

FOUNDATION INVESTIGATION REPORT

For

High Mast Lighting

Highway 400 Steeles to Hwy 7

W.P. 142-87-00 (A); Site: N/A

Highway 400, District 6, Toronto

This report provides subsurface information for the proposed high mast light foundations for this project.

Reference is made to the attached Record of Borehole sheets #1 to #10 which illustrate subsurface information at the specific borehole locations. This information was interpolated or extrapolated to predict conditions at High Mast Light locations.

Reference is made to the attached sheets E5, E7, E8, E10, E12, E13 and E14. These plans illustrate borehole locations for Boreholes #1 to Borehole #10. Few borehole did not plot on these plans and therefore, their coordinates and locations are detailed on the plans..



K. Ahmad, P. Eng.
Foundation Engineer

For

D. Dundas, P. Eng.
Senior Foundation Engineer

BH 1

[WP 142-87-00 (A)]


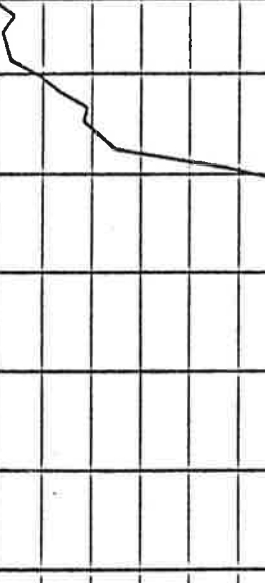


73

Formerly [BH C-9, WP 164-79-06]

Contract No.: 88-79

METRIC

W P 164-79-06 LOCATION Co-ords. N 4 847 981.0; E 301 988.5 ORIGINATED BY KZ
DIST 6 HWY 400 BOREHOLE TYPE Solid Stem Auger & Cone Test COMPILED BY KZ
DATUM Geodetic DATE 88 02 08 CHECKED BY TCR

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)	
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES			20	40						60
187.5	Ground Level													GR SA SI CL	
0.0	Clayey Silt Some Sand Trace Gravel Occ. Silt and Sand Pockets Very Stiff to Hard (Glacial Till)		1	SS	16									3 31 52 14	
			2	SS	46										
			3	SS	53										
			4	SS	52										
180.5	Sand and Gravel Loose to Very Dense (Lacustrine)		5	SS	9										6 39 50 5
			6	SS	75										
177.4	Silt with Sand Trace Gravel and clay Very Dense (Glacial Till)		7	SS	59										
			8	SS	100/110 cm										
174.9															
12.6	End of Borehole														

BH 2

[WP 142-87-00 (A)]

74

Formerly [BH C-10, WP 164-79-06]
Contract No.: 88-79

METRIC

W P 164-79-06 LOCATION Co-ords. N 4 848 160.5; E 301 965.0 ORIGINATED BY KZ
DIST 6 HWY 400 BOREHOLE TYPE Hollow Stem Auger & Cone Test COMPILED BY KZ
DATUM Geodetic DATE 88 02 08 CHECKED BY TCK

OFFICE REPORT ON SOIL EXPLORATION

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT	PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES			20 40 60 80 100					
187.7	Ground Level												
0.0	Clayey Silt Some Sand Trace Gravel Very Stiff (Fill)					88 2 10							
185.9			1	SS	19								
1.8	Clayey Silt Trace to Some Sand Trace Gravel		2	SS	19								
	Occ. Sand Layers Very Stiff to Hard (Glacial Till)	Brown Grey	3	SS	97			120/15 cm					1 20 59 20
182.0													
5.7	Silt and Sand Compact to Dense (Lacustrine)		4	SS	50								
			5	SS	23								
179.1													
8.6	Clayey Silt to Silt Some Sand Trace Gravel Occ. Sand and Cobbles, Hard (Glacial Till)	Silt With Sand	6	SS	125/	25 cm							
			7	SS	100/	15 cm							9 33 46 12
176.1													
11.6	Sand and Gravel												
175.1	Dense		8	SS	38								
12.6	End of Borehole												



BH 3

[WP 142-87-00 (A)]

49

Formerly [BH 1, WP 88-70-30]

Contract No.: 88-79

METRIC

W P 88-78-30

LOCATION

Co-ords. 4, 848, 216N; 301, 972E

ORIGINATED BY R.M.

DIST 6 HWY 400

BOREHOLE TYPE

Hollow Stem Sugar

COMPILED BY R.M.

DATUM Geodetic

DATE

83 04 12

CHECKED BY L.S.R.

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT γ kN/m ³	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES			20	40	60	80	100					
188.3	Ground Level																
0.2	Silty clay till - some Sand - trace gravel with sand lenses damp to moist		1	SS	30		188										
			2	SS	22												
			3	SS	29		186									21.6	
	very stiff hard		4	SS	67											22.7	
			5	SS	53/	0.15m	184										
	brown gray	0.10m sand layer	6	SS	50/	0.13m											
183.0			7	SS	50/	0.15m											
5.3	Silty fine sand till - trace gravel		8	SS	58		182										
	wet																
181.1	very dense																
7.2	Sand	Saturated	9	SS	53/	0.15m	180										
		brown gray															
	very dense		10	SS	40/	0.15m											
177.6	Silty clay till - hard						178										
10.8	END OF BOREHOLE (Possibly cobbles)																



Formerly [BH 11, WP 88-78-29]
Contract No.: 88-79

METRIC

W P 88-78-29 LOCATION Co-ords. 4,848,294N; 301,982E ORIGINATED BY RM
DIST 6 HWY 400 BOREHOLE TYPE HOLLOW STEM AUGERING & WASHBORING COMPILED BY Z.S.O.
DATUM GEODETIC DATE 1983.04.13 and 1983.04.14 CHECKED BY Z.S.O.

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES		20	40	60	80	100					
189.2	GROUND LEVEL															
	200 mm Topsoil some organics		1	SS	25											
			2	SS	36	SEAL										
	v.stiff to hard		3	SS	27	SEAL										
	hard		4	SS	88											
			5	SS	69											3 39 49 9
			6	SS	73											
	SILTY CLAY		7	SS	38											
	some sand,		8	SS	50/	0.08m										Soil backed up in augers at 12 m.
	embedded gravel		9	SS	38											Advance by washboring inside aug- ers.
	(Glacial Till)															
180.8																
8.4			10	SS	10*											0 98 2 0
	SAND, fine to medium															
	compact to v.dense		11	SS	56											0 98 2 0
	grey, wet															
			12	SS	13											April 12 April 14
175.8																Sample 12: no recovery, wash sample taken.
13.4			13	SS	55/	0.15m										8 36 44 12
	SILTY CLAY															
	some sand,															
	embedded gravel		14	SS	52/	0.15m										Augers @ 16.8 m; advance by washboring ahead.
	(Glacial Till)															
	hard, grey		15	SS	92/	0.25m										
170.6																
18.6	END OF BOREHOLE		16	SS	53/	0.15m										*N-value on probably disturbed soil.
																Date W.L. Apr. 14 186.1 June 21 185.7 June 27 185.7 June 29 185.7

BH 5

[WP 142-87-00 (A)]

78

Formerly [BH C-14, WP 164-79-06]
Contract No.: 88-79

METRIC

W P 164-79-06 LOCATION Co-ords. N 4 848 570.5; E 301 924.0 ORIGINATED BY KZ
DIST 6 HWY 400 BOREHOLE TYPE Solid Stem Auger & Cone Test COMPILED BY KZ
DATUM Geodetic DATE 88 02 10 CHECKED BY TCK

OFFICE REPORT ON SOIL EXPLORATION

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES			20	40	60	80	100				
197.3	Ground Level															
0.0	Clayey Silt Some Sand Trace Gravel Occ. Silt and Sand Layers Very Stiff to Hard (Fill)		1	SS	18											
			2	SS	30											
			3	SS	20											
190.2			4	SS	49											
7.1			5	SS	20											
	Silt		6	SS	73											2 33 51 14
	Brown Grey		7	SS	33											
	Clayey Silt to Silt Some Sand Trace Gravel Occ. Silt and Sand Layers Very Stiff to Hard (Glacial Till)		8	SS	60											
			9	SS	38											11 17 56 16
182.6			10	SS	42											
15.7	End of Borehole															

Formerly [BH C-16, WP 164-79-06]
Contract No.: 88-79

METRIC

W P 164-79-06 LOCATION Co-ords. N 4 848 939.5; E 302 010.0 ORIGINATED BY KZ
DIST 6 HWY 400 BOREHOLE TYPE Solid Stem Auger & Cone Test COMPILED BY KZ
DATUM Geodetic DATE 88 02 09 CHECKED BY TCR

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT	PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	'N' VALUES			20 40 60 80 100					
191.7	Ground Level												
0.0	Clayey Silt to Silt With Some Sand Trace Gravel Occ. Silt and Sand Layers Stiff to Hard (Glacial Till)												
						88 2 11							
			1	SS	10								
			2	SS	84			120/18 cm					
	Brown Grey		3	SS	100	15 cm							
			4	SS	100	15 cm							
	Silt With Sand		5	SS	75								
			6	SS	67								
			7	SS	102								
179.1			8	SS	39								
12.6	End of Borehole												

OFFICE REPORT ON SOIL EXPLORATION

BH 7

[WP 142-87-00 (A)]

80

Formerly [BH C-17, WP 164-79-06]
Contract No.: 88-79

METRIC

W P 164-79-06 LOCATION Co-ords. N 4 849 119.0; E 301 976.0 ORIGINATED BY KZ
DIST 6 HWY 400 BOREHOLE TYPE Solid Stem Auger & Cone Test COMPILED BY KZ
DATUM Geodetic DATE 88 02 10 CHECKED BY TCK

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES			20	40	60	80	100					
191.0	Ground Level																
0.0																	
			1	SS	21		190										
			2	SS	26		188										
			3	SS	61		186										
			4	SS	65		184										
			5	SS	47		182										
			6	SS	53		180										
			7	SS	54												
			8	SS	58												
178.4																	
12.6	End of Borehole																

OFFICE REPORT ON SOIL EXPLORATION

BH 8

[WP 142-87-00 (A)]

81

Formerly [BH C-18, WP 164-79-06]
 Contract No.: 88-79

METRIC

W P 164-79-06 LOCATION Co-ords. N 4 849 225.5; E 301 800.0 ORIGINATED BY KZ
 DIST 6 HWY 400 BOREHOLE TYPE Solid Stem Auger & Cone Test COMPILED BY KZ
 DATUM Geodetic DATE 88 02 10 CHECKED BY TCK

OFFICE REPORT ON SOIL EXPLORATION

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT					UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES			20	40	60	80	100		
192.3	Ground Level													
0.0														
	Brown Grey		1	SS	31	88 2 11								
	Clayey Silt Hard (Lacustrine)		2	SS	31									
			3	SS	46									
	Clayey Silt Trace to Some Sand Trace of Gravel Occ. Silt and Sand Layers Occ. Cobbles Hard (Glacial Till)		4	SS	65									
			5	SS	70									5 17 58 20
			6	SS	44									
	Clayey Silt Hard (Lacustrine)		7	SS	156/28 cm									0 5 78 17
179.7			8	SS	97									
12.6	End of Borehole													

Formerly [BH C-19, WP 164-79-06]
Contract No.: 88-79

METRIC

W P 164-79-06 LOCATION Co-ords. N 4 849 340.5; E 301 892.5 ORIGINATED BY KZ
DIST 6 HWY 400 BOREHOLE TYPE Solid Stem Auger & Cone Test COMPILED BY KZ
DATUM Geodetic DATE 88 02 11 CHECKED BY TCK

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT Y	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL			
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES			20	40						60	80	100
								SHEAR STRENGTH kPa							WATER CONTENT (%)		
191.0	Ground Level																
0.0																	
	Brown Grey		1	SS	18		190										
	Silt, Some Clayey Silt Very Stiff (Lacustrine)		2	SS	15		188							1 13 71 15			
			3	SS	47		186										
	Clayey Silt Trace to Some Sand Trace Gravel		4	SS	28		184										
	Occ. Silt and Sand Layers		5	SS	62		182										
	Very Stiff to Hard		6	SS	83		180										
	(Glacial Till)		7	SS	80									0 5 66 29			
178.4			8	SS	76												
12.0	End of Borehole																

OFFICE REPORT ON SOIL EXPLORATION

BH 10

[WP 142-87-00 (A)]

83


Formerly [BH C-20, WP 164-79-06]
Contract No.: 88-79

METRIC

W P 164-79-06 LOCATION Co-ords. N 4 849 602.5; E 301 803.0 ORIGINATED BY KZ
DIST 6 HWY 400 BOREHOLE TYPE Solid Stem Auger & Cone Test COMPILED BY KZ
DATUM Geodetic DATE 88 02 11 CHECKED BY TCK

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT					UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES			20	40	60	80	100		
198.1	Ground Level													
0.0	Clayey Silt Trace of Sand Trace of Gravel Trace of Organics Very Stiff (Fill)		1	SS	17									
			2	SS	17									
194.1														
4.0			3	SS	20									
			4	SS	53									
			5	SS	73									
			6	SS	100									
			7	SS	101									
			8	SS	72									
			9	SS	88									
183.4														
182.4	Clayey Silt to Silt Hard (Lacustrine)		10	SS	32									
15.7	End of Borehole													

OFFICE REPORT ON SOIL EXPLORATION

	PLATE No	CONT No	ELECTRICAL LAYOUT HWY 400 STA 30+00 TO STA 34+00 STA 30+00 TO STA 34+00 STA 30+00 TO STA 34+00	SHEET E7
	WP	No 141-87-00		



POLL	NO.	LOCATION	OFFSET	CO-ORDS	UTM	TYPE	DATE
1	1	STATION	100.0m	N 4848.570.5	STYL	V-52	
2	2	STATION	100.0m	E 301-924.0	STYL	V-52	

P/C PEOPLE CONTROL

NOTE:
FOR CONTINUATION OF DUCT SEE DRAWING
TO CONTINUATION OF DUCT SEE DRAWING
TO CONTINUATION OF DUCT SEE DRAWING

SCALE
0m 10m 20m

5
N 4848.570.5
E 301-924.0
APPROX 150m EAST

ELECTRICAL LAYOUT

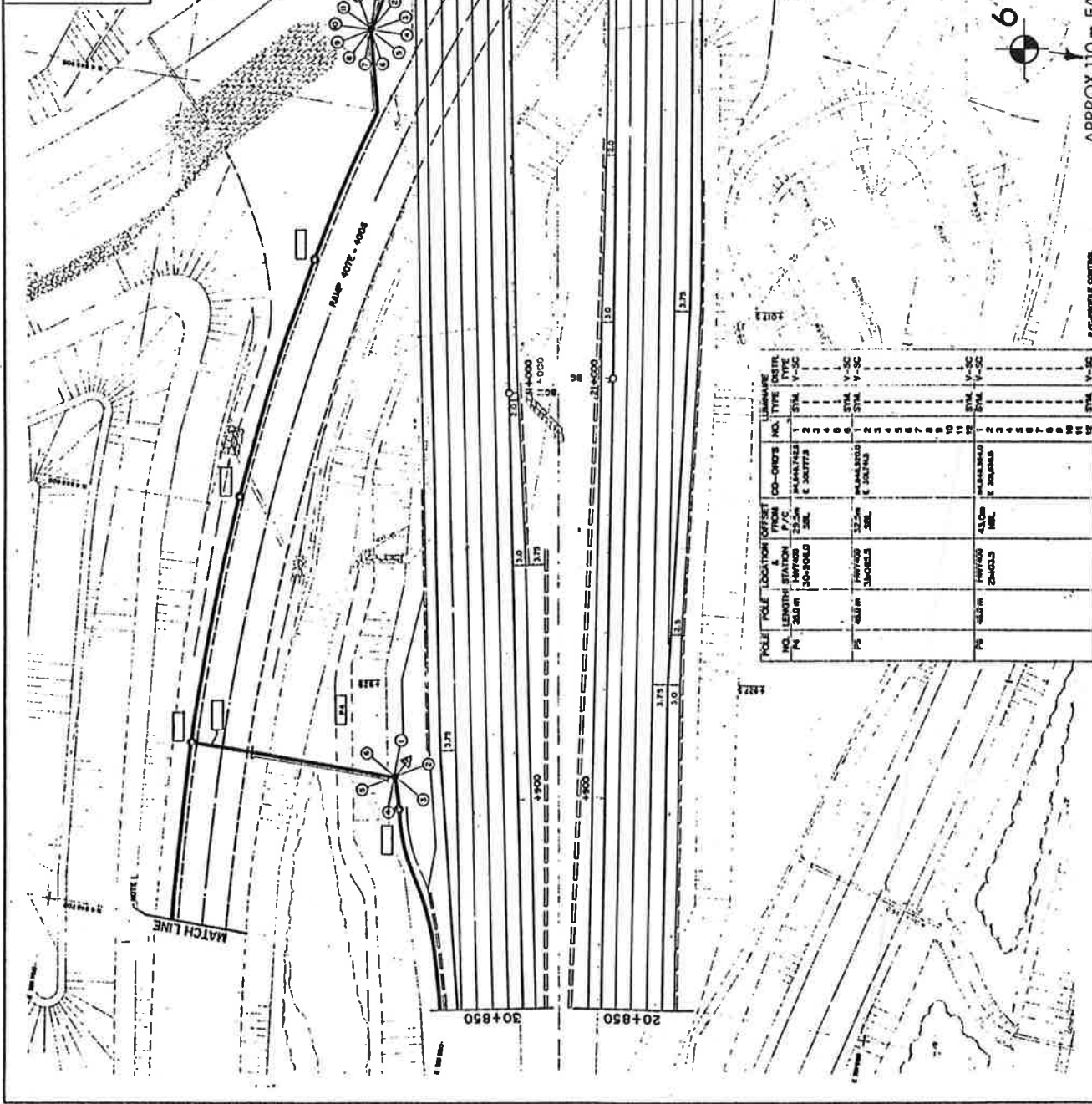
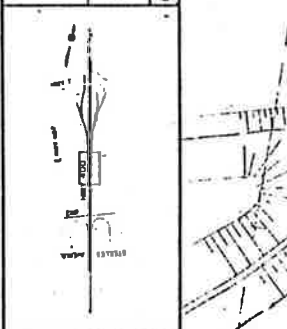
HTA 400

HTA 30-400

HTA 20-400 TO STA 24-000

Giffels

Containing Grounds and Structures



POLE	POLE LOCATION	OFFSET	CO-ORDINATES	NO.	TYPE	TYPE
P1	HTA 400	25.0m	30-850.0	1	STAL	V-SC
P2	HTA 400	25.0m	30-850.0	2	STAL	V-SC
P3	HTA 400	25.0m	30-850.0	3	STAL	V-SC
P4	HTA 400	25.0m	30-850.0	4	STAL	V-SC
P5	HTA 400	25.0m	30-850.0	5	STAL	V-SC
P6	HTA 400	25.0m	30-850.0	6	STAL	V-SC
P7	HTA 400	25.0m	30-850.0	7	STAL	V-SC
P8	HTA 400	25.0m	30-850.0	8	STAL	V-SC
P9	HTA 400	25.0m	30-850.0	9	STAL	V-SC
P10	HTA 400	25.0m	30-850.0	10	STAL	V-SC
P11	HTA 400	25.0m	30-850.0	11	STAL	V-SC
P12	HTA 400	25.0m	30-850.0	12	STAL	V-SC
P13	HTA 400	25.0m	30-850.0	13	STAL	V-SC
P14	HTA 400	25.0m	30-850.0	14	STAL	V-SC
P15	HTA 400	25.0m	30-850.0	15	STAL	V-SC
P16	HTA 400	25.0m	30-850.0	16	STAL	V-SC
P17	HTA 400	25.0m	30-850.0	17	STAL	V-SC
P18	HTA 400	25.0m	30-850.0	18	STAL	V-SC
P19	HTA 400	25.0m	30-850.0	19	STAL	V-SC
P20	HTA 400	25.0m	30-850.0	20	STAL	V-SC
P21	HTA 400	25.0m	30-850.0	21	STAL	V-SC
P22	HTA 400	25.0m	30-850.0	22	STAL	V-SC
P23	HTA 400	25.0m	30-850.0	23	STAL	V-SC
P24	HTA 400	25.0m	30-850.0	24	STAL	V-SC
P25	HTA 400	25.0m	30-850.0	25	STAL	V-SC
P26	HTA 400	25.0m	30-850.0	26	STAL	V-SC
P27	HTA 400	25.0m	30-850.0	27	STAL	V-SC
P28	HTA 400	25.0m	30-850.0	28	STAL	V-SC
P29	HTA 400	25.0m	30-850.0	29	STAL	V-SC
P30	HTA 400	25.0m	30-850.0	30	STAL	V-SC
P31	HTA 400	25.0m	30-850.0	31	STAL	V-SC
P32	HTA 400	25.0m	30-850.0	32	STAL	V-SC
P33	HTA 400	25.0m	30-850.0	33	STAL	V-SC
P34	HTA 400	25.0m	30-850.0	34	STAL	V-SC
P35	HTA 400	25.0m	30-850.0	35	STAL	V-SC
P36	HTA 400	25.0m	30-850.0	36	STAL	V-SC
P37	HTA 400	25.0m	30-850.0	37	STAL	V-SC
P38	HTA 400	25.0m	30-850.0	38	STAL	V-SC
P39	HTA 400	25.0m	30-850.0	39	STAL	V-SC
P40	HTA 400	25.0m	30-850.0	40	STAL	V-SC
P41	HTA 400	25.0m	30-850.0	41	STAL	V-SC
P42	HTA 400	25.0m	30-850.0	42	STAL	V-SC
P43	HTA 400	25.0m	30-850.0	43	STAL	V-SC
P44	HTA 400	25.0m	30-850.0	44	STAL	V-SC
P45	HTA 400	25.0m	30-850.0	45	STAL	V-SC
P46	HTA 400	25.0m	30-850.0	46	STAL	V-SC
P47	HTA 400	25.0m	30-850.0	47	STAL	V-SC
P48	HTA 400	25.0m	30-850.0	48	STAL	V-SC
P49	HTA 400	25.0m	30-850.0	49	STAL	V-SC
P50	HTA 400	25.0m	30-850.0	50	STAL	V-SC
P51	HTA 400	25.0m	30-850.0	51	STAL	V-SC
P52	HTA 400	25.0m	30-850.0	52	STAL	V-SC
P53	HTA 400	25.0m	30-850.0	53	STAL	V-SC
P54	HTA 400	25.0m	30-850.0	54	STAL	V-SC
P55	HTA 400	25.0m	30-850.0	55	STAL	V-SC
P56	HTA 400	25.0m	30-850.0	56	STAL	V-SC
P57	HTA 400	25.0m	30-850.0	57	STAL	V-SC
P58	HTA 400	25.0m	30-850.0	58	STAL	V-SC
P59	HTA 400	25.0m	30-850.0	59	STAL	V-SC
P60	HTA 400	25.0m	30-850.0	60	STAL	V-SC
P61	HTA 400	25.0m	30-850.0	61	STAL	V-SC
P62	HTA 400	25.0m	30-850.0	62	STAL	V-SC
P63	HTA 400	25.0m	30-850.0	63	STAL	V-SC
P64	HTA 400	25.0m	30-850.0	64	STAL	V-SC
P65	HTA 400	25.0m	30-850.0	65	STAL	V-SC
P66	HTA 400	25.0m	30-850.0	66	STAL	V-SC
P67	HTA 400	25.0m	30-850.0	67	STAL	V-SC
P68	HTA 400	25.0m	30-850.0	68	STAL	V-SC
P69	HTA 400	25.0m	30-850.0	69	STAL	V-SC
P70	HTA 400	25.0m	30-850.0	70	STAL	V-SC
P71	HTA 400	25.0m	30-850.0	71	STAL	V-SC
P72	HTA 400	25.0m	30-850.0	72	STAL	V-SC
P73	HTA 400	25.0m	30-850.0	73	STAL	V-SC
P74	HTA 400	25.0m	30-850.0	74	STAL	V-SC
P75	HTA 400	25.0m	30-850.0	75	STAL	V-SC
P76	HTA 400	25.0m	30-850.0	76	STAL	V-SC
P77	HTA 400	25.0m	30-850.0	77	STAL	V-SC
P78	HTA 400	25.0m	30-850.0	78	STAL	V-SC
P79	HTA 400	25.0m	30-850.0	79	STAL	V-SC
P80	HTA 400	25.0m	30-850.0	80	STAL	V-SC
P81	HTA 400	25.0m	30-850.0	81	STAL	V-SC
P82	HTA 400	25.0m	30-850.0	82	STAL	V-SC
P83	HTA 400	25.0m	30-850.0	83	STAL	V-SC
P84	HTA 400	25.0m	30-850.0	84	STAL	V-SC
P85	HTA 400	25.0m	30-850.0	85	STAL	V-SC
P86	HTA 400	25.0m	30-850.0	86	STAL	V-SC
P87	HTA 400	25.0m	30-850.0	87	STAL	V-SC
P88	HTA 400	25.0m	30-850.0	88	STAL	V-SC
P89	HTA 400	25.0m	30-850.0	89	STAL	V-SC
P90	HTA 400	25.0m	30-850.0	90	STAL	V-SC
P91	HTA 400	25.0m	30-850.0	91	STAL	V-SC
P92	HTA 400	25.0m	30-850.0	92	STAL	V-SC
P93	HTA 400	25.0m	30-850.0	93	STAL	V-SC
P94	HTA 400	25.0m	30-850.0	94	STAL	V-SC
P95	HTA 400	25.0m	30-850.0	95	STAL	V-SC
P96	HTA 400	25.0m	30-850.0	96	STAL	V-SC
P97	HTA 400	25.0m	30-850.0	97	STAL	V-SC
P98	HTA 400	25.0m	30-850.0	98	STAL	V-SC
P99	HTA 400	25.0m	30-850.0	99	STAL	V-SC
P100	HTA 400	25.0m	30-850.0	100	STAL	V-SC

SCALE
1:1000



N 4 848 939.5 +
APPROX 110m EAST E 302 010.0

P/C-POLE CONTROL



PLATE No. 142-87-00

CONT. No. 142-87-00

WP No. 142-87-00

SHEET E10

of 10

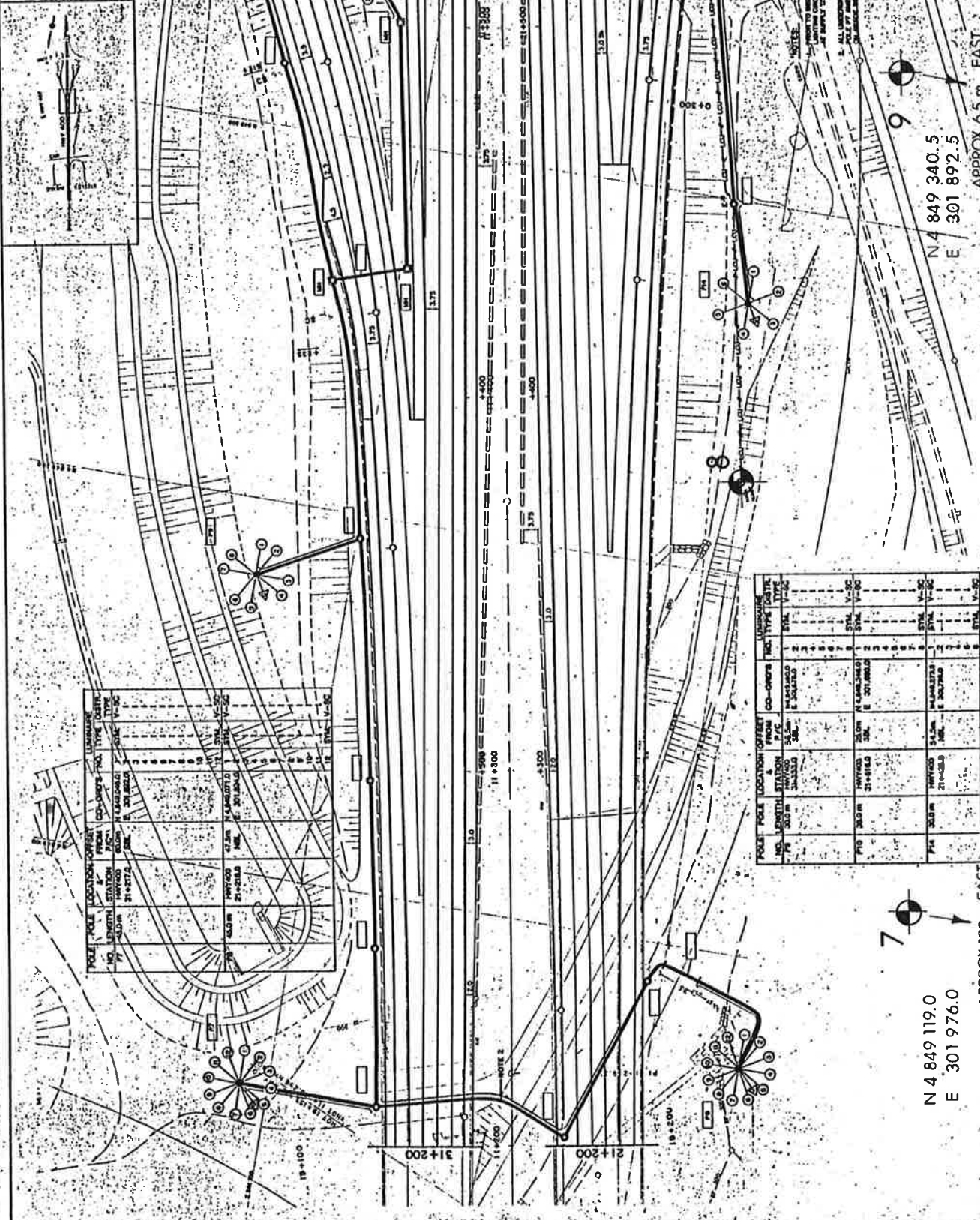
ELECTRICAL LAYOUT

HWY 400

STA 20+00 TO STA 30+00

Giffels

Consulting Engineers and Architects



NO.	LENGTH	STATION	LOCATION	OFFSET	FROM	CO-ORDINATE	NO.	TYPE	DATE
1	30.0	21+37.0	1	30.0	1	30.0	1	1	1
2	30.0	21+37.0	2	30.0	2	30.0	2	2	2
3	30.0	21+37.0	3	30.0	3	30.0	3	3	3
4	30.0	21+37.0	4	30.0	4	30.0	4	4	4
5	30.0	21+37.0	5	30.0	5	30.0	5	5	5
6	30.0	21+37.0	6	30.0	6	30.0	6	6	6
7	30.0	21+37.0	7	30.0	7	30.0	7	7	7
8	30.0	21+37.0	8	30.0	8	30.0	8	8	8
9	30.0	21+37.0	9	30.0	9	30.0	9	9	9
10	30.0	21+37.0	10	30.0	10	30.0	10	10	10

NO.	LENGTH	STATION	LOCATION	OFFSET	FROM	CO-ORDINATE	NO.	TYPE	DATE
1	30.0	21+37.0	1	30.0	1	30.0	1	1	1
2	30.0	21+37.0	2	30.0	2	30.0	2	2	2
3	30.0	21+37.0	3	30.0	3	30.0	3	3	3
4	30.0	21+37.0	4	30.0	4	30.0	4	4	4
5	30.0	21+37.0	5	30.0	5	30.0	5	5	5
6	30.0	21+37.0	6	30.0	6	30.0	6	6	6
7	30.0	21+37.0	7	30.0	7	30.0	7	7	7
8	30.0	21+37.0	8	30.0	8	30.0	8	8	8
9	30.0	21+37.0	9	30.0	9	30.0	9	9	9
10	30.0	21+37.0	10	30.0	10	30.0	10	10	10



N 4 849 119.0
E 301 976.0

APPROX 108 m EAST



N 4 849 340.5
E 301 892.5

APPROX 65 m EAST

SCALE

POLE NO.	POLE LENGTH	LOCATION	STATION	CO-ORDINATES	SHAFT TYPE	UTM	UTM
P11	40.3 m	HPV-60	17.0 m	74.444, 27.13	1	574	V=50
		31+480.0	128	11.301, 562.0	2		
					3		
					4		
					5		
					6		
					7		
					8		
					9		
					10		
					11		
					12		
					13		
					14		
					15		
					16		
					17		
					18		
					19		
					20		
					21		
					22		
					23		
					24		
					25		
					26		
					27		
					28		
					29		
					30		
					31		
					32		
					33		
					34		
					35		
					36		
					37		
					38		
					39		
					40		
					41		
					42		
					43		
					44		
					45		
					46		
					47		
					48		
					49		
					50		
					51		
					52		
					53		
					54		
					55		
					56		
					57		
					58		
					59		
					60		
					61		
					62		
					63		
					64		
					65		
					66		
					67		
					68		
					69		
					70		
					71		
					72		
					73		
					74		
					75		
					76		
					77		
					78		

[illegible]

POSITION IS-UNIONIZER REMOVAL: " " = P/C PROFILE CONTROL

CHARGE CODE. S-SUPPLCE INFLACTOR, M-MOOSFY LINGMAJLE
M-MOOSFY LINGMAJLE. S-SUPPLCE INFLACTOR, M-MOOSFY LINGMAJLE

25

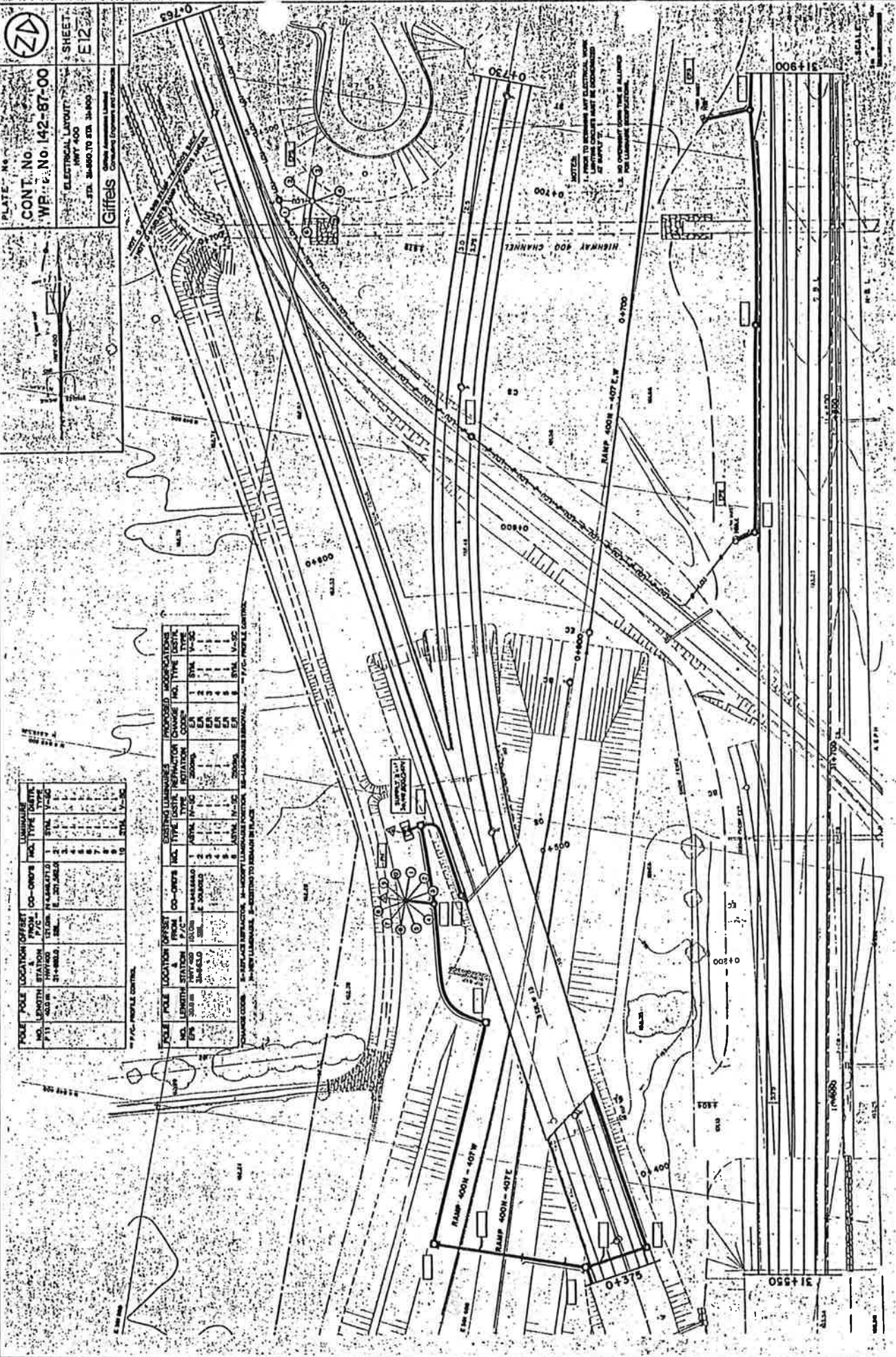


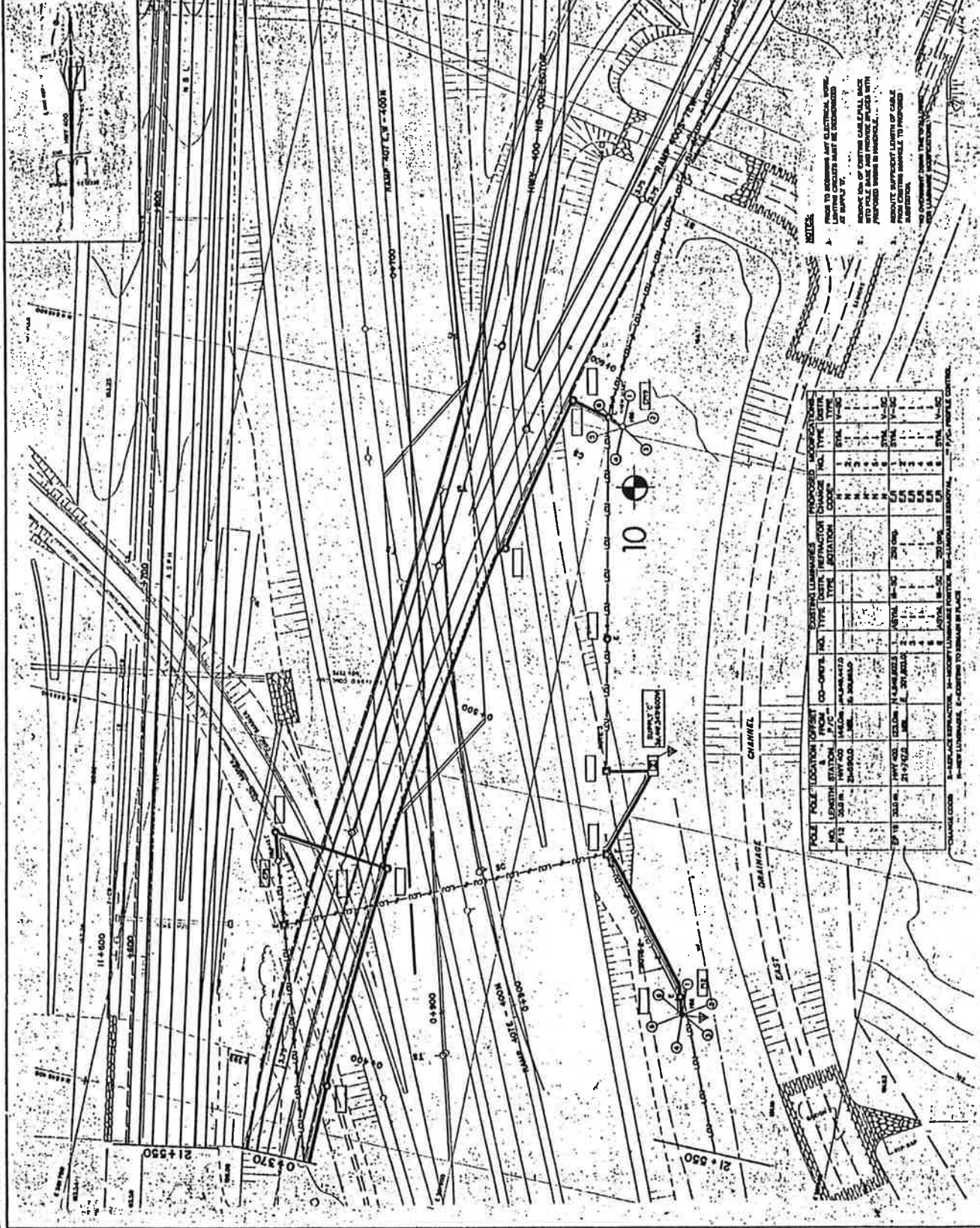


PLATE No.
CONT No. 142-87-00
WP No. 142-87-00

SHEET
E13

Electrical Layout
HWY 400
STA. 21+550 TO STA. 21+600

Giffels



FOLLY POLE LOCATION		EXISTING LUMINAIRE		PROPOSED MODIFICATION	
NO.	LENGTH	STATION	CO-ORDE.	TYPE	CHANGE
1	12.0	21+550	140.0	ST-1	ST-1
2	12.0	21+560	140.0	ST-1	ST-1
3	12.0	21+570	140.0	ST-1	ST-1
4	12.0	21+580	140.0	ST-1	ST-1
5	12.0	21+590	140.0	ST-1	ST-1
6	12.0	21+600	140.0	ST-1	ST-1
7	12.0	21+610	140.0	ST-1	ST-1
8	12.0	21+620	140.0	ST-1	ST-1
9	12.0	21+630	140.0	ST-1	ST-1
10	12.0	21+640	140.0	ST-1	ST-1
11	12.0	21+650	140.0	ST-1	ST-1
12	12.0	21+660	140.0	ST-1	ST-1
13	12.0	21+670	140.0	ST-1	ST-1
14	12.0	21+680	140.0	ST-1	ST-1
15	12.0	21+690	140.0	ST-1	ST-1
16	12.0	21+700	140.0	ST-1	ST-1
17	12.0	21+710	140.0	ST-1	ST-1
18	12.0	21+720	140.0	ST-1	ST-1
19	12.0	21+730	140.0	ST-1	ST-1
20	12.0	21+740	140.0	ST-1	ST-1
21	12.0	21+750	140.0	ST-1	ST-1
22	12.0	21+760	140.0	ST-1	ST-1
23	12.0	21+770	140.0	ST-1	ST-1
24	12.0	21+780	140.0	ST-1	ST-1
25	12.0	21+790	140.0	ST-1	ST-1
26	12.0	21+800	140.0	ST-1	ST-1
27	12.0	21+810	140.0	ST-1	ST-1
28	12.0	21+820	140.0	ST-1	ST-1
29	12.0	21+830	140.0	ST-1	ST-1
30	12.0	21+840	140.0	ST-1	ST-1
31	12.0	21+850	140.0	ST-1	ST-1
32	12.0	21+860	140.0	ST-1	ST-1
33	12.0	21+870	140.0	ST-1	ST-1
34	12.0	21+880	140.0	ST-1	ST-1
35	12.0	21+890	140.0	ST-1	ST-1
36	12.0	21+900	140.0	ST-1	ST-1
37	12.0	21+910	140.0	ST-1	ST-1
38	12.0	21+920	140.0	ST-1	ST-1
39	12.0	21+930	140.0	ST-1	ST-1
40	12.0	21+940	140.0	ST-1	ST-1
41	12.0	21+950	140.0	ST-1	ST-1
42	12.0	21+960	140.0	ST-1	ST-1
43	12.0	21+970	140.0	ST-1	ST-1
44	12.0	21+980	140.0	ST-1	ST-1
45	12.0	21+990	140.0	ST-1	ST-1
46	12.0	22+000	140.0	ST-1	ST-1
47	12.0	22+010	140.0	ST-1	ST-1
48	12.0	22+020	140.0	ST-1	ST-1
49	12.0	22+030	140.0	ST-1	ST-1
50	12.0	22+040	140.0	ST-1	ST-1
51	12.0	22+050	140.0	ST-1	ST-1
52	12.0	22+060	140.0	ST-1	ST-1
53	12.0	22+070	140.0	ST-1	ST-1
54	12.0	22+080	140.0	ST-1	ST-1
55	12.0	22+090	140.0	ST-1	ST-1
56	12.0	22+100	140.0	ST-1	ST-1
57	12.0	22+110	140.0	ST-1	ST-1
58	12.0	22+120	140.0	ST-1	ST-1
59	12.0	22+130	140.0	ST-1	ST-1
60	12.0	22+140	140.0	ST-1	ST-1
61	12.0	22+150	140.0	ST-1	ST-1
62	12.0	22+160	140.0	ST-1	ST-1
63	12.0	22+170	140.0	ST-1	ST-1
64	12.0	22+180	140.0	ST-1	ST-1
65	12.0	22+190	140.0	ST-1	ST-1
66	12.0	22+200	140.0	ST-1	ST-1
67	12.0	22+210	140.0	ST-1	ST-1
68	12.0	22+220	140.0	ST-1	ST-1
69	12.0	22+230	140.0	ST-1	ST-1
70	12.0	22+240	140.0	ST-1	ST-1
71	12.0	22+250	140.0	ST-1	ST-1
72	12.0	22+260	140.0	ST-1	ST-1
73	12.0	22+270	140.0	ST-1	ST-1
74	12.0	22+280	140.0	ST-1	ST-1
75	12.0	22+290	140.0	ST-1	ST-1
76	12.0	22+300	140.0	ST-1	ST-1
77	12.0	22+310	140.0	ST-1	ST-1
78	12.0	22+320	140.0	ST-1	ST-1
79	12.0	22+330	140.0	ST-1	ST-1
80	12.0	22+340	140.0	ST-1	ST-1
81	12.0	22+350	140.0	ST-1	ST-1
82	12.0	22+360	140.0	ST-1	ST-1
83	12.0	22+370	140.0	ST-1	ST-1
84	12.0	22+380	140.0	ST-1	ST-1
85	12.0	22+390	140.0	ST-1	ST-1
86	12.0	22+400	140.0	ST-1	ST-1
87	12.0	22+410	140.0	ST-1	ST-1
88	12.0	22+420	140.0	ST-1	ST-1
89	12.0	22+430	140.0	ST-1	ST-1
90	12.0	22+440	140.0	ST-1	ST-1
91	12.0	22+450	140.0	ST-1	ST-1
92	12.0	22+460	140.0	ST-1	ST-1
93	12.0	22+470	140.0	ST-1	ST-1
94	12.0	22+480	140.0	ST-1	ST-1
95	12.0	22+490	140.0	ST-1	ST-1
96	12.0	22+500	140.0	ST-1	ST-1
97	12.0	22+510	140.0	ST-1	ST-1
98	12.0	22+520	140.0	ST-1	ST-1
99	12.0	22+530	140.0	ST-1	ST-1
100	12.0	22+540	140.0	ST-1	ST-1

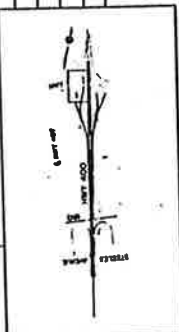
NOTES:

1. FROM TO REMAIN ANY ELECTRICAL WORK LOCATED OUTSIDE MUST BE INDICATED BY SYMBOLS.
2. REMOVE USE OF EXISTING CABLE SHALL BE INTO POLE BASE AND PROVIDE PLACES WITH PROPOSED TUBES IN INDICATED.
3. REMOVE EXCESSIVE LENGTH OF CABLE AND PROVIDE PLACES WITH PROPOSED TUBES IN INDICATED.
4. THE EXISTING CABLE SHALL BE REMOVED AND THE NEW CABLE SHALL BE INSTALLED IN THE PROPOSED TUBES.

POLE		POLE LOCATION	OFFSET	CO-ORPS	NO.	TYPE	DISTING. LINES	RESOLUTION	ROTATION	CHANGE	NO.	MODIFICATIONS
NO.	LEAST SQUARE	STATION	FROM	TO	TYPE	TYPE	TYPE	TYPE	TYPE	TYPE	TYPE	TYPE
CP#	50.0 m	21+884.0	170.0 m	170.0 m	1	SYN	N-SC	0 deg.	EA	1	1	SYN
					2	SYN	N-SC	0 deg.	EA	2	2	SYN
					3	SYN	N-SC	0 deg.	EA	3	3	SYN
					4	SYN	N-SC	0 deg.	EA	4	4	SYN
					5	SYN	N-SC	0 deg.	EA	5	5	SYN
					6	SYN	N-SC	0 deg.	EA	6	6	SYN
					7	SYN	N-SC	0 deg.	EA	7	7	SYN
					8	SYN	N-SC	0 deg.	EA	8	8	SYN
					9	SYN	N-SC	0 deg.	EA	9	9	SYN
EP#	30.0 m	1877.400	27.0 m	1877.400	1	SYN	N-SC	0 deg.	EA	1	1	SYN
					2	SYN	N-SC	0 deg.	EA	2	2	SYN
					3	SYN	N-SC	0 deg.	EA	3	3	SYN
					4	SYN	N-SC	0 deg.	EA	4	4	SYN
					5	SYN	N-SC	0 deg.	EA	5	5	SYN
					6	SYN	N-SC	0 deg.	EA	6	6	SYN
					7	SYN	N-SC	0 deg.	EA	7	7	SYN
					8	SYN	N-SC	0 deg.	EA	8	8	SYN
					9	SYN	N-SC	0 deg.	EA	9	9	SYN
EP#	30.0 m	1877.400	118.0 m	1877.400	1	SYN	N-SC	0 deg.	EA	1	1	SYN
					2	SYN	N-SC	0 deg.	EA	2	2	SYN
					3	SYN	N-SC	0 deg.	EA	3	3	SYN
					4	SYN	N-SC	0 deg.	EA	4	4	SYN
					5	SYN	N-SC	0 deg.	EA	5	5	SYN
					6	SYN	N-SC	0 deg.	EA	6	6	SYN
					7	SYN	N-SC	0 deg.	EA	7	7	SYN
					8	SYN	N-SC	0 deg.	EA	8	8	SYN
					9	SYN	N-SC	0 deg.	EA	9	9	SYN

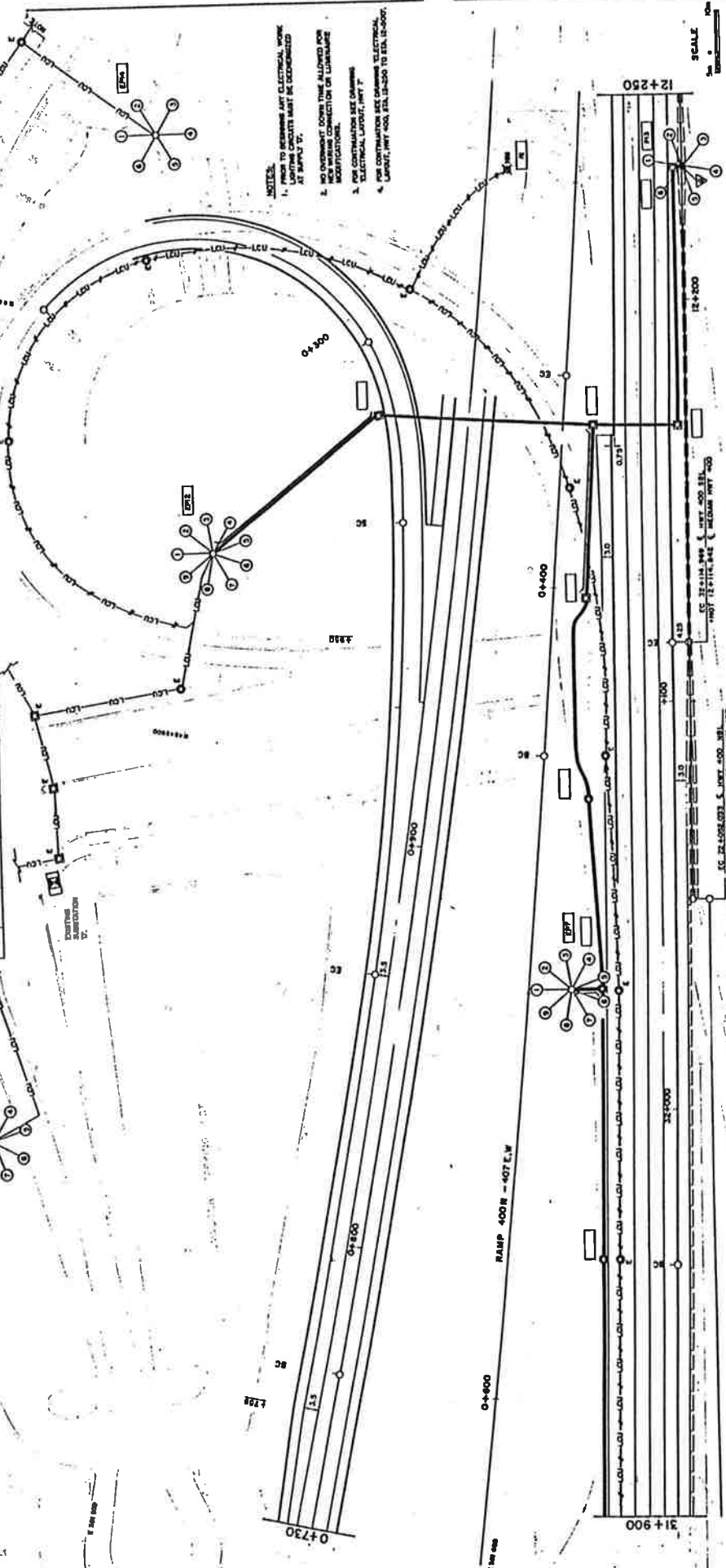
WELL	WELL NO.	LOCATION	DEPTH	DO-ORIS	NO. TEST	TEST	REFRACTION	ROTATION	COOR.	CHG	NO.	MODIFICATIONS
			COL									
			1200m	1	ASTEL	N-S			EA		1	SYN
				2					EA		2	
				3					EA		3	
				4					EA		4	
				5					EA		5	
				6	ASTEL	N-S			EA		6	SYN
				7					EA		7	SYN
				8					EA		8	
				9					EA		9	
				10					EA		10	
				11					EA		11	
				12					EA		12	
				13					EA		13	
				14					EA		14	
				15					EA		15	
				16					EA		16	
				17					EA		17	
				18					EA		18	
				19					EA		19	
				20					EA		20	
				21					EA		21	
				22					EA		22	
				23					EA		23	
				24					EA		24	
				25					EA		25	
				26					EA		26	
				27					EA		27	
				28					EA		28	
				29					EA		29	
				30					EA		30	
				31					EA		31	
				32					EA		32	
				33					EA		33	
				34					EA		34	
				35					EA		35	
				36					EA		36	
				37					EA		37	
				38					EA		38	
				39					EA		39	
				40					EA		40	
				41					EA		41	
				42					EA		42	
				43					EA		43	
				44					EA		44	
				45					EA		45	
				46					EA		46	
				47					EA		47	
				48					EA		48	
				49					EA		49	
				50					EA		50	

CHANGE CODE: E-REPLACE REFRACTOR, M-MOIST LUMINAIRE POSITION, RE-LUMINAIRE REMOVAL,
N-NEW LUMINAIRE, R-REPAIR TO REMAIN IN PLACE



NOTES:

1. PRIOR TO RECEIVING ANY ELECTRICAL WORK LIGHTING CIRCUITS MUST BE DEENERGIZED AT SUPPLY V.
2. NO OVERHEAD DOWN TIME ALLOWED FOR NEW WIRING CONNECTION OR LUMINAIRE MODIFICATIONS.
3. FOR CONTINUATION SEE DRAWINGS ELECTRICAL LAYOUT, PART F.
4. FOR CONTINUATION SEE DRAWINGS ELECTRICAL LAYOUT, PART G.



1000