

# Dillingham Bank Stabilization, Alaska



Aerial of Dillingham, 2005



Riprap and sheetpile protection on the east side of the entrance channel, May 2014

# Dillingham Bank Stabilization, Alaska



STA 21+00, Riprap @ Toe, Facing Downstream, May 2017



Top of Wall, STA 19+10, Riprap @ Toe, Facing Upstream, May 2017

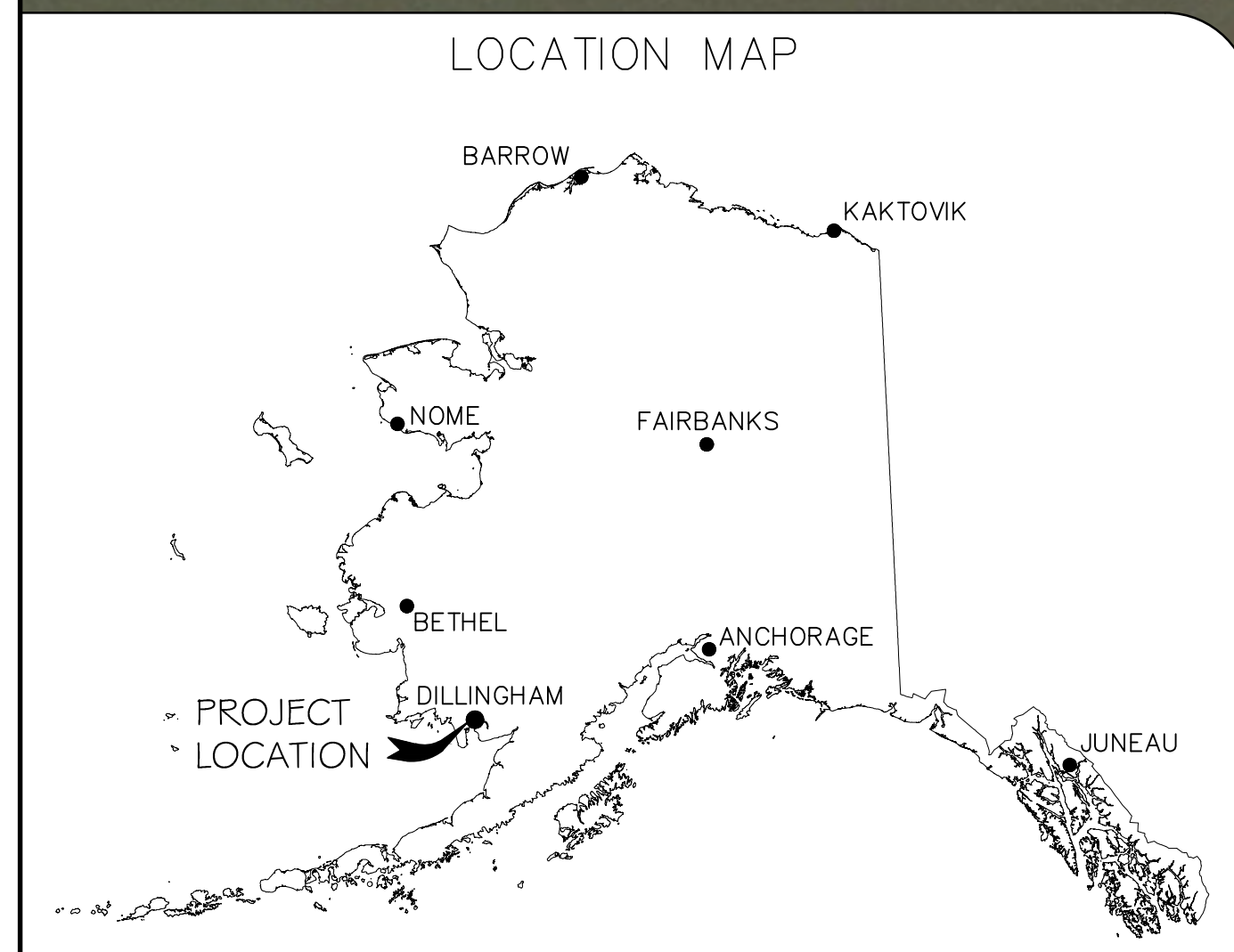
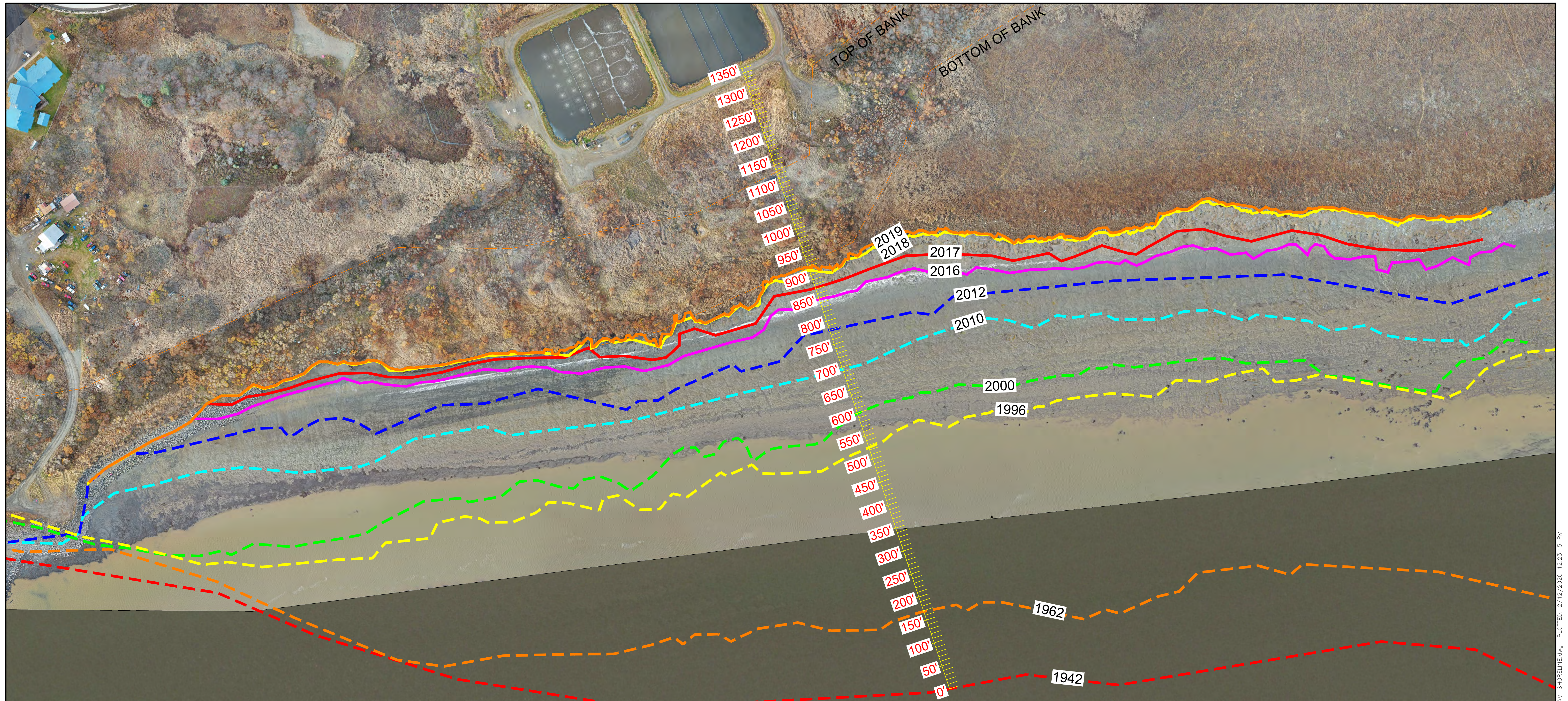
# Dillingham Bank Stabilization, Alaska



H-pile supported sheetpile bulkhead, September 2008



Rip-rap protection at the eastern extent of bank stabilization, 14 August 2008

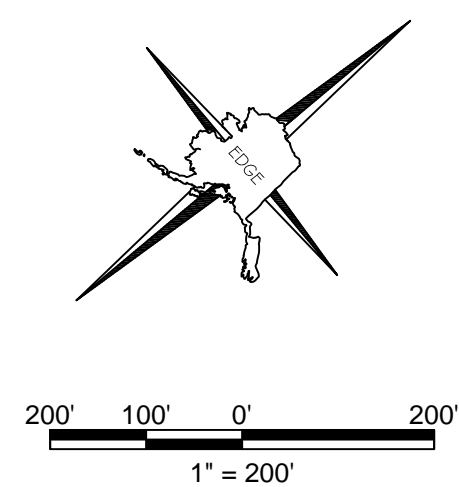



**NOTES**

1. 2016, 2017, 2018, AND 2019 TOP BANK BASED ON FIELD SURVEYS PERFORMED BY EDGE SURVEY AND DESIGN, LLC.
2. 2012 TOP BANK BASED ON AN ORTHOPHOTO PROVIDED BY THE CITY OF DILLINGHAM.
3. 2010 TOP BANK BASED ON AN ORTHOPHOTO PROVIDED BY MICROSOFT BING.
4. 2000, 1996, AND 1962 TOP BANKS BASED ON AERIAL PHOTOS PROVIDED BY THE CITY OF DILLINGHAM. THESE PHOTOS WERE NOT CORRECTED FOR CAMERA AND TERRAIN DISTORTIONS AND ARE APPROXIMATE.
5. 1942 SHORELINE BASED ON USGS QUADRANGLE SHEET "DILLINGHAM A-7" DATED 1952. THIS MAP NOTES THAT AERIAL PHOTOGRAPHS WERE TAKEN IN 1942.
6. INLAND BANK WAS BASED ON 2012 AERIAL PHOTO AND IS APPROXIMATE.
7. BASED ON THIS DATA FROM 1942 THROUGH 2019 THE SHORELINES HAS ERODED 917 FEET OR 11.9 FEET PER YEAR.

**LEGEND**

- 2019 TOP BANK - SURVEY / PHOTO
- 2018 TOP BANK - SURVEY / PHOTO
- 2017 TOP BANK - SURVEY
- 2016 TOP BANK - SURVEY
- - - 2012 TOP BANK - PHOTO
- - - 2010 TOP BANK - PHOTO
- - - 2000 TOP BANK - PHOTO
- - - 1996 TOP BANK - PHOTO
- - - 1962 TOP BANK - PHOTO
- - - 1942 SHORELINE - QUAD MAP
- - - INLAND BANK



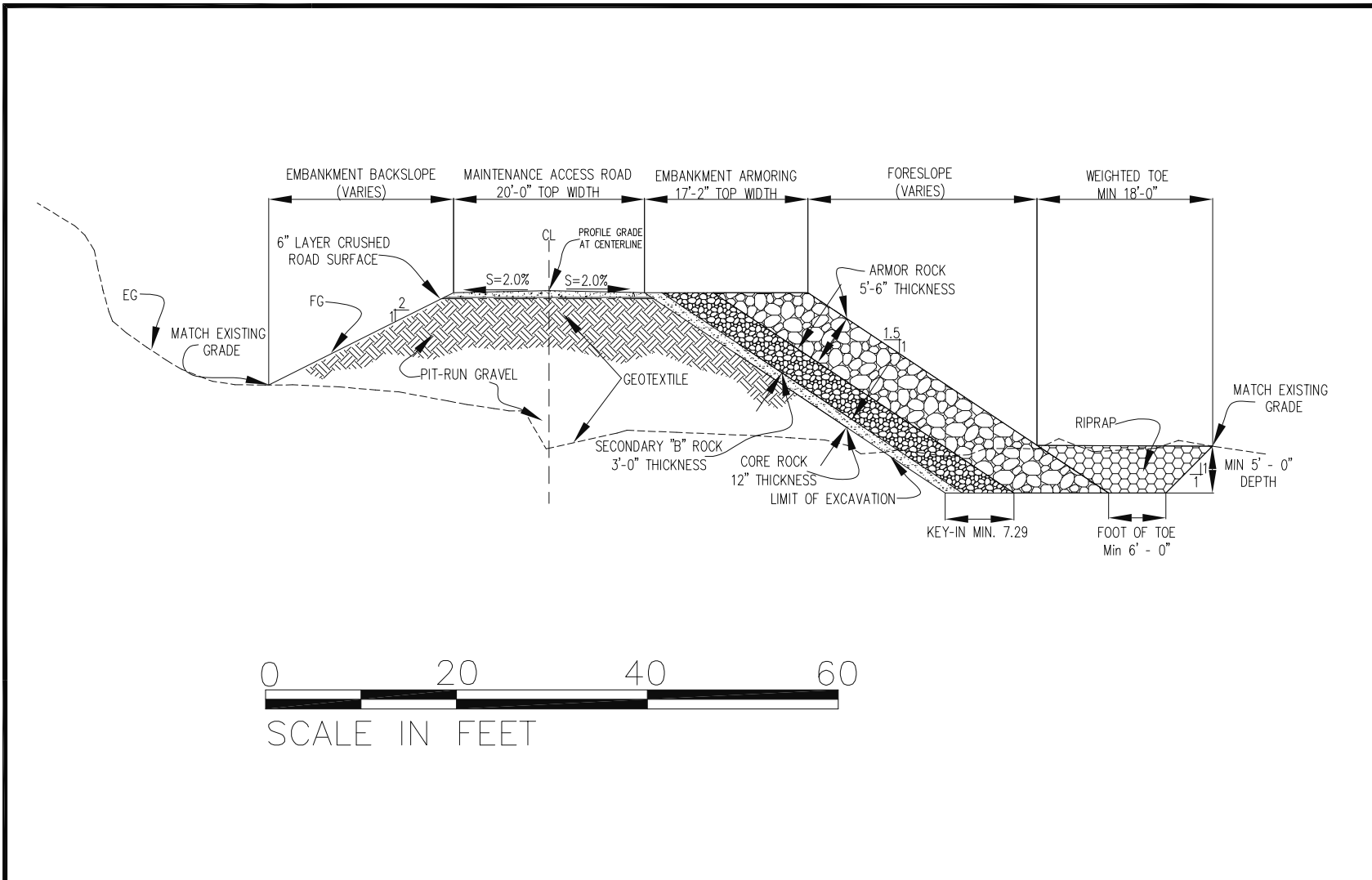


12501 OLD SEWARD, D ANCHORAGE, AK 99515  
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DILLINGHAM SHORELINE  
EROSION ANALYSIS

DRAWN BY: MA	DATE: 2/12/2020	FIELD BOOK: NA
CHECKED BY: RS	SCALE: 1" = 200'	SHEET: 1 OF 1

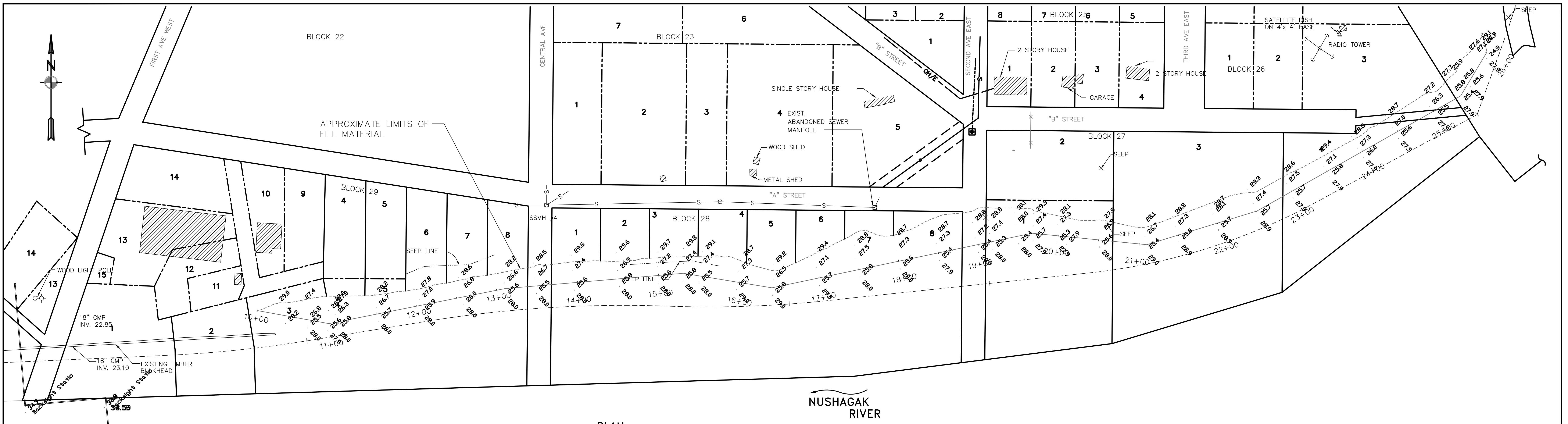
P:\Projects\2018\Dillingham Lagoon River Bank Survey (16-134)\DWG\2019-DILLINGHAM-SHORELINE.dwg PLOTTED: 2/12/2020 12:23:15 PM



ALASKA DISTRICT  
CORPS OF ENGINEERS  
CIVIL WORKS BRANCH

**CITY DOCK SIDE REVETMENT TYPICAL CROSS-SECTION**  
DILLINGHAM BANK STABILIZATION

**A-24**

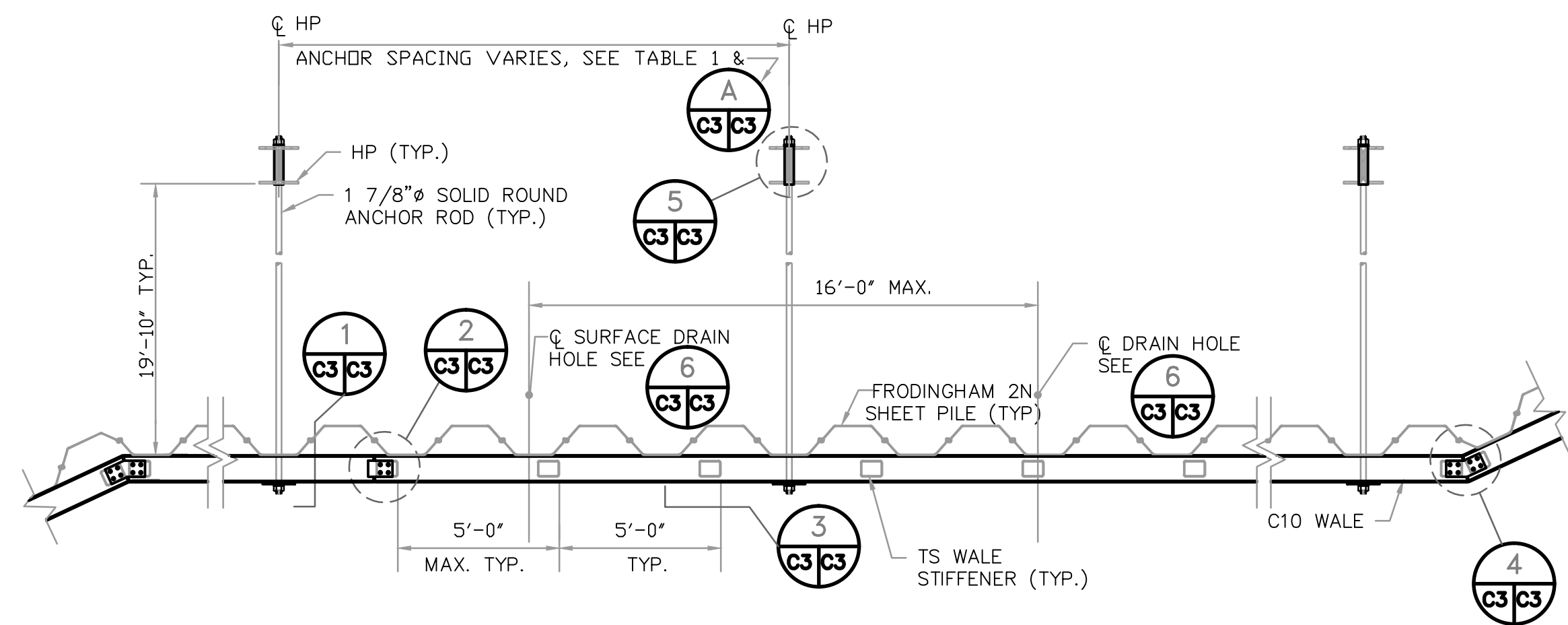


**PLAN**  
SCALE: 1" = 50'  
GRAPHIC SCALE  
0 25 50 100 200

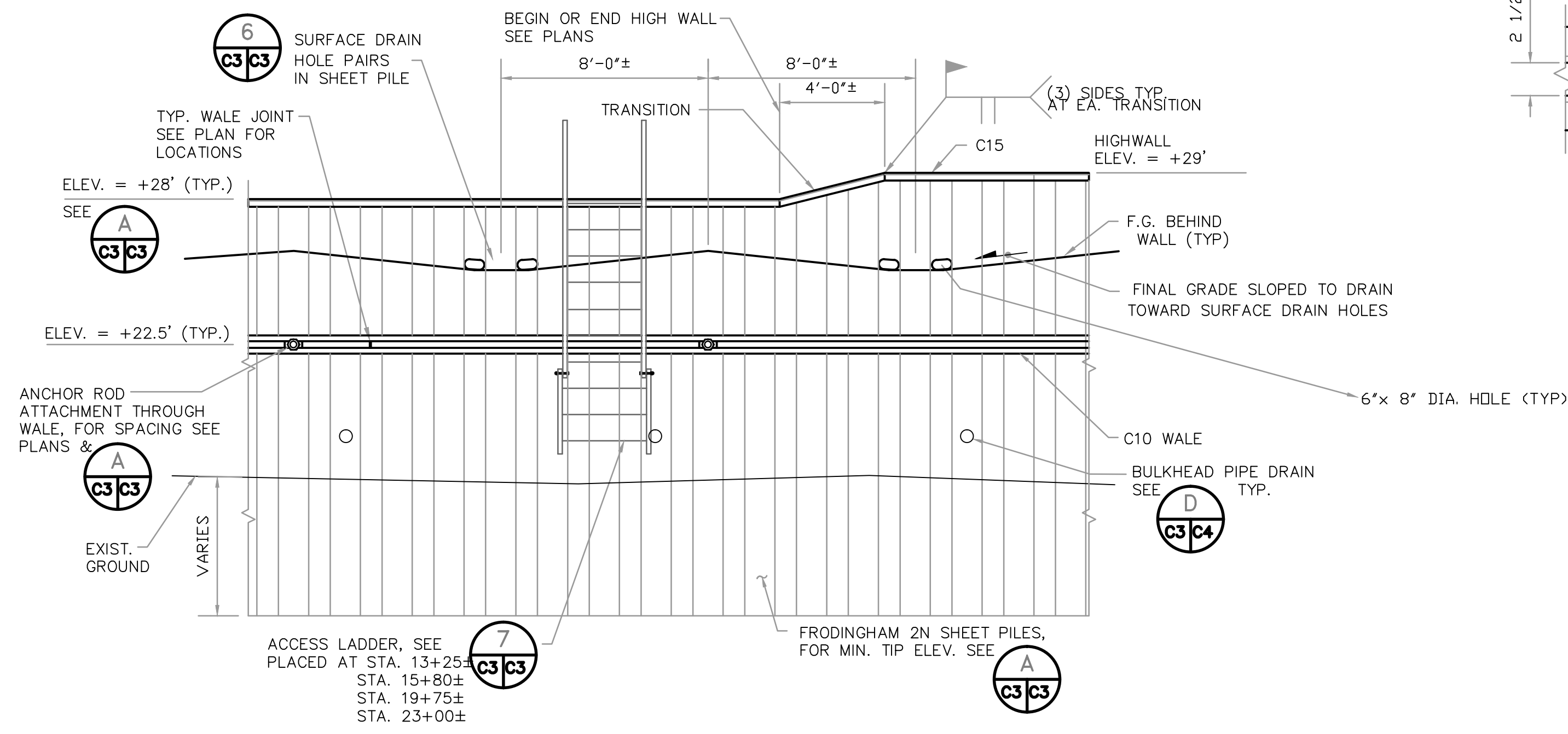
Dillingham main sheet pile final asbuilt  
Nov. 15,16 1999 survey

**TABLE 1**  
SHEET PILE TIP ELEVATIONS

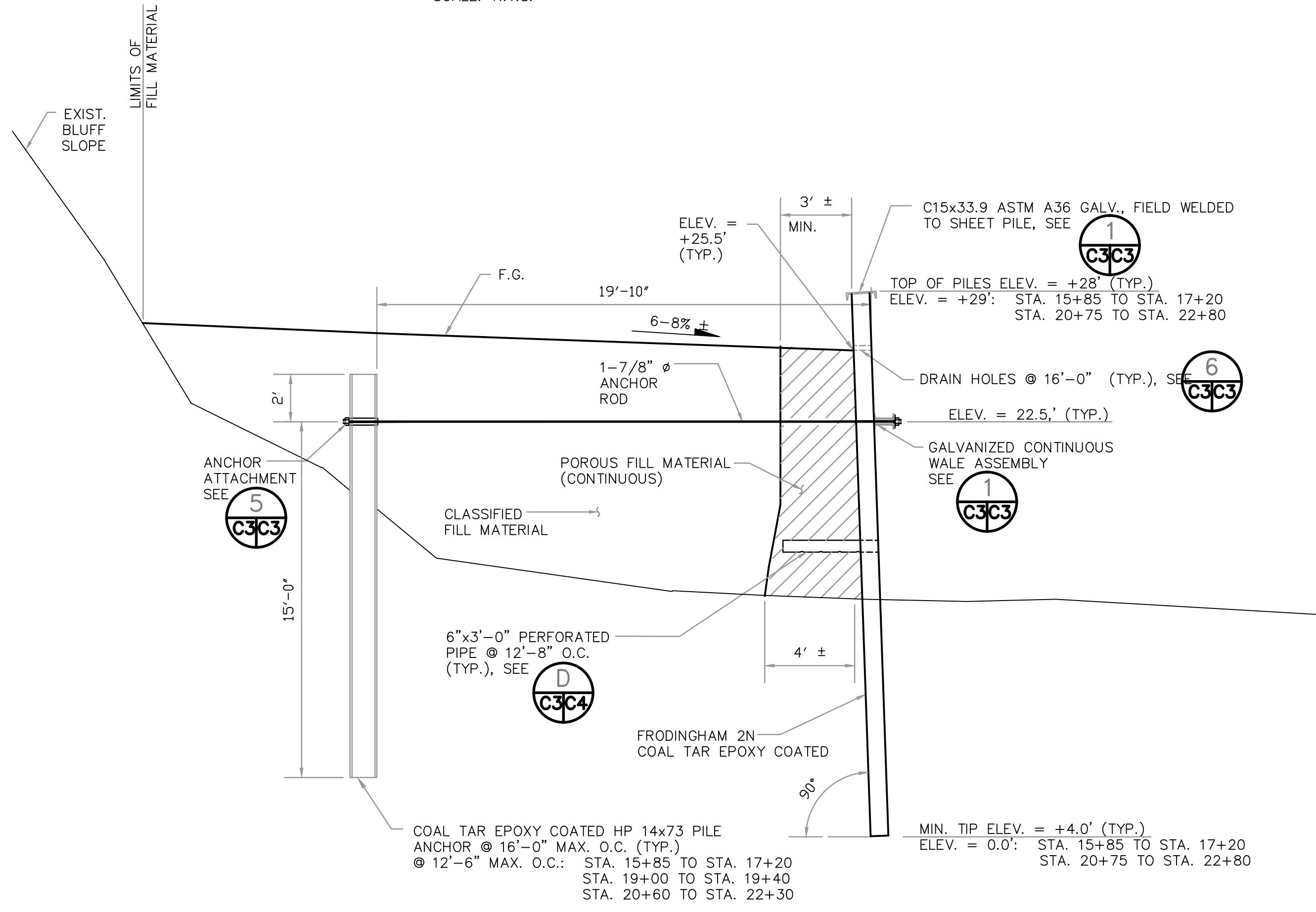
SHEET NO.	STATION	TIP ELEV.	SHEET NO.	STATION	TIP ELEV.	SHEET NO.	STATION	TIP ELEV.	SHEET NO.	STATION	TIP ELEV.
001	1000.17	++	136	1430.71	++	270	1855.09	++	404	2276.30	0'
002	1006.34	++	137	1430.71	++	271	1855.09	++	405	2276.30	0'
003	1012.67	++	138	1432.05	++	272	1861.43	++	406	2282.64	++
004	1019.00	++	139	1448.38	++	273	1867.76	++	407	2288.97	++
005	1025.34	++	141	1448.38	++	274	1874.10	++	408	2295.31	++
006	1031.67	++	142	1454.72	++	275	1880.43	++	409	2301.64	++
007	1038.00	++	143	1454.72	++	276	1886.77	++	410	2307.97	++
008	1044.34	++	144	1461.06	++	277	1893.10	++	411	2314.31	++
009	1050.67	++	145	1467.40	++	278	1899.44	++	412	2320.64	++
010	1057.00	++	146	1473.74	++	279	1905.77	++	413	2326.97	++
011	1063.34	++	147	1473.74	++	280	1912.11	++	414	2333.31	++
012	1069.67	++	148	1480.08	++	281	1918.44	++	415	2339.64	++
013	1076.00	++	149	1486.42	++	282	1924.78	++	416	2345.97	++
014	1082.34	++	150	1492.76	++	283	1931.11	++	417	2352.31	++
015	1088.67	++	151	1499.10	++	284	1937.45	++	418	2358.64	++
016	1095.00	++	152	1505.44	++	285	1943.78	++	419	2364.97	++
017	1101.34	++	153	1511.78	++	286	1950.12	++	420	2371.31	++
018	1107.67	++	154	1518.12	++	287	1956.45	++	421	2377.64	++
019	1114.00	++	155	1524.46	++	288	1962.79	++	422	2383.97	++
020	1120.34	++	156	1530.80	++	289	1969.12	++	423	2390.31	++
021	1126.67	++	157	1537.14	++	290	1975.46	++	424	2396.64	++
022	1133.00	++	158	1543.48	++	291	1981.79	++	425	2402.97	++
023	1139.34	++	159	1549.82	++	292	1988.13	++	426	2409.31	++
024	1145.67	++	160	1556.16	++	293	1994.46	++	427	2415.64	++
025	1152.00	++	161	1562.50	++	294	2000.80	++	428	2421.97	++
026	1158.34	++	162	1568.84	++	295	2007.13	++	429	2428.31	++
027	1164.67	++	163	1575.18	++	296	2013.47	++	430	2434.64	++
028	1171.00	++	164	1581.52	++	297	2019.80	++	431	2440.97	++
029	1177.34	++	165	1587.86	++	298	2026.14	++	432	2447.31	++
030	1183.67	++	166	1594.20	++	299	2032.47	++	433	2453.64	++
031	1190.00	++	167	1600.54	++	300	2038.81	++	434	2459.97	++
032	1196.34	++	168	1606.88	++	301	2045.14	++	435	2466.31	++
033	1202.67	++	169	1613.22	++	302	2051.48	++	436	2472.64	++
034	1209.00	++	170	1619.56	++	303	2057.81	++	437	2478.97	++
035	1215.34	++	171	1625.90	++	304	2064.15	++	438	2485.31	++
036	1221.67	++	172	1632.24	++	305	2070.48	++	439	2491.64	++
037	1228.00	++	173	1638.58	++	306	2076.82	++	440	2497.97	++
038	1234.34	++	174	1644.92	++	307	2083.15	++	441	2504.31	++
039	1240.67	++	175	1651.26	++	308	2089.49	++	442	2510.64	++
040	1247.00	++	176	1657.60	++	309	2095.82	++	443	2516.97	++
041	1253.34	++	177	1663.94	++	310	2102.16	++	444	2523.31	++
042	1259.67	++	178	1670.28	++	311	2108.49	++	445	2529.64	++
043	1266.00	++	179	1676.62	++	312	2114.83	++	446	2535.97	++
044	1272.34	++	180	1682.96	++	313	2121.16	++	447	2542.31	++
045	1278.67	++	181	1689.30	++	314	2127.50	++	448	2548.64	++
046	1285.00	++	182	1695.64	++	315	2133.83	++	449	2554.97	++
047	1291.34	++	183	1701.98	++	316	2140.17	++	450	2561.31	++
048	1297.67	++	184	1708.32	++	317	2146.50	++	451	2567.64	++
049	1304.00	++	185	1714.66	++	318	2152.84	++	452	2573.97	++
050	1310.34	++	186	1721.00	++	319	2159.17	++	453	2580.31	++
051	1316.67	++	187	1727.34	++	320	2165.51	++	454	2586.64	++
052	1323.00	++	188	1733.68	++	321	2171.84	++	455	2592.97	++
053	1329.34	++	189	1740.02	++	322	2178.18	++	456	2599.31	++
054	1335.67	++	190	1746.36	++	323	2184.51	++	457	2605.64	++
055	1342.00	++	191	1752.70	++	324	2190.85	++	458	2611.97	++
056	1348.34	++	192	1759.04	++	325	2197.18	++	459	2618.31	++
057	1354.67	++	193	1765.38	++	326	2203.52	++	460	2624.64	++
058	1361.00	++	194	1771.72	++	327	2209.85	++	461	2630.97	++
059	1367.34	++	195	1778.06	++	328	2216.19	++	462	2637.31	++
060	1373.67	++	196	1784.40	++	329	2222.52	++	463	2643.64	++
061	1380.00	++	197	1790.74	++	330	2228.86	++	464	2649.97	++
062	1386.34	++	198	1797.08	++	331	2235.19	++	465	2656.31	++
063	1392.67	++	199	1803.42	++	332	2241.53	++	466	2662.64	++
064	1399.00	++	200	1809.76	++	333	2247.86	++	467	2668.97	++
065	1405.34	++	201	1816.10	++	334	2254.20	++	468	2675.31	++
066	1411.67	++	202	1822.44	++	335	2260.53	++	469	2681.64	++
067	1418.00	++	203	1828.78	++	336	2266.87	++	470	2687.97	++
068	1424.34	++	204	1835.12	++	337	2273.20	++	471	2694.31	++
069	1430.67	++	205	1841.46	++	338	2279.54	++	472	2700.64	++
070	1437.00	++	206	1847.80	++	339	2285.87	++	473	2706.97	++
071	1443.34	++	207	1854.14	++	340	2292.21	++	474	2713.31	++
072	1449.67	++	208	1860.48	++	341	2298.54	++	475	2719.64	++
073	1456.00	++	209	1866.82	++	342	2304.88	++	476	2725.97	++
074	1462.34	++	210	1873.16	++	343	2311.21	++	477	2732.31	++
075	1468.67	++	211	1879.50	++	344	2317.55	++	478	2738.64	++
076	1475.00	++	212	1885.84	++	345	2323.88	++	479	2744.97	++
077	1481.34	++	213	1892.18	++	346	2330.22	++	480	2751.31	++
078	1487.67	++	214	1898.52	++	347	2336.55	++	481	2757.64	++
079	1494.00	++	215	1904.86	++	348	2342.89	++	482	2763.97	++
080	1500.34	++	216	1911.20	++	349	2349.22	++	483	2770.31	++
081	1506.67	++	217	1917.54	++	350	2355.56	++	484	2776.64	++
082	1513.00	++	218	1923.88	++	351	2361.89	++	485	2782.97	++
083	1519.34	++	219	1930.22	++	352	2368.23	++	486	2789.31	++
084	1525.67	++	220	1936.56	++	353	2374.56	++	487	2795.64	++
085	1532.00	++	221	1942.90	++	354	2380.90	++	488	2801.97	++
086	1538.34	++	222	1949.24	++	355	2387.23	++	489	2808.31	++
087	1544.67	++	223	1955.58	++	356	2393.57	++	490	2814.64	++
088	1551.00	++	224	1961.92	++	357	2399.90	++	491	2820.97	++
089	1557.34	++	225	1968.26	++	358	2406.24	++	492	2827.31	++
090	1563.67	++	226	1974.60	++	359	2412.57	++	493	2833.64	++
091	1570.00	++	227	1980.94	++	360	2418.91	++	494	2839.97	++
092	1576.34	++	228	1987.28	++	361	2425.24	++	495	2846.31	++
093	1582.67	++	229	1993.62	++	362	2431.58	++	496	2852.64	++
094	1589.00	++	230	1999.96	++	363	2437.91	++	497	2858.97	++
095	1595.34	++	231	2006.30	++	364	2444.25	++	498	2865.31	++
096	1601.67	++	232	2012.64	++	365	2450.58	++	499	2871.64	++
097	1608.00	++	233	2018.98	++	366	2456.92	++	500	2877.97	++
098	1614.34	++	234	2025.32	++	367	2463.25	++	501	2884.31	++
099	1620.67	++	235	2031.66	++	368	2469.59	++	502	2890.64	++
100	1627.00	++	236	2038.00	++	369	2475.92	++	503	2896.97	++
101	1633.34	++	237	2044.34	++	370	2482.26	++	504	2903.31	++
102	1639.67	++	238	2050.68	++	371	2488.59	++	505	2909.64	++
103	1646.00	++	239	2057.02	++	372	2494.93	++	506	2915.97	++
104	1652.34	++	240	2063.36	++	373	2501.26	++	507	2922.31	++
105	1658.67	++	241	2069.70	++	374	2507.60	++	508	2928.64	++
106	1665.00	++	242	2076.04	++	375	2513.93	++	509	2934.97	++
107	1671.34	++	243	2082.38	++	376	2520.27	++	510	2941.31	++
108	1677.67	++	244	2088.72	++	377	2526.60	++	511	2947.64	++
109	1684.00	++	245	2095.06	++	378	2532.94	++	512	2953.97	++



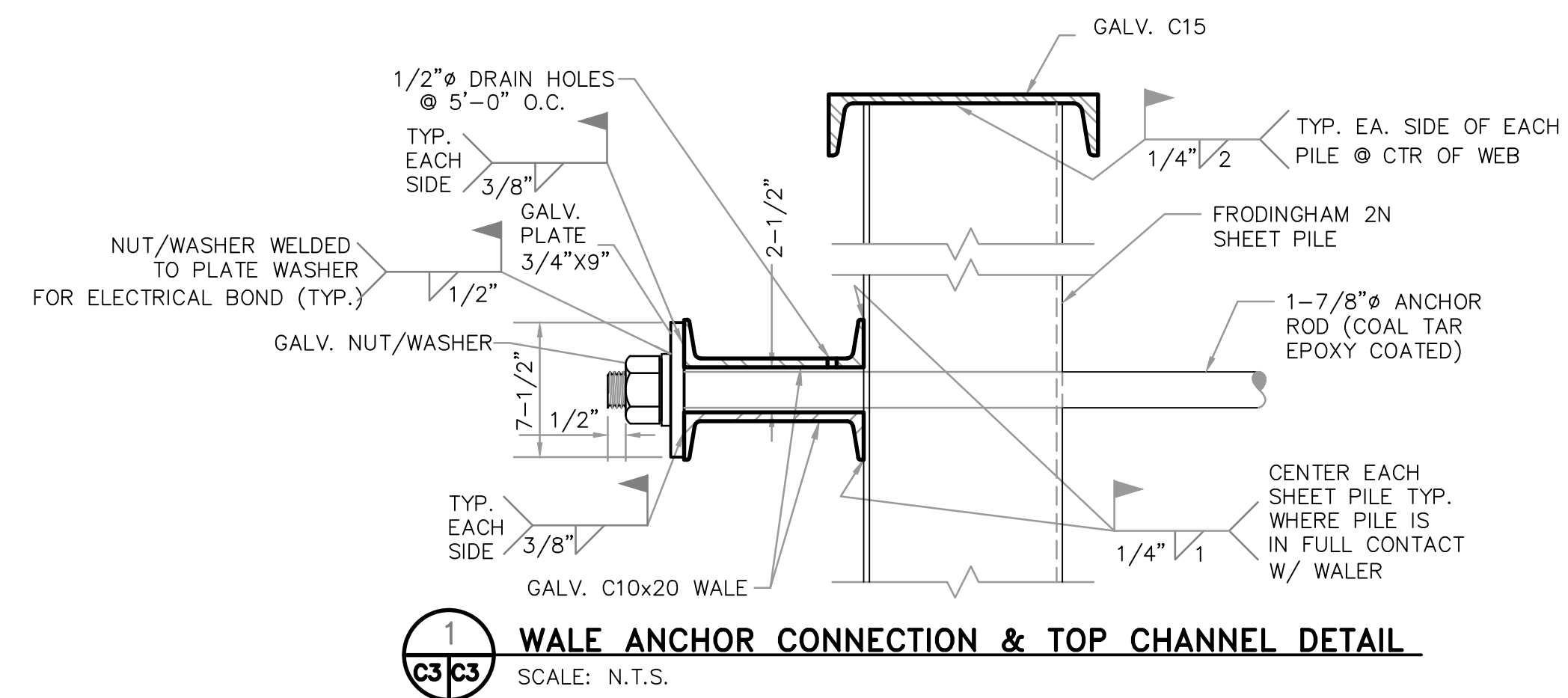
**TYPICAL PLAN**  
SCALE: N.T.S.



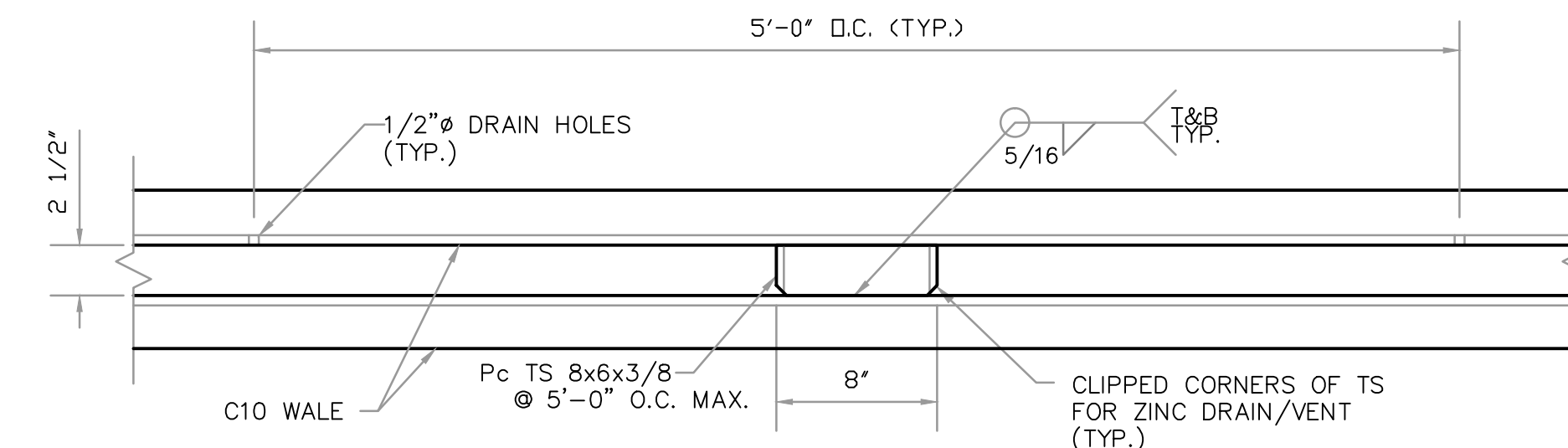
**TYPICAL ELEVATION**  
SCALE: N.T.S.



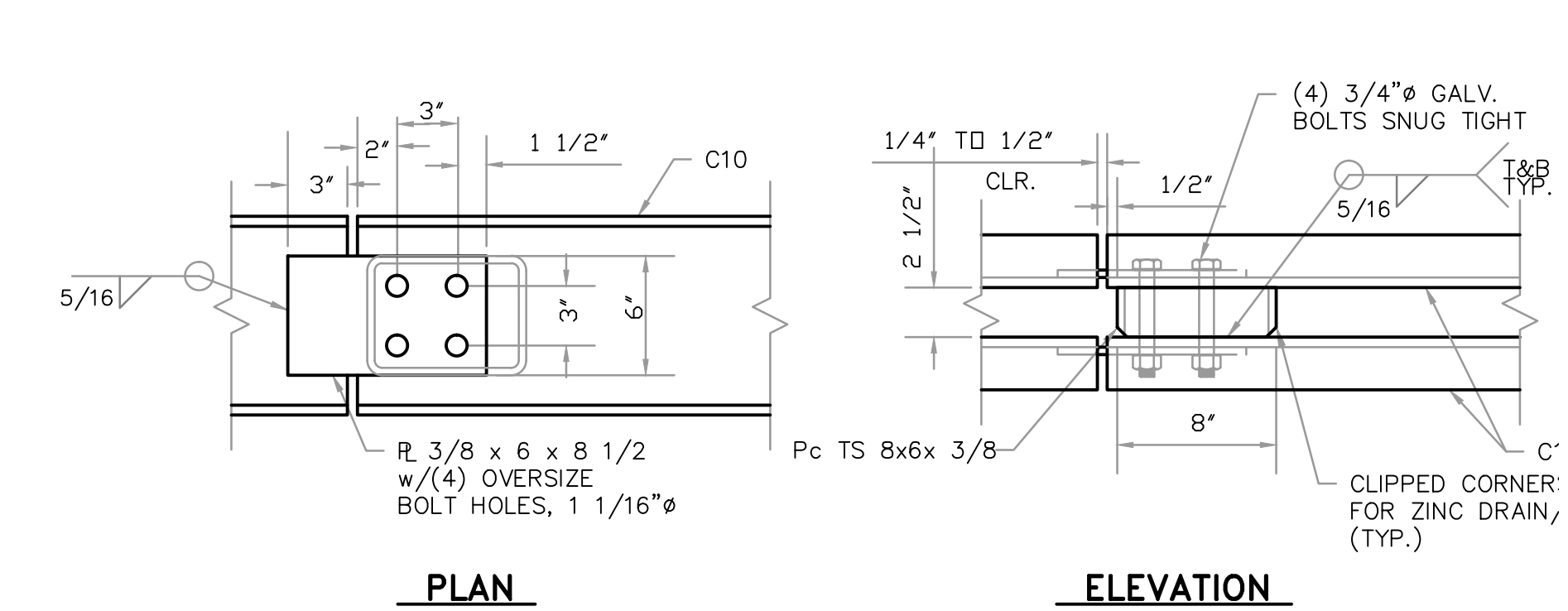
**TYPICAL SECTION**  
SCALE: N.T.S.



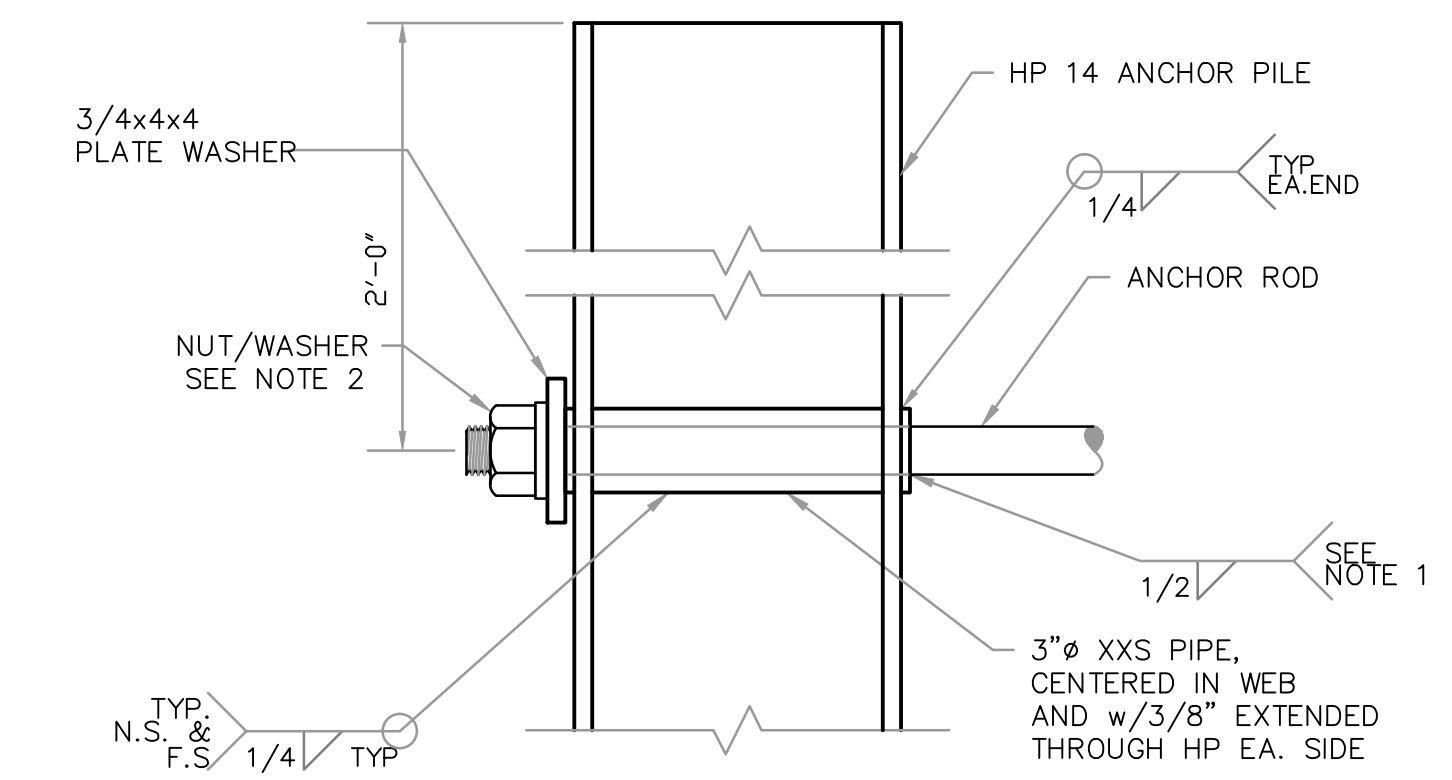
**1 WALE ANCHOR CONNECTION & TOP CHANNEL DETAIL**  
SCALE: N.T.S.



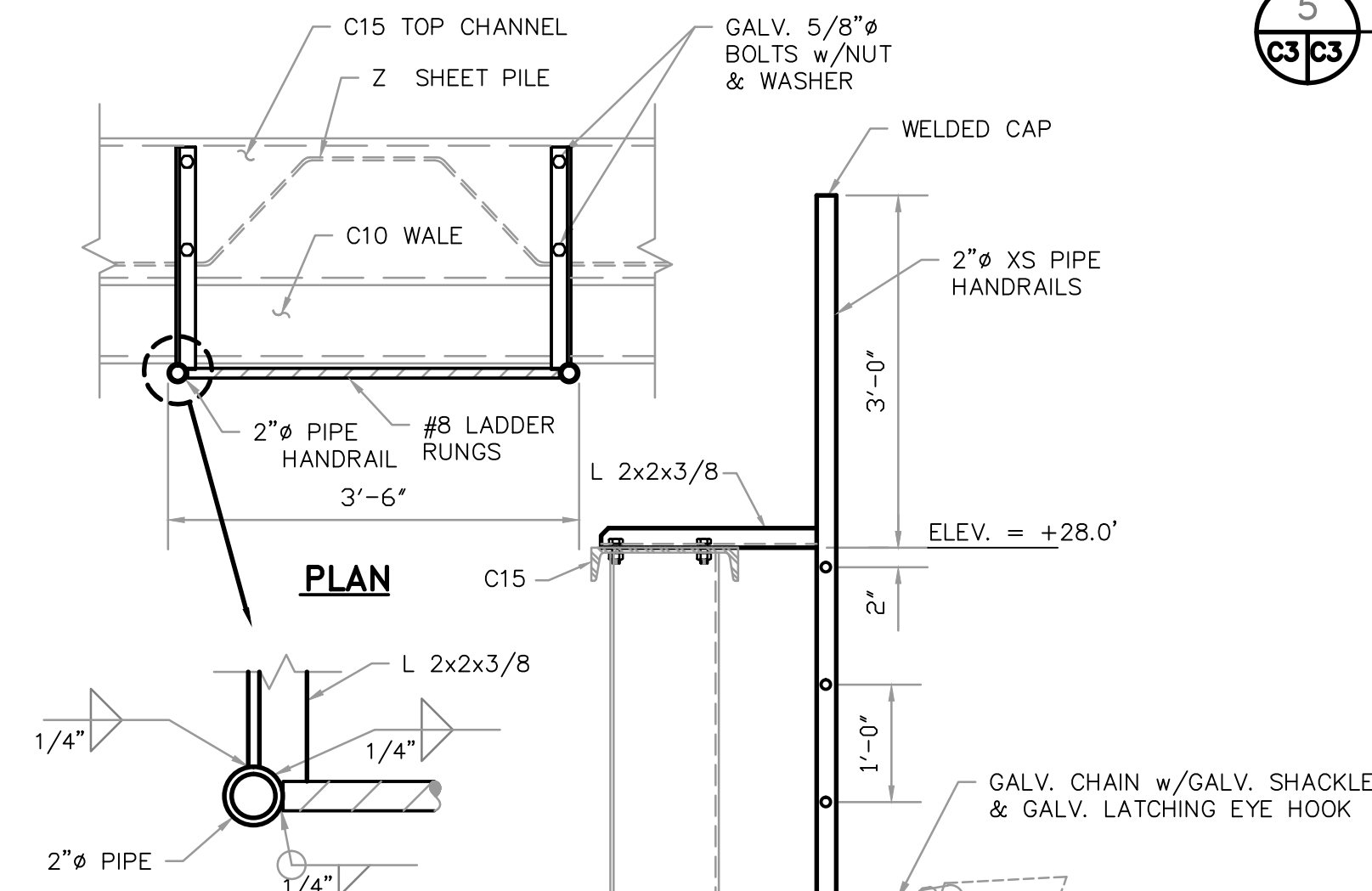
**3 WALE STIFFENER DETAIL**  
SCALE: N.T.S.



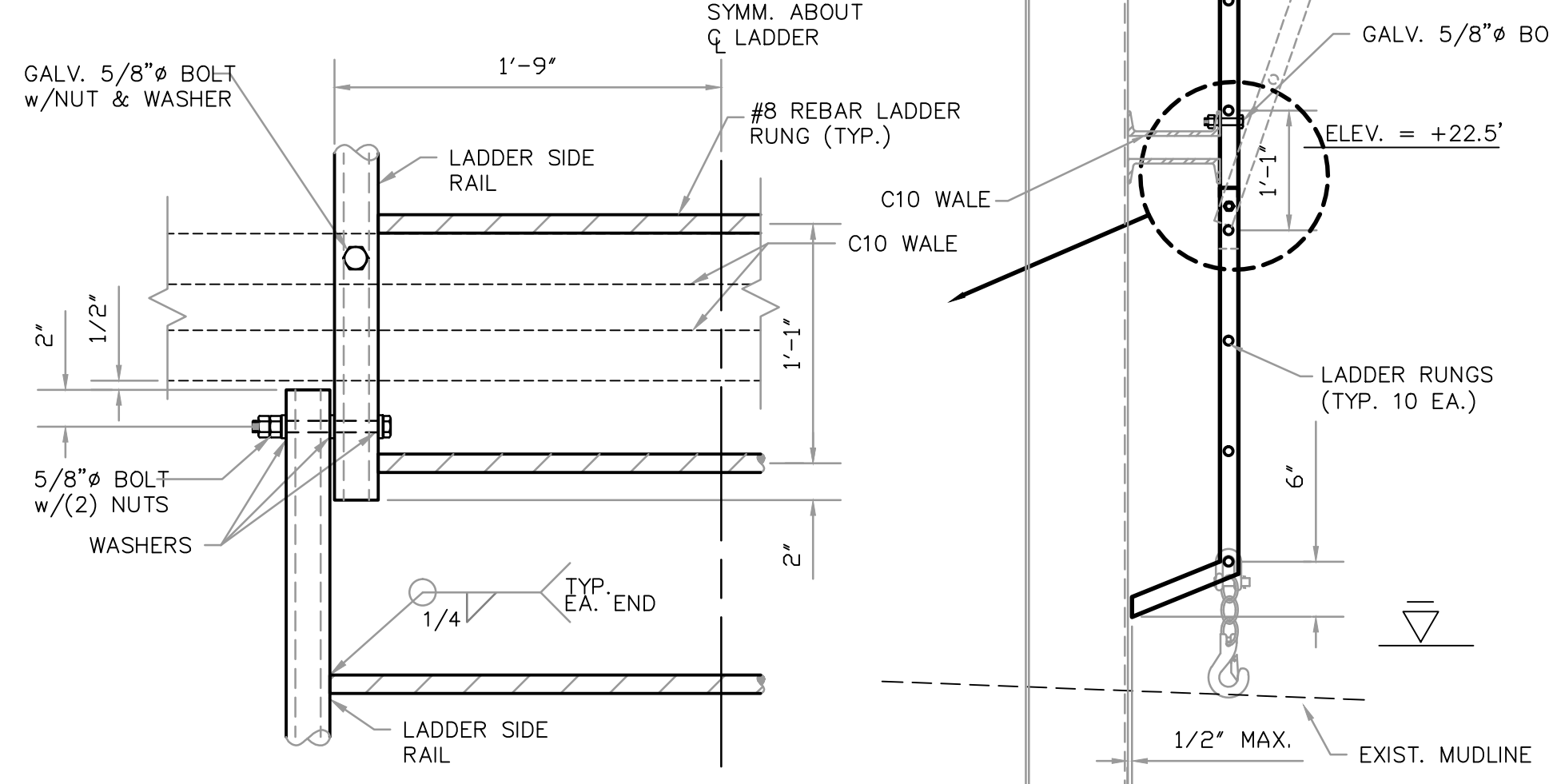
**2 STANDARD JOINT DETAIL**  
SCALE: N.T.S.



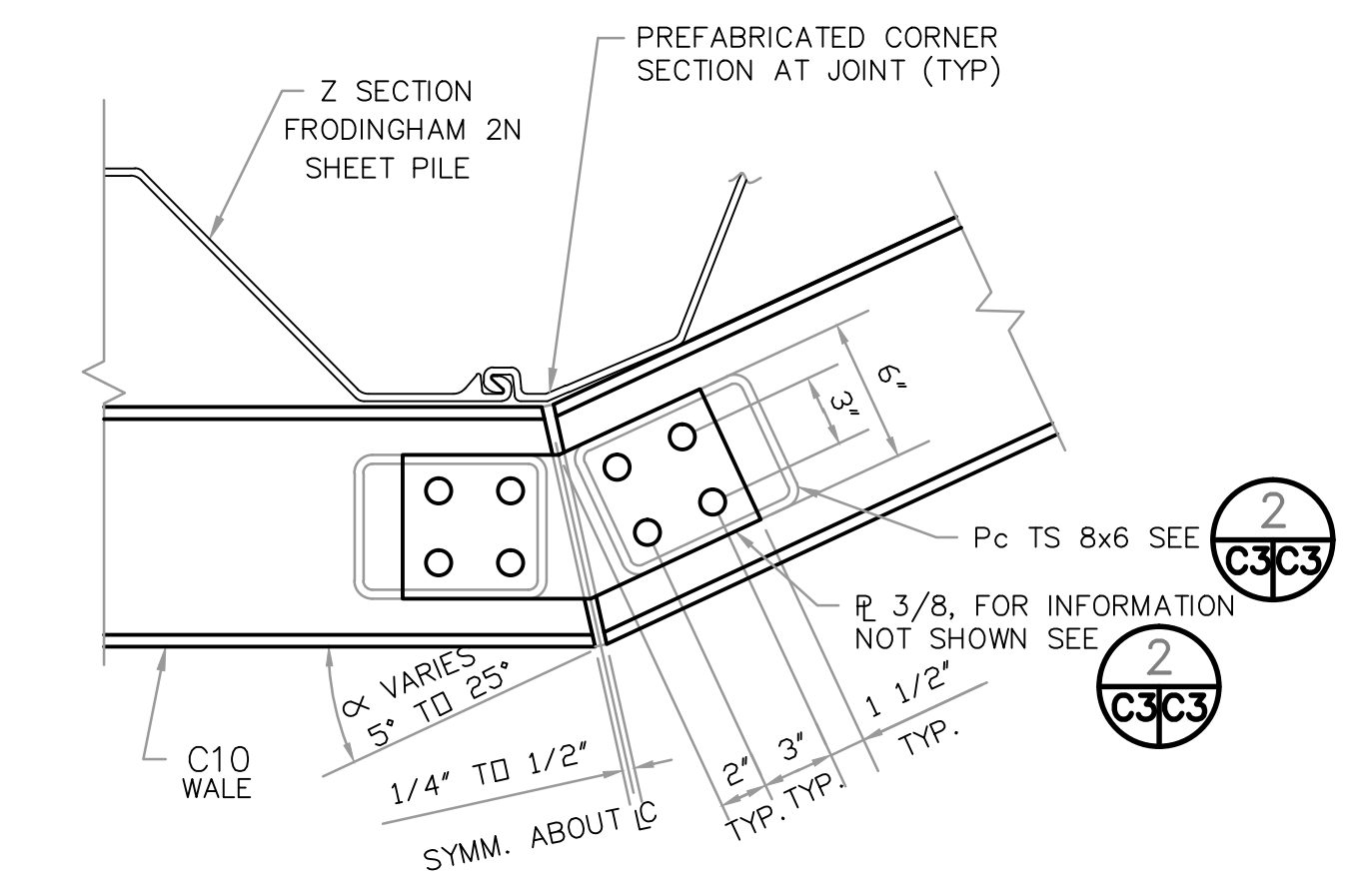
**5 HP ANCHOR CONNECTION DETAIL**  
SCALE: N.T.S.



**7 ACCESS LADDER DETAIL**  
SCALE: N.T.S.



**FRONT VIEW & FOLDING JOINT DETAIL SECTION**  
NOTE: ALL LADDER ASSEMBLIES WERE HOT-DIPPED GALVANIZED AFTER FABRICATION.

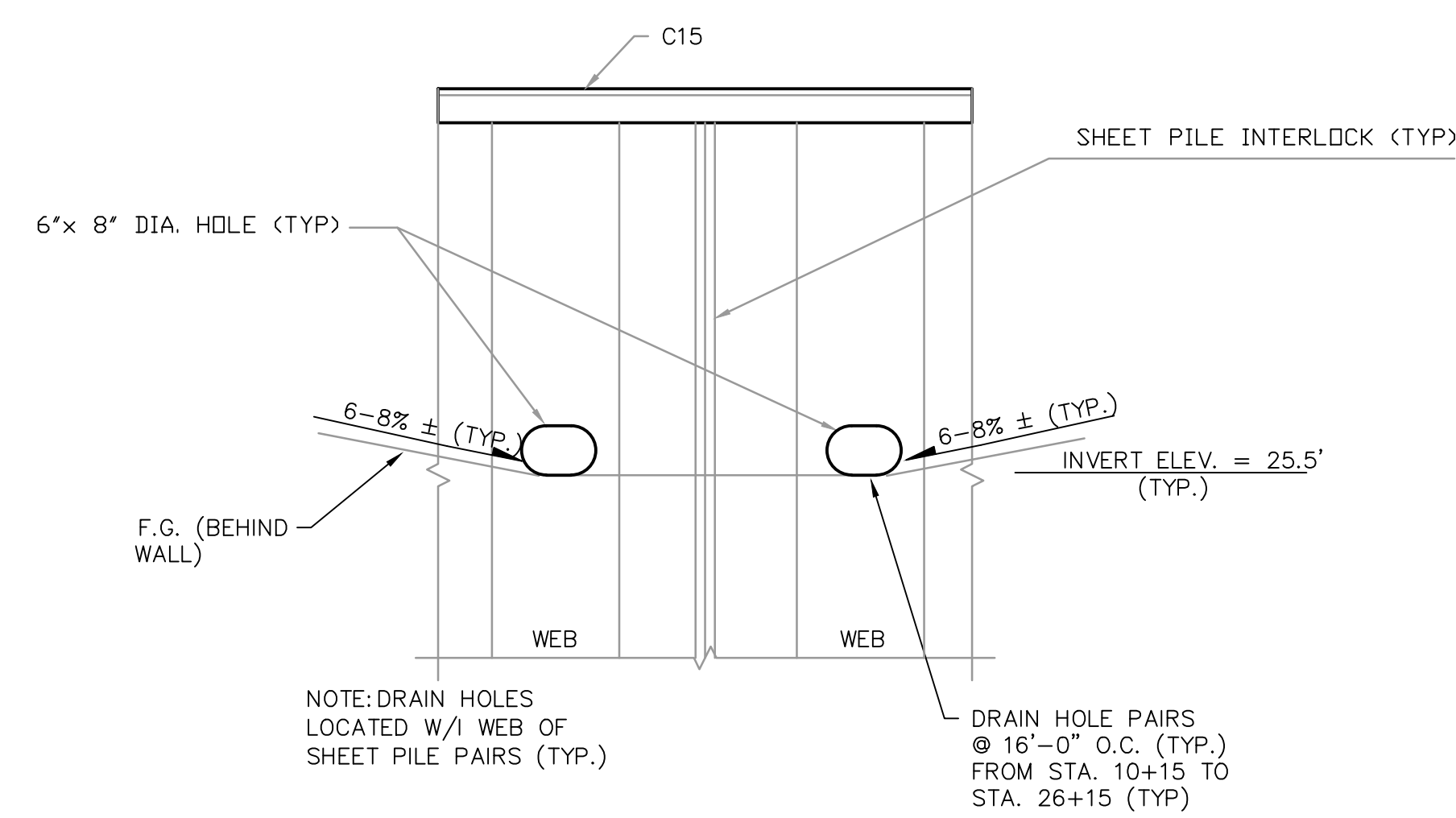


**4 ANGLE POINT SPLICE DETAIL**  
SCALE: N.T.S.

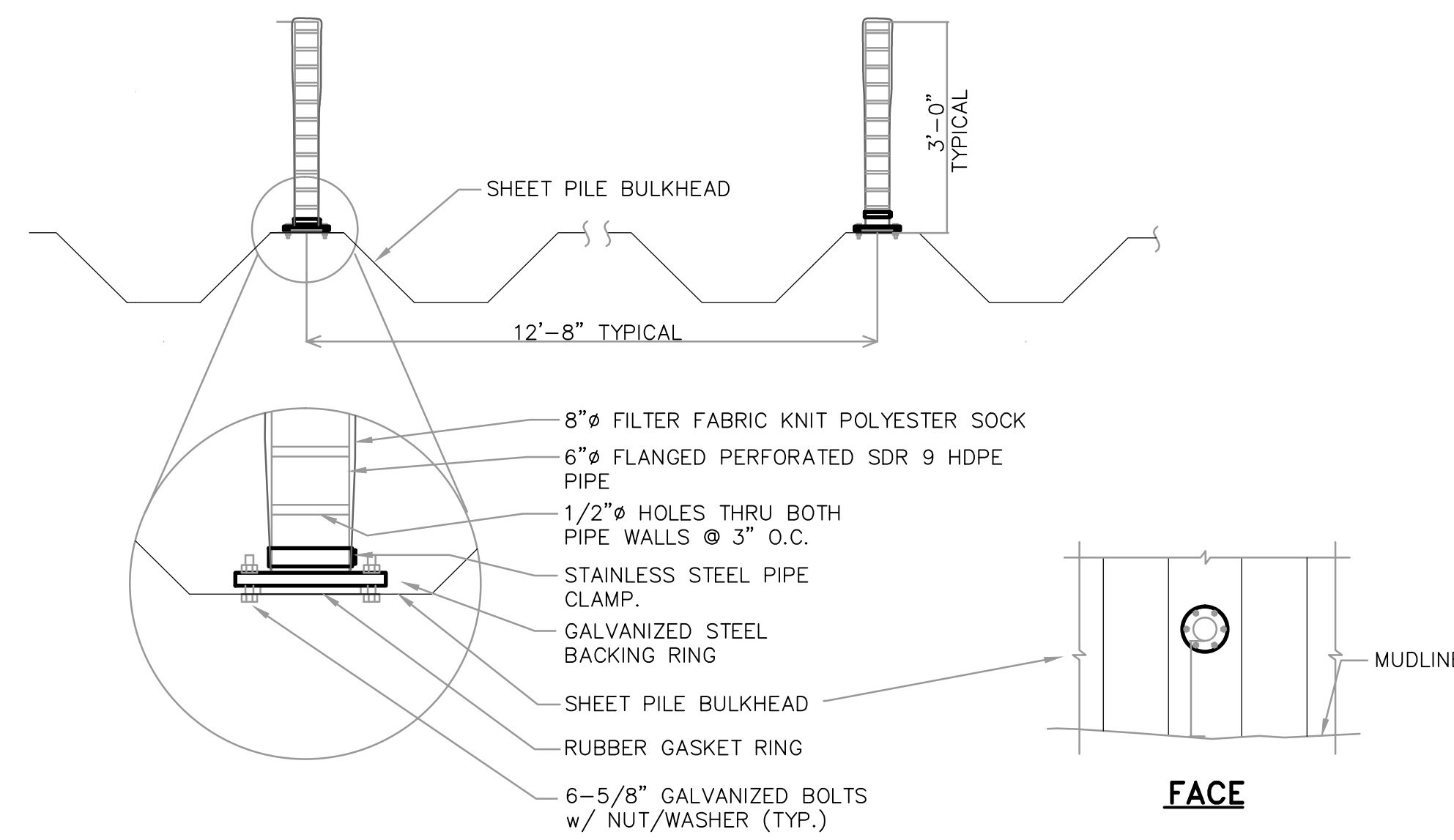
REV.	DATE	C.O.	ACTION	DESCRIPTION

CONTRACT NO. DACW85-98-C-0032  
 CONTRACTOR YUKON CONSTRUCTION COMPANY LLC  
 CITY ANCHORAGE STATE ALASKA  
 RECOMMENDED: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
 PRIME CONTRACTOR RESIDENT ENGINEER  
**ALASKA, I**  
**CORPS OF E**  
**ANCHORAGE**  
 DESIGNED: \_\_\_\_\_  
 DRAWN: \_\_\_\_\_  
 TRACED: \_\_\_\_\_  
 CHECKED: \_\_\_\_\_  
 SUBMITTED: \_\_\_\_\_  
 RECOMMENDED: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
 CHIEF, CIVIL WORKS BRANCH CHIEF, ENGINEERING DIVISION  
 SCALE: N.T.S.  
 AS-BLT S-DI  
 SHEET 3 OF

REFERENCE NO. SHT#

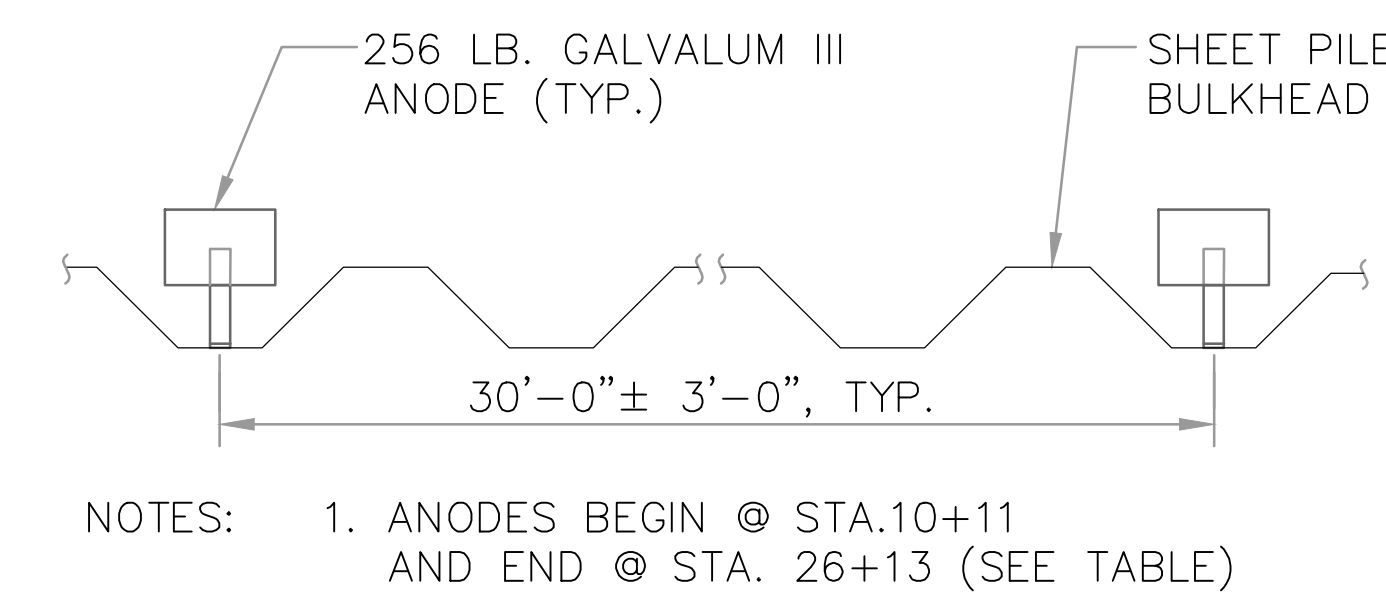


**C3** **6** SHEET PILE SURFACE DRAIN HOLE DETAIL  
SCALE: N.T.S.

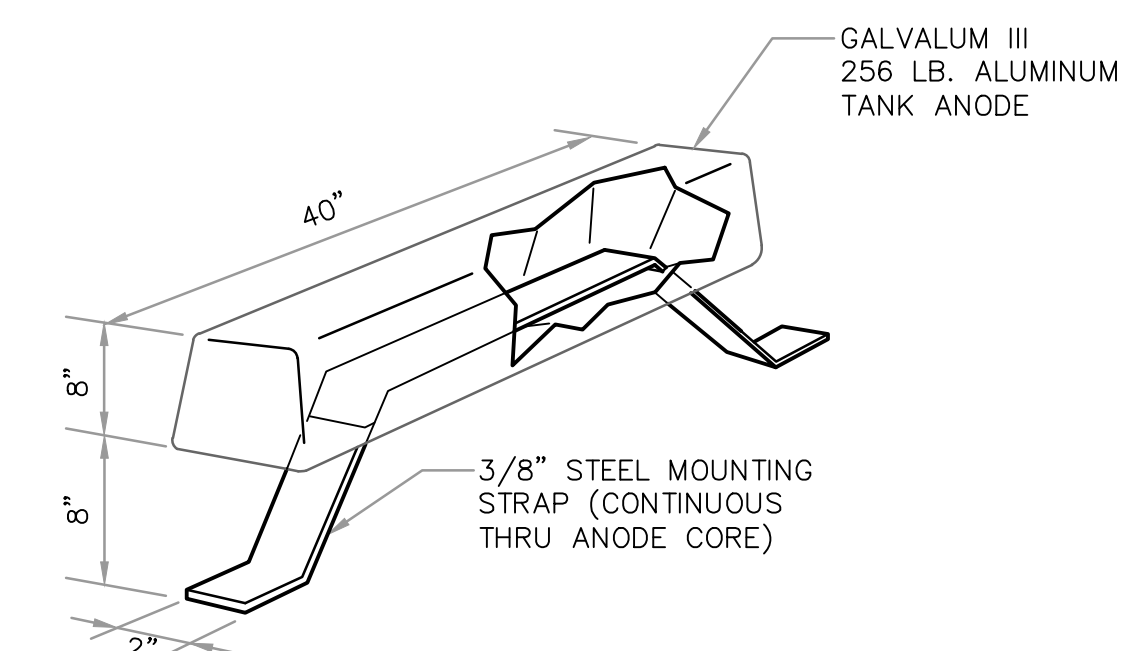


NOTE: BEGIN PIPE DRAIN @ STA.10+50±  
END PIPE DRAIN @ STA. 26+08±

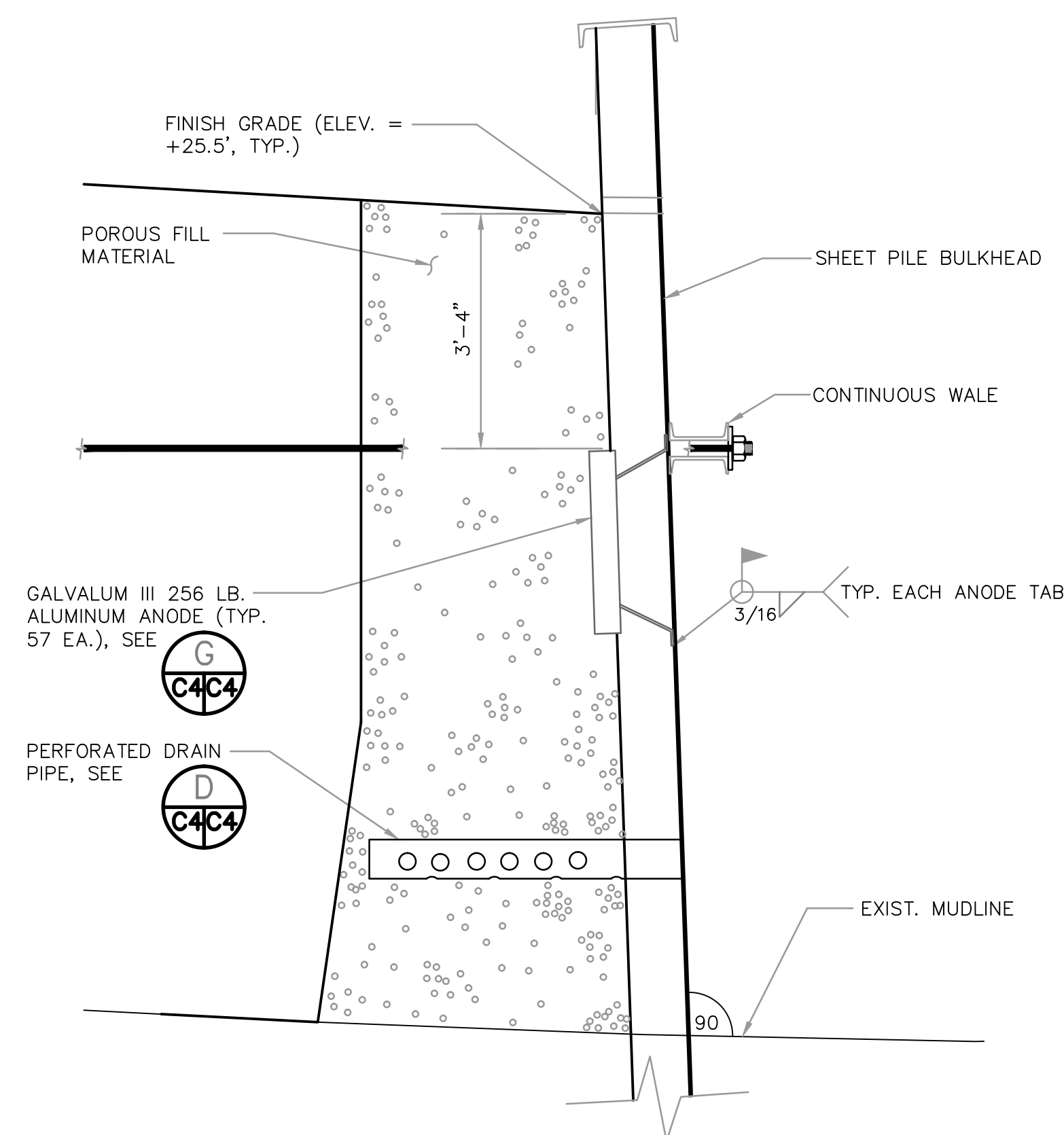
**D** BULKHEAD PIPE DRAIN PENETRATION DETAIL  
SCALE: N.T.S.



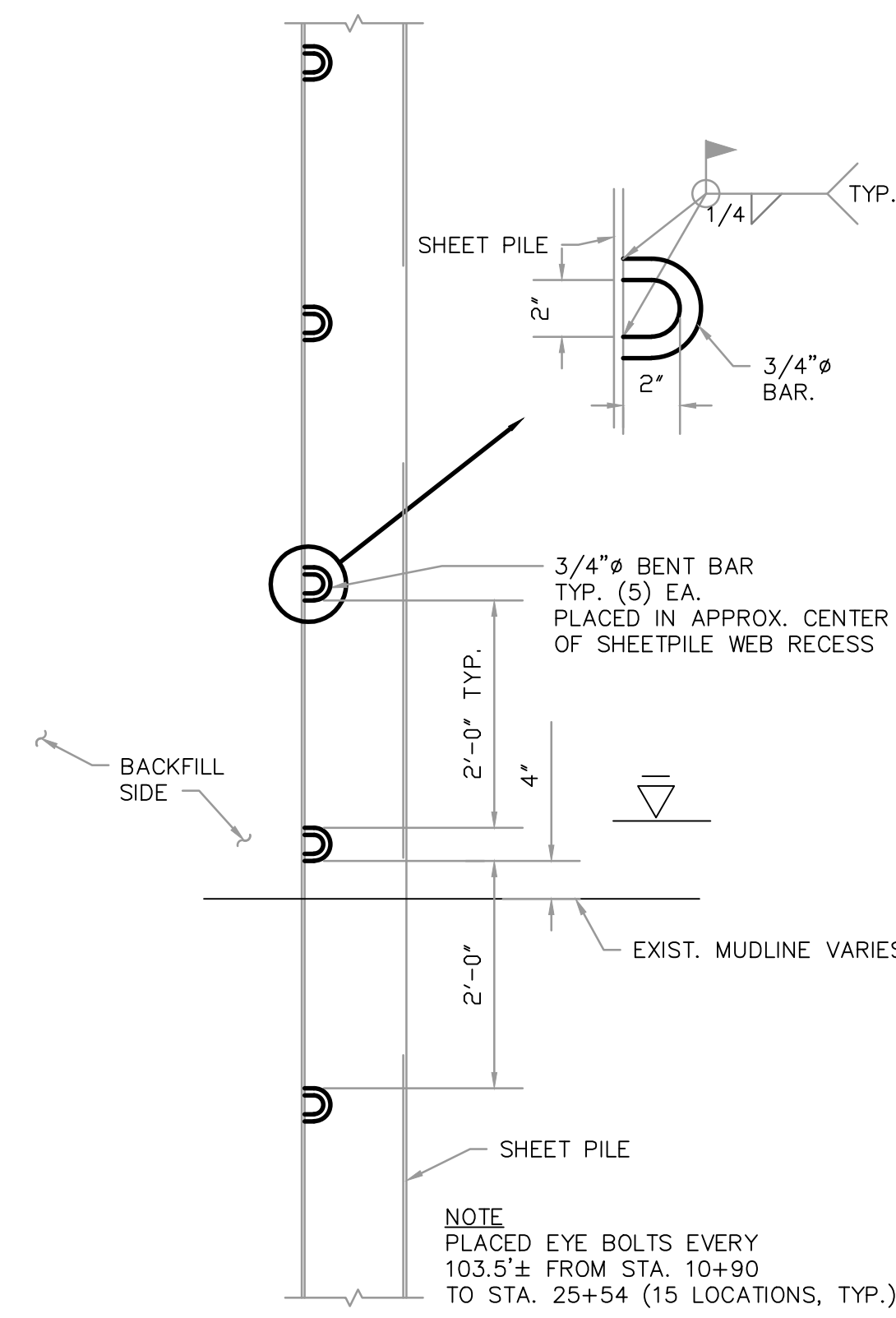
**F** GALVANIC ANODE SPACING PLAN  
SCALE: N.T.S.



**G** ANODE DETAIL  
SCALE: N.T.S.



**E** GALVANIC ANODE CONNECTION DETAIL  
SCALE: N.T.S.



**B** FISH NET ATTACHMENT EYE BOLTS DETAIL  
SCALE: N.T.S.

REV.	DATE	C.O.	ACTION	DESCRIPTION	BY	APP'D
CONTRACT NO.		DACW85-98-C-0032				
CONTRACTOR		YUKON CONSTRUCTION COMPANY LLC				
CITY		ANCHORAGE		STATE		ALASKA
RECOMMENDED:		APPROVED:		DATE:		
PRIME CONTRACTOR		RESIDENT ENGINEER				
DESIGNED:		<div style="text-align: center;"> <p><b>ALASKA, DISTRICT</b> CORPS OF ENGINEERS ANCHORAGE, ALASKA</p> <p>EMERGENCY BANK STABILIZATION DILLINGHAM, ALASKA</p> <h1>ASBUILT</h1> </div>				
DRAWN:						
TRACED:						
CHECKED:						
SUBMITTED:						
RECOMMENDED:		APPROVED:		DATE:		
CHIEF, CIVIL WORKS BRANCH		CHIEF, ENGINEERING DIVISION		03-18-00		
SCALE:		SCALE:		SPEC. NO.		
AS-BLT		N.T.S.				
DRAWING NUMBER		DRAWING NUMBER				
SHEET 4		SHEET 4		S-DIL-93-03-01		
OF 4		OF 4				

HSCALE

VSCALE

REFERENCE NO. SHT#

INV NO. DACW85-98-B-0006