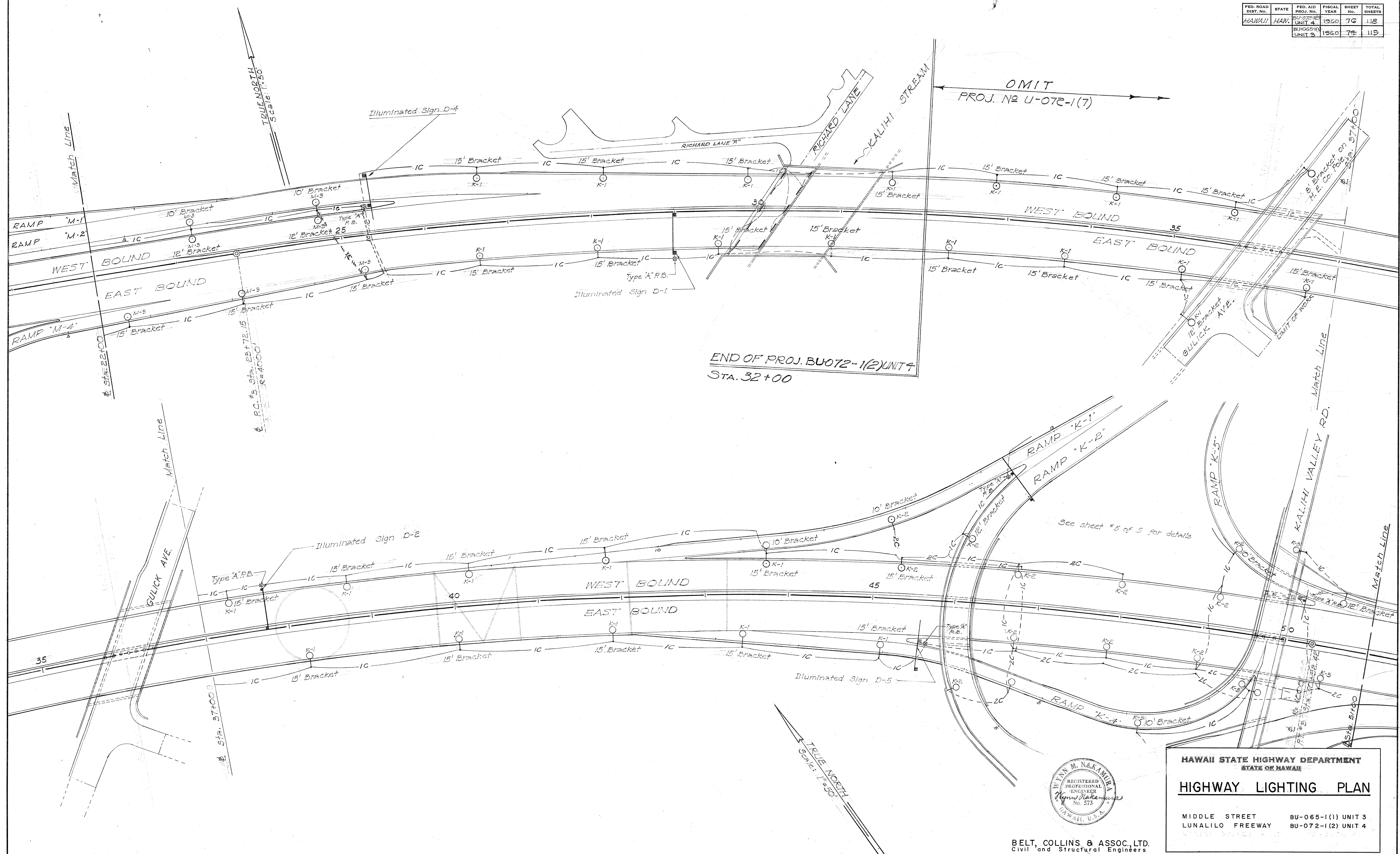


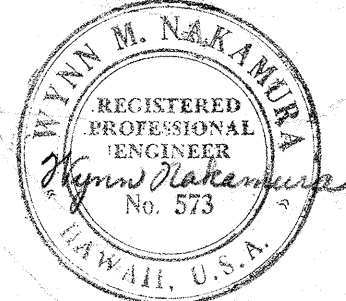
LEGEND

- Two Luminaires on double Bracket Standard. (Numeral indicates Circuit M-1)
- One Luminaire on one metal post with Bracket length as noted. (Numeral indicates Circuit M-2)
- Luminaire with 200 Watt H5H Mercury Vapor Light Source.
- Luminaire with 400 Watt H1LS Mercury Vapor Light Source.
- Luminaire with 400 Watt H1LS Mercury Vapor Light Source.
- Luminaire with 100 Watt lamp, 6 foot long fluorescent light Source
- 8 AMP cable in 3 inch Asbestos Cement Conduit Type 1. See detail for Conduit sizes in structures. 12-14-16-18-20-24-30-36-42-48-54-60-66-72-78-84-90-96-102-108-114-120-126-132-138-144-150-156-162-168-174-180-186-192-198-204-210-216-222-228-234-240-246-252-258-264-270-276-282-288-294-300-306-312-318-324-330-336-342-348-354-360-366-372-378-384-390-396-402-408-414-420-426-432-438-444-450-456-462-468-474-480-486-492-498-504-510-516-522-528-534-540-546-552-558-564-570-576-582-588-594-600-606-612-618-624-630-636-642-648-654-660-666-672-678-684-690-696-702-708-714-720-726-732-738-744-750-756-762-768-774-780-786-792-798-804-810-816-822-828-834-840-846-852-858-864-870-876-882-888-894-900-906-912-918-924-930-936-942-948-954-960-966-972-978-984-990-996-1002-1008-1014-1020-1026-1032-1038-1044-1050-1056-1062-1068-1074-1080-1086-1092-1098-1104-1110-1116-1122-1128-1134-1140-1146-1152-1158-1164-1170-1176-1182-1188-1194-1200-1206-1212-1218-1224-1230-1236-1242-1248-1254-1260-1266-1272-1278-1284-1290-1296-1302-1308-1314-1320-1326-1332-1338-1344-1350-1356-1362-1368-1374-1380-1386-1392-1398-1404-1410-1416-1422-1428-1434-1440-1446-1452-1458-1464-1470-1476-1482-1488-1494-1500-1506-1512-1518-1524-1530-1536-1542-1548-1554-1560-1566-1572-1578-1584-1590-1596-1602-1608-1614-1620-1626-1632-1638-1644-1650-1656-1662-1668-1674-1680-1686-1692-1698-1704-1710-1716-1722-1728-1734-1740-1746-1752-1758-1764-1770-1776-1782-1788-1794-1800-1806-1812-1818-1824-1830-1836-1842-1848-1854-1860-1866-1872-1878-1884-1890-1896-1902-1908-1914-1920-1926-1932-1938-1944-1950-1956-1962-1968-1974-1980-1986-1992-1998-2004-2010-2016-2022-2028-2034-2040-2046-2052-2058-2064-2070-2076-2082-2088-2094-2100-2106-2112-2118-2124-2130-2136-2142-2148-2154-2160-2166-2172-2178-2184-2190-2196-2202-2208-2214-2220-2226-2232-2238-2244-2250-2256-2262-2268-2274-2280-2286-2292-2298-2304-2310-2316-2322-2328-2334-2340-2346-2352-2358-2364-2370-2376-2382-2388-2394-2400-2406-2412-2418-2424-2430-2436-2442-2448-2454-2460-2466-2472-2478-2484-2490-2496-2502-2508-2514-2520-2526-2532-2538-2544-2550-2556-2562-2568-2574-2580-2586-2592-2598-2604-2610-2616-2622-2628-2634-2640-2646-2652-2658-2664-2670-2676-2682-2688-2694-2700-2706-2712-2718-2724-2730-2736-2742-2748-2754-2760-2766-2772-2778-2784-2790-2796-2802-2808-2814-2820-2826-2832-2838-2844-2850-2856-2862-2868-2874-2880-2886-2892-2898-2904-2910-2916-2922-2928-2934-2940-2946-2952-2958-2964-2970-2976-2982-2988-2994-3000-3006-3012-3018-3024-3030-3036-3042-3048-3054-3060-3066-3072-3078-3084-3090-3096-3102-3108-3114-3120-3126-3132-3138-3144-3150-3156-3162-3168-3174-3180-3186-3192-3198-3204-3210-3216-3222-3228-3234-3240-3246-3252-3258-3264-3270-3276-3282-3288-3294-3300-3306-3312-3318-3324-3330-3336-3342-3348-3354-3360-3366-3372-3378-3384-3390-3396-3402-3408-3414-3420-3426-3432-3438-3444-3450-3456-3462-3468-3474-3480-3486-3492-3498-3504-3510-3516-3522-3528-3534-3540-3546-3552-3558-3564-3570-3576-3582-3588-3594-3600-3606-3612-3618-3624-3630-3636-3642-3648-3654-3660-3666-3672-3678-3684-3690-3696-3702-3708-3714-3720-3726-3732-3738-3744-3750-3756-3762-3768-3774-3780-3786-3792-3798-3804-3810-3816-3822-3828-3834-3840-3846-3852-3858-3864-3870-3876-3882-3888-3894-3900-3906-3912-3918-3924-3930-3936-3942-3948-3954-3960-3966-3972-3978-3984-3990-3996-4002-4008-4014-4020-4026-4032-4038-4044-4050-4056-4062-4068-4074-4080-4086-4092-4098-4104-4110-4116-4122-4128-4134-4140-4146-4152-4158-4164-4170-4176-4182-4188-4194-4200-4206-4212-4218-4224-4230-4236-4242-4248-4254-4260-4266-4272-4278-4284-4290-4296-4302-4308-4314-4320-4326-4332-4338-4344-4350-4356-4362-4368-4374-4380-4386-4392-4398-4404-4410-4416-4422-4428-4434-4440-4446-4452-4458-4464-4470-4476-4482-4488-4494-4500-4506-4512-4518-4524-4530-4536-4542-4548-4554-4560-4566-4572-4578-4584-4590-4596-4602-4608-4614-4620-4626-4632-4638-4644-4650-4656-4662-4668-4674-4680-4686-4692-4698-4704-4710-4716-4722-4728-4734-4740-4746-4752-4758-4764-4770-4776-4782-4788-4794-4800-4806-4812-4818-4824-4830-4836-4842-4848-4854-4860-4866-4872-4878-4884-4890-4896-4902-4908-4914-4920-4926-4932-4938-4944-4950-4956-4962-4968-4974-4980-4986-4992-4998-5004-5010-5016-5022-5028-5034-5040-5046-5052-5058-5064-5070-5076-5082-5088-5094-5100-5106-5112-5118-5124-5130-5136-5142-5148-5154-5160-5166-5172-5178-5184-5190-5196-5202-5208-5214-5220-5226-5232-5238-5244-5250-5256-5262-5268-5274-5280-5286-5292-5298-5304-5310-5316-5322-5328-5334-5340-5346-5352-5358-5364-5370-5376-5382-5388-5394-5400-5406-5412-5418-5424-5430-5436-5442-5448-5454-5460-5466-5472-5478-5484-5490-5496-5502-5508-5514-5520-5526-5532-5538-5544-5550-5556-5562-5568-5574-5580-5586-5592-5598-5604-5610-5616-5622-5628-5634-5640-5646-5652-5658-5664-5670-5676-5682-5688-5694-5700-5706-5712-5718-5724-5730-5736-5742-5748-5754-5760-5766-5772-5778-5784-5790-5796-5802-5808-5814-5820-5826-5832-5838-5844-5850-5856-5862-5868-5874-5880-5886-5892-5898-5904-5910-5916-5922-5928-5934-5940-5946-5952-5958-5964-5970-5976-5982-5988-5994-6000-6006-6012-6018-6024-6030-6036-6042-6048-6054-6060-6066-6072-6078-6084-6090-6096-6102-6108-6114-6120-6126-6132-6138-6144-6150-6156-6162-6168-6174-6180-6186-6192-6198-6204-6210-6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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BU-072-1(1)	1960	76	118
		BU-072-1(2)	1960	74	115



SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
NOTE BOOK No.	



BELT, COLLINS & ASSOC., LTD.
Civil and Structural Engineers

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

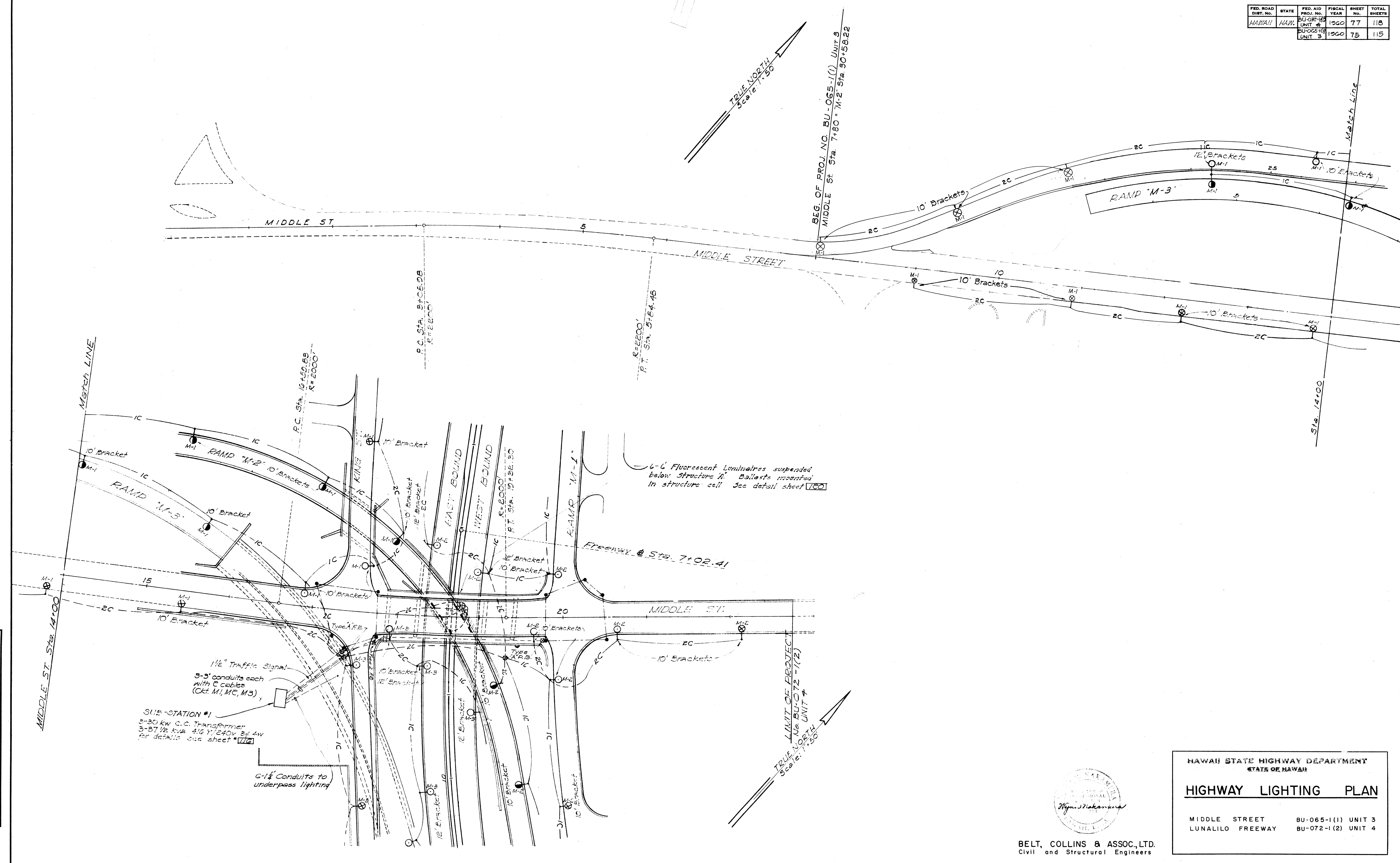
HIGHWAY LIGHTING PLAN

MIDDLE STREET BU-065-1(1) UNIT 3
LUNALILO FREEWAY BU-072-1(2) UNIT 4

SHEET No. 2 OF 3 SHEETS

\$174.76 \$161.74 119

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BU-065-1(1)	1960	77	115
		BU-065-1(2)	1960	75	115



SURVEY PLOTTED BY	DATE
DESIGNED BY	8-57
DRAWN BY	8-57
NOTE BOOK	
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CHECKED BY	

BELT, COLLINS & ASSOC., LTD.
Civil and Structural Engineers

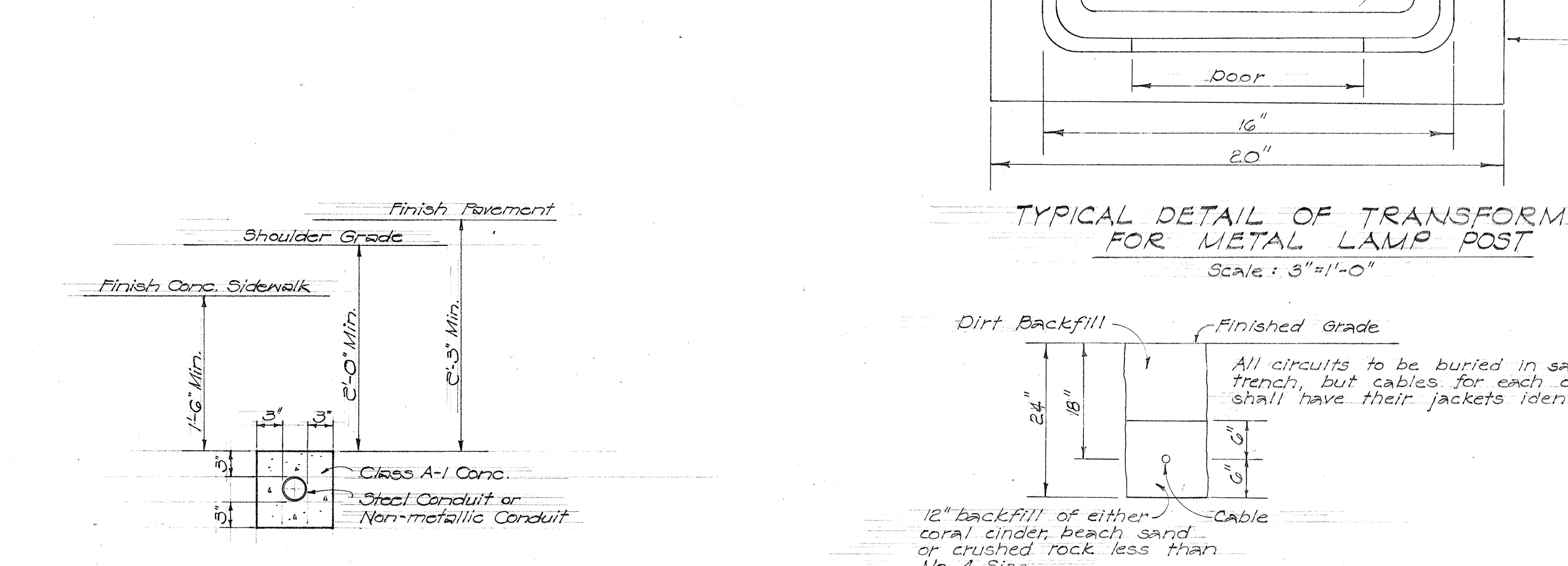
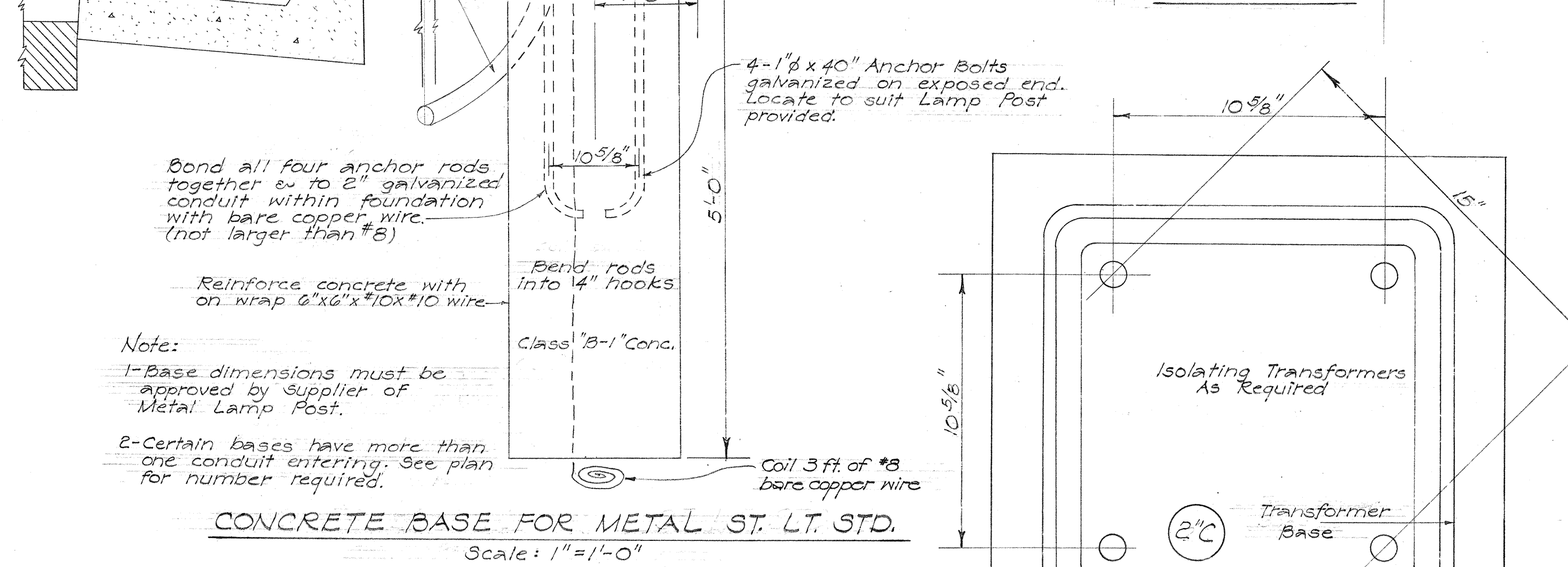
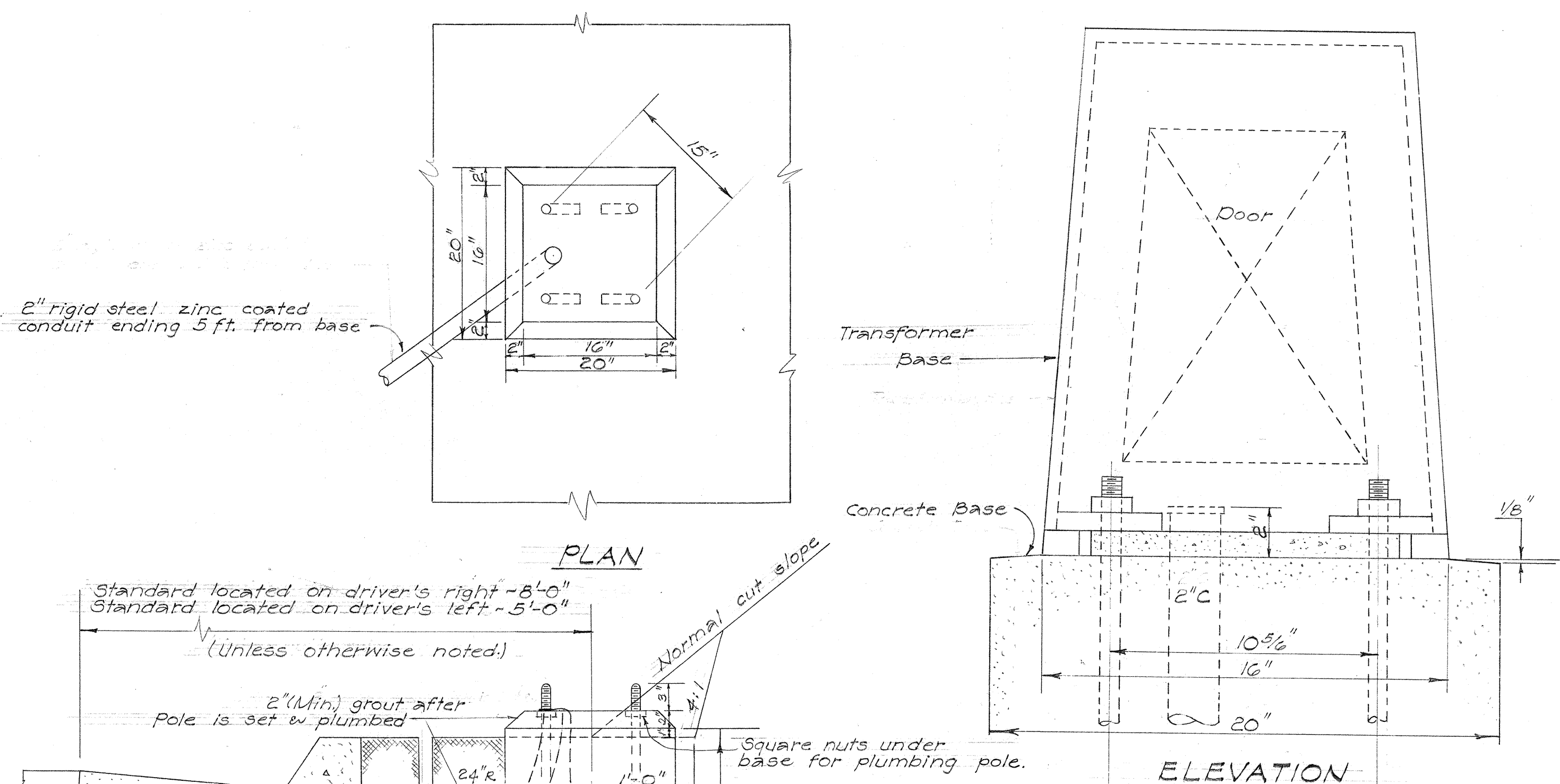
HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

HIGHWAY LIGHTING PLAN

MIDDLE STREET BU-065-1(1) UNIT 3
LUNALILO FREEWAY BU-072-1(2) UNIT 4

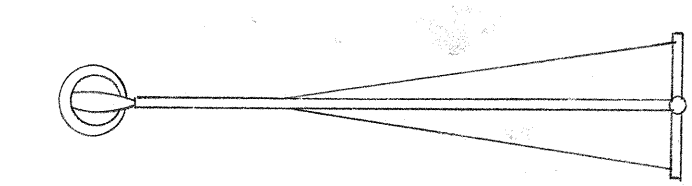
SHEET NO. 3 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	US-0720(3)	1960	53	79
		BU-072-1(2)	1960	81	118
		BU-065-1(1)	1960	76	115

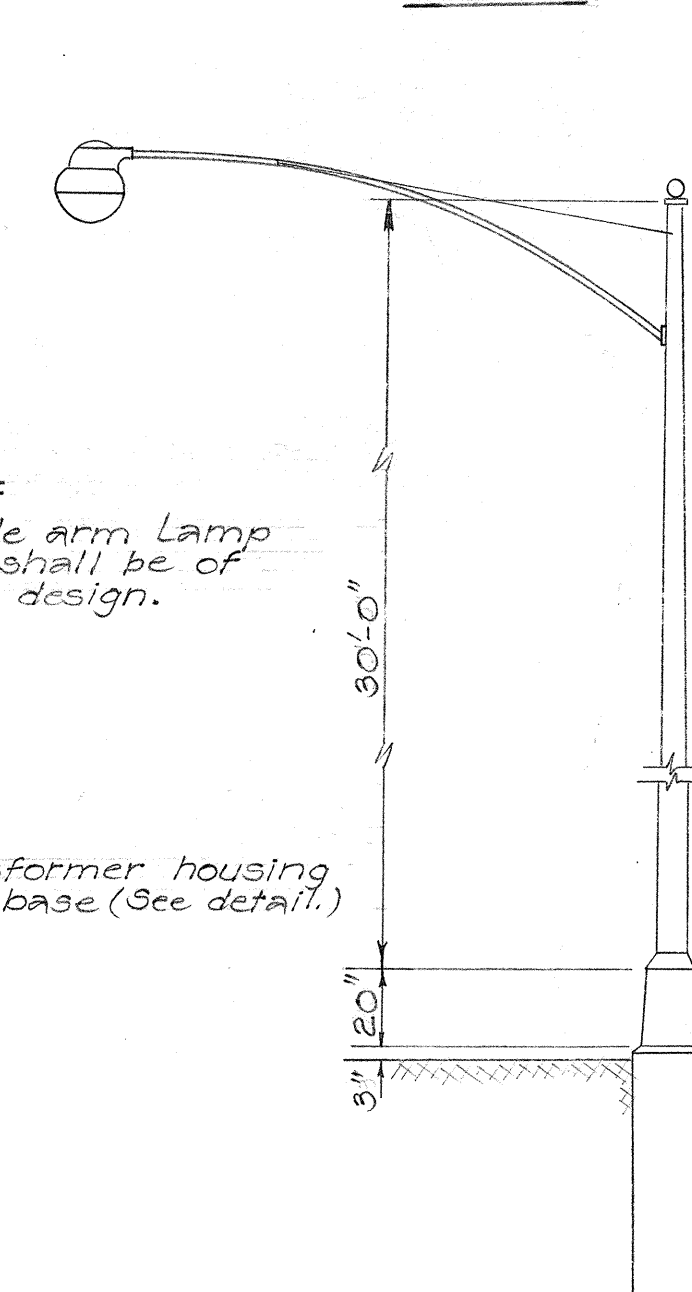


TYPICAL DETAIL OF CONDUITS ENCASED IN CONCRETE JACKET
Scale: 1"=1'-0"

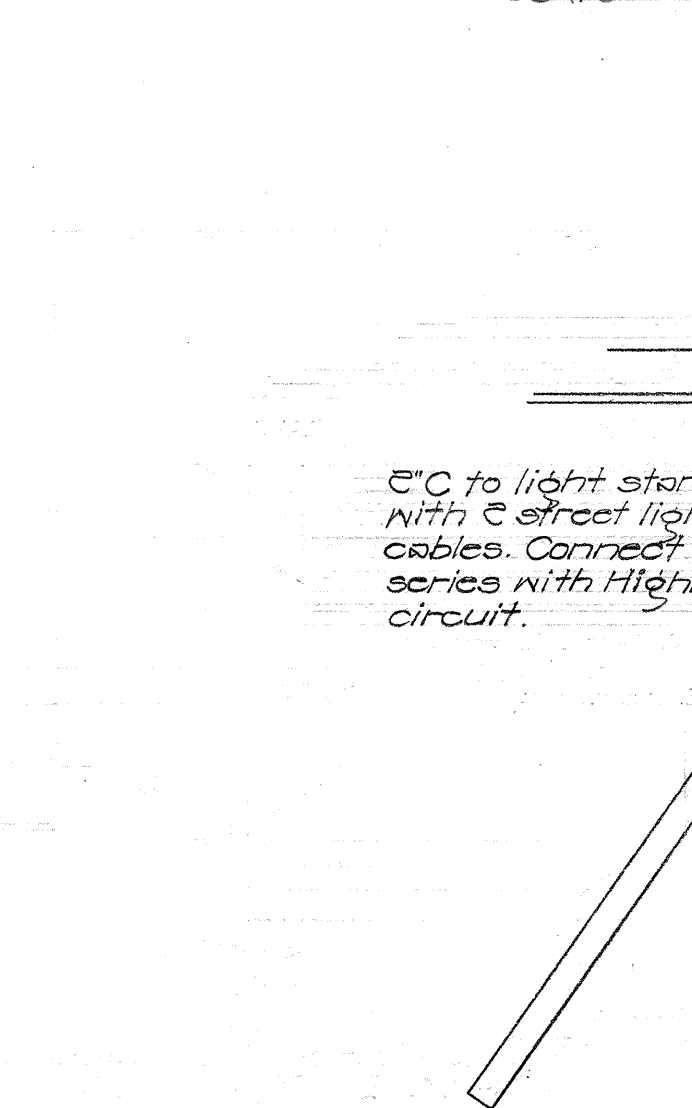
DETAIL OF BACKFILL FOR DIRECTLY BURIED CABLES
Scale: 3/4"=1'-0"



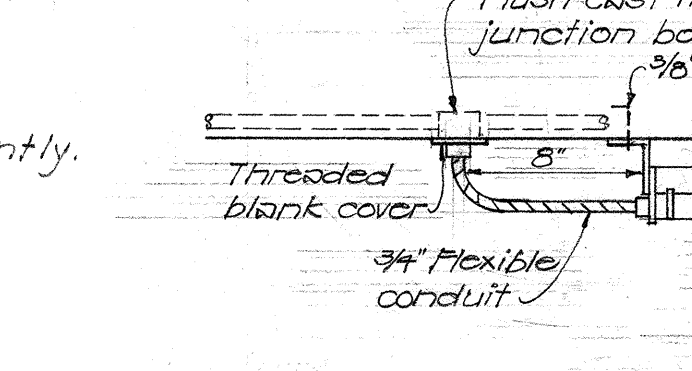
PLAN



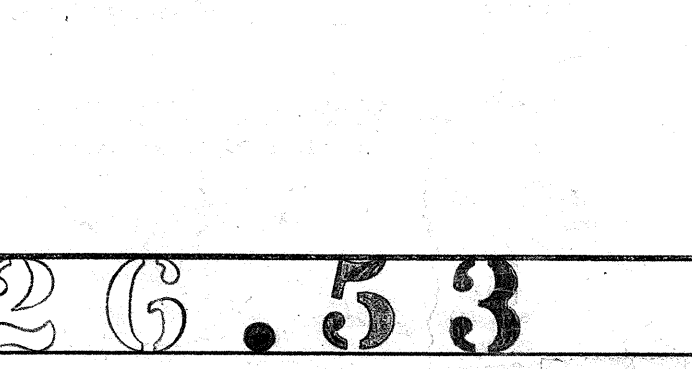
TYPICAL SINGLE ARM METAL LAMP POST
Scale: 1/4"=1'-0"



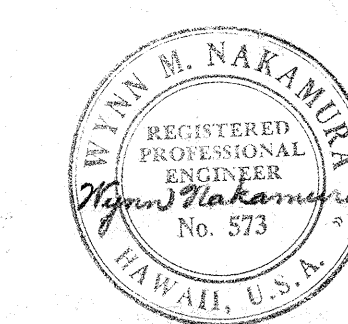
LIGHTING LAYOUT KALIHI STREAM BRIDGE
Scale: 1"=10'



LONGITUDINAL SECTION
Scale: 1"=10'



FIXTURE MOUNTING DETAIL
Not to scale



HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
ELECTRICAL DETAILS
LIGHTING ON KALIHI STREAM BRIDGE
MOANALUA ROAD US-5-0720(3) UNIT 3
LUNALILO FREEWAY BU-072-1(2) UNIT 4
MIDDLE STREET BU-065-1(1) UNIT 5

BELT, COLLINS & ASSOC., LTD.
Civil and Structural Engineers

SHEET NO. 4 OF 6 SHEETS

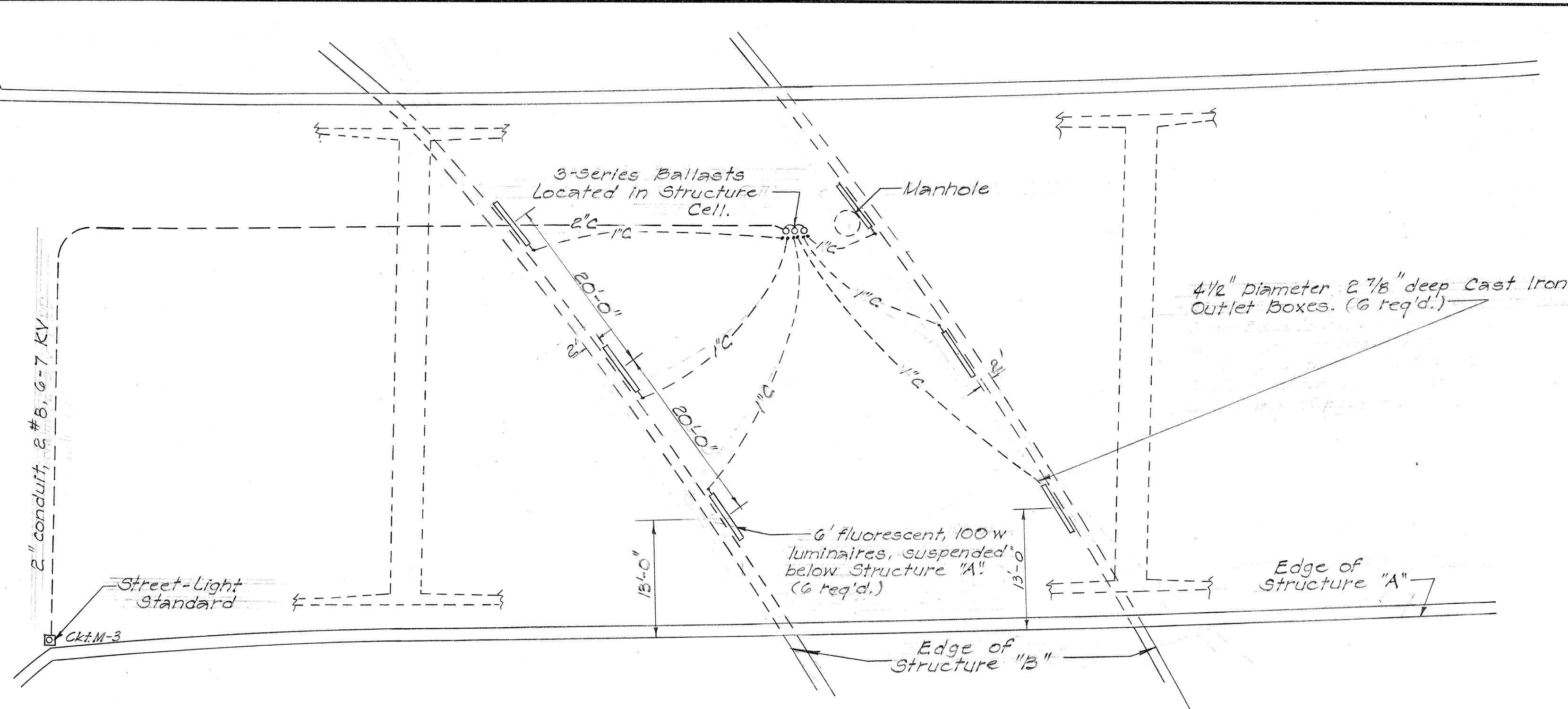
\$526.53

\$174.51

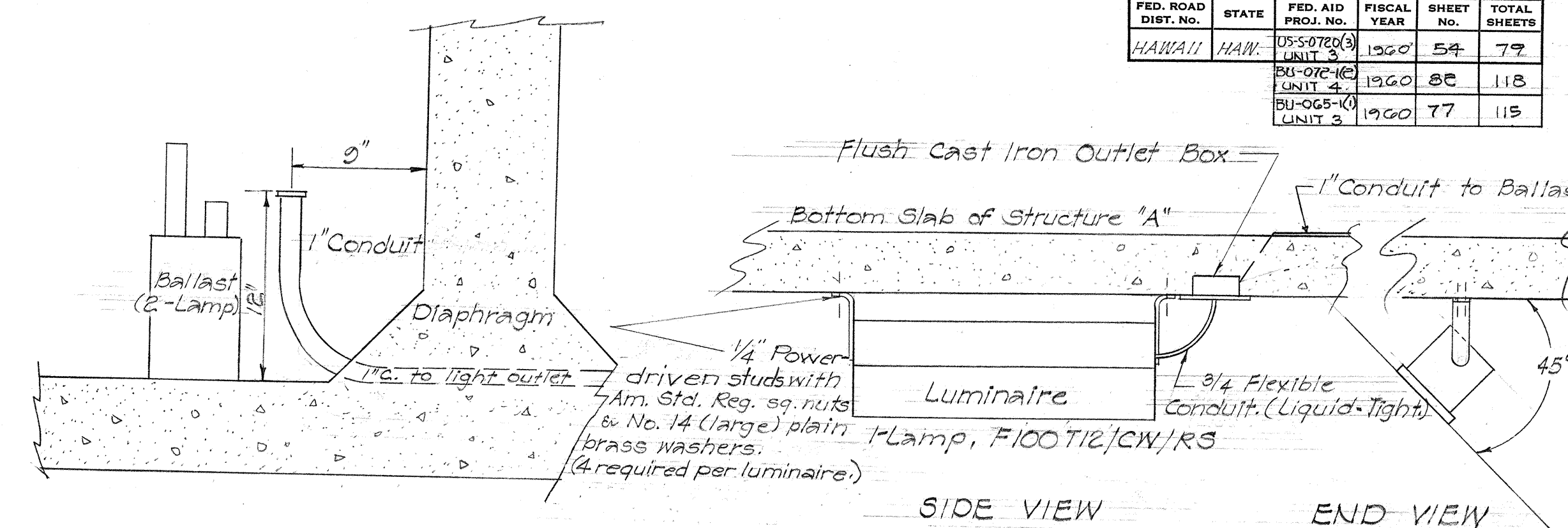
\$161.76

115

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	US-5-0720(3) UNIT 3	1960	54	79
		BU-072-1(E) UNIT 4	1960	86	118
		BU-065-1(K) UNIT 2	1960	77	115

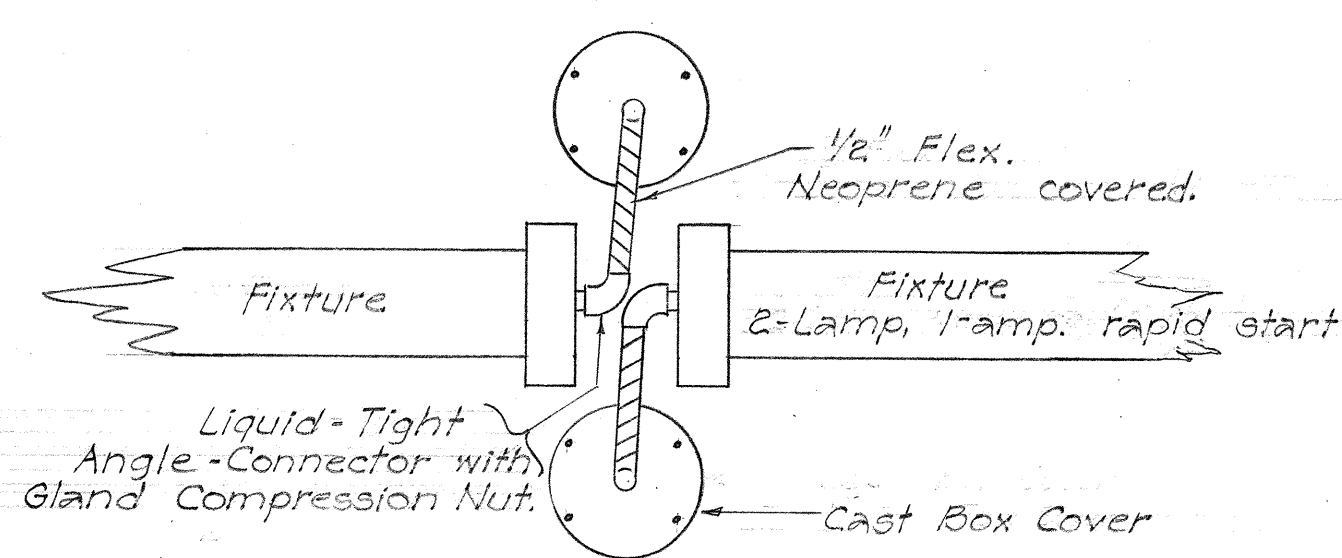


PLAN
FLUORESCENT LUMINAIRES AT STRUCTURE "A"
Scale: 1"=10'

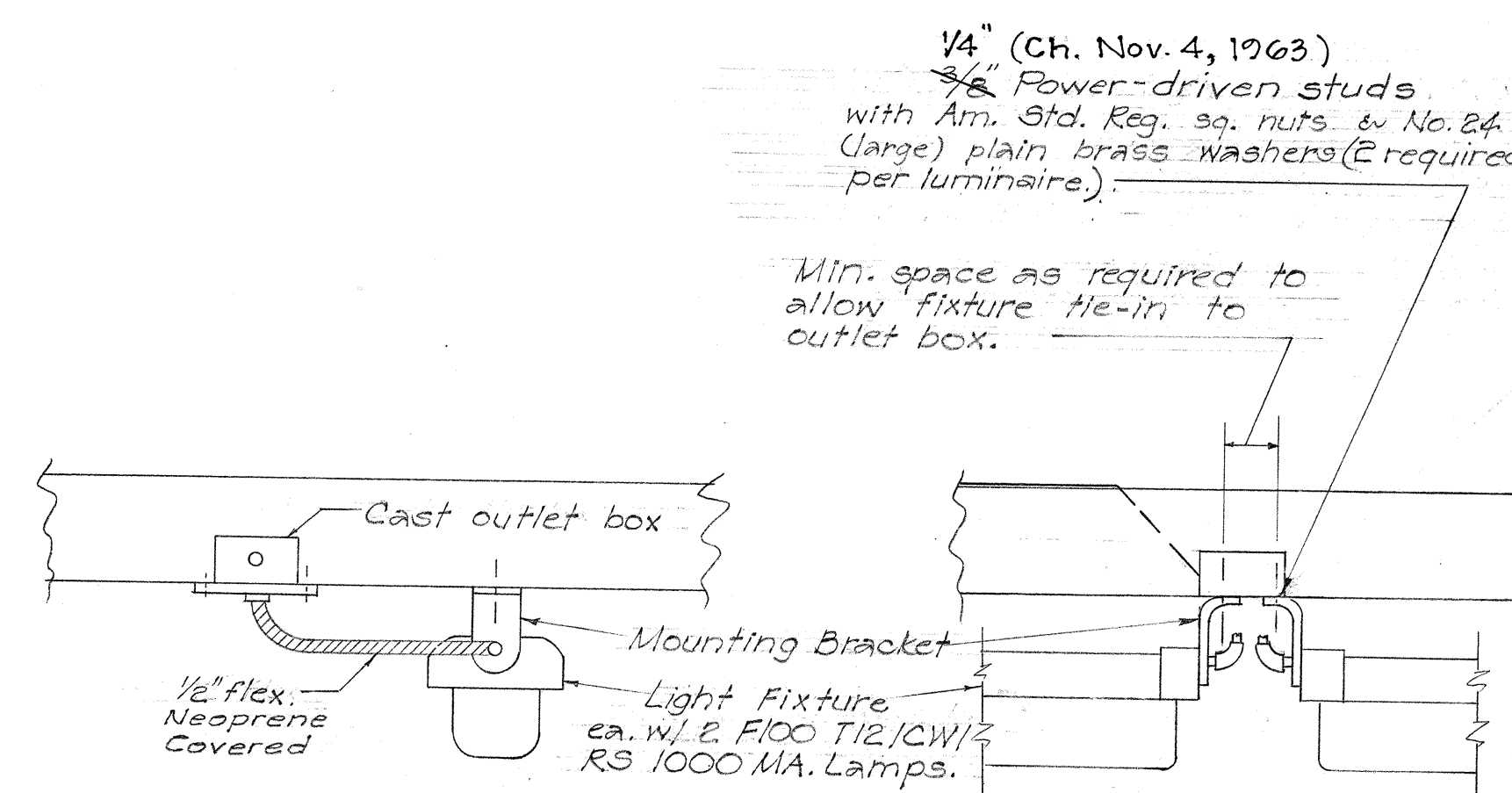


DETAIL OF BALLAST
IN STRUCTURE CELL

DETAIL OF FLUORESCENT
LUMINAIRE AT STRUCTURE "A"
Scale: $\frac{1}{8}" = 1'-0"$

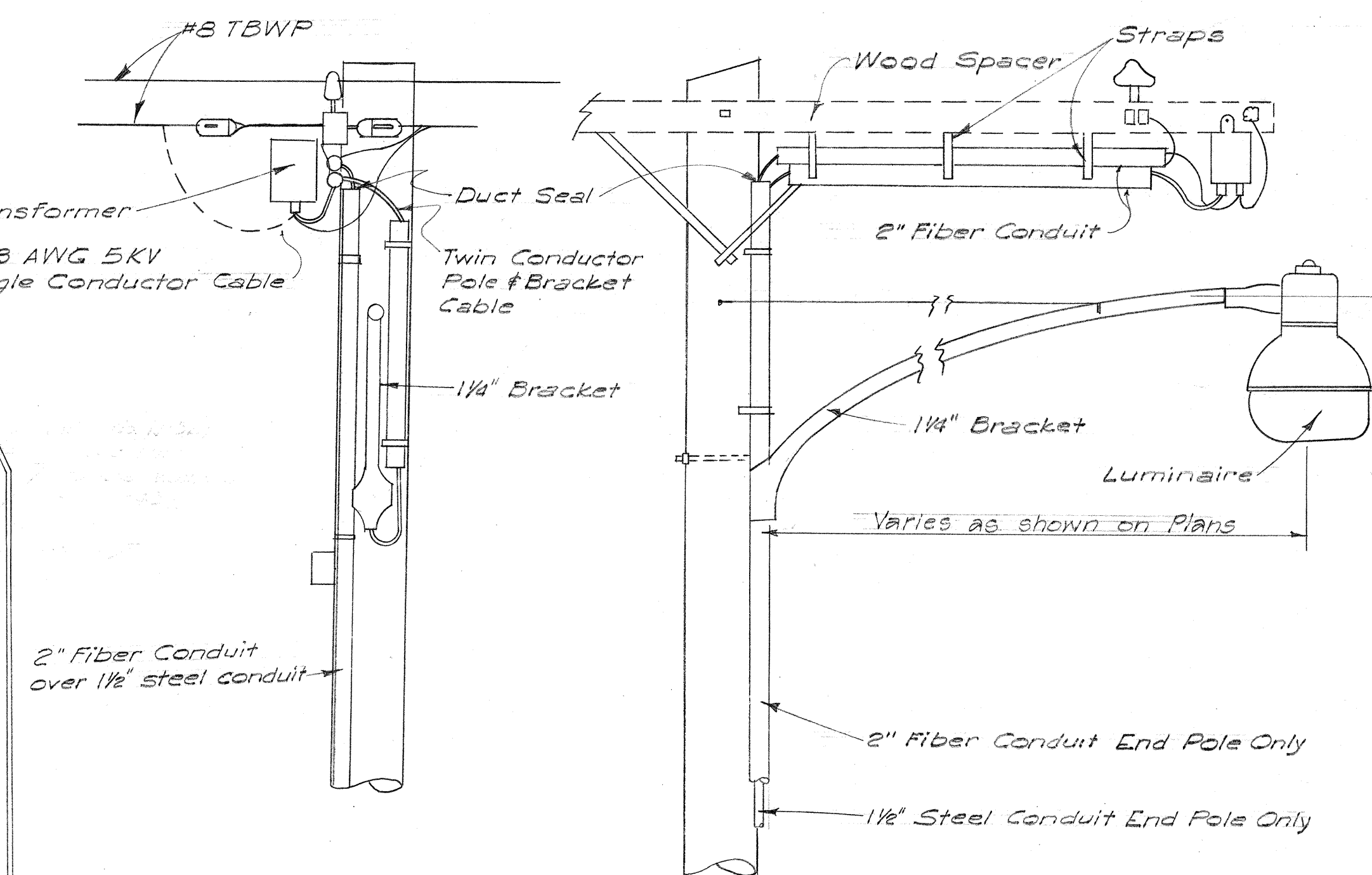


DETAIL OF FIXTURE CONNECTION TO OUTLET BOXES
No Scale



END VIEW
No Scale

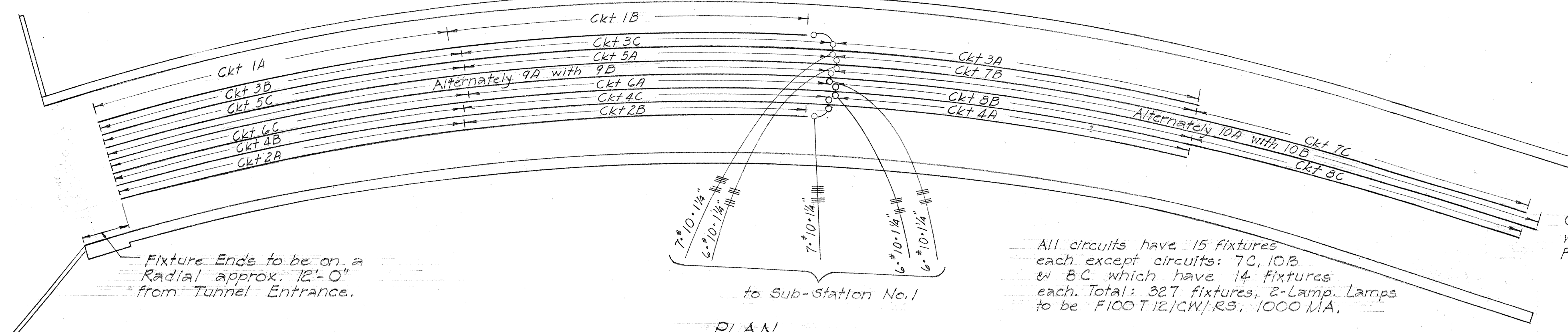
SIDE VIEW
No Scale



FRONT ELEVATION SIDE ELEVATION

MOUNTING DETAIL OF LUMINAIRE
BRACKET ON UTILITY POLE

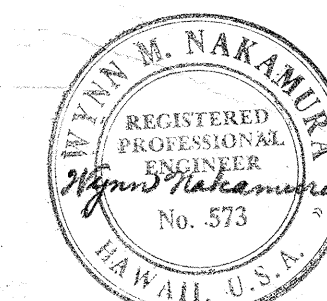
NOTE: Pole Top Isolating Transformers Shall Be Used Where Lamp Posts are Mounted on Wing Walls of Structure "A"



PLAN
LIGHTING LAYOUT ~ STRUCTURE "C-D"
Scale: 1" = 20'

All circuits have 15 fixtures each except circuits: 7C, 10B & 8C which have 14 fixtures each. Total: 327 fixtures, 2-Lamp. Lamps to be F100T12/CW/RS, 1000 MA.

Center Row to Coincide
with $\frac{1}{2}$ of Road Bed.
Fixture Rows to be 3'-0" o.c.



HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

ELECTRICAL DETAILS

LIGHTING LAYOUT ON STRUCTURES

MIDDLE STREET BU-065-1(1) UNIT 3
LUNALILO FREEWAY BU-072-1(2) UNIT 4
MOANALUA ROAD US-S-0720(3) UNIT 3

SHEET No. 5 OF 6 SHEETS

§ 526.54

\$ 174.82

SHEET NO. 3 OF 6

S 1 G 1

120