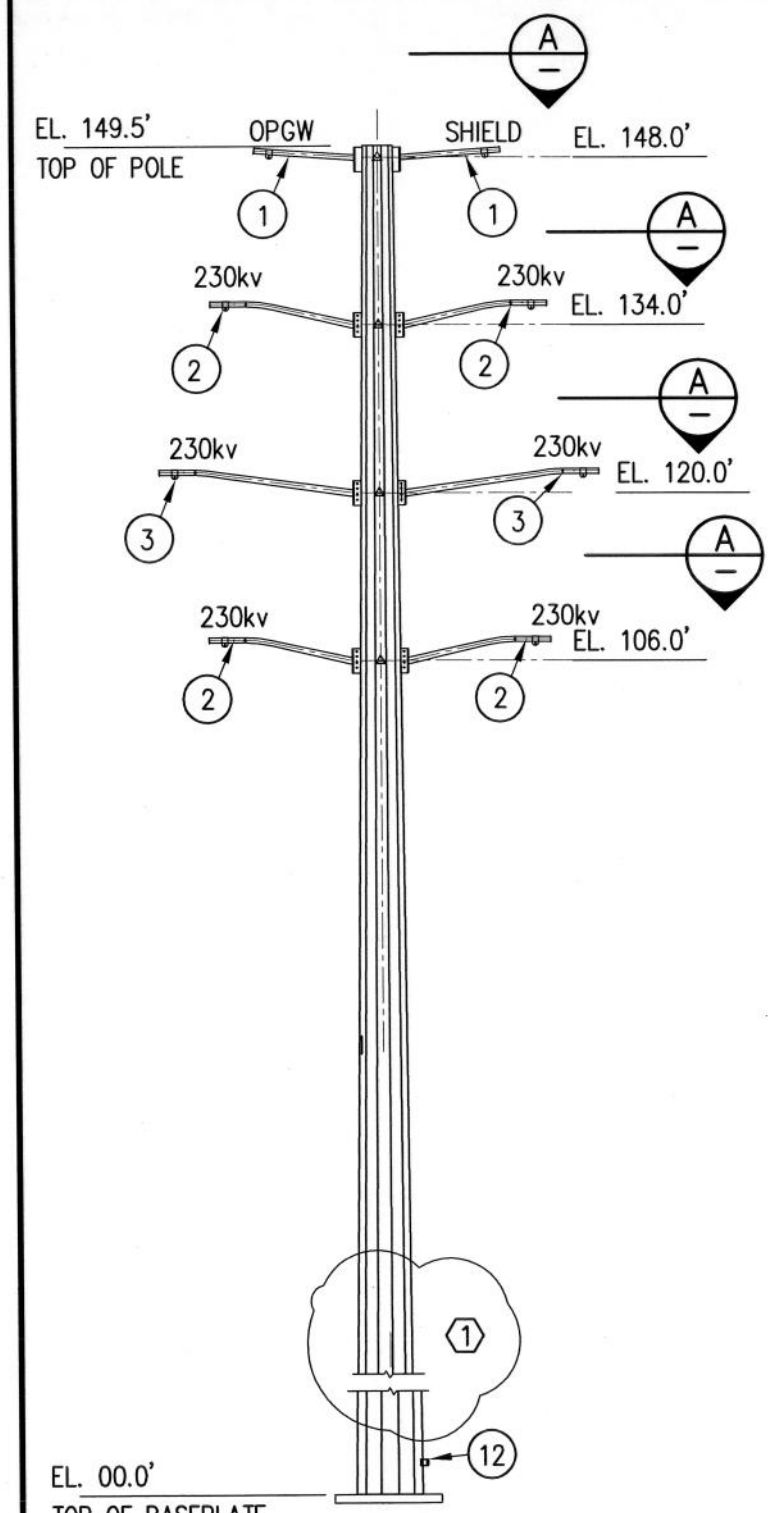
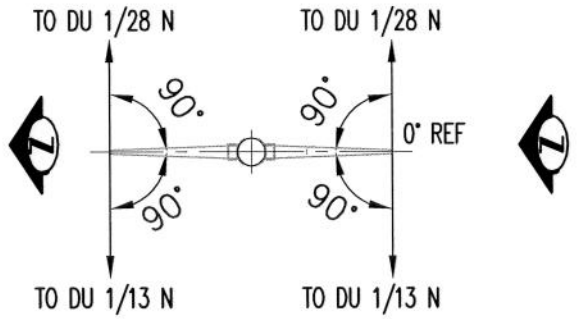
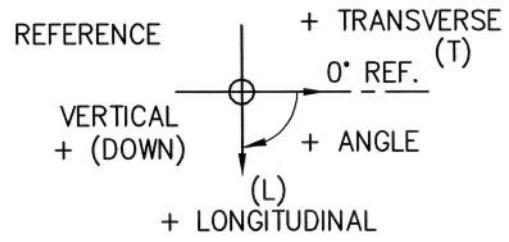


REFERENCES:

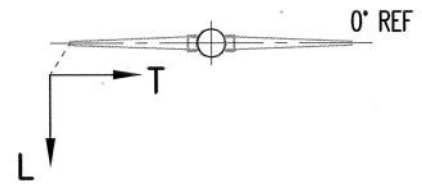
N.T.S.

6. FOR LADDER BRACKET SEE TB–4196.
7. FOR SAFETY CABLE BRACKET SEE TB–4197.
8. FOR ATTACHMENTS NEAR POLE TOP SEE TB–4194
9. FOR BROKEN CONDUCTOR LOAD CASE SEE TB–4178, NOTE 8a.

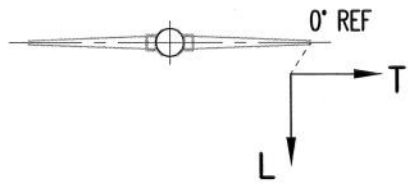




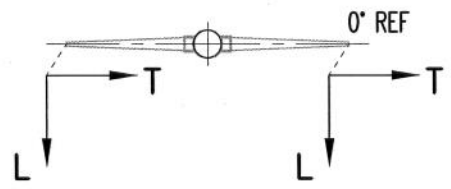
LOADING REFERENCE



OPGW LOAD: @ ELV. 148.0'



SHIELD LOAD: @ ELV. 148.0'



230kv LOAD: @ ELV. 134.0', 120.0' @ 106.0'

LOADING PLANS

NOTES

1. FOR GENERAL NOTES, SEE TB–4178.
2. ITEM DESIGNATED (X) ARE SHOWN ON TB–4188 TO TB–4200.
3. DEFLECTION CRITERIA: MAX. DEFLECTION AT TOP OF POLE <1% OF POLE LENGTH FOR NESC MEDIUM UNFACTORED LOAD CASE.
4. NO POLE CAMBER ALLOWED.
5. FOR JACKING NUTS, SEE TB–4200.

POLE DU 1/24 N TANGENT STRUCTURE (DOUBLE DEADEND) (1 REQ'D)			LOAD CASE (LOADS INCLUDE LOAD FACTORS, LBS) 1 NESC MEDIUM	2 NESC EX–WIND	3 NESC EXT ICE & WIND	4 BROKEN (SEE NOTE 9)	5 NESC MEDIUM UNFAC
OPGW EL. 148.00'	TRANSVERSE	(T)	–672	–887	–103		–238
	LONGITUDINAL	(L)	1015	905	321	216	615
	VERTICAL	(V)	1215	555	815	545	810
OPGW EL. 148.00' BROKEN	TRANSVERSE	(T)	–	–	–	0	–
	LONGITUDINAL	(L)	–	–	–	12041	–
	VERTICAL	(V)	–	–	–	360	–
SHIELD EL. 148.00'	TRANSVERSE	(T)	–407	–381	–94	–86	–163
	LONGITUDINAL	(L)	0	0	110	306	0
	VERTICAL	(V)	549	266	377	263	366
SHIELD EL. 148.00' BROKEN	TRANSVERSE	(T)	–	–	–	–41	–
	LONGITUDINAL	(L)	–	–	–	9218	–
	VERTICAL	(V)	–	–	–	147	–
MALLARD 230KV EL. 134.00', 120.00, 106.00'	TRANSVERSE	(T)	–1239	–1417	–372	–453	–551
	LONGITUDINAL	(L)	–70	350	–331	–441	–40
	VERTICAL	(V)	3112	1742	2073	1731	2074
MALLARD 230KV BROKEN EL. 134.00', 120.00	TRANSVERSE	(T)	–	–	–	–76	–
	LONGITUDINAL	(L)	–	–	–	12159	–
	VERTICAL	(V)	–	–	–	701	–
WIND ON POLE	Wp (PSF)		10.00	18.50	2.30	4.00	4.00

\\LC249EDM\am\VAULT\D-SCLGEN\P-AMCONTEXT_404\SOT\S\TB4179.dwg
dongv Feb/02/2012 7:46am

ONE INCH
AT FULL SIZE

REVISIONS

REV	DATE	MF
DR	CK	APP
W.O. #		

DESCRIPTION			
0	04/26/11		
VWD	W.O. # 1827201	ISO	
1	01/31/2012		
VWD	W.O. # 1827201		
REMOVED OPGW SPICE BOX			

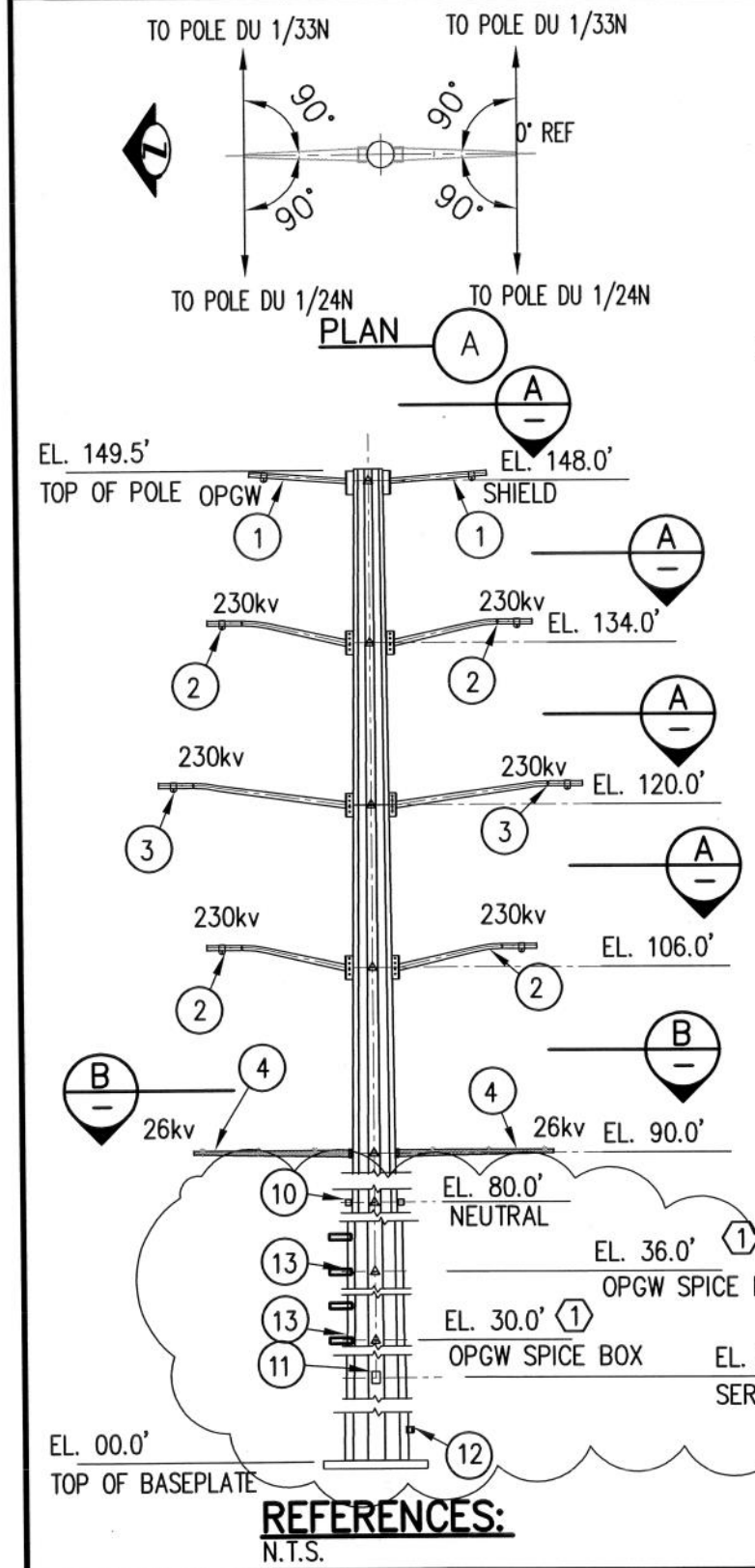
IRVING SEITOKU OGI
STATE OF WASHINGTON
23207
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
I. Ogi 2/3/12

Seattle City Light

SIGNATURE	DATE
DR : V. DONG	04/26/2011
CK :	
DSGN: I. OGI	10/14/2011
CK :	
APP : IRVING S OGI	10/14/2011

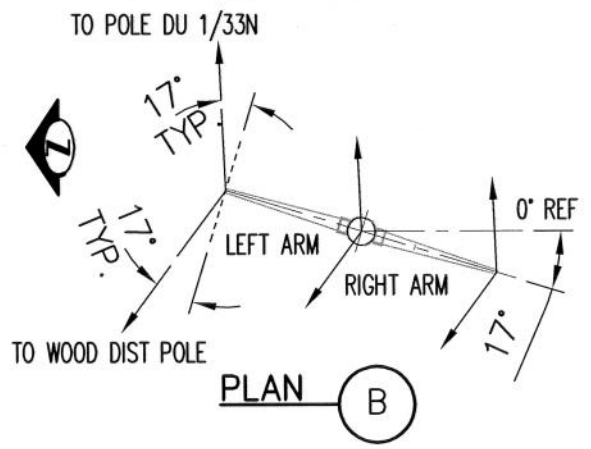
OVERHEAD TRANSMISSION
SOUTH TRANSMISSION
DUWAMISH TO CRESTON
230KV-26 KV POLE # DU 1/24 N
DESIGN LOADING

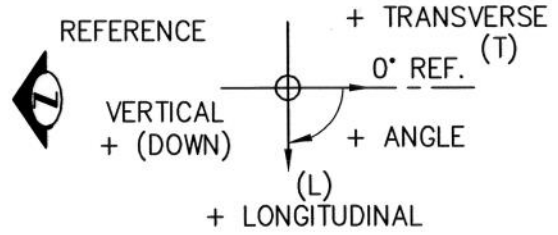
SHEET 2 OF 23
CLASS S-2
DRAWING NO. TB-4179
SCALE AS NOTED
REV. NO. 1



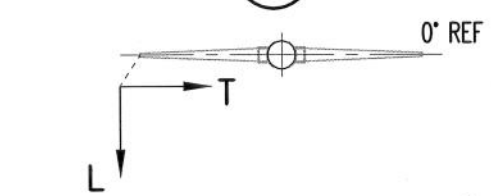
REFERENCES:

N.T.S.

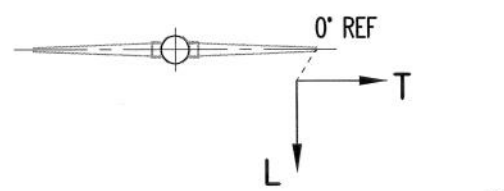




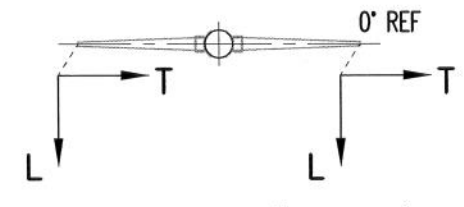
LOADING REFERENCE



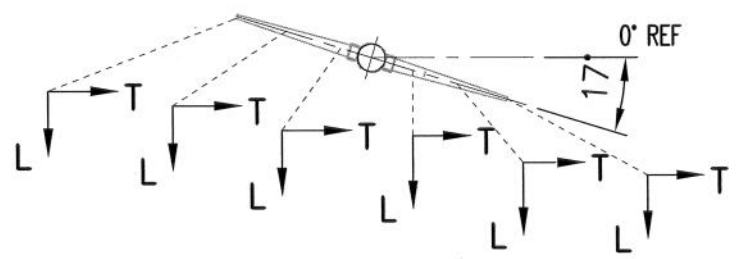
OPGW LOAD: @ ELV. 148.0'



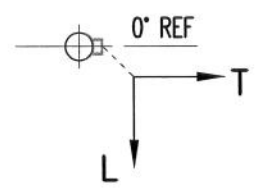
SHIELD LOAD: @ ELV. 148.0'



230kv LOAD: @ ELV. 134.0', 120.0' @ 106.0'



26kv LOAD: @ ELV. 90.0'



NEUTRAL LOAD: @ ELV. 80.0'

LOADING PLANS

NOTES

1. FOR GENERAL NOTES, SEE TB-4178.
2. ITEM DESIGNATED (X) ARE SHOWN ON TB-4188 TO TB-4200.
3. DEFLECTION CRITERIA: MAX. DEFLECTION AT TOP OF POLE <1% OF POLE LENGTH FOR NESC MEDIUM UNFACTORED LOAD CASE.
4. NO POLE CAMBER ALLOWED.
5. FOR JACKING NUTS, SEE TB-4200.
6. FOR LADDER BRACKET SEE TB-4196.
7. FOR SAFETY CABLE BRACKET SEE TB-4197.
8. FOR ATTACHMENTS NEAR POLE TOP SEE TB-4194
9. FOR BROKEN CONDUCTOR LOAD CASE SEE TB-4178, NOTE 8a.
10. FOR SERVICE WIRE BRACKET SEE TB-4193.

POLE DU 1/28 N TANGENT STRUCTURE (1 REQ'D)			LOAD CASE (LOADS INCLUDE LOAD FACTORS, LBS.) 1 NESC MEDIUM	2 NESC EX-WIND	3 NESC EXT ICE & WIND	4 BROKEN (SEE NOTE 9)	5 NESC MEDIUM UNFAC
OPGW EL. 148.00'	TRANSVERSE	(T)	-568	-654	-133	140	-228
	LONGITUDINAL	(L)	0	0	0	0	0
	VERTICAL	(V)	648	253	419	262	432
OPGW EL. 148.00' BROKEN	TRANSVERSE	(T)	–	–	–	-78	–
	LONGITUDINAL	(L)	–	–	–	11825	–
	VERTICAL	(V)	–	–	–	203	–
SHIELD EL. 148.00'	TRANSVERSE	(T)	-394	-344	-90	80	-157
	LONGITUDINAL	(L)	0	0	0	0	0
	VERTICAL	(V)	395	144	250	149	264
SHIELD EL. 148.00' BROKEN	TRANSVERSE	(T)	–	–	–	-41	–
	LONGITUDINAL	(L)	–	–	–	8912	–
	VERTICAL	(V)	–	–	–	130	–
MALLARD 230KV EL. 134.00', 120.00, 106.00'	TRANSVERSE	(T)	-712	-927	-166	200	-280
	LONGITUDINAL	(L)	0	167	-95	-137	0
	VERTICAL	(V)	2379	1363	1580	1377	1586
MALLARD 230KV BROKEN EL. 134.00' 120.00'	TRANSVERSE	(T)	–	–	–	-111	–
	LONGITUDINAL	(L)	–	–	–	11903	–
	VERTICAL	(V)	–	–	–	769	–
RAIL 26KV EL. 90.00' (LEFT ARM)	TRANSVERSE	(T)	-1996	-1415	-937	-1046	-1108
	LONGITUDINAL	(L)	-6917	-3637	-4094	-2973	-4184
	VERTICAL	(V)	1544	844	1031	707	1030
RAIL 26KV EL. 90.00' (RIGHT ARM)	TRANSVERSE	(T)	-1662	-1105	-786	-754	-921
	LONGITUDINAL	(L)	-8588	-4782	-4981	-3739	-5200
	VERTICAL	(V)	1590	821	1071	660	1060
NEUTRAL EL. 80.00'	TRANSVERSE	(T)	-484	-549	-111	-120	-193
	LONGITUDINAL	(L)	0	51	-81	-90	0
	VERTICAL	(V)	716	313	477	301	477
WIND ON POLE	Wp (PSF)		10.00	18.50	2.30	4.00	4.00

ONE INCH AT FULL SIZE

REVISIONS	REV	DR	W.O. #	DESCRIPTION
DATE / MF	0	VWD	ISO	04/26/11
DATE / APP		W.O. #	1827201	
DATE / CK	1	VWD		01/31/2012
		W.O. #	1827201	ADDED 2 OPGW SPICE BOXES

IRVING SEITOKU OGI — STATE OF WASHINGTON — 23207 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

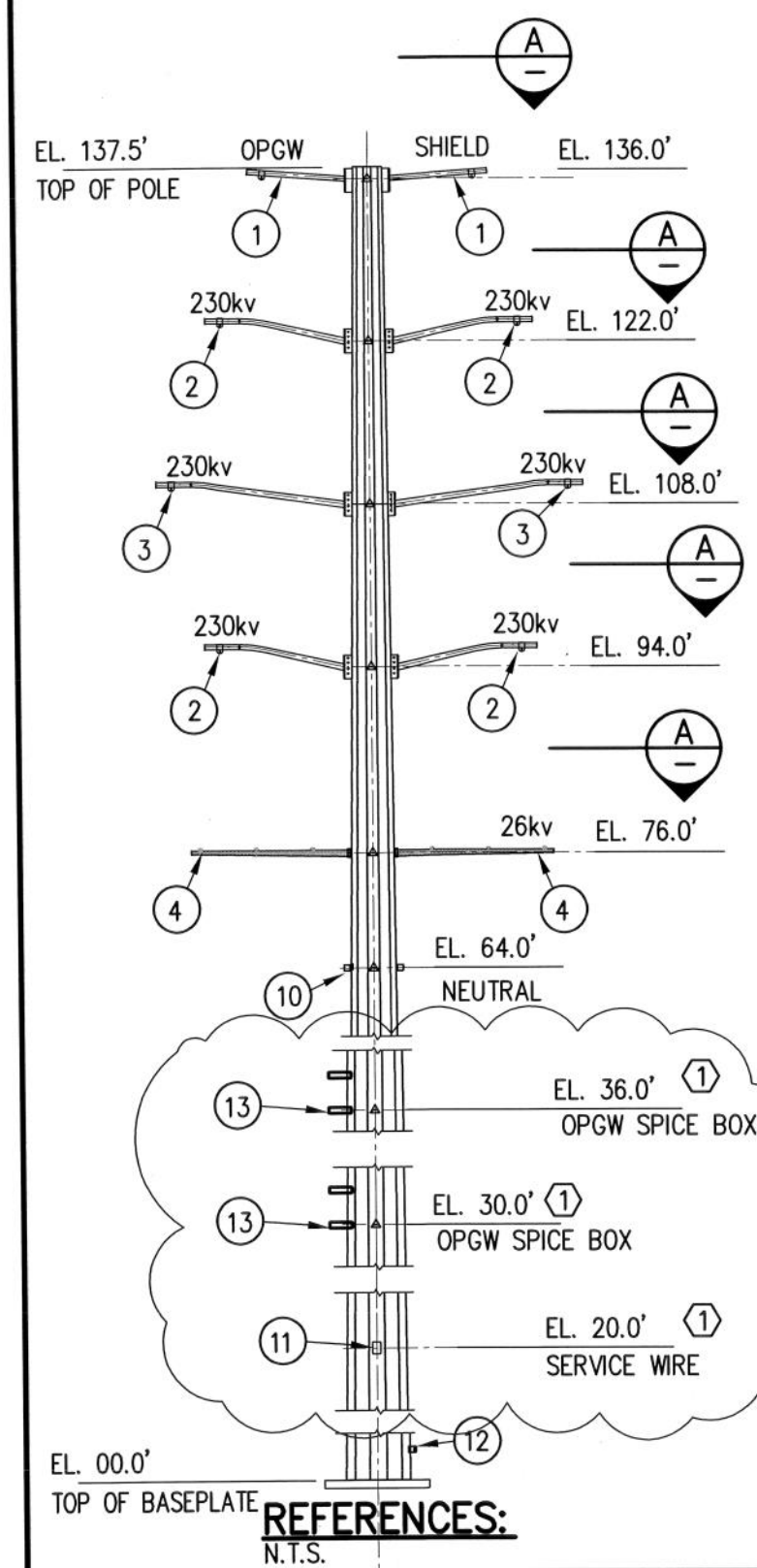
I. Ogi 2/3/12

Seattle City Light		
SIGNATURE		DATE
DR	: V. DONG	04/26/2011
CK	:	
DSGN	: I. OGI	10/14/2011
CK	:	
APP	: IRVING S OGI	10/14/2011

OVERHEAD TRANSMISSION
SOUTH TRANSMISSION
DUWAMISH TO CRESTON
230KV-26 KV POLE # DU 1/28 N
DESIGN LOADING

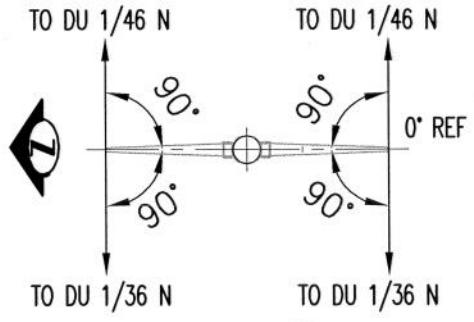
SHEET 3 OF 23
CLASS S-3
DRAWING NO. TB-4180
SCALE AS NOTED
REV. NO. 1

\\LC249EDM\am\VAULT\D-SCLGEN\P-AMCONTEXT_404\SOT\S\TB4180.dwg
dongv Jan/31/2012 2:10pm

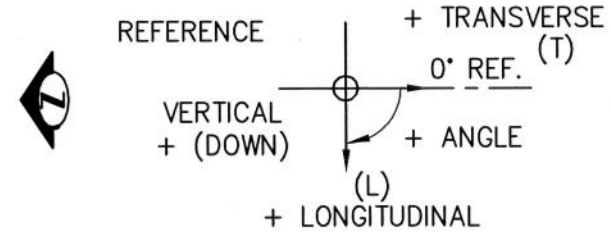


REFERENCES:

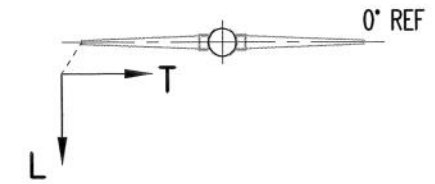
N.T.S.



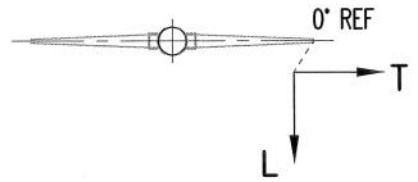
PLAN A



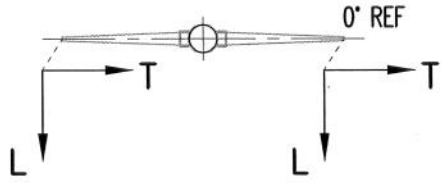
LOADING REFERENCE



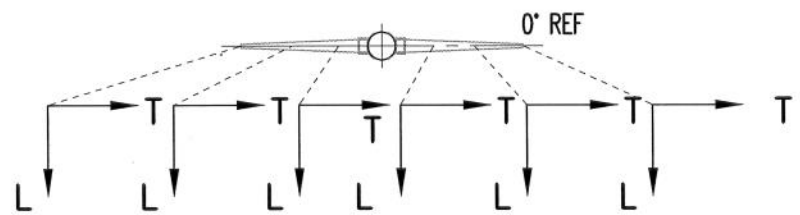
OPGW LOAD: @ ELV. 136.0'



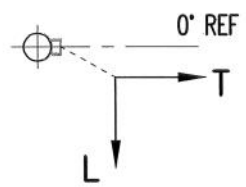
SHIELD LOAD: @ ELV. 136.0'



230kv LOAD: @ ELV. 122.0', 108.0' @ 94.0'



26kv LOAD: @ ELV. 76.0'



NEUTRAL LOAD: @ ELV. 64.0'

LOADING PLANS

NOTES

1. FOR GENERAL NOTES, SEE TB-4178.
2. ITEM DESIGNATED (X) ARE SHOWN ON TB-4188 TO TB-4200.
3. DEFLECTION CRITERIA: MAX. DEFLECTION AT TOP OF POLE <1% OF POLE LENGTH FOR NESC MEDIUM UNFACTORED LOAD CASE.
4. NO POLE CAMBER ALLOWED.
5. FOR JACKING NUTS, SEE TB-4200.
6. FOR LADDER BRACKET SEE TB-4196.
7. FOR SAFETY CABLE BRACKET SEE TB-4197.
8. FOR ATTACHMENTS NEAR POLE TOP SEE TB-4194
9. FOR BROKEN CONDUCTOR LOAD CASE SEE TB-4178, NOTE 8a.

POLE DU 1/43 N TANGENT STRUCTURE (1 REQ'D)			LOAD CASE (LOADS INCLUDE LOAD FACTORS, LBS) 1 NESC MEDIUM	2 NESC EX-WIND	3 NESC EXT ICE & WIND	4 BROKEN (SEE NOTE 9)	5 NESC MEDIUM UNFAC
OPGW EL. 136.00'	TRANSVERSE	(T)	622	726	151	176	253
	LONGITUDINAL	(L)	353	355	134	179	214
	VERTICAL	(V)	−173	−310	−230	−255	−116
OPGW EL. 136.00' BROKEN	TRANSVERSE	(T)	–	–	–	83	–
	LONGITUDINAL	(L)	–	–	–	−11646	–
	VERTICAL	(V)	–	–	–	−535	–
SHIELD EL. 136.00'	TRANSVERSE	(T)	422	398	92	77	166
	LONGITUDINAL	(L)	76	66	−52	−179	46
	VERTICAL	(V)	−144	−273	−220	−246	−96
SHIELD EL. 136.00' BROKEN	TRANSVERSE	(T)	–	–	–	25	–
	LONGITUDINAL	(L)	–	–	–	−9091	–
	VERTICAL	(V)	–	–	–	−429	–
MALLARD 230KV EL. 122.00', 108.00, 94.00'	TRANSVERSE	(T)	699	935	152	230	274
	LONGITUDINAL	(L)	123	476	−147	−176	74
	VERTICAL	(V)	1354	698	846	802	903
MALLARD 230KV BROKEN EL. 122.00' 108.00'	TRANSVERSE	(T)	–	–	–	108	–
	LONGITUDINAL	(L)	–	–	–	−11968	–
	VERTICAL	(V)	–	–	–	−47	–
RAIL 26KV EL. 76.00'	TRANSVERSE	(T)	675	896	152	191	267
	LONGITUDINAL	(L)	113	587	−155	157	68
	VERTICAL	(V)	297	13	147	178	198
NEUTRAL EL. 64.00'	TRANSVERSE	(T)	507	566	120	131	205
	LONGITUDINAL	(L)	63	240	−138	−124	38
	VERTICAL	(V)	178	−72	91	54	119
WIND ON POLE	Wp	(PSF)	10.00	18.50	2.30	4.00	4.00

ONE INCH AT FULL SIZE

REVISIONS	REV	DATE	MF	DR	CK	APP	W.O. #	DESCRIPTION
	0	04/26/11			ISO		W.O. # 1827201	ADDED 2 OPGW SPICE BOXES & SERVICE WIRE
	1	01/31/2012					W.O. # 1827201	

IRVING SEITOKU OGI — STATE OF WASHINGTON — 23207 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

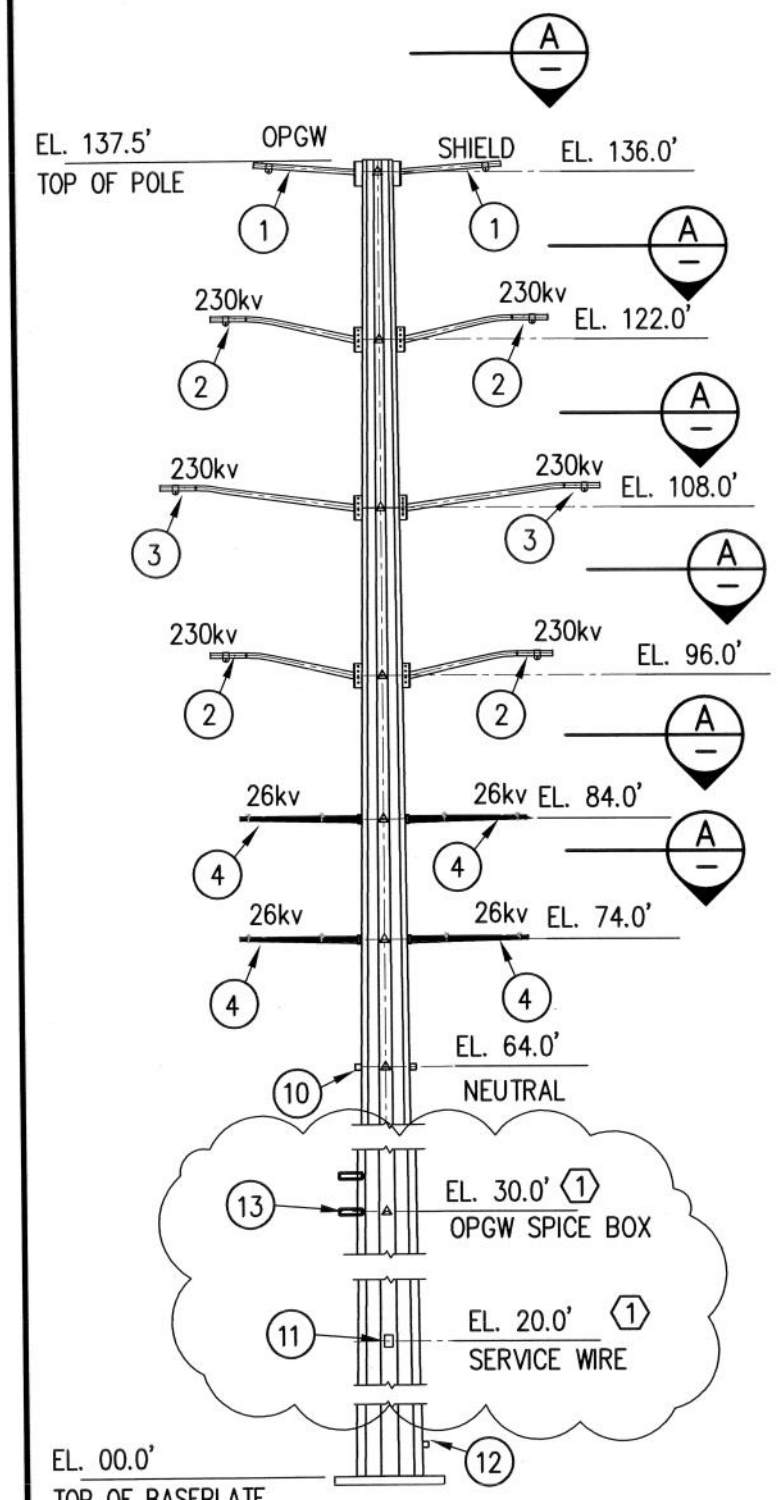
2/3/12

Seattle City Light		
SIGNATURE		DATE
DR	: V. DONG	04/26/2011
CK	:	
DSGN	: I. OGI	10/14/2011
CK	:	
APP	: IRVING S OGI	10/14/2011

OVERHEAD TRANSMISSION
SOUTH TRANSMISSION
DUWAMISH TO CRESTON
230KV-26 KV POLE # DU 1/43 N
DESIGN LOADING

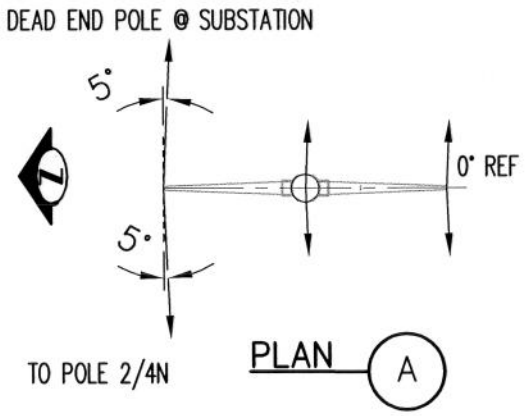
SHEET 6 OF 23
CLASS S-6
DRAWING NO. TB-4183
SCALE AS NOTED
REV. NO. 1

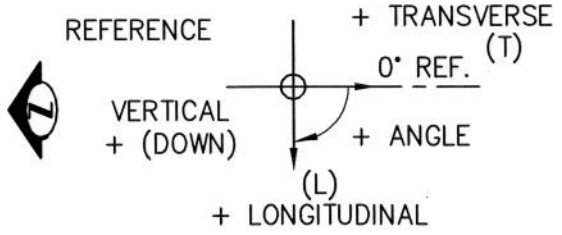
\\LC249EDM\am\VAULT.D-SCLGEN,P-AMCONTEXT_404\SOT\S\TB4183.dwg
dongv Jan/31/2012 2:13pm



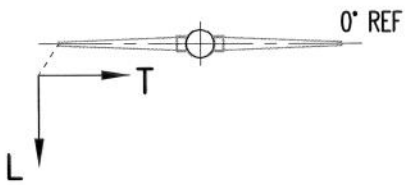
REFERENCES:

N.T.S.

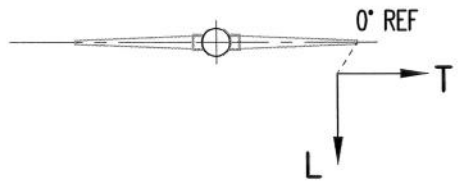




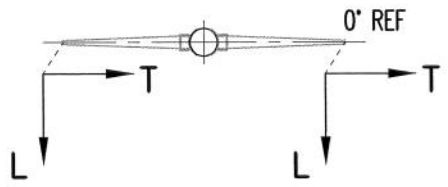
LOADING REFERENCE



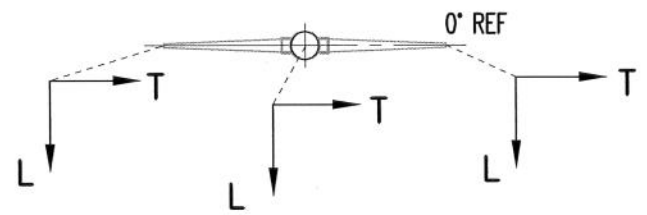
OPGW LOAD: @ ELV. 136.0'



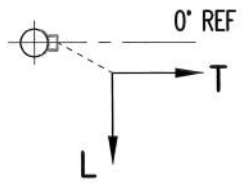
SHIELD LOAD: @ ELV. 136.0'



230kv LOAD: @ ELV. 122.0', 108.0' @ 96.0'



26kv LOAD: @ ELV. 84.0', 74.00'



NEUTRAL LOAD: @ ELV. 64.0'

LOADING PLANS

NOTES

1. FOR GENERAL NOTES, SEE TB-4178.
2. ITEM DESIGNATED (X) ARE SHOWN ON TB-4188 TO TB-4200.
3. DEFLECTION CRITERIA: MAX. DEFLECTION AT TOP OF POLE <1% OF POLE LENGTH FOR NESC MEDIUM UNFACTORED LOAD CASE.
4. NO POLE CAMBER ALLOWED.
5. FOR JACKING NUTS, SEE TB-4200.
6. FOR LADDER BRACKET SEE TB-4196.
7. FOR SAFETY CABLE BRACKET SEE TB-4197.
8. FOR ATTACHMENTS NEAR POLE TOP SEE TB-4194
9. FOR BROKEN CONDUCTOR LOAD CASE SEE TB-4178, NOTE 8a.

POLE DU 2/7 N TANGENT STRUCTURE (1 REQ'D)			LOAD CASE (LOADS INCLUDE LOAD FACTORS, LBS) 1 NESC MEDIUM	2 NESC EX-WIND	3 NESC EXT ICE & WIND	4 BROKEN (SEE NOTE 9)	5 NESC MEDIUM UNFAC
OPGW EL. 136.00'	TRANSVERSE	(T)	2635	1784	1318	1875	1473
	LONGITUDINAL	(L)	5603	2499	3912	3683	3397
	VERTICAL	(V)	2547	1568	1825	1324	1698
OPGW EL. 136.00' BROKEN	TRANSVERSE	(T)	–	–	–	369	–
	LONGITUDINAL	(L)	–	–	–	–4622	–
	VERTICAL	(V)	–	–	–	551	–
SHIELD EL. 136.00'	TRANSVERSE	(T)	1916	1170	949	1389	1072
	LONGITUDINAL	(L)	4091	2310	3058	3130	2480
	VERTICAL	(V)	1733	1120	1304	976	1156
SHIELD EL. 136.00' BROKEN	TRANSVERSE	(T)	–	–	–	223	–
	LONGITUDINAL	(L)	–	–	–	–3313	–
	VERTICAL	(V)	–	–	–	371	–
MALLARD 230KV EL. 122.00', 108.00, 96.00'	TRANSVERSE	(T)	3320	2309	1675	2329	1865
	LONGITUDINAL	(L)	–204	–732	226	310	–123
	VERTICAL	(V)	3915	2338	2677	2198	2610
MALLARD 230KV BROKEN EL. 122.00' 108.00'	TRANSVERSE	(T)	–	–	–	744	–
	LONGITUDINAL	(L)	–	–	–	–11691	–
	VERTICAL	(V)	–	–	–	909	–
RAIL N 26KV EL. 84.00' 74.00'	TRANSVERSE	(T)	1353	987	633	765	757
	LONGITUDINAL	(L)	–106	1520	–411	914	–56
	VERTICAL	(V)	2366	1173	1647	875	1578
RAIL S 26KV EL. 84.00' 74.00'	TRANSVERSE	(T)	1573	936	787	708	888
	LONGITUDINAL	(L)	–29	1650	–373	943	0
	VERTICAL	(V)	2138	1086	1479	816	1426
NEUTRAL EL. 60.00'	TRANSVERSE	(T)	921	599	424	470	514
	LONGITUDINAL	(L)	0	753	–392	0	0
	VERTICAL	(V)	1542	836	1139	642	1028
WIND ON POLE	Wp	(PSF)	10.00	18.50	2.30	4.00	4.00

REVISIONS	REV	DR	W.O. #	DESCRIPTION
	0	VWD	W.O. # 1827201	04/26/11 ISO
	1	VWD	W.O. # 1827201	01/31/2012 ADDED OPGW SPICE BOX & SERVICE WIRE

ONE INCH AT FULL SIZE

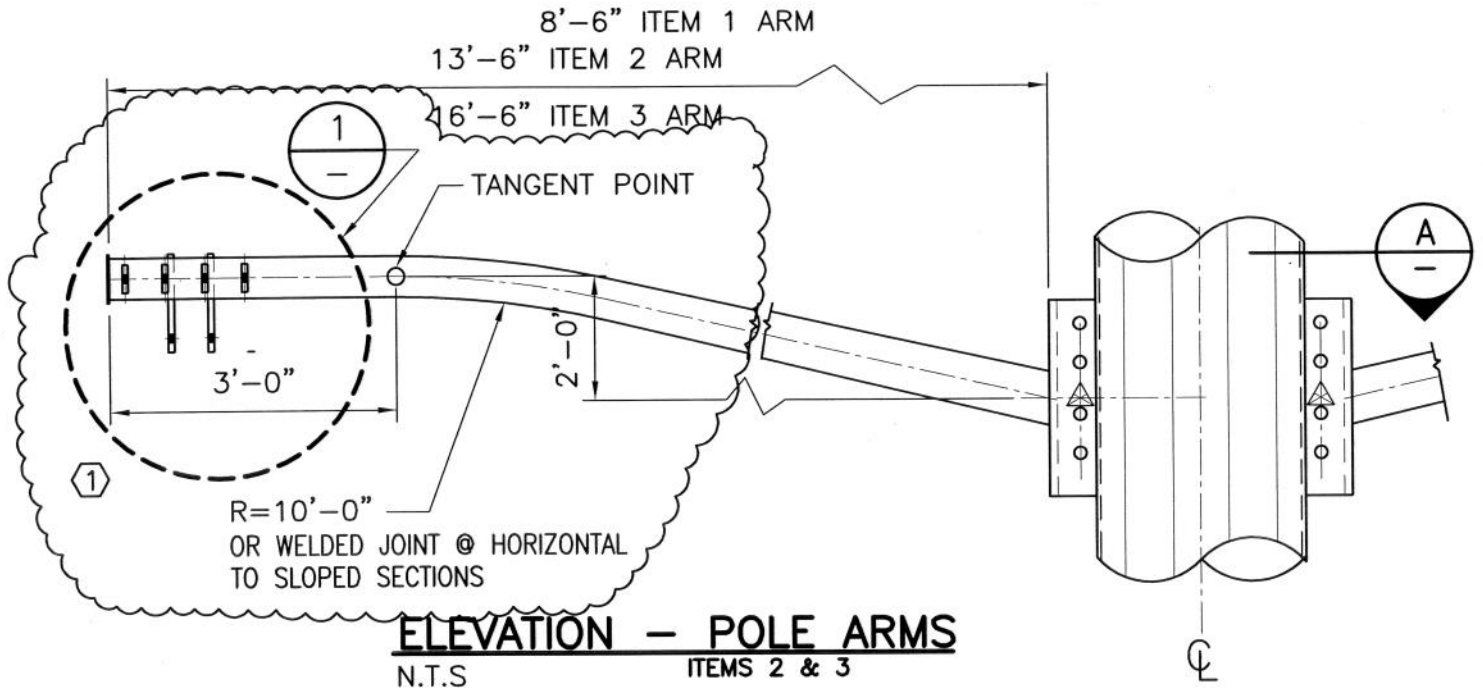
IRVING SEITOKU OGI — STATE OF WASHINGTON — 23207 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER — 2/3/12

Seattle City Light		
SIGNATURE		DATE
DR	: V. DONG	04/26/2011
CK	:	
DSGN	: I. OGI	10/14/2011
CK	:	
APP	: IRVING S OGI	10/14/2011

OVERHEAD TRANSMISSION
SOUTH TRANSMISSION
DUWAMISH TO CRESTON
230KV-26 KV POLE # DU 2/7 N
DESIGN LOADING

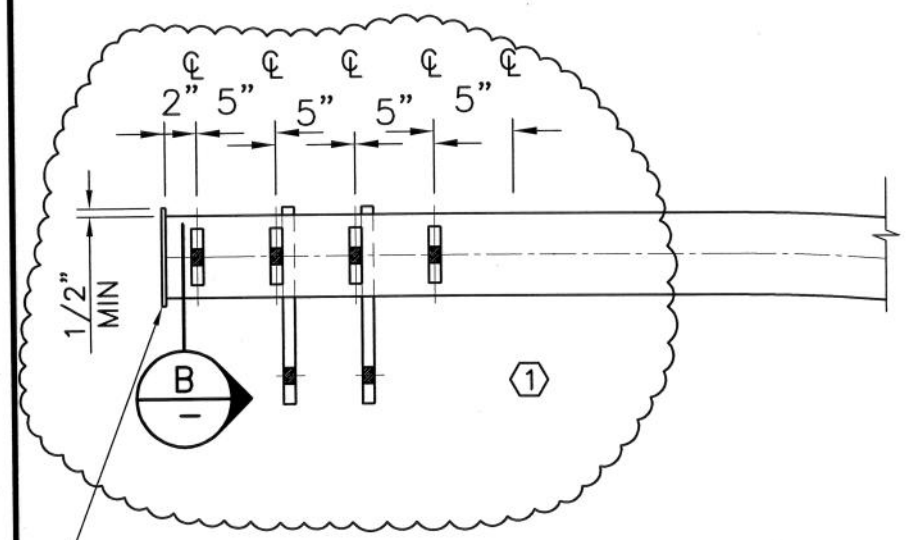
SHEET 9 OF 23
CLASS S-9
DRAWING NO. TB-4186
SCALE AS NOTED
REV. NO. 1

\\LC249EDM\am\VAULT\D-SCLGEN\P-AMCONTEXT_404\SOT\S\TB4186.dwg
dongv Jan/31/2012 2:11pm

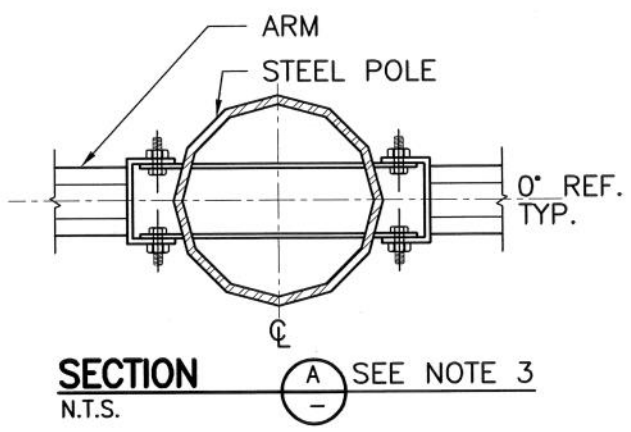


ELEVATION – POLE ARMS
ITEMS 2 & 3

N.T.S



DETAIL 1
SCALE: 1"=1'-0"

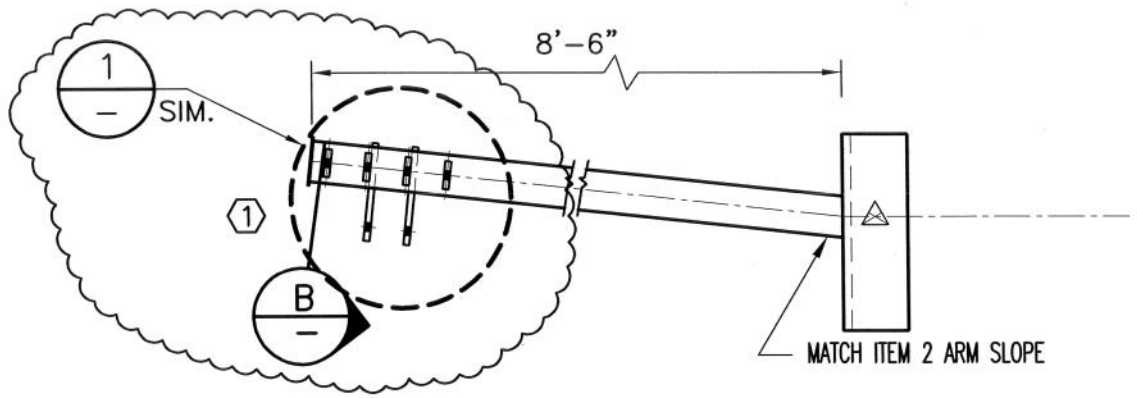


SECTION A
SEE NOTE 3

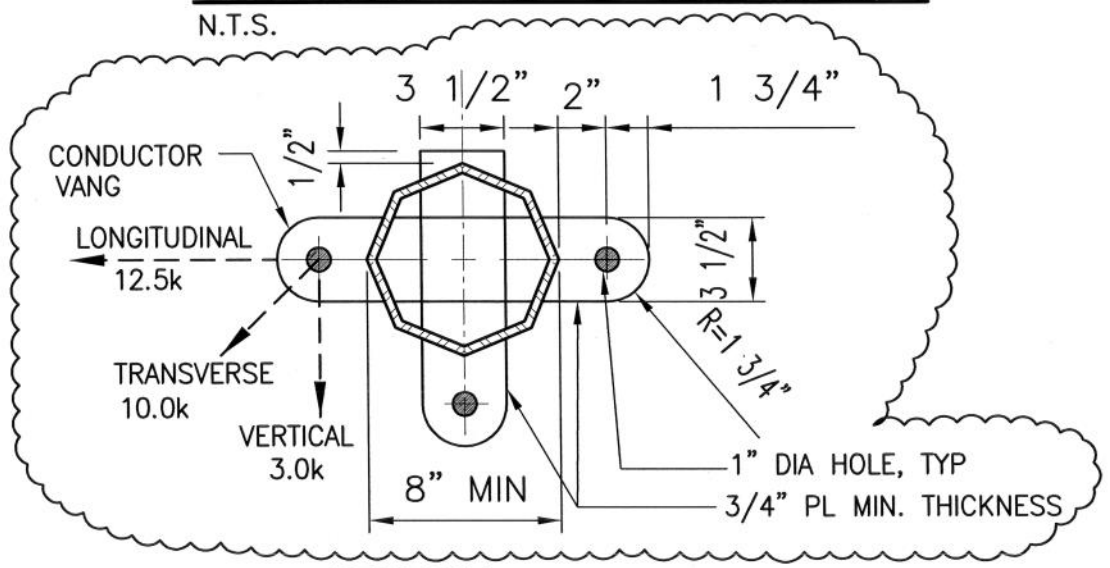
N.T.S.

NOTES:

1. SEE DRAWING TB-4178 FOR GENERAL NOTES.
2. SEE DRAWING TB-4179 TO TB-4186 FOR ARM LOCATION AND ORIENTATION.
3. ARM TO POLE CONNECTION SHOWN IS FOR ILLUSTRATION ONLY. TYPE OF CONNECTION SHALL BE DESIGNED BY THE POLE MANUFACTURER.
4. DESIGN ALL ARMS AND VANGS FOR THE FOLLOWING FACTORED LOADS (U.N.O).:
   - LONGITUDINAL = ±12.5 KIPS
   - TRANSVERSE = 10.0 KIPS (COMP. OR TENSION)
   - VERTICAL = 3.0 KIPS DOWN
5. FOR ARM DESIGN APPLY LOADS AT OUTER CONDUCTOR VANG. LIMIT HORIZONTAL ARM DEFLECTION TO 1 1/2% OF ARM LENGTH AT END OF ARMS.
6. CHAMFER ALL HOLES.
7. SUBMIT ARM, VANG AND ATTACHMENT DESIGN CALCULATIONS.



ELEVATION – 8'-6" ARM–ITEM 1
N.T.S.



1 **SECTION B**

N.T.S.

NOTE: VANGS CONTINUONS THROUGH ARM

REVISIONS				
REV	DATE	CK	APP	DESCRIPTION
DR			MF	
W.O. #				
0	04/26/11			
VWD		ISO		
W.O. #	1827201			
1	01/12/2012			
VWD				
W.O. #	1827201			

REVISED CONDUCTOR VANG & ADDED NOTE #7

IRVING SEITOKU OGI — STATE OF WASHINGTON — 23207 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER — 2/3/12

Seattle City Light		
SIGNATURE		DATE
DR	: V. DONG	04/26/2011
CK	:	
DSGN	: I. OGI	10/14/2011
CK	:	
APP	: IRVING S OGI	10/14/2011

OVERHEAD TRANSMISSION
SOUTH TRANSMISSION
DUWAMISH TO CRESTON
230KV-ARMS/SHIELD ARMS
DIMENSIONS & DESIGN LOADING

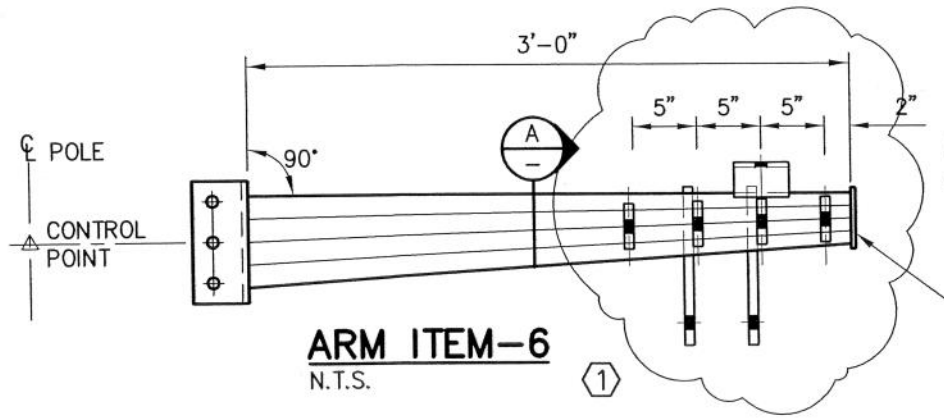
SHEET 11 OF 23
CLASS S-11
DRAWING NO. TB-4188
SCALE AS NOTED
REV. NO. 1

ONE INCH AT FULL SIZE

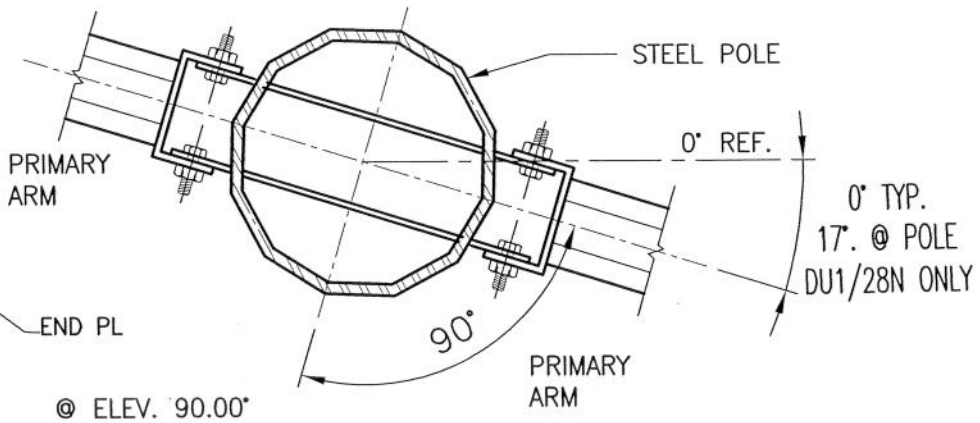
\\LC249EDM\am\VAULT,D-SCLGEN,P-AMCONTEXT_404\S0T\S\TB4188.dwg
dongv Feb/02/2012 7:36am

NOTES

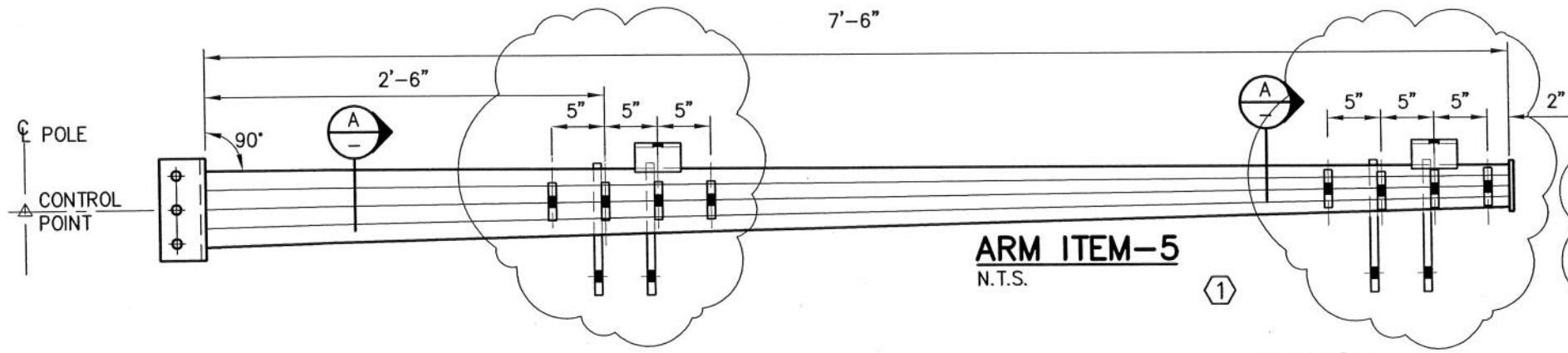
1. SEE DRAWING TB-4178 FOR GENERAL NOTES.
2. SEE DRAWING TB-4179 THRU TB-4186 FOR ARM LOCATION AND ORIENTATION.
3. ARM TO POLE CONNECTION SHOWN IS FOR ILLUSTRATION ONLY, TYPE OF CONNECTION SHALL BE DESIGNED BY THE POLE MANUFACTURER.
4. DESIGN ALL PRIMARY AND SECONDARY ARMS, VANGS AND VANGS AND ATTACHMENTS FOR THE FOLLOWING FACTORED LOADS (U.N.O).:
   LONGITUDINAL = 9.0 KIPS
   TRANSVERSE = 6.0 KIPS
   VERTICAL = 3.0 KIPS DOWN
   FOR ARM DESIGN APPLY LOADS ON ONE SIDE OF ARM AT END OF ARM. LIMIT HORIZONTAL ARM DEFECTION TO 1 1/2% OF ARM LENGTH AT END OF ARM.
5. SUBMIT ARM, VANG AND ATTACHMENT DESIGN CALCULATIONS. ⟨1⟩



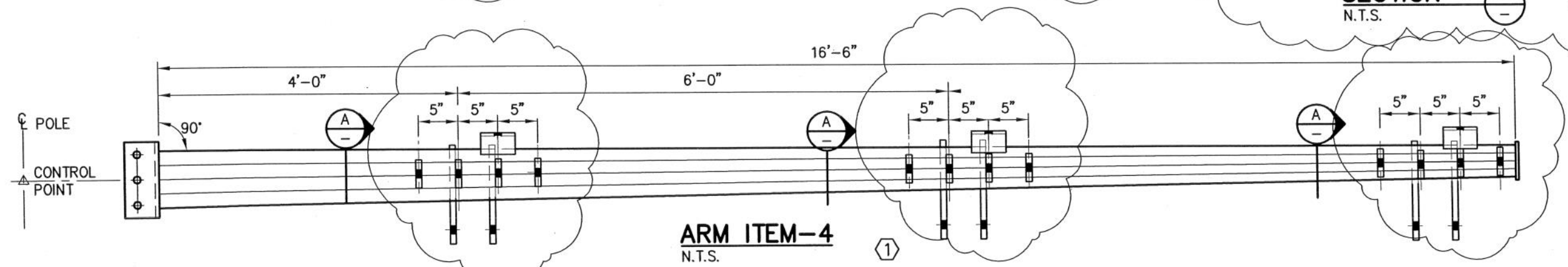
ARM ITEM–6
N.T.S. ⟨1⟩



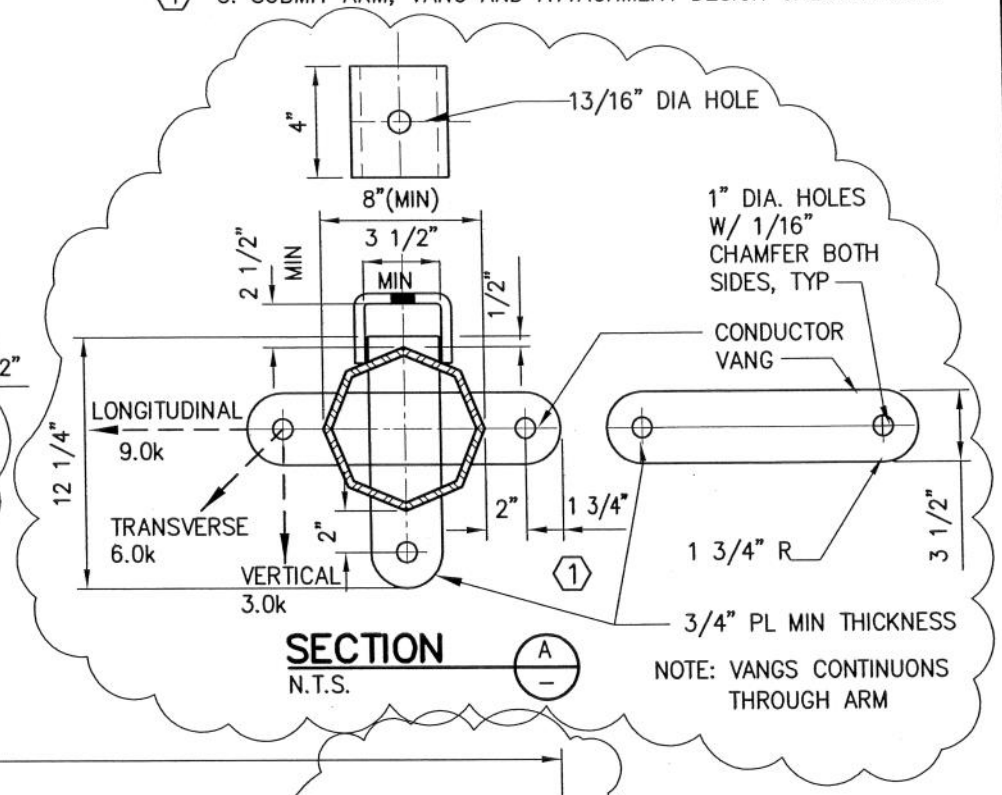
PLAN ARM
N.T.S.



ARM ITEM–5
N.T.S. ⟨1⟩



ARM ITEM–4
N.T.S. ⟨1⟩



SECTION A
N.T.S.

REVISIONS				
REV	DATE	MF		
DR	CK	APP		
W.O. #	DESCRIPTION			
0	04/26/11			
VWD	ISO			
W.O. # 1827201				
⟨1⟩	01/12/2012			
VWD				
W.O. # 1827201	REVISED CONDUCTOR VANG & ADDED NOTE #5			

ONE INCH AT FULL SIZE

IRVING SEITOKU OGI — STATE OF WASHINGTON — 23207 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER — 2/3/12

Seattle City Light

SIGNATURE		DATE
DR	: V. DONG	04/26/2011
CK	:	
DSGN	: I. OGI	10/14/2011
CK	:	
APP	: IRVING S OGI	10/14/2011

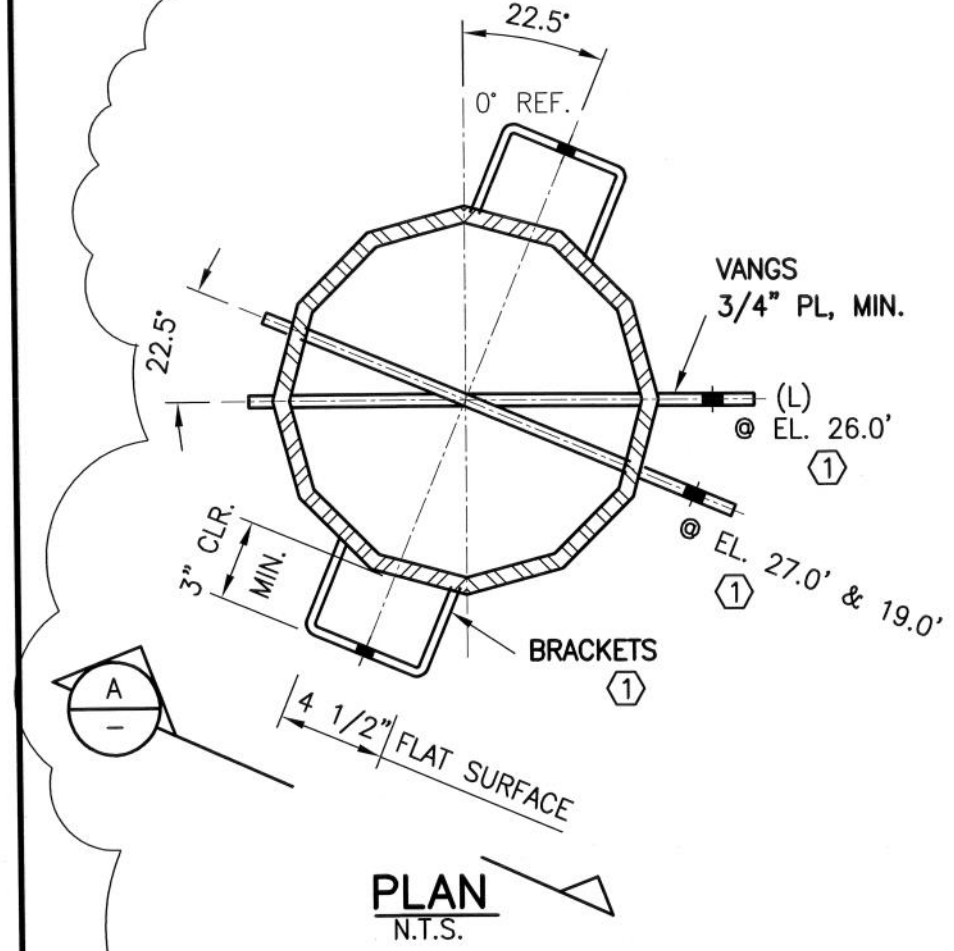
OVERHEAD TRANSMISSION
SOUTH TRANSMISSION
DUWAMISH TO CRESTON
26KV-ARMS
DIMENSIONS & DESIGN LOADING

SHEET 12 OF 23
CLASS **S-12**
DRAWING NO. **TB-4189**
SCALE AS NOTED
REV. NO. 1

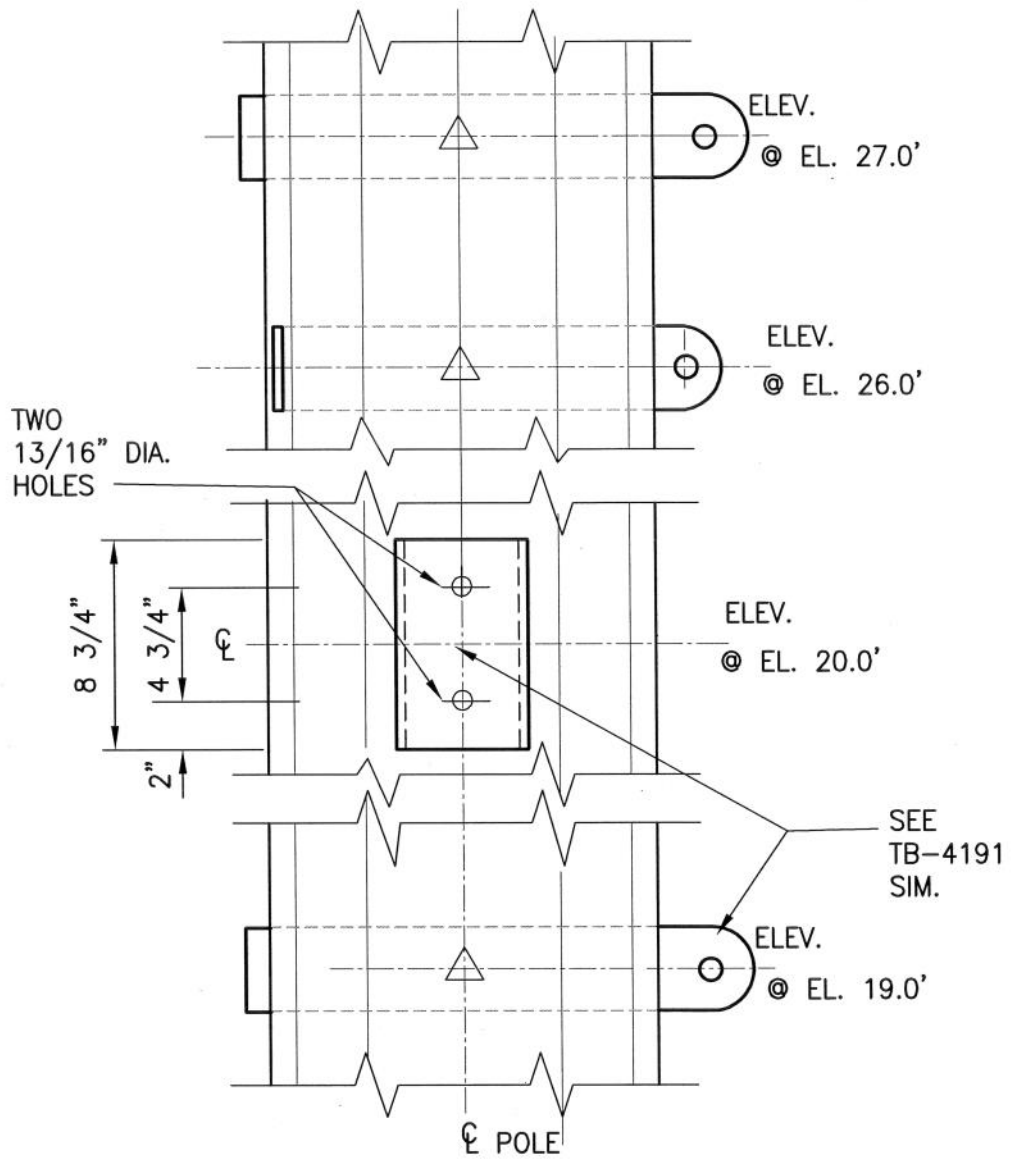
\\LC249EDM\am\VAULT,D-SCLGEN,P-AMCONTEXT_404\SOT\S\TB4189.dwg
dongv Jan/31/2012 2:01pm

NOTES

1. FOR GENERAL NOTE SEE TB-4178.

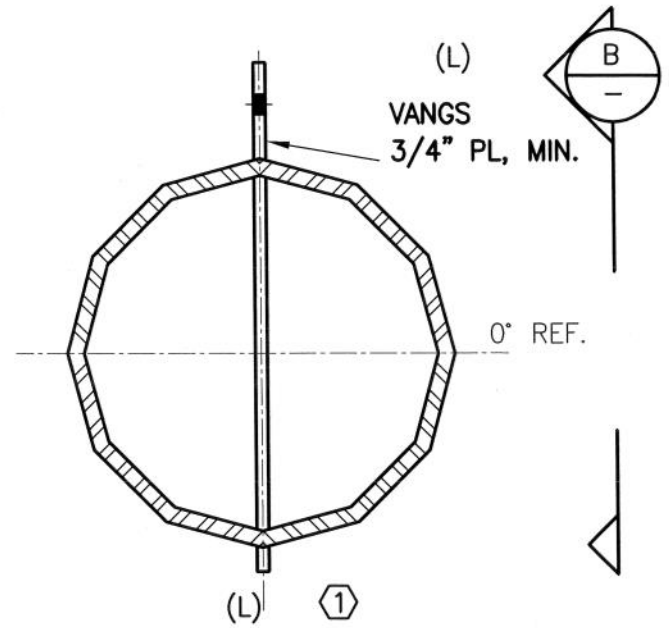


PLAN
N.T.S.

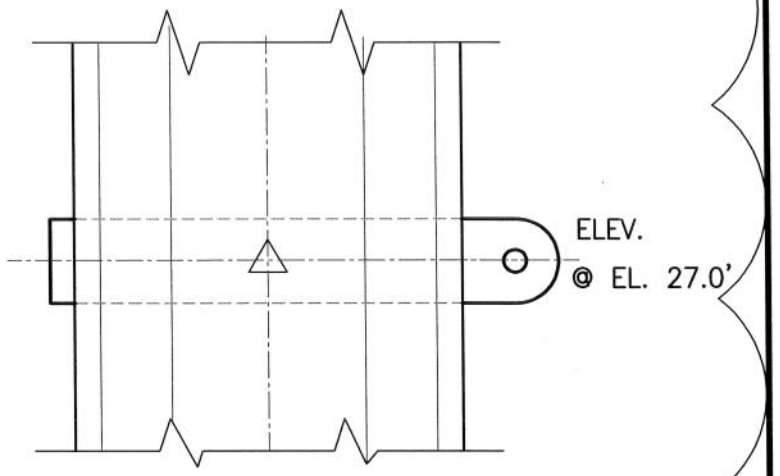


ELEVATION
N.T.S.

A — SERVICE WIRE BRACKET ITEM 11
POLE DU 1/28 N



PLAN POLE DU 1/43 N & 2/7 N
N.T.S.



ELEVATION
N.T.S.

B — POLE DU 1/43 N & 2/7 N
1

ONE INCH AT FULL SIZE

REVISIONS	REV	DATE	MF
	DR	CK	APP
W.O. #			
DESCRIPTION			
0	04/26/11		
VWD		ISO	
W.O. # 1827201			
1	01/31/2012		
VWD			
W.O. # 1827201			
REVISED VANGS & BRACKET LOCATION			
ADDED POLE 1/43 & 2/7 PLAN & SECTION			

IRVING SEITO OGI — STATE OF WASHINGTON — 23207 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER
12/3/12

Seattle City Light

SIGNATURE		DATE
DR	: V. DONG	04/26/2011
CK	:	
DSGN	: I. OGI	10/14/2011
CK	:	
APP	: IRVING S OGI	10/14/2011

OVERHEAD TRANSMISSION
SOUTH TRANSMISSION
DUWAMISH TO CRESTON
SERVICE WIRE ATTACHMENT DIMENSIONS

SHEET 16 OF 23
CLASS S-16
DRAWING NO. TB-4193
SCALE AS NOTED
REV. NO. 1

\\LC249EDM\om\VAULT\D-SCLGEN,P-AMCONTEXT_404\SOT\S\TB4193.dwg
dongv Jan/31/2012 2:57pm

13/16" HOLES
6"± O.C. ALL ROUND
PERIMETER OF POLE TOP PLATE

PROVIDE
GALV. DRAIN SLOTS,
ON 0° REF. LINE

2 1/2"
MIN. TYP.

0° REF.

ARM

3/4"
THK. MIN.

SEE TB-7139 FOR
ARMS CONNECTION

LIFTING
VANG

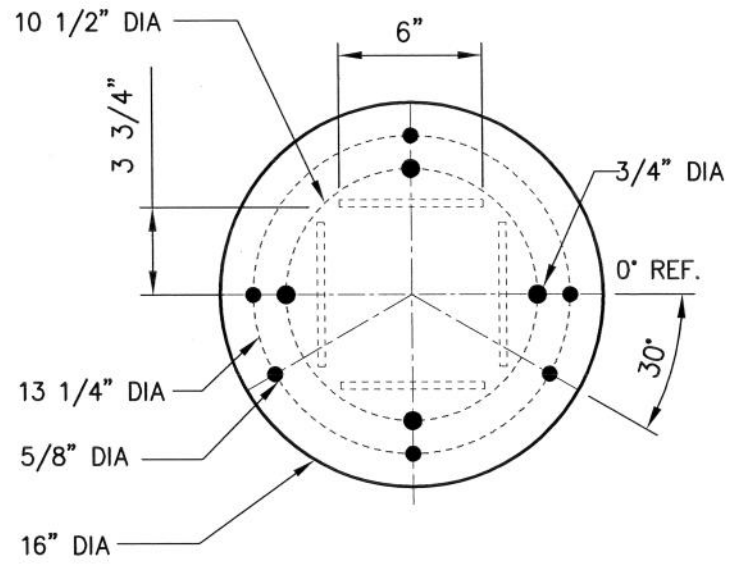
3"

1 1/2"

TOP VIEW

NOTES:

1. SEE DRAWING TB-4178 FOR GENERAL NOTES.
2. FOR POLE DESIGN FORCES SEE TB-4179 THRU. TB-4187



PLAN

PROVIDE
DRAIN SLOTS,
FOR GALV. PROCESS

TOP OF POLE
PLATE, 3/8" MIN.
THICKNESS

TYP 1/4

3"

TOP OF POLE EL.

5"

12"

LIFTING VANG
(DESIGN BY POLE MFG)
(MAY BE INTERGATED W/
SAFTY CABLE BRACKET)

LADDER BRACKETS

SAFETY CABLE BRACKET

ARM BRACKET

1/2"

LADDER BRACKETS SEE SHEET TB4196

POLE LIFTING VANG

SAFETY CABLE BRACKET
SEE SHEET TB-4197

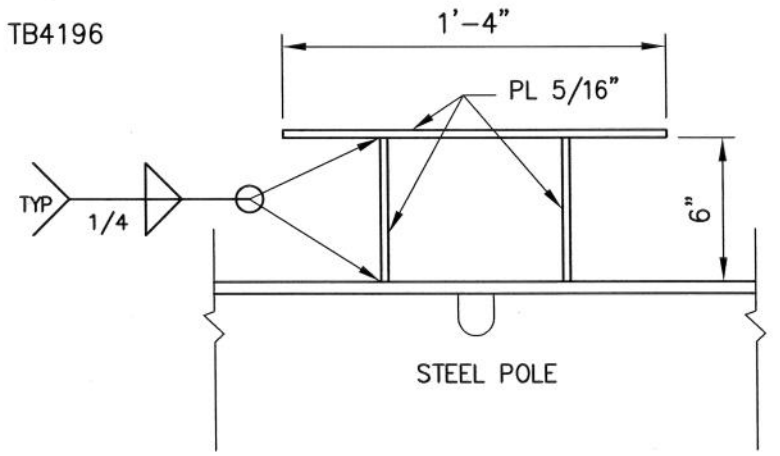
SHIELD WIRE
ARM BRACKET

℄ POLE

ELEVATION (B) POLE TOP
N.T.S.

℄ POLE

ELEVATION (A) POLE TOP
N.T.S.



DETAIL (1) FAA BEACON MOUNT
N.T.S.

ONE INCH
AT FULL SIZE

REVISIONS	REV	DATE	MF
	DR	CK	APP
W.O. #	DESCRIPTION		
0	04/26/11		
VWD		ISO	
W.O. # 1827201			
1	01/12/2012		
VWD			
W.O. # 1827201	REVISED TOP OF POLE PLATE & NOTE		

IRVING SEITOKU OGI
STATE OF WASHINGTON
23207
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
2/3/12

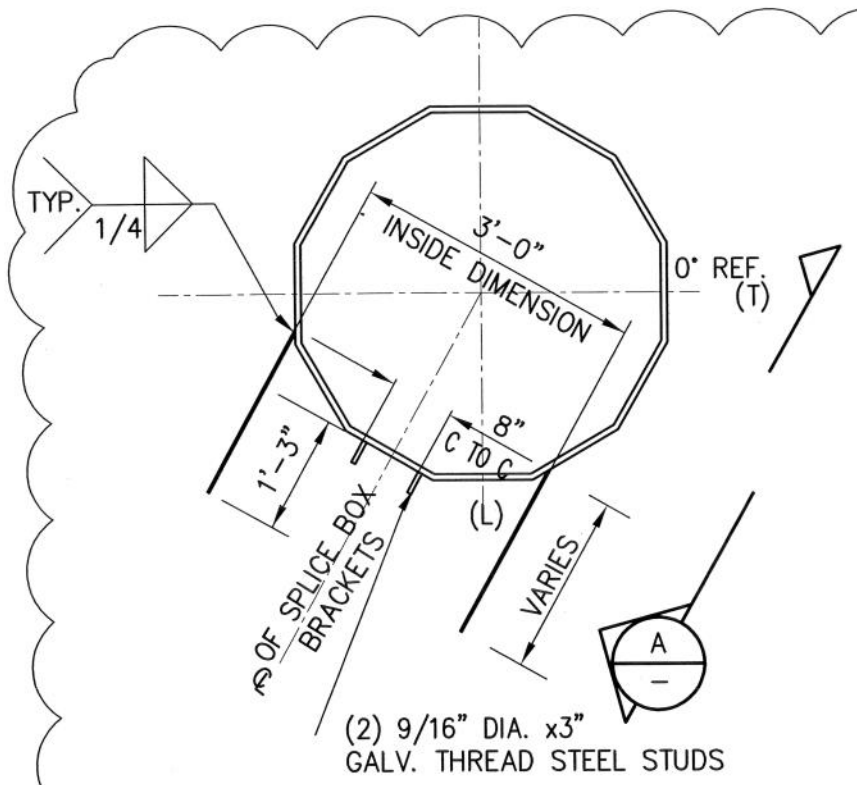
Seattle City Light

SIGNATURE		DATE
DR	: V. DONG	04/26/2011
CK	:	
DSGN	: I. OGI	10/14/2011
CK	:	
APP	: IRVING S OGI	10/14/2011

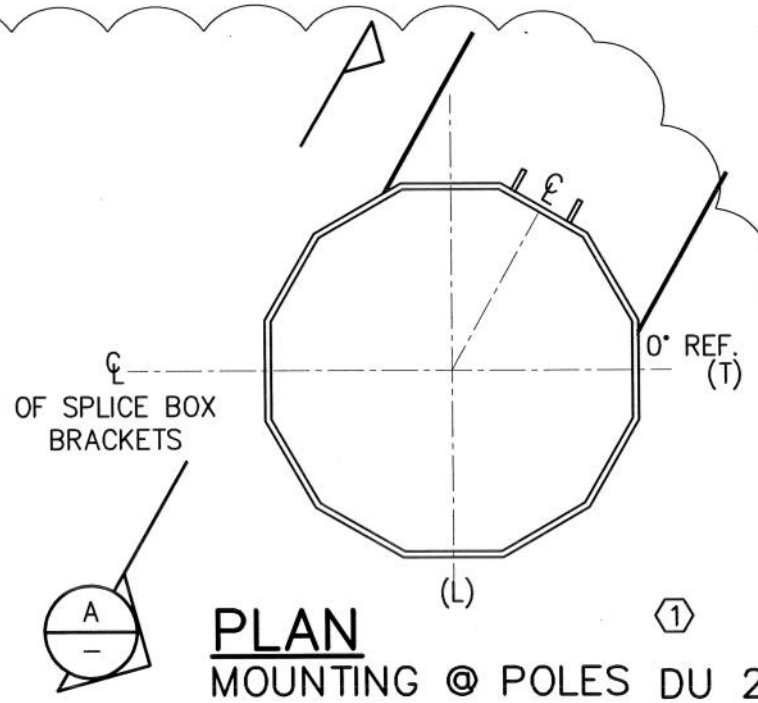
OVERHEAD TRANSMISSION
SOUTH TRANSMISSION
DUWAMISH TO CRESTON
230KV STEEL POLE
POLE TOP DETAILS/FAA BEACON BRACKET

SHEET 17 OF 23
CLASS S-17
DRAWING NO. TB-4194
SCALE AS NOTED
REV. NO. 1

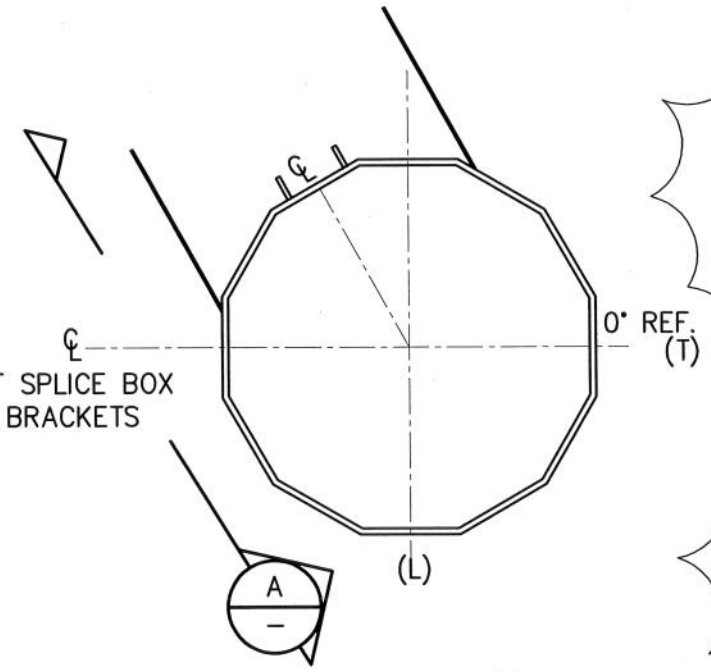
\\LC249EDM\am\VAULT\D-SCLGEN\P-AMCONTEXT_404\SOT\S\TB4194.dwg
dongv Jan/12/2012 2:25pm



PLAN
MOUNTING @ POLES DU 1/28 N ①



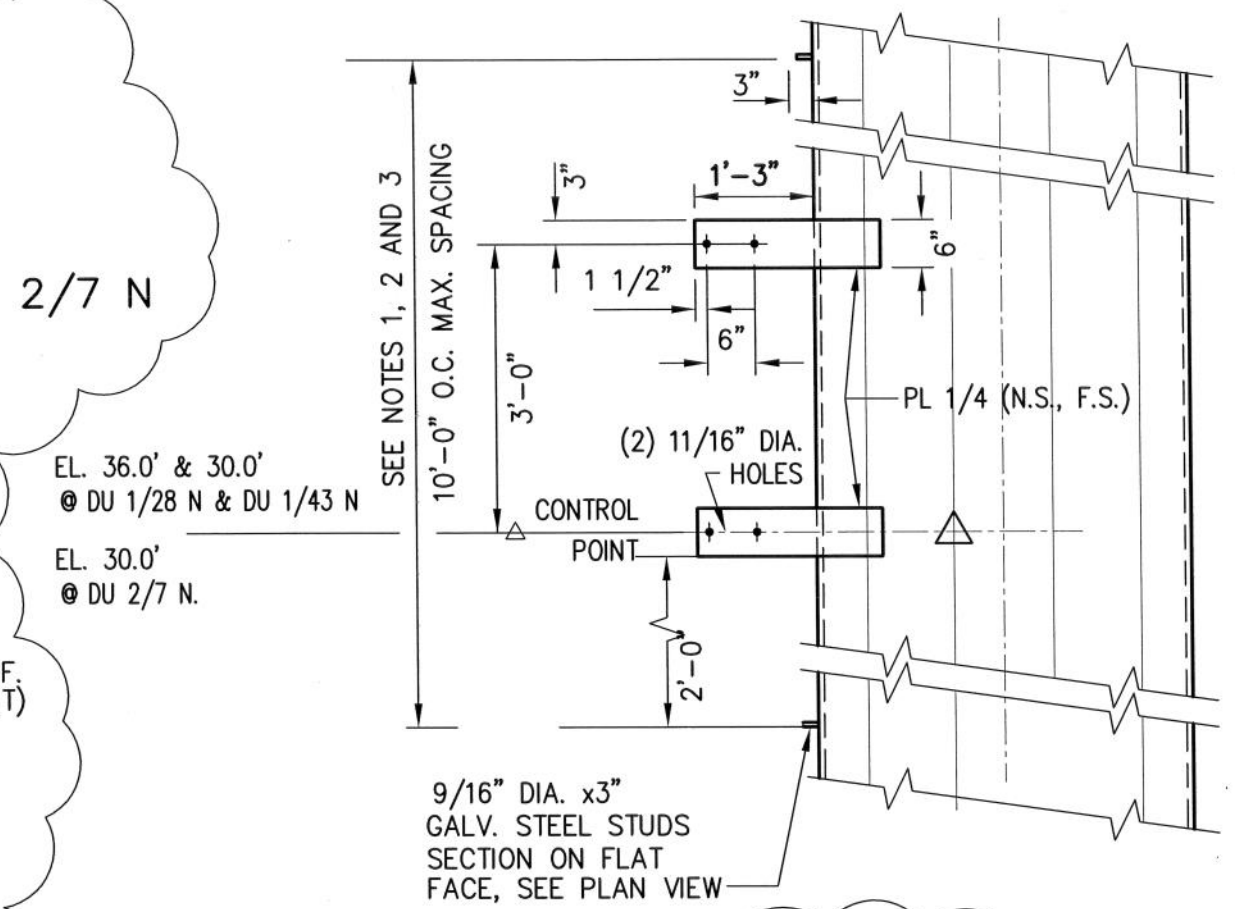
PLAN
MOUNTING @ POLES DU 2/7 N ①



PLAN
MOUNTING @ POLES DU 1/43 N ①

NOTES:

1. LOCATE STUDS ON POLES DU 1/28N, DU 1/43N & DU 2/7N. @10'–0" O.C. MAXIMUM VERTICAL SPACING. ①
2. LOCATE BOTTOM STUDS 2'–0" BELOW SPLICE BOX BOTTOM BRACKETS. THEN 10'–0" O.C. MAX. SPACING.
3. LOCATE TOP STUDS AT 2'–0" BELOW TOP OF POLE.
4. SEE TB–4178 FOR GENERAL NOTES.



ELEVATION
N.T.S.

A — OPGW SPICE BOX ①
MOUNTING BRACKET – ITEM 13
2 @ DU 1/28 N & DU 1/43 N
1 @ DU 2/7 N

REVISIONS			
REV	DATE	CK	APP
DR			MF
W.O. #			
DESCRIPTION			
0	04/26/11		
VWD		ISO	
W.O. #1827201			
①	01/12/2012		
VWD			
W.O. #1827201			
ADDED STUDS & OPGW SPICE BOX TO DU1/28N, 1/43N & 2/7N			

ONE INCH
AT FULL SIZE

IRVING SEITOKU OGI — STATE OF WASHINGTON — 23207 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER — 2/3/12

Seattle City Light		
SIGNATURE		DATE
DR	: V. DONG	04/26/2011
CK	:	
DSGN	: I. OGI	10/14/2011
CK	:	
APP	: IRVING S OGI	10/14/2011

OVERHEAD TRANSMISSION
SOUTH TRANSMISSION
DUWAMISH TO CRESTON
230KV POLE
OPGW SPLICE BOX MOUNTING

SHEET 18 OF 23
CLASS S-18
DRAWING NO. TB-4195
SCALE AS NOTED
REV. NO. 1

\\LC249EDM\am\VAULT.D--SCLGEN,P--AMCONTEXT_404\SOT\S\TB4195.dwg
dongv Jan/31/2012 2:52pm