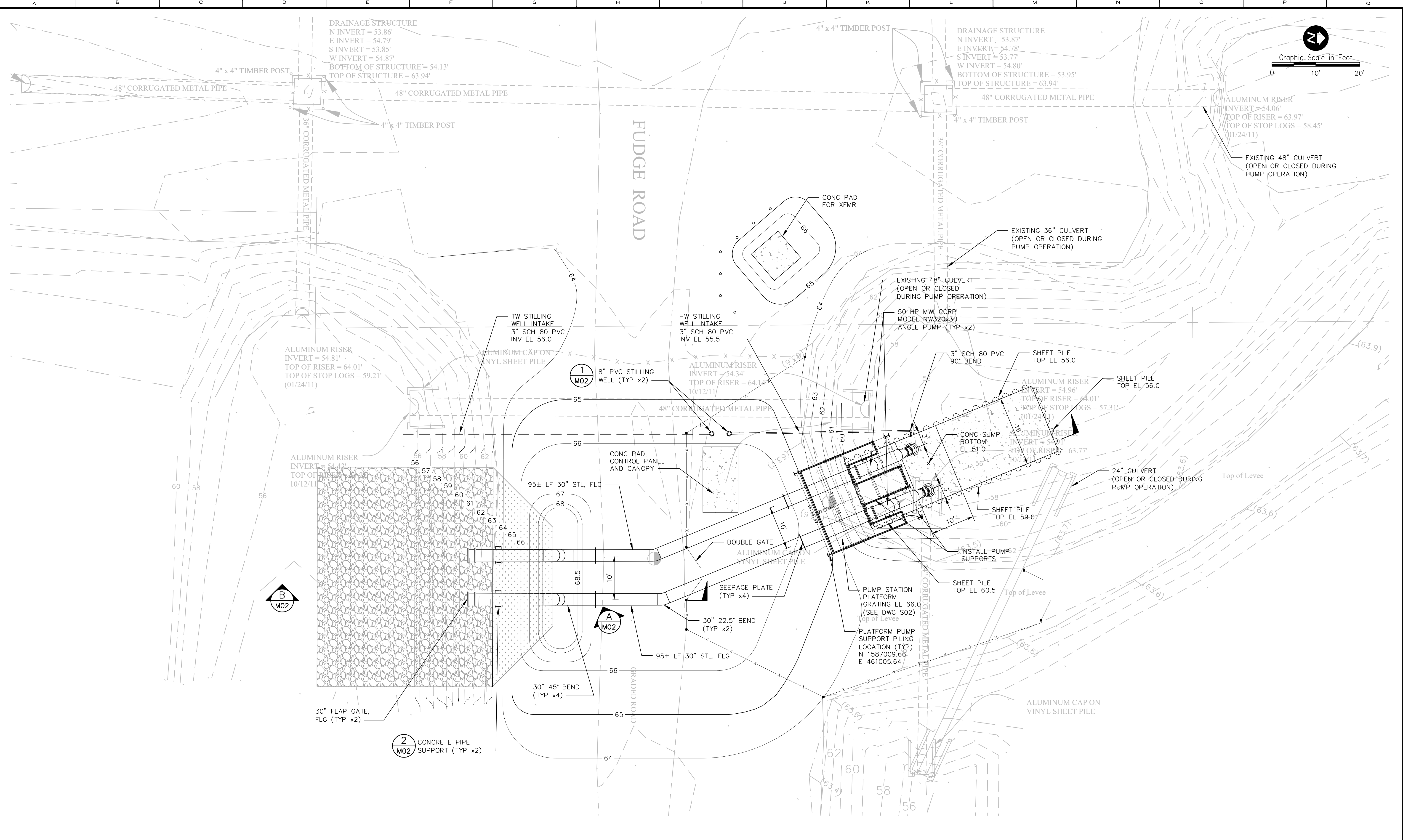
PROJECT NO.: 1910	
SCALE: NOTED	REVISION: C
DRAWING NO.: S05	SHEET NO.: 16 OF 22

REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT.
 WINTER SPRINGS, FL 32708
 (407) 679-5358



711 N ORANGE AVE, SUITE A
 WINTER PARK, FL 32789
 P: 321.972.4989 COA No: 31920
 WEKIVA PROJECT #18-283

Parent Sheet Set: 1910-SURWMD Lk Apopka N Shore Phase 4 Pump Station
 Rev on: 5/28/2019 7:04 AM
 Individual File Path: R:\Projects\1910 - Lake Apopka N Shore Phase 4 Pump Station\Drawings\FinalDesign\M01.dwg
 by: JAY MILLER



REV	DATE	DESCRIPTION	BY
C	05/2019	100% DRAWINGS	AJM
B	04/2019	90% DRAWINGS	AJM
A	03/2019	60% DRAWINGS	AJM

Issue Certification	
BY	DATE
Scott Warner Hoxworth, P.E. Florida P.E. No. 58643	

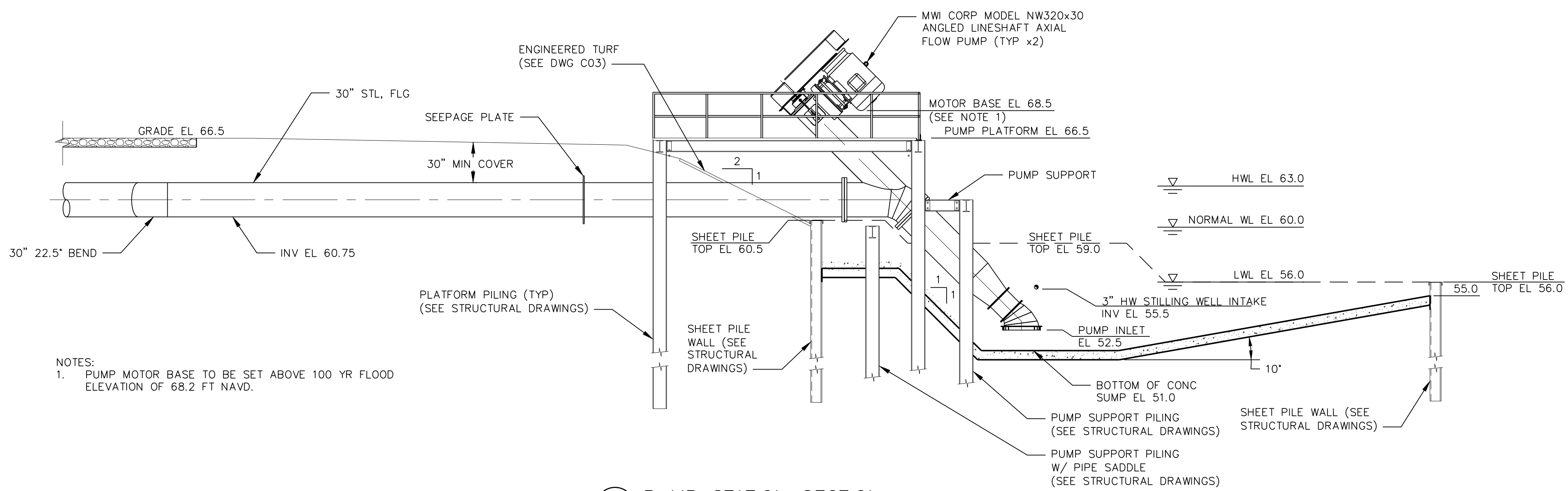
Designed	SWH
Drawn	AJM
Checked	DAY
Reviewed	JRV
Approved	SWH

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION
 MECHANICAL
PUMP STATION PLAN

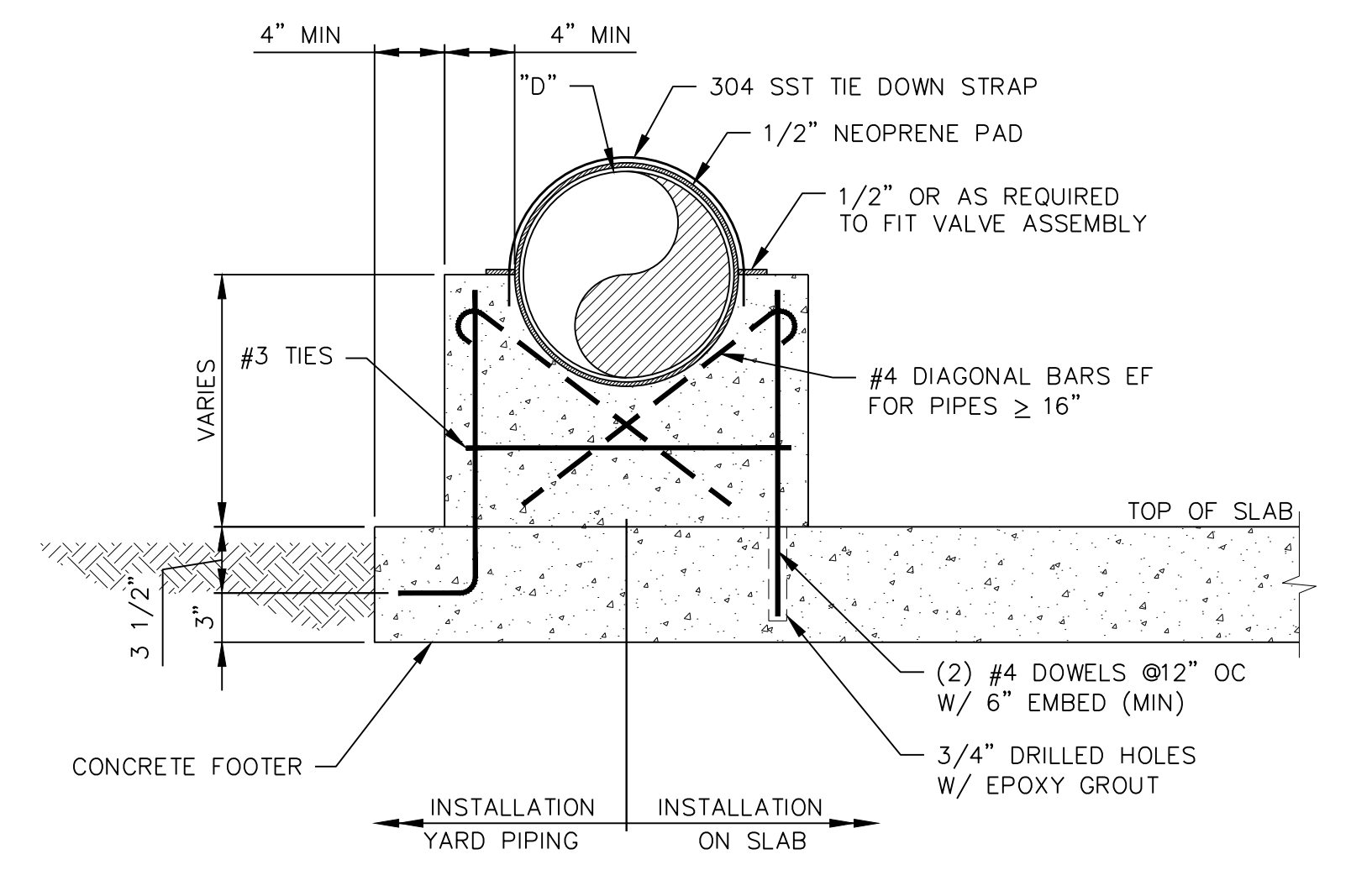
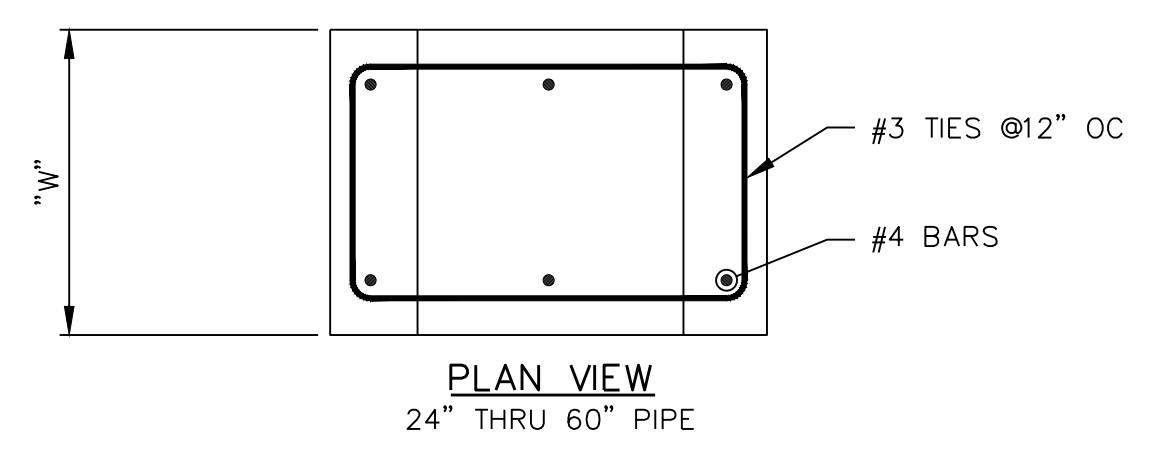
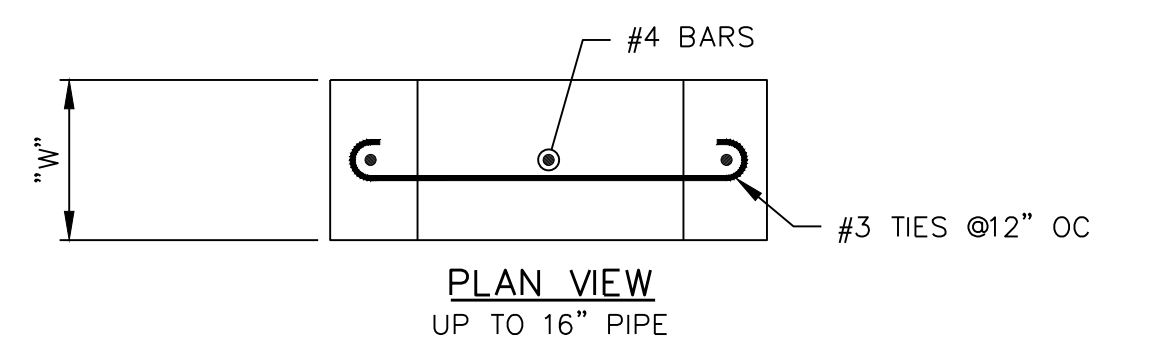
PROJECT NO.:	1910
SCALE:	NOTED
REVISION:	C
DRAWING NO.:	M01
SHEET NO.:	17 OF 22

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 WINTER SPRINGS, FL 32708
 (407) 679-5358
 CERTIFICATE OF AUTH. 8181

Rev on: 5/28/2019 7:05 AM Individual File Path: R:\Projects\1910 - Lake Apopka N. Shore Phase 4 Pump Station\Drawings\FinalDesign\M02.dwg
 Parent Sheet Set: 1910-SURWMD Lk. Apopka N. Shore Phase 4 Pump Station\Drawings\FinalDesign\M02.dwg by: JAY MILLER



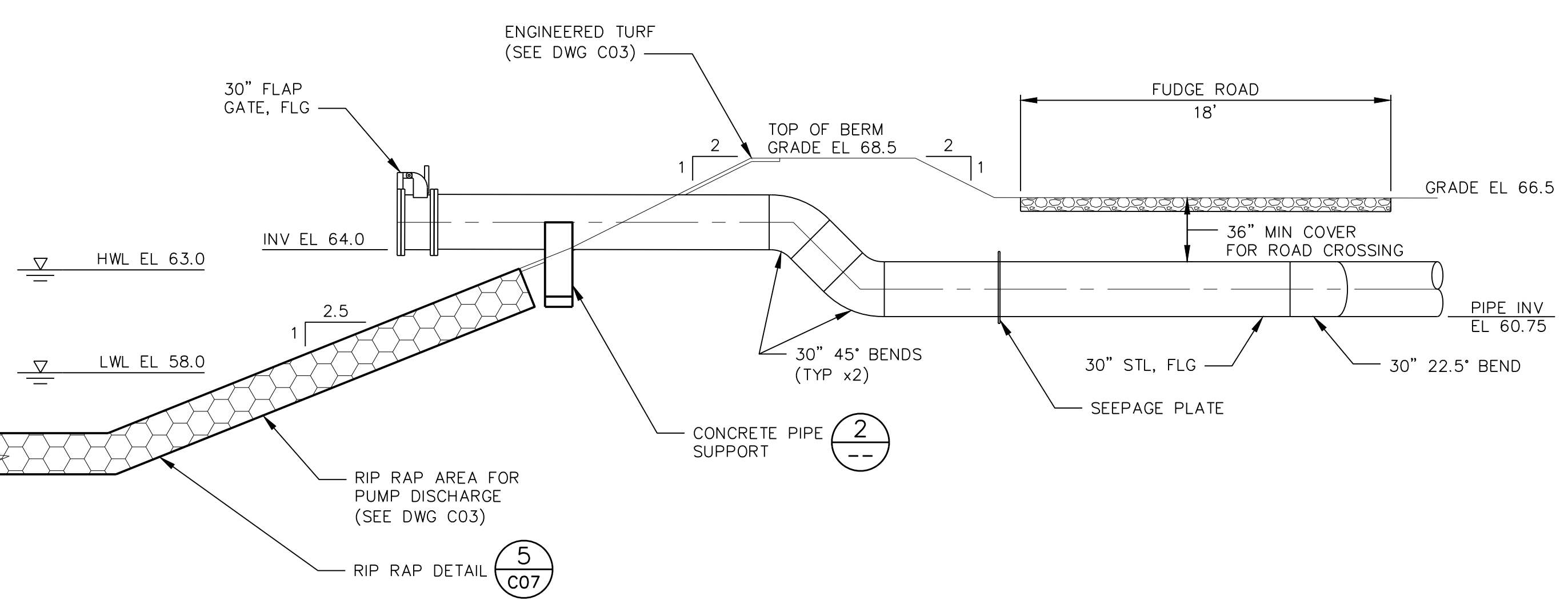
(A) PUMP STATION SECTION
 M01 SCALE: 1" = 8'



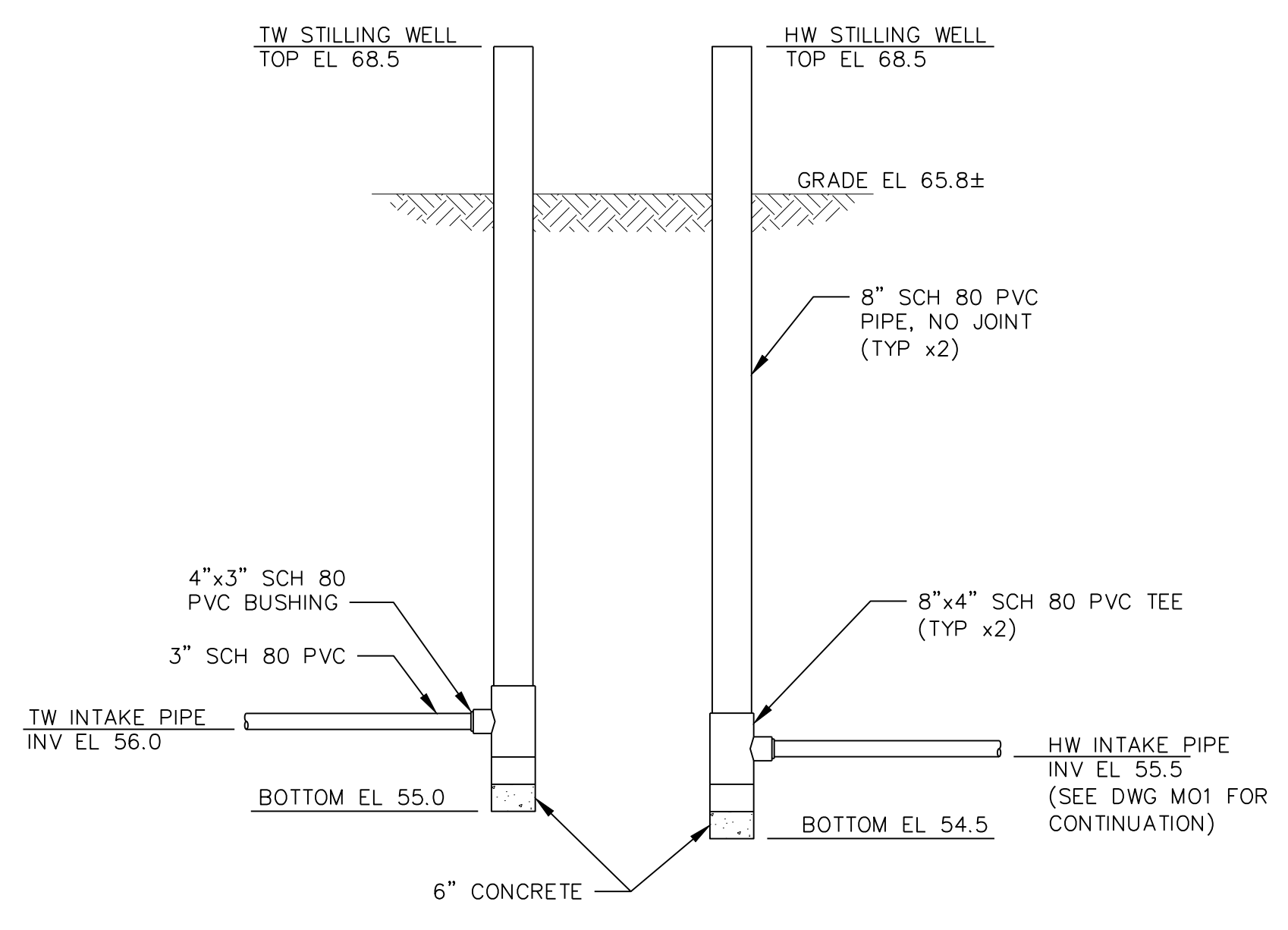
PIPE DIAMETER "D" (INCHES)	MINIMUM SUPPORT WIDTH "W" (INCHES)
≤ 12	6
≤ 16	8
≤ 24	12
30, 36, & 42	16
48	20
54 & 60	24

NOTES:
 1. PROVIDE CONCRETE FOOTING BELOW GRADE FOR ALL FINISHED GRADE APPLICATIONS.
 2. THE DRAWINGS INDICATE SUPPORTS FOR DEPICTION ONLY. ALL SUPPORT SPACING AND TYPE SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. SUPPORT SPACING SHOWN ON THE DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF SUPPLYING AND INSTALLING ADEQUATE SUPPORTS PER THE SPECIFICATIONS.

(2) CONCRETE PIPE SUPPORT
 M01 SCALE: N.T.S.



(B) PUMP DISCHARGE SECTION
 M01 SCALE: 1" = 8'



(1) STILLING WELLS SECTION
 M01 SCALE: 1" = 4'



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B	04/2019	90% DRAWINGS	AJM
A	03/2019	60% DRAWINGS	AJM

Issue Certification
 Scott Warner Hoxworth, P.E.
 Florida P.E. No. 58643

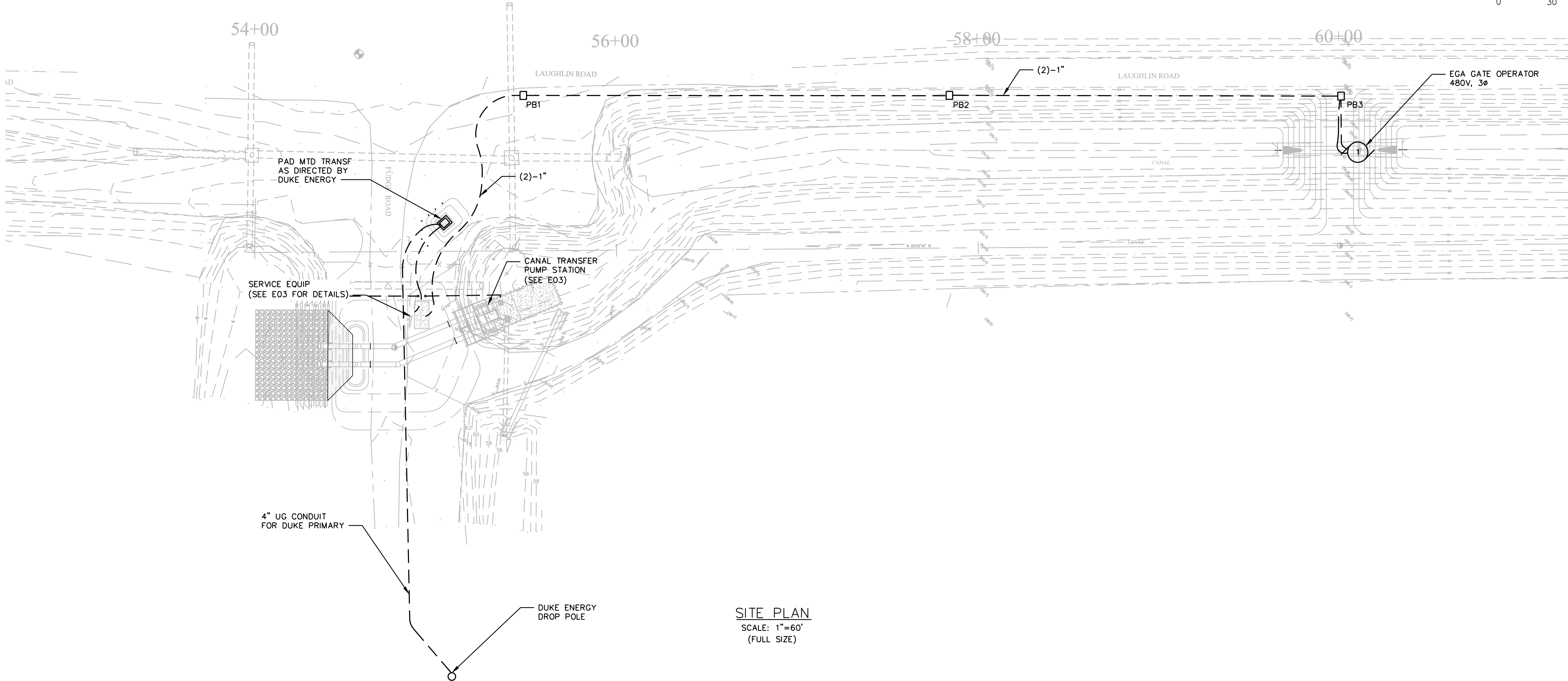
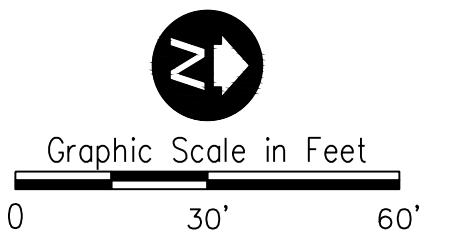
Designed SWH
 Drawn AJM
 Checked DAY
 Reviewed JRV
 Approved SWH

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION
 MECHANICAL
PUMP STATION SECTIONS AND DETAILS

PROJECT NO.: 1910	SCALE: NOTED	REVISION: C
DRAWING NO. M02	SHEET NO.: 18	OF 22

REISS ENGINEERING, INC.
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 Parent Sheet Set: 1910 - SJRWMD Lk. Apopka N. Shore Phase 4 Pump Station.dwg by: JAY MILLER



SITE PLAN
SCALE: 1"=60'
(FULL SIZE)

SYMBOLS

- | | | | | | |
|--|--|--|---------------------------------------|--|--------------------------------------|
| | HOME RUN TO PANELBOARD. NO. OF ARROWS INDICATE NO. OF CIRCUITS, HASH MARKS INDICATE NO. OF #12 AWG. CONDUCTORS. NO HASH MARKS INDICATE 2 #12 CONDUCTORS. | | CONTROL RELAY | | T.O. INDICATES TIMED-TO-OPEN CONTACT |
| | CONDUIT CONCEALED IN WALL OR ABOVE CEILING. | | LEVEL PROBE | | RESET BUTTON, MOMENTARY BREAK. |
| | CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND. | | MOTOR STARTER | | PRESSURE SWITCH |
| | CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL. | | FLOAT SWITCH | | TEMPERATURE SWITCH |
| | FLEXIBLE CONDUIT WITH EQUIPMENT CONNECTION. | | ALARM INDICATING LIGHT | | |
| | FUSE | | RUN INDICATING LIGHT | | |
| | MOLDED CASE CIRCUIT BREAKER | | TIMING RELAY | | |
| | ALARM RELAY | | NORMALLY OPEN CONTACT | | |
| | ALARM TIMER | | NORMALLY CLOSED CONTACT | | |
| | | | T.C. INDICATES TIMED-TO-CLOSE CONTACT | | |

ABBREVIATIONS

- | | | | | | |
|-------|-----------------------------------|-------|----------------------------|------|--|
| A | AMPERES | GND | GROUND | NEMA | NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION |
| AIC | ASYMMETRICAL INTERRUPTING CURRENT | HOA | HAND-OFF-AUTOMATIC BREAKER | P | POLE |
| BKR | BREAKER | HP | HORSEPOWER | PNL | PANEL |
| BLDG | BUILDING | HPS | HIGH PRESSURE SODIUM | RGS | RIGID GALVANIZED STEEL |
| CAB | CABINET | KCMIL | THOUSAND CIRCULAR MILS | SW | SWITCH |
| CIR | CIRCUIT | KVA | KILOVOLT-AMPERES | S | STAINLESS STEEL |
| CONT | CONTROL | LS | LIMIT SWITCH | TYP | TYPICAL |
| CP | CONTROL PANEL | LSCP | LIFT STATION CONTROL PANEL | UG | UNDERGROUND |
| CPT | CONTROL POWER TRANSFORMER | LTG | LIGHTING | V | VOLT |
| CT | CURRENT TRANSFORMER | MAX | MAXIMUM | VAC | VOLTS ALTERNATING CURRENT |
| EC | EMPTY CONDUIT | MB | MAIN BREAKER | W | WIRE |
| ELEC | ELECTRICAL | MCC | MOTOR CONTROL CENTER | WP | WEATHER PROOF |
| EM | EMERGENCY | MCP | MOTOR CIRCUIT PROTECTOR | XMFR | TRANSFORMER |
| ENCL | ENCLOSURE | MFR | MANUFACTURER | | |
| ETM | ELAPSE TIME METER | MIN | MINIMUM | | |
| EXIST | EXISTING | MTD | MOUNTED | | |
| GEN | GENERATOR | NEC | NATIONAL ELECTRIC CODE | | |

GENERAL NOTES

- ALL WORK SHALL COMPLY WITH N.E.C. AND LOCAL CODES.
- REFER TO EQUIPMENT SHOP DRAWINGS FOR EXACT LOCATION OF CONDUITS.
- INSTALL BOND WIRE IN ALL RACEWAYS PER N.E.C.
- DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO THE MECHANICAL, CIVIL AND STRUCTURAL DRAWINGS FOR DETAILED LOCATIONS OF ALL PIPING AND EQUIPMENT.

EMI EMI CONSULTING SPECIALTIES, INC.
 5742 River Bed Road
 Groveland, FL 34736
 COA# 6160 (407) 322-0500



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C	05/2019	100% DRAWINGS	WCH
B	04/2019	90% DRAWINGS	WCH
A	03/2019	60% DRAWINGS	WCH

Issue Certification

Willard C. Hoaneshelt, P.E. Florida P.E. No. 42593

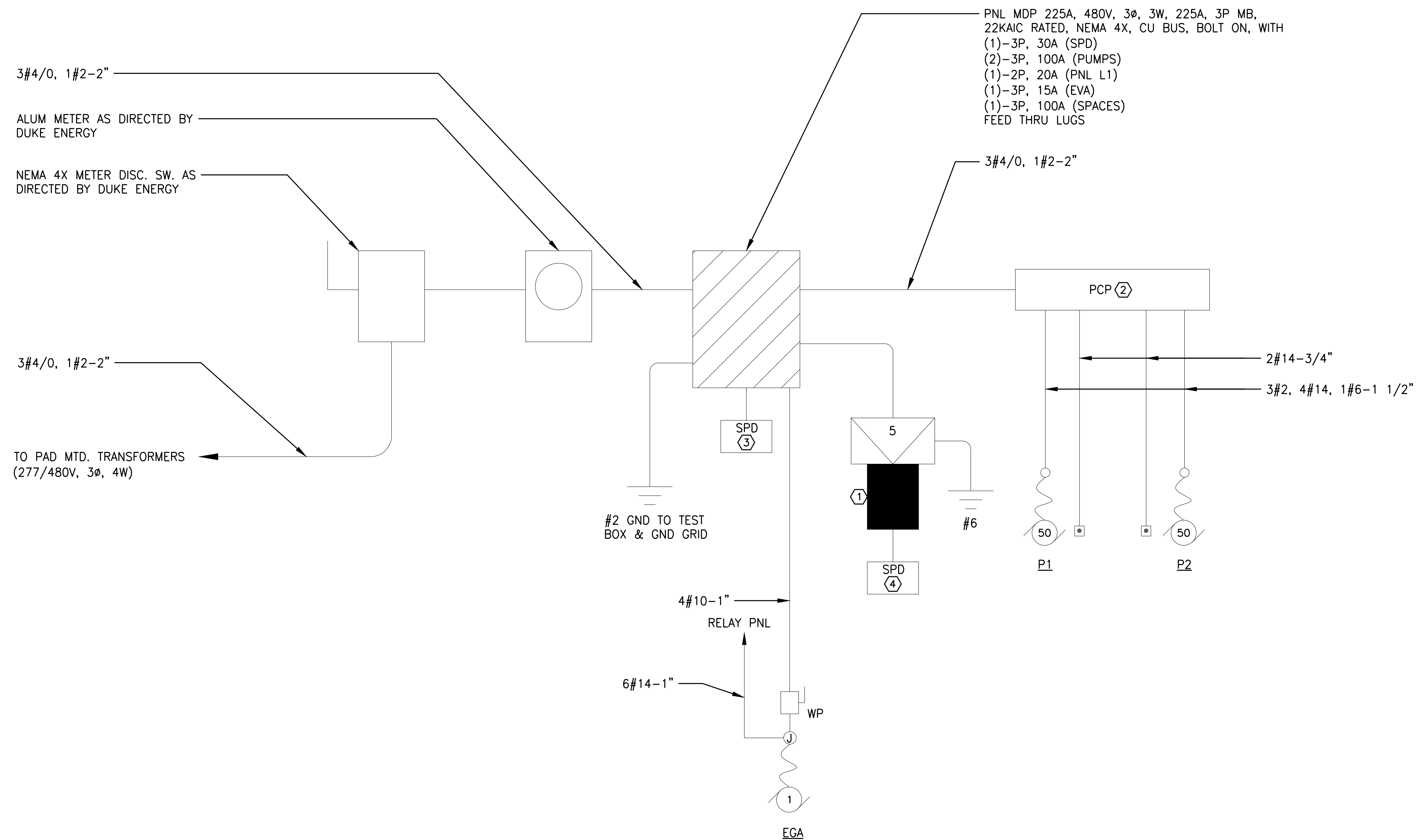
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Drawn	WCH
Checked	WCH
Reviewed	SWH
Approved	WCH

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION
 ELECTRICAL
ELECTRICAL SITE PLAN

PROJECT NO.:	1910
SCALE:	NOTED
REVISION:	C
DRAWING NO.:	E01
SHEET NO.:	19 OF 22

RE
 REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT.
 WINTER SPRINGS, FL 32708
 (407) 679-5358

Parent Sheet Set: 1910-SJR-WMD Lk. ApRelayP&B1 by: JAY MILLER Rev on: 5/16/2019 11:38 AM Individual File Path: R:\Projects\1910 - Lake Apopka N. Shore Phase 4 PS\Design\Drawings\FinalDesign\E02.dwg



Electrical Load Calculations			
Lake Apopka North Shore PS			
Available Voltage: 277/480V, 3Ø, 4W			
Maximum Available Fault Current = _____ Amperes			
Load	Phase A Amps	Phase B Amps	Phase C Amps
Pump #1 50HP	65	65	65
Pump #2 50 HP	65	65	65
Misc. Controls (At 480 Volts)	1	1	
25% Largest Motor	16	16	16
	-	-	-
Total	147	147	146
NEC Service Size = 200A			

- SHEET NOTES**
- ① PNL L1 MINI POWER ZONE 5KVA, 480-120/240V, 1Ø, 3W 316SST, WITH (1)-2P, 20A (SPD) (5)-1P, 20A (LTG, RECPT, RTU & SPARES)
 - ② CUSTOM CONTROL PNL FURNISHED WITH PUMPS
 - ③ 150KA/MODE, NEMA 4X
 - ④ 50KA/MODE, SINE WAVE TRACKING NEMA 4X

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 5742 River Bed Road
 Groveland, FL 34736
 COA# 6160 (407) 322-0500



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A	03/2019	60% DRAWINGS	WCH

Issue Certification
 Willard C. Hoanshell, P.E.
 Florida P.E. No. 42593

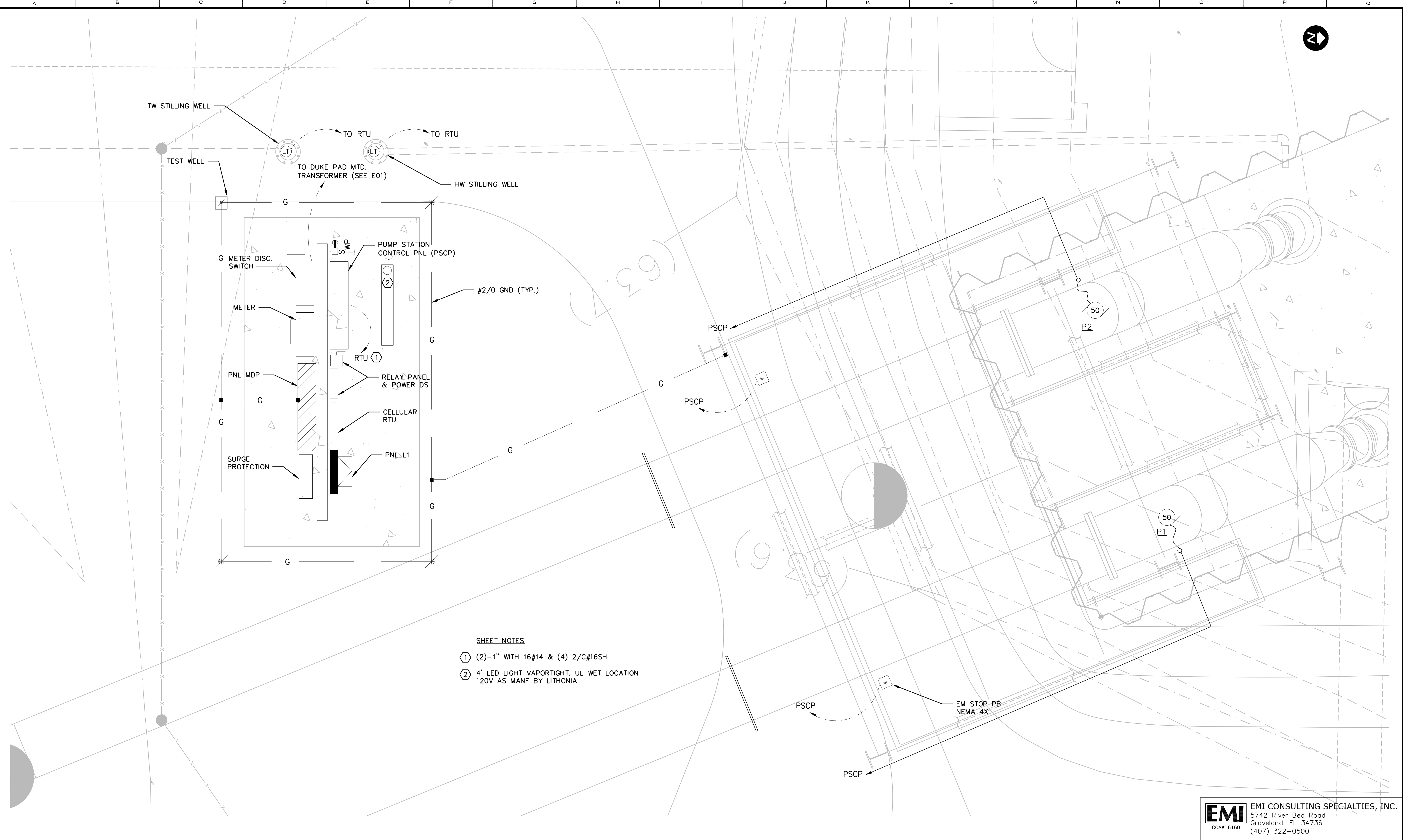
Designed _____ WCH
 Drawn _____ WCH
 Checked _____ WCH
 Reviewed _____ SWH
 Approved _____ WCH

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION
 ELECTRICAL
POWER RISER

PROJECT NO.: 1910
 SCALE: NOTED
 REVISION: C
 DRAWING NO. E02
 SHEET NO.: 20 OF 22

RE
 REISS ENGINEERING, INC.
 1016 SPRING VILLAS PT.
 WINTER SPRINGS, FL 32708
 (407) 679-5358

Parent Sheet Set: 1910 - SJRWMD Lk. ApRwvSP01 by: JAY MILLER Rev on: 5/28/2019 7:10 AM Individual File Path: R:\Projects\1910 - Lake Apopka N. Shore Phase IV PS\Design\Drawings\FinalDesign\E03.dwg

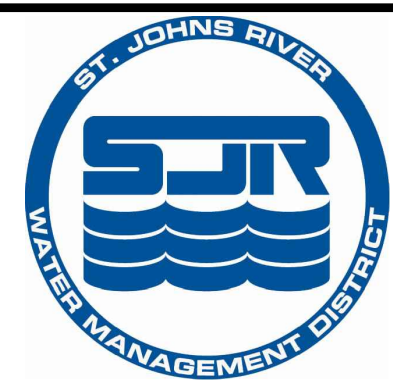


SHEET NOTES

① (2)-1" WITH 16#14 & (4) 2/C#16SH

② 4' LED LIGHT VAPORTIGHT, UL WET LOCATION 120V AS MANF BY LITHONIA

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 5742 River Bed Road
 Groveland, FL 34736
 (407) 322-0500
 COA# 6160



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B	04/2019	90% DRAWINGS	WCH
A	03/2019	60% DRAWINGS	WCH

Issue Certification

Willard C. Hoaneshelt, P.E.
 Florida P.E. No. 42593

Designed SWH
 Drawn AJM
 Checked DAY
 Reviewed JRV
 Approved SWH

LINE IS 1" AT FULL SIZE

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LAKE APOPKA NORTH SHORE PHASE 4 PUMP STATION

ELECTRICAL

PUMP STATION PLAN

PROJECT NO.: 1910

SCALE: NOTED

DRAWING NO. E03

REVISION: C

SHEET NO.: 21 OF 22



