I C ENVIRONMENTAL CORPORATION
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December 2, 2015

Mr. Terry Anderson
6910 Fremont Street
Duluth, MN 55807

RE: Contaminant Evaluation for Building Expansion Options, Park Point Marina Inn & Suites, 1003 Minnesota Avenue, Duluth, MN
ICECOR Project #101012029

Dear Mr. Anderson:

From our phone conversation today you are evaluating two (2) options for making an addition to the existing site building. One option would be extending to the north off the pool end of the building, and the second option would be extending to the south off the southeastern end of the building. You asked that I evaluate both options using the investigation data that had been collected from the Investigation that ICECOR performed at the site.

I have attached the following maps and summary tables from the site investigation:

Sheet 6 Soil and Groundwater Contamination Map
Table 1 Soil Analytical Results Summary
Table 2 Groundwater Analytical Results Summary
Table 6 Soil Boring Logs

INVESTIGATION FINDINGS

The results of the site investigation determined that the soil contamination encountered at the site was introduced with fill materials in the distant past when the area had been filled out into former open water area. Numerous loads of fill materials (sand, gravel, rocks, clay, concrete, coal, wood, foundry slag, and other debris sources) had been placed over time to fill the area. Some loads contained contamination and some loads didn't. Groundwater was encountered at depths ranging from 4-6 feet below the ground surface (BGS) across the site. Groundwater was contaminated from contact with and from precipitation passing through the areas of soil contamination at the site.

Sheet 6 presents the locations of the sampling points at the site. The ET soil samples were collected by a former consulting company from the ground surface and from the sidewalls of the building excavation areas. The test pits were advanced by ICECOR to complete the delineation of the extent of soil and groundwater contamination at the site. The pits were placed on a 75-85 foot grid outside of the excavated building footprint and within the site boundaries, as per State guidance for soil sample spacing. Monitoring wells were placed in some of the pits and sampled during two separate events. Tables 1 and 2 present a summary of the analytical results versus State criteria. Table 6 presents the soils identification/composition with depth at each of the test pit locations.

OPTION ASSESSMENT

Option #1 is the area north of the pool area in the existing building. Test pits in this area are Pit's 2, 3, 12, and 13. Option #2 is the area south of the southeastern corner of the existing building. Test pits in this area are Pit's 7, 8, 9, and 10.

As stated above, the areas of contamination encountered during the site investigation were where fill materials had been dumped in the past to raise the site surface to present grade.

Option #1 is located in a fill material area. It has Diesel Range Organic (DRO) concentrations ranging from 26.9 to 254 ppm. Soils at the locations of Pit 12 and 13 exceed regulatory criteria for concentrations of polyaromatic hydrocarbons (PAH). The groundwater beneath this area is contaminated above regulatory criteria. Temporary monitoring well TMW-2 had concentrations of arsenic and PAH's which exceed regulatory criteria.

Option #2 is located mostly in native sand soils, with some clay soils nearer the bay which could be native or could be fill materials in origin. It has DRO concentrations ranging from 2.7 to 87.6 ppm, and soils in this area are not contaminated above regulatory criteria. Groundwater beneath this area is not contaminated above regulatory criteria. Temporary monitoring well TMW-4 had some of the lowest detected compound levels at the site.

Sampling guidance for the site investigation placed the test pits at grid intervals of 75-85 feet across the site (excluding the areas beneath the building that had already been excavated). The source of the soil and groundwater contamination at the site was determined to be in the fill materials that were placed at the site in the past. Considering the large number of truck loads of fill it would have taken to bring the site to present grade and the reasonable expectation that these loads came from many different source areas and were dumped in many different events; it is reasonable to expect that there are multiple separate smaller areas of soil contamination at the site. Some of these areas could be focused into smaller areas between the test pit locations. The test pit spacing was determined as being "reasonable" by the State in effort to characterize the site, knowing that some areas could be missed even if the grid spacing was reduced to a grid spacing of 35-40 feet.

Option #1 is located in fill materials and has adjacent test pits with soil and groundwater contamination that exceed regulatory levels. There is the potential to encounter additional areas of soil contamination which exceed regulatory criteria if the building addition is placed in the area of Option #1. The expansion in this area will encounter contaminated soils which will require additional testing, permitting, and off-site disposal at a licensed treatment facility. These additional costs are very significant and represent a "Practical Difficulty" with the development of this area.

The area of Option #2 didn't encounter soil or groundwater contamination that exceeded regulatory criteria, and is located in an area whose soils are native sands and not fill materials. As the fill materials were determined to be the source of the site contamination, it is unlikely that soil contamination exceeding regulatory criteria will be encountered in the Option #2 area. The expansion in this area doesn't have the significantly increases project costs associated with contamination and therefore doesn't represent a "Practical Difficulty" with the development of this area.

SUMMARY

Based on the review of the two (2) options for expansion of the existing building, it is my recommendation that Option #2 (expanding to the south of the southeast end of the existing building) is the best location for the project to occur. Option #1 has contamination issues which will significantly increase the project costs and represent a "Practical Difficulty" in locating the project in that area.

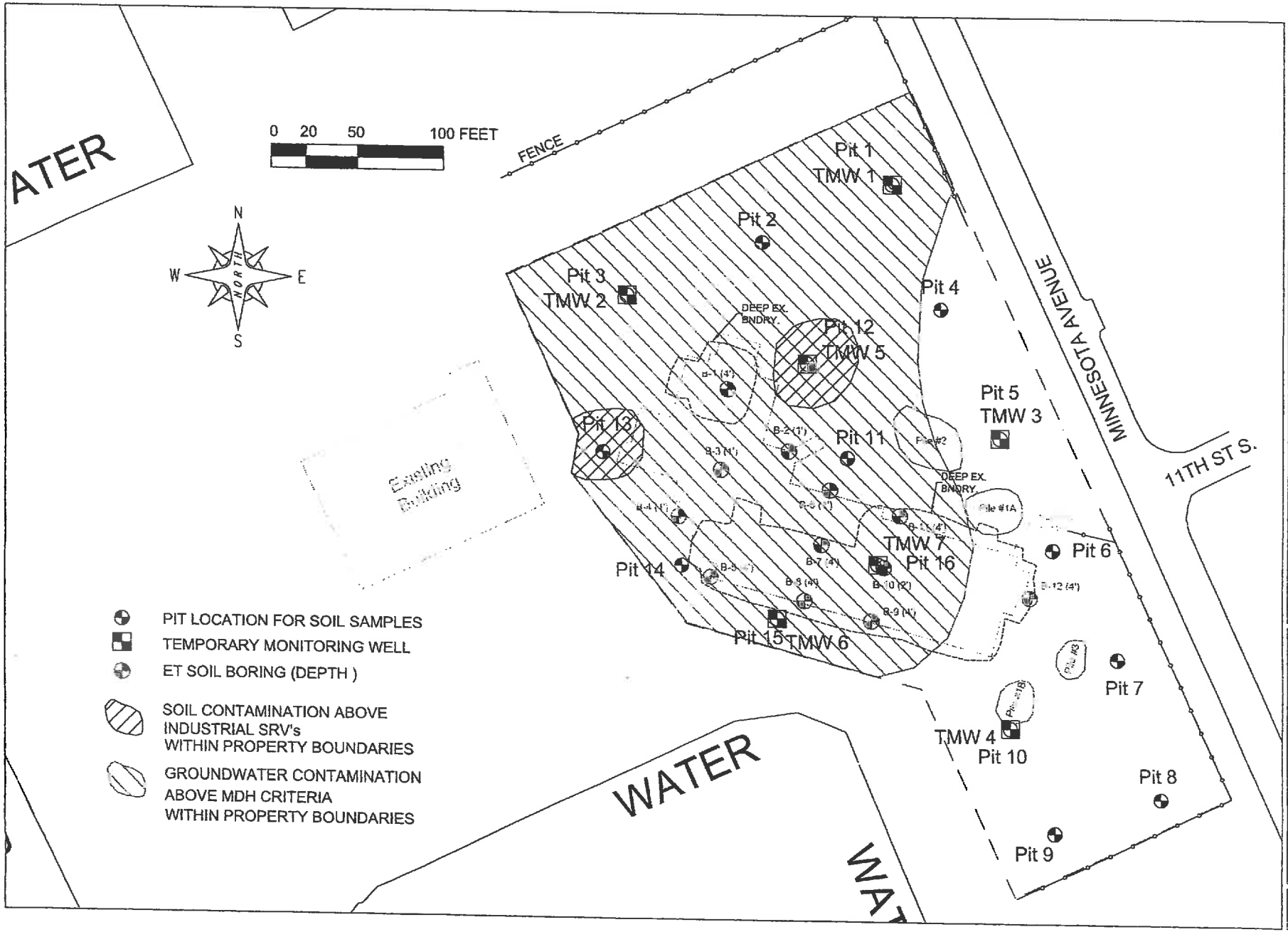
If you have questions or require additional information, please contact me at your convenience.

Sincerely,

IC ENVIRONMENTAL CORPORATION

Michael L. Kohn

MICHAEL L. KOHN, P.E.
Engineer/Hydrogeologist



ICECOR
P.O. BOX 1105
SUPERIOR, WISCONSIN 54880
(715) 395-0866

I hereby certify that this plan, specification or report was prepared by me or under my supervision and that I am a duly licensed PROFESSIONAL ENGINEER under the laws of the State of WISCONSIN.

Printed name: Lic. No.
Date:

DATE	REVISIONS DESCRIPTION
2/16/13	ORIGINAL SUBMISSION

BASE MAP FROM DDP ARCHITECTS 7/16/2012

PARK POINT MARINA INN AND SUITES
DULUTH, MINNESOTA
ICECOR PROJECT #101012029

SOIL AND GROUNDWATER CONTAMINATION MAP

SHEET NO.
6 OF

Table 1: Soil Analytical Results Summary

	Tier 1 (SRV) Residential (mg/kg)	Tier 1 (SLV) Residential (mg/kg)	Tier 2 (SRV) Industrial (mg/kg)	Tier 2 (SLV) Industrial (mg/kg)	PIT 1 (0-2')	Pit 1 (2-4')	PIT 2 (0-2')	Pit 2 (2-4')	PIT 3 (0-2')	Pit 3 (2-4')	PIT 4 (1-3')	Pit 4 (3-5')	PIT 5 (1-3')	Pit 5 (3-5')
Diesel Range Organics	NR	NR	NR	NR	52.9	30.9	190	36.5	129	254	50.9	56	540	53.1
RCRA 8 Metals														
Arsenic	9	15.1	20	14.6	3.5	2.5	2.7	4	8.4	2.8	2.5	3.7	2.9	3
Barium	1100	842	18000	842	319	30.2	35.5	58.9	44.7	39	25.2	80.9	38.6	43.4
Cadmium	25	4.4	200	4.4	0.62	<0.032	<0.030	<0.034	<0.032	<0.032	<0.029	<0.031	<0.029	<0.034
Chromium III/VI	44000/87	1000000/18	100000/650	500000000/18	24.3	8.8	18.3	20.8	29.1	24.7	20.3	25.2	20.5	15.8
Lead	300	525	700	525	218	35.5	22.1	21.6	79.9	38.6	15.5	38.4	40.7	46.5
Selenium	160	1.5	1300	1.32	<0.56	<0.5	<0.46	<0.054	<0.49	<0.50	<0.45	<0.49	<0.46	<0.52
Silver	160	3.9	1300	3.93	<0.26	<0.23	<0.21	<0.024	<0.22	<0.23	<0.20	<0.22	<0.21	<0.24
Mercury (inorganic)	0.5	1.6	1.5	1.64	0.14	0.15	0.06	0.066	0.049	0.029	0.02	0.45	*0.71*	0.13
PAH's														
Acenaphthene	1200	50	5260	50	0.0396	0.0175	0.0442	0.0796	0.0422	0.135	0.0388	0.0242	0.333	0.0315
Acenaphthylene					0.0366	0.0197	<0.0178	<0.0191	0.049	<0.0756	<0.0177	<0.0391	<0.933	0.02
Anthracene	7880	942	45400	942	0.163	0.0821	0.129	0.186	0.236	0.424	0.257	0.452	0.861	0.0974
Benzo(a)anthracene					0.352	0.171	0.21	0.258	0.359	0.544	0.321	0.836	1.05	0.202
Benzo[a]pyrene				10.2	0.376	0.185	0.0236	0.243	0.391	0.611	0.257	0.868	1.09	0.222
Benzo(b)fluoranthene					0.388	0.157	0.189	0.205	0.329	0.446	0.214	0.743	0.912	0.183
Benzo(g,h,i)perylene					0.243	0.114	0.148	0.098	0.223	0.313	0.11	0.491	0.515	0.107
Benzo(k)flouranthene					0.258	0.167	0.209	0.241	0.369	0.5	0.279	0.809	0.918	0.201
Chrysene					0.415	0.169	0.253	0.288	0.397	0.613	0.325	0.945	1.14	0.237
Dibenz(a,h)anthracene					0.0928	0.0396	0.0471	0.0408	0.0808	0.116	0.0501	0.17	0.188	0.0388
Fluoranthene	1080	295	6800	295	0.772	0.352	0.558	0.682	0.801	1.44	0.76	2.08	2.64	0.468
Fluorene	850	47	4120	47	0.0441	0.0208	0.0592	0.103	0.0998	0.168	0.0476	0.208	0.339	0.0355
Indeno(1,2,3-cd)pyrene					0.201	0.0932	0.126	0.0962	0.196	0.242	0.105	0.459	0.486	0.098
1-Methylnaphthalene					0.0712	0.0326	0.0414	0.037	<0.0333	<0.069	0.021	0.112	0.0973	0.0899
2-Methyl naphthalene	100		369		0.092	0.0417	0.157	0.0395	0.0433	0.0576	0.0222	0.145	0.128	0.114
Naphthalene	10	7.5	28		0.088	0.0382	0.157	0.0627	0.0387	0.1	0.0219	0.171	0.175	0.107
Phenanthrene					0.53	0.211	0.432	0.668	0.55	1.38	0.693	1.48	2.65	0.36
Pyrene	890	272	5800	272	0.66	0.0297	0.471	0.527	0.626	1.16	0.562	1.64	2.26	0.4
Benzo[a]pyrene equiv (BaP)	2	10.2	3	10.2	0.5520	0.2677	0.1259	0.3487	0.5655	0.8553	0.3802	1.2574	1.5433	0.3145
PCBs (Polychlorinated Biphenyls)	1.2	2.1	8	2.1	NA	NA	<0.0253	<0.0271	0.2119	<0.0268	<0.0251	<0.0277	<0.0265	<0.0269
VOC's														
Naphthalene	10	7.5	28	7.5	<0.025	<0.025	0.117	0.208	<0.0263	0.0565	<0.025	0.0964	<0.025	<0.0263
Toluene	107	6.4	305	6.4	<0.025	<0.025	<0.0253	<0.025	<0.0263	<0.025	<0.025	0.0628	<0.025	<0.0263
1,2,4-Trimethylbenzene	8		25		<0.025	<0.025	<0.0253	<0.025	<0.0263	<0.025	<0.025	0.039	<0.025	<0.0263
Xylenes (mixed)	45	45	130	45	<0.025	<0.025	<0.0253	<0.025	<0.0263	<0.025	<0.025	0.1295	<0.025	<0.0263
Bromoform	NR	0.14	NR	0.14	<0.025	<0.025	<0.0253	<0.025	<0.0263	<0.025	<0.025	<0.025	<0.025	<0.0263
Ethyl benzene	200	4.7	200	4.7	<0.025	<0.025	<0.0253	<0.025	<0.0263	<0.025	<0.025	<0.025	<0.025	<0.0263

BOLD ITALIC = Exceeds Tier 1 Residential SRV

BOLD = Exceeds Tier 2 Industrial SRV

NA = Not Analyzed For

NR = Not Regulated

Table 1: Soil Analytical Results Summary cont ...

	Tier 1 (SRV) Residential (mg/kg)	Tier 1 (SLV) Residential (mg/kg)	Tier 2 (SRV) Industrial (mg/kg)	Tier 2 (SLV) Industrial (mg/kg)	PIT 6 (0-2')	Pit 6 (2-4')	PIT 7 (0-2')	Pit 7 (2-4')	PIT 8 (0-2')	Pit 8 (2-4')	PIT 9 (0-2')	Pit 9 (2-4')	PIT 10 (0-2')	Pit 10 (2-4')
Diesel Range Organics	NR	NR	NR	NR	23.3	31.7	26.1	4.9	4.7	2.7	40.1	87.6	22.2	5.2
RCRA 8 Metals														
Arsenic	9	15.1	20	14.6	2	2.5	3.3	1.7	2	1.4	3.7	3.5	3.1	3.8
Barium	1100	842	18000	842	22.8	28.5	21.7	16.7	76.3	10.5	161	219	103	128
Cadmium	25	4.4	200	4.4	0.1	0.091	<0.028	<0.029	0.086	<0.028	<0.033	0.3	<0.030	<0.035
Chromium III/VI	44000/87	1000000/18	100000/650	500000000/18	7.5	7.9	10.9	3.3	6.4	1.8	23.3	22.1	26.6	30.5
Lead	300	525	700	525	53.1	125	53.2	25.4	96.8	14.5	130	250	65.7	32.5
Selenium	160	1.5	1300	1.32	<0.5	<0.47	<0.44	<0.46	<0.46	<0.44	<0.51	<0.49	<0.47	<0.54
Silver	160	3.9	1300	3.93	<0.23	<0.22	<0.20	<0.21	<0.21	<0.20	1.3	<0.22	<0.21	<0.24
Mercury (inorganic)	0.5	1.6	1.5	1.64	0.058	0.13	0.46	0.28	0.11	0.049	0.25	0.23	*0.73*	0.058
PAH's														
Acenaphthene	1200	50	5260	50	0.0226	0.232	0.045	<0.0092	<0.0179	<0.009	<0.181	0.342	0.0142	0.0343
Acenaphthylene					0.0437	0.117	0.072	<0.0092	<0.0179	<0.009	<0.181	<0.199	<0.0093	<0.0096
Anthracene	7880	942	45400	942	0.094	0.151	0.172	0.0067	0.0648	0.004	0.547	0.926	0.0451	0.0935
Benzo(a)anthracene					0.181	0.277	0.341	0.0211	0.343	0.0188	1.26	1.33	0.0948	0.127
Benzo[a]pyrene				10.2	0.209	0.267	0.4	0.0216	0.341	0.0177	1.25	1.2	0.0969	0.113
Benzo(b)fluoranthene					0.17	0.209	0.298	0.0164	0.294	0.0156	1.13	0.968	0.0926	0.0872
Benzo(g,h,i)perylene					0.125	0.106	0.213	0.0127	0.153	<0.009	0.702	0.674	0.0596	0.0599
Benzo(k)fluoranthene					0.173	0.236	0.323	0.0187	0.348	0.0174	1.08	1.15	0.0828	0.107
Chrysene					0.209	0.313	0.415	0.0229	0.347	0.0192	1.4	1.43	0.105	0.133
Dibenz(a,h)anthracene					0.0415	0.0434	0.072	<0.0092	0.0674	<0.009	0.228	0.236	0.0197	0.0215
Fluoranthene	1080	295	6800	295	0.401	0.553	0.823	0.0401	0.636	0.0345	3.16	3.26	0.228	0.307
Fluorene	850	47	4120	47	0.0233	0.0375	0.073	<0.0092	<0.0179	<0.009	<0.181	0.387	0.014	0.0429
Indeno(1,2,3-cd)pyrene					0.108	0.106	0.159	0.0111	0.157	<0.009	0.614	0.57	0.0531	0.054
1-Methylnaphthalene					0.0398	0.0309	0.0546	<0.0084	0.0357	0.0092	<0.165	<0.181	<0.0085	0.0169
2-Methyl naphthalene	100		369		0.0538	0.0437	0.0692	0.003	0.0449	0.0113	0.0514	0.16	0.0082	0.0197
Naphthalene	10	7.5	28		0.0462	0.0362	0.0738	<0.0035	0.0336	0.0087	0.0845	0.249	0.0101	0.0382
Phenanthrene					0.259	0.329	0.554	0.0186	0.146	0.0148	1.75	3.07	0.153	0.278
Pyrene	890	272	5800	272	0.351	0.56	0.733	0.0408	0.52	0.0275	2.49	2.63	0.181	0.251
Benzo[a]pyrene equiv (BaP)	2	10.2	3	10.2	0.2975	0.3772	0.5566	0.0311	0.4964	0.0260	1.8001	1.7483	0.1413	0.1639
PCBs (Polychlorinated Biphen	1.2	2.1	8	2.1	NA	NA	<0.0252	<0.0261	<0.0253	<0.0254	0.0469	0.236	NA	NA
VOC's														
Naphthalene	10	7.5	28	7.5	<0.025	<0.025	0.0324	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Toluene	107	6.4	305	6.4	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
1,2,4-Trimethylbenzene	8		25		<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Xylenes (mixed)	45	45	130	45	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Bromoform	NR	0.14	NR	0.14	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Ethyl benzene	200	4.7	200	4.7	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025

BOLD ITALIC = Exceeds Tier 1 Residential SRV

BOLD = Exceeds Tier 2 Industrial SRV

NA = Not Analyzed For

NR = Not Regulated

Table 1: Soil Analytical Results Summary cont ...

	Tier 1 (SRV) Residential (mg/kg)	Tier 1 (SLV) Residential (mg/kg)	Tier 2 (SRV) Industrial (mg/kg)	Tier 2 (SLV) Industrial (mg/kg)	PIT 11 (0-2')	Pit 11 (2-4')	PIT 12 (0-2')	Pit 12 (2-4')	PIT 13 (0-2')	Pit 13 (2-4')	PIT 14 (0-2')	Pit 14 (2-4')	PIT 15 (0-2')	Pit 15 (2-4')	Pit 16 (2-4')
Diesel Range Organics	NR	NR	NR	NR	239	9.8	26.9	119	285	168	9.4	22.6	1850	1220	193
RCRA 8 Metals															
Arsenic	9	15.1	20	14.6	5.8	3.1	3.8	4.9	4.2	4	3.8	4.2	3.3	3.9	3
Barium	1100	842	18000	842	139	95.4	57.5	107	55.5	50.9	101	120	121	90.1	90.5
Cadmium	25	4.4	200	4.4	<0.033	<0.031	<0.032	<0.034	0.058	<0.03	<0.036	<0.034	<0.032	<0.031	<0.035
Chromium III/VI	44000/87	1000000/18	100000/650	500000000/18	29.9	20.4	24.3	24	12	14	34.5	41.4	21.7	36.9	22.5
Lead	300	525	700	525	104	229	20.5	67.9	101	65.3	89.7	7.7	54.8	145	50.1
Selenium	160	1.5	1300	1.32	<0.51	<0.48	<0.50	<0.53	<0.47	<0.47	<0.56	<0.53	<0.50	<0.48	<0.55
Silver	160	3.9	1300	3.93	<0.23	0.33	<0.23	<0.24	,0.22	<0.21	<0.25	<0.24	<0.23	<0.22	<0.25
Mercury (inorganic)	0.5	1.6	1.5	1.64	0.3	*0.63*	0.014	0.26	0.094	0.09	0.075	0.021	0.11	0.12	0.16
PAH's															
Acenaphthene	1200	50	5260	50	0.222	0.218	0.0166	0.671	2.82	1.03	0.28	0.0401	<0.0371	0.143	0.0117
Acenaphthylene					0.0535	<0.078	0.122	<0.207	<0.754	0.206	0.281	<0.102	0.0783	<0.0784	0.01
Anthracene	7880	942	45400	942	0.552	0.964	0.055	1.8	6.08	2.6	1.18	0.801	0.174	0.469	0.047
Benzo(a)anthracene					0.879	1.24	0.1	2.44	6.72	2.74	1.48	0.146	0.461	0.78	0.0936
Benzo[a]pyrene				10.2	0.841	1.09	0.117	2.32	5.87	2.54	1.4	0.131	0.155	0.802	0.0992
Benzo(b)fluoranthene					0.7	1.01	0.135	2.06	4.67	2.15	1.06	0.112	0.458	0.634	0.0818
Benzo(g,h,i)perylene					0.473	0.542	0.0898	1.2	2.91	1.01	0.524	0.0676	0.275	0.497	0.0697
Benzo(k)flouranthene					0.826	0.996	0.0699	2	4.79	2.02	1.34	0.133	0.424	0.789	0.0939
Chrysene					0.994	1.34	0.114	2.71	7.23	2.95	1.5	0.152	0.514	0.893	0.106
Dibenz(a,h)anthracene					0.163	0.218	0.0233	0.433	1.07	0.39	0.22	0.0256	0.106	0.168	0.0214
Fluoranthene	1080	295	6800	295	2.17	2.96	0.241	6.82	18.1	7.67	3.9	0.386	0.813	1.95	0.199
Fluorene	850	47	4120	47	0.24	0.365	0.0185	0.809	3.66	1.37	0.801	0.0332	0.0635	0.284	0.0195
Indeno(1,2,3-cd)pyrene					0.433	0.521	0.0581	1.08	2.57	0.962	0.549	0.0654	0.25	0.44	0.0602
1-Methylnaphthalene					0.0832	0.0917	<0.0081	<0.189	1.65	0.796	0.257	0.0148	0.121	0.0992	0.0101
2-Methyl naphthalene	100		369		0.104	0.127	0.0085	0.179	1.79	0.796	0.327	0.0113	0.163	0.114	0.0132
Naphthalene	10	7.5	28		0.167	0.198	0.0113	0.309	2.96	1.24	0.593	0.0233	0.133	0.121	0.0189
Phenanthrene					1.82	2.68	0.154	6.18	21.3	8.06	3.76	0.259	0.472	1.62	0.117
Pyrene	890	272	5800	272	1.68	2.21	0.191	5.16	15.2	6.92	2.99	0.286	0.724	1.54	0.169
Benzo[a]pyrene equiv (BaP)	2	10.2	3	10.2	1.2260	1.6022	0.1675	3.3476	8.4165	3.5751	1.9811	0.1925	0.3788	1.1693	0.1452
PCBs (Polychlorinated Biphenyls)	1.2	2.1	8	2.1	NA	NA	NA	NA	0.449	0.315	NA	NA	NA	NA	NA
VOC's															
Naphthalene	10	7.5	28	7.5	0.0787	0.0849	<0.025	0.142	0.959	0.425	0.1	<0.025	0.055	0.044	<0.025
Toluene	107	6.4	305	6.4	0.0372	<0.025	<0.025	<0.025	0.0908	0.0668	<0.0253	<0.025	0.0412	<0.0253	<0.025
1,2,4-Trimethylbenzene	8		25		<0.025	<0.025	<0.025	<0.025	0.0526	0.0332	<0.0253	<0.025	<0.0255	<0.0253	<0.025
Xylenes (mixed)	45	45	130	45	<0.025	<0.025	<0.025	<0.025	0.162	0.1019	<0.0253	<0.025	0.0323	<0.0253	<0.025
Bromoform	NR	0.14	NR	0.14	<0.025	<0.025	<0.025	<0.025	0.426	<0.025	<0.0253	<0.025	<0.0255	<0.0253	<0.025
Ethyl benzene	200	4.7	200	4.7	<0.025	<0.025	<0.025	<0.025	0.0302	<0.025	<0.0253	<0.025	<0.0255	<0.0253	<0.025

BOLD ITALIC = Exceeds Tier 1 Residential SRV

BOLD = Exceeds Tier 2 Industrial SRV

NA = Not Analyzed For

NR = Not Regulated

Table 2: Groundwater Analytical Results Summary

Compound	MDH Drinking Water Criteria (ug/l)	TMW-1 12/5/2012	TMW-1 1/9/2013	TMW-2 12/5/2012	TMW-2 1/9/2013	TMW-3 12/5/2012	TMW-3 1/9/2013	TMW-4 12/5/2012	TMW-4 1/9/2013	TMW-5 12/5/2012	TMW-5 1/9/2013	TMW-6 12/5/2012	TMW-6 1/9/2013	TMW-7 12/5/2012	TMW-7 1/9/2013
PCBs (Polychlorinated Biphenyls)	0.04	<0.31	<0.39	<0.31	<0.32	<0.30	<0.37	<0.31	<0.34	<0.34	<0.32	<0.30	<0.33	<0.32	<0.31
Diesel Range Organics	NR	0.16	0.1	8.4	9.9	0.34	0.29	0.15	0.11	1.9	1.6	0.64	0.39	0.52	0.23
RCRA 8 Metals															
Arsenic	10	7.8	6.2	6.6	10.5	9.2	7.8	<4.7	<4.7	14.7	7.4	5.9	4.7	<4.7	<4.7
Barium	2000	70.4	49.4	38.3	22.3	82.8	86.5	110	120	286	315	106	2.11	373	237
Cadmium	4	<0.33	<0.39	<0.33	<0.39	<0.33	<0.39	<0.33	<0.39	<0.33	<0.39	<0.33	<0.39	<0.33	<0.39
Chromium III/VI	20,000/100	<2.0	<2.4	<2.0	<2.4	<2.0	<2.4	<2.0	<2.4	<2.0	<2.4	<2.0	<2.4	<2.0	<2.4
Lead	NR	<1.7	1.7	<1.7	2.6	<1.7	<1.4	2.2	<1.4	<1.7	2.1	<1.7	<1.4	1.7	<1.4
Selenium	30	<6.5	<5.8	<6.5	<5.8	<6.5	<5.8	<6.5	<5.8	<6.5	<5.8	<6.5	<5.8	<6.5	<5.8
Silver	30	<2.5	<2.3	<2.5	<2.3	<2.5	<2.3	<2.5	<2.3	<2.5	<2.3	<2.5	<2.3	<2.5	<2.3
Mercury (inorganic)	2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<0.10	<0.10
PAH's															
Acenaphthene	400	0.15	0.056	2.7	1.5	0.004	0.0034	0.031	0.027	0.26	0.15	0.4	0.2	4.3	4.8
Acenaphthylene	NR	0.21	0.055	0.18	0.074	<0.0029	<0.0033	0.0085	<0.0030	0.11	0.057	0.13	0.041	0.13	0.26
Anthracene	2000	0.56	0.13	1.2	0.52	0.0067	0.0051	0.032	0.0078	0.4	0.2	0.46	0.16	1	1.5
Benzo(a)anthracene	NR	1.7	0.4	1.6	0.17	0.0044	<0.0047	0.081	0.012	1.4	0.58	1.6	0.37	0.8	1.6
Benzo[a]pyrene	0.3*	1.7	0.39	1.5	0.14	<0.0042	<0.0047	0.077	0.01	1.4	0.56	1.6	0.38	0.72	1.3
Benzo(b)fluoranthene	NR	1.4	0.3	1.2	0.11	0.0054	<0.0051	0.066	0.0084	1.2	0.5	1.5	0.34	0.53	1.1
Benzo(g,h,i)perylene	NR	0.98	0.22	0.87	0.084	<0.0053	<0.0060	0.047	0.0067	0.77	0.36	0.9	0.22	0.33	0.62
Benzo(k)fluoranthene	NR	1.4	0.3	1.2	0.11	<0.0047	<0.0054	0.06	0.0084	0.97	0.46	1.2	0.28	0.57	1.1
Chrysene	NR	1.7	0.37	1.6	0.16	0.0062	<0.0052	0.08	0.011	1.4	0.58	1.5	0.34	0.72	1.4
Dibenz(a,h)anthracene	NR	0.34	0.068	0.27	<0.045	<0.0089	<0.010	0.026	<0.0090	0.32	0.098	0.34	0.064	<0.36	0.21
Fluoranthene	300	3.3	0.73	3	0.59	0.0082	0.0054	0.14	0.03	2.6	1	2.3	0.66	1.8	3.2
Fluorene	300	0.15	0.059	2.5	1.5	0.0054	0.0041	0.011	0.0075	0.3	0.15	0.3	0.13	3.5	4.2
Indeno(1,2,3-cd)pyrene	NR	0.96	0.2	0.83	0.074	<0.0052	<0.0059	0.042	0.0056	0.67	0.32	0.81	0.2	0.31	0.6
1-Methylnaphthalene	NR	<0.044	<0.0088	1.2	0.75	0.0081	0.012	0.0044	<0.0044	0.12	0.0055	0.067	0.046	1.6	1.5
2-Methyl naphthalene	NR	<0.046	0.0096	0.91	0.62	0.01	0.022	<0.0046	<0.0046	0.052	0.026	0.061	0.04	0.19	0.056
Naphthalene	300	0.059	0.016	1.9	1.5	0.021	0.032	0.0091	0.0073	0.089	0.04	0.088	0.13	0.44	1.4
Phenanthrene	NR	1.5	0.34	4.3	2	<0.0081	0.012	0.082	0.018	1.5	0.63	1.6	0.38	4.2	4.8
Pyrene	200	3	0.72	3	0.66	0.011	0.0067	0.14	0.034	2.3	1.1	2.6	0.72	1.5	2.8
Carcenogenic PAH's (BaP Equivs)	0.05	2.4534	0.55178	2.1502	0.2006	0.006124	0.006231	0.11726	0.01607	2.0172	0.80668	2.3164	0.53824	1.049	1.8716
VOC's															
Acetone	4000	<5.0	<5.0	65	111	<5.0	<5.0	<5.0	<5.0	31.8	<5.0	10.6	<5.0	<5.0	<5.0
Bromoform	40	<0.94	<0.94	<0.94	<0.94	<0.94	<0.94	<0.94	<0.094	<0.94	<0.94	<0.94	<0.94	<0.94	<0.94
2-Butanone (MEK)	4000	<4.3	<4.3	8.9	10.1	<4.3	<4.3	<4.3	<4.3	4.5	<4.3	<4.3	<4.3	<4.3	<4.3
Chloromethane	30	<0.24	0.3	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	0.29	0.039	<0.24	<0.24	<0.24	<0.24
Dichlorodifluoromethane	700	<0.88	<0.81	<0.60	<0.99	13.3	12.4	2.1	5.5	<0.99	<0.99	<0.99	<0.99	3.8	6.7
Ethyl benzene	50	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Naphthalene	300	<0.089	<0.89	1.1	1.5	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.54	<0.89	<0.89	0.99
Toluene	200	1.3	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67
1,2,4-Trimethylbenzene	100	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97
Xylenes (mixed)	300	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8

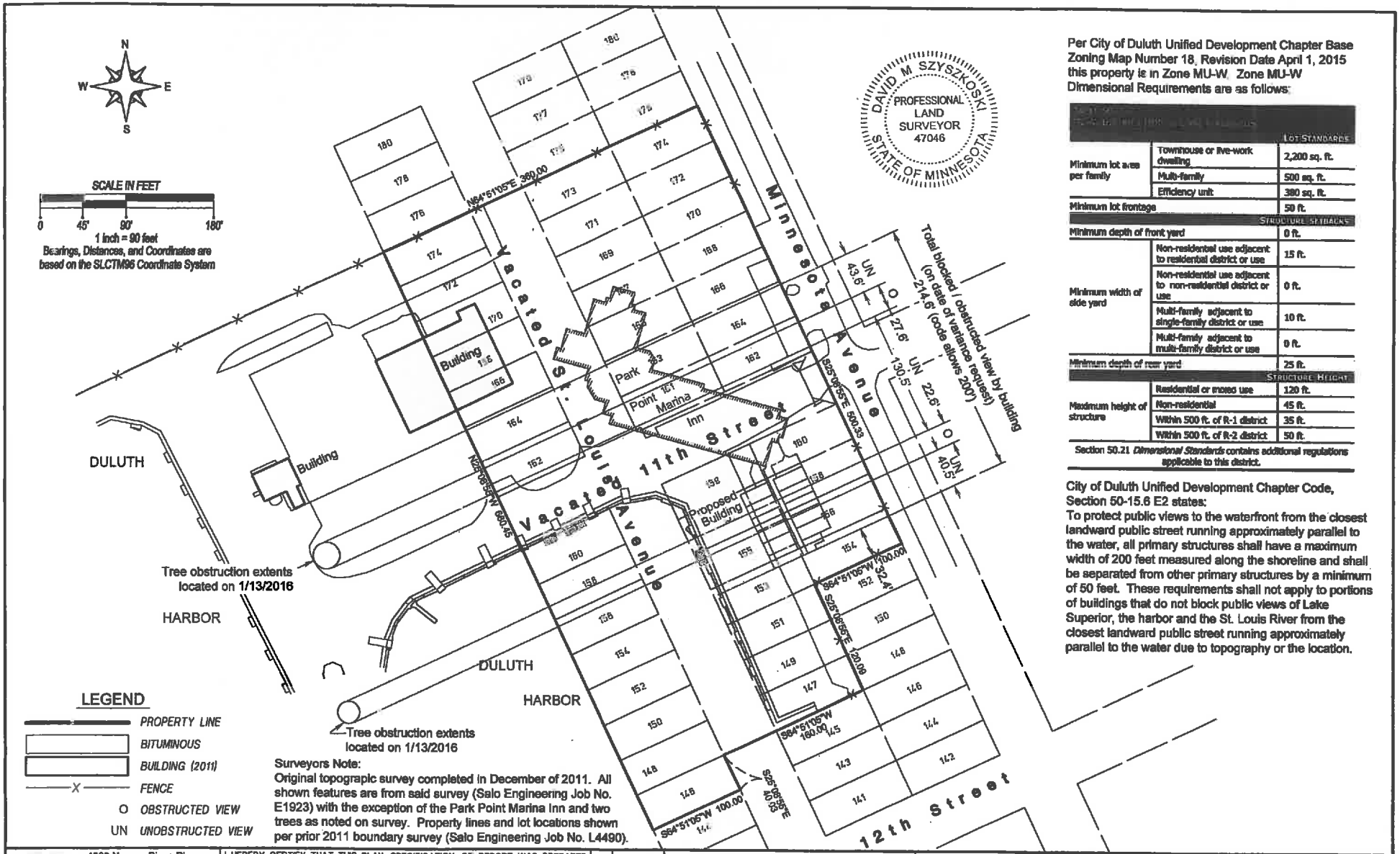
RED = Exceeds MDH Criteria

NR = Not Regulated

* = Chronic value from MDH Human Health Based Water Guidance Table

Table 6: Soil Boring Logs				
Location	Depth (ft)	Description	PID	Odor
Pit 1	0-1	Brn Sand and Gravel (dry)	0.0	No
	1-2	Brn Sand and Gravel w/ Cobbles (dry)	0.0	No
	2-4	Brn Sand w/ Cobbles and Boulders (dry)	0.0	No
	Sat @ 4', Set temp well to 6.5' w/ 5 foot screen			
Pit 2	0-2	Brn Sand w/ Rocks, Gravel (dry)	0.4	No
	2-4	Brn Silty Sand w/ Cobbles (dry)	0.6	No
	Sat @ 4'			
Pit 3	0-2	Brn Sand w/ Gravel and Cobbles (dry)	1.2	No
	2-4	Brn Silty Sand w/ Cobbles (dry)	1.4	No
	Sat @ 4.6', Set temp well to 8' w/ 5 foot screen			
Pit 4	1-3	Silty Sand w/ Rocks, Gravel, Cobbles (dry)	0.0	No
	3-5	Brn Sand w/ Silt, cobbles (dry)	0.4	No
	Moist @ 4.8'			
Pit 5	1-3	Sand w/ Silt, Rocks, Gravel (dry)	0.1	No
	3-5	Silty Sand w/ Rocks, Gravel, Cobbles (dry)	0.9	No
	Sat @ 5.5', Set temp well to 8' w/ 5 foot screen			
Pit 6	0-2	Sand w/ Gravel, Rocks (dry)	0.0	No
	2-4	Silty Sand w/ Rocks, Gravel, Cobbles (dry)	0.0	No
	Moist @ 3.9'			
Pit 7	0-2	Sand w/ Gravel (dry)	0.0	No
	2-4	Sand w/ Gravel (dry)	0.0	No
	Moist @ 3.9'			
Pit 8	0-2	Brn Sand (native) (dry)	0.0	No
	2-4	Brn Sand (native) (dry)	0.0	No
	Moist @ 3.8'			
Pit 9	0-2	Silty Sand/Clay w/ Rocks (dry)	0.0	No
	2-4	Silty Sand/Clay w/ Rocks (dry)	0.0	No
	Moist @ 4'			
Pit 10	0-2	Silty Clay and Sand w/ Rocks (dry)	0.0	No
	2-4	Silty Clay and Sand w/ Rocks (dry)	0.0	No
	Sat @ 4.6', Set temp well to 7' w/ 5 foot screen, more sandy at bottom			
Pit 11	0-2	60% Rocks, rest Silty Clays (dry)	0.4	No
	2-4	30% Rocks, rest Silty Clays (dry)	0.4	No
	Moist @ 3.8'			
Pit 12	0-2	Rock, Concrete with Silt/Sand/Clay (dry)	0.0	No
	2-4	Rock, Concrete with Silt/Sand/Clay (dry)	0.4	No
	Sat @ 6', Set temp well to 9' w/ 5 foot screen, more sandy at bottom			
Pit 13	0-2	Concrete/Rocks/Wood/Sand (dry)	0.0	No
	2-4	Concrete/Rocks/Wood/Sand (dry)	0.3	No
	Moist @ 3.9', Very Tough Digging			
Pit 14	0-2	Silt/Sand/Gravel/Rocks (dry)	1.3	No
	2-4	Clay w/ Concrete/Rocks/Wood (dry)	0.3	No
	Sat @ 4.5', Set temp well to 9' w/ 5 foot screen, more sandy at bottom			

Table 6: Soil Boring Logs				
Location	**Depth (ft)**	**Description**	**PID**	**Odor**
Pit 15	0-2	Sand w/ Silt, Rocks, Wood, Brick (dry)	0.2	No
	2-4	Sand w/ Silt, Rocks, Wood, Brick (dry)	0.5	No
	Moist @ 4'			
Pit 16	0-2	Gone to prior excavation		
	2-4	Clay/Silt/Rocks/Sand (dry)	0.0	No
	Sat @ 4.6', Set temp well to 7' w/ 5 foot screen, more sandy at bottom			



Per City of Duluth Unified Development Chapter Base Zoning Map Number 18, Revision Date April 1, 2015 this property is in Zone MU-W. Zone MU-W Dimensional Requirements are as follows:

Lot Standards		
Minimum lot area per family	Townhouse or live-work dwelling	2,200 sq. ft.
	Multi-family	500 sq. ft.
	Efficiency unit	380 sq. ft.
Minimum lot frontage		50 ft.
Structure Setbacks		
Minimum depth of front yard		0 ft.
Minimum width of side yard	Non-residential use adjacent to residential district or use	15 ft.
	Non-residential use adjacent to non-residential district or use	0 ft.
	Multi-family adjacent to single-family district or use	10 ft.
	Multi-family adjacent to multi-family district or use	0 ft.
Minimum depth of rear yard		25 ft.
Structure Height		
Maximum height of structure	Residential or mixed use	120 ft.
	Non-residential	45 ft.
	Within 500 ft. of R-1 district	35 ft.
	Within 500 ft. of R-2 district	50 ft.

Section 50.21 *Dimensional Standards* contains additional regulations applicable to this district.

City of Duluth Unified Development Chapter Code, Section 50-15.6 E2 states:
To protect public views to the waterfront from the closest landward public street running approximately parallel to the water, all primary structures shall have a maximum width of 200 feet measured along the shoreline and shall be separated from other primary structures by a minimum of 50 feet. These requirements shall not apply to portions of buildings that do not block public views of Lake Superior, the harbor and the St. Louis River from the closest landward public street running approximately parallel to the water due to topography or the location.

Surveyors Note:
Original topographic survey completed in December of 2011. All shown features are from said survey (Salo Engineering Job No. E1923) with the exception of the Park Point Marina Inn and two trees as noted on survey. Property lines and lot locations shown per prior 2011 boundary survey (Salo Engineering Job No. L4490).

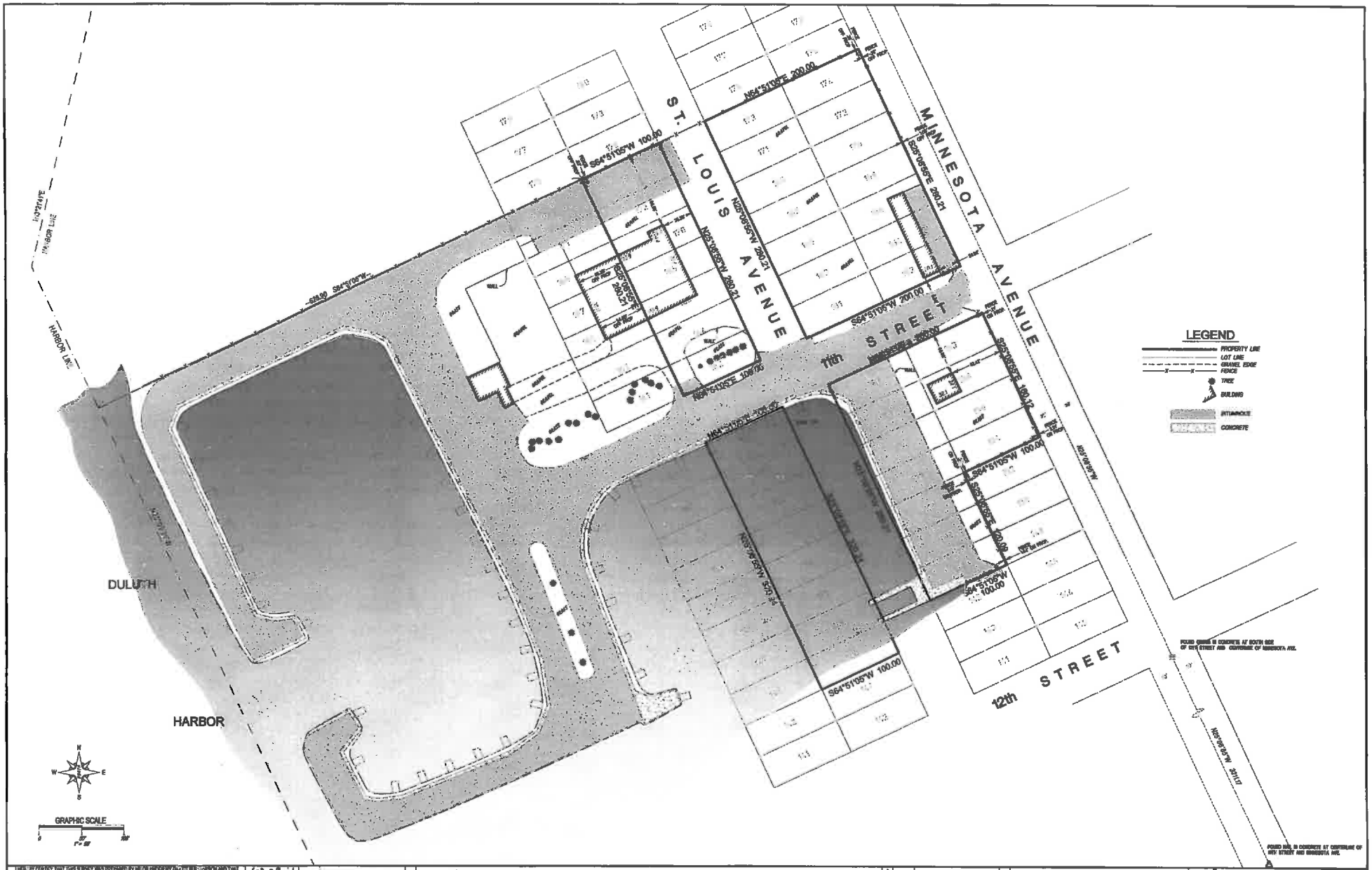
4560 Norway Pines Place
Duluth, MN 55811
218-727-8796
tkda.com
TKDA

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 1/19/2016
DAVID SZYSZKOSKI MINNESOTA LICENSE NUMBER 47046

NO	DATE	REVISION
1	10/13/2015	Removed 'Removed Buildings' from drawing
2	10/28/2015	Added additional dimensions as requested
3	1/19/2016	Added Tree obstructions and dimensions

Topographic Survey / Proposed Building Exhibit of Harbor Cove Marina aka Park Point Marina Inn, City of Duluth, Minnesota
For: Globe Duluth Enterprises

JOB NO. 15513.179 | FILE NO. E1923C | DATE OF FIELD WORK: 12/2011 & 9/2015



THIS IS TO CERTIFY THAT THIS SURVEY WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE

JAMES W. FOWLDS
PRINTED NAME

6-8-09
DATE

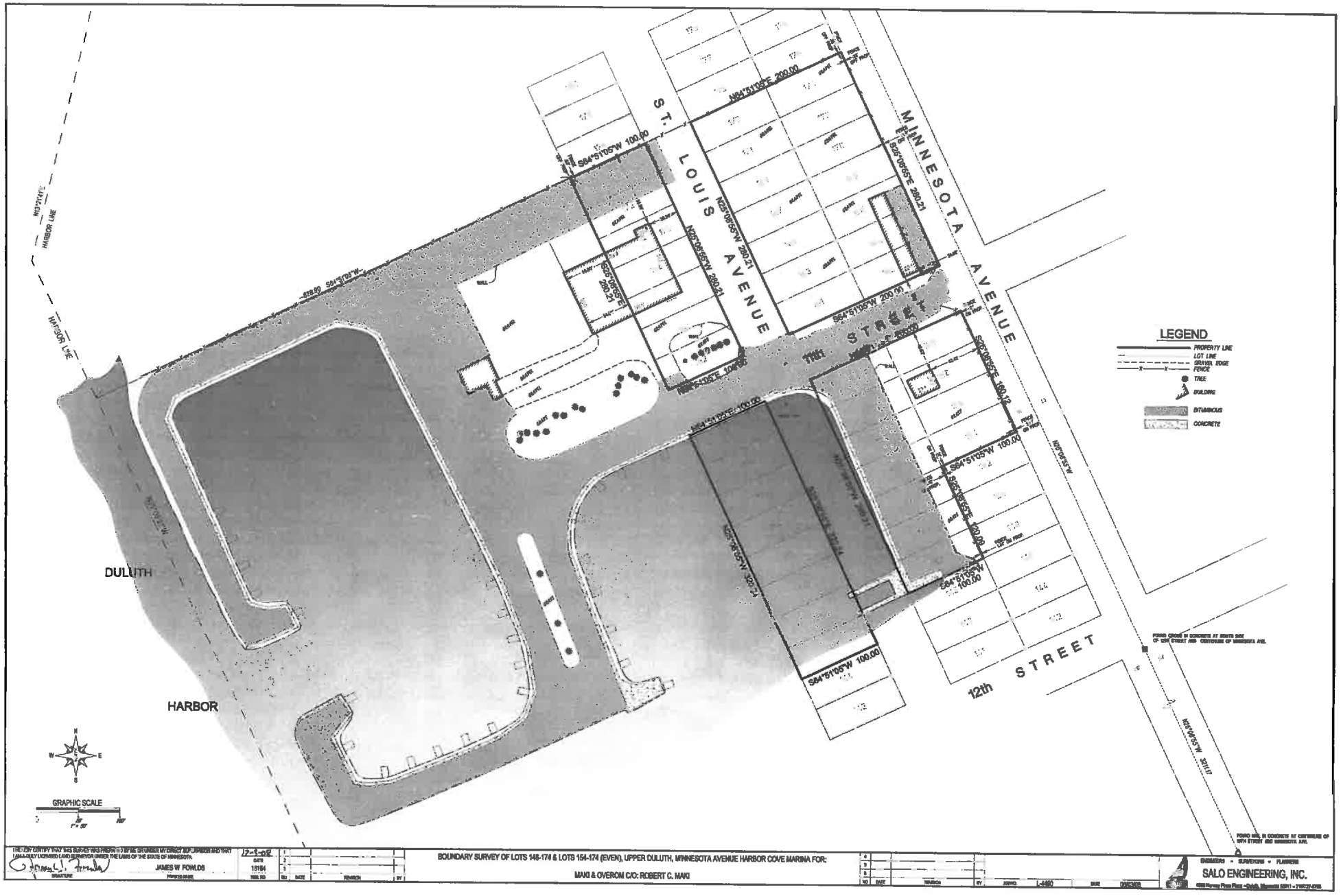
19164
R.L.S. NO.

BOUNDARY SURVEY OF LOTS 148-174 & LOTS 154-174 (EVEN), UPPER DULUTH, MINNESOTA AVENUE HARBOR COVE MARINA FOR:

MAKI & OVEROM C/O: ROBERT C. MAKI

JOB NO. L-4499 DATE 6/8/09

SALO ENGINEERING, INC.



I HEREBY CERTIFY THAT THIS SURVEY WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

JAMES W. FOWLDS

DATE: 12-8-08

PROJECT NO. 18184

BOUNDARY SURVEY OF LOTS 148-174 & LOTS 154-174 (EVEN), UPPER DULUTH, MINNESOTA AVENUE HARBOR COVE MARINA FOR:

MAKI & OVEROM C/O: ROBERT C. MAKI

JOB NO. L-4460

DRAWING

ENGINEERS • SURVEYORS • PLANNERS

SALO ENGINEERING, INC.