

INSULATION TEST

THE CONTRACTOR SHALL PERFORM AN INSULATION TEST ON ALL CONDUCTORS EXCEPT THE GROUND CONDUCTOR (INCLUDING NEUTRAL, DISCONNECT FROM GROUND BEFORE TESTING). PERFORM A RESISTANCE TO GROUND TEST AT SPECIFIED GROUNDS. SEE VERMONT STANDARD SPECIFICATION 679.08. FURNISH THE RESIDENT ENGINEER THE READINGS OBTAINED FROM THE ABOVE TESTS.

1. THE INITIAL INSULATION READING SHOULD BE TAKEN AT THE SERVICE CENTER. IF A LOW READING IS DETECTED, THE CIRCUITRY SHALL BE BROKEN DOWN AT EXISTING SPLICES TO LOCATE THE PROBLEM AREA, AND SHALL THEN BE REPAIRED OR REPLACED.

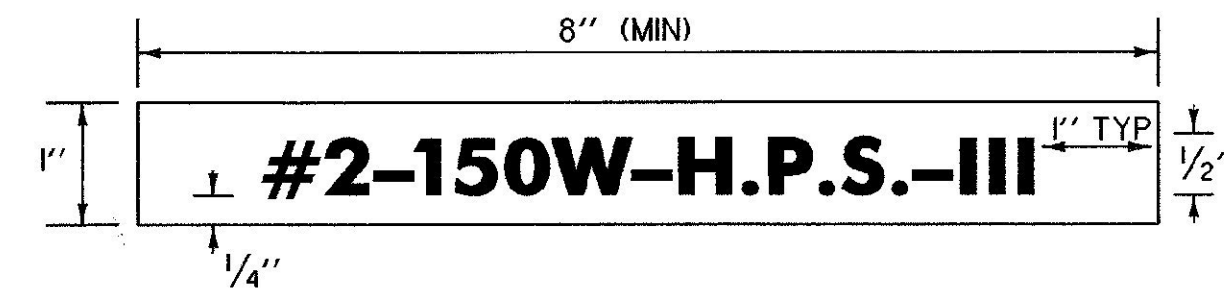
2. NEW WIRING SHALL HAVE A READING OF 100 MEGOHMS OR MORE, REGARDLESS OF TEST VOLTAGE OR CIRCUIT LENGTH OF LESS THAN 1500 FEET. SPLICES TO BE REPAIRED OR REPLACED AND/OR WIRING TO BE REPLACED AS NECESSARY.

THERE ARE TWO FACTORS TO BE CONSIDERED WHEN AN INSULATION TEST IS PERFORMED.

A. THE OUTPUT VOLTAGE OF THE TEST INSTRUMENT SHOULD BE SET TO 500 VOLTS. (1000 VOLTS IF AN ACCURATE READING CANNOT BE OBTAINED WITH 500 VOLT SETTING). WHEN THE INSTRUMENT IS SET AT 1000 VOLTS, IT WILL PRODUCE A LOWER MEGOHM READING THAN WHEN SET AT 500 VOLTS. THIS SHOULD NOT AFFECT EITHER OF THE REQUIRED MINIMUM MEGAOHM VALUES REQUIRED ABOVE.

B. THE MEGOHM READING OF THE CIRCUIT BEING TESTED IS INVERSELY PROPORTIONAL TO THE VOLUME OF INSULATION BEING TESTED, OR LENGTH OF CIRCUIT. THIS COULD HAVE AN EFFECT ON EITHER OF THE REQUIRED MINIMUM MEGOHM VALUES REQUIRED ABOVE, ESPECIALLY, IF THE CIRCUIT LENGTH IS MORE THAN 1500 FEET.

DETAILS FOR TAGS ATTACHED TO STREET LIGHT POLES



LEGEND: BLACK OR WHITE (NON-REFL.) - STAMPED PRIOR TO PRINTING/PAINTING. BACKGROUND: NATURAL ALUMINUM OR FLAT BLACK SURFACE, SAME AS POLE FINISH.

NOTES:

1. THE TAG SHALL BE MOUNTED ON ALL STREET LIGHT POLES IN SUCH A MANNER AS NOT TO BE EASILY REMOVED, SUCH AS WELDED, RIVETED, OR BOLTED WITH VANDAL PROOF BOLTS.
2. THE LETTERS SHALL BE PUNCHED, STAMPED, ENGRAVED, OR PHOTO-ETCHED, PUNCHING, STAMPING OR ENGRAVING SHALL PENETRATE ONE HALF THE BASE MATERIAL THICKNESS.
3. THE BASE MATERIAL FOR THE TAG SHALL BE ALUMINUM WITH A MINIMUM THICKNESS OF 0.100 INCHES.
4. THE TAG SHALL BE ATTACHED TO THE POLE ABOVE THE HANDHOLE, 6 INCHES MAXIMUM. IF THE POLE HAS A TRANSFORMER BASE, ATTACH TAG TO COVER.

GENERAL STREET LIGHT NOTES

CONCRETE BASES

NEW ELEVATIONS OF CONCRETE BASES HAVE BEEN ESTIMATED. ACTUAL ELEVATIONS TO BE DETERMINED BASED ON STD E-180B. IN MOST CASES, A NEW BASE WILL BE POURED IN THE SAME LOCATION WHERE AN EXISTING BASE IS REMOVED. DIAMETER REQ: NEW BASE DIAMETER TO BE AT LEAST AS GREAT AS EXISTING. DEPTH REQ: IF THE NEW ELEVATION IS HIGHER THAN EXISTING, THE DEPTH OF BASE MAY BE LARGER THAN REQUIRED. IF SO, THE ENTIRE DEPTH SHALL BECOME THE NEW BASE DEPTH. IF THE ELEVATION IS LOWER THAN EXISTING, THEN THE DEPTH OF THE NEW BASE SHALL BE CHECKED CAREFULLY, TO ENSURE THAT THE NEW BASE WILL HAVE THE REQUIRED DEPTH. ADDITIONAL EXCAVATION MAY BE NECESSARY TO GET THE REQUIRED DEPTH OF CONCRETE BASE. SINCE NEW BASES WILL BE PLACED IN EXISTING LOCATIONS, COMPACTION IS VERY IMPORTANT.

EXISTING LIGHT POLES WITH MULTIPLE SHIMS SHALL HAVE SHIMS REMOVED AND REPLACED WITH LEVELING NUTS. THE SPACE BETWEEN LIGHT POLE BASE PLATE AND TOP OF CONCRETE BASE SHOULD BE FILLED WITH GROUT AFTER POLE IS PLUMBED (THIS WORK TO BE PAID BY ITEM 679.25, REMOVE/RESET LIGHT POLE). IF EXISTING ANCHOR BOLTS ARE TOO SHORT, INSTALL A NEW CONCRETE BASE (ITEM 679.21 MOD).

WHEN CONCRETE BASES ARE INSTALLED IN SLOPING GROUND, THE GREATEST EXPOSED HEIGHT TO KEEP ALL OF THE TOP ABOVE GROUND MUST BE DOUBLED AND THEN ADDED TO THE MINIMUM DEPTH FOR THE TOTAL BASE HEIGHT.

FOR POLES WITH BREAKAWAY FEATURES (TRANSFORMER BASES):

WHEN AN EXISTING LIGHT POLE BASE IS MORE THAN 1-1/4 INCH ABOVE SURROUNDING GROUND, TOP SOIL SHALL BE PLACED AROUND EXISTING CONCRETE BASE TO WITHIN 1-1/4 INCH OF THE TOP OF CONCRETE. SEE DETAILS ON THIS SHEET FOR SLOPING AND CLEARANCE REQUIREMENTS FOR BREAKAWAY INSTALLATIONS.

ALL EXISTING COUPLING-TYPE BREAKAWAY FEATURES ARE TO BE REMOVED OR REPLACED BY TRANSFORMER BASES, AS THE PLANS INDICATE.

CARE SHOULD BE TAKEN WHERE CONCRETE BASES ARE NEAR DRAINAGE STRUCTURES, OR UTILITIES, AND / OR TRAFFIC STANDS OR LOOPS. CONTRACTOR TO REPLACE ANY DAMAGE, AT HIS EXPENSE.

POLES, ANCHOR BASES AND ARMS

ALL REMOVED LIGHT POLES, LUMINAIRE ARMS AND LUMINAIRES SHALL REMAIN PROPERTY OF THE STATE. SEE SPECIAL PROVISIONS.

ALUMINUM STREET LIGHT POLES SHAFT WALL THICKNESS SHALL BE AS NOTED IN THE SPEC. BOOK OR ON STANDARD SHEETS OR WILL BE GOVERNED BY MOUNTING HEIGHT, ARM LENGTH, NUMBER OF ARMS, LUMINAIRE WEIGHT AND EPA (EFFECTIVE PROJECTED AREA).

ALL NEW STREET LIGHT POLES AND LUMINAIRE ARMS SHALL BE ALUMINUM IN ACCORDANCE WITH SUBSECTION 753.01 (b).

IF AN EXISTING BREAKAWAY FEATURE NEEDS REPLACEMENT OR A NEW INSTALLATION REQUIRES ONE, IT SHALL BE AN APPROVED ALUMINUM TRANSFORMER BASE, PAID AS ITEM 679.23.

WHEN A TRANSFORMER BASE IS TO BE INSTALLED AS THE BREAKAWAY FEATURE IT SHALL HAVE EITHER A 1/8 INCH THICK PREFORMED FABRIC BEARING PAD OR A COATING OF ALUMINUM IMPREGNATED CAULKING COMPOUND PLACED BETWEEN THE TOP OF THE CONCRETE POLE BASE AND THE BOTTOM OF THE ALUMINUM TRANSFORMER BASE.

LUMINAIRES

LIGHT DISTRIBUTION IS BASED ON GENERAL ELECTRIC PHOTOMETRIC DATA DRAWINGS #35-177285, MEDIUM CUT-OFF, TYPE 111 DISTRIBUTION, DATED 03-26-85 AND DRAWING #35-177304, MEDIUM CUT-OFF, TYPE 111 DISTRIBUTION, DATED 4-24-85.

THE ABOVE PHOTOMETRIC DATA DRAWINGS WERE USED FOR DESIGN PURPOSES ON THIS PROJECT. OTHER MANUFACTURER'S PRODUCTS MAY BE SUBSTITUTED IF THE INSTALLED LUMINAIRE LIGHT UTILIZATION AND MINIMUM FOOTCANDLES ON THE ROADWAY AND SHOULDER ARE AT LEAST AS GREAT AS THAT INDICATED BY THE ABOVE PHOTOMETRICS.

DISCONNECT PLUG KITS

ALL LIGHT POLE BASES THAT HAVE WIRING SPLICES IN THE LINE(S) OR NEUTRAL CONDUCTOR (WHICH ARE NOT PRESENTLY DISCONNECT PLUG KITS) SHALL HAVE THE SPLICE REPLACED WITH THE PROPER DISCONNECT PLUG KIT. THIS WILL BE PAID AS ITEM 679.23 (MOD). SEE SPECIAL PROVISIONS. THIS ITEM IS PAID SEPARATELY ONLY WHERE NO OTHER WORK IS BEING DONE ON THE POLE. DISCONNECT PLUG KITS ARE PAID SUBSIDIARY TO ITEM 679.45 LIGHT POLE FOR NEW POLES; AND TO ITEM 678.24 ELECTRICAL WIRING FOR REHABILITATED POLES, AS PER SUPPLEMENTAL SPECIFICATIONS.

CONDUIT

EXISTING CONDUIT SHOWN IS FROM BEST AVAILABLE INFORMATION. CONTRACTOR TO VERIFY LOCATIONS WHERE NECESSARY. MANY CONDUIT RUNS ARE SHOWN AS 'LOOPING AROUND' EXISTING CONDUIT, FOR CLARITY, THOSE CONDUITS SHALL BE INSTALLED AS 'STRAIGHT LINE' AS POSSIBLE FROM ONE SPLICE TO ANOTHER, EXCEPT WHERE SWEEPS WILL BE REQUIRED, AS INDICATED ON PLANS.

EXISTING CONDUIT, WHICH IS TO BE REPLACED, SHOULD BE ABANDONED-IN-PLACE. IF IT IS NECESSARY TO REMOVE ANY CONDUIT, IT SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR.

CONDUIT SLEEVE

MINIMUM WALL THICKNESS FOR RIGID PLASTIC PIPE SLEEVES SHALL BE 1/35TH THE DIAMETER. ALL CONDUIT RUNS UNDER ROADWAY SHALL BE INSTALLED IN RIGID PLASTIC SLEEVES. THE SLEEVE SHALL EXTEND TO WITHIN 2 FEET OF THE SIDE OF A CONCRETE BASE OR PULLBOX. WHERE NO CONCRETE BASE OR PULLBOX IS PRESENT, THE SLEEVE SHALL EXTEND 4 FEET BEYOND THE OUTSIDE EDGE OF SHOULDER OR FACE OF CURB. BACKFILLING AROUND A SLEEVE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

WHERE SLEEVE NEEDS TO EXTEND UNDER GRANITE CURB AND/OR SIDEWALK, ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR REMOVAL AND REPLACEMENT OF THESE ITEMS.

ITEM 643.20 JACKING OR BORING IS TO BE USED ONLY WHERE TRENCHING CANNOT BE PRACTICALLY ACCOMPLISHED-SUCH AS WHERE CONCRETE PAVEMENT IS ENCOUNTERED-AT THE RESIDENT'S DISCRETION. ITEM 204.20 TRENCH EARTH IS INCLUDED FOR EXCAVATION OF PITS, IF JACKING OR BORING IS REQUIRED. TRENCHING FOR CONDUIT SLEEVE PLACEMENT IS SUBSIDIARY.

WIRE

ALL WIRING BETWEEN THE METER AND/OR POWER SOURCE AND THE FIRST POLE AND/OR PULLBOX AND BETWEEN POLES AND /OR PULLBOXES SHALL BE COPPER (#8 AWG MINIMUM) AND SIZED AS SPECIFIED ON THE PLANS. ALL WIRE TO HAVE TYPE XHHW INSULATION OR EQUIVALENT.

ALL EXISTING WIRING TO BE REPLACED SHALL BE COPPER AND SHALL BE #8 AWG. MINIMUM, EXCEPT WHEN AN EXISTING CIRCUIT WHICH HAS A SMALLER WIRE SIZE AT THE SERVICE CENTER END OF THE CIRCUIT. IN THAT CASE, REPLACE WITH THE REQUIRED MINIMUM SIZE.

USE #10 AWG STRANDED COPPER WIRE IN EACH POLE BETWEEN POLE BASE AND LUMINAIRE.

ITEM 678.24, ELECTRICAL WIRING, SHALL BE PAID ON ALL REMOVED & RESET POLES. A QUANTITY OF (MOUNTING HEIGHT + 10) LF PER POLE HAS BEEN INCLUDED AS AN ESTIMATE.

GROUNDING

ALL CONDUIT AND CIRCUITS MUST INCLUDE A CONTINUOUS GROUNDING CONDUCTOR FROM END OF CIRCUIT TO SERVICE CENTER. THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS, NO SPLICES, BUT MAY HAVE TAPS CONNECTED TO IT AT THE SERVICE CENTER AND POLE BASES.

ALUMINUM WIRE SHALL NOT BE USED FOR GROUND WIRE.

RIGID STEEL CONDUIT SHALL BE PROPERLY CONNECTED AT THE JOINT SO AS TO BE WATERTIGHT AND MAINTAIN ELECTRICAL CONTINUITY AND HAVE GROUNDING BUSHINGS SO AS TO ACT AS A GROUND CONDUCTOR.

PULLBOXES AND JUNCTION BOXES

MANY OF THE EXISTING PULLBOXES WERE NOT FIELD CHECKED FOR CONDITION BECAUSE THEY WERE INACCESSIBLE. THE CONTRACTOR SHOULD LOCATE AND CHECK ALL EXISTING PULLBOXES. WHERE PLANS SHOW THAT EXISTING PULLBOXES TO BE REUSED, THE RESIDENT ENGINEER SHALL DETERMINE IF REPLACEMENT IS REQUIRED. PAYMENT FOR REMOVAL TO BE BY ITEM 678.25 (MOD). PAYMENT FOR REPLACEMENT TO BE BY ITEM 678.25.

JUNCTION BOXES ARE ONLY TO BE USED OUTSIDE THE CLEARZONE, DUE TO STRUCTURAL LIMITATIONS. IF ANY EXISTING PULLBOX IS TO BE REPLACED, REPLACEMENT WILL BE WITH A PULLBOX, NOT A JUNCTION BOX.

SOME PULL BOXES MAY BE BURIED BY FILL OR OTHERWISE NOT LOCATEABLE. IF THIS CONDITION EXISTS FOR PULL BOXES WHICH PLANS SHOW REMOVED, THEN THEY SHOULD BE ABANDONED. NO PAYMENT FOR REMOVAL SHALL BE MADE IN THIS CASE.

FOR DETAILS SEE STANDARD SHEET E-173.

GENERAL

EXISTING CIRCUITRY IS PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY EXACT LOCATION.

THE LOAD ON EACH BRANCH OF A THREE WIRE CIRCUIT SHALL BE AS BALANCED AS POSSIBLE, LOAD TO NEUTRAL.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND SCHEDULING WORK WITH LOCAL UTILITIES WITH FACILITIES IN THE PROJECT AREA FOR LOCATION OF POWER SOURCES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY ELECTRICAL PERMITS.

ALL EXISTING ANCHOR BOLT COVERS SHALL BE REMOVED.

SEEDING FORMULA URBAN AREAS

% WT.	LBS./A.	NAME	PUR %	GERM %
42.5	34.0	CREeping RED FESCUE	98	85
10.0	8.0	PERENNIAL RYE GRASS	95	90
42.5	34.0	KENTUCKY BLUE GRASS	85	85
5.0	4.0	ANNUAL RYE GRASS	95	85
100.00	80.0			

GENERAL NOTES

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

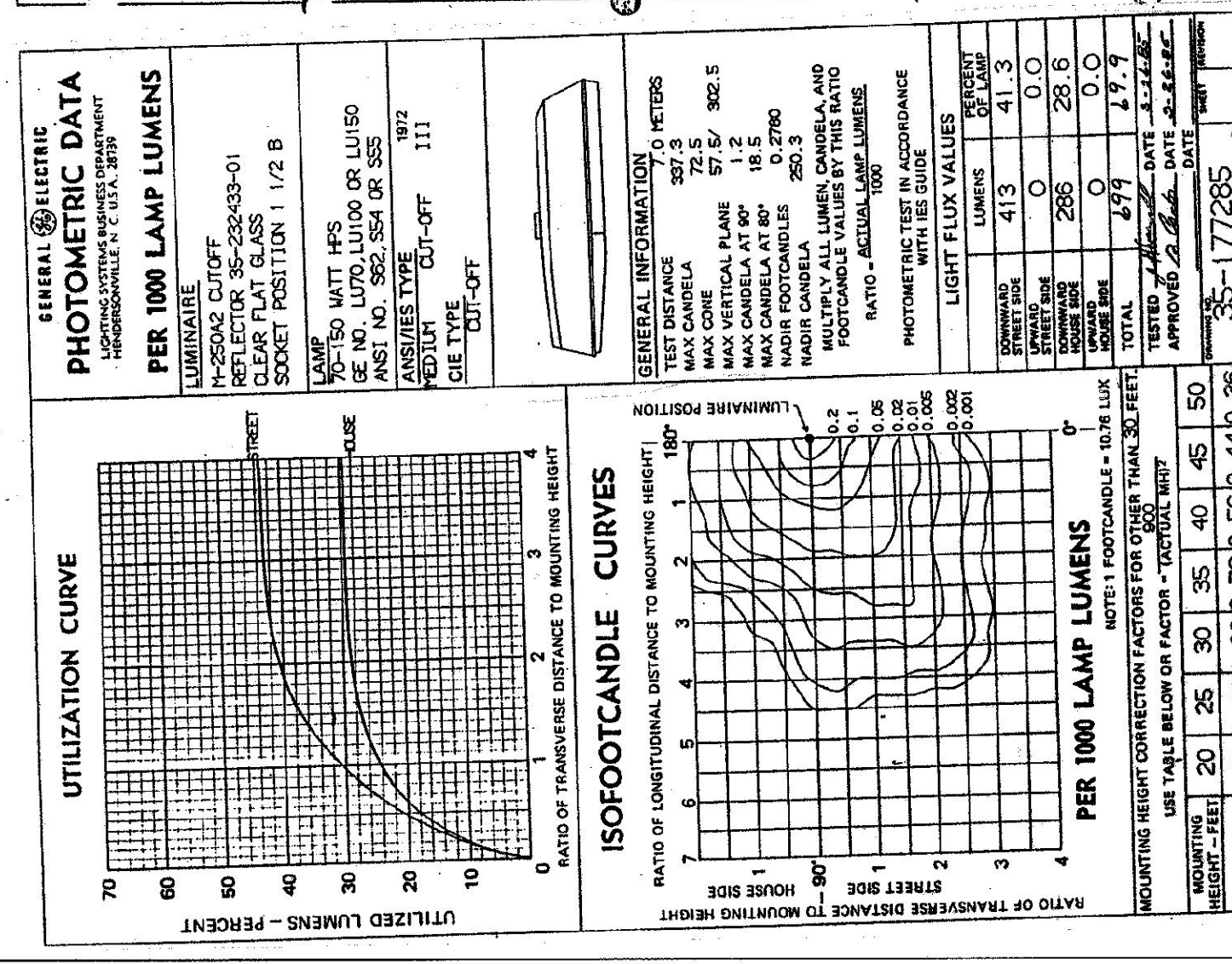
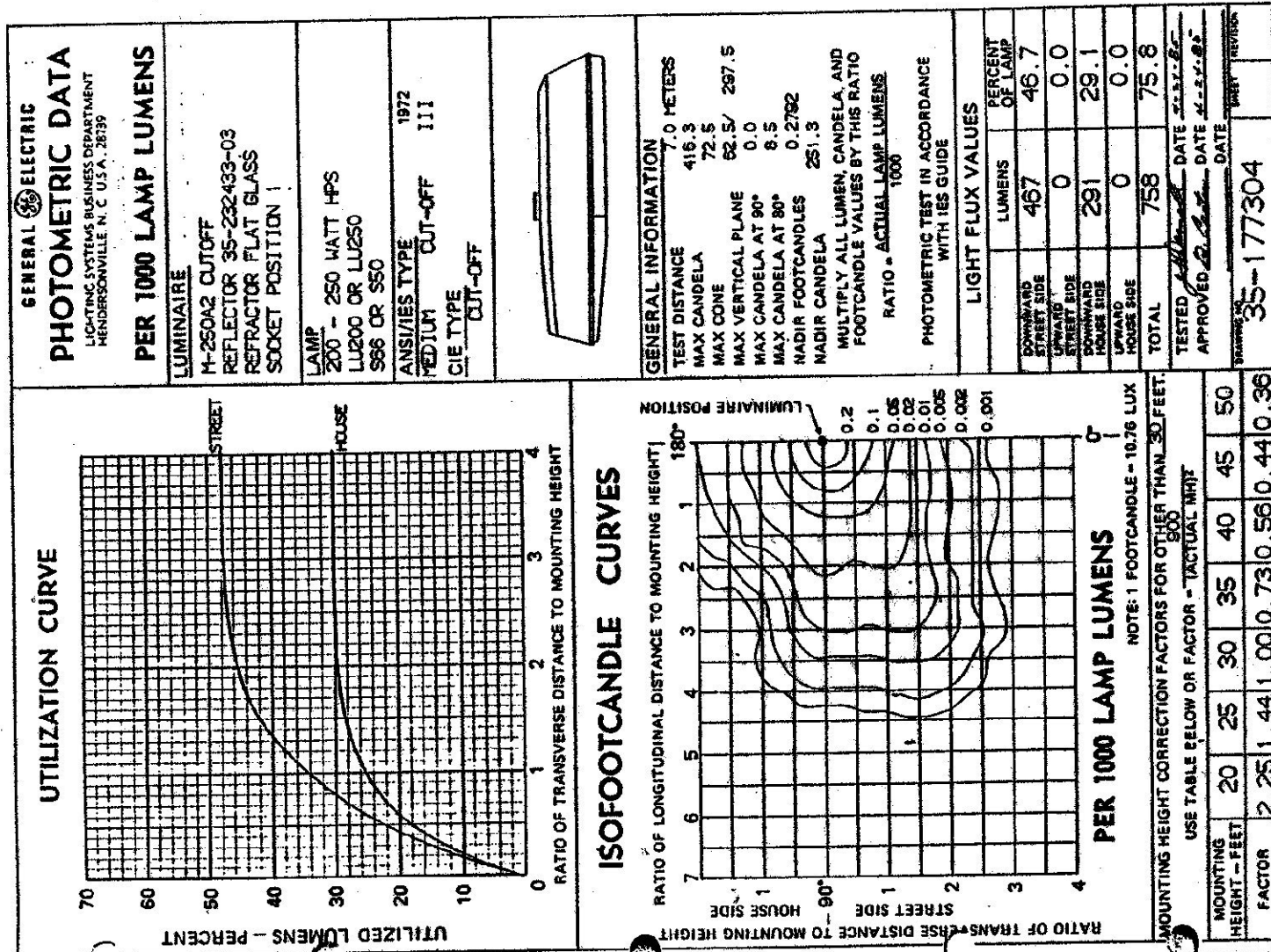
MARKER POSTS: TO BE PLACED AS INDICATED OR AS DIRECTED BY THE ENGINEER.

SLOPE ROUNDING: ALL CUT SLOPES TO BE ROUNDED IN ACCORDANCE WITH STANDARD SHEET B-5.

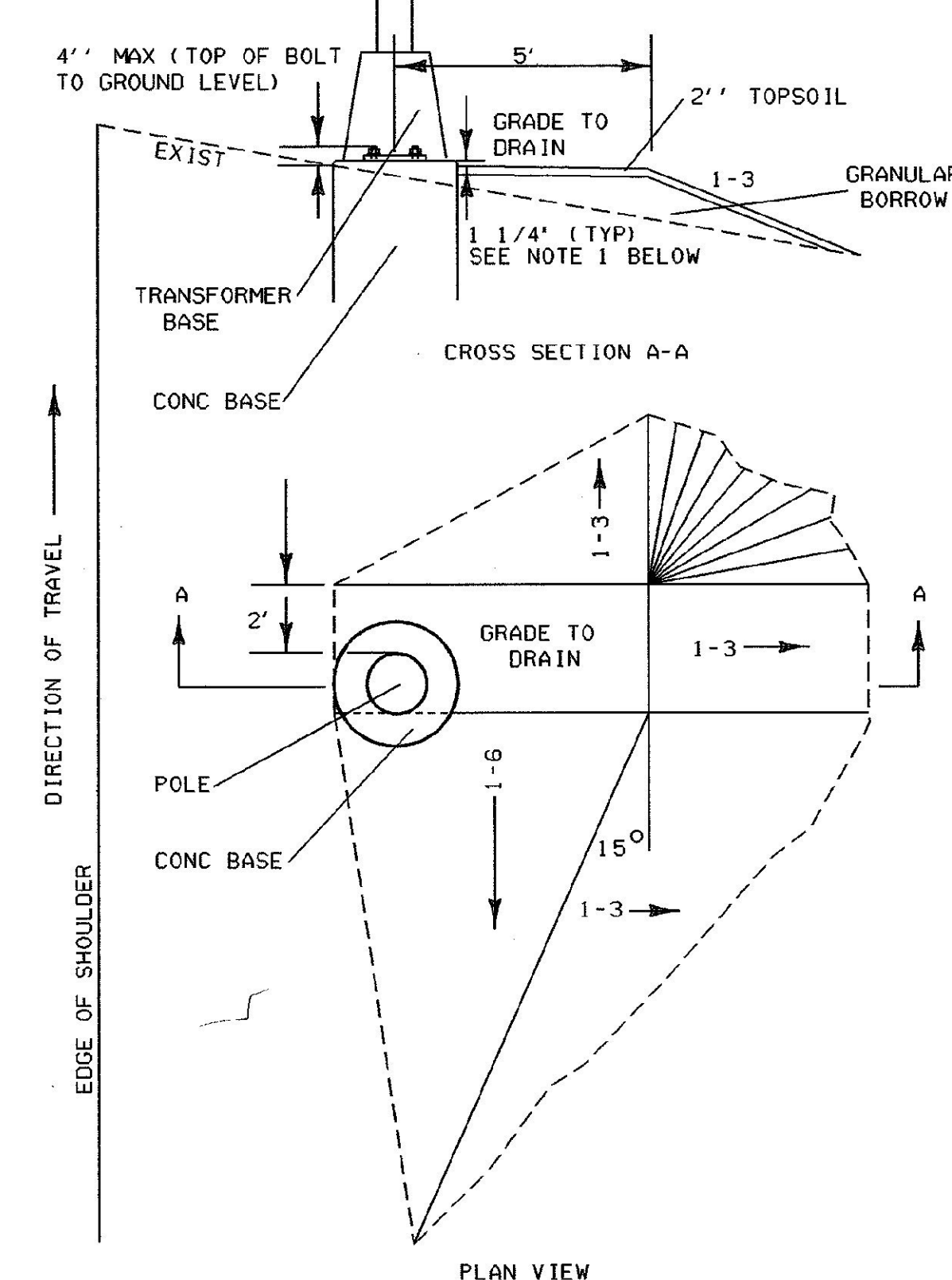
NOTE AND DETAIL SHEET

PREPARED BY RPD DATE 1-96
 MODIFIED BY EGF/PGJ DATE 4/37
 DESIGN SUPERVISOR ARK DATE _____
 PROJ. _____
 STATEWIDE IM LITE (6)
 TRAFFIC SHEET NO. _____ OF _____
 SHEET 12 OF 37 SHEETS

PHOTOMETRIC DATA SHEETS - FOR DESIGN PURPOSES ONLY



TYPICAL TOPSOIL AND FILL DETAIL FOR BREAKAWAY INSTALLATION



1. NEW BASES TO BE POURED WITH 1 1/4" CLEARANCE BETWEEN TOP OF BASE AND GROUND LEVEL. IF RETAINED, EXISTING BASE HAVING GREATER THAN 1 1/4" CLEARANCE SHALL BE FILLED WITH UP TO 2" TOPSOIL AND GRANULAR BORROW, AS REQUIRED.
2. WHERE A NEW BASE IS POURED, IT SHOULD HAVE AN ELEVATION EQUAL TO EDGE OF SHOULDER ELEVATION, EXCEPT WHERE STEEP AND/OR LONG SIDESLOPES EXIST WHICH WOULD CAUSE FILL LINE TO BE UNREASONABLY FAR DOWN THE SLOPE.
3. AT SITE 4B, BRADFORD NB REST AREA, 5 FT FLAT SLOPE BEHIND THE POLE IS DIFFICULT TO BE OBTAINED FOR POLE #9 AND #10. DUE TO EXISTING STEEP SLOPE, SINCE THIS IS BEHIND GUARDRAIL, IT IS PERMISSIBLE TO LIMIT FILL/TOPSOIL TO THE FRONT AND UPSTREAM SIDES OF THE BASE.