

Boissonneault, Mike TRAN:EX

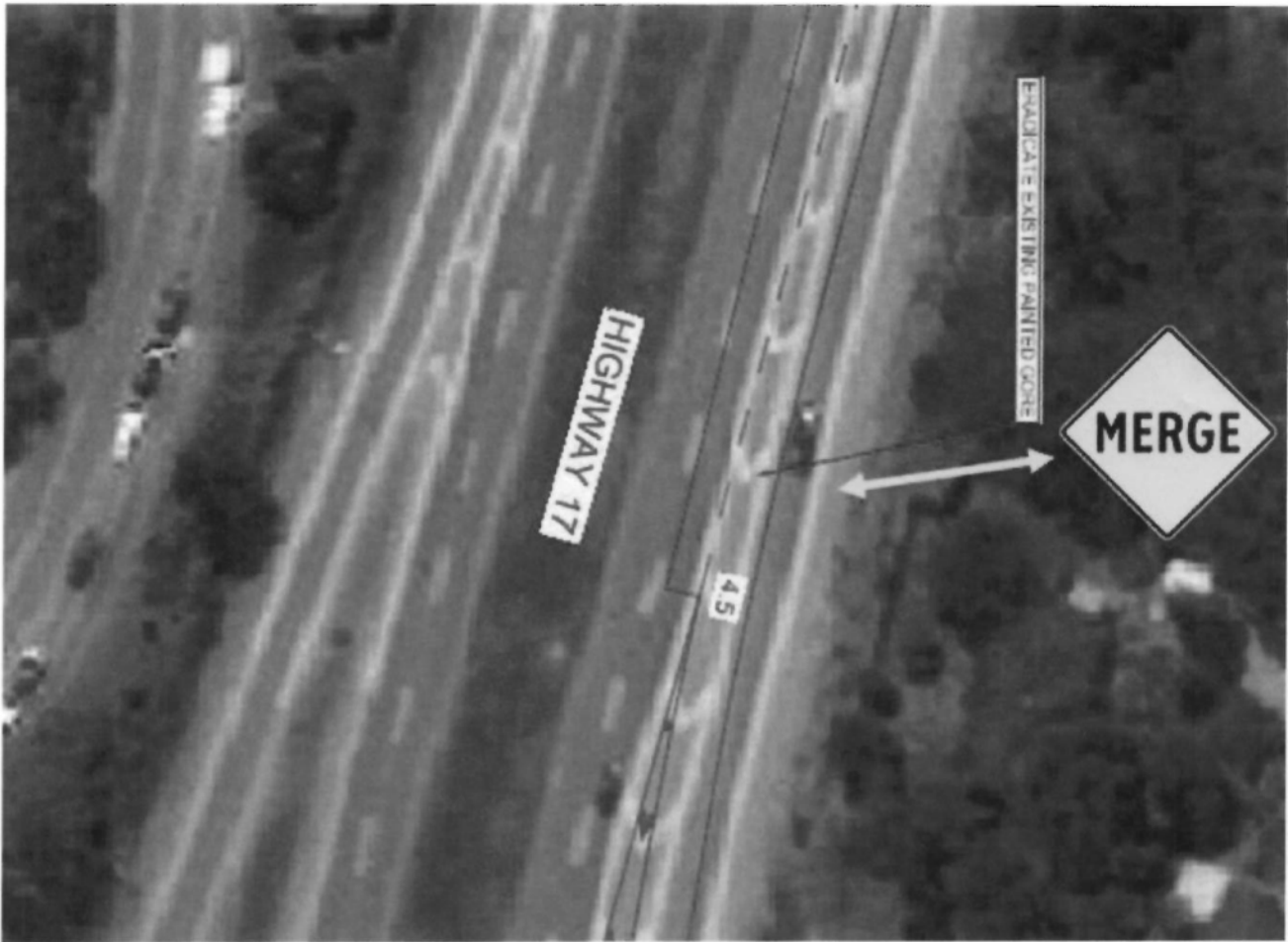
From: Bhasin, Sumit TRAN:EX
Sent: Tuesday, October 31, 2017 11:41 AM
To: Deogan, Karamjeet S TRAN:EX; Ludwar, Kenedee TRAN:EX; Evanoff, Ryan TRAN:EX; Pearson, Michael TRAN:EX; Kuhnke, Barb TRAN:EX; Boissonneault, Mike TRAN:EX; Bagg, Cody TRAN:EX
Subject: RE: Hwy 17 - Royal Oak southbound onramp - Pavement Markings
Attachments: Royal Oak merge onto Hwy 17 Traffic Concern

Hello all:
Attached find Highway design drawings and comments.

Below find comments related to signage:

Relocate existing Merge Sign to bring it closer to end of NEW recommended gore markings (field fit- as far as possible ahead of the merge area):





No change required to existing W37 sign:



Keep us posted with operational feedback post implementation.
Thanks

Best Regards,

Sumit Bhasin, P.Eng.

A/ Senior Traffic Operations Engineer
Ministry of Transportation and Infrastructure

From: Bhasin, Sumit TRAN:EX

Sent: Tuesday, October 31, 2017 10:36 AM

To: Deogan, Karamjeet S TRAN:EX; Ludwar, Kenedee TRAN:EX; Evanoff, Ryan TRAN:EX; Pearson, Michael TRAN:EX; Kuhnke, Barb TRAN:EX; Boissonneault, Mike TRAN:EX; Bagg, Cody TRAN:EX

Subject: RE: Hwy 17 - Royal Oak southbound onramp - Pavement Markings

Traffic Engg received a hwy design with updated pavement/gore markings.
I will review need for any signage updates and provide the package to District shortly.

Sumit

From: Deogan, Karamjeet S TRAN:EX

Sent: Tuesday, October 31, 2017 10:31 AM

To: Ludwar, Kenedee TRAN:EX; Evanoff, Ryan TRAN:EX; Pearson, Michael TRAN:EX; Kuhnke, Barb TRAN:EX; Boissonneault, Mike TRAN:EX; Bhasin, Sumit TRAN:EX; Bagg, Cody TRAN:EX

Subject: RE: Hwy 17 - Royal Oak southbound onramp - Pavement Markings

Sumit is working on this with Cody.

Karamjeet Deogan, P. Eng.

A/Manager, Traffic Operations

Tel: (604) 527-2257

From: Ludwar, Kenedee TRAN:EX

Sent: Tuesday, October 31, 2017 10:27 AM

To: Evanoff, Ryan TRAN:EX; Pearson, Michael TRAN:EX; Kuhnke, Barb TRAN:EX; Boissonneault, Mike TRAN:EX

Cc: Deogan, Karamjeet S TRAN:EX

Subject: RE: Hwy 17 - Royal Oak southbound onramp - Pavement Markings

Ok. Thanks

Karamjeet please follow up with the team.

Kenedee

----- Original Message -----

Subject: RE: Hwy 17 - Royal Oak southbound onramp - Pavement Markings

From: "Evanoff, Ryan TRAN:EX" <Ryan.Evanoff@gov.bc.ca>

Date: Oct 31, 2017, 10:25 AM

To: "Pearson, Michael TRAN:EX" <Michael.Pearson@gov.bc.ca>, "Ludwar, Kenedee TRAN:EX" <Kenedee.Ludwar@gov.bc.ca>, "Kuhnke, Barb TRAN:EX" <Barb.Kuhnke@gov.bc.ca>, "Boissonneault, Mike TRAN:EX" <Mike.Boissonneault@gov.bc.ca>

Susan and Mike B looked at the site a couple weeks ago and made some recommendations to traffic engineering to pull back the dashed merge line.

I'm not aware if engineering has approved the change yet.

Ryan Evanoff

Operations Manager – Southern Vancouver Island

Vancouver Island District

Ph: 250-952-5575



Ministry of
Transportation
and Infrastructure

From: Pearson, Michael TRAN:EX
Sent: Tuesday, October 31, 2017 8:58 AM
To: Ludwar, Kenedee TRAN:EX; Kuhnke, Barb TRAN:EX; Evanoff, Ryan TRAN:EX
Cc: Deogan, Karamjeet S TRAN:EX
Subject: RE: Hwy 17 - Royal Oak southbound onramp - Pavement Markings

Hi Kenedee,

Yes we can. I will ask Ryan to have one of his staff follow up today.

Thanks, Mike

From: Ludwar, Kenedee TRAN:EX
Sent: Tuesday, October 31, 2017 8:56 AM
To: Kuhnke, Barb TRAN:EX; Pearson, Michael TRAN:EX
Cc: Deogan, Karamjeet S TRAN:EX
Subject: RE: Hwy 17 - Royal Oak southbound onramp - Pavement Markings

Mike- Can your team review in the field the markings at the below noted location. We can prepare the response based on field review.

Kenedee Ludwar, P.Eng.
Director, Traffic and Highway Safety Engineering
Ministry of Transportation and Infrastructure
Telephone: 604 527-2255
Cellular: 604 209-4010
Email: Kenedee.Ludwar@gov.bc.ca

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From: Kuhnke, Barb TRAN:EX
Sent: Tuesday, October 31, 2017 8:53 AM

To: Ludwar, Kenedee TRAN:EX
Subject: FW: Hwy 17 - Royal Oak southbound onramp - Pavement Markings

Hi Kenedee,
Please have appropriate staff contact writer below . . thanks. .B

Barb Kuhnke | Branch Administrator
Office of the Chief Engineer
Ministry of Transportation & Infrastructure
4B - 940 Blanshard Street
Victoria, BC V8W 3E6
(T) 250.356.0723 | (F) 250.387.7735
(E) barb.kuhnke@gov.bc.ca

 Please consider the environment before printing this email.

From: Eng, Admin TRAN:EX
Sent: Tuesday, October 31, 2017 8:49 AM
To: Kuhnke, Barb TRAN:EX
Subject: FW: Hwy 17 - Royal Oak southbound onramp - Pavement Markings

From: s.22
Sent: October-31-17 8:49:05 AM (UTC-08:00) Pacific Time (US & Canada)
To: Eng, Admin TRAN:EX
Subject: Re: Hwy 17 - Royal Oak southbound onramp - Pavement Markings

Hello,

Please confirm that you are the office with responsibility for this issue and, if not, provide me with the contact information for the correct office.

Thank you,
s.22

Begin forwarded message:

From: s.22
Subject: Hwy 17 - Royal Oak southbound onramp - Pavement Markings
Date: October 7, 2017 at 7:24:59 AM PDT
To: ENG.Admin@gov.bc.ca

Hello,

I am a daily commuter from the Royal Oak area to downtown Victoria. I am writing to express significant safety concerns about the new pavement markings for the southbound merge lane at Royal Oak. It has always been a tricky on-ramp as it is relatively short and the highway curves as you merge onto it. After the pavement resurfacing this summer, the new pavement markings were recently added. The new lines are solid for a much

longer length than the prior ones. As a result, the dotted lines don't start until just before the curve of the highway and the merge area is very short. The danger is exacerbated by the concrete barriers placed on the curve on the right side of the highway. All of this means drivers are trying to merge onto a busy highway while also navigating a curve and avoiding the concrete barriers. As a result, to safely merge, drivers are forced to disregard the solid lines and merge onto the highway before the dotted lines begin. This causes confusion and frustration for the drivers already on the highway as they are not expecting vehicles to merge until the dotted line.

Please send an inspector immediately to assess this situation. It is only a matter of time until there is a significant accident.

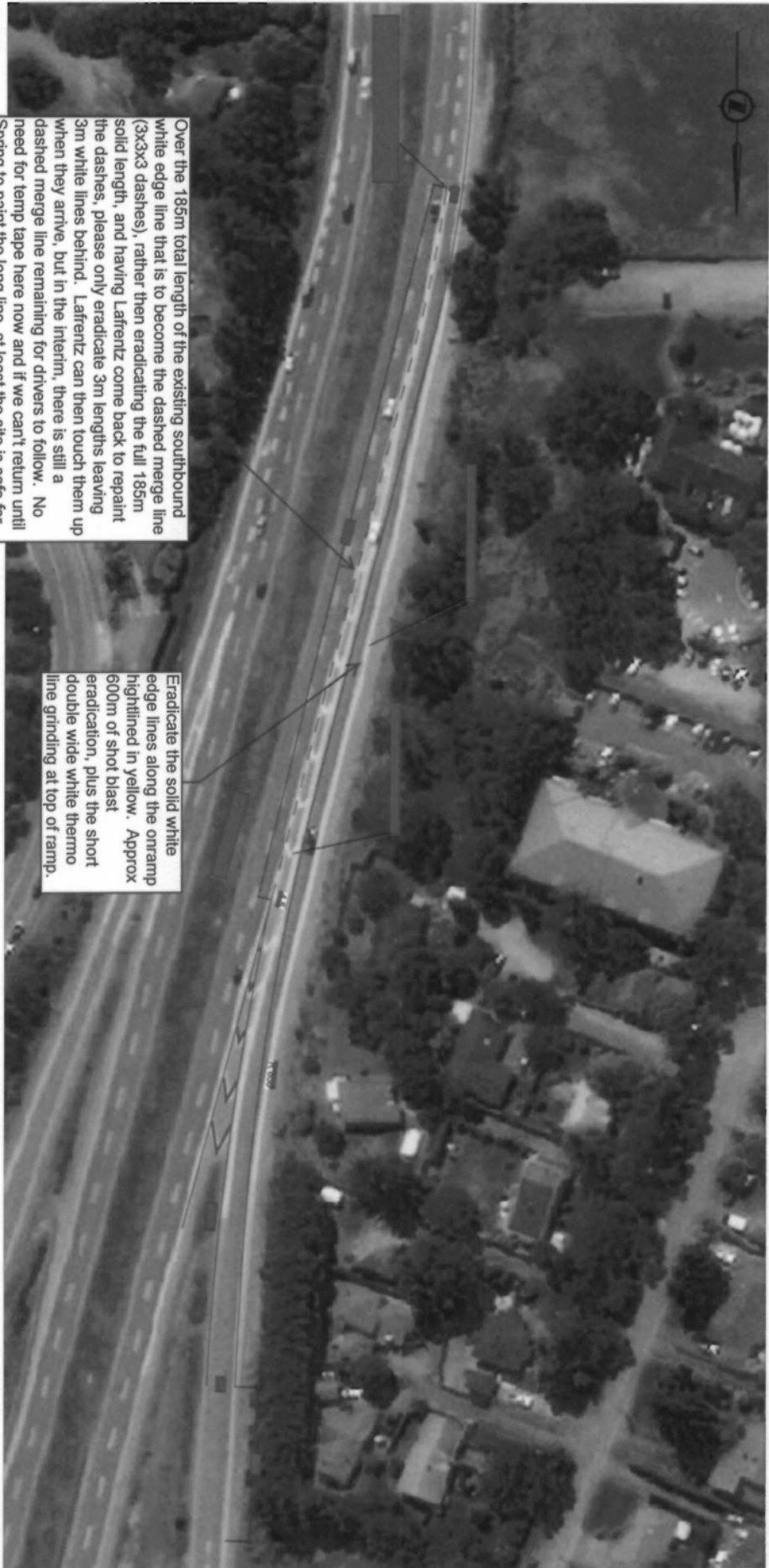
If you are not the correct department please forward my email and copy me. I want to hear back as to the result of your review.

Regards,
s.22

DRAFT
Oct 25, 2017

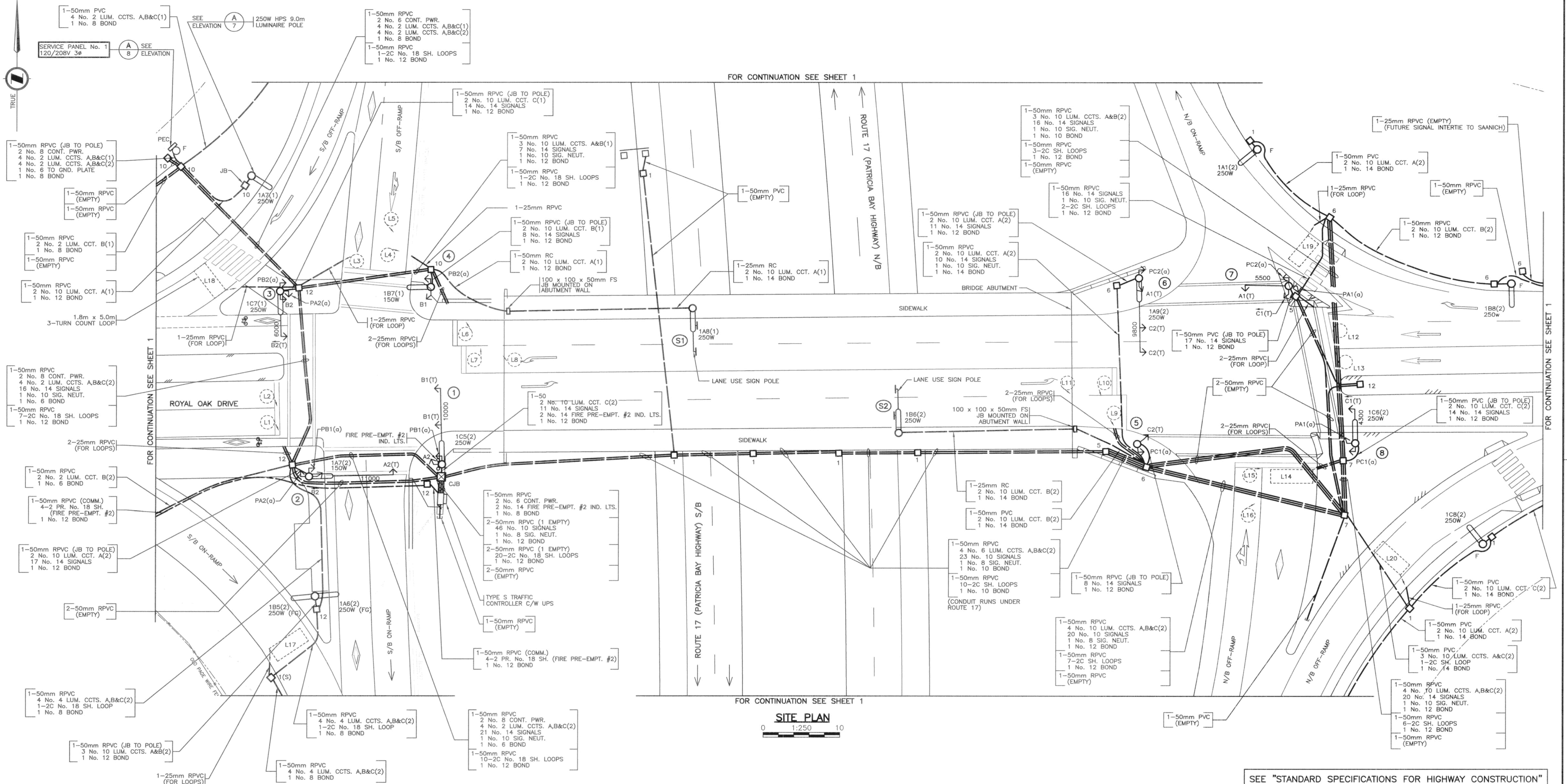
Over the 185m total length of the existing southbound white edge line that is to become the dashed merge line (3x3x3 dashes), rather than eradicating the full 185m solid length, and having Lafrentz come back to repaint the dashes, please only eradicate 3m lengths leaving 3m white lines behind. Lafrentz can then touch them up when they arrive, but in the interim, there is still a dashed merge line remaining for drivers to follow. No need for temp tape here now and if we can't return until Spring to paint the long line, at least the site is safe for winter. We just won't have the far right white edge line along the onramp.

Eradicate the solid white edge lines along the onramp highlighted in yellow. Approx 600m of shot blast eradication, plus the short double wide white thermo line grinding at top of ramp.



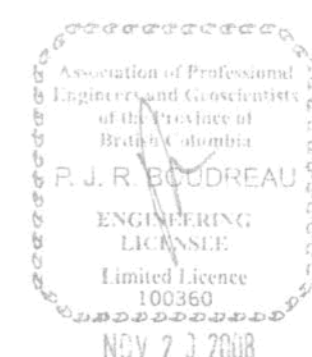
SCALE	0 1 200 20m	DATE	30/09/2017
DATE		DATE	
REVISION		DATE	
		DATE	
		DATE	
		DATE	
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		DATE	
		DATE	
		DATE	

BRITISH COLUMBIA MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE HIGHWAY DESIGN AND GEOMATICS	
CONCEPTUAL DESIGN ROYAL OAK DRIVE SOUTHBOUND MERGE	
DESIGNER DATE	CHECKED DATE
REVIEWER DATE	APPROVED DATE
FILE NUMBER PROJECT NUMBER	SHEET NUMBER DRAWING NUMBER



SITE PLAN
0 1:250 10

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS



VOLTAGE: 120/208V 3Ø

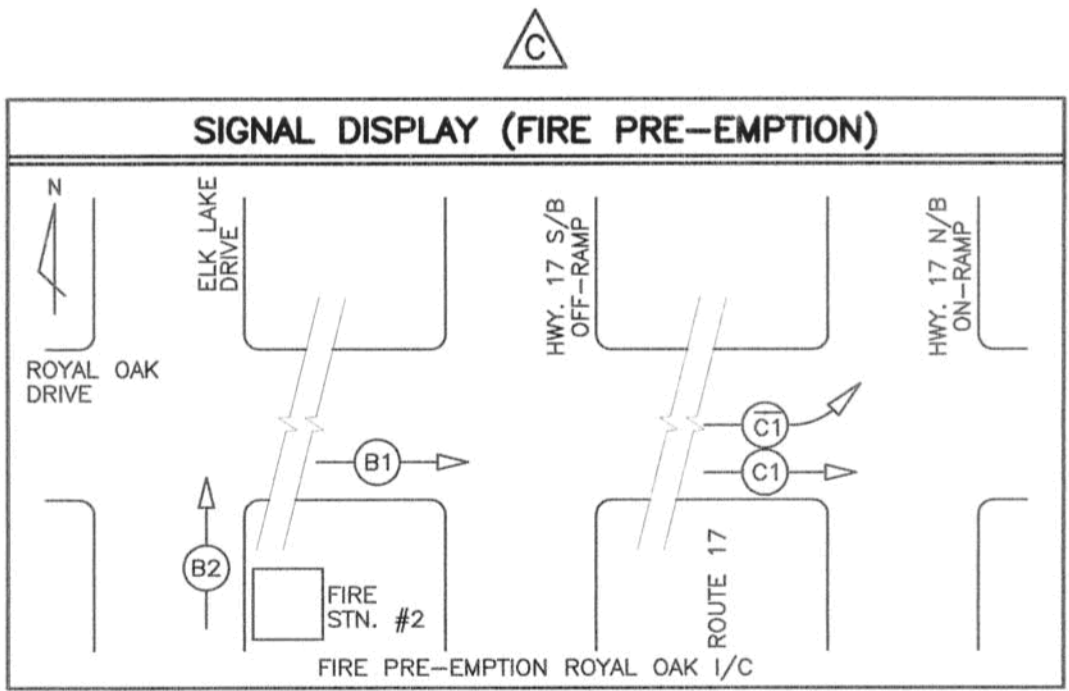
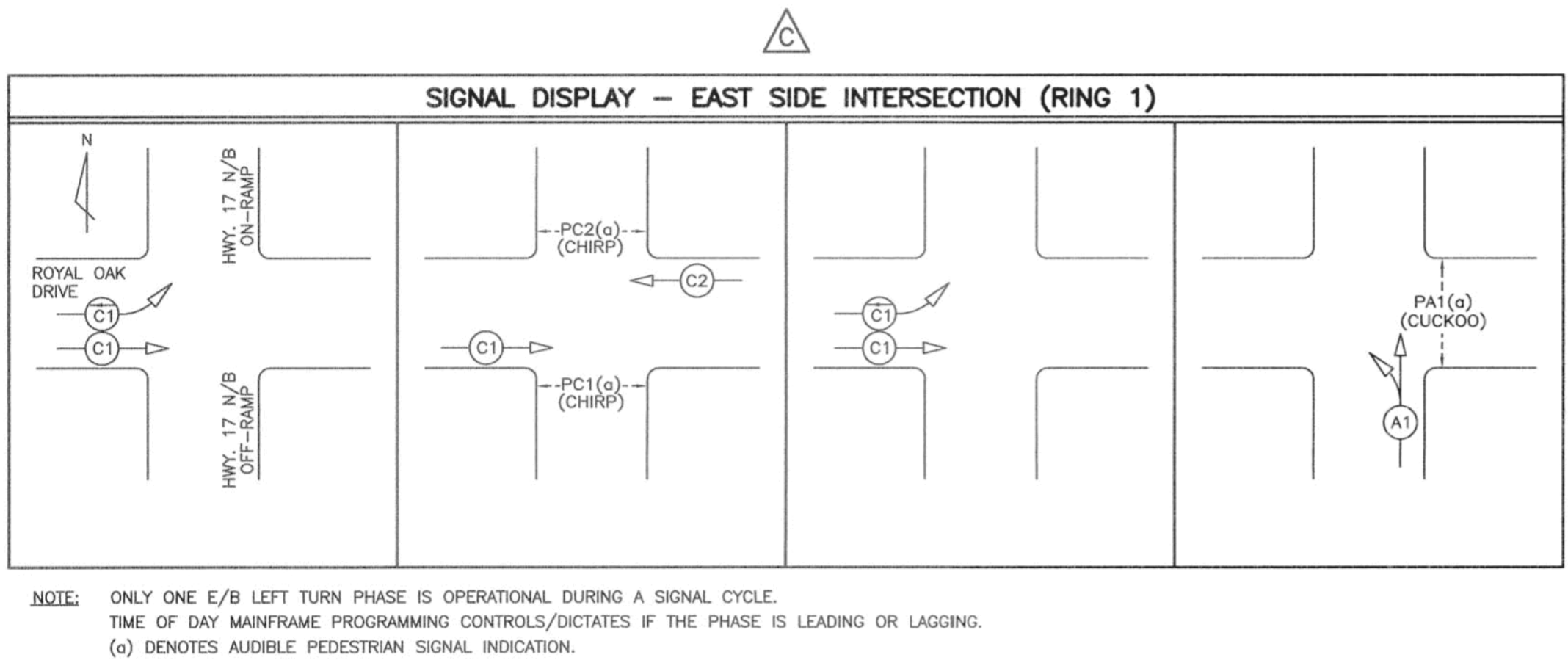
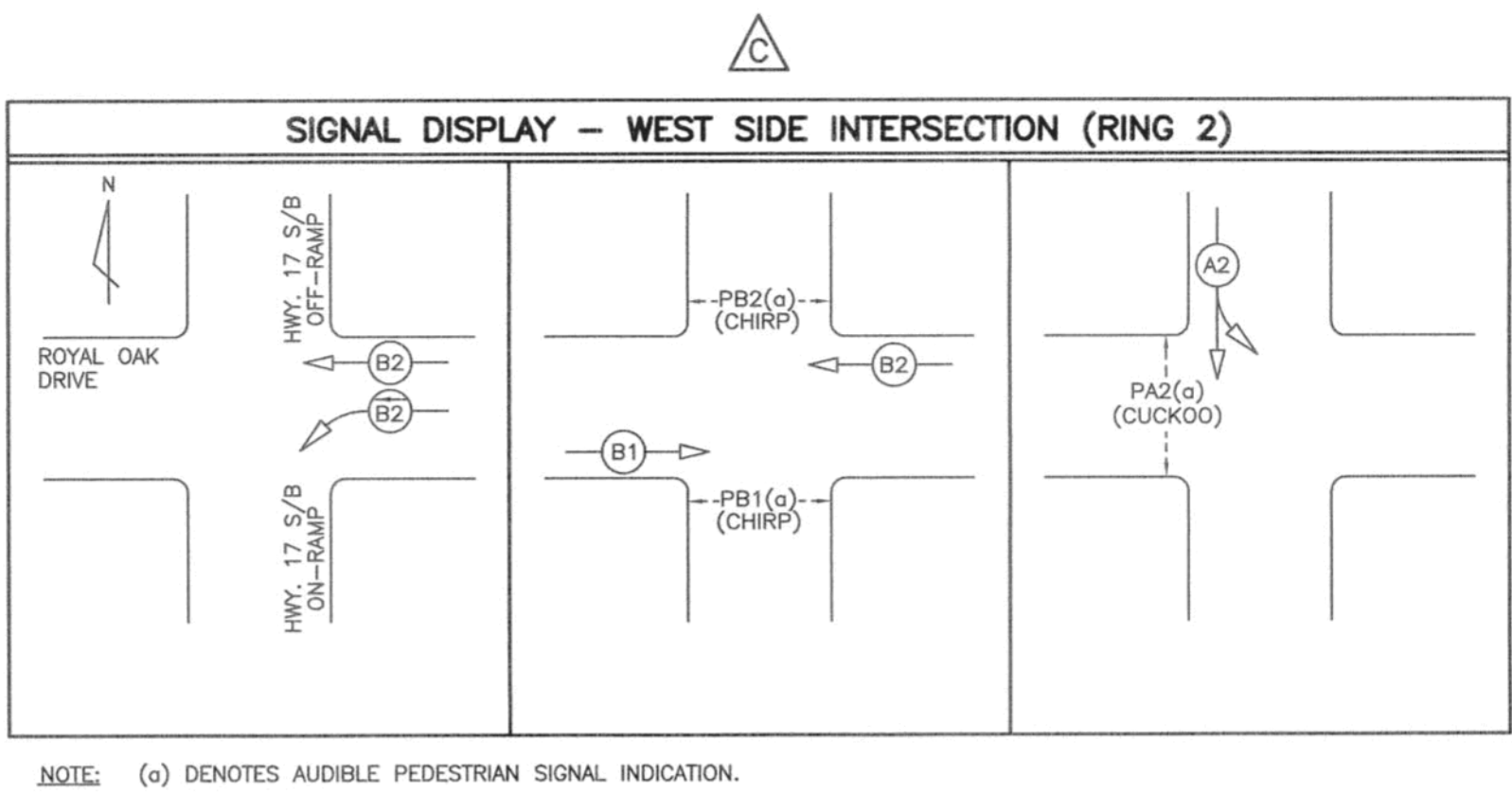
FOR MINISTRY USE ONLY
THIS DRAWING SERIES SUPERSEDES
DRAWING SERIES TE-90034

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

POSTED SPEED LIMIT (ON-RAMPS) 50 km/h
POSTED SPEED LIMIT (ROYAL OAK DRIVE) 50 km/h

DO NOT USE THIS DRAWING FOR
PAVEMENT MARKING AND SIGNING STANDARDS


PBA CONSULTING ENGINEERS PBA Engineering Ltd. 4218 Centre Circle Victoria, B.C. V8Z 6N6 Tel 250.388.7222 Fax 250.388.7229		Electrical Engineering BRITISH COLUMBIA The Best Place on Earth Ministry of Transportation	
DESIGNED BY <u>LS</u> DATE <u>10/08</u> CHECKED BY <u>WJH</u> DATE <u>20/08/08</u> M.O.T. ELECTRICAL DESIGN REVIEW <u>DP</u> DATE <u>DEC/08</u>		TRAFFIC SIGNAL AND LIGHTING INSTALLATION ROUTE 17 AT ROYAL OAK INTERCHANGE SAANICH	
REVISIONS		SITE PLAN ENLARGEMENT	
REV	DATE	DESCRIPTION	DRAWN
JAN/01		DRAWING ISSUED	PBA
A	MAR/03	DRAWINGS RE-NUMBERED, SIGNAL HEAD UPGRADE -	PBA
B	FEB/08	LTC-REVISED, SIGNAL POLE RELOCATED, PEDESTRIAN DISPLAY/PB UPGRADE AND LOOPS RE-CUT (ROTX) - ISSUED FOR CONSTRUCTION	PBA
C	NOV/08	RECORD DRAWING	PBA
SHEET NUMBER SHEET 5 OF 8		SITE CODE	HWY DIST
		2	1
		REGION	DRAWING NUMBER
		1	TE-00119-5



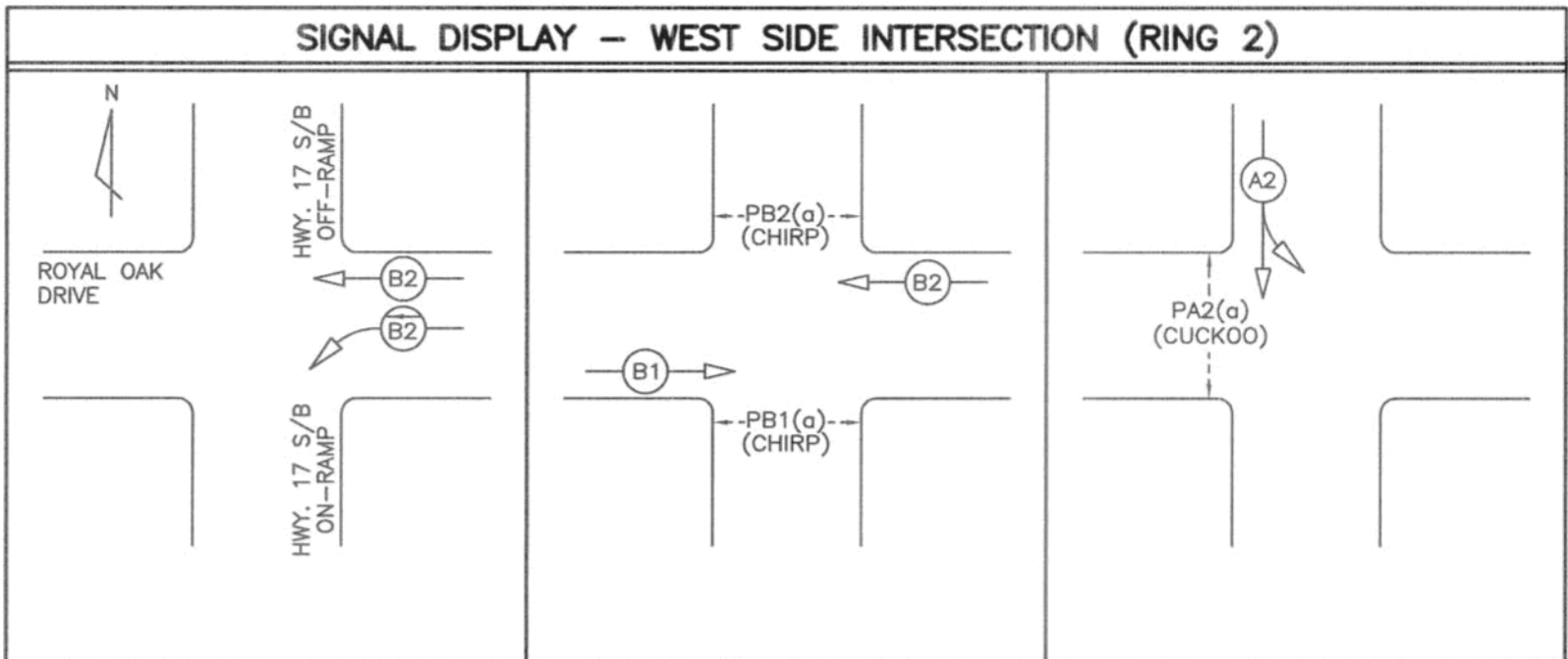
PROFESSIONAL
ENGINEER
C. M. EDGAR
#3151
SEP 2, 2008

REFER TO SHEET 1 FOR NOTES

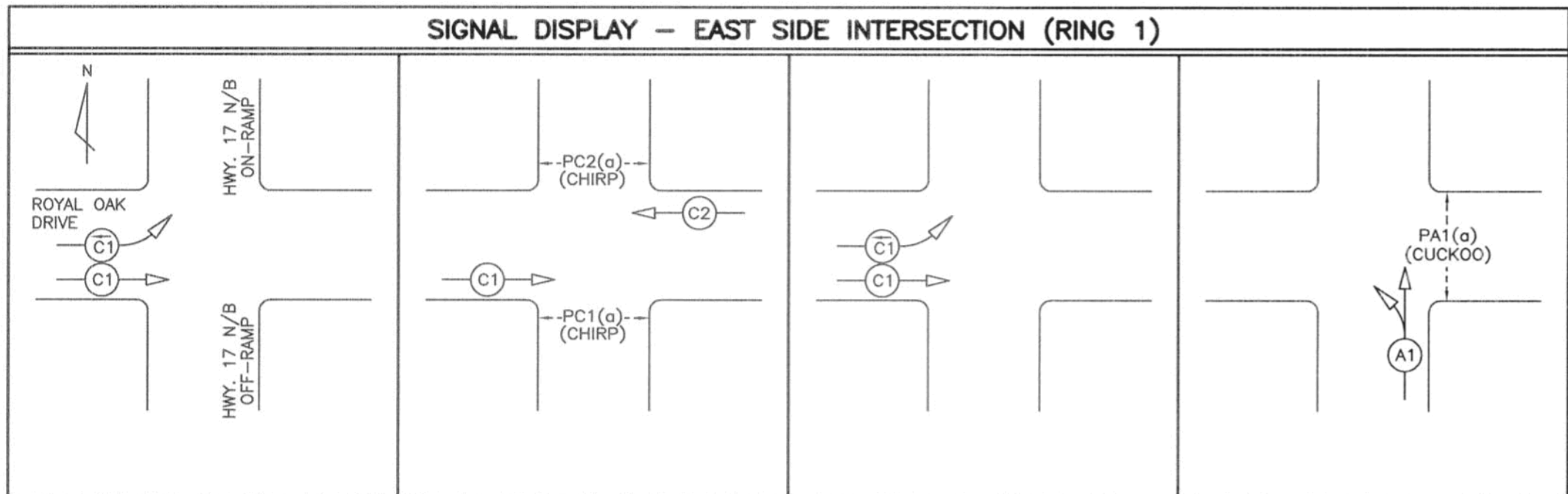
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DESIGNED BY <u>LG</u> DATE <u>Aug/08</u> CHECKED BY <u>BP</u> DATE <u>Aug/08</u>		ELECTRICAL ENGINEERING Ministry of Transportation	
M.O.T. ELECTRICAL DESIGN REVIEW <u>h.p.</u> DATE <u>Sep/08</u>		TRAFFIC SIGNAL AND LIGHTING INSTALLATION ROUTE 17 AT ROYAL OAK INTERCHANGE SAANICH	
REVISIONS		SIGNAL DISPLAY	
REV	DATE	DESCRIPTION	DRAWN
JAN01		DRAWING ISSUED	JDM
A	MAR03	DRAWINGS RE-NUMBERED, SIGNAL DISPLAY REVISED - RECORD DRAWING	PBA
B	FEB/08	SIGNAL DISPLAYS REVISED, EMERGENCY PRE-EMPTION DISPLAY ADDED (ROTX) - ISSUED FOR CONSTRUCTION	PBA
C	SEP/08	SIGNAL DISPLAY REVISED - RE-ISSUED FOR CONSTRUCTION	PBA
		ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)	
		<u>Cory Edgar</u> DATE <u>Sep 2, 2008</u>	
SHEET NUMBER		SITE CODE	HWY DIST
6 OF 8			2
		REGION	DRAWING NUMBER
		1	TE-00119-6

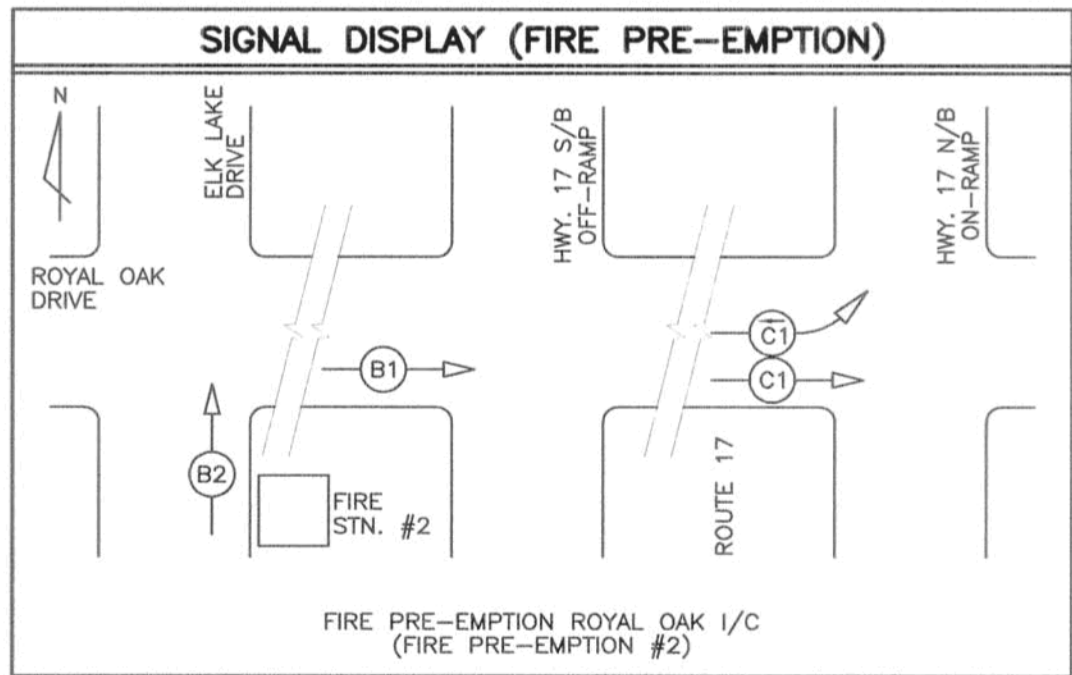
P:\ACTIVEPROJECTS\56027 VAN ISLAND A.S. WHEN TRAFFIC AND ELECTRICAL DESIGN\05 ROYAL OAK TRANSIT EXCHANGE DRAWINGS\DESIGN DWG5 001196D, 19/11/2008 04:55 PM, RLMA



NOTE: (a) DENOTES AUDIBLE PEDESTRIAN SIGNAL INDICATION.



NOTE: ONLY ONE E/B LEFT TURN PHASE IS OPERATIONAL DURING A SIGNAL CYCLE.
TIME OF DAY MAINFRAME PROGRAMMING CONTROLS/DICTATES IF THE PHASE IS LEADING OR LAGGING.
(a) DENOTES AUDIBLE PEDESTRIAN SIGNAL INDICATION.



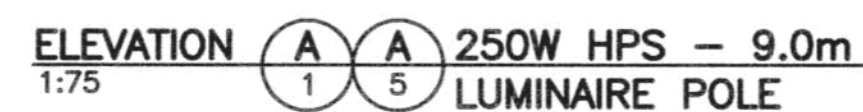
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DESIGNED BY <u>LG</u> DATE <u>10/08</u> CHECKED BY <u>HH</u> DATE <u>20/Nov/08</u>		TRAFFIC SIGNAL AND LIGHTING INSTALLATION ROUTE 17 AT ROYAL OAK INTERCHANGE SAANICH			
M.O.T. ELECTRICAL DESIGN REVIEW <u>DP</u> DATE <u>DEC/08</u>		ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)			
REVISIONS		SIGNAL DISPLAY			
REV	DATE	DESCRIPTION	DRAWN		
JAN01		DRAWING ISSUED	JDM		
A	MAR03	DRAWINGS RE-NUMBERED, SIGNAL DISPLAY REVISED – RECORD DRAWING	PBA		
B	FEB/08	SIGNAL DISPLAYS REVISED, EMERGENCY PRE-EMPTION DISPLAY ADDED (ROTX) – ISSUED FOR CONSTRUCTION	PBA		
C	SEP/08	SIGNAL DISPLAY REVISED – RE-ISSUED FOR CONSTRUCTION	PBA		
D	NOV/08	RECORD DRAWING	PBA		
SHEET NUMBER		SITE CODE	HWY DIST	REGION	DRAWING NUMBER
SHEET 6 OF 8			2	1	TE-00119-6

Association of Professional
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of the Province of
British Columbia
P. J. R. BOUDREAU
ENGINEERING
LICENCE
Limited Licence
100360
NOV 2 2 2008

10/11/08 (1)



DETECTOR LOOP TABLE						
LOOP			INDUCTANCE			PHASE
LOOP No.	SIZE (m)	TURNS	LOOP (μh)	LEAD (μh)	TOTAL (μh)	
L 1	1.8 ϕ	4	95	22	117	ϕB
L 2	1.8 ϕ	4	95	22	117	ϕB1
L 3	1.8 x 5.0	3	134	35	169	ϕA2
L 4	1.8 ϕ	4	95	46	141	ϕA2
L 5	1.8 ϕ	4	95	46	141	ϕA2
L 6	1.8 ϕ	4	95	46	141	ϕB2
L 7	1.8 ϕ	4	95	46	141	ϕB2
L 8	1.8 ϕ	4	95	46	141	ϕB2
L 9	1.8 ϕ	5	140	68	208	ϕC1
L 10	1.8 ϕ	5	140	68	208	ϕC1
L 11	1.8 ϕ	5	140	68	208	ϕC1
L 12	1.8 ϕ	7	260	117	377	ϕC2
L 13	1.8 ϕ	7	260	117	377	ϕC2
L 14	1.8 x 5.4	4	236	89	325	ϕA1
L 15	1.8 x 1.8	5	180	89	269	ϕA1
L 16	1.8 x 1.8	5	180	89	269	ϕA1
L 17	1.8 x 5.4	3	112	41	183	COUNT
L 18	1.8 x 3.8	3	110	48	158	COUNT
L 19	1.8 x 4.4	5	305	109	114	COUNT
L 20	1.8 x 4.6	4	210	92	302	COUNT



CONDUCTOR COLOUR CODE		
ITEM	SIGNAL SECTION	CONDUCTOR COLOUR
A1	RED YELLOW GREEN GREEN ARROW	RED YELLOW BLUE BLUE (WHITE T.T.)
A2	RED YELLOW GREEN GREEN ARROW	RED YELLOW BLUE BLUE (WHITE T.T.)
B1	RED YELLOW GREEN GREEN ARROW	RED BROWN BLUE BLUE (WHITE T.T.)
B2	RED YELLOW GREEN YELLOW ARROW GREEN ARROW	RED BROWN BLUE ORANGE (WHITE T.T.) BLUE (WHITE T.T.)
C1	RED YELLOW GREEN YELLOW ARROW GREEN ARROW	RED ORANGE BLUE ORANGE (WHITE T.T.) BLUE (WHITE T.T.)
C2	RED YELLOW GREEN GREEN ARROW	RED ORANGE (BLUE T.T.) BLUE (WHITE T.T.)
PA1	DON'T WALK WALK PUSH BUTTON	YELLOW BLUE PURPLE/PURPLE (YELLOW T.T.)
PA2	DON'T WALK WALK PUSH BUTTON	YELLOW (RED T.T.) BLUE PURPLE/PURPLE (RED T.T.)
PB1	DON'T WALK WALK PUSH BUTTON	BROWN BLUE PURPLE/PURPLE (BROWN T.T.)
PB2	DON'T WALK WALK PUSH BUTTON	BROWN (ORANGE T.T.) BLUE PURPLE/PURPLE (ORANGE T.T.)
PC1	DON'T WALK WALK PUSH BUTTON	ORANGE BLUE PURPLE/PURPLE (ORANGE T.T.)
PC2	DON'T WALK WALK PUSH BUTTON	ORANGE (BLUE T.T.) BLUE PURPLE/PURPLE (BLUE T.T.)
CONTROLLER POWER		BLACK
FIRE PRE-EMPTION #2 IND. LIGHTS		RED (WHITE T.T.)
LUMINAIRE CCT. A(1)&(2)		RED
LUMINAIRE CCT. B(1)&(2)		BLACK
LUMINAIRE CCT. C(1)&(2)		BLUE
NEUTRAL		WHITE
GROUND/BOND		GREEN


NOTE: T.T. DENOTES TAPE TRACER.



REFER TO SHEET 1 FOR NOTES

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

ALL EQUIPMENT IS EXISTING
UNLESS NOTED OTHERWISE

 <div style="display: inline-block; vertical-align: middle;"> <h1 style="margin: 0;">PBA</h1> <p style="margin: 0;">CONSULTING ENGINEERS</p> </div>	<p><i>PBA Engineering Ltd.</i> <i>4218 Commerce Circle</i> <i>Victoria, B.C. V8Z 6W6</i> <i>Tel 250.388.7222 Fax 250.388.7229</i></p>		
<p>DESIGNED BY _____ DATE _____ CHECKED BY _____ DATE _____</p> <p style="text-align: center;">M.O.T. ELECTRICAL DESIGN REVIEW <u>ABC</u> DATE <u>Mar 5/03</u></p>			
<h2 style="margin: 0;">REVISIONS</h2>			
REV	DATE	DESCRIPTION	DRAWN
	JAN/01	DRAWING ISSUED	JDM
A	MAR/03	DRAWINGS RE-NUMBERED, SIGNAL HEAD UPGRADE – RECORD DRAWING	PBA
B	FEB/08	DETECTOR LOOPS RECUT (ROTX) – ISSUED FOR CONSTRUCTION	PBA



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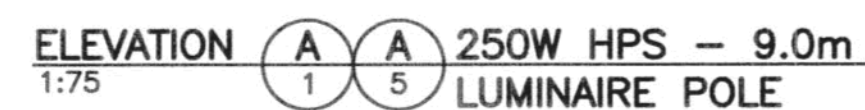
Electrical Engineering
Ministry of Transportation

TRAFFIC SIGNAL AND LIGHTING INSTALLATION
ROUTE 17 AT ROYAL OAK INTERCHANGE
SAANICH

LIGHTING SCHEMATIC – WIRING DIAGRAM – ELEVATION

ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

DATE			
SHEET NUMBER	SITE CODE	HWY DIST	REGION
SHEET 7 OF 8		2	1
DRAWING NUMBER			
TE-0011			

— BUS QUEUE

SEPARATELY WIRED IN FIELD
BOTH WIRED TO PC1 AT CONTROLLER

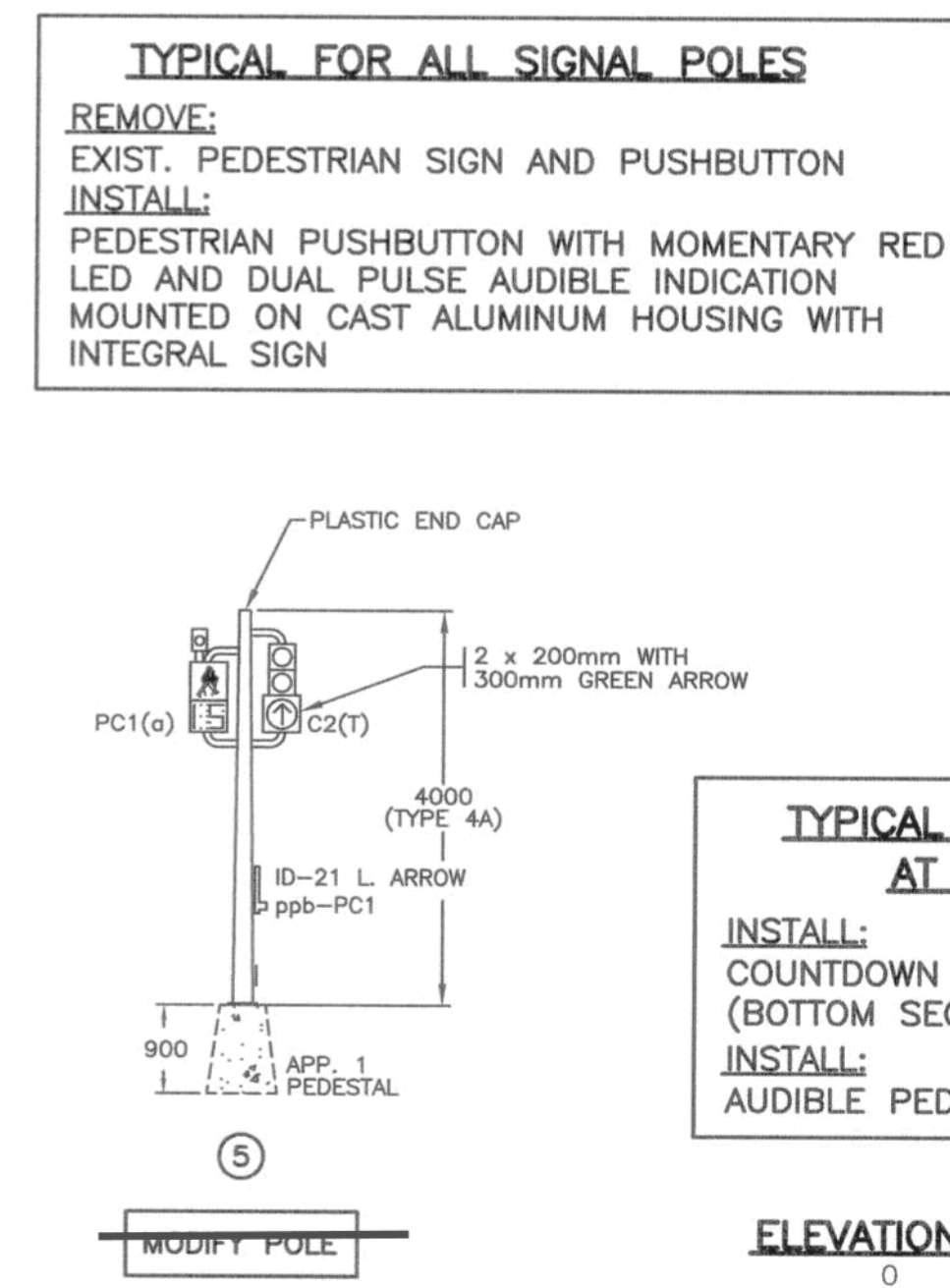
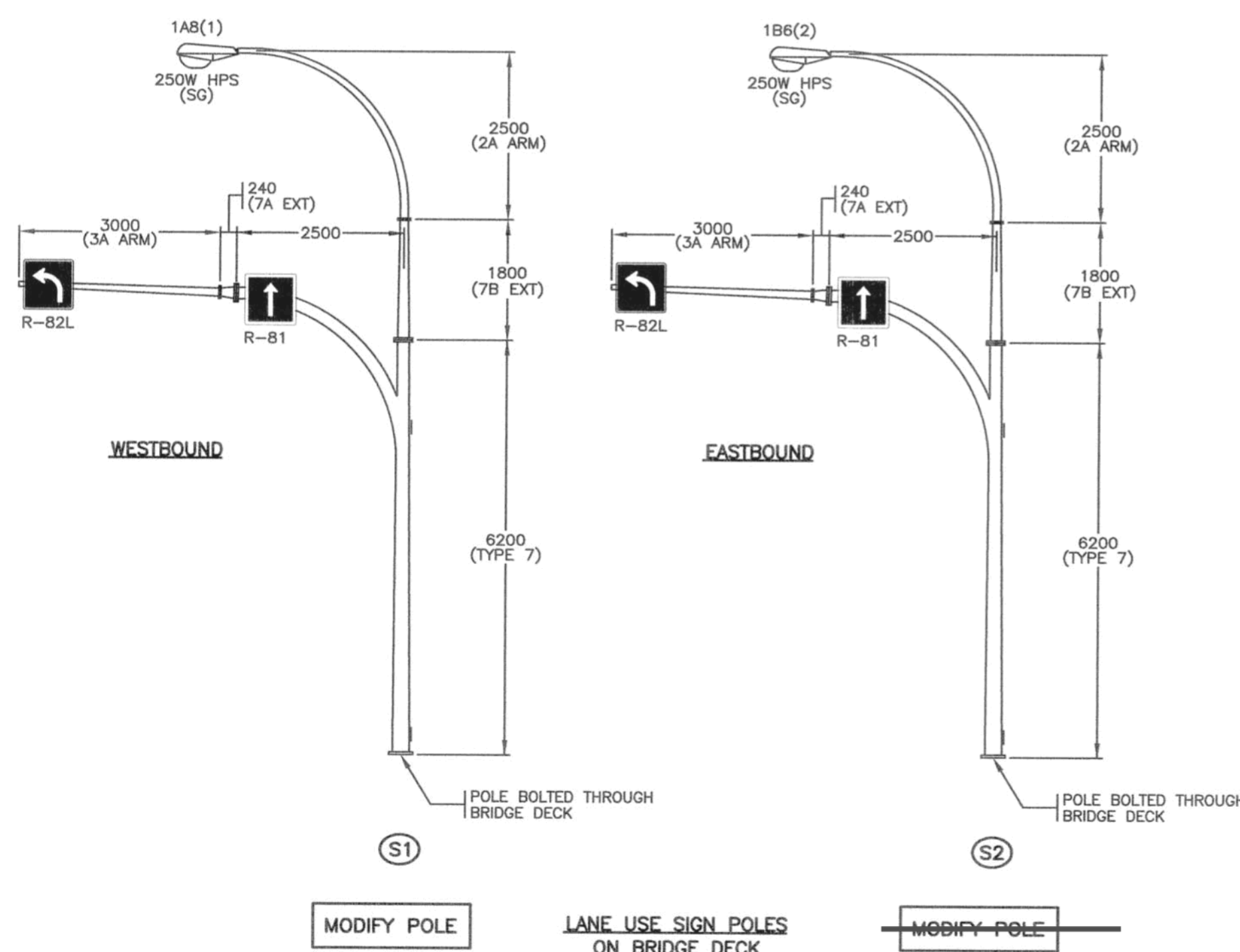
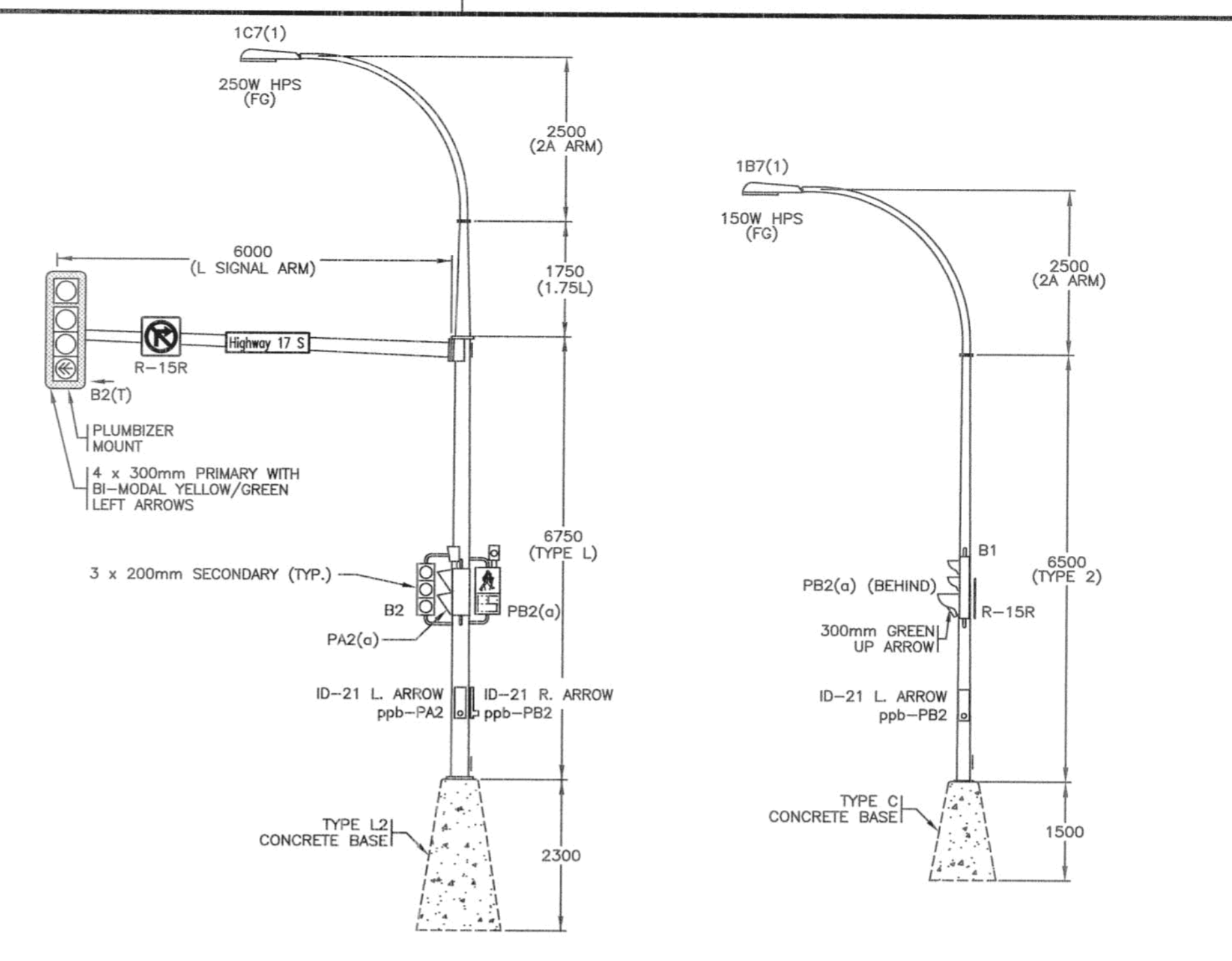
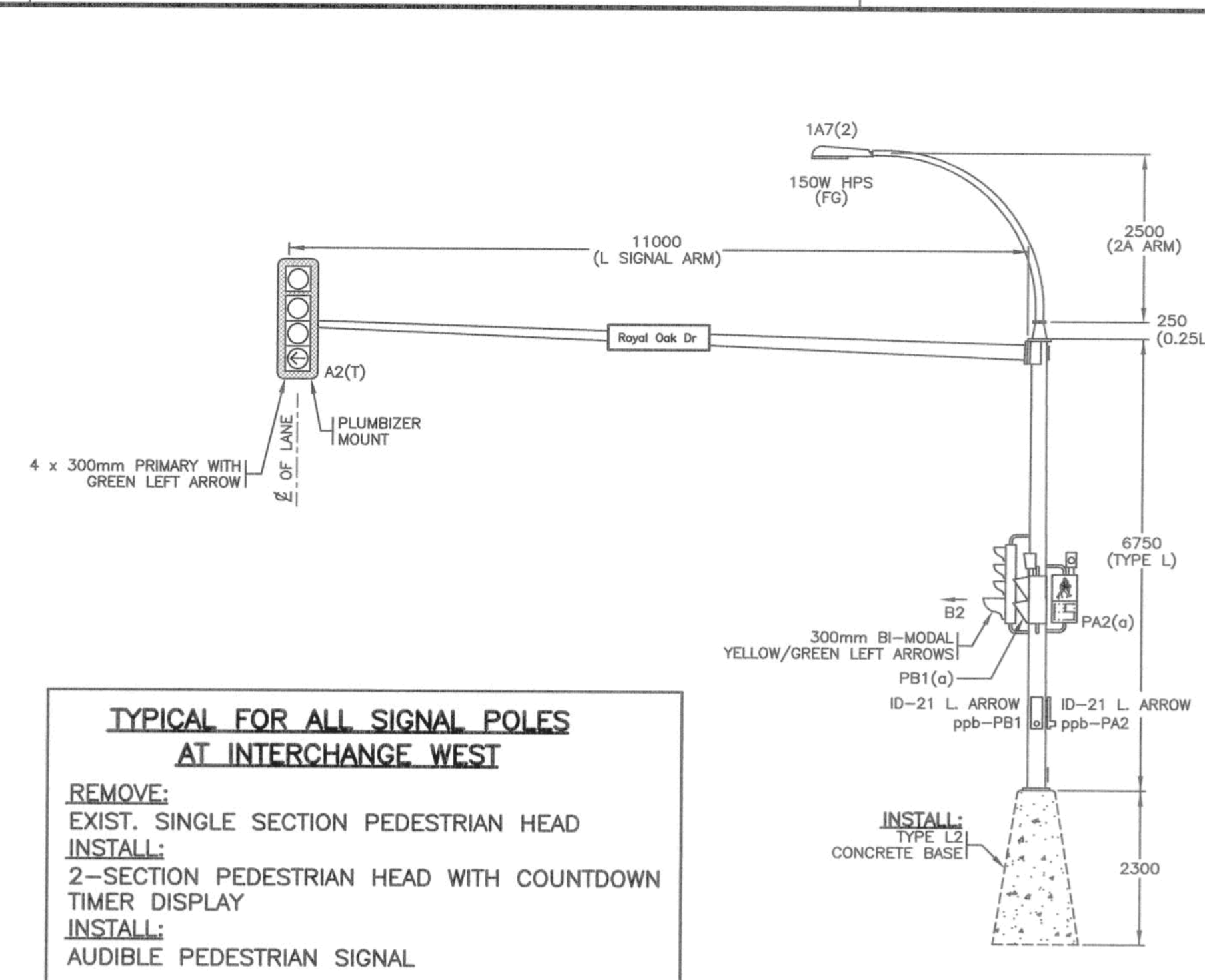
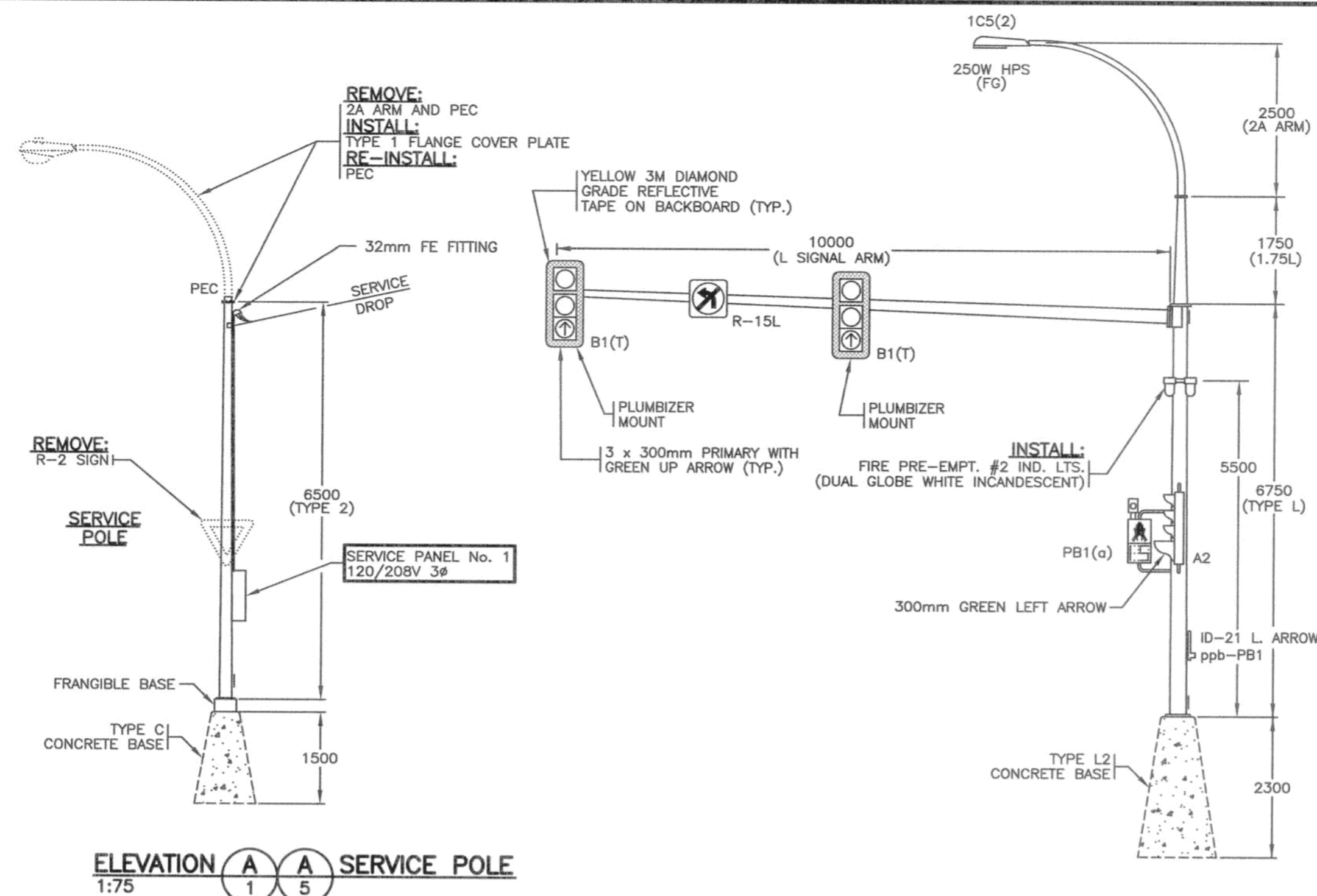
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C

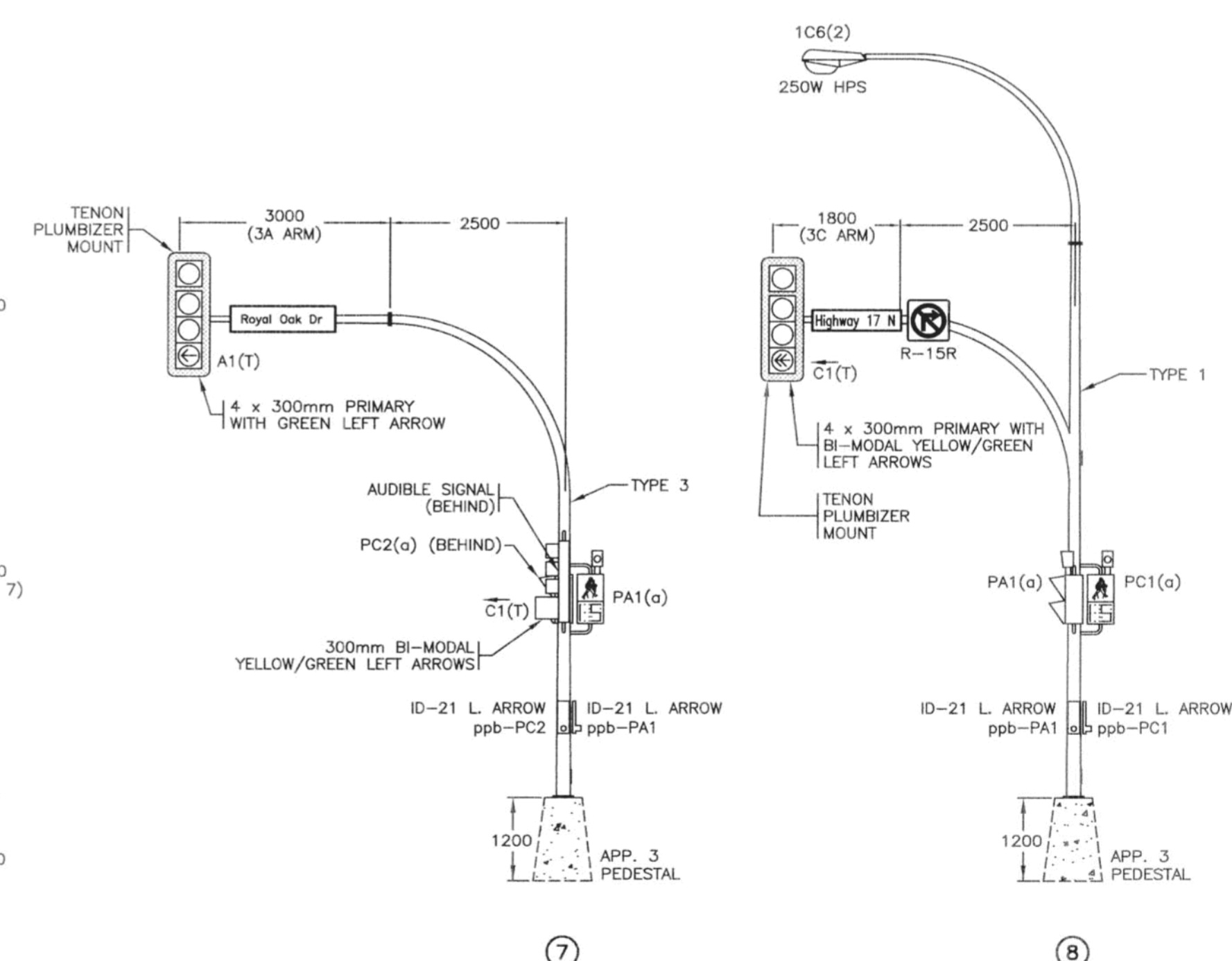
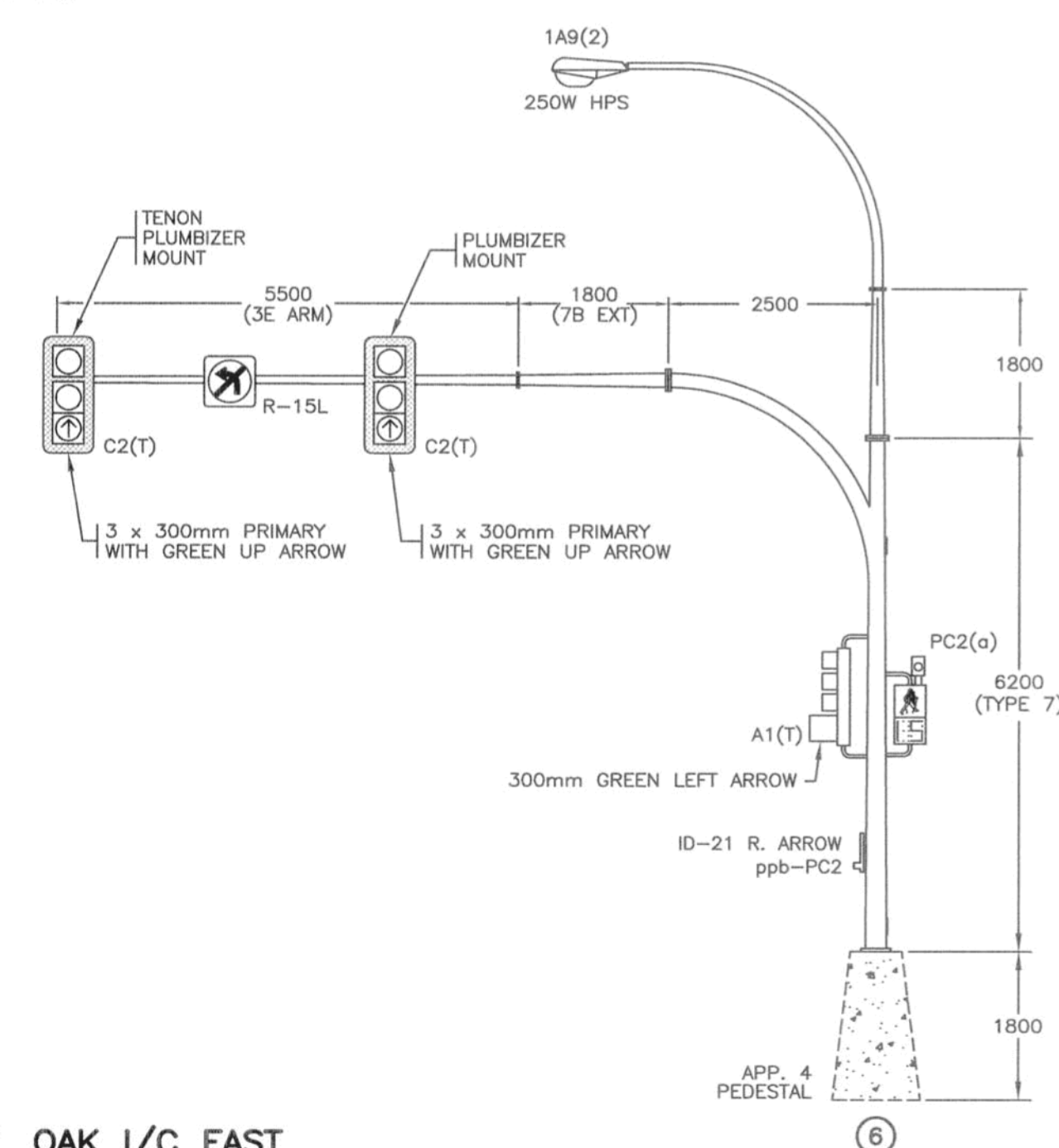
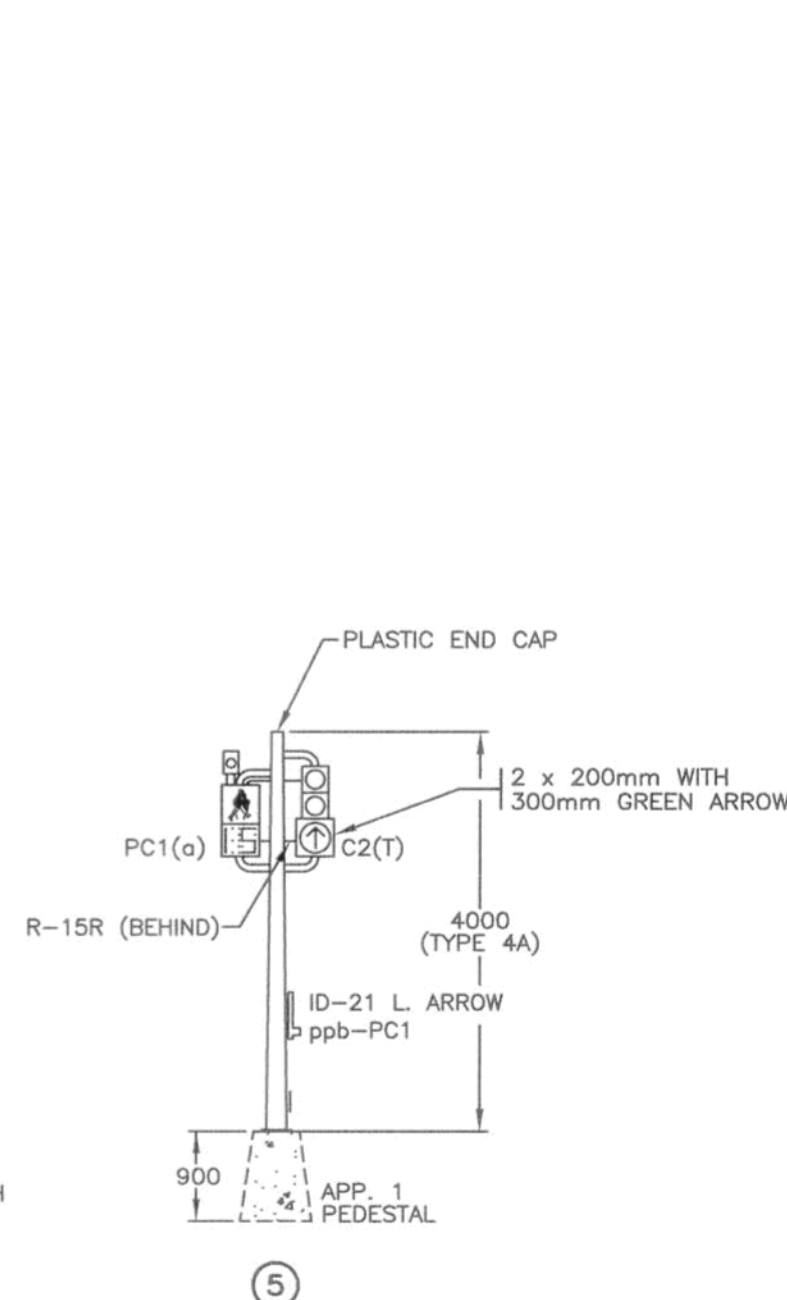
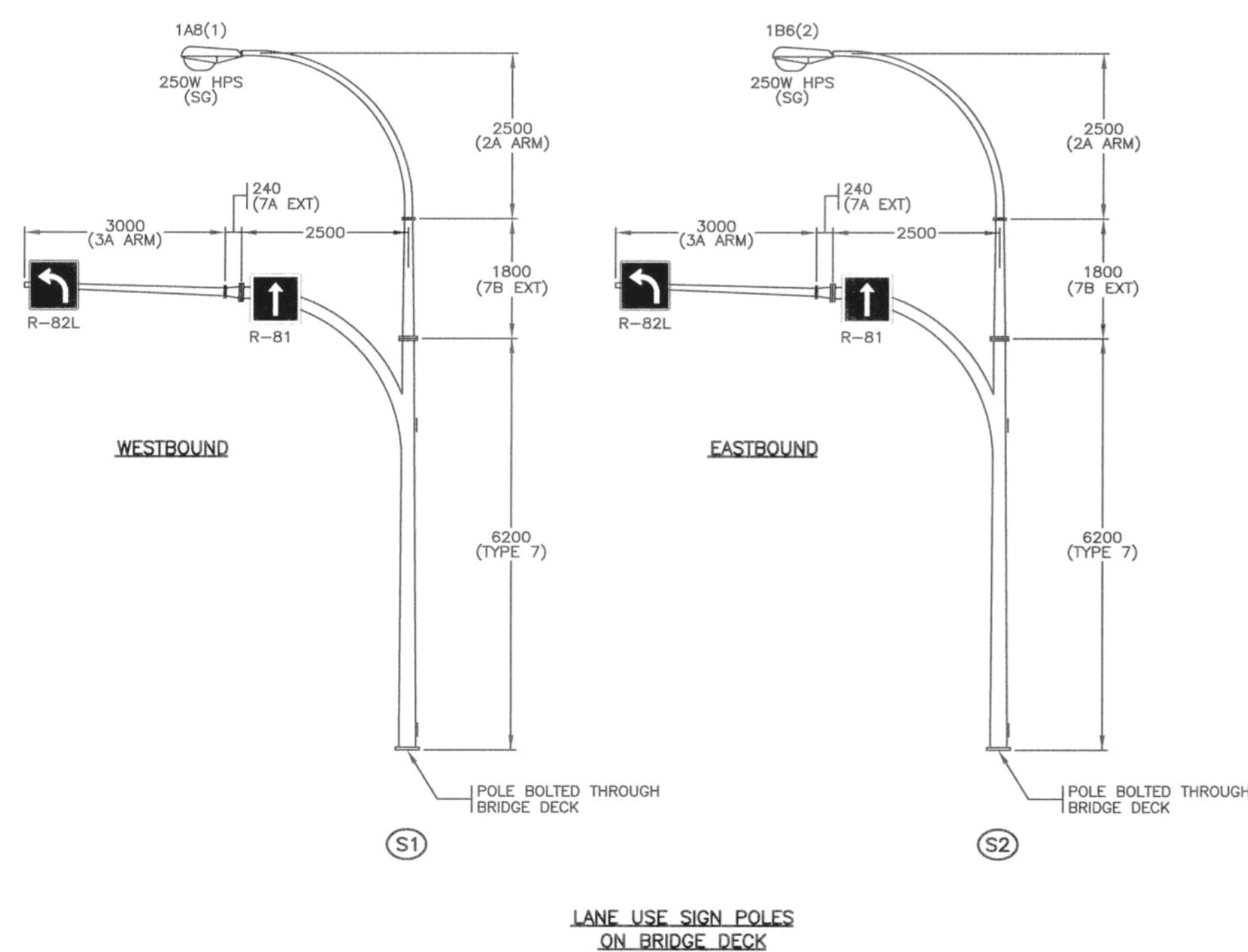
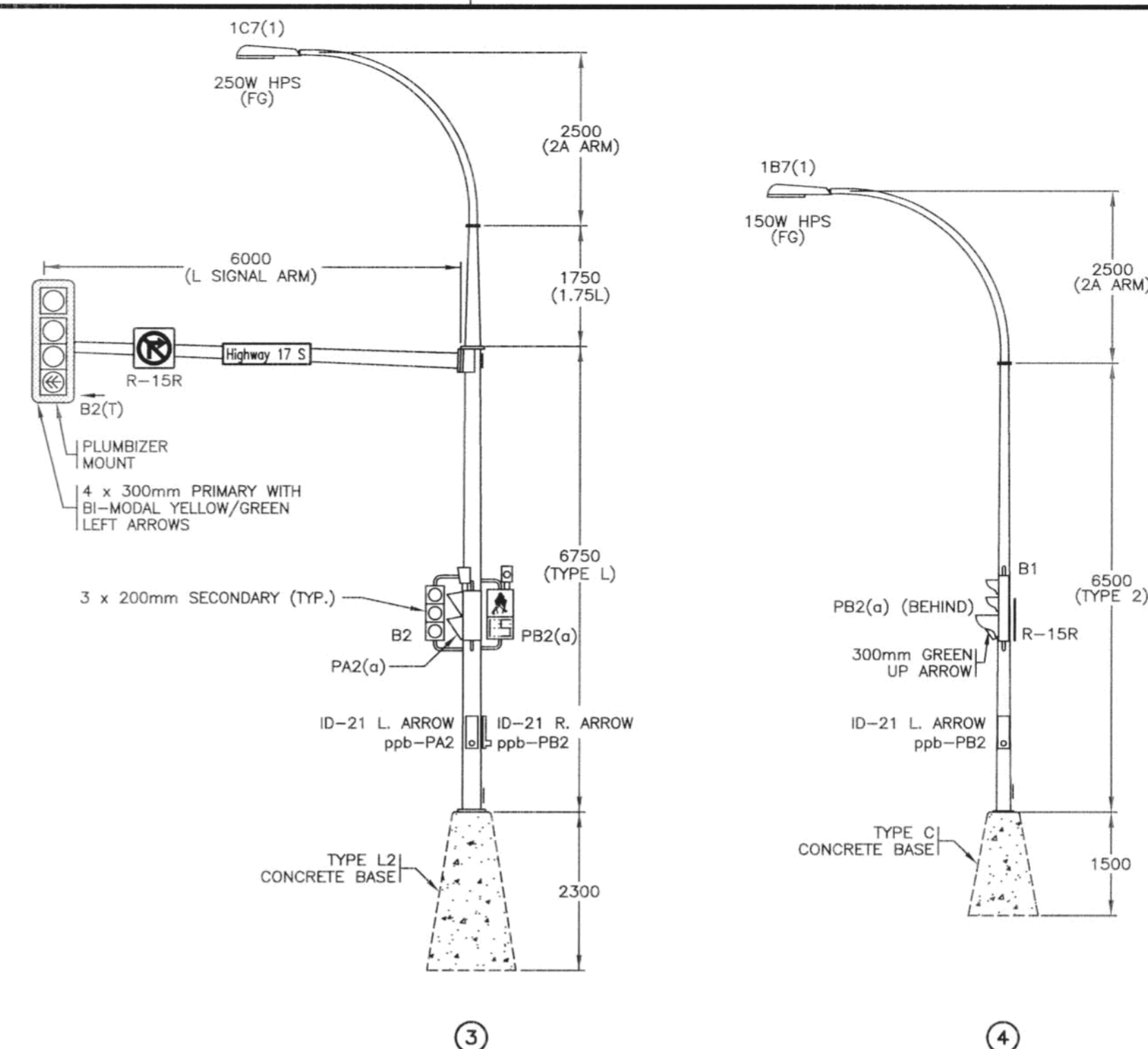
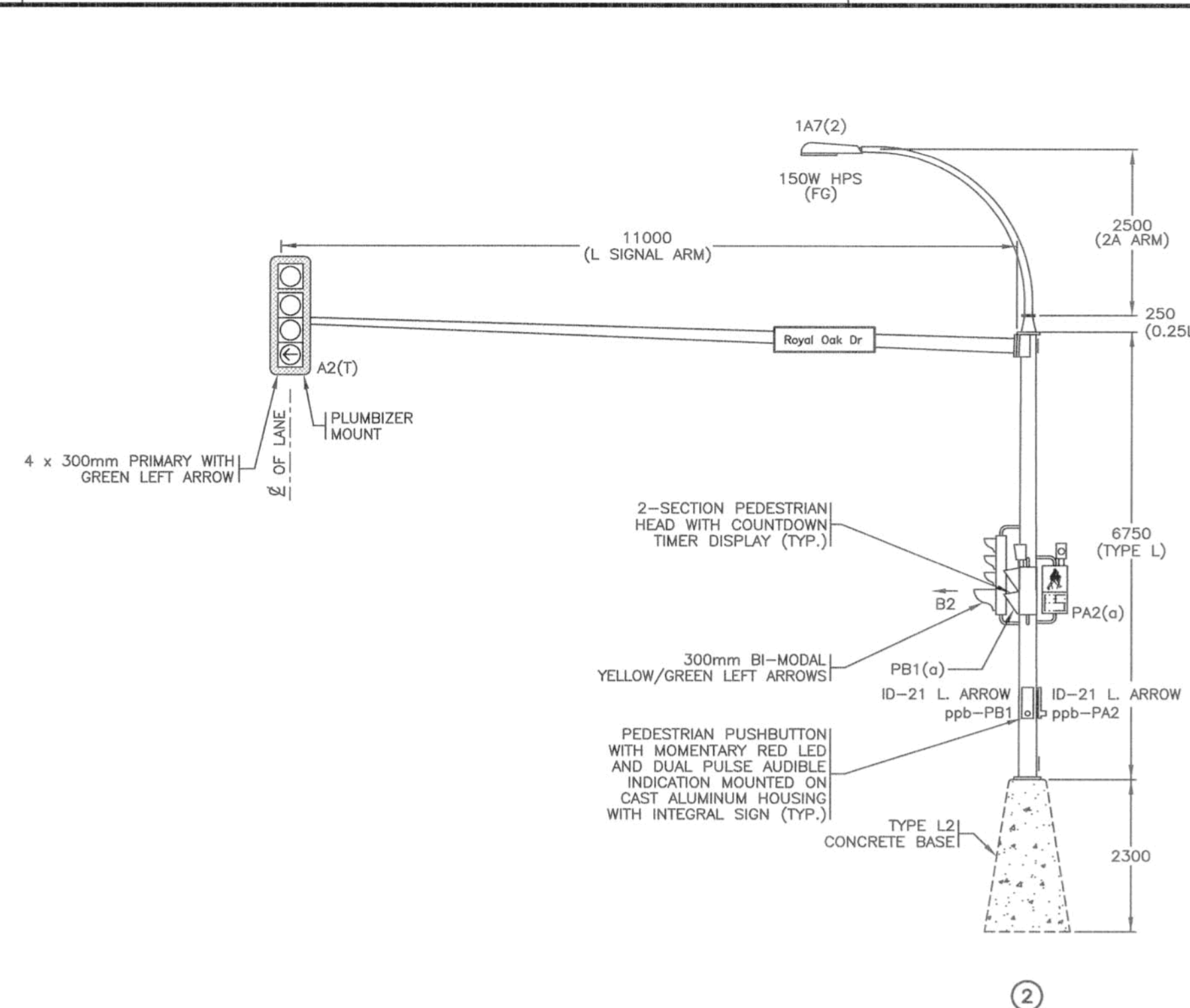
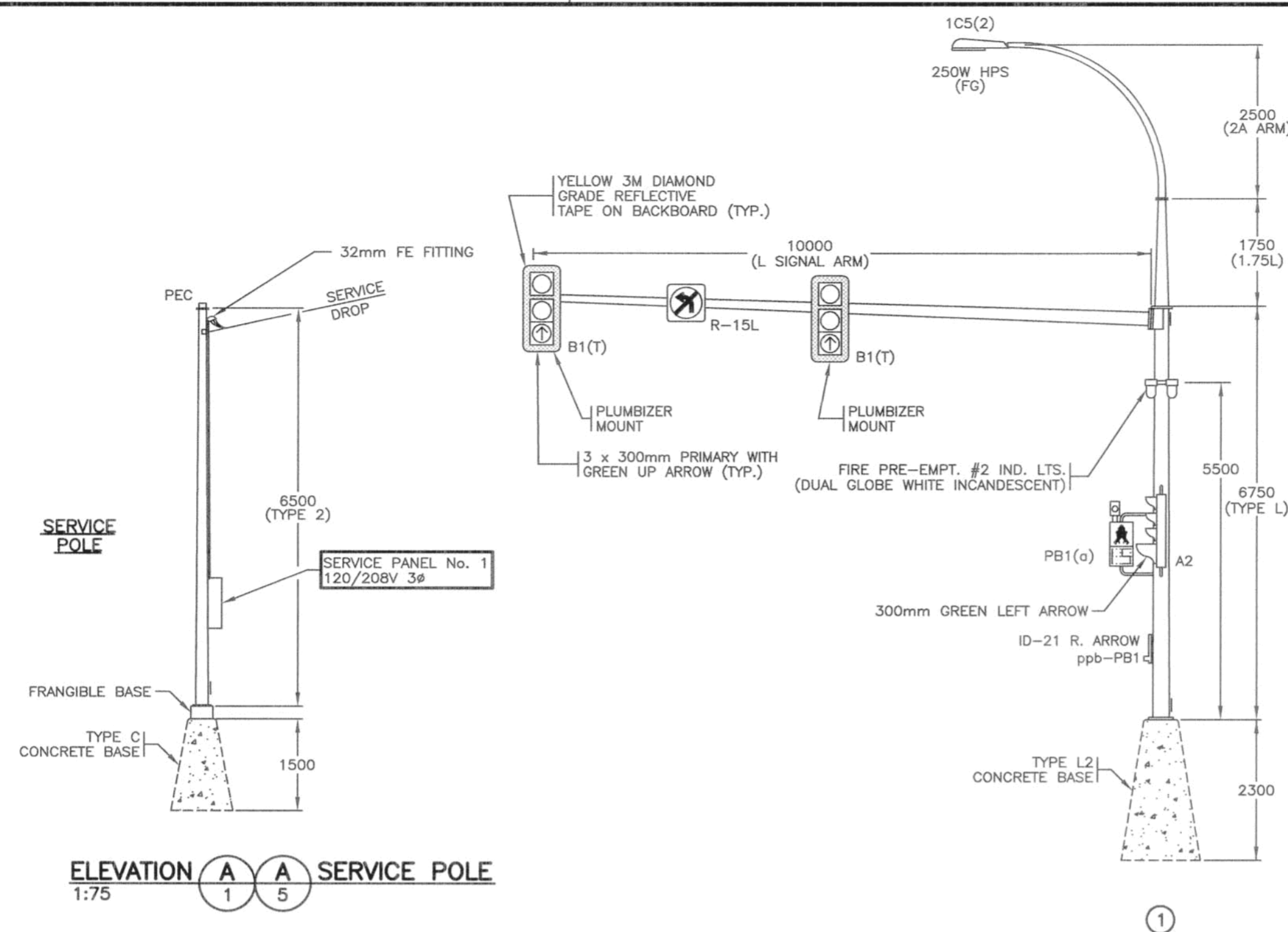


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UNLESS NOTED OTHERWISE

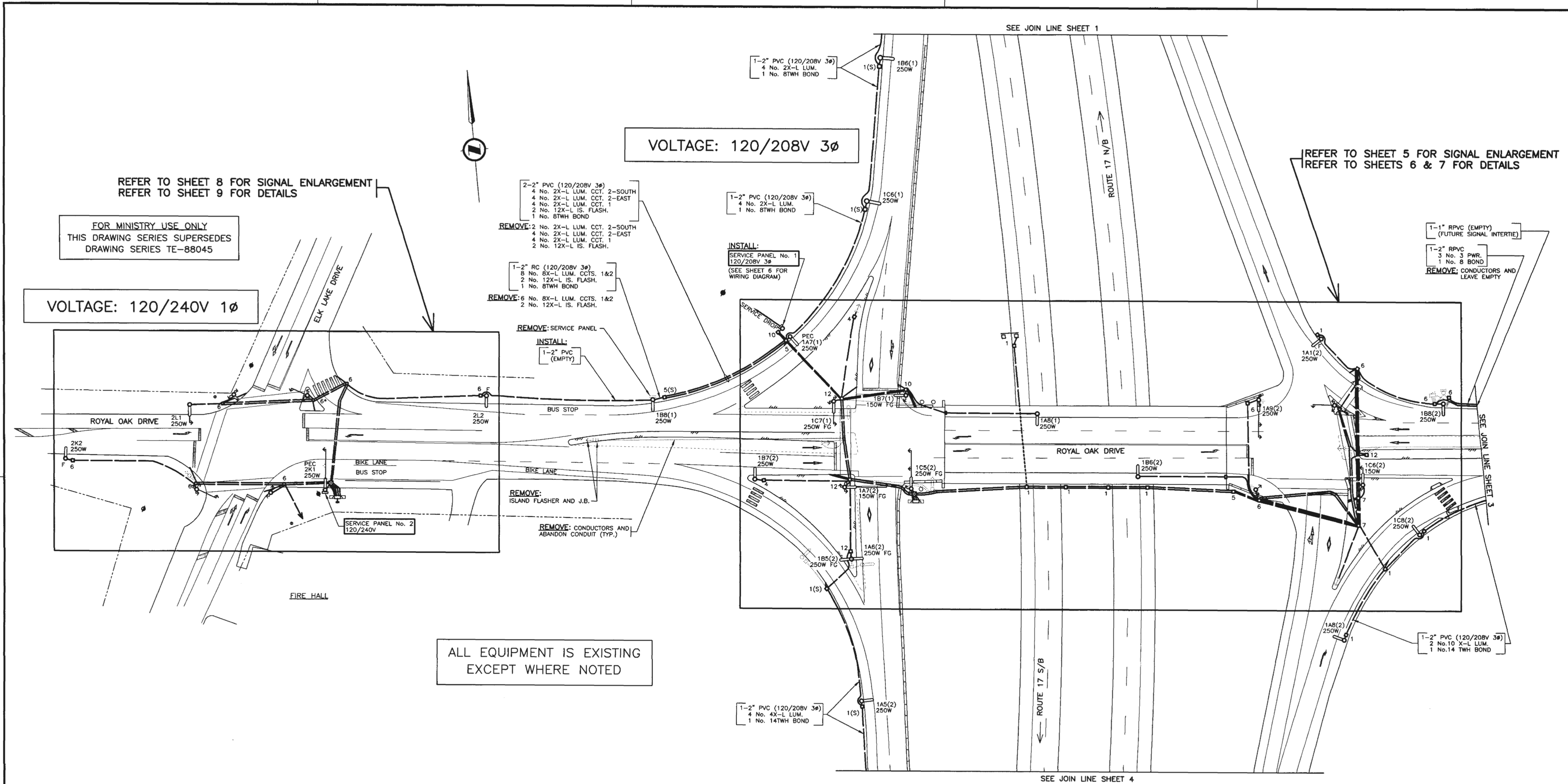
 <p>PBA CONSULTING ENGINEERS</p>	<p><i>PBA Engineering Ltd.</i> 4218 Commerce Circle Victoria, B.C. V6Z 6N6 Tel 250.388.7222 Fax 250.388.7229</p>	 <p>BRITISH COLUMBIA The Best Place on Earth</p>	<p>Electrical Engineering Ministry of Transportation</p>																														
DESIGNED BY _____ DATE _____ CHECKED BY _____ DATE _____ M.O.T. ELECTRICAL DESIGN REVIEW <u>ABC</u> DATE <u>Mar 5/02</u>		<h2 style="margin: 0;">TRAFFIC SIGNAL AND LIGHTING INSTALLATION</h2> <h3 style="margin: 0;">ROUTE 17 AT ROYAL OAK INTERCHANGE</h3> <h3 style="margin: 0;">SAANICH</h3>																															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">REV</th> <th style="width: 10%;">DATE</th> <th style="width: 70%;">DESCRIPTION</th> <th style="width: 10%;">DRAWN</th> </tr> </thead> <tbody> <tr> <td></td> <td>JAN/01</td> <td>DRAWING ISSUED</td> <td>PBA</td> </tr> <tr> <td>A</td> <td>MAR/03</td> <td>DRAWINGS RE-NUMBERED, SIGNAL HEAD UPGRADE – RECORD DRAWING</td> <td>PBA</td> </tr> <tr> <td>B</td> <td>FEB/08</td> <td>ELEVATIONS REVISED (ROTX) – ISSUED FOR CONSTRUCTION</td> <td>PBA</td> </tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		REV	DATE	DESCRIPTION	DRAWN		JAN/01	DRAWING ISSUED	PBA	A	MAR/03	DRAWINGS RE-NUMBERED, SIGNAL HEAD UPGRADE – RECORD DRAWING	PBA	B	FEB/08	ELEVATIONS REVISED (ROTX) – ISSUED FOR CONSTRUCTION	PBA													<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 100%;">ELEVATIONS</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"> ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION) _____ DATE _____ </td> </tr> </tbody> </table>		ELEVATIONS	ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION) _____ DATE _____
REV	DATE	DESCRIPTION	DRAWN																														
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SHEET NUMBER	SITE CODE	HWY DIST	REGION	DRAWING NUMBER																													
SHEET 8 OF 8		2	1	TE-00119-8																													



THE ENGINEER WILL NOT BE RESPONSIBLE FOR
ANY OMISSIONS INCORPORATED INTO THIS DOCUMENT
AS A RESULT OF ERRONEOUS OR INCOMPLETE INFORMATION
SUPPLIED BY OTHERS.

Association of Professional
Engineers and Geoscientists
of the Province of
British Columbia
P. J. R. SOUDREAU
ENGINEERING
LICENSEE
Limited Licence
109350
NOV 23 2008

 <p>PBA CONSULTING ENGINEERS</p>	<p><i>PBA Engineering Ltd. 4210 Commerce Circle Victoria, B.C. V8Z 6N6 Tel 250.388.7222 Fax 250.388.7229</i></p>	 <p>BRITISH COLUMBIA The Best Place on Earth</p> <p>Electrical Engineering Ministry of Transportation</p>		
<p>TRAFFIC SIGNAL AND LIGHTING INSTALLATION ROUTE 17 AT ROYAL OAK INTERCHANGE SAANICH</p>				
<p>ELEVATIONS</p>				
<p>ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)</p>				
<p><i>[Signature]</i> DATE <u>MAY 21 2008</u></p>				
SHEET NUMBER	SITE CODE	HWY DIST	REGION	DRAWING NUMBER
SHEET 8 OF 8		2	1	TE-00119-8



SITE PLAN
0 1:500 25

REFER TO SHEET 1 FOR NOTES

DO NOT USE THIS DRAWING FOR
PAVEMENT MARKING STANDARDS

ROUTE 17 POSTED SPEED 80 km/h

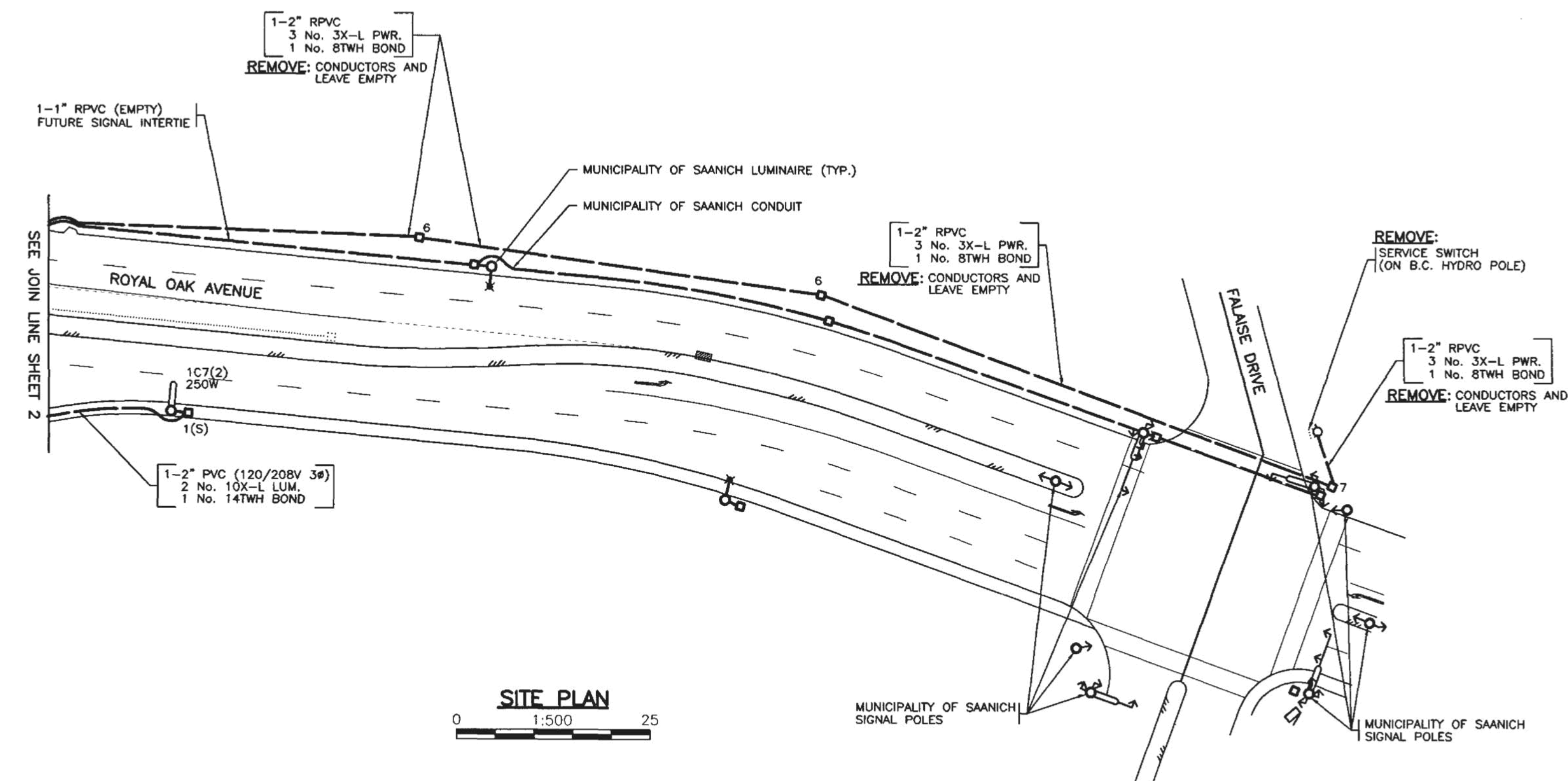
ROYAL OAK POSTED SPEED 50 km/h

ALL DIMENSIONS ARE IN MILLIMETERS
EXCEPT WHERE NOTED

FOR MINISTRY USE ONLY
REFER TO DRAWING SERIES E-7041
FOR PREVIOUS LIGHTING INSTALLATION

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

MINISTRY OF TRANSPORTATION AND HIGHWAYS ELECTRICAL ENGINEERING SECTION	
SIGNAL AND LIGHTING INSTALLATION ROUTE 17 AT ROYAL OAK INTERCHANGE AND ELK LAKE DR. SAANICH	
SITE PLAN	
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)	
DESIGNED BY <u>DM</u> DATE <u>JAN/01</u> CHECKED BY <u>[Signature]</u> DATE <u>01/01</u>	
M.O.T.H. ELECTRICAL DESIGN APPROVAL	
REVISIONS	
REV	DATE
JAN/01	DRAWING ISSUED
DRAWN <u>JDM</u>	
SHEET NUMBER <u>2</u> OF <u>9</u>	
SITE CODE	HWY DIST
1	6
REGION	DRAWING NUMBER
	<u>TE-00119-2</u>



SITE PLAN
0 1:500 25

POSTED SPEED 50 km/h

REFER TO SHEET 1 FOR NOTES

DO NOT USE THIS DRAWING FOR
PAVEMENT MARKING STANDARDS

ALL DIMENSIONS ARE IN MILLIMETERS
EXCEPT WHERE NOTED

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS



MINISTRY OF TRANSPORTATION AND HIGHWAYS
ELECTRICAL ENGINEERING SECTION

DESIGNED BY DM DATE JAN/01 CHECKED BY _____ DATE _____
M.O.T.H. ELECTRICAL DESIGN APPROVAL [Signature] DATE 01/01

SIGNAL AND LIGHTING INSTALLATION
ROUTE 17 AT ROYAL OAK INTERCHANGE AND ELK LAKE DR.
SAANICH

REVISIONS		
REV	DATE	DESCRIPTION
JAN/01		DRAWING ISSUED

SITE PLAN
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

[Signature] DATE 01/01

SHEET NUMBER	SITE CODE	HWY DIST	REGION	DRAWING NUMBER
SHEET 3 OF 9		1	6	TE-00119-3



VOLTAGE: 120/208V 3Ø

SEE JOIN LINE SHEET 2

ROUTE 17 (PATRICIA BAY HIGHWAY)

SEE JOIN LINE BELOW

BREAKAWAY SIGN No. 3

FOR MINISTRY USE ONLY
REFER TO DRAWING SERIES TE-92105
FOR CONTINUATION OF LIGHTING

TO VICTORIA

ALL EQUIPMENT IS EXISTING
EXCEPT WHERE NOTED



SITE PLAN

FOR MINISTRY USE ONLY
THIS DRAWING SERIES SUPERSEDES
DRAWING SERIES E-7041 AND
DRAWING SERIES TE-90034



REFER TO SHEET 1 FOR NOTES

POSTED SPEED LIMIT 80 km/h

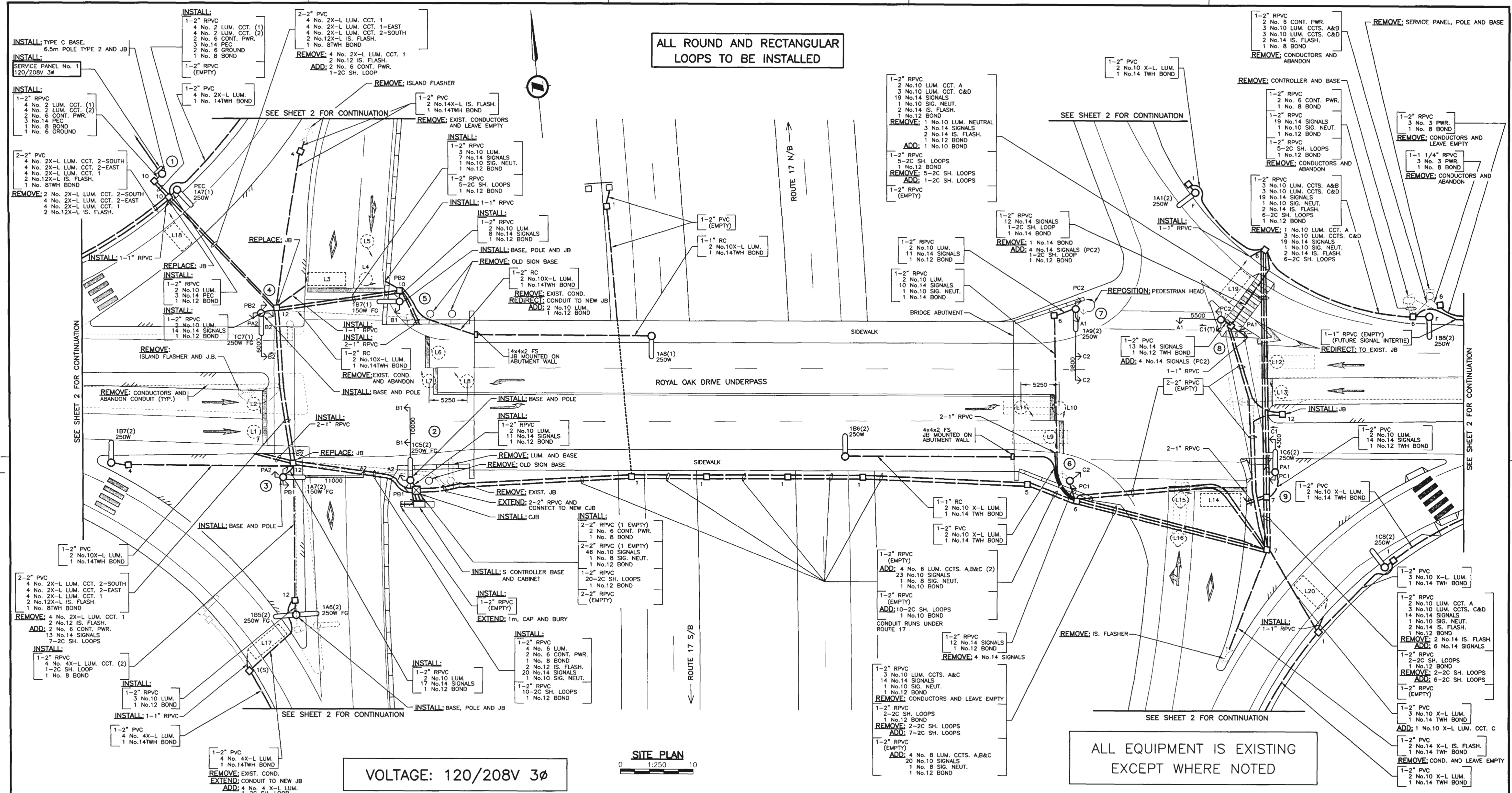
DO NOT USE THIS DRAWING FOR
PAVEMENT MARKING STANDARDS

ALL DIMENSIONS ARE IN MILLIMETERS
EXCEPT WHERE NOTED

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

		MINISTRY OF TRANSPORTATION AND HIGHWAYS ELECTRICAL ENGINEERING SECTION	
DESIGNED BY <u>DM</u> DATE <u>JAN/01</u> CHECKED BY _____ DATE _____		SIGNAL AND LIGHTING INSTALLATION ROUTE 17 AT ROYAL OAK INTERCHANGE AND ELK LAKE DR. SAANICH	
M.O.T.H. ELECTRICAL DESIGN APPROVAL <u>DM</u> DATE <u>01/01</u>		SITE PLAN	
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)			
DATE <u>1/1/01</u>		DATE <u>1/1/01</u>	
SHEET NUMBER SHEET 4 OF 9		DRAWING NUMBER TE-00119-4	

SEE JOIN LINE ABOVE



ALL ROUND AND RECTANGULAR
LOOPS TO BE INSTALLED

ALL EQUIPMENT IS EXISTING
EXCEPT WHERE NOTED

VOLTAGE: 120/208V 3Ø

SITE PLAN
0 1:250 10

FOR MINISTRY USE ONLY
THIS DRAWING SERIES SUPERSEDES
DRAWING SERIES TE-88045
AND DRAWING SERIES TE-90034

FOR MINISTRY USE ONLY
REFER TO DRAWING SERIES E-7041
FOR PREVIOUS LIGHTING INSTALLATION

REFER TO SHEET 1 FOR NOTES

POSTED SPEED ON RAMPS 50 km/h

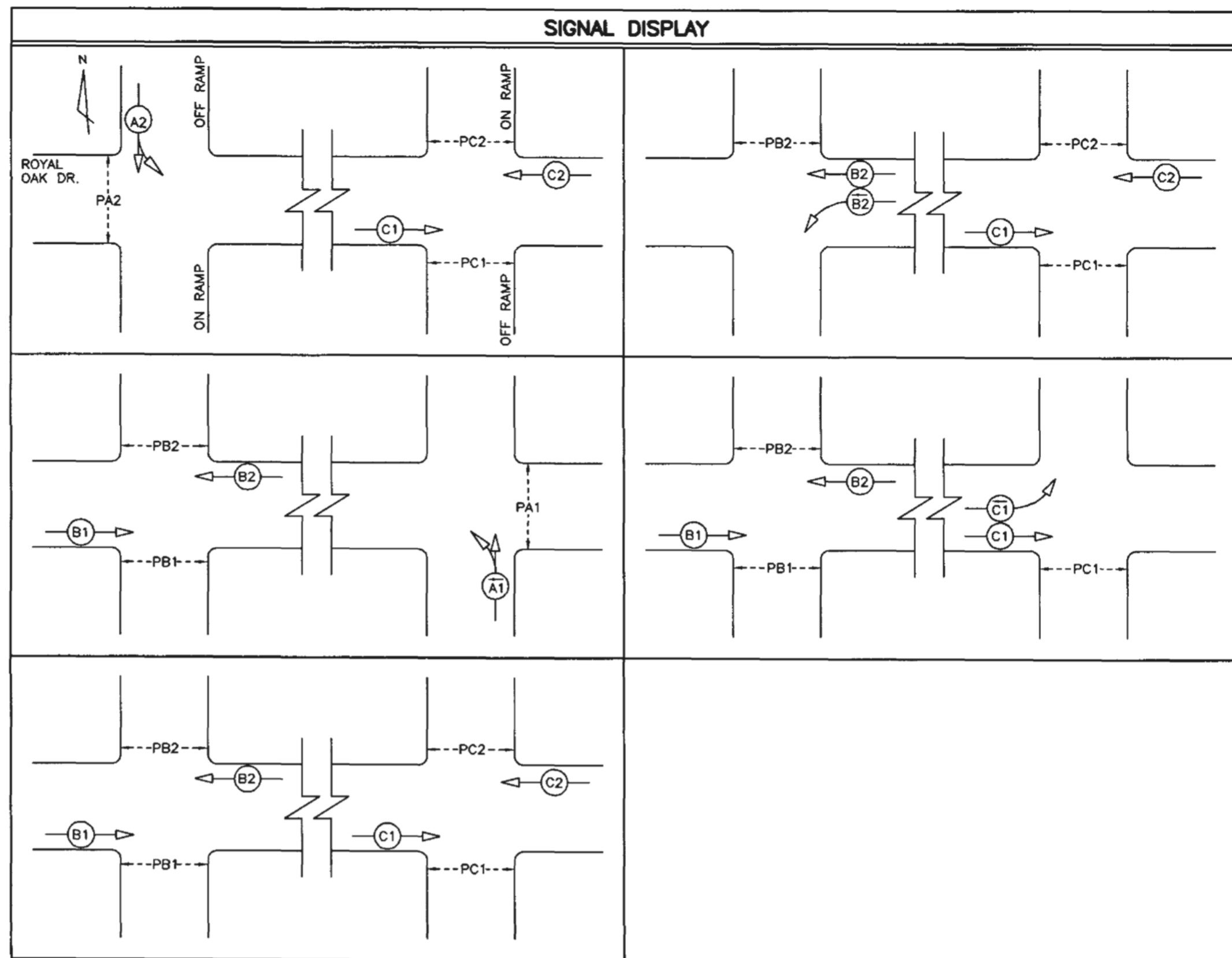
POSTED SPEED ON ROYAL OAK DR. 50 km/h

DO NOT USE THIS DRAWING FOR
PAVEMENT MARKING STANDARDS

ALL DIMENSIONS ARE IN MILLIMETERS
EXCEPT WHERE NOTED

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

DESIGNED BY <u>DM</u> DATE <u>JAN/01</u> CHECKED BY _____ DATE _____		MINISTRY OF TRANSPORTATION AND HIGHWAYS ELECTRICAL ENGINEERING SECTION	
M.O.T.H. ELECTRICAL DESIGN APPROVAL <u>PC</u> DATE <u>1/01</u>		SIGNAL AND LIGHTING INSTALLATION ROUTE 17 AT ROYAL OAK INTERCHANGE AND ELK LAKE DR. SAANICH	
REVISIONS		SITE PLAN	
REV	DATE	DESCRIPTION	DRAWN
	JAN/01	DRAWING ISSUED	JDM
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)		DATE <u>1/01</u>	
SHEET NUMBER		SITE CODE	HWY DIST
SHEET 5 OF 9		1	6
DRAWING NUMBER		TE-00119-5	

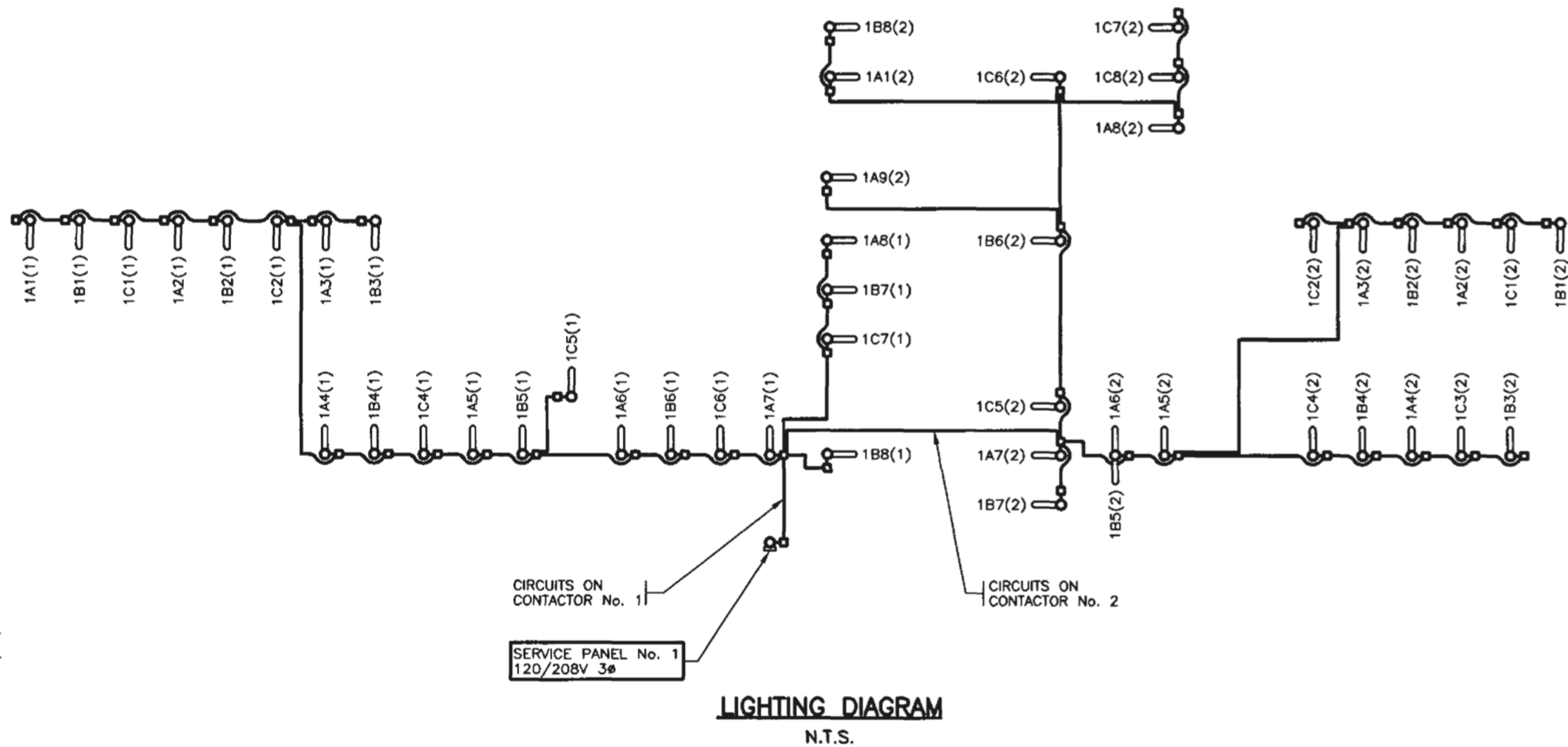
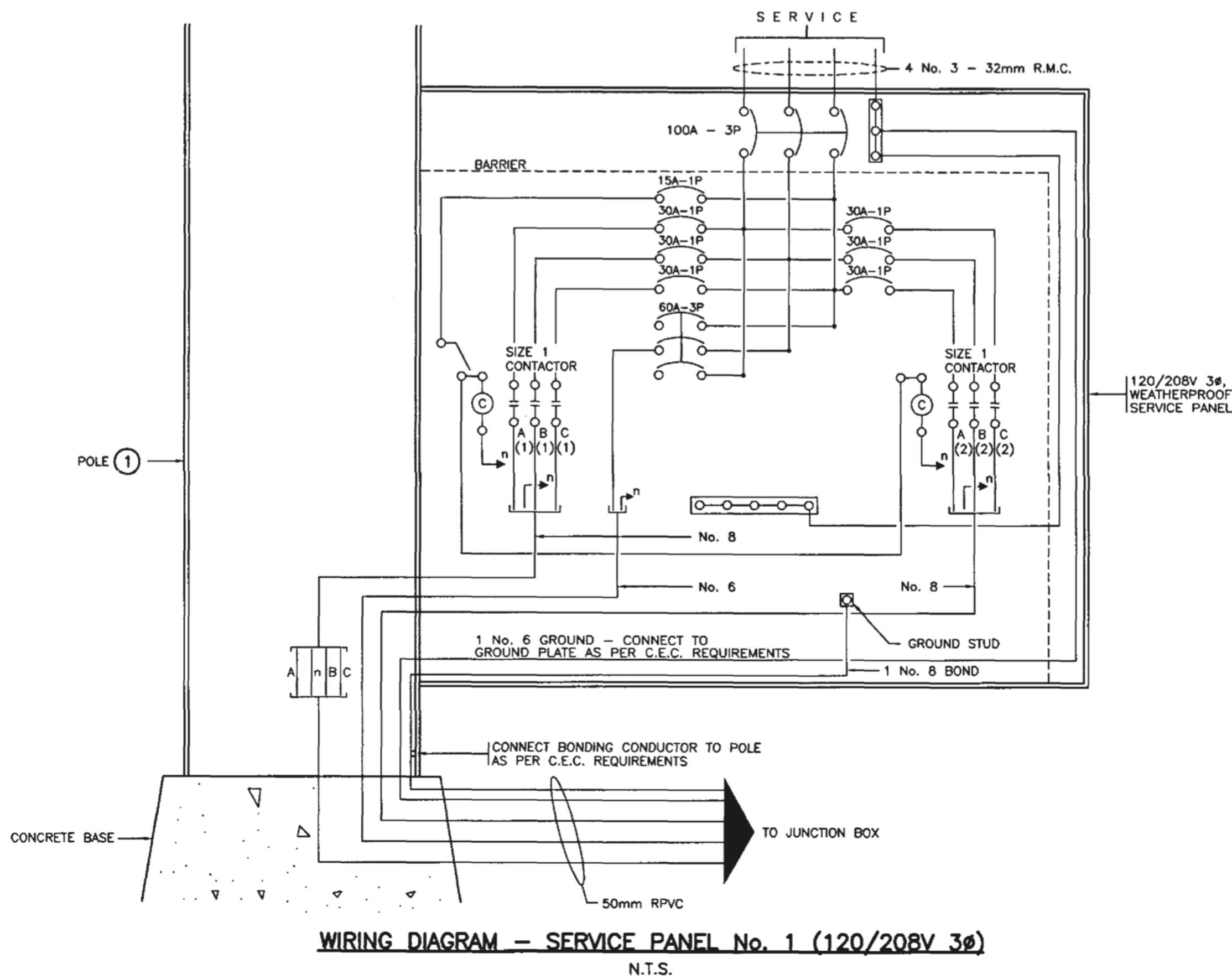


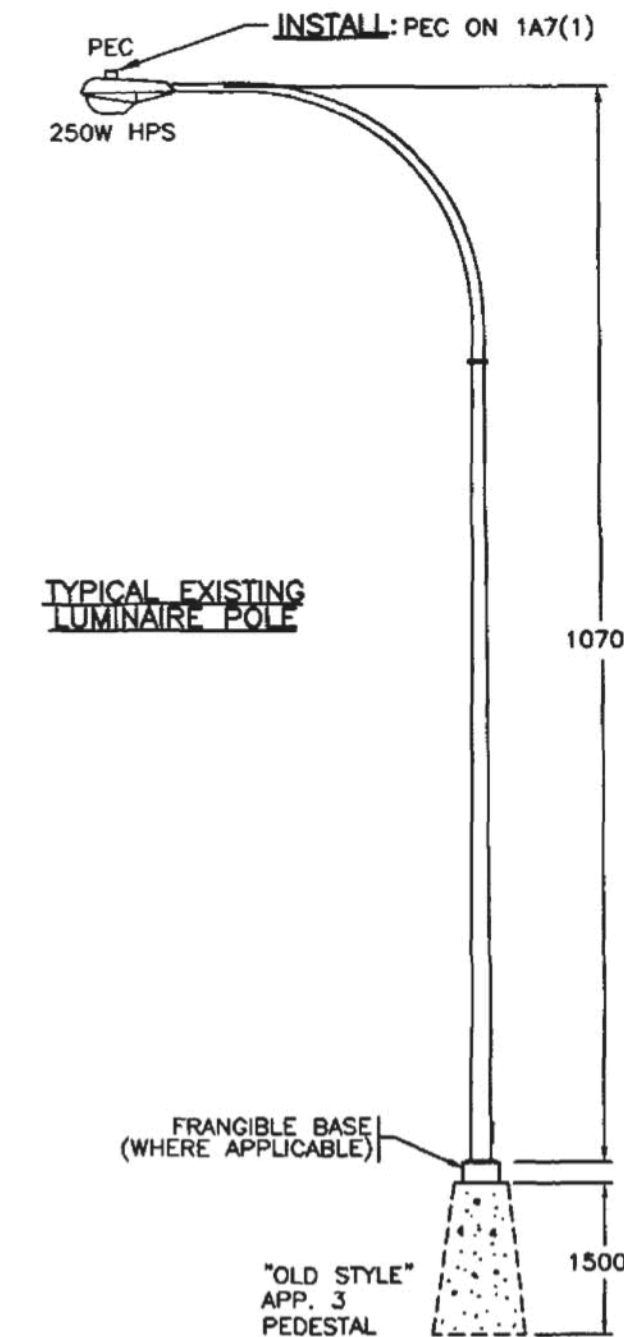
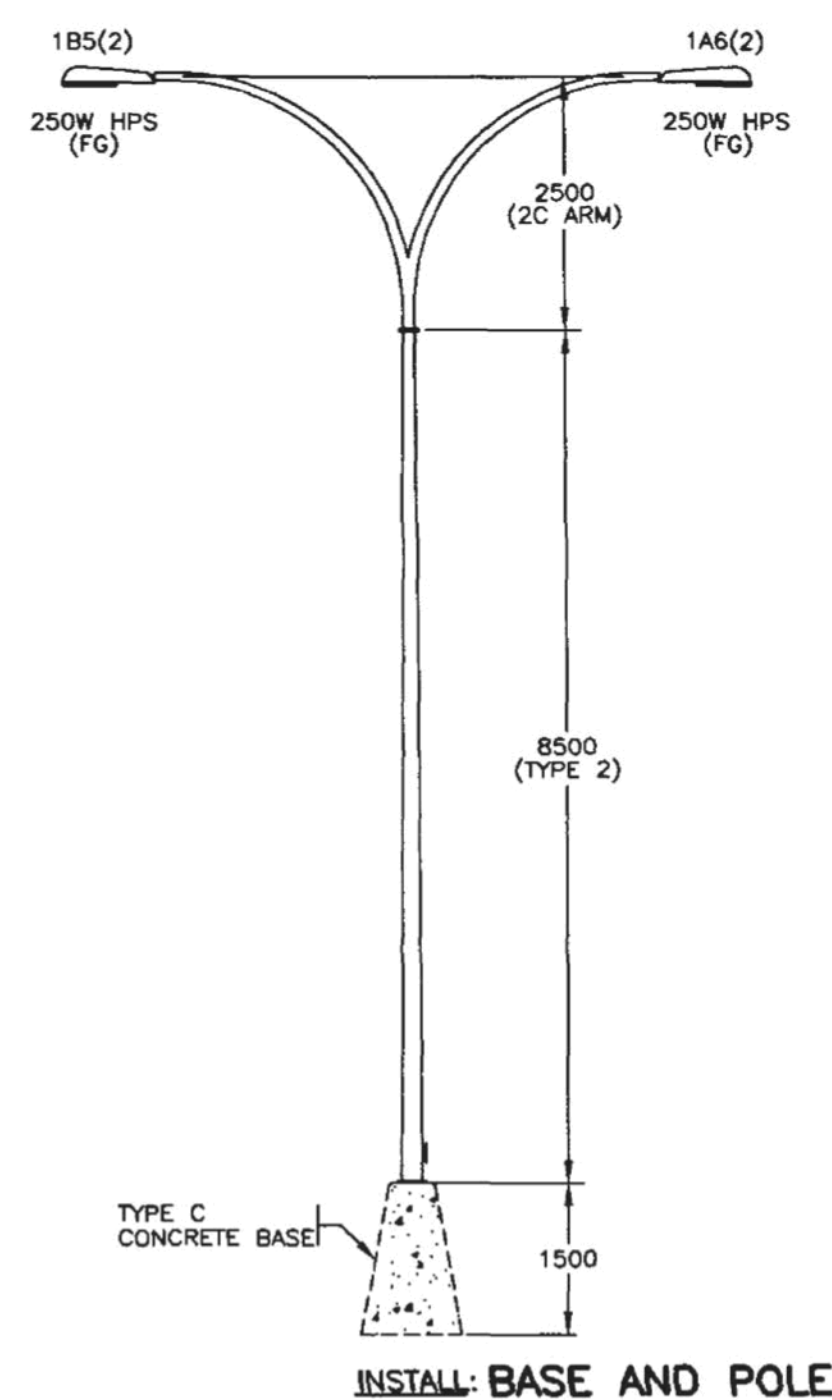
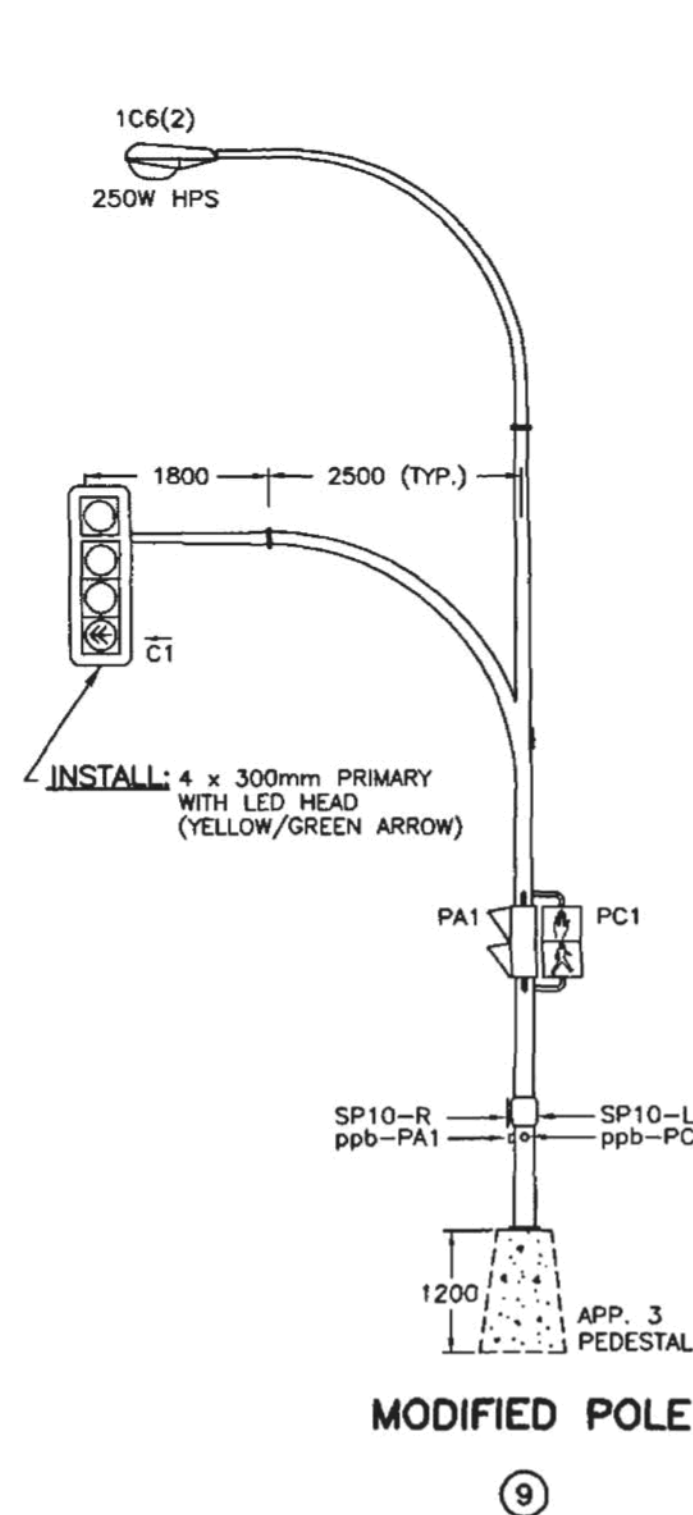
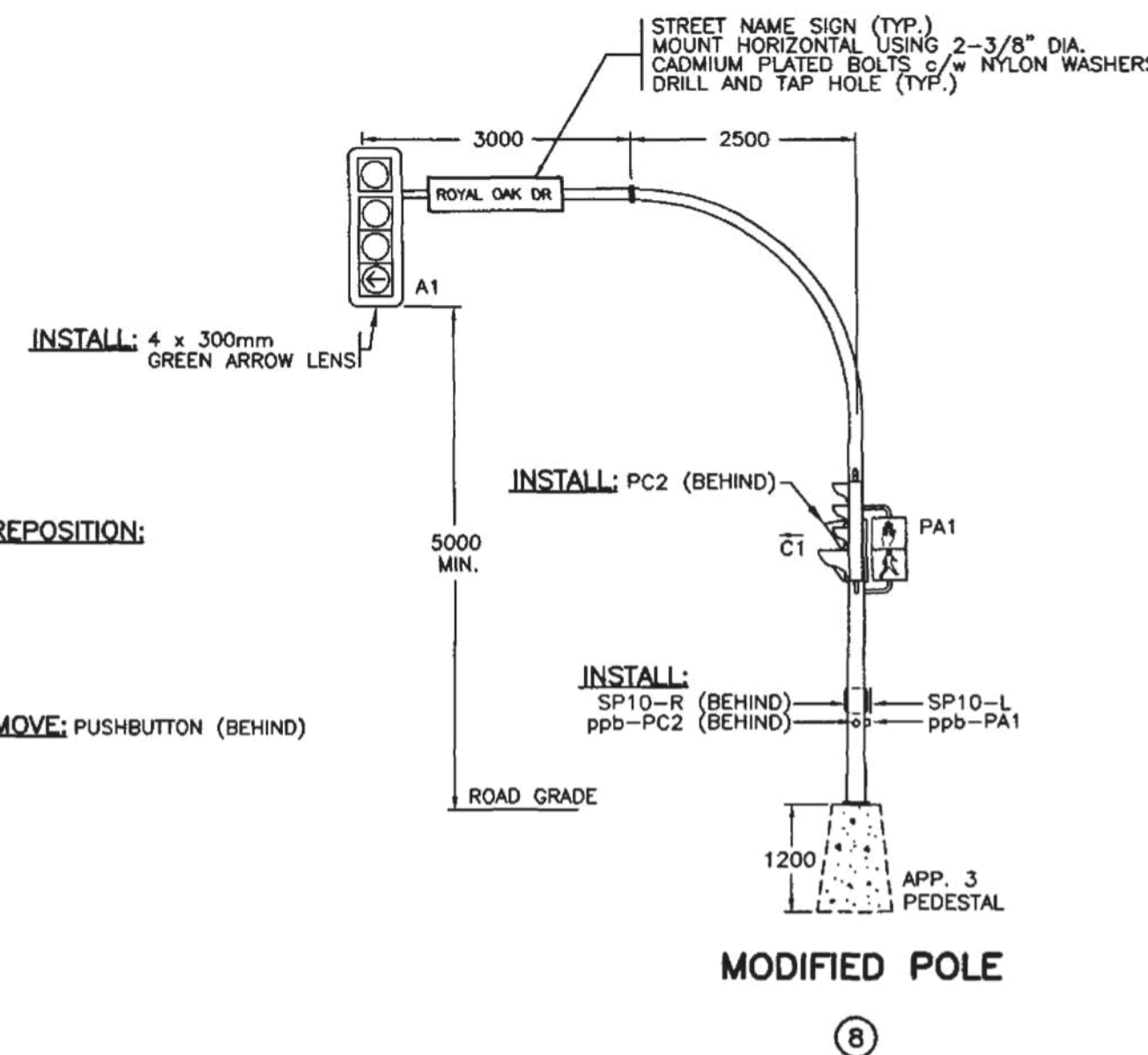
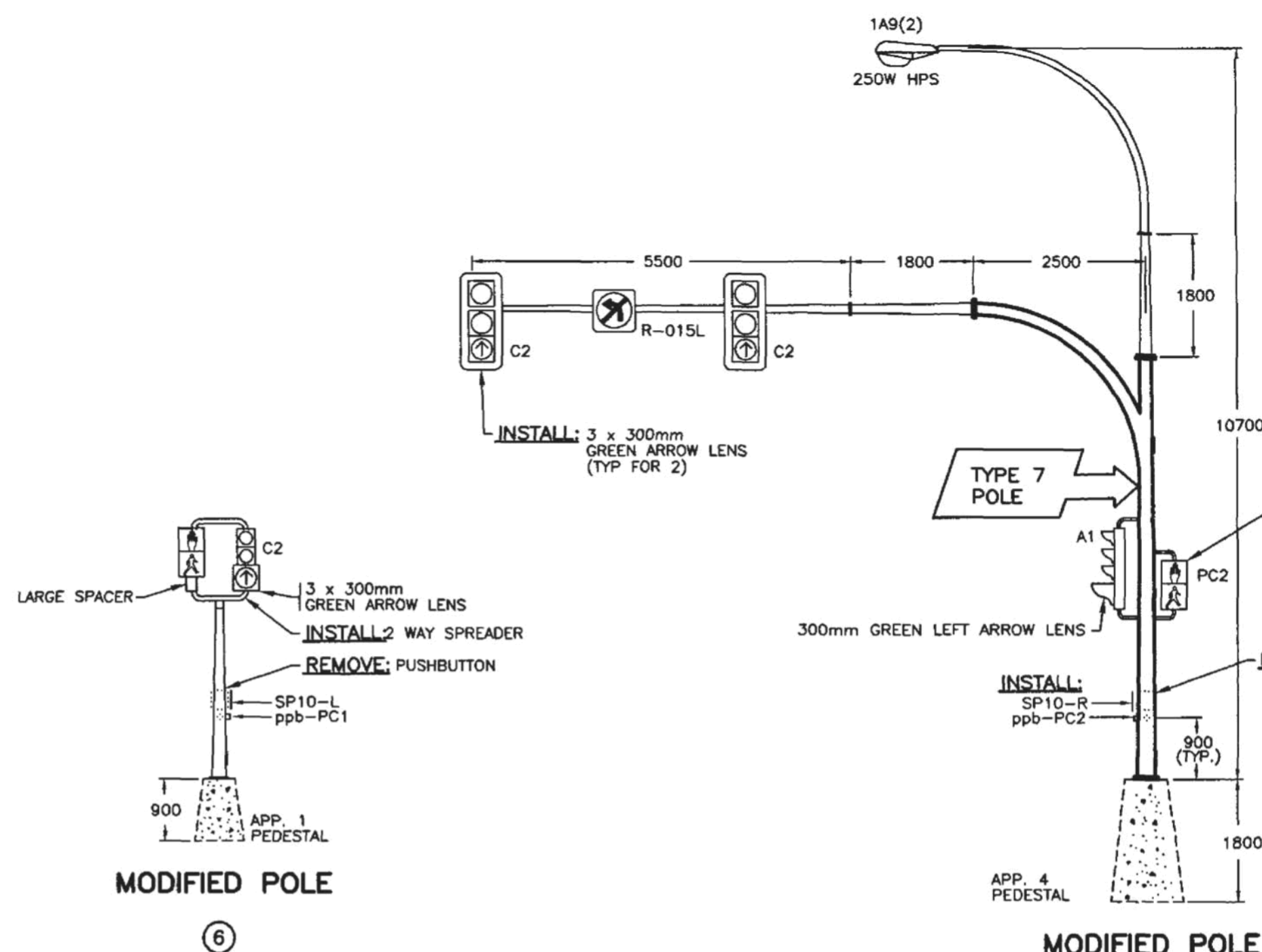
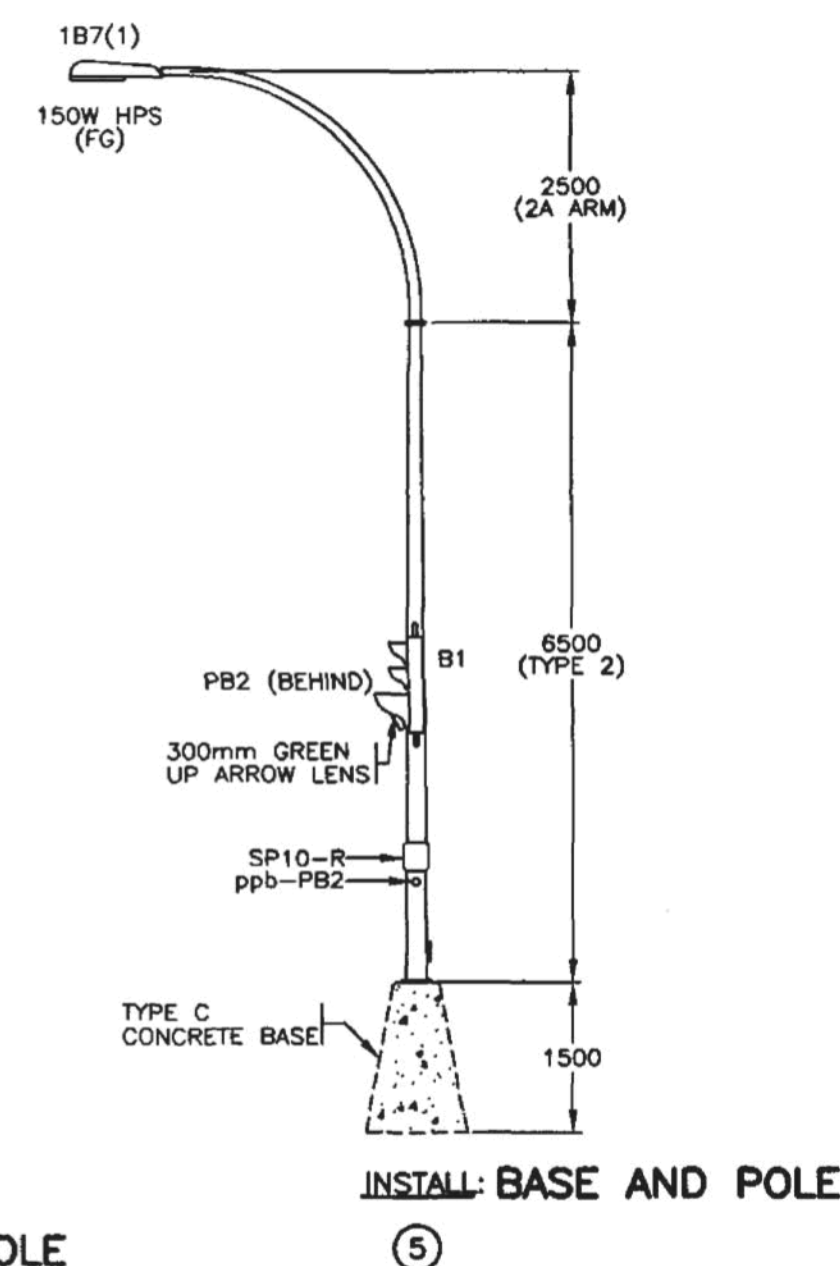
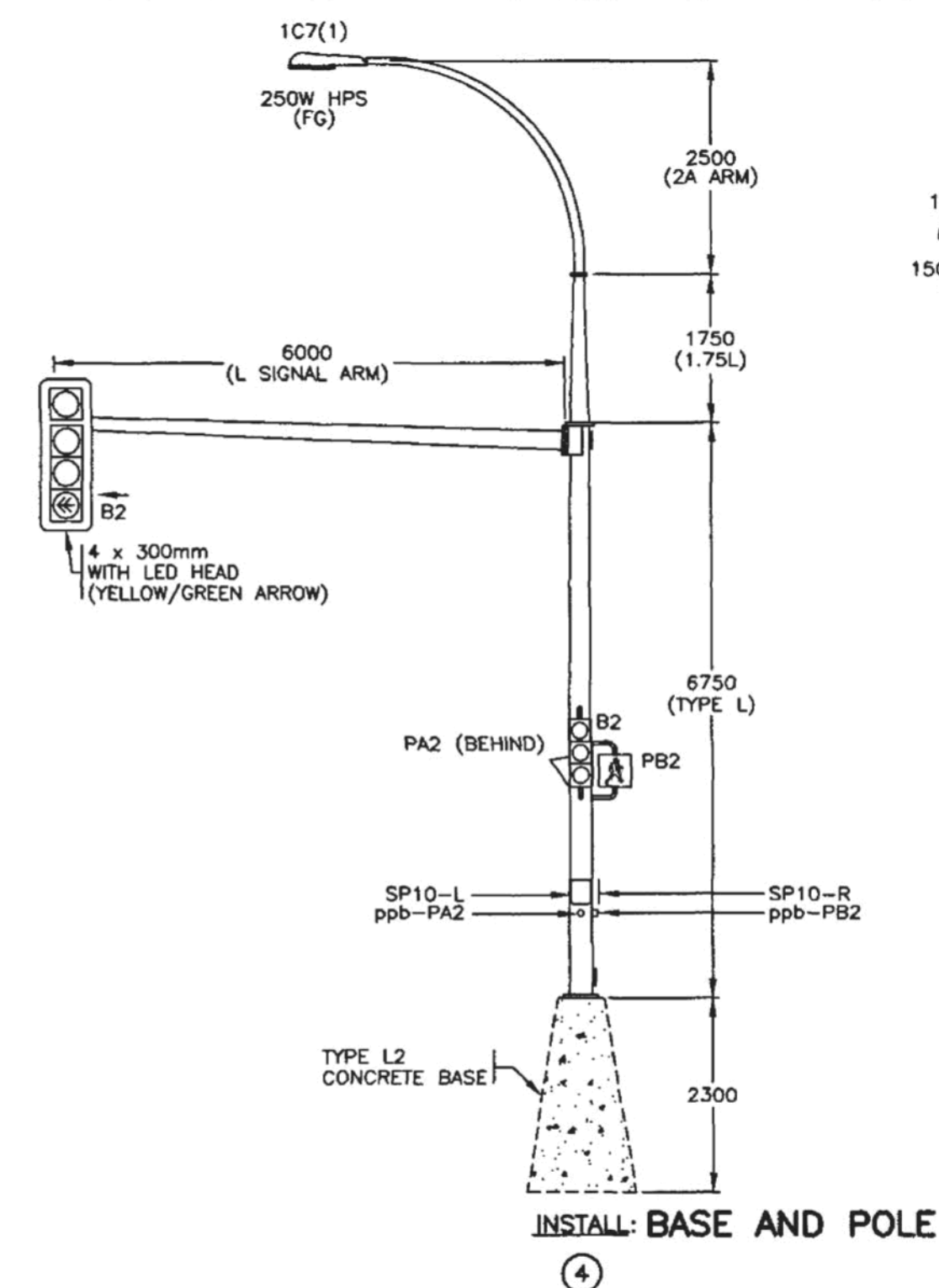
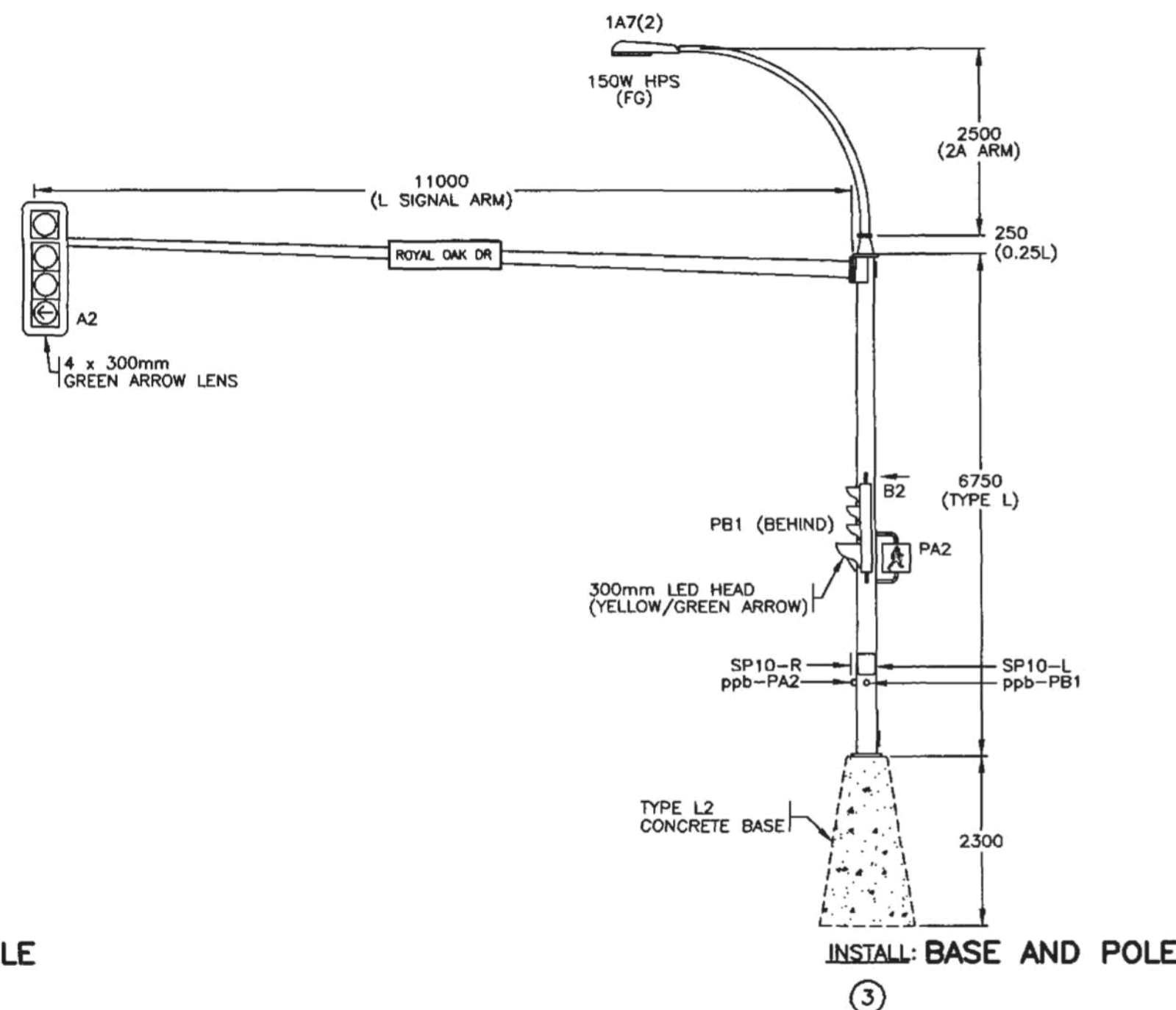
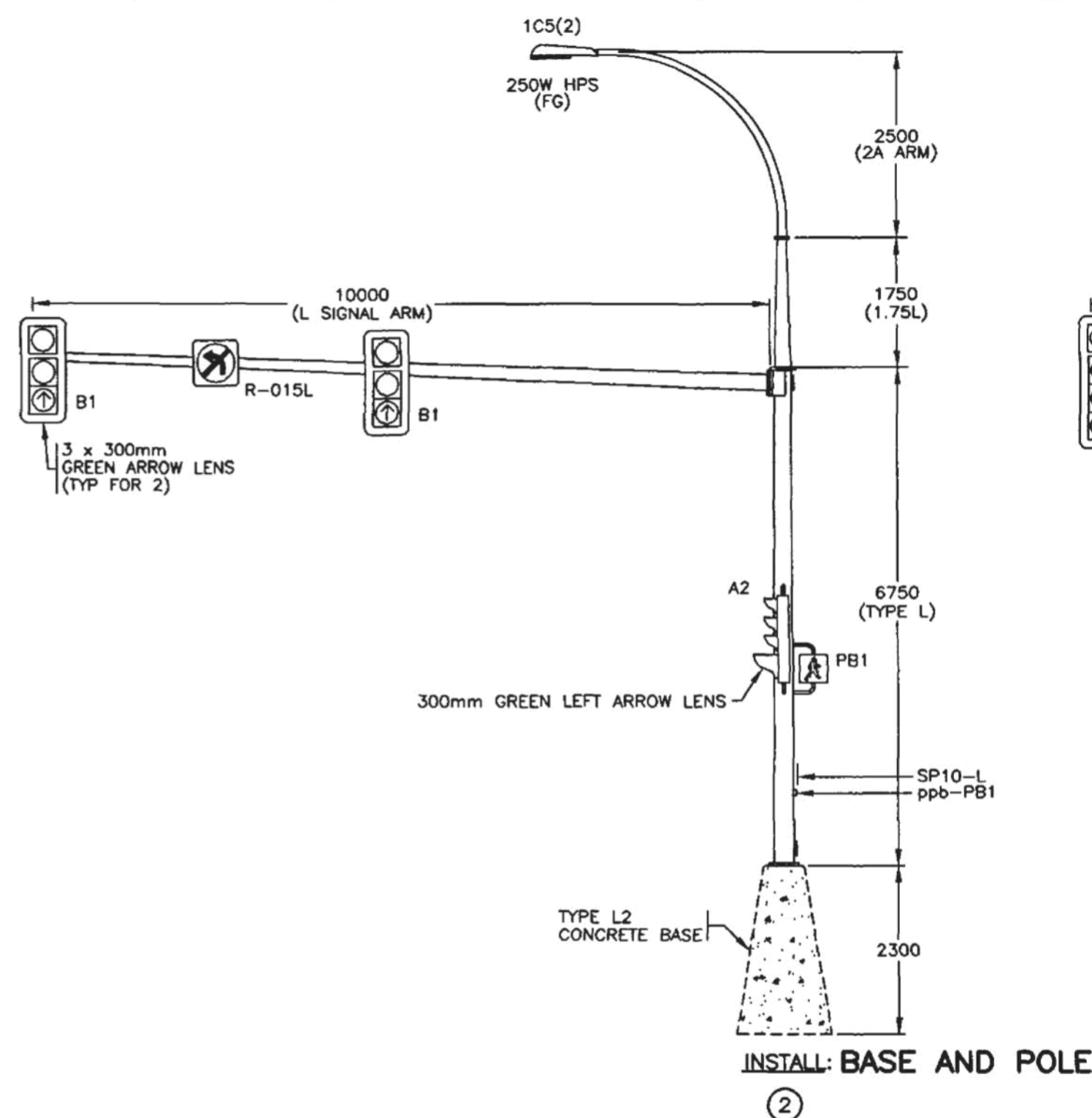
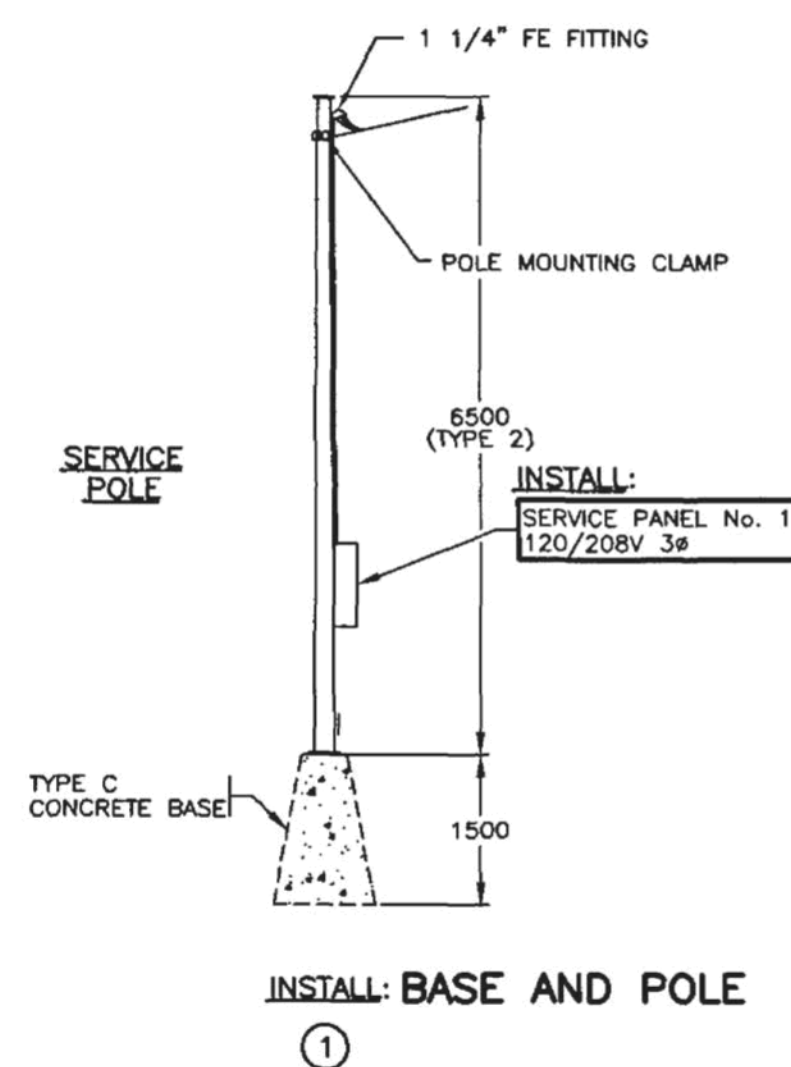
DETECTOR LOOP TABLE						
LOOP			INDUCTANCE			PHASE
LOOP No.	SIZE	TURNS	LOOP (μh)	LEAD (μh)	TOTAL (μh)	
L 1	1.8 DIA.	4	95	22	117	#B1
L 2	1.8 DIA.	4	95	22	117	#B1
L 3	1.8 x 5.0	3	134	35	169	#A2
L 4	1.8 DIA.	4	95	46	141	#A2
L 5	1.8 DIA.	4	95	46	141	#A2
L 6	1.8 DIA.	4	95	46	141	#B2
L 7	1.8 DIA.	4	95	46	141	#B2
L 8	1.8 DIA.	4	95	46	141	#B2
L 9	1.8 DIA.	5	140	68	208	#C1
L 10	1.8 DIA.	5	140	68	208	#C1
L 11	1.8 DIA.	5	140	68	208	#C1
L 12	1.8 DIA.	7	260	117	377	#C2
L 13	1.8 DIA.	7	260	117	377	#C2
L 14	1.8 x 5.4	4	236	89	325	#A1
L 15	1.8 x 1.8	5	180	89	269	#A1
L 16	1.8 x 1.8	5	180	89	269	#A1
L 17	1.8 x 5.4	3	112	41	153	COUNT
L 18	1.8 x 3.8	3	110	48	158	COUNT
L 19	1.8 x 4.4	5	305	109	414	COUNT
L 20	1.8 x 4.6	4	210	92	302	COUNT

CONDUCTOR COLOUR CODE		
ITEM	SIGNAL SECTION	CONDUCTOR COLOUR
A1	RED	RED
	YELLOW	YELLOW
	GREEN ARROW	BLUE (WHITE T.T.)
A2	RED	RED
	YELLOW	YELLOW
	GREEN ARROW	BLUE (WHITE T.T.)
B1	RED	RED
	YELLOW GREEN	BROWN BLUE
B2	RED	RED
	YELLOW GREEN	BROWN BLUE
	YELLOW ARROW GREEN ARROW	ORANGE (WHITE T.T.) BLUE (WHITE T.T.)
C1	RED	RED
	YELLOW GREEN	ORANGE (WHITE T.T.) BLUE (WHITE T.T.)
C2	RED	RED
	YELLOW GREEN	ORANGE (BLUE T.T.) BLUE
PA1	DON'T WALK WALK PUSH BUTTON	YELLOW BLUE PURPLE/PURPLE (YELLOW T.T.)
PA2	DON'T WALK WALK PUSH BUTTON	YELLOW (RED T.T.) BLUE PURPLE/PURPLE (RED T.T.)
PB1	DON'T WALK WALK PUSH BUTTON	BROWN BLUE PURPLE/PURPLE (BROWN T.T.)
PB2	DON'T WALK WALK PUSH BUTTON	BROWN (ORANGE T.T.) BLUE PURPLE/PURPLE (ORANGE T.T.)
PC1	DON'T WALK WALK PUSH BUTTON	ORANGE BLUE PURPLE/PURPLE (ORANGE T.T.)
PC2	DON'T WALK WALK PUSH BUTTON	ORANGE (BLUE T.T.) BLUE PURPLE/PURPLE (BLUE T.T.)
CONTROLLER POWER		BLACK
LUMINAIRE CCT. A		RED
LUMINAIRE CCT. B		BLACK
LUMINAIRE CCT. C		BLUE
NEUTRAL		WHITE
GROUND/BOND		GREEN

CONNECT IN PARALLEL FROM BASE OF POLE TO SIGNAL HEAD

CONNECT IN PARALLEL FROM BASE OF POLE TO SIGNAL HEAD





ALL SIGNAL BACKBOARDS SHALL BE BORDERED WITH REFLECTIVE TAPE

ALL EQUIPMENT IS EXISTING EXCEPT WHERE NOTED

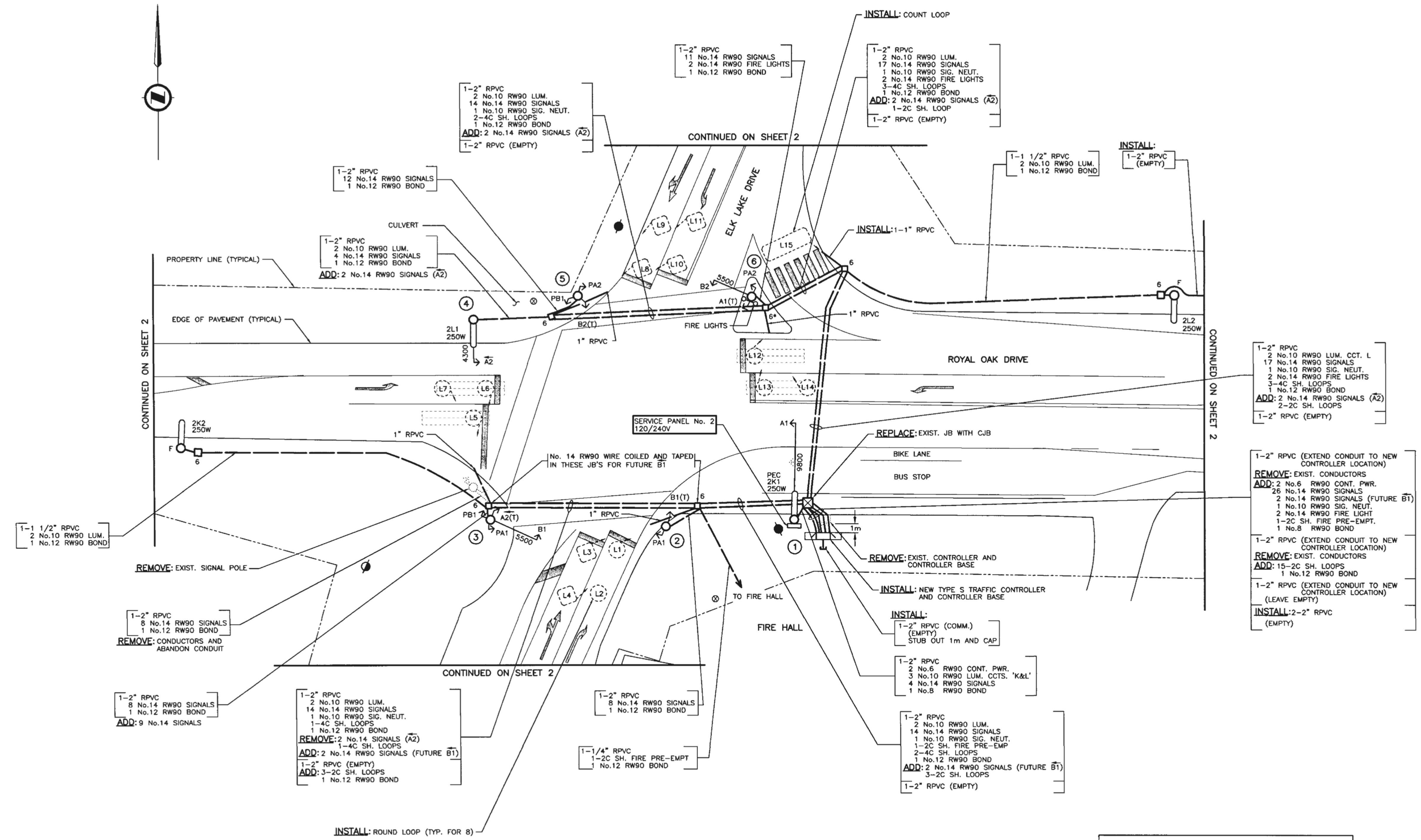
ALL RED BALL DISPLAYS AND YELLOW/GREEN ARROWS ARE LED
WALK/DON'T WALK DISPLAYS ON POLES 2, 3, 4 AND 5 ARE LED

REFER TO SHEET 1 FOR NOTES

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

DESIGNED BY <u>DM</u> DATE <u>JAN/01</u> CHECKED BY <u>DM</u> DATE <u>2/1/01</u>		MINISTRY OF TRANSPORTATION AND HIGHWAYS ELECTRICAL ENGINEERING SECTION	
M.O.T.H. ELECTRICAL DESIGN APPROVAL <u>PC</u> DATE <u>2/1/01</u>		SIGNAL AND LIGHTING INSTALLATION ROUTE 17 AT ROYAL OAK INTERCHANGE AND ELK LAKE DR. SANNICH	
REVISIONS		ELEVATIONS	
REV	DATE	DESCRIPTION	DRAWN
JAN/01		DRAWING ISSUED	JDM
SHEET NUMBER SHEET 7 OF 9		SITE CODE 1	REGION 6
DRAWING NUMBER TE-00119-7		DATE 1/1/01	



CONDUCTOR COLOUR CODE		
ITEM	SIGNAL SECTION	CONDUCTOR COLOUR
A1	RED	RED
	YELLOW	YELLOW
A2	RED	RED
	YELLOW	YELLOW (RED T.T.)
B1	RED	RED
	YELLOW	YELLOW (RED T.T.)
B2	RED	RED
	YELLOW	YELLOW (RED T.T.)
PA1	DON'T WALK	YELLOW
	PUSH BUTTON	PURPLE/PURPLE (YELLOW T.T.)
PA2	DON'T WALK	YELLOW (RED T.T.)
	PUSH BUTTON	PURPLE/PURPLE (RED T.T.)
PB1	DON'T WALK	BROWN
	PUSH BUTTON	PURPLE/PURPLE (BROWN T.T.)
CONTROLLER POWER		BLACK
LUMINAIRE CCT. 'K'		BLACK
LUMINAIRE CCT. 'L'		RED
ISLAND FLASHER		ORANGE
FIRE INDICATION LIGHTS		RED/WHITE
FIRE PRE-EMPTION		RED/RED
NEUTRAL		WHITE
GROUND/BOND		GREEN

NOTE: T.T. DENOTES TAPE TRACER.

POSTED SPEED 50 km/h

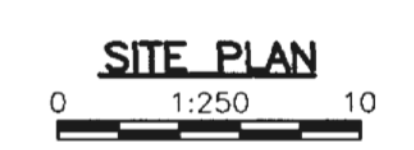
REFER TO SHEET 1 FOR NOTES

DO NOT USE THIS DRAWING FOR PAVEMENT MARKING STANDARDS

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

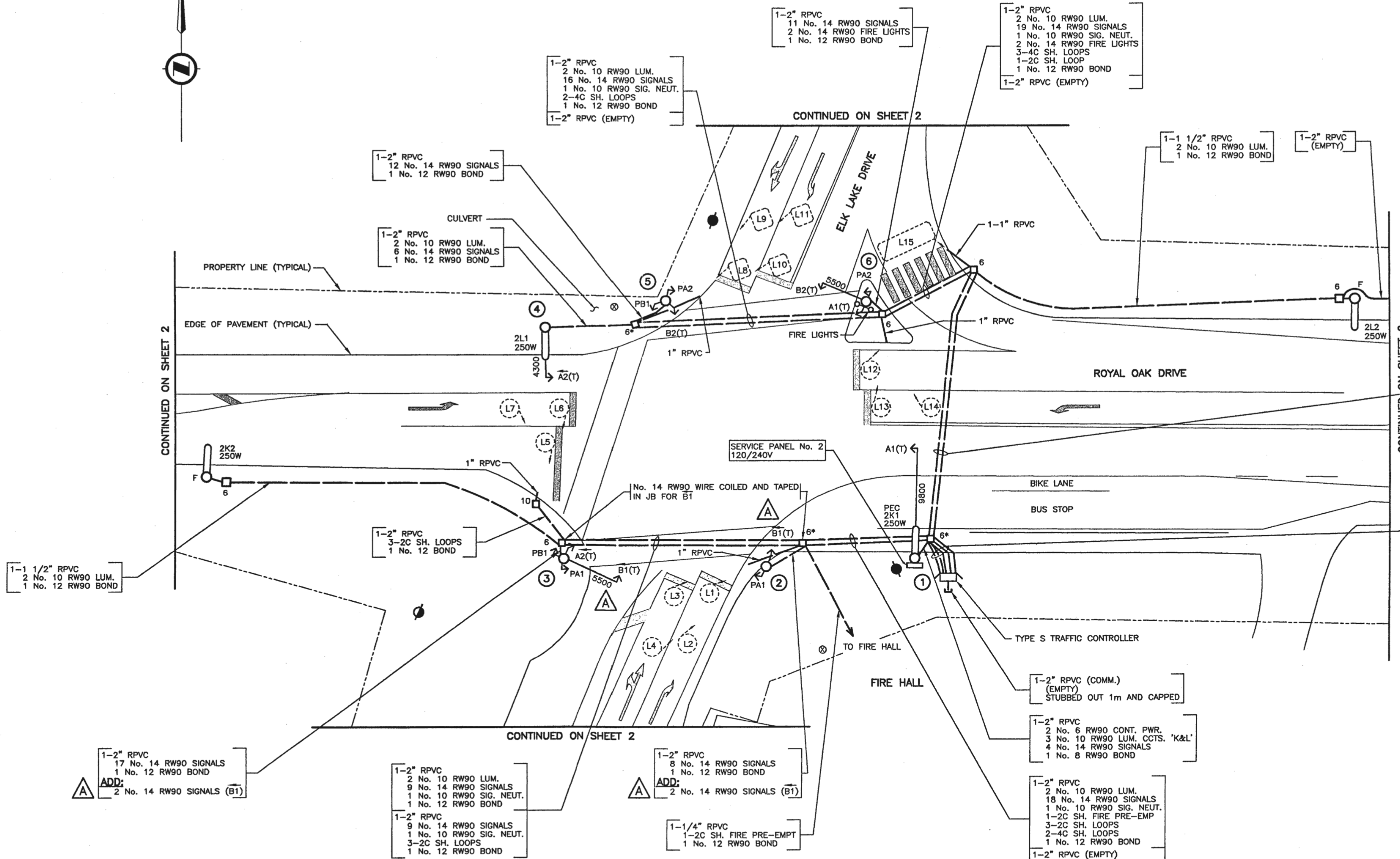
SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

ALL EQUIPMENT IS EXISTING EXCEPT WHERE NOTED



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THIS DRAWING SERIES SUPERSEDES
DRAWING SERIES TE-88045

DESIGNED BY <u>DM</u> DATE <u>JAN/01</u> CHECKED BY <u>DM</u> DATE <u>01/01</u> M.O.T.H. ELECTRICAL DESIGN APPROVAL		MINISTRY OF TRANSPORTATION AND HIGHWAYS BRITISH COLUMBIA ELECTRICAL ENGINEERING SECTION	
ROUTE 17 AT ROYAL OAK INTERCHANGE AND ELK LAKE DR. SAANICH		SIGNAL AND LIGHTING INSTALLATION SITE PLAN ENLARGEMENT - COLOUR CODE	
ELECTIONS REV. DATE DESCRIPTION DRAWN JAN/01 DRAWING SHEET ADDED TO SERIES - TRAFFIC CONTROLLER RELOCATED, PROTECTED/PERMISSIVE LEFT TURN ARROW ADDED TO A2 PHASE, ONE PRIMARY HEAD REMOVED FROM A1 PHASE AND LOOPS UPGRADED JM		ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION) DATE <u>01/01/01</u>	
SHEET	8 OF 9	SITE CODE	HWY DIST REGION DRAWING NUMBER
		1	6 TE-00119-8



SITE PLAN
0 1:250 10

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DRAWING SERIES TE-88045

ALL EQUIPMENT IS EXISTING
EXCEPT WHERE NOTED

FOCUS INTEC
Engineering • Planning • Geomatics
57 Cordova Avenue Phone: (250) 474-1151
Victoria, B.C. V8E 1Y3 Fax: (250) 474-7751

PBA Consulting Engineers PBA Engineering Ltd. Telephone 250.388.7222
Suite 11-625 Alpha St. Facsimile 250.388.7229
Victoria, BC, Canada V8Z 1B5 www.pbaeng.com

DESIGNED BY *[Signature]* DATE *Nov 29/02* CHECKED BY *[Signature]* DATE *Nov 29/02*
M.O.T. ELECTRICAL DESIGN REVIEW *[Signature]* DATE *Feb/03*

REVISIONS		
REV	DATE	DESCRIPTION
JAN/01		DRAWING SHEET ADDED TO SERIES - TRAFFIC CONTROLLER RELOCATED, PROTECTED/PERMISSIVE LEFT TURN ARROW ADDED TO A2 PHASE, ONE PRIMARY HEAD REMOVED FROM A1 PHASE AND LOOPS UPGRADED
A	NOV/02	S/B ADVANCE LEFT TURN (#B1) ADDED

CONDUCTOR COLOUR CODE		
ITEM	SIGNAL SECTION	CONDUCTOR COLOUR
A1	RED YELLOW GREEN	RED YELLOW BLUE
A2	RED YELLOW GREEN YELLOW ARROW GREEN ARROW	RED YELLOW (RED T.T.) BLUE ORANGE (WHITE T.T.) BLUE (WHITE T.T.)
B1	RED YELLOW GREEN YELLOW ARROW GREEN ARROW	RED BROWN BLUE ORANGE (WHITE T.T.) BLUE (WHITE T.T.)
B2	RED YELLOW GREEN	RED BROWN (ORANGE T.T.) BLUE
PA1	DON'T WALK WALK PUSH BUTTON	YELLOW BLUE PURPLE/PURPLE (YELLOW T.T.)
PA2	DON'T WALK WALK PUSH BUTTON	YELLOW (RED T.T.) BLUE PURPLE/PURPLE (RED T.T.)
PB1	DON'T WALK WALK PUSH BUTTON	BROWN BLUE PURPLE/PURPLE (BROWN T.T.)
CONTROLLER POWER		BLACK
LUMINAIRE CCT. 'K'		BLACK
LUMINAIRE CCT. 'L'		RED
FIRE LIGHTS		RED/WHITE
FIRE PRE-EMPTION		RED/RED
NEUTRAL		WHITE
GROUND/BOND		GREEN

NOTE: T.T. DENOTES TAPE TRACER.

P.J.R. BOUDREAU
LIMITED LICENCE
(Engineering)
REFER TO LIMITATIONS
Association of Professional
Engineers and Geoscientists
of the Province of
British Columbia

ISSUED FOR
CONSTRUCTION

POSTED SPEED 50 km/h

REFER TO SHEET 1 FOR NOTES

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SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

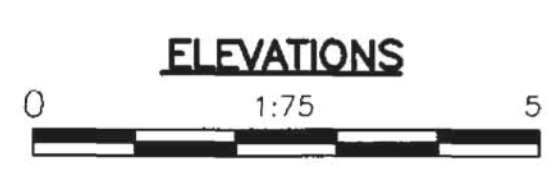
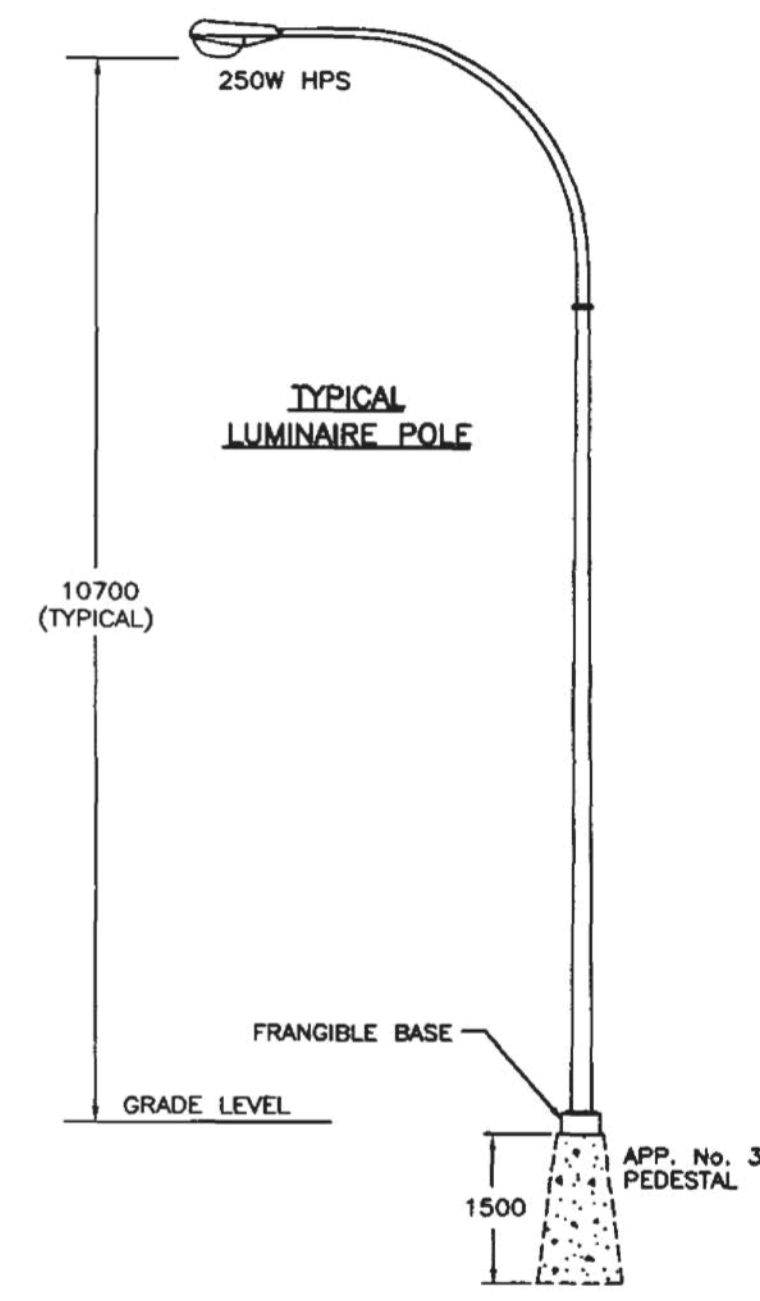
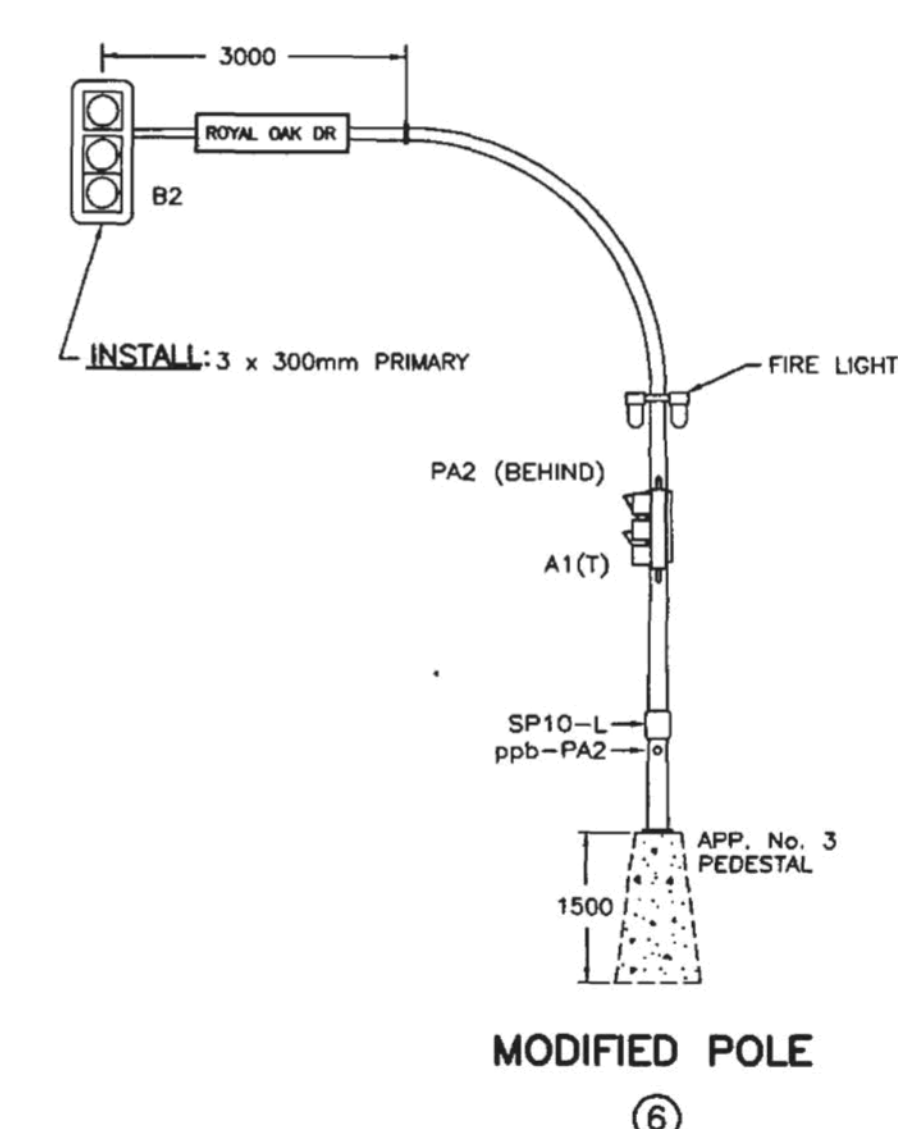
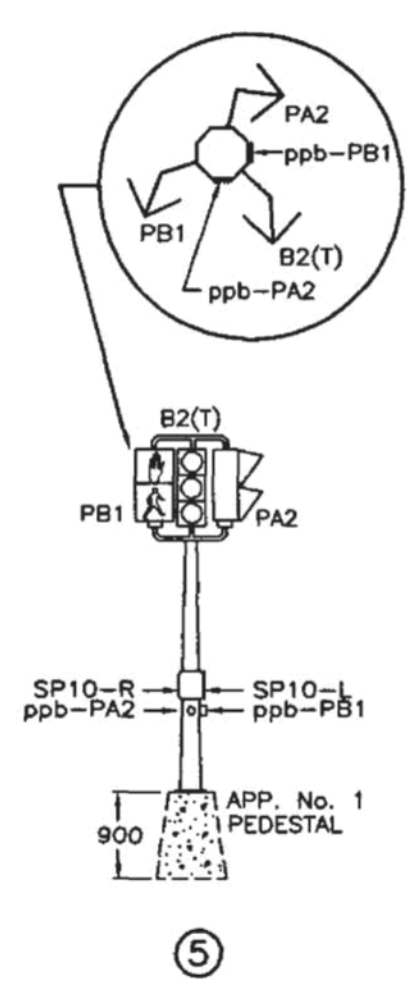
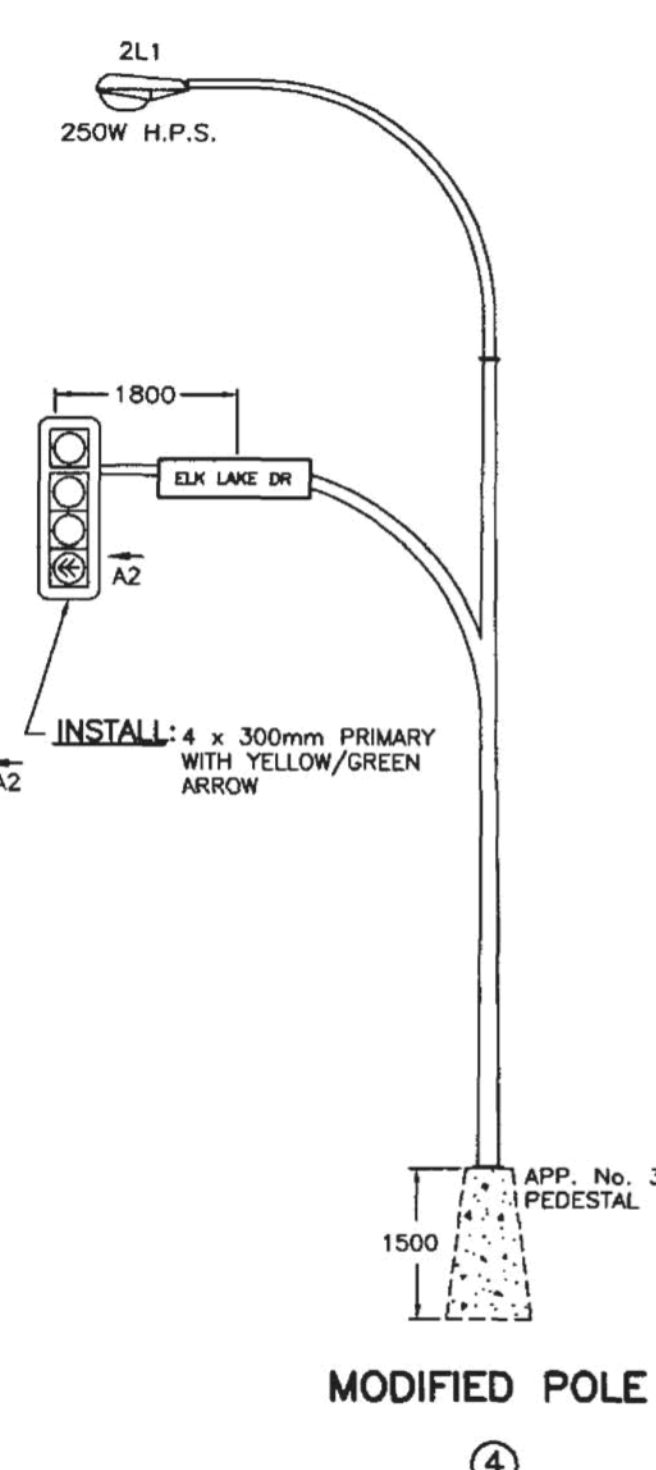
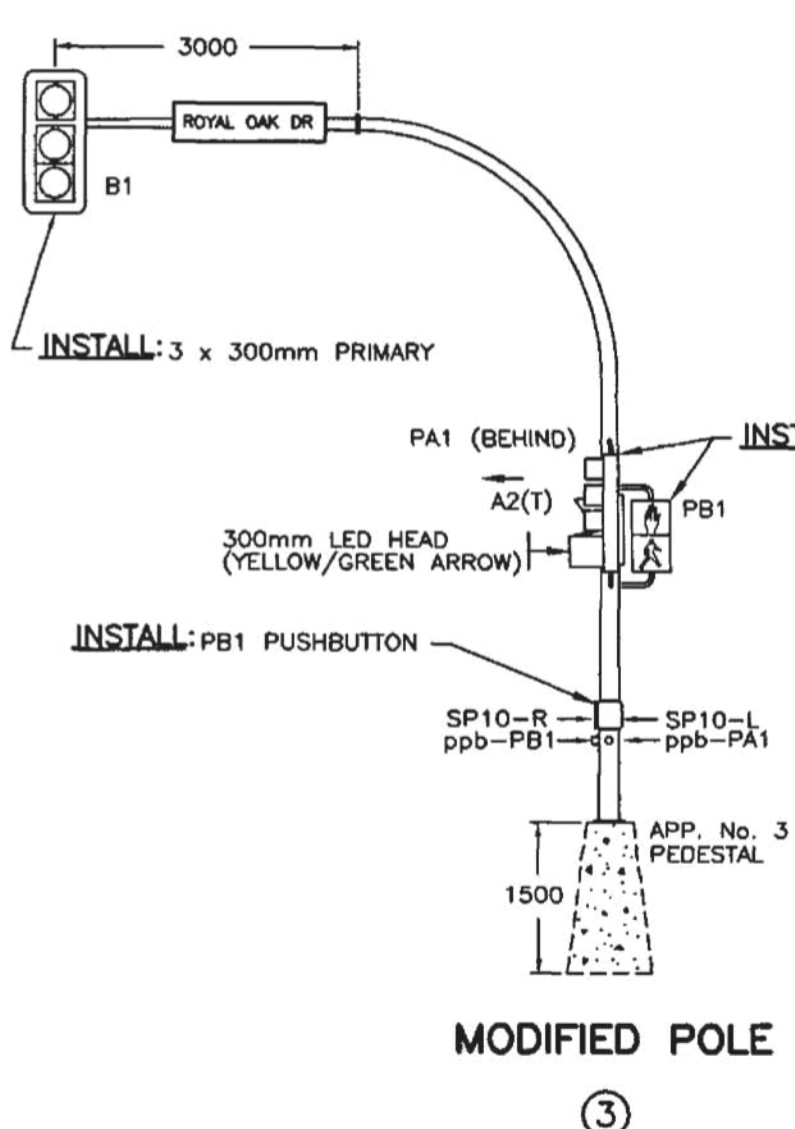
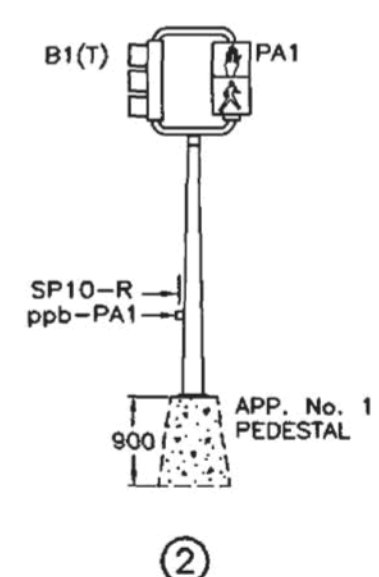
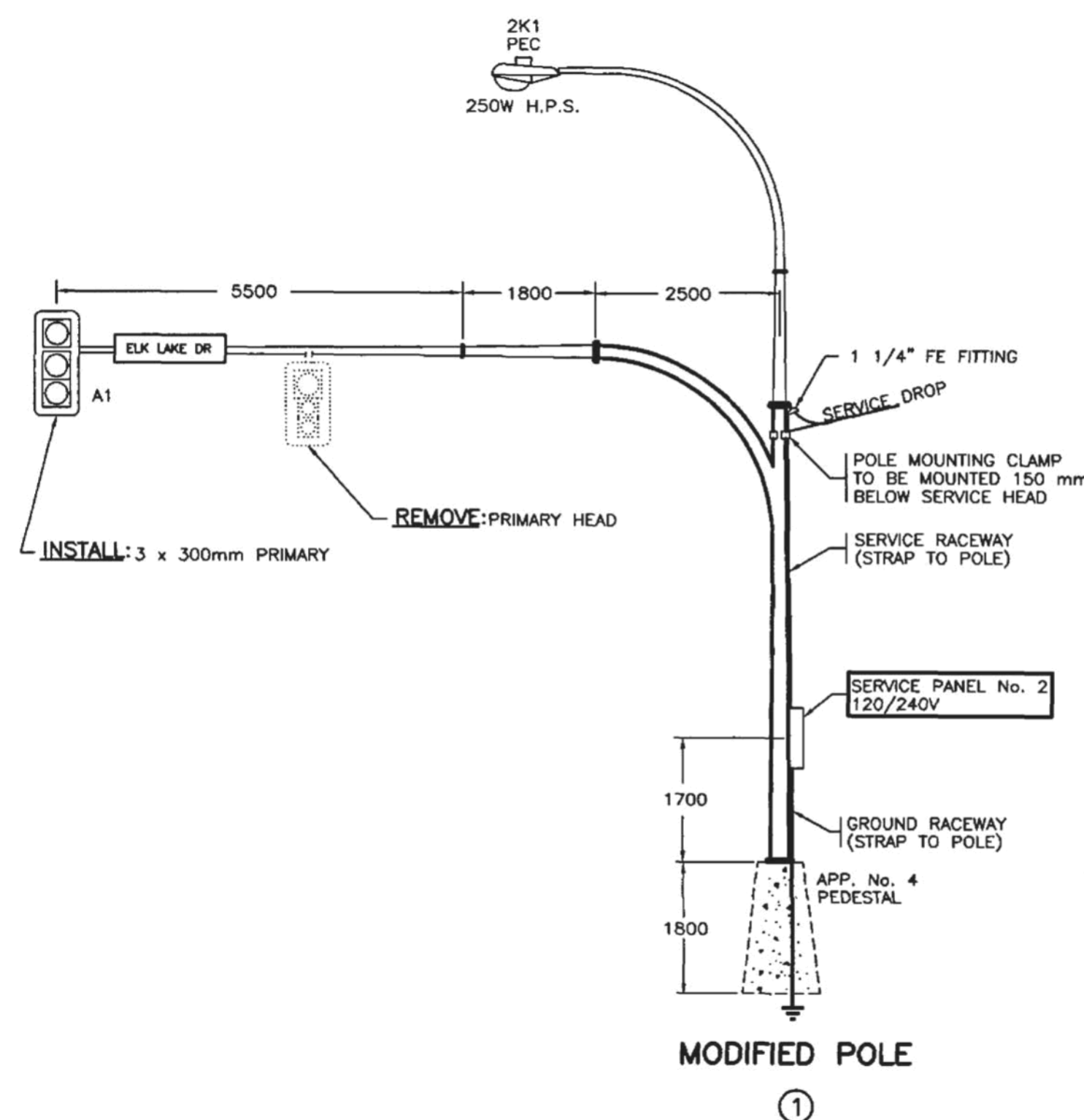
MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

SIGNAL AND LIGHTING INSTALLATION
ROUTE 17 AT ROYAL OAK INTERCHANGE AND ELK LAKE DR.
SAANICH

SITE PLAN ENLARGEMENT - COLOUR CODE
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

[Signature] DATE *Nov 29/02*

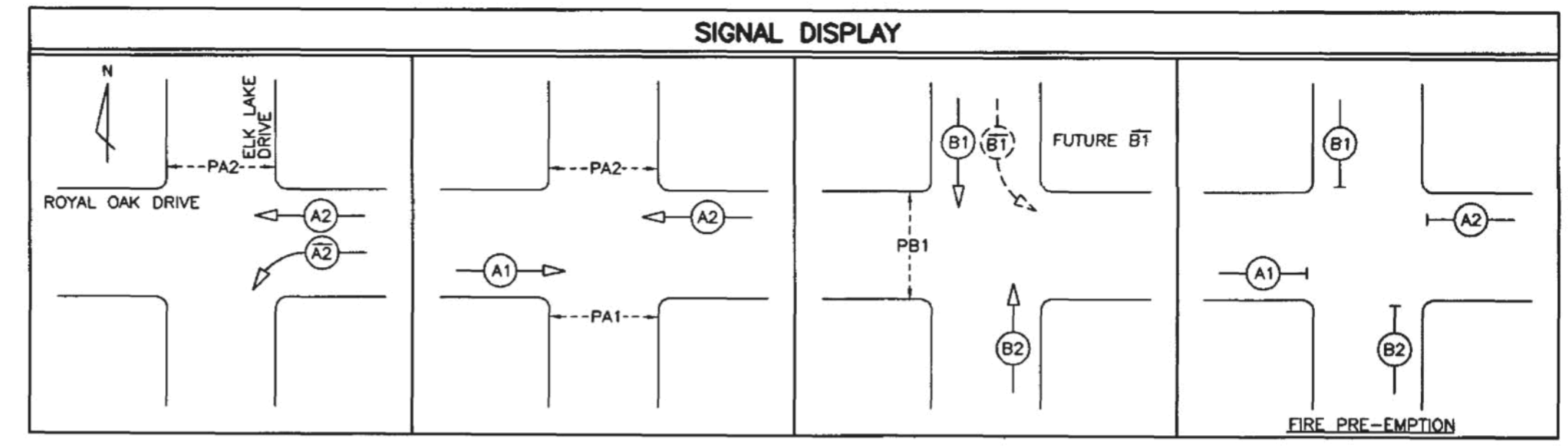
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SHEET 8 OF 9		2	1	TE-00119-8



ALL RED BALL DISPLAYS AND YELLOW/GREEN ARROWS ARE LED

ALL SIGNAL BACKBOARDS SHALL BE BORDERED WITH REFLECTIVE TAPE

ALL EQUIPMENT IS EXISTING EXCEPT WHERE NOTED

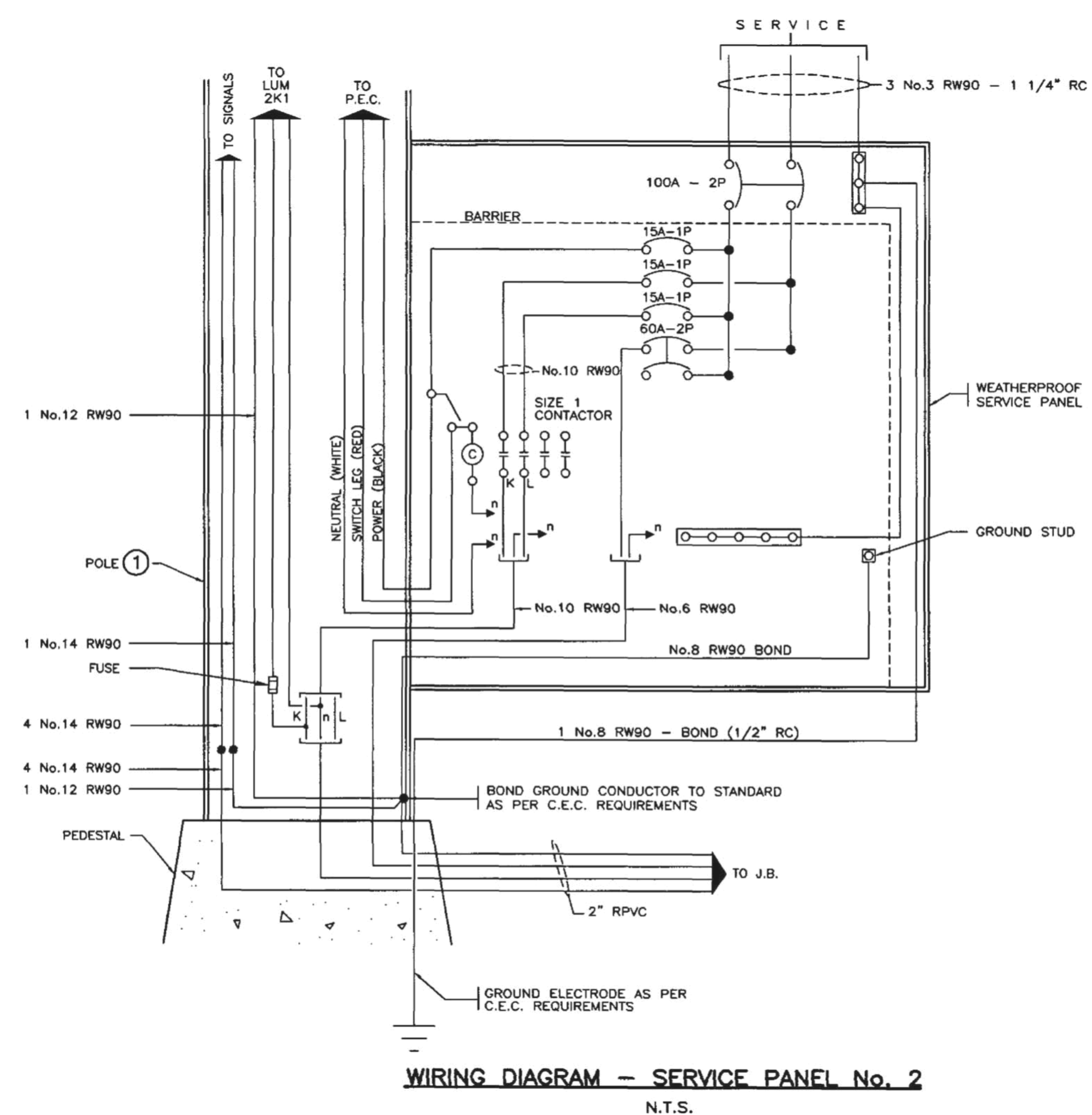


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THIS DRAWING SHEET SUPERSEDES
DRAWING SERIES TE-88045

REFER TO SHEET 1 FOR NOTES

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EXCEPT WHERE NOTED

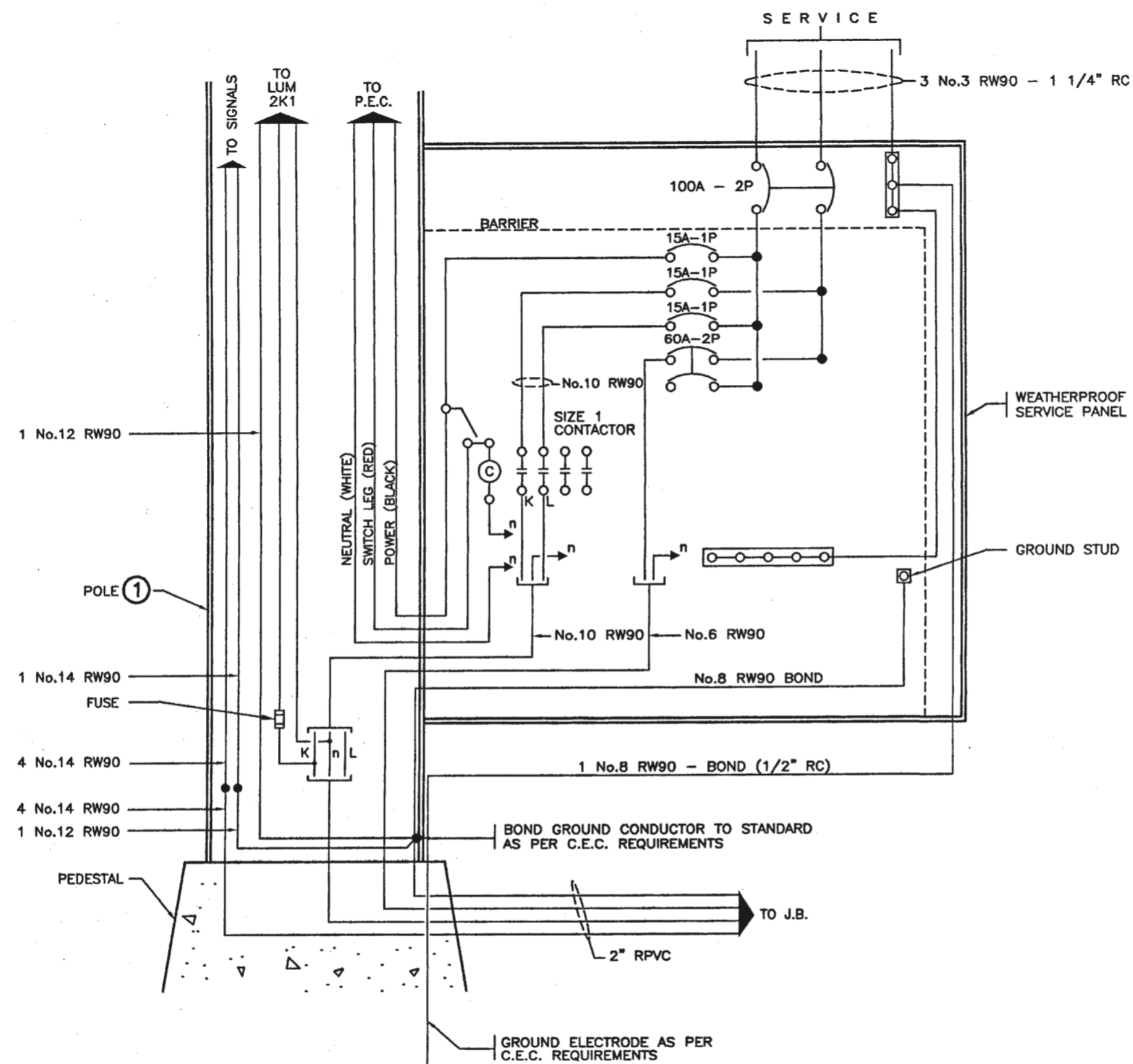
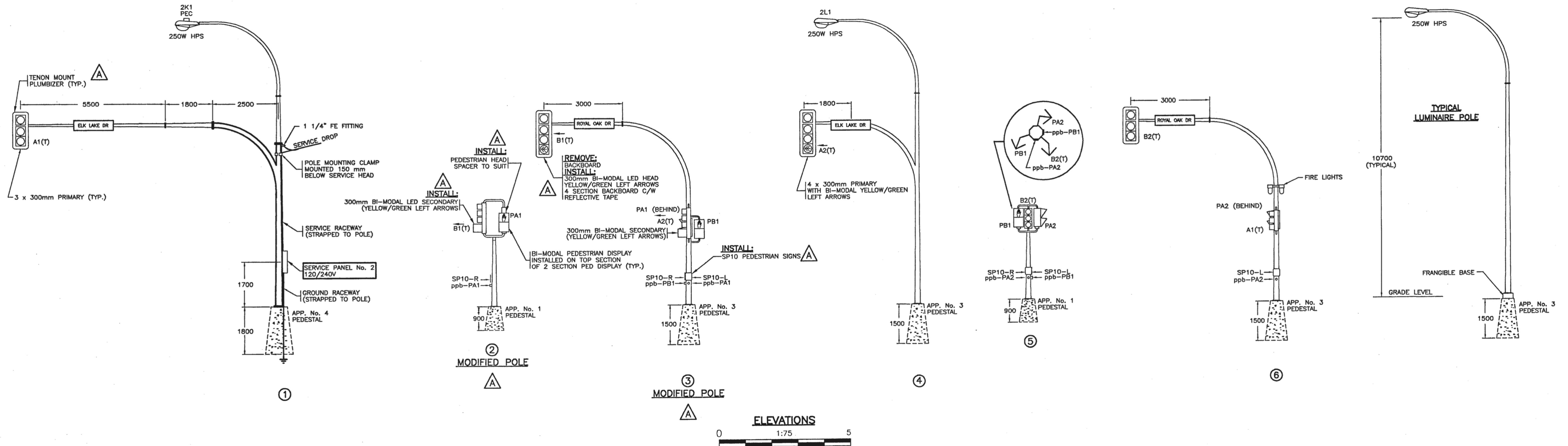
SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS



DETECTOR LOOP DETAILS						
LOOP			INDUCTANCE			PHASE
LOOP No.	SIZE	TURNS	LOOP	LEAD	TOTAL	
L 1	1.8 DIA.	4	95	12	107	COUNT
L 2	1.8 DIA.	4	95	12	107	COUNT
L 3	1.8 x 1.8	4	120	12	132	#B2
L 4	1.8 x 1.8	4	120	12	132	#B2
L 5	1.8 DIA.	4	95	28	123	#A1
L 6	1.8 DIA.	4	95	28	123	#A1
L 7	1.8 DIA.	4	95	28	123	#A1
L 8	1.8 x 1.8	4	120	42	162	#B1
L 9	1.8 x 1.8	4	120	42	162	#B1
L 10	1.8 x 1.8	4	120	42	162	#B1
L 11	1.8 x 1.8	4	120	42	162	#B1
L 12	1.8 DIA.	4	95	27	122	#A2
L 13	1.8 DIA.	4	95	27	122	#A2
L 14	1.8 DIA.	4	95	27	122	#A2
L 15	1.8 x 5.8	2	75	21	96	COUNT

WIRING DIAGRAM - SERVICE PANEL No. 2
N.T.S.

DESIGNED BY <u>DM</u> DATE <u>JAN/01</u> CHECKED BY <u>DATE</u>		MINISTRY OF TRANSPORTATION AND HIGHWAYS ELECTRICAL ENGINEERING SECTION	
M.O.T.H. ELECTRICAL DESIGN APPROVAL <u>DATE 01/01</u>		SIGNAL AND LIGHTING INSTALLATION ROUTE 17 AT ROYAL OAK INTERCHANGE AND ELK LAKE DR. SAANICH	
REVISIONS REV. DATE DESCRIPTION JAN/01 DRAWING SHEET ADDED TO SERIES - PROTECTED/PERMISSIVE LEFT TURN ARROW ADDED TO A2 PHASE, ONE PRIMARY HEAD REMOVED FROM A1 PHASE AND LOOP TABLE REVISED		ELEVATIONS - WIRING DIAGRAM - SIGNAL DISPLAY - DETAILS ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION) <u>DATE 01/01</u>	
SHEET NUMBER SHEET 9 OF 9		SITE CODE 1 REGION 6 DRAWING NUMBER TE-00119-9	



WIRING DIAGRAM - SERVICE PANEL No. 2
N.T.S.

ALL RED, GREEN, BI-MODAL AND
PEDESTRIAN DISPLAYS ARE LED

ALL SIGNAL BACKBOARDS SHALL BE
BOARDED WITH REFLECTIVE TAPE

DETECTOR LOOP DETAILS						
LOOP			INDUCTANCE		PHASE	
LOOP No.	SIZE	TURNS	LOOP	LEAD	TOTAL	
L 1	1.8 DIA.	4	95	12	107	COUNT
L 2	1.8 DIA.	4	95	12	107	COUNT
L 3	1.8 DIA.	4	95	12	107	#B2
L 4	1.8 DIA.	4	95	12	107	#B2
L 5	1.8 DIA.	4	95	28	123	#A1
L 6	1.8 DIA.	4	95	28	123	#A1
L 7	1.8 DIA.	4	95	28	123	#A1
L 8	1.8 x 1.8	4	120	42	162	#B1
L 9	1.8 x 1.8	4	120	42	162	#B1
L 10	1.8 x 1.8	4	120	42	162	#B1
L 11	1.8 x 1.8	4	120	42	162	#B1
L 12	1.8 DIA.	4	95	27	122	#A2
L 13	1.8 DIA.	4	95	27	122	#A2
L 14	1.8 DIA.	4	95	27	122	#A2
L 15	1.8 x 5.8	2	75	21	96	COUNT

P.J.R. BOUDREAU
LIMITED LICENCE
(Engineering)
REFER TO LIMITATIONS
Association of Professional
Engineers and Geoscientists
of the Province of
British Columbia

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DRAWING SERIES TE-88045

ALL EQUIPMENT IS EXISTING
EXCEPT WHERE NOTED

ISSUED FOR
CONSTRUCTION

REFER TO SHEET 1 FOR NOTES

ALL DIMENSIONS ARE IN MILLIMETERS
EXCEPT WHERE NOTED

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

FOCUS INTEC
Engineering • Planning • Geomatics
57 Cordova Avenue Victoria, B.C. V8Z 1T3 Phone: (250) 474-1151 Fax: (250) 474-7751

PBA Consulting Engineers

PBA Engineering Ltd.
Suite 11-625 Alpha St.
Victoria, BC, Canada V8Z 1B5 Telephone 250.388.7222 Facsimile 250.388.7229 www.pbaeng.com



MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

SIGNAL AND LIGHTING INSTALLATION
ROUTE 17 AT ROYAL OAK INTERCHANGE AND ELK LAKE DR.
SAANICH

ELEVATIONS - WIRING DIAGRAM - SIGNAL DISPLAY - DETAILS
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

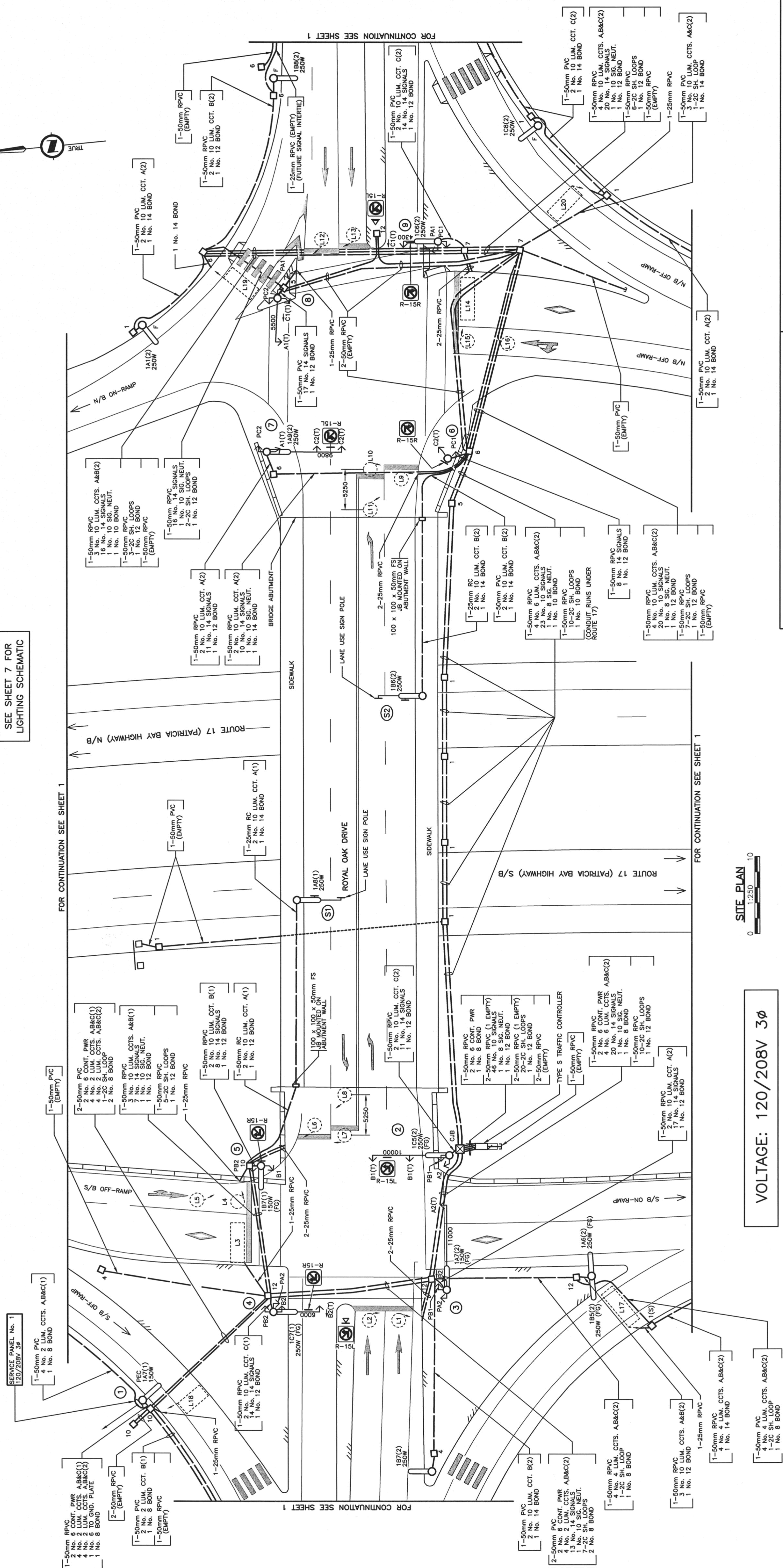
DESIGNED BY *KS* DATE *Nov 29/02* CHECKED BY *MB* DATE *Nov 29/02*
M.O.T. ELECTRICAL DESIGN REVIEW *BMLC* DATE *Feb 10/03*

REVISIONS
REV. DATE DESCRIPTION DRAWN
JAN/01 DRAWING SHEET ADDED TO SERIES - PROTECTED/PERMISSIVE LEFT TURN ARROW ADDED TO A2 PHASE, ONE PRIMARY HEAD REMOVED FROM A1 PHASE AND LOOP TABLE REVISED JDM
A NOV/02 POLES 2 AND 3 REVISED FOR #B1 ADVANCE LEFT TURN ARROW PBA

SHEET NUMBER SITE CODE HWY DIST REGION DRAWING NUMBER
SHEET 9 OF 9 2 1 TE-00119-9 A



SEE SHEET 7 FOR
LIGHTING SCHEMATIC



SITE PLAN

0 1:250 10

A horizontal graphic scale bar with alternating black and white segments. It is labeled with '0' at the left end, '1:250' in the middle, and '10' at the right end.

VOLTAGE: 120/208V 3Ø

REFER TO SHEET 1 FOR NOTES

POSTED SPEED LIMIT (ON-RAMPS) 50 km/h

POSTED SPEED LIMIT (ROYAL OAK DRIVE) 50 km/h


DO NOT USE THIS DRAWING FOR
PAVEMENT MARKING STANDARDS

ALL DIMENSIONS ARE IN MILLIMETERS
UNLESS NOTED OTHERWISE

FOR MINISTRY USE ONLY
THIS DRAWING SERIES SUPERSEDES
DRAWING SERIES TE-00119

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

<div><div>BRITISH COLUMBIA</div></div>		MINISTRY OF TRANSPORTATION ELECTRICAL ENGINEERING CENTRE	
DESIGNED BY _____ DATE _____		CHECKED BY _____ DATE <u>NOV 23/07</u>	
M.O.T. ELECTRICAL DESIGN REVIEW		DATE <u>NOV 23/07</u>	
REVISIONS			
REV	DATE	DESCRIPTION	DRAWN
SEP03		DRAWING ISSUED - RECORD DRAWING	NJP
DEC06		ADDED R-15L & R-15R SIGNS - RECORD DRAWING	ABC
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)			
SITE PLAN ENLARGEMENT			
_____ DATE _____			
SHEET NUMBER SHEET 5 OF 8		SITE CODE	HWY DIST
			2 1
		DRAWING NUMBER TE-03042-5	
		A	

FOR CONTINUATION SEE SHEET 3

VOLTAGE: 120/208V 3Ø

REFER TO SHEET 5 FOR SITE PLAN ENLARGEMENT
REFER TO SHEETS 6 AND 7 FOR DETAILS
REFER TO SHEET 8 FOR ELEVATIONS

NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MINISTRY STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- CONDUCTORS FROM JUNCTION BOX TO LUMINAIRE POLE SHALL BE:
2 No. 10
1 No. 12 50mm RPVC (UNLESS OTHERWISE NOTED)
- ALL CONDUITS FROM JUNCTION BOXES TO BASES ARE TO BE 50mm RPVC.
- JUNCTION BOXES SHALL BE POSITIONED BEHIND OR, AS AN ALTERNATIVE, TO THE SIDE, BUT NOT IN FRONT OF POLES.
- LUMINAIRE NUMBERING EXAMPLE: 1A2(1)
SERVICE No. - 1 CCT. LETTER - A
LUM. No. - 2 CONTRACTOR No. - (1)
- WHERE POSSIBLE, POLES SHALL BE POSITIONED WITH THE HANDHOLE IN THE BACK OR IF NOT POSSIBLE, ON THE DOWNSTREAM TRAFFIC SIDE.
- ALL CONCRETE BASES AND JUNCTION BOX SYMBOLS ARE NOT TO SCALE.
- EACH SHIELDED CABLE SHALL RUN CONTINUOUS WITH NO SPLICES, FROM THE CONTROLLER TO THE RESPECTIVE LOOP.
- ALL SIGNAL HEAD SECTIONS SHALL BE WIRED SEPARATELY FROM THE HANDHOLE OF THE POLE TO EACH HEAD INCLUDING A SEPARATE NEUTRAL AND BONDING CONDUCTOR FOR EACH HEAD.
- THE CONTRACTOR SHALL NOT PRE-DRILL HOLES IN A SIGNAL POLE UNTIL AFTER THE BASE FOR THAT POLE HAS BEEN INSTALLED. THE CONTRACTOR SHALL ADVISE THE MINISTRY REPRESENTATIVE OF ANY ADJUSTMENTS MADE TO THE BASE LOCATION WHICH WILL EFFECT THE LOCATIONS OF HARDWARE TO BE MOUNTED ON THAT POLE PRIOR TO DRILLING.
- WHERE 3 OR MORE SECONDARY/PEDESTRIAN HEADS ARE BEING MOUNTED ON THE POLE SHAFT, ORIENT THE PEDESTRIAN HEAD MOUNTING BRACKETS WITH THE WIREWAY ON TOP.
- ALL CONDUCTORS SHALL BE RW9D XLPE INSULATED UNLESS NOTED OTHERWISE.

FOR MINISTRY USE ONLY
REFER TO DRAWING SERIES TE-03025
FOR CONTINUATION OF LIGHTING

SEE SHEET 7 FOR
LIGHTING SCHEMATIC

POSTED SPEED LIMIT (ROUTE 17) 80 km/h
POSTED SPEED LIMIT (ROYAL OAK DRIVE) 50 km/h

DO NOT USE THIS DRAWING FOR
PAVEMENT MARKING STANDARDS

ALL DIMENSIONS ARE IN MILLIMETERS
UNLESS NOTED OTHERWISE

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DRAWING SERIES TE-00119

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

FOR CONTINUATION SEE SHEET 4
SITE PLAN

0 1:500 25

LEGEND

- FUTURE CONCRETE BASE AND LUMINAIRE POLE (SINGLE)
- LUMINAIRE POLE (SINGLE) 'F' DENOTES FRANGIBLE BASE
- LUMINAIRE POLE (DOUBLE)
- PRIVATE LUMINAIRE (BASE VARIABLE)
- POST TOP MOUNTED LUMINAIRE
- WALL MOUNTED LUMINAIRE
- 10 JUNCTION BOX - No. DENOTES TYPE
- CJB CONCRETE JUNCTION BOX OR VAULT

- SIGNAL POLE WITH SIGNAL HEAD MOUNTED ON SIDE
- COMBINATION LUMINAIRE/TRAFFIC SIGNAL POLE
- ILLUMINATED SIGN WITH AMBER FLASHERS
- COMBINATION LUMINAIRE/ILLUMINATED SIGN WITH AMBER FLASHERS
- SIGN POLE (NON-ILLUMINATED)
- ILLUMINATED SIGN POLE
- COMBINATION LUMINAIRE/NON-ILLUMINATED SIGN
- COMBINATION LUMINAIRE/ILLUMINATED SIGN

- PEC PHOTO ELECTRIC CELL
- RPVC RIGID P.V.C. CONDUIT
- R.C. RIGID STEEL CONDUIT
- F.C. FLEXIBLE CONDUIT (LIQUID TIGHT)
- OVERHEAD FLASHING BEACON
- POST MOUNTED FLASHER
- BACKGUY
- POWER POLE
- TELEPHONE POLE
- POWER/TELEPHONE POLE
- A,B,T, A2(T) SIGNAL HEAD VEHICLE PHASE (T) DENOTES TUNNEL VISOR
- PA,PB, PA1,PB2 SIGNAL HEAD PEDESTRIAN PHASE
- ppb PEDESTRIAN PUSHBUTTON

- TEST SWITCH
- BREAKER
- NEUTRAL BAR
- DIAMOND DETECTOR LOOP (WITH LOOP LEADER)
- PRE-FORMED DETECTOR LOOP
- ROUND DETECTOR LOOP
- RECTANGULAR COUNT LOOP
- QUADRAPOLE DETECTOR LOOP

- RAISED CURB
- PROPERTY LINE
- EDGE OF GRAVEL SHOULDER
- EDGE OF PAVEMENT
- PAINT LINE
- FUTURE ELECTRICAL AND GEOMETRICS
- ELECTRICAL EQUIPMENT TO BE REMOVED
- PROPOSED UNDERGROUND CONDUIT
- EXISTING UNDERGROUND CONDUIT
- FENCE
- CORRUGATED METAL PIPE (CULVERT)
- U/G UTILITY:
 - 'G' DENOTES GAS
 - 'S' DENOTES STORM DRAINS/SEWERS
 - 'W' DENOTES WATER
 - 'E' DENOTES ELECTRIC
 - 'UT' DENOTES TELEPHONE
 - 'SAN' DENOTES SANITARY SEWER

DESIGNED BY _____ DATE _____ CHECKED BY *[Signature]* DATE *16 Sept 03*
M.O.T. ELECTRICAL DESIGN REVIEW _____ DATE _____

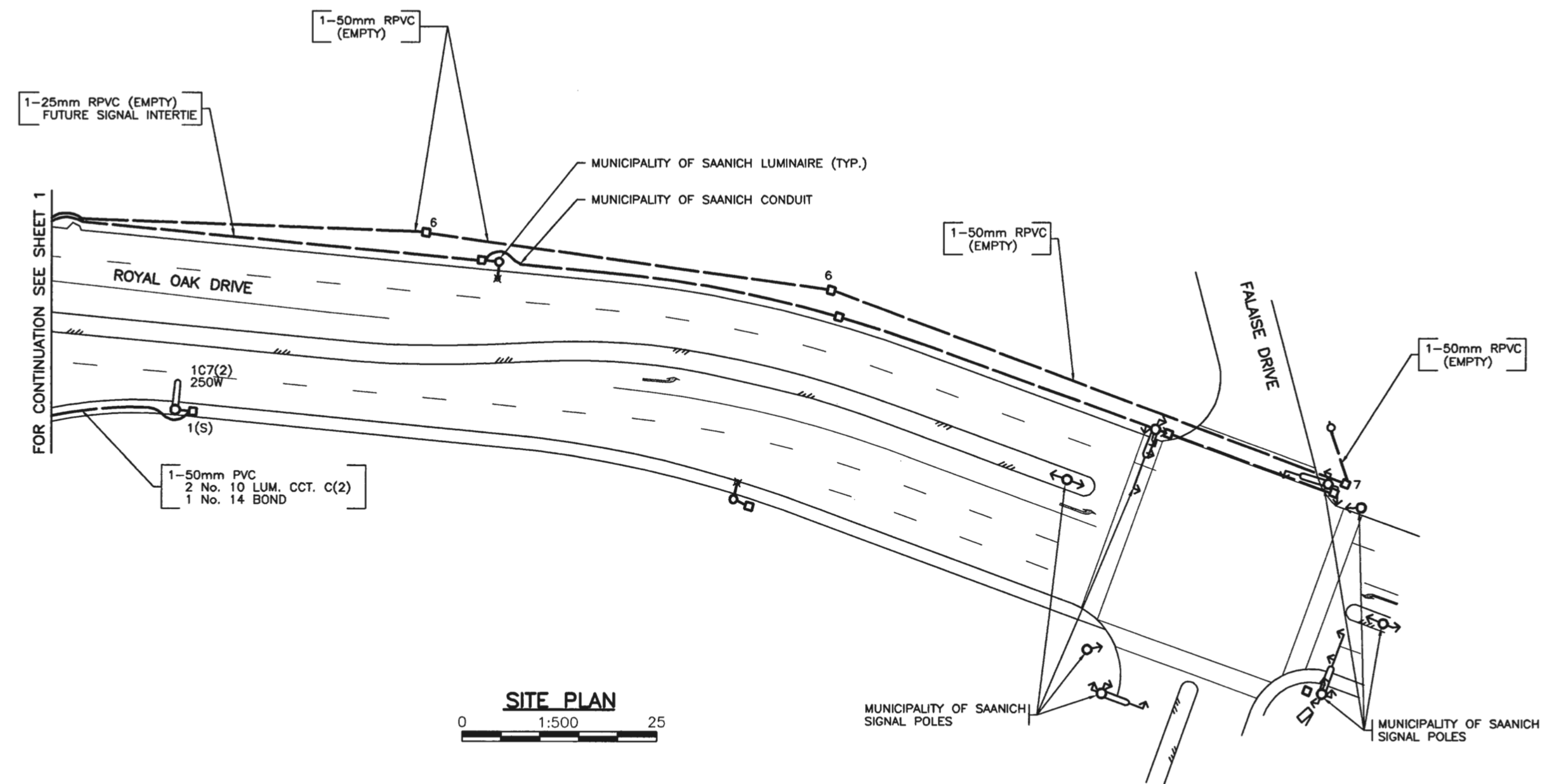
REVISIONS			
REV	DATE	DESCRIPTION	DRAWN
SEP03		DRAWING ISSUED - RECORD DRAWING	NJP

MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

TRAFFIC SIGNAL AND LIGHTING INSTALLATION
ROUTE 17 AT ROYAL OAK INTERCHANGE
SAANICH

SITE PLAN - NOTES
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

<i>[Signature]</i>		DATE <i>Sept 16/03</i>	
SHEET NUMBER	SITE CODE	HWY DIST	REGION
SHEET 1 OF 8		2	1
DRAWING NUMBER		TE-03042-1	



SITE PLAN
0 1:500 25

REFER TO SHEET 1 FOR NOTES

POSTED SPEED LIMIT 50 km/h

DO NOT USE THIS DRAWING FOR
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SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
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MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

TRAFFIC SIGNAL AND LIGHTING INSTALLATION
ROUTE 17 AT ROYAL OAK INTERCHANGE
SAANICH

SITE PLAN

ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

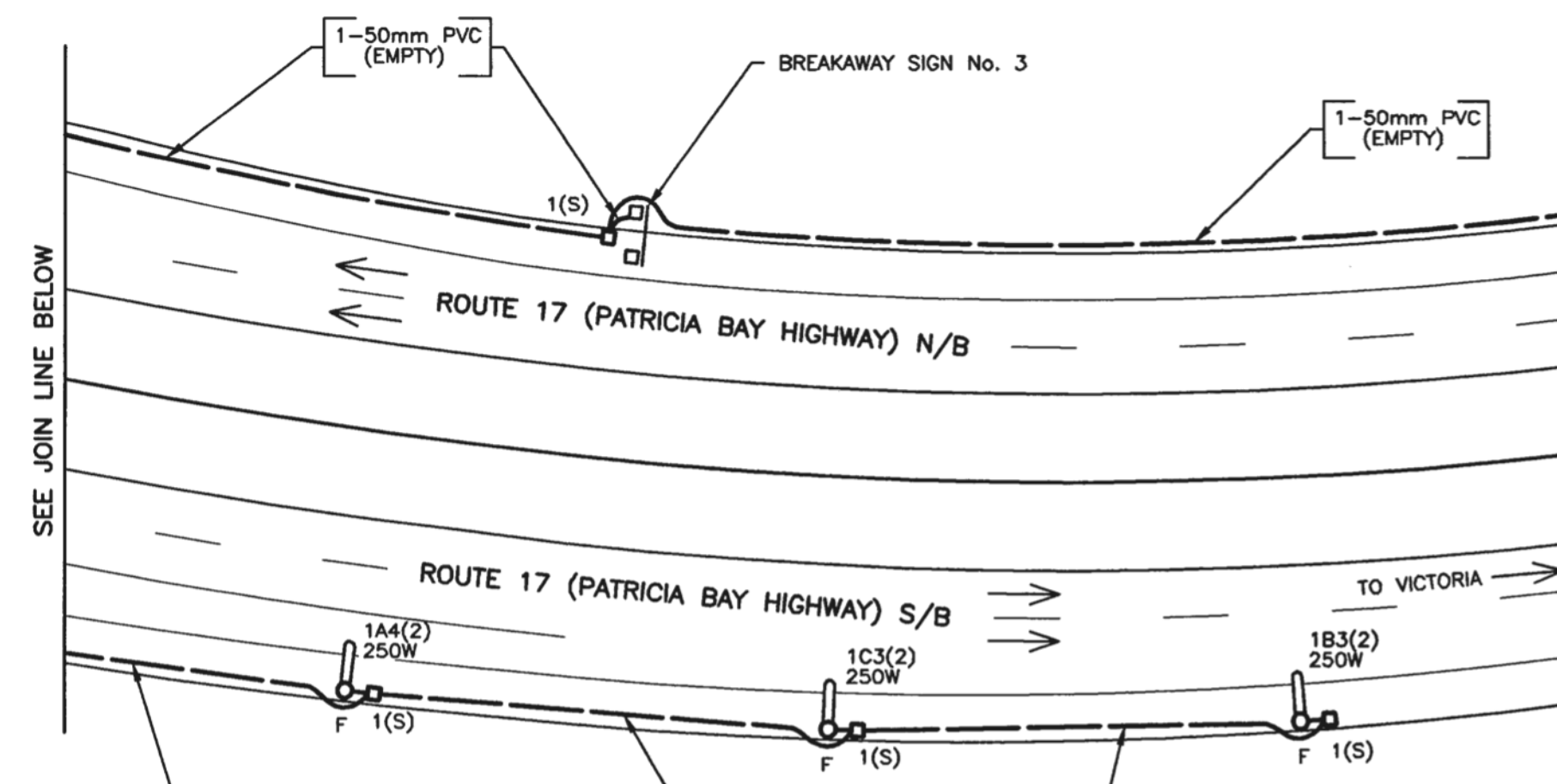
Abel Sme DATE *Sept 16/03*



SHEET NUMBER	SITE CODE	HWY DIST	REGION	DRAWING NUMBER
SHEET 2 OF 8		2	1	TE03042-2



VOLTAGE: 120/208V 3Ø



FOR MINISTRY USE ONLY
REFER TO DRAWING SERIES TE-92105
FOR CONTINUATION OF LIGHTING

FOR CONTINUATION SEE SHEET 1

ROUTE 17 (PATRICIA BAY HIGHWAY) N/B

ROUTE 17 (PATRICIA BAY HIGHWAY) S/B

1-50mm PVC
4 No. 4 LUM. CCTS. A,B&C(2)
1 No. 14 BOND

1(S)

1-50mm PVC
4 No. 4 LUM. CCTS. A,B&C(2)
1 No. 14 BOND

1(S)

1-50mm PVC
2 No. 10 LUM. CCT. C(2)
1 No. 14 BOND

1-50mm PVC
4 No. 4 LUM. CCTS. A,B&C(2)
1 No. 14 BOND

1(S) F

1(S) F

1(S) F

1(S) F

1-50mm PVC
4 No. 4 LUM. CCTS. A,B&C(2) (1 SP.)
1 No. 14 BOND

1-50mm PVC
3 No. 4 LUM. (2 SP.)
1 No. 14 BOND

1-50mm PVC (EMPTY)

1(S) F

1(S) F

1(S) F

1(S) F

1(S) F

1(S) F

1(S) F

1(S) F

1(S) F

1(S) F

1(S) F

1(S) F

1(S) F

1(S) F

1(S) F

1(S) F

SEE SHEET 7 FOR
LIGHTING SCHEMATIC

SITE PLAN
0 1:500 25

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SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

REFER TO SHEET 1 FOR NOTES

POSTED SPEED LIMIT 80 km/h

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DRAWING SERIES TE-00119



MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

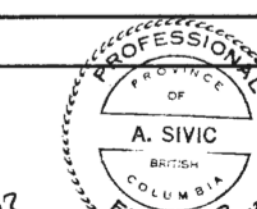
TRAFFIC SIGNAL AND LIGHTING INSTALLATION
ROUTE 17 AT ROYAL OAK INTERCHANGE
SAANICH

SITE PLAN

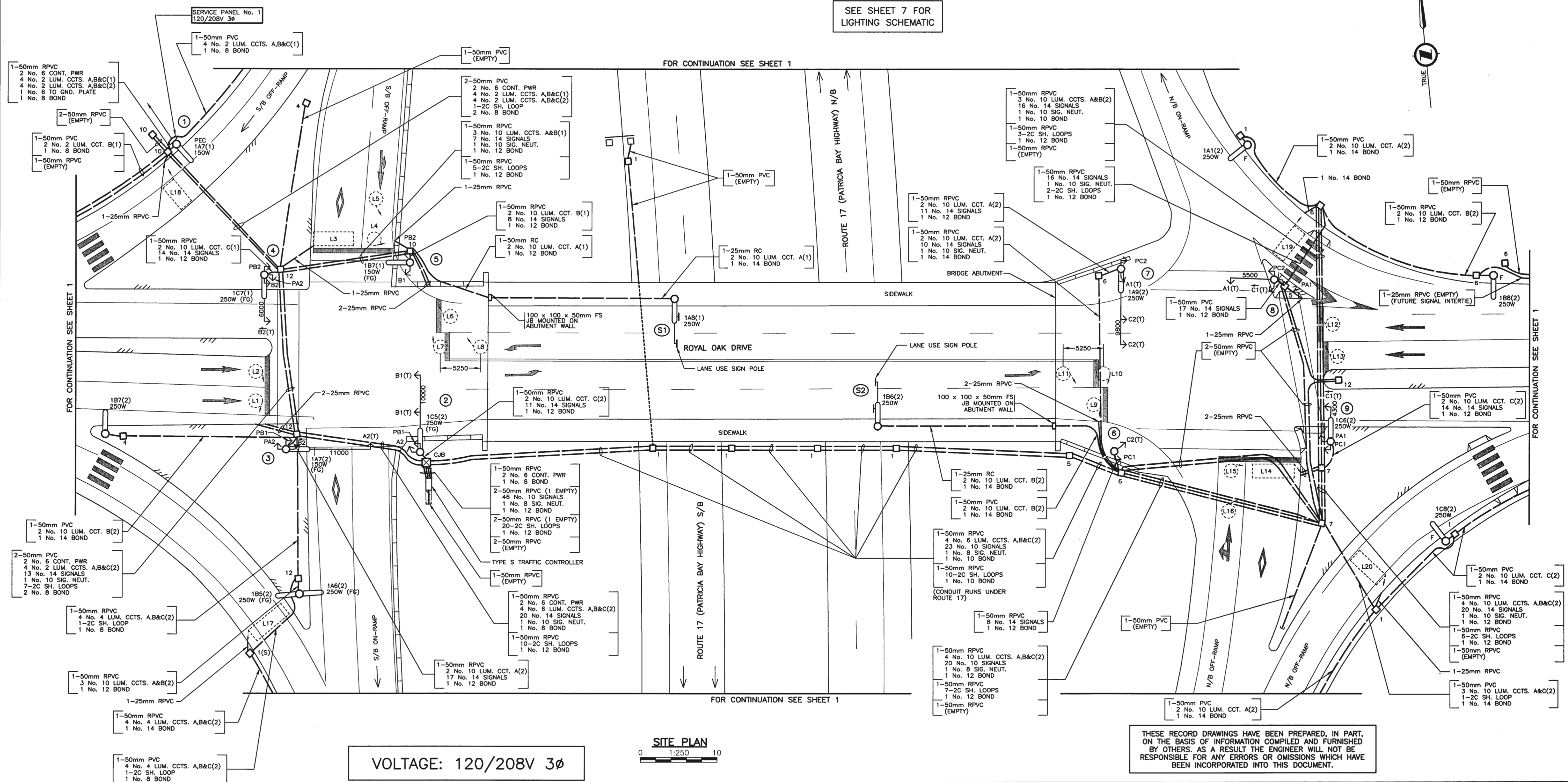
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

Abid Saw

DATE Sep. 16/03



SHEET NUMBER SITE CODE HWY DIST REGION DRAWING NUMBER
SHEET 4 OF 8 2 1 TE-03042-4



REFER TO SHEET 1 FOR NOTES

POSTED SPEED LIMIT (ON-RAMPS) 50 km/h

POSTED SPEED LIMIT (ROYAL OAK DRIVE) 50 km/h

DO NOT USE THIS DRAWING FOR PAVEMENT MARKING STANDARDS

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE

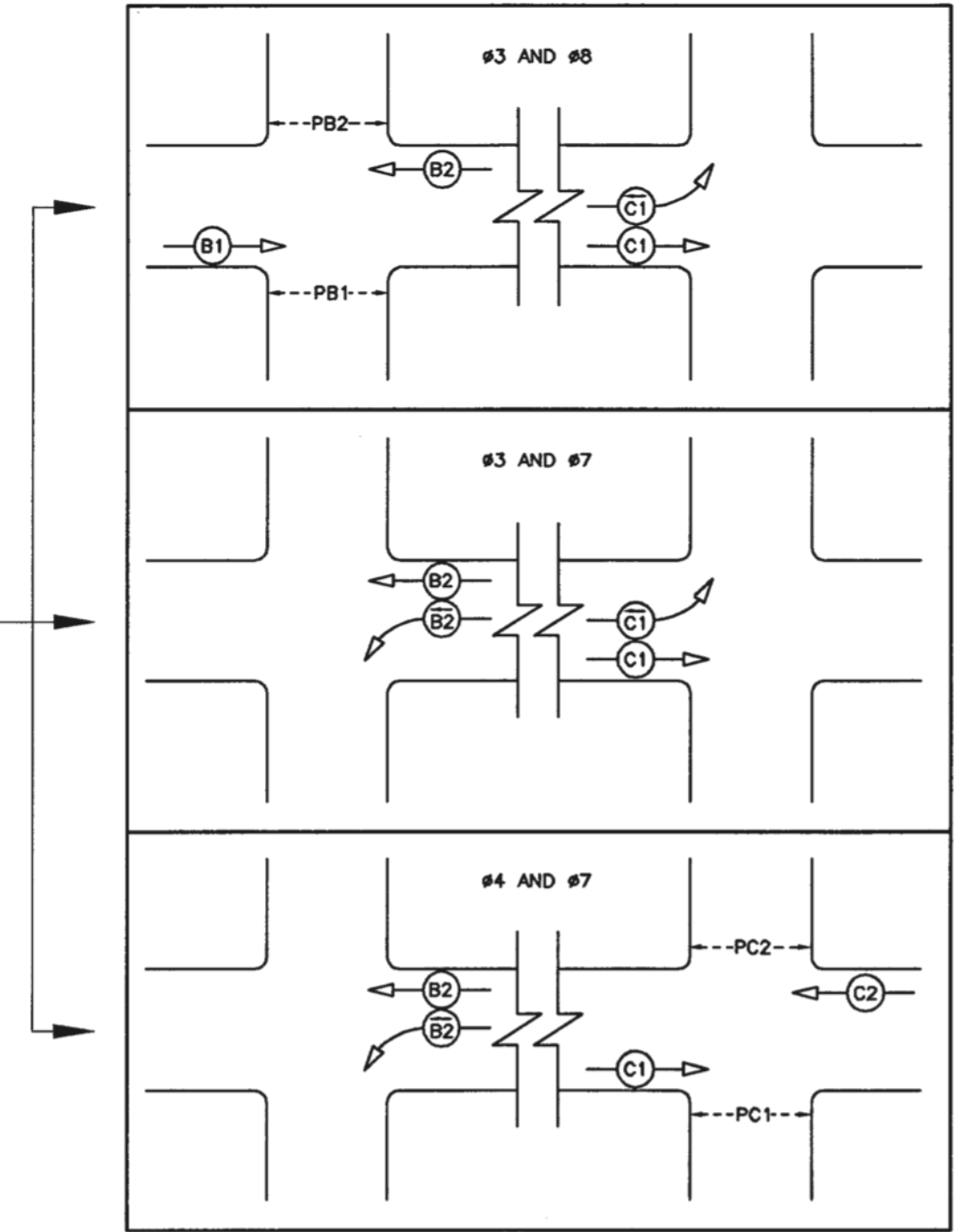
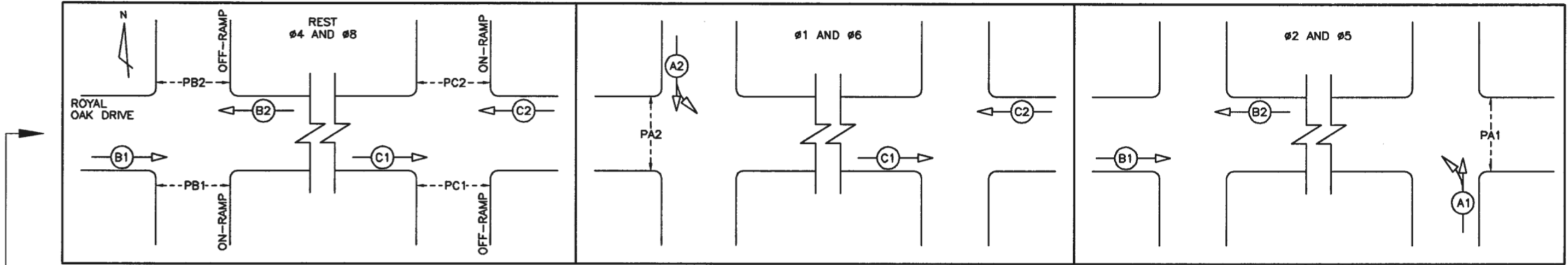
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SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

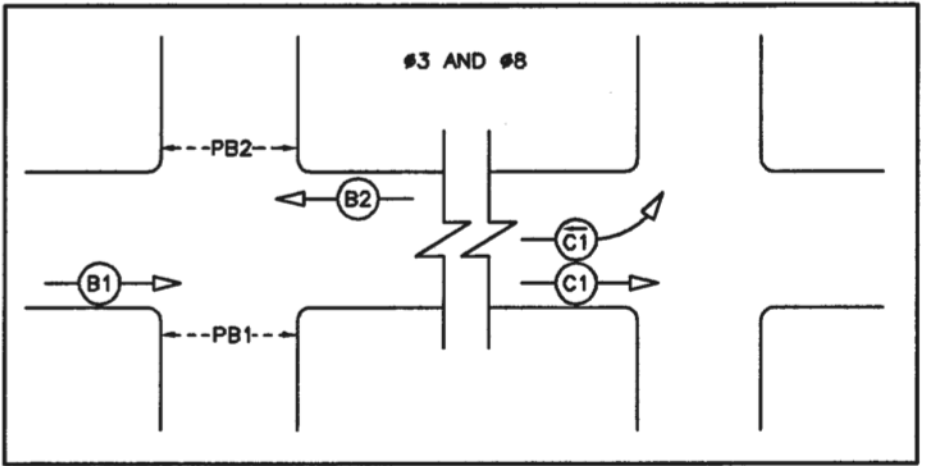
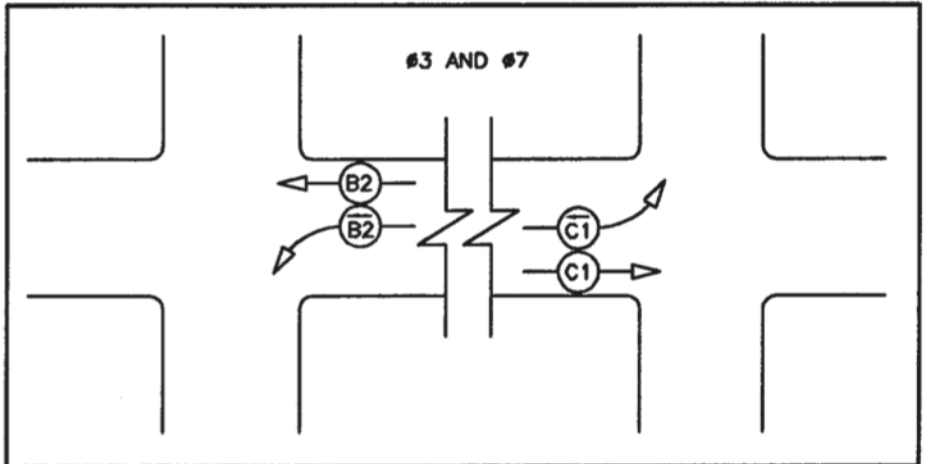
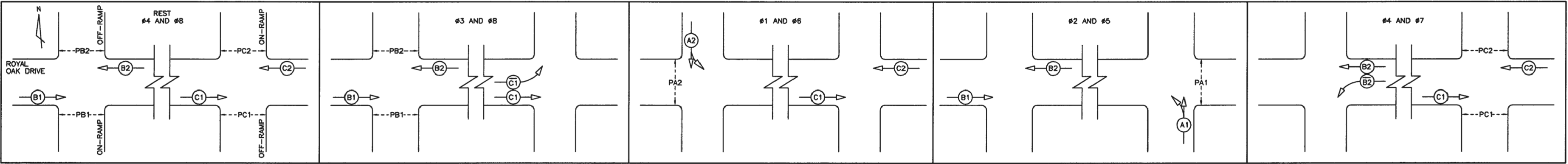
DESIGNED BY _____ DATE _____		CHECKED BY <i>SP</i> DATE <i>16 Sep 03</i>	
M.O.T. ELECTRICAL DESIGN REVIEW _____ DATE _____			
REVISIONS			
REV	DATE	DESCRIPTION	DRAWN
SEP03		DRAWING ISSUED - RECORD DRAWING	NJP
SITE PLAN ENLARGEMENT			
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)			
<i>Abid Siro</i> DATE <i>SEP 16/03</i>			
SHEET NUMBER	SITE CODE	HWY DIST	REGION
SHEET 5 OF 8		2	1
DRAWING NUMBER		TE-03042-5	

SIGNAL DISPLAY

#6 LEADS #5
1-2 3-4
6-5 7-8



#6 LEADS #5
07:30 TO 08:45 #4 LEADS #3
ALLOWS ROYAL OAK TO 17 S/B DURING AM RUSH
1-2 4-3
6-5 7-8



REFER TO SHEET 1 FOR NOTES

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

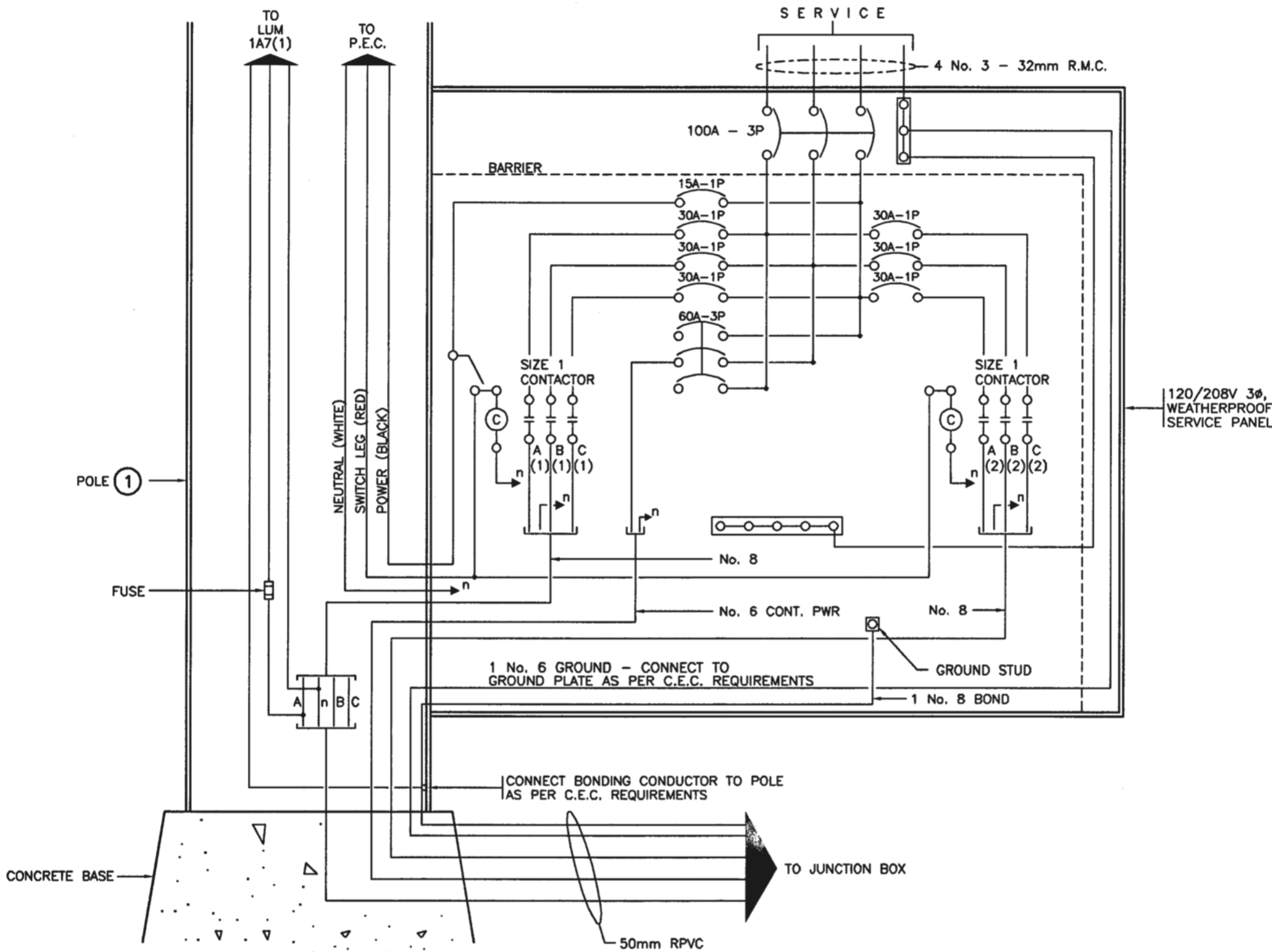
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DESIGNED BY _____ DATE _____ CHECKED BY <i>[Signature]</i> DATE <i>16 Sept 03</i>		MINISTRY OF TRANSPORTATION BRITISH COLUMBIA ELECTRICAL ENGINEERING CENTRE	
M.O.T. ELECTRICAL DESIGN REVIEW _____ DATE _____		TRAFFIC SIGNAL AND LIGHTING INSTALLATION ROUTE 17 AT ROYAL OAK INTERCHANGE SAANICH	
REVISIONS		SIGNAL DISPLAY	
REV	DATE	DESCRIPTION	DRAWN
SEP03		DRAWING ISSUED - RECORD DRAWING	NJP
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)		<i>Abid Siva</i> DATE <i>Sept 16/03</i>	
SHEET NUMBER		SITE CODE	HWY DIST
SHEET 6 OF 8		2	1
DRAWING NUMBER		TE-03042-6	

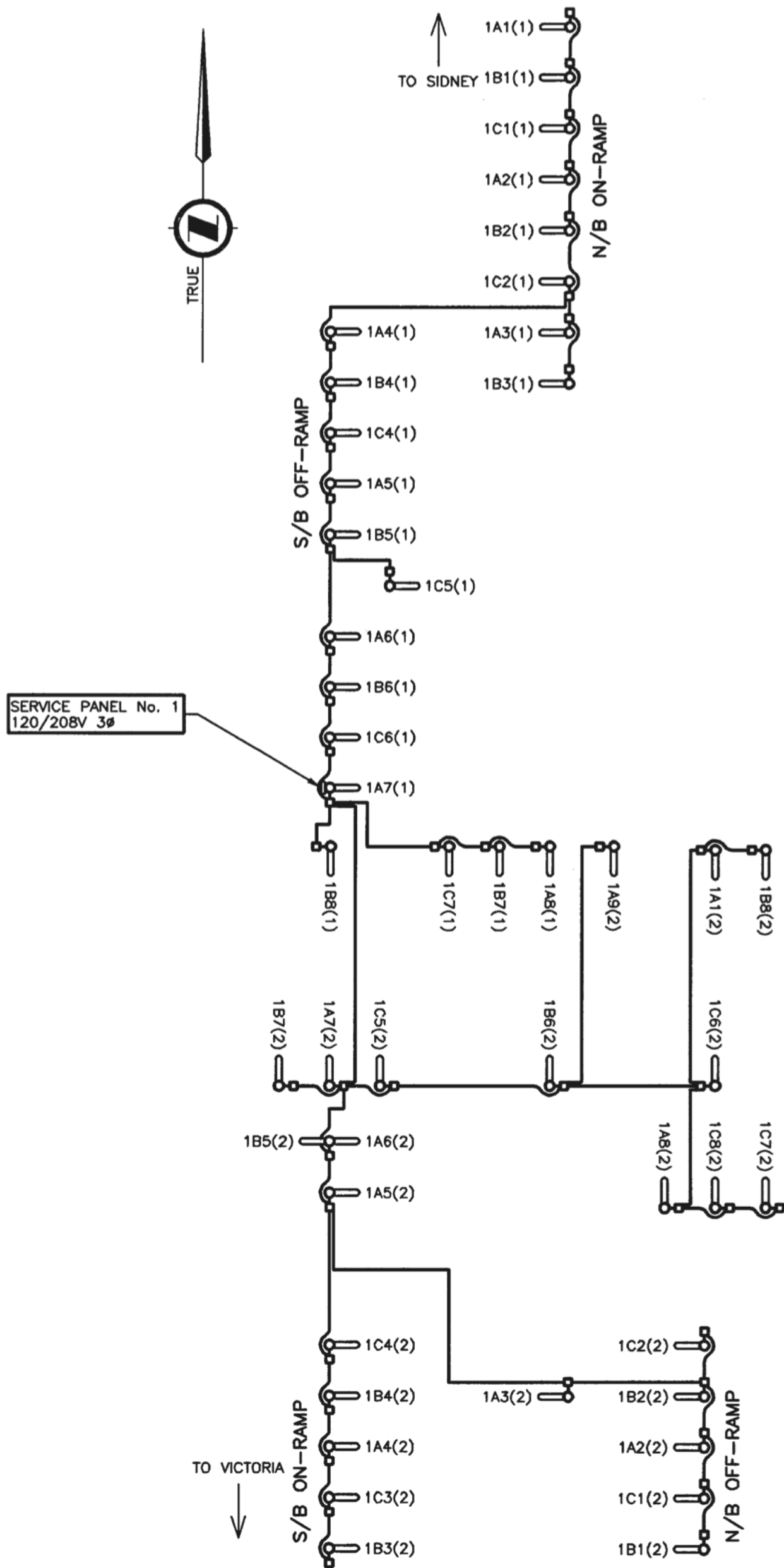
DETECTOR LOOP TABLE						
LOOP			INDUCTANCE			PHASE
LOOP No.	SIZE	TURNS	LOOP (μh)	LEAD (μh)	TOTAL (μh)	
L 1	1.8 DIA.	4	95	22	117	ΦB1
L 2	1.8 DIA.	4	95	22	117	ΦB1
L 3	1.8 x 5.0	3	134	35	169	ΦA2
L 4	1.8 DIA.	4	95	46	141	ΦA2
L 5	1.8 DIA.	4	95	46	141	ΦA2
L 6	1.8 DIA.	4	95	46	141	ΦB2
L 7	1.8 DIA.	4	95	46	141	ΦB2
L 8	1.8 DIA.	4	95	46	141	ΦB2
L 9	1.8 DIA.	5	140	68	208	ΦC1
L 10	1.8 DIA.	5	140	68	208	ΦC1
L 11	1.8 DIA.	5	140	68	208	ΦC1
L 12	1.8 DIA.	7	260	117	377	ΦC2
L 13	1.8 DIA.	7	260	117	377	ΦC2
L 14	1.8 x 5.4	4	236	89	325	ΦA1
L 15	1.8 x 1.8	5	180	89	269	ΦA1
L 16	1.8 x 1.8	5	180	89	269	ΦA1
L 17	1.8 x 5.4	3	112	41	153	COUNT
L 18	1.8 x 3.8	3	110	48	158	COUNT
L 19	1.8 x 4.4	5	305	109	414	COUNT
L 20	1.8 x 4.6	4	210	92	302	COUNT

CONDUCTOR COLOUR CODE		
ITEM	SIGNAL SECTION	CONDUCTOR COLOUR
A1	RED	RED
	YELLOW	YELLOW
	GREEN ARROW	BLUE (WHITE T.T.)
A2	RED	RED
	YELLOW	YELLOW
	GREEN ARROW	BLUE (WHITE T.T.)
B1	RED	RED
	YELLOW	BROWN
	GREEN ARROW	BLUE (WHITE T.T.)
B2	RED	RED
	YELLOW	BROWN
	GREEN ARROW	ORANGE (WHITE T.T.)
C1	RED	RED
	YELLOW	ORANGE
	GREEN ARROW	BLUE (WHITE T.T.)
C2	RED	RED
	YELLOW	ORANGE
	GREEN ARROW	BLUE (WHITE T.T.)
PA1	DON'T WALK WALK PUSH BUTTON	PURPLE/PURPLE (YELLOW T.T.)
PA2	DON'T WALK WALK PUSH BUTTON	PURPLE/PURPLE (RED T.T.)
PB1	DON'T WALK WALK PUSH BUTTON	BROWN BLUE PURPLE/PURPLE (BROWN T.T.)
PB2	DON'T WALK WALK PUSH BUTTON	BROWN (ORANGE T.T.) BLUE PURPLE/PURPLE (ORANGE T.T.)
PC1	DON'T WALK WALK PUSH BUTTON	ORANGE BLUE PURPLE/PURPLE (ORANGE T.T.)
PC2	DON'T WALK WALK PUSH BUTTON	ORANGE (BLUE T.T.) BLUE PURPLE/PURPLE (BLUE T.T.)
CONTROLLER POWER		BLACK
LUMINAIRE CCT. A(1)&(2)		RED
LUMINAIRE CCT. B(1)&(2)		BLACK
LUMINAIRE CCT. C(1)&(2)		BLUE
NEUTRAL		WHITE
GROUND/BOND		GREEN

NOTE: T.T. DENOTES TAPE TRACER.



WIRING DIAGRAM - SERVICE PANEL No. 1 (120/208V 3Φ)
N.T.S.

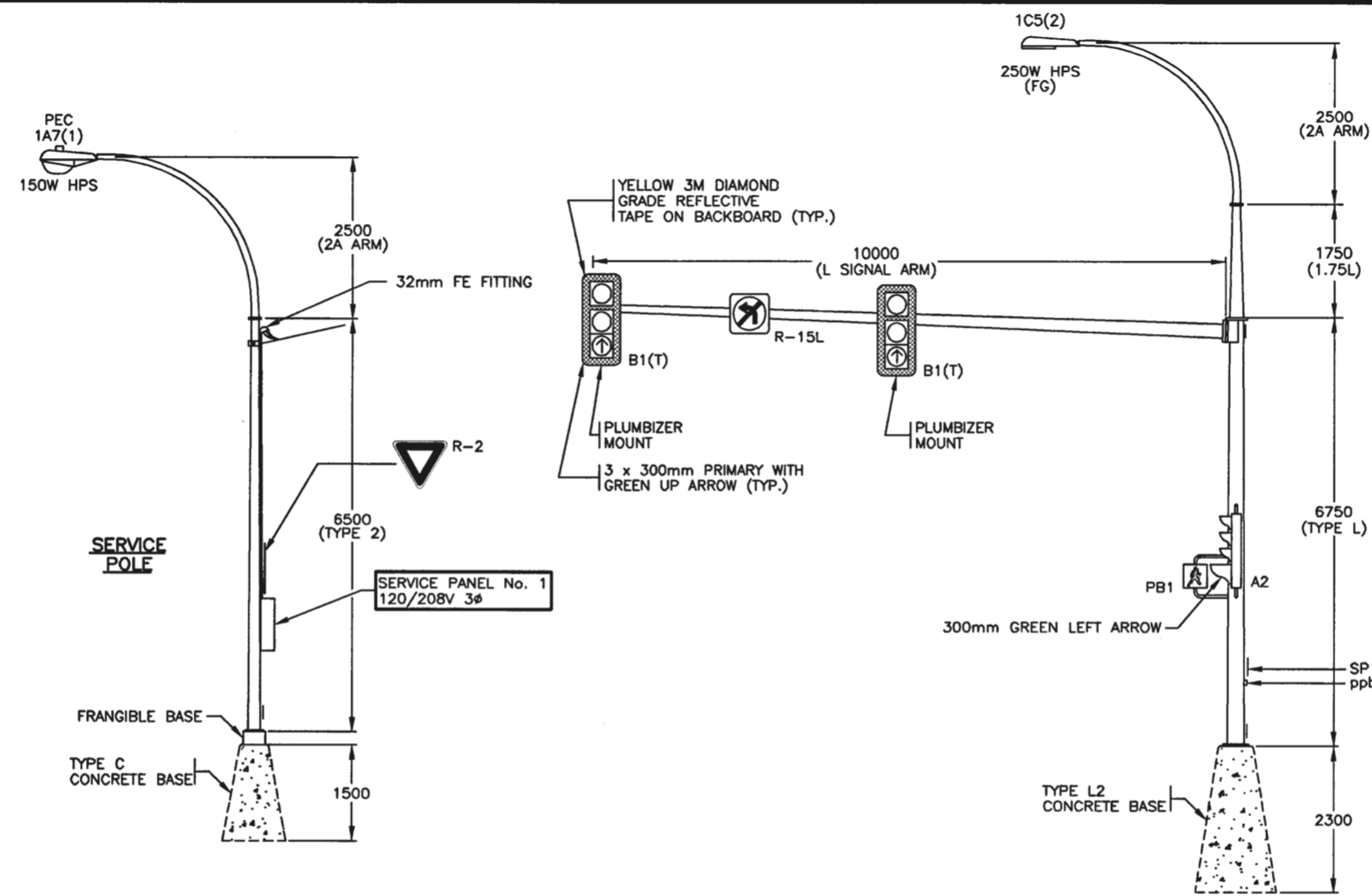


LIGHTING SCHEMATIC
N.T.S.

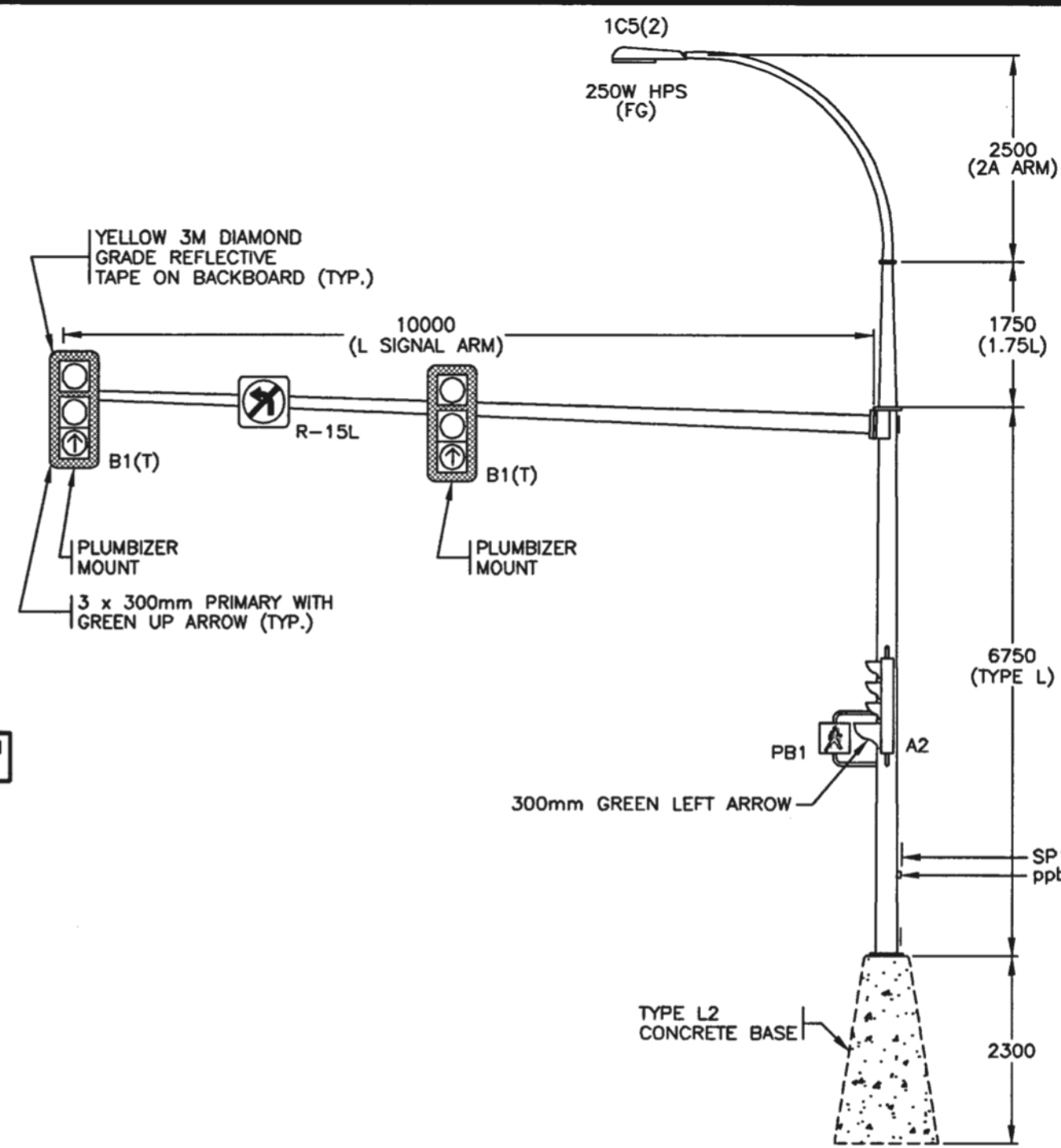
THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED AND FURNISHED BY OTHERS. AS A RESULT THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THIS DOCUMENT.

DESIGNED BY _____ DATE _____		CHECKED BY <u>NJP</u>	DATE <u>16 Sept 03</u>
M.O.T. ELECTRICAL DESIGN REVIEW _____		DATE _____	
REVISIONS			
REV	DATE	DESCRIPTION	DRAWN
	SEP03	DRAWING ISSUED - RECORD DRAWING	NJP

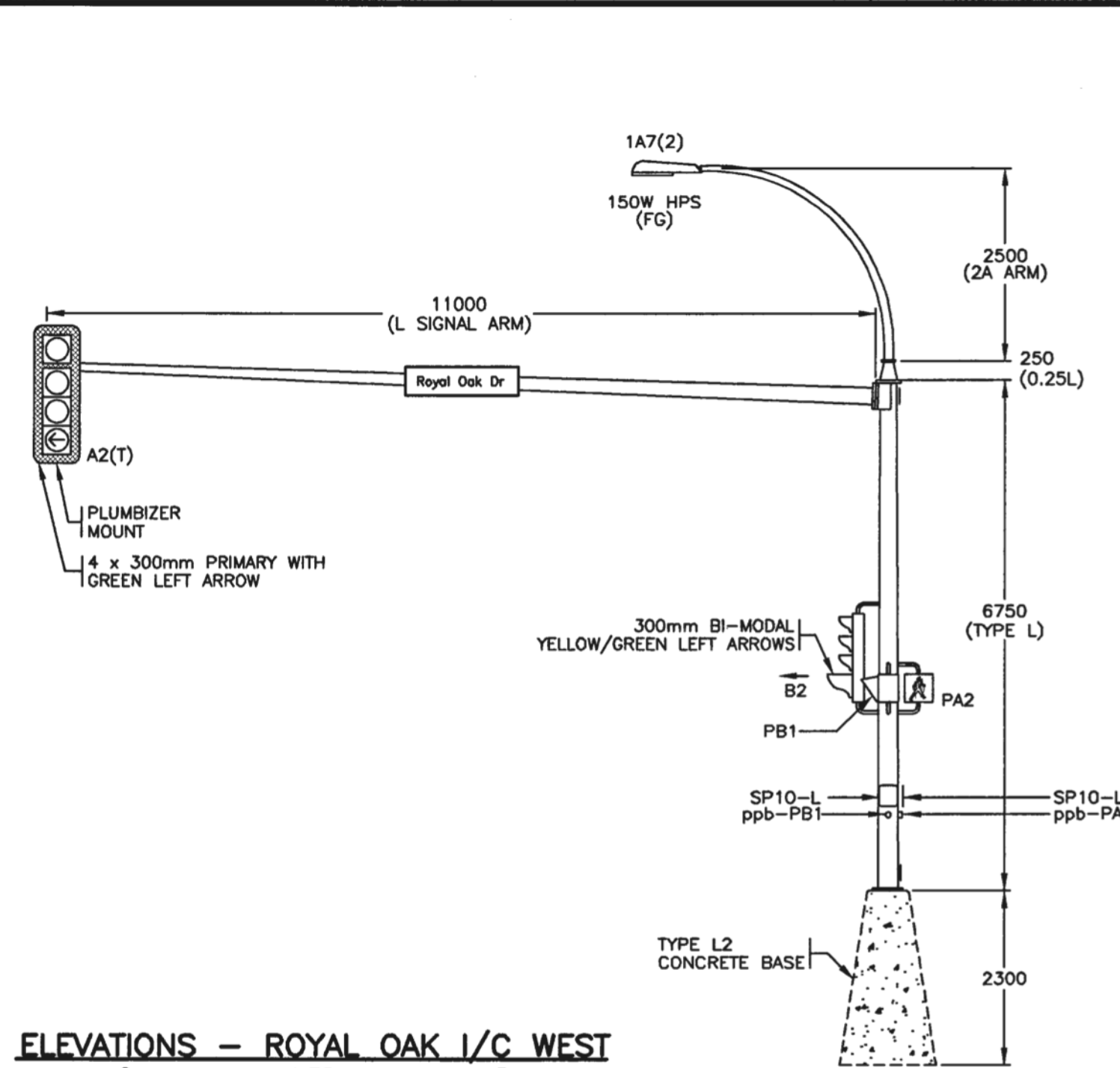
MINISTRY OF TRANSPORTATION ELECTRICAL ENGINEERING CENTRE	
TRAFFIC SIGNAL AND LIGHTING INSTALLATION ROUTE 17 AT ROYAL OAK INTERCHANGE SAANICH	
LIGHTING SCHEMATIC - WIRING DIAGRAM - DETAILS ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)	
<i>Abid S</i> DATE <i>16/09/03</i>	
SHEET NUMBER SHEET 7 OF 8	SITE CODE 2
HWY DIST 1	REGION 1
DRAWING NUMBER TE-03042-7	



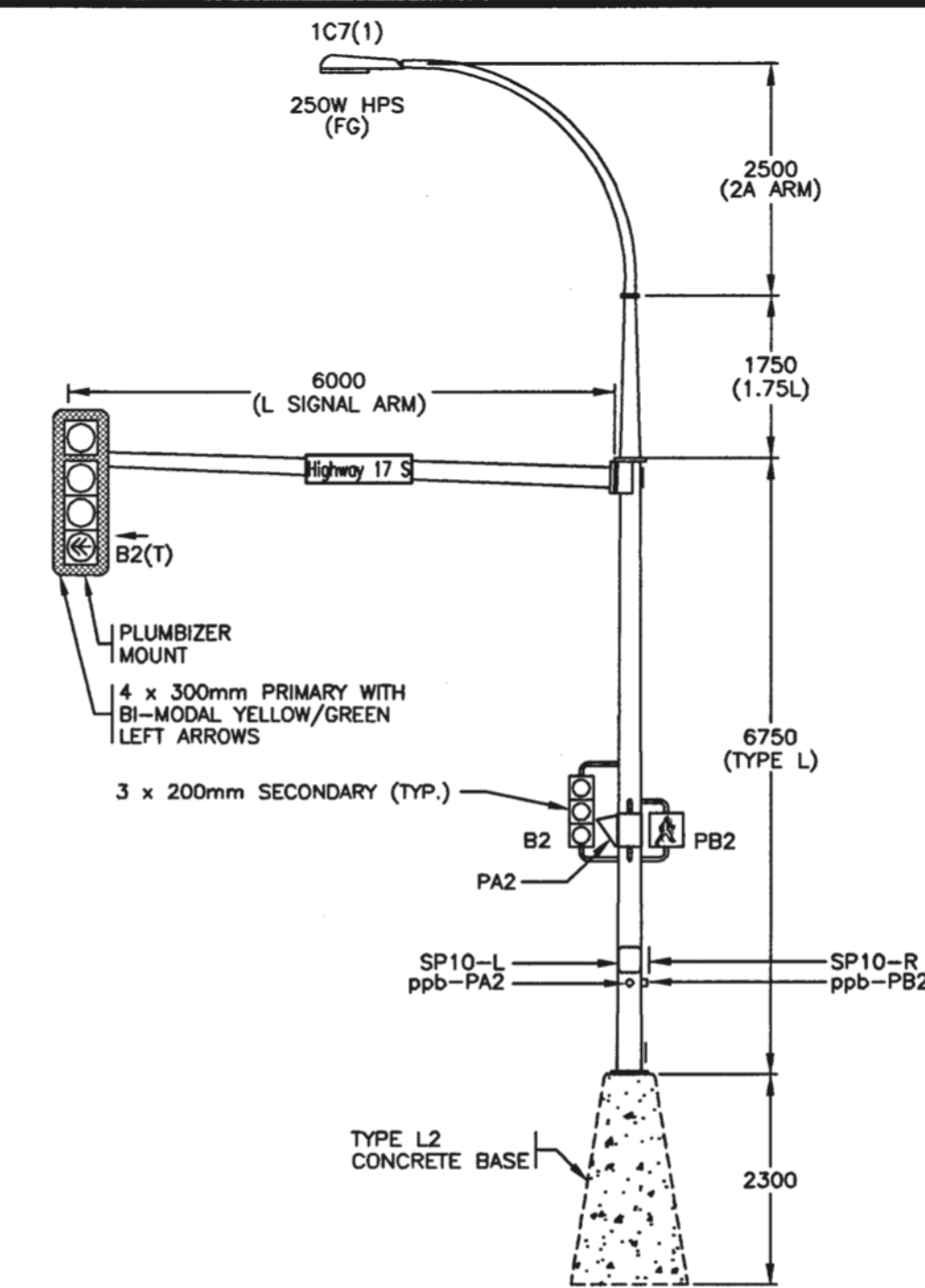
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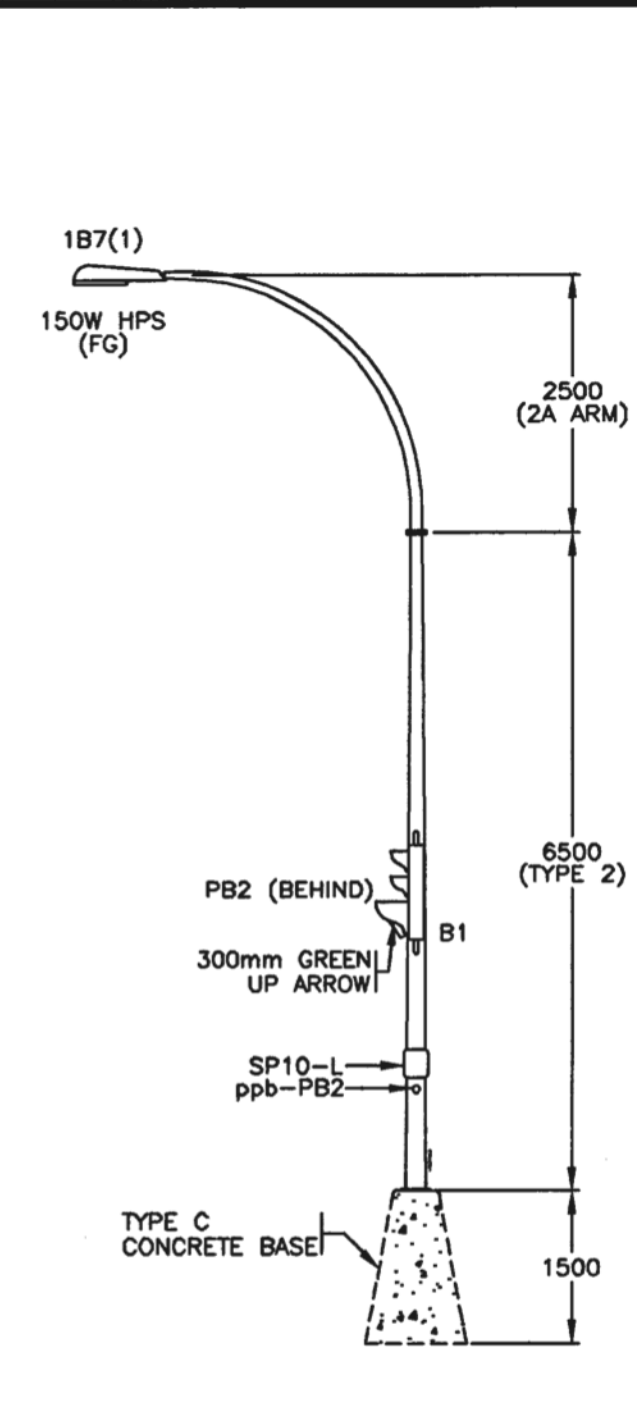
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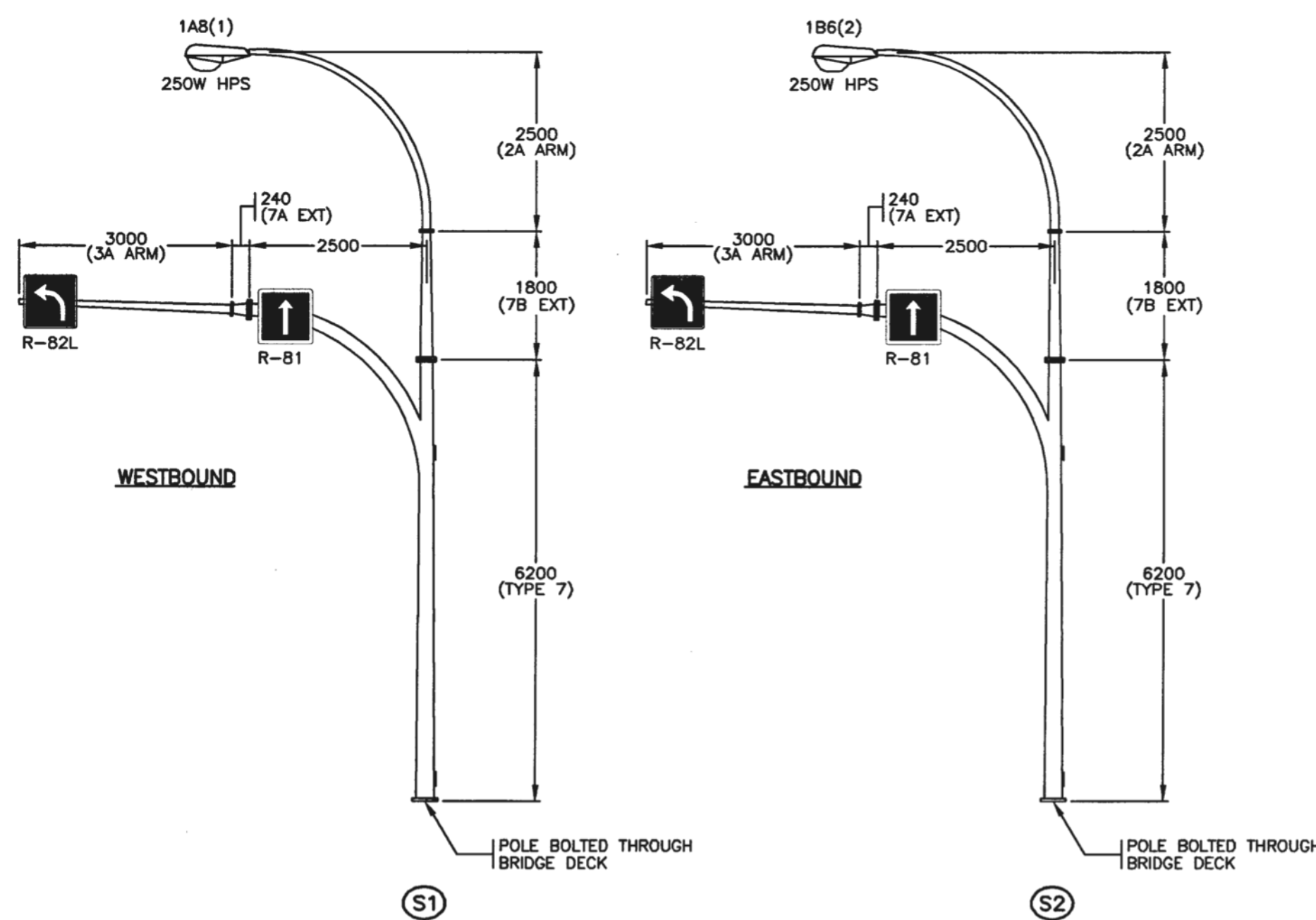
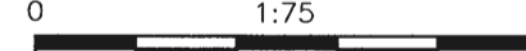


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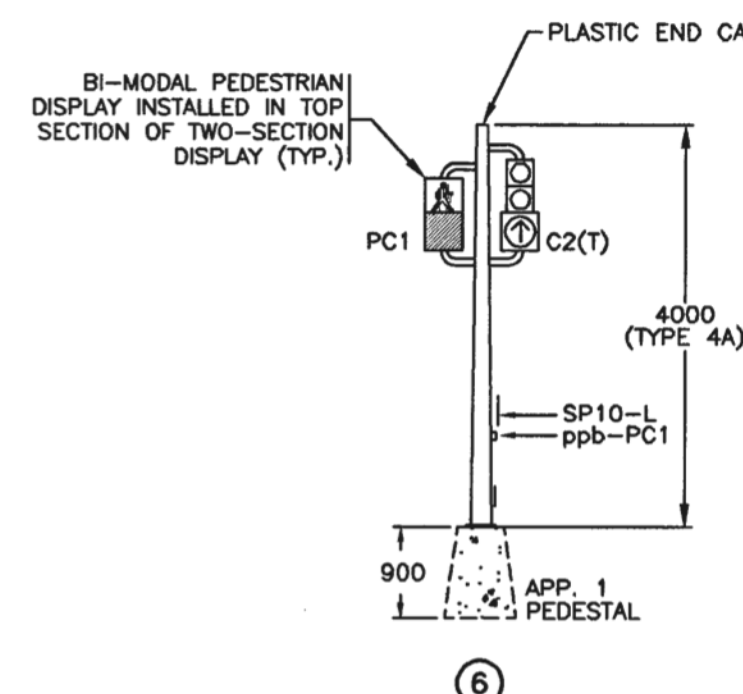


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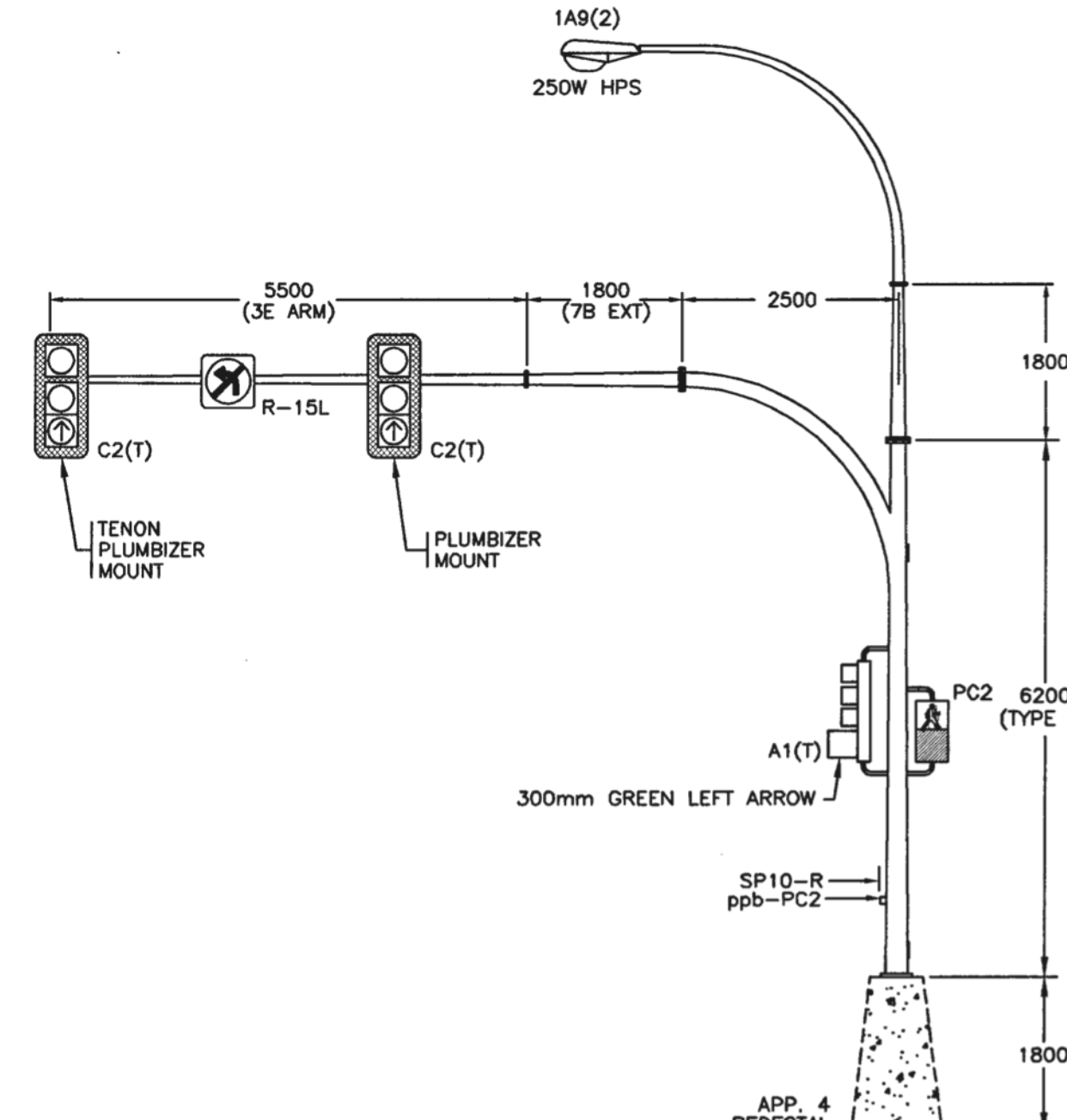
ELEVATIONS - ROYAL OAK I/C WEST



LANE USE SIGN POLES
ON BRIDGE DECK

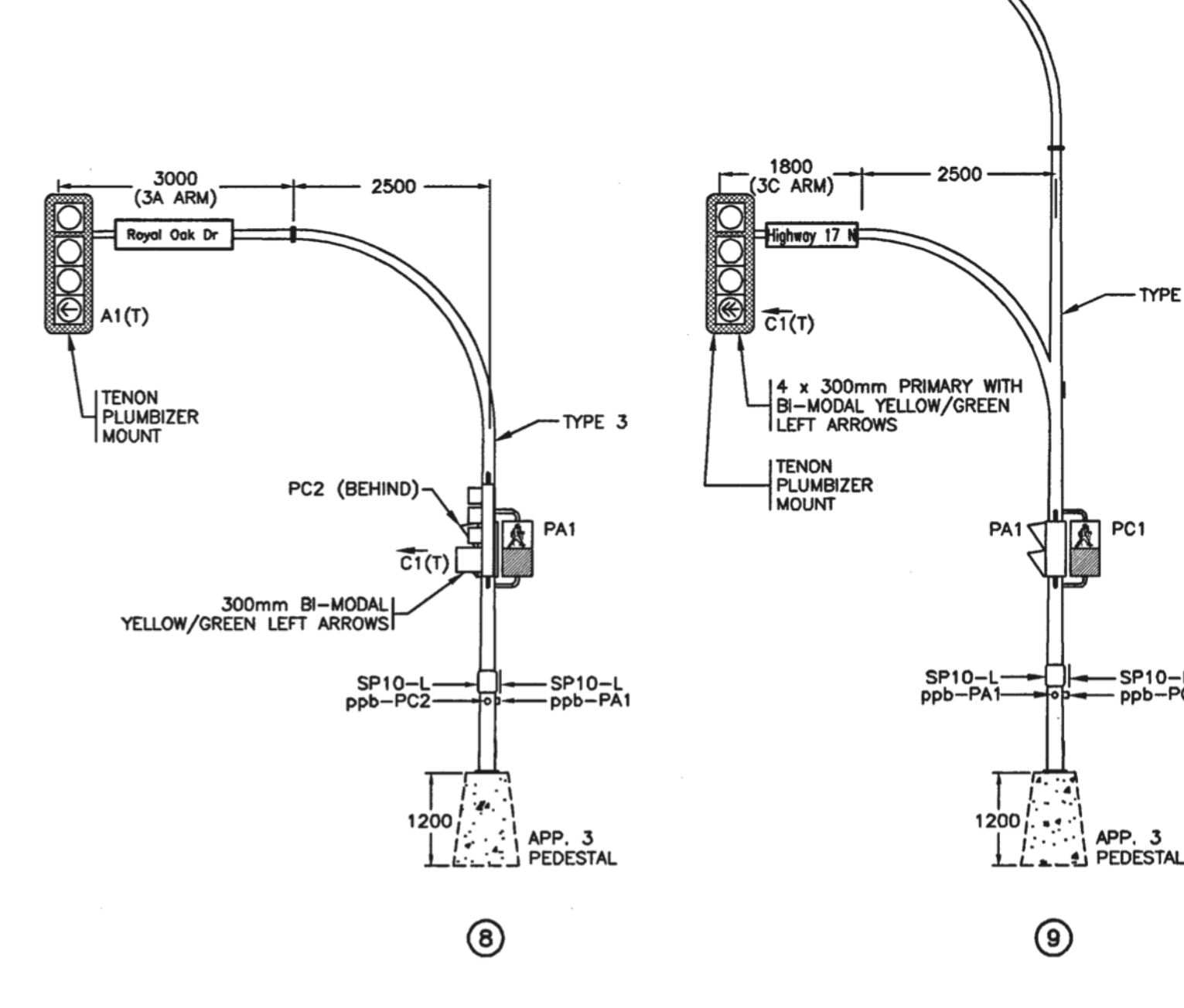


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⑦

ELEVATIONS - ROYAL OAK I/C EAST



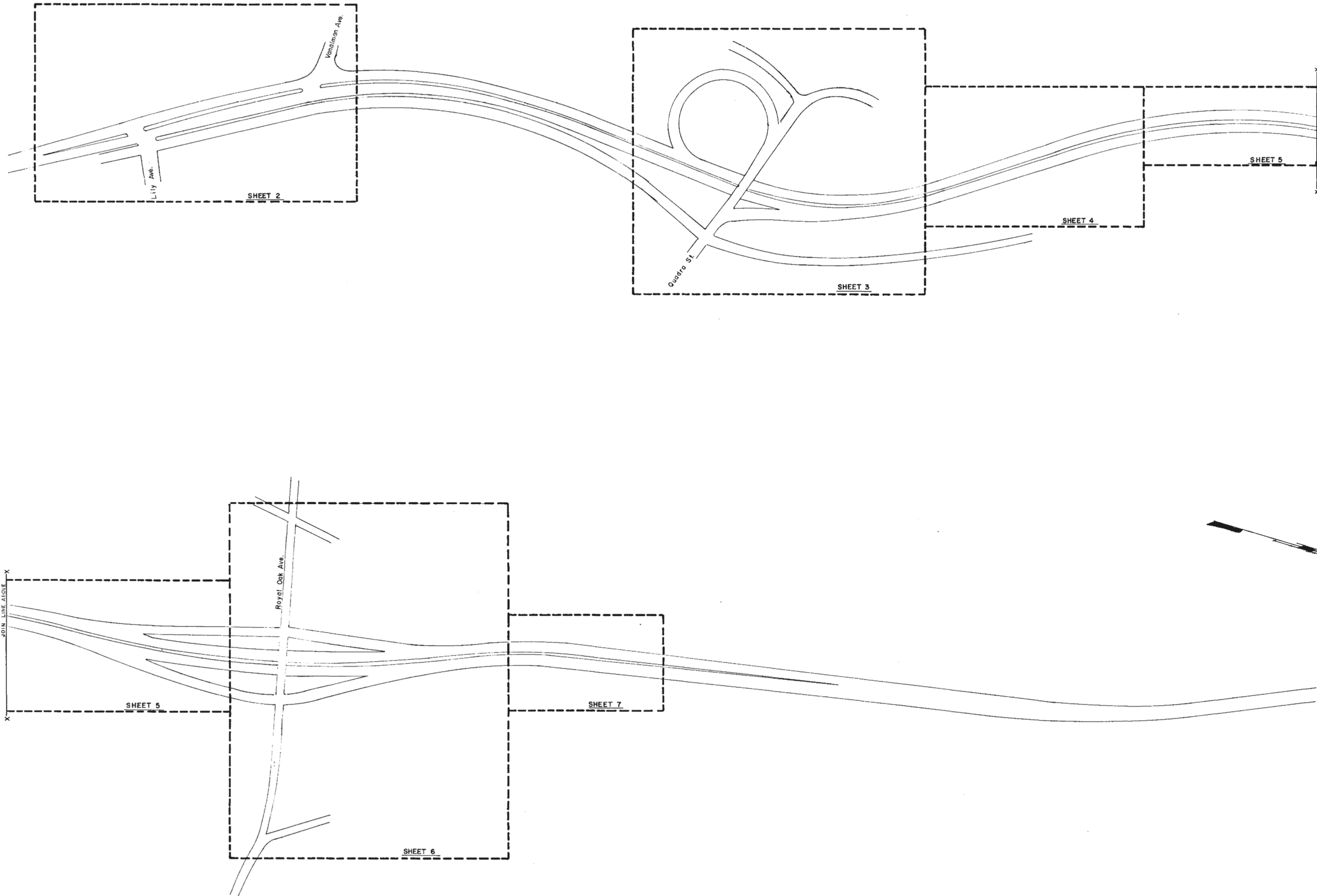
SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART,
ON THE BASIS OF INFORMATION COMPILED AND FURNISHED
BY OTHERS. AS A RESULT THE ENGINEER WILL NOT BE
RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE
BEEN INCORPORATED INTO THIS DOCUMENT.

REFER TO SHEET 1 FOR NOTES

ALL DIMENSIONS ARE IN MILLIMETERS
UNLESS NOTED OTHERWISE

DESIGNED BY _____ DATE _____ CHECKED BY <i>h/p</i> DATE <i>16 Sep 03</i>		MINISTRY OF TRANSPORTATION ELECTRICAL ENGINEERING CENTRE	
M.O.T. ELECTRICAL DESIGN REVIEW _____ DATE _____		TRAFFIC SIGNAL AND LIGHTING INSTALLATION ROUTE 17 AT ROYAL OAK INTERCHANGE SANNICH	
REV. DATE DESCRIPTION DRAWN		ELEVATIONS	
SEPO3 DRAWING ISSUED - RECORD DRAWING NJP		ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)	
		<i>Abid Swi</i> DATE <i>Sep 16/03</i>	
		SHEET NUMBER SITE CODE HWY DIST REGION DRAWING NUMBER	
		SHEET 8 OF 8 2 1 TE-03042-8	



L E G E N D
(ANY SYMBOLS WHICH ARE FILLED IN SOLID DENOTE EXIST. ITEMS)

- LUMINAIRE POLE
- DAVIT MOUNTED OVERLANE SIGNAL
- COMB. LUMINAIRE POLE WITH SIGNAL ARM
- SIGNAL POLE WITH SIDE MOUNTED VEHICLE OR PED. HEAD
- SIGNAL POLE WITH PEDESTRIAN PUSH BUTTON
- SIGNAL POLE WITH CONTROLLER OR SERVICE PANEL
- POST TOP MOUNTED SIGNAL
- CONDUIT STUB
- BACK BUY

- JUNCTION BOX (TYPE 1)
- JUNCTION BOX (TYPE 2)
- JCT. BOX (TYPE 3)
- JCT. BOX (TYPE 4)
- JCT. BOX (TYPE 5) - NOTE 'S' SPECIFIES STEEL LID

- YELLOW & RED OVERHEAD BEACON
- A, A1, A2, B, B1, B2 SEPARATE VEHICLE SIGNAL PHASES
- C, C1, C2 ETC. SEPARATE VEHICLE SIGNAL PHASES
- PA, PB, PC PED. SIGNAL PHASES (SUBSCRIPT INDICATES PARENT VEHICLE PHASE)

- VEHICLE DETECTOR LOOP
- TELEPHONE POLE
- HYDRO
- GAS VALVE
- WATER VALVE
- FIRE HYDRANT
- CATCH BASIN
- MANHOLE
- ROAD SIGN

- CURBED ISLAND
- EDGE OF SIDEWALK OR SHOULDER
- GAS MAIN
- SANITARY SEWER LINE
- WATER MAIN
- PROPERTY LINE
- STORM SEWER

- YELLOW POST MOUNTED FLASHER
- UNDERGROUND CONDUIT WITH 3 CONDUCTORS

- P.V.C. TYPE 2 P.V.C. UNDERGROUND DUCT.
- R.C. RIGID CONDUIT
- P.C. POLYETHYLENE CONDUIT
- S.C. RUBBER MODIFIED STYRENE CONDUIT
- F.C. FLEXIBLE CONDUIT (LIQUID TIGHT)
- EXISTING CONDUIT RUN

- SHOULDER MOUNTED SIGN
- DAVIT MOUNTED SIGN
- SIGN BRIDGE
- ILLUMINATED SIGN

201027

BRITISH COLUMBIA DEPARTMENT OF HIGHWAYS
TRAFFIC BRANCH

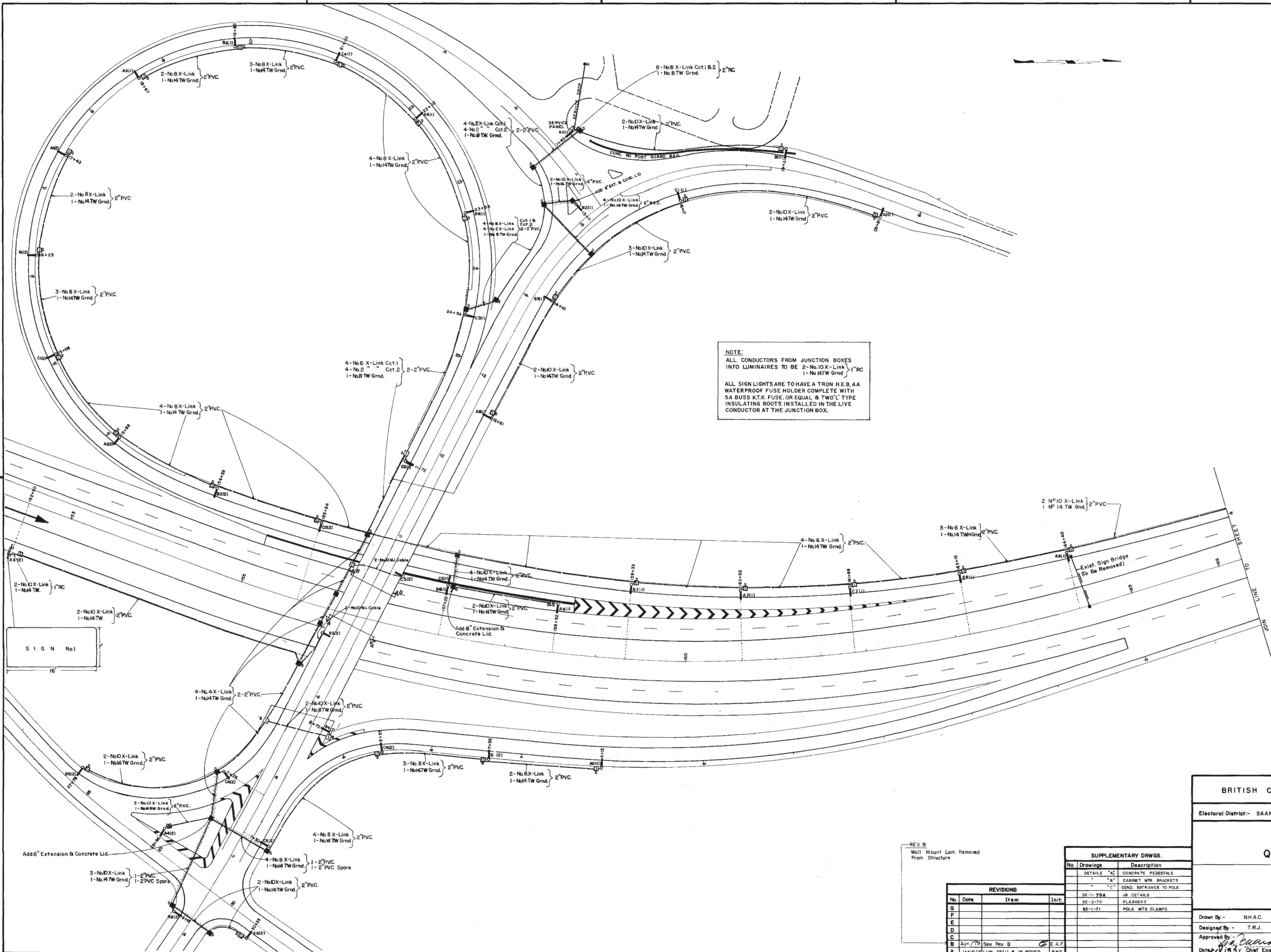
Electoral District:- Saanich And The Islands Supply Voltage:- 120 / 208 V 3Ø

PROJECT
MISC. LIGHTING HWY. 17

DRAWING
KEY PLAN

Drawn By:- D.P.Y. Date:- AUG/1971. Drawing No. E-7041-1
Designed By:- I.R.J. Sheet No. 1 Of 11
Approved By:- *[Signature]* Scale:- 1" = 300'
Date: 10/1/71 Chief Engineer

REVISIONS				SUPPLEMENTARY DRWGS.	
No.	Date	Item	Init.	No. Drawings	Description
G				DETAIL "A"	CONC. PEDESTALS
F				"B"	CABINET MTS. BRACKETS
E				"C"	COND. ENTRANCE TO POLE
D				SE-1-70A	JB. DETAILS
C				SE-4-70	POST FLASHERS
B				SE-1-71	POLE MTS. CLAMP
A					



LEGEND (ANY SYMBOLS WHICH ARE FILLED IN SOLID DENOTE EXIST. ITEMS)

- LUMINAIRE POLE
- DAVIT MOUNTED OVERLANE SIGNAL
- COMB. LUMINAIRE POLE WITH SIGNAL ARM
- SIGNAL POLE WITH SIDE MOUNTED VEHICLE OR PED. HEAD
- SIGNAL POLE WITH PEDESTRIAN PUSH BUTTON
- SIGNAL POLE WITH CONTROLLER OR SERVICE PANEL
- POST TOP MOUNTED SIGNAL
- CONDUIT STUB
- BACK GUY

- JUNCTION BOX (TYPE 1)
- JUNCTION BOX (TYPE 2)
- JCT. BOX (TYPE 3)
- JCT. BOX (TYPE 4)
- JCT. BOX (TYPE 5) - NOTE: SPECIFIED STEEL LID

- YELLOW & RED OVERHEAD BEACON
- A, A1, A2, B, B1, B2 SEPARATE VEHICLE SIGNAL PHASES
- B, C, C1, C2 ETC. SEPARATE VEHICLE SIGNAL PHASES
- P, A, P, B, P, C PED. SIGNAL PHASES (SUBSCRIPT INDICATES PARENT VEHICLE PHASE)
- VEHICLE DETECTOR LOOP

- TELEPHONE POLE
- HYDRO
- GAS VALVE
- WATER VALVE
- FIRE HYDRANT
- CATCH BASIN
- MANHOLE
- ROAD SIGN

- CURBED ISLAND
- EDGE OF SIDEWALK OR SHOULDER
- GAS MAIN
- SANITARY SEWER LINE
- WATER MAIN
- PROPERTY LINE
- STORM SEWER
- YELLOW POST MOUNTED FLASHER
- UNDERGROUND CONDUIT WITH 3 CONDUCTORS
- P.V.C. TYPE 2 P.V.C. UNDERGROUND DUCT.
- R.C. RIGID CONDUIT
- P.C. POLYETHYLENE CONDUIT
- S.C. RUBBER MODIFIED STYRENE CONDUIT
- F.C. FLEXIBLE CONDUIT (LIQUID TIGHT)
- EXISTING CONDUIT RUN

- SHOULDER MOUNTED SIGN
- DAVIT MOUNTED SIGN
- SIGN BRIDGE
- ILLUMINATED SIGN

237826

BRITISH COLUMBIA DEPARTMENT OF HIGHWAYS
TRAFFIC BRANCH

Electoral District:- SAANICH & THE ISLANDS

Supply Voltage:- 120/208V 3Ø

PROJECT
MISC. LIGHTING HWY. 17
QUADRA INTERCHANGEDRAWING
SITE PLAN

Drawn By:- N.H.A.C.

Date:- AUG/71

Drawing No.

Designed By:- T.R.J.

Sheet No 3 Of 11

E-7041-3B

Approved By:-

Scale:- 1" = 50'

Date:-

Chief Engineer

REV. B
Wall Mount Lum. Removed
From Structure

REVISIONS			
No.	Date	Item	Init.
G			
F			
E			
D			
C			
B	Apr/79	See Rev. B	E.A.F.
A	JAN/72	LUM. CS(1) & 18 MOVED	RMS

SUPPLEMENTARY DRWGS.	
No.	Description
DETAILS "A"	CONCRETE PEDESTALS
"B"	CABINET W/RO BRACKETS
"C"	COND. ENTRANCE TO POLE
SE-1-70A	JB DETAILS
SE-2-70	FLASHERS
SE-1-71	POLE MTS CLAMPS

169+63 170 171+10 172+55 173+57 174 175 176

Exist. 2 - No. 2 X-Link
1 - No. 8 RW Grnd. } 2" PVC Exist.

Exist. 3 - No. 2 X-Link
1 - No. 8 RW Grnd. } 2" PVC Exist.










Exist. 4 - No. 2 X-Link
1 - No. 8 RW Grnd. } 2" PVC Exist.


New Pole & Luminaire.
Exist. Pedestal.

Exist. 4 - No. 2 X-Link
1 - No. 8 RW Grnd. } 2" PVC (Exist.)

Remove FE. Fitting &
Instal Threaded Plug.

Six Lums This Section To Be Changed To 250W H.P. Sodium.

	LUMINAIRE POLE
	DAVIT MOUNTED OVERLANE SIGNAL
	COMB LUMINAIRE POLE WITH SIGNAL ARM
	SIGNAL POLE WITH SIDE MOUNTED VEHICLE OR PED. HEAD
	SIGNAL POLE WITH PEDESTRIAN PUSH BUTTON
	SIGNAL POLE WITH CONTROLLER OR SERVICE PANEL
	POST TOP MOUNTED SIGNAL
	CONDUIT STUB
	BACK GUY

	YELLOW & RED OVERHEAD BEACON
A, A1, A2 B, B1, B2	SEPARATE VEHICLE SIGNAL PHASES
C, C1, C2 ETC.	SEPARATE VEHICLE SIGNAL PHASES
PA, PB, PC	PED. SIGNAL PHASES (SUBSCRIPT INDICATES PARENT VEHICLE PHASE)

	TELEPHONE POLE
	HYDRO
	GAS VALVE
	WATER VALVE
	FIRE HYDRANT
	CATCH BASIN
	MANHOLE
	ROAD SIGN

Diagram illustrating four types of sign mounting hardware:

- SHOULDER MOUNTED SIGN
- DAVIT MOUNTED SIGN
- SIGN BRIDGE
- ILLUMINATED SIGN

BRITISH COLUMBIA DEPARTMENT OF HIGHWAYS
TRAFFIC BRANCH


PROJECT
MISC. LIGHTING HWY.17
QUADRA INTERCHANGE

SITE PLAN

STA 166+28 TO STA. 179+00

Designed By:- T.R.J.	Sheet No. 4 Of 11
----------------------	-------------------

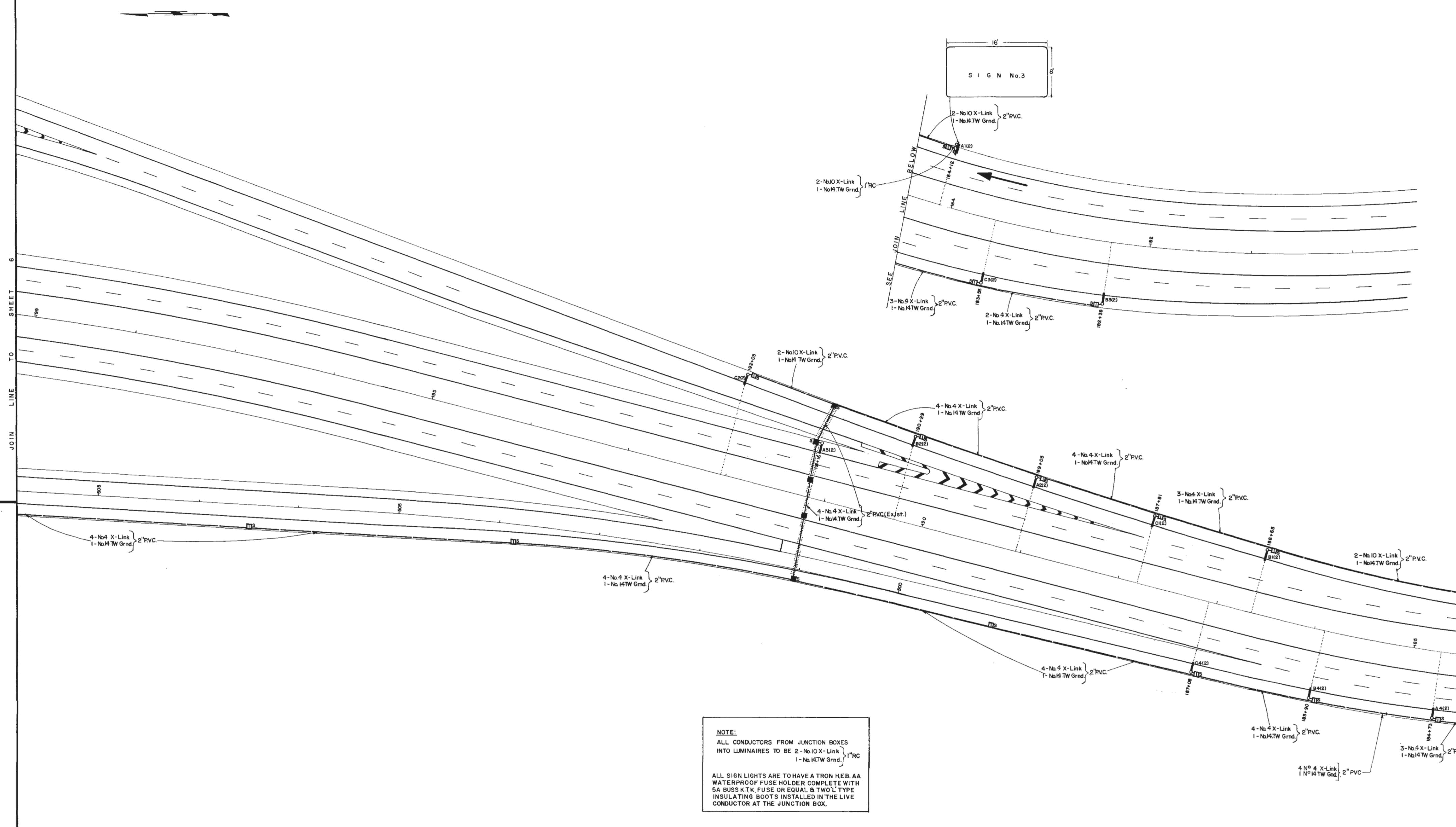
E-7041-

Approved By:  Scale: 1" = 50'

REVISIONS			
No.	Date	Item	Initials
G			
F			
E			
D			
C			
B			
A			

SUPPLEMENTARY DRWGS.		
No.	Drawings	Description
	DETAIL "A"	CONC. PEDESTALS
	" " "B"	CABINET MTG. BRACKETS
	" " "C"	COND. ENTRANCE TO POLE
SE-1-70A		JB. DETAILS
SE-2-70		POST FLASHERS
SE-1-71		POLE MTG. CLAMP

JOIN LINE TO SHEET 6



NOTE:
ALL CONDUCTORS FROM JUNCTION BOXES INTO LUMINAIRES TO BE 2-No 10 X-Link 1-No 14 TW Grnd 1" RC
ALL SIGN LIGHTS ARE TO HAVE A TRON H.E.B. AA WATERPROOF FUSE HOLDER COMPLETE WITH 5A BUSS FUSE OR EQUAL & TWO 1" TYPE INSULATING BOOTS INSTALLED IN THE LIVE CONDUCTOR AT THE JUNCTION BOX.

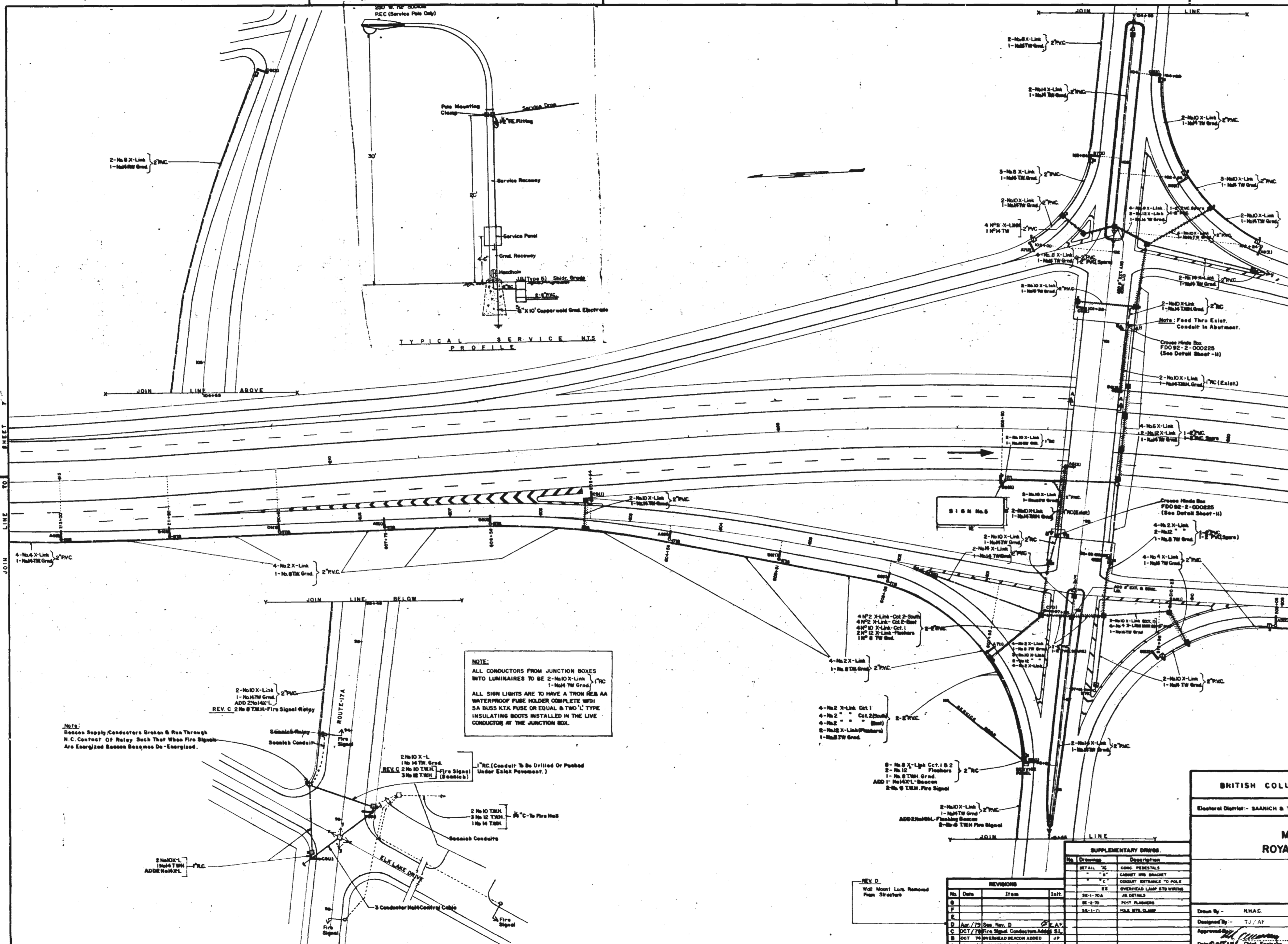
- L E G E N D**
(ANY SYMBOLS WHICH ARE FILLED IN SOLID DENOTE EXIST. ITEMS)
- LUMINAIRE POLE
 - DAVIT MOUNTED OVERLANE SIGNAL
 - COMB. LUMINAIRE POLE WITH SIGNAL ARM
 - SIGNAL POLE WITH SIDE MOUNTED VEHICLE OR PED. HEAD
 - SIGNAL POLE WITH PEDESTRIAN PUSH BUTTON
 - SIGNAL POLE WITH CONTROLLER OR SERVICE PANEL
 - POST TOP MOUNTED SIGNAL
 - CONDUIT STUB
 - BACK BUY
 - JUNCTION BOX (TYPE 1)
 - JUNCTION BOX (TYPE 2)
 - JCT. BOX (TYPE 3)
 - JCT. BOX (TYPE 4)
 - JCT. BOX (TYPE 5) - NOTE 5 SPECIFIES STEEL LID
 - YELLOW & RED OVERHEAD BEACON
 - A, A1, A2, B, B1, B2 SEPARATE VEHICLE SIGNAL PHASES
 - C, C1, C2 ETC. SEPARATE VEHICLE SIGNAL PHASES
 - PA, PB, PC PED. SIGNAL PHASE (SUBSCRIPT INDICATES PARENT VEHICLE PHASE)
 - VEHICLE DETECTOR LOOP
 - TELEPHONE POLE
 - HYDRO
 - GAS VALVE
 - WATER VALVE
 - FIRE HYDRANT
 - CATCH BASIN
 - MANHOLE
 - ROAD SIGN
 - CURBED ISLAND
 - EDGE OF SIDEWALK OR SHOULDER
 - GAS MAIN
 - SANITARY SEWER LINE
 - WATER MAIN
 - PROPERTY LINE
 - STORM SEWER
 - YELLOW POST MOUNTED FLASHER
 - UNDERGROUND CONDUIT WITH 3 CONDUCTORS
 - PVC. TYPE 2 PVC. UNDERGROUND DUCT.
 - RC. RIGID CONDUIT
 - P.C. POLYETHYLENE CONDUIT
 - SC. RUBBER MODIFIED STYRENE CONDUIT
 - F.C. FLEXIBLE CONDUIT (LIQUID TIGHT)
 - EXISTING CONDUIT RUN
 - SHOULDER MOUNTED SIGN
 - DAVIT MOUNTED SIGN
 - SIGN BRIDGE
 - ILLUMINATED SIGN

225033

BRITISH COLUMBIA DEPARTMENT OF HIGHWAYS TRAFFIC BRANCH			
Electoral District:- SAANICH & THE ISLANDS		Supply Voltage:- 120/208V 3Ø	
PROJECT MISC. LIGHTING HWY. 17 ROYAL OAK INTERCHANGE			
DRAWING SITE PLAN 185+45 TO STA. 199+20			
Drawn By:- NH.A.C.	Date:- AUG/1971	Drawing No.	
Designed By:- TRJ	Sheet No. 5 Of 11	E-7041-5	
Approved By:- <i>[Signature]</i>	Scale:- 1"=50'		
Date: 10/1/71	Chief Engineer		

REVISIONS			
No.	Date	Item	Init.
G			
F			
E			
D			
C			
B			
A			

SUPPLEMENTARY DRWGS.	
No.	Description
DETAIL "A"	COMB. PEDESTALS
"B"	CABINET MTS. BRACKETS
"C"	COND. ENTRANCE TO POLE
SE-1 TO A	UP DETAILS
SE-2 TO	POST FLASHERS
SE-1 TO	POLE MTS. CLAMP



- LEGEND**
(ANY SYMBOLS WHICH ARE FILLED IN SOLID DENOTE EXIST. ITEMS)
- LUMINAIRE POLE
 - DAINT MOUNTED SIGNAL
 - CONC. LUMINAIRE POLE WITH SIGNAL ARM
 - SIGNAL POLE WITH SIDE MOUNTED VEHICLE OR PED. HEAD
 - SIGNAL POLE WITH PEDESTRIAN PUSH BUTTON
 - SIGNAL POLE WITH CONTROLLER OR SERVICE PANEL
 - POST TOP MOUNTED SIGNAL
 - CONDUIT STUD
 - RACE BAY
 - UNDERPASS LIGHTING
 - JUNCTION BOX (TYPE I)
 - JUNCTION BOX (TYPE II)
 - JCT. BOX (TYPE III)
 - JCT. BOX (TYPE IV)
 - JCT. BOX (TYPE V) - NOTE: SPECIFIED STEEL LID
 - YELLOW & RED OVERHEAD BEACON
 - A, A1, A2, B, B2, B3 SEPARATE VEHICLE SIGNAL PHASES
 - C, C1, C2, ETC. SEPARATE VEHICLE SIGNAL PHASES
 - PA, PB, PC PED. SIGNAL PHASES (SUBSCRIPT INDICATES PARALLEL VEHICLE PHASE)
 - VEHICLE DETECTOR LOOP
 - TELEPHONE POLE
 - HYDRO
 - GAS VALVE
 - WATER VALVE
 - FIRE HYDRANT
 - CATCH BASIN
 - MANHOLE
 - ROAD SIGN
 - CURBED ISLAND
 - EDGE OF SIDEWALK OR SHOULDER
 - RAIL RAIL
 - GASTARY BRIDGE LINE
 - WATER MAIN
 - PROPERTY LINE
 - STORM SEWER
 - YELLOW POST MOUNTED FLASHER
 - UNDERGROUND CONDUIT WITH 3 CONDUCTORS
 - PVC TYPE 2 PVC UNDERGROUND DUCT
 - RE HIGH CONDUIT
 - PC POLYETHYLENE CONDUIT
 - SC RUBBER MODIFIED STYRENE CONDUIT
 - FC FLEXIBLE CONDUIT (LIQUID TIGHT)
 - EXISTING CONDUIT RUN
 - SHOULDER MOUNTED SIGN
 - DAINT MOUNTED SIGN
 - SIGN BRIDGE
 - ILLUMINATED SIGN

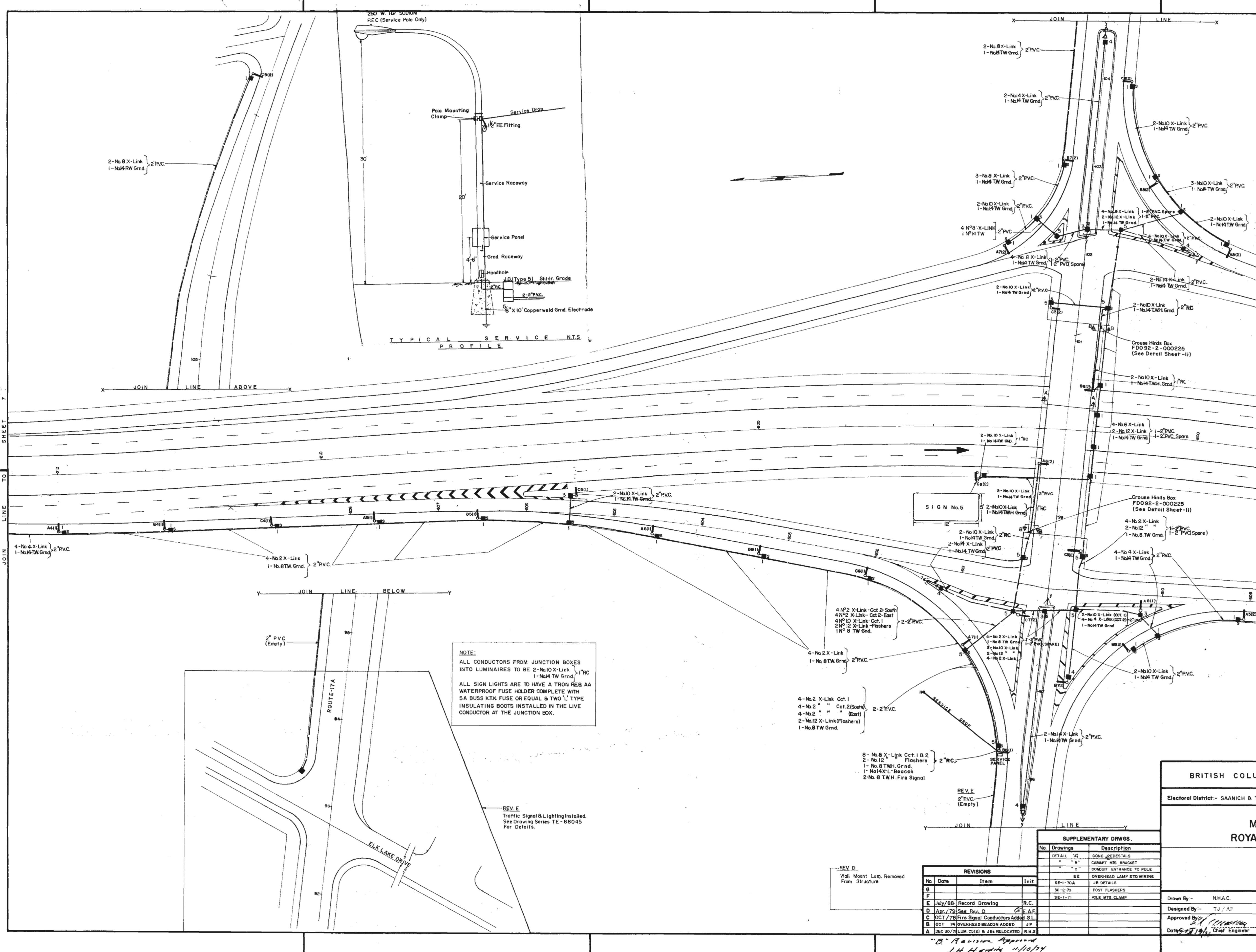
237827

BRITISH COLUMBIA DEPARTMENT OF HIGHWAYS TRAFFIC BRANCH			
Electoral District: SAANICH & THE ISLANDS		Supply Voltage: 120/208V 50	
PROJECT MISC. LIGHTING HWY. 17 ROYAL OAK INTERCHANGE			
DRAWING SITE PLAN TYPICAL PROFILE			
Drawn By: N.H.C.	Date: AUG/71	Drawing No.	
Designed By: T.J./AF	Sheet No. 6 OF 11	Scale: 1" = 50'	
Approved: [Signature]	Checked: [Signature]	E-7041-6	

REVISIONS			
No.	Date	Item	Init.
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

SUPPLEMENTARY DRWG.	
No.	Description
1	CONC. PEDESTALS
2	CABINET UPS BRACKET
3	CONDUIT ENTRANCE TO POLE
4	OVERHEAD LAMP STD. WIRING
5	JB DETAILS
6	POST FLASHERS
7	WALK. MTR. SLAMP

"B" Revision Approved
J.H. Harding 11/10/71



- LEGEND**
(ANY SYMBOLS WHICH ARE FILLED IN SOLID DENOTE EXIST. ITEMS)
- LUMINAIRE POLE
 - DAVIT MOUNTED OVERLANE SIGNAL
 - COMB. LUMINAIRE POLE WITH SIGNAL ARM
 - SIGNAL POLE WITH SIDE MOUNTED VEHICLE OR PED. HEAD
 - SIGNAL POLE WITH PEDESTRIAN PUSH BUTTON
 - SIGNAL POLE WITH CONTROLLER OR SERVICE PANEL
 - POST TOP MOUNTED SIGNAL
 - CONDUIT STUB
 - BACK GUY
 - UNDERPASS LIGHTING
 - JUNCTION BOX (TYPE 1)
 - JUNCTION BOX (TYPE 2)
 - JCT. BOX (TYPE 3)
 - JCT. BOX (TYPE 4)
 - JCT. BOX (TYPE 5) - NOTE: 'S' SPECIFIES STEEL LID
 - YELLOW & RED OVERHEAD BEACON
 - A, A1, A2, B, B1, B2 SEPARATE VEHICLE SIGNAL PHASES
 - C, C1, C2 ETC. SEPARATE VEHICLE SIGNAL PHASES
 - PA, PB, PC PED. SIGNAL PHASE (SUBSCRIPT INDICATES PARENT VEHICLE PHASE)
 - VEHICLE DETECTOR LOOP
 - TELEPHONE POLE
 - HYDRO
 - GAS VALVE
 - WATER VALVE
 - FIRE HYDRANT
 - CATCH BASIN
 - MANHOLE
 - ROAD SIGN
 - CURBED ISLAND
 - EDGE OF SIDEWALK OR SHOULDER
 - GAS MAIN
 - SANITARY SEWER LINE
 - WATER MAIN
 - PROPERTY LINE
 - STORM SEWER
 - YELLOW POST MOUNTED FLASHER
 - UNDERGROUND CONDUIT WITH 3 CONDUCTORS
 - PVC: TYPE 2 PVC UNDERGROUND DUCT.
 - RC: RIGID CONDUIT
 - PC: POLYETHYLENE CONDUIT
 - SC: RUBBER MODIFIED STYRENE CONDUIT
 - FC: FLEXIBLE CONDUIT (LIQUID TIGHT)
 - EXISTING CONDUIT RUN
 - SHOULDER MOUNTED SIGN
 - DAVIT MOUNTED SIGN
 - SIGN BRIDGE
 - ILLUMINATED SIGN

Rev-E-330394
~~237827~~

NOTE:
ALL CONDUCTORS FROM JUNCTION BOXES INTO LUMINAIRES TO BE 2-No. 10 X-Link 1-No. 14 TW Grd. 1" RC
ALL SIGN LIGHTS ARE TO HAVE A TRON HEB AA WATERPROOF FUSE HOLDER COMPLETE WITH 5A BUSS KTK FUSE OR EQUAL & TWO 'L' TYPE INSULATING BOOTS INSTALLED IN THE LIVE CONDUCTOR AT THE JUNCTION BOX.

REV. E
Traffic Signal & Lighting Installed.
See Drawing Series TE-88045
For Details.

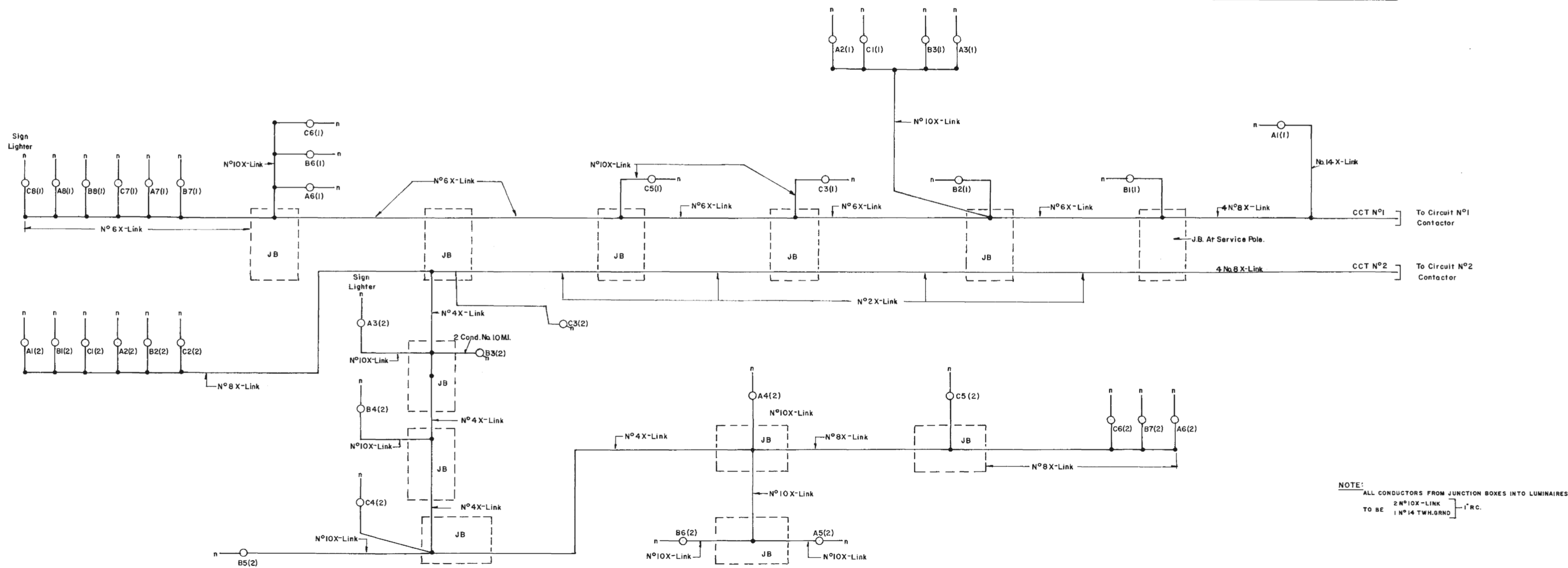
REV. D
Wall Mount Lum. Removed
From Structure

REVISIONS			
No.	Date	Item	Init.
G			
F			
E	July/88	Record Drawing	R.C.
D	Apr./79	See Rev. D	C.E.A.F.
C	OCT/78	Fire Signal Conductors Added	S.L.
B	OCT/74	OVERHEAD BEACON ADDED	J.P.
A	DEC/30/74	LUM. C5(2) & J5(2) RELOCATED	R.H.S.

SUPPLEMENTARY DRWS.	
No.	Description
DETAIL "A"	CONC. @ EDESTALS
"B"	CABINET AND BRACKET
"C"	CONDUIT ENTRANCE TO POLE
E2	OVERHEAD LAMP STD. WIRING
SE-1-70A	J.B. DETAILS
SE-2-70	POST FLASHERS
SE-1-71	POLE MTS. CLAMP

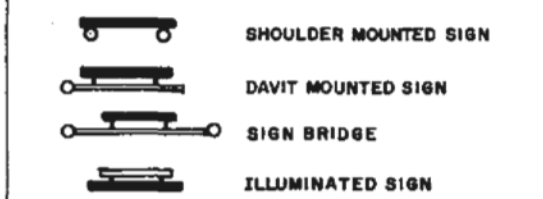
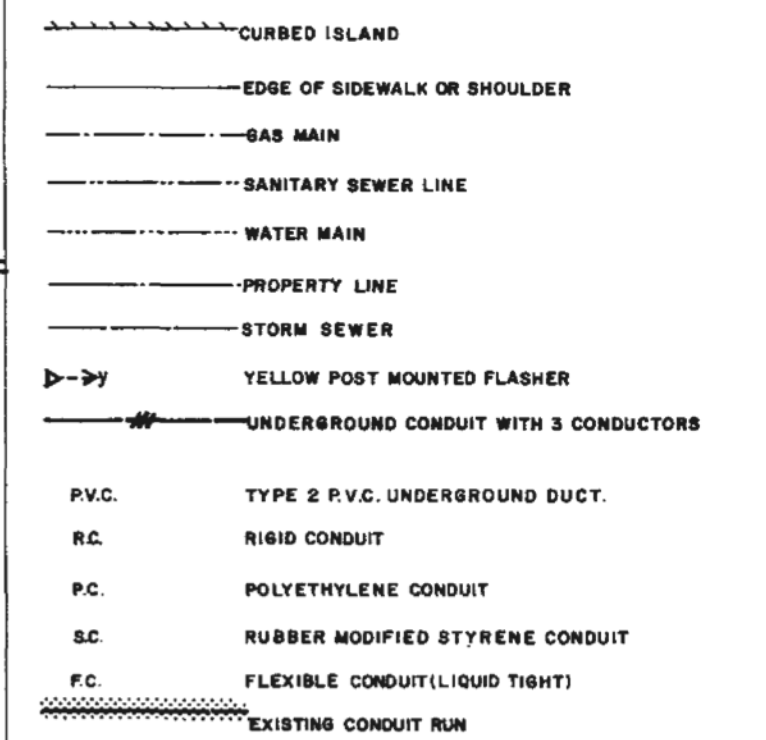
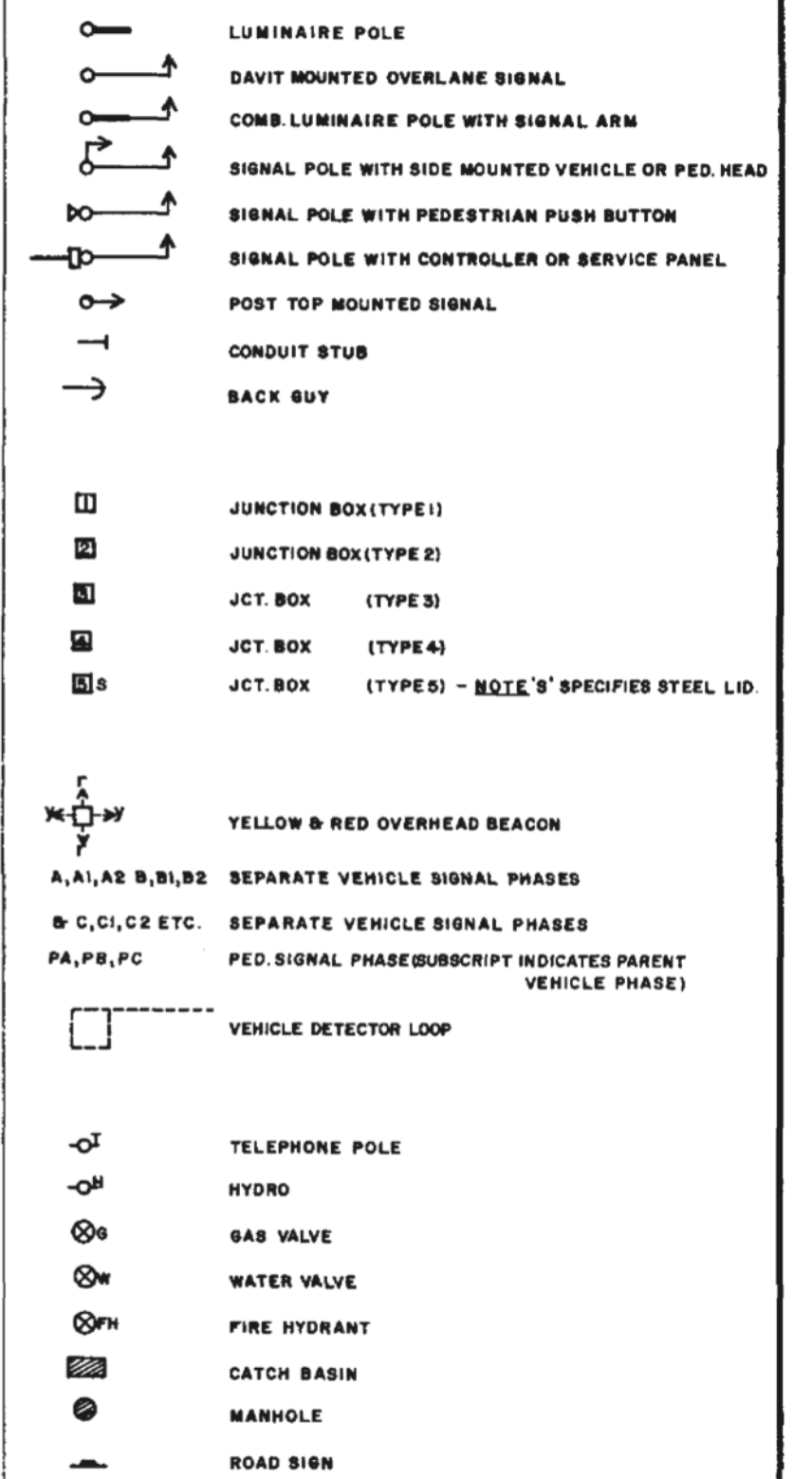
BRITISH COLUMBIA DEPARTMENT OF HIGHWAYS TRAFFIC BRANCH			
Electoral District:- SAANICH & THE ISLANDS		Supply Voltage:- 120/208V 3Ø	
PROJECT MISC. LIGHTING HWY. 17 ROYAL OAK INTERCHANGE			
DRAWING SITE PLAN TYPICAL PROFILE			
Drawn By:- N.H.A.C.	Date:- AUG/71	Drawing No.	
Designed By:- T.J. AF	Sheet No. 6 Of 11	E-7041-60E	
Approved By: [Signature]	Scale:- 1" = 50'	Date: 6/2/81 Chief Engineer	

QUADRA INTERCHANGE



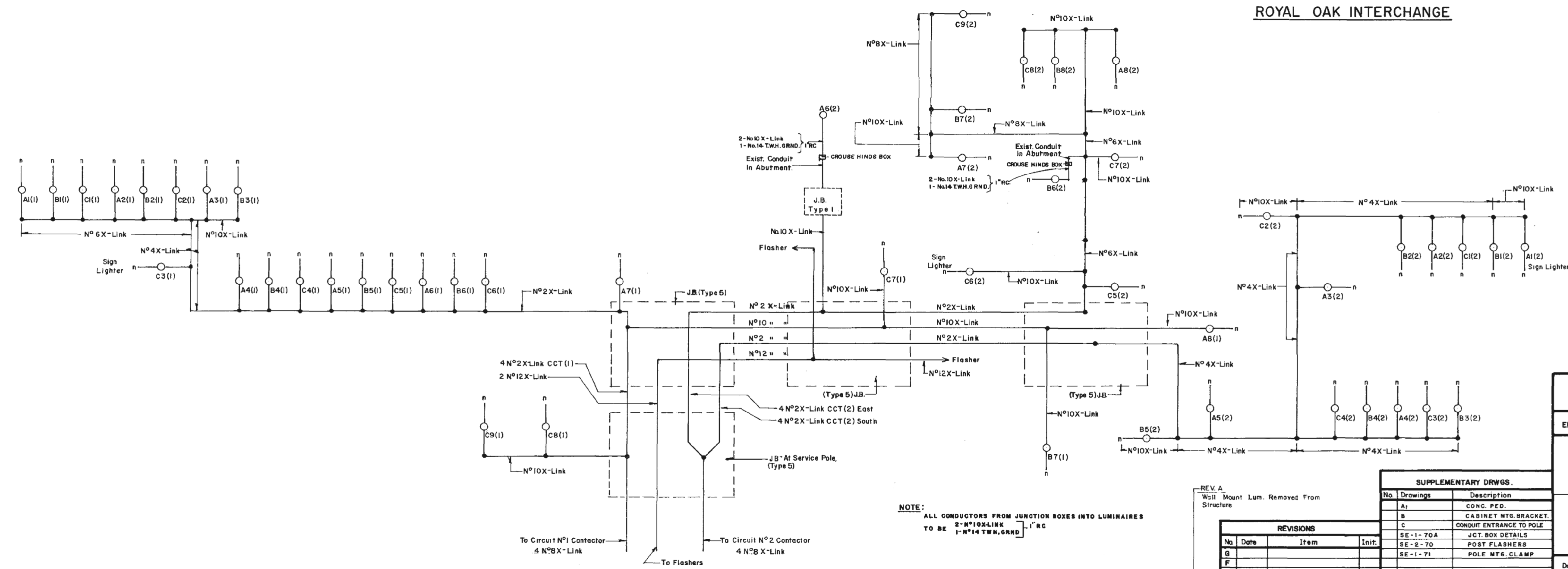
LEGEND

(ANY SYMBOLS WHICH ARE FILLED IN SOLID DENOTE EXIST. ITEMS)



237828

ROYAL OAK INTERCHANGE

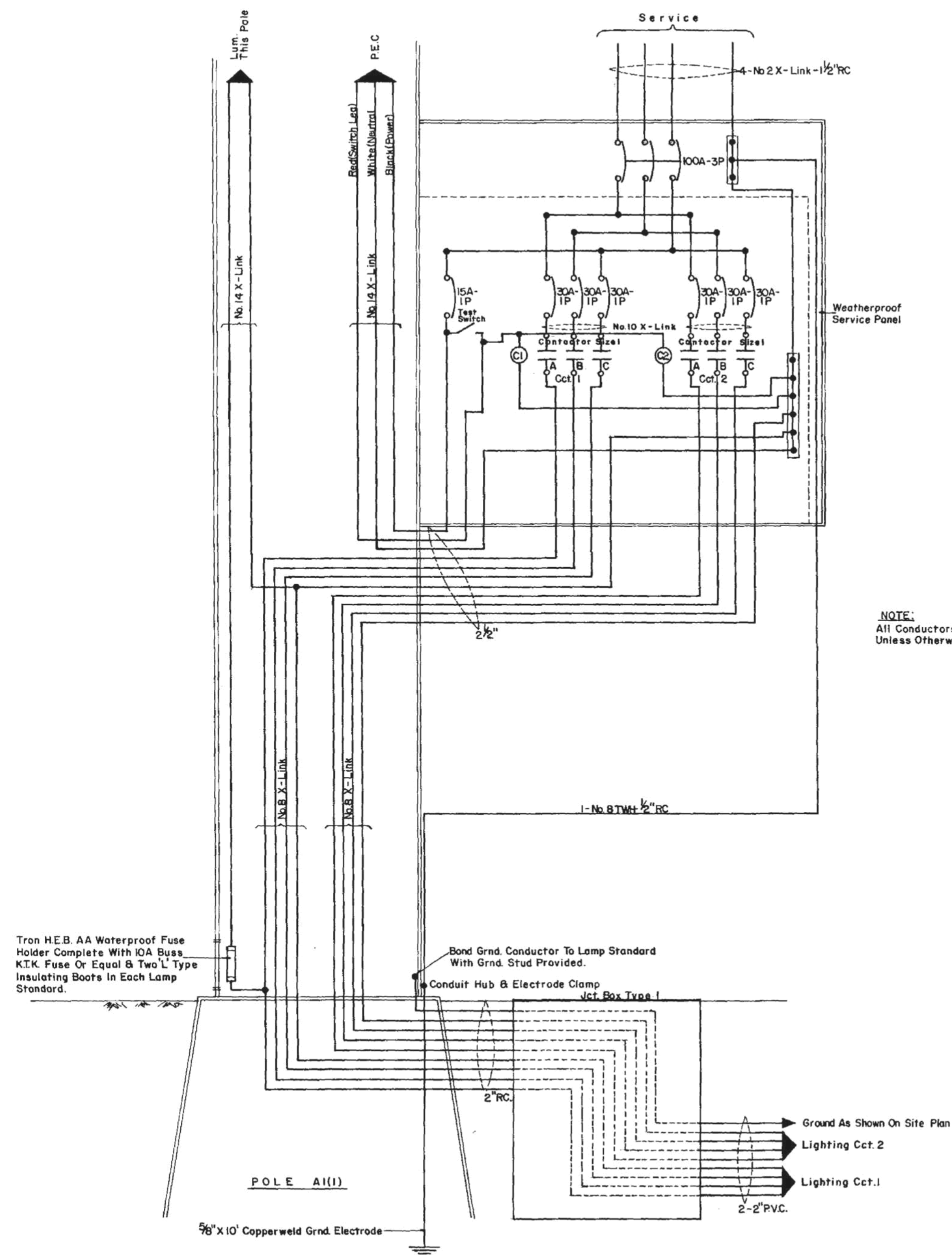


REV. A
Wall Mount Lum. Removed From Structure

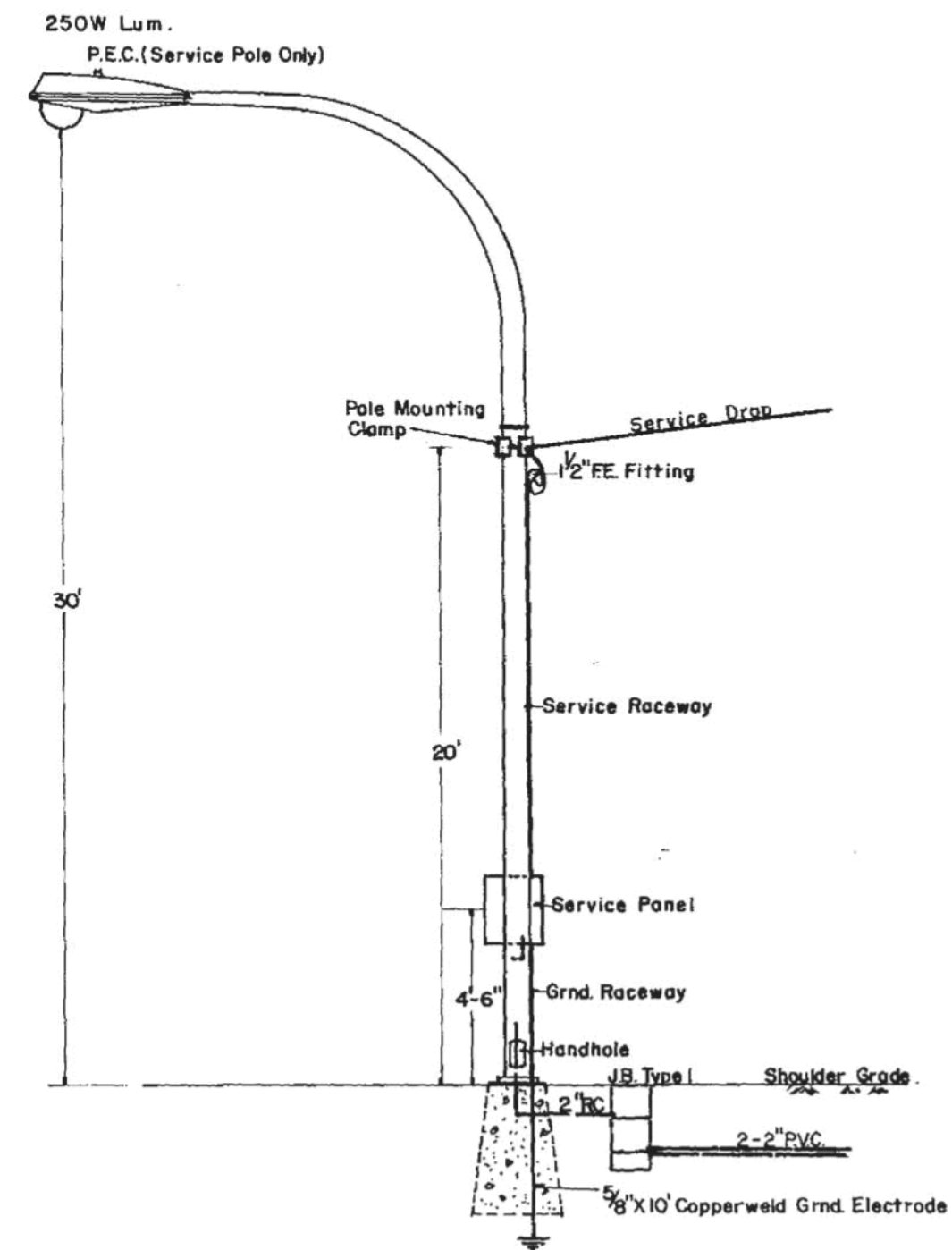
REVISIONS			
No.	Date	Item	Init.
G			
F			
E			
D			
C			
B			
A	Apr/79	See Rev. A	EAF

SUPPLEMENTARY DRWS.	
No. Drawings	Description
A1	CONC. PED.
B	CABINET MTS. BRACKET
C	CONDUIT ENTRANCE TO POLE
SE-1-70A	JCT. BOX DETAILS
SE-2-70	POST FLASHERS
SE-1-71	POLE MTS. CLAMP

BRITISH COLUMBIA DEPARTMENT OF HIGHWAYS TRAFFIC BRANCH		
Electoral District:- SAANICH & THE ISLANDS	Supply Voltage:- 120/208 V 3Ø	
PROJECT MISC. LIGHTING HWY. 17 QUADRA & ROYAL OAK INTERCHANGE		
DRAWING DISTRIBUTION SCHEMATICS		
Drawn By:- J. POTTER	Date:- AUG./71	Drawing No.
Designed By:- TRJ ERF	Sheet No. 8 Of 11	E-7041-8 A
Approved By: <i>[Signature]</i>	Scale:-	
Date: <i>[Signature]</i>	Chief Engineer	



NOTE:
All Conductors To Be No 14 X-Link
Unless Otherwise Specified.



TYPICAL SERVICE NTS.
PROFILE

LEGEND

(ANY SYMBOLS WHICH ARE FILLED IN SOLID DENOTE EXIST. ITEMS)

- LUMINAIRE POLE
- DAVIT MOUNTED OVERLANE SIGNAL
- COMB. LUMINAIRE POLE WITH SIGNAL ARM
- SIGNAL POLE WITH SIDE MOUNTED VEHICLE OR PED. HEAD
- SIGNAL POLE WITH PEDESTRIAN PUSH BUTTON
- SIGNAL POLE WITH CONTROLLER OR SERVICE PANEL
- POST TOP MOUNTED SIGNAL
- CONDUIT STUB
- BACK BUY

- JUNCTION BOX (TYPE 1)
- JUNCTION BOX (TYPE 2)
- JCT. BOX (TYPE 3)
- JCT. BOX (TYPE 4)
- JCT. BOX (TYPE 5) - NOTE 'S' SPECIFIES STEEL LID.

- ⊕ YELLOW & RED OVERHEAD BEACON
- A, A1, A2, B, B1, B2 SEPARATE VEHICLE SIGNAL PHASES
- C, C1, C2 ETC. SEPARATE VEHICLE SIGNAL PHASES
- PA, PB, PC PED. SIGNAL PHASE (SUBSCRIPT INDICATES PARENT VEHICLE PHASE)
- VEHICLE DETECTOR LOOP

- TELEPHONE POLE
- HYDRO
- GAS VALVE
- WATER VALVE
- FIRE HYDRANT
- CATCH BASIN
- MANHOLE
- ROAD SIGN

- CURBED ISLAND
- EDGE OF SIDEWALK OR SHOULDER
- GAS MAIN
- SANITARY SEWER LINE
- WATER MAIN
- PROPERTY LINE
- STORM SEWER
- YELLOW POST MOUNTED FLASHER
- UNDERGROUND CONDUIT WITH 3 CONDUCTORS
- P.V.C. TYPE 2 P.V.C. UNDERGROUND DUCT.
- R.C. RIGID CONDUIT
- P.C. POLYETHYLENE CONDUIT
- S.C. RUBBER MODIFIED STYRENE CONDUIT
- F.C. FLEXIBLE CONDUIT (LIQUID TIGHT)
- EXISTING CONDUIT RUN

- SHOULDER MOUNTED SIGN
- DAVIT MOUNTED SIGN
- SIGN BRIDGE
- ILLUMINATED SIGN

226039

BRITISH COLUMBIA DEPARTMENT OF HIGHWAYS TRAFFIC BRANCH

Electoral District:- SAANICH & THE ISLANDS Supply Voltage:- 120/208V 3Ø

PROJECT MISC. LIGHTING HWY. 17 QUADRA INTERCHANGE

DRAWING

SCHEMATIC & TYPICAL PROFILE

Drawn By:- NHAC Date:- AUG/71 Drawing No.
Designed By:- TRJ Sheet No. 9 Of 11
Approved By:- [Signature] Scale:- N/A
Date: 2/1/71, Chief Engineer

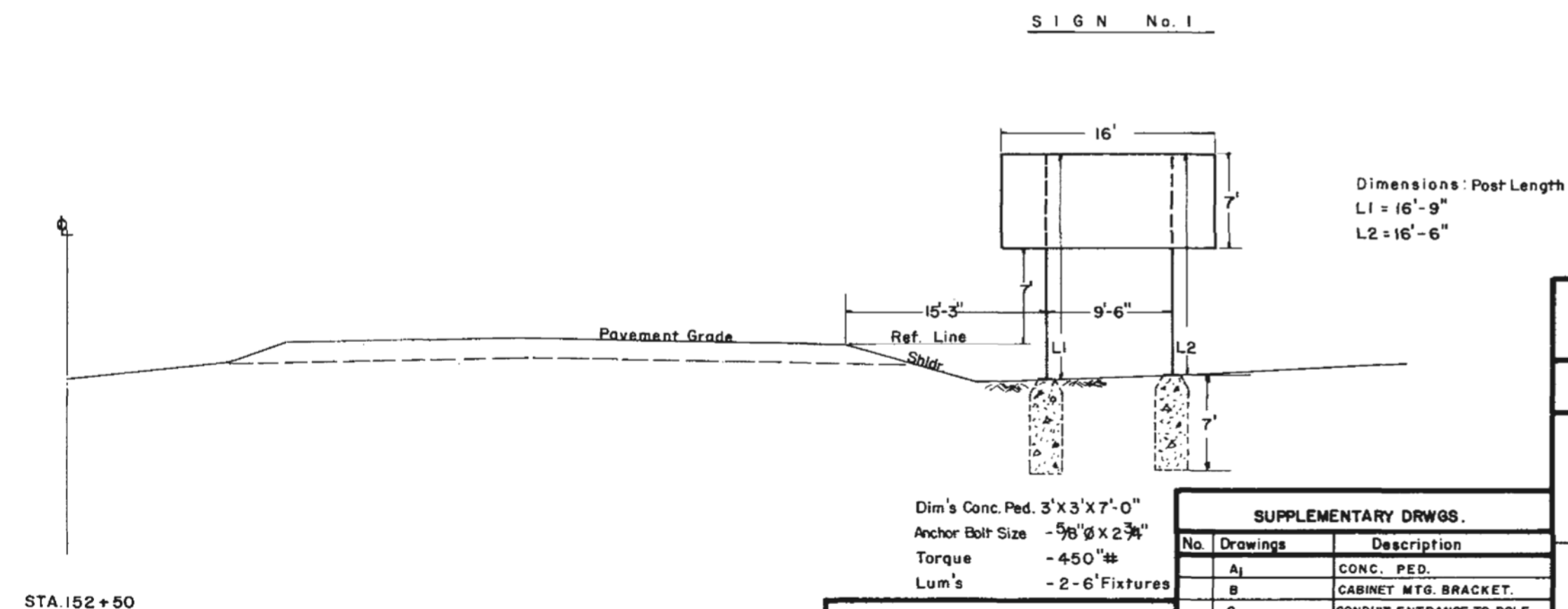
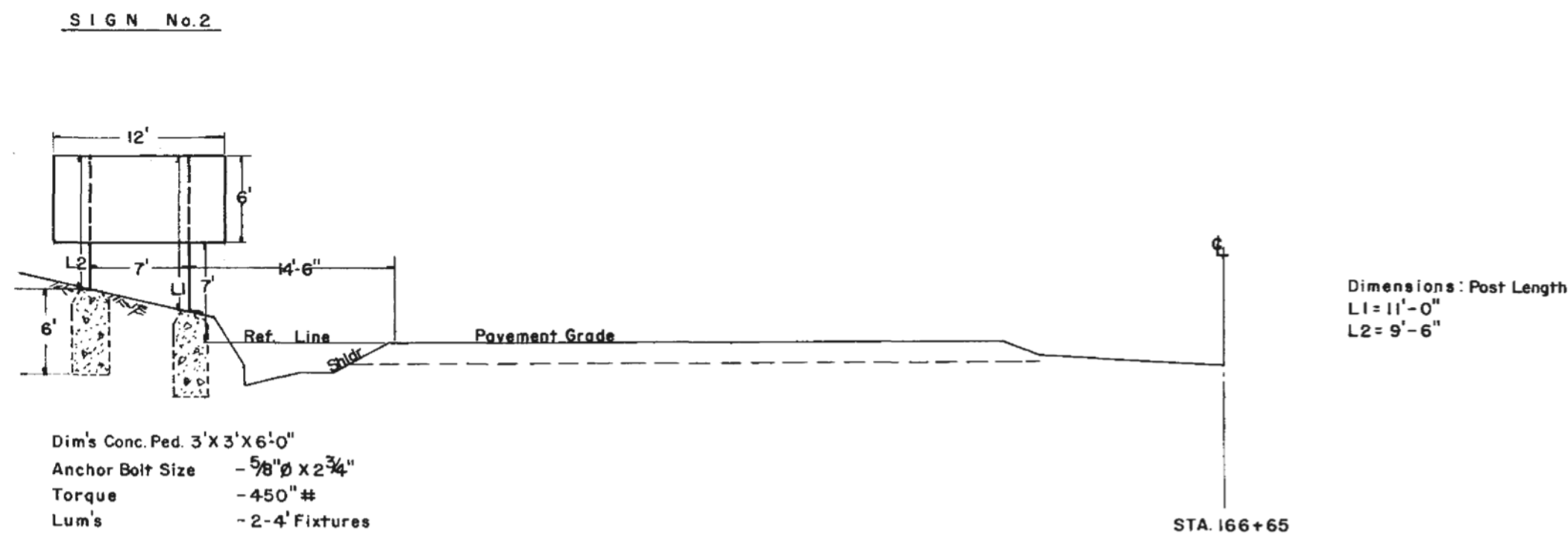
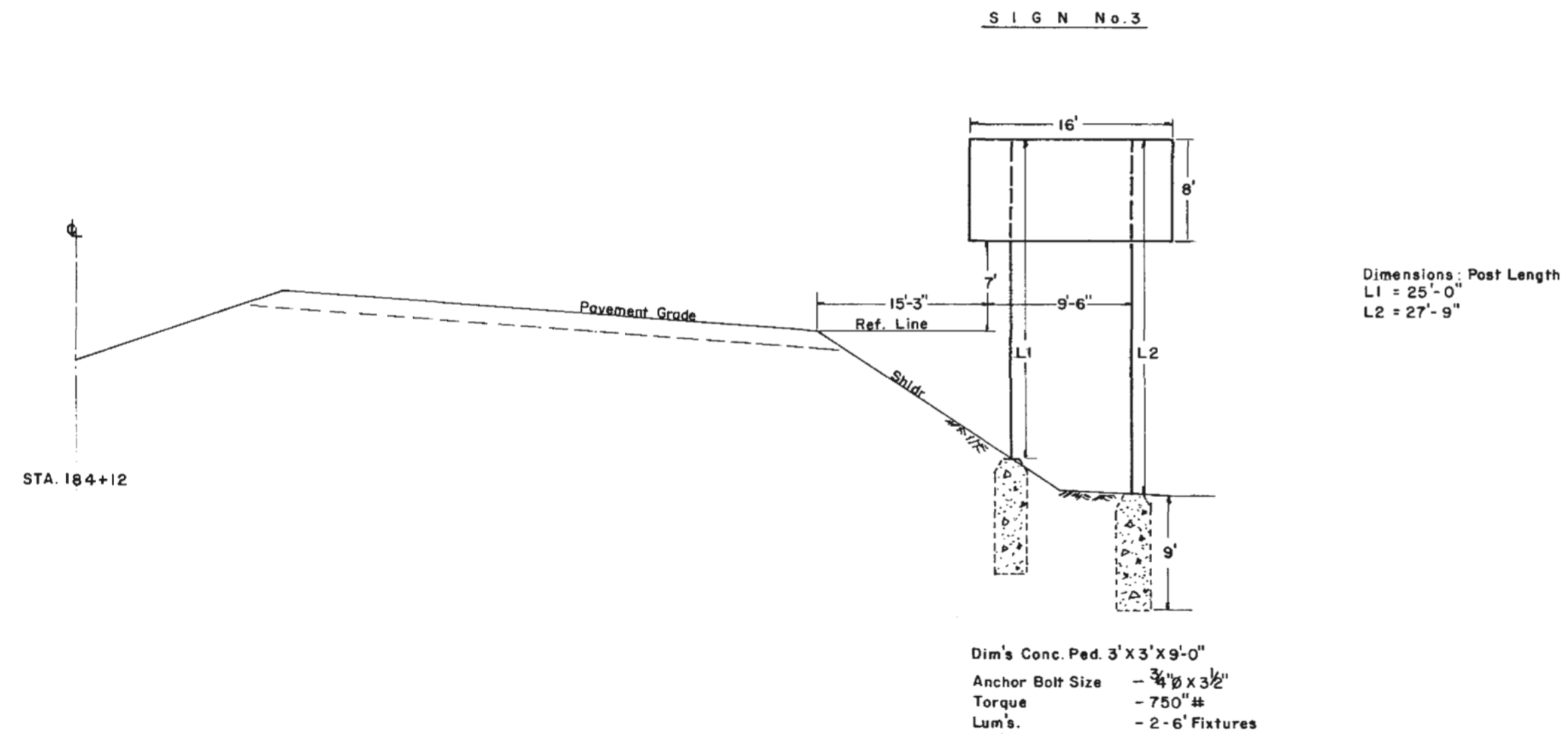
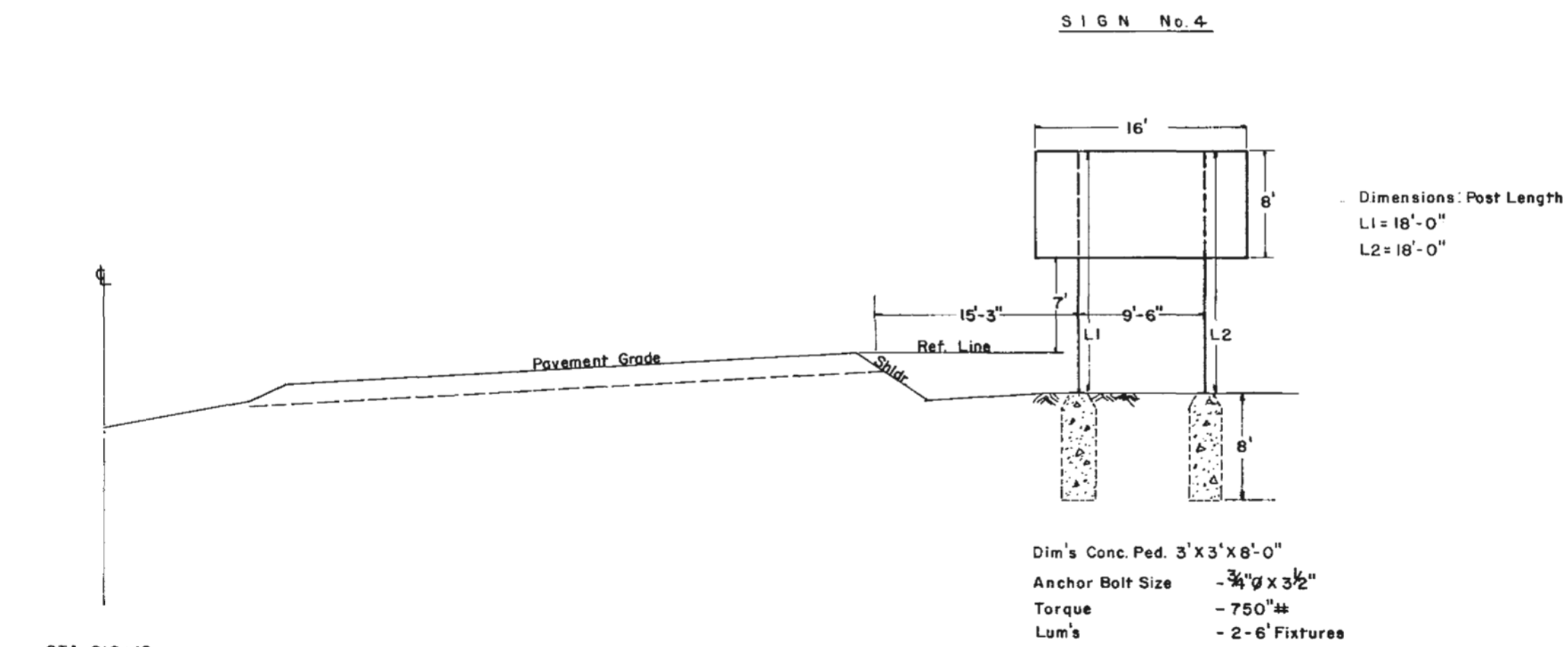
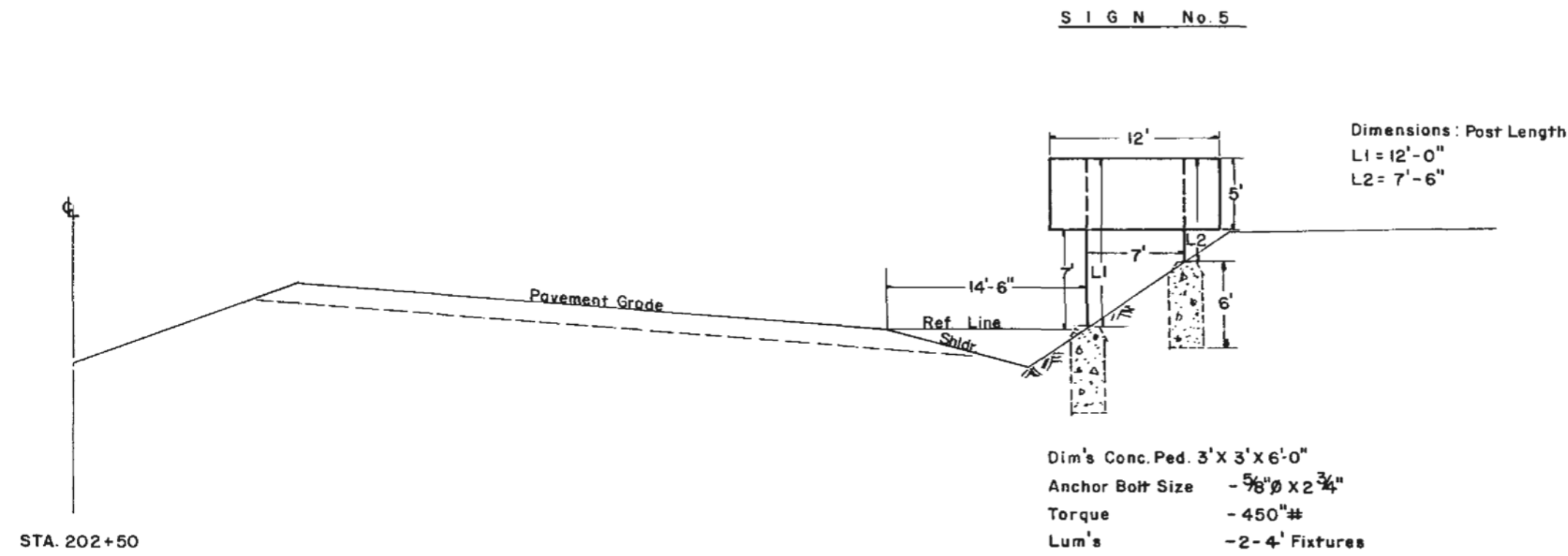
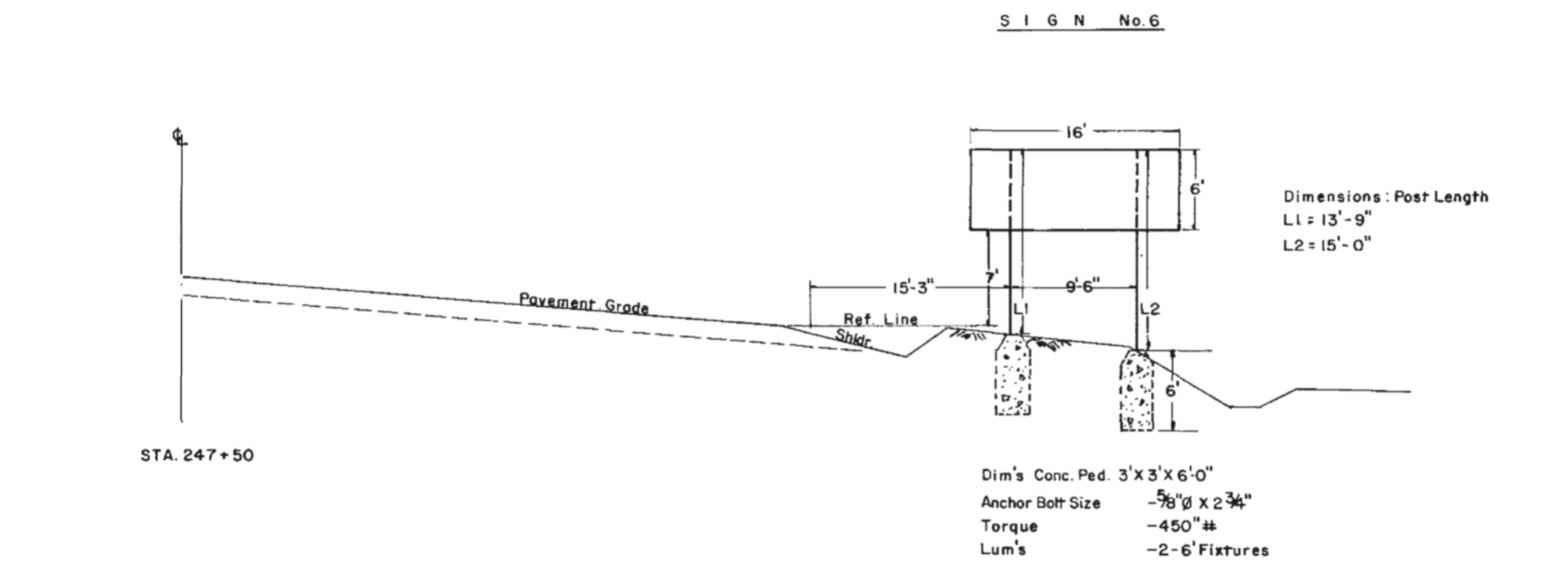
E-7041-9

SUPPLEMENTARY DRWGS.	
No. Drawings	Description
DETAILS "A"	CONCRETE PEDESTALS
"B"	CABINET MTS. BRACKETS
"C"	COND. ENTRANCE TO POLE
SE-1-70A	J.B. DETAILS
SE-2-70	POST FLASHERS
SE-1-71	POLE MTS. CLAMP

REVISIONS			
No.	Date	Item	Init.
G			
F			
E			
D			
C			
B			
A			

COLOUR CODING:
RED (PHASE A)
BLACK (PHASE B)
BLUE (PHASE C)
WHITE (NEUTRAL)
GREEN (GRND.)

S C H E M A T I C N.T.S.



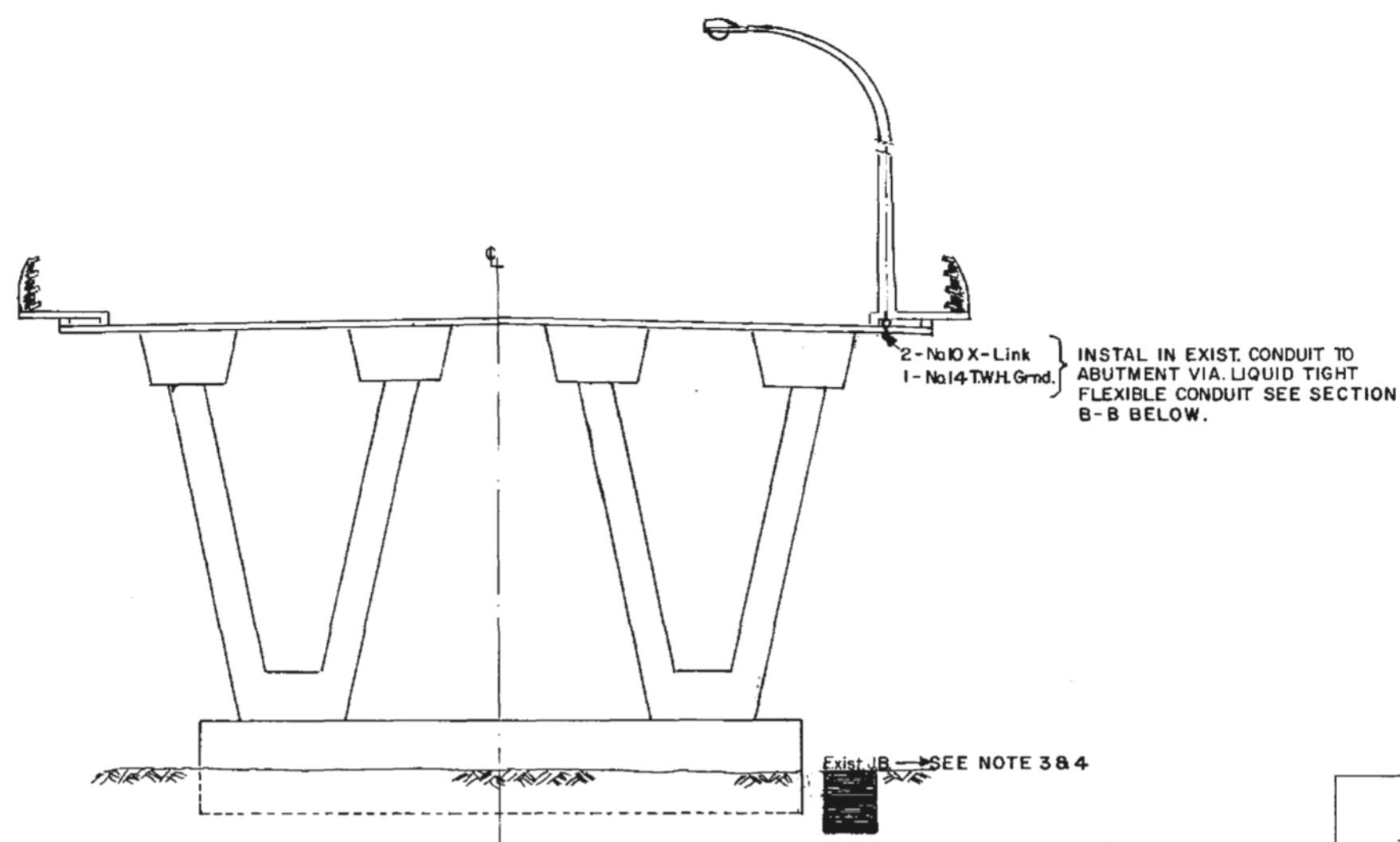
REVISIONS			
No.	Date	Item	Init.
G			
F			
E			
D			
C			
B			
A			

SUPPLEMENTARY DRWGS.	
No.	Description
A1	CONC. PED.
B	CABINET MFG. BRACKET
C	CONDUIT ENTRANCE TO POLE
SE-1-70A	JCT. BOX DETAIL
SE-2-70	POST FLASHERS
SE-1-71	POLE MFG. CLAMP
Draw. 15-48	MFG. BASE & DETAILS FOR
SE-2-71	BREAK-AWAY SIGN WIRING
	DETAILS.

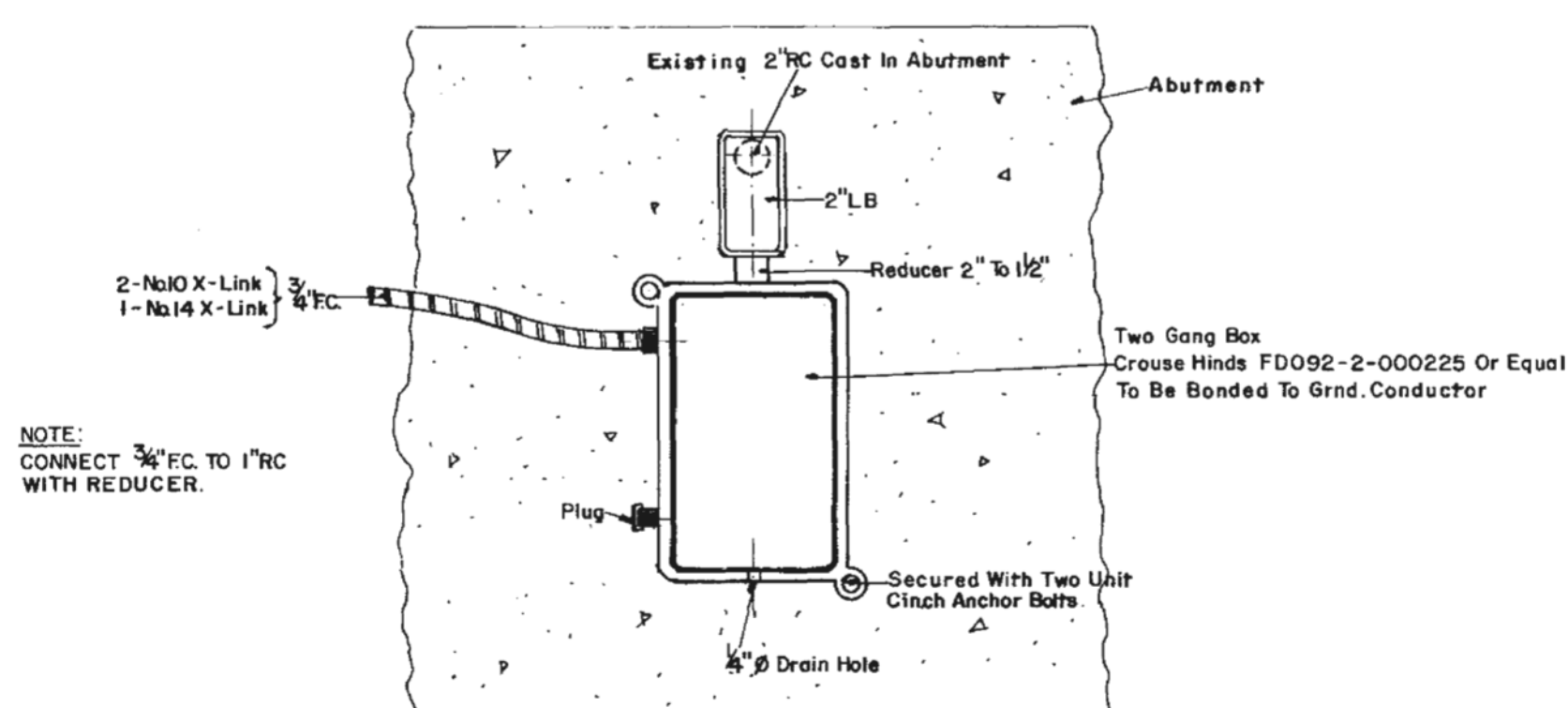
L E G E N D	
(ANY SYMBOLS WHICH ARE FILLED IN SOLID DENOTE EXIST. ITEMS)	
	LUMINAIRE POLE
	DAVIT MOUNTED OVERLANE SIGNAL
	COMB. LUMINAIRE POLE WITH SIGNAL ARM
	SIGNAL POLE WITH SIDE MOUNTED VEHICLE OR PED. HEAD
	SIGNAL POLE WITH PEDESTRIAN PUSH BUTTON
	SIGNAL POLE WITH CONTROLLER OR SERVICE PANEL
	POST TOP MOUNTED SIGNAL
	CONDUIT STUB
	BACK GUY
	JUNCTION BOX (TYPE 1)
	JUNCTION BOX (TYPE 2)
	JCT. BOX (TYPE 3)
	JCT. BOX (TYPE 4)
	JCT. BOX (TYPE 5) - NOTE 'S' SPECIFIES STEEL LID
	YELLOW & RED OVERHEAD BEACON
	SEPARATE VEHICLE SIGNAL PHASES A, A1, A2, B, B1, B2
	SEPARATE VEHICLE SIGNAL PHASES C, C1, C2, ETC.
	PED. SIGNAL PHASE (SUBSCRIPT INDICATES PARENT VEHICLE PHASE)
	VEHICLE DETECTOR LOOP
	TELEPHONE POLE
	HYDRO
	GAS VALVE
	WATER VALVE
	FIRE HYDRANT
	CATCH BASIN
	MANHOLE
	ROAD SIGN
	CURBED ISLAND
	EDGE OF SIDEWALK OR SHOULDER
	GAS MAIN
	SANITARY SEWER LINE
	WATER MAIN
	PROPERTY LINE
	STORM SEWER
	YELLOW POST MOUNTED FLASHER
	UNDERGROUND CONDUIT WITH 3 CONDUCTORS
	TYPE 2 P.V.C. UNDERGROUND DUCT
	RIGID CONDUIT
	POLYETHYLENE CONDUIT
	RUBBER MODIFIED STYRENE CONDUIT
	FLEXIBLE CONDUIT (LIQUID TIGHT)
	EXISTING CONDUIT RUN
	SHOULDER MOUNTED SIGN
	DAVIT MOUNTED SIGN
	SIGN BRIDGE
	ILLUMINATED SIGN

BRITISH COLUMBIA DEPARTMENT OF HIGHWAYS TRAFFIC BRANCH			
Electoral District:- SAANICH & THE ISLANDS		Supply Voltage:- 120/208 V 3Ø	
PROJECT MISC. LIGHTING HWY. 17 QUADRA & ROYAL OAK INTERCHANGE			
DRAWING SIGNS			
Drawn By:- NHAC	Date:- AUG./71	Drawing No.	
Designed By:- T.R.J.	Sheet No. 10 Of 11	E - 7041-10	
Approved By:-	Scale:- 1"=10'		
Date:-	Chief Engineer		

ROYAL OAK INTERCHANGE
Scale: 1"=10'-0"



Section A-A
(OTHER END OF STRUCTURE SIMILAR)

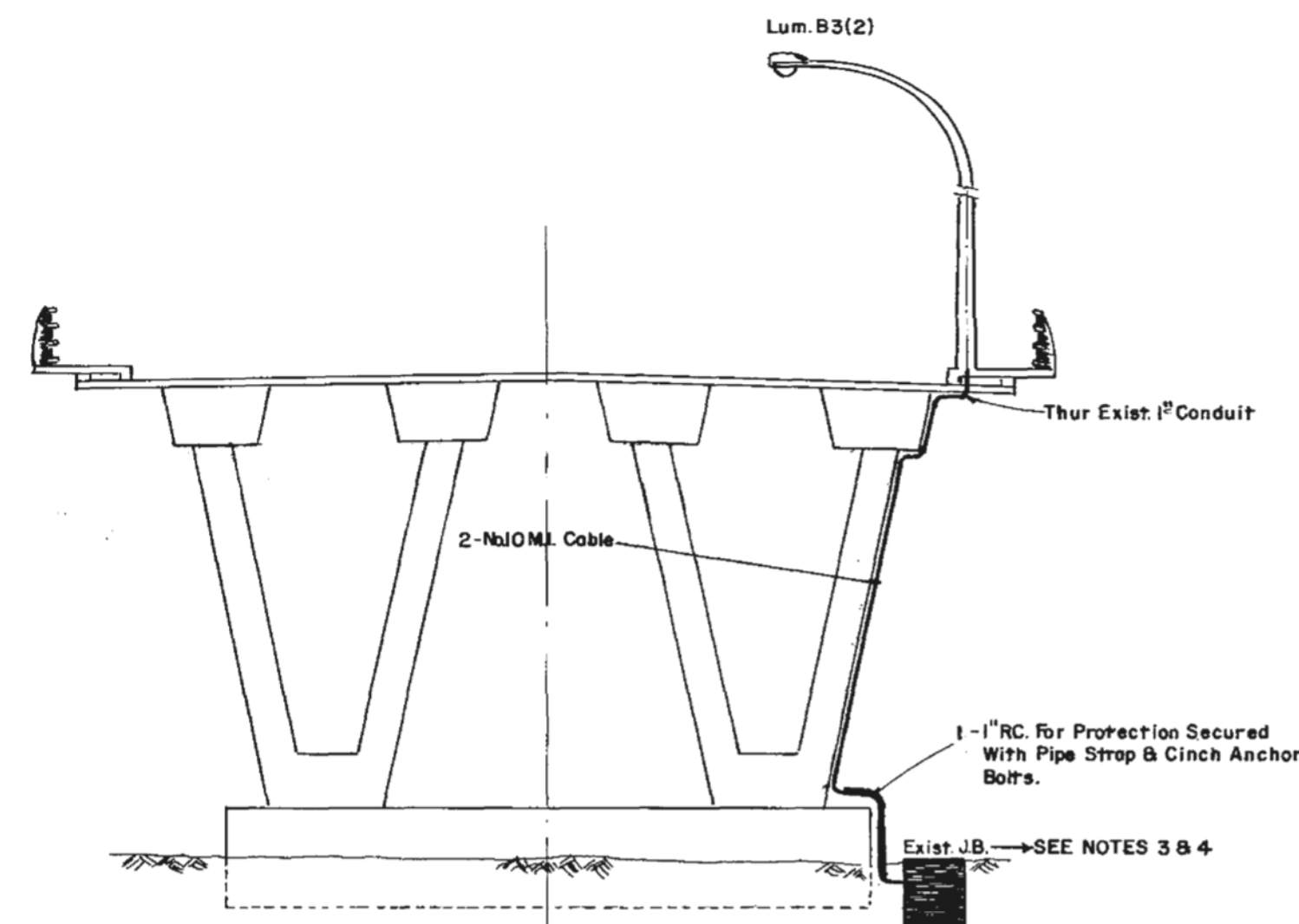


Section B-B
DETAILS FOR CONNECTION OF LUM'S A6(2) & B6(2)
N.T.S.

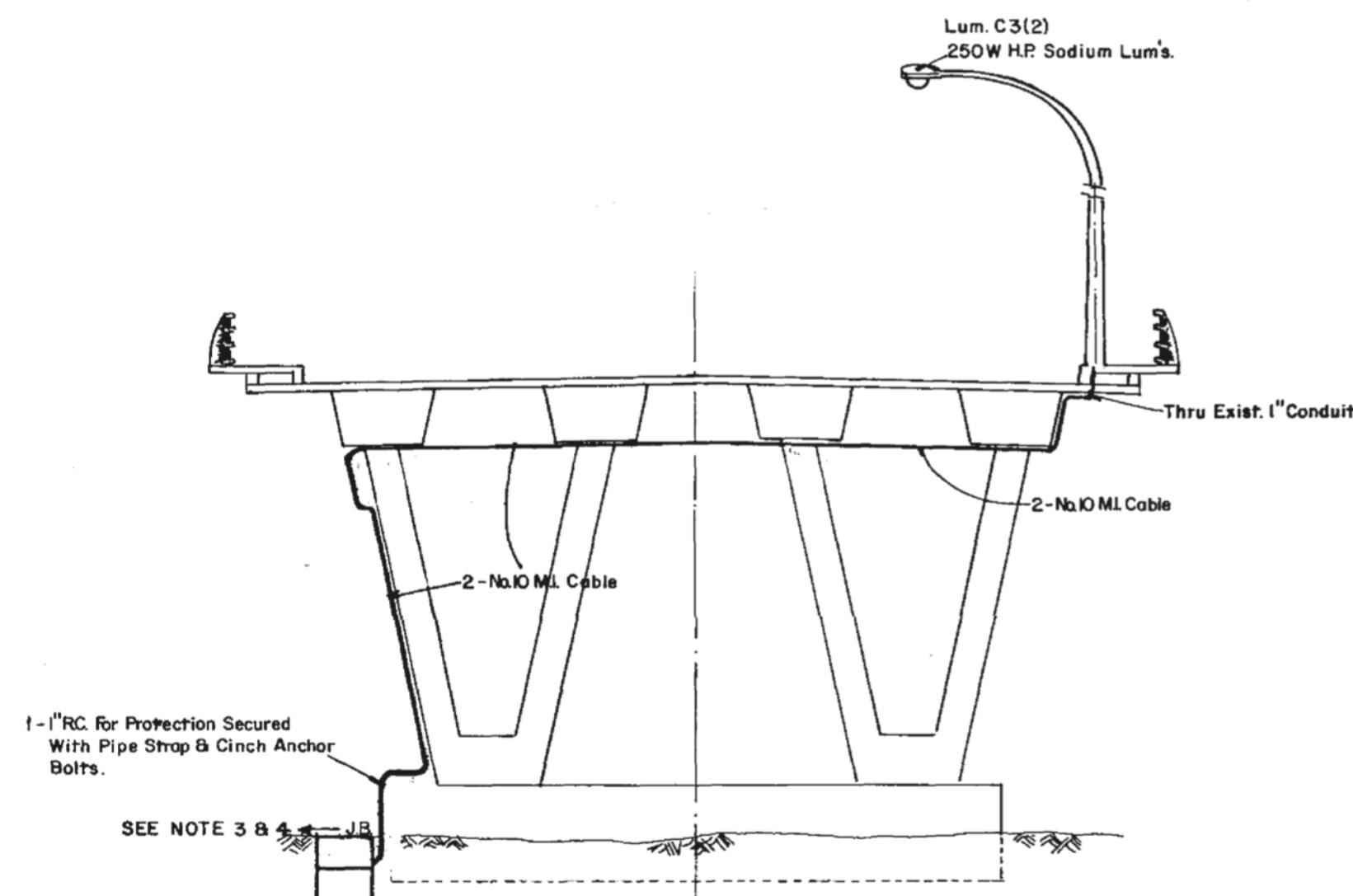
NOTE:
1) FIXTURE MOUNTING STUDS IN PLACE.
2) M.I. CABLE TO BE SECURED TO STRUCTURE WITH PYROTEX SINGLE HOLE CABLE STRAP STUDS ARE IN PLACE.
3) UNDERPASS FIXTURES SHALL HAVE A TRON HEB AA WATERPROOF FUSE HOLDER COMPLETE WITH 6A BUSS KIT. FUSE OR EQUAL & TWO 'L' TYPE INSULATING BOOTS INSTALLED IN THE LIVE CONDUCTOR AT THE JCT. BOX.
4) COPPER SHEATH OF THE M.I. CABLE SHALL BE BONDED TO GRND. AT THE JUNCTION BOXES.

Cancel
See Rev. A

QUADRA INTERCHANGE
Scale: 1"=10'-0"



Section A-A



Section B-B

L E G E N D
(ANY SYMBOLS WHICH ARE FILLED IN SOLID DENOTE EXIST. ITEMS)

- LUMINAIRE POLE
- DAVIT MOUNTED OVERLANE SIGNAL
- COMB. LUMINAIRE POLE WITH SIGNAL ARM
- SIGNAL POLE WITH SIDE MOUNTED VEHICLE OR PED. HEAD
- SIGNAL POLE WITH PEDESTRIAN PUSH BUTTON
- SIGNAL POLE WITH CONTROLLER OR SERVICE PANEL
- POST TOP MOUNTED SIGNAL
- CONDUIT STUB
- BACK GUY
- JUNCTION BOX (TYPE 1)
- JUNCTION BOX (TYPE 2)
- JCT. BOX (TYPE 3)
- JCT. BOX (TYPE 4)
- JCT. BOX (TYPE 5) - NOTE 5'S SPECIFIES STEEL LID
- YELLOW & RED OVERHEAD BEACON
- A, A1, A2, B, B1, B2 SEPARATE VEHICLE SIGNAL PHASES
- C, C1, C2 ETC. SEPARATE VEHICLE SIGNAL PHASES
- PA, PB, PC PED. SIGNAL PHASES (SUBSCRIPT INDICATES PARENT VEHICLE PHASE)
- VEHICLE DETECTOR LOOP
- TELEPHONE POLE
- HYDRO
- GAS VALVE
- WATER VALVE
- FIRE HYDRANT
- CATCH BASIN
- MANHOLE
- ROAD SIGN
- CURBED ISLAND
- EDGE OF SIDEWALK OR SHOULDER
- GAS MAIN
- SANITARY SEWER LINE
- WATER MAIN
- PROPERTY LINE
- STORM SEWER
- YELLOW POST MOUNTED FLASHER
- UNDERGROUND CONDUIT WITH 3 CONDUCTORS
- P.V.C. TYPE 2 P.V.C. UNDERGROUND DUCT.
- R.C. RIGID CONDUIT
- P.C. POLYETHYLENE CONDUIT
- R.C. RUBBER MODIFIED STYRENE CONDUIT
- F.C. FLEXIBLE CONDUIT (LIQUID TIGHT)
- EXISTING CONDUIT RUN
- SHOULDER MOUNTED SIGN
- DAVIT MOUNTED SIGN
- SIGN BRIDGE
- ILLUMINATED SIGN

237829

BRITISH COLUMBIA DEPARTMENT OF HIGHWAYS
TRAFFIC BRANCH

Electoral District:- SAANICH & THE ISLANDS

Supply Voltage:- 120/208 3Ø

PROJECT

MISC. LIGHTING HWY. 17
QUADRA & ROYAL OAK INTERCHANGE

DRAWING

OVERPASS LIGHTING INSTAL. DETAILS

Drawn By:- NHAC

Date:- Sept/71

Drawing No.

Designed By:- E.A.F.

Sheet No. 11 Of 11

Approved By:-

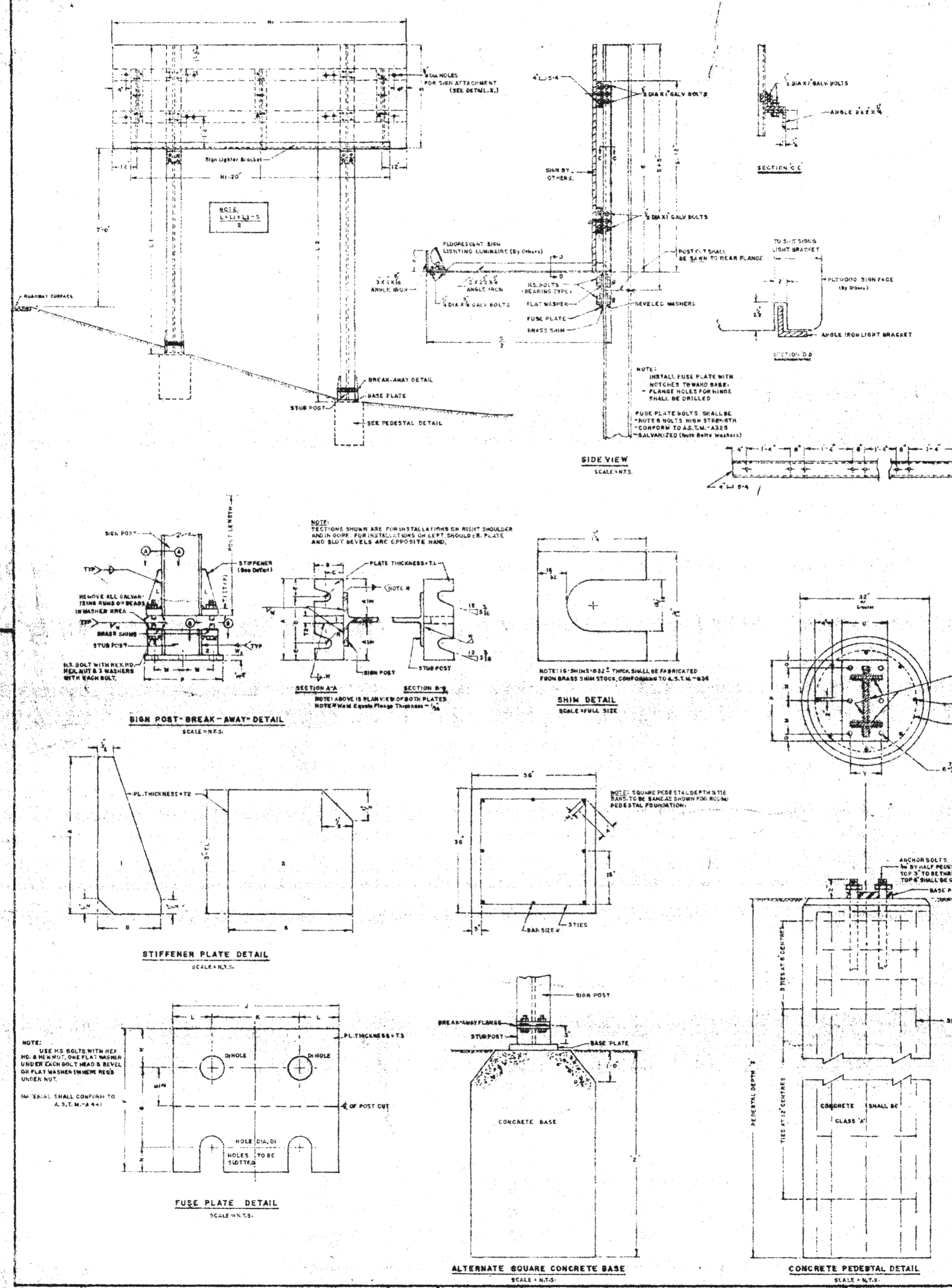
Scale:- AS SHOWN

E-7041-11 A

REV. A
Wall Mount Lum. Removed From Structure

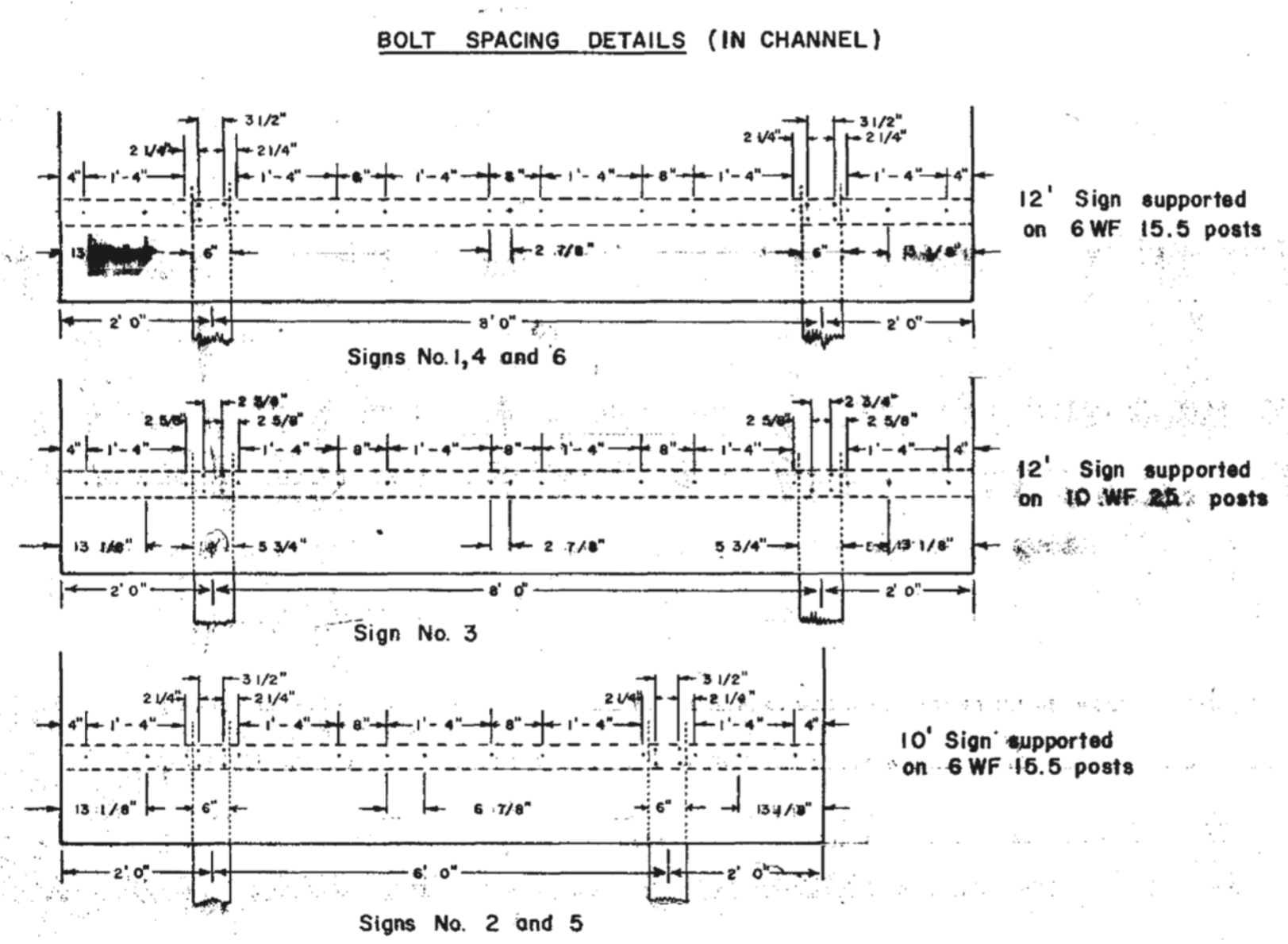
No.	Date	Item	Init.
G			
F			
E			
D			
C			
B			
A	Apr/79	See Rev. A	EAF

No.	Drawings	Description
A		Conc. Ped.
B		Cabinet Mtg. Brackets
C		Conduit Entrance To Pole
SE-1-70A		Jct. Box Details
SE-2-70		Post Flashers
SE-1-71		Pole Mtg. Clamp



DIMENSION PART NO.	BASE CONNECTION DATA TABLE																FUSE PLATE DATA TABLE																BASE PLATES												FOUNDATIONS				SIGN CHANNELS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	BOLT SIZE & TORQUE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FU	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GU	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HU	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	IJ	JK	KL	JM	JN	JO	JP	JQ	JR	JS	JT	JU	JV	JW	JX	JY	JZ	KA	KB	KC	KD	KE	KF	KG	KH	KI	KJ	KL	KM	KN	KO	KP	KQ	KR	KS	KT	KU	KV	KW	KX	KY	KZ	LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ	LK	LM	LN	LO	LP	LQ	LR	LS	LT	LU	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NU	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OU	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PU	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QU	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RU	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TT	TU	TV	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UU	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VU	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WU	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	XG	XH	XI	XJ	XK	XL	XM	XN	XO	XP	XQ	XR	XS	XT	XU	XV	XW	XX	XY	XZ	YA	YB	YC	YD	YE	YF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YU	YV	YW	YX	YY	YZ	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT	ZU	ZV	ZW	ZX	ZY
8 WF 15-B	5/8 X 2 3/4" TORQUE 400'N	5	2	1 1/4	2 1/2	1 1/2	3/8	1/2	3/16	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2																																																																																																																																																												

AVERAGE LENGTH FROM SIGN TO GROUND (L)		SIGN AREA (SQUARE FEET)		TABLE OF WIDE FLANGE SECTIONS FOR SHOULDER MOUNTED SIGN SUPPORTS - LENGTH IS TAKEN AS THE AVERAGE HEIGHT FROM CENTRE OF SIGN		7		8		9		10		11		12		13		14		15		16		17		18		19		20	
30																																	
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170																																	
180																																	
190																																	
200																																	



- PROCEDURE FOR ASSEMBLY OF BASE CONNECTION
1. ASSEMBLE POST TO STUB WITH BOLTS AND WITH ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
 2. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH 12 TO 15 INCH WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS. THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE (See Table)
 3. BURR THREADS AT JUNCTION WITH NUT USING A CENTRE PUNCH TO PREVENT NUT LOOSENING.

LEGEND

(ANY SYMBOLS WHICH ARE FILLED IN SOLID DENOTE EXISTING ITEMS)

- LUMINAIRE POLE
- DAVIT MOUNTED OVERLINE SIGNAL
- COMB LUMINAIRE POLE WITH SIGNAL ARM
- SIGNAL POLE WITH SIDE MOUNTED VEHICLE OR PED HEAD
- SIGNAL POLE WITH PEDESTRIAN PUSH BUTTON
- SIGNAL POLE WITH CONTROLLER OR SERVICE PANEL
- POST TOP MOUNTED SIGNAL
- CONDUIT STUB
- BACK BUTT
- JUNCTION BOX (TYPE 1)
- JUNCTION BOX (TYPE 2)
- JCT BOX (TYPE 3)
- JCT BOX (TYPE 4)
- JCT BOX (TYPE 5) - NOTE: SPECIFIED STEEL LID
- YELLOW & RED OVERHEAD BEACON
- SEPARATE VEHICLE SIGNAL PHASES
- SEPARATE VEHICLE SIGNAL PHASES
- RED SIGNAL PHASE (SUBSCRIPT INDICATES VEHICLE PHASE)
- VEHICLE DETECTOR LOOP
- TELEPHONE POLE
- HYDRO
- GAS VALVE
- WATER VALVE
- FIRE HYDRANT
- CATCH BASIN
- MANHOLE
- ROAD SIGN
- CURBED ISLAND
- EDGE OF SIDEWALK OR SHOULDER
- GAS MAIN
- SANITARY SEWER LINE
- WATER MAIN
- PROPERTY LINE
- STORM SEWER
- YELLOW POST MOUNTED FLASHER
- UNDERGROUND CONDUIT WITH 3 CONDUITS
- RIGID CONDUIT
- POLYETHYLENE CONDUIT
- RUBBER MODIFIED BITUMEN CONDUIT
- FLEXIBLE CONDUIT (1/2" THICK)
- EXISTING CONDUIT RUN
- SHOULDER MOUNTED SIGN
- DAVIT MOUNTED SIGN
- SIGN BRIDGE
- ILLUMINATED SIGN

226042

BRITISH COLUMBIA DEPARTMENT OF HIGHWAYS
TRAFFIC BRANCH

Electoral District: _____ Supply Voltage: _____

MOUNTING BASE AND DETAILS FOR
BREAK-AWAY SIGN SUPPORT

FOR HIGHWAY No. 17

QUADRA ST. - ROYAL OAK DR. SECTION

Drawn By: R. CHAPMAN Date: EEB '72 Drawing No. 7041-12

Designed By: _____

Approved By: _____

Date: 12/1/72 Chief Engineer

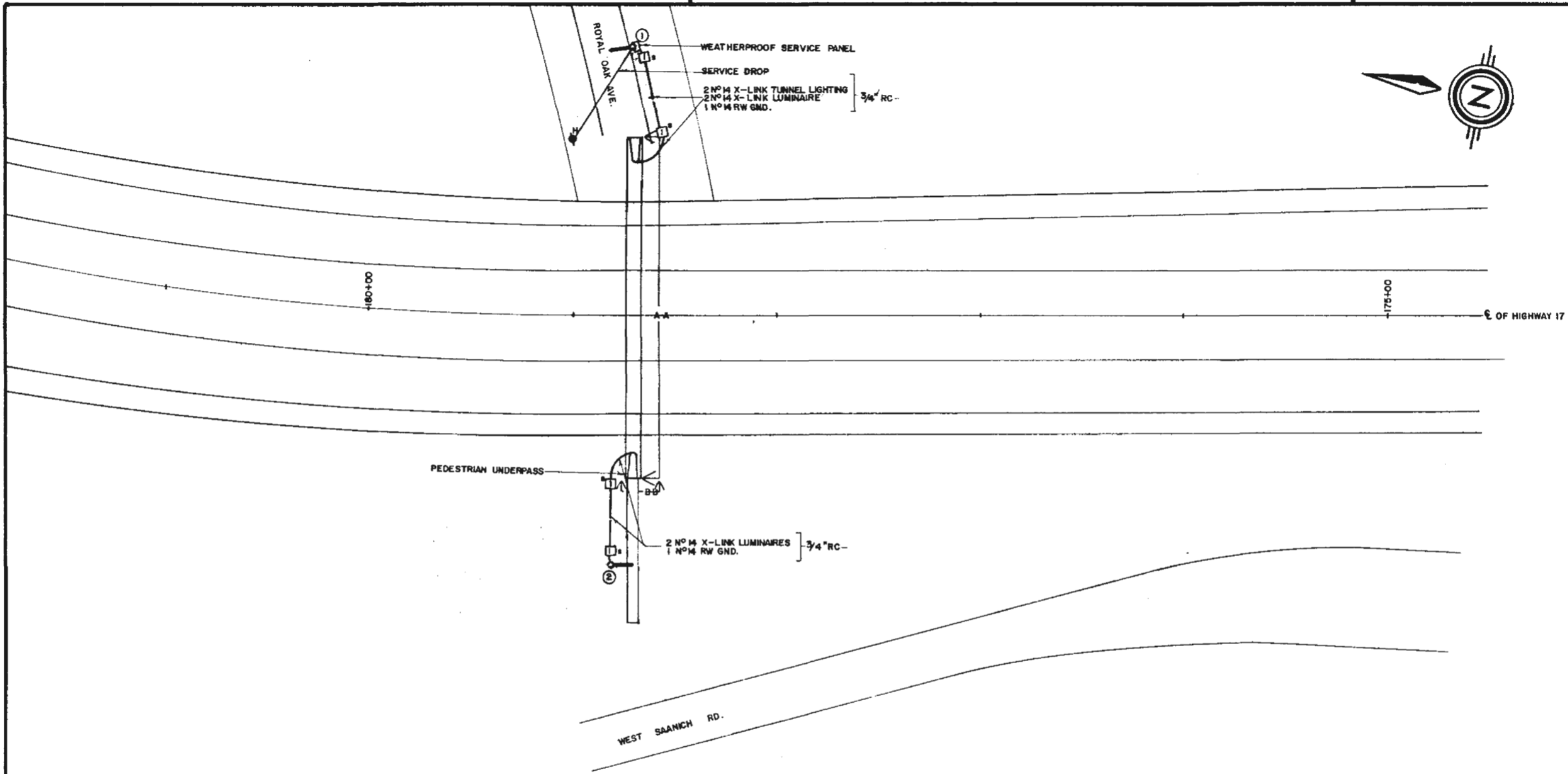
Scale: N.T.S.

REVISIONS

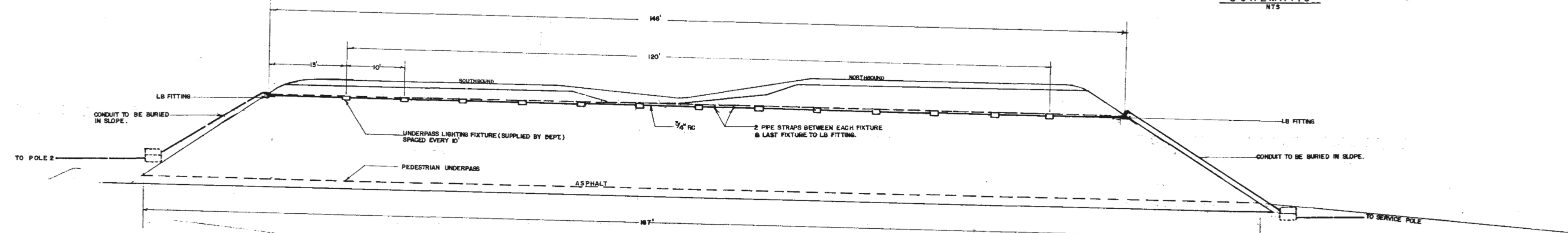
No.	Date	Item	Init.
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

SUPPLEMENTARY DRWS.

No.	Description
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

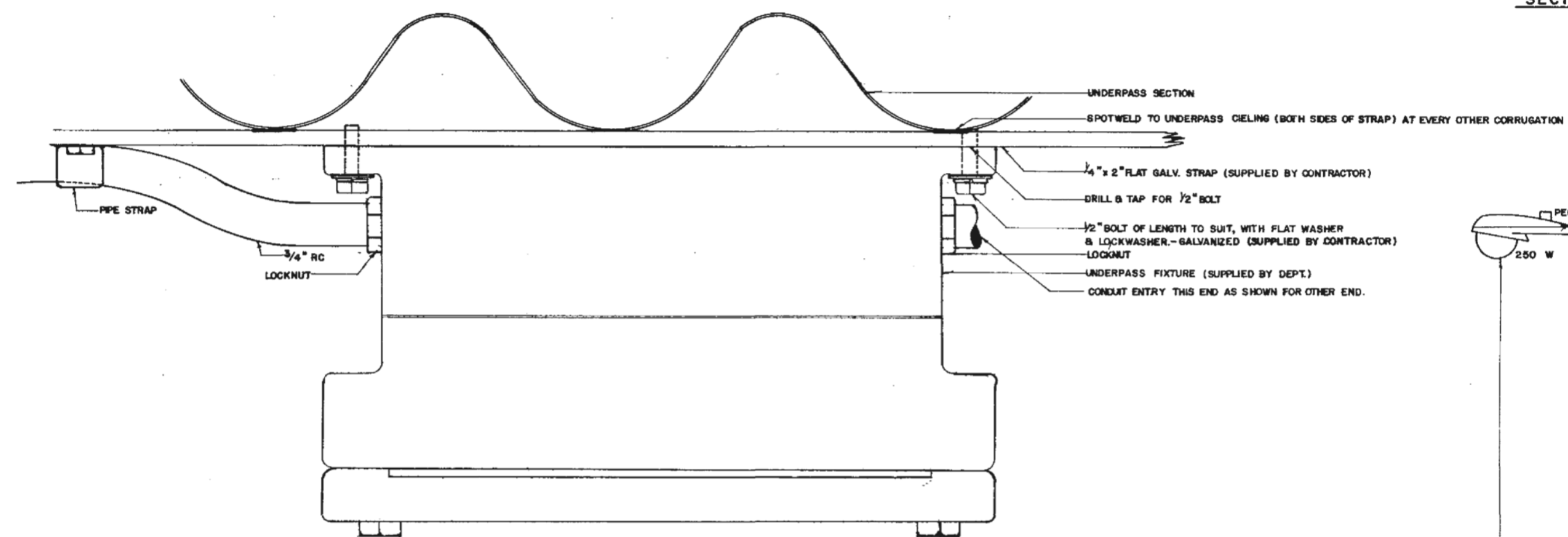


SITE PLAN
SCALE: 1" = 50'

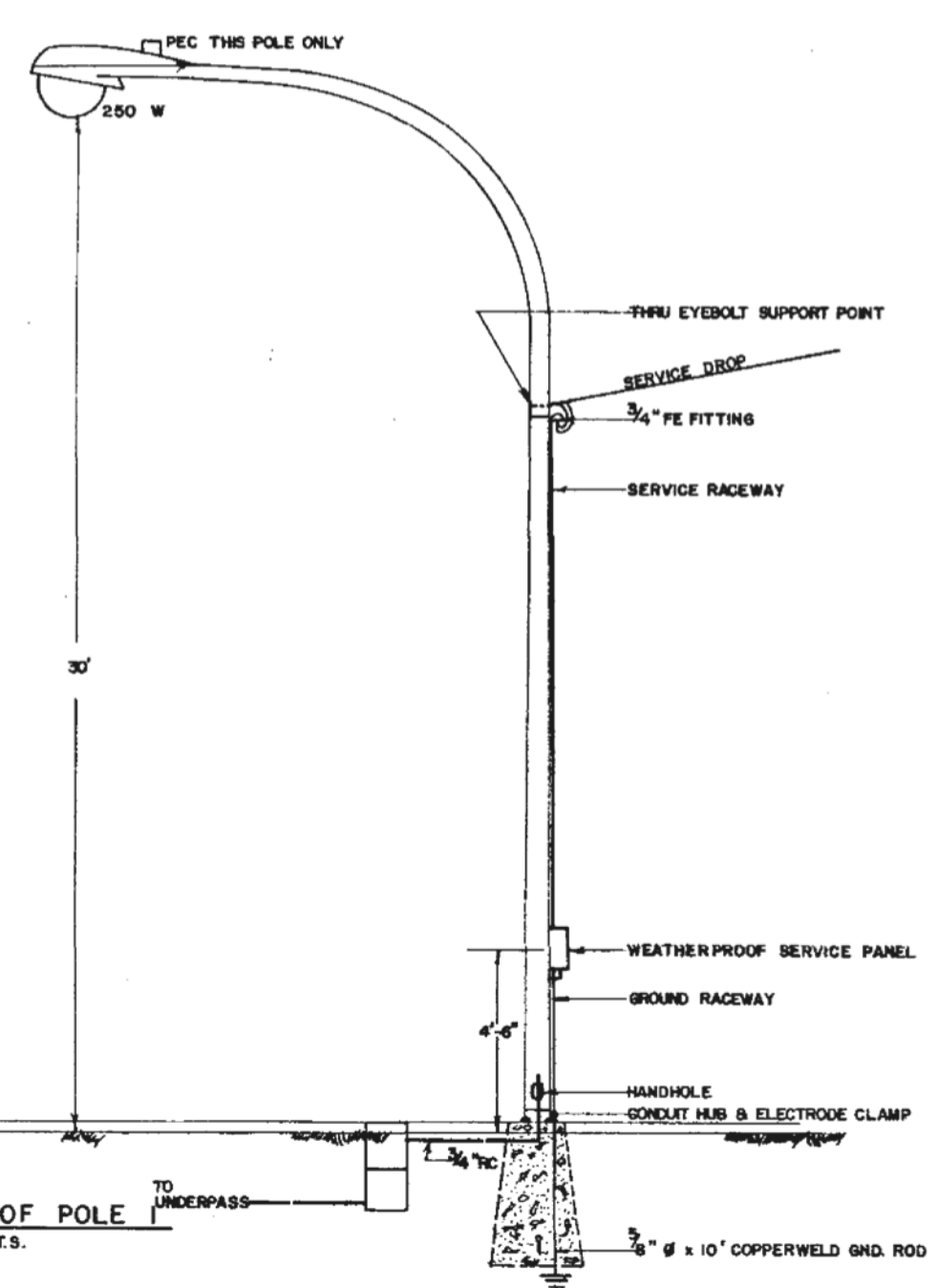


SECTION A-A
N.T.S.

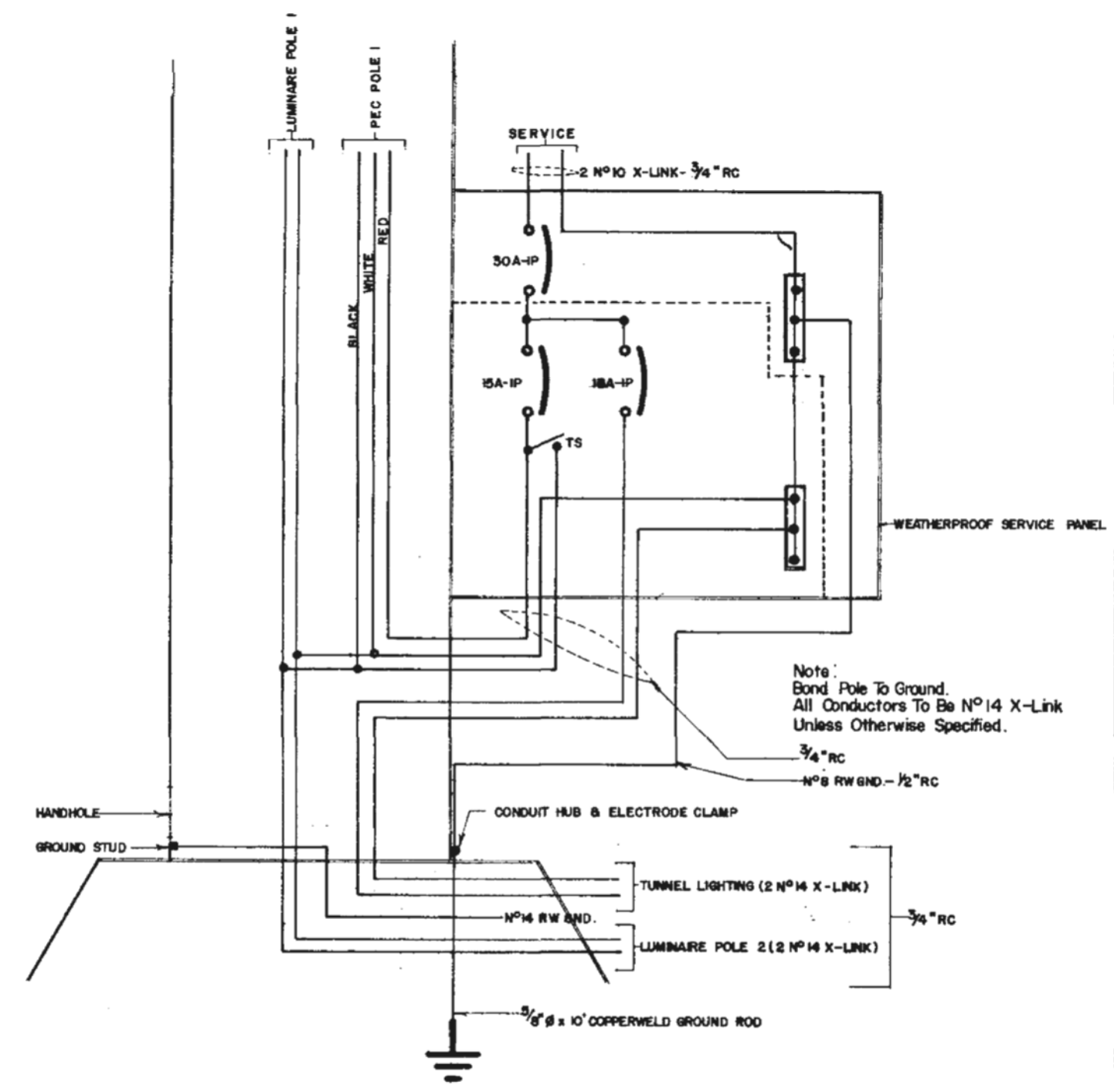
Note:
Tunnel Lighting & Luminaire To Be Bonded To Ground



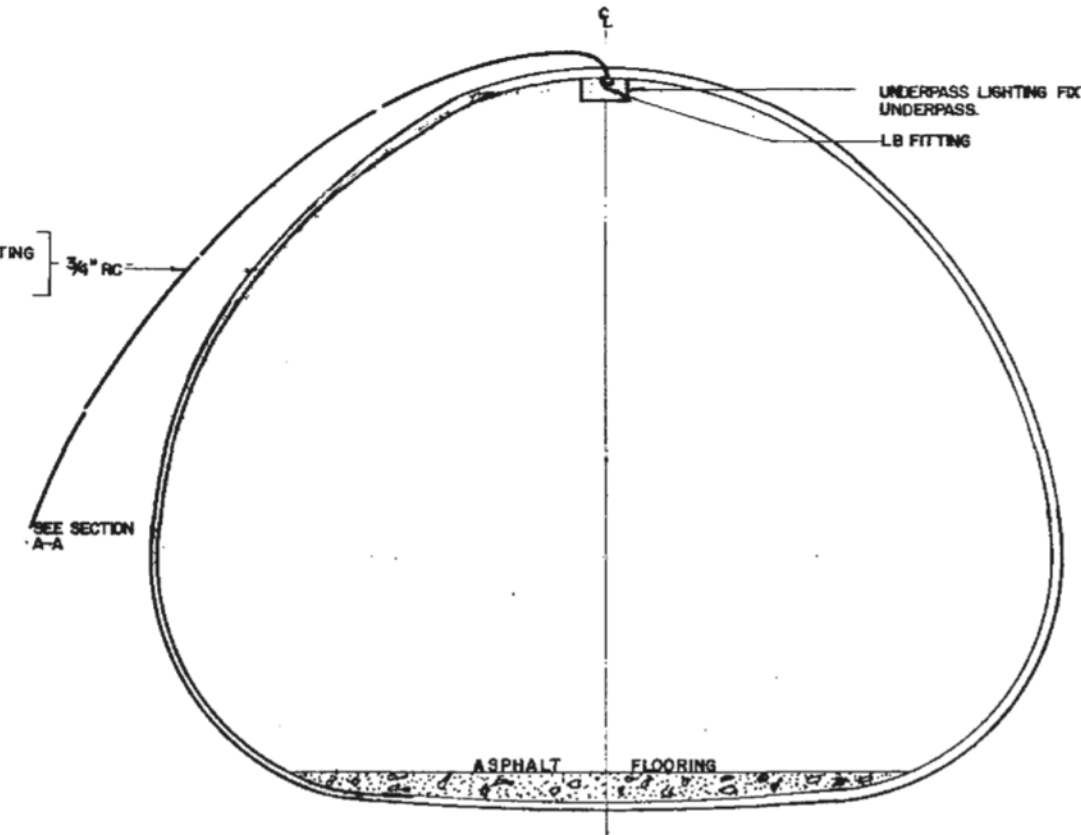
TUNNEL LIGHTING INSTALLATION DETAILS
N.T.S.



PROFILE OF POLE
N.T.S.



SCHEMATIC
N.T.S.



SECTION B-B
N.T.S.

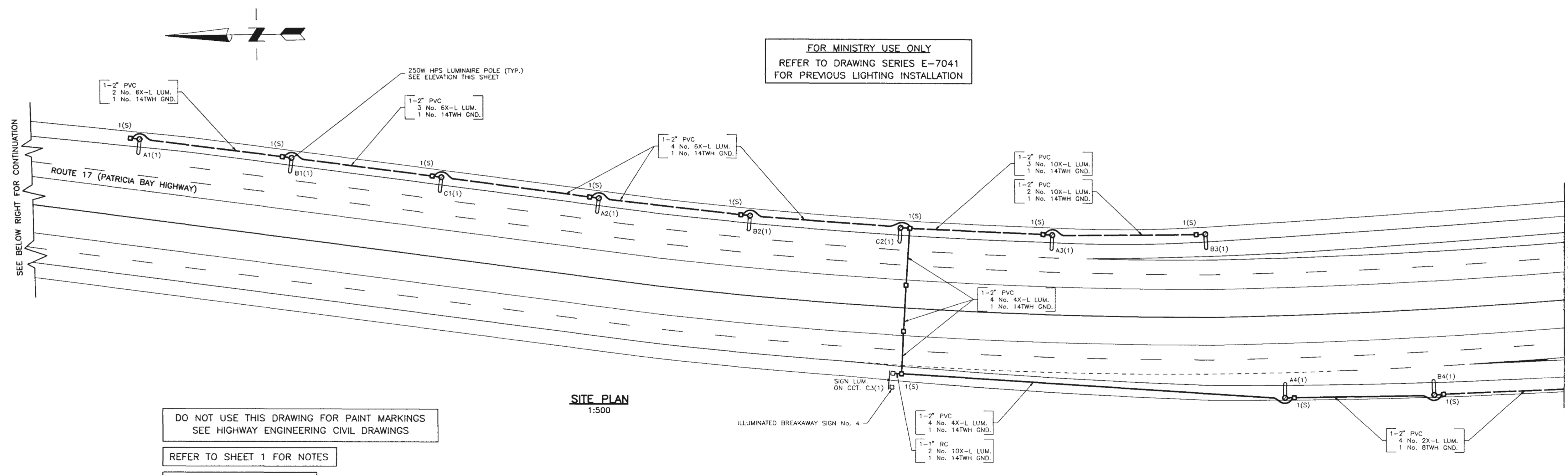
- LEGEND**
(ANY SYMBOLS WHICH ARE FILLED IN SOLID DENOTE EXIST. ITEMS)
- LUMINAIRE POLE
 - DAVIT MOUNTED OVERLANE SIGNAL
 - COMB. LUMINAIRE POLE WITH SIGNAL ARM
 - SIGNAL POLE WITH SIDE MOUNTED VEHICLE OR PED. HEAD
 - SIGNAL POLE WITH PEDESTRIAN PUSH BUTTON
 - SIGNAL POLE WITH CONTROLLER OR SERVICE PANEL
 - POST TOP MOUNTED SIGNAL
 - CONDUIT STUB
 - BACK BUY
 - JUNCTION BOX (TYPE 1)
 - JUNCTION BOX (TYPE 2)
 - JCT. BOX (TYPE 3)
 - JCT. BOX (TYPE 4)
 - JCT. BOX (TYPE 5) - NOTE 'S' SPECIFICS STEEL LID.
 - YELLOW & RED OVERHEAD BEACON
 - A, A1, A2, B, B1, B2 SEPARATE VEHICLE SIGNAL PHASES
 - B, C, C1, C2 ETC. SEPARATE VEHICLE SIGNAL PHASES
 - PA, PB, PC PED. SIGNAL PHASE (SUBSCRIPT INDICATES PARENT VEHICLE PHASE)
 - VEHICLE DETECTOR LOOP
 - TELEPHONE POLE
 - HYDRO
 - GAS VALVE
 - WATER VALVE
 - FIRE HYDRANT
 - CATCH BASIN
 - MANHOLE
 - ROAD SIGN
 - CURBED ISLAND
 - EDGE OF SIDEWALK OR SHOULDER
 - GAS MAIN
 - SANITARY SEWER LINE
 - WATER MAIN
 - PROPERTY LINE
 - STORM SEWER
 - YELLOW POST MOUNTED FLASHER
 - UNDERGROUND CONDUIT WITH 3 CONDUCTORS
 - R.C. RIGID CONDUIT
 - P.C. POLYETHYLENE CONDUIT
 - S.C. RUBBER MODIFIED STYRENE CONDUIT
 - F.C. FLEXIBLE CONDUIT (LIQUID TIGHT)
 - EXISTING CONDUIT RUN
 - SHOULDER MOUNTED SIGN
 - DAVIT MOUNTED SIGN
 - SIGN BRIDGE
 - ILLUMINATED SIGN

20000

BRITISH COLUMBIA DEPARTMENT OF HIGHWAYS TRAFFIC BRANCH			
Electoral District: SAANICH & THE ISLANDS		Supply Voltage: 120 V	
PROJECT ROYAL OAK PEDESTRIAN UNDERPASS LIGHTING			
DRAWING SITE PLAN, PROFILE, SCHEMATIC & DETAILS			
Drawn By: DRK	Date: OCTOBER 15, 1970	Drawing No.	
Designed By: T.R.J.	Sheet No. 13 OF 13	E-7041-13	
Approved By:	Scale: AS SHOWN		
Date:	Chief Engineer		

REVISIONS			
No.	Date	Item	Init.
G			
F			
E			
D			
C			
B			
A			

SUPPLEMENTARY DRWGS.	
No.	Description
A.B.C.	DETAILS
SE-1 TO	JUNCTION BOX DETAILS



DO NOT USE THIS DRAWING FOR PAINT MARKINGS
SEE HIGHWAY ENGINEERING CIVIL DRAWINGS

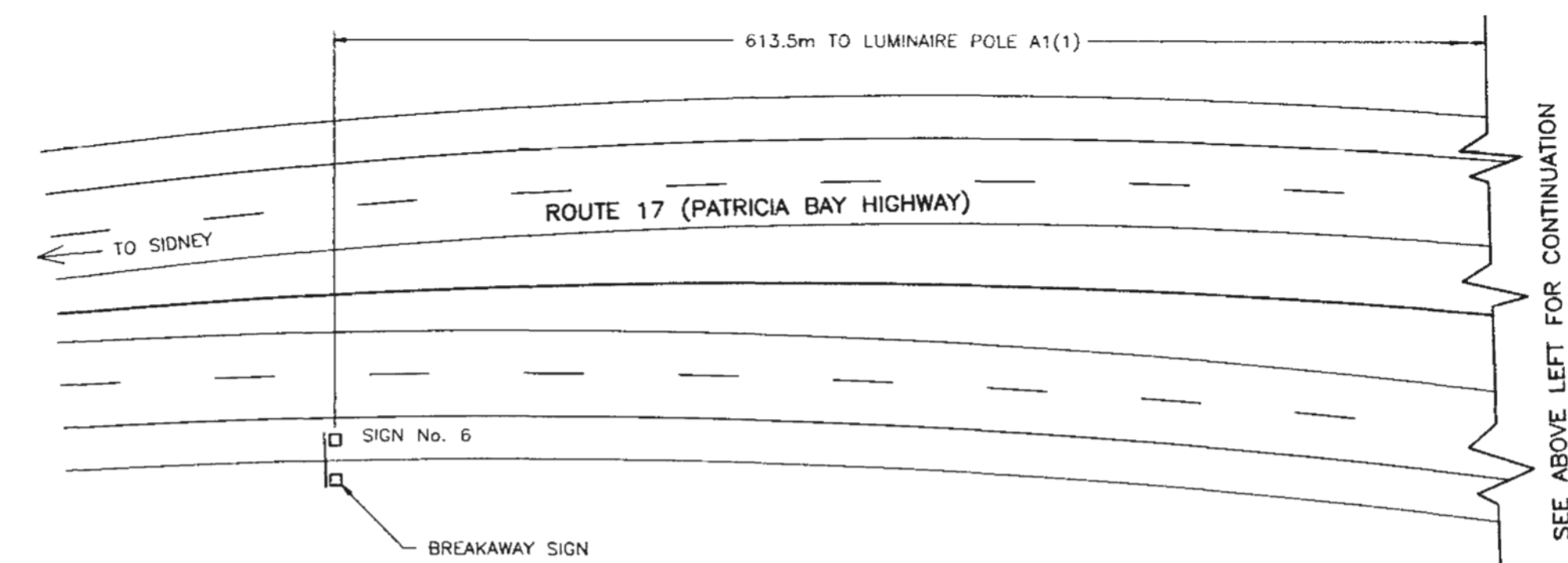
REFER TO SHEET 1 FOR NOTES

POSTED SPEED IS 80 km/h

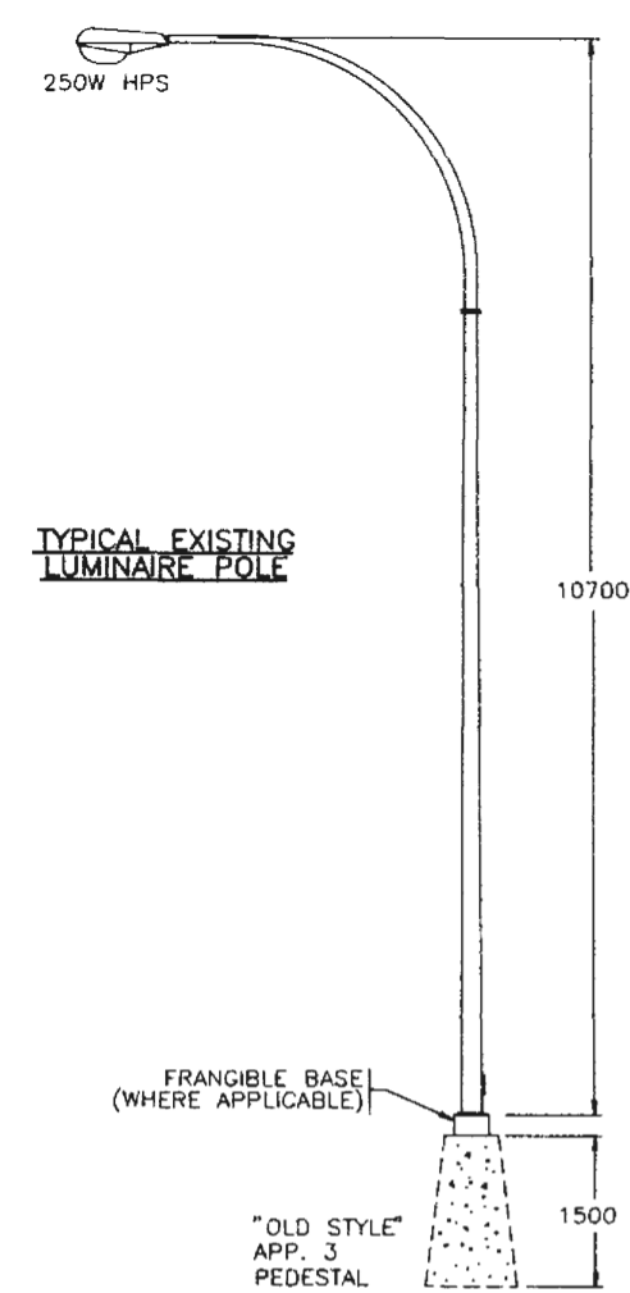
FOR MINISTRY USE ONLY
REFER TO DRAWING SERIES E-7041
FOR PREVIOUS LIGHTING INSTALLATION

SITE PLAN
1:500

VOLTAGE: 120/208 3Ø



SITE PLAN
1:500



TYPICAL EXISTING
LUMINAIRE POLE

ELEVATION
1:75

NOTES

1. A TRON HEB-AA WATERPROOF FUSE HOLDER c/w 10A, BUSS BAN 10 FUSE OR APPROVED EQUAL AND 2' L' TYPE INSULATING BOOTS SHALL BE INSTALLED IN EACH LUMINAIRE LIVE CONDUCTOR, OPPOSITE THE HANDHOLE.
2. CONDUCTORS INSIDE POLES TO BE NO. 14X-L UNLESS OTHERWISE SHOWN.
3. ALL CONDUCTORS SHALL BE STRANDED COPPER.
4. CONDUCTORS FROM JUNCTION BOX TO LUMINAIRE POLE TO BE:
2 No. 10X-L
1 No. 12TWH
1 No. 12TWH
2' RPVC (UNLESS OTHERWISE NOTED)
5. THE OFFSETS SHOWN FOR THE PLACEMENT OF PEDESTALS, JUNCTION BOXES AND CONDUIT ARE TYPICALLY DIAGRAMATIC. SEE SUPPLEMENTARY DRAWING SP235-40.4 FOR INSTALLATION DETAILS.
6. ALL PEDESTALS TO BE APPLICATION NO. 3 AS PER SUPPLEMENTARY DRAWING SP235-40.1A, UNLESS OTHERWISE NOTED.
7. BOLTS FOR ARM EXTENSIONS TO ALL STANDARDS SHALL BE DOUBLE NUTTED.
8. ALL CONDUITS FROM JUNCTION BOXES TO PEDESTALS TO BE 2" RPVC.
9. JUNCTION BOXES SHALL BE POSITIONED BEHIND OR, AS AN ALTERNATIVE, TO THE SIDE, BUT NOT IN FRONT OF POLES.
10. JUNCTION BOX SYMBOLS ARE NOT TO SCALE.
11. EMPTY CONDUITS SHALL HAVE A NYLON PULL LINE LEFT IN THEM, AND BE CAPPED AT EACH END (SEE SP235-42.3A).
12. EACH FOUR CONDUCTOR SHIELDED CABLE IS TO RUN CONTINUOUS WITH NO SPLICES, FROM THE CONTROLLER TO THE RESPECTIVE LOOP.
13. ALL SIGNAL HEAD SECTIONS SHALL BE WIRED SEPARATELY FROM THE BASE OF THE POLE INCLUDING SEPARATE NEUTRAL FOR EACH HEAD.
14. DETECTOR LOOPS ARE TO BE INSTALLED BY THE CONTRACTOR. REFER TO SUPPLEMENTARY DRAWINGS SP235-54.1, .2A AND .3 FOR INSTALLATION DETAILS.
15. SHIELDED CABLE INSTALLED FOR DETECTOR LOOPS SHALL BE IDENTIFIED AT EACH END OF ITS LENGTH AND IN EACH JUNCTION BOX. IDENTIFICATION SHALL BE MADE USING A TY-RAP IDENTIFICATION (TY-551M OR APPROVED EQUAL) WITH THE LOOP NUMBER CLEARLY MARKED USING A TY-RAP INDELEBIL MARKING PEN. LOOP NUMBERING IS SHOWN ON THE DRAWINGS. AN EQUALLY EFFECTIVE METHOD OF MARKING WILL BE CONSIDERED.
16. POSITION PEDESTALS SO THAT SIGNAL HEADS ARE LOCATED OVER CENTRE OF LANE.
17. LUMINAIRE NUMBERING EXAMPLE: 1A2
SERVICE No. - 1 CCT, LETTER - A LUM. No. - 2
18. WHERE POSSIBLE, POLES SHALL BE POSITIONED WITH THE HANDHOLE IN THE BACK, OR IF NOT POSSIBLE, ON THE DOWNSTREAM TRAFFIC SIDE.

REFER TO CONTRACT SPECIAL PROVISIONS
FOR APPLICABLE SP235 DRAWINGS

LEGEND (SYMBOLS SHOWN FILLED IN SOLID ARE EXISTING)			
 150W 250W 400W	 150W 250W 400W	 150W 250W 400W	 PEC RPVC R.C. F.C. OVERHEAD FLASHING BEACON POST MOUNTED FLASHER BACKGUY POWER POLE TELEPHONE POLE POWER/TELEPHONE POLE
 CONCRETE PEDESTAL AND JUNCTION BOX JUNCTION BOX - No. DENOTES TYPE 150W LUMINAIRE POLE (SINGLE) 150W LUMINAIRE POLE (DOUBLE) PRIVATE LUMINAIRE POLE POST MOUNTED LUMINAIRE SIGNAL POLE WITH DAVIT AND SIDE OF POLE MOUNTED HEADS COMBINATION LUMINAIRE/DAVIT MOUNTED TRAFFIC SIGNAL POLE POST TOP MOUNTED SIGNAL	 DAVIT MOUNTED ILLUMINATED SIGN WITH AMBER FLASHERS COMBINATION LUMINAIRE/DAVIT MOUNTED ILLUMINATED SIGN WITH AMBER FLASHERS DAVIT MOUNTED SIGN (NON-ILLUMINATED) DAVIT MOUNTED ILLUMINATED SIGN COMBINATION LUMINAIRE/DAVIT MOUNTED NON-ILLUMINATED SIGN BREAKAWAY SIGN (NON-ILLUMINATED) ILLUMINATED BREAKAWAY SIGN	 TEST SWITCH BREAKER NEUTRAL BAR VEHICLE DETECTOR LOOP A,B,A1,A2,ETC. SIGNAL HEAD VEHICLE PHASE P,A,PB,PA1,PB2,ETC. SIGNAL HEAD PEDESTRIAN PHASE ppb PEDESTRIAN PUSHBUTTON U/G UTILITY 'G' DENOTES GAS 'S' DENOTES STORM DRAINS/SEWERS 'W' DENOTES WATER 'E' DENOTES ELECTRIC 'UT' DENOTES TELEPHONE 'SAN' DENOTES SANITARY SEWER	 RAISED CURB PROPERTY LINE EDGE OF PAVEMENT SHOULDER EDGE OF PAVEMENT PAINT LINE PROPOSED UNDERGROUND CONDUIT EXISTING UNDERGROUND CONDUIT FENCE CORRUGATED METAL PIPE (CULVERT)

ELECTRICAL DESIGN APPROVED		RPC		DATE		JUN90		
SCALE AS NOTED		VOLTAGE AS NOTED		CHECKED		RPC		
HWY. DISTRICT SOUTH ISLAND		DRAWN		ACCUMAP		DATE		
						MAY90		
Rev	Date	Description					Init	MICRO No.
	APR90	DRAWING ISSUED						334494
A	JAN91	RECORD DRAWING					Pm	335313
REVISIONS								

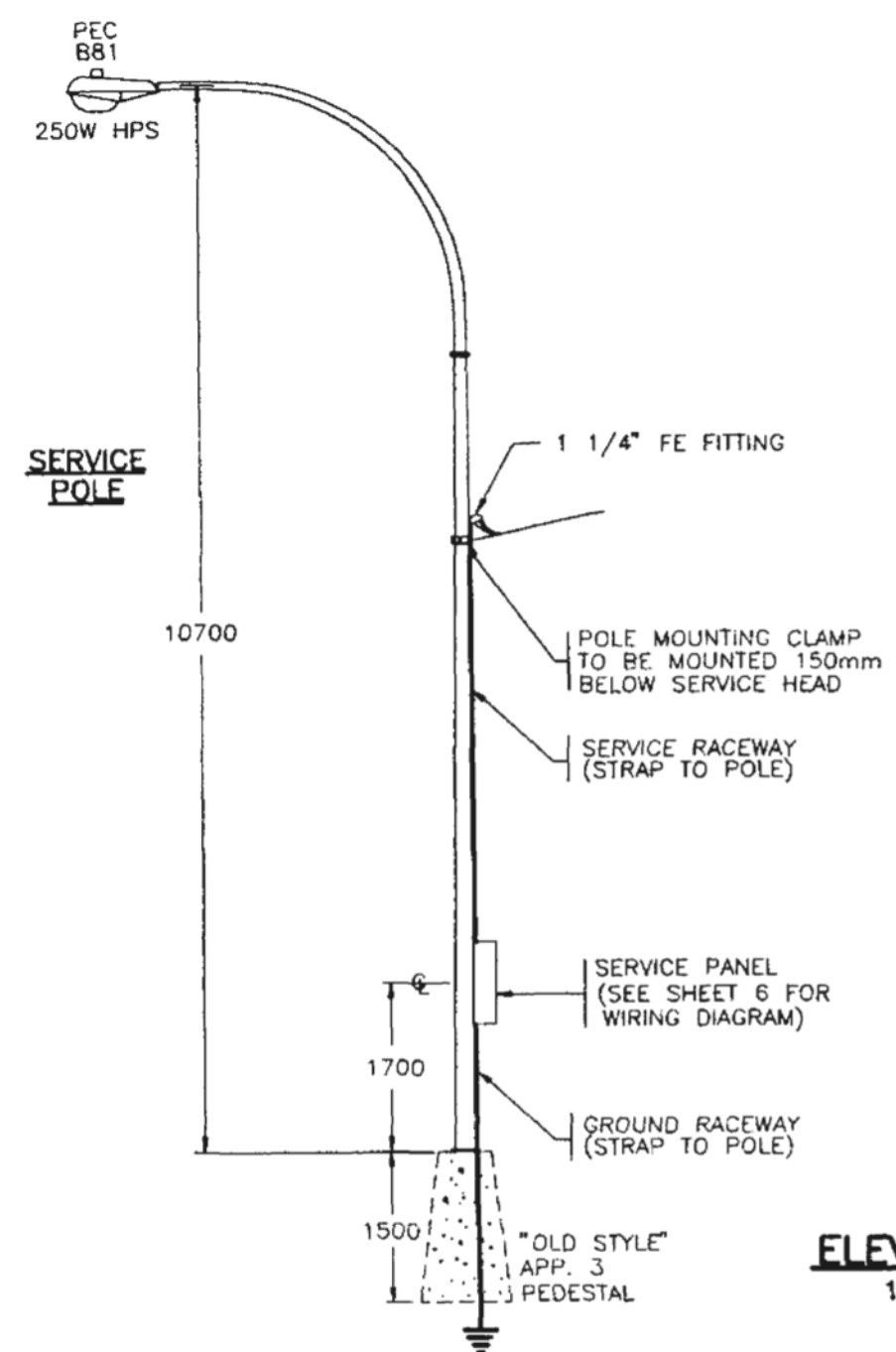
Province of British Columbia
MINISTRY OF TRANSPORTATION AND HIGHWAYS
HIGHWAY ENGINEERING BRANCH

SIGNAL INSTALLATION AND LIGHTING REVISION
ROUTE 17 AT ROYAL OAK INTERCHANGE
SAANICH

SITE PLAN - NOTES - ELEVATION

PREPARED BY J. SADLER SENIOR ELECTRICAL ENGINEER DATE JULY 4, 1990 FILE No.	RECOMMENDED J. LISMAN DIRECTOR OF HIGHWAY ENGINEERING DATE JULY 11, 1990 PROJECT No. 07241-0001	ACCEPTED FOR CONSTRUCTION E.A. LUND CHIEF HIGHWAY ENGINEER DATE JULY 11, 1990 DRAWING No. TE-90034-1/6
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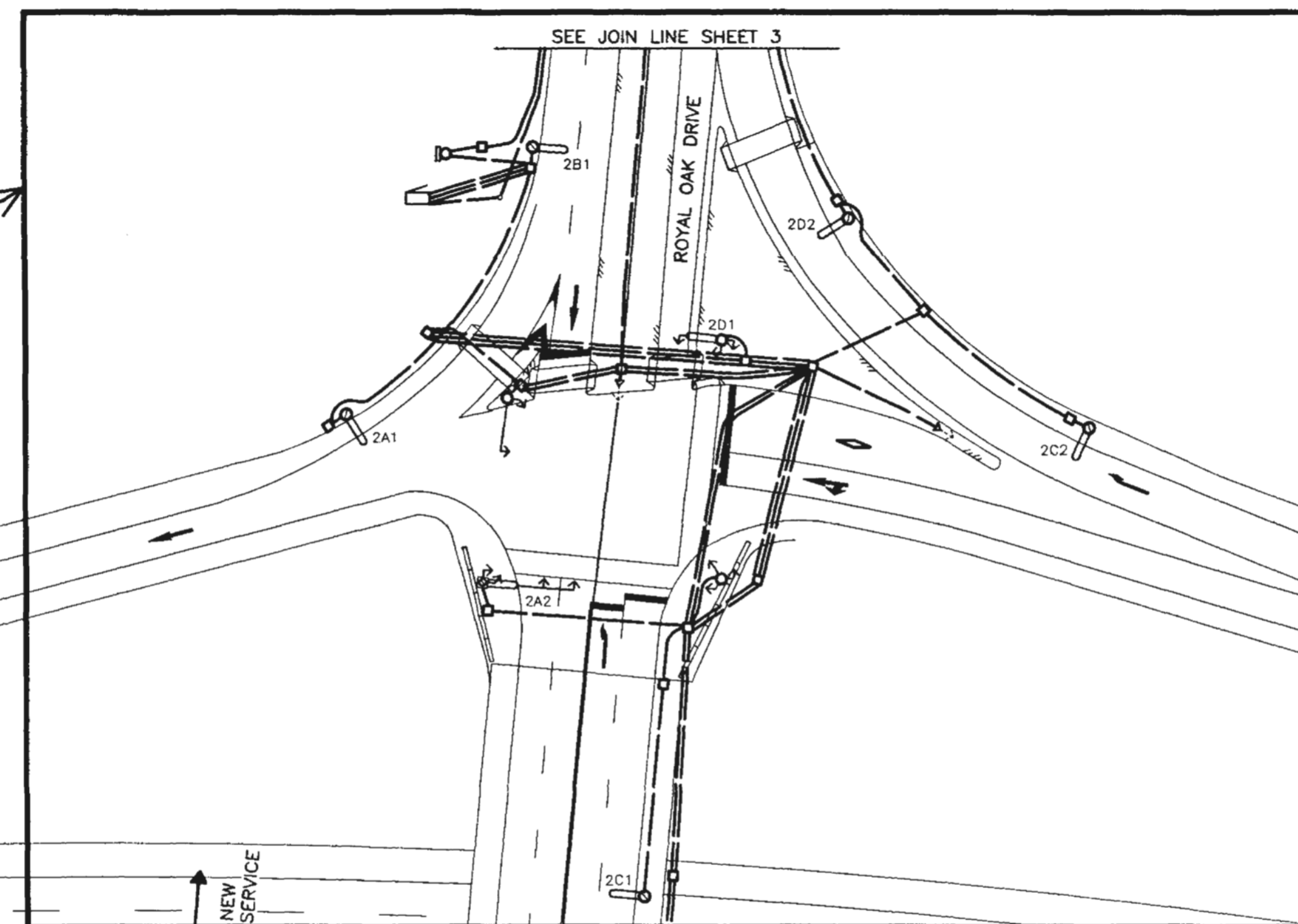
CANCEL PRINTS BEARING PREVIOUS LETTER



ELEVATION
1:75

FOR MINISTRY USE ONLY
REFER TO DRAWING SERIES E-7041
FOR PREVIOUS LIGHTING INSTALLATION

REFER TO SHEET 5 FOR SIGNAL
ENLARGEMENT AND DETAILS



ROUTE 17 (PATRICIA BAY HIGHWAY)

SEE JOIN LINE SHEET 1

SEE JOIN LINE SHEET 4

VOLTAGE: 120/208V 3Ø

DO NOT USE THIS DRAWING FOR PAINT MARKINGS
SEE HIGHWAY ENGINEERING CIVIL DRAWINGS

REFER TO SHEET 1 FOR NOTES

POSTED SPEED IS 80 km/h

SITE PLAN
1:500

REFER TO CONTRACT SPECIAL PROVISIONS
FOR APPLICABLE SP235 DRAWINGS

LEGEND

(SYMBOLS SHOWN FILLED IN SOLID ARE EXISTING)

<p>150W</p> <p>250W</p> <p>400W</p> <p>CONCRETE PEDESTAL AND JUNCTION BOX</p> <p>JUNCTION BOX - No. DENOTES TYPE</p> <p>150W LUMINAIRE POLE (SINGLE)</p> <p>"F" DENOTES FRANGIBLE BASE</p> <p>150W LUMINAIRE POLE (DOUBLE)</p> <p>PRIVATE LUMINAIRE POLE</p> <p>POST MOUNTED LUMINAIRE</p> <p>SIGNAL POLE WITH DAVIT AND SIDE OF POLE MOUNTED HEADS</p> <p>COMBINATION LUMINAIRE/DAVIT MOUNTED TRAFFIC SIGNAL POLE</p> <p>POST TOP MOUNTED SIGNAL</p>	<p>150W</p> <p>250W</p> <p>400W</p> <p>EXISTING PEDESTAL WITH PROPOSED LUMINAIRE</p> <p>DAVIT MOUNTED ILLUMINATED SIGN WITH AMBER FLASHERS</p> <p>COMBINATION LUMINAIRE/DAVIT MOUNTED ILLUMINATED SIGN WITH AMBER FLASHERS</p> <p>DAVIT MOUNTED SIGN (NON-ILLUMINATED)</p> <p>DAVIT MOUNTED ILLUMINATED SIGN</p> <p>COMBINATION LUMINAIRE/DAVIT MOUNTED NON-ILLUMINATED SIGN</p> <p>BREAKAWAY SIGN (NON-ILLUMINATED)</p> <p>ILLUMINATED BREAKAWAY SIGN</p>	<p>150W</p> <p>250W</p> <p>400W</p> <p>PROPOSED PEDESTAL WITH PROPOSED LUMINAIRE</p> <p>PEC</p> <p>RPVC</p> <p>R.C.</p> <p>F.C.</p> <p>OVERHEAD FLASHING BEACON</p> <p>POST MOUNTED FLASHER</p> <p>BACKGUY</p> <p>POWER POLE</p> <p>TELEPHONE POLE</p> <p>POWER/TELEPHONE POLE</p>	<p>TEST SWITCH</p> <p>BREAKER</p> <p>NEUTRAL BAR</p> <p>VEHICLE DETECTOR LOOP</p> <p>A,B,A1,A2,ETC. SIGNAL HEAD VEHICLE PHASE</p> <p>P,A,PB,PA1,PB2,ETC. SIGNAL HEAD PEDESTRIAN PHASE</p> <p>ppb PEDESTRIAN PUSHBUTTON</p> <p>U/G UTILITY</p> <p>"G" DENOTES GAS</p> <p>"S" DENOTES STORM DRAINS/SEWERS</p> <p>"W" DENOTES WATER</p> <p>"UE" DENOTES ELECTRIC</p> <p>"UT" DENOTES TELEPHONE</p> <p>"SAN" DENOTES SANITARY SEWER</p>	<p>RAISED CURB</p> <p>PROPERTY LINE</p> <p>EDGE OF GRAVEL SHOULDER</p> <p>EDGE OF PAVEMENT</p> <p>PAINT LINE</p> <p>PROPOSED UNDERGROUND CONDUIT</p> <p>EXISTING UNDERGROUND CONDUIT</p> <p>FENCE</p> <p>CORRUGATED METAL PIPE (CULVERT)</p>
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ELECTRICAL DESIGN APPROVED RPC DATE JUN90 DESIGNED RPC DATE MAY90
SCALE AS NOTED VOLTAGE AS NOTED CHECKED RPC DATE JUN90
HWY. DISTRICT SOUTH ISLAND DRAWN ACCUMAR DATE MAY90

Rev	Date	Description	Init	MICRO No.
APR90		DRAWING ISSUED		334495
A	JAN91	RECORD DRAWING		335314

REVISIONS

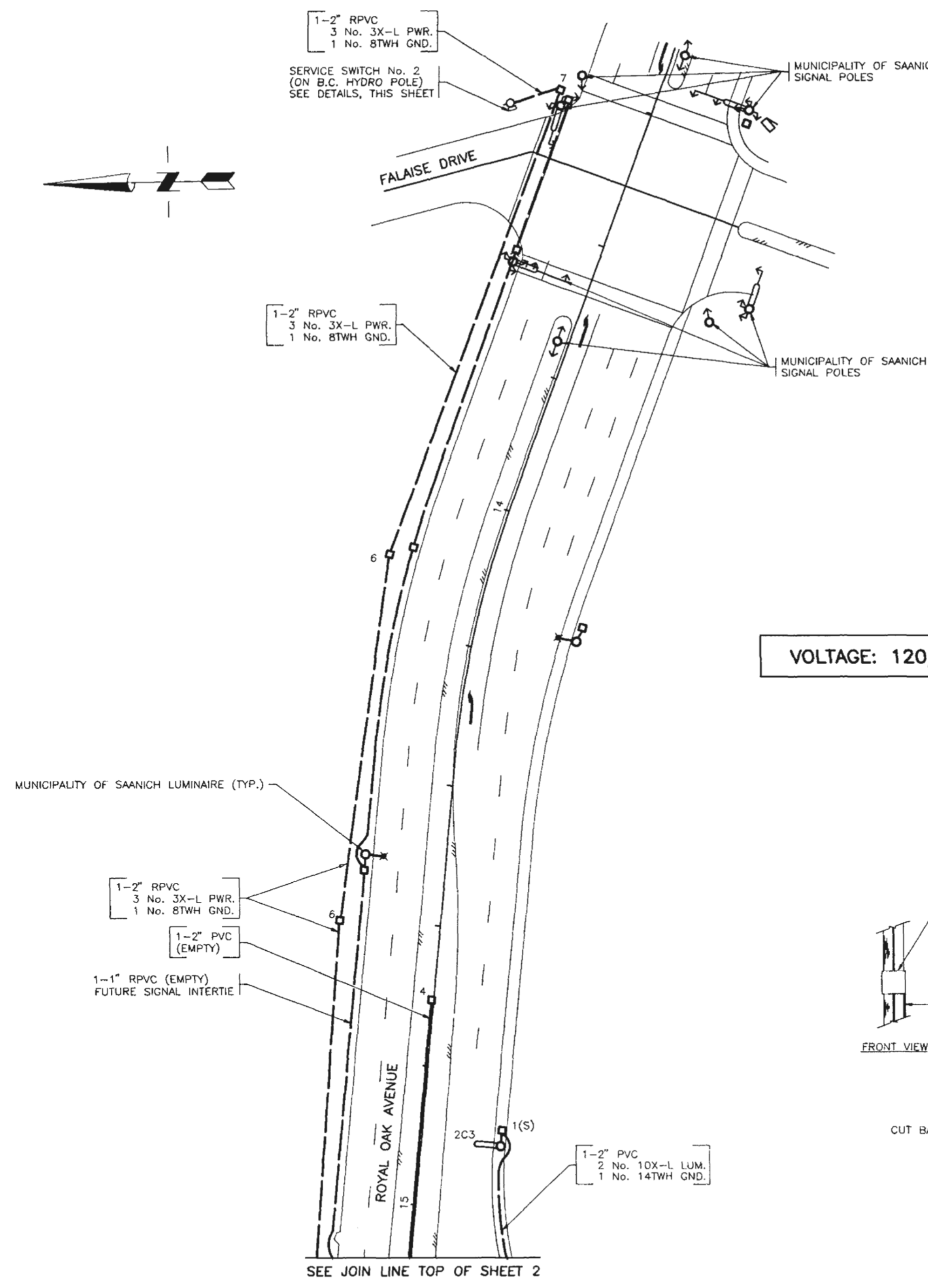
Province of British Columbia
MINISTRY OF TRANSPORTATION AND HIGHWAYS
HIGHWAY ENGINEERING BRANCH

SIGNAL INSTALLATION AND LIGHTING REVISION
ROUTE 17 AT ROYAL OAK INTERCHANGE
SAANICH

SITE PLAN

PREPARED BY	RECOMMENDED	ACCEPTED FOR CONSTRUCTION
ORIGINAL SIGNED BY J. LISMAN SENIOR ELECTRICAL ENGINEER DATE JULY 4, 1990 FILE No.	ORIGINAL SIGNED BY J. LISMAN DIRECTOR OF HIGHWAY ENGINEERING DATE JULY 9, 1990 PROJECT No. 07241-0001	ORIGINAL SIGNED BY E.A. LUND CHIEF HIGHWAY ENGINEER DATE JULY 11, 1990 DRAWING No. TE-90034-2/6

CANCEL PRINTS BEARING PREVIOUS LETTER

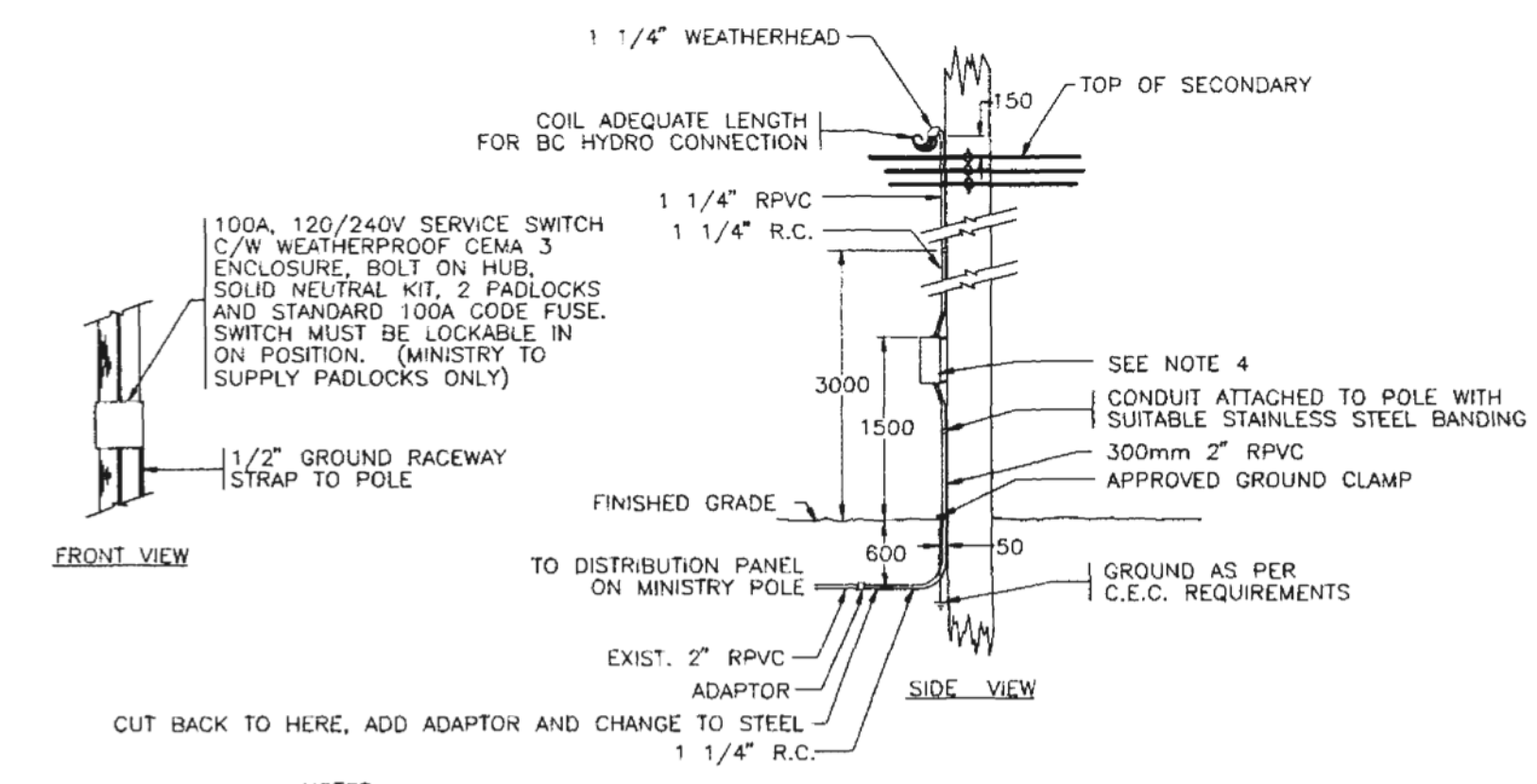


VOLTAGE: 120/240V 1Ø

DO NOT USE THIS DRAWING FOR PAINT MARKINGS
SEE HIGHWAY ENGINEERING CIVIL DRAWINGS

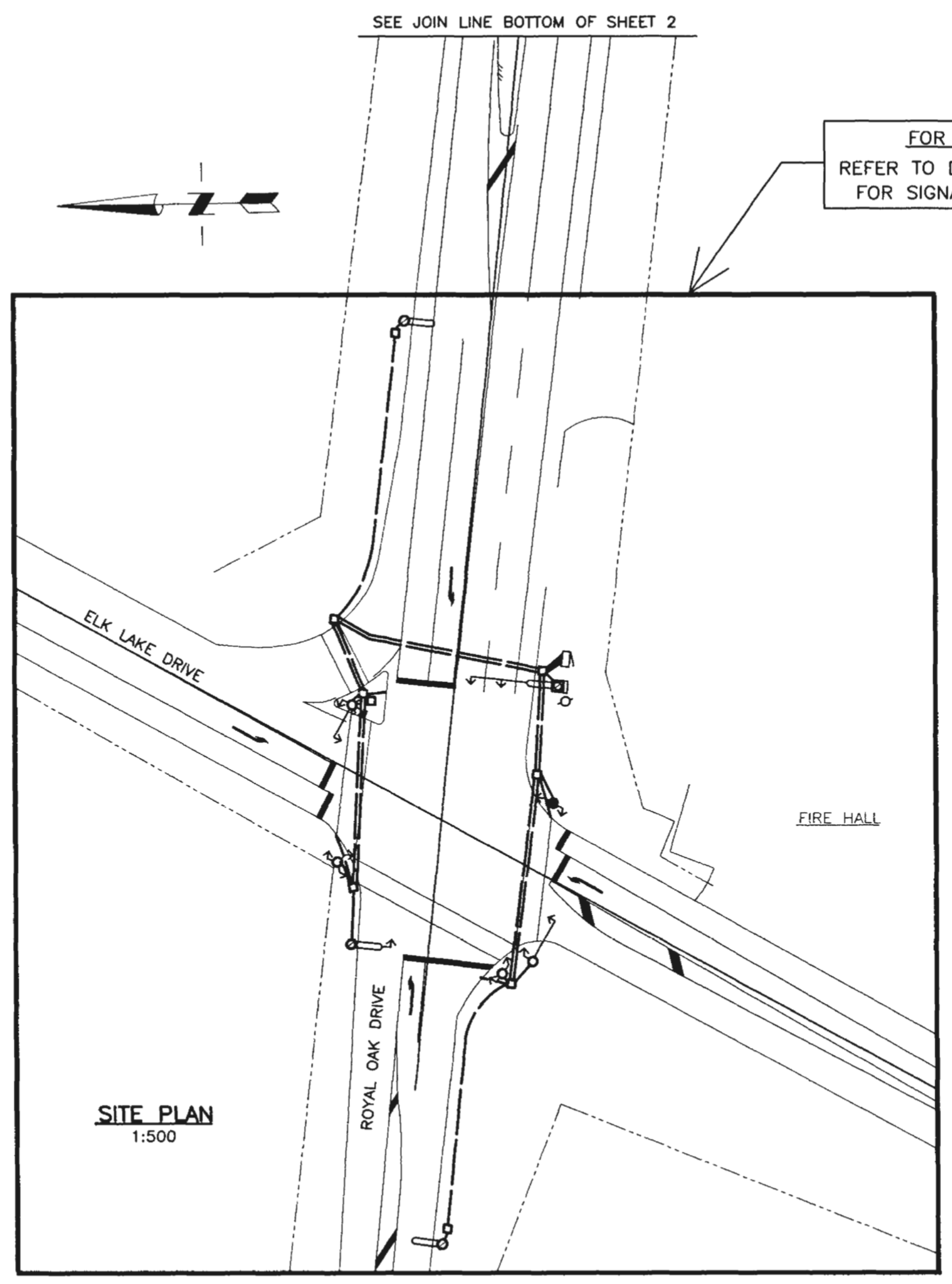
REFER TO SHEET 1 FOR NOTES

POSTED SPEED IS 50 km/h



- NOTES
1. INSTALLATION MUST BE IN ACCORDANCE WITH BC HYDRO STANDARDS AND WITH C.E.C. AND SAFETY ENGINEERING SERVICES DIVISION.
 2. CONTRACTOR TO BE RESPONSIBLE FOR INSTALLATION OF SERVICE CONDUCTORS. CONNECTION BY BC HYDRO.
 3. CONTRACTOR TO OBTAIN PERMISSION FROM BC HYDRO BEFORE INSTALLING EQUIPMENT ON POLE.
 4. INSTALL SERVICE SWITCH TO MEET BC HYDRO STANDARD ES43 G1-11.
 5. "BC HYDRO" SHALL ALSO MEAN LOCAL POWER AUTHORITY WHERE APPLICABLE.
 6. PADLOCKS SHALL BE USED TO LOCK THE ENCLOSURE AND SWITCH MECHANISM.

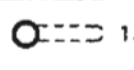
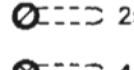
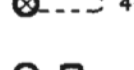



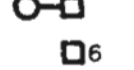
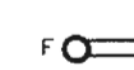
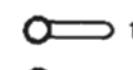

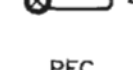
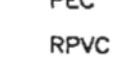
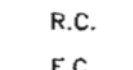
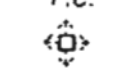








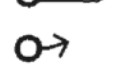



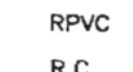
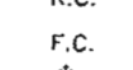

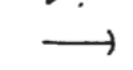





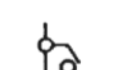
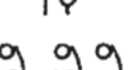
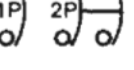
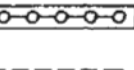

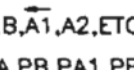

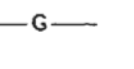





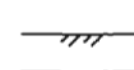
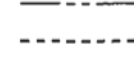
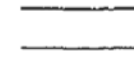
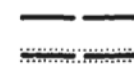
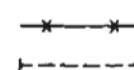




U/G DIP SERVICE ON B.C. HYDRO POLE
N.T.S.




FOR MINISTRY USE ONLY
REFER TO DRAWING SERIES TE-88045
FOR SIGNAL AND LIGHTING DETAILS

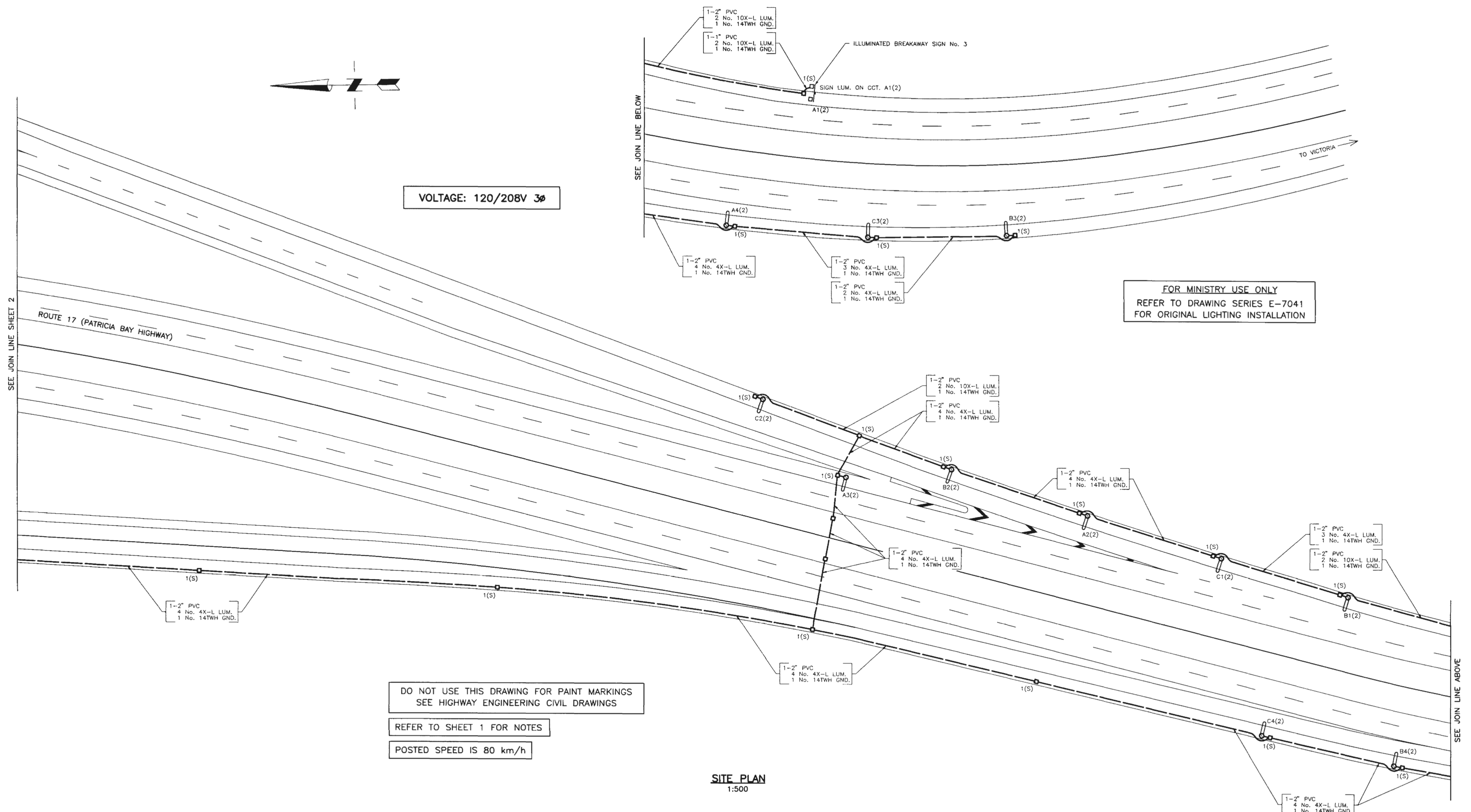
SITE PLAN
1:500

REFER TO CONTRACT SPECIAL PROVISIONS
FOR APPLICABLE SP235 DRAWINGS

LEGEND		(SYMBOLS SHOWN FILLED IN SOLID ARE EXISTING)	
 150W  250W  400W	PROPOSED PEDESTAL WITH FUTURE LUMINAIRE	 150W  250W  400W	EXISTING PEDESTAL WITH PROPOSED LUMINAIRE
 CONCRETE PEDESTAL AND JUNCTION BOX  JUNCTION BOX - No. DENOTES TYPE		 PEC  RPVC  R.C.  F.C.  OVERHEAD FLASHING BEACON  POST MOUNTED FLASHER  BACKGUY  POWER POLE  TELEPHONE POLE  POWER/TELEPHONE POLE	
 150W LUMINAIRE POLE (SINGLE)  150W LUMINAIRE POLE (DOUBLE)  PRIVATE LUMINAIRE POLE  POST MOUNTED LUMINAIRE  SIGNAL POLE WITH DAVIT AND SIDE OF POLE MOUNTED HEADS  COMBINATION LUMINAIRE/DAVIT MOUNTED TRAFFIC SIGNAL POLE  POST TOP MOUNTED SIGNAL		 PHOTO ELECTRIC CELL  RIGID P.V.C. CONDUIT  RIGID STEEL CONDUIT  FLEXIBLE CONDUIT (LIQUID TIGHT)  OVERHEAD FLASHING BEACON  POST MOUNTED FLASHER  BACKGUY  POWER POLE  TELEPHONE POLE  POWER/TELEPHONE POLE	
		 TEST SWITCH  BREAKER  NEUTRAL BAR  VEHICLE DETECTOR LOOP  A,B,A1,A2,ETC. SIGNAL HEAD VEHICLE PHASE  PA,PB,PA1,PB2,ETC. SIGNAL HEAD PEDESTRIAN PHASE  PPB PEDESTRIAN PUSHBUTTON  U/G UTILITY  'G' DENOTES GAS  'S' DENOTES STORM DRAINS/SEWERS  'W' DENOTES WATER  'E' DENOTES ELECTRIC  'T' DENOTES TELEPHONE 'SAN' DENOTES SANITARY SEWER	
		 RAISED CURB  PROPERTY LINE  EDGE OF GRAVEL SHOULDER  EDGE OF PAVEMENT  PAINT LINE  PROPOSED UNDERGROUND CONDUIT  EXISTING UNDERGROUND CONDUIT  FENCE  CORRUGATED METAL PIPE (CULVERT)	

ELECTRICAL DESIGN APPROVED <u>RPC</u> DATE <u>JUN90</u> DESIGNED <u>RPC</u> DATE <u>MAY90</u>	
SCALE AS NOTED VOLTAGE AS NOTED CHECKED <u>RPC</u> DATE <u>JUN90</u>	
HWY. DISTRICT SOUTH ISLAND DRAWN <u>ACCUMAP</u> DATE <u>MAY90</u>	
Rev	Date
A	JAN91
DESCRIPTION	INITIALS
DRAWING ISSUED	334496
RECORD DRAWING	335315
REVISIONS	

 Province of British Columbia MINISTRY OF TRANSPORTATION AND HIGHWAYS HIGHWAY ENGINEERING BRANCH		
SIGNAL INSTALLATION AND LIGHTING REVISION ROUTE 17 AT ROYAL OAK INTERCHANGE SAANICH		
SITE PLAN - ELEVATION		
PREPARED BY J. LISMAN SENIOR ELECTRICAL ENGINEER DATE JULY 4, 1990 FILE No.	RECOMMENDED E.A. LUND DIRECTOR OF HIGHWAY ENGINEERING DATE JULY 9, 1990 PROJECT No. 07241-0001	ACCEPTED FOR CONSTRUCTION E.A. LUND CHIEF HIGHWAY ENGINEER DATE JULY 11, 1990 DRAWING No. TE-90034-3/6
CANCEL PRINTS BEARING PREVIOUS LETTER		



VOLTAGE: 120/208V 3Ø

FOR MINISTRY USE ONLY
REFER TO DRAWING SERIES E-7041
FOR ORIGINAL LIGHTING INSTALLATION

DO NOT USE THIS DRAWING FOR PAINT MARKINGS
SEE HIGHWAY ENGINEERING CIVIL DRAWINGS

REFER TO SHEET 1 FOR NOTES

POSTED SPEED IS 80 km/h

SITE PLAN
1:500

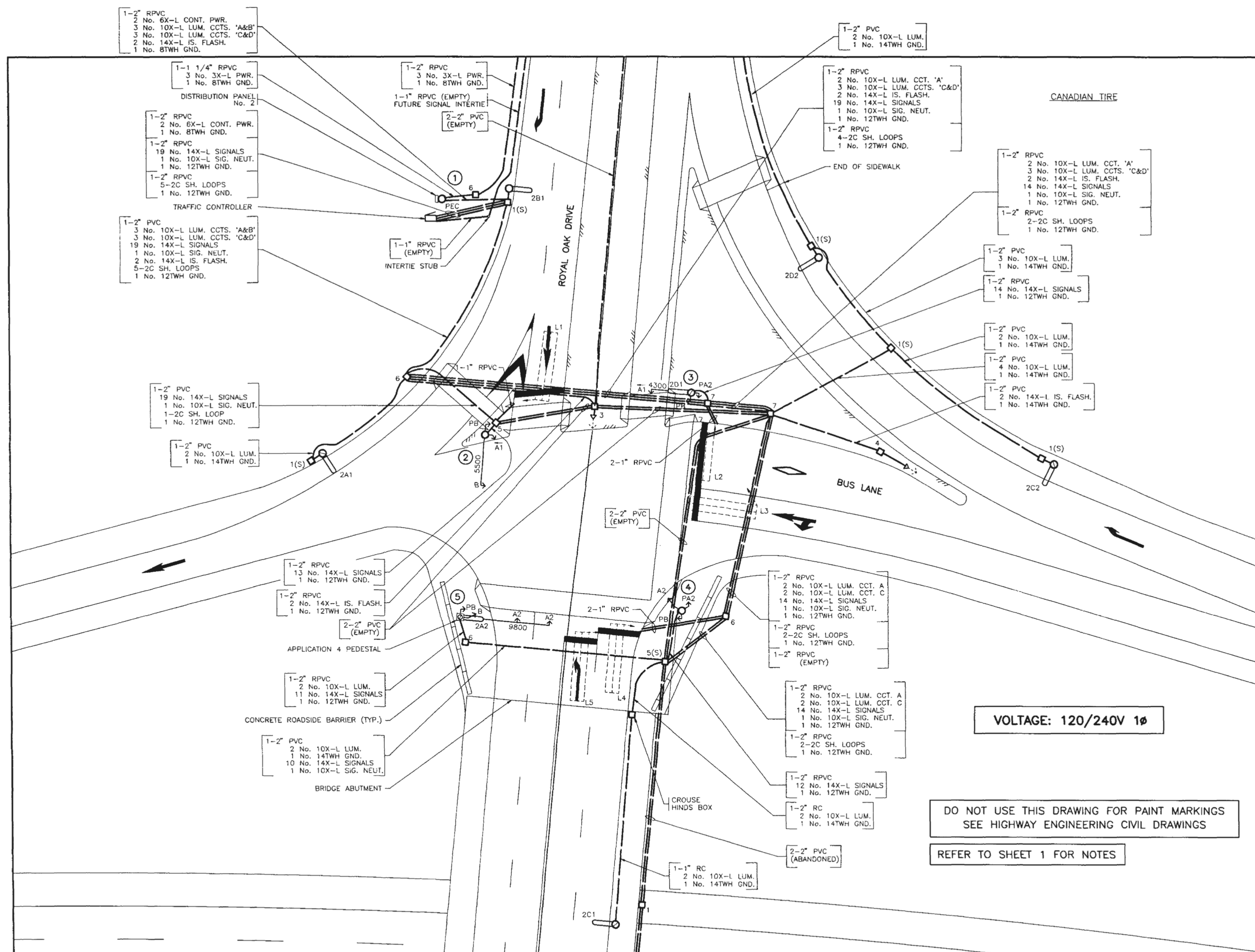
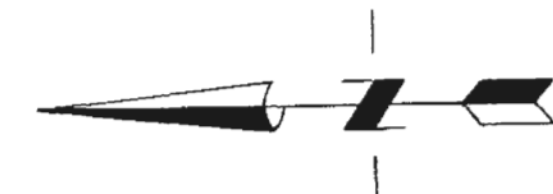
REFER TO CONTRACT SPECIAL PROVISIONS
FOR APPLICABLE SP235 DRAWINGS

LEGEND (SYMBOLS SHOWN FILLED IN SOLID ARE EXISTING)									
	150W		EXISTING PEDESTAL WITH LUMINAIRE		150W		PROPOSED PEDESTAL WITH LUMINAIRE		PEC PHOTO ELECTRIC CELL
	250W		EXISTING PEDESTAL WITH LUMINAIRE		250W		PROPOSED PEDESTAL WITH LUMINAIRE		RPVC RIGID P.V.C. CONDUIT
	400W		EXISTING PEDESTAL WITH LUMINAIRE		400W		PROPOSED PEDESTAL WITH LUMINAIRE		R.C. RIGID STEEL CONDUIT
	CONCRETE PEDESTAL AND JUNCTION BOX		DAVIT MOUNTED ILLUMINATED SIGN WITH AMBER FLASHERS		PEC PHOTO ELECTRIC CELL		TEST SWITCH		RPVC RIGID P.V.C. CONDUIT
	JUNCTION BOX - No. DENOTES TYPE		COMBINATION LUMINAIRE/DAVIT MOUNTED ILLUMINATED SIGN WITH AMBER FLASHERS		R.C. RIGID STEEL CONDUIT		NEUTRAL BAR		F.C. FLEXIBLE CONDUIT (LIQUID TIGHT)
	150W LUMINAIRE POLE (SINGLE)		DAVIT MOUNTED SIGN (NON-ILLUMINATED)		OVERHEAD FLASHING BEACON		VEHICLE DETECTOR LOOP		POST MOUNTED FLASHER
	150W LUMINAIRE POLE (DOUBLE)		DAVIT MOUNTED ILLUMINATED SIGN		BACKGUY		SIGNAL HEAD VEHICLE PHASE		POWER POLE
	PRIVATE LUMINAIRE POLE		COMBINATION LUMINAIRE/DAVIT MOUNTED NON-ILLUMINATED SIGN		POWER POLE		SIGNAL HEAD PEDESTRIAN PHASE		TELEPHONE POLE
	POST MOUNTED LUMINAIRE		BREAKAWAY SIGN (NON-ILLUMINATED)		POWER/TELEPHONE POLE		PEDESTRIAN PUSHBUTTON		
	SIGNAL POLE WITH DAVIT AND SIDE OF POLE MOUNTED HEADS		ILLUMINATED BREAKAWAY SIGN						
	COMBINATION LUMINAIRE/DAVIT MOUNTED TRAFFIC SIGNAL POLE								
	POST TOP MOUNTED SIGNAL								

ELECTRICAL DESIGN APPROVED <u>RPC</u> DATE <u>JUN90</u> DESIGNED <u>RPC</u> DATE <u>MAY90</u>			
SCALE AS NOTED VOLTAGE AS NOTED CHECKED <u>RPC</u> DATE <u>JUN90</u>			
HWY. DISTRICT SOUTH ISLAND DRAWN <u>ACCUMAP</u> DATE <u>MAY90</u>			
Rev	Date	Description	Init
APR90		DRAWING ISSUED	
A	JAN91	RECORD DRAWING	
REVISIONS			

Province of British Columbia MINISTRY OF TRANSPORTATION AND HIGHWAYS HIGHWAY ENGINEERING BRANCH		
SIGNAL INSTALLATION AND LIGHTING REVISION ROUTE 17 AT ROYAL OAK INTERCHANGE SAANICH		
SITE PLAN		
PREPARED BY	RECOMMENDED	ACCEPTED FOR CONSTRUCTION
ORIGINAL SIGNED BY FA SADLER SENIOR ELECTRICAL ENGINEER	ORIGINAL SIGNED BY J. LISMAN DIRECTOR OF HIGHWAY ENGINEERING	ORIGINAL SIGNED BY E.A. LUND CHIEF HIGHWAY ENGINEER
DATE JULY 4, 1990	DATE JULY 9, 1990	DATE JULY 11, 1990
FILE No.	PROJECT No.	REG. DRAWING No.
	07241-0001	6
TE-90034-4/6		

CANCEL PRINTS BEARING PREVIOUS LETTER



VOLTAGE: 120/240V 1Ø

DO NOT USE THIS DRAWING FOR PAINT MARKINGS
SEE HIGHWAY ENGINEERING CIVIL DRAWINGS

REFER TO SHEET 1 FOR NOTES

REFER TO CONTRACT SPECIAL PROVISIONS
FOR APPLICABLE SP235 DRAWINGS

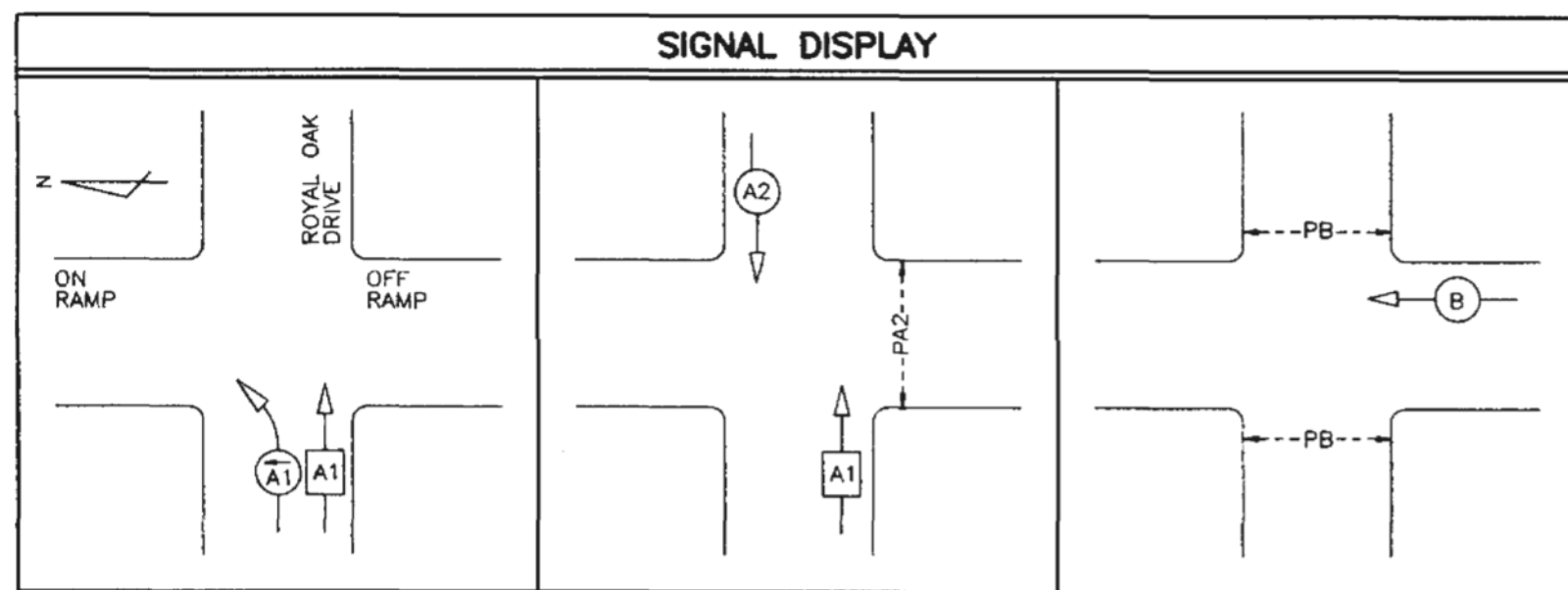
LEGEND

(SYMBOLS SHOWN FILLED IN SOLID ARE EXISTING)

<p>○ 150W ○ 250W ○ 400W</p> <p>PROPOSED PEDESTAL WITH FUTURE LUMINAIRE</p> <p>□ CONCRETE PEDESTAL AND JUNCTION BOX 6 JUNCTION BOX - No. DENOTES TYPE</p> <p>○ 150W LUMINAIRE POLE (SINGLE) F DENOTES FRANGIBLE BASE</p> <p>○ 150W LUMINAIRE POLE (DOUBLE)</p> <p>○ PRIVATE LUMINAIRE POLE</p> <p>○ POST MOUNTED LUMINAIRE</p> <p>○ SIGNAL POLE WITH DAVIT AND SIDE OF POLE MOUNTED HEADS</p> <p>○ COMBINATION LUMINAIRE/DAVIT MOUNTED TRAFFIC SIGNAL POLE</p> <p>○ POST TOP MOUNTED SIGNAL</p>	<p>● 150W ● 250W ● 400W</p> <p>EXISTING PEDESTAL WITH PROPOSED LUMINAIRE</p> <p>○ DAVIT MOUNTED ILLUMINATED SIGN WITH AMBER FLASHERS</p> <p>○ COMBINATION LUMINAIRE/DAVIT MOUNTED ILLUMINATED SIGN WITH AMBER FLASHERS</p> <p>○ DAVIT MOUNTED SIGN (NON-ILLUMINATED)</p> <p>○ DAVIT MOUNTED ILLUMINATED SIGN</p> <p>○ COMBINATION LUMINAIRE/DAVIT MOUNTED NON-ILLUMINATED SIGN</p> <p>□ BREAKAWAY SIGN (NON-ILLUMINATED)</p> <p>□ ILLUMINATED BREAKAWAY SIGN</p>	<p>○ 150W ○ 250W ○ 400W</p> <p>PROPOSED PEDESTAL WITH PROPOSED LUMINAIRE</p> <p>PEC PHOTO ELECTRIC CELL</p> <p>RPVC RIGID P.V.C. CONDUIT</p> <p>R.C. RIGID STEEL CONDUIT</p> <p>F.C. FLEXIBLE CONDUIT (LIQUID TIGHT)</p> <p>○ OVERHEAD FLASHING BEACON</p> <p>○ POST MOUNTED FLASHER</p> <p>○ BACKGUY</p> <p>○ POWER POLE</p> <p>○ TELEPHONE POLE</p> <p>○ POWER/TELEPHONE POLE</p>	<p>TEST SWITCH</p> <p>BREAKER</p> <p>NEUTRAL BAR</p> <p>VEHICLE DETECTOR LOOP</p> <p>A,B,A1,A2,ETC. SIGNAL HEAD VEHICLE PHASE</p> <p>P,A,PB,PA1,PB2,ETC. SIGNAL HEAD PEDESTRIAN PHASE</p> <p>ppb PEDESTRIAN PUSHBUTTON</p> <p>U/G UTILITY</p> <p>G DENOTES GAS</p> <p>S DENOTES STORM DRAINS/SEWERS</p> <p>W DENOTES WATER</p> <p>UE DENOTES ELECTRIC</p> <p>UT DENOTES TELEPHONE</p> <p>SAN DENOTES SANITARY SEWER</p>	<p>RAISED CURB</p> <p>PROPERTY LINE</p> <p>EDGE OF GRAVEL SHOULDER</p> <p>EDGE OF PAVEMENT</p> <p>PAINT LINE</p> <p>PROPOSED UNDERGROUND CONDUIT</p> <p>EXISTING UNDERGROUND CONDUIT</p> <p>FENCE</p> <p>CORRUGATED METAL PIPE (CULVERT)</p>
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ELECTRICAL DESIGN APPROVED <u>RPC</u> DATE <u>JUN90</u> DESIGNED <u>RPC</u> DATE <u>MAY90</u>		SCALE AS NOTED VOLTAGE AS NOTED CHECKED <u>RPC</u> DATE <u>JUN90</u>	
HWY. DISTRICT SOUTH ISLAND		DRAWN <u>ACCUMAP</u> DATE <u>MAY90</u>	
Rev	Date	Description	Init
APR90		DRAWING ISSUED	
A	JAN91	RECORD DRAWING ISSUED	
REVISIONS			

 Province of British Columbia MINISTRY OF TRANSPORTATION AND HIGHWAYS HIGHWAY ENGINEERING BRANCH		
SIGNAL INSTALLATION AND LIGHTING REVISION ROUTE 17 AT ROYAL OAK INTERCHANGE SAANICH		
SITE PLAN ENLARGEMENT		
PREPARED BY J. LISMAN SENIOR ELECTRICAL ENGINEER DATE JULY 9, 1990 FILE No.	RECOMMENDED ORIGINAL SIGNED BY E.A. LUND DIRECTOR OF HIGHWAY ENGINEERING DATE JULY 11, 1990 PROJECT No. 07241-0001	ACCEPTED FOR CONSTRUCTION ORIGINAL SIGNED BY E.A. LUND CHIEF HIGHWAY ENGINEER DATE JULY 11, 1990 DRAWING No. TE-90034-5/6
CANCEL PRINTS BEARING PREVIOUS LETTER		



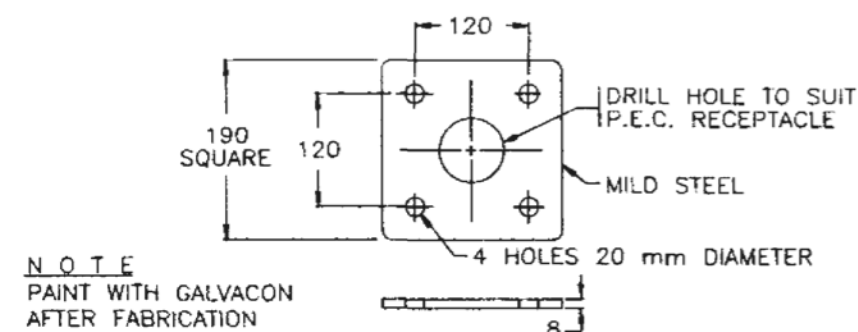
NOTE: A1 OVERLAPS A1 AND A2

DETECTOR LOOP DETAILS					
LOOP No.	SIZE	URNS	LOOP	LEAD	TOTAL
L 1	1.8 x 7.6	2	207	32	239
L 2	1.8 x 5.2	2	148	48	196
L 3	1.8 x 7.6	2	207	66	273
L 4	1.8 x 7.6	2	207	66	273

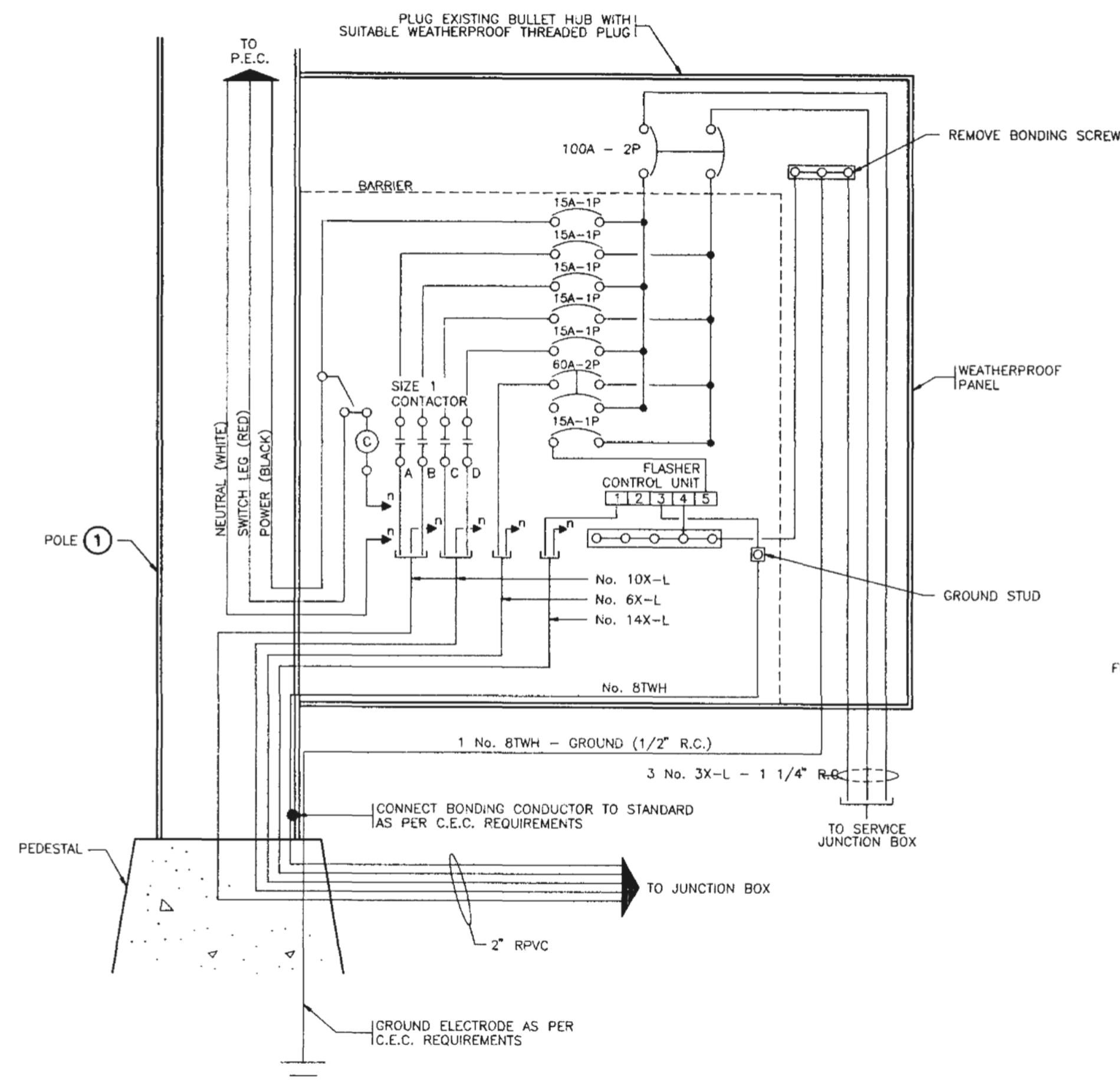
CONNECTIONS					
L1 (BY ITSELF)	DET CH				øA2
L4 (BY ITSELF)	DET CH				øA1
L5 (BY ITSELF)	DET CH				øA1
L2+L3 (SERIES)	DET CH				øB

COLOUR CODE (SERVICE No. 2)		
ITEM	SIGNAL SECTION	CONDUCTOR COLOUR
A1	RED YELLOW GREEN YELLOW ARROW GREEN ARROW	RED YELLOW BLUE ORANGE (WHITE T.T.) BLUE (WHITE T.T.)
A2	RED YELLOW GREEN	RED YELLOW (RED T.T.) BLUE
B	RED YELLOW GREEN	RED BROWN BLUE
PA2	DON'T WALK WALK PUSH BUTTON	YELLOW (RED T.T.) BLACK/BLACK BLACK/BLACK
PB	DON'T WALK WALK PUSH BUTTON	BROWN BLUE BLACK/BLACK
CONTROLLER POWER		BLACK
LUMINAIRE CCT. 'A&C'		BLACK
LUMINAIRE CCT. 'B'		RED
ISLAND FLASHER		ORANGE
NEUTRAL		WHITE
GROUND		GREEN

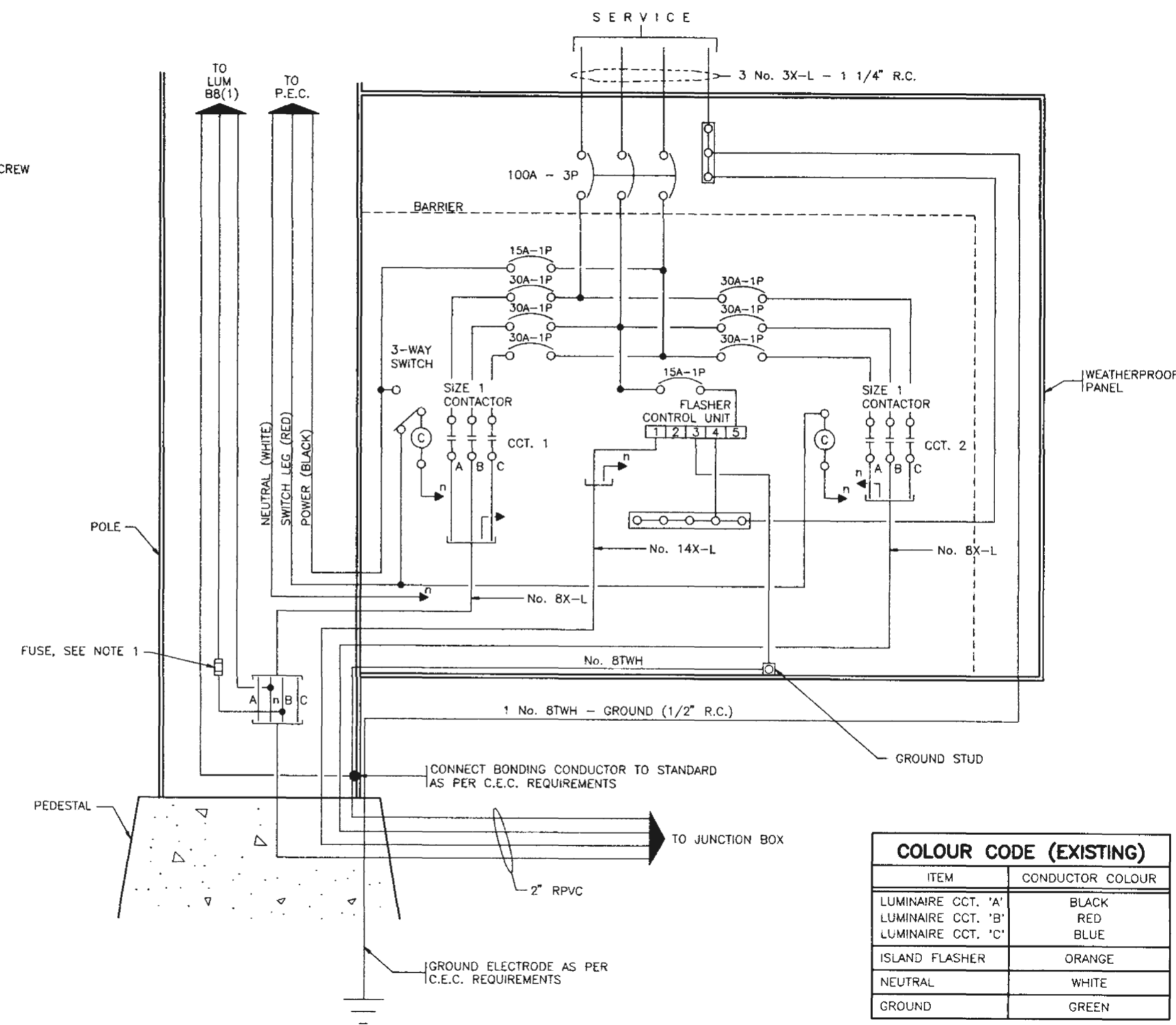
NOTE: T.T. DENOTES TAPE TRACER.



CAP DETAIL
N.T.S.

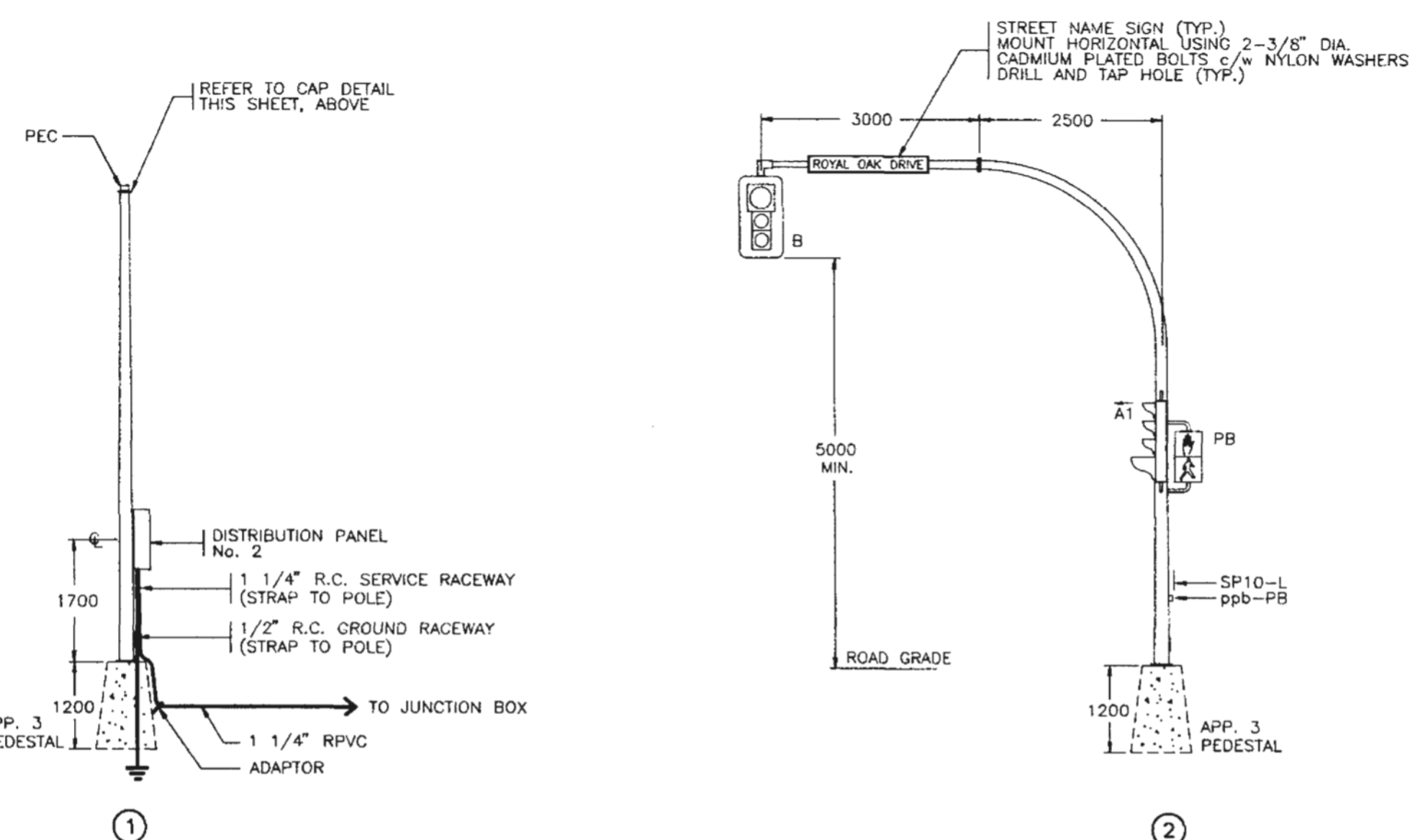


WIRING DIAGRAM - DISTRIBUTION PANEL No. 2 (120/240V 1ø)
N.T.S.

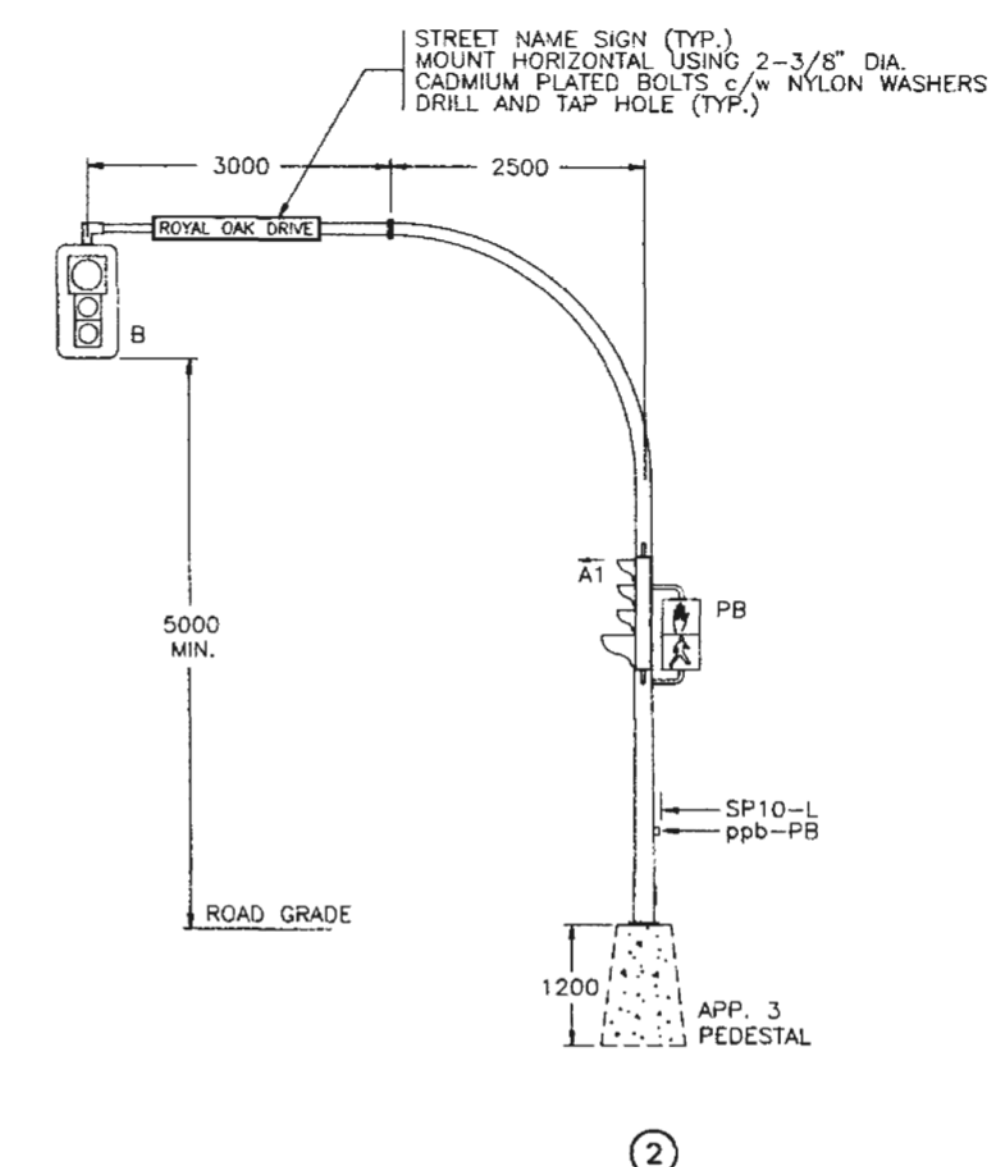


COLOUR CODE (EXISTING)	
ITEM	CONDUCTOR COLOUR
LUMINAIRE CCT. 'A'	BLACK
LUMINAIRE CCT. 'B'	RED
LUMINAIRE CCT. 'C'	BLUE
ISLAND FLASHER	ORANGE
NEUTRAL	WHITE
GROUND	GREEN

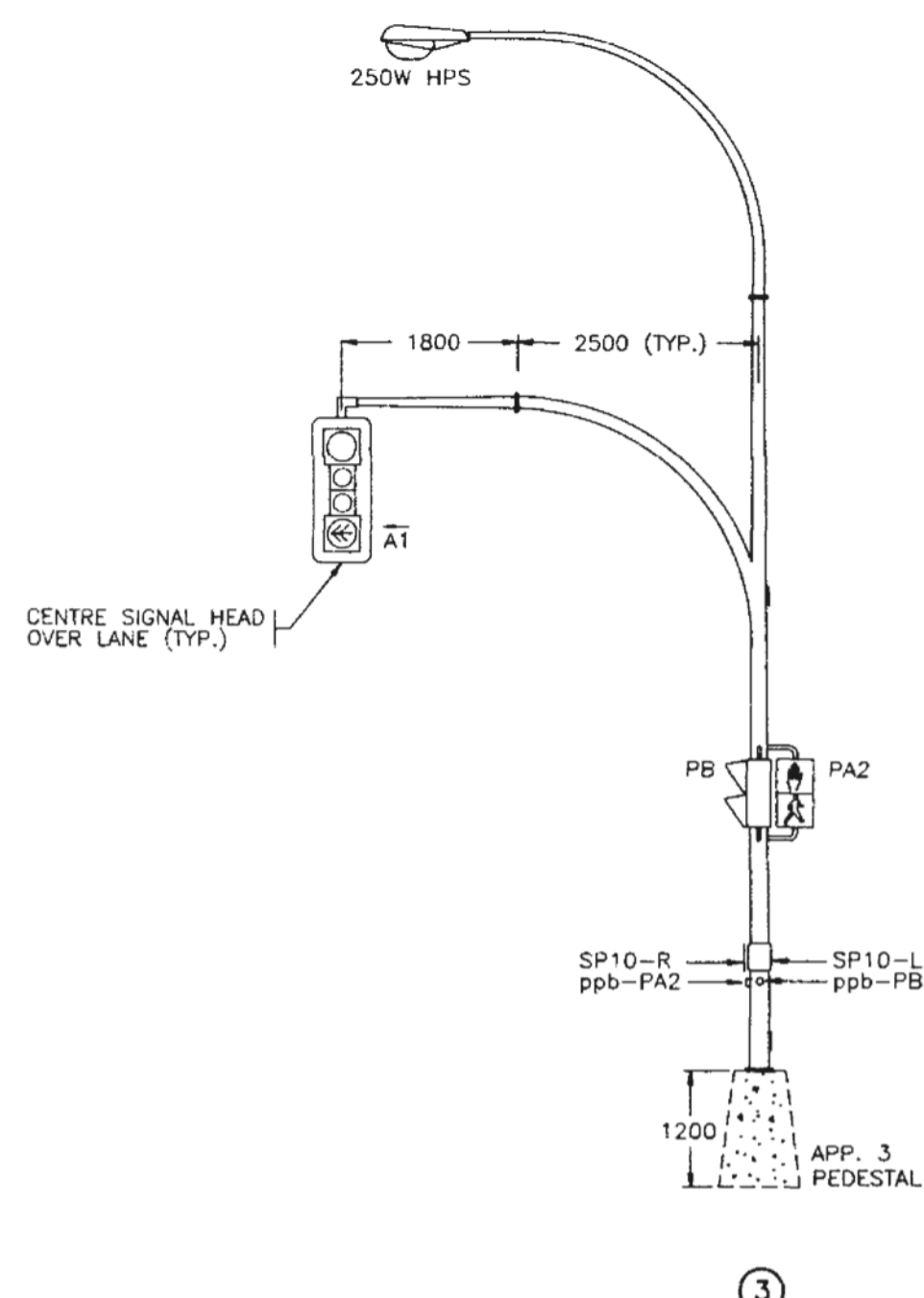
WIRING DIAGRAM - EXISTING SERVICE PANEL (120/208V 3ø)
N.T.S.



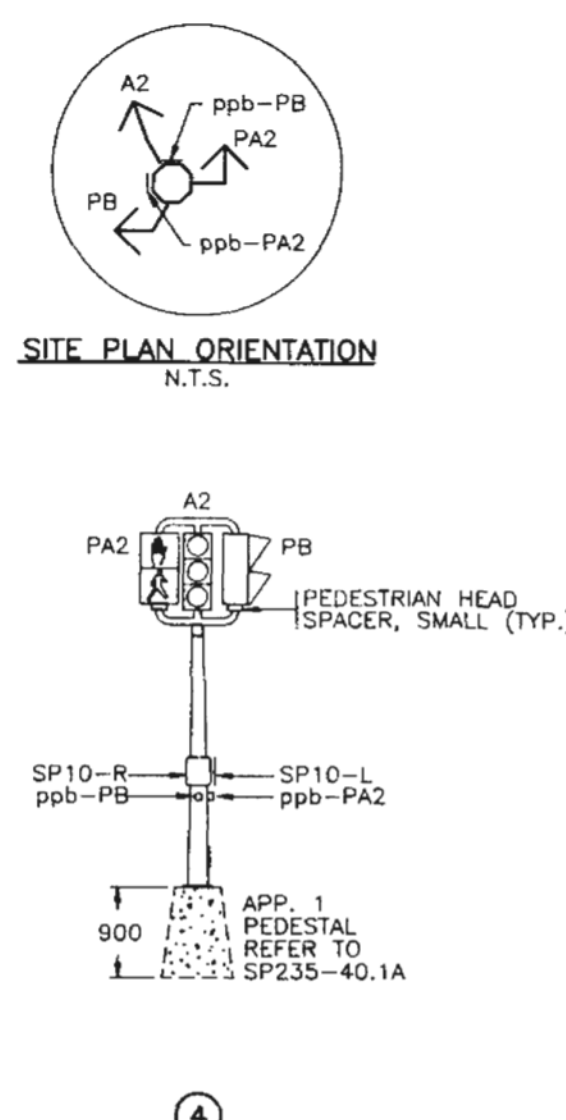
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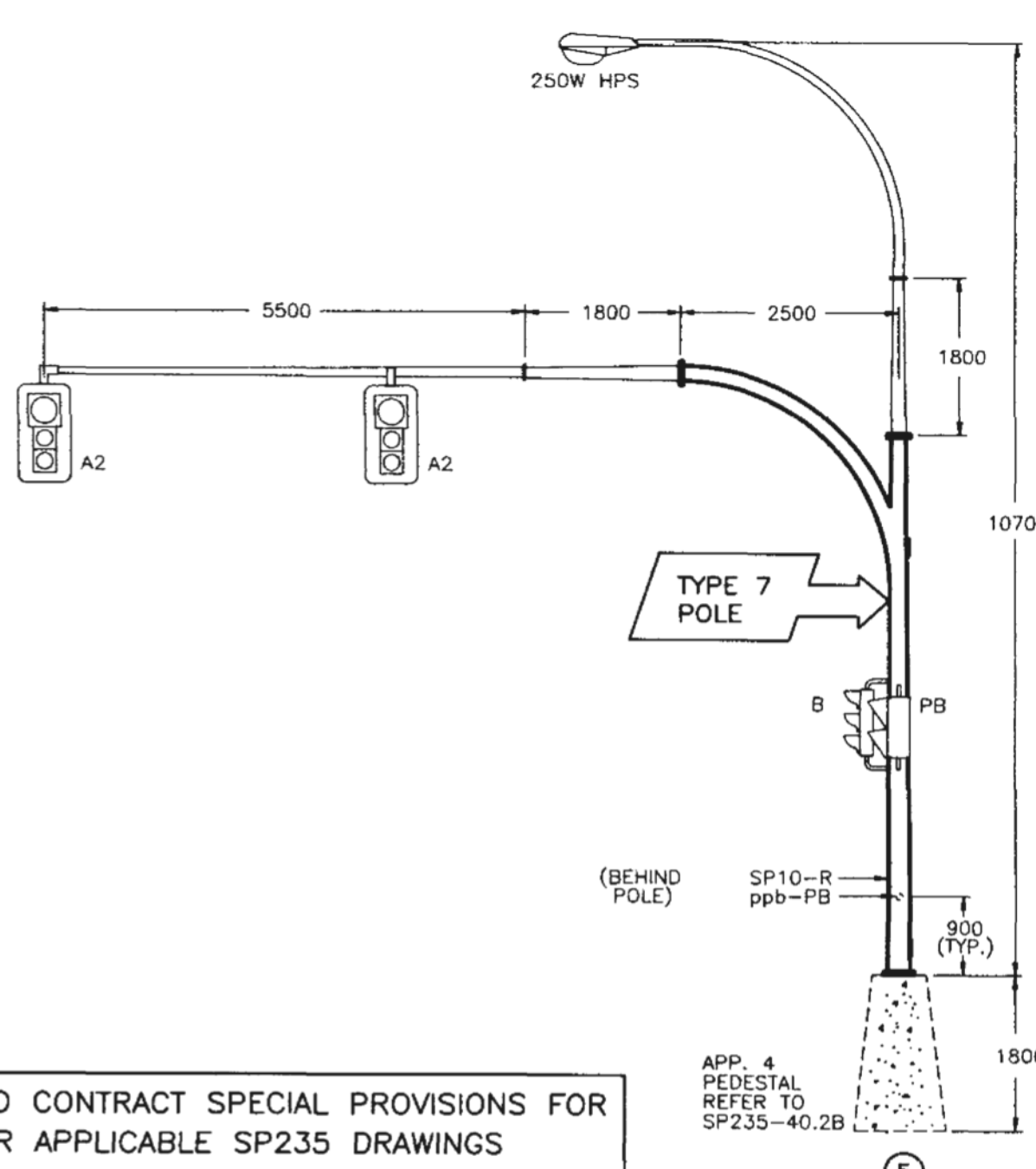
2



3



4



5

REFER TO CONTRACT SPECIAL PROVISIONS FOR
FOR APPLICABLE SP235 DRAWINGS

LEGEND (SYMBOLS SHOWN FILLED IN SOLID ARE EXISTING)					
<ul style="list-style-type: none"> 150W 250W 400W 	<ul style="list-style-type: none"> 150W 250W 400W 	<ul style="list-style-type: none"> 150W 250W 400W 	<ul style="list-style-type: none"> TEST SWITCH BREAKER NEUTRAL BAR VEHICLE DETECTOR LOOP SIGNAL HEAD VEHICLE PHASE SIGNAL HEAD PEDESTRIAN PHASE PEDESTRIAN PUSHBUTTON U/G UTILITY 'G' DENOTES GAS 'S' DENOTES STORM DRAINS/SEWERS 'W' DENOTES WATER 'E' DENOTES ELECTRIC 'T' DENOTES TELEPHONE 'SAN' DENOTES SANITARY SEWER 	<ul style="list-style-type: none"> RAISED CURB PROPERTY LINE EDGE OF GRAVEL SHOULDER EDGE OF PAVEMENT PAINT LINE PROPOSED UNDERGROUND CONDUIT EXISTING UNDERGROUND CONDUIT FENCE CORRUGATED METAL PIPE (CULVERT) 	<ul style="list-style-type: none"> CONCRETE PEDESTAL AND JUNCTION BOX JUNCTION BOX - No. DENOTES TYPE 150W LUMINAIRE POLE (SINGLE) 'F' DENOTES FRANGIBLE BASE 150W LUMINAIRE POLE (DOUBLE) PRIVATE LUMINAIRE POLE POST MOUNTED LUMINAIRE SIGNAL POLE WITH DAVIT AND SIDE OF POLE MOUNTED HEADS COMBINATION LUMINAIRE/DAVIT TRAFFIC SIGNAL POLE POST TOP MOUNTED SIGNAL DAVIT MOUNTED ILLUMINATED SIGN WITH AMBER FLASHERS COMBINATION LUMINAIRE/DAVIT MOUNTED ILLUMINATED SIGN WITH AMBER FLASHERS DAVIT MOUNTED SIGN (NON-ILLUMINATED) DAVIT MOUNTED ILLUMINATED SIGN COMBINATION LUMINAIRE/DAVIT MOUNTED NON-ILLUMINATED SIGN BREAKAWAY SIGN (NON-ILLUMINATED) ILLUMINATED BREAKAWAY SIGN PEC RPVC R.C. F.C. OVERHEAD FLASHING BEACON POST MOUNTED FLASHER BACKGUY POWER POLE TELEPHONE POLE POWER/TELEPHONE POLE

ELECTRICAL DESIGN APPROVED		DATE	JUN90	DESIGNED	RPC	DATE	MAY90
SCALE		AS NOTED	VOLTAGE	AS NOTED	CHECKED	RPC	DATE
HWY. DISTRICT SOUTH ISLAND				DRAWN	ACCUMAP		DATE
Rev	Date	Description	Init	MICRO No.			
APR90		DRAWING ISSUED		334977			
A	JAN91	RECORD DRAWING		335312			

Province of British Columbia MINISTRY OF TRANSPORTATION AND HIGHWAYS HIGHWAY ENGINEERING BRANCH		
SIGNAL INSTALLATION AND LIGHTING REVISION ROUTE 17 AT ROYAL OAK INTERCHANGE SAANICH		
WIRING DIAGRAMS - ELEVATIONS - DETAILS		
PREPARED BY	RECOMMENDED	ACCEPTED FOR CONSTRUCTION
ORIGINAL SIGNED BY A. SADLER SENIOR ELECTRICAL ENGINEER	ORIGINAL SIGNED BY J. LISMAN DIRECTOR OF HIGHWAY ENGINEERING	ORIGINAL SIGNED BY A. LUND CHIEF HIGHWAY ENGINEER
DATE	DATE	DATE
FILE No.	PROJECT No.	REC.
	07241-0001	6
		TE-90034-6/6