GENERAL NOTES:

APPLICABLE BUILDING CODE

All construction and workmanship shall conform to the 2022 California Building Code, California Code of Regulations – Title 24, Parts 1 & 2.

This pole and foundation standard has been designed for lateral loads on the completed structure as follows:

Wind Design Data:
- Vult = 93 MPH (Exposure C); Vasd = 72 MPH (Exposure C)
- Risk Category = II
- See Pole Foundation Schedule for maximum pole wind forces.

Seismic Design Data:
- I_e = 1.0
- Risk Category = II (Self Supporting Poles)
- S_s = 0.632
- S_1 = 0.261
- Site Class = D
- S_{DS} = 0.546
- S_{D1} = 0.362
- Seismic Design Category = D
- Basic Seismic–Force–Resisting System = Non–Building Structure, not similar to buildings
- Cs = 0.205 (STRENGTH LEVEL)
- R = 1.5
- Ω = 1.5
- Analysis Procedure = Equivalent Lateral Force Procedure
- See Pole Foundation Schedule for maximum pole seismic forces.

GENERAL CONSTRUCTION

These notes shall be used in conjunction with the plans and any discrepancies shall be brought to the attention of the Registered Design Professional (RDP) in Responsible Charge.

Contractor must check all dimensions, clearances and job conditions before starting work. The RDP in Responsible Charge shall be notified immediately of any discrepancies or possible deficiencies.

The drawings and specifications represent the finished structure. All bracing, temporary supports, shoring, etc., is the sole responsibility of the Contractor. Observation visits to the job site by the RDP in Responsible Charge do not include inspection of construction procedures. The Contractor is solely responsible for all construction methods and for safety conditions at the worksite. These visits by RDP in Responsible Charge shall not be construed as continuous and detailed inspections.

Design, material, equipment, and products other than those described below or indicated on the drawings may be considered for use, provided prior approval is obtained from the School District, the RDP in Responsible Charge, and DSA.

All changes to the approved plans after a contract for construction has been awarded, affecting structural, access or life–safety portions of the project, shall be made by means of construction change documents (CCD) approved by DSA, as required by Section 4–338, Part 1, Title 24, CCR. All CCD shall be prepared and signed by the RDP in general Responsible Charge.

Substitutions shall be considered as a CCD and shall be approved by DSA prior to fabrication or use.

A Class 1 or Class 2 Project Inspector employed by the School District (Owner) and approved by DSA shall provide continuous inspection of the work, the duties of the Inspector are defined In Section 4–342, Part 1, Title 24, CCR.

All Tests And Inspections shall be performed by an Independent lab employed by the School District and approved by DSA.

Reference pole location on the Architectural, Structural, and/or Electrical drawings for actual pole placement and site location. Pole shall be located 5'–0" min. from adjacent structures below 50'–0" A.G.L., unless noted otherwise.

LIGHT POLE FOUNDATIONS

Reference geotechnical report prepared by Terracon, Dated June 19, 2023; Project no. NA235016 and addendum report dated October 10, 2023.

Assumed allowable end bearing soil pressure: 1,500 psf (table 1806A.2) or 250 psf skin friction (section 1810A.3.3.1.4)

Assumed allowable lateral passive soil bearing pressure: 200 psf/ft for isolated poles not adversely affected by a 0.5 inch motion at the ground surface (section 1806A.3.4).

Assumed design soil parameters are as noted. Actual allowable soil design parameters at level or sloping conditions (if any) must be verified by a geotechnical engineer.

A representative of Terracon should be available at the time of the foundation installation to verify the soil design parameters and to provide assistance if any problems arise in foundation installation.

The Contractor must familiarize himself with the complete geotechnical report, and borings and contact the above firm to understand the soil conditions and the possibility of ground water pumping and excavation stabilization or bracing during the foundation installation and placement of concrete.

Soil formations that will require special design considerations or excavation procedures may exist. Pole foundations may need to be reanalyzed according to the soil conditions that exist.

If any discrepancies or inconsistencies arise, notify the RDP in Responsible Charge of such discrepancies.

All piers and concrete must bear on and against firm undisturbed soil as determined by the Geotechnical Engineer.

Place plywood collar around perimeter at the top of foundation excavation to prevent soil from entering pier.

All excavations must be free of loose soil, and debris prior to foundation installation and placement of concrete. Casing or drilling slurry may be required if caving occurs. Review and approval of the Geotechnical Engineer and DSA is required.

All excavations must be free of water or concrete shall be placed by the Tremie Method in accordance with ACI standard 336. Concrete placed by the Tremie Method shall have a minimum ultimate strength of 1,000 PSI greater than required under "Concrete Cast–In–Place' and a maximum slump of 8".

CONCRETE (CAST–IN–PLACE)

Concrete pier foundations with steel reinforcement shall attain a minimum ultimate compressive strength at 28 day test of 3,000 psi. Batch plant inspection not required.

All concrete shall attain a minimum strength of 2,500 psi prior to steel pole erection.

Use Type II/V Portland cement or as directed by the Geotechnical Engineer.

Portland Cement ASTM C–150.

Aggregate ASTM C–33. 1" maximum aggregate size. 3/8" max agg. size not permitted.

Mix in conformance with ASTM C–94, ACI 318 SECTIONS 19.3 and 26.4.

Place concrete immediately after completion of excavation and inspection by the Geotechnical Engineer and the DSA Inspector. Under no circumstances shall piers be allowed to remain open for more than 12 hours without the approval of the Geotechnical Engineer. Excavations shall be covered and protected until filled with concrete.

Concrete shall be placed in one continuous operation (no construction joint) with special equipment to assure a maximum freefall of 5 ft and to prevent concrete from striking the sides of the excavation. Freefall of concrete is unacceptable through water or drilling slurry.

Vibrate concrete full depth, except for concrete with slump greater than 6", then vibrate only upper 10'–0". Concrete placed under water shall have a slump of 6"–8".

STEEL POLE

Steel pole sections conform to the California Code of Regulations T.24, Part 2, Chapter 22A.

All steel conforms to referenced ASTM specifications. (See Pole Data Table for each pole type).

All weldment conforms with AWS D1.1–15 specification for GMAW fillet utilizing E70S–X filler metal or SAW fillet utilizing F7XX–EXXX or F8XX–EXXX filler metal.
GMAW procedure conforms to AWS A5.18.
SAW procedure conforms to AWS A5.23.

Longitudinal seam welds for pole sections shall have 60% minimum penetration; Except longitudinal seam welds on the female section of telescopic field splices shall be full penetration groove welds for a length equal to the minimum splice length plus 6 inches. See drawing number MD1 for seam weld details.

Pole sections hot dipped galvanized to ASTM A123 latest standards.

All miscellaneous structural steel items conform to AISC 360–16.

Steel pole sections shall be assembled in the field by attaching two 1.5 ton "come alongs" to jacking ears, using full effort on each simultaneously, to ensure minimum overlaps as indicated on the "MS" sheet(s) and detail G/MD1.

PRECAST BASE

The precast concrete base conforms to California Code of Regulations, T.24, part 2, Chapter 19A and to Building Code Requirements for Reinforced Concrete, ACI 318–19. Precast bases are an ICC approved product under ESR–3765.

See detail "A" on "MS" sheet(s) for material strengths and specifications.

TESTING AND INSPECTION

Testing and inspection in accordance with Title 24, Part 1 & Part 2 & project DSA 103 form.

EXCAVATIONS & FOUNDATIONS:
- Inspection of cast–in–place deep foundations – 1705A.8 & Table 1705A.8

CONCRETE MATERIALS: 1903A.1
- Portland cement – 1910A.1
- Concrete aggregates – 1903A.5
- Reinforcing bars – 1910A.2 & DSA IR 17–10
- Prestressing steel and anchorages – 1910A.3

CONCRETE QUALITY:
- Proportions of concrete – Reference ACI 318 Section 26.4.3.1 Through 26.4.4.1.
- Strength tests of concrete – 1905A.1.17 and ACI 318 Section 26.12 & 26.5.3.2.

CONCRETE INSPECTION: 1705A.3 & Table 1705A.3
- Job site – Reference ACI 318 Section 26.5.1,26.5.2.1(a) & (b),26.6.1.2(d), 26.11.1.1(a).
- Batch Plant Inspection Not Required – 1705A.3.3.2
- Prestressed concrete – 1704A.2.5, 1705A.3.4

STEEL MATERIALS:
- Structural steel – 2202A.1 & 2205A.1
- Cold formed steel – 2210A.1
- Identification – 2202A.1

STEEL QUALITY:
- Tests of structural steel & cold formed steel – 2202A.1

STRUCTURAL STEEL INSPECTIONS: Table 1705A.2.1
- Shop fabrication inspection – 1704A2.5
- Welding – 1705A.2.5, DSA IR 17–3 and AWS D1.1.
- (NOTE: ALL WELDING SHALL BE CONTINUOUSLY INSPECTED BY AN AWS CWI CERTIFIED INSPECTOR APPROVED BY DSA)

These plans are for construction approval. An application number and approval of these drawings by the Division of The State Architect of California must be secured to build from these plans.

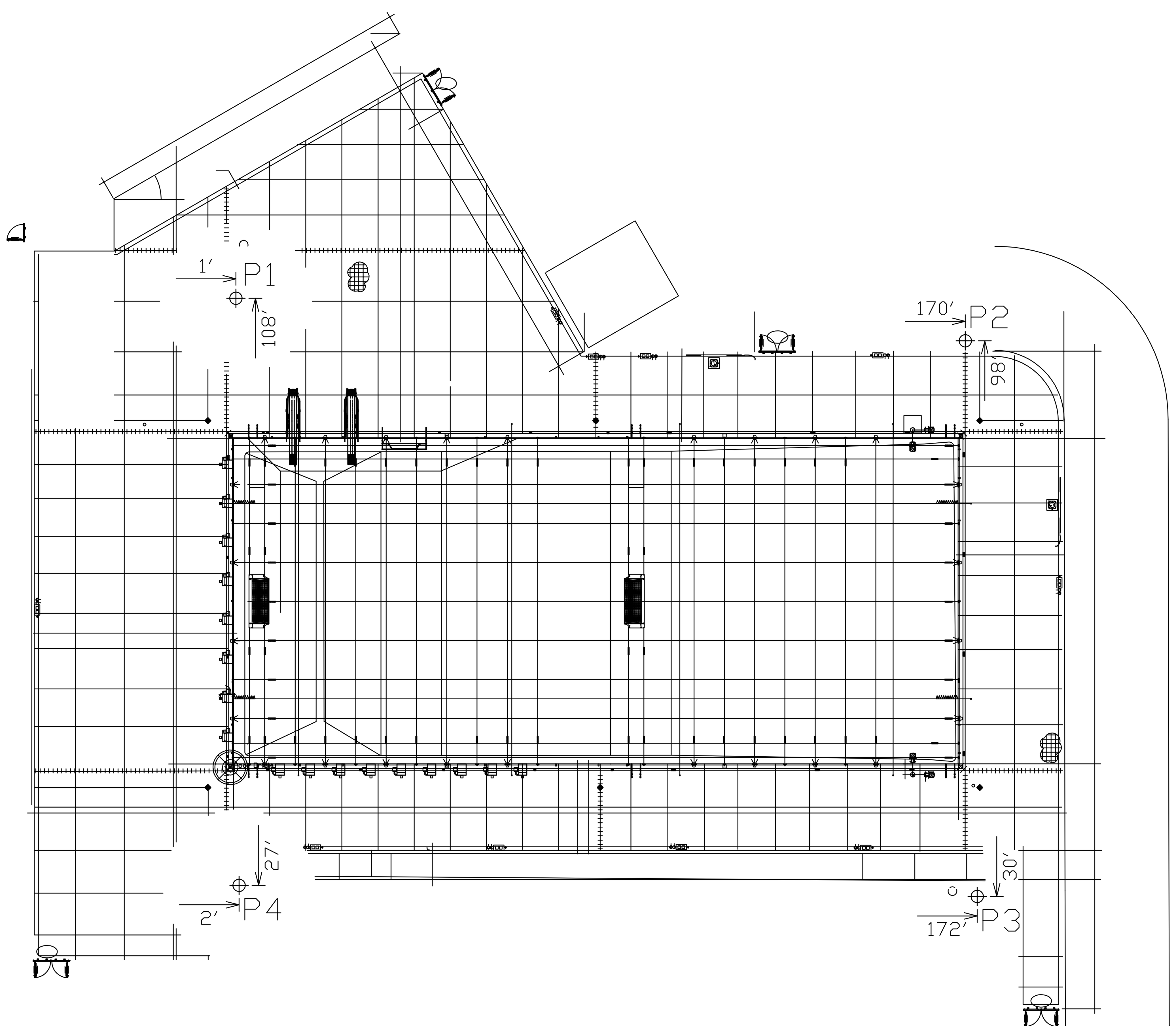
INDEX OF SHEETS

Tokay HS Pool
FIELD LIGHTING
Lodi CA

REGISTERED PROFESSIONAL ENGINEER
No. 4506
Exp. 6-30-25
STRUCTURAL
STATE OF CALIFORNIA

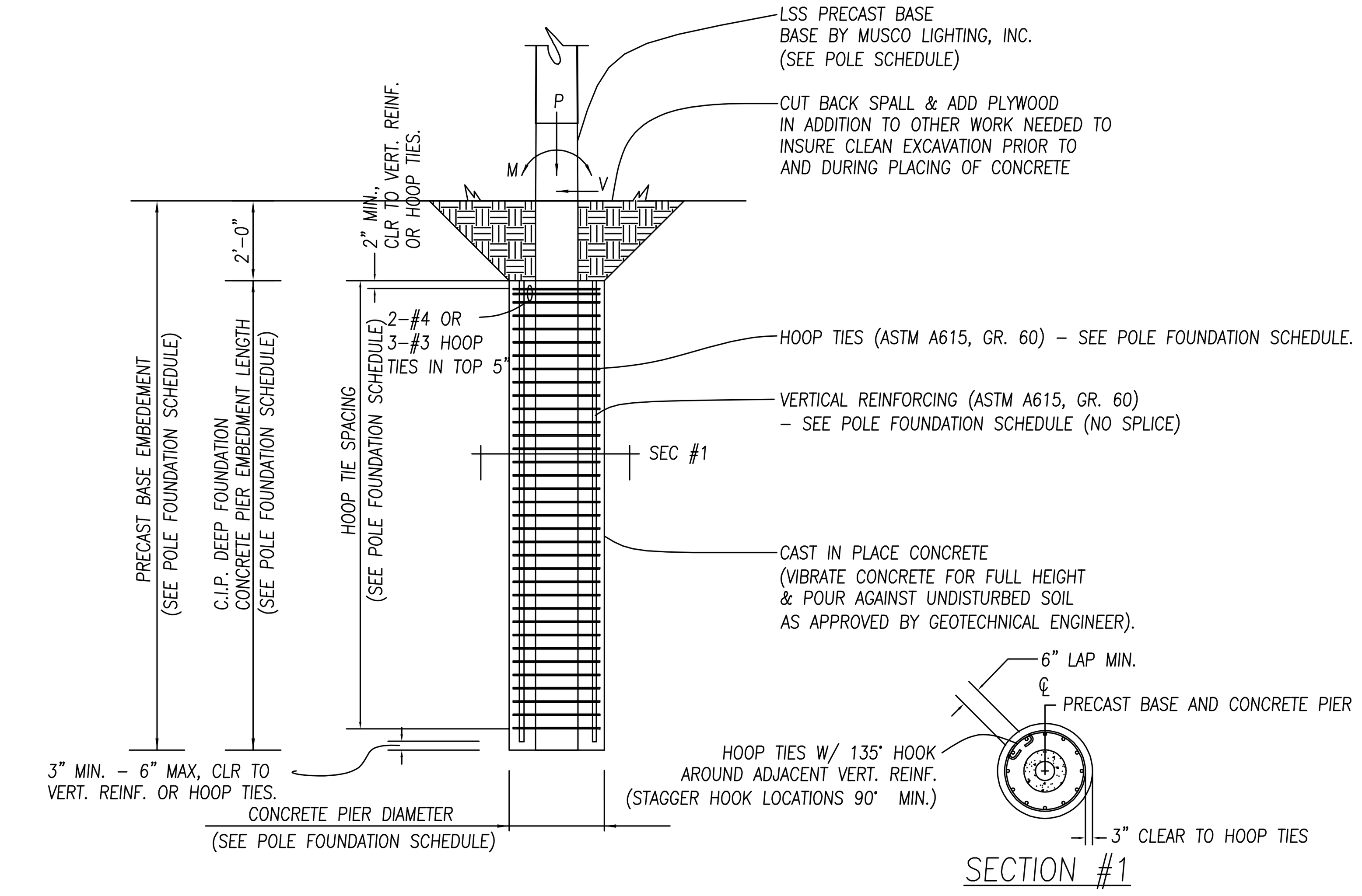
CONSULTANT
rtm
engineering consultants

CORPORATE OFFICE:
P.O. Box 808
100 1st Avenue West
Oskaloosa, Iowa 52577
800/825–6020



POLE ORIENTATION PLAN
N.T.S.

NOTE: THIS PLAN IS A PICTORAL REPRESENTATION OF THE SITE LAYOUT. REFERENCE APPROPRIATE ARCHITECTURAL SITE PLAN FOR ALL NECESSARY INFORMATION.



A REINFORCED FOUNDATION DETAIL
N.T.S. DSA–A2–CASFND_A

POLE FOUNDATION SCHEDULE

POLE TYPE–# OF FIXTURES (MAX) (LSS=LIGHT STRUCTURE)	MARK (SEE POLE ORIENTATION PLAN)	WIND OR SEISMIC (SEISMIC FORCE INCLUDES OVERSTRENGTH FACTOR=1.5)	ASD LEVEL FORCES (MAX)			C.I.P. DEEP FOUNDATION				PRECAST BASE
			MOMENT (M) FT–LBS*	SHEAR (V) LBS	VERTICAL (P) LBS**	DIAMETER INCHES	EMBEDMENT FEET (SEE NOTE BELOW)	VERTICAL REINFORCING (ASTM A615, GR 60)	HOOP TIE SIZE & SPACING (ASTM A615, GR 60)	EMBEDMENT FEET
LSS60A–3	P1–P4	SEISMIC	15,800	417	1,933	36"	8'–0"	8–#8	#4 @ 6" O.C.	10'–0"
		WIND	34,800	834	1,143					

*Moment (M) computed below grade at Shear (V) = 0.
**Vertical (P) load includes steel pole, light fixtures, and attachments. Vertical (P) load for wind is the dressed pole weight for erection purposes. Vertical (P) load for seismic also includes weight of precast base above groundline. Reference Detail "A" on MS Sheet(s) for precast base weight.
Note:
Final Embedment to be determined in the field by the Geotechnical Engineer of Record

DRAWING TITLE: NOTES, FOUNDATION DETAIL
SCALE: SEE PLAN
REVISIONS:
REFERENCE:

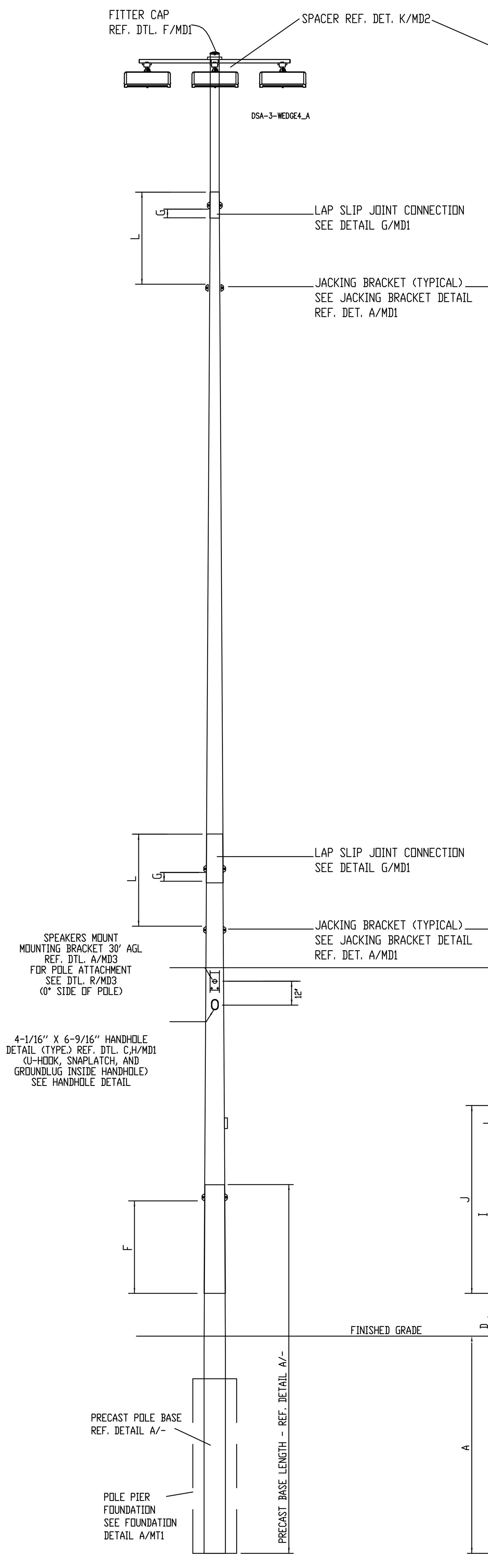
PROJECT NO. 239070

DATE: 09/09/2024

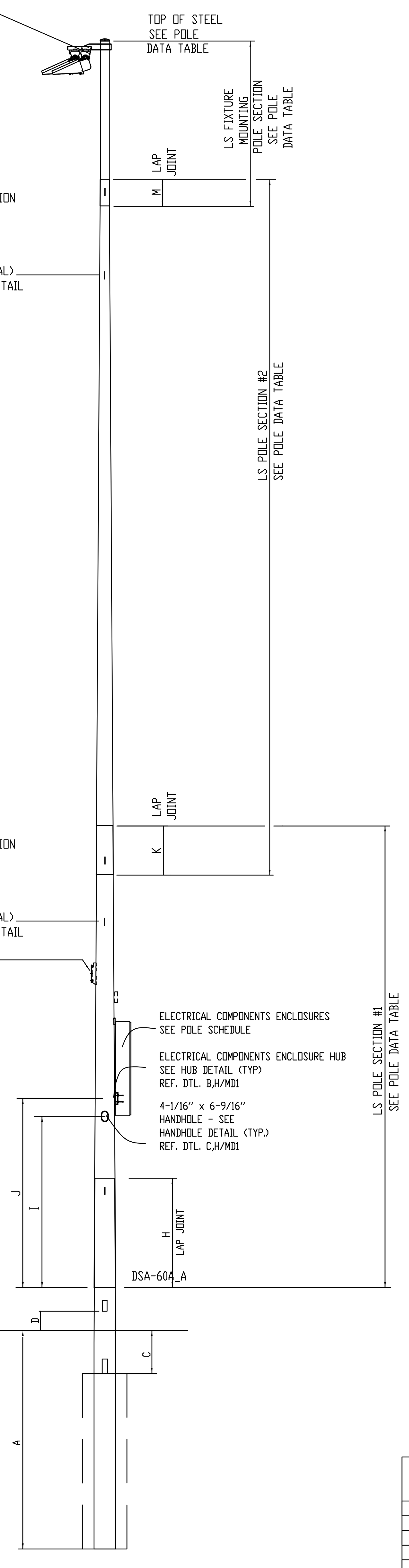
DRAWN BY: A.Rose

DRAWING NO. MT1
1 OF 5

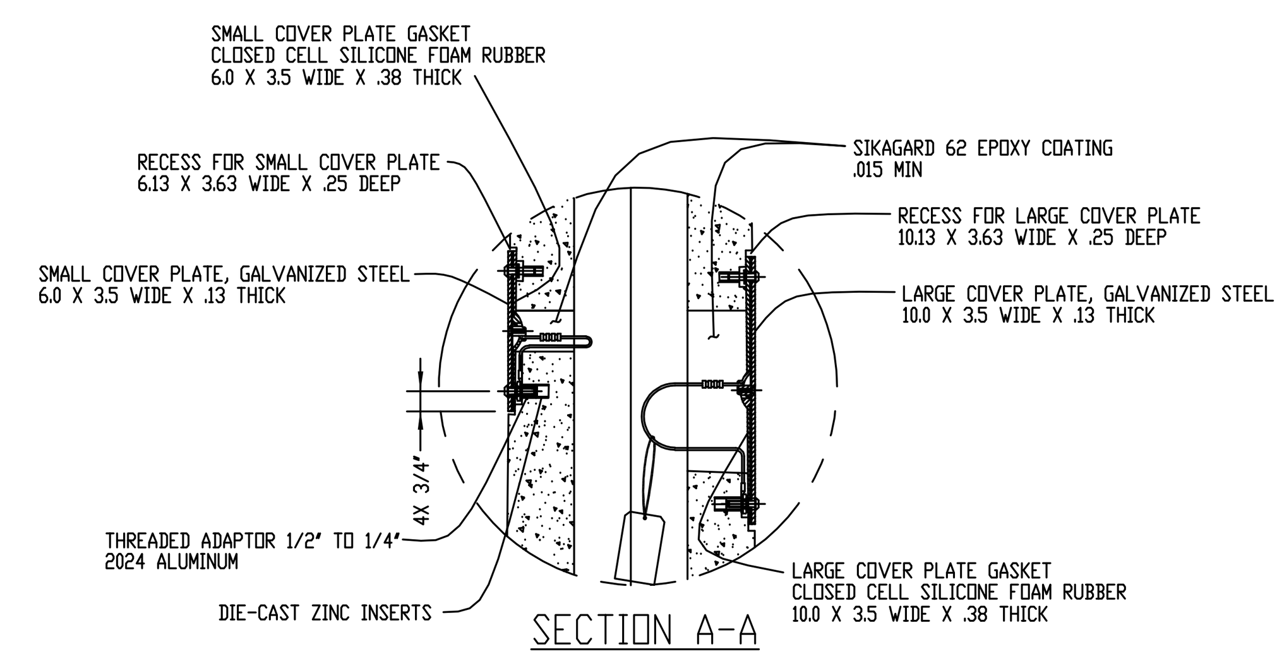
DSA–TITLE1_E



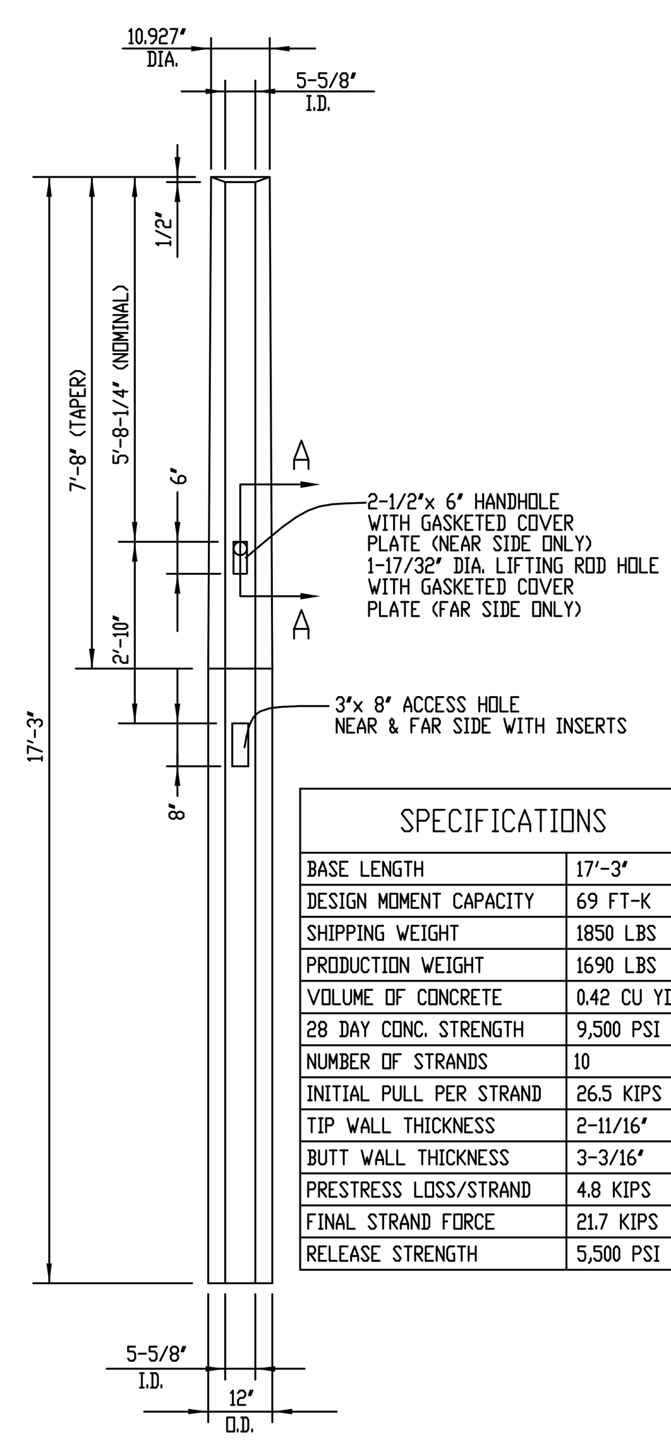
LSS60A POLE FRONT VIEW
N.T.S.



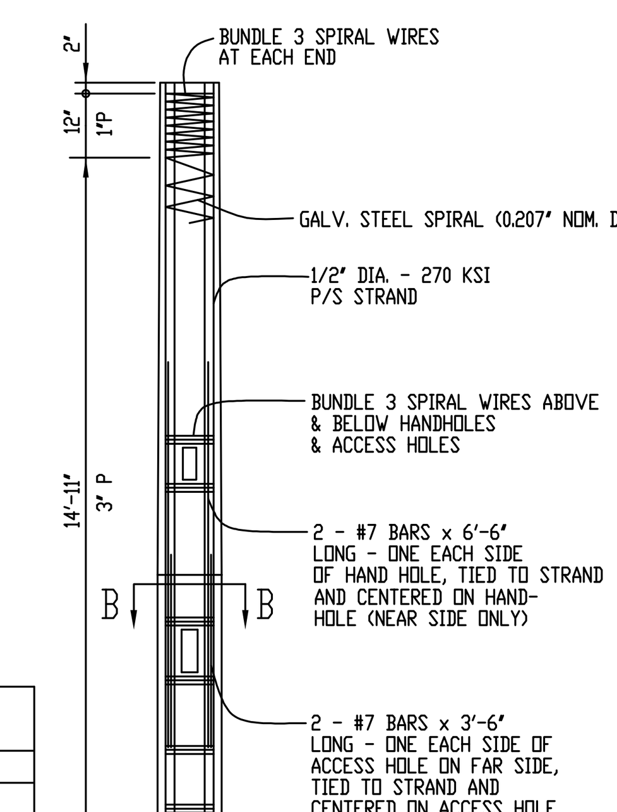
LSS60A POLE SIDE VIEW
N.T.S. DSA-60ABASE_A



SECTION A-A
DSA-2Bconc_L

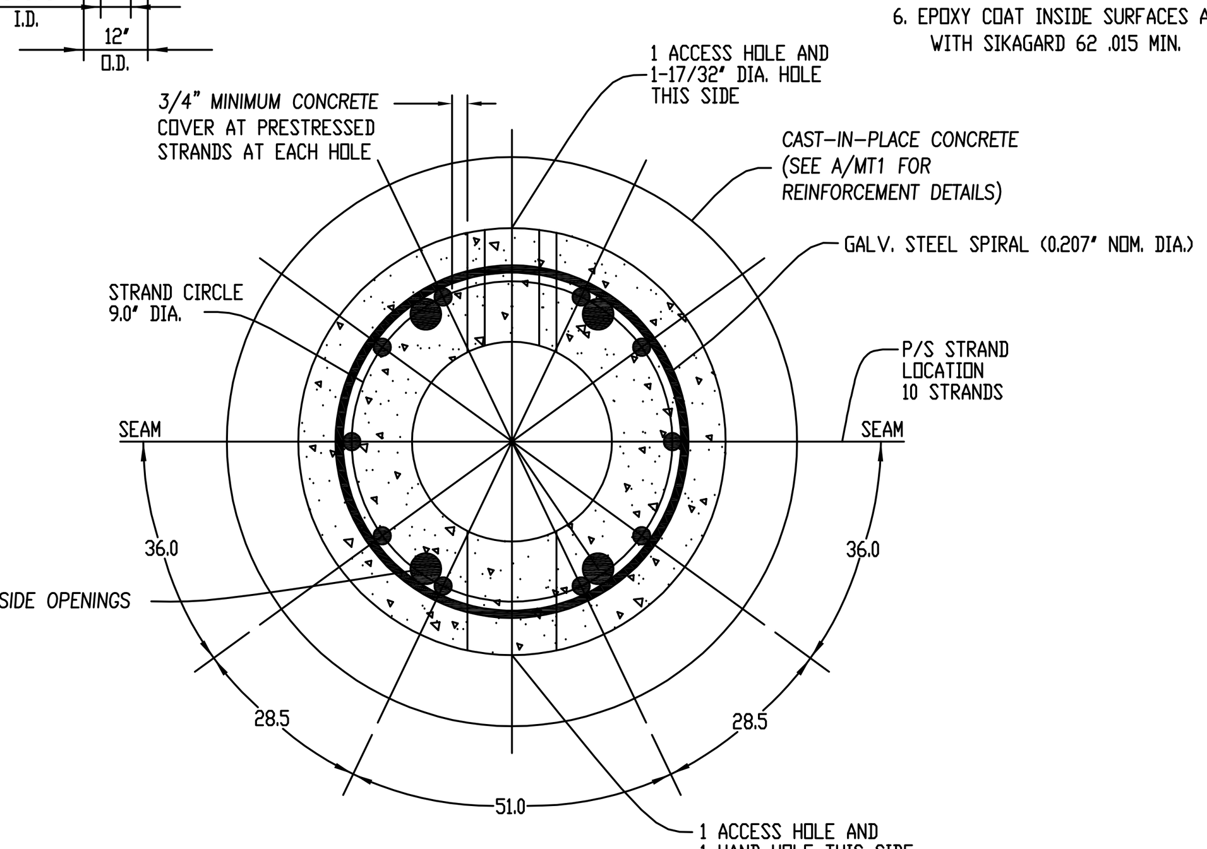


SPECIFICATIONS	
BASE LENGTH	17'-3"
DESIGN MOMENT CAPACITY	69 FT-K
SHIPPING WEIGHT	1850 LBS
PRODUCTION WEIGHT	1690 LBS
VOLUME OF CONCRETE	0.42 CU YD
28 DAY CONC. STRENGTH	9,500 PSI
NUMBER OF STRANDS	10
INITIAL PULL PER STRAND	26.5 KIPS
TIP WALL THICKNESS	2-11/16"
BUTT WALL THICKNESS	3-3/16"
PRESTRESS LOSS/STRAND	4.8 KIPS
FINAL STRAND FORCE	21.7 KIPS
RELEASE STRENGTH	5,500 PSI



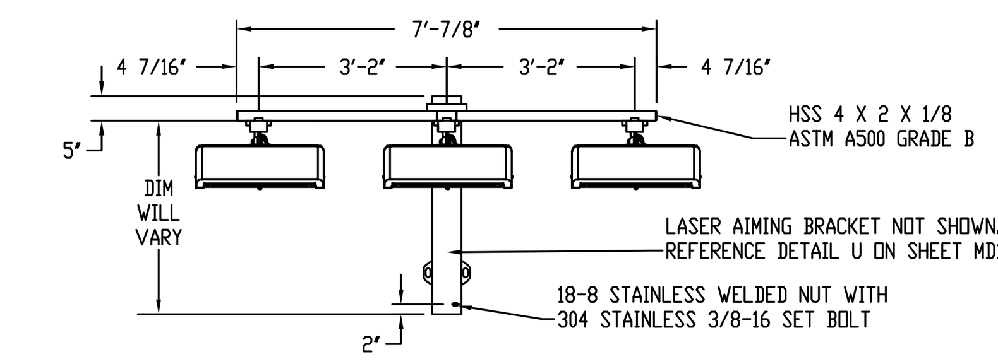
NOTES:

1. MATERIAL SPECIFICATIONS
   PRESTRESS STRAND: ASTM A416 GR 270 (LOW RELAXATION)
   MILD REINFORCING: ASTM A615 GR 60
   SPIRAL WIRE: ASTM A1064 Fy=70 KSI
   CEMENT: ASTM C150, TYPE III
   AGGREGATE: ASTM C33
   (SIZE NOT TO EXCEED 3/4")
2. EPOXY COAT ENDS OF BASE. (T AND B) WITH SIKAGARD 62
3. MARK - DATE, TYPE & "BOTTOM" NEAR BOTTOM OF BASE.
4. STRANDS TO BE PRETENSIONED - (BONDED FULL LENGTH)
5. "P" = PITCH OF SPIRALS
6. EPOXY COAT INSIDE SURFACES AT EACH HOLE WITH SIKAGARD 62 .015 MIN.

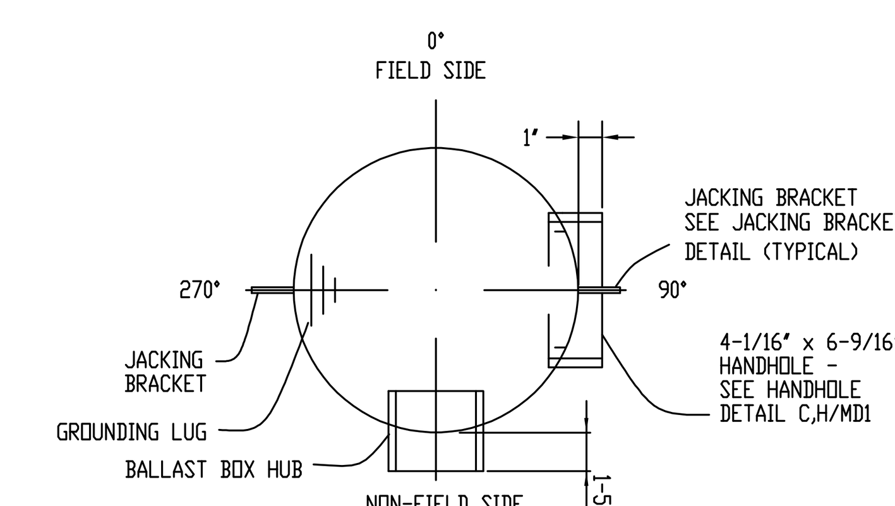


PLAN SECTION B-B

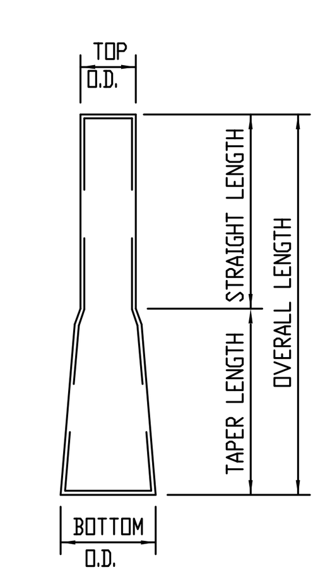
A TYPE 2B PRECAST BASE DETAIL
N.T.S. DSA-2Bconc_L



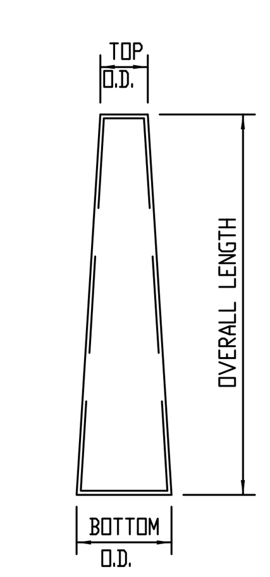
B 3 FIXTURE CONFIGURATION
N.T.S. DSA-3C-WEDGE4_A



POLE ORIENTATION
N.T.S.



FIXTURE MOUNTING POLE SECTION



TOP/MIDDLE/BOTTOM POLE SECTION

1. CONTAINS COMBINED EPA OF LIGHT FIXTURES, CROSS ARM AND MISCELLANEOUS FIXTURE MOUNTING APPARATUS.

FIXTURE WEIGHT 51 LBS. THIS INCLUDES THE WEIGHT OF FIXTURE, CROSS ARM & MISC. MOUNTING APPARATUS. ELECTRICAL BALLAST BOX WEIGHT 20 LBS PER FIXTURE SERVICED

POLE SCHEDULE

SITE LOCATION	POLE MARK	REFERENCE LOCATION	POLE TYPE	FIXTURE CONFIGURATION	TOTAL EPA[1]	BALLAST BOX REQUIREMENTS
SEE SITE PLAN (BY OTHERS)	P1-P4	SEE POLE ORIENTATION PLAN	LSS60A	3 - SEE DETAIL B/MS1	9.62	SEE DETAIL O,O/MD1

DSA-POLESCHE_C

NOTATION	DIMENSION LSS60A
A	10'-0"
C	2'-0" NOM.
D	1'-0" NOM.
F	4'-4" NOM.
G	1'-6"
H	5'-1 1/4" NOM. 4'-7 3/8" MIN.
I	7'-7 1/2" NOM.
J	8'-9 1/2" NOM.
K	3'-7 1/4" NOM. 1'-10 1/4" MIN.
L	4'-7" NOM.
M	1'-8" NOM. 11 1/2" MIN.

POLE DATA TABLE

POLE TYPE	PIECE MARK	MAX NUMBER of X-Arms	POLE SECTION	TOP O.D. (INCHES)	BTM. O.D. (INCHES)	OVERALL LENGTH	STRAIGHT LENGTH	TAPER LENGTH	THICKNESS (INCHES)	TOP OF STEEL NOMINAL	ASTM REFERENCE
LSS60A	LS-2000	1	FIXTURE MOUNTING	4.750"	5.081"	5'-3"	3'-7"	1'-8"	.120	60'-2 7/8"	A513 (Fy=38ksi)
	MP-1TOSA		#2	4.596"	9.630"	35'-11 1/2"	-----	35'-11 1/2"	.120	-----	A595A (Fy=55 ksi) or A572, Gr 55 or 65
	MP-1BT-D		#1	8.886"	12.000"	22'-2 7/8"	-----	22'-2 7/8"	.179	-----	A595A (Fy=55 ksi) or A572, Gr 55 or 65
	MP-2BDSA		PRECAST BASE	FOR PRECAST MEMBER PROPERTIES SEE PRECAST BASE DETAIL A/-							

DSA-60ADT_H

Tokay HS Pool
FIELD LIGHTING
Lodi CA

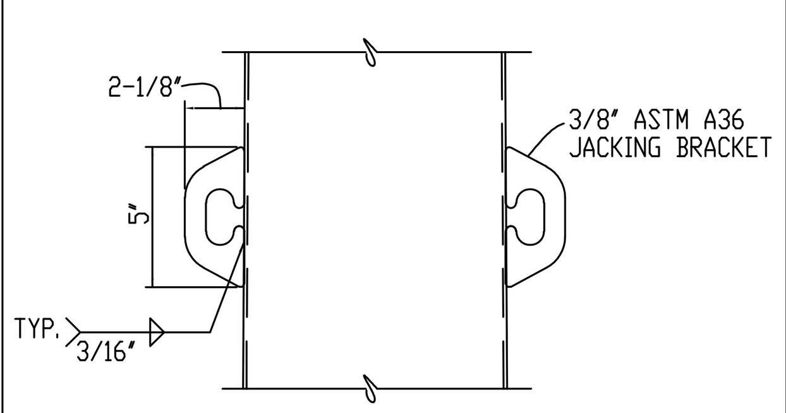
REGISTERED PROFESSIONAL ENGINEER ★ STATE OF CALIFORNIA ★ STRUCTURAL
No. 4506
Exp. 6-30-25

CONSULTANT
rtm engineering consultants
1 Ada, Suite 100, Irvine, CA 92618
Tel (949) 462-3200
WWW.RTMEC.COM
RTM JOB NO.: 463.559

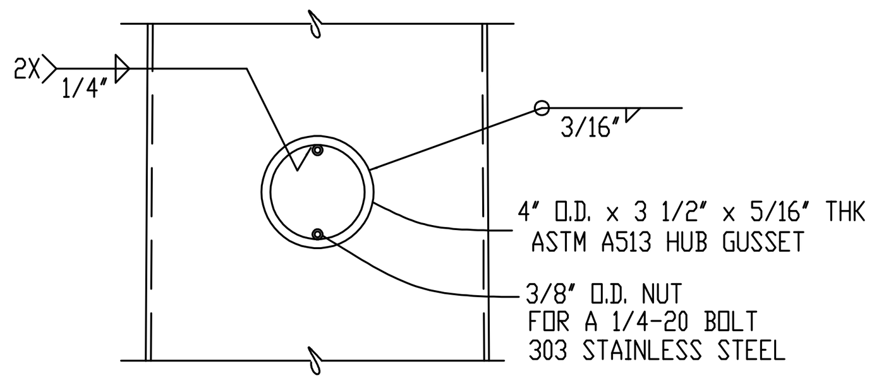
CORPORATE OFFICE:
P.O. Box 808
100 1st Avenue West
Oskaloosa, Iowa 52577
800/825-6020

DRAWING TITLE: POLE DETAIL
SCALE: SEE PLAN
REVISIONS:
REFERENCE:
PROJECT NO. 239070
DATE: 09/09/2024
DRAWN BY: A.Rose
DRAWING NO. MS1

DSA-60_A



(A) JACKING BRACKET DETAIL
N.T.S. DSA-3RDSHEET_T



(B) HUB DETAIL
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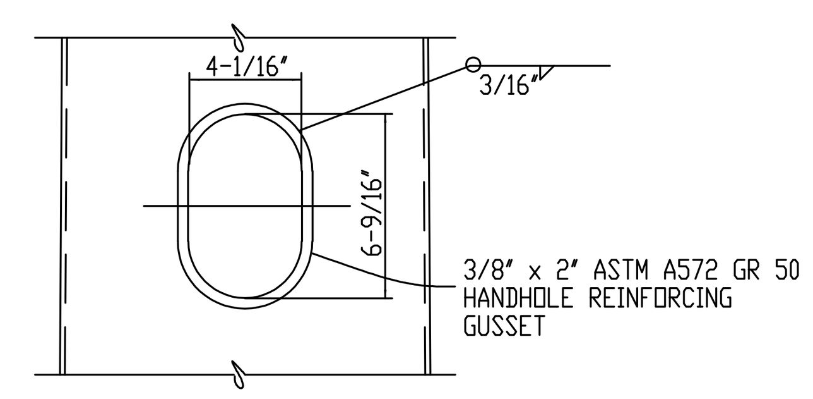

(C) HANDHOLE SLEEVE DETAIL
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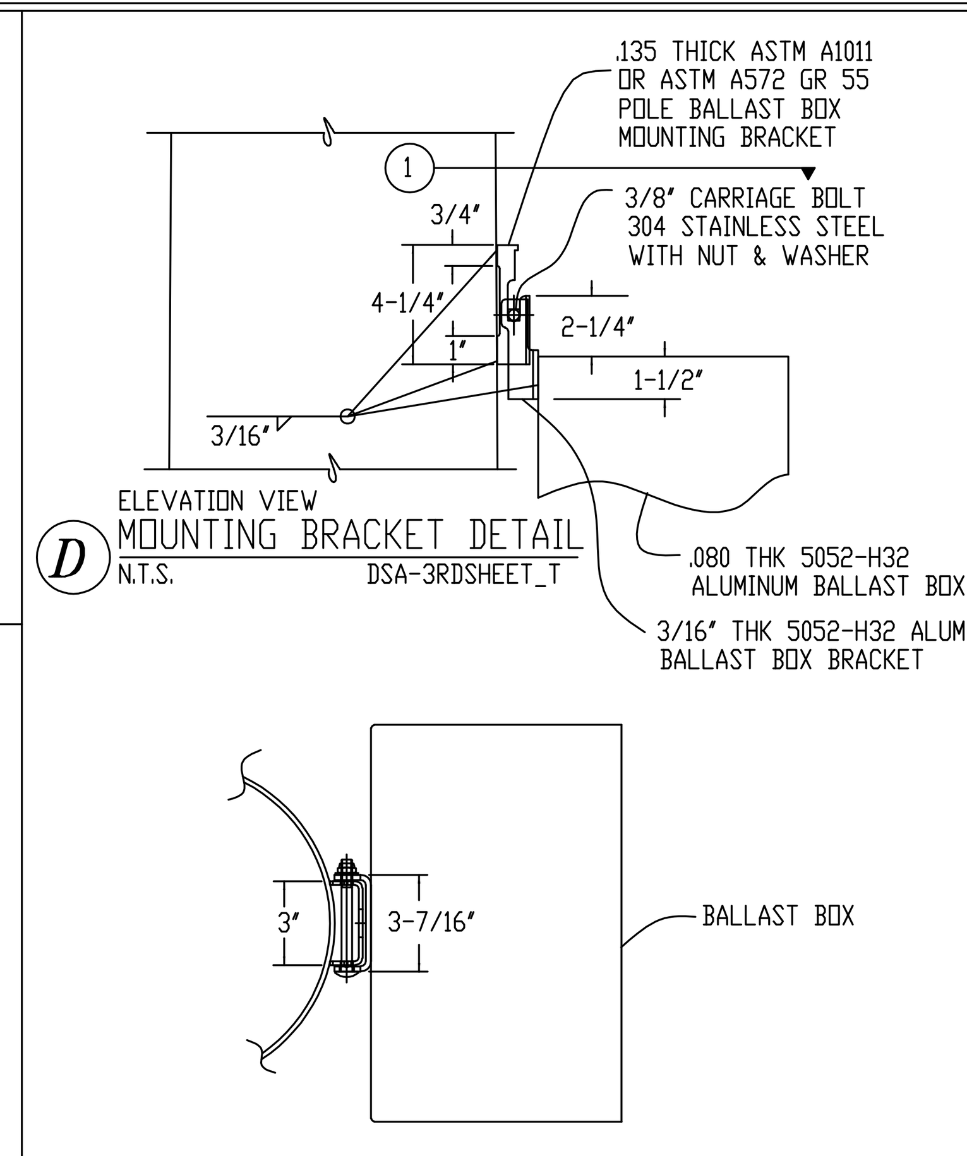
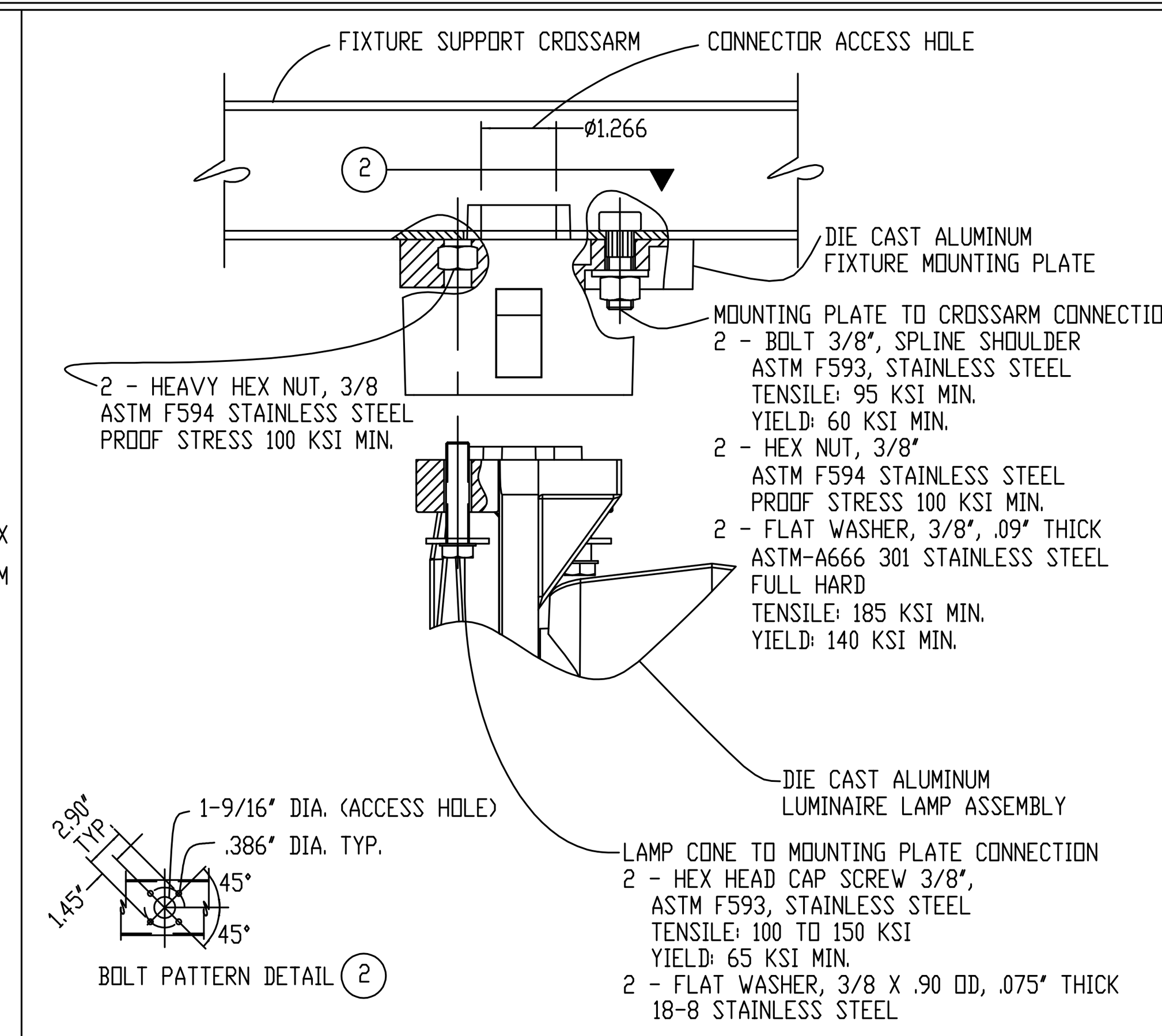


ELEVATION VIEW
(D) MOUNTING BRACKET DETAIL
N.T.S. DSA-3RDSHEET_T



(E) LUMINAIRE ATTACHMENT DETAIL
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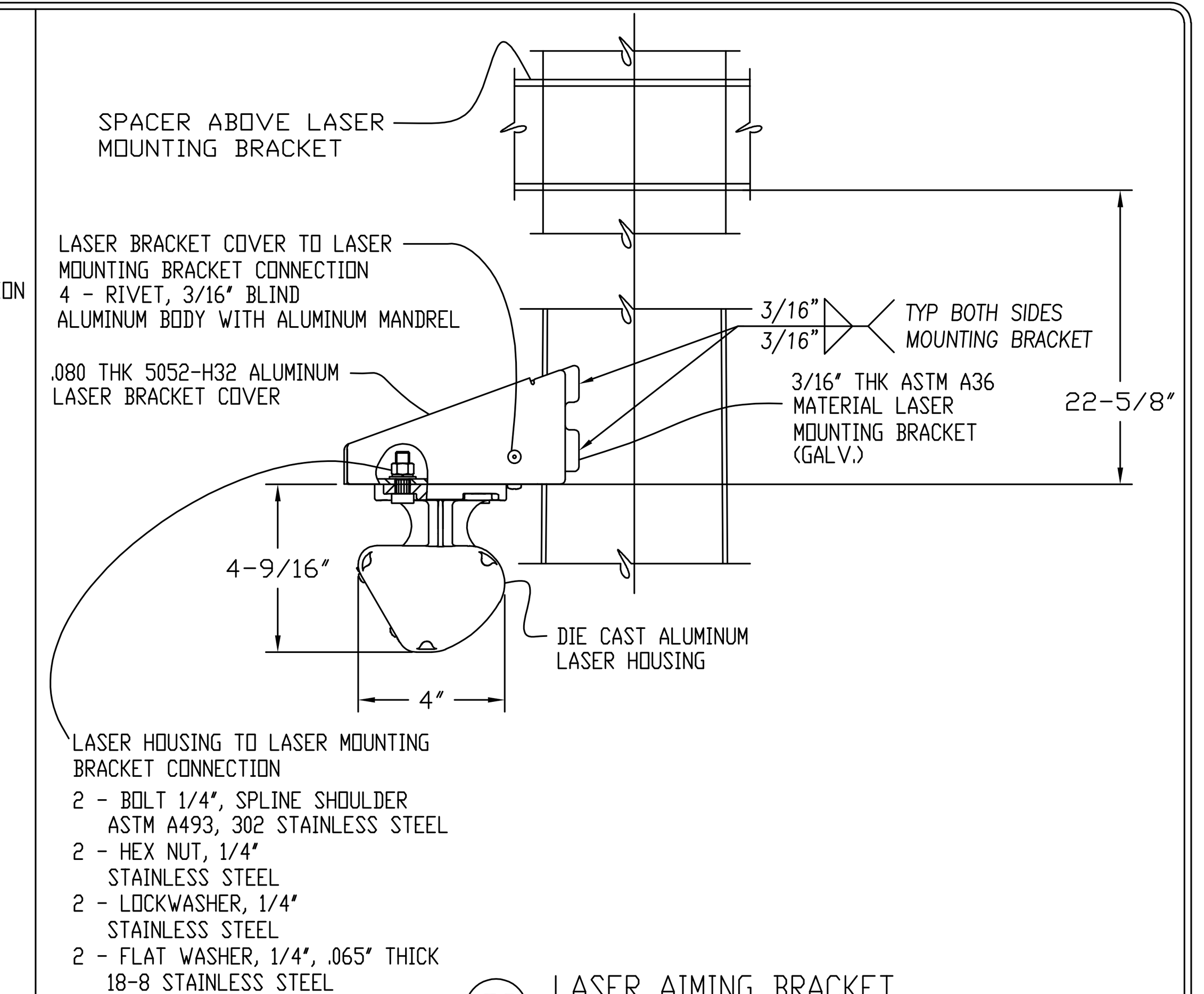
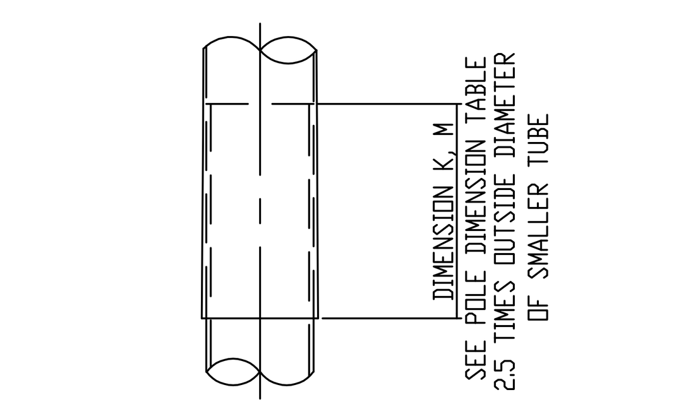
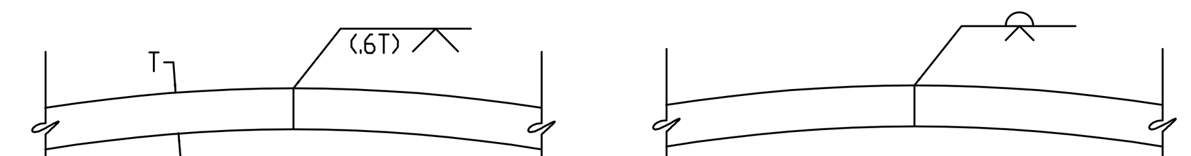


(U) LASER AIMING BRACKET
N.T.S. DSA-3RDSHEET_T



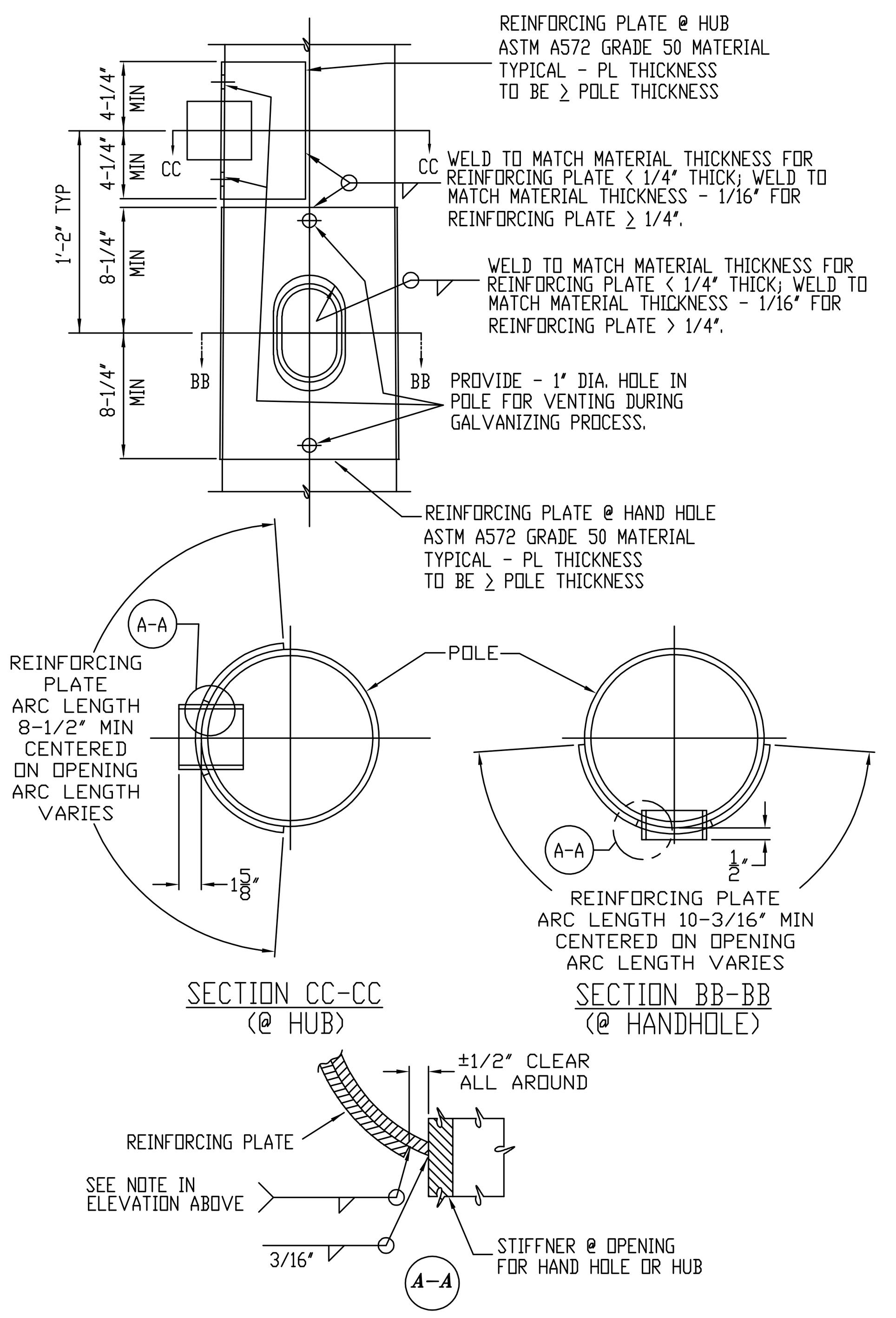
(G) SLIP JOINT CONNECTION DETAIL
N.T.S. DSA-LAP



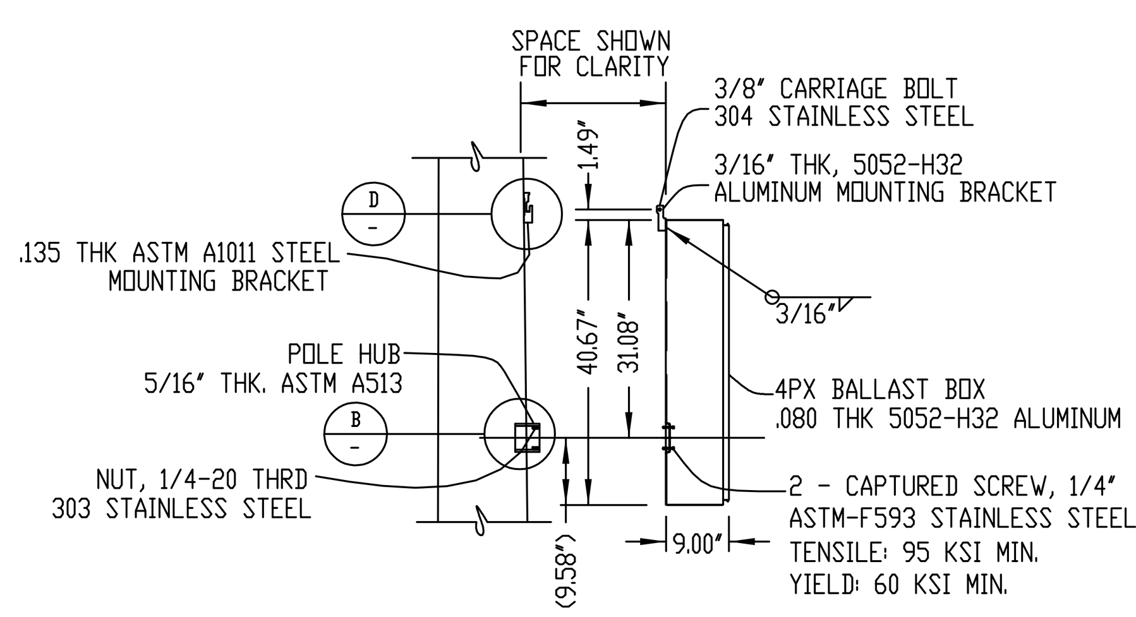
POLE LONGITUDINAL SEAM WELD DETAIL TYPICAL CONDITION *
N.T.S. DSA-3RDSHEET_T

POLE LONGITUDINAL SEAM WELD DETAIL AT LAP SPLICES (FEMALE END) *
N.T.S. DSA-3RDSHEET_T

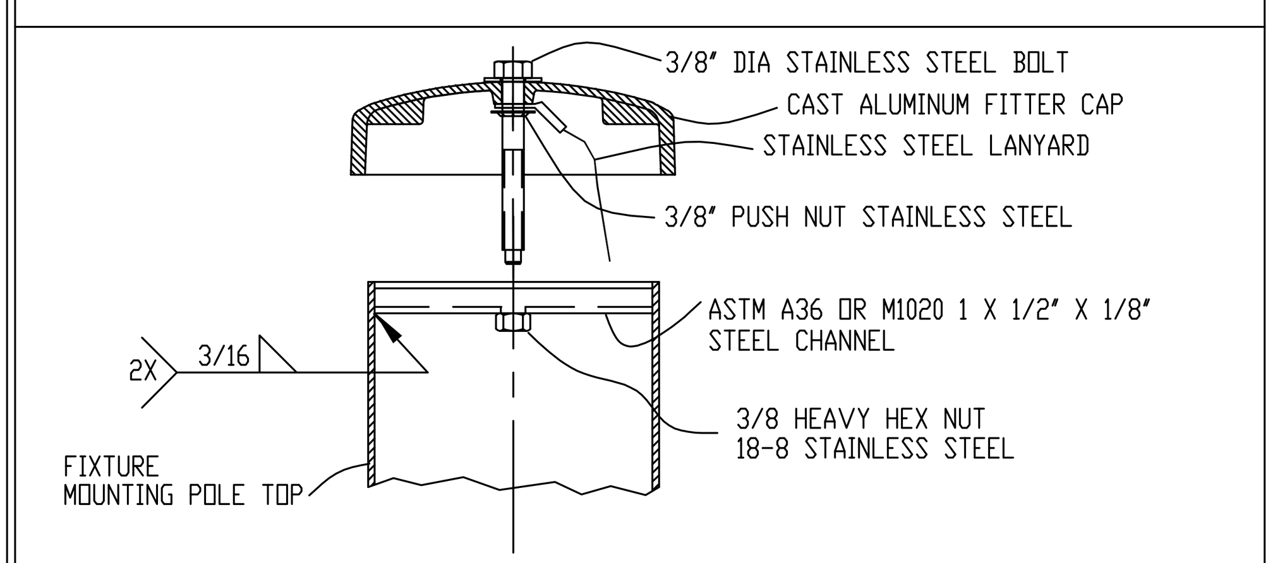
* NOTE- 100% PENETRATION SEAM WELDS MAY BE PROVIDED FULL LENGTH OF POLE SHAFTS PROVIDED WPS'S ARE QUALIFIED BY TEST.



(H) HANDHOLE/HUB REINFORCING GUSSET
N.T.S.



4PX
(O) BALLAST BOX CONNECTION DETAIL
N.T.S. STRU-4PX_E



(F) FITTER CAP DETAIL
N.T.S. DSA-3RDSHEET_T

Tokay HS Pool
FIELD LIGHTING
Lodi CA

CONSULTANT
rtm engineering consultants
RTM JOB NO.: 463.359

MUSCO Lighting

CORPORATE OFFICE:
P.O. Box 808
100 1st Avenue West
Oskaloosa, Iowa 52577
800/825-6020

DRAWING TITLE: ATTACHMENT DETAILS
SCALE: SEE PLAN
REVISIONS:
REFERENCE:

PROJECT NO. 239070

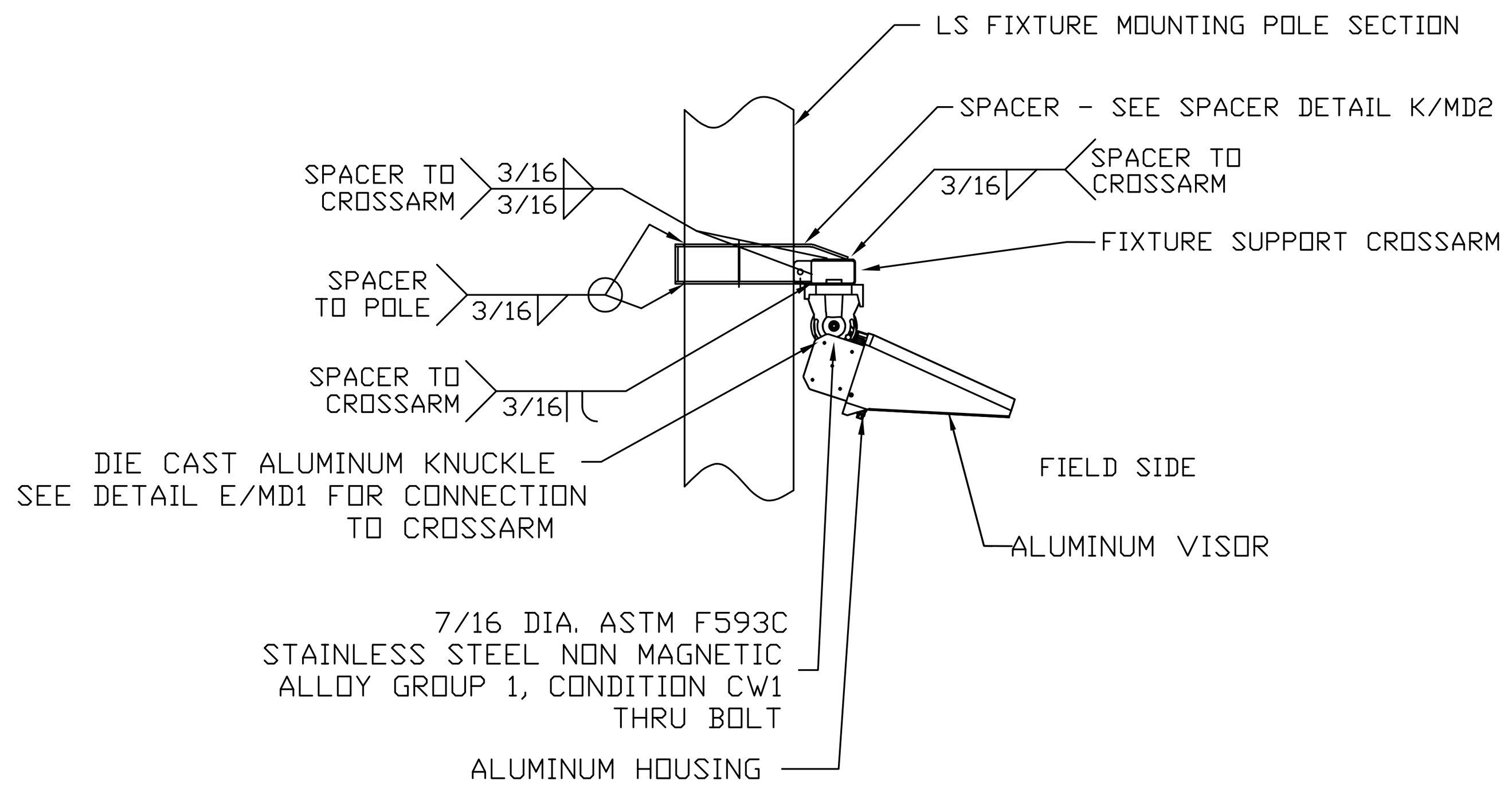
DATE: 09/09/2024

DRAWN BY: A.Rose

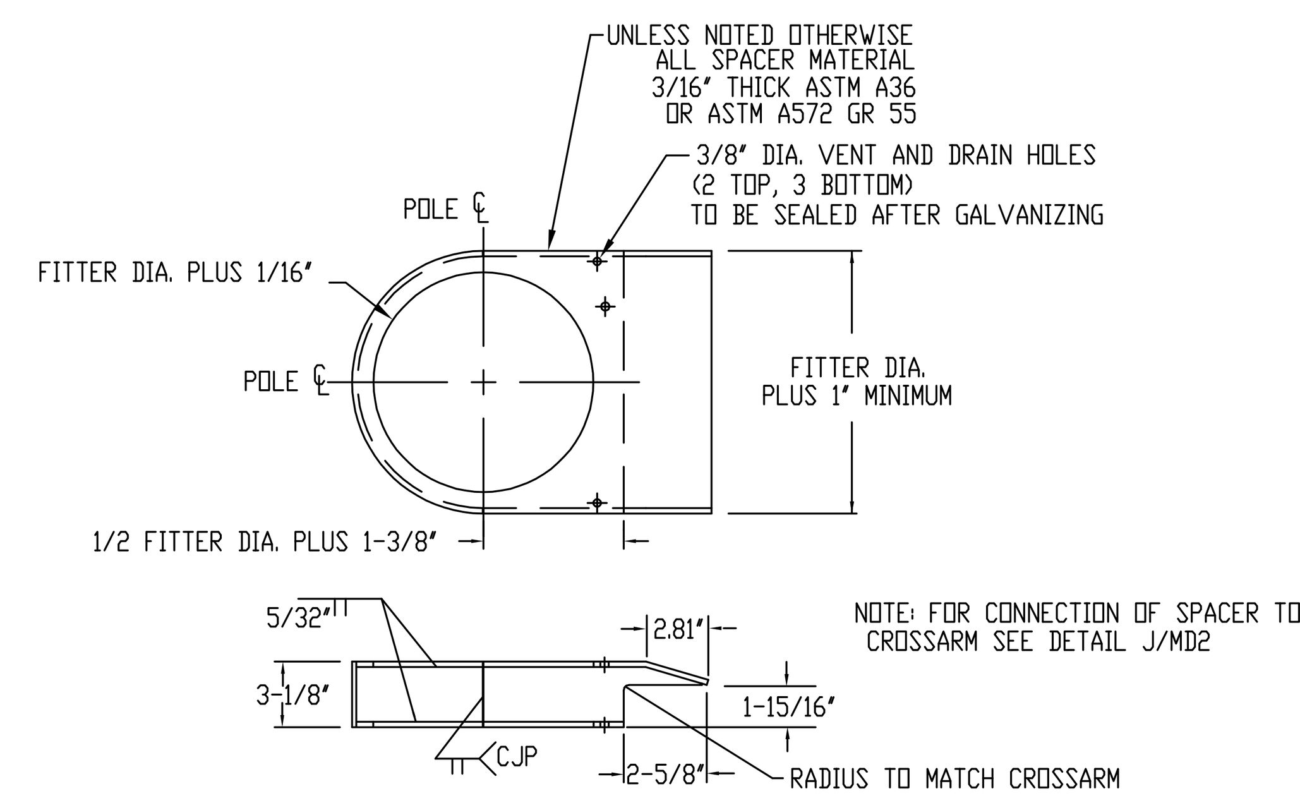
DRAWING NO. MD1

3 OF 5

STRU-MD1



J LIGHT FIXTURE (TYPICAL)
N.T.S. DSA-WEDGE4-WELDON_A



NOTE: FOR CONNECTION OF SPACER TO CROSSARM SEE DETAIL J/MD2

K SPACER DETAIL
N.T.S. DSA-SPACERWELDON_K

Tokay HS Pool
FIELD LIGHTING
Lodi CA

CONSULTANT
rtm engineering consultants

CORPORATE OFFICE:
P.O. Box 808
100 1st Avenue West
Oskaloosa, Iowa 52577
800/825-6020

DRAWING TITLE: ATTACHMENT DETAILS
SCALE: SEE PLAN
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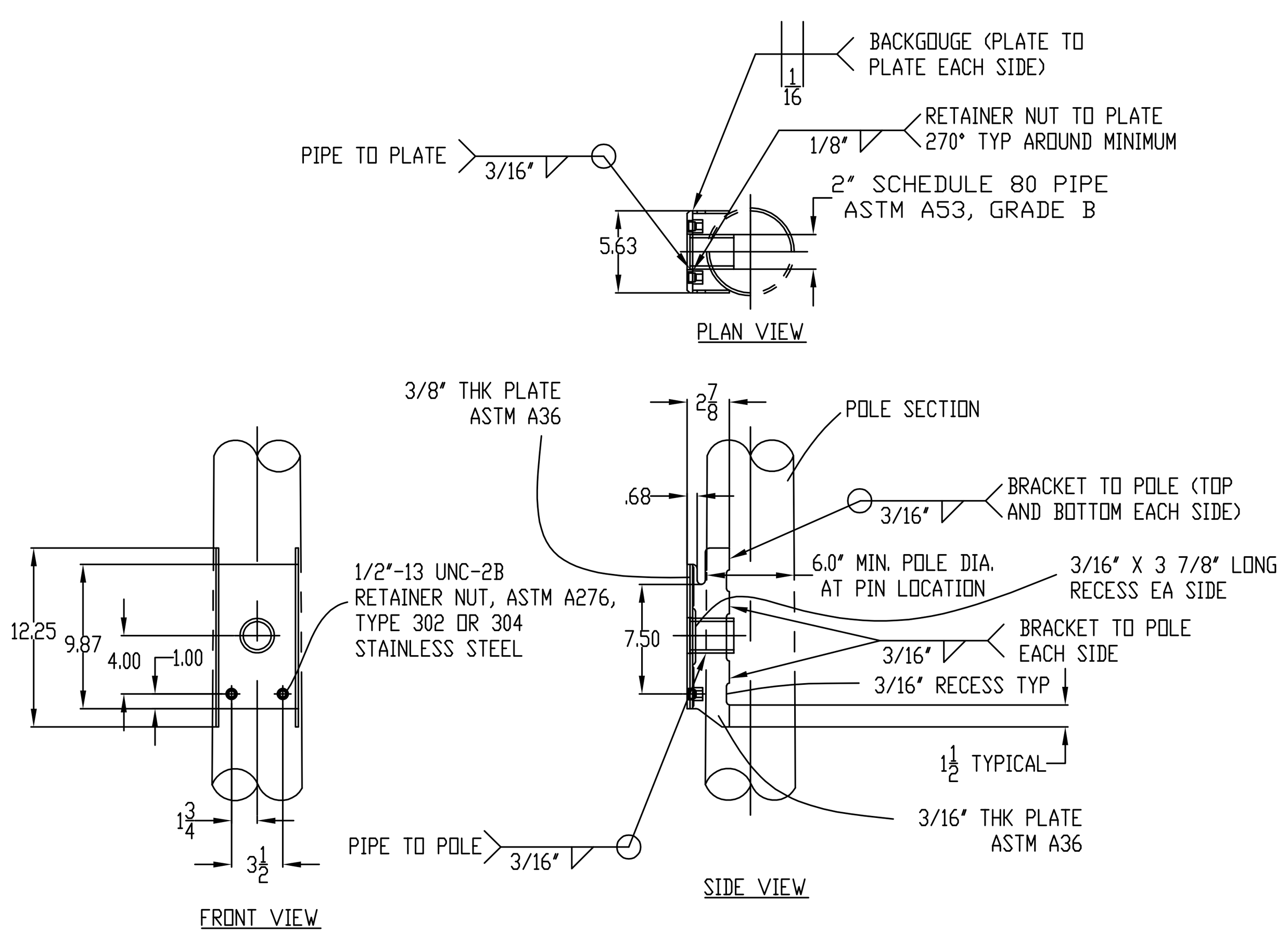
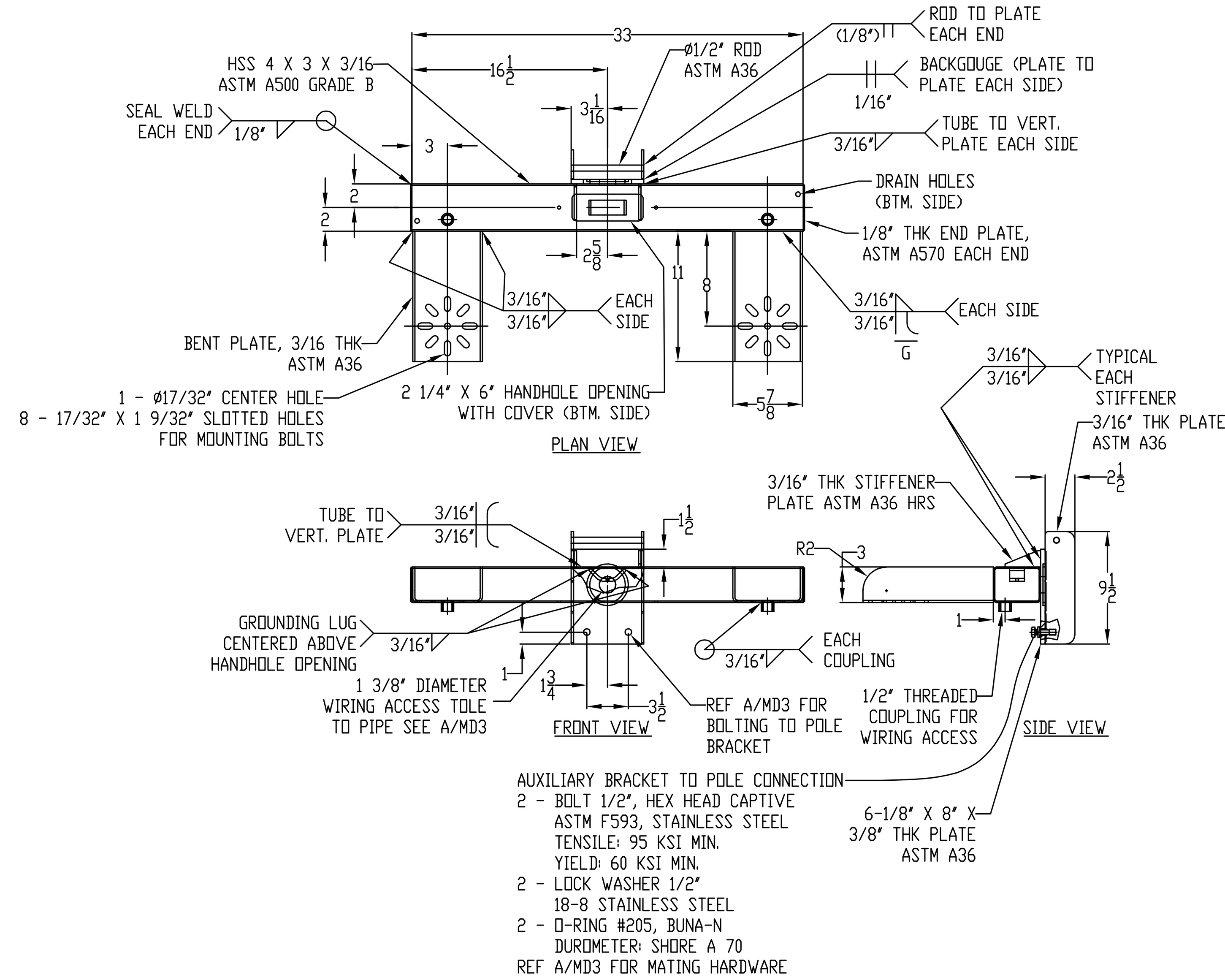
PROJECT NO. 239070
DATE: 09/09/2024
DRAWN BY: A.Rose
DRAWING NO. MD2



(A) BRACKET DETAIL
N.T.S. DSA-Brk-Dtl-L_A



(R) 2P INVERTED TRUNNION MOUNT
N.T.S. DSA-2P INV TRUNNION_A

Tokay HS Pool
FIELD LIGHTING
Lodi CA

PROFESSIONAL ENGINEER No. 4506 Exp. 6-30-25 STRUCTURAL STATE OF CALIFORNIA

CONSULTANT
rtm engineering consultants

musco Lighting
CORPORATE OFFICE:
P.O. Box 808
100 1st Avenue West
Oskaloosa, Iowa 52577
800/825-6020

DRAWING TITLE: ATTACHMENT DETAILS
SCALE: SEE PLAN
REVISIONS:
REFERENCE:

PROJECT NO. 239070

DATE: 09/09/2024

DRAWN BY: A.Rose

DRAWING NO. MD3

MUSCO LIGHTING, INC.
Light Structure Pole and Foundation Standard

ITEM : **Structural Calculations**
Pole Foundation Standard

PROJECT : **Tokay HS Pool**
Lodi, CA

PROJECT NO : **239070**
463.559

DATE : **9/17/2024**

ENGINEER : rtm engineering consultants
JOSH RANDALL, SE No. 4506
1 Ada, Suite 100
Irvine, CA 92618

DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE TO REVIEW THE STRUCTURAL CALCULATIONS AND MUSCO LIGHTING DRAWINGS AND PROVIDE *STATEMENT OF GENERAL CONFORMANCE* PRIOR TO SUBMITTAL TO DSA

MUSCO LIGHTING, INC.
Light Structure Pole and Foundation Standard

Calculation Index

CONTENTS:

CODE REFERENCE:

State of California Code of Regulations Title 24, Part 1, 2: 2022 Edition

2021 IBC

ACI 318-19
Building Code Requirements for Structural Concrete

AISC 360-16
Specifications for Structural Steel Buildings

POLE DESIGNATION:	LSS60-A W/	3	FIXTURES	JOB NO:	463.559
MANUFACTURER:	MUSCO			PROJECT:	Tokay HS Pool
PROJECT NO:	239070			LOCATION:	Lodi, CA

POLE ID: P1-P4

ASCE 7-16			
WIND CRITERIA	93	MPH,EXP	C
LOAD COMB	1.2 DEAD +	1.0	WIND

LED	900

EPA/FIXTURE*, Af	=	3.21	ft2
D.L./FIXTURE**	=	51.0	lbs
D.L./ECE***	=	20.0	lbs

** EPA = EFFECTIVE PROJECTED AREA OF LIGHT FIXTURE INCLUDING CROSSARM, PER MUSCO*
*** D.L.= DEAD LOAD OF FIXTURE, & CROSSARM, PER MUSCO*
****D.L.= DEAD LOAD OF ECE, PER MUSCO*

P = SUPERIMPOSED WT + POLE WT					
^ |||a	<--	<--FIXTURES, F/Af= qz*Gf*Cf =	30.17	PSF MAX	*(29.4-1)*
| |v|	<--	<--where qz=.00256*Kz*Kzt*Kd*Ke(V)^2 =	25.31	PSF MAX	*(26.10-1)*
| |||	<--	<---			

ATTACHMENT TYPE	NUMBER	DIST. FROM TOP POLE,FT	PA SQ FT	Cf	EPA SQ FT	Kz	qz PSF	WIND,F LBS	WEIGHT,P LBS
LED900	3.0	0.5		1.0	3.21	1.141	25.27	290	153
	0.0	3.0		1.0	3.21	1.131	25.04	0	0
	0.0	5.5		1.0	3.21	1.121	24.82	0	0
	0.0	8.0		1.0	3.21	1.110	24.58	0	0
	0.0	10.5		1.0	3.21	1.099	24.33	0	0
	0.0	13.0		1.0	3.21	1.087	24.08	0	0
	0.0	15.5		1.0	3.21	1.075	23.81	0	0
	0.0	18.0		1.0	3.21	1.063	23.53	0	0
	0.0	20.5		1.0	3.21	1.050	23.24	0	0
Speakers	2.0	31.6	2.22	1.3	2.88	0.982	21.75	149	111
ECE	3.0	49.6	4.00	1.3	5.20	0.849	18.80	117	60
							TOTALS =	556	324

v | |b	<--	POLE, F/Af= qz*Gf*Cf =	36.21	PSF MAX	*(29.4-1)*
		where qz=.00256*Kz*Kzt*Kd*Ke(V)^2 =	25.31	PSF MAX	*(26.10-1)*

LOADING DIAGRAM

INPUT

-> l =	61.64	ft. (max. ht. from any grade)		
-> l =	61.64	ft. (ht. from grade at base of pole)	60.24	ft.(nom. ht from grade)
->tA =	0.12	in. (pole thk. @ top)		
->dA =	4.75	in. (pole diam. @ top)		
->dB =	12.00	in. (pole diam. @ btm)		
->tB =	0.179	in. (pole thk. @ btm)		
->Fy =	38.0	ksi (fixt mount sect. =	5.25	ft)
->Fy =	55.0	ksi (other pole sect.)		
-> E =	29,000	ksi		
->Kzt=	1	*(Figure 26.8-1)*		
->Kd =	1	*(Table 26.6-1)*		
-> Kz =	1.143	MAX-EXP C @ 61.6 FT.		*(Table 26.10-1)*
->Ke =	1.00			*(Table 26.9-1)*
-> Cf =	1.00	LIGHT FIXTURE (INCLUDED IN EPA)		
-> Cf =	1.200	MAX (VARIES 0.5-1.2 FOR RND POLE)		*(Figure 29.4-1)*
POLE DAMPING, beta=	0.025	*Per Musco test*		

OUTPUT

-> POLE NATURAL FREQUENCY = 0.568 Hz *1/(2PI*(DELTA/386)^0.5) where DELTA is due to self weight*

-> Gf= 1.19 *(Section 26.11.5)* *(Reference Vibration Problems in Engineering by Timoshenko, 4th ED. pg.34)*

Pole Properties:

Ia =	4.68	in4	taper =	0.140	in/ft
Ib =	116	in4	db/da =	2.526	
ra =	1.638	in	rb =	4.180	in.
Aa =	1.745	in2	Ab =	6.65	in2
Sa =	1.97	in3	Sb =	19.36	in3

From Critical Buckling Loads of Tapered Columns, ASCE 2/62:

n =	Log (Ib/(Ia)/Log (dB/dA) =	3.47	
P* =	(Ib/Ia)/(Ib/Ia)^.333 =	8.5	
kl/req*	(1/(P*)^.5)[kl/ra] =	325	(where k= 2.1)

AISC 360-16 Specification Table B4.1, Case 15

for Fy =	55.0	KSI	38	KSI
D/t < .45E/Fy =	237		343	(MAX)
D/t < .31E/Fy =	163		237	Noncompact
D/t < .07E/Fy =	37		53	Compact
D/t < .11E/Fy =	58		84	Slender element Section for Uniform Compression

Section 26.11.5 Gust-Effect Factor

constant epsilon,e =		0.2	Lz	=	511.5
constant l	=	500	N1	=	3.219
Vz	=	90.23	Rn	=	0.067
4.6n1h/Vz	=	1.784			
4.6n1B/Vz	=	0.020	R	=	1.027
15.4n1L/Vz	=	0.068	g_R	=	4.052
			c	=	0.200
Rh	=	0.408	Iz	=	0.196
RB	=	0.987	Q	=	0.926
RL	=	0.956	G	=	0.888
			Gf =		1.192

SHEAR,F=	**0.834**	***KIPS***	**MOMENT, M =**	**30.55**	***K-FT***	**e= M/F =**	**36.61**	***FT***	**AXIAL,P =**	**1.143**	***KIPS***	**ASD Forces at groundline (for foundation design)**
SHEAR,F=	**1.391**	***KIPS***	**MOMENT, M =**	**50.92**	***K-FT***	**e= M/F =**	**36.61**	***FT***	**AXIAL,P =**	**1.372**	***KIPS***	**Nominal Forces at groundline**

M < ΦMn = 69 K-FT Precast Base O.K.

Pole Stress Check = 0.668 Max. < 1 Pole O.K.

Max. Deflection = 53.959 Inch <0.10H= 73.97 Inch AASHTO 10.4.2

Distance from top of Pole FT	Outside Diameter of Pole,D IN	Pole thick,t IN	D/t	Kz	qz PSF	Cf Pole	kl/r eqiv.	E3-4 Fe KSI	E3-2 or E3-3 Design comp strength, Pn KIPS	Acting unfactored, Pr KIPS	F8.1-F8.4 Design flex. strength, Mn K-FT	Req'd flex. strength, Mr K-FT	Pr/Pc	H1-1b for Pr/Pc <0.2	H1-1a for Pr/Pc ≥ 0.2	2nd Order /1st Order Moment FT-K	CSR O.K.	Req'd shear strength,, F KIPS	1st Order Delta IN	C2.2a P-Delta Moment FT-K	Total 2nd Order Moment FT-K	E7-19 Q	ACTING MOM DUE TO DL	M/I	DEFL DUE TO DL IN
0	4.75	0.120	39.6	1.143	25.31	1.2	325	2.71	3.73	0.000	7.89	0.0	0.000	0.000	N.A.	1.000	Y	0.000	54.0	0.0	0.0	1.40	0.00	0.000	30.3
1	4.75	0.120	39.6	1.139	25.22	1.2	325	2.71	3.73	0.159	7.89	0.2	0.051	0.048	N.A.	1.180	Y	0.304	52.2	0.0	0.2	1.40	0.00	0.018	29.4
2	4.75	0.120	39.6	1.135	25.13	1.2	325	2.71	3.73	0.165	7.89	0.5	0.053	0.092	N.A.	1.120	Y	0.318	50.5	0.1	0.5	1.40	0.16	0.053	28.5
3	4.75	0.120	39.6	1.131	25.04	1.2	325	2.71	3.73	0.171	7.89	0.8	0.055	0.138	N.A.	1.108	Y	0.332	48.8	0.1	0.9	1.40	0.33	0.090	27.6
4	4.75	0.120	39.6	1.127	24.95	1.2	325	2.71	3.73	0.177	7.89	1.1	0.057	0.186	N.A.	1.102	Y	0.347	47.1	0.1	1.2	1.40	0.51	0.127	26.7
5	4.75	0.120	39.6	1.123	24.86	1.2	325	2.71	3.73	0.183	7.89	1.5	0.059	0.236	N.A.	1.098	Y	0.361	45.4	0.1	1.6	1.40	0.69	0.158	25.8
6	4.90	0.120	40.8	1.119	24.77	1.2	325	2.71	3.85	0.189	11.02	1.8	0.059	0.213	N.A.	1.096	Y	0.375	43.7	0.2	2.0	1.16	0.87	0.179	24.9
7	5.04	0.120	42.0	1.114	24.67	1.2	325	2.71	3.96	0.196	11.62	2.2	0.059	0.240	N.A.	1.094	Y	0.390	42.1	0.2	2.4	1.14	1.06	0.198	24.0
8	5.18	0.120	43.2	1.110	24.58	1.2	325	2.71	4.07	0.202	12.22	2.6	0.060	0.265	N.A.	1.092	Y	0.405	40.5	0.2	2.9	1.13	1.26	0.214	23.1
9	5.32	0.120	44.3	1.106	24.48	1.2	325	2.71	4.19	0.209	12.85	3.0	0.060	0.288	N.A.	1.091	Y	0.420	38.9	0.3	3.3	1.12	1.47	0.228	22.2
10	5.46	0.120	45.5	1.101	24.38	1.2	325	2.71	4.30	0.216	13.49	3.5	0.060	0.310	N.A.	1.089	Y	0.436	37.3	0.3	3.8	1.11	1.68	0.240	21.4
11	5.60	0.120	46.7	1.097	24.28	1.2	325	2.71	4.41	0.223	14.14	3.9	0.061	0.331	N.A.	1.088	Y	0.452	35.8	0.3	4.3	1.10	1.90	0.250	20.5
12	5.74	0.120	47.8	1.092	24.18	1.2	325	2.71	4.53	0.231	14.81	4.4	0.061	0.351	N.A.	1.087	Y	0.468	34.2	0.4	4.8	1.09	2.13	0.258	19.7
13	5.88	0.120	49.0	1.087	24.08	1.2	325	2.71	4.64	0.238	15.50	4.8	0.062	0.370	N.A.	1.086	Y	0.485	32.8	0.4	5.3	1.08	2.36	0.266	18.9
14	6.02	0.120	50.2	1.083	23.97	1.2	325	2.71	4.75	0.246	16.20	5.3	0.062	0.389	N.A.	1.084	Y	0.502	31.3	0.5	5.8	1.07	2.61	0.272	18.1
15	6.16	0.120	51.3	1.078	23.87	0.7	325	2.71	4.86	0.254	16.91	5.8	0.063	0.406	N.A.	1.083	Y	0.512	29.9	0.5	6.3	1.06	2.86	0.277	17.3
16	6.30	0.120	52.5	1.073	23.76	0.7	325	2.71	4.98	0.262	17.64	6.4	0.063	0.422	N.A.	1.082	Y	0.522	28.5	0.5	6.9	1.05	3.11	0.282	16.6
17	6.44	0.120	53.7	1.068	23.65	0.7	325	2.71	5.09	0.270	18.39	6.9	0.064	0.437	N.A.	1.081	Y	0.532	27.2	0.6	7.5	1.04	3.38	0.286	15.8
18	6.58	0.120	54.8	1.063	23.53	0.7	325	2.71	5.20	0.279	19.15	7.4	0.064	0.451	N.A.	1.080	Y	0.543	25.8	0.6	8.0	1.03	3.65	0.289	15.1
19	6.72	0.120	56.0	1.058	23.42	0.7	325	2.71	5.31	0.288	19.93	8.0	0.065	0.465	N.A.	1.079	Y	0.554	24.6	0.6	8.6	1.02	3.94	0.292	14.4
20	6.86	0.120	57.2	1.052	23.30	0.7	325	2.71	5.43	0.296	20.72	8.5	0.066	0.477	N.A.	1.078	Y	0.565	23.3	0.7	9.2	1.02	4.23	0.294	13.7
21	7.00	0.120	58.3	1.047	23.18	0.7	325	2.71	5.54	0.305	21.53	9.1	0.066	0.489	N.A.	1.078	Y	0.576	22.1	0.7	9.8	1.01	4.53	0.296	13.0
22	7.14	0.120	59.5	1.042	23.06	0.7	325	2.71	5.65	0.315	22.35	9.7	0.067	0.500	N.A.	1.077	Y	0.587	20.9	0.7	10.4	1.00	4.84	0.298	12.4
23	7.28	0.120	60.7	1.036	22.94	0.7	325	2.71	5.77	0.324	23.19	10.3	0.067	0.511	N.A.	1.076	Y	0.599	19.8	0.8	11.1	1.00	5.16	0.299	11.7
24	7.42	0.120	61.8	1.030	22.81	0.7	325	2.71	5.88	0.334	24.04	10.9	0.068	0.521	N.A.	1.075	Y	0.611	18.7	0.8	11.7	0.99	5.49	0.300	11.1
25	7.56	0.120	63.0	1.024	22.68	0.7	325	2.71	5.99	0.343	24.91	11.5	0.069	0.531	N.A.	1.074	Y	0.622	17.6	0.9	12.4	0.98	5.83	0.300	10.5
26	7.70	0.120	64.2	1.019	22.55	0.7	325	2.71	6.10	0.353	25.79	12.1	0.069	0.540	N.A.	1.073	Y	0.634	16.6	0.9	13.0	0.98	6.17	0.301	9.9
27	7.84	0.120	65.3	1.012	22.42	0.7	325	2.71	6.22	0.363	26.69	12.8	0.070	0.548	N.A.	1.073	Y	0.647	15.6	0.9	13.7	0.97	6.53	0.301	9.3
28	7.98	0.120	66.5	1.006	22.28	0.7	325	2.71	6.33	0.373	27.60	13.4	0.071	0.557	N.A.	1.072	Y	0.659	14.6	1.0	14.4	0.97	6.90	0.302	8.8
29	8.12	0.120	67.7	1.000	22.14	0.7	325	2.71	6.44	0.384	28.53	14.1	0.072	0.565	N.A.	1.071	Y	0.671	13.7	1.0	15.1	0.96	7.28	0.302	8.2
30	8.26	0.120	68.8	0.993	21.99	0.7	325	2.71	6.56	0.395	29.48	14.8	0.072	0.572	N.A.	1.070	Y	0.684	12.8	1.0	15.8	0.96	7.67	0.302	7.7
31	8.40	0.120	70.0	0.987	21.85	0.7	325	2.71	6.67	0.405	30.43	15.5	0.073	0.580	N.A.	1.069	Y	0.696	11.9	1.1	16.5	0.95	8.07	0.301	7.2
32	8.54	0.120	71.2	0.980	21.69	0.7	325	2.71	6.78	0.527	31.41	16.2	0.093	0.599	N.A.	1.068	Y	0.858	11.1	1.1	17.3	0.95	8.48	0.303	6.8
33	8.68	0.120	72.3	0.973	21.54	0.7	325	2.71	6.89	0.538	32.40	17.1	0.094	0.610	N.A.	1.068	Y	0.871	10.3	1.2	18.3	0.94	9.01	0.306	6.3
34	8.82	0.120	73.5	0.965	21.38	0.7	325	2.71	7.01	0.550	33.40	18.0	0.094	0.621	N.A.	1.067	Y	0.884	9.6	1.2	19.2	0.94	9.56	0.309	5.9
35	8.96	0.120	74.7	0.958	21.21	0.7	325	2.71	7.12	0.561	34.43	18.9	0.095	0.631	N.A.	1.066	Y	0.897	8.9	1.2	20.1	0.94	10.11	0.312	5.4
36	9.10	0.120	75.8	0.950	21.04	0.7	325	2.71	7.23	0.573	35.46	19.8	0.095	0.641	N.A.	1.065	Y	0.911	8.2	1.3	21.0	0.93	10.68	0.314	5.0
37	9.24	0.120	77.0	0.942	20.87	0.7	325	2.71	7.34	0.585	36.51	20.7	0.096	0.650	N.A.	1.064	Y	0.924	7.5	1.3	22.0	0.93	11.26	0.316	4.6
38	9.38	0.120	78.2	0.934	20.68	0.7	325	2.71	7.46	0.597	37.58	21.6	0.096	0.659	N.A.	1.062	Y	0.937	6.9	1.4	23.0	0.92	11.85	0.317	4.3
39	9.52	0.120	79.3	0.926	20.50	0.7	325	2.71	7.57	0.615	38.66	22.6	0.097	0.668	N.A.	1.061	Y	0.951	6.3	1.4	24.0	0.92	12.45	0.280	3.9
40	9.34	0.179	52.2	0.917	20.30	0.7	325	2.71	11.01	0.632	57.91	23.5	0.069	0.465	N.A.	1.060	Y	0.964	5.8	1.4	24.9	1.05	13.07	0.242	3.6
41	9.48	0.179	53.0	0.908	20.10	0.7	325	2.71	11.18	0.650	59.56	24.5	0.070	0.471	N.A.	1.059	Y	0.977	5.2	1.5	25.9	1.04	13.72	0.243	3.3
42	9.62	0.179	53.8	0.898	19.89	0.7	325	2.71	11.34	0.669	61.22	25.5	0.071	0.476	N.A.	1.058	Y	0.991	4.8	1.5	27.0	1.04	14.38	0.243	3.0
43	9.76	0.179	54.5	0.889	19.68	0.7	325	2.71	11.51	0.687	62.92	26.5	0.072	0.481	N.A.	1.057	Y	1.004	4.3	1.5	28.0	1.03	15.05	0.243	2.7
44	9.90	0.179	55.3	0.878	19.45	0.7	325	2.71	11.68	0.706	64.63	27.5	0.073	0.486	N.A.	1.056	Y	1.017	3.8	1.6	29.0	1.03	15.75	0.244	2.4
45	10.04	0.179	56.1	0.868	19.21	0.7	325	2.71	11.85	0.725	66.37	28.5	0.073	0.490	N.A.	1.056	Y	1.030	3.4	1.6	30.1	1.02	16.47	0.244	2.1
46	10.18	0.179	56.9	0.856	18.96	0.7	325	2.71	12.02	0.745	68.12	29.5	0.074	0.495	N.A.	1.055	Y	1.044	3.0	1.6	31.2	1.02	17.20	0.245	1.9
47	10.32	0.179	57.7	0.849	18.80	0.7	325	2.71	12.18	0.764	69.91	30.6	0.075	0.499	N.A.	1.054	Y	1.057	2.6	1.6	32.2	1.01	17.96	0.245	1.7
48	10.46	0.179	58.4	0.849	18.80	0.7	325	2.71	12.35	0.784	71.71	31.7	0.076	0.503	N.A.	1.053	Y	1.071	2.3	1.7	33.3	1.01	18.73	0.245	1.5
49	10.60	0.179	59.2	0.849	18.80	0.7	325	2.71	12.52	0.805	73.54	32.7	0.077	0.507	N.A.	1.052	Y	1.084	2.0	1.7	34.4	1.00	19.52	0.245	1.3
50	10.74	0.179	60.0	0.849	18.80	0.7	325	2.71	12.69	0.885	75.39	33.9	0.084	0.514	N.A.	1.051	Y	1.215	1.7	1.7	35.6	1.00	20.34	0.246	1.1

51	10.88	0.179	60.8	0.849	18.80	0.7	325	2.71	12.86	0.906	77.26	35.1	0.085	0.519	N.A.	1.050	Y	1.229	1.4	1.7	36.9	1.00	21.23	0.247	0.9
52	11.02	0.179	61.6	0.849	18.80	0.7	325	2.71	13.03	0.927	79.16	36.3	0.085	0.524	N.A.	1.049	Y	1.243	1.2	1.8	38.1	0.99	22.15	0.247	0.7
53	11.16	0.179	62.4	0.849	18.80	0.7	325	2.71	13.19	0.948	81.07	37.6	0.086	0.529	N.A.	1.048	Y	1.258	0.9	1.8	39.4	0.99	23.09	0.248	0.6
54	11.30	0.179	63.1	0.849	18.80	0.7	325	2.71	13.36	0.970	83.02	38.9	0.087	0.533	N.A.	1.047	Y	1.273	0.7	1.8	40.7	0.98	24.05	0.249	0.5
55	11.44	0.179	63.9	0.849	18.80	0.7	325	2.71	13.53	0.992	84.98	40.1	0.088	0.538	N.A.	1.045	Y	1.287	0.6	1.8	42.0	0.98	25.03	0.249	0.4
56	11.58	0.179	64.7	0.849	18.80	0.7	325	2.71	13.70	1.014	86.97	41.4	0.089	0.542	N.A.	1.044	Y	1.302	0.4	1.8	43.3	0.98	26.03	0.250	0.3
57	11.72	0.179	65.5	0.849	18.80	0.7	325	2.71	13.87	1.036	88.98	42.7	0.090	0.546	N.A.	1.043	Y	1.318	0.3	1.9	44.6	0.97	27.05	0.250	0.2
58	11.86	0.179	66.3	0.849	18.80	0.7	325	2.71	14.03	1.059	91.01	44.1	0.091	0.550	N.A.	1.042	Y	1.333	0.2	1.9	45.9	0.97	28.10	0.251	0.1
59	12.00	0.179	67.1	0.849	18.80	0.7	325	2.71	14.20	1.081	93.06	45.4	0.091	0.554	N.A.	1.041	Y	1.349	0.1	1.9	47.3	0.97	29.17	0.251	0.1
60	12.14	0.179	67.8	0.849	18.80	0.7	325	2.71	14.37	1.105	95.14	46.8	0.092	0.557	N.A.	1.040	Y	1.365	0.0	1.9	48.7	0.96	30.26	0.252	0.0
61	12.28	0.179	68.6	0.849	18.80	0.7	325	2.71	14.54	1.128	97.24	48.1	0.093	0.561	N.A.	1.039	Y	1.380	0.0	1.9	50.0	0.96	31.38	0.252	0.0
62	12.42	0.179	69.4	0.849	18.80	0.7	325	2.71	14.71	1.152	99.36	49.5	0.094	0.564	N.A.	1.038	Y	1.397	0.0	1.9	51.4	0.96	32.52	0	0.0

Reference:	2022 CBC, ASCE 7-16		
INPUT:			
Job Location:	Lodi, CA		
Site Class	D		Soils Report
0.2 Sec MCE, Ss	0.632	g	Soils Report
1.0 Sec MCE, S_1	0.261	g	Soils Report
Site Coeff., F_a	1.294		Soils Report
Site Coeff., F_v	2.078		Soils Report
$S_{MS} = F_a S_S$	0.818	g	Soils Report
$S_{M1} = Fv S_1$	0.542	g	Soils Report
$S_{DS} = 2/3 S_{MS}$	0.546	g	Soils Report
$S_{D1} = 2/3 S_{M1}$	0.362	g	Soils Report
$Ts = S_{D1}/S_{DS}$	0.662	sec	
Long Period transition period, T_L	12.0	sec	ASCE 7-16 -Figure 22-12
Risk Category	II		Table 1604A.5
Seismic Design Category	D		2022 CBC Section 1613A.3.5
OUTPUT:			
Light Pole Class	LS60A		
Fundamental Period, T	1.76	sec	1/Pole Natural Frequency
Seismic coeff., R	1.5		ASCE 7-16 Table 15.4-2
Overstrength Factor, Ω	1.5		ASCE 7-16 Table 15.4-2
Importance Factor, I	1.00		ASCE 7-16 Section 15.4.1.1 & Table 1.5-2
Redundancy factor, ρ	1.0		ASCE 7-16 Section 15.6
DESIGN SEISMIC FORCE			
$V = C_S W$			ASCE 7-16 Eqn. 12.8-1
$C_S = S_{DS}/(R/I)$ for $T \le T_S$	0.364	g	ASCE 7-16 Eqn. 12.8-2
Cs max. for $1.5Ts < T \le TL$, $Cs = 1.5\ SD1/T(R/I)$	0.205	g	ASCE 7-16 Sect. 11.4.8 & Eqn. 12.8-3
C_S min $= 0.044 S_{DS} I \ge 0.03$	0.030	g	ASCE 7-16 Eqn. 15.4-1
if $S_1 \ge 0.6g$, C_S min $= 0.8 S_1/(R/I)$	N.A.	g	ASCE 7-16 Eqn. 15.4-2
Load Combination, 1.2D+ 1.0E			ASCE 7-16 Section 2.3.2 Load Comb 5
where E = Eh + Ev			ASCE 7-16 Eqn. 12.4-1
and $Eh = pQ_E$	0.205	W	ASCE 7-16 Eqn. 12.4-3
and $Ev = 0.2 S_{DS} D$	0.109	D	ASCE 7-16 Eqn. 12.4-4
Load Combination, $1.2D + (pQe + 0.2 S_{DS} D)$			

Load Combination, $1.2D + (pQe + 0.2 S_{DS} D)$	1.309	D	+	0.205	W

Total Seismic Weight, W =	1.547	kips	See following page		
SEISMIC SHEAR, V =	0.397	kips	<	1.391 kips WIND SHEAR	WIND CONTROLS
SEISMIC SHEAR WITH O.F. , ΩV =	0.595	kips	<	1.391 kips WIND SHEAR	WIND CONTROLS

Vertical Distribution of Seismic Force, F_x = $C_{vx}V$ ASCE7-16 Eqn. 12.8-11 & Section 12.8.5

k= 1.631

Item	w	h_x	$w_x h_x^k$	$w_x h_x^k / \sum w_x h_x^k$	Cvx*V	OTM
fixtures	0.153	61.14	125	0.354	0.112	6.87
			0	0.000	0.000	0.00
			0	0.000	0.000	0.00
			0	0.000	0.000	0.00
Top Pole Section	0.034	57.50	25	0.071	0.023	1.30
2nd Pole Section	0.343	38.60	133	0.375	0.119	4.59
1st Pole Section	0.459	12.75	29	0.082	0.026	0.33
			0	0.000	0.000	0.00
			0	0.000	0.000	0.00
			0	0.000	0.000	0.00
			0	0.000	0.000	0.00
Speakers	0.111	30.00	28	0.080	0.026	0.77
ECE	0.060	12.00	3	0.010	0.003	0.04
1/2 Precast base above grade	0.387	7.25	10	0.028	0.009	0.06
Sum	1.547		354	1.000	0.317	13.96
Total Dead Load at grade	1.933					

SEISMIC OTM =	13.96	kip-ft	<	50.92	kip-ft Wind OTM	WIND CONTROLS
SEISMIC OTM WITH O.F. ,ΩM =	20.94	kip-ft	<	50.92	kip-ft Wind OTM	WIND CONTROLS

engineer: HAEDER
design: Musco Pole 2B DSA

2B DSA Pole Calcuations - Page 1

ACI 318-19

Inputs

Pole Type	2B	DSA	f_{py} =	230.0 ksi	Strand Yield Strength
D_o =	11.92 in	Outer Diameter	f_{pu} =	270.0 ksi	Strand Ultimate Strength
D_i =	5.625 in	Inner Diameter	f'_c =	9.5 ksi	28 Day Strength of Concrete
D_{tc} =	9 in	Diameter of Tendon Circle	E_s =	29000.0 ksi	Elastic Modulus of Strand
d_t =	0.5 in	Strand Diameter	IPF =	0.64	Initial Prestress Factor
n =	10	Number of Tendons	PLF =	0.82	Prestress Loss Factor
A_{ps} =	0.153 in²	Area of Single Strand	a =	3.70 in	
Φ =	0.76	Resistance Factor (see note)	c =	5.69 in	
$ß_1$ =	0.65	$f'_c \geq 8$ ksi			

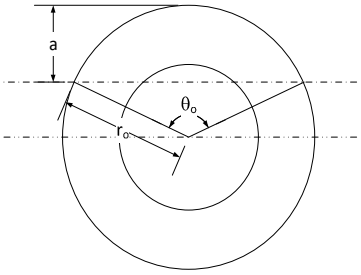
Determine Concrete Compression Forces (Bending Only)

NOTE: Phi factor based on 0.75 for compressio
controlled sections based on historical test data

Calculate the Properties of the Compression Zone

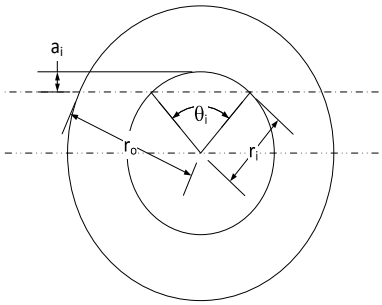
A. Calculate the Section Properties based on Outer Radius (Note: These Calculations Assume there is no core in the pole)

$c_o = D_o/3$ =	3.97 in	Initial Guess
$r_o = D_o/2$ =	5.96 in	
$\Theta_o = 2 * \cos^{-1}((r_o - a)/r_o)$ =	2.36	
$I_o = r_o^4/8 * \Theta_o - \sin(\Theta_o) + (2*\sin(\Theta_o)*\sin(\Theta_o/2)^2)$ =	451.5 in^4	
$A_o = (r_o^2*\cos^{-1}*(r_o-a)/r_o) - ((r_o-a)*\sqrt{(2*r_o*a)-a^2})$ =	29.49 in²	
$y_{ro} = (4*r_o*\sin(\Theta_o/2)^3)/(3*(\Theta_o - \sin(\Theta_o)))$ =	3.79 in	



B. Calculate the Section Properties based on Inner Radius (Note: These Calculations Assume there is no core in the pole)

$r_i = D_i/2$ =	2.81 in
a_i =	0.55 in
$\Theta_i = 2 * \cos^{-1}((r_i - a_i)/r_i)$ =	1.27
$I_i = r_i^4/8 * \Theta_i - \sin(\Theta_i) + (2*\sin(\Theta_i)*\sin(\Theta_i/2)^2)$ =	7.8 in^4
$A_i = (r_i^2*\cos^{-1}*(r_i-a)/r_i) - ((r_i-a)*\sqrt{(2*r_i*a)-a^2})$ =	1.3 in²
$y_{ri} = (4*r_i*\sin(\Theta_i/2)^3)/(3*(\Theta_i - \sin(\Theta_i)))$ =	2.48 in



Note: If the inner raidius is outside the compression zone, I_i & A_i will be set to 0

Conclusion

A Calculate the Combined Section Properties:

$A_c = A_o - A_i$ =	28.2 in²	Area of the Compression Zone
$I_c = I_o - (I_i + A_i + y_{ri}^2)$ =	436.4 in^4	Mass Moment of Intertia of Combined Section
$y = (A_o*y_o - A_i*y_i) / A_c$ =	3.85 in	Centroid for the Combined Arc Section
$y_c = c + r_o + y$ =	3.58 in	Centroid for the Effective Compression Area
$A' = \pi*(r_o^2 - r_i^2) - A_c$ =	58.5 in²	Area of the Tension Zone with the Strand Included

engineer: HAEDER
design: Musco Pole 2B DSA

2B Pole Calcuations - Page 2

Determine Concrete Compression Forces (Bending Only)

Conclusion Continued

B. Compute the Effective Compression Area

Note: Then number of strands in compression (N_c) is determinde by the results of the calculations in the Tendon Strain Table.

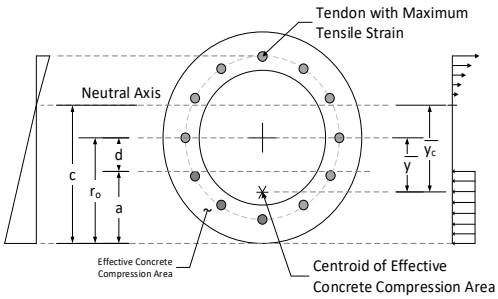
$A_{pscomp} = N_c * A_{ps} =$ 0.61 in²

Effective Area of Concrete in Compression

$A_e = A_c - A_{pscomp} =$ 27.63 in²

C. Compute the Compression Force

$F_c = A_e * 0.85 * f'_c =$ 223.1 kip



Determine Steel Tensile Forces

Calculate the Total Prestressing Force.

$f_{se} = IPF * PLF * f_{pu} =$	141.7 ksi	Total Prestressing Stress
$\varepsilon_{se} = f_{se}/E_s =$	0.0049	Prestressing Strain
$f_{py}/E_s =$	0.0079	Maximum Tendon Yield Strain
$F_{ps} = \varepsilon_{se} * A_{st} * E_s =$	21.7	Force in Single Prestress Strand
$F_t = \Sigma$ Line Forces =	223.1 kip	From the Tension Line Table

Converge the Forces to Achieve a Balance Condition

c =	5.69 in
$F_c - F_t =$	0 kip

Calculate Moment Capacities

A. Compressive Force Moment

$M_{cf} = (F_c * y_c)/(12 * in/ft) =$ 66.5 k*ft

B. Tension Force Moment

$M_t = \Sigma M_{ti} =$ 23.5 k*ft Sum of Moments in the Tendon Line Table

Calculate Ultimate Moment Capacity

Extreme Tensile Strain =	0.00229	Within Transition Zone
$M_n = M_{cf} + M_t =$	90.0 kip*ft	
$M_a = \Phi M_n =$	**68.8 kip*ft**	
$M_{cr} =$	**42.5 kip*ft**	Cracking Moment (See Page 3)

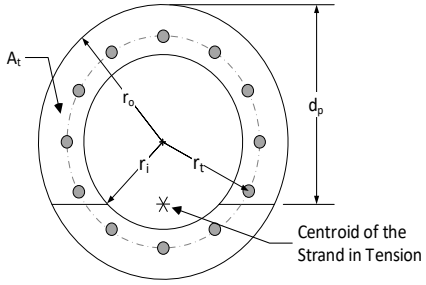
Calculate Development Length

$f_{se} = IPF * PLF * f_{pu} =$	141.7 ksi	
$f_{py} / f_{pu} =$	0.85	
$\gamma_p =$	0.40	ACI 318-19 Table 20.3.2.3.1
Approximate $f_{ps} =$	195.7	ACI 318-19 20.3.2.3.1
$L_d =$	50.6 in	ACI 318-19 Eqn 25.4.8.1 & Approximate f_{ps}

engineer: HAEDER
design: Musco Pole 2B DSA

2B Pole Calcuations - Page 3

Calculation of Mcr and Other Properties



$n_t = n - n_c$ = 6

d_p = Σ Elevations of Tendons in Tension/n_t = 8.20 in

Distance from Centroid of Tension Steel to Center of Pole

$d = d_p - r_o$ = 2.24 in

$b_o = D_o - d_p$ = 3.72 in

Area of the Outer Region Determined by b_o

$A_{co}' = r_o^2*\cos^{-1}((r_o-b_o)/r_o)-((r_o-b_o)*\sqrt{((2*r_o*b_o)-r_o^2)})$ = 29.7 in²

Area of the Outer Region Determined by b_i

$b_i = b_o - (r_o - r_i)$ = 0.57 in

$A_{ci}' = r_i^2*\cos-1((r_i-b_i)/r_i)-((r_i-b_i)*\sqrt{((2*r_i*b_i)-r_i^2)})$ = 1.3 in²

$A'' = A_{co}'-A_{ci}'$ = 28.4 in²

$A_{tot} = \pi*(r_o^2-r_i^2)$ = 86.7 in² Total Concrete Area

$b_{dp} = A_t = A_{tot} - A''$ = 58.3 in²

$f_r = 7.5*\sqrt{f'_c}$ = 731.0 psi Modulus of Rupture

$f_{pe} = n*A_{ps}*f_{se}/A_{tot}$ = 2499.3 psi

$I_g = \pi/4 * ((D_o)^4-(D_i)^4)$ = 941.86008 in Moment of Inertia of Gross Section

$M_{cr} = (f_r+f_{pe})/A_t*(I_g/r_o)$ = 42.5 k*in Cracking Moment (ACI 318-19 24.2.3.9b)

ρ = 0.0157 Reinforcement Ratio

Calculation of Axial Capacity

Ac = 86.7 in²

f'c = 9.5 ksi

Fpe = 2499.3 psi

Axial Capacity = Ac*(0.33*f'c-0.27*Fpe) = 213 kip

Adjust Development Length at Steel Pole Overlap

Ground Line to Steel Pole - DSA = 0.6 ft

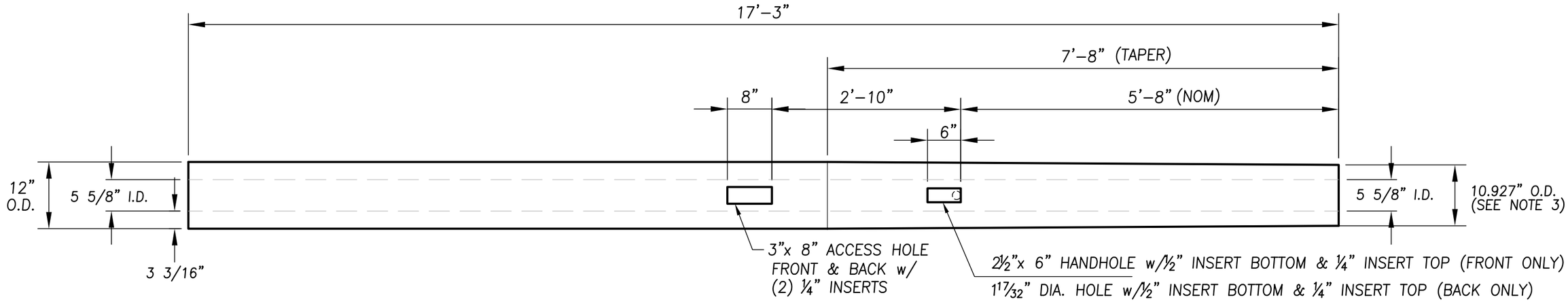
Max Pole Height = 70 ft

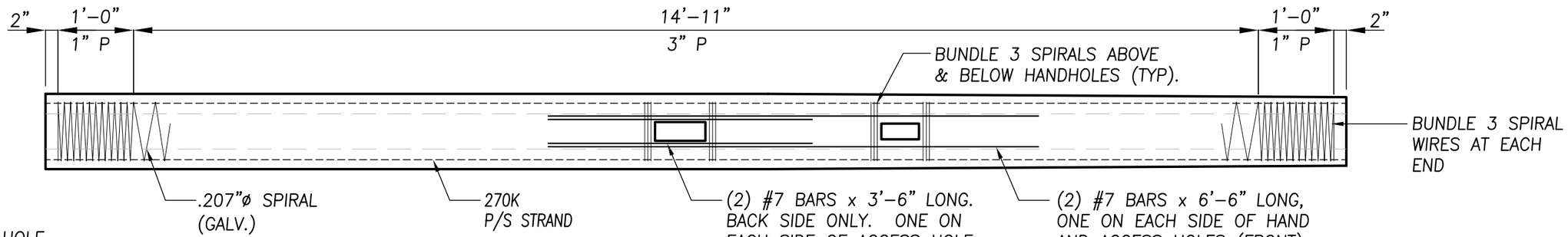
% Reduction DSA = 0.91% Apply to fps and recalculate Ld

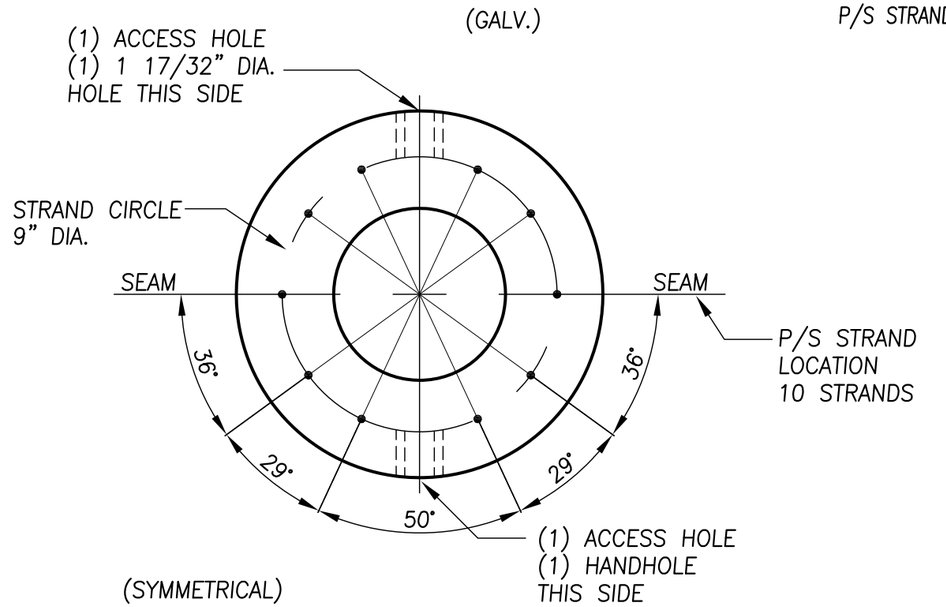
Adjusted Development Length DSA = 49.72 in

NOTES:

1. MARK–DATE, TYPE AND "BOTTOM" NEAR BOTTOM OF BASE.
2. PROVIDE INSERTS FOR COVER PLATES AT EACH OPENING.
3. GROUNDING SYSTEM NOT SHOWN. REFERENCE MUSCO DOC. PS–1408–1.
4. COAT ENTIRE BASE END SURFACES (T AND B) WITH SIKAGARD 62, .015" MIN. THICKNESS. DO NOT COAT METAL INSERTS.
5. COAT INSIDE SURFACES AT EACH HOLE WITH SIKAGARD 62, .015 MIN. THICKNESS.
6. PROVIDE 3/4" STRAND COVER AT EACH HOLE WITH SPACER INSERT.







SPECIFICATIONS	
BASE LENGTH	17'–3"
DESIGN MOMENT CAPACITY	**68.8**K–FT
SHIPPING WEIGHT	1850 LBS
PRODUCTION WEIGHT	1690 LBS
VOLUME OF CONCRETE	0.42 CU YD
RELEASE STRENGTH	5,500 PSI
28 DAY CONC. STRENGTH	9,500 PSI
NUMBER OF STRANDS	(10) 1/2"ø
INITIAL PULL PER STRAND	26.5 KIPS
TIP WALL THICKNESS	2 11/16"
BUTT WALL THICKNESS	3 3/16"

FORTERRA™
Minnesota Office
6655 Wedgwood Road N, Suite 130
Maple Grove, MN 55311
(Ph) 763-545-7473

SCALE NONE	REVISION	BY	DATE
DATE 9/2/2016			
DR'N. JEF / APVD. JMM			

TITLE: **MUSCO P/S CONC. POLE BASE, DSA TYPE 2B, 12"ø BASE x 17'–3"**

NUMBER MP–2BD REV. 9

	Mark/Type			LS60-A **WIND**	LS60-A **(EQ) SEISMIC**
	Precast Base, Design Moment capacity= øMn (K-Ft)		=	69	69
	Precast Base, Wind ASD Moment capacity= øMn(0.6)		=	41	
	Precast Base, Seismic ASD Moment capacity= øMn(0.7)		=		48
	INPUT				
	ASD Shear, P	lbs	=	834	278
	height of P above grade, h	ft	=	38.61	35.18
	allow lateral brg pressure, s	psf/ft	=	200	200
	max allow lateral brg pressure	psf/ft	=	2400	2400
	P/C Base Diameter, b	ft	=	1.00	1.00
	OUPUT				
P/C Base @ Grade	ASD Moment at grade, M (w/ Overstrength for EQ)	ft-lbs	=	32,219	14,658
	Mallow, P/C Base	ft-kips	=	41	48
	Mmax/Mallow - P/C Base		=	0.780	0.304
	IF Mallow>Mmax, P/C Base is O.K.			O.K.	O.K.
P/C Base below grade, Wind	Depth to begin passive pressure, d_p	ft	=	2.00	2.00
	Eff. height of P above grade, h +d_p			40.61	37.18
	Moment at begin passive pressure, M	ft-lbs	=	33,888	-
	Mallow, P/C Base	ft-kips	=	41	-
	Mmax/Mallow - P/C Base		=	0.821	-
	IF Mallow>Mmax, P/C Base is O.K.			O.K.	-
P/C Base below grade, Seismic	ASD Shear, ΩP (with Overstrength for Seismic)	lbs	=	-	417
	height of P above grade, h (w/ EQ Overstrength)	ft	=	-	35.18
	Moment at grade, M (w/ EQ Overstrength)	ft-lbs	=	-	14,658
	Moment at begin passive pressure, M (w/ EQ Overstrength)			-	15,491
	Mallow, P/C Base	ft-kips	=	-	48
	Mmax/Mallow		=	-	0.322
	IF Mallow>Mmax, Reinf. Base is O.K. for EQ Overstrength			-	O.K.
				USE REINF PIER	USE REINF PIER
Reinf. Pier design	Reinf Pier				
	Effective Reinf Pier diameter			3.0	3.0
	Mallow, Reinf Pier Base	ft-kips	=	235	274
	Mmax/Mallow		=	0.144	0.057
	IF Mallow>Mmax, Reinf. Base is O.K. for EQ Overstrength			O.K.	O.K.
Check Embedment Length Req'd for Lateral Soil Bearing	Precast Base -or- Reinforced Pier			REINFORCED PIER	REINFORCED PIER
	Effective Base/Pier diameter			3.0	3.0
	acting lateral brg pressure, S_1	psf	=	533	353
	allow lateral brg pressure, S_1	psf	=	533	353
	A=2.34P/(S_1b) - ASD		=	1.22	0.61
	Min req'd embedment, d	ft	=	7.99	5.30
	=A/2{1+[1+4.36(h+d_p)/A]$^{1/2}$}				
	Depth to begin passive pressure	ft	=	2.00	2.00
	Total embed req'd	ft	=	9.99	7.30
	STANDARD EMBED DEPTH	ft	=	10	10
	Total embed req'd/Standard embed		=	0.999	0.730
	IF Total embed req'd<Standard embed, O.K.			O.K.	O.K.
Base below grade, Wind	Precast Base -or- Reinforced Pier			REINFORCED PIER	REINFORCED PIER
	Shear= 0 @ d={2P/sb)$^{0.5}$ +depth neglected	ft	=	3.67	-
	Mmax= M+Pd-sbd^3/6	ft-kips	=	34.8	-
	Mallow	ft-kips	=	235	-
	Mmax/Mallow		=	0.148	-
	IF Mallow>Mmax, base is O.K.			O.K.	-
Base below grade, EQ	Shear= 0 @ d={2P/sb)$^{0.5}$ +depth neglected	ft	=	-	3.18
	Mmax= M+Pd-sbd^3/6	ft-kips	=	-	15.8
	Mallow	ft-kips	=	-	274
	Mmax/Mallow		=	-	0.058
	IF Mallow>Mmax, base is O.K.			-	O.K.

POLE DESIGNATION:	60A	JOB NO:	463.559
MANUFACTURER:	MUSCO	PROJECT:	Tokay HS Pool
CLIENT:		LOCATION:	Lodi, CA

ULTIMATE STRENGTH CHECK OF FOOTING REINFORCEMENT (BY STRAIN ANALYSIS FOR 8 BAR CAGE)

INPUT

OUTSIDE DIAMETER, d	=	36.00	IN			
CONCRETE COVER TO REINF	=	3.50				
REINF CIRCLE DIAMETER, r	=	28.00	IN			
NUMBER OF REBAR	=	8				
SIZE OF REINF, #	=	8				
AREA OF REINF	=	0.79	IN	6.32 >	5.09	IN^2 (MIN As=.005Ag)
REINF YIELD STRENGTH	=	60.0	KSI			
CONC COMP STRENGTH	=	3.0	KSI			
MOD OF ELASTICITY,STEEL	=	29,000	KSI			
MOD OF ELASTICITY,CONC	=	3,122	KSI			

ASSUME

CONCRETE STRAIN	=	0.0030	IN/IN MAX
DISTANCE TO N.A., c	=	6.52	IN

SOLUTION

n = Es/Ec	=	9.29	
BETA	=	0.85	ACI 22.2.2.4.3
a = BETA*c	=	5.54	
a/d	=	0.1538	
CURVE B FACTOR FOR AREA	=	0.0738	FROM CHART PG 703 REINF CONC FUND,BY FERGUSON,1965
COMPRESSION AREA	=	95.64	IN^2
CURVE A FOR ARM TO c.g.	=	0.816	FROM CHART PG 703 REINF CONC FUND,BY FERGUSON,1965
DIST. FROM c.g. TO cL.	=	14.69	IN
YIELD STEEL STRAIN	=	0.0021	IN/IN
SPACING OF REINF,THETA	=	45	DEGREE

			BENDING STRAIN			STRAND STRESS			INTERNAL FORCES			ULTIMATE MOMENT CAPACITY	
DIST FOR THETA 1, d1	=	32.00 IN	e1	= 0.01173455	IN/IN	fs	= 60.0	KSI	F1	= 47.40	KIPS	100.7	KIP-FT
DIST FOR THETA 2, d2	=	27.90 IN	e2	= 0.00984609	IN/IN	fs	= 60.0	KSI	F2	= 94.80	KIPS	168.9	KIP-FT
DIST FOR THETA 3, d3	=	18.00 IN	e3	= 0.00528818	IN/IN	fs	= 60.0	KSI	F3	= 94.80	KIPS	90.7	KIP-FT
DIST FOR THETA 4, d4	=	8.10 IN	e4	= 0.00072955	IN/IN	fs	= 21.2	KSI	F4	= 33.43	KIPS	4.4	KIP-FT
DIST FOR THETA 5, d5	=	4.00 IN	e5	= -0.0011582	IN/IN	fs	= -33.6	KSI	F5	= -26.53	KIPS	5.6	KIP-FT
									CONCRETE	= -243.89	KIPS	65.1	KIP-FT
									TOTAL	= 0.00	KIPS		

Mu =	435.4	KIP-FT	(ULTIMATE STRENGTH)
Ms=0.9*Mu*0.6 =	235.1	KIP-FT	(ASD)
Ms=0.9*Mu*0.7 =	274.3	KIP-FT	(ASD)

This is a beta release of the new ATC Hazards by Location website. Please contact us with feedback.

The ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

Hazards by Location

Search Information

Coordinates: 38.110351104865785, -121.28627979363367

Elevation: 37 ft

Timestamp: 2024-09-17T17:32:33.548Z

Hazard Type: Wind

ASCE 7-16

MRI 10-Year	65 mph
MRI 25-Year	70 mph
MRI 50-Year	76 mph
MRI 100-Year	80 mph
Risk Category I	87 mph
Risk Category II	93 mph
Risk Category III	100 mph
Risk Category IV	104 mph

ASCE 7-10

MRI 10-Year	72 mph
MRI 25-Year	79 mph
MRI 50-Year	85 mph
MRI 100-Year	91 mph
Risk Category I	100 mph
Risk Category II	110 mph
Risk Category III-IV	115 mph

ASCE 7-05

ASCE 7-05 Wind Speed	85 mph

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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Flooding

Based on a review of the Federal Emergency Management Agency (FEMA) National Flood Layer (NFHL), the project site is not located within a mapped flood zone. The project site is in an area with a FEMA Flood Zone X designation.

Seismic Considerations

The 2022 California Building Code (CBC) Seismic Design Parameters have been generated using the SEAOC/OSHPD Seismic Design Maps Tool. This web-based software application calculates seismic design parameters in accordance with ASCE 7-16, and 2022 CBC. The 2022 CBC requires that a site-specific ground motion study be performed in accordance with Section 11.4.8 of ASCE 7-16 for Site Class D sites with a mapped S_s value greater than or equal 0.2.

However, Section 11.4.8 of ASCE 7-16 includes an exception from such analysis for specific structures on Site Class D sites. The commentary for Section 11 of ASCE 7-16 (Page 534 of Section C11 of ASCE 7-16) states that "In general, this exception effectively limits the requirements for site-specific hazard analysis to very tall and or flexible structures at Site Class D sites." Based on our understanding of the proposed development, it is our assumption that the exception in Section 11.4.8 applies to the proposed structure. However, the structural engineer should verify the applicability of this exception.

Based on this exception, the spectral response accelerations presented in the following table were calculated using the site coefficients (F_a and F_v) from Tables 1613.2.3(1) and 1613.2.3(2) presented in Section 16.4.4 of the 2022 CBC.

Description	Value
2022 California Building Code (CBC) Site Classification[1]	D[2]
Risk Category	IV
Site Latitude[3]	38.1103º N
Site Longitude[3]	121.2865º W
S_S, Spectral Acceleration for a Short Period[4]	0.632
S_1, Spectral Acceleration for a 1-Second Period[4]	0.261
Fa, Site Coefficient	1.294

Description	Value
Fv, Site Coefficient (1-Second Period)	2.078
S_{DS}, Spectral Acceleration for a Short Period	0.546
S_{D1}, Spectral Acceleration for a 1-Second Period	0.362

1. Seismic site soil classification in general accordance with the *2022 California Building Code*, which refers to ASCE 7-16. Site Classification is required to determine the Seismic Design Category for a structure.
2. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7-16 and the 2022 CBC. Subsurface explorations at this site were extended to a maximum depth of approximately 15 feet bgs. The site properties below the maximum exploration depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper exploration or geophysical testing may be performed to confirm the conditions below the current maximum depth of exploration.
3. Provided coordinates represent a point located at the general center of the site.
4. These values were obtained using online seismic design maps and tools provided by SEAOC and OSHPD (**https://seismicmaps.org/**).

Typically, a site-specific ground motion study may reduce construction costs. We recommend consulting with a structural engineer to evaluate the need for such a study and its potential impact on construction costs. Terracon should be contacted if a site-specific ground motion study is desired.

Corrosivity

The following table lists the results of laboratory soluble sulfate, soluble chloride, electrical resistivity, and pH testing. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Corrosivity Test Results Summary

Boring	Sample Depth (feet)	Soil Description	Soluble Sulfate (%)	Soluble Chloride (%)	Electrical Resistivity (Ω-cm)	pH
B1	4½	Silty Sand	0.004	0.001	12,000	7.82

EQUIPMENT LIST / SYMBOLS:

ITEM	DESCRIPTION	MFGR.	REMARKS	DETAIL
DL	DECK LIGHT EXISTING		RECONNECT ELECT. IF DISTURBED IN DEMO	-/-
GFCI JB HB	HOSE BIBB W/ VACUUM BREAKER JUNCTION BOX GFCI OUTLET - WP 20AMP W.P.		TOMBSTONE 3/4" DIA. CU PIPE TO EA. D.W. FOR H.B.	1/SP2-5
GO	GUTTER OUTLET	SEE DETAIL	-	1/SP2-1
VENT	PIPING VENT / CLEAN OUT	-	SEE SP3-1	3/SP2-7
DMEWM	DEPTH MARKER WARNING MARKER	INLAYS INTL	NON-SLIP	4/SP2-5
	STARTING BLOCK	PARAGON	DUAL POST ANCHORS	3/SP2-1

EXITING

DECK AREA = 9,463 SQ. FT
DECK OCCUPANCY (1/5) = 1,298

POOL:
TOTAL POOL AREA = 12,562 SQ. FT
POOL OCCUPANCY (1/50) = 252
TOTAL OCCUPANTS = 1,550
TABLE 1005.1 (0.2) = 31.0 FT

NET WIDTH REQD = 31-0" FT

NET WIDTH PROVIDED = 32 FT

LEGEND

- EJ — EXPANSION JOINT
- CJ — CONTROL JOINT
- DEJ — DOWELED EXPANSION JOINT
- 5 1/2 CONC. POOL DECK WITH #4 @ 12" O.C.E.W TYP. 4,500 PSI
- 2/SP2-2 — DECK JOINT DETAILS TYP.
- SD — SLOT DRAIN SEE 1/SP2-4
- CB — CATCH BASIN SEE 1/SP2-4

KEY NOTES:

1. MEDIUM BROOM FINISHED CONCRETE DECK - ALL P.C. CONCRETE PAVING SHALL BE STABLE, FIRM & SLIP RESISTANT & SHALL COMPLY WITH CBC SECTIONS 11B-302 & 11B-403. NEW ABC PER GEOTECH REPORT
2. NEW MUSCO LIGHTS LED ON 50FT POLES
3. NEW SURGE TANK, PROVIDE NEW SCUTTLE & LADDER RUNGS, SEE 6&8/SPM2-3.
4. CIP CONCRETE 4,500 PSI #4'S @ 12" O.C.E.W. PREPARE SUBGRADE PER GEOTECHNICAL REPORT
5. LOCATE POOL SIGNAGE SEE 5/SP2-3
6. LIFE SAFETY EQUIPMENT SEE 4/SP2-8
7. NEW WHITE PLASTER
8. NEW CANTILEVER DECK
9. DIVING BOARD WITH DECK ANCHORS
10. TOMBSTONE WITH HB, ELECT & J-BOX

EXITING

OCCUPANTS:

POOL	12,652 S.F.	1/50	253
POOL DECK	21,340 S.F.	1/5	1,422
TOTAL OCCUPANTS:			1,676

OCCUPANTS PER EACH GATE: 419
REQUIRED: 1,676 X .2 = 335.2" OR 27.94 FT. = 27-11 1/2"
PROVIDED: GATES = 32-0"

1. PAIR OF 4-0" GATES - 8-0" WIDE EXISTING PROVIDE NEW HARDWARE
2. PAIR OF 4-0" GATES - 8-0" WIDE EXISTING PROVIDE NEW HARDWARE
3. PAIR OF 4-0" GATES - 8-0" WIDE NEW WITH PANIC HARDWARE
4. PAIR OF 4-0" GATES - 8-0" WIDE EXISTING PROVIDE NEW HARDWARE
5. PAIR OF 4-0" GATES - 8-0" WIDE EXISTING PROVIDE NEW HARDWARE

GENERAL NOTES:

1. BOND & GROUND DECK EQUIPMENT & MECHANICAL ROOM EQUIPMENT TYP. SEE 7&9/SP2-5.
2. NO TILE MARKERS OVER CONCRETE JOINTS TYP.
3. THE FACILITY EXISTS, VERIFY DIMENSIONS ON SITE.
4. CATCH BASINS CONNECT WITH STORM SEWER TYP.

DECK PLAN

SCALE 1/12"=1'-0"

ARCH-PAC AQUATICS
2011 Palomar Airport Road, Suite 101
Carlsbad • CA, 92011
760 734 1600

LICENSED ARCHITECT — KENNETH PAUL MOELLER — No. C15,022 — Exp. 12/31/2025 — STATE OF CALIFORNIA

NO:
- LODI UNIFIED SCHOOL DISTRICT
- 1305 E VINE STREET, LODI CA 95240
- VICKIE BRUM - PLANNING ANALYST II

DRAWING TITLE: DECK PLAN
JOB TITLE: TOKAY HS POOL RENOVATION
JOB ADDRESS: 1111 W CENTURY BLVD, LODI CA 95242
DATE: 11SEP2024
SCALE: 1/8"=1'-0"
DRAWN BY: AM

DRAWING NO.:
SPE2-1