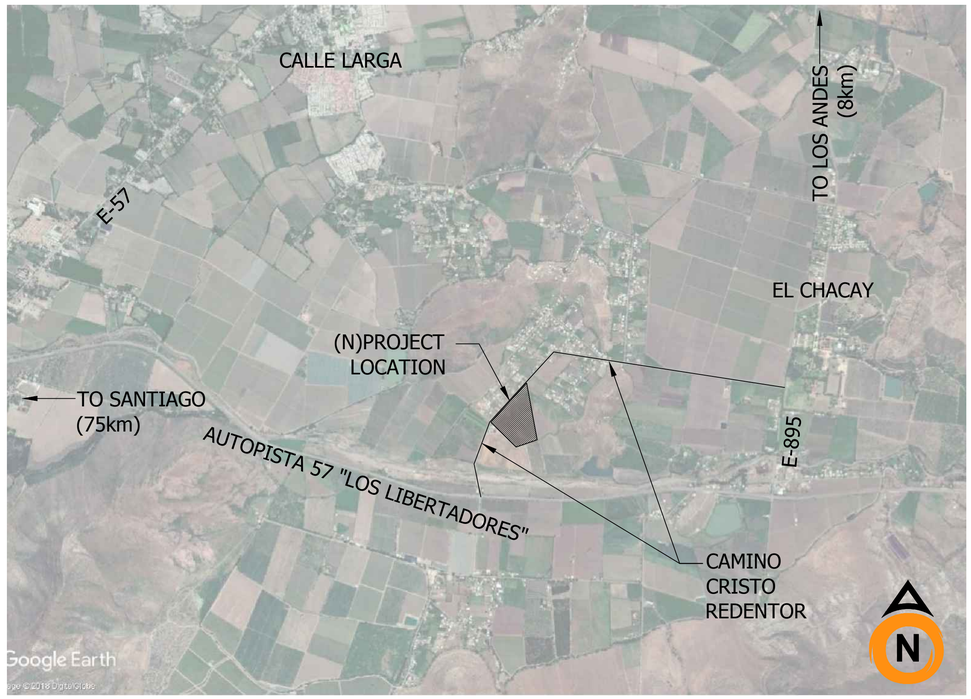
ALION ENERGY STORM TRACKER (AST)

BALLASTED SINGLE AXIS TRACKER MOUNTING LAYOUT

iENERGIA GROUP
CALLE LARGA PHOTOVOLTAIC SOLAR TRACKER PROJECT, 3.0MW-AC
CAMINO CRISTO REDENTOR, CALLE LARGA, VALPARAISO REGION, CHILE



PROJECT INFORMATION

OWNER: iENERGIA GROUP
Av. Americo Vespucio 2680,
Of. 111, Conchali,
Región Metropolitana, Chilé

AST ENGINEER: ALION ENERGY
870 Harbour Way South
Richmond, CA 94804 USA
Doc number:

GEOTECHNICAL:

CIVIL:

PRELIMINARY
NOT FOR
CONSTRUCTION

SHEET INDEX

SHEET	TITLE
Project	
P0.1	COVER SHEET
P1.0	NOTES & SPECIFICATIONS
Structural	
S1.0	BLOCK LAYOUT PLAN
S1.1	TRACK LAYOUT PLAN
S2.0...S2.5	CONTROL JOINT PLAN
S2.6...S2.16	CONTROL JOINT LOCATIONS
S2.17	CONTROL JOINT DETAILS
S2.18	CAST IN PLACE SLEW DRIVE BASE
S2.19	PRE-CAST SLEW DRIVE BASE
S3.0	FOOT EPOXY JOINT
S4.0	TABLE LAYOUT PLAN
S5.0	6 MODULE TABLE DETAILS
S5.1	5 MODULE TABLE DETAILS
S5.2	FRAME COMPONENTS
S5.3	DRIVE COMPONENTS
S5.4	CONTROL AND POWER ASSEMBLIES
Electrical	
E1.0	CABLE MANAGEMENT
E1.1	GROUNDING DETAILS
E1.2	COMMUNICATION DETAILS
E1.3	REFERENCE CUT SHEETS
E1.4	REFERENCE CUT SHEETS (CONT)

AlionEnergy
The Most Power from PV
870 HARBOUR WAY SOUTH
RICHMOND, CA 94804 U.S.
01 (510) 965-0868
www.alionenergy.com

THE INFORMATION CONTAINED HEREIN IS CONSIDERED AS CONFIDENTIAL. THIS DRAWING AND ANY DATA, DESCRIPTION AND OR USE, IN WHOLE OR IN PART, FOR ANY PURPOSE SHALL NOT BE PUBLISHED, REPRODUCED, COPIED OR DISCLOSED WITHOUT THE EXPRESS WRITTEN PERMISSION OF A DULY AUTHORIZED REPRESENTATIVE OF ALION, INC.

PROPERTY OF ALION ENERGY, INC.

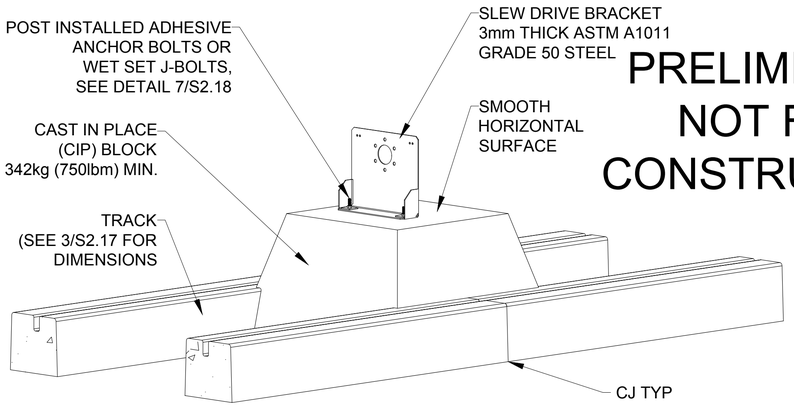
iENERGIA GROUP
CALLE LARGA SOLAR
CAMINO CRISTO REDENTOR
CALLE LARGA, VALPARAISO, CHILE
32°53'00" S, 70°36'37" W

REVISIONS

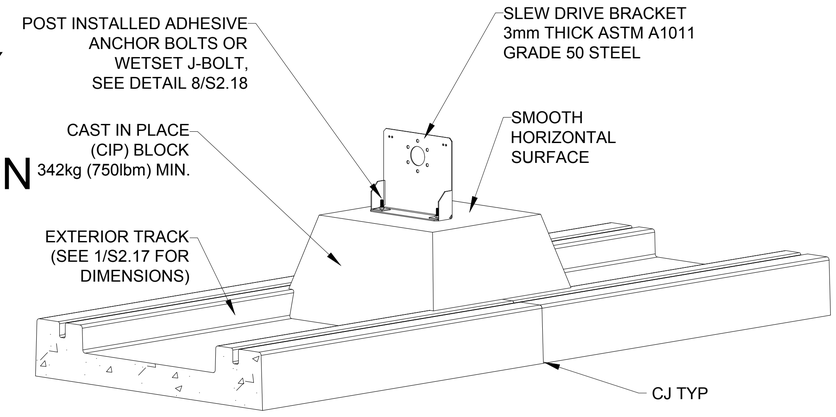
#	REVISIONS	APPROVAL / DATE
0	INITIAL RELEASE	
1	ADDITION / MODIFIED	
2	ADDITION / MODIFIED	
3	ADDITION / MODIFIED	
4	ADDITION / MODIFIED	

APPROVALS :
Project Engineer :
Project Manager :
Drawn By : AMS
Project No : 00325
Date : 05-22-2018
Sheet Title : COVER SHEET
Sheet : P0.1

PRELIMINARY
NOT FOR
CONSTRUCTION



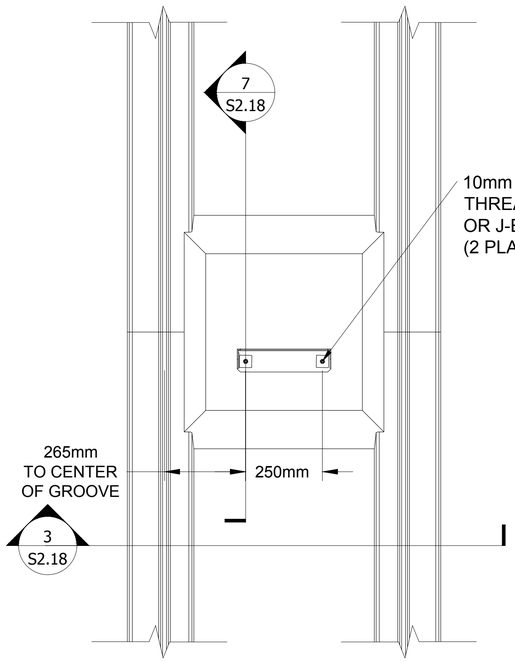
1 S2.18 TRACK DRIVE BASE - ISOMETRIC
SCALE: NTS



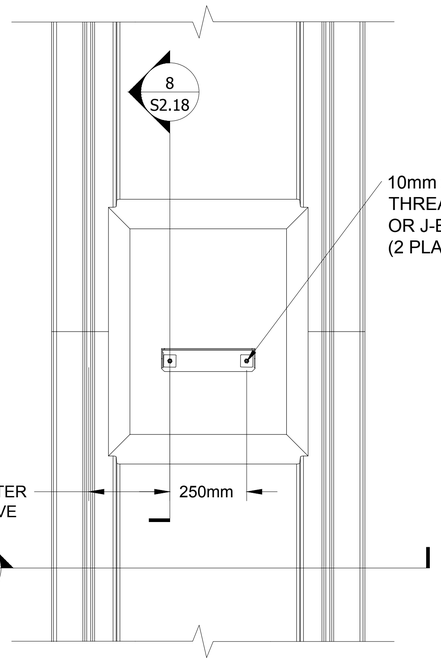
4 S2.18 EXT. TRACK DRIVE BASE - ISOMETRIC
SCALE: NTS

SLEW DRIVE BASE NOTES:

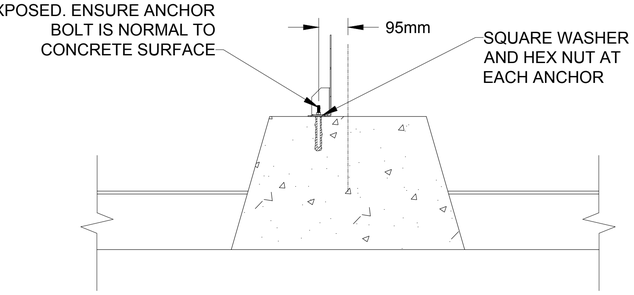
1. USE S2.6 THRU S2.16 CJ TABLES TO LOCATE SLEW DRIVE BASE ON TRACKS.
2. CAST BASE USING TRACK CONCRETE MIX NO EARLIER THAN 3 DAYS AFTER FORMING TRACK.
3. USE 4°-7° DRAFT ANGLE TO ALLOW BASE TO RELEASE FROM MOLD/FORMWORK
4. 342kg (750lbm) MINIMUM WEIGHT
5. USE VIBRATOR TO CONSOLIDATE CONCRETE. VOIDS ARE NOT PERMITTED
6. REMOVE FORM AFTER INITIAL SET SO THAT FINISHED BASE ELEVATION HEIGHT IS MAINTAINED
7. APPLY CURING COMPOUND.
8. INSTALL ADHESIVE ANCHORS AFTER SLEW DRIVE IS INSTALLED AND CONNECTED TO DRIVE TUBES. SEE INSTALLATION MANUAL.



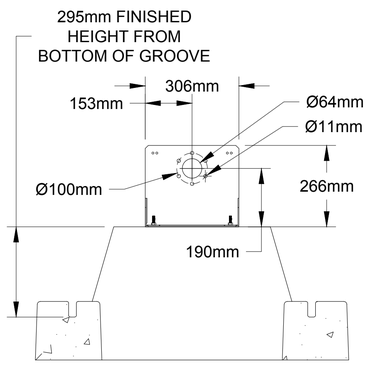
2 S2.18 TRACK DRIVE BASE - PLAN
SCALE 1: 10



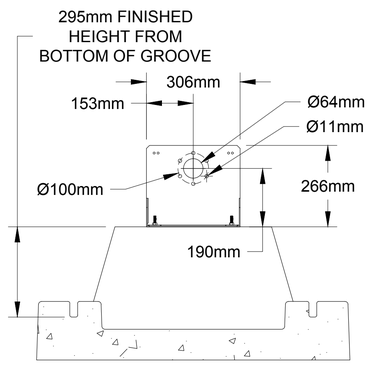
5 S2.18 EXT. TRACK DRIVE BASE - PLAN
SCALE 1: 10



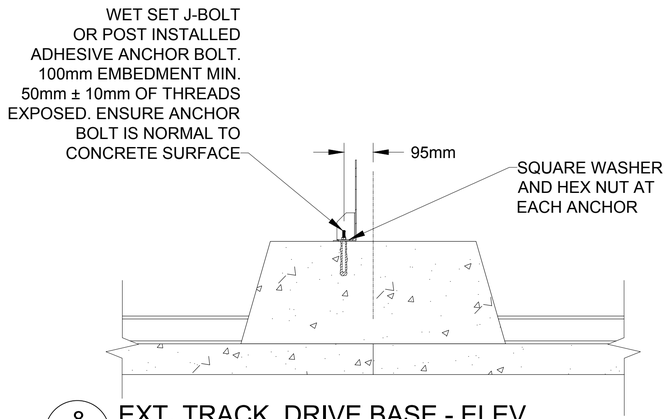
7 S2.18 TRACK DRIVE BASE - ELEV
SCALE 1: 10



3 S2.18 TRACK DRIVE BASE - ELEV
SCALE 1: 10



6 S2.18 EXT. TRACK DRIVE BASE - ELEV
SCALE 1: 10



8 S2.18 EXT. TRACK DRIVE BASE - ELEV
SCALE 1: 10

AlionEnergy
The Most Power from PV
870 HARBOUR WAY SOUTH
RICHMOND, CA 94804 U.S.
www.alionenergy.com
01 (510) 965-0868

THE INFORMATION CONTAINED HEREIN IS CONSIDERED AS CONFIDENTIAL. THIS DRAWING AND ANY DATA, DESCRIPTION AND OR USE, IN WHOLE OR IN PART, FOR ANY PURPOSE SHALL NOT BE PUBLISHED, REPRODUCED, COPIED OR DISCLOSED WITHOUT THE EXPRESS WRITTEN PERMISSION OF A DULY AUTHORIZED REPRESENTATIVE OF ALION, INC.

PROPERTY OF ALION ENERGY, INC.

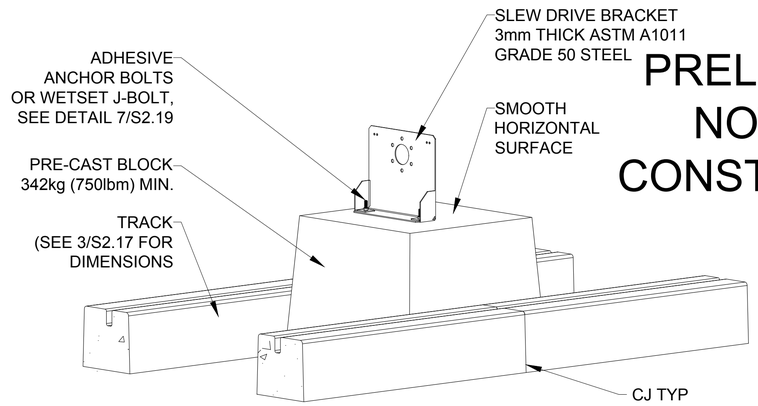
iENERGIA GROUP
CALLE LARGA SOLAR
CAMINO CRISTO REDENTOR
CALLE LARGA, VALPARAISO, CHILE
32°53'00" S, 70°36'37" W

REVISIONS

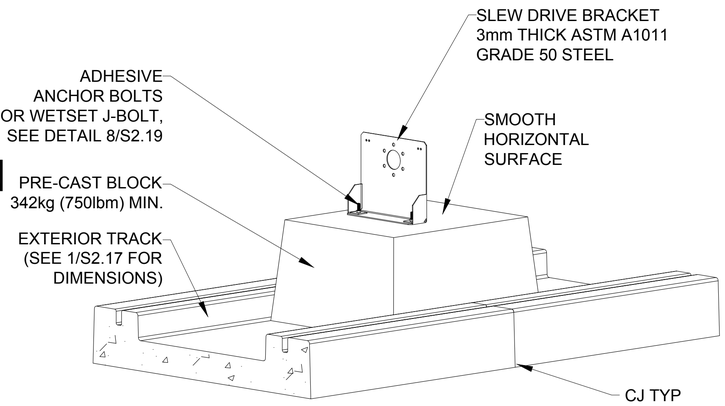
#	REVISIONS			APPROVAL / DATE
0	INITIAL RELEASE			
1	ADDITION	MODIFIED		
2	ADDITION	MODIFIED		
3	ADDITION	MODIFIED		
4	ADDITION	MODIFIED		

APPROVALS :
Project Engineer :
Project Manager :
Drawn By : AMS
Project No : 00325
Date : 05-22-2018
Sheet Title :
CAST IN PLACE SLEW DRIVE BASE
Sheet : S2.18

PRELIMINARY
NOT FOR
CONSTRUCTION



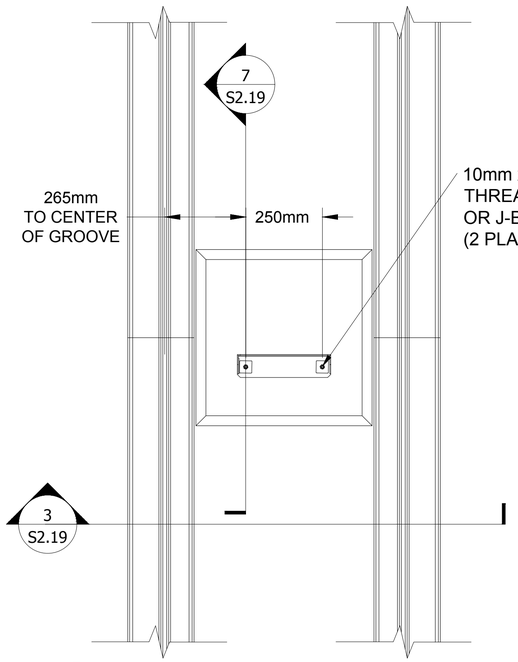
1 S2.19 TRACK DRIVE BASE - ISOMETRIC
SCALE: NTS



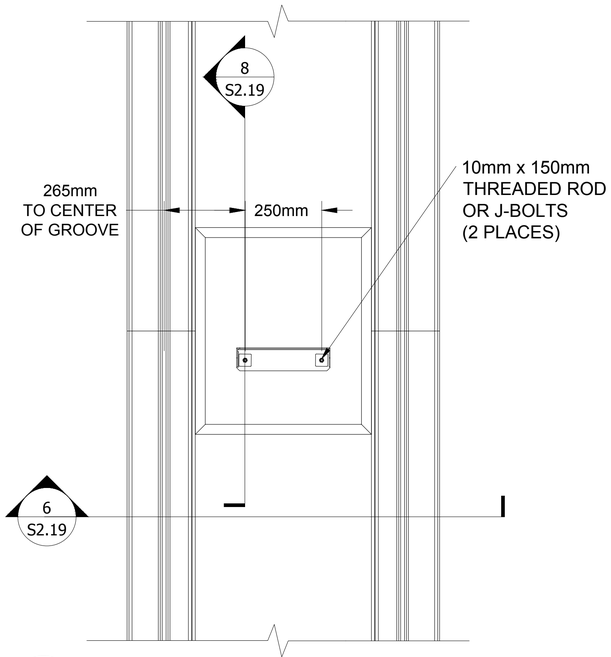
4 S2.19 EXT. TRACK DRIVE BASE - ISOMETRIC
SCALE: NTS

SLEW DRIVE BASE NOTES:

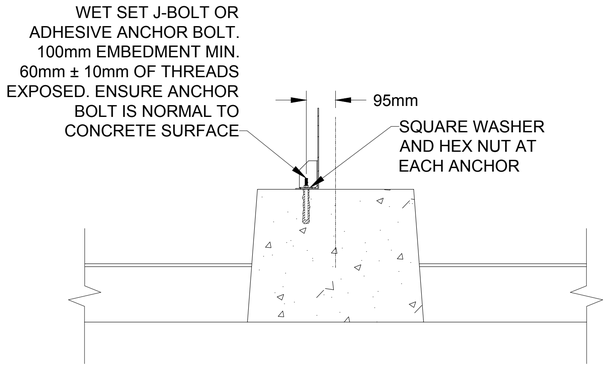
1. CAST BASE USING TRACK CONCRETE MIX. USE 4°-7° DRAFT ANGLE TO ALLOW BASE TO RELEASE FROM MOLD OR FORMWORK
2. 342kg (750lbm) MINIMUM WEIGHT.
3. USE VIBRATOR TO CONSOLIDATE CONCRETE. VOIDS ARE NOT PERMITTED
4. REMOVE FORM AFTER INITIAL SET SO THAT FINISHED BASE ELEVATION HEIGHT IS MAINTAINED
5. APPLY CURING COMPOUND.
6. USE ANCHORS AS PICK POINTS TO LIFT AND LOWER BASE INTO POSITION.
7. USE S2.6 THRU S2.16 CJ TABLES TO LOCATE SLEW DRIVE BASE ON TRACKS.



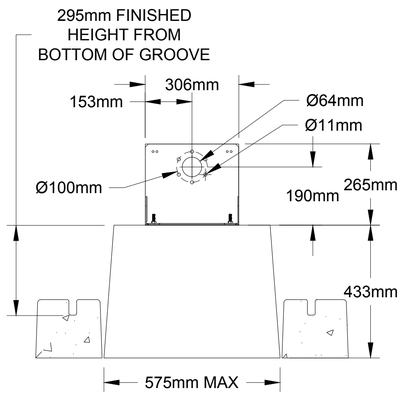
2 S2.19 TRACK DRIVE BASE - PLAN
SCALE 1: 10



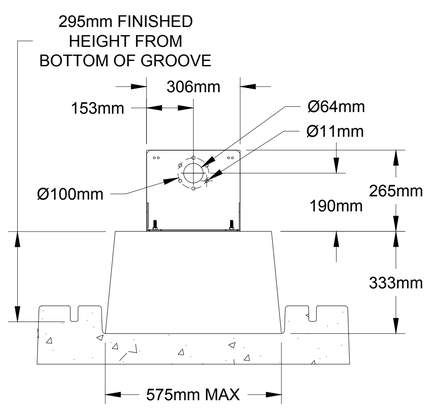
5 S2.19 EXTERIOR TRACK DRIVE BASE - PLAN
SCALE 1: 10



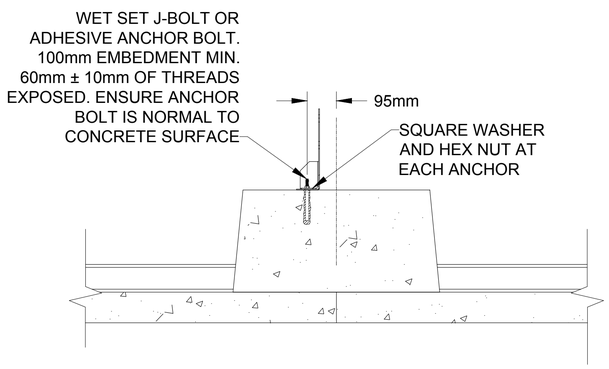
7 S2.19 TRACK DRIVE BASE - ELEV
SCALE 1: 10



3 S2.19 TRACK DRIVE BASE - ELEV
SCALE 1: 10



6 S2.19 EXT. TRACK DRIVE BASE - ELEV
SCALE 1: 10



8 S2.19 EXT. TRACK DRIVE BASE - ELEV
SCALE 1: 10

AlionEnergy
The Most Power from PV
870 HARBOUR WAY SOUTH
RICHMOND, CA 94804 U.S.
www.alionenergy.com
01 (510) 965-0868

THE INFORMATION CONTAINED HEREIN IS CONSIDERED AS CONFIDENTIAL. THIS DRAWING AND ANY DATA, DESCRIPTION AND OR USE, IN WHOLE OR IN PART, FOR ANY PURPOSE SHALL NOT BE PUBLISHED, REPRODUCED, COPIED OR DISCLOSED WITHOUT THE EXPRESS WRITTEN PERMISSION OF A DULY AUTHORIZED REPRESENTATIVE OF ALION, INC.

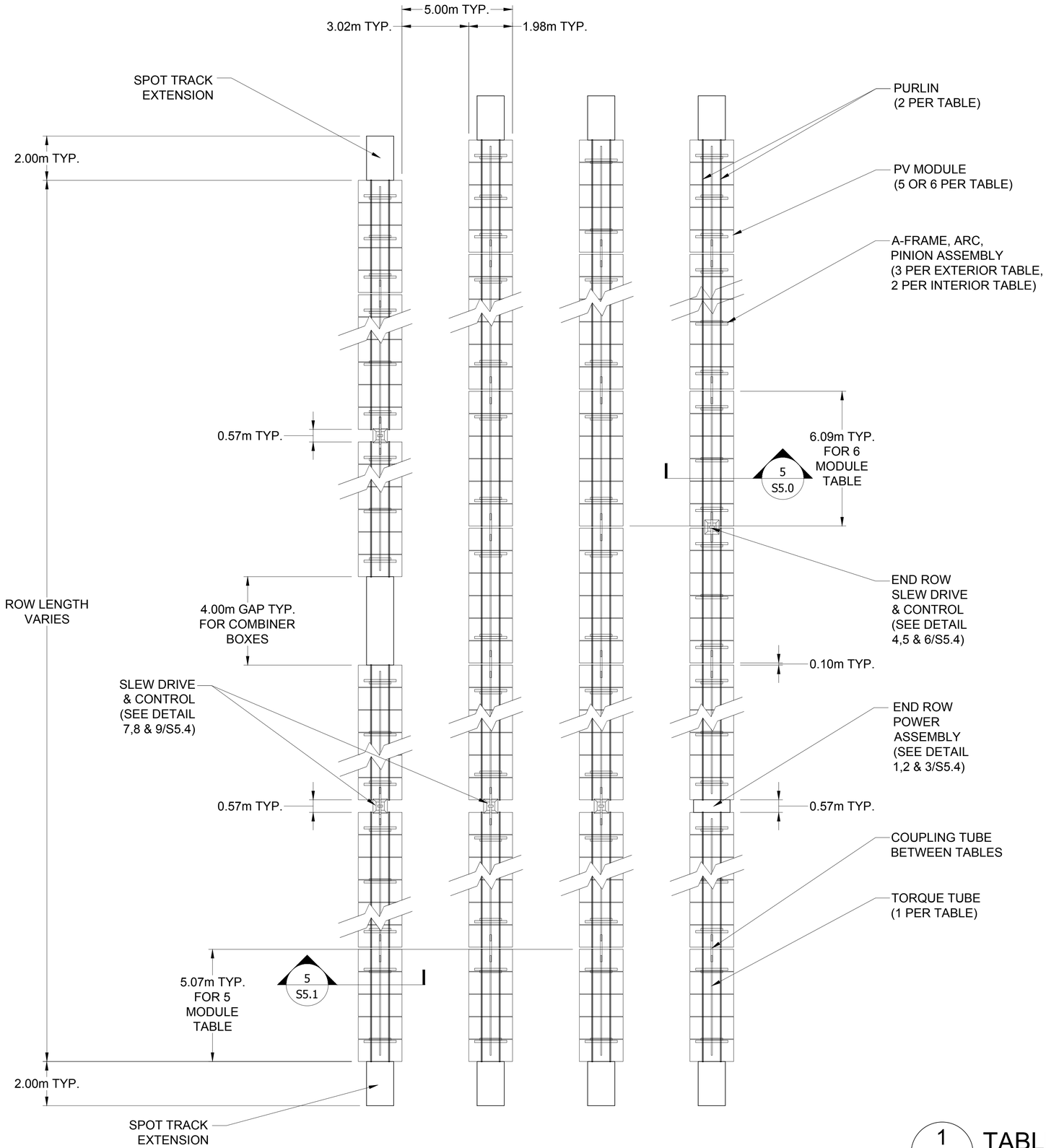
PROPERTY OF ALION ENERGY, INC.

iENERGIA GROUP
CALLE LARGA SOLAR
CAMINO CRISTO REDENTOR
CALLE LARGA, VALPARAISO, CHILE
32°53'00" S, 70°36'37" W

REVISIONS

#	REVISIONS	APPROVAL / DATE
0	INITIAL RELEASE	
1	ADDITION / MODIFIED	
2	ADDITION / MODIFIED	
3	ADDITION / MODIFIED	
4	ADDITION / MODIFIED	

APPROVALS :
Project Engineer :
Project Manager :
Drawn By : AMS
Project No : 00325
Date : 05-22-2018
Sheet Title : PRE-CAST SLEW DRIVE BASE
Sheet : S2.19



1 / S4.0 TABLE LAYOUT PLAN

SCALE 1: 100

TABLE LAYOUT NOTES:

1. PROVIDE MINIMUM TRACK EXTENSION FOR SPOT AS SHOWN.
2. PROVIDE TYPICAL SPECIFIED GAPS BETWEEN TABLES.
3. SEE S5 SHEETS FOR COMPONENT DETAILS

PRELIMINARY NOT FOR CONSTRUCTION

AlionEnergy
The Most Power from PV
870 HARBOUR WAY SOUTH
RICHMOND, CA 94804 U.S.
www.alionenergy.com
01 (510) 965-0868

THE INFORMATION CONTAINED HEREIN IS CONSIDERED AS CONFIDENTIAL. THIS DRAWING AND ANY DATA, DESCRIPTION AND OR USE, IN WHOLE OR IN PART, FOR ANY PURPOSE SHALL NOT BE PUBLISHED, REPRODUCED, COPIED OR DISCLOSED WITHOUT THE EXPRESS WRITTEN PERMISSION OF A DULY AUTHORIZED REPRESENTATIVE OF ALION, INC.

PROPERTY OF ALION ENERGY, INC.

iENERGIA GROUP
CALLE LARGA SOLAR
CAMINO CRISTO REDENTOR
CALLE LARGA, VALPARAISO, CHILE
32°53'00" S, 70°36'37" W

REVISIONS

#	REVISIONS	APPROVAL / DATE
0	INITIAL RELEASE	
1	ADDITION / MODIFIED	
2	ADDITION / MODIFIED	
3	ADDITION / MODIFIED	
4	ADDITION / MODIFIED	

APPROVALS :

Project Engineer :

Project Manager :

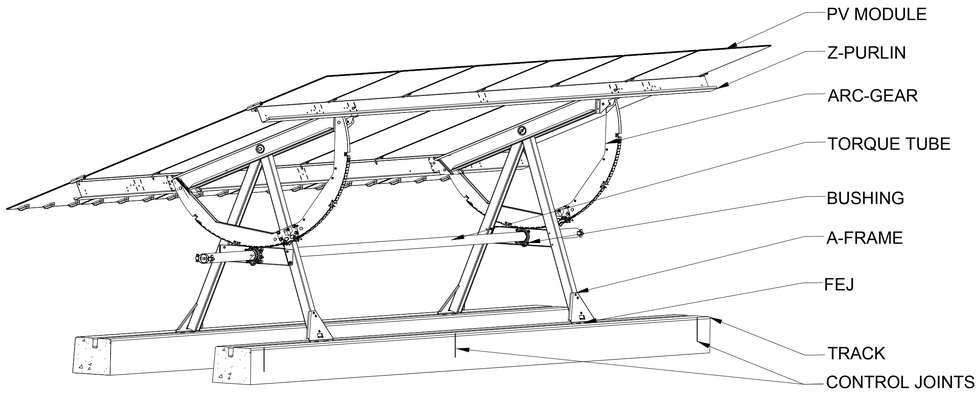
Drawn By : AMS

Project No : 00325

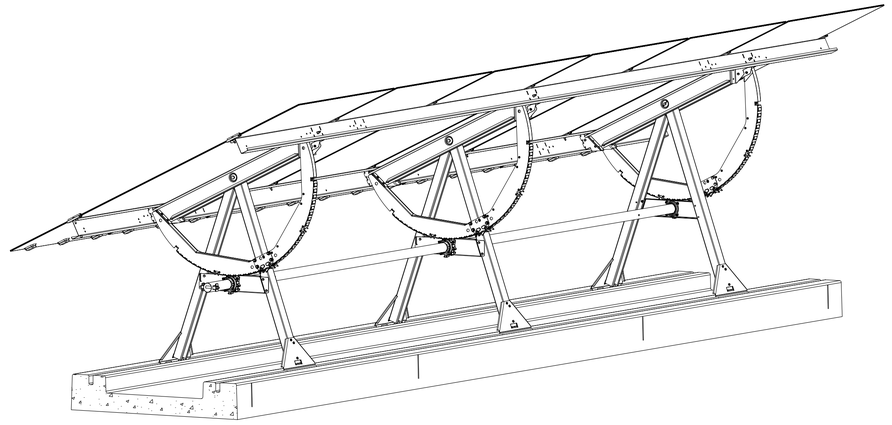
Date : 05-22-2018

Sheet Title : TABLE LAYOUT PLAN

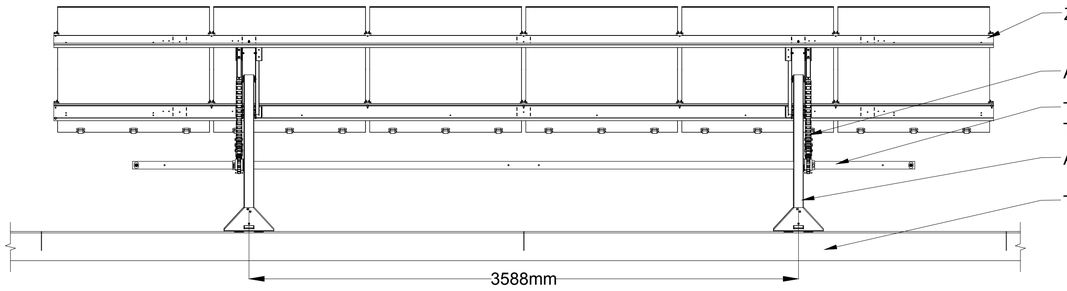
Sheet : S4.0



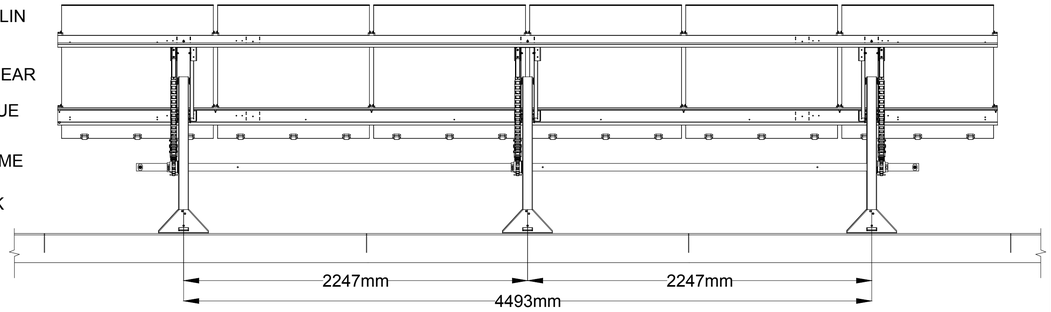
1 S5.0 INTERIOR TABLE - ISOMETRIC
SCALE: NTS



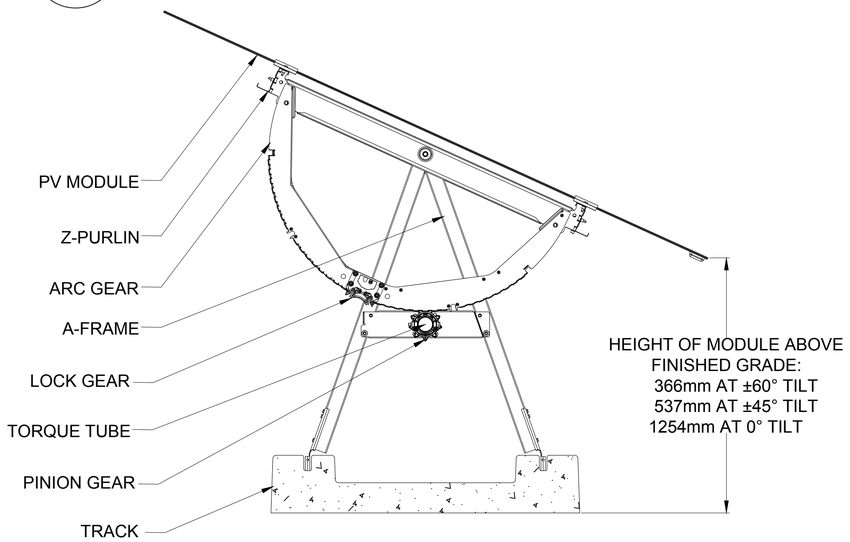
2 S5.0 EXTERIOR TABLE - ISOMETRIC
SCALE: NTS



3 S5.0 INTERIOR TABLE - ELEVATION
SCALE: 1:20



4 S5.0 EXTERIOR TABLE - ELEVATION
SCALE: 1:20



5 S5.0 SOUTH EXTERIOR ELEVATION
SCALE: 1:10

PRELIMINARY
NOT FOR
CONSTRUCTION

AlionEnergy
The Most Power from PV
870 HARBOUR WAY SOUTH
RICHMOND, CA 94804 U.S.
www.alionenergy.com
01 (510) 965-0868

THE INFORMATION CONTAINED HEREIN IS CONSIDERED AS CONFIDENTIAL. THIS DRAWING AND ANY DATA, DESCRIPTION AND OR USE, IN WHOLE OR IN PART, FOR ANY PURPOSE SHALL NOT BE PUBLISHED, REPRODUCED, COPIED OR DISCLOSED WITHOUT THE EXPRESS WRITTEN PERMISSION OF A DULY AUTHORIZED REPRESENTATIVE OF ALION, INC.

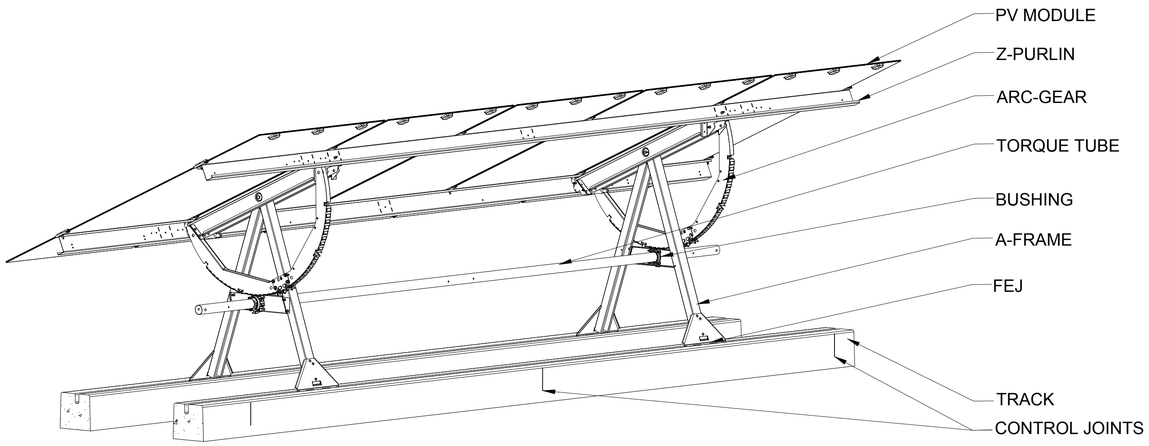
PROPERTY OF ALION ENERGY, INC.

iENERGIA GROUP
CALLE LARGA SOLAR
CAMINO CRISTO REDENTOR
CALLE LARGA, VALPARAISO, CHILE
32°53'00" S, 70°36'37" W

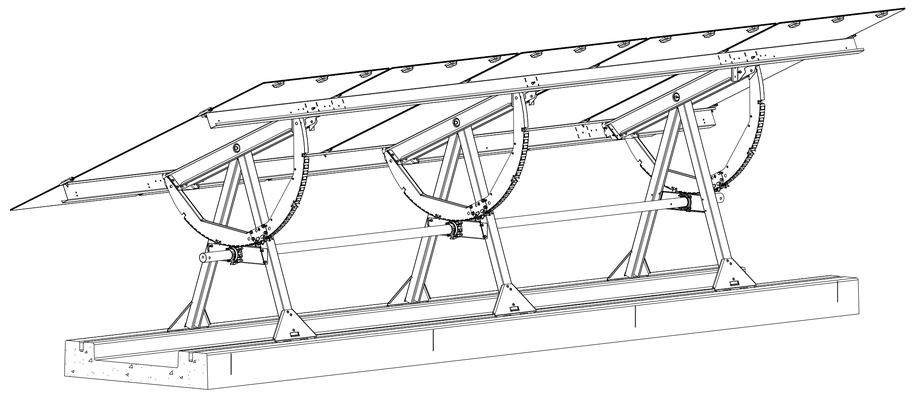
REVISIONS

#	REVISIONS				APPROVAL / DATE
0	INITIAL RELEASE				
1	ADDITION		MODIFIED		
2	ADDITION		MODIFIED		
3	ADDITION		MODIFIED		
4	ADDITION		MODIFIED		

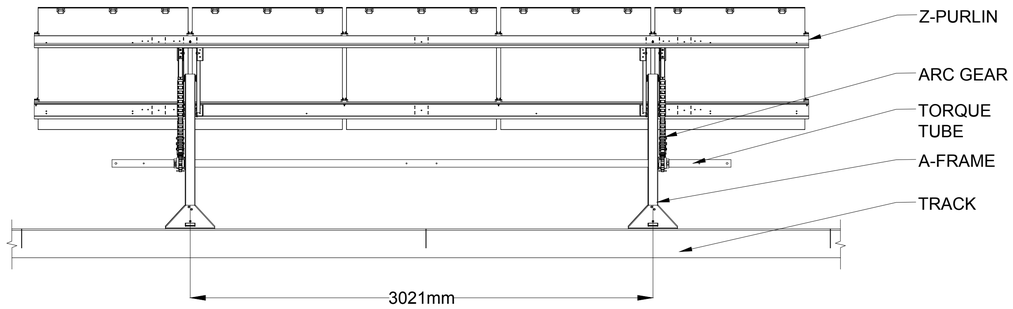
APPROVALS :
Project Engineer :
Project Manager :
Drawn By : AMS
Project No : 00325
Date : 05-22-2018
Sheet Title : 6 MODULE TABLE DETAILS
Sheet : S5.0



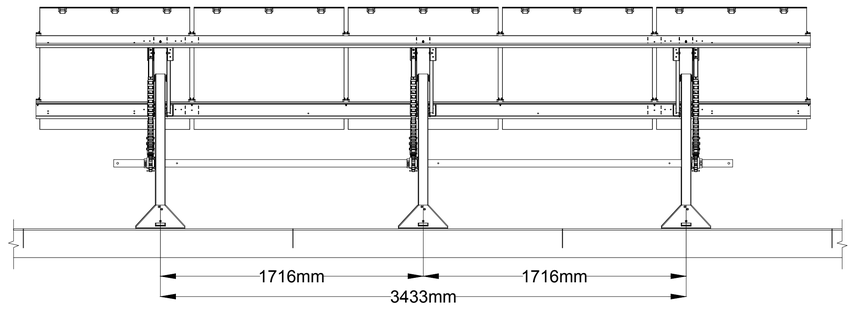
1 S5.1 INTERIOR TABLE - ISOMETRIC
SCALE: NTS



2 S5.1 EXTERIOR TABLE - ISOMETRIC
SCALE: NTS

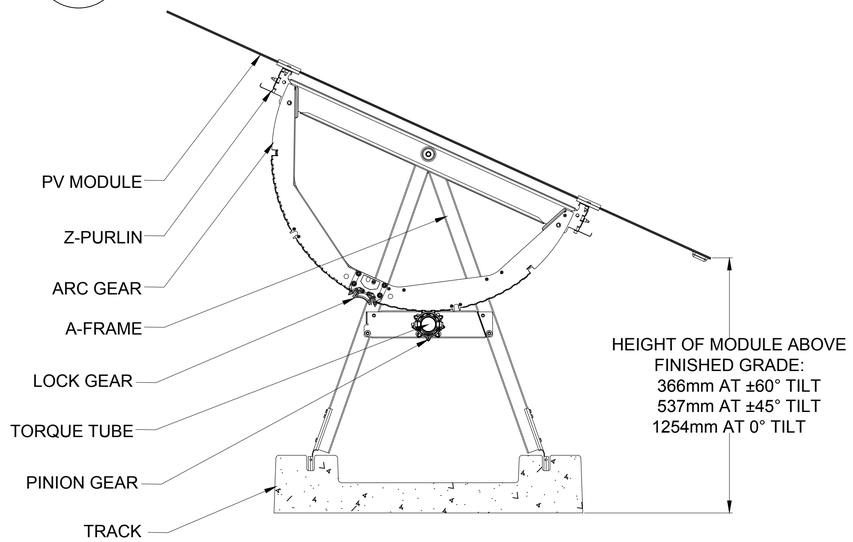


3 S5.1 INTERIOR TABLE - ELEVATION
SCALE: 1:20



4 S5.1 EXTERIOR TABLE - ELEVATION
SCALE: 1:20

PRELIMINARY
NOT FOR
CONSTRUCTION



5 S5.1 SOUTH EXTERIOR ELEVATION
SCALE: 1:10

AlionEnergy
The Most Power from PV
870 HARBOUR WAY SOUTH
RICHMOND, CA 94804 U.S.
www.alionenergy.com
01 (510) 965-0888

THE INFORMATION CONTAINED HEREIN IS CONSIDERED AS CONFIDENTIAL. THIS DRAWING AND ANY DATA, DESCRIPTION AND OR USE, IN WHOLE OR IN PART, FOR ANY PURPOSE SHALL NOT BE PUBLISHED, REPRODUCED, COPIED OR DISCLOSED WITHOUT THE EXPRESS WRITTEN PERMISSION OF A DULY AUTHORIZED REPRESENTATIVE OF ALION, INC.

PROPERTY OF ALION ENERGY, INC.

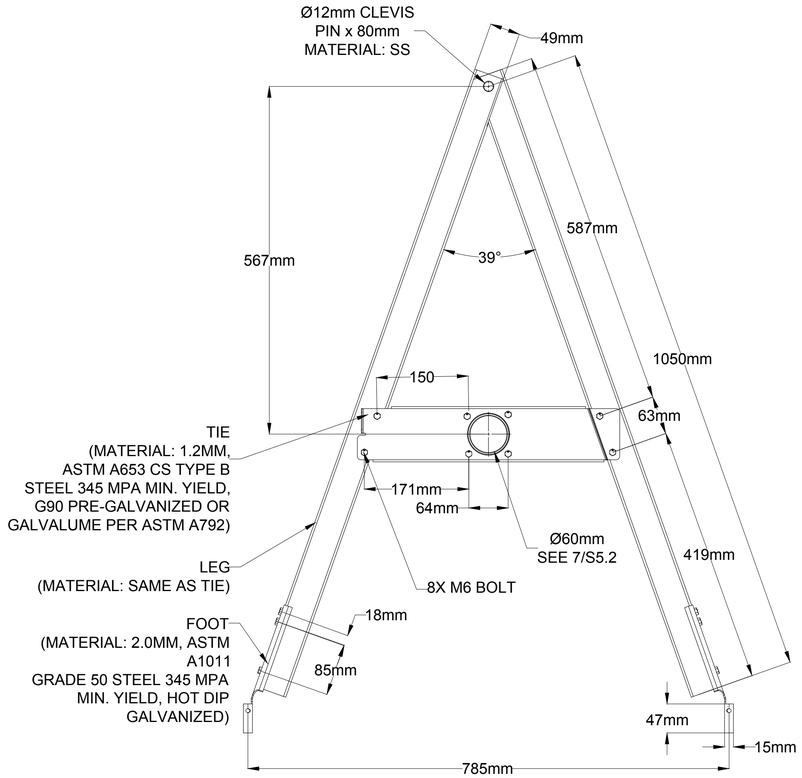
iENERGIA GROUP
CALLE LARGA SOLAR

CAMINO CRISTO REDENTOR
CALLE LARGA, VALPARAISO, CHILE
32°53'00" S, 70°36'37" W

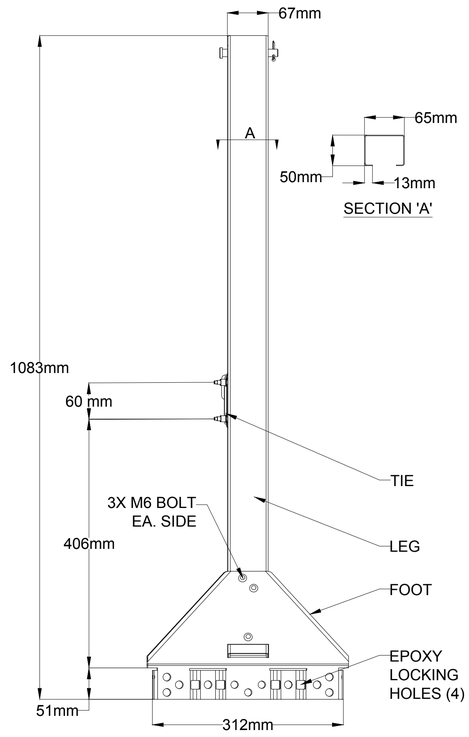
REVISIONS

#	REVISIONS	APPROVAL / DATE
0	INITIAL RELEASE	
1	ADDITION / MODIFIED	
2	ADDITION / MODIFIED	
3	ADDITION / MODIFIED	
4	ADDITION / MODIFIED	

APPROVALS :
Project Engineer :
Project Manager :
Drawn By : AMS
Project No : 00325
Date : 05-22-2018
Sheet Title : 5 MODULE TABLE DETAILS
Sheet : S5.1

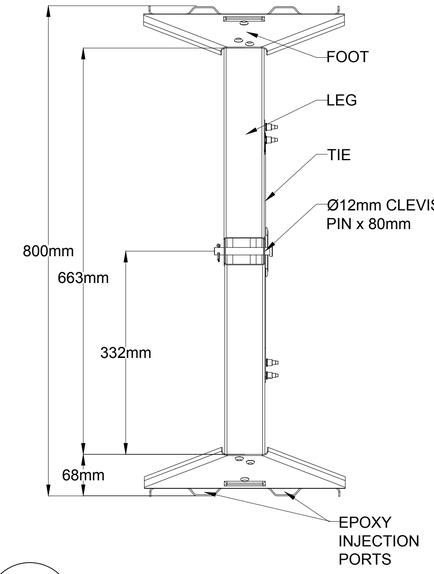


1 S5.2 A-FRAME - ELEVATION
SCALE: 1:5

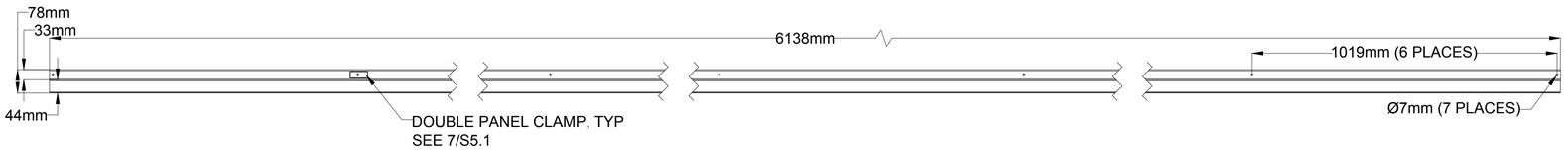


2 S5.2 A-FRAME - ELEVATION
SCALE: 1:5

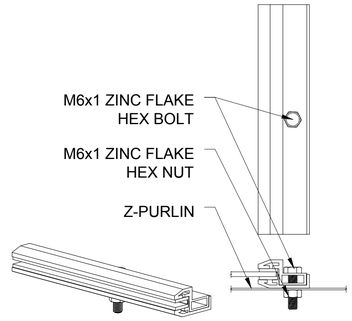
PRELIMINARY
NOT FOR
CONSTRUCTION



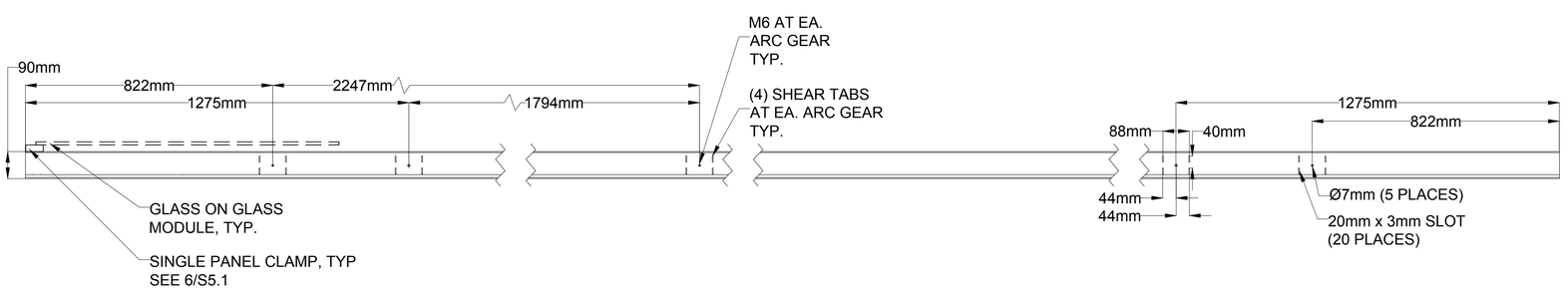
3 S5.2 A-FRAME - PLAN
SCALE: 1:5



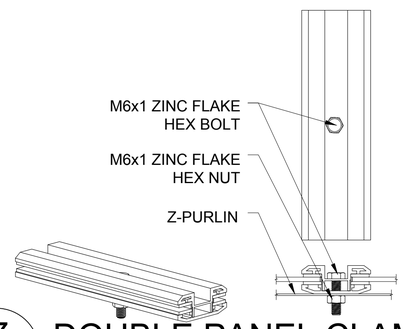
4 S5.2 Z-PURLIN - PLAN
SCALE: 1:10



6 S5.2 SINGLE PANEL CLAMP
SCALE: 1:2



5 S5.2 Z-PURLIN - ELEVATION
SCALE: 1:10



7 S5.2 DOUBLE PANEL CLAMP
SCALE: 1:2

AlionEnergy
The Most Power from PV
870 HARBOUR WAY SOUTH
RICHMOND, CA 94804 U.S.
www.alionenergy.com
01 (510) 965-0868

THE INFORMATION CONTAINED HEREIN IS CONSIDERED AS CONFIDENTIAL. THIS DRAWING AND ANY DATA, DESCRIPTION AND OR USE, IN WHOLE OR IN PART, FOR ANY PURPOSE SHALL NOT BE PUBLISHED, REPRODUCED, COPIED OR DISCLOSED WITHOUT THE EXPRESS WRITTEN PERMISSION OF A DULY AUTHORIZED REPRESENTATIVE OF ALION, INC.

PROPERTY OF ALION ENERGY, INC.

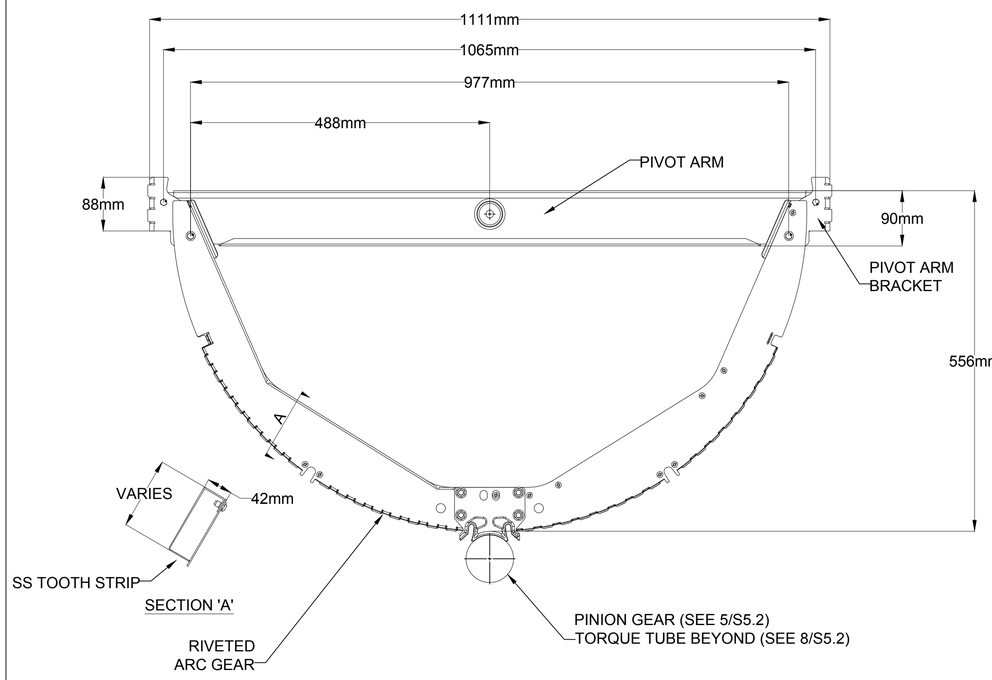
iENERGIA GROUP
CALLE LARGA SOLAR

CAMINO CRISTO REDENTOR
CALLE LARGA, VALPARAISO, CHILE
32°53'00" S, 70°36'37" W

REVISIONS

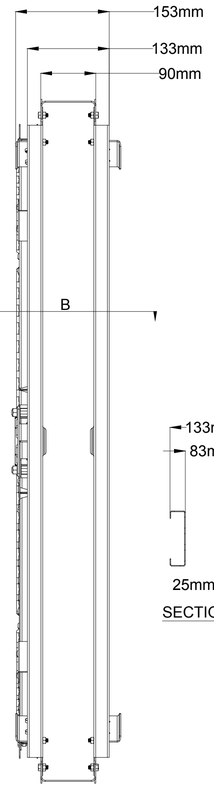
#	REVISIONS	APPROVAL / DATE
0	INITIAL RELEASE	
1	ADDITION / MODIFIED	
2	ADDITION / MODIFIED	
3	ADDITION / MODIFIED	
4	ADDITION / MODIFIED	

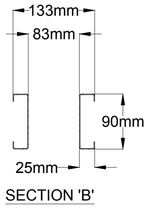
APPROVALS :
Project Engineer :
Project Manager :
Drawn By : AMS
Project No : 00325
Date : 05-22-2018
Sheet Title : FRAME COMPONENTS
Sheet : S5.2



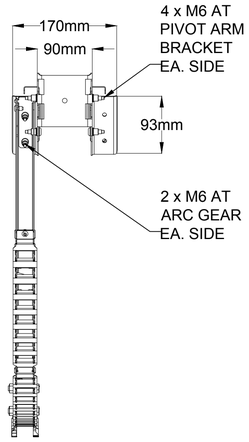
1 S5.3 ARC-GEAR - ELEVATION

SCALE: 1:5





SECTION 'B'



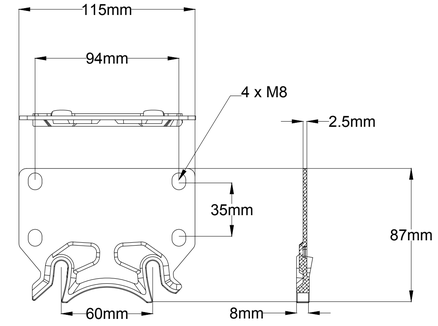
3 S5.3 ARC-GEAR - ELEVATION

SCALE: 1:5

DRIVE NOTES:

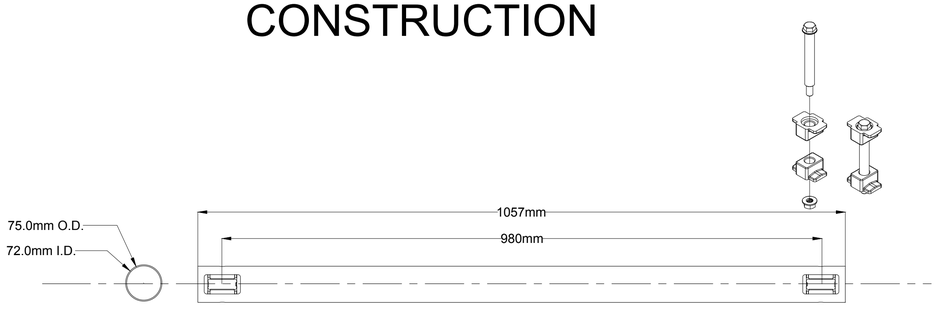
1. MATERIAL
   SHEET: 1.2MM, ASTM A653 CS TYPE B STEEL 345 MPA MIN. YIELD, G90 PRE-GALVANIZED OR GALVALUME PER ASTM A792
   PINION GEAR: CAST STAINLESS STEEL
   BUSHING: CAST ZINC ALUMINUM ALLOY (ZA27)
   LOCK PLATE:CAST ZINC ALUMINUM ALLOY (ZA27)
2. FASTENERS
   M6 BOLTS:
   RIVETS: 4.8mm STAINLESS STEEL

PRELIMINARY
NOT FOR
CONSTRUCTION



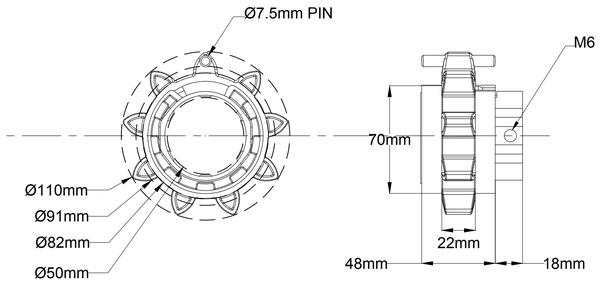
2 S5.3 ARC-GEAR - PLAN

SCALE: 1:5



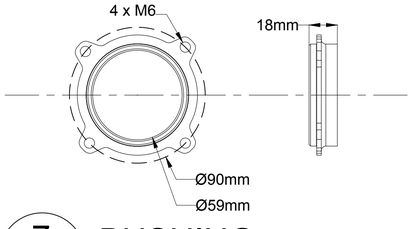
4 S5.3 COUPLING TUBE & HARDWARE

SCALE: 1:5



5 S5.3 PINION GEAR

SCALE: 1:2

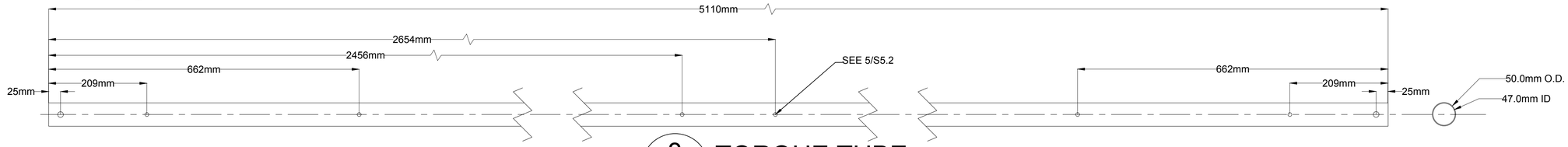


6 S5.3 LOCK GEAR

SCALE: 1:2

7 S5.3 BUSHING

SCALE: 1:2



8 S5.3 TORQUE TUBE

SCALE: 1:5

AlionEnergy
The Most Power from PV
870 HARBOUR WAY SOUTH
RICHMOND, CA 94804 U.S.
www.alionenergy.com
01 (510) 965-0868

THE INFORMATION CONTAINED HEREIN IS CONSIDERED AS CONFIDENTIAL. THIS DRAWING AND ANY DATA, DESCRIPTION AND OR USE, IN WHOLE OR IN PART, FOR ANY PURPOSE SHALL NOT BE PUBLISHED, REPRODUCED, COPIED OR DISCLOSED WITHOUT THE EXPRESS WRITTEN PERMISSION OF A DULY AUTHORIZED REPRESENTATIVE OF ALION, INC.

PROPERTY OF ALION ENERGY, INC.

iENERGIA GROUP
CALLE LARGA SOLAR
CAMINO CRISTO REDENTOR
CALLE LARGA, VALPARAISO, CHILE
32°53'00" S, 70°36'37" W

REVISIONS

#	REVISIONS			APPROVAL / DATE
0	INITIAL RELEASE			
1	ADDITION		MODIFIED	
2	ADDITION		MODIFIED	
3	ADDITION		MODIFIED	
4	ADDITION		MODIFIED	

APPROVALS :

Project Engineer :

Project Manager :

Drawn By : AMS

Project No : 00325

Date : 05-22-2018

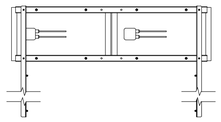
Sheet Title : DRIVE COMPONENTS

Sheet : S5.3



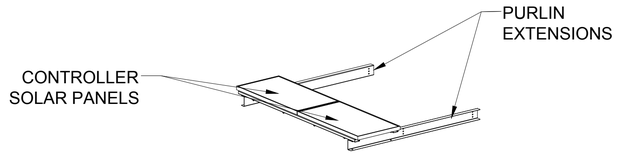
1 S5.4 END ROW POWER ASSEMBLY - ELEVATIONS

SCALE: 1:20



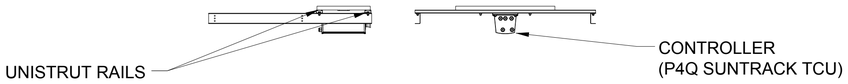
2 S5.4 END ROW POWER ASSEMBLY - UNDERSIDE

SCALE: 1:20



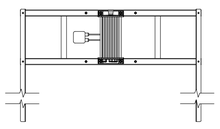
3 S5.4 END ROW POWER ASSEMBLY - ISOMETRIC

SCALE: 1:20



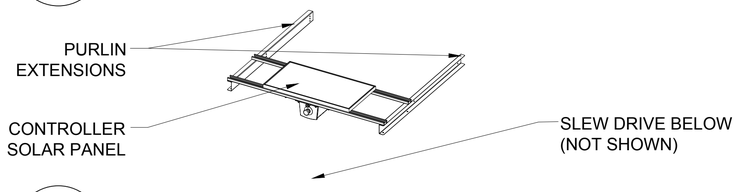
7 S5.4 CONTROLLER & POWER ASSEMBLY - ELEVATIONS

SCALE: 1:20



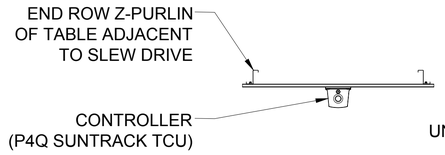
8 S5.4 CONTROLLER & POWER ASSEMBLY - UNDERSIDE

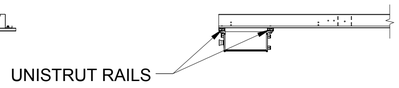
SCALE: 1:20



9 S5.4 CONTROLLER & POWER ASSEMBLY - ISOMETRIC

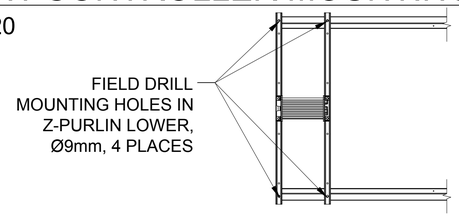
SCALE: 1:20





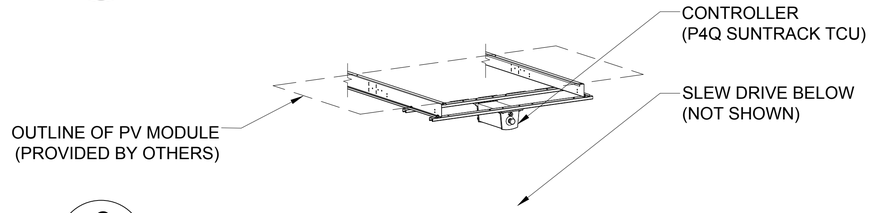
4 S5.4 END ROW CONTROLLER MOUNTING - ELEV

SCALE: 1:20



5 S5.4 END ROW CONTROLLER MOUNTING - UNDERSIDE

SCALE: 1:20



6 S5.4 END ROW CONTROLLER MOUNTING - ISOMETRIC

SCALE: 1:20

CONTROL & POWER ASSEMBLY NOTES:

1. CONTROLLERS FOR END ROWS LOCATED ABOVE SLEW DRIVES. SEE DETAIL 4,5 & 6/S5.4.
2. DETAIL 7,8 & 9/S5.4 SHOWS TYPICAL ROW CONTROL AND MOUNTING ASSEMBLY
3. SEE E1.2 FOR CONTROLLER WIRING CONFIGURATION AND COMMUNICATION NOTES

PRELIMINARY
NOT FOR
CONSTRUCTION

AlionEnergy
The Most Power from PV
870 HARBOUR WAY SOUTH
RICHMOND, CA 94804 U.S.
01 (510) 965-0868
www.alionenergy.com

THE INFORMATION CONTAINED HEREIN IS CONSIDERED AS CONFIDENTIAL. THIS DRAWING AND ANY DATA, DESCRIPTION AND OR USE, IN WHOLE OR IN PART, FOR ANY PURPOSE SHALL NOT BE PUBLISHED, REPRODUCED, COPIED OR DISCLOSED WITHOUT THE EXPRESS WRITTEN PERMISSION OF A DULY AUTHORIZED REPRESENTATIVE OF ALION, INC.

PROPERTY OF ALION ENERGY, INC.

¡ENERGIA GROUP
CALLE LARGA SOLAR
CAMINO CRISTO REDENTOR
CALLE LARGA, VALPARAISO, CHILE
32°53'00" S, 70°36'37" W

REVISIONS

#	REVISIONS	APPROVAL / DATE
0	INITIAL RELEASE	
1	ADDITION / MODIFIED	
2	ADDITION / MODIFIED	
3	ADDITION / MODIFIED	
4	ADDITION / MODIFIED	

APPROVALS :

Project Engineer :

Project Manager :

Drawn By : AMS

Project No : 00325

Date : 05-22-2018

Sheet Title : CONTROL & POWER ASSEMBLIES

Sheet : S5.4