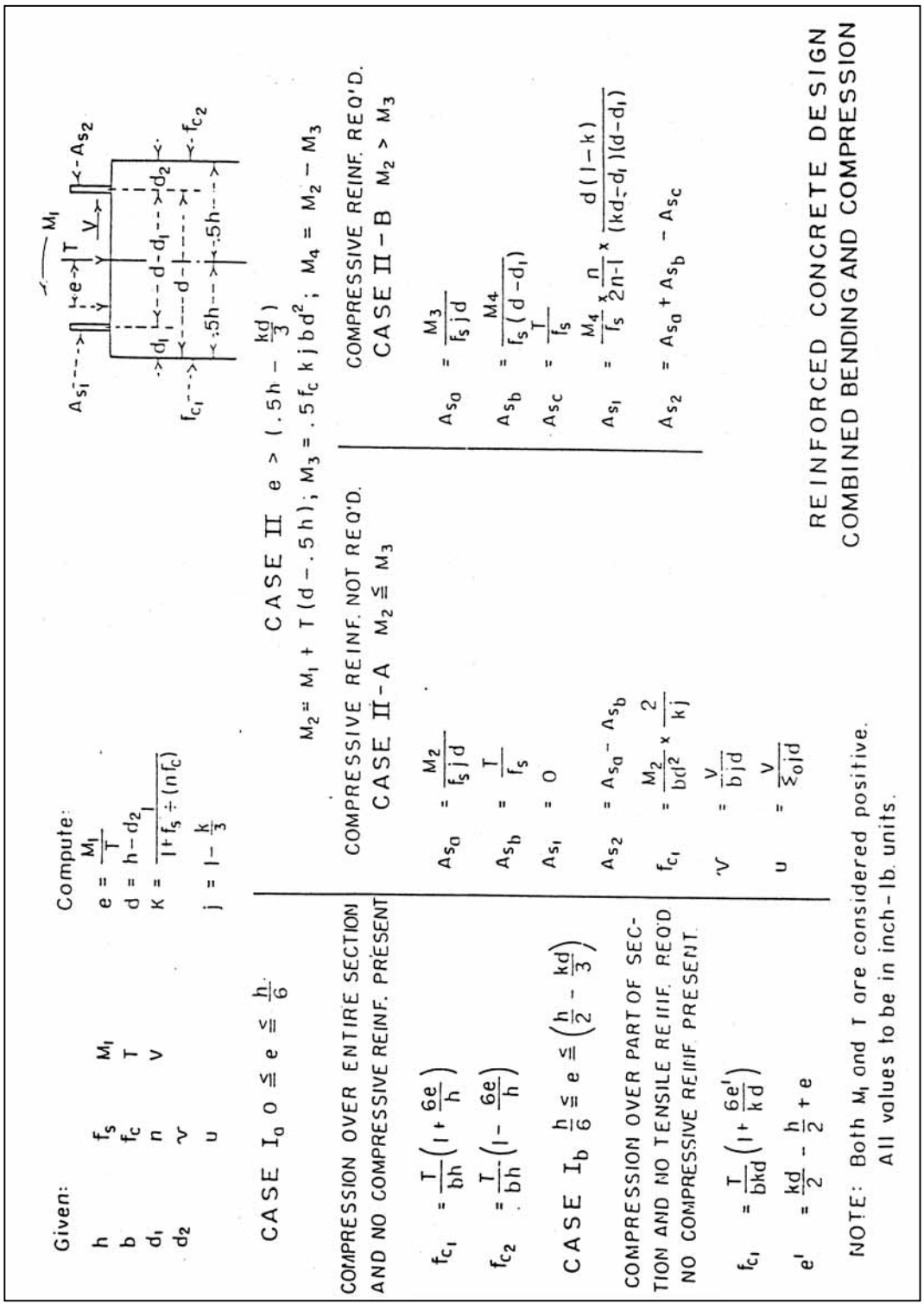
ภาคผนวก ข

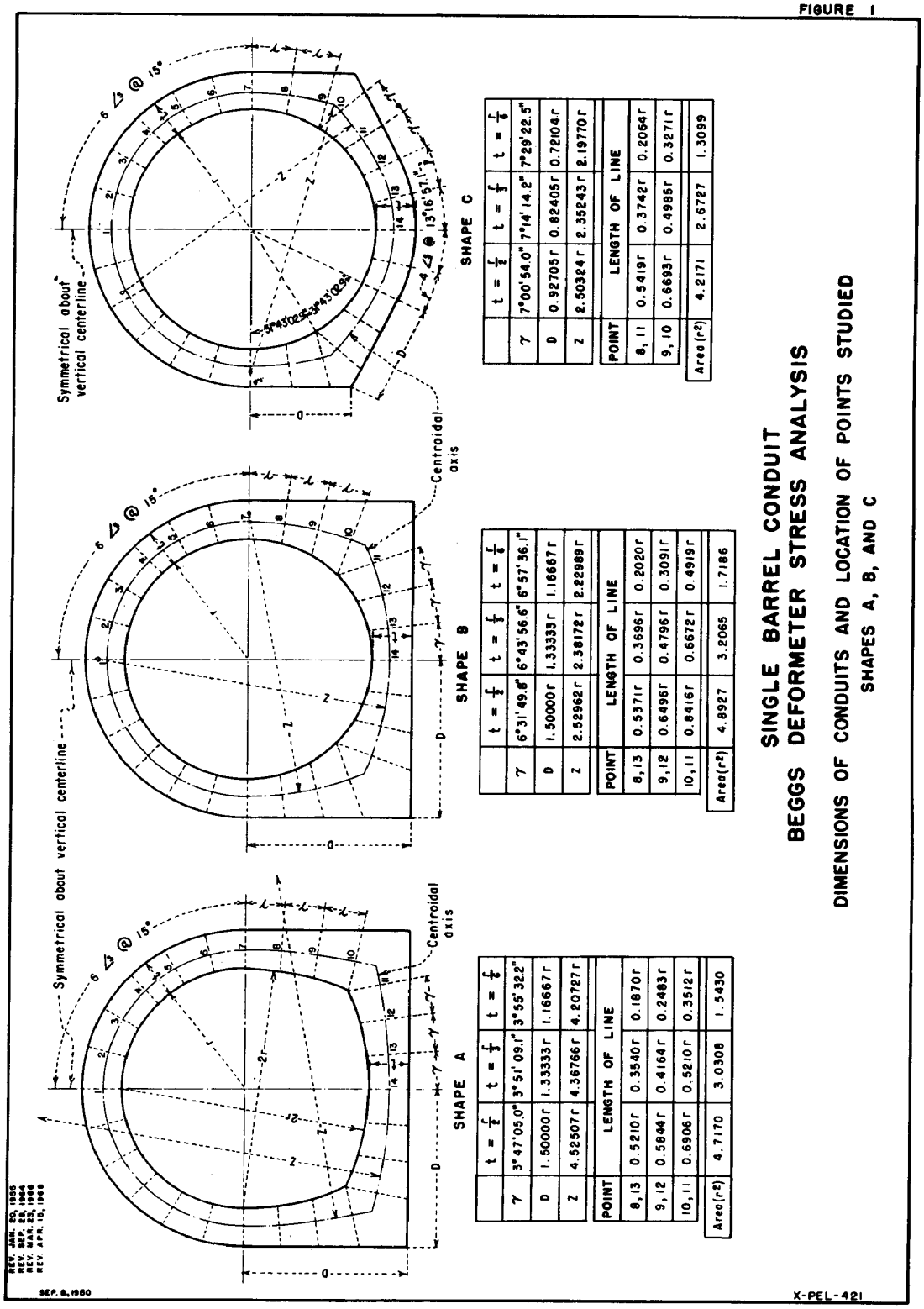
Monograph สำหรับการออกแบบโครงสร้างท่อส่งน้ำ

(Single Barrel Conduit Beggs Deformeter Stress Analysis)



<u>ภาพผนวกที่ ข1</u> แสดงเงื่อนไขและสมการคำนวณปริมาณเหล็กเสริมในองค์อาคาร

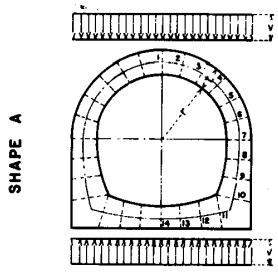
ที่มา: U.S.B.R. (1987)



ภาพผนวกที่ ข2 แสดงมิติของท่อและจุดที่วิเคราะห์

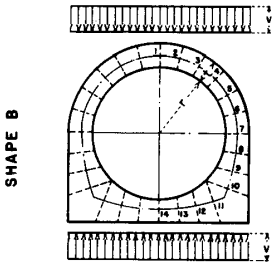
ที่มา: U.S.B.R. (1968)

FIGURE 4



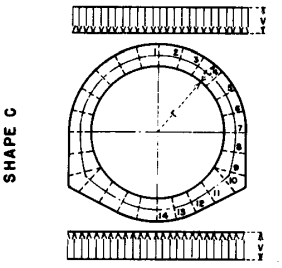
SHAPE A

POINT	$t = \frac{r}{2}$ $\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$	$t = \frac{r}{3}$ $\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$	$t = \frac{r}{6}$ $\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$
1	+0.357	+0.033	0	+0.317	+0.030	0	+0.274	+0.031	0
2	+0.308	+0.132	+0.366	+0.274	+0.119	+0.325	+0.236	+0.108	+0.284
3	+0.175	+0.403	+0.633	+0.155	+0.360	+0.562	+0.132	+0.318	+0.490
4	-0.006	+0.773	+0.727	-0.006	+0.688	+0.645	-0.008	+0.605	+0.562
5	-0.185	+1.141	+0.621	-0.165	+1.015	+0.551	-0.147	+0.890	+0.479
6	-0.312	+1.408	+0.343	-0.279	+1.252	+0.304	-0.246	+1.096	+0.262
7	-0.352	+1.500	-0.033	-0.314	+1.333	-0.030	-0.276	+1.167	-0.031
8	-0.327	+1.495	-0.132	-0.292	+1.328	-0.120	-0.256	+1.162	-0.110
9	-0.273	+1.483	-0.230	-0.244	+1.317	-0.209	-0.213	+1.152	-0.190
10	-0.190	+1.464	-0.328	-0.169	+1.300	-0.297	-0.147	+1.136	-0.268
11	+0.042	+0.157	-0.947	+0.004	+0.156	-0.915	-0.031	+0.153	-0.882
12	+0.261	+0.051	-0.633	+0.216	+0.052	-0.612	+0.174	+0.050	-0.590
13	+0.394	-0.012	-0.317	+0.345	-0.010	-0.307	+0.298	-0.010	-0.296
14	+0.439	-0.033	0	+0.388	-0.030	0	+0.340	-0.031	0



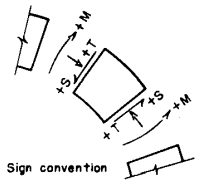
SHAPE B

POINT	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$
1	+0.353	+0.028	0	+0.311	+0.030	0	+0.265	+0.038	0
2	+0.304	+0.127	+0.368	+0.268	+0.118	+0.326	+0.227	+0.115	+0.282
3	+0.170	+0.399	+0.636	+0.149	+0.359	+0.563	+0.125	+0.325	+0.486
4	-0.012	+0.770	+0.730	-0.012	+0.688	+0.646	-0.015	+0.610	+0.556
5	-0.192	+1.139	+0.625	-0.172	+1.015	+0.552	-0.152	+0.894	+0.472
6	-0.321	+1.407	+0.348	-0.285	+1.252	+0.305	-0.249	+1.098	+0.255
7	-0.362	+1.500	-0.028	-0.321	+1.333	-0.030	-0.277	+1.167	-0.038
8	-0.330	+1.487	-0.198	-0.291	+1.321	-0.186	-0.247	+1.153	-0.179
9	-0.248	+1.455	-0.366	-0.217	+1.290	-0.339	-0.180	+1.123	-0.318
10	-0.119	+1.404	-0.529	-0.101	+1.241	-0.488	-0.076	+1.076	-0.452
11	+0.069	+0.305	-0.941	+0.044	+0.296	-0.890	+0.030	+0.279	-0.838
12	+0.260	+0.119	-0.634	+0.226	+0.113	-0.600	+0.202	+0.101	-0.566
13	+0.381	+0.008	-0.319	+0.341	+0.006	-0.302	+0.311	-0.004	-0.285
14	+0.423	-0.028	0	+0.380	-0.030	0	+0.348	-0.038	0



SHAPE C

POINT	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$
1	+0.368	-0.004	0	+0.328	-0.008	0	+0.286	-0.015	0
2	+0.318	+0.097	+0.376	+0.283	+0.082	+0.335	+0.246	+0.063	+0.296
3	+0.180	+0.372	+0.651	+0.160	+0.326	+0.581	+0.138	+0.278	+0.513
4	-0.008	+0.747	+0.753	-0.008	+0.661	+0.672	-0.011	+0.573	+0.594
5	-0.197	+1.123	+0.653	-0.177	+0.996	+0.584	-0.160	+0.867	+0.518
6	-0.335	+1.399	+0.379	-0.301	+1.242	+0.341	-0.271	+1.085	+0.306
7	-0.387	+1.500	+0.004	-0.348	+1.333	+0.008	-0.314	+1.167	+0.016
8	-0.360	+1.489	-0.179	-0.326	+1.324	-0.160	-0.296	+1.159	-0.137
9	-0.277	+1.456	-0.360	-0.253	+1.293	-0.326	-0.235	+1.131	-0.287
10	-0.187	+0.840	-0.974	-0.188	+0.779	-0.883	-0.195	+0.719	-0.789
11	+0.031	+0.542	-0.809	+0.014	+0.498	-0.729	-0.010	+0.455	-0.646
12	+0.209	+0.303	-0.598	+0.177	+0.274	-0.530	+0.138	+0.247	-0.460
13	+0.319	+0.083	-0.335	+0.274	+0.078	-0.296	+0.223	+0.076	-0.257
14	+0.359	+0.004	0	+0.309	+0.008	0	+0.253	+0.015	0



+ Sign convention

REV. JULY 9, 1953
REV. SEP. 28, 1954

SINGLE BARREL CONDUIT
BEGGS DEFORMETER STRESS ANALYSIS
COEFFICIENTS FOR MOMENT, THRUST, AND SHEAR
UNIFORM VERTICAL LOAD - UNIFORM FOUNDATION REACTION
SHAPES A, B, AND C

SEP. 8, 1950

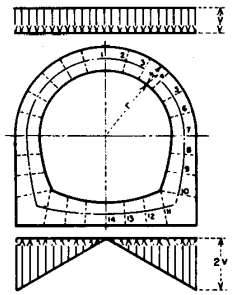
X-PEL-372

<u>ภาพผนวกที่ ข3</u> แสดงค่าสัมประสิทธิ์สำหรับวิเคราะห์หาแรงที่จุดกำหนด แรงตามแนวดิ่ง

ที่มา: U.S.B.R. (1968)

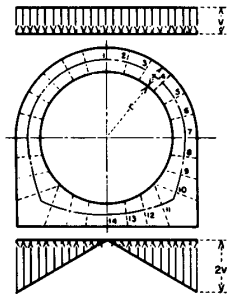
FIGURE 5

SHAPE A



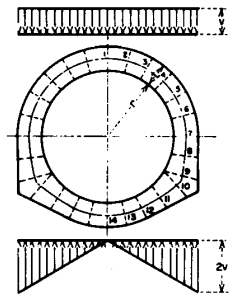
POINT	$t = \frac{r}{2}$			$t = \frac{r}{3}$			$t = \frac{r}{6}$		
	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$
1	+0.302	+0.132	0	+0.280	+0.113	0	+0.244	+0.102	0
2	+0.257	+0.228	+0.341	+0.240	+0.198	+0.304	+0.209	+0.177	+0.265
3	+0.136	+0.489	+0.583	+0.131	+0.431	+0.521	+0.113	+0.380	+0.454
4	-0.025	+0.843	+0.657	-0.015	+0.746	+0.587	-0.015	+0.656	+0.511
5	-0.178	+1.191	+0.535	-0.155	+1.056	+0.480	-0.138	+0.926	+0.417
6	-0.276	+1.434	+0.247	-0.245	+1.273	+0.224	-0.218	+1.115	+0.193
7	-0.283	+1.500	-0.132	-0.255	+1.333	-0.113	-0.228	+1.167	-0.102
8	-0.229	+1.488	-0.231	-0.209	+1.323	-0.202	-0.187	+1.157	-0.182
9	-0.145	+1.470	-0.329	-0.137	+1.306	-0.290	-0.124	+1.142	-0.261
10	-0.033	+1.445	-0.425	-0.039	+1.284	-0.378	-0.037	+1.121	-0.338
11	+0.091	-0.009	-0.627	+0.071	+0.019	-0.654	+0.050	+0.040	-0.692
12	+0.205	-0.096	-0.283	+0.192	-0.074	-0.295	+0.181	-0.060	-0.311
13	+0.250	-0.127	-0.075	+0.239	-0.108	-0.077	+0.231	-0.097	-0.081
14	+0.257	-0.132	0	+0.246	-0.113	0	+0.239	-0.102	0

SHAPE B

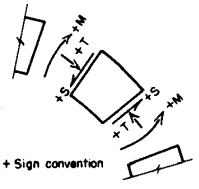


POINT	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$
1	+0.303	+0.135	0	+0.274	+0.119	0	+0.234	+0.116	0
2	+0.259	+0.231	+0.340	+0.234	+0.204	+0.302	+0.200	+0.191	+0.262
3	+0.138	+0.492	+0.582	+0.126	+0.437	+0.518	+0.106	+0.392	+0.447
4	-0.022	+0.845	+0.655	-0.019	+0.751	+0.582	-0.020	+0.666	+0.501
5	-0.175	+1.192	+0.533	-0.157	+1.060	+0.474	-0.140	+0.933	+0.404
6	-0.271	+1.434	+0.245	-0.245	+1.275	+0.218	-0.216	+1.119	+0.179
7	-0.278	+1.500	-0.135	-0.254	+1.333	-0.119	-0.223	+1.167	-0.116
8	-0.215	+1.475	-0.305	-0.198	+1.310	-0.275	-0.172	+1.144	-0.257
9	-0.103	+1.431	-0.470	-0.100	+1.269	-0.426	-0.084	+1.104	-0.394
10	+0.056	+1.368	-0.630	+0.040	+1.210	-0.572	+0.040	+1.049	-0.525
11	+0.123	+0.092	-0.660	+0.108	+0.116	-0.660	+0.105	+0.129	-0.665
12	+0.217	-0.069	-0.301	+0.207	-0.051	-0.299	+0.209	-0.045	-0.301
13	+0.258	-0.126	-0.082	+0.248	-0.110	-0.081	+0.252	-0.107	-0.082
14	+0.265	-0.135	0	+0.256	-0.119	0	+0.260	-0.116	0

SHAPE C



POINT	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$	$\frac{M}{vr^2}$	$\frac{T}{vr}$	$\frac{S}{vr}$
1	+0.309	+0.109	0	+0.287	+0.085	0	+0.253	+0.065	0
2	+0.263	+0.205	+0.347	+0.245	+0.172	+0.311	+0.217	+0.141	+0.275
3	+0.140	+0.469	+0.595	+0.133	+0.407	+0.535	+0.117	+0.348	+0.473
4	-0.026	+0.827	+0.673	-0.018	+0.727	+0.606	-0.018	+0.629	+0.538
5	-0.186	+1.179	+0.556	-0.164	+1.043	+0.504	-0.149	+0.907	+0.449
6	-0.290	+1.428	+0.270	-0.262	+1.266	+0.251	-0.239	+1.105	+0.229
7	-0.305	+1.500	-0.109	-0.281	+1.333	-0.085	-0.260	+1.167	-0.065
8	-0.244	+1.476	-0.291	-0.230	+1.312	-0.253	-0.219	+1.148	-0.216
9	-0.128	+1.429	-0.469	-0.131	+1.270	-0.416	-0.136	+1.110	-0.364
10	-0.078	+0.635	-0.908	-0.088	+0.619	-0.841	-0.103	+0.599	-0.774
11	+0.064	+0.259	-0.587	+0.055	+0.254	-0.533	+0.040	+0.246	-0.479
12	+0.157	+0.037	-0.317	+0.146	+0.043	-0.277	+0.128	+0.046	-0.238
13	+0.197	-0.087	-0.102	+0.182	-0.067	-0.088	+0.161	-0.049	-0.075
14	+0.205	-0.109	0	+0.189	-0.085	0	+0.167	-0.065	0



SINGLE BARREL CONDUIT
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SHAPES A, B, AND C

REV. SEP. 28, 1964

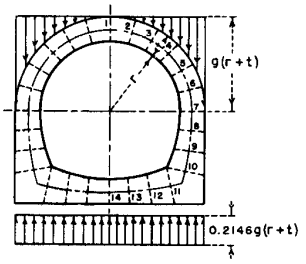
SEP. 8, 1960

X-PEL-373

ภาพผนวกที่ ข3 (ต่อ)

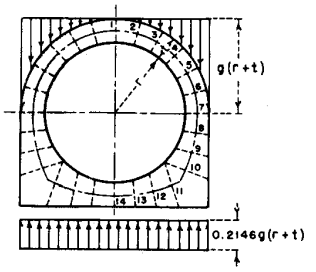
FIGURE 10

SHAPE A



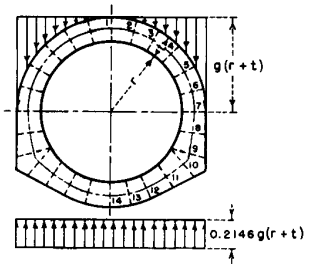
POINT	$t = \frac{r}{2}$			$t = \frac{r}{3}$			$t = \frac{r}{6}$		
	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$
1	+0.045	-0.054	0	+0.040	-0.039	0	+0.032	-0.027	0
2	+0.043	-0.050	+0.020	+0.039	-0.036	+0.015	+0.030	-0.025	+0.011
3	+0.034	-0.022	+0.069	+0.031	-0.015	+0.053	+0.025	-0.009	+0.039
4	+0.014	+0.064	+0.141	+0.014	+0.053	+0.109	+0.011	+0.043	+0.081
5	-0.014	+0.218	+0.188	-0.011	+0.174	+0.146	-0.011	+0.135	+0.109
6	-0.042	+0.391	+0.161	-0.037	+0.310	+0.123	-0.035	+0.238	+0.092
7	-0.063	+0.483	+0.054	-0.055	+0.382	+0.039	-0.049	+0.292	+0.027
8	-0.074	+0.485	+0.022	-0.063	+0.383	+0.013	-0.054	+0.293	+0.007
9	-0.076	+0.486	-0.010	-0.063	+0.383	-0.012	-0.053	+0.293	-0.013
10	-0.068	+0.484	-0.042	-0.056	+0.382	-0.038	-0.047	+0.291	-0.033
11	-0.011	+0.114	-0.292	-0.016	+0.091	-0.252	-0.022	+0.072	-0.214
12	+0.056	+0.080	-0.195	+0.043	+0.062	-0.169	+0.027	+0.047	-0.143
13	+0.097	+0.061	-0.098	+0.078	+0.045	-0.085	+0.057	+0.032	-0.072
14	+0.111	+0.054	0	+0.090	+0.039	0	+0.068	+0.027	0

SHAPE B



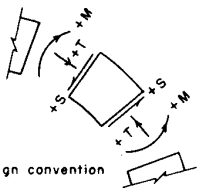
POINT	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$
1	+0.046	-0.059	0	+0.039	-0.043	0	+0.031	-0.028	0
2	+0.043	-0.055	+0.022	+0.037	-0.040	+0.016	+0.030	-0.026	+0.011
3	+0.033	-0.026	+0.072	+0.029	-0.018	+0.055	+0.024	-0.010	+0.040
4	+0.013	+0.061	+0.144	+0.012	+0.051	+0.111	+0.010	+0.042	+0.082
5	-0.016	+0.216	+0.193	-0.015	+0.172	+0.149	-0.013	+0.134	+0.110
6	-0.046	+0.390	+0.165	-0.042	+0.309	+0.127	-0.037	+0.238	+0.093
7	-0.068	+0.483	+0.059	-0.061	+0.382	+0.043	-0.052	+0.292	+0.028
8	-0.077	+0.486	+0.003	-0.067	+0.384	-0.002	-0.055	+0.293	-0.007
9	-0.070	+0.484	-0.052	-0.060	+0.381	-0.047	-0.048	+0.290	-0.043
10	-0.048	+0.475	-0.107	-0.040	+0.373	-0.091	-0.031	+0.283	-0.078
11	-0.005	+0.162	-0.280	-0.009	+0.133	-0.237	-0.010	+0.105	-0.196
12	+0.052	+0.104	-0.189	+0.039	+0.082	-0.160	+0.030	+0.062	-0.132
13	+0.087	+0.070	-0.095	+0.069	+0.053	-0.080	+0.055	+0.037	-0.067
14	+0.099	+0.059	0	+0.080	+0.043	0	+0.064	+0.028	0

SHAPE C



POINT	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$
1	+0.048	-0.067	0	+0.042	-0.049	0	+0.034	-0.036	0
2	+0.045	-0.063	+0.024	+0.040	-0.046	+0.018	+0.032	-0.034	+0.013
3	+0.034	-0.034	+0.076	+0.031	-0.024	+0.058	+0.026	-0.016	+0.044
4	+0.012	+0.055	+0.150	+0.012	+0.046	+0.116	+0.010	+0.036	+0.088
5	-0.019	+0.212	+0.200	-0.016	+0.169	+0.155	-0.014	+0.130	+0.117
6	-0.051	+0.388	+0.173	-0.045	+0.307	+0.134	-0.040	+0.236	+0.101
7	-0.076	+0.483	+0.067	-0.066	+0.382	+0.049	-0.057	+0.292	+0.036
8	-0.088	+0.487	+0.008	-0.073	+0.385	+0.001	-0.062	+0.294	-0.002
9	-0.081	+0.485	-0.052	-0.067	+0.382	-0.047	-0.056	+0.292	-0.041
10	-0.063	+0.320	-0.271	-0.054	+0.259	-0.222	-0.048	+0.204	-0.176
11	-0.005	+0.229	-0.224	-0.005	+0.182	-0.182	-0.007	+0.141	-0.144
12	+0.042	+0.157	-0.163	+0.035	+0.121	-0.130	+0.025	+0.091	-0.101
13	+0.071	+0.091	-0.093	+0.059	+0.068	-0.074	+0.043	+0.051	-0.057
14	+0.081	+0.067	0	+0.067	+0.049	0	+0.050	+0.036	0

NOTE: g represents the weight per unit volume of soil cover on the arch of the conduit section in units consistent with those of the radius r.



+ Sign convention

SINGLE BARREL CONDUIT
BEGGS DEFORMETER STRESS ANALYSIS
COEFFICIENTS FOR MOMENT, THRUST, AND SHEAR
VERTICAL ARCH LOAD - UNIFORM FOUNDATION REACTION
SHAPES A, B, AND C

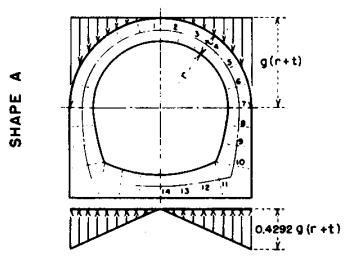
REV APR. 15, 1968

SEP. 28, 1964

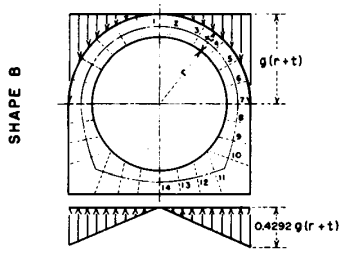
X-PEL-1036

<u>ภาพผนวกที่ ข3</u> (ต่อ)

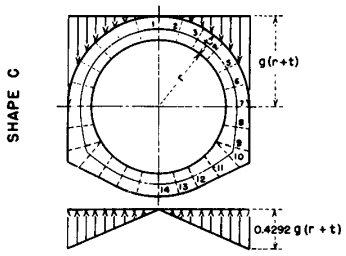
FIGURE 11



POINT	$t = \frac{r}{2}$			$t = \frac{r}{3}$			$t = \frac{r}{6}$		
	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$
1	+0.028	-0.022	0	+0.030	-0.015	0	+0.024	-0.009	0
2	+0.027	-0.020	+0.012	+0.029	-0.014	+0.009	+0.024	-0.008	+0.006
3	+0.021	+0.005	+0.053	+0.024	+0.006	+0.041	+0.020	+0.007	+0.030
4	+0.008	+0.087	+0.118	+0.012	+0.070	+0.092	+0.009	+0.056	+0.068
5	-0.011	+0.234	+0.161	-0.008	+0.186	+0.125	-0.009	+0.144	+0.094
6	-0.030	+0.399	+0.130	-0.028	+0.316	+0.101	-0.028	+0.243	+0.074
7	-0.041	+0.483	+0.022	-0.038	+0.382	+0.015	-0.037	+0.292	+0.009
8	-0.043	+0.483	-0.010	-0.039	+0.382	-0.010	-0.037	+0.292	-0.011
9	-0.035	+0.482	-0.042	-0.032	+0.380	-0.036	-0.031	+0.291	-0.031
10	-0.018	+0.478	-0.074	-0.018	+0.377	-0.061	-0.019	+0.288	-0.051
11	+0.005	+0.060	-0.189	+0.003	+0.052	-0.178	-0.002	+0.044	-0.166
12	+0.038	+0.033	-0.083	+0.036	+0.026	-0.078	+0.029	+0.019	-0.073
13	+0.051	+0.023	-0.020	+0.048	+0.017	-0.019	+0.040	+0.010	-0.018
14	+0.052	+0.022	0	+0.050	+0.015	0	+0.042	+0.009	0

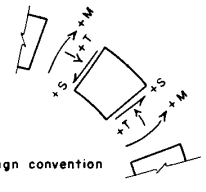


POINT	$t = \frac{r}{2}$			$t = \frac{r}{3}$			$t = \frac{r}{6}$		
	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$
1	+0.030	-0.024	0	+0.029	-0.017	0	+0.023	-0.009	0
2	+0.029	-0.022	+0.013	+0.029	-0.015	+0.009	+0.023	-0.008	+0.006
3	+0.023	+0.003	+0.054	+0.024	+0.004	+0.042	+0.019	+0.007	+0.030
4	+0.010	+0.085	+0.120	+0.011	+0.069	+0.093	+0.008	+0.056	+0.068
5	-0.011	+0.233	+0.163	-0.009	+0.185	+0.127	-0.010	+0.144	+0.093
6	-0.030	+0.399	+0.132	-0.030	+0.316	+0.102	-0.029	+0.243	+0.074
7	-0.041	+0.483	+0.024	-0.041	+0.382	+0.017	-0.038	+0.292	+0.009
8	-0.040	+0.482	-0.031	-0.039	+0.381	-0.028	-0.036	+0.291	-0.027
9	-0.024	+0.476	-0.085	-0.025	+0.375	-0.072	-0.024	+0.286	-0.062
10	+0.009	+0.463	-0.139	+0.001	+0.364	-0.116	-0.002	+0.276	-0.096
11	+0.013	+0.093	-0.190	+0.011	+0.081	-0.171	+0.008	+0.068	-0.153
12	+0.038	+0.044	-0.081	+0.035	+0.035	-0.074	+0.031	+0.026	-0.066
13	+0.048	+0.027	-0.019	+0.044	+0.019	-0.017	+0.040	+0.011	-0.016
14	+0.049	+0.024	0	+0.045	+0.017	0	+0.042	+0.009	0



POINT	$t = \frac{r}{2}$			$t = \frac{r}{3}$			$t = \frac{r}{6}$		
	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$	$\frac{M}{gr^3}$	$\frac{T}{gr^2}$	$\frac{S}{gr^2}$
1	+0.029	-0.031	0	+0.030	-0.023	0	+0.026	-0.016	0
2	+0.028	-0.028	+0.014	+0.029	-0.021	+0.011	+0.025	-0.014	+0.008
3	+0.021	-0.002	+0.058	+0.023	-0.000	+0.045	+0.020	+0.001	+0.034
4	+0.006	+0.081	+0.124	+0.010	+0.065	+0.097	+0.008	+0.051	+0.073
5	-0.016	+0.230	+0.168	-0.012	+0.182	+0.132	-0.011	+0.140	+0.100
6	-0.037	+0.397	+0.138	-0.034	+0.314	+0.108	-0.032	+0.241	+0.081
7	-0.050	+0.483	+0.031	-0.047	+0.382	+0.023	-0.043	+0.292	+0.016
8	-0.051	+0.483	-0.028	-0.046	+0.381	-0.025	-0.043	+0.292	-0.022
9	-0.033	+0.476	-0.087	-0.031	+0.375	-0.073	-0.031	+0.286	-0.060
10	-0.029	+0.254	-0.249	-0.025	+0.213	-0.210	-0.025	+0.174	-0.172
11	+0.005	+0.138	-0.152	+0.007	+0.112	-0.126	+0.005	+0.088	-0.102
12	+0.025	+0.071	-0.073	+0.026	+0.055	-0.058	+0.022	+0.040	-0.045
13	+0.031	+0.036	-0.018	+0.032	+0.027	-0.014	+0.028	+0.019	-0.011
14	+0.032	+0.031	0	+0.033	+0.023	0	+0.028	+0.016	0

NOTE: g represents the weight per unit volume of soil cover on the arch of the conduit section in units consistent with those of the radius r.



+ Sign convention

SINGLE BARREL CONDUIT
BEGGS DEFORMETER STRESS ANALYSIS
COEFFICIENTS FOR MOMENT, THRUST, AND SHEAR
VERTICAL ARCH LOAD—TRIANGULAR FOUNDATION REACTION
SHAPES A, B, AND C

REV. SEP. 28, 1964
REV. APR. 15, 1968

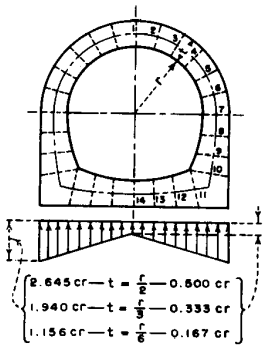
SEP. 8, 1950

X-PEL-376

ภาพผนวกที่ ข3 (ต่อ)

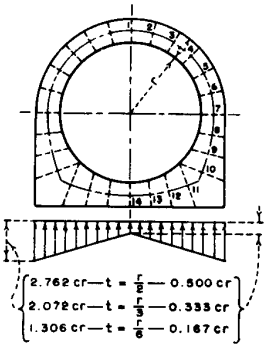
FIGURE 12

SHAPE A



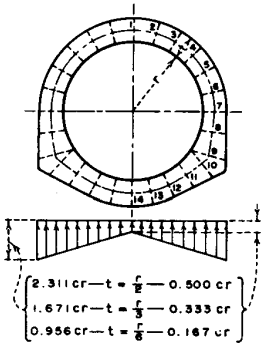
POINT	t = r/2 M/cr³	t = r/2 T/cr²	t = r/2 S/cr²	t = r/3 M/cr³	t = r/3 T/cr²	t = r/3 S/cr²	t = r/6 M/cr³	t = r/6 T/cr²	t = r/6 S/cr²
1	+0.182	+0.041	0	+0.118	+0.010	0	+0.057	-0.006	0
2	+0.158	+0.082	+0.147	+0.103	+0.036	+0.096	+0.050	+0.006	+0.047
3	+0.090	+0.199	+0.263	+0.062	+0.111	+0.171	+0.031	+0.042	+0.085
4	-0.005	+0.376	+0.318	+0.003	+0.223	+0.209	+0.004	+0.096	+0.105
5	-0.105	+0.587	+0.292	-0.059	+0.358	+0.195	-0.026	+0.161	+0.100
6	-0.181	+0.801	+0.172	-0.108	+0.494	+0.122	-0.050	+0.227	+0.067
7	-0.203	+0.982	-0.041	-0.126	+0.611	-0.010	-0.061	+0.284	+0.006
8	-0.179	+1.128	-0.116	-0.116	+0.708	-0.058	-0.059	+0.333	-0.017
9	-0.130	+1.281	-0.212	-0.090	+0.814	-0.120	-0.050	+0.392	-0.048
10	-0.048	+1.450	-0.333	-0.043	+0.938	-0.202	-0.030	+0.472	-0.092
11	+0.041	+0.084	-0.627	+0.017	+0.086	-0.470	-0.002	+0.065	-0.284
12	+0.147	-0.002	-0.292	+0.101	+0.019	-0.219	+0.051	+0.024	-0.133
13	+0.189	-0.036	-0.080	+0.134	-0.006	-0.059	+0.072	+0.009	-0.035
14	+0.196	-0.041	0	+0.139	-0.010	0	+0.075	+0.006	0

SHAPE B



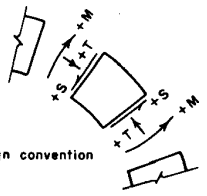
POINT	M/cr³	T/cr²	S/cr²	M/cr³	T/cr²	S/cr²	M/cr³	T/cr²	S/cr²
1	+0.180	+0.050	0	+0.111	+0.016	0	+0.054	-0.003	0
2	+0.156	+0.091	+0.145	+0.096	+0.042	+0.094	+0.047	+0.009	+0.046
3	+0.090	+0.207	+0.258	+0.055	+0.116	+0.168	+0.028	+0.045	+0.083
4	-0.003	+0.383	+0.312	-0.002	+0.227	+0.205	+0.002	+0.098	+0.102
5	-0.101	+0.592	+0.284	-0.063	+0.361	+0.190	-0.027	+0.162	+0.097
6	-0.174	+0.803	+0.163	-0.111	+0.496	+0.116	-0.051	+0.228	+0.064
7	-0.193	+0.982	-0.050	-0.127	+0.611	-0.016	-0.061	+0.284	+0.003
8	-0.159	+1.116	-0.178	-0.111	+0.701	-0.099	-0.056	+0.330	-0.037
9	-0.083	+1.254	-0.342	-0.068	+0.798	-0.208	-0.039	+0.388	-0.093
10	+0.048	+1.407	-0.554	+0.011	+0.917	-0.354	-0.003	+0.474	-0.178
11	+0.071	+0.188	-0.679	+0.036	+0.162	-0.487	+0.013	+0.111	-0.284
12	+0.150	+0.023	-0.322	+0.098	+0.039	-0.230	+0.053	+0.037	-0.135
13	+0.186	-0.040	-0.093	+0.126	-0.009	-0.064	+0.071	+0.007	-0.037
14	+0.193	-0.050	0	+0.130	-0.016	0	+0.074	+0.003	0

SHAPE C



POINT	M/cr³	T/cr²	S/cr²	M/cr³	T/cr²	S/cr²	M/cr³	T/cr²	S/cr²
1	+0.173	+0.045	0	+0.114	+0.008	0	+0.056	-0.009	0
2	+0.149	+0.086	+0.146	+0.099	+0.034	+0.096	+0.049	+0.003	+0.048
3	+0.082	+0.203	+0.261	+0.058	+0.109	+0.172	+0.029	+0.039	+0.087
4	-0.013	+0.379	+0.315	-0.001	+0.222	+0.210	+0.001	+0.094	+0.107
5	-0.112	+0.589	+0.288	-0.064	+0.357	+0.196	-0.029	+0.159	+0.103
6	-0.186	+0.802	+0.168	-0.114	+0.494	+0.124	-0.054	+0.226	+0.070
7	-0.206	+0.982	-0.045	-0.132	+0.611	-0.008	-0.066	+0.284	+0.009
8	-0.171	+1.125	-0.184	-0.116	+0.707	-0.098	-0.062	+0.334	-0.034
9	-0.086	+1.272	-0.365	-0.069	+0.813	-0.218	-0.044	+0.398	-0.097
10	-0.061	+0.624	-0.797	-0.052	+0.439	-0.517	-0.036	+0.241	-0.258
11	+0.038	+0.301	-0.535	+0.022	+0.216	-0.338	+0.007	+0.124	-0.167
12	+0.108	+0.101	-0.304	+0.071	+0.081	-0.180	+0.035	+0.051	-0.081
13	+0.136	-0.021	-0.107	+0.090	+0.006	-0.059	+0.045	+0.015	-0.024
14	+0.140	-0.045	0	+0.093	-0.008	0	+0.046	+0.009	0

NOTES: c represents the weight per unit volume of concrete or other material in units consistent with those of the radius r.
See Figure 1 for net area of shapes.



+ Sign convention

REV. APR. 15, 1968

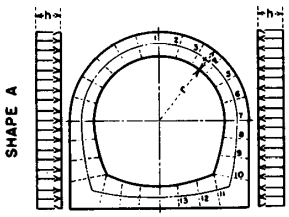
SINGLE BARREL CONDUIT
BEGGS DEFORMETER STRESS ANALYSIS
COEFFICIENTS FOR MOMENT, THRUST, AND SHEAR
DEAD WEIGHT OF CONDUIT
SHAPES A, B, AND C

SEP. 28, 1964

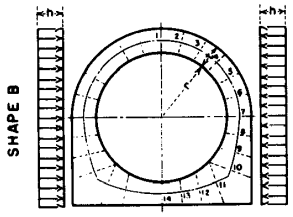
X-PEL-1037

ภาพผนวกที่ ข3 (ต่อ)

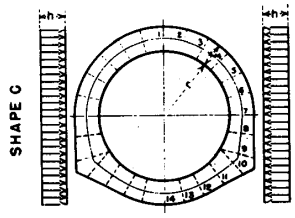
FIGURE 13



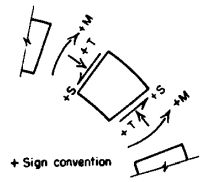
POINT	$t = \frac{r}{2}$			$t = \frac{r}{3}$			$t = \frac{r}{6}$		
	$\frac{M}{hr^2}$	$\frac{T}{hr}$	$\frac{S}{hr}$	$\frac{M}{hr^2}$	$\frac{T}{hr}$	$\frac{S}{hr}$	$\frac{M}{hr^2}$	$\frac{T}{hr}$	$\frac{S}{hr}$
1	-0.379	+1.520	0	-0.334	+1.349	0	-0.284	+1.169	0
2	-0.328	+1.419	-0.380	-0.289	+1.259	-0.337	-0.245	+1.090	-0.292
3	-0.188	+1.143	-0.660	-0.165	+1.013	-0.585	-0.138	+0.877	-0.506
4	+0.004	+0.764	-0.764	+0.005	+0.678	-0.678	+0.008	+0.585	-0.585
5	+0.196	+0.385	-0.667	+0.175	+0.341	-0.591	+0.154	+0.293	-0.507
6	+0.340	+0.106	-0.395	+0.301	+0.093	-0.348	+0.262	+0.079	-0.294
7	+0.397	0	-0.020	+0.351	0	-0.015	+0.301	0	-0.002
8	+0.358	+0.020	+0.295	+0.312	+0.019	+0.289	+0.260	+0.020	+0.292
9	+0.232	+0.081	+0.609	+0.189	+0.080	+0.593	+0.137	+0.081	+0.584
10	+0.020	+0.185	+0.920	-0.017	+0.183	+0.893	-0.065	+0.182	+0.874
11	-0.197	+1.451	+0.291	-0.181	+1.291	+0.264	-0.177	+1.140	+0.238
12	-0.269	+1.467	+0.195	-0.246	+1.306	+0.177	-0.234	+1.154	+0.159
13	-0.313	+1.476	+0.098	-0.285	+1.315	+0.089	-0.268	+1.162	+0.080
14	-0.328	+1.480	0	-0.298	+1.318	0	-0.280	+1.165	0



POINT	$\frac{M}{hr^2}$	$\frac{T}{hr}$	$\frac{S}{hr}$	$\frac{M}{hr^2}$	$\frac{T}{hr}$	$\frac{S}{hr}$	$\frac{M}{hr^2}$	$\frac{T}{hr}$	$\frac{S}{hr}$
1	-0.359	+1.491	0	-0.316	+1.321	0	-0.268	+1.140	0
2	-0.310	+1.391	-0.373	-0.272	+1.232	-0.330	-0.230	+1.063	-0.285
3	-0.173	+1.118	-0.645	-0.152	+0.989	-0.571	-0.126	+0.852	-0.492
4	+0.012	+0.744	-0.744	+0.013	+0.658	-0.658	+0.015	+0.564	-0.564
5	+0.198	+0.371	-0.642	+0.176	+0.327	-0.566	+0.155	+0.278	-0.482
6	+0.332	+0.098	-0.367	+0.295	+0.086	-0.321	+0.255	+0.071	-0.266
7	+0.380	0	+0.009	+0.335	0	+0.013	+0.286	0	+0.027
8	+0.337	+0.037	+0.325	+0.293	+0.037	+0.311	+0.243	+0.037	+0.307
9	+0.214	+0.148	+0.637	+0.176	+0.145	+0.606	+0.129	+0.144	+0.582
10	+0.023	+0.335	+0.940	-0.007	+0.328	+0.892	-0.047	+0.324	+0.849
11	-0.160	+1.421	+0.506	-0.149	+1.263	+0.465	-0.151	+1.115	+0.425
12	-0.282	+1.470	+0.341	-0.258	+1.309	+0.313	-0.248	+1.158	+0.287
13	-0.356	+1.499	+0.172	-0.324	+1.337	+0.158	-0.306	+1.184	+0.145
14	-0.381	+1.509	0	-0.346	+1.346	0	-0.326	+1.193	0



POINT	$\frac{M}{hr^2}$	$\frac{T}{hr}$	$\frac{S}{hr}$	$\frac{M}{hr^2}$	$\frac{T}{hr}$	$\frac{S}{hr}$	$\frac{M}{hr^2}$	$\frac{T}{hr}$	$\frac{S}{hr}$
1	-0.368	+1.510	0	-0.328	+1.346	0	-0.286	+1.186	0
2	-0.318	+1.409	-0.377	-0.283	+1.257	-0.337	-0.246	+1.107	-0.297
3	-0.179	+1.133	-0.654	-0.159	+1.011	-0.584	-0.138	+0.891	-0.515
4	+0.010	+0.757	-0.757	+0.010	+0.676	-0.676	+0.012	+0.597	-0.597
5	+0.200	+0.380	-0.658	+0.180	+0.340	-0.589	+0.162	+0.301	-0.522
6	+0.340	+0.103	-0.384	+0.306	+0.093	-0.346	+0.273	+0.083	-0.310
7	+0.394	0	-0.010	+0.354	0	-0.003	+0.318	0	-0.019
8	+0.350	+0.040	+0.327	+0.314	+0.039	+0.304	+0.282	+0.037	+0.279
9	+0.219	+0.164	+0.658	+0.191	+0.159	+0.617	+0.168	+0.153	+0.571
10	+0.129	+0.778	+0.667	+0.126	+0.670	+0.583	+0.127	+0.563	+0.499
11	-0.037	+0.984	+0.653	-0.022	+0.661	+0.577	-0.003	+0.738	+0.499
12	-0.196	+1.191	+0.596	-0.166	+1.055	+0.527	-0.131	+0.916	+0.458
13	-0.305	+1.411	+0.333	-0.262	+1.250	+0.295	-0.215	+1.087	+0.257
14	-0.344	+1.490	0	-0.297	+1.320	0	-0.245	+1.148	0



SINGLE BARREL CONDUIT
BEGGS DEFORMETER STRESS ANALYSIS
COEFFICIENTS FOR MOMENT, THRUST, AND SHEAR
UNIFORM HORIZONTAL LOAD - BOTH SIDES
SHAPES A, B, AND C

REV. JULY 9, 1953
REV. SEPT. 24, 1954

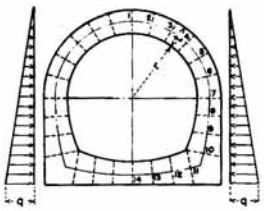
SEP. 8, 1950

X-PEL-378

<u>ภาพผนวกที่ ข3</u> (ต่อ)

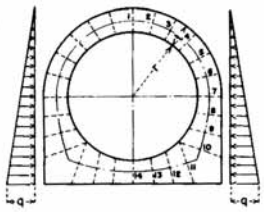
FIGURE 14

SHAPE A



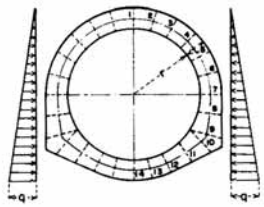
POINT	$t = \frac{r}{2}$			$t = \frac{r}{3}$			$t = \frac{r}{6}$		
	$\frac{M}{qr^2}$	$\frac{T}{q}$	$\frac{S}{q}$	$\frac{M}{qr^2}$	$\frac{T}{q}$	$\frac{S}{q}$	$\frac{M}{qr^2}$	$\frac{T}{q}$	$\frac{S}{q}$
1	-0.170	+0.447	0	-0.151	+0.404	0	-0.121	+0.360	0
2	-0.151	+0.432	-0.116	-0.135	+0.390	-0.105	-0.108	+0.347	-0.093
3	-0.097	+0.382	-0.220	-0.089	+0.345	-0.199	-0.069	+0.307	-0.177
4	-0.016	+0.294	-0.294	-0.020	+0.266	-0.266	-0.011	+0.237	-0.237
5	+0.075	+0.177	-0.306	+0.059	+0.161	-0.278	+0.057	+0.144	-0.249
6	+0.155	+0.062	-0.233	+0.130	+0.057	-0.214	+0.119	+0.052	-0.193
7	+0.202	0	-0.072	+0.172	0	-0.071	+0.156	0	-0.068
8	+0.200	+0.007	+0.102	+0.170	+0.007	+0.099	+0.153	+0.007	+0.097
9	+0.145	+0.041	+0.309	+0.116	+0.041	+0.303	+0.099	+0.041	+0.300
10	+0.031	+0.110	+0.549	+0.002	+0.111	+0.543	-0.015	+0.112	+0.539
11	-0.083	+1.032	+0.207	-0.088	+0.910	+0.186	-0.080	+0.790	+0.165
12	-0.135	+1.043	+0.139	-0.134	+0.921	+0.125	-0.119	+0.799	+0.110
13	-0.166	+1.050	+0.069	-0.162	+0.927	+0.062	-0.143	+0.805	+0.055
14	-0.176	+1.053	0	-0.171	+0.929	0	-0.151	+0.807	0

SHAPE B

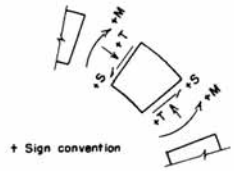


POINT	$\frac{M}{qr^2}$	$\frac{T}{q}$	$\frac{S}{q}$	$\frac{M}{qr^2}$	$\frac{T}{q}$	$\frac{S}{q}$	$\frac{M}{qr^2}$	$\frac{T}{q}$	$\frac{S}{q}$
1	-0.162	+0.431	0	-0.139	+0.391	0	-0.114	+0.347	0
2	-0.144	+0.416	-0.112	-0.123	+0.377	-0.101	-0.101	+0.335	-0.090
3	-0.092	+0.368	-0.212	-0.079	+0.334	-0.193	-0.064	+0.296	-0.171
4	-0.015	+0.282	-0.282	-0.012	+0.256	-0.256	-0.008	+0.228	-0.228
5	+0.072	+0.169	-0.292	+0.064	+0.154	-0.267	+0.057	+0.137	-0.237
6	+0.148	+0.058	-0.218	+0.131	+0.054	-0.201	+0.115	+0.048	-0.180
7	+0.189	0	-0.056	+0.169	0	-0.058	+0.148	0	-0.055
8	+0.184	+0.014	+0.119	+0.165	+0.013	+0.109	+0.144	+0.012	+0.102
9	+0.131	+0.076	+0.327	+0.115	+0.074	+0.308	+0.096	+0.073	+0.293
10	+0.031	+0.202	+0.567	+0.019	+0.199	+0.540	+0.002	+0.197	+0.517
11	-0.053	+1.007	+0.358	-0.051	+0.884	+0.325	-0.053	+0.766	+0.292
12	-0.139	+1.041	+0.242	-0.127	+0.916	+0.219	-0.119	+0.796	+0.197
13	-0.192	+1.062	+0.122	-0.174	+0.936	+0.110	-0.159	+0.814	+0.099
14	-0.209	+1.069	0	-0.189	+0.942	0	-0.173	+0.820	0

SHAPE C



POINT	$\frac{M}{qr^2}$	$\frac{T}{q}$	$\frac{S}{q}$	$\frac{M}{qr^2}$	$\frac{T}{q}$	$\frac{S}{q}$	$\frac{M}{qr^2}$	$\frac{T}{q}$	$\frac{S}{q}$
1	-0.172	+0.442	0	-0.143	+0.400	0	-0.122	+0.364	0
2	-0.153	+0.426	-0.114	-0.127	+0.386	-0.104	-0.109	+0.352	-0.094
3	-0.100	+0.377	-0.218	-0.081	+0.341	-0.197	-0.070	+0.311	-0.180
4	-0.020	+0.290	-0.290	-0.013	+0.263	-0.263	-0.011	+0.240	-0.240
5	+0.069	+0.174	-0.301	+0.065	+0.158	-0.274	+0.058	+0.146	-0.252
6	+0.148	+0.061	-0.228	+0.135	+0.056	-0.210	+0.121	+0.053	-0.197
7	+0.193	0	-0.067	+0.176	0	-0.067	+0.159	0	-0.073
8	+0.189	+0.015	+0.121	+0.173	+0.014	+0.111	+0.158	+0.013	+0.096
9	+0.132	+0.086	+0.345	+0.118	+0.084	+0.327	+0.107	+0.081	+0.302
10	+0.093	+0.477	+0.409	+0.088	+0.405	+0.352	+0.088	+0.329	+0.292
11	-0.003	+0.637	+0.423	+0.002	+0.552	+0.370	+0.013	+0.463	+0.313
12	-0.099	+0.809	+0.404	-0.087	+0.712	+0.356	-0.068	+0.610	+0.305
13	-0.167	+0.991	+0.234	-0.149	+0.874	+0.206	-0.123	+0.751	+0.177
14	-0.192	+1.058	0	-0.172	+0.933	0	-0.143	+0.802	0



+ Sign convention

SINGLE BARREL CONDUIT
BEGGS DEFORMETER STRESS ANALYSIS
COEFFICIENTS FOR MOMENT, THRUST, AND SHEAR
TRIANGULAR HORIZONTAL LOAD - BOTH SIDES
SHAPES A, B, AND C

REV. SEP. 28, 1954

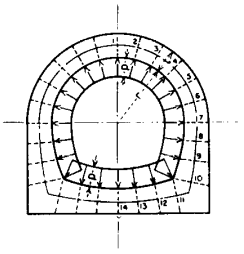
SEP. 8, 1950

X-PEL-379

ภาพผนวกที่ ข3 (ต่อ)

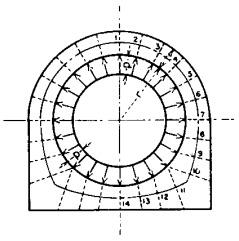
FIGURE 15

SHAPE A



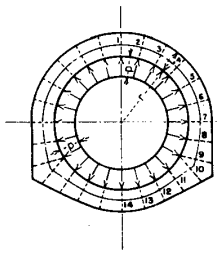
POINT	$t = \frac{r}{2}$			$t = \frac{r}{3}$			$t = \frac{r}{6}$		
	$\frac{M}{pr^2}$	$\frac{T}{pr}$	$\frac{S}{pr}$	$\frac{M}{pr^2}$	$\frac{T}{pr}$	$\frac{S}{pr}$	$\frac{M}{pr^2}$	$\frac{T}{pr}$	$\frac{S}{pr}$
1	+0.022	-1.053	0	+0.017	-1.046	0	+0.011	-1.033	0
2	+0.020	-1.052	+0.014	+0.015	-1.044	+0.012	+0.009	-1.032	+0.008
3	+0.013	-1.046	+0.027	+0.010	-1.040	+0.023	+0.006	-1.028	+0.016
4	+0.003	-1.038	+0.038	+0.001	-1.032	+0.032	+0.000	-1.023	+0.023
5	-0.011	-1.027	+0.046	-0.010	-1.023	+0.040	-0.007	-1.016	+0.028
6	-0.027	-1.014	+0.052	-0.023	-1.012	+0.044	-0.016	-1.008	+0.032
7	-0.045	-1.000	+0.053	-0.037	-1.000	+0.046	-0.025	-1.000	+0.033
8	-0.031	-0.993	-0.163	-0.021	-0.994	-0.169	-0.004	-0.995	-0.181
9	+0.041	-0.979	-0.379	+0.055	-0.981	-0.384	+0.075	-0.984	-0.394
10	+0.170	-0.958	-0.592	+0.187	-0.962	-0.596	+0.212	-0.967	-0.606
11	+0.155	-0.916	+0.655	+0.178	-0.926	+0.650	+0.207	-0.942	+0.644
12	+0.008	-0.933	+0.438	+0.030	-0.942	+0.435	+0.060	-0.956	+0.431
13	-0.081	-0.943	+0.220	-0.060	-0.951	+0.218	-0.030	-0.964	+0.216
14	-0.111	-0.947	0	-0.090	-0.954	0	-0.060	-0.967	0

SHAPE B

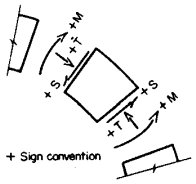


POINT	$\frac{M}{pr^2}$	$\frac{T}{pr}$	$\frac{S}{pr}$	$\frac{M}{pr^2}$	$\frac{T}{pr}$	$\frac{S}{pr}$	$\frac{M}{pr^2}$	$\frac{T}{pr}$	$\frac{S}{pr}$
1	+0.007	-1.019	0	+0.005	-1.017	0	+0.003	-1.012	0
2	+0.006	-1.019	+0.005	+0.005	-1.016	+0.004	+0.003	-1.011	+0.003
3	+0.003	-1.017	+0.010	+0.003	-1.015	+0.008	+0.002	-1.010	+0.006
4	-0.000	-1.014	+0.014	-0.001	-1.012	+0.012	-0.000	-1.008	+0.008
5	-0.005	-1.010	+0.017	-0.005	-1.008	+0.015	-0.003	-1.006	+0.010
6	-0.011	-1.005	+0.019	-0.009	-1.004	+0.016	-0.006	-1.003	+0.011
7	-0.018	-1.000	+0.019	-0.014	-1.000	+0.017	-0.009	-1.000	+0.012
8	-0.007	-0.987	-0.126	-0.002	-0.988	-0.126	+0.005	-0.989	-0.127
9	+0.033	-0.953	-0.270	+0.041	-0.955	-0.267	+0.051	-0.958	-0.264
10	+0.096	-0.897	-0.411	+0.108	-0.902	-0.404	+0.123	-0.909	-0.398
11	+0.091	-0.885	+0.436	+0.105	-0.892	+0.425	+0.121	-0.902	+0.413
12	+0.021	-0.938	+0.294	+0.031	-0.943	+0.287	+0.045	-0.950	+0.279
13	-0.025	-0.970	+0.148	-0.017	-0.973	+0.144	-0.005	-0.979	+0.140
14	-0.042	-0.981	0	-0.034	-0.983	0	-0.022	-0.988	0

SHAPE C



POINT	$\frac{M}{pr^2}$	$\frac{T}{pr}$	$\frac{S}{pr}$	$\frac{M}{pr^2}$	$\frac{T}{pr}$	$\frac{S}{pr}$	$\frac{M}{pr^2}$	$\frac{T}{pr}$	$\frac{S}{pr}$
1	+0.000	-1.006	0	+0.000	-1.005	0	+0.000	-1.004	0
2	0	-1.006	+0.001	-0.000	-1.005	+0.001	-0.000	-1.003	+0.001
3	-0.001	-1.005	+0.003	-0.001	-1.004	+0.003	-0.000	-1.003	+0.002
4	-0.002	-1.004	+0.004	-0.002	-1.004	+0.004	-0.001	-1.003	+0.003
5	-0.003	-1.003	+0.005	-0.003	-1.003	+0.004	-0.002	-1.002	+0.003
6	-0.005	-1.001	+0.006	-0.004	-1.001	+0.005	-0.003	-1.001	+0.003
7	-0.007	-1.000	+0.006	-0.006	-1.000	+0.005	-0.004	-1.000	+0.004
8	+0.009	-0.988	-0.147	+0.011	-0.988	-0.144	+0.014	-0.989	-0.142
9	+0.058	-0.951	-0.298	+0.063	-0.954	-0.291	+0.068	-0.957	-0.285
10	+0.057	-0.948	+0.308	+0.062	-0.951	+0.300	+0.067	-0.955	+0.290
11	+0.005	-0.983	+0.156	+0.008	-0.985	+0.152	+0.012	-0.986	+0.147
12	-0.013	-0.995	+0.003	-0.011	-0.995	+0.002	-0.007	-0.997	+0.002
13	-0.014	-0.994	+0.001	-0.012	-0.995	+0.001	-0.008	-0.997	+0.001
14	-0.014	-0.994	0	-0.012	-0.995	0	-0.008	-0.996	0



+ Sign convention

REV. JULY 8, 1953
REV. JAN. 27, 1955
REV. SEP. 28, 1964

SINGLE BARREL CONDUIT
BEGGS DEFORMETER STRESS ANALYSIS
COEFFICIENTS FOR MOMENT, THRUST, AND SHEAR
UNIFORM INTERNAL RADIAL LOAD
SHAPES A, B, AND C

SEP. 8, 1950

X-PEL-380

ภาพผนวกที่ ข3 (ต่อ)