APPENDIX B.1
Receptors

Prepared by: Strum Consulting

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

Receptor ID for EIS	Easting	Northing	Address or Description	Type
IRID1	619024	5444805	Municipal lands/Possible former Dump Site	Municipal
IRID2	618576	5442007	Ultramar	Commercial
IRID3	618594	5442000	Ultramar gas pumps	Commercial
IRID4	618215	5441201	Shawnadithit Campground and RV park	Commercial
IRID5	618252	5441226	Shawnadithit Campground and RV park	Commercial
IRID6	618295	5441253	Shawnadithit Campground and RV park	Commercial
IRID7	618315	5441273	Shawnadithit Campground and RV park	Commercial
IRID8	618390	5441208	Shawnadithit Campground and RV park	Commercial
IRID9	618368	5441119	Shawnadithit Campground and RV park	Commercial
IRID10	617386	5438786	Cranberry Farm	Agricultural
IRID11	614590	5436662	Exploits Meadow Farms	Agricultural
IRID12	614568	5436657	Exploits Meadow Farms	Agricultural
IRID13	614518	5436619	Exploits Meadow Farms	Agricultural
IRID14	614542	5436649	Exploits Meadow Farms	Agricultural
IRID15	614757	5437399	Jigg's Fun Farm	Agricultural
IRID16	614797	5437342	Jigg's Fun Farm	Residential
IRID17	614707	5437007	Jigg's Fun Farm	Residential
IRID18	614824	5437019	Jigg's Fun Farm	Residential
IRID19	614774	5437099	Jigg's Fun Farm	Residential
IRID20	614736	5437108	Jigg's Fun Farm	Residential
IRID21	614866	5437103	Jigg's Fun Farm	Residential
IRID22	614791	5437138	Jigg's Fun Farm	Residential
IRID23	614806	5437152	Jigg's Fun Farm	Residential
IRID24	614752	5437166	Jigg's Fun Farm	Residential
IRID25	614669	5437112	Jigg's Fun Farm barn	Agricultural
IRID26	614820	5437002	Jigg's Fun Farm	Secondary
IRID27	614836	5437006	Jigg's Fun Farm	Secondary
IRID28	614845	5437013	Jigg's Fun Farm	Secondary
IRID29	614861	5437033	Jigg's Fun Farm	Secondary
IRID30	614747	5437802	Kings Transport	Commercial
IRID31	614771	5437659	Kings Transport	Residential
IRID32	614758	5437700	Kings Transport outbuilding	Unknown
IRID33	614852	5437686	Kings Transport	Residential
IRID34	618754	5442088	St. John the Baptist Roman Catholic Church	Institutional
IRID35	612792	5436830	Quarry and Cranberry Farm Operation	Commercial
IRID36	618945	5442109	Residence on corner of Pumphouse Rd and Water St	Residential
IRID37	618849	5441994	Pumphouse Rd Residence and Outbuildings	Residential
IRID38	618869	5441990	Outbuilding of 37	Secondary
IRID39	618865	5441982	Outbuilding of 37	Secondary
IRID40	616767	5445863	Sunshine Investments Inc Livestock Farm Barn	Agricultural
IRID41	616912	5445775	Sunshine Investments Inc Livestock Farm Barn	Agricultural
IRID42	616886	5445728	Sunshine Investments Inc Abattoir	Agricultural
IRID43	617018	5445727	Livestock Farm Residence	Agricultural
IRID44	617399	5447228	Town of Northern Arm Residence Cluster (included WID 202, 204, 205, 206, 207, 208, 209, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 281, 281, 283, 284, 285, 286, 287, 288, 289, 291, 502)	Residential
IRID45	617845	5447593	Treeview Dr Sunset Dr Residence Cluster (included WRID 210, 211, 212, 213, 214, 215, 215, 220, 221, 222, 496, 497, 498, 499, 500, 501)	Residential
IRID46	617230	5446790	Northern Arm Residence Cluster 1 (included WRID 493, 494, 495)	Residential
IRID47	616930	5446666	Mill Rd Residence (Included WRID 217, 218, 219)	Residential
IRID48	617219	5446339	Cole's Parts-n-Things and Residences on Market Place (included WRID 492)	Residential
IRID49	617239	5446024	Northern Arm Residence Cluster 2 (included WRID 488,490, 491)	Residential
IRID50	617371	5445787	Northern Arm Residence Cluster 3 (included WRID 487, 489)	Residential
IRID51	620042	5444609	Town of Botwood Cluster	Residential
IRID52	621503	5442059	Main St, Peterview Cluster	Residential
IRID53	619257	5441193	Swanee Pool Rd (Oasis Motel and Hideaway Bar)	Residential
IRID54	619333	5441596	Swanee Rool Rd Residence Cluster 1	Residential
IRID55	619208	5441837	Swanee Rool Rd Residence Cluster 2	Residential
IRID56	618753	5441831	Pumphouse Rd Residence Cluster (included SRID 12, 13, 14)	Residential
IRID57	618334	5441251	Shawnadithit Campground and RV park (Included SRID 10, 13 and IRID 4, 5, 6, 7, 8, 9)	Recreational
SGM1A	618207	5441263		Modelling
SGM1B	618207	5441263		Modelling
SGM1C	618207	5441263		Modelling
SGM1G	618207	5441263		Modelling
SGM2A	617778	5440769		Modelling
SGM2B	617778	5440769		Modelling
SGM2C	617778	5440769		Modelling
SGM2G	617778	5440769		Modelling
SGM3A	616431	5439166		Modelling
SGM3B	616431	5439166		Modelling
SGM3C	616431	5439166		Modelling
SGM3G	616431	5439166		Modelling
SGM4A	614385	5437083		Modelling
SGM4B	614385	5437083		Modelling
SGM4C	614385	5437083		Modelling
SGM4G	614385	5437083		Modelling
SGM5A	614662	5437360		Modelling
SGM5B	614662	5437360		Modelling
SGM5C	614662	5437360		Modelling

Receptor ID for EIS	Easting	Northing	Address or Description	Type
SGM5G	614662	5437360		Modelling
SGMA1	613672	5435369		Modelling
SGMA2	613873	5435342		Modelling
SGMA3	613743	5435197		Modelling
SGMA4	613604	5435055		Modelling
SGMA5	613434	5434867		Modelling
SGMA6	613240	5434649		Modelling
SGMA7	612962	5434348		Modelling
SRID1	614762	5437403	Jigg's Fun Farm	Residential
SRID2	614749	5437549	Residence Hwy 350 across from Jigg's Fun Farm	Residential
SRID3	614862	5437701	Kings Transport	Residential
SRID4	614817	5437691	Kings Transport	Residential
SRID5	618030	5440746	Remote	Residential
SRID6	618373	5441111	Shawnadithit Campground and RV park	Residential
SRID7	618386	5441181	Shawnadithit Campground and RV park	Residential
SRID8	619039	5441012	Swanee Pool Rd Residence	Residential
SRID9	619000	5440963	Swanee Pool Rd Residence	Residential
SRID10	618709	5441783	Pumphouse Rd Residence	Residential
SRID11	618743	5441830	Pumphouse Rd Residence	Residential
SRID12	618749	5441798	Pumphouse Rd Residence	Residential
SRID13	618885	5441964	Pumphouse Rd Residence and Outbuildings	Residential
SRID14	618755	5442086	St. John the Baptist Roman Catholic Church	Residential
SRID15	618578	5441986	Ultramar	Residential
WRID1	611918	5483689		Residential
WRID2	611948	5483706		Residential
WRID3	611970	5483712		Residential
WRID4	611997	5483725		Residential
WRID5	612053	5483711		Residential
WRID6	612081	5483722		Residential
WRID7	612082	5483740		Residential
WRID8	612031	5483766		Residential
WRID9	612046	5483794		Residential
WRID10	612086	5483763		Residential
WRID11	612099	5483785		Residential
WRID12	612111	5483796		Residential
WRID13	612108	5483818		Residential
WRID14	612077	5483824		Residential
WRID15	612042	5483818		Residential
WRID16	612080	5483864		Residential
WRID17	612094	5483856		Residential
WRID18	612063	5483889		Residential
WRID19	612005	5483889		Residential
WRID20	611983	5483873		Residential
WRID21	611946	5483874		Residential
WRID22	611920	5483886		Residential
WRID23	611901	5483893		Residential
WRID24	611880	5483925		Residential
WRID25	611909	5483935		Residential
WRID26	612222	5483923		Residential
WRID27	612088	5483922		Residential
WRID28	611759	5483807		Residential
WRID29	611967	5484005		Residential
WRID30	611959	5483983		Residential
WRID31	611858	5483953		Residential
WRID32	611840	5483959		Residential
WRID33	611818	5483993		Residential
WRID34	611818	5483959		Residential
WRID35	611799	5483969		Residential
WRID36	611781	5483950		Residential
WRID37	611765	5483939		Residential
WRID38	611794	5483936		Residential
WRID39	611975	5484081		Residential
WRID40	612018	5484122		Residential
WRID41	612064	5484153		Residential
WRID42	612043	5484152		Residential
WRID43	612016	5484142		Residential
WRID44	611984	5484154		Residential
WRID45	611966	5484155		Residential
WRID46	612090	5484177		Residential
WRID47	612043	5484174		Residential
WRID48	611934	5484102		Residential
WRID49	611925	5484132		Residential
WRID50	611918	5484153		Residential
WRID51	612103	5484178		Residential
WRID52	612150	5484159		Residential
WRID53	612892	5484832		Residential
WRID54	612814	5484800		Residential
WRID55	612806	5484879		Residential
WRID56	612783	5484886		Residential
WRID57	612787	5484850		Residential

Receptor ID for EIS	Easting	Northing	Address or Description	Type
WRID58	612748	5484820		Residential
WRID59	612722	5484839		Residential
WRID60	612694	5484833		Residential
WRID61	612665	5484806		Residential
WRID62	612620	5484805		Residential
WRID63	612605	5484778		Residential
WRID64	612576	5484783		Residential
WRID65	612419	5484756		Residential
WRID66	612375	5484742		Residential
WRID67	612368	5484809		Residential
WRID68	612272	5484753		Residential
WRID69	612245	5484681		Residential
WRID70	612257	5484721		Residential
WRID71	612170	5484727		Residential
WRID72	612257	5484824		Residential
WRID73	612227	5484830		Residential
WRID74	612206	5484827		Residential
WRID75	612181	5484827		Residential
WRID76	612239	5484784		Residential
WRID77	612204	5484796		Residential
WRID78	612177	5484872		Residential
WRID79	612123	5484896		Residential
WRID80	612196	5484909		Residential
WRID81	612214	5484926		Residential
WRID82	612076	5484747		Residential
WRID83	612020	5484736		Residential
WRID84	612118	5484746		Residential
WRID85	612022	5484701		Residential
WRID86	611973	5484711		Residential
WRID87	611934	5484721		Residential
WRID88	611942	5484760		Residential
WRID89	611862	5484686		Residential
WRID90	611823	5484736		Residential
WRID91	611848	5484756		Residential
WRID92	611868	5484771		Residential
WRID93	611889	5484784		Residential
WRID94	611905	5484806		Residential
WRID95	611806	5484799		Residential
WRID96	611766	5484776		Residential
WRID97	611740	5484808		Residential
WRID98	611685	5484679		Residential
WRID99	611645	5484674		Residential
WRID100	611608	5484653		Residential
WRID101	611565	5484716		Residential
WRID102	611495	5484698		Residential
WRID103	611462	5484727		Residential
WRID104	611483	5484684		Residential
WRID105	611462	5484676		Residential
WRID106	611439	5484660		Residential
WRID107	611443	5484707		Residential
WRID108	611407	5484683		Residential
WRID109	611393	5484665		Residential
WRID110	611422	5484602		Residential
WRID111	611357	5484579		Residential
WRID112	611321	5484598		Residential
WRID113	611340	5484674		Residential
WRID114	611380	5484690		Residential
WRID115	611158	5484569		Residential
WRID116	611147	5484550		Residential
WRID117	611093	5484573		Residential
WRID118	611076	5484550		Residential
WRID119	611105	5484536		Residential
WRID120	611108	5484503		Residential
WRID121	611063	5484489		Residential
WRID122	611029	5484473		Residential
WRID123	611011	5484492		Residential
WRID124	611131	5484463		Residential
WRID125	611119	5484454		Residential
WRID126	610978	5484437		Residential
WRID127	610949	5484434		Residential
WRID128	610914	5484421		Residential
WRID129	610898	5484406		Residential
WRID130	610891	5484390		Residential
WRID131	610883	5484417		Residential
WRID132	610877	5484381		Residential
WRID133	610860	5484370		Residential
WRID134	610834	5484349		Residential
WRID135	610820	5484337		Residential
WRID136	610775	5484323		Residential
WRID137	610766	5484257		Residential

Receptor ID for EIS	Easting	Northing	Address or Description	Type
WRID138	610833	5484306		Residential
WRID139	610872	5484320		Residential
WRID140	610891	5484336		Residential
WRID141	610917	5484338		Residential
WRID142	610936	5484350		Residential
WRID143	611213	5484507		Residential
WRID144	611274	5484559		Residential
WRID145	611302	5484554		Residential
WRID146	611281	5484573		Residential
WRID147	611294	5484592		Residential
WRID148	611260	5484620		Residential
WRID149	611294	5484659		Residential
WRID150	611637	5484623		Residential
WRID151	611553	5484610		Residential
WRID152	611516	5484592		Residential
WRID153	611551	5484572		Residential
WRID154	611557	5484557		Residential
WRID155	611533	5484578		Residential
WRID156	611516	5484558		Residential
WRID157	611525	5484539		Residential
WRID158	611528	5484607		Residential
WRID159	611560	5484521		Residential
WRID160	611595	5484503		Residential
WRID161	611644	5484503		Residential
WRID162	611516	5484520		Residential
WRID163	611602	5484570		Residential
WRID164	611693	5484509		Residential
WRID165	611704	5484560		Residential
WRID166	611745	5484571		Residential
WRID167	611697	5484545		Residential
WRID168	611796	5484561		Residential
WRID169	611819	5484560		Residential
WRID170	611817	5484599		Residential
WRID171	611813	5484617		Residential
WRID172	611798	5484616		Residential
WRID173	611798	5484585		Residential
WRID174	611774	5484609		Residential
WRID175	612201	5484948		Residential
WRID176	612853	5484862		Residential
WRID177	611956	5483854		Residential
WRID178	612227	5484726		Residential
WRID179	612213	5484696		Residential
WRID180	612244	5484657		Residential
WRID181	611607	5484552		Residential
WRID182	611617	5484534		Residential
WRID183	611762	5484588		Residential
WRID184	611609	5484616		Residential
WRID185	611266	5484535		Residential
WRID186	622180	5453239		Residential
WRID187	622282	5453263		Residential
WRID188	622323	5453281		Residential
WRID189	622361	5453435		Residential
WRID190	622790	5453747		Residential
WRID191	622830	5453785		Residential
WRID192	622904	5453832		Residential
WRID193	622947	5453851		Residential
WRID194	623018	5453886		Residential
WRID195	623039	5453899		Residential
WRID196	623075	5453911		Residential
WRID197	623074	5454024		Residential
WRID198	623074	5454024		Residential
WRID199	623145	5453991		Residential
WRID200	623109	5453965		Residential
WRID201	623048	5453999		Residential
WRID202	617933	5447983		Residential
WRID203	617962	5448057		Residential
WRID204	617963	5447998		Residential
WRID205	617493	5447753		Residential
WRID206	617480	5447696		Residential
WRID207	617676	5447778		Residential
WRID208	617894	5447790		Residential
WRID209	617666	5447437		Residential
WRID210	617459	5447285		Residential
WRID211	617445	5447251		Residential
WRID212	617415	5447244		Residential
WRID213	617398	5447229		Residential
WRID214	617384	5447216		Residential
WRID215	617363	5447197		Residential
WRID216	617022	5447276		Residential
WRID217	616956	5446690		Residential

Receptor ID for EIS	Easting	Northing	Address or Description	Type
WRID218	616915	5446682		Residential
WRID219	616944	5446639		Residential
WRID220	617471	5447216		Residential
WRID221	617498	5447230		Residential
WRID222	617411	5447170		Residential
WRID223	617734	5447248		Residential
WRID224	617771	5447308		Residential
WRID225	617770	5447281		Residential
WRID226	617759	5447364		Residential
WRID227	617759	5447394		Residential
WRID228	617766	5447417		Residential
WRID229	617730	5447438		Residential
WRID230	617774	5447434		Residential
WRID231	617796	5447472		Residential
WRID232	617818	5447510		Residential
WRID233	617765	5447523		Residential
WRID234	617724	5447546		Residential
WRID235	617704	5447561		Residential
WRID236	617682	5447573		Residential
WRID237	617665	5447583		Residential
WRID238	617644	5447590		Residential
WRID239	617623	5447605		Residential
WRID240	617600	5447613		Residential
WRID241	617582	5447631		Residential
WRID242	617564	5447643		Residential
WRID243	617542	5447655		Residential
WRID244	617526	5447667		Residential
WRID245	617505	5447678		Residential
WRID246	617509	5447731		Residential
WRID247	617527	5447720		Residential
WRID248	617548	5447710		Residential
WRID249	617570	5447695		Residential
WRID250	617592	5447685		Residential
WRID251	617608	5447673		Residential
WRID252	617648	5447650		Residential
WRID253	617678	5447630		Residential
WRID254	617696	5447620		Residential
WRID255	617753	5447585		Residential
WRID256	617746	5447648		Residential
WRID257	617776	5447675		Residential
WRID258	617800	5447655		Residential
WRID259	617784	5447619		Residential
WRID260	617813	5447607		Residential
WRID261	617840	5447556		Residential
WRID262	617914	5447651		Residential
WRID263	617947	5447696		Residential
WRID264	618002	5447763		Residential
WRID265	618013	5447782		Residential
WRID266	617900	5447750		Residential
WRID267	617975	5447834		Residential
WRID268	617999	5447866		Residential
WRID269	618019	5447880		Residential
WRID270	617977	5447925		Residential
WRID271	617959	5447948		Residential
WRID272	617989	5447970		Residential
WRID273	618016	5447939		Residential
WRID274	618043	5447909		Residential
WRID275	618058	5447925		Residential
WRID276	617769	5447219		Residential
WRID277	617773	5447208		Residential
WRID278	617777	5447192		Residential
WRID279	617462	5455203		Residential
WRID280	617473	5455248		Residential
WRID281	618081	5447818		Residential
WRID282	618112	5447859		Residential
WRID283	618125	5447890		Residential
WRID284	618180	5447929		Residential
WRID285	618082	5447955		Residential
WRID286	618225	5447980		Residential
WRID287	618158	5448022		Residential
WRID288	618170	5448034		Residential
WRID289	618195	5448051		Residential
WRID290	618229	5448088		Residential
WRID291	618241	5447997		Residential
WRID292	618282	5448034		Residential
WRID293	618286	5448068		Residential
WRID294	618319	5448091		Residential
WRID295	618380	5448156		Residential
WRID296	618349	5448131		Residential
WRID297	618326	5448250		Residential

Receptor ID for EIS	Easting	Northing	Address or Description	Type
WRID298	618373	5448251		Residential
WRID299	618453	5448233		Residential
WRID300	618454	5448301		Residential
WRID301	618486	5448338		Residential
WRID302	618504	5448355		Residential
WRID303	618492	5448265		Residential
WRID304	618550	5448324		Residential
WRID305	618568	5448332		Residential
WRID306	618586	5448333		Residential
WRID307	618576	5448358		Residential
WRID308	618532	5448397		Residential
WRID309	618602	5448370		Residential
WRID310	618622	5448361		Residential
WRID311	618566	5448422		Residential
WRID312	618590	5448439		Residential
WRID313	618605	5448453		Residential
WRID314	618665	5448438		Residential
WRID315	618628	5448407		Residential
WRID316	618663	5448405		Residential
WRID317	618708	5448469		Residential
WRID318	618728	5448496		Residential
WRID319	618794	5448525		Residential
WRID320	618842	5448560		Residential
WRID321	618900	5448606		Residential
WRID322	618943	5448621		Residential
WRID323	618964	5448636		Residential
WRID324	618989	5448661		Residential
WRID325	618933	5448688		Residential
WRID326	619037	5448675		Residential
WRID327	619059	5448715		Residential
WRID328	619010	5448752		Residential
WRID329	619081	5448731		Residential
WRID330	619166	5448778		Residential
WRID331	619239	5448862		Residential
WRID332	619271	5448897		Residential
WRID333	619250	5448938		Residential
WRID334	619264	5448950		Residential
WRID335	619344	5448953		Residential
WRID336	619374	5448975		Residential
WRID337	619335	5449028		Residential
WRID338	619359	5449071		Residential
WRID339	619438	5449039		Residential
WRID340	619482	5449031		Residential
WRID341	619457	5449111		Residential
WRID342	619521	5449078		Residential
WRID343	619603	5449117		Residential
WRID344	619590	5449207		Residential
WRID345	619628	5449143		Residential
WRID346	619667	5449189		Residential
WRID347	619624	5449240		Residential
WRID348	619663	5449272		Residential
WRID349	619729	5449239		Residential
WRID350	619688	5449216		Residential
WRID351	619712	5449332		Residential
WRID352	619756	5449278		Residential
WRID353	619780	5449299		Residential
WRID354	619806	5449341		Residential
WRID355	619827	5449360		Residential
WRID356	619800	5449308		Residential
WRID357	619961	5449704		Residential
WRID358	619977	5449730		Residential
WRID359	620061	5449805		Residential
WRID360	620141	5449946		Residential
WRID361	620166	5450001		Residential
WRID362	619942	5449817		Residential
WRID363	619926	5449790		Residential
WRID364	619916	5449756		Residential
WRID365	620274	5450310		Residential
WRID366	620310	5450372		Residential
WRID367	620367	5450493		Residential
WRID368	620664	5451045		Residential
WRID369	620726	5451111		Residential
WRID370	620796	5451270		Residential
WRID371	620880	5451316		Residential
WRID372	620872	5451408		Residential
WRID373	621374	5452226		Residential
WRID374	621410	5452271		Residential
WRID375	623112	5453920		Residential
WRID376	623139	5453920		Residential
WRID377	623171	5453918		Residential

Receptor ID for EIS	Easting	Northing	Address or Description	Type
WRID378	623193	5453949		Residential
WRID379	623056	5454038		Residential
WRID380	623263	5453985		Residential
WRID381	623302	5454006		Residential
WRID382	623329	5453968		Residential
WRID383	623333	5454009		Residential
WRID384	623347	5453970		Residential
WRID385	623401	5453953		Residential
WRID386	623366	5453884		Residential
WRID387	623380	5453858		Residential
WRID388	623398	5453866		Residential
WRID389	623413	5453882		Residential
WRID390	623415	5453901		Residential
WRID391	623458	5453902		Residential
WRID392	623428	5453954		Residential
WRID393	623460	5453970		Residential
WRID394	623478	5453985		Residential
WRID395	623489	5453930		Residential
WRID396	623507	5453947		Residential
WRID397	623519	5453959		Residential
WRID398	623554	5453990		Residential
WRID399	623504	5454000		Residential
WRID400	623502	5454035		Residential
WRID401	623536	5454094		Residential
WRID402	623535	5454065		Residential
WRID403	623636	5454093		Residential
WRID404	623643	5454115		Residential
WRID405	623677	5454101		Residential
WRID406	623662	5454135		Residential
WRID407	623720	5454123		Residential
WRID408	623741	5454091		Residential
WRID409	623769	5454094		Residential
WRID410	623765	5454118		Residential
WRID411	623704	5454066		Residential
WRID412	623734	5454070		Residential
WRID413	623765	5454057		Residential
WRID414	623733	5454155		Residential
WRID415	623744	5454181		Residential
WRID416	623762	5454203		Residential
WRID417	623759	5454221		Residential
WRID418	623741	5454220		Residential
WRID419	623736	5454199		Residential
WRID420	623767	5454228		Residential
WRID421	623784	5454252		Residential
WRID422	623787	5454274		Residential
WRID423	623802	5454293		Residential
WRID424	623803	5454320		Residential
WRID425	623814	5454341		Residential
WRID426	623836	5454263		Residential
WRID427	623814	5454243		Residential
WRID428	623828	5454254		Residential
WRID429	623912	5454379		Residential
WRID430	623957	5454509		Residential
WRID431	624197	5454604		Residential
WRID432	624141	5454524		Residential
WRID433	624107	5454523		Residential
WRID434	624157	5454533		Residential
WRID435	624191	5454552		Residential
WRID436	624225	5454567		Residential
WRID437	624244	5454576		Residential
WRID438	624225	5454632		Residential
WRID439	624263	5454640		Residential
WRID440	624277	5454638		Residential
WRID441	624296	5454649		Residential
WRID442	624327	5454669		Residential
WRID443	624284	5454583		Residential
WRID444	624403	5454669		Residential
WRID445	624430	5454681		Residential
WRID446	624442	5454692		Residential
WRID447	624512	5454764		Residential
WRID448	624568	5454809		Residential
WRID449	624585	5454830		Residential
WRID450	624593	5454936		Residential
WRID451	624646	5454833		Residential
WRID452	624689	5454824		Residential
WRID453	624727	5454839		Residential
WRID454	624823	5454873		Residential
WRID455	624776	5454869		Residential
WRID456	624896	5454903		Residential
WRID457	624900	5454928		Residential

Receptor ID for EIS	Easting	Northing	Address or Description	Type
WRID458	624935	5454938		Residential
WRID459	624917	5455025		Residential
WRID460	624947	5455051		Residential
WRID461	624995	5455051		Residential
WRID462	625224	5455185		Residential
WRID463	625246	5455203		Residential
WRID464	625276	5455262		Residential
WRID465	625354	5455284		Residential
WRID466	625387	5455337		Residential
WRID467	625410	5455369		Residential
WRID468	625428	5455391		Residential
WRID469	625441	5455403		Residential
WRID470	625444	5455430		Residential
WRID471	625469	5455454		Residential
WRID472	625508	5455483		Residential
WRID473	625565	5455526		Residential
WRID474	625621	5455547		Residential
WRID475	625565	5455526		Residential
WRID476	626913	5456816		Residential
WRID477	626926	5456835		Residential
WRID478	626943	5456863		Residential
WRID479	626956	5456969		Residential
WRID480	626968	5457020		Residential
WRID481	627040	5457103		Residential
WRID482	627075	5457098		Residential
WRID483	627012	5457102		Residential
WRID484	627159	5457203		Residential
WRID485	627640	5458630		Residential
WRID486	627599	5458690		Residential
WRID487	617306	5445942		Residential
WRID488	617256	5446015		Residential
WRID489	617305	5445941		Residential
WRID490	617256	5446015		Residential
WRID491	617246	5446037		Residential
WRID492	617235	5446273		Residential
WRID493	617279	5446808		Residential
WRID494	617224	5446850		Residential
WRID495	617293	5446879		Residential
WRID496	617163	5447032		Residential
WRID497	617203	5447061		Residential
WRID498	617196	5447086		Residential
WRID499	617182	5447113		Residential
WRID500	617139	5447090		Residential
WRID501	617341	5447174		Residential
WRID502	617760	5447337		Residential
WRID503	617407	5455039		Residential
WRID504	617434	5455040		Residential
WRID505	617406	5459923		Residential
WRID506	617377	5459963		Residential
WRID507	617358	5459904		Residential
WRID508	611437	5479021		Residential
WRID509	610741	5479170		Residential
WRID510	610695	5479078		Residential
WRID511	610441	5479154		Residential
WRID512	610466	5479096		Residential
WRID513	610494	5479084		Residential
WRID514	610430	5478970		Residential
WRID515	610371	5478941		Residential
WRID516	610287	5478919		Residential
WRID517	610196	5478975		Residential
WRID518	610153	5478983		Residential
WRID519	610176	5478932		Residential
WRID520	610117	5478937		Residential
WRID521	610051	5478937		Residential
WRID522	610037	5478971		Residential
WRID523	609905	5478922		Residential
WRID524	609898	5478965		Residential
WRID525	609853	5478965		Residential
WRID526	609785	5478956		Residential
WRID527	609813	5478958		Residential
WRID528	609805	5478916		Residential
WRID529	609786	5478915		Residential
WRID530	609734	5478871		Residential
WRID531	609693	5478857		Residential
WRID532	609706	5478896		Residential
WRID533	609674	5478878		Residential
WRID534	609643	5478848		Residential
WRID535	609608	5478847		Residential
WRID536	609630	5478899		Residential
WRID537	609692	5478922		Residential

Receptor ID for EIS	Easting	Northing	Address or Description	Type
WRID538	609660	5478920		Residential
WRID539	609600	5478899		Residential
WRID540	609560	5478864		Residential
WRID541	609534	5478877		Residential
WRID542	609529	5478920		Residential
WRID543	609505	5478889		Residential
WRID544	609466	5478904		Residential
WRID545	609443	5478925		Residential
WRID546	609412	5478960		Residential
WRID547	609373	5478995		Residential
WRID548	609381	5478979		Residential
WRID549	609460	5479229		Residential
WRID550	612691	5449357		Remote-titled
WRID551	607743	5444187		Remote-titled
WRID552	608280	5444441		Remote-titled
WRID553	608292	5444375		Remote-titled
WRID554	608506	5444490		Remote-titled
WRID555	605039	5451699		Remote-titled
WRID556	605076	5451787		Remote-titled
WRID557	606414	5454381		Remote-titled
WRID558	611015	5463005		Remote-titled
WRID559	611042	5462946		Remote-titled
WRID560	611064	5462761		Remote-titled
WRID561	610915	5462419		Remote-titled
WRID562	611025	5462463		Remote-titled
WRID563	610788	5463424		Remote-titled
WRID564	606331	5458336		Remote-titled
WRID565	611971	5455376		Remote-titled
WRID566	611753	5453127		Remote-titled
WRID567	611774	5453110		Remote-titled
WRID568	611352	5451595		Remote-titled
WRID569	611299	5451640		Remote-titled
WRID570	611519	5451634		Remote-titled
WRID571	611626	5451353		Remote-titled
WRID572	610894	5451426		Remote-titled
WRID573	611327	5451059		Remote-titled
WRID574	614218	5455962		Remote-titled
WRID575	614291	5456021		Remote-titled
WRID576	614389	5455778		Remote-titled
WRID577	601810	5440067		Remote-titled
WRID578	601850	5440028		Remote-titled
WRID579	601927	5440039		Remote-titled
WRID580	602030	5440084		Remote-titled
WRID581	602053	5440046		Remote-titled
WRID582	602044	5439971		Remote-titled
WRID583	602086	5439935		Remote-titled
WRID584	603679	5450853		Remote-titled
WRID585	601746	5441209		Remote-titled
WRID586	601845	5441216		Remote-titled
WRID587	601879	5441170		Remote-titled
WRID588	603058	5452252		Remote-titled
WRID589	603081	5452219		Remote-titled
WRID590	603371	5451758		Remote-titled
WRID591	611518	5451202		Remote-titled
WRID592	610900	5451466		Remote-titled
WRID593	614110	5456330		Remote-titled
WRID594	608206	5457576		Remote-titled
WRID595	607328	5449178		Remote-titled
WRID596	607298	5449087		Remote-titled
WRID597	602636	5452253		Remote-titled
WRID598	602644	5437523		Remote-titled
WRID599	602595	5437260		Remote-titled
WRID600	608285	5460553		Remote-titled
WRID601	614464	5456031		Remote-titled
WRID602	603790	5449620		Remote-titled
WRID603	602646	5446729		Remote-titled
WRID604	602253	5446190		Remote-titled
WRID605	602250	5446100		Remote-titled
WRID606	602264	5446066		Remote-titled
WRID607	602277	5446041		Remote-titled
WRID608	602466	5445827		Remote-titled
WRID609	602509	5445783		Remote-titled
WRID610	602541	5445767		Remote-titled
WRID611	602564	5445748		Remote-titled
WRID612	602617	5445717		Remote-titled
WRID613	602663	5445725		Remote-titled
WRID614	602697	5445702		Remote-titled
WRID615	602847	5445629		Remote-titled
WRID616	602878	5445664		Remote-titled
WRID617	602909	5445668		Remote-titled

Receptor ID for EIS	Easting	Northing	Address or Description	Type
WRID618	603203	5445635		Remote-titled
WRID619	603178	5445600		Remote-titled
WRID620	603152	5445569		Remote-titled
WRID621	603145	5445530		Remote-titled
WRID622	603178	5445489		Remote-titled
WRID623	603182	5445460		Remote-titled
WRID624	603164	5445344		Remote-titled
WRID625	603134	5445322		Remote-titled
WRID626	603091	5445294		Remote-titled
WRID627	603041	5445283		Remote-titled
WRID628	602870	5445166		Remote-titled
WRID629	602839	5444941		Remote-titled
WRID630	602773	5444730		Remote-titled
WRID631	602736	5444645		Remote-titled
WRID632	602741	5444586		Remote-titled
WRID633	602736	5444551		Remote-titled
WRID634	602744	5444497		Remote-titled
WRID635	602759	5444442		Remote-titled
WRID636	602745	5444263		Remote-titled
WRID637	602793	5444211		Remote-titled
WRID638	602829	5444178		Remote-titled
WRID639	602827	5444138		Remote-titled
WRID640	602828	5444095		Remote-titled
WRID641	602828	5444053		Remote-titled
WRID642	604852	5439448		Remote-titled
WRID643	602868	5447019		Remote-titled
WRID644	603201	5445693		Remote-titled
WRID645	608912	5464501		Remote-titled
WRID646	602585	5452445		Remote-titled
WRID647	603984	5449521		Remote-titled
WRID648	603927	5449482		Remote-titled
WRID649	604007	5449846		Remote-titled
WRID650	604062	5449994		Remote-titled
WRID651	604054	5450091		Remote-titled
WRID652	604067	5450127		Remote-titled
WRID653	604124	5450195		Remote-titled
WRID654	604034	5450349		Remote-titled
WRID655	603879	5449326		Remote-titled
WRID656	603694	5448407		Remote-titled
WRID657	603595	5448331		Remote-titled
WRID658	603575	5448311		Remote-titled
WRID659	603491	5448139		Remote-titled
WRID660	603388	5447717		Remote-titled
WRID661	603325	5447679		Remote-titled
WRID662	603280	5447659		Remote-titled
WRID663	603181	5447462		Remote-titled
WRID664	603124	5447397		Remote-titled
WRID665	602858	5447067		Remote-titled
WRID666	601653	5439759		Remote-titled
WRID667	602753	5437299		Remote-titled
WRID668	603396	5441534		Remote-titled
WRID669	612281	5456093		Remote-titled
WRID670	613888	5457127		Remote-titled
WRID671	602947	5447166		Remote-titled
WRID672	601987	5454049		Remote-titled
WRID673	599797	5440984		Remote-titled
WRID674	604150	5449351		Remote-titled
WRID675	604177	5449466		Remote-titled
WRID676	603996	5449659		Remote-titled
WRID677	604229	5449343		Remote-titled
WRID678	604194	5449343		Remote-titled
WRID679	605920	5448986		Remote-titled
WRID680	604741	5441822		Remote-titled
WRID681	606323	5440395		Remote-titled
WRID682	602692	5446829		Remote-titled
WRID683	602668	5446794		Remote-titled
WRID684	612800	5458285		Remote-titled
WRID685	612764	5458655		Remote-titled
WRID686	613072	5459145		Remote-titled
WRID687	613871	5458776		Remote-titled
WRID688	585053	5454032		Remote-titled
WRID689	590929	5460274		Remote-titled
WRID690	584791	5459647		Remote-titled
WRID691	620398	5455402		Remote-titled
WRID692	620445	5455193		Remote-titled
WRID693	609120	5470284		Remote-titled
WRID694	609208	5470389		Remote-titled
WRID695	609277	5470411		Remote-titled
WRID696	609267	5470486		Remote-titled
WRID697	609266	5470553		Remote-titled

Receptor ID for EIS	Easting	Northing	Address or Description	Type
WRID698	609244	5470661		Remote-titled
WRID699	609286	5470663		Remote-titled
WRID700	609325	5470693		Remote-titled
WRID701	609380	5470705		Remote-titled
WRID702	609398	5470722		Remote-titled
WRID703	609456	5470741		Remote-titled
WRID704	609494	5470777		Remote-titled
WRID705	609532	5470793		Remote-titled
WRID706	609578	5470781		Remote-titled
WRID707	609654	5470799		Remote-titled
WRID708	609725	5470824		Remote-titled
WRID709	609694	5470874		Remote-titled
WRID710	609719	5470914		Remote-titled
WRID711	609990	5472104		Remote-titled
WRID712	609971	5472008		Remote-titled
WRID713	610048	5473195		Remote-titled
WRID714	610492	5473834		Remote-titled
WRID715	610431	5473834		Remote-titled
WRID716	610345	5473854		Remote-titled
WRID717	610318	5473898		Remote-titled
WRID718	610303	5473936		Remote-titled
WRID719	610292	5474044		Remote-titled
WRID720	610170	5473938		Remote-titled
WRID721	610188	5474188		Remote-titled
WRID722	610279	5474296		Remote-titled
WRID723	610435	5474497		Remote-titled
WRID724	610599	5474697		Remote-titled
WRID725	610638	5474750		Remote-titled
WRID726	610655	5474798		Remote-titled
WRID727	610788	5474877		Remote-titled
WRID728	610861	5474882		Remote-titled
WRID729	610816	5474880		Remote-titled
WRID730	610872	5474946		Remote-titled
WRID731	610894	5474998		Remote-titled
WRID732	610927	5475051		Remote-titled
WRID733	610995	5475099		Remote-titled
WRID734	611060	5475151		Remote-titled
WRID735	611094	5475189		Remote-titled
WRID736	611110	5475203		Remote-titled
WRID737	611147	5475232		Remote-titled
WRID738	611226	5475244		Remote-titled
WRID739	611289	5475288		Remote-titled
WRID740	611327	5475296		Remote-titled
WRID741	611377	5475312		Remote-titled
WRID742	611431	5475374		Remote-titled
WRID743	611530	5475348		Remote-titled
WRID744	611847	5475494		Remote-titled
WRID745	611868	5475539		Remote-titled
WRID746	611860	5475616		Remote-titled
WRID747	612220	5476040		Remote-titled
WRID748	612447	5476332		Remote-titled
WRID749	612473	5476351		Remote-titled
WRID750	612495	5476369		Remote-titled
WRID751	612567	5476514		Remote-titled
WRID752	612097	5469518		Remote-titled
WRID753	612185	5469860		Remote-titled
WRID754	615471	5480636		Remote-titled
WRID755	612352	5479209		Remote-titled
WRID756	612929	5476500		Remote-titled
WRID757	613033	5476571		Remote-titled
WRID758	613275	5476770		Remote-titled
WRID759	613279	5476831		Remote-titled
WRID760	613209	5477013		Remote-titled
WRID761	613267	5476919		Remote-titled
WRID762	613283	5476808		Remote-titled
WRID763	612823	5476407		Remote-titled
WRID764	612956	5476550		Remote-titled
WRID765	612152	5447693		Remote-titled
WRID766	614625	5448538		Remote-titled
WRID767	612653	5448996		Remote-titled
WRID768	612671	5449088		Remote-titled
WRID769	612724	5449427		Remote-titled
WRID770	613378	5449615		Remote-titled
WRID771	607418	5444245		Remote-titled
WRID772	610830	5463558		Remote-titled
WRID773	612322	5455172		Remote-titled
WRID774	612395	5455121		Remote-titled
WRID775	611991	5455690		Remote-titled
WRID776	620890	5459010		Remote-titled
WRID777	620668	5459138		Remote-titled

Receptor ID for EIS	Easting	Northing	Address or Description	Type
WRID778	611302	5453194		Remote-titled
WRID779	611299	5451620		Remote-titled
WRID780	611472	5451618		Remote-titled
WRID781	611581	5451586		Remote-titled
WRID782	611611	5451528		Remote-titled
WRID783	611430	5451154		Remote-titled
WRID784	610875	5451056		Remote-titled
WRID785	610888	5450781		Remote-titled
WRID786	610918	5451502		Remote-titled
WRID787	610943	5451550		Remote-titled
WRID788	610877	5451343		Remote-titled
WRID789	606982	5448062		Remote-titled
WRID790	612535	5452189		Remote-titled
WRID791	611185	5451716		Remote-titled
WRID792	612401	5455904		Remote-titled
WRID793	608348	5460204		Remote-titled
WRID794	604263	5440071		Remote-titled
WRID795	599872	5444930		Remote-titled
WRID796	611423	5451566		Remote-titled
WRID797	614412	5456027		Remote-titled
WRID798	612415	5456045		Remote-titled
WRID799	614159	5455986		Remote-titled
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WRID801	603358	5453540		Remote-titled
WRID802	603029	5442129		Remote-titled
WRID803	604438	5440251		Remote-titled
WRID804	605110	5445932		Remote-titled
WRID805	610972	5462476		Remote-titled
WRID806	610923	5463676		Remote-titled
WRID807	611147	5463796		Remote-titled
WRID808	611350	5463755		Remote-titled
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WRID810	609768	5459165		Remote-titled
WRID811	606329	5458448		Remote-titled
WRID812	608294	5460125		Remote-titled
WRID813	604219	5456884		Remote-titled
WRID814	603916	5449813		Remote-titled
WRID815	605212	5440096		Remote-titled
WRID816	604889	5439170		Remote-titled
WRID817	603991	5440324		Remote-titled
WRID818	599920	5441128		Remote-titled
WRID819	605169	5451460		Remote-titled
WRID820	603844	5449913		Remote-titled
WRID821	610926	5450808		Remote-titled
WRID822	602616	5452275		Remote-titled
WRID823	604875	5440525		Remote-titled
WRID824	602173	5453546		Remote-titled
WRID825	602658	5454376		Remote-titled
WRID826	602546	5454692		Remote-titled
WRID827	602532	5454820		Remote-titled
WRID828	602391	5454766		Remote-titled
WRID829	599756	5440965		Remote-titled
WRID830	599351	5440675		Remote-titled
WRID831	599214	5440584		Remote-titled
WRID832	620977	5456094		Remote-titled
WRID833	621489	5455664		Remote-titled
WRID834	621445	5455581		Remote-titled
WRID835	620422	5455283		Remote-titled
WRID836	606789	5462299		Remote-titled
WRID837	615561	5450309		Remote-titled
WRID838	614142	5455997		Remote-titled
WRID839	600973	5443997		Remote-titled
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WRID843	612553	5470049		Remote-titled
WRID844	612615	5470045		Remote-titled
WRID845	612664	5470039		Remote-titled
WRID846	612374	5470025		Remote-titled
WRID847	612500	5470047		Remote-titled
WRID848	612553	5470049		Remote-titled
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WRID851	613624	5449687		No Crown Title
WRID852	608513	5444414		No Crown Title
WRID853	602364	5441021		No Crown Title
WRID854	602397	5441134		No Crown Title
WRID855	603749	5440448		No Crown Title
WRID856	604583	5439556		No Crown Title
WRID857	606292	5441571		No Crown Title

Receptor ID for EIS	Easting	Northing	Address or Description	Type
WRID858	610054	5445689		No Crown Title
WRID859	609396	5451522		No Crown Title
WRID860	610124	5446241		No Crown Title
WRID861	612729	5451761		No Crown Title
WRID862	611621	5461675		No Crown Title
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WRID868	603082	5441833		No Crown Title
WRID869	602114	5446118		No Crown Title
WRID870	607534	5449170		No Crown Title
WRID871	613565	5449628		No Crown Title
WRID872	612566	5447876		No Crown Title
WRID873	615210	5482464		No Crown Title
WRID874	612459	5479159		No Crown Title
WRID875	610222	5477867		No Crown Title
WRID876	613881	5475575		No Crown Title
WRID877	612192	5477761		No Crown Title
WRID878	612164	5477925		No Crown Title
WRID879	613623	5483920		No Crown Title

APPENDIX C.1
Engagement – Logs, Materials, Open House Slides, Support Letters

Prepared by: Exploits Valley Renewable Energy Corporation

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

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SUMMARY TABLE OF PUBLIC AND STAKEHOLDER ENGAGEMENT (2024 TO 2026)

Stakeholder Groups Represented	Frequency	Concerns/Topics	Year	Project Phase
NL Hydro	As required	Project Updates, Request for Power, Connection Agreement submitted	2024	EAR
NL Power	Quarterly	Project Updates, Request for Power, Connection Agreement submitted		
Grand Falls (Water Treatment Plant)	As required	No impact envisioned at this time.		
MHA Exploits	Bi Monthly	Project Updates, Economic Benefits Provided , Support Letter Provided		
Shalloway Family Practice Network	As required	Project Updates, No concerns		
Qalipu First Nation	Monthly	Project Updates, Introduction to Benefit Agreements, Investment opportunities, Support Letter Provided		
Energy NL	Bi Monthly	Project Updates, Member of Energy NL, Attend conferences, Industry supporter, Participate in work groups		
Econext	Quarterly	Project Updates, Industry supporter, Participate in work groups		
Professional Engineers and Geoscientists Newfoundland and Labrador	As required	Project Updates		
Botwood Fire & Rescue	As required	Project Updates, no concerns, Support Letter Provided		
Exploits Valley Port Corporation (EVPC)	Weekly	Project Updates, no concerns, Support Letter Provided		
New Bay Pond cabin owners	As required	Project Updates, concerns raised, discussions ongoing		
Exploits Regional Chamber of Commerce	Quarterly	Project Updates, no concerns, Support Letter Provided		
Oceanside Country Lodge	Monthly	Project Updates, concern raised, discussions ongoing		
Exploits Trail Net	As required	Project Updates, no concerns, Support Letter Provided		
Newfoundland Association of Hunters and Anglers	As required	Project Updates		
Newfoundland and Labrador Snowmobile Federation (Central)	As required	Project Updates, no concerns, Support Letter Provided		
Hideaway Lodge	Monthly	Project Updates, discussions ongoing		
A1 Hunts Twin Lakes	Monthly	Project Updates, discussions ongoing		
Leading Tickles	Bi weekly	Project Updates, no concerns, Support Letter Provided		
Botwood	Bi weekly	Project Updates, no concerns, Support Letter Provided		
Point Leamington	Bi weekly	Project Updates, no concerns, Support Letter Provided		
Bishop Falls	Bi weekly	Project Updates, no concerns, Support Letter Provided		
Northern Arm	Bi weekly	Project Updates, no concerns, Support Letter Provided		
Grand Falls-Windsor	Bi weekly	Project Updates, no concerns, Support Letter Provided		
Peterview	Bi weekly	Project Updates, no concerns, Support Letter Provided		
LSD Phillips Head	Bi weekly	Project Updates, no concerns		
Point of Bay	Bi weekly	Project Updates, no concerns		
LSD Pleasantview	Bi weekly	Project Updates, no concerns		
LSD Glovers Harbour	Bi weekly	Project Updates, no concerns		
Snowmobile and ATV Association	Twice Yearly	Project Updates, no concerns, Support Letter Provided		
Trades NL	As required	Project Updates, no concerns, Support Letter Provided		
College of North Atlantic (CNA)	As required	Project Update		
Memorial University of Newfoundland (MUN) and Marine	As required	Project Update		
Professional Engineers and Geoscientists Newfoundland and Labrador	As required	Project Update		
Marine Institute (MI)	As required	Project Update		
Newfoundland and Labrador Outfitters Association	As required	Project Update		
Corner Brook Pulp and Paper	Monthly	Project Updates, no concerns, Support Letter Provided		
New Bay Lake Cabin Association	Monthly	Project update, discussion topics: Road maintenance, Turbine noise, shadow flicker, ice throw, sight lines, lighting, Property values, Increased traffic, etc.	2025-2026	EIS
Newfoundland & Labrador Hydro	As required	Project Updates		
Newfoundland Power	As required	Project Updates		
Outfitter - A1 Hunts	As required	Project Updates and Review Proposed Tubular Met Towers locations		
Outfitter - Hideaway Lodge	As required	Project Updates and general discussions regarding the wind farm and MET towers		
Outfitters	Monthly	Project Updates and Met mast schedule updates.		
Qalipu	As required	Project Updates, negotiations, and general engagement		
Public Open House (2)	As required	EIS Update		
Individual Members of the Public	As required	Answers to Project Questions		
Town Hall Meeting	Monthly	Project Updates and Q&A		
Town of Botwood	Monthly	Project Updates - consulted and aligned with the municipality		
Town of Botwood - Mayor and Council	As Required	Project Updates - economic opportunities and regulatory monitoring		
Exploits Valley Port Corporation	Bi-Weekly	Project Updates regarding the development of the EVREC project		
Town of Northern Arm Council Meetings – Mayor and Council	As Required	Project Updates, economic opportunities and regulatory monitoring and proximity to town boundaries		
Town of Northern Arm Council	As Required	Project Updates		
Exploits Valley Port Corporation (EVPC)	Bi weekly	Project Updates		

SUMMARY TABLE OF GOVERNMENT AND REGULATOR ENGAGEMENT (2024 TO 2026)

Government or Regulator	Frequency	Concerns/Topics	Year	Project Phase
NL Department of Environment, Conservation and Climate Change	Monthly	Project Updates, Regulatory and Framing Discussions	2024	EAR
NL Department of Forestry, Agriculture and Lands	As required	Project Updates, Regulatory and Framing Discussions		
NL Department of Tourism, Culture, Arts and Recreation (Provincial Archeology Office)	As required	Project Updates, Regulatory and Framing Discussions		
NL Department of Energy and Mines	As required	Project Updates, Regulatory and Framing Discussions		
Nav Canada	As required	Project Updates, applications submitted, no concerns		
Environment and Climate Change Canada	As required	Project Updates		
Natural Resources Canada (NRCan)	Monthly	Project Updates, Industry Supporter		
Canadian Military	As required	Project Updates		
Canadian Coast Guard	As required	Project Updates		
Royal Canadian Mounted Police	As required	Project Updates, no concerns		
Atlantic Canada Opportunities Agency (ACOA)	Bi-monthly	Project Updates, Industry Supporter		
Transport Canada	Monthly	Project Updates, Regulatory and Framing Discussions		
Environment and Climate Change Canada	As required	Project Updates, Regulatory and Framing Discussions	2025-2026	EIS
Fisheries and Oceans Canada (DFO)	As required	Project Updates, Regulatory and Framing Discussions		
NL Dept of Fisheries and Aquaculture	As required	Project Updates, Regulatory and Framing Discussions		
NL Department of Forestry, Agriculture and Lands	As required	Project Updates, Regulatory and Framing Discussions, Caribou, Birds, Bat mitigation		
Transport Canada (TC)	Monthly	Project Updates, Regulatory and Framing Discussions		
NL Department of Environment, Conservation and Climate Change	Monthly	Project Updates, Regulatory and Framing Discussions, Mitigation lands, Water withdrawal		
NL Department of Energy and Mines	As required	Project Updates, Regulatory and Framing Discussions		
Natural Resources Canada (NRCan)	As required	Project Updates, Regulatory and Framing Discussions		
Impact Assessment Agency of Canada (IAAC)	As required	Project Updates, Regulatory and Framing Discussions		
NL Department of Finance	As required	Project Updates		
Atlantic Canada Opportunities Agency (ACOA)	As required	Project Updates, Regulatory and Framing Discussions		
Innovation, Infrastructure Canada (IIC)	As required	Project Updates, Regulatory and Framing Discussions		
NL Department of Tourism, Culture, Arts and Recreation (Provincial Archeology Office)	As required	Project Updates, Regulatory and Framing Discussions		
Member of the House of Assembly (MHA) Exploits	As required	Project Updates, Regulatory and Framing Discussions		
Municipal and Provincial Affairs / Municipal and Community Affairs	As required	Project Updates, Regulatory and Framing Discussions		
Various Municipal Councils (Botwood, Northern Arm, Peterview, Point Leamington, Leading Tickles, Grand Falls-Windsor)	As required	Project Updates, Regulatory and Framing Discussions		
NL Department of Jobs, Growth and Rural Development	As required	Project Updates, Regulatory and Framing Discussions		

ENGAGEMENT MATERIALS

EXPLOITS VALLEY RENEWABLE ENERGY CORPORATION (EVREC)

BOTWOOD AND AREA EVREC GREEN ENERGY PROJECT

(REG. 2327)

ENVIRONMENTAL IMPACT STATEMENT

PUBLIC CONSULTATION

PREPARED BY

MARILYN BUTLAND

JANUARY 2026

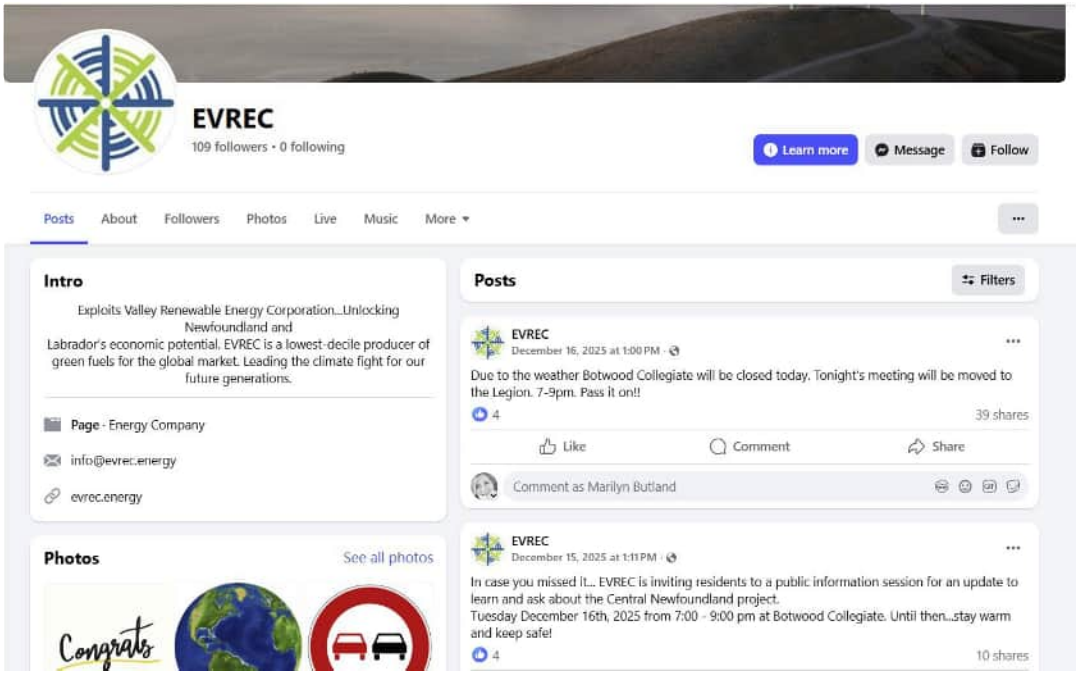
1.0 Project Website

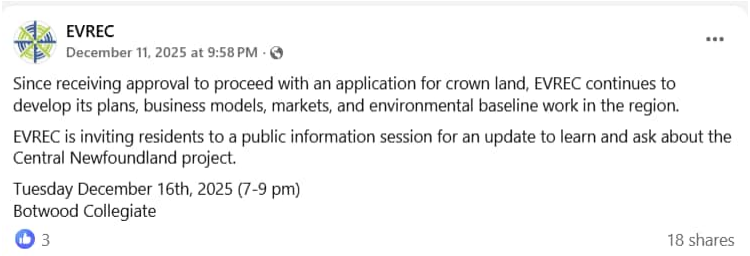
Portion of home page of EVREC website https://evrec.ca/with links detailing EVREC and the Project.

Portion of Frequently Asked Questions on EVREC website https://evrec.ca/faq/.

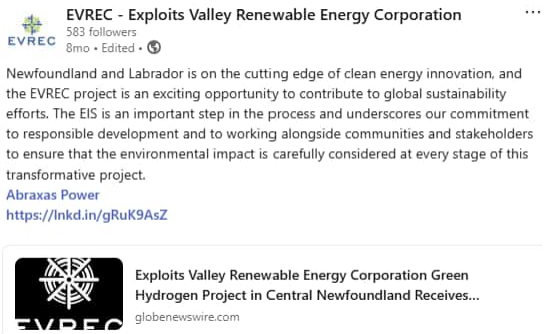
2.0 Social Media Accounts

Facebook Site

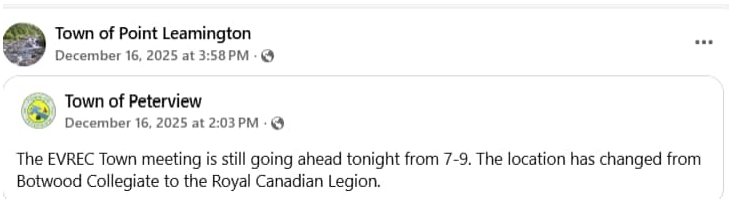




Social Media post regarding Public Information Session in December in Botwood https://www.facebook.com/profile.php?id=61562229094173



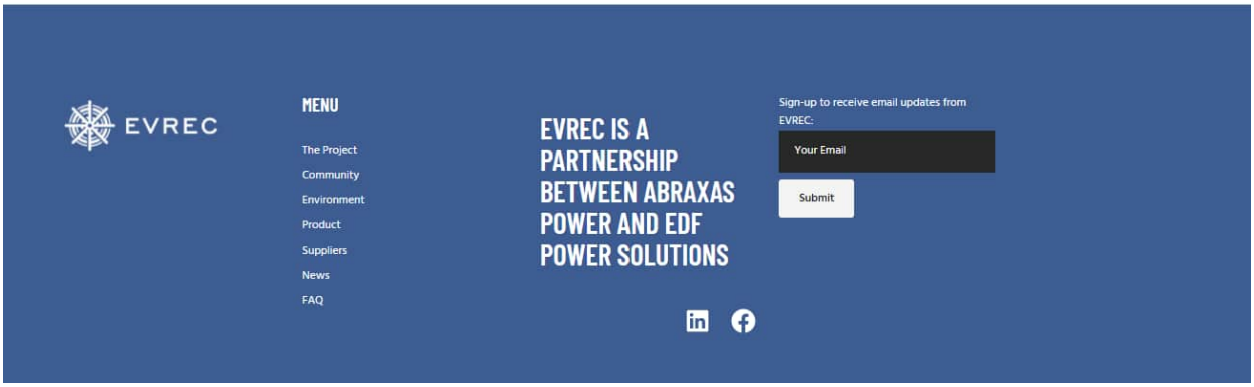
Social media post regarding EIS https://www.linkedin.com/company/exploits-valley-renewable-energy-corporation/posts/?feedView=all



Social media post from local towns sharing information about public information session https://www.facebook.com/profile.php?id=100067170177262

3.0 Botwood Project Office

4.0 Project Email Account



Contact information and email address created specifically for the Project. Information as provided on EVREC website https://evrec.ca/.

5.0 Public Advertisements and Notices

PUBLIC NOTICE

Public Information Session on the Proposed

Botwood and Area EVREC Green Energy Project

Shall be held in-person at:

Community	Date & Time	Location
Botwood, Newfoundland and Labrador	Tuesday December 16 7:00-9:00 pm	Botwood Collegiate, 32 Fernwood Drive, Botwood

The information session shall be conducted by the Proponent

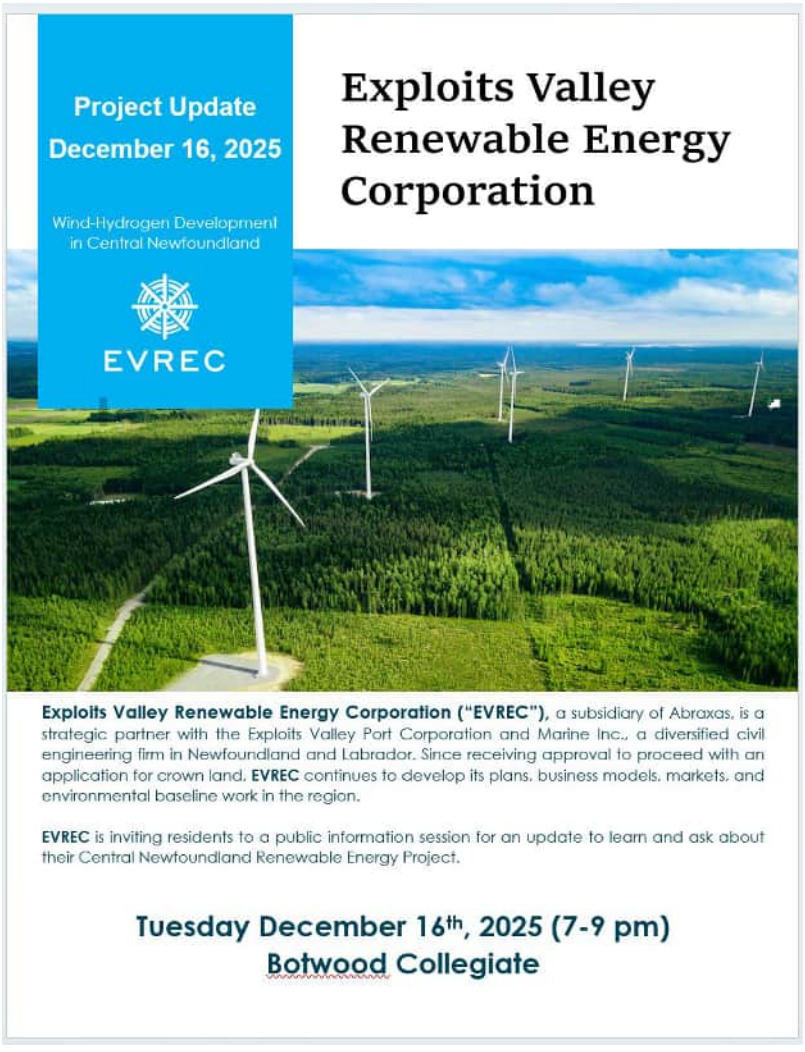
Exploits Valley Renewable Energy Corporation (EVREC)

Contact Information:

www.evrec.energy *info@.energy*

The purpose of the session is to provide an update on the proposed Project.

ALL ARE WELCOME



PUBLIC NOTICE

Public Information Session on the Proposed

Botwood and Area EVREC Green Energy Project

Shall be held in-person at:

Community	Date & Time	Location
Botwood, Newfoundland and Labrador	Wednesday February 25, 2026 6:00-8:00 pm	Botwood Collegiate, 32 Fernwood Drive, Botwood

The sessions shall be conducted by the Proponent

Exploits Valley Renewable Energy Corporation (EVREC)

as part of the environmental assessment for the Project.

Contact Information:

www.evrec.ca *info@evrec.energy*

The purpose of the session is to describe all aspects of the proposed Project, to describe the activities associated with it, and to provide an opportunity for all interested persons to request information or state their concerns.

ALL ARE WELCOME

6.0 Public Meetings

Photos and posterboards from the Open House Sessions held in-person in Botwood December 16, 2025 and February 25, 2026.

Traffic Impact
Port Facilities Revision

Shadow Flicker Impact Analysis

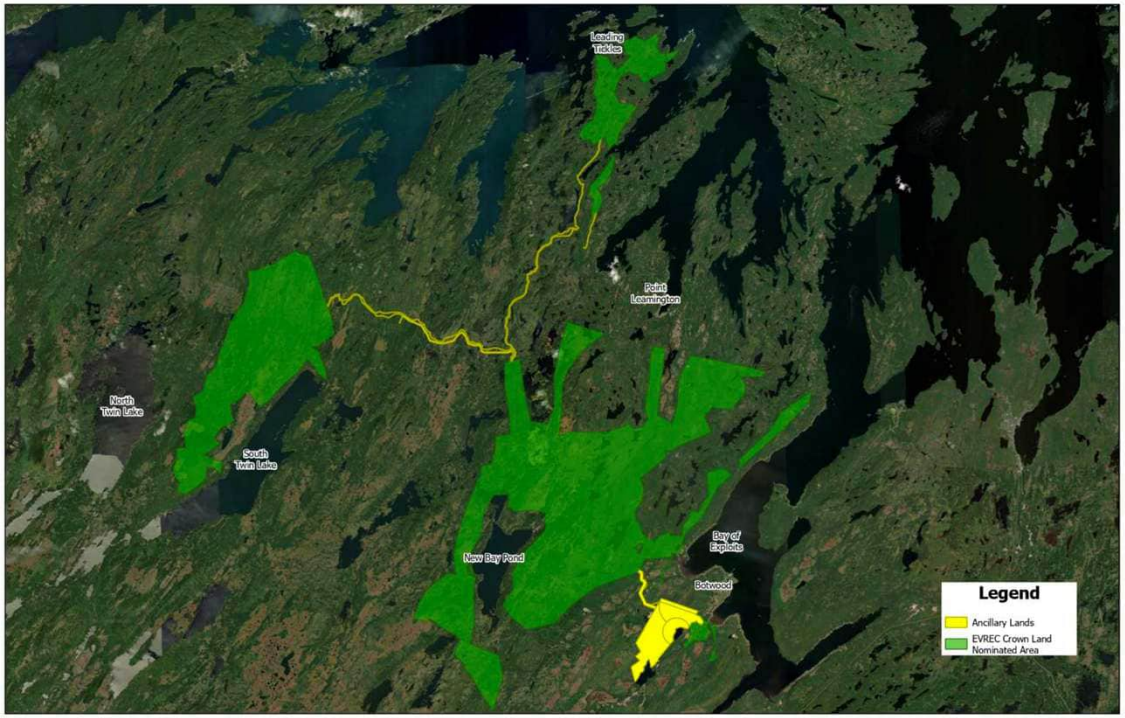
EXIT
ONLY
Fish & Fish Habitat
Bats

EVREC Environmental Impact Statement – Open House Slides

DECEMBER 16, 2025 OPEN HOUSE

Project Lands - Awarded

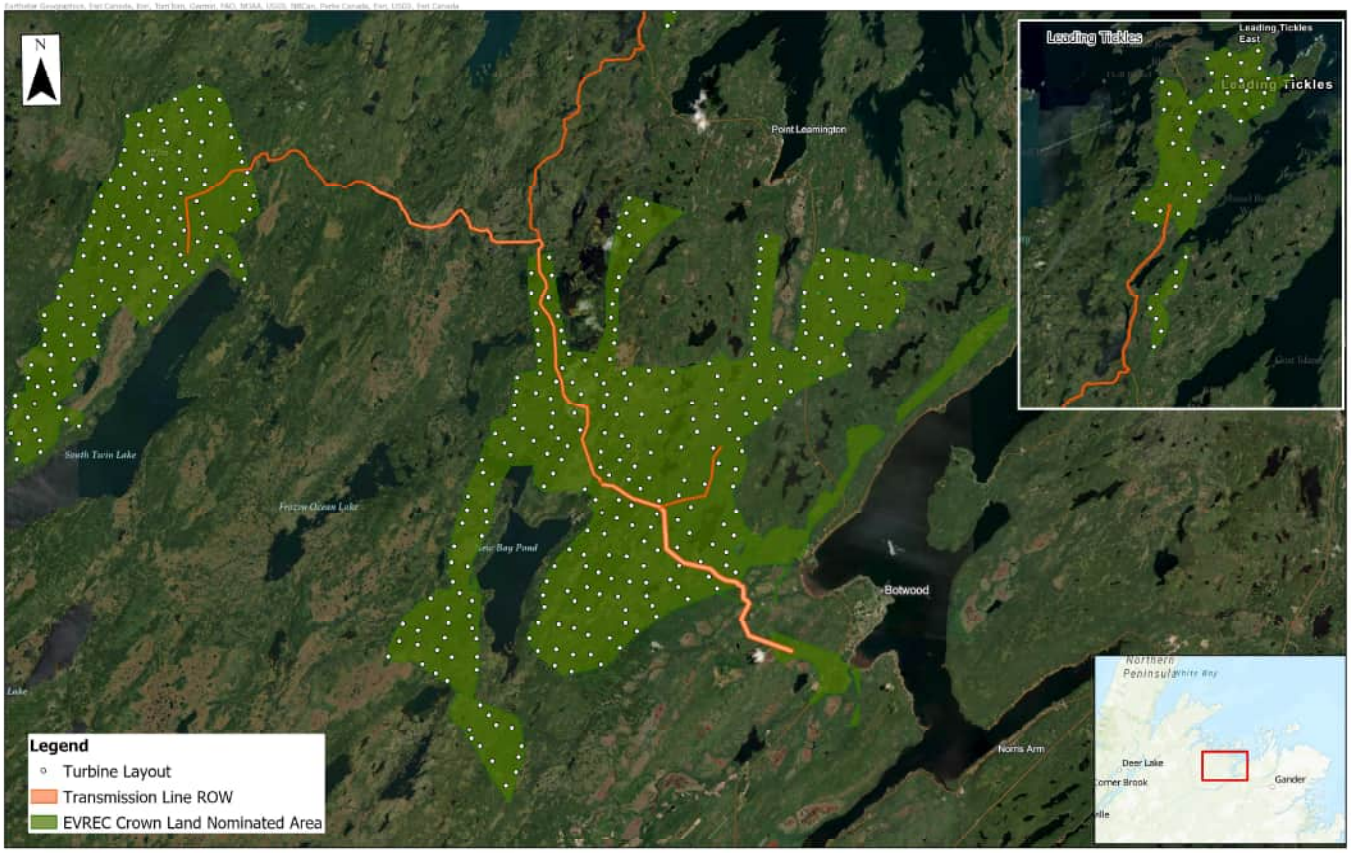
- Approximately 30,000 hectares of land awarded to EVREC through the Crownlands Process;
- Additional auxiliary lands have been requested as per the Crownlands Guidelines to support auxiliary infrastructure (electrical lines, roads, solar PV park)
- Capability of installing up to 530 turbines.



Wind Energy Park Layout

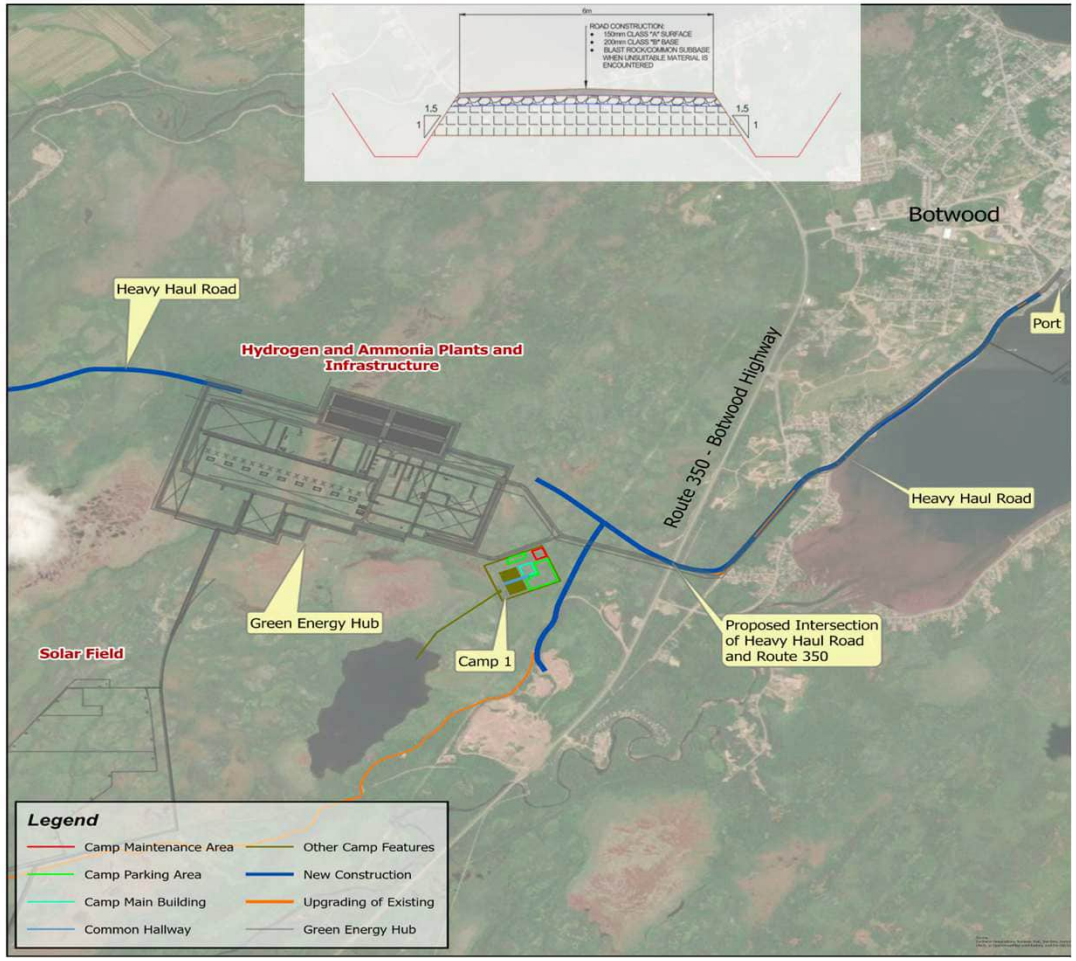
Layout Parameters:

- Minimum separation and setback 550m.
- Setback distance from reservice boundary is Blade length + 10m.
- Noise – 45 dB from receptors.
- Shadow flicker – 30 hrs/yr or 30 min/day at receptors.
- Setback distance from publicly managed roads is 1.5x blade tip height OR 330m whichever is greatest.
- Setback distance from water bodies is Blade length + 15m from water bodies and streams (CanVec).
- Maximize the use of the former logging roads and anticipate approximately 220km of new roadways.
- Camps / Quarries will be located within the wind energy park to reduce travel and environmental impacts



Traffic Impact Study

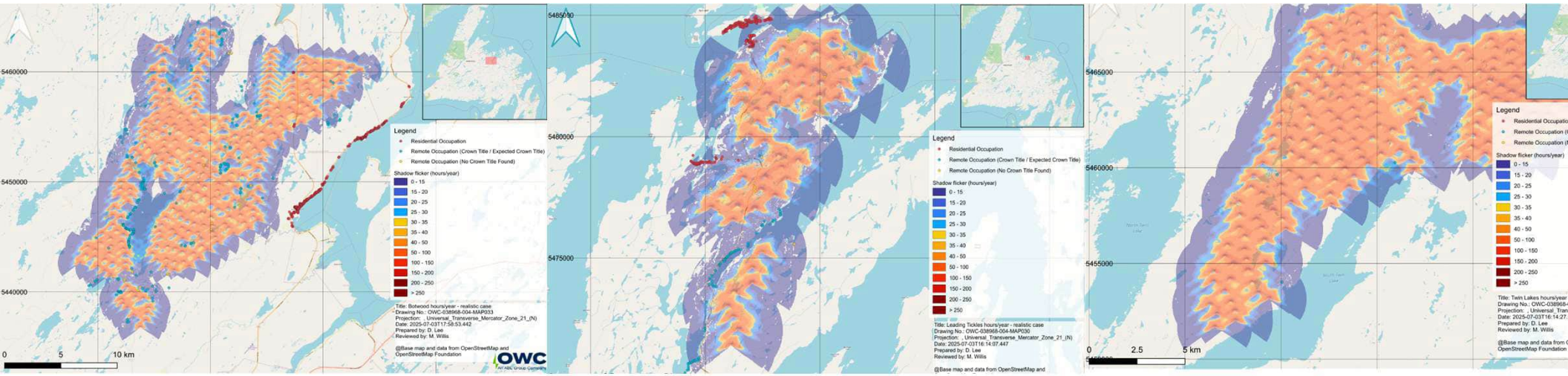
- No impact on daily traffic on Route 350.
- The Heavy Haul Road greatly reduces impacts on local roads,
- Traffic management at heavy haul road and Route 350 crossing will be managed during construction.
- Study recommends lighting the intersection at night and implementing warning signs
- Peak-hour impacts are minimal—oversized loads will be scheduled outside busy times, and flaggers will be used when needed to ensure safe crossings.
- Road durability remains strong and repaving only if required.
- Study concluded that the proposed development access location meets the requirements for sight distance and access spacing.



1. *The study was completed with a Miovision Scout Camera on August 13, 2025. Data collection covered 24 hours of northbound and southbound lanes of the Botwood Highway north of Water Street, near the proposed heavy haul road crossing.*
2. *Further data was collected on existing infrastructure conditions: asphalt surface, shoulders, pavement markings, utilities, signs and ditches.*

Shadow Flicker Impact Analysis

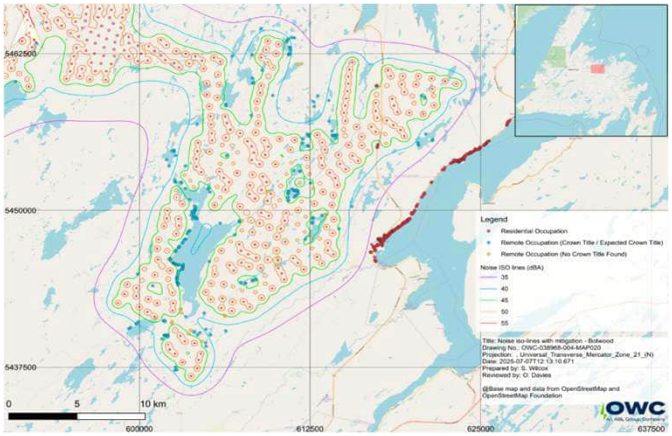
- Shadow flicker is seasonal and limited to sunny periods near sunrise and sunset.
- The threshold for shadow flicker was set to 30 hrs/yr or 30 min/day.
- This threshold aligns with numerous approval guidelines for wind projects in Ontario, and it is considered best practice.
- Most receptors experience little to no shadow flicker. In case of exceedances at final layout, detailed site-modelling will be carried out (e.g. window orientation, vegetation).
- If needed, the turbines can use automatic shadow-flicker controls that temporarily pause a turbine during rare conditions when flicker might exceed recommended levels.

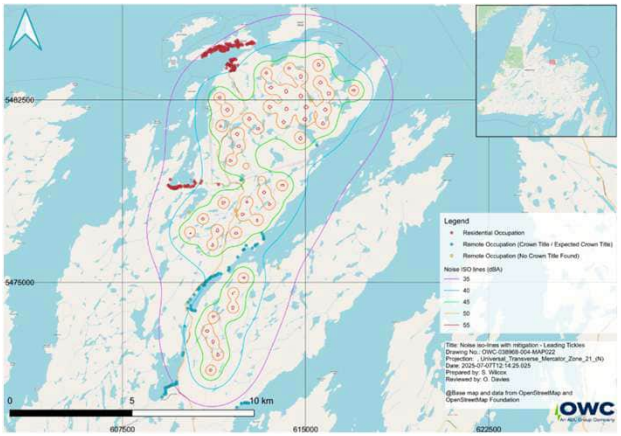


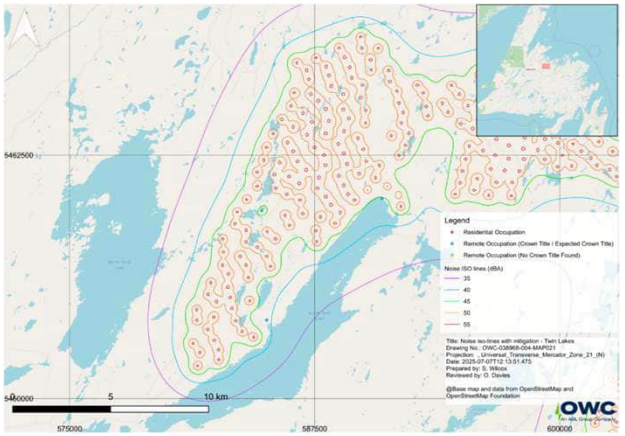
1. Shadow flicker modelling was conducted via EMD WindPRO2 v4.0.547 (https://www.emd-international.com/windpro/)
2. The software implements shadow flicker calculations according to the German standards ("Hinweisezur Ermittlung und Beurteilung der optischen Immissionen von Windenergieanlagen" (2020) LAI)

Noise Impact – Wind Energy Park

- The assessment used a strict noise limit based on national and international health guidelines of 45dB.
- Receptors are considered those establishments of permanent residential occupation and those that are part-time (seasonal), on lands with legal title.
- The study shows that all receptors meet the required noise limits, both for regular turbine sound and low-frequency sound.







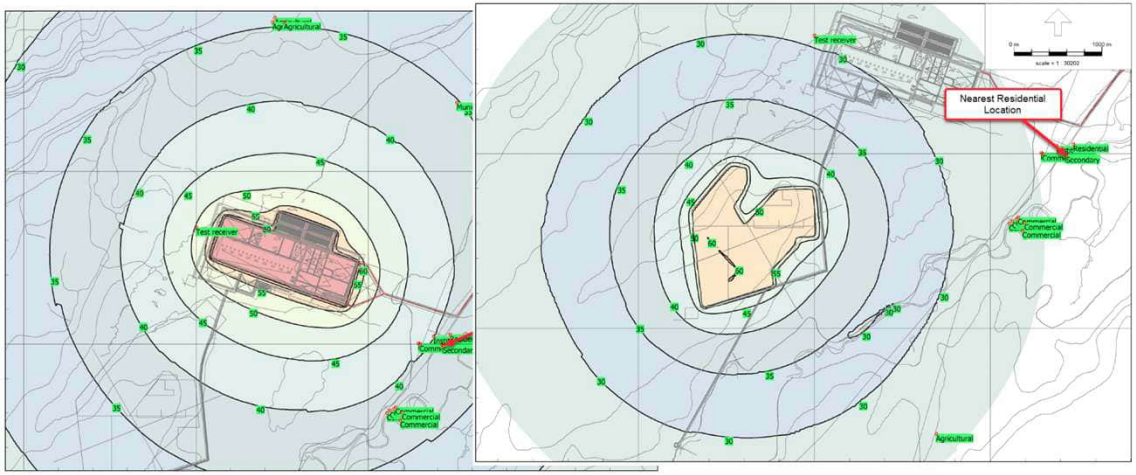
35 dB – Quiet library, soft whisper, nighttime background noise.
40 dB – A quiet room, gentle conversation at home.
45 dB – The sound of a refrigerator humming or a calm office.
50 dB – Rainfall, moderate conversation at 1–2 metres.
55 dB – A running dishwasher, roadside noise in a calm neighbourhood.

1. *The following guidance is used to inform the assessment and assign suitable noise thresholds:*
    1. *"Human Health Considerations when Assessing Noise Impacts Related to Wind Turbine Projects" (2024), Health Canada*
    2. *Environmental Noise Guidelines for the European Region" (2018), WHO Regional Office for Europe*
    3. *"Compendium of WHO and other UN guidance on health and environment, 2022 Update" (2022), WHO*
2. *The noise impact modelling was conducted via EMD WindPRO2 v4.0.547 (https://www.emd-international.com/windpro/)*

Noise Impact – Industrial Facility & PV Farm

(Construction & Operation)

- The sound modelling was conducted for both construction and operational periods.
- The sound level at the nearest residential receptor from the industrial facility is 39 dB, and from the solar PV farm 24 dB respectively, which are within the acceptable limits.
- Receptors are considered those establishments of permanent residential occupation and those that are part-time (seasonal), on lands with legal title.



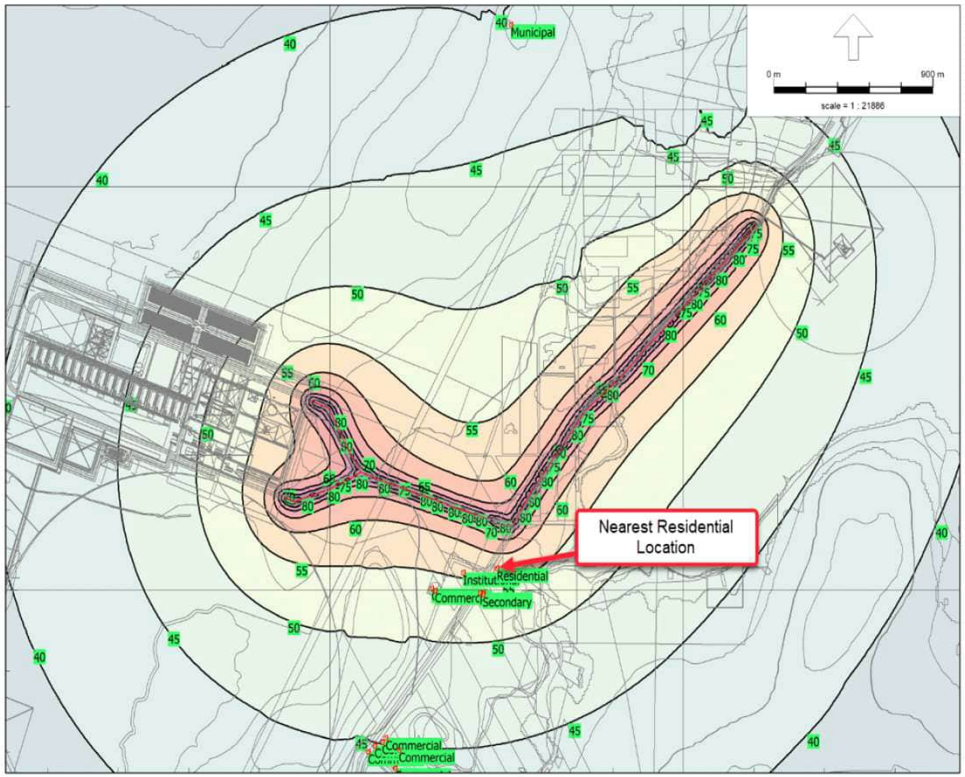
35 dB – Quiet library, soft whisper, nighttime background noise.
40 dB – A quiet room, gentle conversation at home.
45 dB – The sound of a refrigerator humming or a calm office.
50 dB – Rainfall, moderate conversation at 1–2 metres.
55 dB – A running dishwasher, roadside noise in a calm neighbourhood.

1. *The noise assessment used power levels of the construction equipment anticipated to be used, and modelled in iNoise, software which adheres to ISO 9613-1 and ISO 9613-2.*
2. *The noise was level was calculated at 1.5m height, with the following meteorological conditions: downwind from the source, 5°C air temperature, 70% relative humidity, 1 atm, 0.5 ground attenuation factor.*
3. *The noise limits used are those from Nova Scotia Environment and Climate Change (NSECC) guidelines, for short (heavy haul road) and long-term (industrial facility & solar PV farm) construction activities, in a rural setting.*
4. *Baseline sound monitoring was conducted by Strum Consulting, with the following results (Daytime: 28 dB, Evening: 28 dB, Nighttime: 32 dB)*

Noise Impact Analysis – Heavy Haul Road

(Construction)

- The sound modelling was conducted for both construction and operational periods.
- The sound level at the nearest residential receptor from the heavy haul road is 57 dB, which is within daytime criteria, but likely to exceed during evening and nighttime hours.
- Receptors are considered those establishments of permanent residential occupation and those that are part-time (seasonal), on lands with legal title.
- Proposed mitigation(s):
  - temporary noise screening,
  - limiting certain equipment operation during daytime hours.



1. *The noise assessment used power levels of the construction equipment anticipated to be used, and modelled in iNoise, software which adheres to ISO 9613-1 and ISO 9613-2.*
2. *The noise was level was calculated at 1.5m height, with the following meteorological conditions: downwind from the source, 5°C air temperature, 70% relative humidity, 1 atm, 0.5 ground attenuation factor.*
3. *The noise limits used are those from Nova Scotia Environment and Climate Change (NSECC) guidelines, for short and long-term construction activities, in a rural setting.*
4. *Baseline sound monitoring was conducted by Strum Consulting within the industrial facility and solar PV farm area, with the following results (Daytime: 28 dB, Evening: 28 dB, Nighttime: 32 dB)*

35 dB – Quiet library, soft whisper, nighttime background noise.
40 dB – A quiet room, gentle conversation at home.
45 dB – The sound of a refrigerator humming or a calm office.
50 dB – Rainfall, moderate conversation at 1–2 metres.
55 dB – A running dishwasher, roadside noise in a calm neighbourhood.

Industrial Facility Layout

- Facility covers c. 200 ha of land, c. 3km from the first residential house in Botwood.
- The 150MW solar PV farm will cover an area of c. 150 ha.
- The industrial facility will require c. 8 million liters per day of fresh water at full production.
- Water for the facility will be drawn from Peter's Pond through an underground pipeline.
- Discharge water will be either returned to Peter's River via a secondary underground pipeline ensuring a continuous and sustainable outflow cycle, or into a creek on the North side of the facility.
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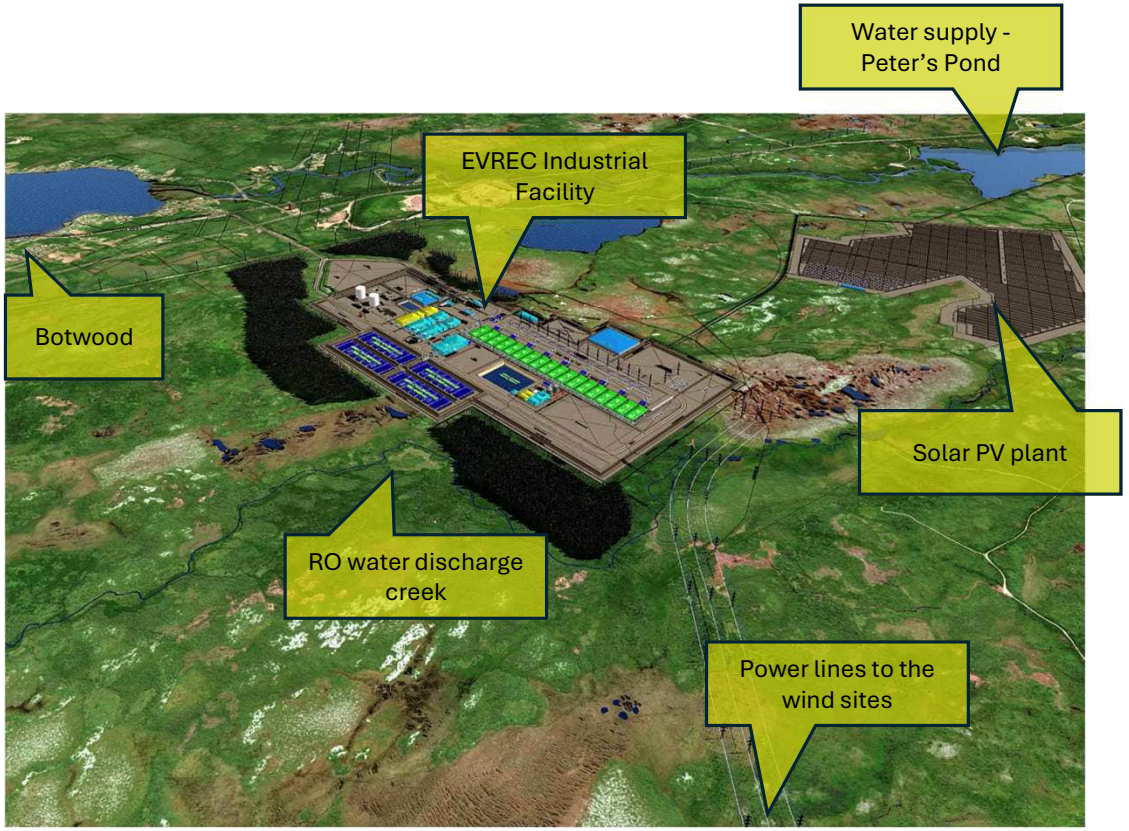
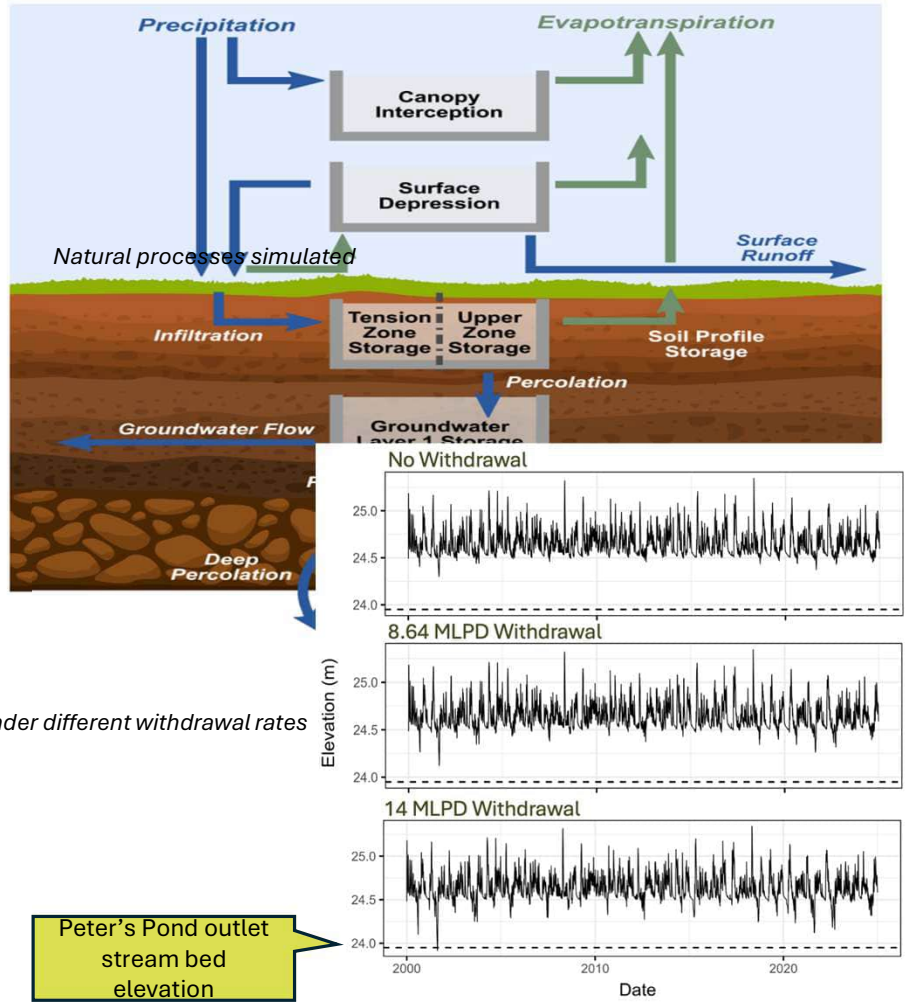


Water Supply - Peter's Pond

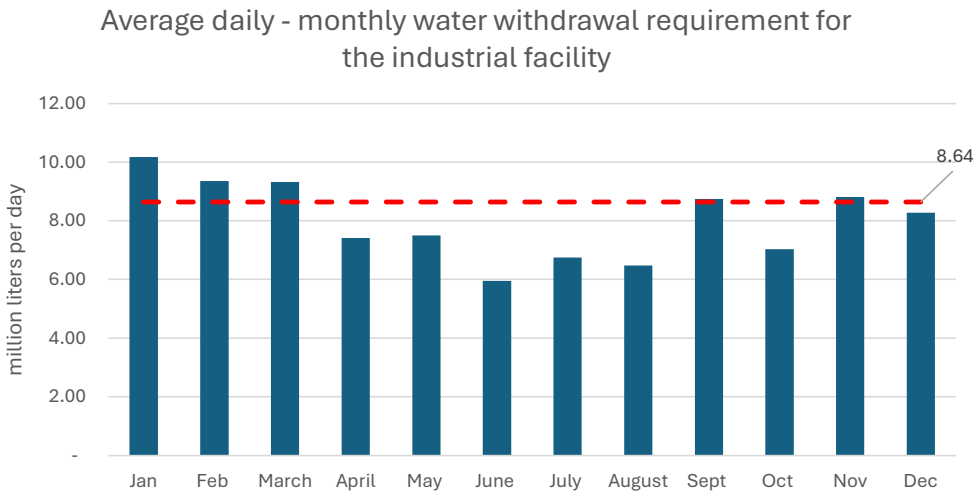
- A detailed hydrological assessment (Hydrologic Modelling System – HMS) was done to ensure that a sustainable equilibrium between inflow-outflow is maintained at Peter's Pond all year round.
- The model simulated the following parameters for the period 2000-2024:
  - Hydrometric data collected through continuous flow measurements downstream of Peter's Pond.
  - Model performance showed very good correlation with observed data.
  - Climate: shortwave, longwave radiation, windspeed, relative humidity, dew point, temperature were utilized.
  - Soil characteristics were considered
  - Topography (high-resolution digital elevation model) and land cover (provincial land use data)
  - Bathymetry of Peter's Pond was utilized.



Modelled results under different withdrawal rates

Water Supply – Impact & Mitigation

- EVREC will require freshwater to produce hydrogen and ammonia.
- The most suitable freshwater source has been identified at Peter's Pond, the former freshwater supply source for the Town of Botwood, located 5 km away from the industrial facility.
- The volume required has been calculated to be c. 8 million liters/day (annual average).
- Based detailed hydrological modelling finalized in September 2025, the maximum daily volume that can be withdrawn sustainably from Peter's Pond is 8.6 million liters per day, to ensure continuous flow downstream.
- It is expected that during the months of Jan, Feb and Mar, and potentially Sep and Nov, due to an excess of water requirement, mitigation measures to be required.



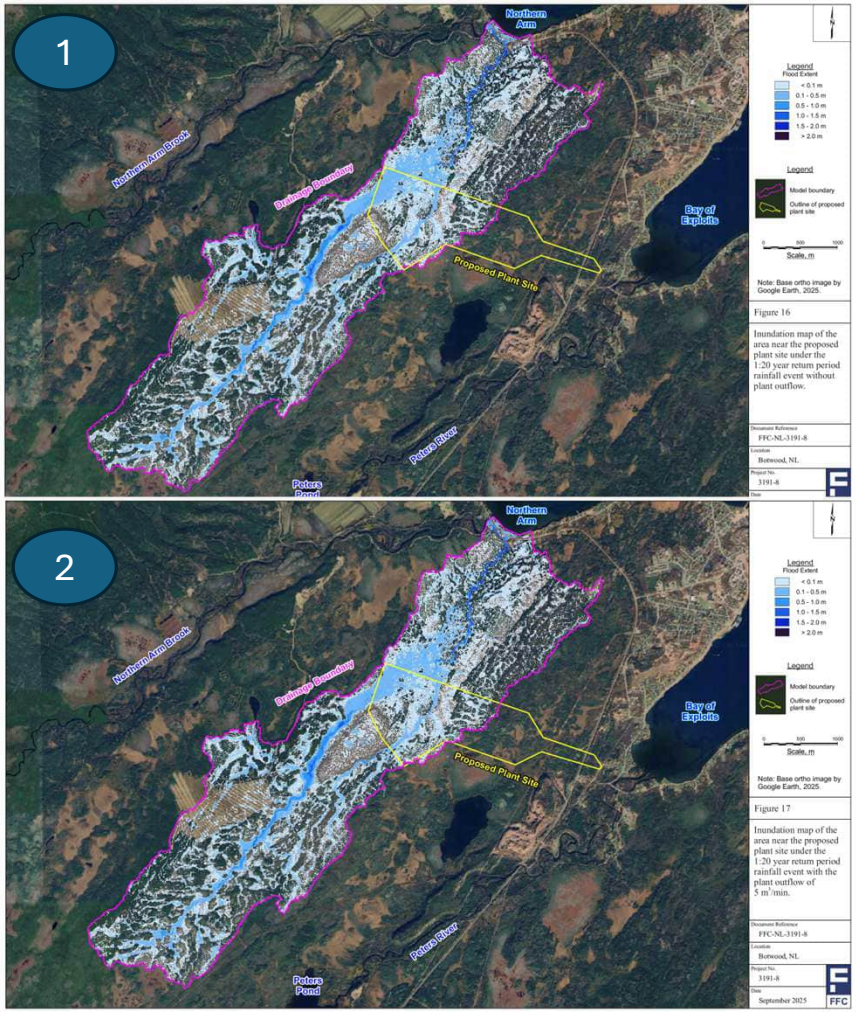
Mitigation measures:

1. To mitigate these low flow periods, the project will return water back to Peters Pond with similar quality to ensure a steady discharge downstream into Peters River.
2. In the unlikely event that 1) is not sufficient to maintain flow downstream, plant curtailment will be implemented.

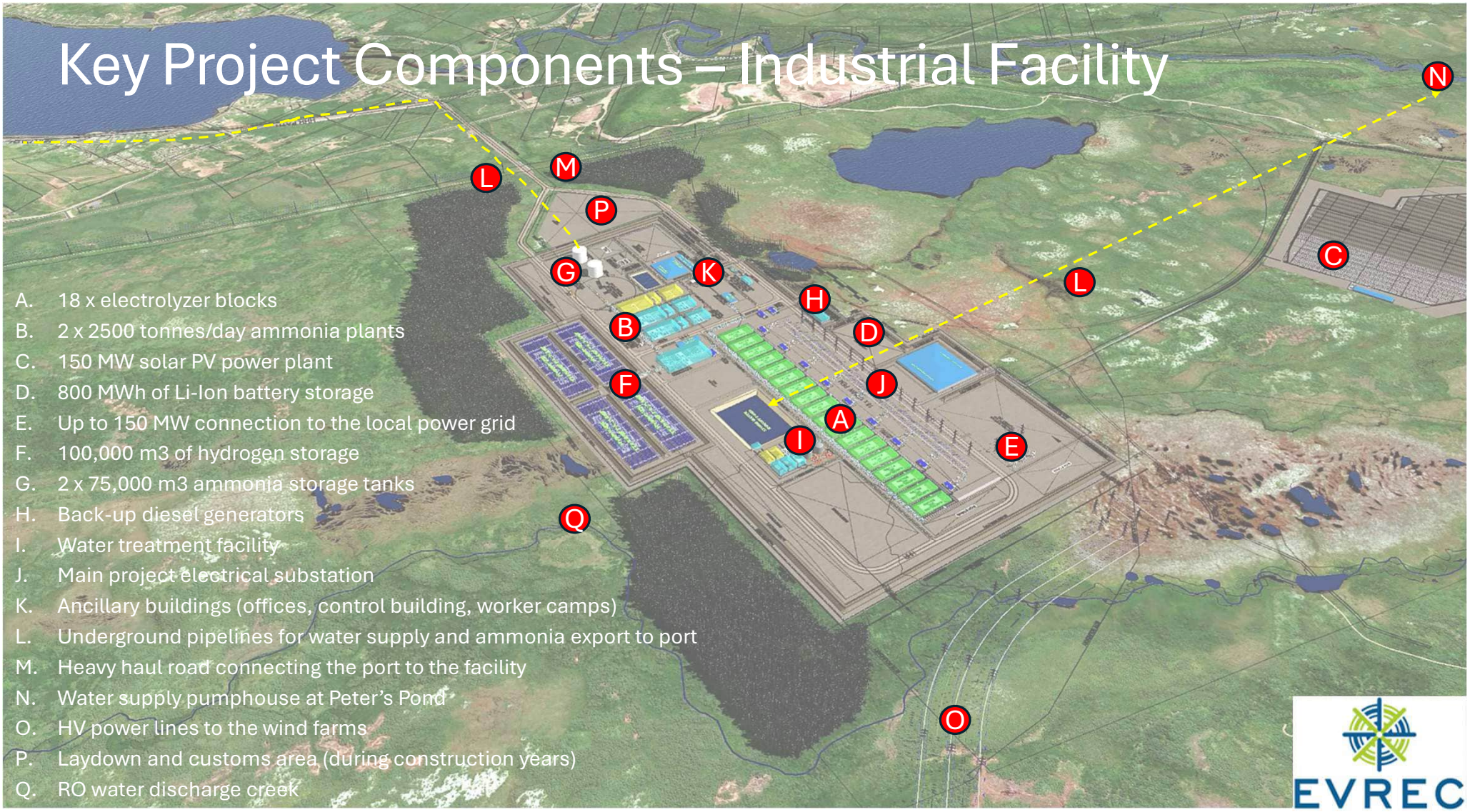
1. Naturally occurring fluctuations in mineral concentration (from icing & de-icing, evaporation, precipitation) are in the order of 10%.
2. The proposed strategy and mitigation measures will require DFO approval.

Water Discharge – 20 year/100 Year Rainfall Event

- A flood assessment for the discharge creek was carried out, taking into account:
  - A maximum flow rate of 5 m^3/min from the RO plant.
  - Bedrock & surficial geology along the creek.
  - The water drainage basin of the creek based on high-resolution Lidar survey.
  - Climatic data (hourly rainfall for a one in 20 and for a one in 100-year rainfall event)
  - Land cover & soil map
  - Soil permeability (curve number method)
- The results indicate that there will be no impact from the industrial facility water discharge in any modelled scenario. **Figure 1:** no industrial facility outflow, **Figure 2:** with 5 m^3/min plant outflow.
- Discharge and rainwater will be treated (if required) and released to a natural creek and to Peters River.
- This returned water is expected to be within the same quality standards of the natural waterbodies (no chemicals added and no environmental impacts are expected).
- This approach will keep water flow through Peters River throughout the year and Peters Pond levels within historical ranges.



Key Project Components – Industrial Facility



A. 18 x electrolyzer blocks
B. 2 x 2500 tonnes/day ammonia plants
C. 150 MW solar PV power plant
D. 800 MWh of Li-Ion battery storage
E. Up to 150 MW connection to the local power grid
F. 100,000 m3 of hydrogen storage
G. 2 x 75,000 m3 ammonia storage tanks
H. Back-up diesel generators
I. Water treatment facility
J. Main project electrical substation
K. Ancillary buildings (offices, control building, worker camps)
L. Underground pipelines for water supply and ammonia export to port
M. Heavy haul road connecting the port to the facility
N. Water supply pumphouse at Peter's Pond
O. HV power lines to the wind farms
P. Laydown and customs area (during construction years)
Q. RO water discharge creek

EVREC

Avifauna

- Avifauna and bat surveys completed; aligned with provincial and federal government guidelines:

Impact assessment:

- Overall impact to bird populations and behaviours is expected to be low.
- Low impact on bat mortality throughout the operational lifetime of the project:
  - Resident species fly at lower elevations and have shorter migration routes
  - Climatic setting: Bat activity peaks on warm, low-wind nights in late summer–early fall, when turbines operate at slowest speeds (highest impact risk)
  - White Noise Syndrome-depressed area: 75-90% decline of bat population in Atlantic Canada due to WHS has led to overall reduced encounters.

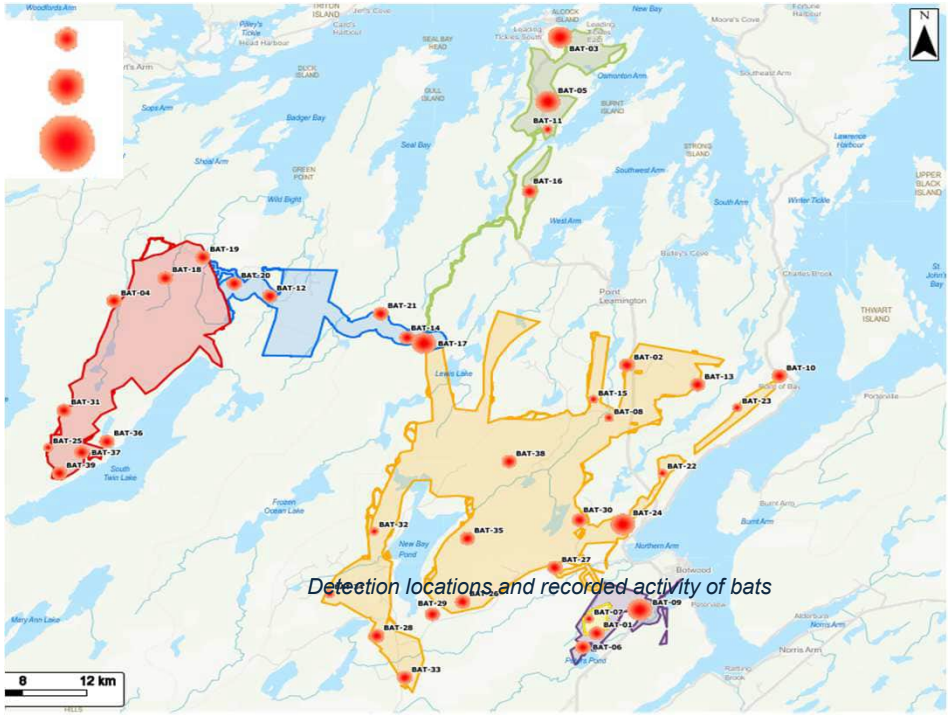
Mitigation measures:

- Restrict vegetation clearing during sensitive windows (eg. nesting and active seasons)
- Develop an avifauna and bat management plan
- Lighting and noise controls
- Deterrent systems

Avian Radar system used in the survey

Bats

Low Level of Detected Bat Activity
(Call Count ≤10)
Medium Level of Detected Bat Activity
(Call Count >10 and <100)
High Level of Detected Bat Activity
(Call Count >100)



Detection locations and recorded activity of bats

Survey methodology:

- 43 acoustic detectors were deployed between April-Oct 2024/2025
- Placement based on North America Bat Monitoring Program guidance.

Key findings:

- Botwood wind farm contained higher foraging and roosting habitat, but Leading Tickles had higher hibernation habitat.
- Peak activity noted in July and Sept, with 1,668 bat passes in 2024.
- Average 48 bat passes/detector with highest average bat passes in Leading Tickles. This is significantly lower compared to other projects in Atlantic Canada which are operational.
- 99% of recordings were resident myotis species (non-migratory).

Impact assessment:

- EVREC is expected to have a low impact on bat mortality throughout the operational lifetime of the project:
  - Resident species fly at lower elevations and have shorter migration routes
  - Regional study: low mortality of myotis species based on 7-project years of data collected from 5 projects in Atlantic Canada out of 65 projects and 1889 turbines across 8 provinces in Canada.
  - Climatic setting: Bat activity peaks on warm, low-wind nights in late summer–early fall, when turbines operate at slowest speeds (highest impact risk)
  - White Noise Syndrome-depressed area: 75-90% decline of bat population in Atlantic Canada due to WHS has led to overall reduced encounters.

Mitigation measures & bat impact mitigation plan:

- Layout and setbacks from waterbodies and wetlands, and use of existing roads as much as possible
- Continued pre-construction monitoring
- Restrict vegetation clearing outside of the active bat season where possible (May 1 – Oct 31)
- Lighting design & noise controls
- Bat deterrent systems
- Post-construction monitoring & post mitigation monitoring

Fish & Fish Habitat

Survey methodology:

- Fish collection (electrofishing, trapping): 44 sites in the wind farms and 4 sites in the industrial facility. No suitable habitat for fish collection in the solar PV farm.
- Habitat assessment (watercourse crossings and detailed assessment): 44 sites in the wind farms and 6 sites in the industrial facility.
- All 5 scheduled salmon rivers sampled.
- Percentage of fish collection and habitat assessment surveys completed per DFO guidance.

Key findings:

- Brook Trout (53% of species observed - wind farms)
- Atlantic Salmon (40% of species observed-wind farms)
- Eel (*Vulnerable in NL, Threatened in Canada*): 7% of species observed (wind farms), 4% of species observed (industrial facility)
- Threespine Stickleback (only in industrial facility-89% of species observed)

Impact assessment:

- Habitat loss through watercourse alterations will require a Fisheries Act Authorization.
- Effects analysis of the discharge creek and recirculation to Peters River is ongoing.

Fish Habitat Assessment

Atlantic salmon parr

Mitigation measures:

- Micro-site key infrastructure to minimize impacts pre-construction.
- Design crossings to avoid permanent diversion of natural flow.
- Water quality monitoring to ensure discharge is within permitted CCME guidelines (Surface Water Monitoring Plan).
- Develop an Erosion and Sediment Control Plan.
- Obtain permits as required (permit to alter waterbody, water use licence, Fisheries Act Authorization).
- Follow DFO screen requirements on water intakes and outlets.

Flora

Survey methodology:

- An Ecological Land classification (ELC) was created using provincial datasets, Lidar and aerial imagery.
- The ELC was used to generate specific habitat types (old growth forests, wetlands, etc.) used for targeted species habitat models and survey planning (ex. red pine).
- Lichen surveys were also conducted in 2025.
- Rare plant and lichen studies were conducted throughout the entire project area (wind, solar and industrial plant). Efforts were concentrated in areas predicted by modelling unique habitats such as wetlands and old growth forests:
    - Highest concentration of old growth forests were found in the Leading Tickles, while wetlands are abundant throughout the project area.
    - 6,675 ha of old growth forests expected to be impacted by the wind farms.
    - 256.3 ha of wetlands expected to be affected by the wind farms, 580.3 ha will be in the industrial facility and 77 ha in the solar farm.

Key findings:

- Red pine *(Threatened in NL)*
- Blue felt lichen *(Special Concern in NL and Canada)*
- No old growth stands identified in solar farm or industrial facility

Impact assessment:

Effects analysis on flora is ongoing.

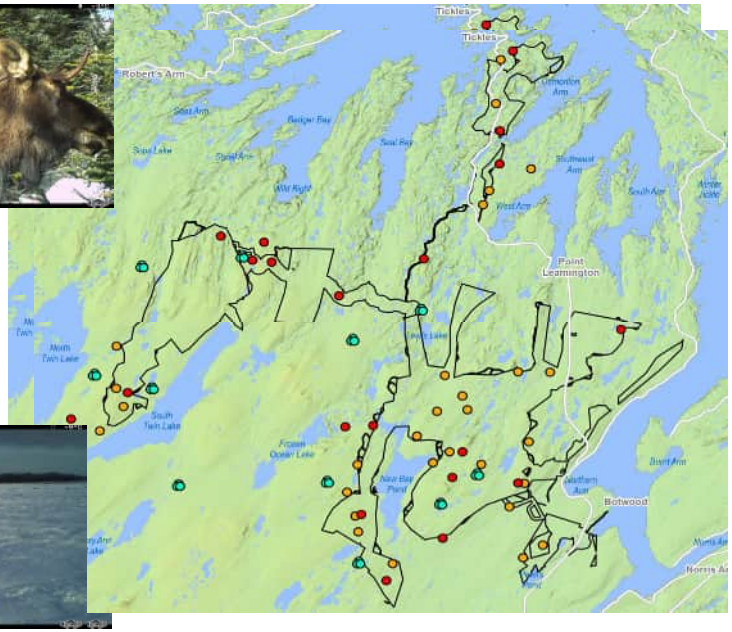
Shinleaf (*Pyrola elliptica*)

Red pine

Mitigation measures:

- Avoid species at risk during the design phase (ex. Buffer roads outside known red pine stands)
- Utilize existing roads to the extent possible
- Limit vegetation clearing to the extent possible, especially old-growth areas, and reclaim temporary cleared lands as soon as possible
- Implement a vegetation plan, including control during operational phase and revegetation during decommissioning

Fauna



Survey methodology:

- Year-round trail camera deployment (2024-2025).
- Year-round grid camera program for large mammal activity (2025), in consultation with the provincial government.
- American marten hair snag surveys (March 2025), using provincial protocol.
- All surveys completed throughout the Project Area.

Key findings:

- Trail cameras observed 552 individuals, with 7 species identified (snowshoe hare, red squirrel, coyote, lynx, red fox, black bear, caribou).
- Mammal cameras analysis ongoing.
- No marten species identified.

Impact assessment:

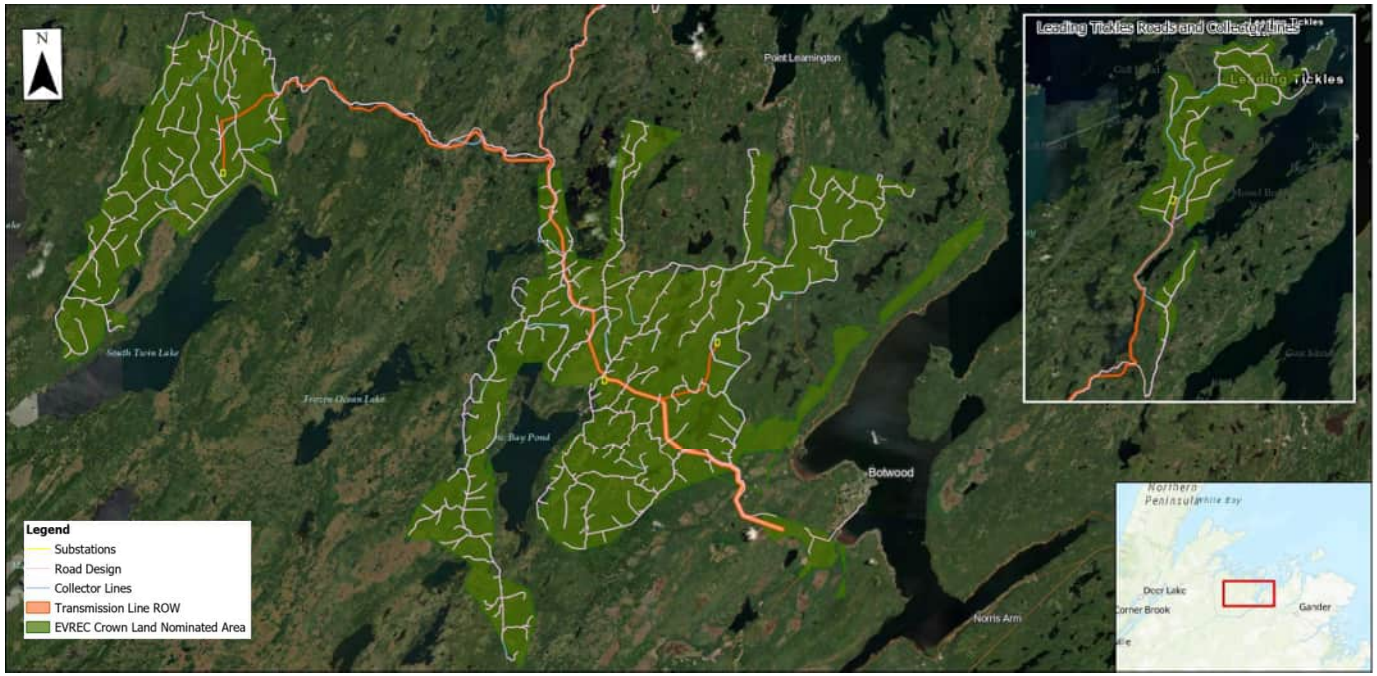
- Effects to fauna are expected to be of low-moderate magnitude, with appropriate mitigation and monitoring. While habitat loss will occur, temporary behavioural changes may occur intermittently and individual mortality is expected to be low. Analysis is ongoing.

Mitigation measures:

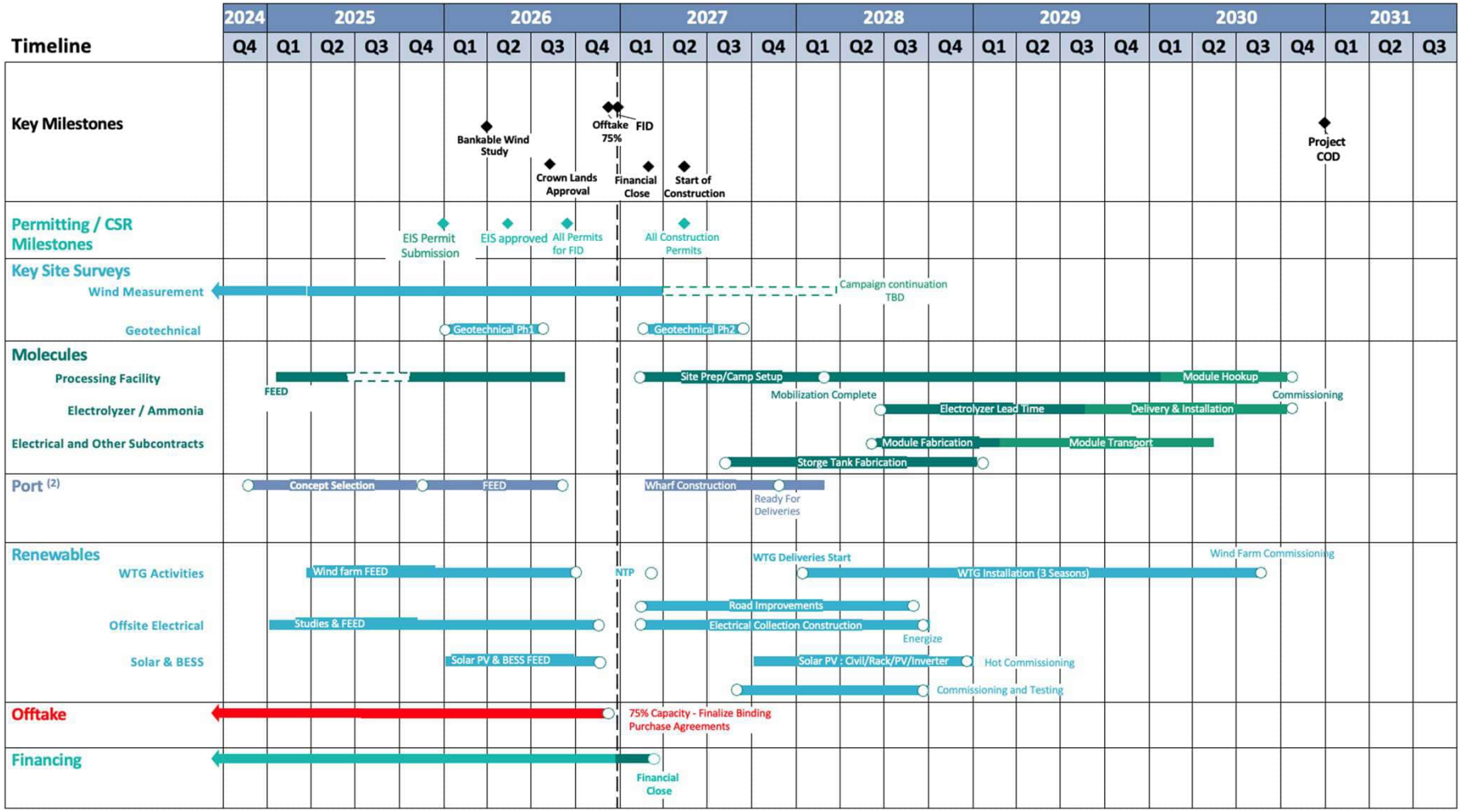
- Implement speed limits to reduce potential collisions.
- Implement noise controls (ex. mufflers) during construction and operation.
- Limit project lighting where feasible (ex. motion activated).
- Minimize vegetation clearing of wildlife habitat by using existing roads, maintaining buffers around wetlands and waterbodies, and avoid sensitive wildlife periods (ex. Calving/post-calving) where possible.
- Develop wildlife management plan.

Wind Energy Park – Electrical Infrastructure

- Electrical- Collection System:
  - Overhead 33 kV/69kV power lines connecting turbines to collector substations.
  - 2 x collector substations in Twin Lakes, 2 x in Botwood, 1 x in Leading Tickles.
  - Collection Lines (MV) ROW: 466 km.
- Electrical – Gathering System:
  - Overhead 230 kV power lines connecting the collector substations to the main project substation at the industrial facility.
  - Gathering System (HV): 77 km.
- Electrical lines will follow the road network as much as possible.



Current Anticipated Schedule



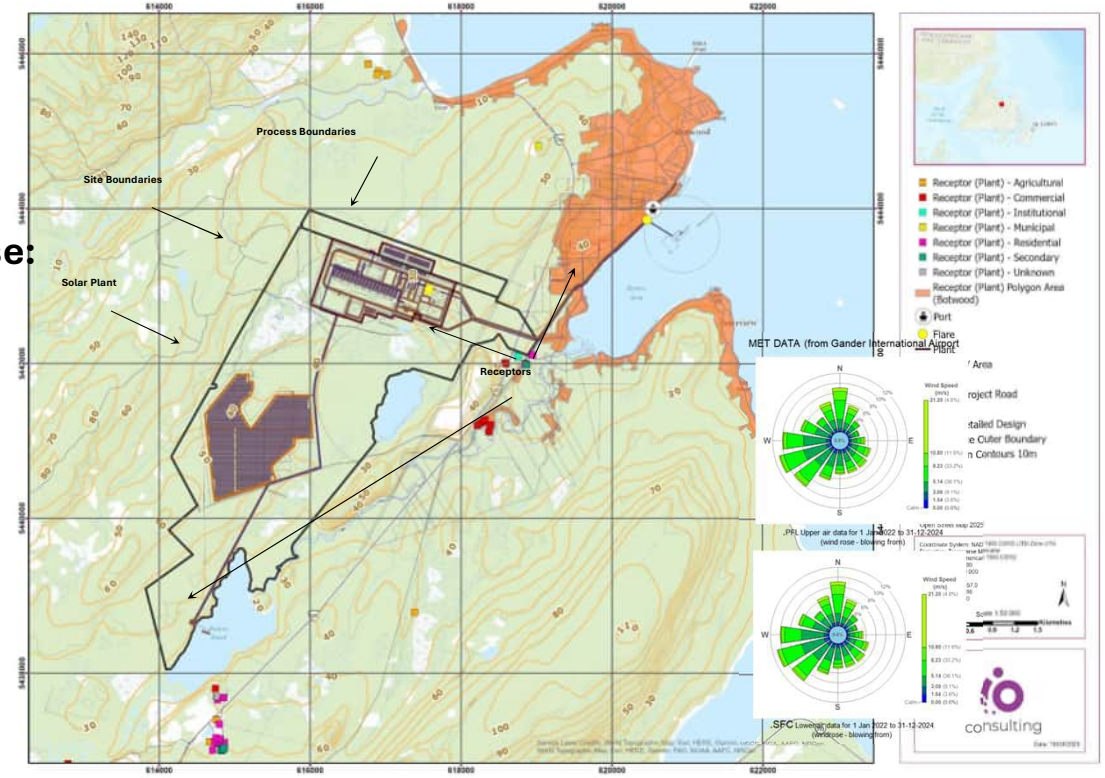
Air Emissions

Emissions modelled:

1. NOx, SOx, CO, PM10, PM2.5
2. Relevant averaging periods: 1hr, 24hrs, 8hrs, 1yr

Model Setup & Equipment Modelled By Case:

- Normal Operation: No Exceedances
  1. Flares
  2. Flash gas purge
- Commissioning Run: No Exceedances
  1. Flares
  2. Diesel generators
- Abnormal operation: No Exceedances
  1. Flares
  2. Diesel generators



1. *The modelling tool used was AERMOD Version 13.1. AERMOD is the state-of-the-science, steady-state Gaussian air dispersion model that is EPA-approved for most refined modeling scenarios also recognized as a suitable tool by the Canadian Regulators*
2. *Model used pre-processed hourly sequential meteorological data (for 3 years minimum), from Gander Airport as it was considered the most complete data set and the most representative to the project site.*
3. *Point source inputs – based on io calculated Emissions Inventory (originally based on AP-42 Factors and later adjusted to accommodate Tier 4 Gen Sets to meet CFR 40. std. part 1039.102 Table 7 requirements, utilizing ULSD).*
4. *Results benchmarked against regulatory limits (NL and Canada)*

FEBRUARY 25, 2026 OPEN HOUSE

Project Will Provide Significant Economic Benefits

Jupia Consultants prepared an Economic Impact Assessment for the Project, which identified many economic benefits from in-province activity

- Boosts **provincial GDP** by **$9.3 billion over the 30+ year project life** (in $2025), excluding the GDP impacts arising from spending the tax/royalty revenue
- Contributes **$5.6 billion employment income**
- Supports **18,200 person years of employment** during the four years of **construction** and over **40,000 person years over the 30+ year operating period**;
- Boosts **annual household spending** in NL by over **$4.0 billion**
- **Municipal governments** in the province can expect **$190 million in tax revenue** over the construction and operation phases
- The **provincial government** will receive an estimated **$8 billion**
- The **federal government** another **$2.0 billion** (just from the NL activity)

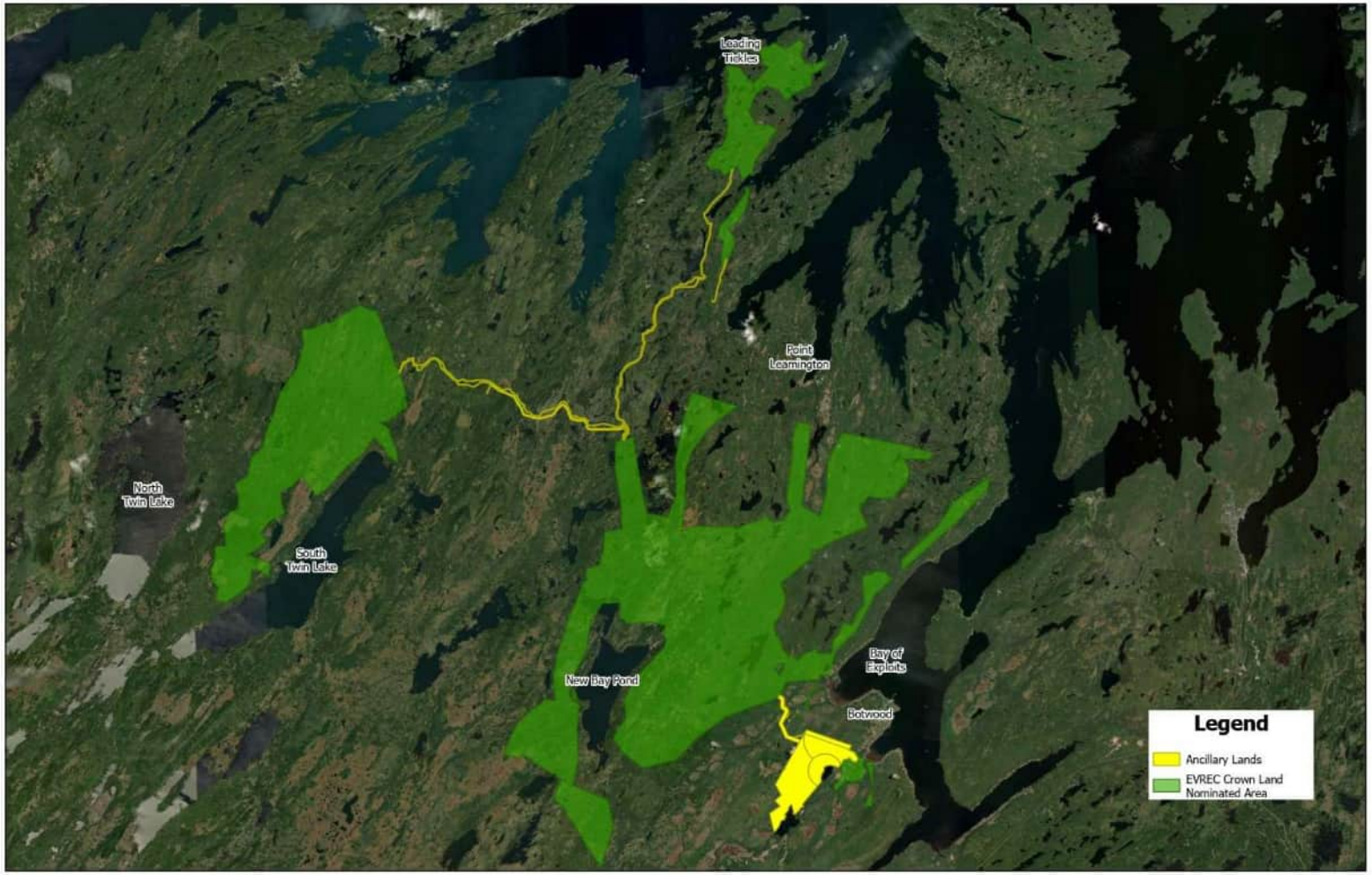
Jupia CONSULTANTS INC.

https://evrec.ca/wp-content/uploads/2025/12/EVREC-Social-Economic-Impact-Study.pdf

WELCOME TO THE BOTWOOD OPEN HOUSE

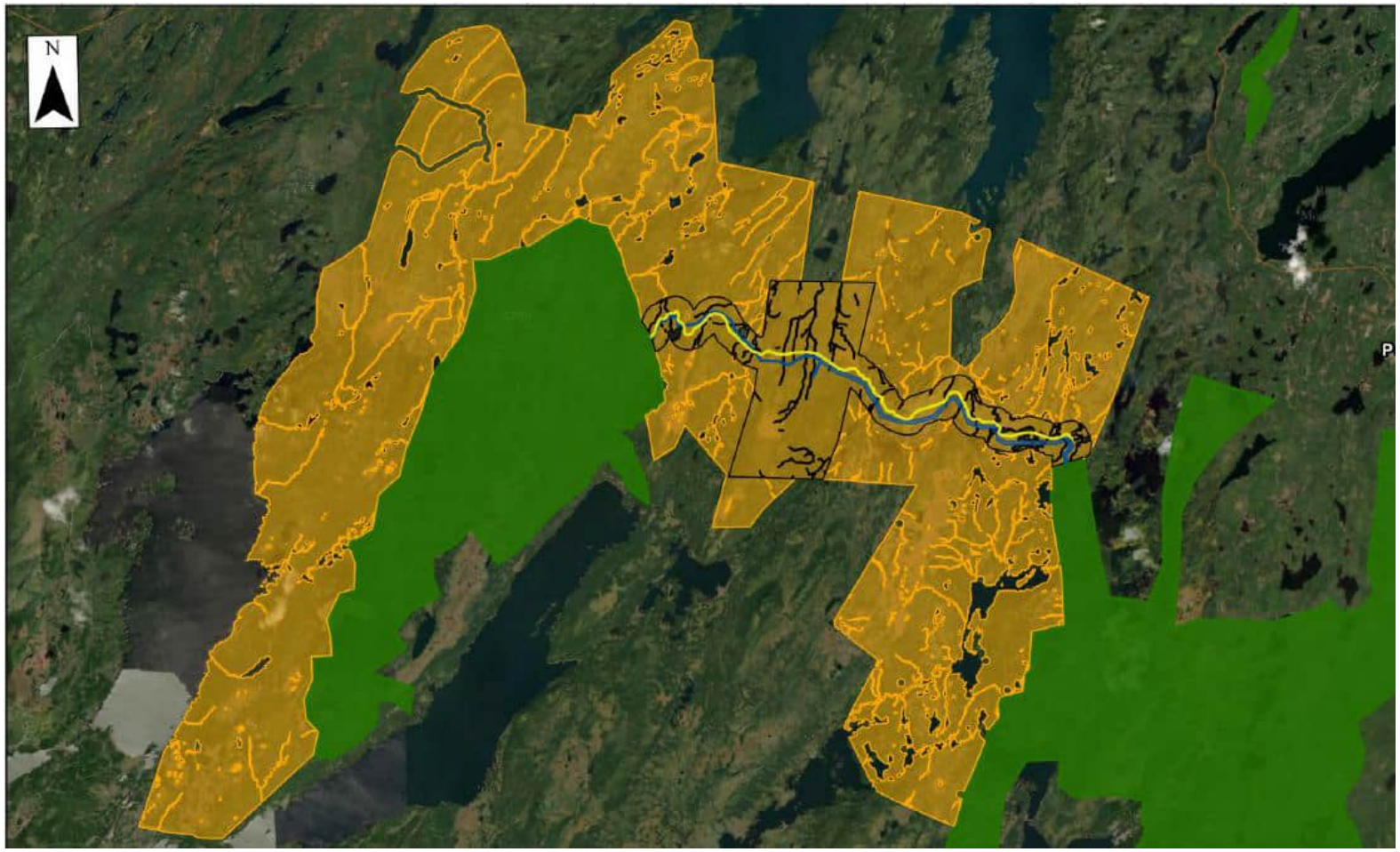
Project Lands – Initial Awarded Lands

- Approximately 30,000 hectares of land awarded to EVREC through the Crownlands Process;
- Additional auxiliary lands have been requested as per the Crownlands Guidelines to support auxiliary infrastructure (electrical lines, roads, solar PV park)
- Capability of installing up to 530 turbines.



Project Lands – Requested Additional Lands

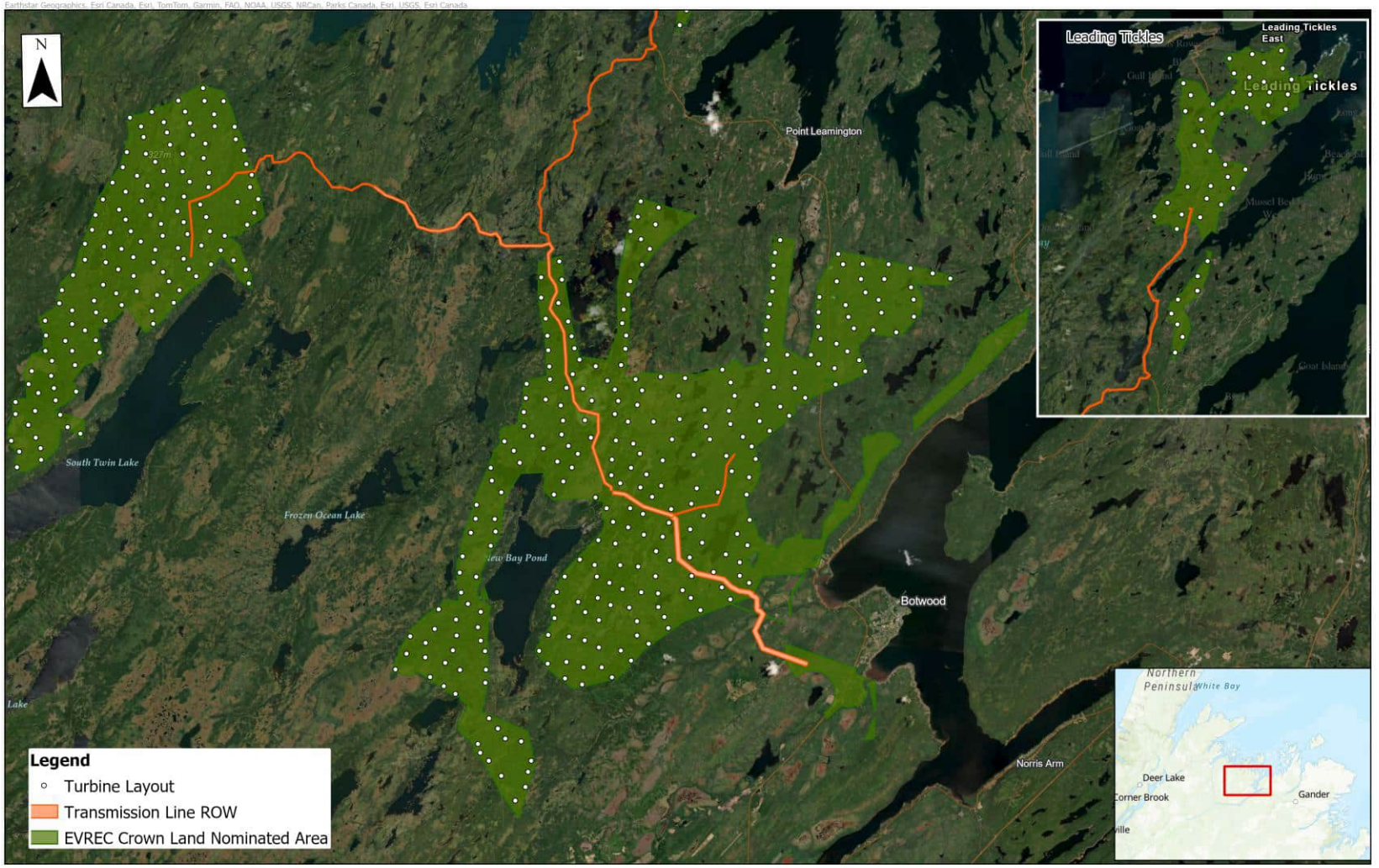
- Approximately 30,000 hectares of additional Crown land requested from the province;
- Additional auxiliary lands have been requested as per the Crown Lands Guidelines to support auxiliary infrastructure (electrical lines, roads, solar park)
- Land request is to mitigate environmental and social impacts that have been identified through consultation
- Results in the relocation of approximately 100 Wind turbine generators from the original layout.



Wind Project Layout

Layout Parameters:

- Minimum separation and setback 550m.
- Setback distance from reservice boundary is Blade length + 10m.
- Noise – 45 dB from receptors.
- Shadow flicker – 30 hrs/yr or 30 min/day at receptors.
- Setback distance from publicly managed roads is 1.5x blade tip height OR 330m whichever is greatest.
- Setback distance from water bodies is Blade length + 15m from water bodies and streams (CanVec).
- Maximize the use of the former logging roads and anticipate approximately 220km of new roadways.
- Camps / Quarries will be located within the wind energy park to reduce travel and environmental impacts



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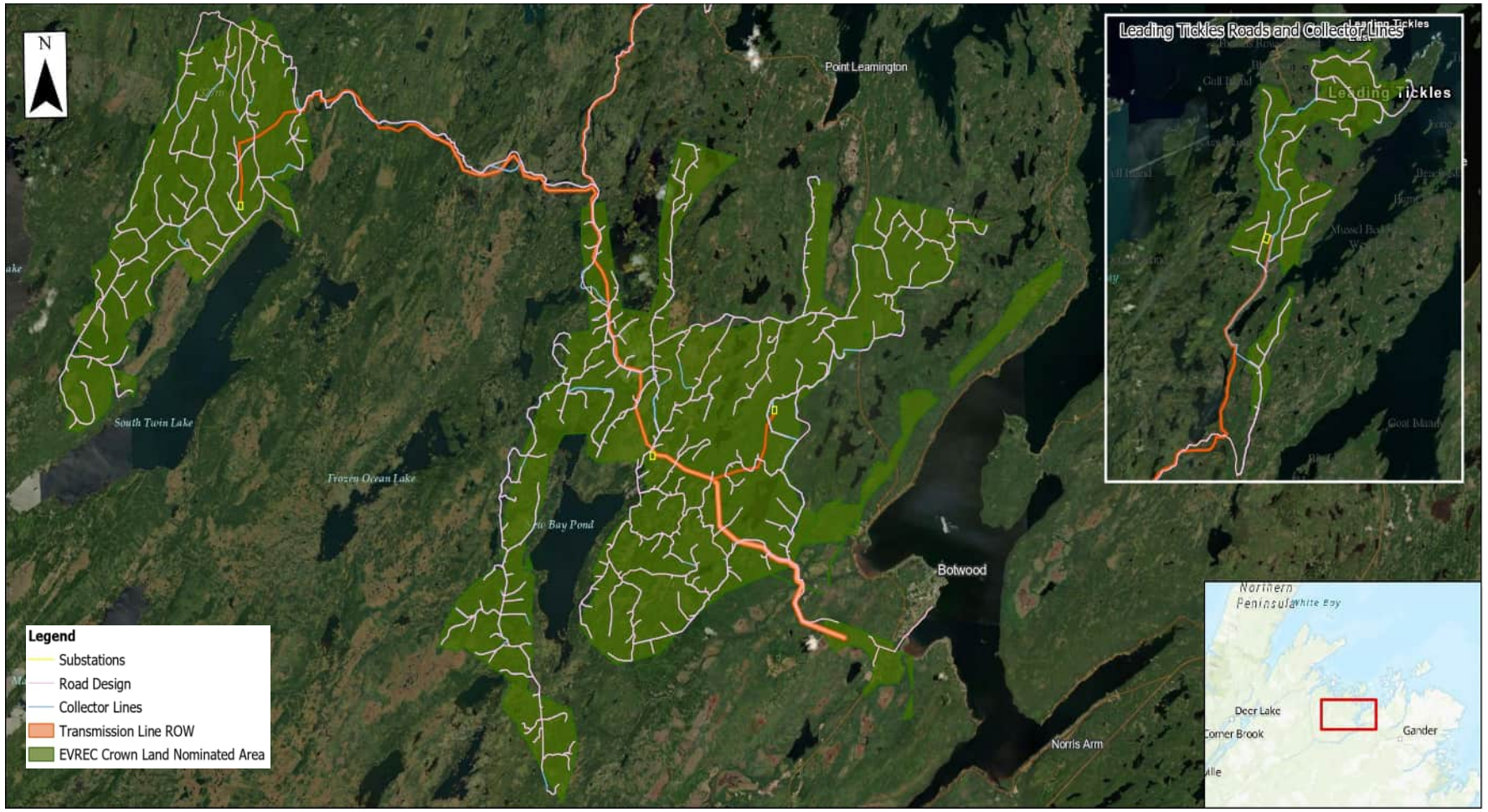

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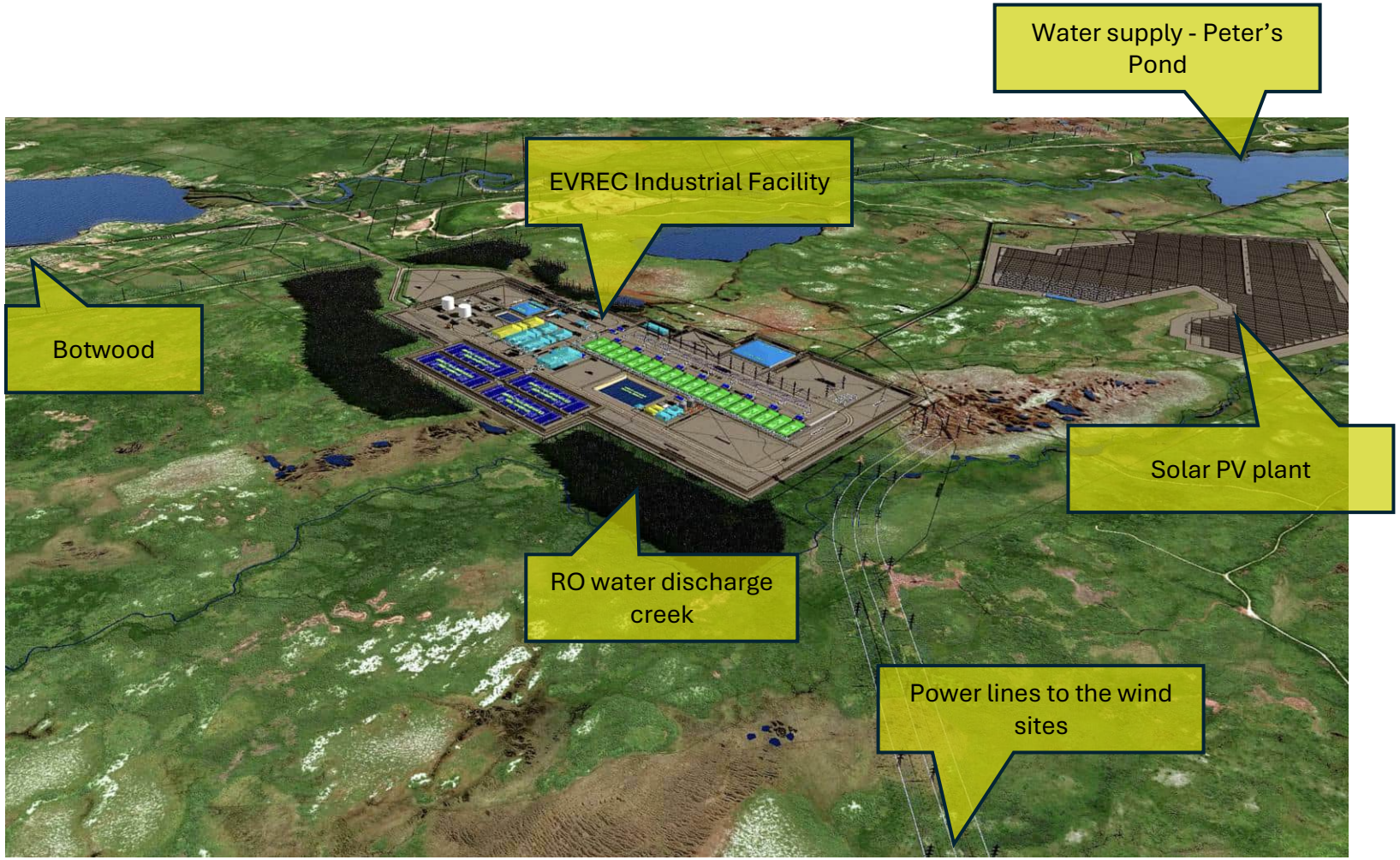
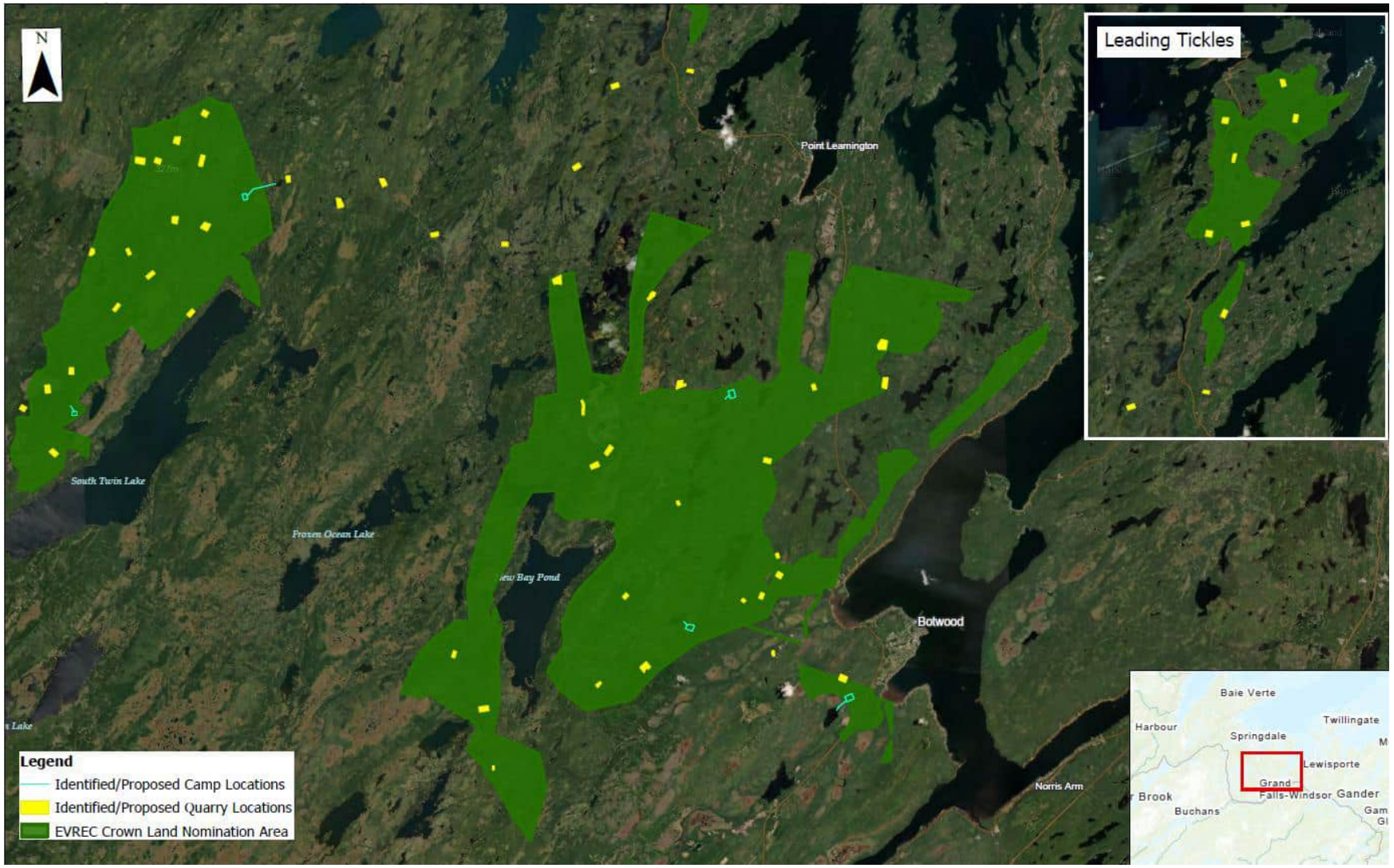


Project Lands – Camps & Quarries

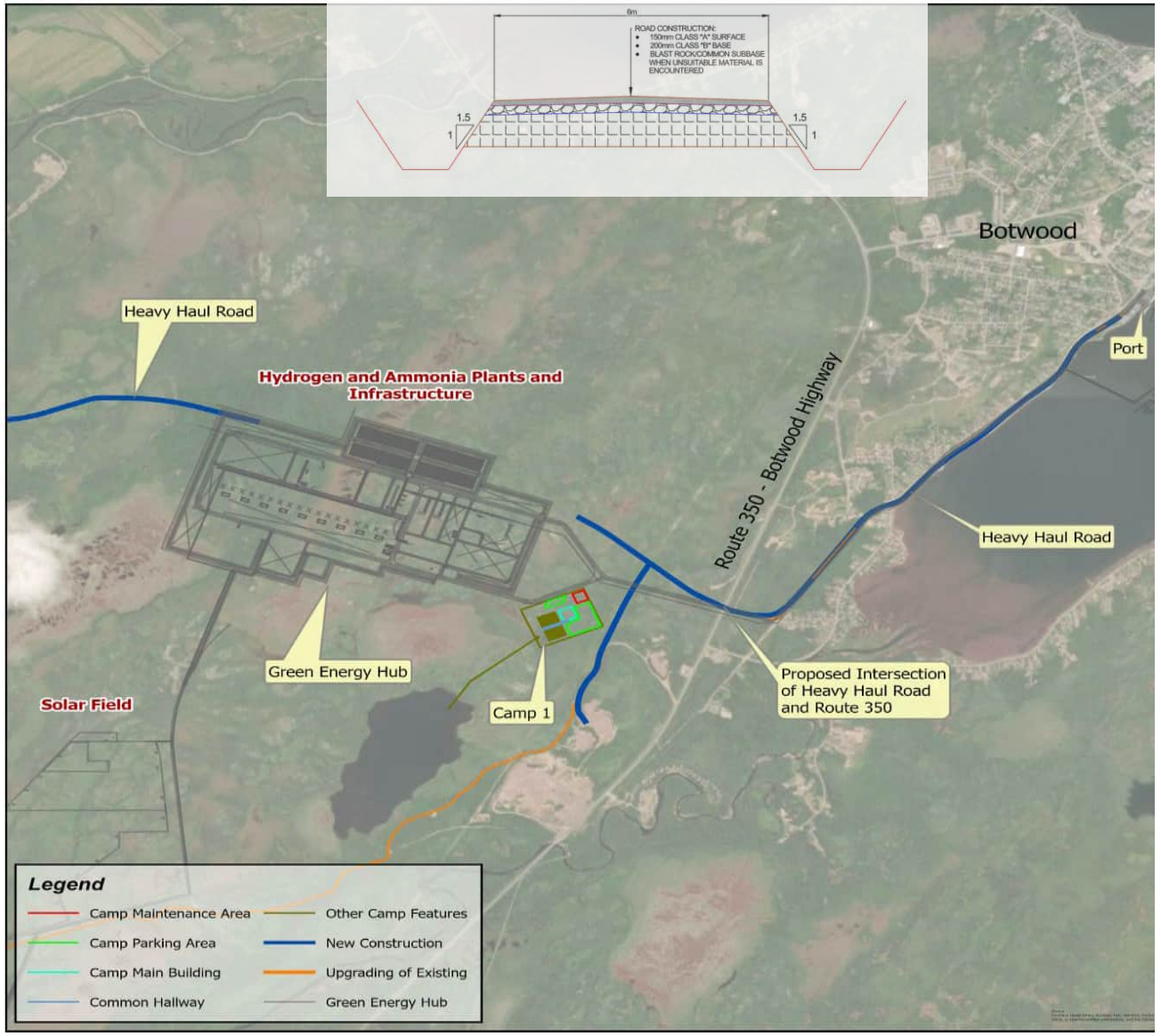
- Number of Camps – 3 to 5
  - Satellite camps within the Wind Project
  - Main camp near industrial facility
  - Size of Camps – 500 person to 2500 person

- Number of Quarries: 54
  - Quarries will be defined through geotech program with the objective of minimizing total number.
  - Approximately 50 potential locations have been currently identified
  - Determined by FEED



Traffic Impact Study

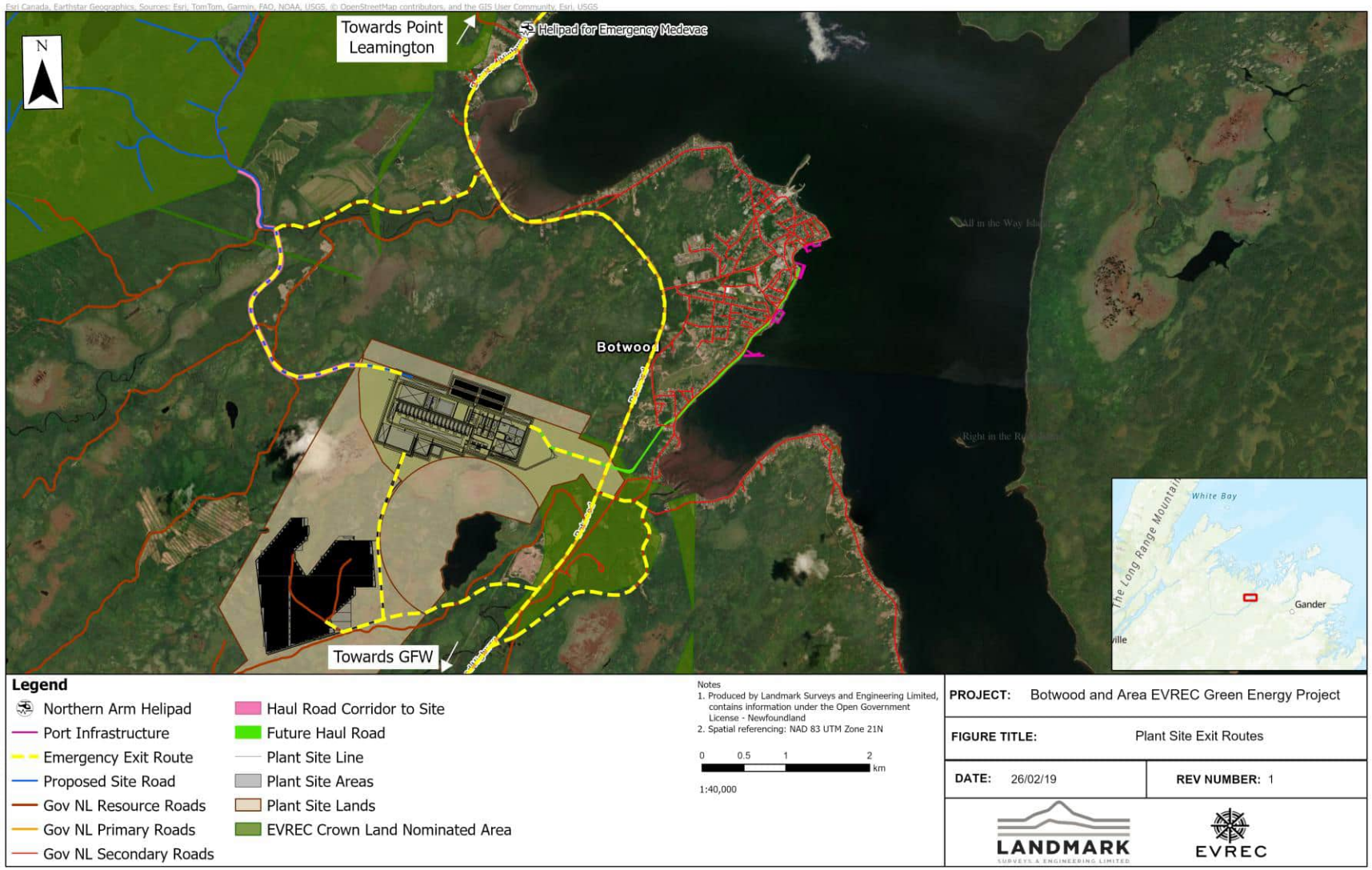
- No impact on daily traffic on Route 350.
- The Heavy Haul Road greatly reduces impacts on local roads,
- Traffic management at heavy haul road and Route 350 crossing will be managed during construction.
- Study recommends lighting the intersection at night and implementing warning signs
- Peak-hour impacts are minimal—oversized loads will be scheduled outside busy times, and flaggers will be used when needed to ensure safe crossings.
- Road durability remains strong and repaving only if required.
- Study concluded that the proposed development access location meets the requirements for sight distance and access spacing.



1. *The study was completed with a Miovision Scout Camera on August 13, 2025. Data collection covered 24 hours of northbound and southbound lanes of the Botwood Highway north of Water Street, near the proposed heavy haul road crossing.*
2. *Further data was collected on existing infrastructure conditions: asphalt surface, shoulders, pavement markings, utilities, signs and ditches.*

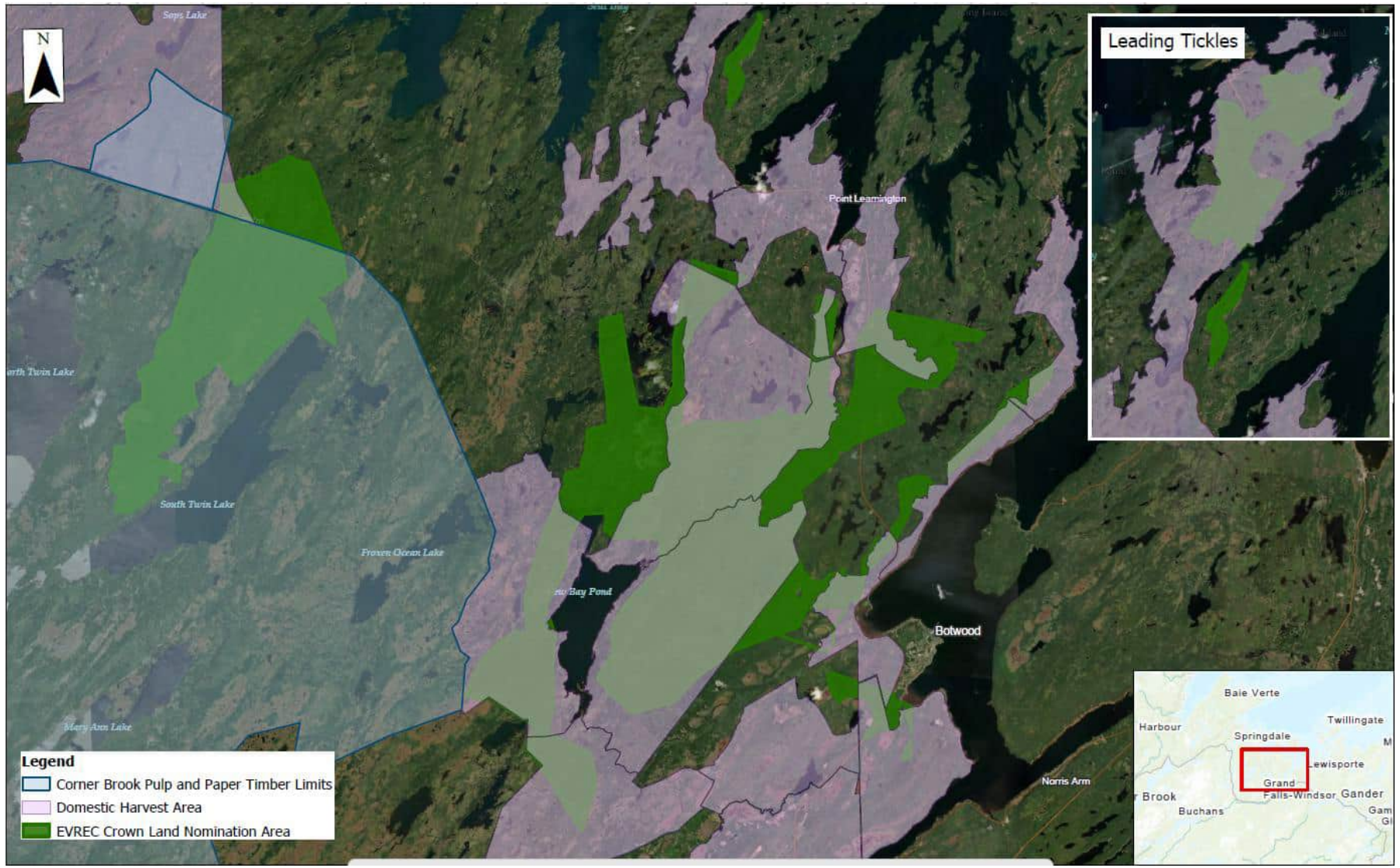
Critical Roads

- Key town/provincial roads have been identified as critical roadways
- Project has also identified project site access points.
- Project will work with the Exploits Valley region to ensure critical routes are available for public access
- Communication system to engage community and regional traffic to ensure proper and safe egress



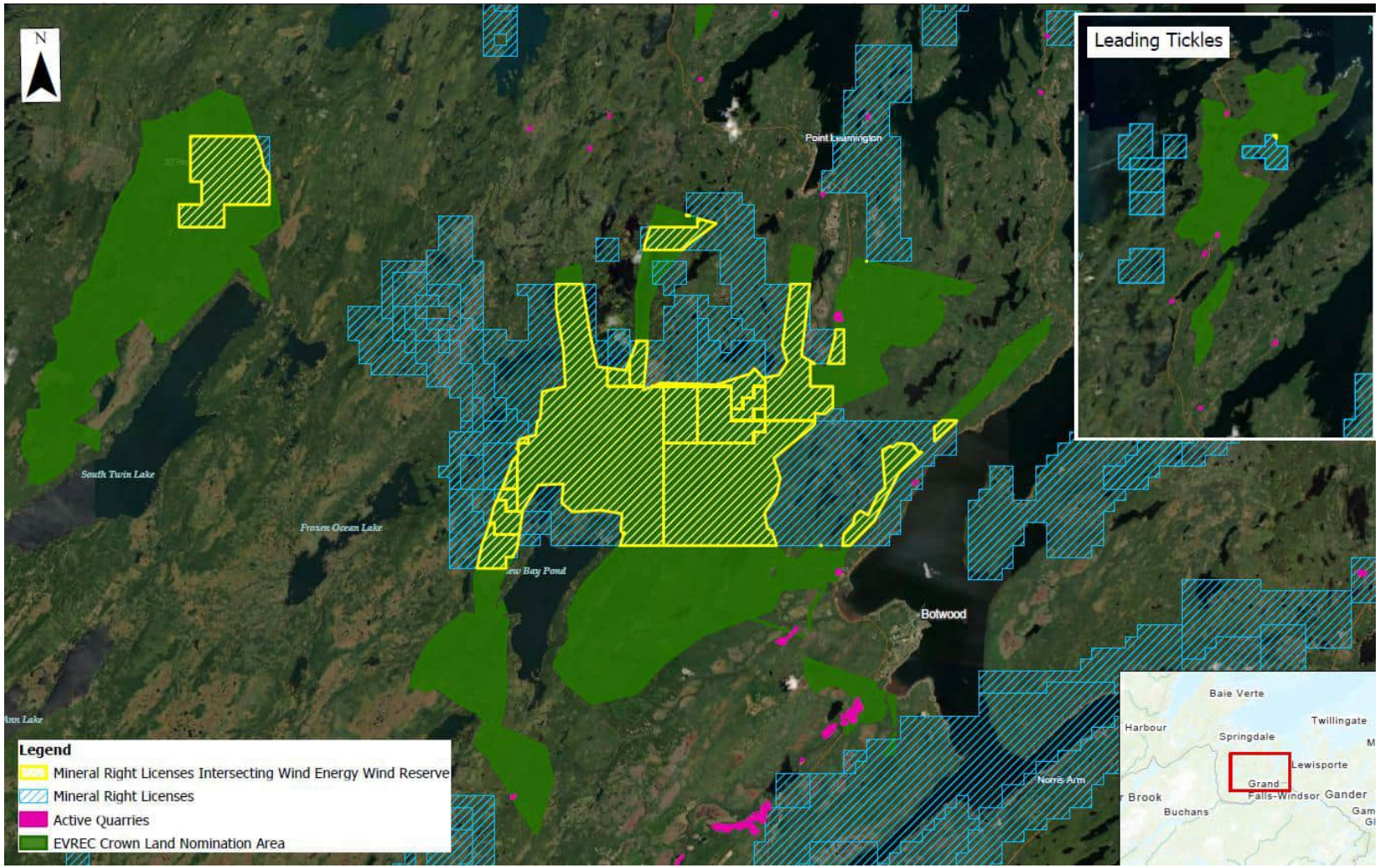
Project Lands – Forestry

Comments about the engagement of the domestic wood cutters and Corner Brook Pulp & Paper



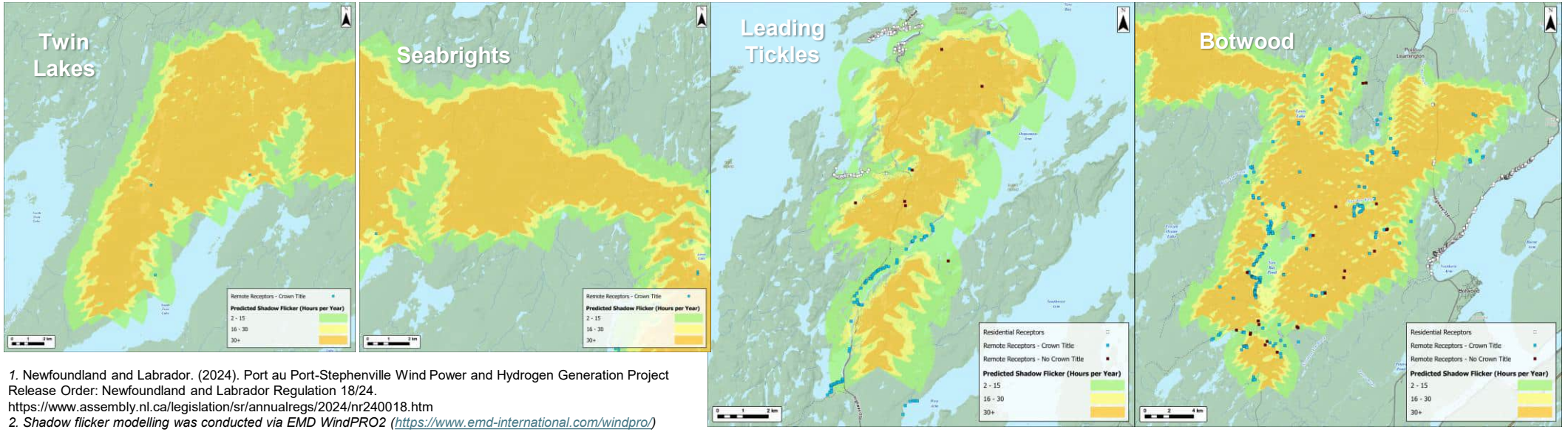
Project Lands – Mineral Rights/Active Quarries

- Project will follow the provincial polices outline by Energy & Mines
- Project has developed an engagement management plan for existing mineral right title holders and quarry operators.



Shadow Flicker Impact Analysis

- Shadow flicker occurs when rotating blades cast flickering shadows, influenced by:
  - The sun, wind, weather, and time of year
  - Turbine dimensions and the relative location of receptors
- Newfoundland and Labrador has set maximum shadow flicker guidelines for other wind projects
  - 30 hrs/yr, or 30 mins/day on the worst day of the year[1].
- Shadow flicker was modelled using conservative assumptions about receptors and the environment[2]. Of 879 receptors modelled:
  - 430 receptors experience no flicker, and 365 receptors are under the guideline limits
  - 4 residential and 66 remote (with Crown title) receptors exceed guidelines
  - Additional mitigation measures will be applied to ensure compliance. These include detailed modelling at specific receptors, and possibly periodically shutting down individual turbines



1. Newfoundland and Labrador. (2024). Port au Port-Stephenville Wind Power and Hydrogen Generation Project Release Order: Newfoundland and Labrador Regulation 18/24. https://www.assembly.nl.ca/legislation/sr/annualregs/2024/nr240018.htm

2. Shadow flicker modelling was conducted via EMD WindPRO2 (https://www.emd-international.com/windpro/)

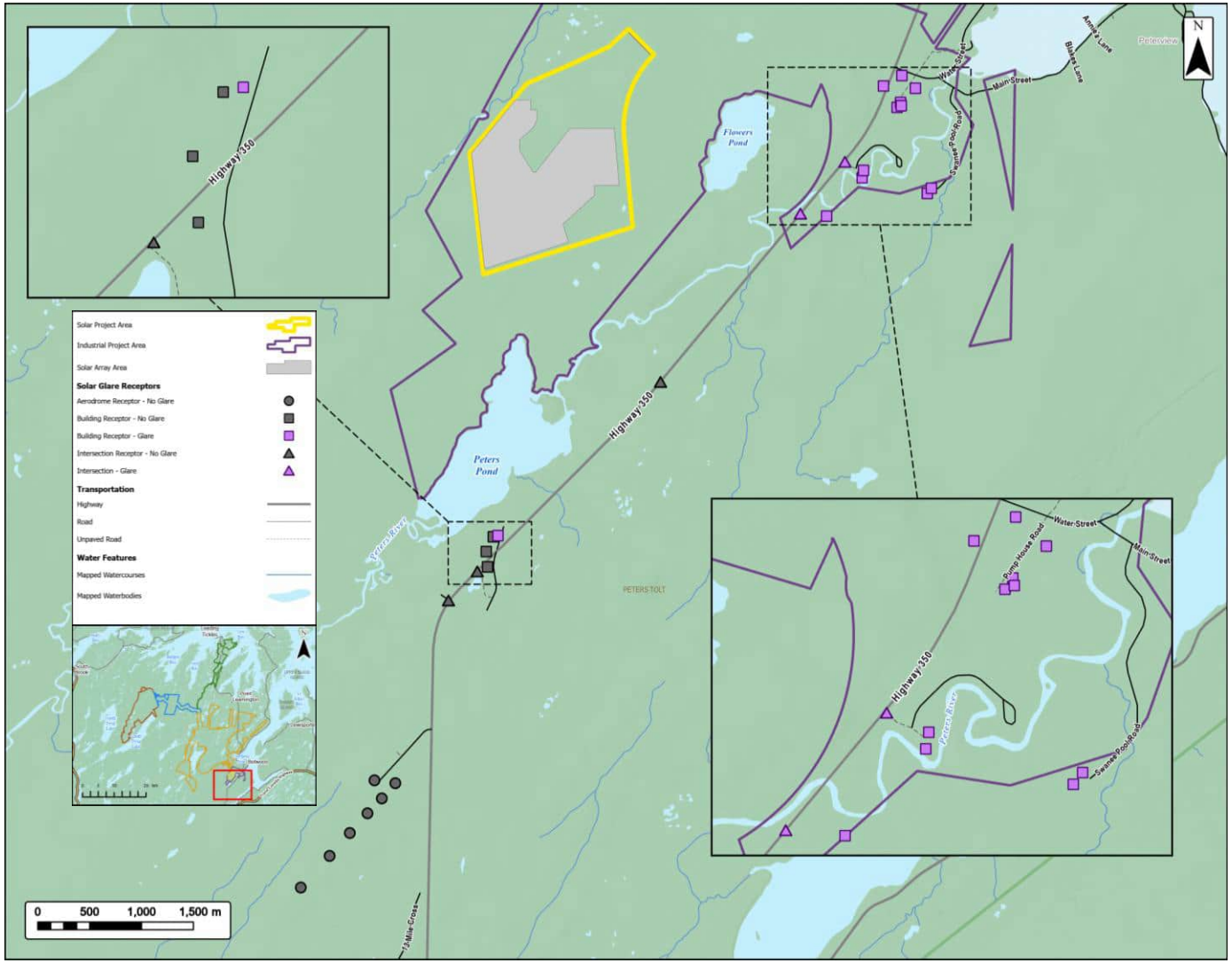
Solar Glare Impact Analysis

Background

- Solar glint and glare are reflections off a surface are influenced by:
  - The sun, wind, weather, and time of year
  - Alignment of the sun, reflective surface, and receptor
- There are no regulations in Canada limiting solar glare exposure
  - Alberta Utilities Commission (AUC) standard used instead, requiring assessment of receptors within 800 m and aerodromes within 4,000 m

Results and Effects

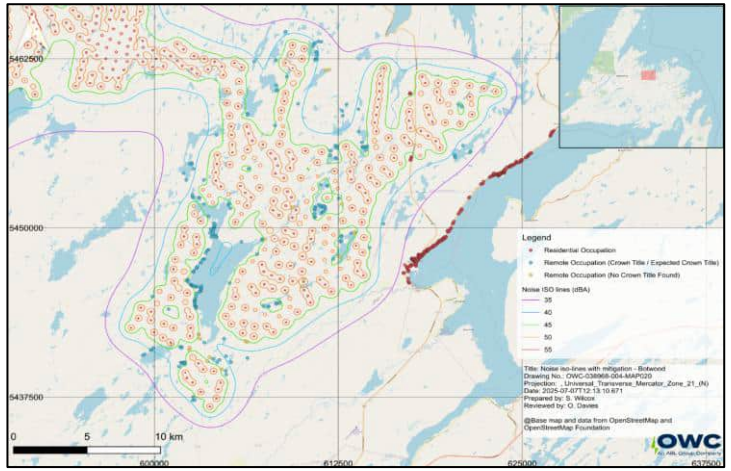
- No receptors were within 800 m or aerodromes within 4,000 m of Solar Project
- Assessment looked for receptors at 3,000 m and aerodromes at 5,000 m, and examined:
  - 15 residences, 5 highway intersections, 1 aerodrome
- 11 receptors and 2 intersections will receive glare form the project
  - Glare will be low intensity and only at certain times of the year
- No mitigation is required, issues of irritating glare may be addressed through a Complaint Resolution Plan

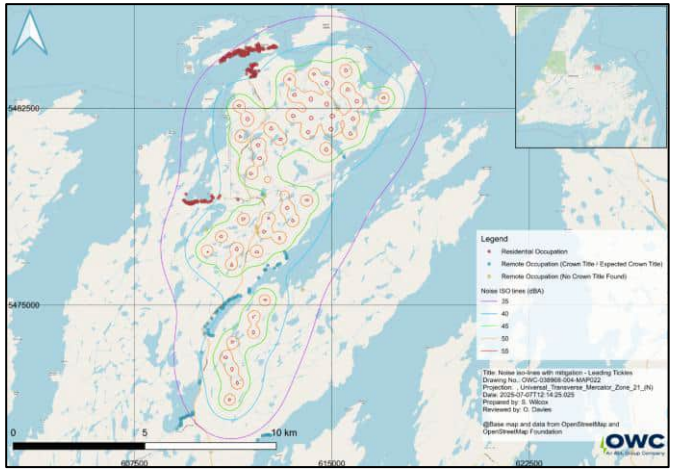


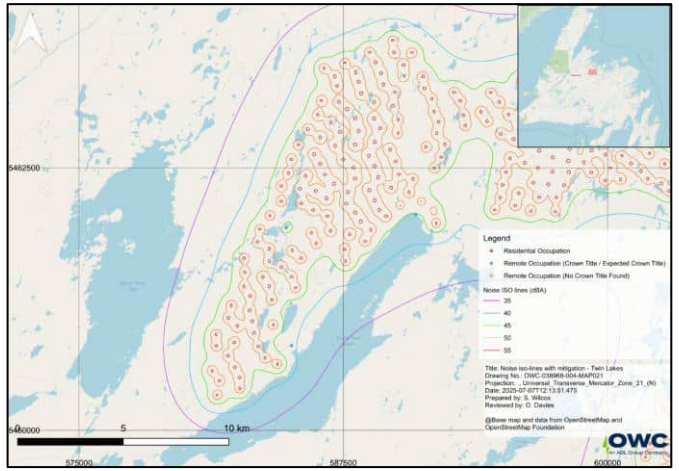
1. Solar glare modelling was conducted via EMD WindPRO2 (https://www.emd-international.com/windpro/)

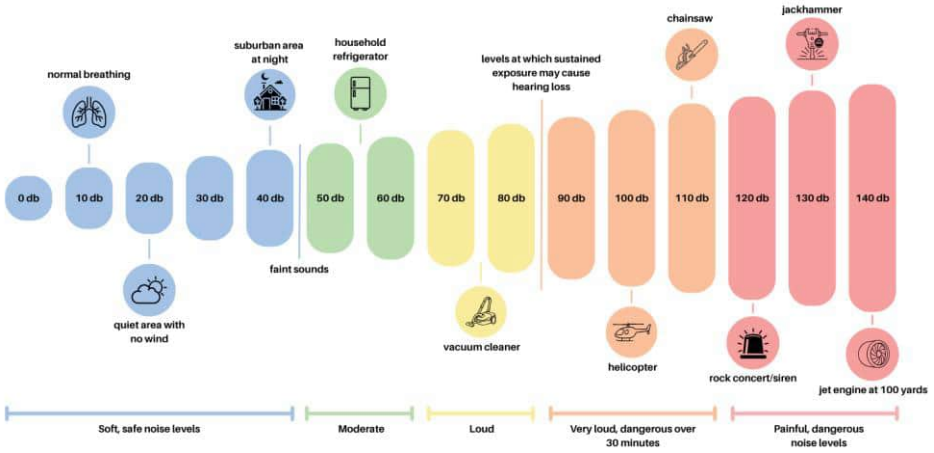
Noise Impact – Wind Project
(Operation)

- The assessment used a strict noise limit based on Health Canada guidelines of 45 dBA for operational noise
- Receptors include both permanently and seasonally or part-time occupied buildings that are on lands with legal title
- The study shows that all receptors meet the required noise limits for regular turbine sound and low-frequency sound







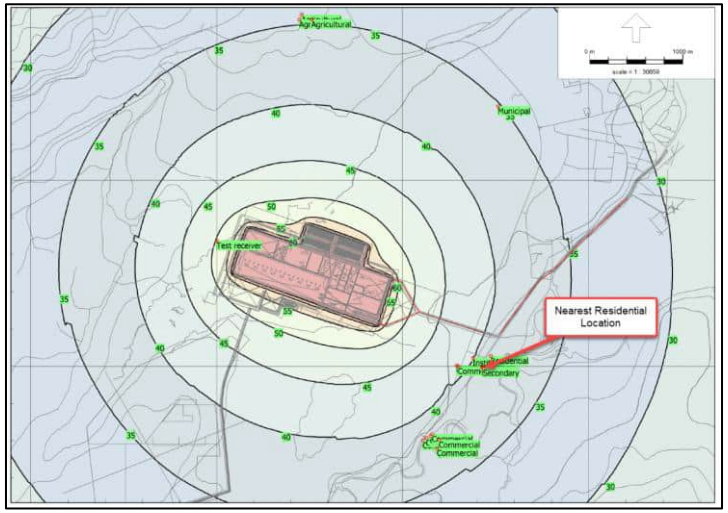


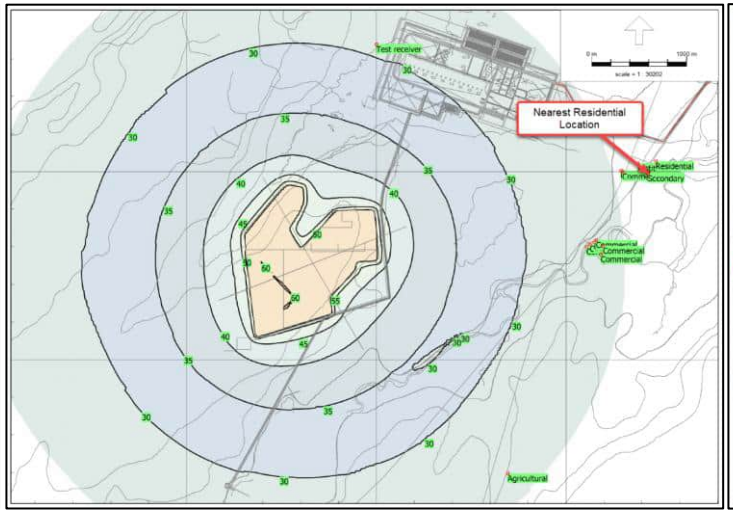
- *The following guidance is used to inform the assessment and assign suitable noise thresholds:*
  1. *"Human Health Considerations when Assessing Noise Impacts Related to Wind Turbine Projects" (2024), Health Canada*
  2. *Environmental Noise Guidelines for the European Region" (2018), WHO Regional Office for Europe*
  3. *"Compendium of WHO and other UN guidance on health and environment, 2022 Update" (2022), WHO*
- *The noise impact modelling was conducted via EMD WindPRO2 (https://www.emd-international.com/windpro/)*

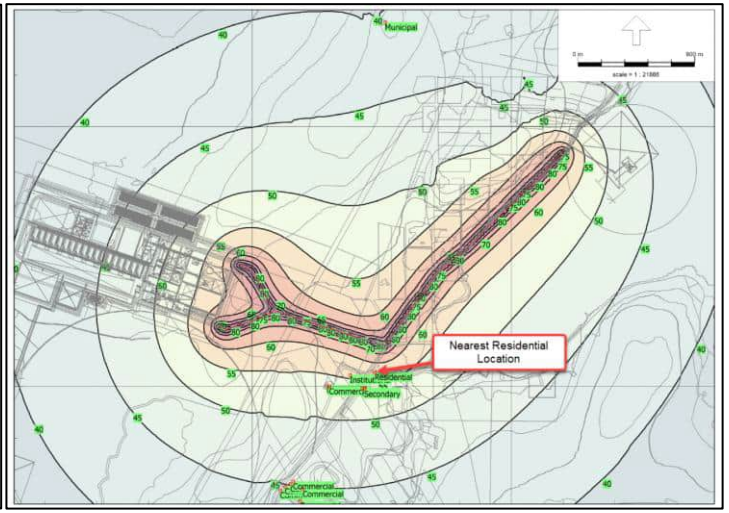
Noise Impact – Industrial and Solar Facilities

(Construction & Operation)

- Noise modelling was conducted to predict cumulative noise effects generated by the Project on nearby receptors, including residences. Construction noise modelling was completed for the haul road and pipeline construction.
- Noise levels during construction and operation of the Industrial and Solar Facilities will be below the permissible sound levels following proposed mitigations.
- Noise levels are expected to be exceeded at some receptors during construction of the haul road and pipeline (approximately 75 dBA at some receptors). The following mitigation measures are being proposed:
  - Temporary noise screening,
  - Limiting certain equipment operation during nighttime hours.
  - EVREC will implement a Complaint Resolution Plan to address concerns raised by local residents.





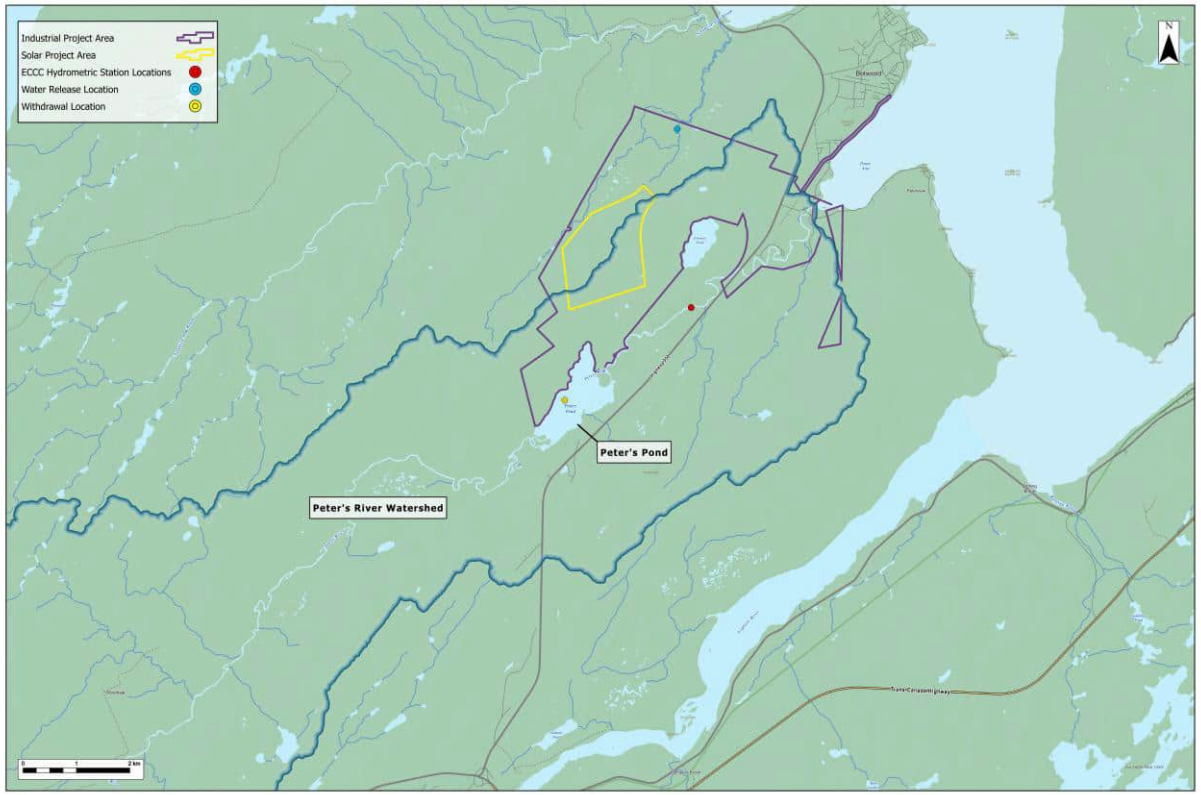


1. *The noise assessment used power levels of the construction equipment anticipated to be used, and modelled in iNoise, software which adheres to ISO 9613-1 and ISO 9613-2.*
2. *The noise was level was calculated at 1.5m height, with the following meteorological conditions: downwind from the source, 5°C air temperature, 70% relative humidity, 1 atm, 0.5 ground attenuation factor.*
3. *The noise limits used are those from Nova Scotia Environment and Climate Change (NSECC) guidelines, for short (heavy haul road) and long-term (industrial facility & solar PV farm) construction activities, in a rural setting.*
4. *Baseline sound monitoring was conducted by Strum Consulting, with the following results (Daytime: 28 dB, Evening: 28 dB, Nighttime: 32 dB)*

35 dB – Quiet library, soft whisper, nighttime background noise.
40 dB – A quiet room, gentle conversation at home.
45 dB – The sound of a refrigerator humming or a calm office.
50 dB – Rainfall, moderate conversation at 1–2 metres.
55 dB – A running dishwasher, roadside noise in a calm neighbourhood.

Water Supply and Discharge

- The Project requires freshwater to produce hydrogen and ammonia.
- Water will be sourced from Peters Pond near the industrial facility.
- The existing water withdrawals above the withdrawal point were considered in the yield assessment.
- Most of the water becomes water vapour, and the remaining amount is treated onsite before being discharged into a watercourse north of the industrial facility at a maximum rate of 5 m^3/min.
- The water discharged will be managed to prevent impacts to fish and fish habitat in the unnamed watercourse.
- Water usage will be adjusted the protect flow in Peters River.



- During the summer months, water can be recirculated back to Peters Pond if necessary to maintain flow through Peters River. This water will meet water quality guidelines. Plant operations may also be adjusted to reduce water needs and protect flow through Peters River.

Groundwater Resources

Survey Methods and Results

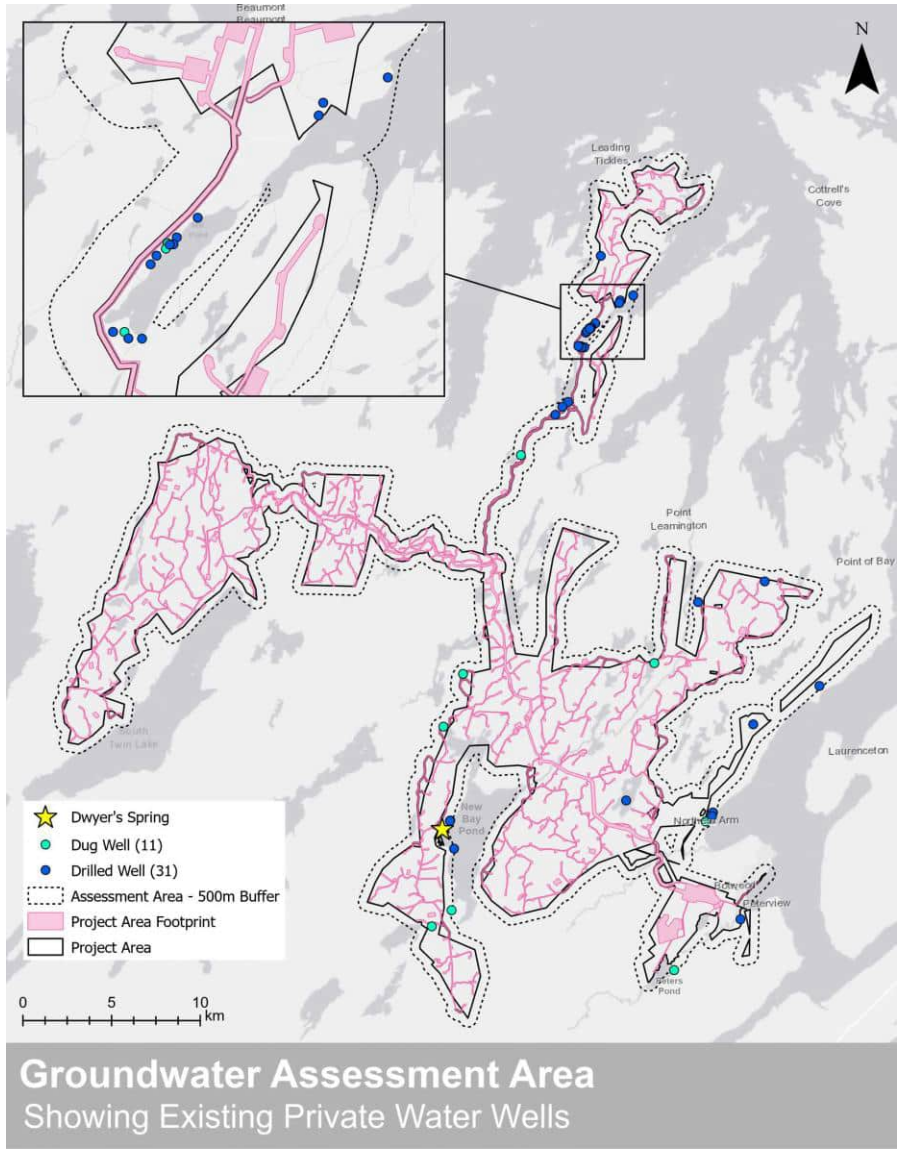
- Desktop analysis of existing information and data. No public wells exist in the Project Area. However, 42 private wells and one local spring (Dwyer's Spring) were identified within 500 m of the site.
- Regional groundwater is generally safe for drinking, though some areas naturally contain levels of iron, manganese, and copper that exceed guidelines.

Project Interactions

- Assessment focused on excavation dewatering, camp water supply, blasting, earthworks, and potential industrial effluent or septic infiltration.
- Turbine foundation dewatering will not impact private wells or Dwyer's Spring. Further, development covers only 13% of the area, allowing most rain and snowmelt to soak into the ground. This preserves local well levels and water flow to wetlands and streams.
- Risks include silt/sediment (turbidity) from construction and potential infiltration from septic systems or site operations.
- Potable water will be required to support camps Any new wells for the Project will require testing and permitting to confirm they will not interfere with existing well users or the environment.

Key Mitigations

- Use best practices to minimize nitrogen residues and prevent vibration-induced turbidity or changes to bedrock fracturing.
- Adhere to applicable standards, using engineered controls and vegetated buffers to manage effluents.
- Document baseline yield and quality for all water wells within the defined blast zones of influence.
- Assess the use of real-time stations in consultation with NL Environment, Conservation and Climate Change (NL ECCC) to track continuous groundwater quantity and quality data.
- Quarries will be developed above the water table.

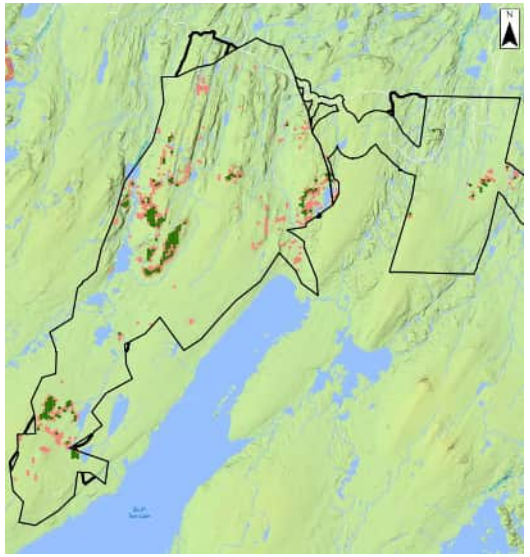


Groundwater Assessment Area
Showing Existing Private Water Wells

Avifauna

Survey Methods and Results

- 2,167 individuals observed during field surveys in 2024-2025, representing 90 species
- Avian Species at Risk (SAR) observed during the breeding bird season include evening grosbeak, olive-sided flycatcher, red crossbill, and rusty blackbird. No SAR were observed in the industrial or solar project areas.
- Passive monitoring included radar and acoustic sampling.
    - Acoustic monitoring identified additional SAR: grey-cheeked thrush
    - Radar results: 99% of birds detected by radar monitoring were flying either above or below the Rotor Swept Arc of the proposed turbines, meaning collision risk is low.
- Potential avian SAR habitat modelling completed for evening grosbeak, grey-cheeked thrush, olive-sided flycatcher, red crossbill, rusty blackbird.



Red crossbill (above) and example of potential red crossbill habitat (fair – pink, suitable – green)

Project Interactions

- Avifauna may be affected in the following ways:
    - Direct loss of habitat totalling 4,807 hectares (all components).
    - Habitat loss affects <15% of modelled suitable habitat within the Project Area for avian species at risk.
    - Sensory disturbance and edge effect can decrease habitat suitability in areas near Project infrastructure.
    - Direct mortality can occur due to interactions with wind turbines and the flare stacks

Key Mitigations

- Follow Environment and Climate Change Canada (ECCC) guidance for vegetation clearing during sensitive windows (nesting period from April 1 to September 30) and conduct nest sweeps if clearing is required in this time frame.
- Mortality monitoring during operations (minimum one year).
- Lighting and noise reduction mitigations.
- Development of an Avifauna Management Plan in alignment with Canadian Wildlife Service (CWS) and Environmental Impact Statement (EIS) guidelines, including monitoring and adaptive management measures.

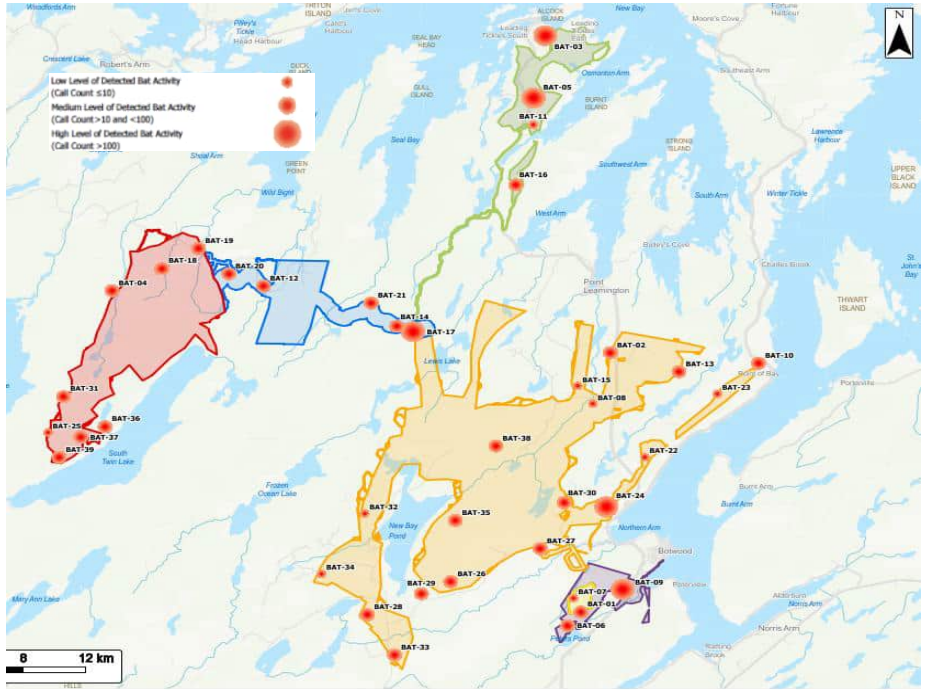
Bats & Caribou

Survey Methods and Results - Bats

- Habitat modeling for foraging and roosting habitat
- 39 acoustic detectors were deployed between April-Dec 2024/2025
- No roosts or hibernacula observed during field surveys
- A total of 1,668 bat passes recorded
- Peak activity noted in July and Sept
- 99% of recordings were resident myotis species (non-migratory).

Survey Methods and Results - Caribou

- Habitat modeling for calving habitat using collar data on Hodge's Hill Herd
- 33 camera traps deployed to for abundance and density estimates
  - Deployed Dec 2024 – Dec 2025
  - 10,343 camera trapping days
- 293 images of caribou captured
- Mean abundance estimate: 237
- Mean density 0.43/km^2



Detection locations and recorded activity of bats

Project Interactions

- Injury and mortality due to collisions with turbines (bats) or traffic (caribou)
- Direct and indirect loss of habitat
- Sensory disturbance related to noise and light

Key Mitigations

- Limit sensory disturbances (lighting & noise) where feasible
- Employ adaptive management strategies (such as pausing blasting following caribou observation and restricting vegetation clearing) during sensitive timing windows where possible:
- Reduce clearing of habitat by using disturbed areas where possible
- Develop and implement Monitoring Plans
  - Post-Construction Bat Monitoring Plan
  - Pre/Post-Construction Caribou Monitoring Plan
- Use of Smart Curtailment strategies informed by active bat monitoring

Fish & Fish Habitat

Survey Methods and Results

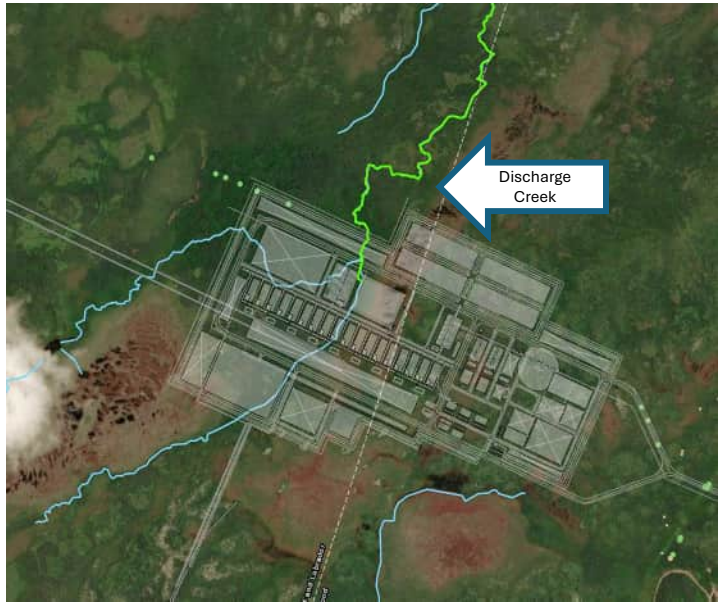
- Desktop modelling and field verification of fish habitat
- Fish collection (trapping and electrofishing) and fish habitat assessments prioritized salmon rivers and then sites selected randomly across watersheds

Project Interactions

- Habitat loss/rerouting of streams under industrial facility will require Fisheries Act Authorization and Offsetting
- Water withdrawal to be protective of fish habitat in Peters Pond and Peters River
  - All other impacts to salmon rivers involve road crossings
- No impacts from discharge on fish habitat in unnamed creek anticipated
- Crossings to be designed to maintain natural watercourse conditions and fish passage

Key Mitigations

- Micro-site key infrastructure (quarries, camps, turbine pads) to avoid fish habitat
- Monitor water quality to ensure discharge is within regulatory guidelines (Surface Water Monitoring Plan).
- Develop an Erosion and Sediment Control Plan.
- Obtain permits as required (permit to alter waterbody, water use licence, Fisheries Act Authorization).



Wind Project 461 fish captured: brook trout (53%) Atlantic salmon (40%) American eel (7%)	1,258 potential stream crossings (96% classified as intermittent) 20 potential streams under quarry and camp footprints Road crossings on salmon rivers: • Northern Arm Brook: 1 upgrade, 1 new • New Bay River: 3 upgrades, 2 new • Northwest Arm Brook: 1 upgrade • West Arm Brook: 1 new More than half of watercourses assessed (56%) contained suitable spawning habitats for salmonids
Industrial Facility 104 fish captured: stickleback (80%) Atlantic salmon (14%) American eel (5%) brook trout (2%)	37 potential crossings, 2 streams overprinted by facility 2 streams under facility – contain suitable habitat for all species present
Solar Facility	No fish habitat present

Fauna

Survey Methods and Results

- Trail cameras deployed for 16 months
- American marten hair snag surveys
- Species observed within the Project Area include:

Snowshoe Hare	Black Bear	Caribou	Mink
Red Squirrel	Lynx	Moose	Rat
Coyote	Red Fox	Beaver	Vole
River Otter			

Eastern coyote (Canis latrans)

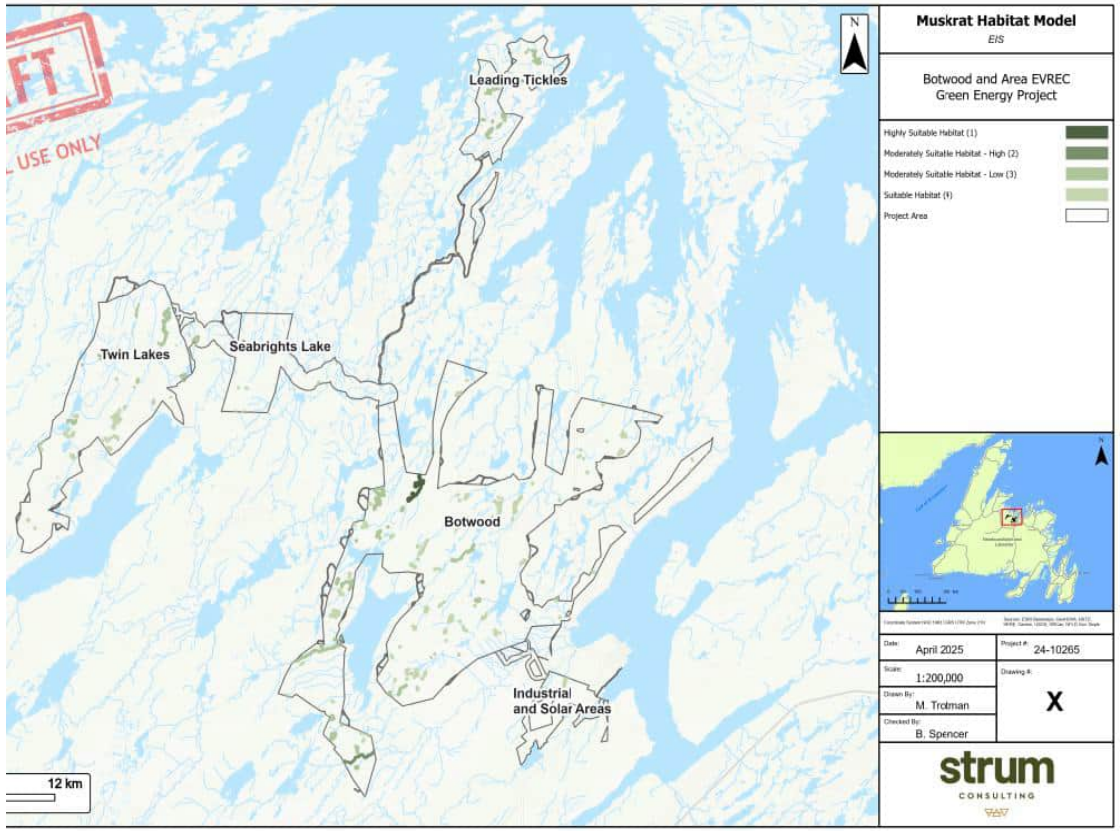
Moose *(Alces alces)*

Project Interactions

- Loss of habitat and habitat fragmentation for small and large animals.
- Injury or mortality may happen due to vehicle or machinery collisions or human interactions.
- Sensory disturbance from noise or light may cause attraction or avoidance and other behavioural changes.

Key Mitigations

- Implement speed limits to reduce potential collisions.
- Limit project lighting where feasible (ex. motion activated).
- Reduce clearing of fauna habitat by using disturbed areas where possible
- Hunting will not be permitted by Project personnel
- Develop wildlife management plan



Vegetation and Wetlands

Survey Methods and Results

- Habitat assessment occurred through land cover modelling and targeted sensitive flora habitat modelling. This guided field surveys for rare species.
- Wetlands are a common feature across the landscape.
- Disturbed areas primarily consist of harvested forest stands and forest access roads.
- Two flora Species at Risk (SAR) were identified: Red Pine and Blue Felt Lichen, along with several Species of Conservation Concern (SOCC)

Shinleaf (*Pyrola elliptica*)

Red Pine (*Pinus resinosa*)

Project Interactions

- Direct and indirect impact to vegetation cover (i.e., removal, fragmentation)
- Loss of Rare Flora – impacts are expected to several individual red pine and blue felt lichen.
- Direct Loss of Wetland Area – up to 886 ha of wetland habitat may be impacted by the Project (approximately 10% of wetlands in the Project Area)
- Direct impact is expected to affect 12% of the available suitable rare flora habitat within the Project Area.

Key Mitigations

- Reduce clearing of habitat by using disturbed areas where possible
- Confirm protected status of red pine identified within the Project Footprint. Occurrences of rare flora will be avoided to the extent possible during detailed Project design.
- Unavoidable impacts to Species at Risk will be permitted through the NL *Endangered Species Act*
- Maintain vegetated buffers around rare flora species and wetlands
- Develop and implement a Vegetation Management Plan

Land & Resource Use

The Project Area is used year-round by residents for a variety of commercial, industrial and recreations activities:

- Mineral exploration/Quarries
- Forestry
- Outfitting
- Fishing/hunting/wood cutting
- ATV/Snowmobile trails

Key Mitigations

- EVREC will not restrict access to roads within the Wind Project Area, except for access to critical infrastructure (ex. Substations).
- A Domestic and Commercial Wood Cutting Consultation Plan will be drafted in consultation with local users of forestry-designated lands and the resources within those zones.
- A Mineral Resources Industry Engagement Plan and Quarry Resources Consultation Plan will be drafted to identify potential concerns in the area around mining and quarry activity in the Project Area and develop appropriate mitigation measures.
- An Outfitter Effects Monitoring Program will be drafted to monitor the effects of the Project on the outfitting industry in the area and mitigative/adaptive measures.
- A Traffic Management Plan will be drafted to incorporate the Heavey Haul Road into project design to prevent major traffic delays and congestion related to Project construction.
- Municipal Zoning for appropriate development of the lands in consultation with the town of Botwood.
- Engagement with NF Power and NL Hydro on the transmission line routes and electrical grid connection agreements.

Heritage & Cultural Resources

Survey Methods and Results

- A desktop review of the Provincial Archaeology Office (PAO) database indicated no paleontological resources within the Project Area (PA) and 200 potential archaeological resources.
- A model was developed to determine high, medium, and low potential for archaeological resources within the PA, using Lidar, aerial imagery, and features associated with archaeological resources. High potential aeras can be found within 30m of waterbodies with suitable rest areas.
- A Historic Resources Impact Assessment (HRIA) was conducted to field assess the Industrial and Solar Project Areas, registered archaeological sites, and several high potential areas within the Wind Project Area.
- No archaeological or historic resources were identified in Solar or Industrial Project Areas.
- One new archaeological site found and registered with the PAO.

Project Interactions

- The. Project has potential to directly affect archaeological resources in the Wind Project Area through ground disturbance activities in the construction phase for those areas that are not currently disturbed with resource roads.

Key Mitigations

- Avoid registered archaeological sites by 250m.
- Follow the PAO Accidental Finds Procedure if suspected archaeological or historic resources are discovered during construction.
- Avoid most high potential areas within the waterbody buffer.

Air Emissions

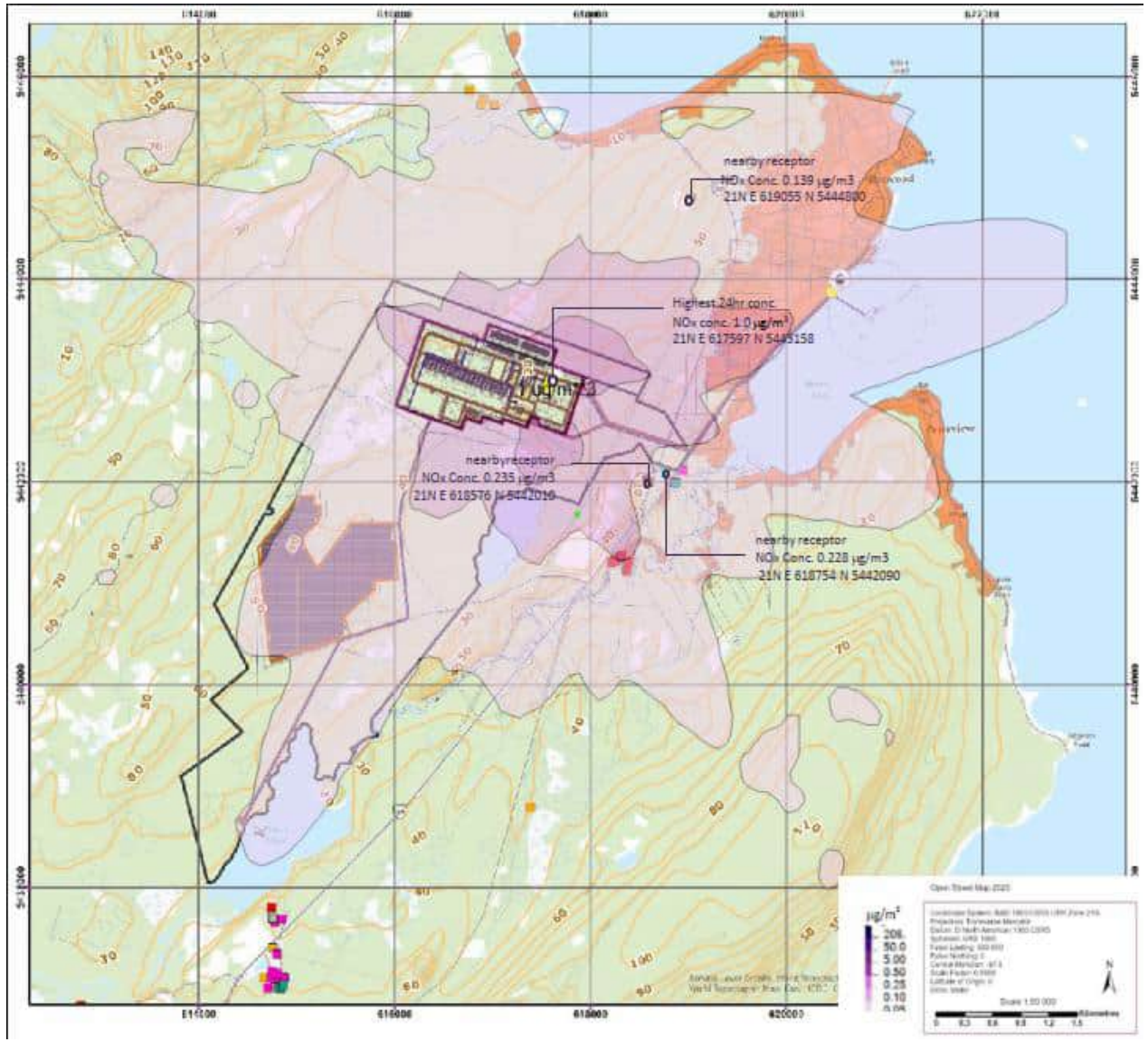
Air Emissions will be generated through the Industrial Facility emission stacks, and intermittent use of diesel generators.

Emissions modelled:

- NOx, SOx, CO, PM10, PM2.5
- Relevant averaging periods: 1hr, 24hrs, 8hrs, 1yr

Operational Scenario Modelled By Case:

- Normal Operation: No Exceedances
- Comissioning and Abnormal Operations: show exceedances in NOx (1-hour and 24-hour), and PM10 (24-hour). These exceedances are short term and intermittent and will be reviewed and permitted through regulatory consultation.
- Note that the air quality modelling includes conservative assumptions and will require refinement at subsequent stages of design and development.



1. *The modelling tool used was AERMOD Version 13.1. AERMOD is the state-of-the-science, steady-state Gaussian air dispersion model that is EPA-approved for most refined modeling scenarios also recognized as a suitable tool by the Canadian Regulators*
2. *Model used pre-processed hourly sequential meteorological data (for 3 years minimum), from Gander Airport as it was considered the most complete data set and the most representative to the project site.*
3. *Point source inputs – based on io calculated Emissions Inventory (originally based on AP-42 Factors and later adjusted to accommodate Tier 4 Gen Sets to meet CFR 40. std. part 1039.102 Table 7 requirements, utilizing ULSD).*
4. *Results benchmarked against regulatory limits (NL and Canada)*

Project Will Provide Significant Economic Benefits

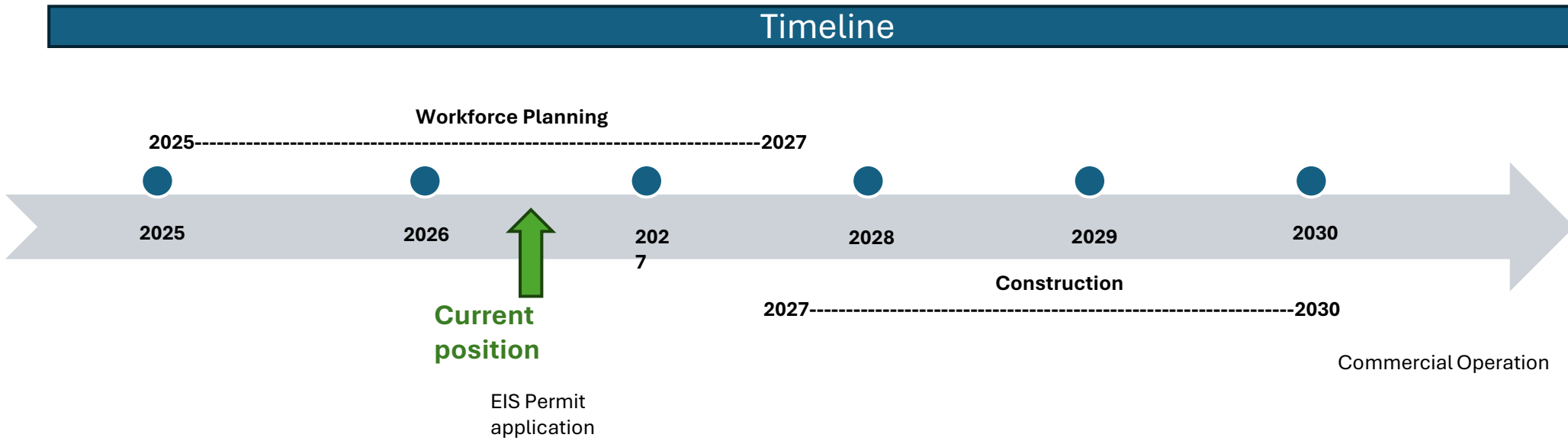
Jupia Consultants prepared an Economic Impact Assessment for the Project, which identified many economic benefits from in-province activity

- Boosts **provincial GDP** by **$9.3 billion over the 30+ year project life** (in $2025), excluding the GDP impacts arising from spending the tax/royalty revenue
- Contributes **$5.6 billion employment income**
- Supports **18,200 person years of employment** during the four years of **construction** and over **40,000 person years over the 30+ year operating period**;
- Boosts **annual household spending** in NL by over **$4.0 billion**
- **Municipal governments** in the province can expect **$190 million in tax revenue** over the construction and operation phases
- The **provincial government** will receive an estimated **$8 billion**
- The **federal government** another **$2.0 billion** (just from the NL activity)

Jupia CONSULTANTS INC.

https://evrec.ca/wp-content/uploads/2025/12/EVREC-Social-Economic-Impact-Study.pdf

Employment & Recruitment



EVREC will continue to hold Town Halls communicating recruitment status and timing of future opportunities

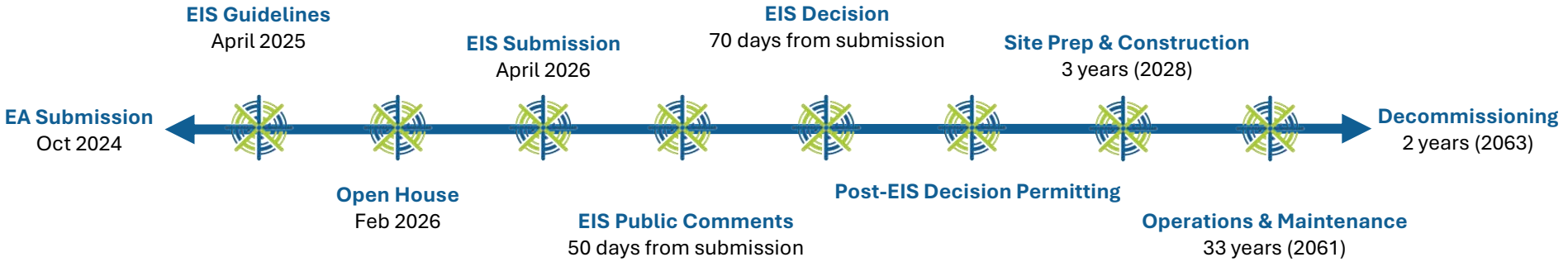
- Recruitment activities will consist of:
  - Radio spots
  - Job Fairs
  - Unemployment offices
  - Trade schools, colleges
  - Social media platforms
  - Recruitment Centres
  - EVREC company web page announcing opportunities

Roles may include:

- Material handlers
- Heavy equipment operators
- Warehouse staff
- Project managers & Construction managers
- Electrical, mechanical, civil, design, site,
- HVAC, chemical, process,
- laboratory engineers
- Control room operators
- Environmental specialists
- Electricians
- Truck drivers
- Logisticians & transport planner
- Catering & accommodation
- Material handlers
- Warehouse personnel
- Port Handlers & operators
- QA/QC personnel
- Administrative staff
- Security & surveillance
- Quantity surveyors
- PR & Community liaison officers

Environmental Assessment – Next Steps

- Environmental Impact Statement (EIS) Guidelines issued to EVREC for the Botwood EVREC Green Energy Hub Project (EA# 2327) on April 4, 2025.
- Once EVREC submits the EIS to the NL Department of Environment, Conservation, and Climate Change (NL ECCC) and the EIS is publicly posted by the provincial government, the public has **50 days to review the EIS** and provide comments to the province (EAProjectComments@gov.nl.ca).
- The provincial Minister for NL ECCC is required to make a decision on the EIS within 70 days of receipt of the EIS (as guided by the *Environmental Protection Act* and Environmental Assessment Regulations). The EIS is reviewed by several government departments, provincially and federally.
- Following EIS approval, the Project will be subject to several provincial and federal permit processes.



EVREC

THANK YOU FOR ATTENDING OUR OPEN HOUSE

We welcome your feedback! Please fill out a comment sheet on your way out.

SUPPORT LETTERS

BOTWOOD
·EN AVANT·

TOWN OF BOTWOOD
41 VALLEY ROAD, PO BOX 490
BOTWOOD, NL A0H 1E0
TEL: 709-257-2839 FAX: 709-257-3330
email: botwoodtowncouncil@nf.aibn.com
website: www.botwoodnl.ca

March 14, 2023

Exploits Valley Renewable Energy Corporation

Dear Sirs:

The Town of Botwood fully supports the Exploits Valley Renewable Energy Corporation (EVREC) proposal to establish a large-scale wind energy project in the Exploits region.

EVREC's plan to construct several hundred wind turbines, a large-scale energy storage facility and a hydrogen-ammonia plan in our community is exciting. When coupled with a significant revitalization of the Port of Botwood, the project will result in an unprecedented level of investment for our Town and region.

This world-class green energy project will usher in a new era of prosperity for Botwood and the entire Exploits Valley. Beyond the thousands of construction jobs and hundreds of well-paying operational jobs, this initiative will give Central Newfoundland a solid economic foundation for decades to come. Further, this forward-looking project is in line with the priorities of all levels of government — harnessing our wind resources to create a new industry to produce green energy products for export around the world.

The Town of Botwood has worked closely with the EVREC team and affiliated companies to develop and refine the project concept. We are confident EVREC has the experience, ability and means to successfully implement this project.

The recent public consultations introducing the initiative were very well received. We believe the level of effort for the consultations reflect EVREC's overall approach and demonstrates a very strong commitment to the project. As well, we believe there is a very high level of support for the initiative in our Town and throughout our region.

We look forward to working with EVREC to see a world-class green energy production facility established in our Town.

Respectfully,

James F. Sceviour

James F. Sceviour
Mayor

Bishop's Falls
THE EXPLOITS ADVENTURE STARTS HERE

P.O. Box 310, Bishop's Falls, NL A0H 1C0
Town Office: 709-258-6581 / 709-258-6037 Fax: 709-258-6346
Public Works Department: 709-258-5562 Department of Recreation: 709-258-5451
Email: info@bishopsfalls.ca Website: www.bishopsfalls.ca

March 1, 2023

Attention: Call for Bids
Department of Industry, Energy and Technology
Natural Resources Building
50 Elizabeth Avenue
PO Box 8700
St. John's, NL A1B 4J6

Re: Crown Lands Call for Bids for Wind Energy Projects: Municipal Support for EVREC Project

To whom it may concern:

During a special public meeting on February 28, 2023, the Bishop's Falls Town Council discussed its support for the Exploits Valley Renewable Energy Corporation's (EVREC's) wind energy project. We acknowledge the information and constructive discussion during the open house in Bishop's Falls on February 22, 2023, and extend our appreciation for EVREC's initiative to begin community consultations at this stage.

The Bishop's Falls Town Council is excited and optimistic about EVREC's wind energy project, which will generate electricity for the production and transportation of green anomia and hydrogen within the Exploits District, and it is pleased to offer its conditional support and approval, which I explain in the paragraphs below. The project will bring much-needed employment and other economic opportunities to the Exploits Region, Central Newfoundland, and the province, which is cause for positive anticipation!

This project, as we know, is in the early development stages. Assuming the EVREC is successful through the Crown Lands bid process, which is our hope, the project will have to undergo an environmental assessment, an important process involving public discourse/input regarding the proposed development. In this context, our support, as noted above, is contingent on this project receiving all the necessary approvals from the Government of Newfoundland and Labrador concerning the environmental assessment. We also wish to see the concerns of Bishop's Falls residents addressed in the process.

During the open house on February 22, 2023, EVREC representatives indicated a willingness to negotiate community agreements with the impacted municipalities, which includes Bishop's Falls. Council determined its support and approval are conditional on this agreement being established on terms agreeable to Council. We recognize this process will likely begin if the Crown Lands bid is successful, but we felt it was important to raise the matter at this point.

We wish the EVREC much success in the Crown Lands bid process. We hope to see a favourable decision from the Government of Newfoundland and Labrador, allowing this project to continue along the development path.

Sincerely,

Bryan King
Mayor

CC: Bishop's Falls Town Council

Town of Point Leamington

P.O. Box 39, Point Leamington, NL A0H 1Z0
Tel: 709-484-3421 Fax: 709-484-3556

Department of Industry, Energy and Technology
Natural Resources Building
50 Elizabeth Avenue
P.O. Box 8700
St. John's, NL A1B 4J6

Attention: Call for Bids

February 20, 2023

Re: Crown Lands Call for Bids for Wind Energy Projects: Municipal Support for EVREC Project

Dear Sirs/Mesdames,

I am writing in connection with the submission by Exploits Valley Renewable Energy Corporation ("EVREC") to the Department of Industry, Energy and Technology of the Province of Newfoundland and Labrador ("IET") in relation to the Crown Lands Call for Bids for Wind Energy Projects. The Submission relates to a wind project to be developed for the purpose of generating electricity to be used for the production and transportation of green ammonia and hydrogen within the Exploits District.

As the Mayor of Point Leamington, and on behalf of the Municipality, I wish to hereby convey to IET the support and approval of the Municipality for the development, construction and operation of the Project. This support is based on our knowledge of the project to date and its partners. The project proponent has visited our council and subsequently held an open house event in our community of which the feedback was supportive.

Please feel free to contact me should you require any further information.

Sincerely,

Wilfred Mercer, Mayor

Town of Peterview
P.O. Box 10, Peterview, NL A0H 1Y0
Tel / Fax: (709) 257-2926
email: townofpeterview@nf.aibn.com www.peterview.ca

Department of Industry , Energy and Technology
Natural Resources Building
50 Elizabeth Avenue
P.O. Box 8700
St. John's, NL A1B 4J6

Attention: Call for Bids

February 22, 2023

Re: Crown Lands Call for Bids for Wind Energy Projects: Municipal Support for EVREC Project

Dear Sirs/Mesdames,

I am writing in connection with the submission by Exploits Valley Renewable Energy Corporation ("EVREC") to the Department of Industry, Energy and Technology of the Province of Newfoundland and Labrador ("IET") in relation to the Crown Lands Call for Bids for Wind Energy Projects. The Submission relates to a wind project to be developed for the purpose of generating electricity to be used for the production and transportation of green ammonia and hydrogen within the Exploits District.

As the Mayor of Peterview, and on behalf of the Municipality, I wish to hereby convey to IET the support and approval of the Municipality for the development, construction and operation of the Project. This support is based on our knowledge of the project to date and its partners. The project proponent has visited our council and subsequently held an open house event in our community of which the feedback was supportive.

Please feel free to contact me should you require any further information.

Sincerely,

James Samson
Mayor

Grand Falls · Windsor
| perfectly centered |

Mayor's Office
(709) 489-0412

Town Manager's Office
(709) 489-0407

Economic Development
(709) 489-0483

Finance Department
(709) 489-0400

Engineering Department
(709) 489-0427

Recreation Department
(709) 489-0450
Fax: (709) 489-0454

Town Office Fax
(709) 489-0465

February 23rd, 2023

Department of Industry, Energy and Technology
Natural Resources Building
50 Elizabeth Avenue
P. O. Box 8700
St. John's, NL
A1B 4J6

Attention: Call for Bids

Dear Sirs\Mesdames,

Re: Crown Lands Call for Bids for Wind Energy Projects: Municipal Support for EVREC Project

I am writing in connection with the submission by Exploits Valley Renewable Energy Corporation ("EVREC") to the Department of Industry, Energy and Technology of the Province of Newfoundland and Labrador ("IET") in relation to the Crown Lands Call for Bids for Wind Energy Projects. The Submission relates to a wind project to be developed for the purpose of generating electricity to be used for the production and transportation of green ammonia and hydrogen within the Central Region.

As the Mayor of Grand Falls-Windsor and on behalf of the Municipality, I wish to hereby convey to IET the support in principle from the municipality for the development of wind energy and the construction and operation of a processing plant. This support is based on our knowledge of the project to-date and its partners. The project proponent has visited our Council and subsequently held an open house event in our community of which the feedback was generally supportive. Once Council receives more complete information and develops a greater understanding of the community benefits then we may be prepared to pledge our full support and agreement.

Please feel free to contact me should you require any further information.

Sincerely,

TOWN OF GRAND FALLS-WINDSOR

Barry Manuel
Mayor

Town of Northern Arm

P.O. Box 2006, Northern Arm, NL A0H 1E0
Tel: 709-257-3482 • Fax: 709-257-3308
Email: contact@townofnorthernarm.ca • Website: townofnorthernarm.ca

Department of Industry , Energy and Technology
Natural Resources Building
50 Elizabeth Avenue
P.O. Box 8700
St. John's, NL A1B 4J6

Attention: Call for Bids

February 20, 2023

Re: Crown Lands Call for Bids for Wind Energy Projects: Municipal Support for EVREC Project

Dear Sirs/Mesdames,

I am writing in connection with the submission by Exploits Valley Renewable Energy Corporation ("EVREC") to the Department of Industry, Energy and Technology of the Province of Newfoundland and Labrador ("IET") in relation to the Crown Lands Call for Bids for Wind Energy Projects. The Submission relates to a wind project to be developed for the purpose of generating electricity to be used for the production and transportation of green ammonia and hydrogen within the Exploits District.

As the Mayor of Northern Arm, and on behalf of the Municipality, I wish to hereby convey to IET the support and approval of the Municipality for the development, construction and operation of the Project. This support is based on our knowledge of the project to date and its partners. The project proponent has visited our council and subsequently held an open house event in our community of which the feedback was supportive.

Please feel free to contact me should you require any further information.

Sincerely,

Linda Buckley

Linda Buckley, Mayor

Town of Leading Tickles

P.O. Box 39, Leading Tickles, NL A0H 1T0
Tel: 709-483-2180 Fax: 709-483-2185
email: leadingtickles@nf.aibn.com

Department of Industry, Energy and Technology
Natural Resources Building
50 Elizabeth Avenue
P.O. Box 8700
St. John's, NL A1B 4J6

Attention: Call for Bids

February 20, 2023

Re: Crown Lands Call for Bids for Wind Energy Projects: Municipal Support for EVREC Project

Dear Sirs/Mesdames,

I am writing in connection with the submission by Exploits Valley Renewable Energy Corporation ("EVREC") to the Department of Industry, Energy and Technology of the Province of Newfoundland and Labrador ("IET") in relation to the Crown Lands Call for Bids for Wind Energy Projects. The Submission relates to a wind project to be developed for the purpose of generating electricity to be used for the production and transportation of green ammonia and hydrogen within the Exploits District.

As the Deputy Mayor of Leading Tickles, and on behalf of the municipality, for the development of wind energy and the construction and operation of a processing plant. This report is based on our knowledge of the project to date and its partners. The project proponent has visited our Council and subsequently held an open house event in the neighboring town of Point Leamington, of which the feedback was generally supportive. Once Council receives more complete information and develops a greater understanding of the community benefits, then we may be prepared to pledge our full support and agreement.

Please feel free to contact me should you require any further information.

Sincerely,

M Chippett

Melissa Chippett, Deputy Mayor

EXPLOITS
CHAMBER OF COMMERCE

Department of Industry, Energy and Technology
Natural Resources Building
50 Elizabeth Avenue, P.O. Box 8700
St. John's, NL A1B 4J6

Attention: Call for Bids

February 27, 2023

Re: Crown Lands Call for Bids for Wind Energy Projects: Municipal Support for EVREC Project

Dear Sirs/Mesdames,

I am writing in connection with the submission (the "Submission") by Exploits Valley Renewable Energy Corporation ("EVREC") to the Department of Industry, Energy and Technology of the Province of Newfoundland and Labrador ("IET") in accordance with Guidelines: Crown Lands Call for Bids for Wind Energy Projects issued by IET on December 14, 2022. The Submission relates to a wind project (the "Project") to be developed for the purpose of generating electricity to be used for the production and transportation of green ammonia and hydrogen.

I am the President of the Exploits Chamber of Commerce. On behalf of the Exploits Chamber, I wish to hereby convey to IET the support and approval of the Exploits Chamber for the development, construction and operation of the Project. This support is based on EVREC's and its consortium members' experience, expertise, reputation and exemplary efforts to engage all community stakeholders in the Project and ensure that such stakeholders, share equitably in the returns and benefits of the Project and increased opportunities for employment and economic development.

In particular, the Chamber recognizes EVREC's (or its principals') international expertise in financing, development and operation of renewable energy generation, industrial and related projects, and that of its consortium members, including Hydrostor, Inc.'s, a Toronto-based energy storage provider and Marine Capital Ltd., a Newfoundland-based company with expertise in project management, procurement and logistics. The Chamber also recognizes the participation of Exploits Valley Port Corporation to revitalize its Botwood port facility.

Please feel free to contact me should you require any further information.

Sincerely,

Lou Alteen
President

cc: Exploits Valley Renewable Energy Corporation
52131691.2

MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING ("MOU") made as of the 31st day of January, 2023

B E T W E E N:

EXPLOITS VALLEY PORT CORPORATION, a corporation incorporated under the laws of the Province of Newfoundland and Labrador (**"EVPC"**)

- and -

EXPLOITS VALLEY RENEWABLE ENERGY CORPORATION, a corporation incorporated under the laws of the Province of Ontario (**"EVREC"**)

- and -

MARINE CAPITAL LTD., a corporation incorporated under the laws of the Province of Newfoundland and Labrador (**"MCL"**)

(each a **"Party"** and collectively, the **"Parties"**).

WHEREAS Exploits Valley Port Corporation (**"EVPC"**) is the owner of the port (the **"Port"**) located in the Town of Botwood (the **"Town"**);

AND WHEREAS EVREC and/or its principals have expertise in financing, development and operation of renewable energy generation, industrial and related projects;

AND WHEREAS MCL and/or its principals have expertise in project management, procurement and logistics;

AND WHEREAS the Parties wish to define their respective roles in the upgrading and redevelopment of the Port in connection with the transportation of green ammonia and hydrogen to be produced at facilities (the **"Facilities"**) to be located in or near the Town (the **"Project"**);

AND WHEREAS the Department of Industry, Energy and Technology of the Province of Newfoundland and Labrador (the **"Province"**) published *Guidelines: Nominating Crown Lands for Wind Energy Projects* dated July 26, 2022 (the **"Nominations Process"**) and thereafter published *Guidelines: Crown Lands Call for Bids for Wind Energy Projects* on December 14, 2022 (the **"Bid Process"**);

AND WHEREAS EVREC is engaged with other parties in the development of a wind farm energy project (the **"Wind Project"**) for the purpose of generating electricity to be used for the production and transportation of green ammonia and hydrogen at facilities to be located in or near

the Town (the "**Ammonia Project**");

AND WHEREAS EVREC shall be submitting a bid for the Wind Project on or prior to the submission deadline of March 3, 2023;

AND WHEREAS MCL and EVPC have entered into a memorandum of understanding (the "**EVPC-MCL MOU**") with respect to their cooperation to support the Project via a joint venture (the "**JV**") ;

AND WHEREAS the Parties wish to set out, on a non-legally binding basis (except as otherwise expressly provided herein), the principles, objectives, processes and documentation that the Parties intend to pursue and prepare in connection with the commitment to and implementation of the Project with the intention of concluding an agreement with respect to the Project between the JV and EVREC.

NOW THEREFORE this MOU sets out certain understandings and agreements between the Parties.

1. Project Agreements

EVPC and MCL, via the JV, and EVREC will, in good faith, enter into discussions to prepare and finalize a definitive binding project agreement (the **"Project Agreement"**) and such other agreements, instruments and arrangements as the Parties deem appropriate (collectively, including the Project Agreement, the "**Definitive Agreements**"), which shall incorporate the respective commitments and responsibilities as set out in this MOU.

2. EVPC Project Responsibilities

EVPC through the JV will have the following responsibilities and obligations to be set out in the Project Agreement:

(a) provide EVREC with exclusive rights to develop the Project;

(b) exclusive access by EVREC to transport ammonia and hydrogen through the Port for the duration of the Project at negotiated market fees;

(c) provide and facilitate disclosure of information as may be reasonably required by EVREC under applicable securities legislation;

(d) provide and facilitate disclosure of information and otherwise cooperate with existing and prospective lenders and investors in the Project;

(e) provide to EVREC exclusive access to transport ammonia and hydrogen through the Port and rights of use of assets needed for the production and transportation of ammonia for the duration of the Project at negotiated market fees;

(f) provide to EVREC rights of use and rights of way necessary and appropriate for a transport corridor to the Port from the Facilities for the duration of the Project;

(g) provide EVREC support as permitted by their constating documents in accessing government funding, subsidies and tax incentives as available; and

(h) provide to EVREC and MCL a right of refusal in connection with a potential sale of the Port or the share capital of EVPC. In the event of a potential sale of some or all of the Port or the share capital (or equivalent membership) of EVPC, EVPC will offer each of EVREC and MCL the right to buy 50% of the Port or the share capital of EVPC being sold upon the same terms as the potential sale. In the event that EVREC or MCL declines to exercise their right to purchase the 50% of the Port or the share capital of EVPC being sold, their right to purchase will be offered to the other right of first refusal holder. If both decline to exercise their right of refusal, EVPC will be permitted to proceed with the sale but the right of first refusal shall only end if the potential sale closes.

3. EVREC Project Responsibilities

EVREC shall have the following responsibilities:

(a) EVREC will bear the cost of a feasibility study (the "**Feasibility Study**") to reposition the Port for ammonia and hydrogen transport; and

(b) as negotiated from time to time, make or cause investments to be made in the Port, consistent with results of the Feasibility Study, in addition to any available government funds or other subsidies or investments.

4. Mutual MCL, EVPC and EVREC Responsibilities

MCL and EVPC via the JV and EVREC will in good faith negotiate and conclude the Definitive Agreements within a reasonable time period after the date of this MOU and take all reasonable steps to support the Project and the bid to be made by EVREC under the Bid Process .

5. Exclusivity

(a) Each Party acknowledges that pursuit of the Project will involve the expenditure of substantial time and money by the Parties. Subject to all the terms of this Section 5, each Party agrees that commencing on the date hereof to and including the earlier of:

(i) the date upon which the Bid Process ends, if EVREC is not a successful bidder at the conclusion of the Bid Process; and

(ii) two (2) years from the date of the signing of this MOU in accordance with its terms, if EVREC is a successful bidder pursuant to the Bid Process,

it will not, without the prior written consent of the other Parties, directly or indirectly (including through any councillor, official, affiliate, employee, officer, director, shareholder, agent or other person acting on its behalf or at its direction)

have, initiate or continue any communications, discussion or negotiations of any nature, or respond to any proposal or request for information, relating to the Project, any development of an ammonia or hydrogen facility in or near the Town or any other use of the Port that could reasonably be expected to interfere with the Project or EVREC's Bid Process, other than (i) in cooperation with the other Parties as expressly contemplated in this MOU; or (ii) as contained in the existing agreements between the Port and its existing clients" and provided to the Parties provided that EVPC may not modify or extend any of such existing agreements without the written consent of the Parties. The Parties agree and acknowledge that the existing agreements between the Port and its existing clients will be disclosed by EVPC prior to the signing of and as a part of due diligence in the preparation of the Definitive Agreements.

(b) Each Party shall be responsible for any breach of this Section 5 by its officials, affiliates, employees, officers, directors, shareholders, agents or other persons acting on its behalf or at its direction. The Parties agree, in addition to the remedies set out herein, that monetary damages may not be a sufficient remedy for any breach of this Section 5 and that the non-breaching Parties shall be entitled to equitable relief, including injunction and specific performance, as a remedy for any such breach. Such remedies shall not be deemed to be the exclusive remedies for a breach of this Section 5 but shall be in addition to all other remedies as provided herein and otherwise available at law or equity, including, in the event of litigation, recovery of reasonable legal fees and expenses by the prevailing party (as determined by a court of competent jurisdiction in a final, non-appealable order).

(c) This Section 5 shall survive termination of this MOU.

6. Termination

(a) This MOU will terminate upon the earlier of:

(i) the execution of the Project Agreement;

(ii) the mutual written agreement of the Parties;

(iii) two years from the date of this MOU's execution; or

(iv) written notice from a Party or Parties to the other Party or Parties if a Party breaches any of its obligations under Section 5.

(b) Except with respect to any liabilities that may be incurred or suffered by a Party in connection with a breach by another Party of any provision referenced in Section 5, termination of this MOU prior to full execution and delivery of the Project Agreement shall be without liability and no Party will be entitled to any form of relief whatsoever, including injunctive relief or damages.

7. Transaction Expenses

Expenses of the Parties incidental to this MOU, the activities contemplated herein and the Definitive Agreements shall be borne by the Party incurring them except as otherwise expressly agreed by the Parties.

8. Notices

Any notice or communication to be made or given hereunder shall be in writing and may be made or given by personal delivery or email addressed to the respective Party at the below address or such other address or email as a Party may from time to time notify the other Party.

To: EVREC

181 Bay Street, Suite 1800, Box 754
Toronto, Ontario, Canada M5J 2T9

Attention: James Colter Eadie
Email: jcoltereadie@gmail.com

With a copy to (which shall not constitute notice):

Aird & Berlis LLP
181 Bay Street, Suite 1800, Box 754
Toronto, Ontario, Canada M5J 2T9

Attention: Richard Kimel
Email: rkimel@airdberlis.com

And to:

EVPC

Exploits Valley Port Corporation
P.O. Box 1140
Botwood, NL
A0H 1E0

Attention: Scott Sceviour, Chair
Email: evportcorp@gmail.co,

And to: MCL

30 Stentaford Avenue, Pasadena, NL

Attention: Daryl Bennett
Email: dbennett@marinecontractors.ca

9. Confidentiality

Neither this MOU nor the subject matter hereof may be disclosed to any third party or made public by a Party without the written consent of the other Party. This MOU and the subject matter hereof are confidential and subject to the provisions of any applicable confidentiality agreement or other arrangements between the Parties.

10. Binding Effect

This MOU is not intended to constitute a legally binding agreement, nor is it to be relied upon as constituting a final agreement for the transactions contemplated herein. This MOU is written with the understanding that no Party will be bound by any of its terms until negotiations have been concluded and definitive agreements have been executed and delivered. Notwithstanding the foregoing, the Parties agree that the following provisions are legally binding and enforceable against each of them: Sections 5 (Exclusivity), 6 (Termination), 7 (Transaction Expenses), 8 (Notices), 9 (Confidentiality), 10 (Binding Effect), 11 (Interpretation), 12 (Governing Law), 13 (Successors and Assigns), 14 (Invalidity) and 15 (Entire Agreement).

11. Interpretation

Each reference in this MOU to a statute, regulation or other instrument of a governmental authority is deemed to be a reference to such statute, regulation or instrument as amended, re-enacted or replaced from time to time. In this MOU, unless otherwise expressly provided herein or unless the context otherwise requires, words importing the singular number include the plural and vice versa.

12. Governing Law

This MOU shall be governed by and construed in accordance with the laws of the Province of Newfoundland and Labrador and the federal laws of Canada applicable therein. The Parties hereto irrevocably attorn to the exclusive jurisdiction of the courts of the Newfoundland and Labrador to resolve any dispute which may arise among them concerning this MOU and the subject matters hereof.

13. Successors and Assigns

All covenants and agreements of each Party in this MOU shall bind its successors and permitted assigns.

14. Invalidity

Each of the provisions contained in this MOU is distinct and severable and a declaration of invalidity, illegality or unenforceability of any such provision or part thereof by a court of competent jurisdiction shall not affect the validity or enforceability of any other provision of this MOU.

15. Entire Agreement

This MOU constitutes the entire agreement among the Parties with respect to the matters contemplated herein and supersede any prior negotiations, understandings or agreements with respect thereto.

16. Execution and Delivery

This MOU may be executed in one or more counterparts and delivered in an original form or by email (.PDF format), each of which shall be deemed an original, and all which together shall constitute one and the same instrument.

[remainder of page intentionally left blank]

The Parties have executed this MOU as of the date first written above.

EXPLOITS VALLEY PORT CORPORATION

Per: _____
Name: Scott Sceviour
Title: Chair

EXPLOITS VALLEY RENEWABLE ENERGY CORPORATION

Per: _____
Name: Ravi Sood
Title: Chairman

MARINE CAPITAL LTD.

Per: _____
Name: Daryl Bennett
Title: Director

49°N PORT OF BOTWOOD 55°W

EXPLOITS VALLEY PORT CORPORATION
P O Box 1120
Botwood, NL A0H 1E0
709-257-2839
evportcorp@gmail.com

March 14, 2023

Exploits Valley Renewable Energy Corporation

Dear Sirs:

The Exploits Valley Port Corporation (EVPC) has partnered with the Exploits Valley Renewable Energy Corporation (EVREC) for a proposal to establish a large-scale wind energy project utilizing the Port of Botwood.

A redeveloped Port of Botwood will be a focal point for this major industrial project. EVREC's plan to construct hundreds of wind turbines, a large-scale energy storage facility and a hydrogen-ammonia production plant in Botwood is bold and ambitious. It will result in an unprecedented level of investment for the Exploits region.

This very large green energy project will bring significant activity to the Port of Botwood and new opportunities throughout the Exploits Valley. This initiative will provide Central Newfoundland and our entire province a very large economic boost; arguably, this is a generational project bringing real benefits and change.

EVREC has worked closely with the Port of Botwood and other local companies to develop and refine this world-class project. We strongly believe the EVREC team has the knowledge, capacity and resources to successfully advance this initiative. EVREC has sought out an opportunity that is in line with the priorities of all levels of government — harnessing our wind resources to create a new industry to produce green energy products for export around the world.

In late February a number of public consultations were held in the Exploits region to introduce the proposed project. The proposal was generally well received, reflecting what appears to be a high level of support for the project across the Exploits region.

EVPC is proud to be working with EVREC to create a world-class green energy production facility within our region.

Respectfully,

Scott Sceviour
Chairman

MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING ("MOU") made as of the 31st day of January, 2023

B E T W E E N:

THE TOWN OF BOTWOOD, a municipality incorporated under the laws of the Province of Newfoundland and Labrador (the **"Town"**)

- and -

EXPLOITS VALLEY RENEWABLE ENERGY CORPORATION, a corporation incorporated under the laws of the Province of Ontario (**"EVREC"**)

- and -

EXPLOITS PROCUREMENT LTD., a corporation incorporated under the laws of the Province of Newfoundland and Labrador (**"EPL"**)

(each a **"Party"** and collectively, the **"Parties"**).

WHEREAS the Town holds certain rights in relation to the development of wind farms on lands (the **"Town Lands"**) both within the boundaries of and within 30 kilometres of the Town, and has entered into a memorandum of agreement with EPL dated January 31st, 2023 pursuant to which EPL has been granted certain exclusive rights in relation to the development of wind farms on the Town Lands;

AND WHEREAS Exploits Valley Port Corporation (**"EVPC"**) is the owner of the port of the Town (the **"Port"**) and is a corporation without share capital whose board members are appointed by the Town and two other municipalities;

AND WHEREAS EVREC and/or its principals have expertise in financing, development and operation of renewable energy generation and related projects;

AND WHEREAS EPL and/or its principals have expertise in project management, procurement and logistics;

AND WHEREAS the Parties wish to define their respective roles in the financing, development, operation and ownership of a wind farm energy project (the **"Wind Project"**) for the purpose of generating electricity to be used for the production and transportation of green ammonia and hydrogen at facilities to be located in or near the Town (the **"Ammonia Project"**) (the Wind

Project and the Ammonia Project are collectively referred to as the "**Project**");

AND WHEREAS EPL and EVREC have entered into a memorandum of understanding (the "**EVREC-EPL MOU**") with respect to their cooperation in developing the Project;

AND WHEREAS it is expected that the Project will result in significant economic development in and around the Town, including the creation of approximately 2000 jobs during the construction phase and 500 jobs on an ongoing basis;

AND WHEREAS the Project is intended to be developed on the Town Lands and on Crown lands (together with the Town Lands, the "**Lands**") and to make use of the Port;

AND WHEREAS the Department of Industry, Energy and Technology of the Province of Newfoundland and Labrador (the "**Province**") published *Guidelines: Nominating Crown Lands for Wind Energy Projects* dated July 26, 2022 (the "**Nominations Process**") and thereafter published *Guidelines: Crown Lands Call for Bids for Wind Energy Projects* on December 14, 2022 **(the "Bid Process");**

AND WHEREAS the Parties wish to set out, on a non-legally binding basis (except as otherwise expressly provided herein), the principles, objectives, processes and documentation that the Parties intend to pursue and prepare in connection with the commitment to and implementation of the Project.

NOW THEREFORE this MOU sets out certain understandings and agreements between the Parties.

1. Project Agreements

The Town and EVREC will, in good faith, enter into discussions to prepare and finalize a definitive binding project agreement (the **"Project Agreement"**) and such other agreements, instruments and arrangements as the Parties deem appropriate (collectively, including the Project Agreement, the "**Definitive Agreements**"), which shall incorporate the respective commitments and responsibilities as set out in this MOU.

2. The Town Project Responsibilities

The Town will have the following responsibilities and obligations to be set out in the Project Agreement:

(a) provide EVREC with exclusive rights to develop the Project;

(b) exclusive access by EVREC to transport ammonia and hydrogen through the Town to the Port and rights of use for the Lands (to the extent controlled by the Town) and assets needed for the production and transportation of ammonia for the duration of the Project;

(c) work with EVREC and EPL to confirm Lands over which the Town has control and all reasonable measures to obtain and register such rights, as necessary and appropriate;

(d) grant to EVREC rights of use and rights of way in relation to the Wind Project and related electrical infrastructure and transport/connection infrastructure;

(e) grant to EVREC rights of use and rights of way in relation to the Ammonia Project site and transportation corridor to the Port from the Lands to be used for the Ammonia Project for the duration of the Project;

(f) the provision by the Town to EVREC of water in amounts needed for the Project on terms and conditions to be agreed by the Town and EVREC;

(g) entry into an agreement for the Town to secure to EVREC approximately 100 Ha of land for the Ammonia Project and related easements following approval of the submissions to the Nominations Process subject to securing necessary lands from the crown;

(h) as agreed and based on the results of the Feasibility Study (as defined below), apply for federal funds or other subsidies or investments for investment in the Port;

(i) provide and facilitate disclosure of information as may be reasonably required by EVREC under applicable securities legislation;

(j) provide and facilitate disclosure of information and otherwise cooperate with existing and prospective lenders and investors in the Project;

(k) subject to applicable municipal governance practices and requirements, adopt by-laws or similar municipal laws and regulations to permit developers of wind projects to conduct studies and install, operate and maintain equipment, including meteorological evaluation towers, anemometers, wind direction vanes, temperature and pressure sensors, and related equipment, and access rights in relation thereto, for the purpose of assessing wind resources on the Town Lands to be used for the Wind Project, and otherwise cooperate with EVREC and facilitate such activities and studies, including selecting suitable locations and providing information and assisting on filings with applicable governmental authorities;

(l) assist EVREC, in consultation with and as approved by EPL, in submissions to the Nominations Process in respect of the Wind Project;

(m) facilitate, consistent with good governance obligations and recognizing the rights and duties of the board of EVPC, the entry by EVREC, EPL and EVPC into a memorandum of understanding to set out the rights, roles and responsibilities of EVREC, EPL and EVPC with respect to the Project, including:

  (i) exclusive access by EVREC to transport ammonia and hydrogen through the Port and rights of use of assets needed for the production and transportation of ammonia for the duration of the Project at negotiated market fees; and

  (ii) rights of use and rights of way for EVREC necessary and appropriate for the Ammonia Project site and transport corridor to the Port from the Lands to be used for the Ammonia Project for the duration of the Project.

3. EVREC Project Responsibilities

EVREC shall have the following responsibilities, consistent with understandings set out in the EVREC-EPL MOU:

(a) assist the Town in asserting its claim on any portion of the Lands over which the Town has a legal claim but is disputed by any governmental authority or other third party;

(b) bear the cost of the Feasibility Study;

(c) as agreed and based on the results of the Feasibility Study, invest in the Port in parallel to the Town securing federal funds or other subsidies or investments up to an agreed amount;

(d) create a trust, or alternative structure, for the Town that EVREC would administer on a basis to be agreed with the Town. Initial funding of the trust would commence at the time of the redevelopment of the Port and subject to federal funds or other subsidies or investment. The trust will provide to the Town a net revenue royalty of an agreed percentage of net revenues for the life of the Project, ensuring a long-term income stream for the Town; and

(e) work with the Town to secure Lands for the Ammonia Project on the basis that EVREC would purchase those Lands owned by or under the control of the Town following approval under the Nominations Process at fair market value for industrial lands; and

(f) EVREC will work with the Town to identify town services required for the implementation of the project with the investment borne by EVREC, as agreed by the parties;

(g) EVREC will bear the cost of a feasibility study (the "**Feasibility Study**") to reposition the Port for ammonia and hydrogen transport; and

(h) EVREC will be responsible for the necessary fundraising for the Project, in parallel to the Town securing federal funds or other subsidiaries or investments up to an agreed amount.

4. Mutual EVREC and the Town Responsibilities

(a) EVREC and the Town will in good faith negotiate and conclude the Definitive Agreements within a reasonable time period after the date of this MOU.

(b) The Town and EVREC shall cooperate with respect to preparation and completion of the submission to the Bid Process.

5. Exclusivity

(a) Each Party acknowledges that pursuit of the Project will involve the expenditure of substantial time and money by the Parties. Subject to all the terms of this Section 5, each Party agrees that commencing on the date hereof to and including the earlier of:

(i) the date upon which the Bid Process ends, if EVREC is not a successful bidder at the conclusion of the Bid Process, or

(ii) two (2) years from the date of the signing of this MOU in accordance with its terms if EVREC is a successful bidder pursuant to the Bid Process,

it will not, without the prior written consent of the other Parties, directly or indirectly (including through any councillor, official, affiliate, employee, officer, director, shareholder, agent or other person acting on its behalf or at its direction) have, initiate or continue any communications, discussion or negotiations of any nature, or respond to any proposal or request for information, relating to the Project, any development of the Lands, any development of a wind-powered electricity generation facility on all or any of the Lands, any development of an ammonia or hydrogen production facility in or near the Town or any use of the Port, other than in cooperation with the other Parties as expressly contemplated in this MOU or with EPL as contemplated in existing agreements between the Town and EPL.

(b) Each Party shall be responsible for any breach of this Section 5 by its councillor, officials, affiliates, employees, officers, directors, shareholders, agents or other persons acting on its behalf or at its direction. The Parties agree, in addition to the remedies set out herein, that monetary damages may not be a sufficient remedy for any breach of this Section 5 and that the non-breaching Party shall be entitled to equitable relief, including injunction and specific performance, as a remedy for any such breach. Such remedies shall not be deemed to be the exclusive remedies for a breach of this Section 5 but shall be in addition to all other remedies as provided herein and otherwise available at law or equity, including, in the event of litigation, recovery of reasonable legal fees and expenses by the prevailing party (as determined by a court of competent jurisdiction in a final, non-appealable order).

(c) This Section 5 shall survive termination of this MOU.

6. Termination

(a) This MOU will terminate upon the earlier of:

(i) the execution of the Project Agreement;

(ii) the mutual written agreement of the Parties;

(iii) two years from the date of this MOU's execution; or

(iv) written notice from a Party or Parties to the other Party or Parties if a Party breaches any of its obligations under Section 5.

(b) Except with respect to any liabilities that may be incurred or suffered by a Party in connection with a breach by another Party of any provision referenced in Section 5, termination of this MOU prior to full execution and delivery of the Project Agreement shall be without liability and no Party will be entitled to any form of relief whatsoever, including injunctive relief or damages.

7. Transaction Expenses

Expenses of the Parties incidental to this MOU, the activities contemplated herein and the Definitive Agreements shall be borne by the Party incurring them except as otherwise expressly agreed by the Parties.

8. Notices

Any notice or communication to be made or given hereunder shall be in writing and may be made or given by personal delivery or email addressed to the respective Party at the below address or such other address or email as a Party may from time to time notify the other Party.

To: EVREC

181 Bay Street, Suite 1800, Box 754
Toronto, Ontario, Canada M5J 2T9

Attention: James Colter Eadie

Email: jcoltereadie@gmail.com

With a copy to (which shall not constitute notice):

Aird & Berlis LLP
181 Bay Street, Suite 1800, Box 754
Toronto, Ontario, Canada M5J 2T9

Attention: Richard Kimel

Email: rkimel@airdberlis.com

And to:

Town of Botwood

Po Box 490, 41 Valley Road, Botwood, NL

Attention: Stephen Jerrett and Mayor James Sceviour

Email: sjerrett@nf.aibn.com and jfsceviour@gmail.com

And to: EPL

30 Stentaford Avenue, Pasadena, NL

Attention: Daryl Bennett

Email: dbennett@marinecontractors.ca

9. Confidentiality

Neither this MOU nor the subject matter hereof may be disclosed to any third party or made public by a Party without the written consent of the other Party. This MOU and the subject matter hereof are confidential and subject to the provisions of any applicable confidentiality agreement or other arrangements between the Parties.

10. Binding Effect

This MOU is not intended to constitute a legally binding agreement, nor is it to be relied upon as constituting a final agreement for the transactions contemplated herein. This MOU is written with the understanding that no Party will be bound by any of its terms until negotiations have been concluded and definitive agreements have been executed and delivered. Notwithstanding the foregoing, the Parties agree that the following provisions are legally binding and enforceable against each of them: Sections 5 (Exclusivity), 6 (Termination), 7 (Transaction Expenses), 8 (Notices), 9 (Confidentiality), 10 (Binding Effect), 11 (Interpretation), 12 (Governing Law), 13 (Successors and Assigns), 14 (Invalidity) and 15 (Entire Agreement).

11. Interpretation

Each reference in this MOU to a statute, regulation or other instrument of a governmental authority is deemed to be a reference to such statute, regulation or instrument as amended, re-enacted or replaced from time to time. In this MOU, unless otherwise expressly provided herein or unless the context otherwise requires, words importing the singular number include the plural and vice versa.

12. Governing Law

This MOU shall be governed by and construed in accordance with the laws of the Province of Newfoundland and Labrador and the federal laws of Canada applicable therein. The Parties hereto irrevocably attorn to the exclusive jurisdiction of the courts of the Newfoundland and Labrador to resolve any dispute which may arise among them concerning this MOU and the subject matters hereof.

13. Successors and Assigns

All covenants and agreements of each Party in this MOU shall bind its successors and permitted assigns.

14. Invalidity

Each of the provisions contained in this MOU is distinct and severable and a declaration of invalidity, illegality or unenforceability of any such provision or part thereof by a court of competent jurisdiction shall not affect the validity or enforceability of any other provision of this MOU.

15. Entire Agreement

This MOU constitutes the entire agreement among the Parties with respect to the matters contemplated herein and supersede any prior negotiations, understandings or agreements with respect thereto.

16. Execution and Delivery

This MOU may be executed in one or more counterparts and delivered in an original form, or by email (.PDF format), each of which shall be deemed an original, and all which together shall constitute one and the same instrument.

[remainder of page intentionally left blank

The Parties have executed this MOU as of the date first written above.

TOWN OF BOTWOOD

Per: _____
Name: James Sceviour
Title: Mayor

EXPLOITS VALLEY RENEWABLE ENERGY CORPORATION

Per: _____
Name: Ravi Sood
Title: Chairman

EXPLOITS PROCUREMENT LTD.

Per: _____
Name: Daryl Bennett
Title: Director

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MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING ("**MOU**") is dated as of March 21st, 2023 ("**Effective Date**") between Exploits Valley Renewable Energy Corporation ("**EVREC**") and the Qalipu Holdings LP ("**QHLP**"). EVREC and QHLP may be referred to individually as a "**Party**" and collectively as the "**Parties**".

RECITALS:

A. The Government of Canada has provided its full, unqualified support to the United Nations Declaration on the Rights of Indigenous Peoples ("**UNDRIP**").

B. Call to Action no. 92 of the Truth and Reconciliation Commission calls on the corporate sector to adopt UNDRIP "as a reconciliation framework" and to "[e]nsure that Aboriginal peoples have equitable access to jobs, training, and education opportunities in the corporate sector…".

C. The following guiding principles shall establish the foundation for the relationship between the Parties:

Respect – the Parties will exercise patience, tolerance and respect towards each other and recognize their respective cultures, traditions, customs and way of life while acknowledging the diversity of viewpoints and encouraging open discussion to strengthen their respective decision-making processes.

Equity – the Parties recognize that they each bring value to the relationship and that their collective knowledge can be an asset in developing and implementing a mutually beneficial project. They commit to building their relationship around common goals.

Empowerment – the Parties will strive to empower each other throughout the course of their relationship. The Parties will ensure their words and actions match as they move forward in building their relationship. They will work to keep each other informed and will act with integrity. The Parties are committed to working in a genuine spirit of collaboration and building towards developing positive, beneficial and harmonious relationships.

D. QHLP is a related entity of the Qalipu First Nation ("**QFN**"), a Band under the *Indian Act* (Canada), with its headquarters in Corner Brook, Newfoundland and Labrador ("**NL**"). As an arms-length business organization, QHLP is mandated to manage the commercial affairs of and to seek new investment opportunities for QFN.

E. EVREC is a corporation with its headquarters in Toronto, Ontario, formed for the purpose of developing and operating a world-class wind powered hydrogen/ammonia production facility in central NL.

F. This MOU, and any subsequent business arrangement, are predicated on EVREC acknowledgement of QFN's traditional, current and future use of its homelands and territory, including QFN's member's hunting, trapping, fishing, harvesting, collection of traditional medicines and ceremonies thereon. EVREC further acknowledges that QFN and its related entities, including QHLP, possess certain interests and entitlements associated with the utilization of QFN territory by commercial entities, and as such, merit compensation in a manner consistent with Mi'kmaq practice and the principles of the *UN Declaration on the Rights of Indigenous Peoples*.

NOW, THEREFORE in consideration of the recitals and the mutual agreements herein set forth, and other good and valuable consideration, the Parties hereby agree as follows:

1. PROJECT

This MOU reflects the conditional obligations, non-binding understandings, and binding agreements made between the Parties related to the Project (as defined below). The Parties intend to work together to explore potential transactions, construction and economic opportunities related to EVREC's proposed wind and alternative energy project based in central NL (the "**Project**"). Potential elements of the Project may include, but are not limited to, the following:

(a) identifying activity areas related to port facilities, shipping, laydown areas, component assembly (*e.g.*, turbines) and other infrastructure where QHLP may participate;

(b) identifying QFN employment opportunities through all stages of Project, including, but not limited to, design, environmental impact assessments, pre-construction, construction and commercial operations;

(c) establishing an inventory list of foreseeable Project contracts with the objective of providing QFN businesses and/or affiliated businesses with a facilitated opportunity to prepare and submit proposals and quotes and otherwise participate in the procurement processes;

(d) providing and facilitating procurement opportunities to the benefit of QHLP businesses and/or affiliated businesses, and notably for those with demonstrated competence in large resource-based development;

(e) collaborating on the establishment of a post-secondary institution known (for purposes of this MOU) as the "Center of Excellence for Renewable Energy", which is to be located in Western NL, and developed in association with College of the North Atlantic, Memorial University of Newfoundland, and other private sector participants;

(f) collaborating on additional training provision opportunities specific to the central Newfoundland project;

(g) establishing and maintaining capacity funding (*i.e.*, reasonable remuneration) for the QHLP administration related to provision of QHLP support services concerning the Project;

(h) establishing financial measures that take into consideration the rights and interests of QFN and its members' lifestyle, relation to the land and traditional activities; and

(i) establishing an administrative structure *(e.g.*, formal working committee) to oversee discussions and negotiations related to the Project, including, but not limited to, finalizing an impact benefit agreement, joint-venture, limited liability partnership and/or other commercial arrangements associated with the Project and its operations.

2. PROJECT AGREEMENTS

2.1 Project Agreements. It is contemplated that the Parties may enter into one or more agreements with respect to any proposed transaction(s) concerning the Project (each, a "**Project Agreement**"). Any such Project Agreement shall include terms and conditions consistent with those outlined herein, as well as other terms and conditions customarily found in agreements of the kind contemplated by this MOU, including, but not limited to, with respect to funding, the go-forward business structure, each Party's contributions and ownership in same, and each Party's ongoing roles and responsibilities with respect to the Project.

2.2 Impact Benefit Agreement(s). Without limiting the generality of Section 2.1, in consideration of the recitals, and to recognize the potential adverse impact the Project may have on QFN's and its members' interests concerning use of the territory where the Project will be situated (which, for clarity, includes adjacent waters and associated airspace), the Parties shall endeavor to enter into one or more Project impact benefit agreements, as the Project progresses (each, an "**IBA**"). For clarity, each IBA shall be considered a "**Project Agreement**". In addition to any other terms and conditions customarily found in Project Agreements, each IBA shall include provisions related to employment and training; economic development and business opportunities; social, cultural and community support; environmental protection; implementation and coordination; and financial arrangements.

2.3 Support for the Project. Subject to negotiation and execution of Project Agreements as contemplated by this MOU, QFN consents to, and supports, the Project.

2.4 Non-Binding Nature. This MOU represents the general intent of the Parties concerning the subject matter hereof and does not create legally binding obligations on either Party. This MOU does not state all terms and conditions that are or may be included in any Project Agreement between the Parties. Notwithstanding any other provision of this MOU, save and except for Section 3 (Confidentiality), Section 4 (Term and

Termination), Section 5 (Miscellaneous) and this Section 2.3 (Non-Binding Nature), all of which are intended to be and are binding on the Parties and their respective successors and permitted assigns, this MOU is non-binding, does not create any legally binding obligations, and cannot be enforced by one Party as against the other.

3. CONFIDENTIALITY

3.1 Confidentiality. Any non-public information marked as confidential that is disclosed by one Party to the other pursuant to this MOU is confidential and shall not be disclosed to any third party without prior written consent of the disclosing Party, except as may be required by the receiving Party to perform its obligations hereunder. Each Party agrees that it shall only use the other Party's confidential information for the purposes of the Project and fulfilling its obligations under this MOU, shall ensure the security and integrity of such confidential information in its possession and under its control, and keep such confidential information in a physically secure location safe from loss, alteration or destruction.

3.2 Public Announcements. Any Party seeking to publish or otherwise communicate with the public (*e.g.*, press release) concerning matters relating to this MOU shall inform, involve, co-operate and obtain the prior written approval of the other Party.

4. TERM AND TERMINATION

4.1 Term. This MOU will commence on the Effective Date and will continue until terminated in accordance with Section 4.2.

4.2 Termination. This MOU will automatically terminate and be of no further force and effect upon the earlier of: (a) the mutual written consent of the Parties; or (b) fifteen (15) days prior written notice being provided by one Party to the other, if such Party decides, for any reason, that it is not in its best interests to proceed with the Project.

5. MISCELLANEOUS

5.1 Third Party Beneficiary. The Parties acknowledge and agree that QFN is an intended third party beneficiary and may enforce the terms of the Agreement.

5.2 No Non-Compete. For clarity, subject to the obligations set out in Section 3 (Confidentiality), this MOU does not prevent or limit either Party in the establishment, development or pursuance of any commercial activities or interests whatsoever.

5.3 Relationship of Parties. The Parties acknowledge and agree, under the terms and conditions of this MOU, that there is no agency relationship, employment relationship, partnership or joint venture between them.

5.4 Entire Agreement; Amendment. This MOU constitutes the entire agreement between the Parties and supersedes any prior understandings and agreements between the Parties related to the subject matter hereof. This MOU may only be amended by written agreement duly executed by each Party.

5.5 Severability. If any provision of this MOU or any portion of a provision is determined to be invalid or unenforceable, in whole or in part, such invalidity or unenforceability shall attach only to such provision or part thereof and the remaining part of such provisions and all other provisions shall, to the extent reasonably possible, continue in force and effect.

5.6 Governing Law. This MOU shall be governed by and construed in accordance with the laws of the Province of Newfoundland and Labrador and the federal laws of Canada applicable therein.

5.7 Assignment. This MOU enures to the benefit of and binds each Party and its respective successors and permitted assigns. Neither this MOU, nor any rights or obligations hereunder, may be assigned, delegated or conveyed by either Party without the prior written consent of the other Party.

5.8 Counterparts. This MOU may be executed and delivered in counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one agreement and this MOU may be executed by electronic means and such electronic signatures shall be treated as equivalent to original signatures for all intents and purposes.

[Signature Page Follows]

IN WITNESS WHEREOF, the Parties hereto have executed this MOU as of the Effective Date.

EXPLOITS VALLEY RENEWABLE ENERGY CORPORATION

per: _____
Name: Ravi Sood
Title: Director

QALIPU HOLDINGS LP

per: _____
Name: John M. Davis
Title: CEO

MEMORANDUM OF UNDERSTANDING

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RECITALS:

A. The Government of Canada has provided its full, unqualified support to the United Nations Declaration on the Rights of Indigenous Peoples ("**UNDRIP**").

B. Call to Action no. 92 of the Truth and Reconciliation Commission calls on the corporate sector to adopt UNDRIP "as a reconciliation framework" and to "[e]nsure that Aboriginal peoples have equitable access to jobs, training, and education opportunities in the corporate sector…".

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Empowerment – the Parties will strive to empower each other throughout the course of their relationship. The Parties will ensure their words and actions match as they move forward in building their relationship. They will work to keep each other informed and will act with integrity. The Parties are committed to working in a genuine spirit of collaboration and building towards developing positive, beneficial and harmonious relationships.

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F. This MOU, and any subsequent business arrangement, are predicated on EVREC acknowledgement of QFN's traditional, current and future use of its homelands and territory, including QFN's member's hunting, trapping, fishing, harvesting, collection of traditional medicines and ceremonies thereon. EVREC further acknowledges that QFN and its related entities, including QHLP, possess certain interests and entitlements associated with the utilization of QFN territory by commercial entities, and as such, merit compensation in a manner consistent with Mi'kmaq practice and the principles of the *UN Declaration on the Rights of Indigenous Peoples*.

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(b) identifying QFN employment opportunities through all stages of Project, including, but not limited to, design, environmental impact assessments, pre-construction, construction and commercial operations;

(c) establishing an inventory list of foreseeable Project contracts with the objective of providing QFN businesses and/or affiliated businesses with a facilitated opportunity to prepare and submit proposals and quotes and otherwise participate in the procurement processes;

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(e) collaborating on the establishment of a post-secondary institution known (for purposes of this MOU) as the "Center of Excellence for Renewable Energy", which is to be located in Western NL, and developed in association with College of the North Atlantic, Memorial University of Newfoundland, and other private sector participants;

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Termination), Section 5 (Miscellaneous) and this Section 2.3 (Non-Binding Nature), all of which are intended to be and are binding on the Parties and their respective successors and permitted assigns, this MOU is non-binding, does not create any legally binding obligations, and cannot be enforced by one Party as against the other.

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5.3 Relationship of Parties. The Parties acknowledge and agree, under the terms and conditions of this MOU, that there is no agency relationship, employment relationship, partnership or joint venture between them.

5.4 Entire Agreement; Amendment. This MOU constitutes the entire agreement between the Parties and supersedes any prior understandings and agreements between the Parties related to the subject matter hereof. This MOU may only be amended by written agreement duly executed by each Party.

5.5 Severability. If any provision of this MOU or any portion of a provision is determined to be invalid or unenforceable, in whole or in part, such invalidity or unenforceability shall attach only to such provision or part thereof and the remaining part of such provisions and all other provisions shall, to the extent reasonably possible, continue in force and effect.

5.6 Governing Law. This MOU shall be governed by and construed in accordance with the laws of the Province of Newfoundland and Labrador and the federal laws of Canada applicable therein.

5.7 Assignment. This MOU enures to the benefit of and binds each Party and its respective successors and permitted assigns. Neither this MOU, nor any rights or obligations hereunder, may be assigned, delegated or conveyed by either Party without the prior written consent of the other Party.

5.8 Counterparts. This MOU may be executed and delivered in counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one agreement and this MOU may be executed by electronic means and such electronic signatures shall be treated as equivalent to original signatures for all intents and purposes.

[Signature Page Follows]

IN WITNESS WHEREOF, the Parties hereto have executed this MOU as of the Effective Date.

EXPLOITS VALLEY RENEWABLE ENERGY CORPORATION

per: _____
Name: Ravi Sood
Title: Director

QALIPU HOLDINGS LP

per: _____
Name: John M. Davis
Title: CEO

BOTWOOD
·EN AVANT·

TOWN OF BOTWOOD
41 VALLEY ROAD, PO BOX 490
BOTWOOD, NL A0H 1E0
TEL: 709-257-2839 FAX: 709-257-3330
email: botwoodtowncouncil@nf.aibn.com
website: www.botwoodnl.ca

March 14, 2023

Exploits Valley Renewable Energy Corporation

Dear Sirs:

The Town of Botwood fully supports the Exploits Valley Renewable Energy Corporation (EVREC) proposal to establish a large-scale wind energy project in the Exploits region.

EVREC's plan to construct several hundred wind turbines, a large-scale energy storage facility and a hydrogen-ammonia plan in our community is exciting. When coupled with a significant revitalization of the Port of Botwood, the project will result in an unprecedented level of investment for our Town and region.

This world-class green energy project will usher in a new era of prosperity for Botwood and the entire Exploits Valley. Beyond the thousands of construction jobs and hundreds of well-paying operational jobs, this initiative will give Central Newfoundland a solid economic foundation for decades to come. Further, this forward-looking project is in line with the priorities of all levels of government — harnessing our wind resources to create a new industry to produce green energy products for export around the world.

The Town of Botwood has worked closely with the EVREC team and affiliated companies to develop and refine the project concept. We are confident EVREC has the experience, ability and means to successfully implement this project.

The recent public consultations introducing the initiative were very well received. We believe the level of effort for the consultations reflect EVREC's overall approach and demonstrates a very strong commitment to the project. As well, we believe there is a very high level of support for the initiative in our Town and throughout our region.

We look forward to working with EVREC to see a world-class green energy production facility established in our Town.

Respectfully,

James F. Sceviour

James F. Sceviour
Mayor

MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING ("MOU") made as of the 31st day of January, 2023

B E T W E E N:

THE TOWN OF BOTWOOD, a municipality incorporated under the laws of the Province of Newfoundland and Labrador (the **"Town"**)

- and -

EXPLOITS VALLEY RENEWABLE ENERGY CORPORATION, a corporation incorporated under the laws of the Province of Ontario (**"EVREC"**)

- and -

EXPLOITS PROCUREMENT LTD., a corporation incorporated under the laws of the Province of Newfoundland and Labrador (**"EPL"**)

(each a **"Party"** and collectively, the **"Parties"**).

WHEREAS the Town holds certain rights in relation to the development of wind farms on lands (the **"Town Lands"**) both within the boundaries of and within 30 kilometres of the Town, and has entered into a memorandum of agreement with EPL dated January 31st, 2023 pursuant to which EPL has been granted certain exclusive rights in relation to the development of wind farms on the Town Lands;

AND WHEREAS Exploits Valley Port Corporation (**"EVPC"**) is the owner of the port of the Town (the **"Port"**) and is a corporation without share capital whose board members are appointed by the Town and two other municipalities;

AND WHEREAS EVREC and/or its principals have expertise in financing, development and operation of renewable energy generation and related projects;

AND WHEREAS EPL and/or its principals have expertise in project management, procurement and logistics;

AND WHEREAS the Parties wish to define their respective roles in the financing, development, operation and ownership of a wind farm energy project (the **"Wind Project"**) for the purpose of generating electricity to be used for the production and transportation of green ammonia and hydrogen at facilities to be located in or near the Town (the **"Ammonia Project"**) (the Wind

Project and the Ammonia Project are collectively referred to as the "**Project**");

AND WHEREAS EPL and EVREC have entered into a memorandum of understanding (the "**EVREC-EPL MOU**") with respect to their cooperation in developing the Project;

AND WHEREAS it is expected that the Project will result in significant economic development in and around the Town, including the creation of approximately 2000 jobs during the construction phase and 500 jobs on an ongoing basis;

AND WHEREAS the Project is intended to be developed on the Town Lands and on Crown lands (together with the Town Lands, the "**Lands**") and to make use of the Port;

AND WHEREAS the Department of Industry, Energy and Technology of the Province of Newfoundland and Labrador (the "**Province**") published *Guidelines: Nominating Crown Lands for Wind Energy Projects* dated July 26, 2022 (the "**Nominations Process**") and thereafter published *Guidelines: Crown Lands Call for Bids for Wind Energy Projects* on December 14, 2022 **(the "Bid Process");**

AND WHEREAS the Parties wish to set out, on a non-legally binding basis (except as otherwise expressly provided herein), the principles, objectives, processes and documentation that the Parties intend to pursue and prepare in connection with the commitment to and implementation of the Project.

NOW THEREFORE this MOU sets out certain understandings and agreements between the Parties.

1. Project Agreements

The Town and EVREC will, in good faith, enter into discussions to prepare and finalize a definitive binding project agreement (the **"Project Agreement"**) and such other agreements, instruments and arrangements as the Parties deem appropriate (collectively, including the Project Agreement, the "**Definitive Agreements**"), which shall incorporate the respective commitments and responsibilities as set out in this MOU.

2. The Town Project Responsibilities

The Town will have the following responsibilities and obligations to be set out in the Project Agreement:

(a) provide EVREC with exclusive rights to develop the Project;

(b) exclusive access by EVREC to transport ammonia and hydrogen through the Town to the Port and rights of use for the Lands (to the extent controlled by the Town) and assets needed for the production and transportation of ammonia for the duration of the Project;

(c) work with EVREC and EPL to confirm Lands over which the Town has control and all reasonable measures to obtain and register such rights, as necessary and appropriate;

(d) grant to EVREC rights of use and rights of way in relation to the Wind Project and related electrical infrastructure and transport/connection infrastructure;

(e) grant to EVREC rights of use and rights of way in relation to the Ammonia Project site and transportation corridor to the Port from the Lands to be used for the Ammonia Project for the duration of the Project;

(f) the provision by the Town to EVREC of water in amounts needed for the Project on terms and conditions to be agreed by the Town and EVREC;

(g) entry into an agreement for the Town to secure to EVREC approximately 100 Ha of land for the Ammonia Project and related easements following approval of the submissions to the Nominations Process subject to securing necessary lands from the crown;

(h) as agreed and based on the results of the Feasibility Study (as defined below), apply for federal funds or other subsidies or investments for investment in the Port;

(i) provide and facilitate disclosure of information as may be reasonably required by EVREC under applicable securities legislation;

(j) provide and facilitate disclosure of information and otherwise cooperate with existing and prospective lenders and investors in the Project;

(k) subject to applicable municipal governance practices and requirements, adopt by-laws or similar municipal laws and regulations to permit developers of wind projects to conduct studies and install, operate and maintain equipment, including meteorological evaluation towers, anemometers, wind direction vanes, temperature and pressure sensors, and related equipment, and access rights in relation thereto, for the purpose of assessing wind resources on the Town Lands to be used for the Wind Project, and otherwise cooperate with EVREC and facilitate such activities and studies, including selecting suitable locations and providing information and assisting on filings with applicable governmental authorities;

(l) assist EVREC, in consultation with and as approved by EPL, in submissions to the Nominations Process in respect of the Wind Project;

(m) facilitate, consistent with good governance obligations and recognizing the rights and duties of the board of EVPC, the entry by EVREC, EPL and EVPC into a memorandum of understanding to set out the rights, roles and responsibilities of EVREC, EPL and EVPC with respect to the Project, including:

  (i) exclusive access by EVREC to transport ammonia and hydrogen through the Port and rights of use of assets needed for the production and transportation of ammonia for the duration of the Project at negotiated market fees; and

  (ii) rights of use and rights of way for EVREC necessary and appropriate for the Ammonia Project site and transport corridor to the Port from the Lands to be used for the Ammonia Project for the duration of the Project.

3. EVREC Project Responsibilities

EVREC shall have the following responsibilities, consistent with understandings set out in the EVREC-EPL MOU:

(a) assist the Town in asserting its claim on any portion of the Lands over which the Town has a legal claim but is disputed by any governmental authority or other third party;

(b) bear the cost of the Feasibility Study;

(c) as agreed and based on the results of the Feasibility Study, invest in the Port in parallel to the Town securing federal funds or other subsidies or investments up to an agreed amount;

(d) create a trust, or alternative structure, for the Town that EVREC would administer on a basis to be agreed with the Town. Initial funding of the trust would commence at the time of the redevelopment of the Port and subject to federal funds or other subsidies or investment. The trust will provide to the Town a net revenue royalty of an agreed percentage of net revenues for the life of the Project, ensuring a long-term income stream for the Town; and

(e) work with the Town to secure Lands for the Ammonia Project on the basis that EVREC would purchase those Lands owned by or under the control of the Town following approval under the Nominations Process at fair market value for industrial lands; and

(f) EVREC will work with the Town to identify town services required for the implementation of the project with the investment borne by EVREC, as agreed by the parties;

(g) EVREC will bear the cost of a feasibility study (the "**Feasibility Study**") to reposition the Port for ammonia and hydrogen transport; and

(h) EVREC will be responsible for the necessary fundraising for the Project, in parallel to the Town securing federal funds or other subsidiaries or investments up to an agreed amount.

4. Mutual EVREC and the Town Responsibilities

(a) EVREC and the Town will in good faith negotiate and conclude the Definitive Agreements within a reasonable time period after the date of this MOU.

(b) The Town and EVREC shall cooperate with respect to preparation and completion of the submission to the Bid Process.

5. Exclusivity

(a) Each Party acknowledges that pursuit of the Project will involve the expenditure of substantial time and money by the Parties. Subject to all the terms of this Section 5, each Party agrees that commencing on the date hereof to and including the earlier of:

(i) the date upon which the Bid Process ends, if EVREC is not a successful bidder at the conclusion of the Bid Process, or

(ii) two (2) years from the date of the signing of this MOU in accordance with its terms if EVREC is a successful bidder pursuant to the Bid Process,

it will not, without the prior written consent of the other Parties, directly or indirectly (including through any councillor, official, affiliate, employee, officer, director, shareholder, agent or other person acting on its behalf or at its direction) have, initiate or continue any communications, discussion or negotiations of any nature, or respond to any proposal or request for information, relating to the Project, any development of the Lands, any development of a wind-powered electricity generation facility on all or any of the Lands, any development of an ammonia or hydrogen production facility in or near the Town or any use of the Port, other than in cooperation with the other Parties as expressly contemplated in this MOU or with EPL as contemplated in existing agreements between the Town and EPL.

(b) Each Party shall be responsible for any breach of this Section 5 by its councillor, officials, affiliates, employees, officers, directors, shareholders, agents or other persons acting on its behalf or at its direction. The Parties agree, in addition to the remedies set out herein, that monetary damages may not be a sufficient remedy for any breach of this Section 5 and that the non-breaching Party shall be entitled to equitable relief, including injunction and specific performance, as a remedy for any such breach. Such remedies shall not be deemed to be the exclusive remedies for a breach of this Section 5 but shall be in addition to all other remedies as provided herein and otherwise available at law or equity, including, in the event of litigation, recovery of reasonable legal fees and expenses by the prevailing party (as determined by a court of competent jurisdiction in a final, non-appealable order).

(c) This Section 5 shall survive termination of this MOU.

6. Termination

(a) This MOU will terminate upon the earlier of:

(i) the execution of the Project Agreement;

(ii) the mutual written agreement of the Parties;

(iii) two years from the date of this MOU's execution; or

(iv) written notice from a Party or Parties to the other Party or Parties if a Party breaches any of its obligations under Section 5.

(b) Except with respect to any liabilities that may be incurred or suffered by a Party in connection with a breach by another Party of any provision referenced in Section 5, termination of this MOU prior to full execution and delivery of the Project Agreement shall be without liability and no Party will be entitled to any form of relief whatsoever, including injunctive relief or damages.

7. Transaction Expenses

Expenses of the Parties incidental to this MOU, the activities contemplated herein and the Definitive Agreements shall be borne by the Party incurring them except as otherwise expressly agreed by the Parties.

8. Notices

Any notice or communication to be made or given hereunder shall be in writing and may be made or given by personal delivery or email addressed to the respective Party at the below address or such other address or email as a Party may from time to time notify the other Party.

To: EVREC

181 Bay Street, Suite 1800, Box 754
Toronto, Ontario, Canada M5J 2T9

Attention: James Colter Eadie

Email: jcoltereadie@gmail.com

With a copy to (which shall not constitute notice):

Aird & Berlis LLP
181 Bay Street, Suite 1800, Box 754
Toronto, Ontario, Canada M5J 2T9

Attention: Richard Kimel

Email: rkimel@airdberlis.com

And to:

Town of Botwood

Po Box 490, 41 Valley Road, Botwood, NL

Attention: Stephen Jerrett and Mayor James Sceviour

Email: sjerrett@nf.aibn.com and jfsceviour@gmail.com

And to: EPL

30 Stentaford Avenue, Pasadena, NL

Attention: Daryl Bennett

Email: dbennett@marinecontractors.ca

9. Confidentiality

Neither this MOU nor the subject matter hereof may be disclosed to any third party or made public by a Party without the written consent of the other Party. This MOU and the subject matter hereof are confidential and subject to the provisions of any applicable confidentiality agreement or other arrangements between the Parties.

10. Binding Effect

This MOU is not intended to constitute a legally binding agreement, nor is it to be relied upon as constituting a final agreement for the transactions contemplated herein. This MOU is written with the understanding that no Party will be bound by any of its terms until negotiations have been concluded and definitive agreements have been executed and delivered. Notwithstanding the foregoing, the Parties agree that the following provisions are legally binding and enforceable against each of them: Sections 5 (Exclusivity), 6 (Termination), 7 (Transaction Expenses), 8 (Notices), 9 (Confidentiality), 10 (Binding Effect), 11 (Interpretation), 12 (Governing Law), 13 (Successors and Assigns), 14 (Invalidity) and 15 (Entire Agreement).

11. Interpretation

Each reference in this MOU to a statute, regulation or other instrument of a governmental authority is deemed to be a reference to such statute, regulation or instrument as amended, re-enacted or replaced from time to time. In this MOU, unless otherwise expressly provided herein or unless the context otherwise requires, words importing the singular number include the plural and vice versa.

12. Governing Law

This MOU shall be governed by and construed in accordance with the laws of the Province of Newfoundland and Labrador and the federal laws of Canada applicable therein. The Parties hereto irrevocably attorn to the exclusive jurisdiction of the courts of the Newfoundland and Labrador to resolve any dispute which may arise among them concerning this MOU and the subject matters hereof.

13. Successors and Assigns

All covenants and agreements of each Party in this MOU shall bind its successors and permitted assigns.

14. Invalidity

Each of the provisions contained in this MOU is distinct and severable and a declaration of invalidity, illegality or unenforceability of any such provision or part thereof by a court of competent jurisdiction shall not affect the validity or enforceability of any other provision of this MOU.

15. Entire Agreement

This MOU constitutes the entire agreement among the Parties with respect to the matters contemplated herein and supersede any prior negotiations, understandings or agreements with respect thereto.

16. Execution and Delivery

This MOU may be executed in one or more counterparts and delivered in an original form, or by email (.PDF format), each of which shall be deemed an original, and all which together shall constitute one and the same instrument.

[remainder of page intentionally left blank

The Parties have executed this MOU as of the date first written above.

TOWN OF BOTWOOD

Per: _____
Name: James Sceviour
Title: Mayor

EXPLOITS VALLEY RENEWABLE ENERGY CORPORATION

Per: _____
Name: Ravi Sood
Title: Chairman

EXPLOITS PROCUREMENT LTD.

Per: _____
Name: Daryl Bennett
Title: Director

J:\Clients\31163-2\MOU EVREC Botwood and EPL - Final.docx

Town of Point Leamington

P.O. Box 39, Point Leamington, NL A0H 1Z0
Tel: 709-484-3421 Fax: 709-484-3556

Department of Industry, Energy and Technology
Natural Resources Building
50 Elizabeth Avenue
P.O. Box 8700
St. John's, NL A1B 4J6

Attention: Call for Bids

February 20, 2023

Re: Crown Lands Call for Bids for Wind Energy Projects: Municipal Support for EVREC Project

Dear Sirs/Mesdames,

I am writing in connection with the submission by Exploits Valley Renewable Energy Corporation ("EVREC") to the Department of Industry, Energy and Technology of the Province of Newfoundland and Labrador ("IET") in relation to the Crown Lands Call for Bids for Wind Energy Projects. The Submission relates to a wind project to be developed for the purpose of generating electricity to be used for the production and transportation of green ammonia and hydrogen within the Exploits District.

As the Mayor of Point Leamington, and on behalf of the Municipality, I wish to hereby convey to IET the support and approval of the Municipality for the development, construction and operation of the Project. This support is based on our knowledge of the project to date and its partners. The project proponent has visited our council and subsequently held an open house event in our community of which the feedback was supportive.

Please feel free to contact me should you require any further information.

Sincerely,

Wilfred Mercer, Mayor

DEER LAKE
REGIONAL AIRPORT

September 16th, 2024

Exploits Valley Renewable Energy Corporation
6 Church Street
C/O Canada Post
267 Water Street
Botwood, NL
A0H 1E0

Re: Full Support for EVREC's Green Hydrogen and Ammonia Project

Dear Dean Comand,

We are pleased to offer our full support for the EVREC Green Hydrogen and Ammonia Project. This initiative represents a significant step forward in advancing sustainable energy solutions in Central Newfoundland and aligns with our shared goals for environmental stewardship and economic growth.

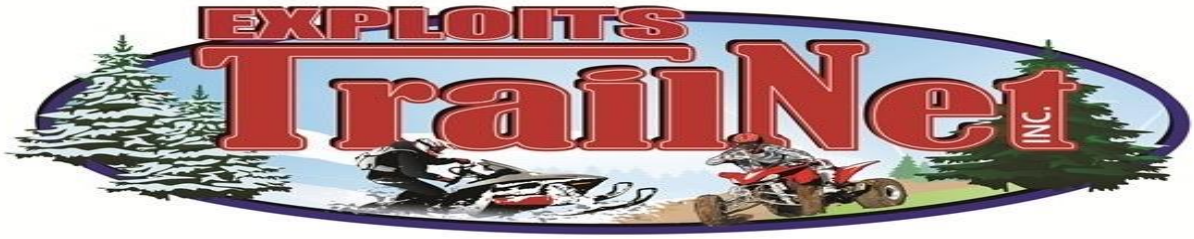
By utilizing renewable energy sources, this project will help reduce greenhouse gas emissions, enhance energy security, and stimulate local economic development through job creation and community engagement. We believe that the benefits of this project will extend across multiple sectors, positioning our region as a leader in green technologies.

The project will provide much needed economic investment in our province, grow our economy and support local business which will lead to sustainable and growing communities across our entire province.

We are excited to see the positive impact this project will have on our community and fully endorse its development.

Sincerely;

Tammy Priddle
President and CEO
Deer Lake Regional Airport Authority Inc.



September 17, 2024

Exploits Valley Renewable Energy Corporation
6 Church Street
C/O Canada Post
267 Water Street
Botwood, NL
A0H 1E0

Subject: Full Support for EVREC's Green Hydrogen and Ammonia Project

Dear Dean Comand,

On behalf of Exploits Trail Net Inc., we are pleased to offer our full support for the EVREC green hydrogen and ammonia project. This groundbreaking initiative is poised to deliver substantial benefits to Central Newfoundland, both environmentally and economically, while advancing the region's position as a leader in green technology.

The project's focus on utilizing renewable energy sources will significantly reduce greenhouse gas emissions, which aligns with our own commitment to environmental stewardship. Moreover, the project's potential to generate local jobs, attract investment, and foster economic growth will directly benefit communities across the Exploits Valley and surrounding areas.

We see this as an exciting opportunity not only for green energy development but also for future collaboration with Exploits Trail Net Inc. As stewards of over 400 km of trail systems, we recognize the importance of sustainable practices in maintaining and expanding our trail network. The partnership between EVREC and Exploits Trail Net offers a unique opportunity to explore new ways of supporting eco-tourism and further trail development, which will enhance the recreational and environmental value of our region.

We are excited to see the positive impacts this project will bring to our community and look forward to working together to support both EVREC's initiatives and future development projects that benefit Central Newfoundland.

Sincerely,
Dave Noel
President
Exploits Trail Net Inc.

LANDMARK
SURVEYS & ENGINEERING LIMITED

50 Roe Avenue
PO Box 367,
Gander, NL A1V 1W8
T. (709) 256-2648
F. (709) 256-3925

2 Mill Road
Grand Falls-Windsor, NL
A2A 1B7
T. (709) 489-7881
F. (709) 489-1154

209 Main Street
PO Box 40,
Lewisporte, NL A0G 3A0
T. (709) 535-8747
F. (709) 535-8209

September 19, 2024

Exploits Valley Renewable Energy Corporation
6 Church Street
C/O Canada Post
267 Water Street
Botwood, NL A0H 1E0

RE: Full Support for EVREC's Green Hydrogen and Ammonia Project

Dear Dean Comand,

We are pleased to offer our full support for the EVREC green hydrogen and ammonia project. This initiative represents a significant step forward in advancing sustainable energy solutions in Central Newfoundland and aligns with our shared goals for environmental stewardship and economic growth.

By utilizing renewable energy sources, this project will help reduce greenhouse gas emissions, enhance energy security, and stimulate local economic development through job creation and community engagement. We believe that the benefits of this project will extend across multiple sectors, positioning our region as a leader in green technologies.

We are excited to see the positive impact this project will have on our community and fully endorse its development.

Sincerely,

Brad Eisan

LANDMARK
SURVEYS & ENGINEERING LIMITED
Brad Eisan, NLS, P.Eng., P.Surv.
Managing Partner
Landmark Surveys & Engineering Limited
office:+1 709 256 2648 cell:+1 709 235 0612
beisan@landmarksurveys.ca
www.landmarksurveys.ca

Marine Contractors Inc.
30 Stentaford Avenue
Pasadena, NL
A0L 1K0

September 19, 2024

Exploits Valley Renewable Energy Corporation
6 Church Street
C/O Canada Post
267 Water Street
Botwood, NL
A0H 1E0

Subject: Full Support for EVREC's Green Hydrogen and Ammonia Project

Dear Dean Comand,

We are pleased to offer our full support for the EVREC green hydrogen and ammonia project. This initiative represents a significant step forward in advancing sustainable energy solutions in Central Newfoundland and aligns with our shared goals for environmental stewardship and economic growth.

By utilizing renewable energy sources, this project will help reduce greenhouse gas emissions, enhance energy security, and stimulate local economic development through job creation and community engagement. We believe that the benefits of this project will extend across multiple sectors, positioning our region as a leader in green technologies.

We are excited to see the positive impact this project will have on our community and fully endorse its development.

Sincerely,

Adam Buckle
CFO
Marine Contractors Inc.

APPENDIX D.1
Air Dispersion Study Report

Prepared by: io consulting

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

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consulting

EVREC Green Ammonia

Air Dispersion Study Report

J-001817-ENV-TN-00001

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Document Control

Rev	Reason for Issue	Author	Date	Checker	Date	Approver	Date
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1	IAF	A Alva Sanchez	23/02/26	S Jivraj	23/02/26	S Jivraj	23/02/26
0	IFA	A Alva Sanchez	19/01/26	S Jivraj	19/01/26	J Varney	19/01/26
A	IDC	A Alva Sanchez	16/01/26	S Jivraj	16/01/26	J Varney	16/01/26

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Revision History

Revision No	Section Ref	Description of Change
A	All	Issued for internal review
0	All	Issued for approval
1	All	Issued as Final
2	All	Client comments incorporated
3	Appendices	Issued as Final

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Holds

Hold No	Section Ref	Description of Hold

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1. Introduction

1.1 Background

EVREC are developing a Green Hydrogen and Ammonia Production, Storage and Loading Facility located outside the town of Botwood, Central Newfoundland (hereafter referred to as "**EVREC Green Ammonia**"). The facility will be located on a historical brownfield forestry site selected for redevelopment under the mandate of the Central Newfoundland Task Force.

The renewable energy for the facility will predominately be supplied by a 3GW Wind farm developed by EVREC and energy storage technologies will be investigated as part of this study.

The proposed project, at peak, will produce approximately of 1.05 mtpa of ammonia, requiring approximately 13,000 GWh of energy per year and 4,015 million litres of water per year.

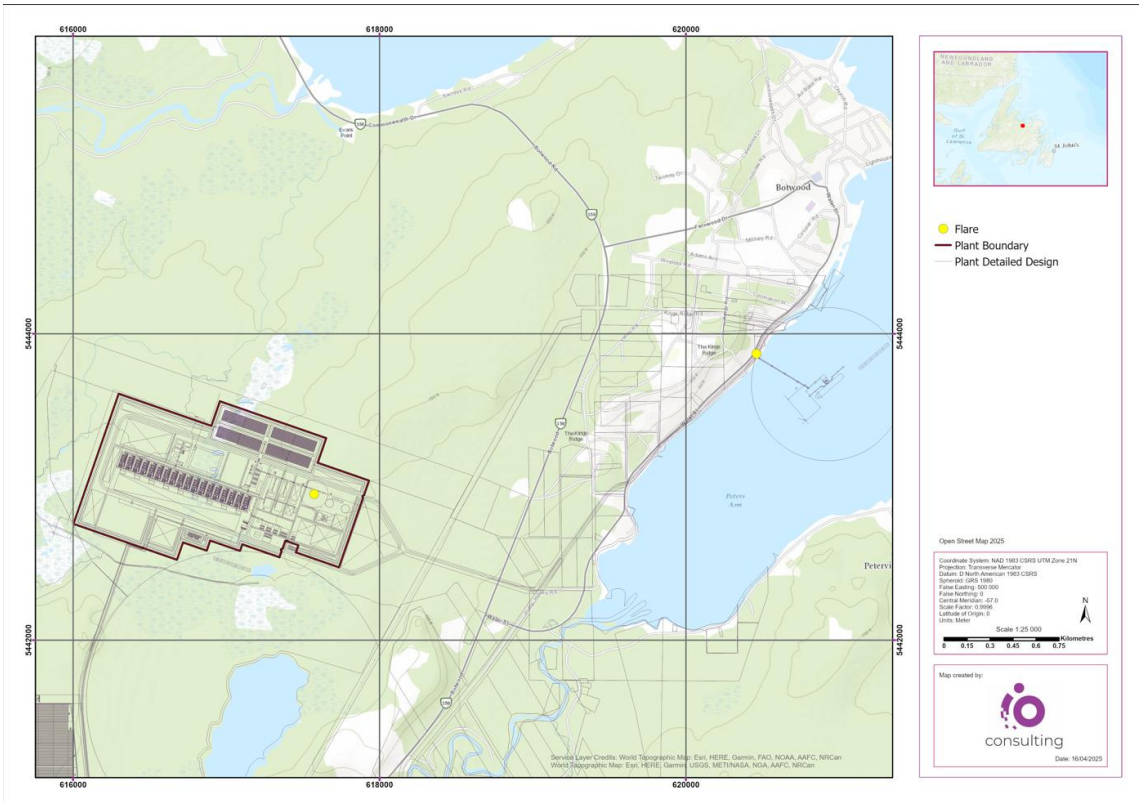

Figure 1-1 Project Location

Key project components in the main plan includes electrolysis units to produce hydrogen from deionized water; an air separation unit to generate nitrogen from the air; a Haber-Bosch ammonia synthesis unit to form anhydrous liquid ammonia through a catalytic reaction of hydrogen and nitrogen; bulk ammonia storage; and a marine terminal comprising a marine offloading facility and jetty to ship anhydrous liquid ammonia to market via speciality marine carriers. Neither the electrolysis units nor the Haber-Bosch ammonia synthesis unit will produce carbon emissions under normal operating conditions because no fossil fuels will be burned.

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1.2 Document Purpose

In support of the EIS, the purpose of this report is to determine whether the project during normal operations has any adverse impacts on nearby communities by ensuring they comply with national and provincial regulatory ambient air quality limits set for the Project. The pollutants regulated by law include particulate matter, ozone, oxides of nitrogen (as nitrogen dioxide), oxides of sulphur (as sulphur dioxide), carbon monoxide, hydrogen sulphide and ammonia. Currently no emission limits are in place for methane, carbon dioxide, nitrous oxide and/ or other greenhouse gas emissions.

The only continuous emissions generated by the project are from pilots on flares hence the key focus of this study. The study includes evaluation of accidental, intermittent, or short-term relief events. While exceedances observed under these conditions will be recorded, they will not be interpreted as violations of legal air quality standards, recognising their non-routine nature.

The objective of this screening-level air dispersion modelling study is to provide an early assessment of whether the **EVREC Green Ammonia** can comply with applicable provincial and national air quality standards. This assessment has been initiated during the early stages of FEED design, prior to vendor award, in order to support informed decision-making and risk identification related to air quality impacts. The study serves as a preliminary demonstration of regulatory compliance based on projected commissioning and operational emissions.

1.3 Document Scope

The modelling study considers a range of potential emission scenarios identified by **EVREC** (“COMPANY”) and **io consulting** (“CONSULTANT”) that are considered representative of worst-case conditions for the **EVREC Green Ammonia** site. Under normal operating conditions, the only anticipated combustion source is the flare pilot gas, with no other continuous combustion equipment expected to be in operation, with the exception of a semi-continuous flash-gas purge used to remove inert gases from the ammonia synthesis process. Dispersion modelling has been undertaken to evaluate the potential impacts of these emissions on ambient air quality at the site boundary and at nearby sensitive receptors.

Air pollutant releases associated with main plant commissioning, process abnormal depressurisation, and plant upset conditions are also included in the assessment to characterise potential impacts; however, these emissions are treated as non-routine and short-duration events.

Emissions from other transient activities (including construction-related dust and equipment use, vessel movements between the jetty and product-to-market shipping routes, blowdown releases from vessels during jetty loading, and other intermittent sources such as fugitive emissions) have been excluded from the scope of this study. These sources are either outside the defined scope of the Project Environmental Impact Statement (EIS) or cannot yet be characterised with sufficient certainty due to the current level of design maturity.

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2. Methodology

2.1 Modelling Tool

An air dispersion model was developed using the commercially available software BREEZE AERMOD v13.1 Pro Plus, provided by Trinity Consultants. AERMOD Version 13.1 was selected as the modelling tool as it is a state-of-the-science, steady-state Gaussian air dispersion model approved by the United States Environmental Protection Agency (US EPA) for most refined regulatory modelling applications and is also recognised as a suitable modelling tool by Canadian regulators.

AERMOD is designed to estimate pollutant concentrations and deposition from industrial emission sources. The model represents pollutant dispersion as a Gaussian (normal) distribution in both the horizontal and vertical planes, with concentrations decreasing away from the plume centreline.

AERMOD can be applied in either short-term or long-term modes, depending on the meteorological data used. The short-term model utilises hourly meteorological conditions, while the long-term model is based on annual average statistics. This air dispersion assessment was conducted using hourly sequential meteorological data. Version 13.1 incorporates the latest US EPA-approved executable (version 24142).

2.2 Model Set-up

There are two steps in determining the received ground level concentration of atmospheric pollutants:

- Step 1: involves determining the background concentration, mainly measured values, provided by installed monitoring stations (local to facility).
- Step 2: uses modelling to determine the additional contribution from industrial processes.

Together these form the predicted total ground level contribution, that is:

Ground Level Concentration = Background Concentration + Process Contribution

Measurements of background pollutant concentrations at the site location was not available at the time of writing this report. However, given that the project site is located in the Botwood area of Newfoundland, which is characterised by a limited number of industrial activities in the surrounding region, background air pollutant concentrations in the area are expected to be relatively low. Accordingly, the concentrations presented in the results section represent the modelled process contributions from the proposed industrial development.

For the process contribution, AERMOD uses the following input parameters:

- Equipment coordinates.
- Equipment emissions details such as:
- Pollutant mass emission rates.
- Exhaust stack height.
- Exhaust gas temperature and exit velocity.
- Heat release and radiation loss from the combustion process during flare relief events.

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Emission sources represented in the model were based on the equipment list [1] with emission rates of specific pollutants based on the calculations undertaken in the emissions inventory [2]. Emission sources (i.e., equipment) locations within the process site were based on the overall plot plan [3].

2.3 Scenarios

Four cases were modelled as part of this study, including:

- Normal operation of main plan equipment which produces emissions in a continuous manner. These emissions are expected from flaring of pilot gas from all 3 flares (main ammonia flare, ammonia storage flare and jetty flare).
- Commissioning activities involve the temporary operation of several emission sources required to safely start up and test plant systems. Emissions during this phase are primarily associated with the use of process and jetty flares for system purging, equipment testing, and stabilization, including pilot gas flaring from the process flare, ammonia storage flare, and jetty flare. In addition, short-term emissions are expected from the operation of diesel-fired equipment, including emergency generators and light-duty generators, which are used intermittently for power supply, testing, and backup during commissioning. These emission sources are non-routine, time-limited, and are not expected to operate continuously once normal plant operations commence.
- Abnormal operations occur under no or low wind conditions, when on-site power is supplied by the emergency diesel generators and electrolyser diesel generators to maintain uninterrupted plant operation. Resulting emissions are short term and limited to the duration of the event. Contributing sources for this case include propane-fuelled pilots at the Ammonia Process Flare, Ammonia Storage Flare, and Jetty Flare; a continuous flash gas purge from the ammonia washing column to prevent inert gas accumulation during operation at approximately 10% turndown throughput; and the operation of low-sulphur diesel emergency and electrolyser generators. Collectively, these sources define the short-term, event-driven emissions profile for abnormal operations under no/low wind conditions.
- Operational upset emissions may occur during short-duration, unplanned deviations from normal operating conditions and are primarily associated with the activation of pressure relief systems and increased flaring to safely manage excess or off-specification process gases, including releases via the process flare, ammonia storage flare, jetty flare, and relief streams routed to the process flare, with additional intermittent emissions from diesel-fired emergency and support equipment as required to maintain safe operation.

2.4 Boundary Settling

Equipment and sensitive receptor locations are based on the Universal Transverse Mercator (UTM) projection using NAD 83. The Project area is located in UTM zone 21N. Boundary coordinates for the **EVREC Green Ammonia** main processing plant is on Table 2-1 to Table2-3 (for main plant, solar plant and concession site, respectively), with plant boundary highlighted in pink in Figure 2.1.

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Table 2-1 Main Plant Boundary Coordinates

X Coordinate	Y Coordinate
NAD 83 UTM 21N E	**NAD 83 UTM 21N N**
616297.50	5443609.00
616902.10	5443400.00
616957.90	5443560.00
617652.30	5443319.00
617596.50	5443158.00
617931.90	5443042.00
617735.10	5442475.00
617453.60	5442573.00
617469.90	5442620.00
617384.90	5442650.00
617347.30	5442541.00
617104.40	5442625.00
617089.70	5442583.00
616894.80	5442650.00
616871.90	5442584.00
616717.20	5442638.00
616677.80	5442525.00
616002.40	5442759.00

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Table 2-2 Solar Plant Boundary Coordinates

X Coordinate	Y Coordinate
NAD 83 UTM 21N E	**NAD 83 UTM 21N N**
615027.90	5441858.00
615184.60	5441858.00
615184.60	5441763.00
615243.60	5441763.00
615243.60	5441668.00
615206.00	5441586.00
615070.90	5441474.00
615071.60	5441371.00
615200.10	5441166.00
615225.90	5441166.00
615551.10	5441588.00
615990.60	5441588.00
616032.70	5441041.00
615795.80	5441033.00
615795.80	5440940.00
615481.00	5440673.00
615548.30	5440495.00
614728.90	5440238.00

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Table 2-3 Site Plant Outer Boundary Coordinates

X Coordinate	Y Coordinate
NAD 83 UTM 21N E	**NAD 83 UTM 21N N**
618610.40	5443073.00
615987.80	5443983.00
614159.70	5440796.00
614506.10	5440164.00
614125.90	5439849.00
614445.90	5439532.00
613821.40	5439094.00
614091.50	5438044.00
614702.10	5438745.00
615076.80	5439610.00
615193.60	5439071.00
615381.80	5439064.00
615818.40	5439490.00
615764.80	5439649.00
616865.60	5440988.00
616955.20	5441484.00
617044.30	5441828.00
617369.20	5441930.00
617883.70	5441781.00
618140.80	5442233.00
618434.40	5442307.00
618488.10	5442374.00
618624.70	5442200.00
618879.10	5442108.00
619010.30	5442297.00
618756.30	5442687.00
618460.40	5442804.00

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The Area of Interest (AOI) for this study focused on an area extending 10 km by 8 km centred to cover process facilities and primary receptors. This sets the boundaries of the model canvas (see Figure 2.1) and includes the following receptor grids:

- Coarse Grid extending 10,000m by 8000m, with grid spacing of 200 m presented as yellow crosses (see Figure 2-1).
- Main plant boundary, identified in pink (see Figure 2-1).
- Discrete sensitive receptors in the vicinity of the main plant are illustrated in Figure 2-2, with the nearest to the site shown in Figure 2-3.

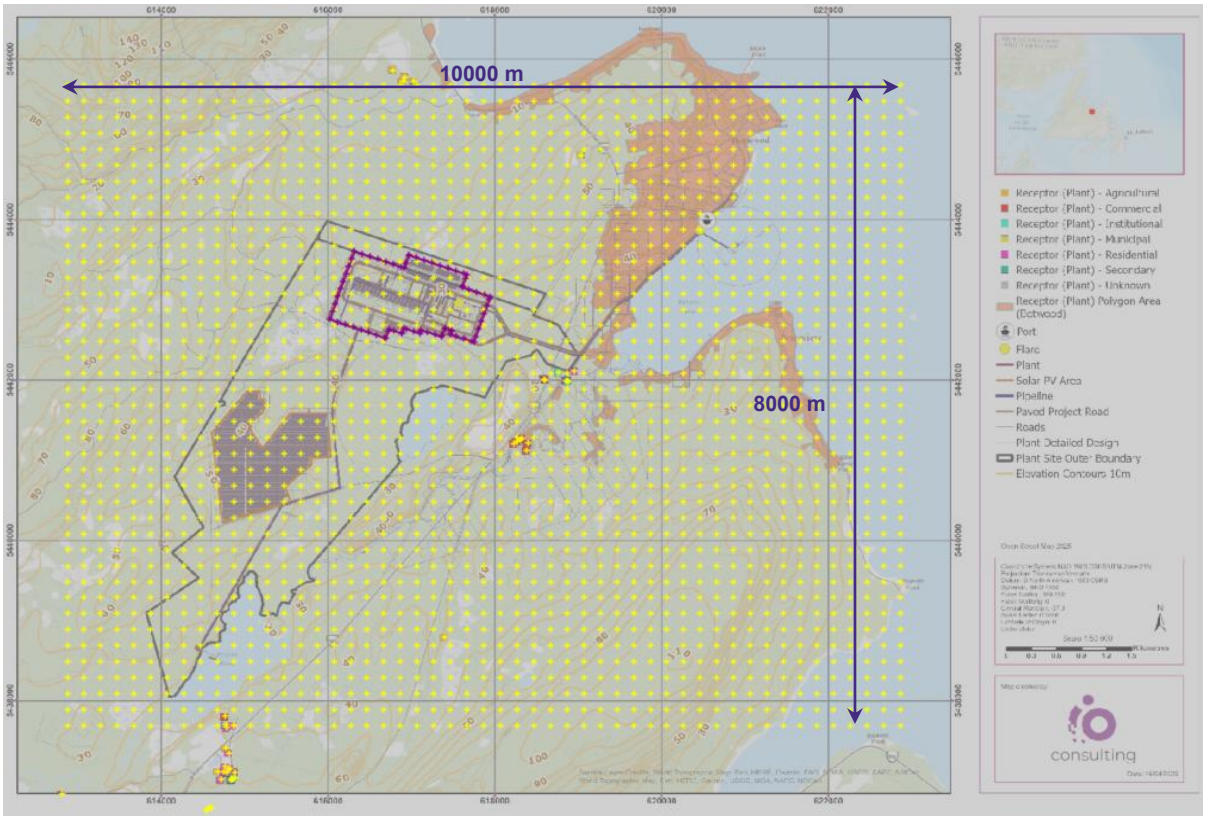

Figure 2-1 Grid & Plant Boundary Receptors Location

The discrete receptors identified in the project AOI, includes:

- agricultural lands,
- commercial areas,
- institutional uses,
- municipal areas,
- residential areas, and
- the township of Botwood, highlighted on maps as an orange area following the coastline to the north and north-east of the area of interest.

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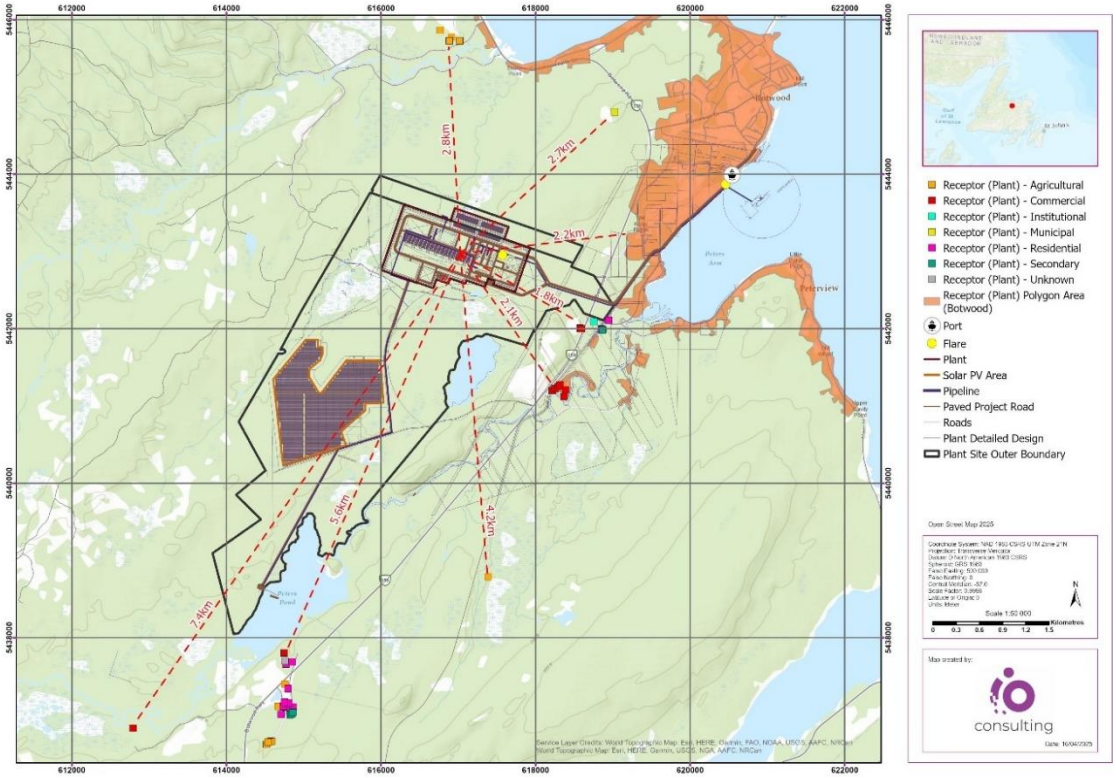

Figure 2-2 Sensitive Receptor Location from Main Plant

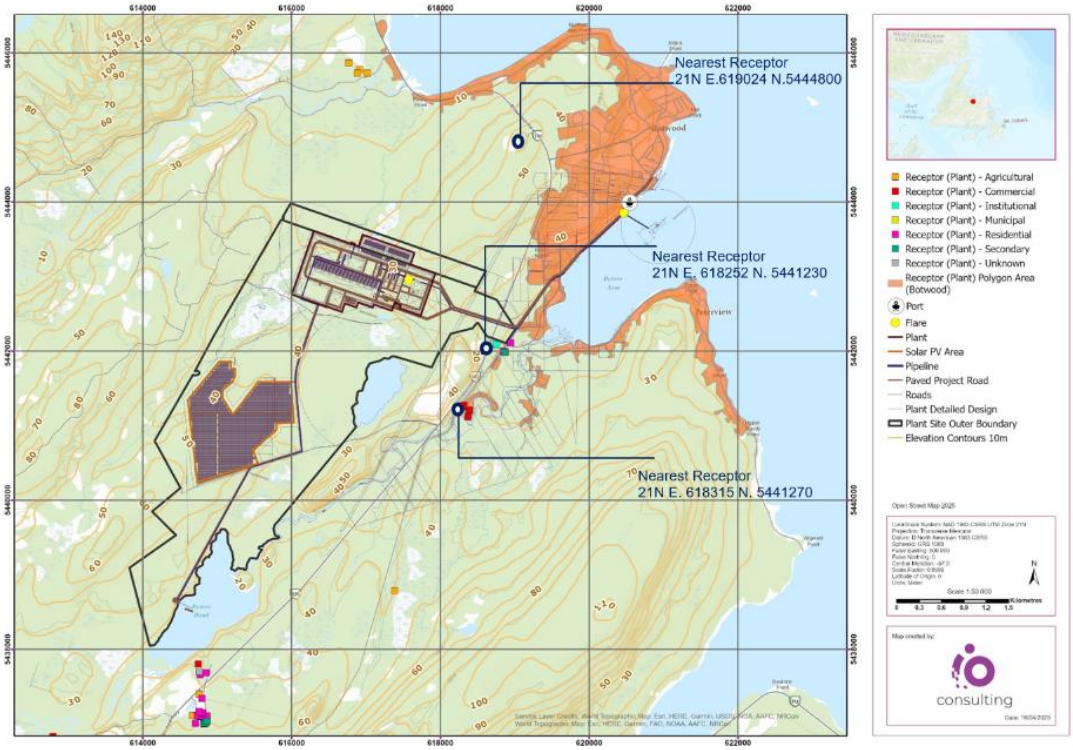

Figure 2-3 Nearest Sensitive Receptor Location

These receptors represent communities that could potentially be impacted by emissions from the **EVREC Green Ammonia** Development and thus it is important that the modelling results are

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compared against ambient air quality limits at these locations. The geo-locations for these receptors are identified in Table 2-4 below.

Table 2-4 Sensitive Receptor Coordinates

Description (SW corner)	ID in AERMOD	Description	X Coordinate NAD 83 UTM 21N E	Y Coordinate NAD 83 UTM 21N N
Municipal	M1	1	619024	5444800
Commercial	C1	2	618576	5442010
Commercial	C2	3	618594	5442000
Commercial	C3	4	618215	5441200
Commercial	C4	5	618252	5441230
Commercial	C5	6	618295	5441250
Commercial	C6	7	618315	5441270
Commercial	C7	8	618390	5441210
Commercial	C8	9	618368	5441120
Agricultural	A1	10	617386	5438790
Agricultural	A2	11	614590	5436660
Agricultural	A3	12	614568	5436660
Agricultural	A4	13	614518	5436620
Agricultural	A5	14	614542	5436650
Agricultural	A6	15	614757	5437400
Residential	R1	16	614797	5437340
Residential	R2	17	614707	5437010
Residential	R3	18	614824	5437020
Residential	R4	19	614774	5437100
Residential	R5	20	614736	5437110
Residential	R6	21	614866	5437100
Residential	R7	22	614791	5437140
Residential	R8	23	614806	5437150
Residential	R9	24	614752	5437170
Agricultural	A7	25	614669	5437110
Secondary	S1	26	614820	5437000
Secondary	S2	27	614836	5437010
Secondary	S3	28	614845	5437010
Secondary	S4	29	614861	5437030
Commercial	C9	30	614747	5437800
Residential	R10	31	614771	5437660
Unknown	U1	32	614758	5437700

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Description (SW corner)	ID in AERMOD	Description	X Coordinate NAD 83 UTM 21N E	Y Coordinate NAD 83 UTM 21N N
Residential	R11	33	614852	5437690
Institutional	I1	34	618754	5442090
Commercial	C10	35	612792	5436830
Residential	R12	36	618945	5442110
Residential	R13	37	618849	5441990
Secondary	S5	38	618869	5441990
Secondary	S6	39	618865	5441980
Agricultural	A8	182	616767	5445860
Agricultural	A9	183	616912	5445780
Agricultural	A10	184	616886	5445730
Agricultural	A11	185	617018	5445730

2.5 Sources of Emission

Emitting equipment locations associated with the project are based on the overall plot plan [Ref. 1]. Emissions sources locations that were included in the different model scenarios are indicated within the plot plan and shown in Figure 2-4 with equipment of interest indicated and labelled.

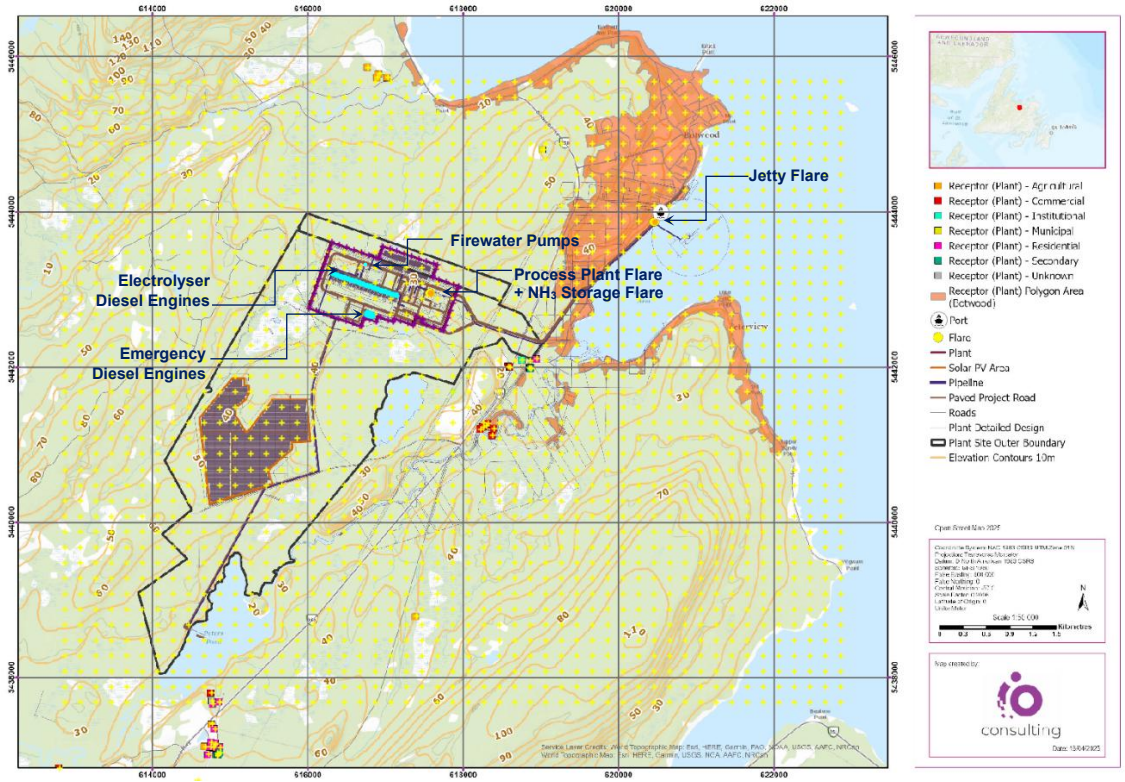

Figure 2-4 Emission Sources

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2.6 Emission Rates

Emission rates for each source were derived from the calculations in the Emissions Inventory [Ref.2] and presented in supporting documentation [Ref.3]. The resulting emission rates are summarised as follows: Table 2-5 (normal operations), Table 2-6 (commissioning), Table 2-7 (abnormal operations), and Table 2-8 (emergency releases).

The pollutants considered in this modelling assessment include oxides of nitrogen (NO_x), particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$, including soot), carbon monoxide (CO), and oxides of sulphur (expressed as SO_2).

Oxides of nitrogen (NO_x) are defined as the combined mass of nitric oxide (NO) and nitrogen dioxide (NO_2), i.e., NO_x = NO + NO_2. Combustion sources typically emit NO_x predominantly as NO, which can subsequently oxidise in the atmosphere to form NO_2. Guidance such as Newfoundland and Labrador's GD-PPD-019.2 [Ref.4] indicates that post-stack NO_2 formation is influenced by the availability of ambient oxidants, particularly ozone (O_3). However, ambient air quality criteria are generally specified for NO_2 rather than total NO_x. Accordingly, where emission data are reported as NO_x (e.g., from stack testing or emission factor methods), dispersion assessments against NO_2 objectives require explicit treatment of NO_x-to-NO_2 conversion. This may be addressed conservatively by assuming 100% conversion of NO_x to NO_2 for screening purposes, or through a more refined, jurisdiction-accepted approach (e.g., application of an in-stack NO_2/NO_x ratio and/ or an approved NO_2 chemistry option within the dispersion modelling framework).

As the emissions inventory is based on pre-FEED level project data, emission estimates were developed using a factor-based approach in accordance with the US EPA AP-42 emission factor framework, under which oxides of nitrogen are reported as total NO_x without prescribing atmospheric conversion to NO_2. For this screening-level assessment, a conservative assumption has therefore been adopted whereby NO_x emissions are modelled as 100% converted to NO_2.

As only the Project's incremental contribution to ambient air quality is considered at this stage, background O_3 concentrations and ambient NO_x interactions have not been explicitly incorporated. Where appropriate, sensitivity analyses will be undertaken during subsequent design phases to compare this conservative assumption with more refined conversion approaches as project data and baseline information mature.

Similarly, with respect to total suspended particulates (TSP), this assessment is based on pre-FEED emissions data and limited technical specifications. Detailed vendor exhaust data, including particulate size distributions, are not yet available. In later design phases, vendor-supplied exhaust composition data would typically be used to more robustly characterise TSP.

For the present study, emissions were estimated using preliminary design information and recognised emission factors, primarily from US EPA AP-42. AP-42 provides emission factors for $PM_{2.5}$ and PM_{10} for diesel engines and identifies PM_{10} for flaring sources but does not provide TSP emission factors for these categories. In the absence of source-specific size distribution data, it was not technically justified to derive TSP emission rates from the available PM data.

Given that combustion sources (flare pilots and intermittent diesel equipment) are expected to emit predominantly fine particulates, and no material fugitive dust sources are included within the modelling scope, $PM_{2.5}$ and PM_{10} were considered the most appropriate particulate metrics for this screening-level assessment.

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Other source parameters used in the models include:

- Stack height – for flares, stack heights for diesel engines, firewater pumps etc, assumed based on experience.
- Stack diameter – Inner diameters for ammonia flare, ammonia storage flare and jetty flare were provided by Client [Ref. 3] and / or otherwise assumed based on experience.
- Exhaust temperature – flare combustion temperatures were based on a typical value advised by the AERMOD software developer; diesel generator values are assumed based on representative vendor value [Ref. 3].
- Exhaust velocity – flare exhaust velocities were based on 40 CFR 65.147 and / or 40 CFR 63.670 and/ or calculated based on flue gas generated at stack release and stack diameters [see Ref. 3].

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Table 2-5 Normal Emission Sources

Case 1- Normal	Description	No of units No.	X Coordinate	Y Coordinate	Elevation	NOx Emission Rate	PM_{10} Emission Rate	$PM_{2.5}$ Emission Rate	CO Emission Rate	SO_2 Emission Rate	Stack Height	Stack Temp*	Exit Flue rate**	Exit velocity	Stack Diam.
AERMOD ID			NAD 83 UTM 21N E	NAD 83 UTM 21N N	m	g/s	g/s	g/s	g/s	g/s	m	C	m3/s	m/s	m
Process Flare	Propane Pilots	1	617573	5442955	30.6	0.0087	-	0.0075	0.0476	-	50	1000	0.09	27	1
Ammonia Storage Flare	Propane Pilots	1	617572	5442951	30.6	0.0087	-	0.0075	0.0476	-	50	1000	0.09	27	1
Jetty Flare	Propane Pilots	1	620459.9	5443870	2	0.0087	-	0.0075	0.0476	-	50	1000	0.09	27	1
Flash Gas Purge (via NH3 Storage Flare)	Hydrogen rich	-	617572	5442951	30.6	0.24	-	-	-		50	700	0.03	27	1

Notes:
1. Data taken from Emissions inventory [Ref: 2].
2. Intermittent weekly firewater pump testing and monthly diesel generator testing have been included in the modelling.

Table 2-6 Commissioning Emission Sources

Case 2- Commissioning	Description	No of units No.	X Coordinate	Y Coordinate	Elevation	NO_x Emission Rate	PM_{10} Emission Rate	$PM_{2.5}$ Emission Rate	CO Emission Rate	SO_2 Emission Rate	Stack Height	Stack Temp*	Exit Flue rate**	Exit velocity	Stack Diam.
AERMOD ID			NAD 83 UTM 21N E	NAD 83 UTM 21N N	m	g/s	g/s	g/s	g/s	g/s	m	C	m3/s	m/s	m
Process Flare	Propane Pilots	1	617573	5442955	30.6	0.0087	-	0.0075	0.0476	-	50	1000	0.09	27	1
Ammonia Storage Flare	Propane Pilots	1	617572	5442951	30.6	0.0087	-	0.0075	0.0476	-	50	1000	0.09	27	1
Jetty Flare	Propane Pilots	1	620459.9	5443870	2	0.0087	-	0.0075	0.0476	-	50	1000	0.09	27	1
Syn gas (via Process Flare)	Syn Gas	-	617573	5442955	30.6	7966.55	-	5.15	-	-	50	1200	0.0293	37	1
EG2MW1	Diesel	1	616752	5442700	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW2	Diesel	1	616757	5442698	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW3	Diesel	1	616762	5442696	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW4	Diesel	1	616767	5442694	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW5	Diesel	1	616773	5442693	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW6	Diesel	1	616778	5442691	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW7	Diesel	1	616783	5442689	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW8	Diesel	1	616788	5442687	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW9	Diesel	1	616793	5442685	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW10	Diesel	1	616798	5442683	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW11	Diesel	1	616804	5442682	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW12	Diesel	1	616809	5442680	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW13	Diesel	1	616814	5442678	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW14	Diesel	1	616819	5442676	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW15	Diesel	1	616824	5442674	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW16	Diesel	1	616746	5442683	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW17	Diesel	1	616751	5442681	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW18	Diesel	1	616757	5442680	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW19	Diesel	1	616762	5442678	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW20	Diesel	1	616767	5442676	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW21	Diesel	1	616772	5442674	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572

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Case 2- Commissioning	Description	No of units No.	X Coordinate	Y Coordinate	Elevation	NO_x Emission Rate	PM_{10} Emission Rate	$PM_{2.5}$ Emission Rate	CO Emission Rate	SO_2 Emission Rate	Stack Height	Stack Temp*	Exit Flue rate**	Exit velocity	Stack Diam.
AERMOD ID			NAD 83 UTM 21N E	NAD 83 UTM 21N N	m	g/s	g/s	g/s	g/s	g/s	m	C	m3/s	m/s	m
EG2MW22	Diesel	1	616777	5442673	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW23	Diesel	1	616783	5442671	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW24	Diesel	1	616787	5442669	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW25	Diesel	1	616793	5442667	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW26	Diesel	1	616798	5442666	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW27	Diesel	1	616803	5442664	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW28	Diesel	1	616808	5442662	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW29	Diesel	1	616813	5442660	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW 30	Diesel	1	616819	5442658	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
ELG1MW1	Diesel	1	616319	5443203	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW2	Diesel	1	616366	5443188	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW3	Diesel	1	616413	5443171	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW4	Diesel	1	616461	5443155	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW5	Diesel	1	616508	5443138	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW6	Diesel	1	616555	5443121	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW7	Diesel	1	616602	5443106	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW8	Diesel	1	616649	5443089	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW9	Diesel	1	616696	5443072	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW10	Diesel	1	616744	5443055	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW11	Diesel	1	616791	5443040	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW12	Diesel	1	616838	5443023	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW13	Diesel	1	616885	5443007	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW14	Diesel	1	616933	5442990	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW15	Diesel	1	616980	5442974	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW16	Diesel	1	617027	5442958	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW17	Diesel	1	617075	5442941	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW18	Diesel	1	617122	5442925	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3

Notes:

1. Data taken from Emissions inventory [Ref: 2].
2. This case is not continuous (intermittent) and therefore impacts over a short duration.
3. SO_2 emission rates used for diesel equipment reflect a more conservative scenario of low sulphur diesel being used, should ultra-low sulphur diesel not be available. If ultra-low sulphur diesel is available for a typical emergency diesel generator SO_2 emission release rate at stack would reduce from 0.01 to 0.002 g/s and for a typical electrolyser diesel generator would reduce from 0.05 to 0.0011 g/s. See Table E.1 for a generic ground level concentration comparison.

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Table 2-7 Abnormal Emission Sources

Case 3- Abnormal	Description	No of units No.	X Coordinate	Y Coordinate	Elevation	NO_x Emission Rate	PM_{10} Emission Rate	$PM_{2.5}$ Emission Rate	CO Emission Rate	SO_2 Emission Rate	Stack Height	Stack Temp*	Exit Flue rate**	Exit velocity	Stack Diam.
AERMOD ID			NAD 83 UTM 21N E	NAD 83 UTM 21N N	m	g/s	g/s	g/s	g/s	g/s	m	C	m3/s	m/s	m
Process Flare	Propane Pilots	1	617573	5442955	30.6	0.0087	-	0.0075	0.0476	-	50	1000	0.09	27	1
Ammonia Storage Flare	Propane Pilots	1	617572	5442951	30.6	0.0087	-	0.0075	0.0476	-	50	1000	0.09	27	1
Jetty Flare	Propane Pilots	1	620459.9	5443870	2	0.0087	-	0.0075	0.0476	-	50	1000	0.09	27	1
Flash Gas Purge (via NH3 Storage Flare)	Hydrogen rich	-	617572	5442951	30.6	0.0239	-	0.00	-	-	50	700	0.03	27	1
EG2MW1	Diesel	1	616752	5442700	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW2	Diesel	1	616757	5442698	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW3	Diesel	1	616762	5442696	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW4	Diesel	1	616767	5442694	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW5	Diesel	1	616773	5442693	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW6	Diesel	1	616778	5442691	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW7	Diesel	1	616783	5442689	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW8	Diesel	1	616788	5442687	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW9	Diesel	1	616793	5442685	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW10	Diesel	1	616798	5442683	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW11	Diesel	1	616804	5442682	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW12	Diesel	1	616809	5442680	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW13	Diesel	1	616814	5442678	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW14	Diesel	1	616819	5442676	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW15	Diesel	1	616824	5442674	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW16	Diesel	1	616746	5442683	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW17	Diesel	1	616751	5442681	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW18	Diesel	1	616757	5442680	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW19	Diesel	1	616762	5442678	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW20	Diesel	1	616767	5442676	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW21	Diesel	1	616772	5442674	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW22	Diesel	1	616777	5442673	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW23	Diesel	1	616783	5442671	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW24	Diesel	1	616787	5442669	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW25	Diesel	1	616793	5442667	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW26	Diesel	1	616798	5442666	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW27	Diesel	1	616803	5442664	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW28	Diesel	1	616808	5442662	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW29	Diesel	1	616813	5442660	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
EG2MW 30	Diesel	1	616819	5442658	30.6	0.37	0.06	0.00	1.94	0.10	5	250	2.46	15	0.4572
ELG1MW1	Diesel	1	616319	5443203	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW2	Diesel	1	616366	5443188	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW3	Diesel	1	616413	5443171	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW4	Diesel	1	616461	5443155	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW5	Diesel	1	616508	5443138	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW6	Diesel	1	616555	5443121	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW7	Diesel	1	616602	5443106	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3

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Case 3- Abnormal	Description	No of units No.	X Coordinate	Y Coordinate	Elevation	NO_x Emission Rate	PM_{10} Emission Rate	$PM_{2.5}$ Emission Rate	CO Emission Rate	SO_2 Emission Rate	Stack Height	Stack Temp*	Exit Flue rate**	Exit velocity	Stack Diam.
AERMOD ID			NAD 83 UTM 21N E	NAD 83 UTM 21N N	m	g/s	g/s	g/s	g/s	g/s	m	C	m3/s	m/s	m
ELG1MW8	Diesel	1	616649	5443089	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW9	Diesel	1	616696	5443072	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW10	Diesel	1	616744	5443055	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW11	Diesel	1	616791	5443040	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW12	Diesel	1	616838	5443023	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW13	Diesel	1	616885	5443007	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW14	Diesel	1	616933	5442990	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW15	Diesel	1	616980	5442974	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW16	Diesel	1	617027	5442958	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW17	Diesel	1	617075	5442941	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3
ELG1MW18	Diesel	1	617122	5442925	30.6	0.19	0.03	0.00	0.97	0.05	5	250	1.06	15	0.3

Notes:

1. Data taken from Emissions inventory [Ref: 2]
2. This case is not continuous (intermittent) and therefore impacts over a short duration.
3. SO_2 emission rates used for diesel equipment reflect a more conservative scenario of low sulphur diesel being used, should ultra-low sulphur diesel not be available. If ultra-low sulphur diesel is available for a typical emergency diesel generator SO_2 emission release rate at stack would reduce from 0.01 to 0.002 g/s and for a typical electrolyser diesel generator would reduce from 0.05 to 0.0011 g/s. See Table E.1 for a generic ground level concentration comparison.

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Table 2-8 Emergency Release Emission Sources

Case 4- Emergency Releases	Description	No of units No.	X Coordinate	Y Coordinate	Elevation	NO_x Emission Rate	PM_{10} Emission Rate	$PM_{2.5}$ Emission Rate	CO Emission Rate	SO_2 Emission Rate	Stack Height	Stack Temp*	Exit Flue rate**	Exit velocity	Stack Diam.
AERMOD ID			NAD 83 UTM 21N E	NAD 83 UTM 21N N	m	g/s	g/s	g/s	g/s	g/s	m	C	m3/s	m/s	m
Process Flare	Propane Pilots	1	617573	5442955	30.6	0.0087	-	0.0075	0.0476	-	50	1000	0.09	27	1
Ammonia Storage Flare	Propane Pilots	1	617572	5442951	30.6	0.0087	-	0.0075	0.0476	-	50	1000	0.09	27	1
Jetty Flare	Propane Pilots	1	620459.9	5443870	2	0.0087	-	0.0075	0.0476	-	50	1000	0.09	27	1
Relief (via Process Flare)	Syn Gas	-	617573	5442955	30.6	1327.76	-	0.00	-	-	50	1200	0.0293	37	1
Firewater Pump	Diesel	1	616686	5443208	30.6	0.07	0.01	-	0.35	0.02	5	250	1.06	15	0.3
EG2MW1	Diesel	1	616752	5442700	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW2	Diesel	1	616757	5442698	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW3	Diesel	1	616762	5442696	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW4	Diesel	1	616767	5442694	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW5	Diesel	1	616773	5442693	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW6	Diesel	1	616778	5442691	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW7	Diesel	1	616783	5442689	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW8	Diesel	1	616788	5442687	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW9	Diesel	1	616793	5442685	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW10	Diesel	1	616798	5442683	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW11	Diesel	1	616804	5442682	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW12	Diesel	1	616809	5442680	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW13	Diesel	1	616814	5442678	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW14	Diesel	1	616819	5442676	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW15	Diesel	1	616824	5442674	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW16	Diesel	1	616746	5442683	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW17	Diesel	1	616751	5442681	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW18	Diesel	1	616757	5442680	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW19	Diesel	1	616762	5442678	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW20	Diesel	1	616767	5442676	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW21	Diesel	1	616772	5442674	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW22	Diesel	1	616777	5442673	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW23	Diesel	1	616783	5442671	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW24	Diesel	1	616787	5442669	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW25	Diesel	1	616793	5442667	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW26	Diesel	1	616798	5442666	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW27	Diesel	1	616803	5442664	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW28	Diesel	1	616808	5442662	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW29	Diesel	1	616813	5442660	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
EG2MW 30	Diesel	1	616819	5442658	30.6	0.37	0.06	-	1.94	0.10	5	250	2.46	15	0.4572
ELG1MW1	Diesel	1	616319	5443203	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW2	Diesel	1	616366	5443188	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW3	Diesel	1	616413	5443171	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW4	Diesel	1	616461	5443155	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW5	Diesel	1	616508	5443138	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW6	Diesel	1	616555	5443121	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW7	Diesel	1	616602	5443106	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3

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Case 4- Emergency Releases	Description	No of units No.	X Coordinate	Y Coordinate	Elevation	NO_x Emission Rate	PM_{10} Emission Rate	$PM_{2.5}$ Emission Rate	CO Emission Rate	SO_2 Emission Rate	Stack Height	Stack Temp*	Exit Flue rate**	Exit velocity	Stack Diam.
AERMOD ID			NAD 83 UTM 21N E	NAD 83 UTM 21N N	m	g/s	g/s	g/s	g/s	g/s	m	C	m3/s	m/s	m
ELG1MW8	Diesel	1	616649	5443089	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW9	Diesel	1	616696	5443072	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW10	Diesel	1	616744	5443055	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW11	Diesel	1	616791	5443040	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW12	Diesel	1	616838	5443023	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW13	Diesel	1	616885	5443007	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW14	Diesel	1	616933	5442990	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW15	Diesel	1	616980	5442974	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW16	Diesel	1	617027	5442958	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW17	Diesel	1	616777	5442673	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3
ELG1MW18	Diesel	1	616783	5442671	30.6	0.19	0.03	-	0.97	0.05	5	250	1.06	15	0.3

Notes:

1. Data taken from Emissions inventory [Ref: 2]
2. This case is not continuous (intermittent) and therefore it impacts over a short duration
3. SO_2 emission rates used for diesel equipment reflect a more conservative scenario of low sulphur diesel being used, should ultra-low sulphur diesel not be available. If ultra-low sulphur diesel is available for a typical emergency diesel generator SO_2 emission release rate at stack would reduce from 0.01 to 0.002 g/s and for a typical electrolyser diesel generator would reduce from 0.05 to 0.0011 g/s. See Table E.1 for a generic ground level concentration comparison.

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2.6.1 Flare Effective Height

According to US EPA regulations, for Flares, the GEP stack height is defined to be the tallest of the following [Ref. 6]:

- 65 meters, as measured from the ground-level elevation at the base of the stack.
- 2.5H (for stacks in existence on January 12, 1979), or H + 1.5L (for all other stacks), where H is the height of the building itself or any significant nearby structure or structures and L is the lesser of the projected height or width of the building in question.

The height demonstrated by an approved fluid model or a field study ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features. *It should be noted:* At the current FEED stage, the effective flare height with respect to potential building downwash has not been finalised due to the lack of confirmed building heights and locations. As a result, compliance with Good Engineering Practice (GEP) requirements cannot yet be confirmed. For preliminary dispersion modelling, a flare height of 50 m has been assumed to calculate effective plume heights (see Section 2.6.2). This assumption is used solely for initial impact assessment and does not account for building downwash. A detailed downwash assessment using BPIPPRM will be completed once final building layout information becomes available, and dispersion modelling will be updated as required.

2.6.2 Effective Height Calculation

Atmospheric dispersion models such as AERMOD have been designed to simulate the behaviour of stack or vent discharges which are thermally buoyant, rise through discharge momentum, or both. Flares behave in a fundamentally different way. Operation of a flare tends to create a very large plume of combustion products, the rise of which is affected by high discharge velocities and significant thermal buoyancy created by the oxidation of waste gases. Plume rise is also affected by the radiative loss of heat from the burning waste gas. Emissions from flares can be represented in AERMOD by conceptualising the flare plume, considering the flame which affects its lift and expansion, as an ‘effective’ stack discharge. Both an ‘effective release height’, and ‘effective flare diameter’ are needed. These can be calculated using the formulae.

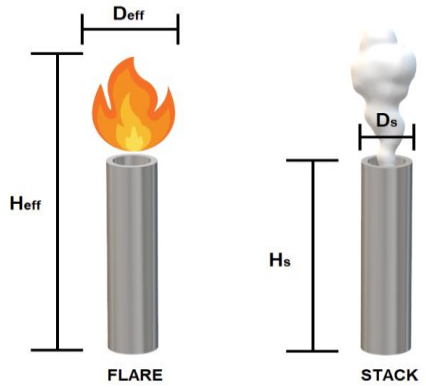

Figure 2-5 Effective Flare Height

$$h_{sl} = h_s + 0.00456 \times \left[\left(\frac{(1-f)}{4.1868}\right) \times H\right]^{0.478}$$

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Where:

h_{sl}= effective flare release height (m)

h_s= Stack height above ground (m) - i.e. 30 elevation at SWP

H= heat release rate -see below (See Table 2-9)

f = radiator loss factor (%) - Screen recommended 55%

Note: For a Flare stack length = 110m at 45deg. AERMOD requires a vertical height, provided by 110 sin (45 deg) = 77.8 m.

Effective flare release height and diameter for flares is calculated directly by AERMOD, however an input value of heat release rate to indicate extent of thermal buoyancy is required and provided below in Table 2-9 for Flare Stack at 50m.

Table 2-9 Heat Release Rate for Flare Stack at 50m

DESCRIPTION	FG rate (lb/hr)	LHV (BTU/lb)	Heat Release (BTU/hr)	Heat Release (BTU/s)	Heat Release H (MJ/s)	f	h_s (m)	h_{sl} (m)
Pilot Gas from Ammonia Storage Flare	17.20	19937	342837.4	95.2	0.10	55%	50	50.39
Pilot Gas from Jetty Flare	17.20	19937	342837.4	95.2	0.10	55%	50	50.39
Pilot Gas from Ammonia Process Flare	17.20	19937	342837.4	95.2	0.10	55%	50	50.39
Off spec ammonia from tanker at Jetty	32403.95	7994	259037168.9	71954.8	75.92	55%	50	59.18
Emergency Blowdown (syn-gas)	556576.16	9635	5362611307.2	1489614.3	1571.63	55%	50	89.07
Flash gas Purge	68.784144	4953	340659.6	94.6	0.10	55%	50	50.39

These values provided by AERMOD have also been manually verified in [Ref.8].

2.7 Meteorological Data

Atmospheric dispersion modelling is subject to several meteorological assumptions, including the representativeness and suitability of the applied meteorological data, the treatment of atmospheric chemical processes (such as pollutant transformation and removal mechanisms), and the influence of cloud cover on atmospheric stability and boundary layer development.

The air dispersion modelling assessment was conducted using pre-processed, hourly sequential meteorological data obtained from Gander International Airport (CYQX), which is located approximately 71 km northeast of the Project site near Botwood. These data are considered representative of regional meteorological conditions influencing the Project area.

A number of potential meteorological data sources in the vicinity of the Project site were evaluated, as illustrated in Figure 2-6, including stations at Badger, Twillingate, Comfort Cove-Newstead, and Gander, covering the period from 2022 to 2024. Although the Badger station is approximately 10–15 km closer to the Project site than Gander, it does not provide cloud cover observations, which are required for dispersion modelling. Use of the Badger dataset would therefore necessitate infilling cloud cover data from another station, introducing additional uncertainty.

The Comfort Cove-Newstead station does not have sufficient meteorological data available for modelling purposes, and its coastal location (similar to that of Twillingate) renders it less representative of the inland meteorological conditions at the Project site.

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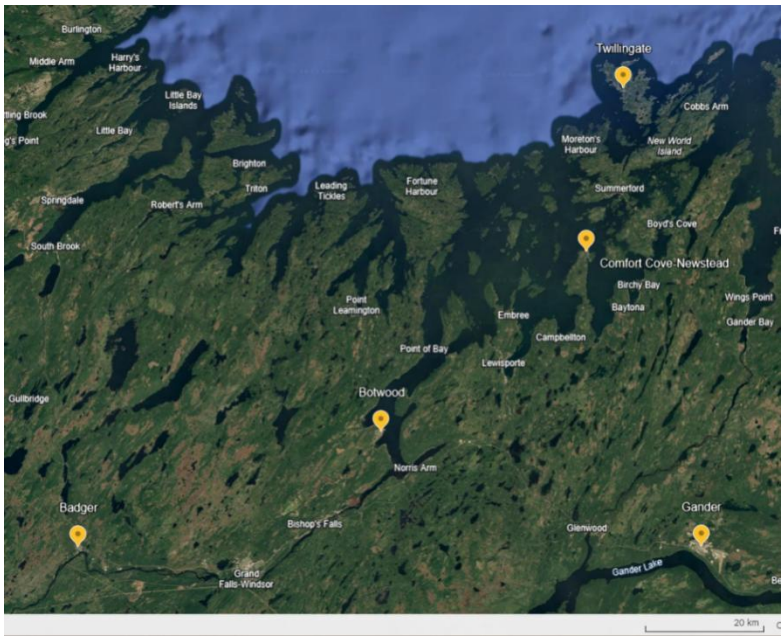

Figure 2-6 Potential Sources for Meteorological Data (from 2022 to 2024)

Based on these considerations, meteorological data from Gander were selected for the modelling assessment. The dataset was derived from meteorological station YQ2224, consisting of a surface station file (YQ2224.scf) and a corresponding upper-air profile file (YQ2224.pfl). These datasets include both surface-level and upper-air meteorological parameters and were processed and supplied by Trinity Consultants (Trinity) specifically for use with the AERMOD dispersion model.

The AERMOD-ready meteorological data cover a continuous three-year period from 1 January 2022 to 31 December 2024, consistent with regulatory guidance for air dispersion modelling. A wind rose summarizing wind direction and frequency at Gander over the modelling period is presented in Figure 2-7.

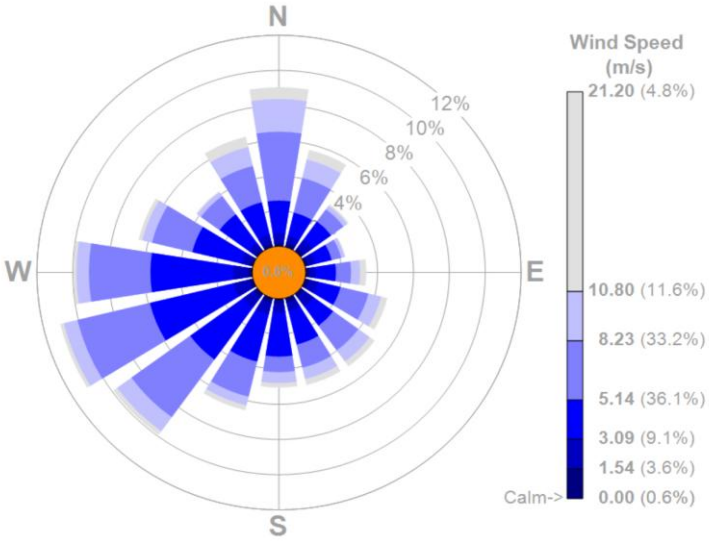

Figure 2-7 Windrose at Gander (from 2022 to 2024)

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An important consideration in the application of the selected meteorological dataset is the frequency of calm wind conditions within any given annual period. Wind speeds below 1.0 m/s are classified as calm. Within AERMOD, calm conditions are treated as zero wind speed and are excluded from dispersion calculations. Regulatory guidance indicates that when more than 10% of an annual meteorological dataset is classified as calm or otherwise unusable, the dataset should be applied with caution, as it may not be representative of the meteorological conditions for the period under assessment.

For the selected dataset, calm conditions account for 0.6% of the total modelling period, indicating that the frequency of calm hours is well below the recommended threshold and is not expected to adversely affect model performance or representativeness. The completeness of hourly meteorological data is also a critical factor in air dispersion modelling and is considered to be of comparable importance to emission rates, source geometry, and source location.

AERMOD requires a complete set of hourly meteorological parameters to calculate dispersion, including but not limited to sensible heat flux, mechanical and convective mixing heights, wind speed, wind direction, ambient air temperature, precipitation rate, relative humidity, and cloud cover. If any required parameter is unavailable for a given hour, that hour is classified as missing data and is excluded from modelling, in the same manner as calm hours.

Trinity Consultants recommends that meteorological datasets with greater than 10% missing hourly data be used with caution, as they may not adequately represent annual dispersion conditions. A review of the Gander meteorological dataset for the 2022 to 2024 period indicates that missing hourly data account for 1.02% of the total dataset, which is well within established quality assurance and quality control (QA/QC) acceptance criteria. Accordingly, the dataset is considered suitable for use in the air dispersion modelling assessment.

2.8 Terrain Data

Trinity Consultants provided terrain data for the Project area in the form of a Digital Elevation Model (DEM). This data represents the ground level elevations of the area on a resolution of approximately 100 meters. This dataset was used in the model to inform the heights of terrain features around the industrial site, and also the elevations of the sensitive receptors and emission sources outside of the process boundaries (i.e. flares). Emission source elevations within the process site boundaries were set to an elevation of 28.6m and 0m for the jetty, in line with discussions with EVERC, based on site grading expectations. The site geometry and terrain will be represented digitally, with sufficient domain size to capture realistic inflows and outflows.

2.9 Emission Limits

This section presents the applicable ambient air quality criteria used to assess potential project-related effects on air quality. The assessment is conducted with reference to both the Newfoundland and Labrador Ambient Air Quality Objectives and the Canadian Ambient Air Quality Standards (CAAQS), which establish concentration limits designed to protect human health and the environment. These standards and objectives provide the regulatory framework for evaluating predicted ground-level concentrations from the air dispersion modelling and for determining compliance with provincial and federal air quality requirements and presented in Table 2-10 below.

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Table 2-10 Regulator Emission Limits

NL Ambient Air Quality Regulations (Ref.8)	Unit [5]	1 hour	3 hours	8 hours	24 hours	1 year	Notes
Ozone (O_3)	ppb [µg/m³]	82 [166] [4]	-	44 [89] [4]	-	-	(1) The arithmetic average over a single calendar year of all 1-hour average concentrations in the year. (2) The geometric average over a single calendar year of all 1-hour average concentrations in the year. (3) At reference conditions, a dry gas temperature of 25 °Celsius and a gas pressure of 101.325 kilopascals (4) Convert from ppb to µg/m³ for use in comparing compliance against modelling results (5) See Ref.3 for conversion at reference conditions or Appendix G.
Sulphur Dioxide (SO_2)	ppb [µg/m³]	344 [932] [4]	229 [620] [4]	-	115 [312] [4]	23 [62] [4]	
Nitrogen Dioxide (NO_2)	ppb [µg/m³]	213 [415] [4]	-	-	106 [206] [4]	53 [103] [4]	
Particulates ($PM_{2.5}$)	µg/m³	-	-	-	25 [3]	8.8 [1] [3]	
Particulates (PM_{10})	µg/m³	-	-	-	50	-	
Total Particulates	µg/m³		-	-	120	60 [2]	
Carbon Monoxide	ppb [µg/m³]	30582 [36228] [4]	-	13107 [15527] [4]	-	-	
Hydrogen Sulphide (H_2S)	ppb [µg/m³]	11 [16] [4]	-	-	4 [6] [4]	-	
Ammonia	ppb [µg/m³]	-	-	-	144 [104] [4]	-	

Canada Ambient Air Regulations (Ref.9)	Unit	Limits	Post 2025	Notes
Ozone (O_3) - 8 hours	µg/m³	62	60	the 3-year average of the annual 4th highest of the daily max 8-hour average concentration
Sulphur Dioxide (SO_2) - 1 hour	µg/m³	70	65	the 3-year average of the 99th percentile of the daily 1 hour average concentration
Sulphur Dioxide (SO_2) - 1 year	µg/m³	5	4	the average over a single calendar year of all 1-hour concentrations
Nitrogen Dioxide (NO_2) - 1 hour	µg/m³	60	42	the 3-year average of the annual 98th of the daily maximum 1 hour average concentration
Nitrogen Dioxide (NO_2) - 1 year	µg/m³	17	12	the average over a single calendar year of all 1-hour concentrations
Particulates ($PM_{2.5}$) - 24 hours	µg/m³	27	-	the 3-year average of the 98th percentile of the daily 24hour average concentration
Particulates ($PM_{2.5}$) - 1 year	µg/m³	9	-	the 3-year average of the annual of the daily 24hour average concentration

As shown in Table 2-10, certain short-term ambient air quality objectives for nitrogen dioxide (NO_2) and sulphur dioxide (SO_2) are defined using percentile-based statistics, which allow a limited number of exceedances within a calendar year. For NO_2, the one-hour ambient air quality limit corresponds to the 98th percentile of hourly concentrations, meaning that up to seven exceedances may occur in a 365-day period, with the 8th highest one-hour average concentration required to be below the applicable limit. For SO_2, the one-hour limit is defined using a more stringent 99.9th percentile, allowing only one exceedance over an annual period. In accordance with regulatory guidance and to support transparent evaluation of modelled results, the maximum one-hour average concentration is also reported for both NO_2 and SO_2, in addition to the applicable percentile concentrations. This approach facilitates confirmation of compliance with the allowable exceedance framework while providing a conservative reference for assessing short-term air quality impacts.

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3. Results

Emissions generated by the operation of equipment at the process site were modelled to determine the ground level concentrations of certain pollutants and to assess the impacts on air quality in the ambient environment around the Project area. Ground level concentrations were calculated at 2 m above the ground level to represent an average height for human exposure. The highest resulting ground level pollutant concentrations that resulted from the wind conditions over the 3-year period, as described in Section 2.7, are reported here.

The resulting ground level concentrations at the various sensitive receptor locations for different time-averaging periods are tabulated below. Contour maps illustrating these results are provided in Appendix C-F.

In the cases of the results for NO_2 and SO_2, these are shown as the 8^{th} and 4^{th} highest results respectively in line with the number of exceedances allowed for under the air quality limits based on the 98th and 99th percentile allowances (see Section 2.9) where applicable. The 1st highest result is included as well for both of these pollutants for reference purposes.

The results represent the contributions to ground-level pollutant concentrations arising solely from activities at the process site, as assessed at nearby sensitive receptors.

The air dispersion assessment did not include emissions from the following sources:

- Construction activities, which are temporary and of short duration relative to the operational life of the process plant.
- Vehicle and aircraft movements, including vehicles delivering equipment, on-site vehicle movements within the Project area and living quarters, and aircraft arrivals and departures at the airstrip, as these sources are transitory and considered less significant than emissions from industrial operations.

Certain short-term (temporal) emissions were included in the modelling; however, given their limited duration, they were assessed primarily to evaluate potential impacts for the purposes of the Project EIS. The equipment considered for these temporal emissions includes diesel-powered equipment (e.g. electrolysers and emergency backup power generators), as described in Section 2.4.

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3.1 Normal Operations

Predicted ground level pollutant concentrations in the Project area are shown below in Table 3-1 for normal operation of the **EVERC Green Ammonia** process plant. Exceedances of the ambient air quality limits at receptors are indicated in orange, however, no exceedances at the sensitive receptors were shown in any case. Contour maps for normal operation can be found in Appendix C.

Table 3-1 Normal Operation Modelling Results

Pollutant [1]	Period	Units	NL AAQ Limits [Ref.3]	Max Modelled Conc. (2022)	Location 21N		Max Modelled Conc. (2023)	Location 21N		Max Modelled Conc. (2024)	Location 21N		Canada Limits (Post 2025)	**Modelled** Conc. (against 3-yr avg.)
					Easting	Northing		Easting	Northing		Easting	Northing		
NO_x (as NO_2)	1 hour	µg/m³	415	5.00	E.617596.5	N.5443158	11.0	E.618055	N.5441880	8.47	E.618055	N.5441880	42[3]	4
	24 hours	µg/m³	206	0.95	E.618055	N.5442880	0.82	E.617866.2	N.5443064.7	1.01	E.617274.5	N.5442566.2	-	-
	1 year	µg/m³	103	0.55	E.618055	N.5442880	0.11	E.617612	N.5442517.9	0.12	E.617866.2	N.5443064.7	12	0.107
SO_x	1 hour	µg/m³	932	-	-	-	-	-	-	-	-	-	65[2]	0
	3 hour	µg/m³	620	-	-	-	-	-	-	-	-	-	-	-
	24 hours	µg/m³	312	-	-	-	-	-	-	-	-	-	-	-
	1 year	µg/m³	62	-	-	-	-	-	-	-	-	-	4	0
CO	1 hours	µg/m³	36227.8	3.70	E.619455	N.5444880	4.06	E.618055	N.5441880	3.33	E.619855	N.5443880	-	-
CO	8 hours	µg/m³	15526.7	0.74	E.617655	N.5443080	0.73	E.618055	N.5441880	0.91	E.619855	N.5443880	-	-
PM_{10}	24 hours	µg/m³	50	-	-	-	-	-	-	-	-	-	-	-
$PM_{2.5}$	24 hours	µg/m³	25[4]	0.0068	E.617655	N.5443080	0.059	E.617866.2	N.5443064.7	0.059	E.617866.2	N.5443064.7	27	0.06
	1 year	µg/m³	9[5]	0.007	E.618055	N5442880	0.008	E.617616	N5442517.9	0.008	E 617612	N5442517.9	-	-

1. No ammonia shall be vented, additionally, O_3 and H_2S not included in the modelling as no sources expected.
2. the 3-year average of the 99th percentile of the daily 1 hour average concentration (therefore 4th highest)
3. the 3-year average of the annual 98th of the daily maximum 1 hour average concentration (98th percentile is calculated for each year and averaged over 3 years., so 7 exceedance permitted each year so 8th highest for each year.)
4. the 3-year average of the 98th percentile of the daily 24hour average concentration
5. the 3-year average of the annual of the daily 24hour average concentration

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3.2 Commissioning

Predicted ground level pollutant concentrations in the Project area are shown below in Table 3-2 for commissioning related emissions associated with the EVERC Green Ammonia process plant. Exceedances of the ambient air quality limits, extending outside of the process fence line are indicated in orange. Any exceedances at the sensitive receptors are shown in the contour maps (Appendix D).

Table 3-2 Commissioning Emissions Modelling Results

Pollutant [1]	Period	Units	NL AAQ Limits	Max Modelled Conc. (2022)	Location 21N		Max Modelled Conc. (2023)	Location 21N		Max Modelled Conc. (2024)	Location 21N		Canada Limits (Post 2025)	**Modelled** Conc. (against 3-yr avg.)
					Easting	Northing		Easting	Northing		Easting	Northing		
NO_x (as NO_2)	1 hour	µg/m³	415	1892	E 617855	N 5444280	1840	E 616855	N 5442680	1842	E 616855	N 5442680	42[3]	Note 6
	24 hours	µg/m³	206	1061	E 616777.9	N 5442616.8	1131	E 616855	N 5442680	1029	E 617597	N 5443158	-	-
	1 year	µg/m³	103	Note 6									12	Note 6
SO_x	1 hour	µg/m³	932	500	E 616855	N 5442680	497	E 616855	N 5442680	498	E 616855	N 5442680	65[2]	Note 6
	3 hour	µg/m³	620	459	E.618855	N. 5442680	477	616855	5442680	479	E. 616855	N. 5442680	-	-
	24 hours	µg/m³	312	287	E 616777.9	N 5442616.8	306	E 616855	N 5442680	278	E616777.9	N5442616.8	-	-
	1 year	µg/m³	62	Note 6									4	Note 6
CO	1 hours	µg/m³	36227.8	9695	E 616855	N 5442680	9647	E 616855	N 5442680	9558	E616855	N 5442680	-	-
CO	8 hours	µg/m³	15526.7	7836	E 616855	N 5442680	8211	E 616855	N 5442680	8091	E616855	N 5442680	-	-
PM_{10}	24 hours	µg/m³	50	300	E 616855	N 5442680	183	E 616855	N 5440880	299	E 616855	N 5442680	-	-
$PM_{2.5}$	24 hours	µg/m³	25 [4]	0.253	E 616855	N 5442680	0.21165	E 616855	N 5440880	0.24023	E 617655	N 5441280	27	Note 6
	1 year	µg/m³	9 [5]	Note 6									-	Note 6

1. No ammonia shall be vented, additionally, O_3 and H_2S not included in the modelling as no sources expected.
2. the 3-year average of the 99th percentile of the daily 1 hour average concentration (therefore 4th highest)
3. the 3-year average of the annual 98th of the daily maximum 1 hour average concentration (98th percentile is calculated for each year and averaged over 3 years., so 7 exceedance permitted each year so 8th highest for each year.)
4. the 3-year average of the 98th percentile of the daily 24hour average concentration
5. the 3-year average of the annual of the daily 24hour average concentration
6. Commissioning emissions are short-term in nature and activity duration is currently not expected to occur beyond one year. Accordingly, longer-term averaging periods such as annual to measure against NL limits and three-year averages, used for comparison against national limits were not assessed.

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3.3 Abnormal Operation

Predicted ground level pollutant concentrations in the Project area are shown below in Table 3-3 for abnormal operation related emissions associated with the **EVERC Green Ammonia** process plant. Exceedances of the ambient air quality limits, extending outside of the process fence line are indicated in orange. Any exceedances at the sensitive receptors are shown in the contour maps (Appendix E).

Table 3-3 Abnormal Emissions Modelling Results

Pollutant [1]	Period	Units	NL AAQ Limits	Max Modelled Conc. (2022)	Location 21N		Max Modelled Conc. (2023)	Location 21N		Max Modelled Conc. (2024)	Location 21N		Canada Limits (Post 2025)	**Modelled** Conc. (against 3-yr avg.)
					Easting	Northing		Easting	Northing		Easting	Northing		
NO_x (as NO_2)	1 hour	µg/m³	415	1849.1	E 617855	N 5444280	1840	E 616855	N 5442680	1842	E 617855	N 5444280	42[3]	Note 6
	24 hours	µg/m³	206	1061	E 616777.9	N 5442616.8	1131	E 616855	N 5442680	1029	E 616778	N5442616.8	-	Note 6
	1 year	µg/m³	103	Note 6									12	Note 6
SO_x	1 hour	µg/m³	932	499.8	E 616855	N 5442680	497	E 617855	N 5444280	498	E 617855	N 5444280	65[2]	Note 6
	3 hour	µg/m³	620	459	E 616855	N 5442680	477	E 616855	N 5442680	479	E 616855	N 5442680	-	Note 6
	24 hours	µg/m³	312	286.7	E616777.9	N5442616.8	306	E 617855	N 5444280	278	E 617855	N 5444280	-	Note 6
	1 year	µg/m³	62	Note 6									4	Note 6
CO	1 hours	µg/m³	36227.8	9695	E 616855	N 5442680	9647	E 616855	N 5442680	9658	E 616855	N 5442680	-	Note 6
	8 hours	µg/m³	15526.7	7836	E 616855	N 5442680	8211.2	E 616855	N 5442680	8091	E 616855	N 5442680		Note 6
PM_{10}	24 hours	µg/m³	50	172	E 616777.9	N 5442616.8	183	E 616855	N 5442680	167	E616777.9	N 5442616.8	-	Note 6
Soot $PM_{2.5}$	24 hours	µg/m³	25[4]	0.07	E 618055	N 5442880	0.06	E617866.2	N5443064.7	0.06	E 618215	N 5441200	27	Note 6
	1 year	µg/m³	9[5]	Note 6										Note 6

1. No ammonia shall be vented, additionally, O_3 and H_2S not included in the modelling as no sources expected.
2. the 3-year average of the 99th percentile of the daily 1 hour average concentration (therefore 4th highest)
3. the 3-year average of the annual 98th of the daily maximum 1 hour average concentration (98th percentile is calculated for each year and averaged over 3 years., so 7 exceedance permitted each year so 8th highest for each year.)
4. the 3-year average of the 98th percentile of the daily 24hour average concentration
5. the 3-year average of the annual of the daily 24hour average concentration
6. Abnormal emissions are short-term in nature and activity duration is currently not expected to occur beyond 24 hours. Accordingly, longer-term averaging periods such as annual to measure against NL limits and three-year averages, used for comparison against national limits were not assessed.

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3.4 Emergency Relief

Predicted ground level pollutant concentrations in the Project area are shown below in Table 3.4 for abnormal operation related emissions associated with the **EVREC Green Ammonia** process plant. Exceedances of the ambient air quality limits, extending outside of the process fence line are indicated in orange. Any exceedances at the sensitive receptors are shown in the contour maps (Appendix F).

Table 3-4 Emergency Relief Emissions Modelling Results

Pollutant [1]	Period	Units	NL AAQ Limits	Max Modelled Conc. (2022)	Location 21N		Max Modelled Conc. (2023)	Location 21N		Max Modelled Conc. (2024)	Location 21N		Canada Limits (Post 2025)	**Modelled** Conc. (against 3-yr avg.)
					Easting	Northing		Easting	Northing		Easting	Northing		
NO_x (as NO_2)	1 hour	µg/m³	415	1849	E 616855	N 5442680	1840	E 616855	N 5442680	1842	E 616855	N 5442680	42[3]	Note 6
	24 hours	µg/m³	206	Note 6									-	-
	1 year	µg/m³	103	Note 6									-	Note 6
SO_x	1 hour	µg/m³	932	500	E.616855	N.5442680	497.3	E 616855	N 5442680	498	E.616855	N.5442680	65[2]	Note 6
	3 hour	µg/m³	620	Note 6									-	-
	24 hours	µg/m³	312	Note 6									-	-
	1 year	µg/m³	62	Note 6									-	Note 6
CO	1 hours	µg/m³	36227.8	9695	E 616855	N 5442680	9647	E 616855	N 5442680	9658	E 616855	N 5442680	-	-
	8 hours	µg/m³	15526.7	Note 6									-	-
PM_{10}	24 hours	µg/m³	50	Note 6									-	-
$PM_{2.5}$	24 hours	µg/m³	25[4]	Note 6									-	Note 6
	1 year	µg/m³	9[5]	Note 6									-	Note 6

1. No ammonia shall be vented, additionally, O_3 and H_2S not included in the modelling as not sources expected.
2. the 3-year average of the 99th percentile of the daily 1 hour average concentration (therefore 4th highest)
3. the 3-year average of the annual 98th of the daily maximum 1 hour average concentration (98th percentile is calculated for each year and averaged over 3 years., so 7 exceedance permitted each year so 8th highest for each year.)
4. the 3-year average of the 98th percentile of the daily 24hour average concentration
5. the 3-year average of the annual of the daily 24hour average concentration
6. Emergency relief is short-term in nature and activity duration is currently not expected to occur beyond one hour. Accordingly, longer-term averaging periods such as annual to measure against NL limits and three-year averages, used for comparison against national limits were not assessed.

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4. Discussion

This air dispersion assessment was completed to support the EIS by evaluating whether the Project's emissions during normal operations comply with applicable Newfoundland and Labrador (NL) Ambient Air Quality (AAQ) limits for key regulated pollutants, including NO_2 as nitrogen dioxide, sulphur dioxide (SO_2), particulate matter (both PM_{10} and $PM_{2.5}$), and carbon monoxide and national Canadian limits for 1-hr NO_2, 1-yr NO_2, 1-hr SO_x, 1-yr SO_x and 24-hr $PM_{2.5}$. The study also evaluates accidental, intermittent, or short-term relief events, noting that any exceedances identified for these non-routine conditions are recorded for impact understanding but are not interpreted as legal violations, given their non-routine nature.

The modelling results presented therefore represent the Project's incremental contribution to ground-level pollutant concentrations, based on the modelled emission sources and scenario assumptions. Background concentrations were not added, because there is no measured air quality data available for the site to define background levels; background levels are expected to be low due to the lack of nearby industrial activities. Ground-level concentrations were evaluated at 2 m above ground level to represent a typical human breathing height.

The assessment considered four operational cases, with results summarised in Tables 3-1 to Table 3-4, The report notes that modelling expressed exceedances outside the process fence line in orange (within Tables 3-1 to 3-4), and that any exceedances at sensitive receptors would be shown on the contour maps (Appendix C-F). Further information is provided below, and includes:

- Case 1- Normal Operations: Using both the data presented in the Table 3-1 and Appendix C, no exceedances at sensitive receptors were shown.
- Case 2 - Commissioning: Exceedances outside the process fence line are flagged in Table 3-2, and short-term receptor impacts are shown on contour maps in Appendix D.
- Case 3 - Abnormal Operation: Exceedances outside the process fence line are flagged in Table 3-3, and receptor impacts are shown in Appendix E contour maps.
- Case 4 - Upset / Emergency Relief: Exceedances outside the process fence line are flagged in Table 3-4, and receptor impacts would be shown in Appendix F contour maps.

4.1 Case 1 – Normal Operation Results Discussion

Under normal conditions, the process is powered in main by renewable electricity, so the only continuous emissions generated by the Project are from the three flare system pilots (the ammonia storage flare, jetty flare, and ammonia process flare) and an intermittent stream flash gas purge release, described in [Ref. 2] as route. The purge gas is required to remove accumulated inert gases from the system and the emission rates used in the model, were based on both ammonia synthesis trains operating at full capacity through the year (which is conservative). However, even under these operating conditions, the modelled concentrations are well below the NL AAQ limits, with substantial margins for all pollutants assessed in Table 3-1 (e.g., NO_2 1-hour maximum values up to 11 $\mu g/m^3$ in 2023 meteorological year against an NL limit of 415 $\mu g/m^3$, and very low 24-hour and annual averages). See Appendix C for plume dispersion maps.

For normal operations, SO_x, O_3 and PM_{10} were not modelled as these emissions are not expected in the source releases, consistent with the study notes. $PM_{2.5}$ (24-hour) modelled concentrations are very low (≤0.068 $\mu g/m^3$ for 2022 meteorological year, depicted in Table 3-1), providing large margin

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to the NL 24-hour $PM_{2.5}$ criterion (25 μg/m³). Similarly, all pollutants are within required limits to Canadian standards during normal operation.

Overall, normal operation results indicate negligible incremental air quality impact at ground level relative to regulatory criteria, consistent with the Project design basis of minimal continuous combustion sources.

4.2 Case 2 Commissioning Relief Results Discussion

Commissioning represents a conservative, short-duration scenario characterised by temporary and intermittent emission sources, including elevated flaring and the operation of diesel-fired equipment. Under this scenario, air quality exceedances are predicted beyond the process fence line for the following pollutants:

- NO_x (1-hour): up to 1,892 μg/m³ versus the NL limit of 415 μg/m³ (~4.6× the limit)
- NO_x (24-hour): up to 1,131 μg/m³ versus the NL limit of 206 μg/m³ (~5.5× the limit)
- PM_{10} (24-hour): up to 300 μmg/m³ versus the NL limit of 50 μg/m³ (~6.0× the limit)

The highest predicted ground-level concentrations occur close to the Project area, with maxima reported at or near UTM coordinates E 616855 / N 5442680 and E 617855 / N 5444280 (Table 3-2). This spatial pattern is consistent with impacts being driven by near-field dispersion during periods when multiple short stacks and/or strong emission sources operate concurrently.

The short-term NO_x exceedances are not driven by diesel generators. Although multiple diesel units are expected to be operational during start-up, their emissions are anticipated to be relatively low, as Tier 4 low-NO_x engines have been specified (including 30 × 2 MW emergency generators, 1 MW emergency electrolyser generators, and diesel-driven firewater pumps). Instead, the dominant contributor under the commissioning scenario is the syngas purge routed to the process flare, with NO_x emissions of approximately 7,967 g/s associated with this release.

From a mechanistic perspective, the elevated NO_x concentrations are consistent with thermal NO_x formation during high-temperature combustion of a hydrogen-rich syngas purge (predominantly H_2 and N_2, with minor constituents such as NH_3 and argon). Combustion of hydrogen-rich gas in air can result in high flame temperatures, which promote oxidation of atmospheric nitrogen and enhanced thermal NO_x formation. Consequently, the flare purge and relief releases are the principal drivers of the predicted short-term NO_2 impacts beyond the fence line, while diesel-fired equipment, including Tier 4 low-NO_x units where specified, represents a secondary contribution by comparison.

Other pollutants remain below NL limits in this scenario. Notably, SO_x remains below the NL short-term limits and approaches (but does not exceed) the 24-hour criterion in the worst year (up to 306 μg/m³ against NL limit of 312 μg/m³). CO remains comfortably below its criteria, and $PM_{2.5}$ is orders of magnitude below its 24-hour criterion.

Impact narrative: *The predicted exceedances indicate that commissioning activities have the potential to cause localised, short-term increases in NO_x and PM_{10} near the site, particularly under meteorological conditions that limit dispersion. While these are non-routine events, they represent the highest air quality risk period for the Project and should be managed to minimise duration, frequency, and overlap of high-emission activities (e.g., simultaneous flaring plus extensive diesel engine use). The extent to which these exceedance zones may reach discrete sensitive receptors should be confirmed using the commissioning contour maps (Appendix D).*

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4.3 Case 3 – Abnormal Operation Results Discussion

Case 3 addresses abnormal operating conditions under which on-site power is conservatively assumed to be supplied by Emergency Diesel Generators and Electrolyser Diesel Generators, reflecting periods of no or low wind availability and, consequently, no wind power generation. Emissions during abnormal operations are intermittent and limited to the duration of the relevant event(s). Contributing sources include propane-fuelled pilots at the Ammonia Process Flare, Ammonia Storage Flare, and Jetty Flare; a continuous flash gas purge from the ammonia washing column to prevent inert gas accumulation while operating at approximately 10% turndown throughput; and the operation of Tier 4 low-sulphur diesel emergency and electrolyser generators. Collectively, these sources define a short-term, event-driven emissions profile representative of abnormal operations under no/low wind conditions.

Air dispersion modelling for the abnormal operations case predicts exceedances beyond the process fence line for the same controlling metrics identified for Case 2, including:

- NO_x (1-hour): up to 1849.1 μg/m³ vs 415 μg/m³ (~4.5× the limit)
- NO_x (24-hour): up to 1131 μg/m³ vs 206 μg/m³ (~5.5× the limit)
- PM_{10} (24-hour): up to 183 μg/m³ vs 50 μg/m³ (~3.7× the limit)

Maximum concentrations again occur close to the process boundary, with representative locations at approximately E 616855 / N 5442680 and E 617855 / N 5444280 (Table 3-3) but within the process concession area boundary (outer area). Sulphur oxides (SO_x) and carbon monoxide (CO) remain below applicable assessment criteria, and $PM_{2.5}$ concentrations are very low relative to the relevant limit. It should be noted that for modelling low sulphur diesel is considered and SOx emissions remain within the regulatory limits. If Project is able to procure ultra-low sulphur diesel for use as fuel for emergency and electrolyser generators, SO_x emissions rates improve significantly and fall well below the regulatory limit, shown in Appendix E.

Impact narrative: *Abnormal operations are infrequent by definition, but the results demonstrate that if an abnormal event triggers increased flaring and/or diesel support equipment, it can generate short-lived peak concentrations of NO_x and coarse particulate that may extend beyond the fence line in the near field. The potential for any sensitive receptor impact should be checked against the abnormal-operation contour maps (Appendix E), noting that concentrations are expected to reduce rapidly with distance from the source.*

4.4 Case 4 – Emergency Relief Results Discussion

On review of the emergency relief case, the 1-hr period highest concentrations for sulphur oxides (SO_x) and carbon monoxide (CO) remain below applicable assessment criteria. However there is an exceedance outside the process fence line for:

- NO_x (1-hour): up to 1849 μg/m³ vs 415 μg/m³ (~4.5× the limit)

The highest impacts are again predicted close to the site boundary and near key equipment clusters (refer to Table 3-4).

Impact narrative: *The emergency relief (upset) event is inherently non-routine and arises from the operation of process safety systems to prevent escalation and maintain plant safety. Modelling indicates that such events may result in exceedances of short-term air quality criteria at near-field receptors, particularly for NO_x. Other pollutants either do not exceed their respective 1-hour*

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emissions criteria, taking into account the assumed event duration and peak release within the first 15 minutes, or are subject to assessment against longer averaging periods. These results highlight the importance of effective operational controls and emergency response planning to minimise event duration and, where practicable, reduce potential public exposure, as supported by the contour mapping in Appendix F.

4.5 Summary of Exceedances for Short-term Relief Cases

The table below summarises the worst-case (maximum) modelled concentrations for each scenario relative to the applicable NL ambient air quality limits.

Table 4-1 Short-term relief case exceedances

Scenario	Pollutant & averaging period	NL AAQ limit (µg/m³)	Max modelled (µg/m³)	Approx. multiple of the NL limit
Case 2 – Commissioning	NOx (1-hour)	415	1892	~4.6×
Case 2 – Commissioning	NOx (24-hour)	206	1131	~5.5×
Case 2 – Commissioning	PM10 (24-hour)	50	300	6.0×
Case 3 – Abnormal	NOx (1-hour)	415	1849.1	~4.5×
Case 3 – Abnormal	NOx (24-hour)	206	1131	~5.5×
Case 3 – Abnormal	PM10 (24-hour)	50	183	~3.7×
Case 4 – Upset / Emergency Relief	NOx (1-hour)	415	1849	~4.5×

4.6 Key uncertainties and limitations relevant to interpretation

The interpretation of the modelling results is subject to several assumptions and limitations, which should be considered when reviewing the findings outlined below:

- Background air quality not included: Because measured background concentrations are not available, modelled values represent the Project contribution only. For normal operations, margins are large and conclusions are unlikely to change materially; however, for cases where exceedances are already predicted (NO_2 and PM_{10}), inclusion of any background would not change the exceedance outcome (but would increase total concentrations).
- Building downwash and final layout: The report notes that building downwash has not been assessed and would be assessed once the plant plan is fixed. This is important because downwash can increase ground-level concentrations close to sources under some conditions.
- Meteorological representativeness: The modelling used a pre-processed 2022–2024 meteorological dataset from Gander International Airport, selected as the most suitable dataset for inland conditions and cloud-cover availability.

This provides a robust basis for screening-level assessment but should be revisited if higher-resolution local met data become available and when vendor data becomes available during subsequent phases of design development.

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5. Conclusions and Recommendations

This report has presented a preliminary air emissions inventory for the **EVREC Green Ammonia** development, covering four representative operating scenarios: normal operations, commissioning, abnormal operations, and upset conditions. The inventory has been developed to support air dispersion modelling and regulatory impact assessment at the current stage of project definition, using a conservative methodology based on available design information, preliminary licensor data, mass balance calculations, and recognised emission factors.

The results demonstrate that emissions during normal operations are low and dominated by continuous flare pilot combustion and low-rate flash gas purge streams, with short duration testing of diesel-fired equipment contributing only marginally to annual totals. Under these conditions, emissions are not expected to be a controlling factor for air quality impacts.

In contrast, commissioning, abnormal, and upset operations are characterised by short-term, event-driven emissions with substantially higher instantaneous release rates, particularly for nitrogen oxides (NO_x). In these non-routine cases, the inventory confirms that the dominant contributors are hydrogen-rich syngas purges or relief streams routed to the process flare, where high flame temperatures drive thermal NO_x formation. Diesel generators, although numerous, contribute a comparatively smaller fraction of NO_x due to the use of Tier 4 diesel engines combined with low sulphur fuel.

Dispersion modelling based on emission inventories for the commissioning, abnormal operation and emergency /upset scenarios, indicates that short-term exceedances of applicable ambient air quality criteria for NO_2 and PM_{10} can occur beyond the process fence line. These exceedances are localised, occur close to the site, and are driven by conservative assumptions regarding concurrent operation of short stacks and peak flaring events. Longer-term averaging periods are not exceeded, and pollutants such as SO_x, CO, and $PM_{2.5}$ remain well below applicable limits across all scenarios.

As with any early-stage assessment, the results are subject to several important uncertainties. Background ambient air quality has not been included, building downwash effects have not yet been assessed pending final plant layout, and meteorological data have been selected to provide a representative screening-level dataset rather than site-specific measurements. In addition, several key inputs such as flash gas purge rates, blowdown rates, and detailed flare and generator performance, are subject to confirmation during Front End Engineering Design (FEED) and vendor engagement.

Accordingly, while this assessment provides a robust and conservative basis for early air quality evaluation and regulatory screening, additional refinement will be required at subsequent stages of design development. As vendor data, final layouts, and operating philosophies become available, the emissions inventory and dispersion modelling should be updated to reduce uncertainty, better characterise realistic operating conditions, and confirm compliance with applicable ambient air quality criteria. This iterative approach is consistent with good practice and will ensure that air quality impacts are appropriately managed as the project progresses.

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Appendix A – References and Acronyms

References

Table A1.1 References

Ref	Description
1	360882-000-PIP-01-00003 Rev 2 entitled “EVREC Site Plan” dated 7-Feb-25
2	J-001817-ENV-TN-004-00, entitled “Emissions Inventory Report”
3	J-001817-EV-CAL-0001-V7 entitled “Calc 001 Emissions Inventory” dated 15-01-26
4	GD-PPD-019.2 (Guidance for Plume Dispersion Modelling – NL, dated 2012
5	Flare type: https://www.emnrd.nm.gov/ocd/wp-content/uploads/sites/6/Flare_Type.pdf
6	Effective Height https://www.wkcgroup.com/tools-room/flare-effective-height-diameter-calculator/
7	J-001817-EV-CAL-0002 V2 entitled “Stack Height” dated 5-May-25
8	Newfoundland and Labrador Regulations 2022 https://www.assembly.nl.ca/legislation/sr/annualregs/2022/nr220011.htm
9	Canadian Ambient Air Limits https://www.gov.nl.ca/eccc/env-protection/science/aqms/#:~:text=The%20Air%20Quality%20Management%20System,to%20reduce%20Mobile%20Source%20Emissions

Acronyms

Table A1.2 Acronyms

Acronym	Definition
AOI	Area of Interest
AP-42	US EPA Air Pollutant Emission Factors
BPIPPRM	Building Profile Input Program for PRIME
CAAQS	Canadian Ambient Air Quality Standards
CO	Carbon Monoxide
DEM	Digital Elevation Model
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
FEED	Front-End Engineering Design
GEP	Good Engineering Practice
H_2	Hydrogen
H_2S	Hydrogen Sulphide
LHV	Lower Heating Value
m^3/s	Cubic metres per second

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Acronym	Definition
mg/m^3	Miligrams per cubic metre
NAD	North American Datum
NH_3	Ammonia
NO	Nitric Oxide
NO_2	Nitrogen Dioxde
NO_X	Oxides of Nitrogen (as NO_2)
O_3	Ozone
PM_{10}	Particulates > 10microns
$PM_{2.5}$	Particulates < 2.5microns
ppb	Parts per billion
QA/QC	Quality Assurance / Quality Control
SO_2	Sulphur Dioxide
SOx	Oxides of Sulphur (as SO_2)
TSP	Total Suspended Particulates
US EPA	United States Environmental Protection Agency
UTM	Universal Transverse Mercator

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Appendix B – Model Canvas for Runs and Maps Catalogue

Figure B.1.1 Model Runs

Scenarios	NOx 1-hr	NOx 24hr	NOx 1yr	SOx 1hr	SOx 3hrs	SOx 24 hr	SOx 1yr	CO 1hr	CO 8hr	PM10 24 hr	PM2.5 24 hr	PM2.5 1 yr	Notes
Case 1 – Normal Operation	Y	Y	Y	(1)	(1)	(1)	(1)	Y	Y	(1)	Y	Y	(1) No SO_x | PM_{10} emission source during normal operation (2) short term release, so 3 hr, 24 hr and annual emissions were not considered
Case 2- Commissioning	Y	Y	(2)	Y	Y	Y	(2)	Y	Y	Y	Y	(2)	
Case 3- Abnormal Case	Y	Y	(2)	Y	Y	Y	(2)	Y	Y	Y	Y	(2)	
Case 4- Upset Case	Y	(2)	(2)	Y	(2)	(2)	(2)	Y	(2)	(2)	(2)	(2)	

Figure B.1.2 Modelling Maps

Scenarios	NOx 1-hr	NOx 24hr	NOx 1yr	SOx 1hr	SOx 3hrs	SOx 24 hr	SOx 1yr	CO 1hr	CO 8hr	PM10 24 hr	PM2.5 24 hr	PM2.5 1 yr	Notes
Case 1 – Normal Operation	See Appx C Y 2022 | 23 | 24	See Appx C Y 2022 | 23 | 24	See Appx C Y 2022 | 23 | 24	(1)	(1)	(1)	(1)	See Appx C Y 2022 | 23 | 24	See Appx C Y 2022 | 23 | 24	(1)	See Appx C Y 2022 | 23 | 24	See Appx C Y 2022 | 23 | 24	(1) No SO_x | PM_{10} emission source during normal operation (2 short term release, so 3 hr, 24 hr and annual emissions were not considered (3) Emissions significantly below regulatory limit so no map prepared.
Case 2- Commissioning	See Appx D Y 2022 | 23 | 24	See Appx D Y 2022 | 23 | 24	(2)	(3)	(3)	(3)	(2)	(3)	(3)	See Appx D Y 2022 | 23 | 24	(3)	(2)	
Case 3- Abnormal Case	See Appx E Y 2022 | 23 | 24	See Appx E Y 2022 | 23 | 24	(2)	(3)	(3)	(3)	(2)	(3)	(3)	See Appx D Y 2022 | 23 | 24	(3)	(2)	
Case 4- Upset Case	See Appx F Y 2022 | 23 | 24	(2)	(2)	(3)	(2)	(2)	(2)	(3)	(2)	(2)	(2)	(2)	

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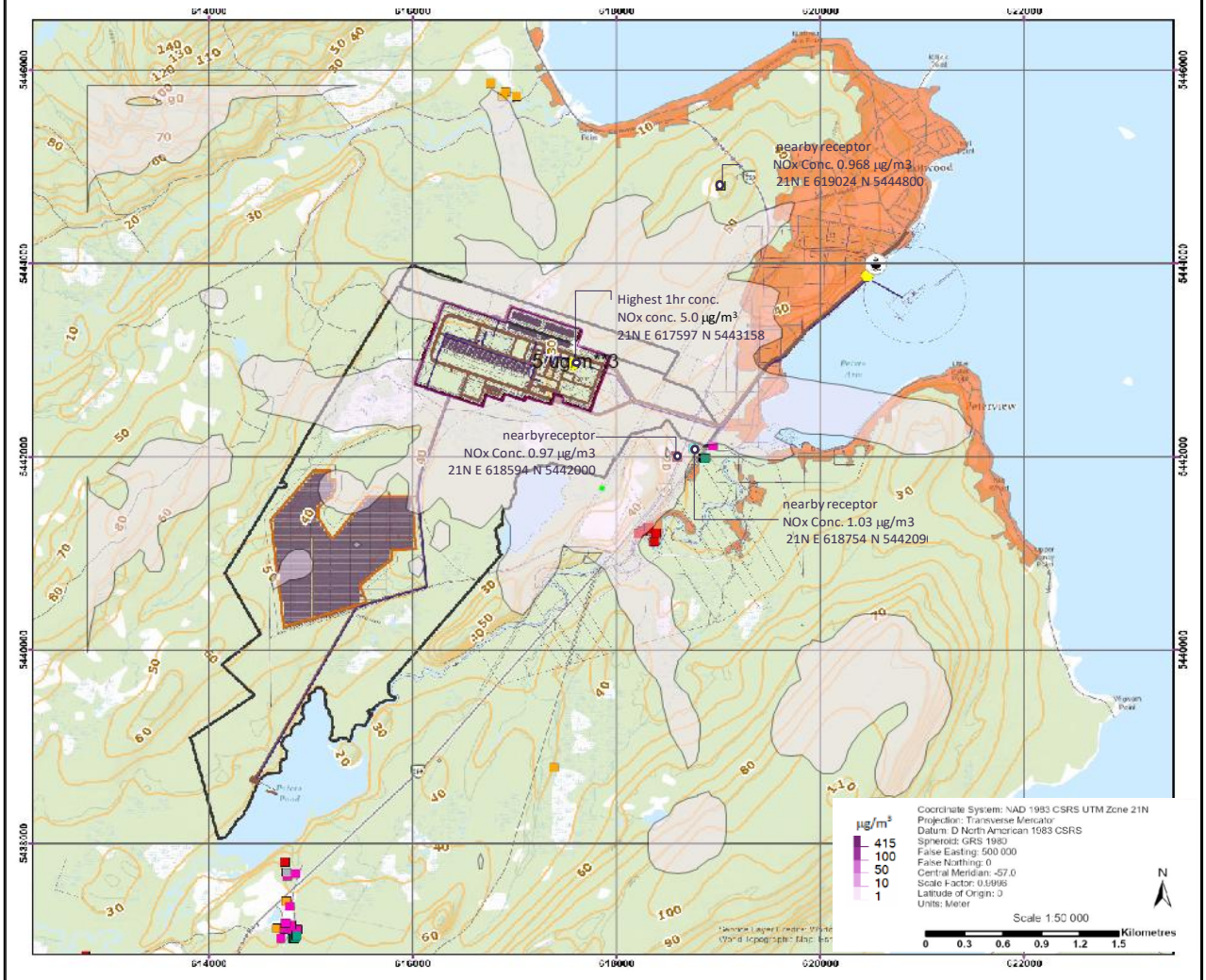
Appendix C – Case 1 Results

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1a Normal Operation | 2022
NOx 1 hour average in units: µg/m^3

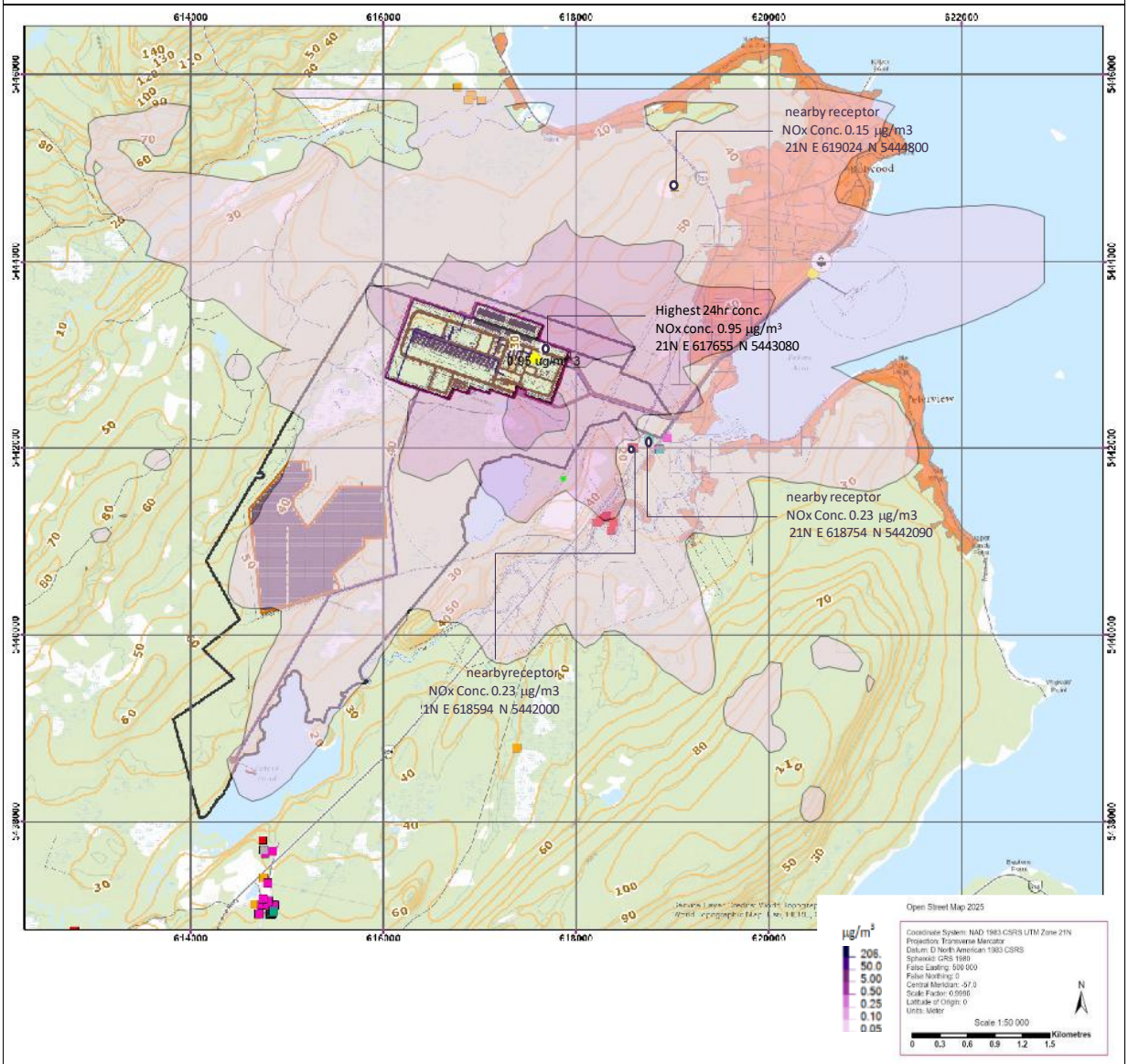


Hourly Highest value at E, N: 21N E 617597 N 5443158 NOx Conc. 5.0 µg/m^3

Regulatory Limit 415 µg/m^3	**Modeller** S Jivraj
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 15-Jan-26	**Revision** V2

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1a Normal Operation | 2022
NOx 24 hour average in units: µg/m^3



24 hr Highest value at E, N: 21N E 617655 N 5443080 NOx Conc. 0.95 µg/m^3

Regulatory Limit 206 µg/m^3	**Modeller** A Alva Sanchez
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 19-Mar-26	**Revision** V7

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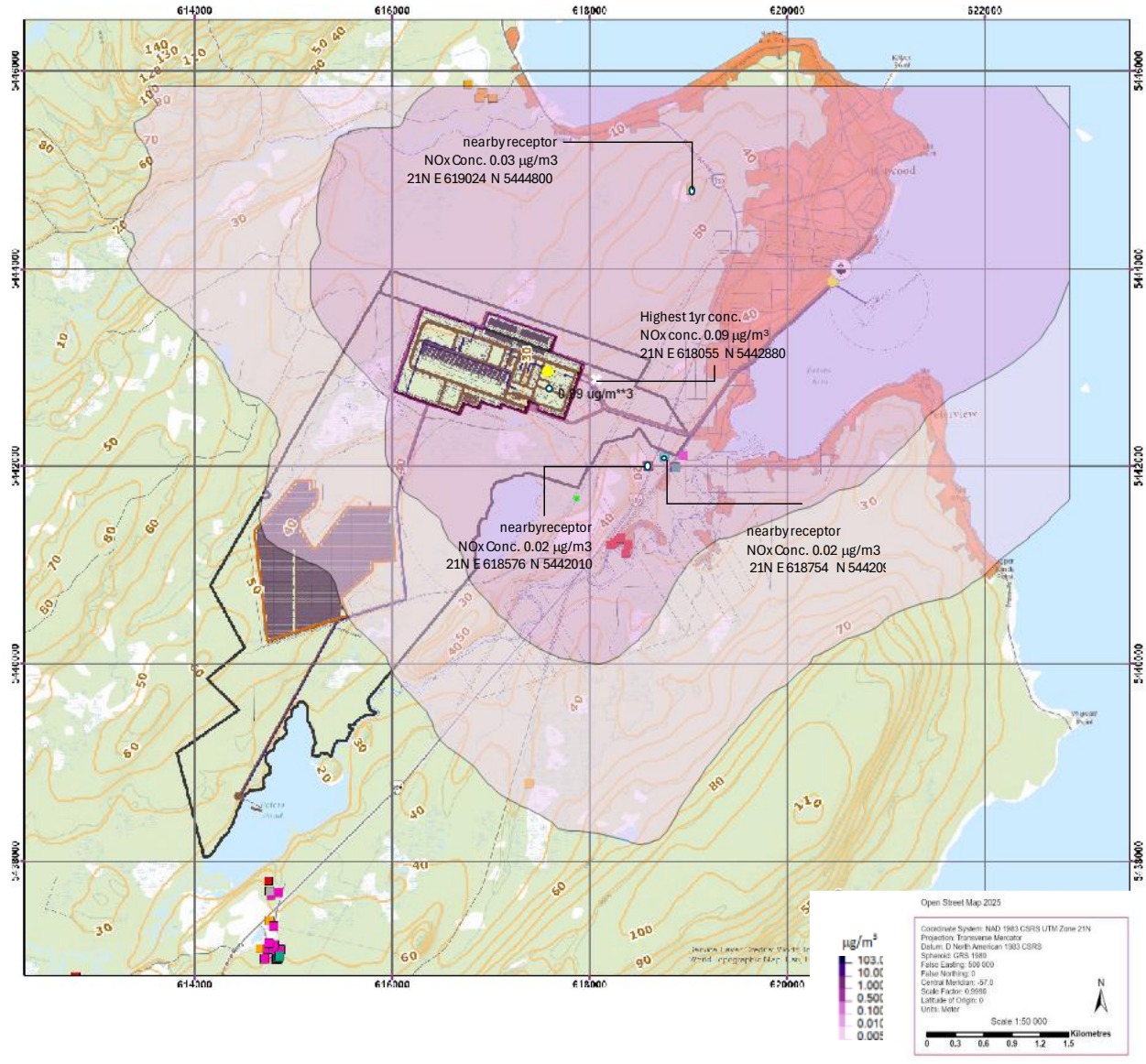
EVREC Project Emissions Dispersion Modelling

AERMOD Results - 1a Normal Operation | 2022

NOx 1 year average in units: µg/m^3

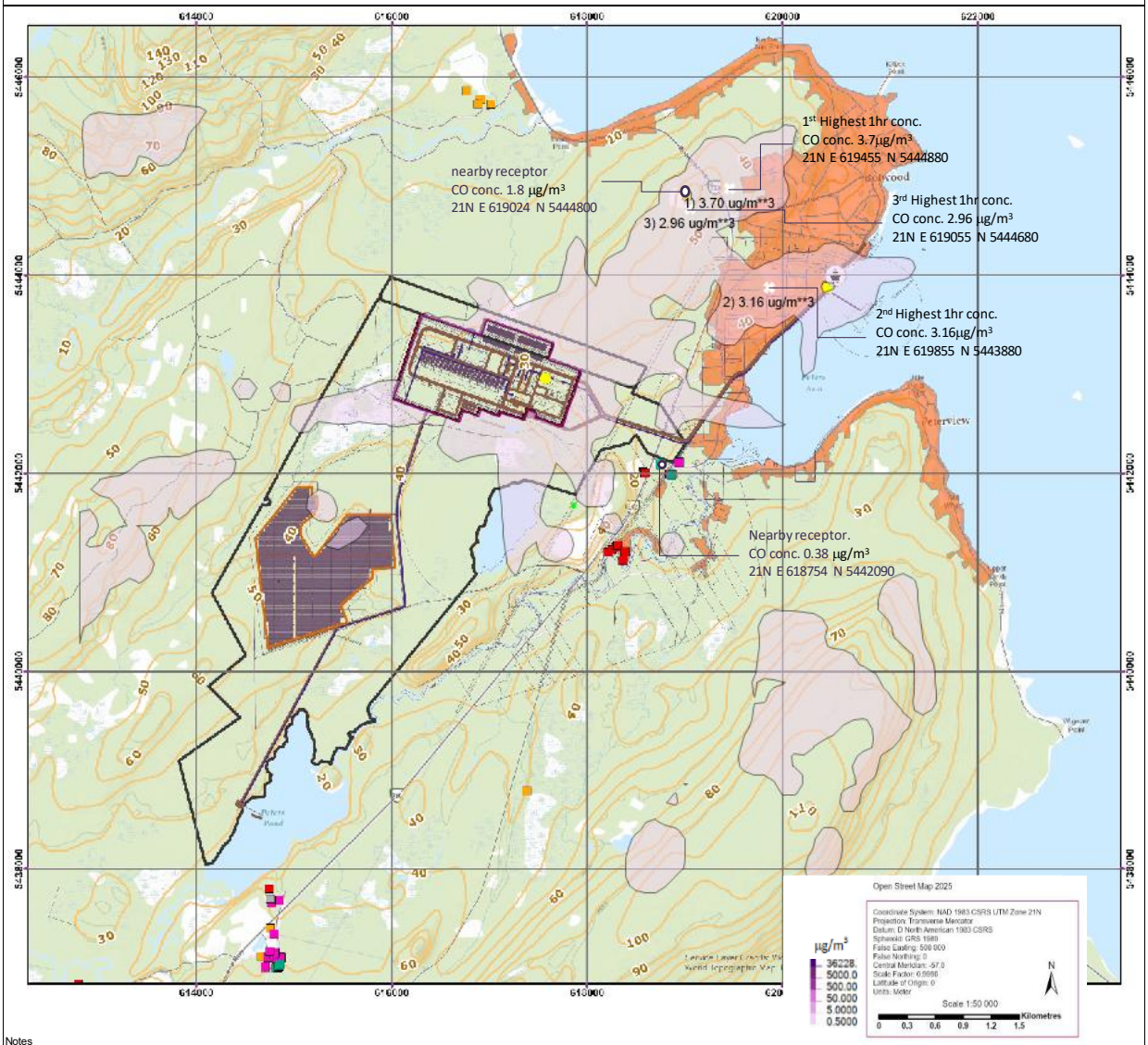


1 yr Highest value at E, N: 21N E 618055 N 5442880 NOx Conc. 0.09 µg/m^3

Regulatory Limit 103 µg/m^3	**Modeller** S Jivraj
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 09-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1a Normal Operation | 2022
CO 1 hour average in units: µg/m^3



Notes

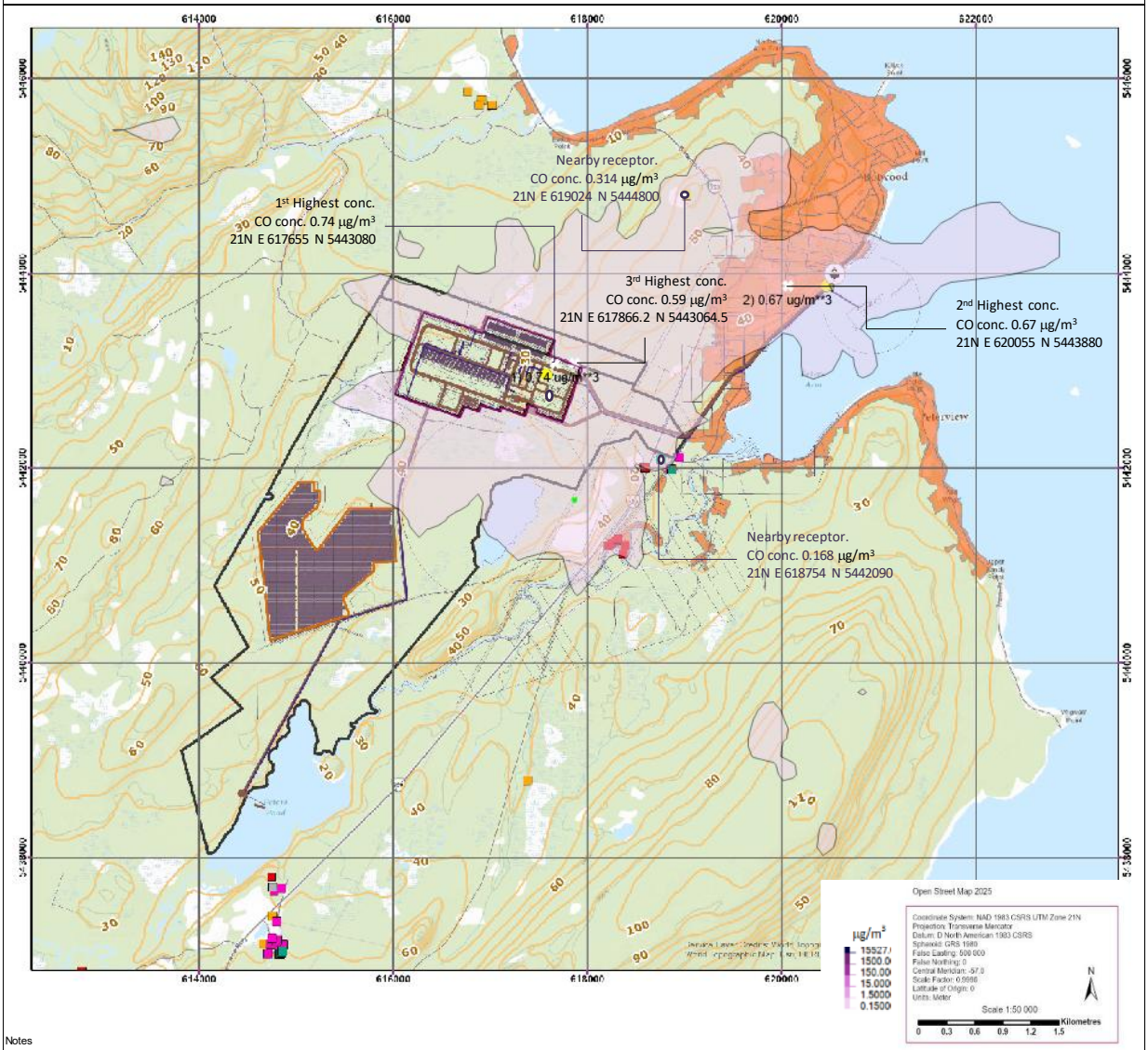
1. No peak concentrations (3 highest values) are show n near the fence line, as dispersion is strongly influenced by year-specific meteorological and terrain conditions, w hich shift peak concentrations aw ay from the source area.

Hourly Highest value at 21N E 619455 N 5444880 CO conc. 3.7 µg/m^3

Regulatory Limit 36228 µg/m^3	**Modeller** A Alva Sanchez
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 19-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1a Normal Operation | 2022
CO 8 hour average in units: µg/m^3



Notes

1. Highest concentration occurs at the fence line. The next highest concentration occur aw ay from the fence line, influenced by year-specific meteorological and terrain conditions, although the third highest value remains located at the fence line.

8Hr Highest value at E, N: 21N E 617655 N 5443080 CO conc. 0.74 µg/m^3

Regulatory Limit 15527 µg/m^3	**Modeller** A Alva Sanchez
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 18-Mar-26	**Revision** V7

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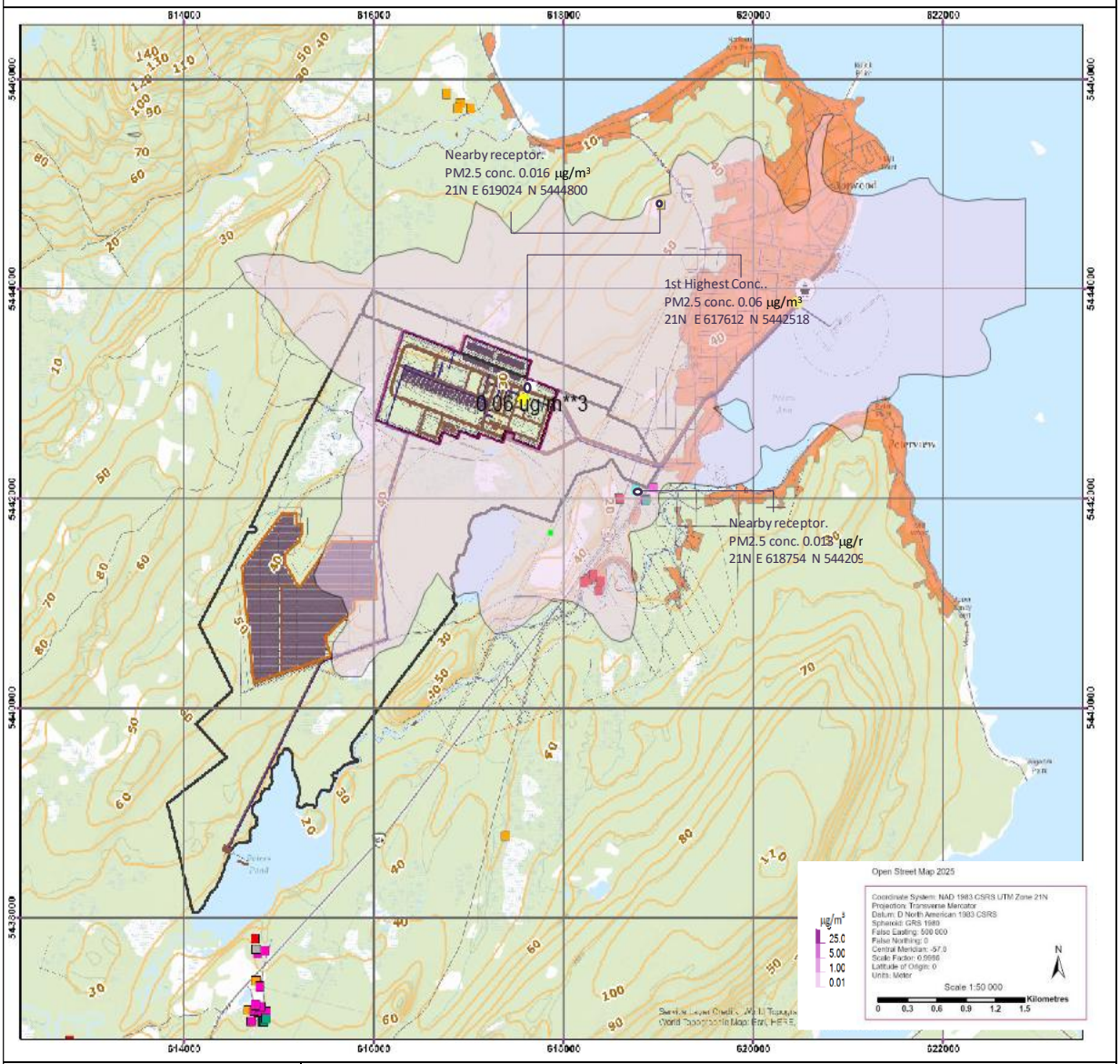
EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1a Normal Operation | 2022
1st highest PM2.5 24 hour average in units: µg/m^3



1st highest PM2.5 24hour average at E, N: 21N E 617612 N 5442518 PM2.5 conc. 0.06 µg/m^3

Regulatory Limit 25 µg/m^3	**Modeller** S Jivraj
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 18-Mar-26	**Revision** V7

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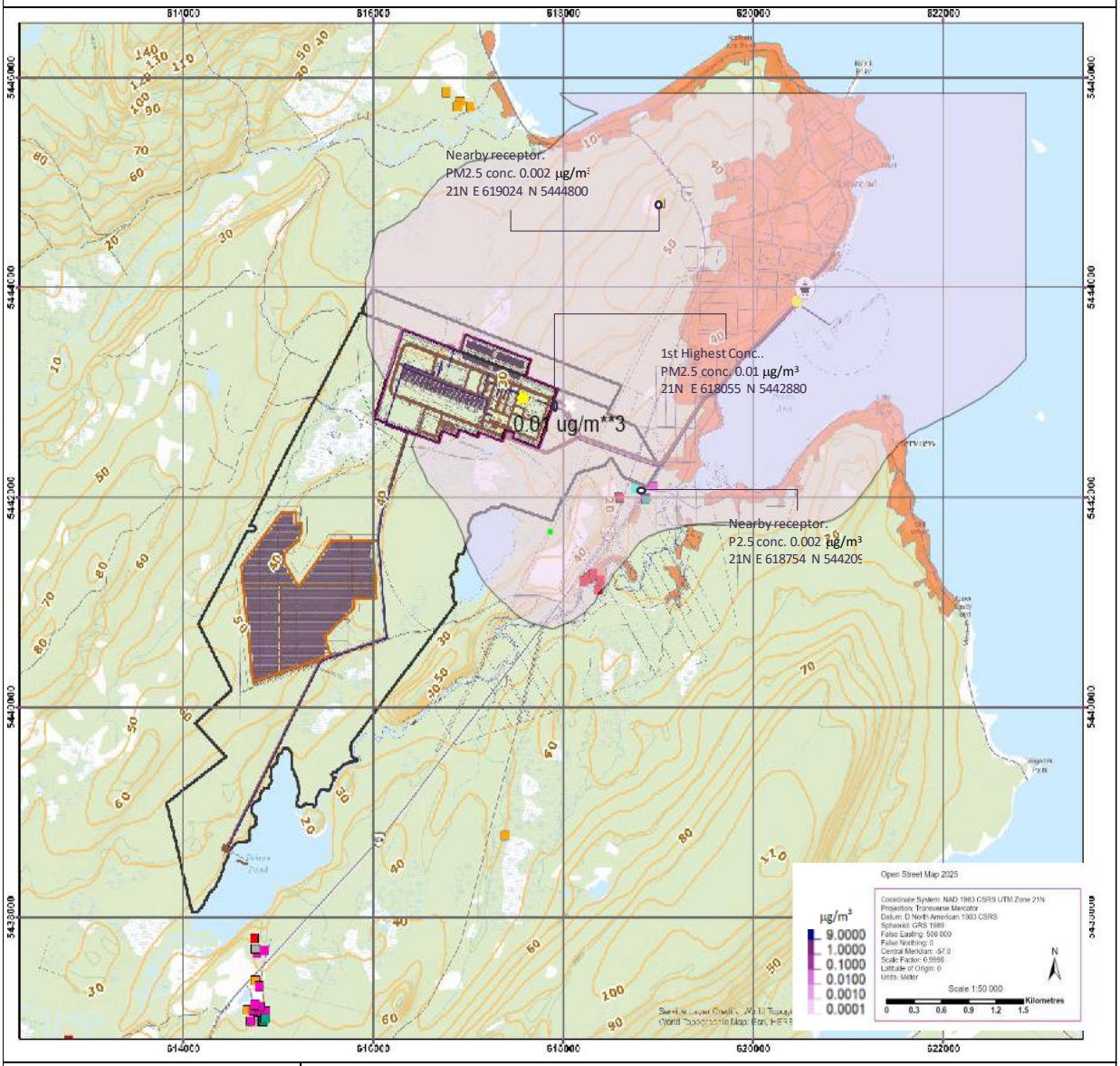
EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1a Normal Operation | 2022
PM2.5 1 yr average in units: µg/m^3

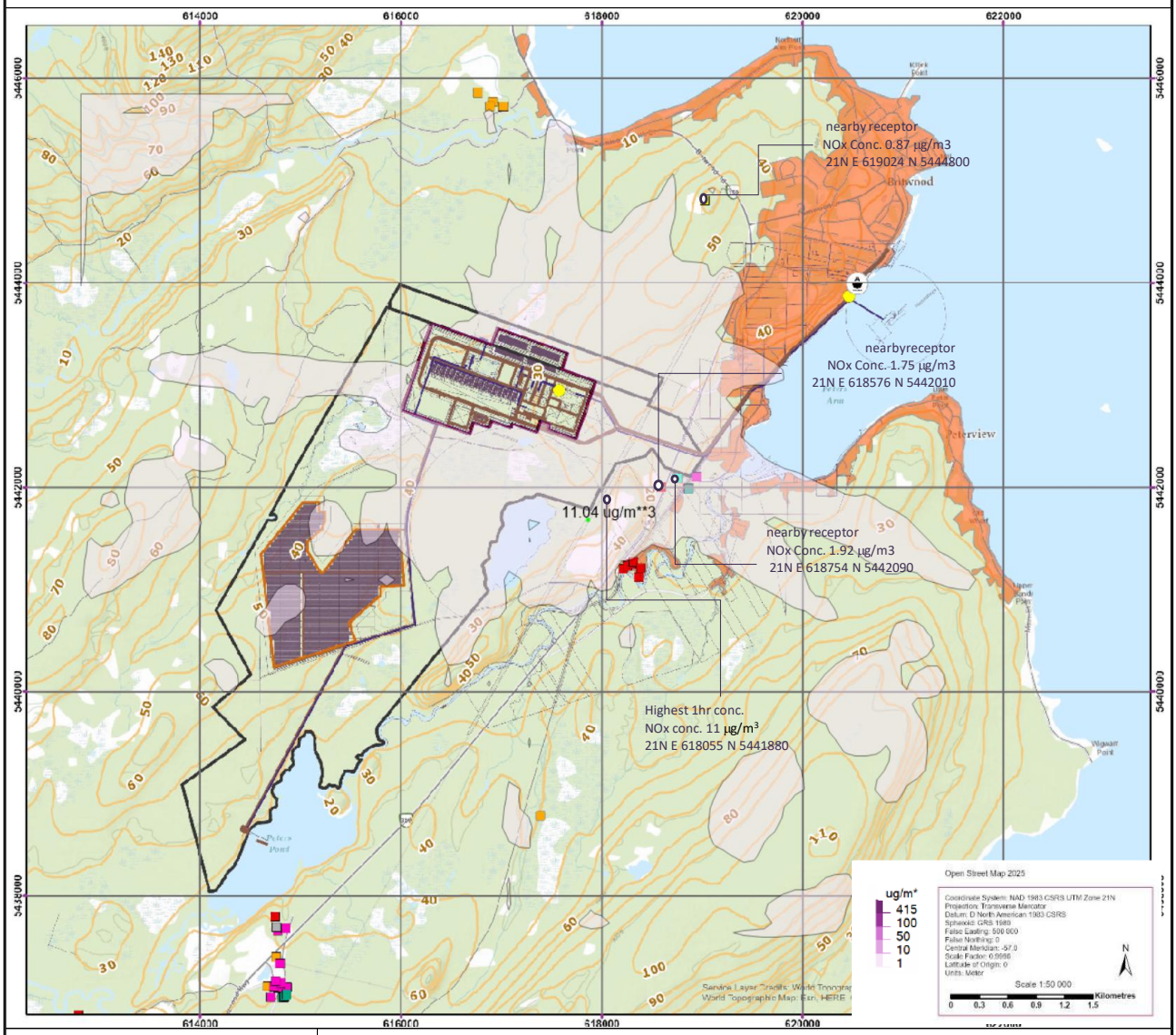


1 yr Highest value at E, N: 21N 21N E 618055 N 5442880 PM2.5 conc. 0.01 µg/m^3

Regulatory Limit 25 µg/m^3	**Modeller** S Jivraj
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 15-Jan-26	**Revision** V2

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1b Normal Operation| 2023
NOx 1 hour average in units: µg/m^3



Hourly Highest value at E, N: 21N E 618055 N 5441880 NOx Conc. 11 µg/m^3

Regulatory Limit 415 µg/m^3	**Modeller** S Jivraj
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 12-Mar-26	**Revision** V7

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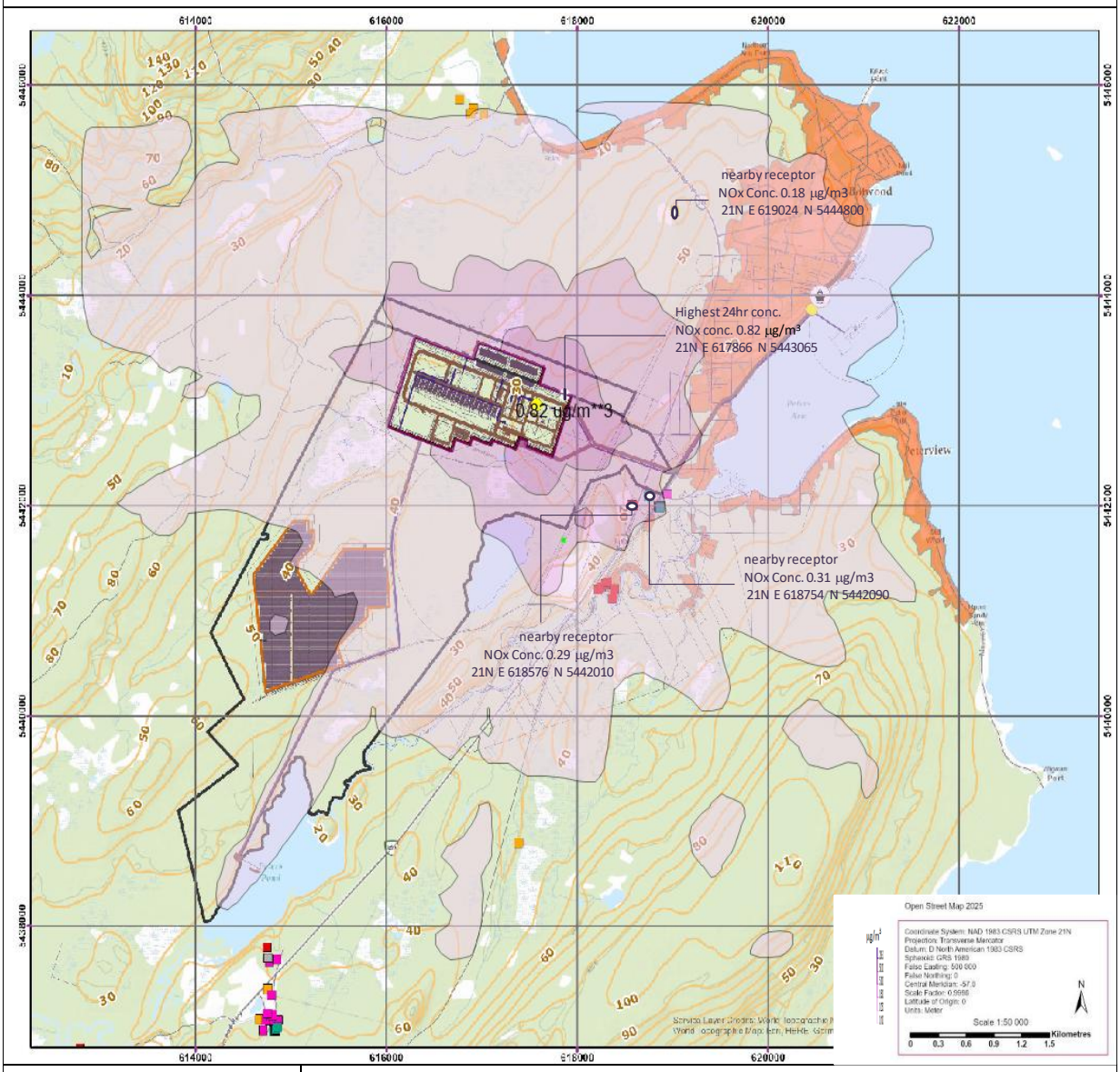
Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1b Normal Operation | 2023
NOx 24 hour average in units: µg/m^3



24 hr Highest value at E, N: 21N E 617866 N 5443065 NOx Conc. 0.82 µg/m^3

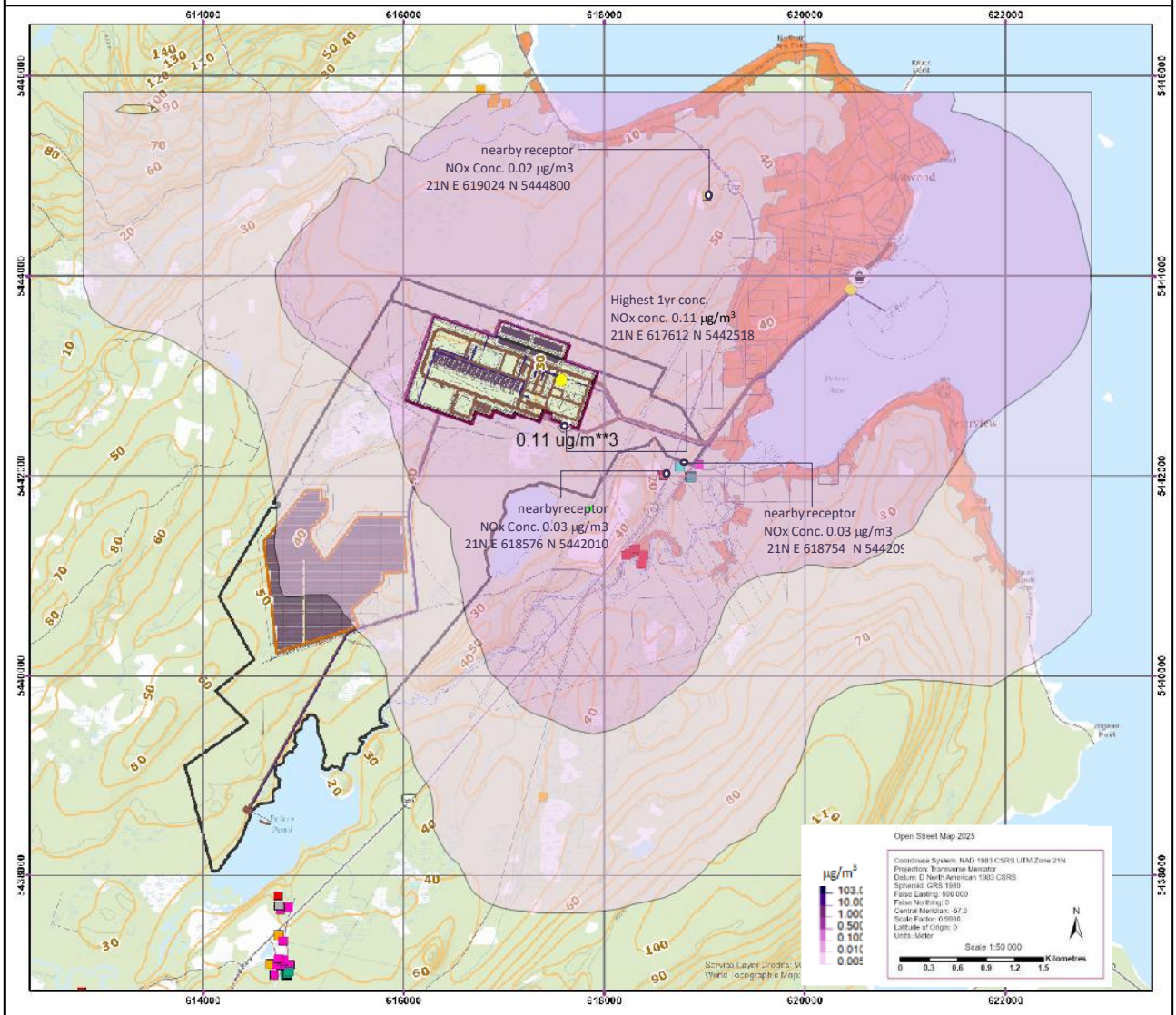
Regulatory Limit 206 µg/m^3	**Modeller** S Jivraj
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 19-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling

AERMOD Results - 1b Normal Operation | 2023

NOx 1 year average in units: µg/m^3



1 yr Highest value at E, N: 21N E 617612 N 5442518 NOx Conc. 0.11 µg/m^3

Regulatory Limit 103 µg/m^3	**Modeller** S Jivraj
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 03-Mar-26	**Revision** V7

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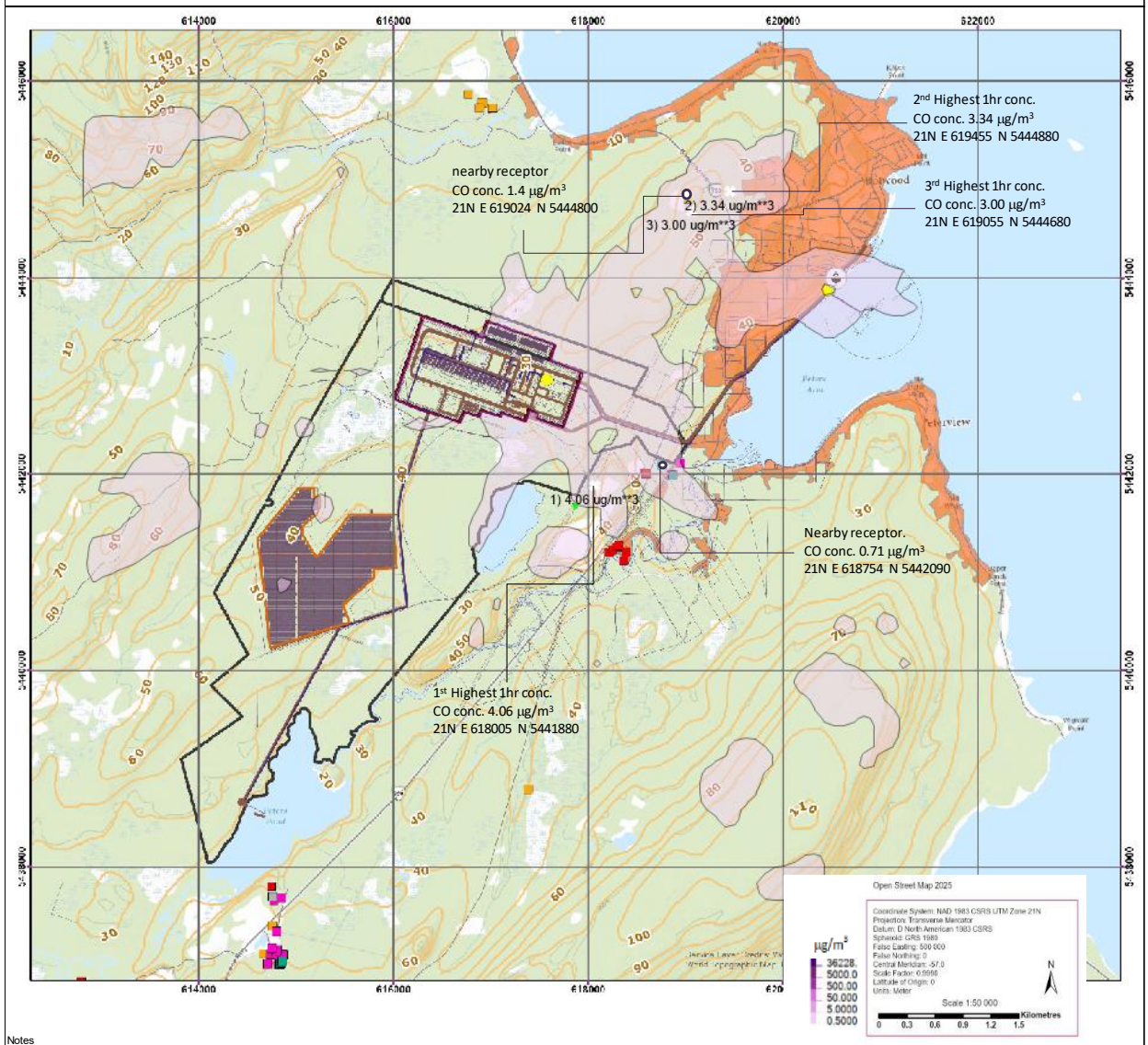
Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1b Normal Operation | 2023
CO 1 hour average in units: µg/m^3



Notes

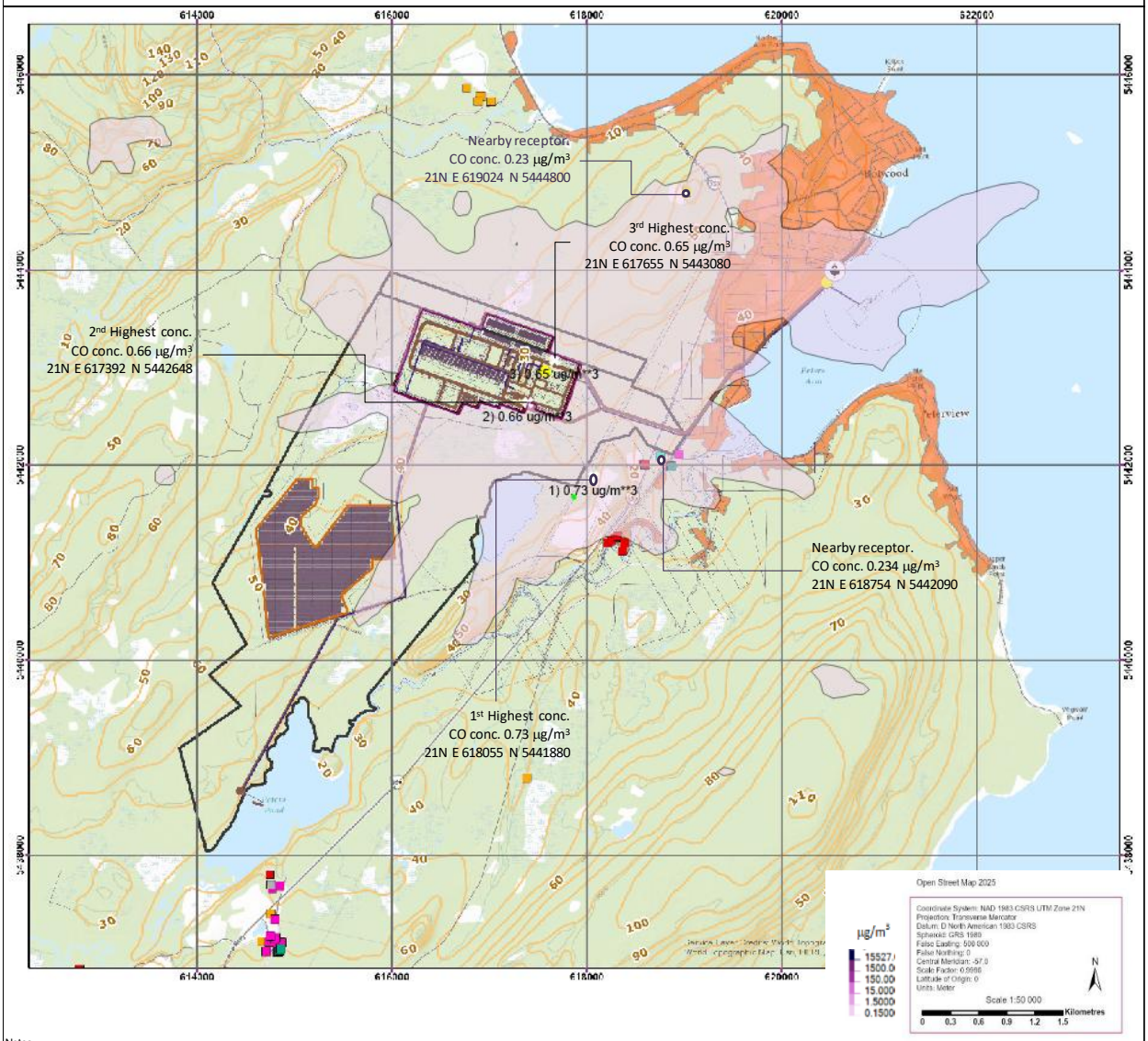
1. No peak (3 highest values) concentrations occur at the fence line. The second and third highest concentrations occur at locations consistent with the peak concentration identified for Case R1a, reflecting the influence of prevailing meteorological and terrain conditions.

Hourly Highest value at 21N E 618055 N 5441880 CO conc. 4.06 µg/m^3

Regulatory Limit 36228 µg/m^3	**Modeller** A Alva Sanchez
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 18-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1b Normal Operation | 2023
CO 8 hour average in units: µg/m^3



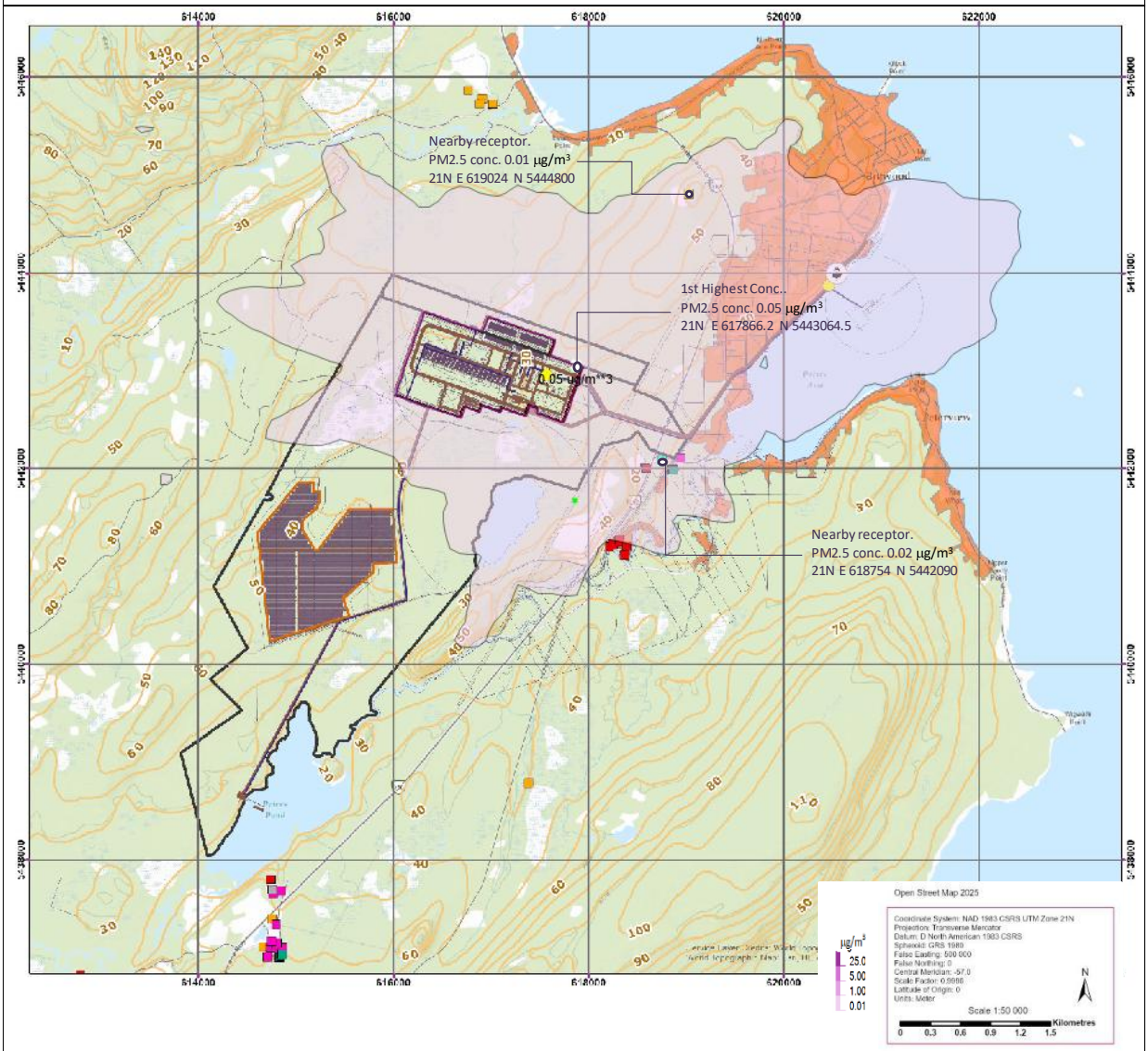
Notes
1. Highest concentration occur aw ay from the fence line driven by year-specific meteorological and terrain conditions. Although, the next highest concentrations are located near the fence line similar to Case R1a, dispersion patterns are sufficiently influenced by these factors to shift peak values elsew here.

8hr Highest value at E, N: 21N E 618055 N 5441880 CO conc. 0.73 µg/m^3

Regulatory Limit 15527 µg/m^3	**Modeller** A Alva Sanchez
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 18-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1b Normal Operation | 2023
1st highest PM2.5 24 hour average in units: µg/m^3

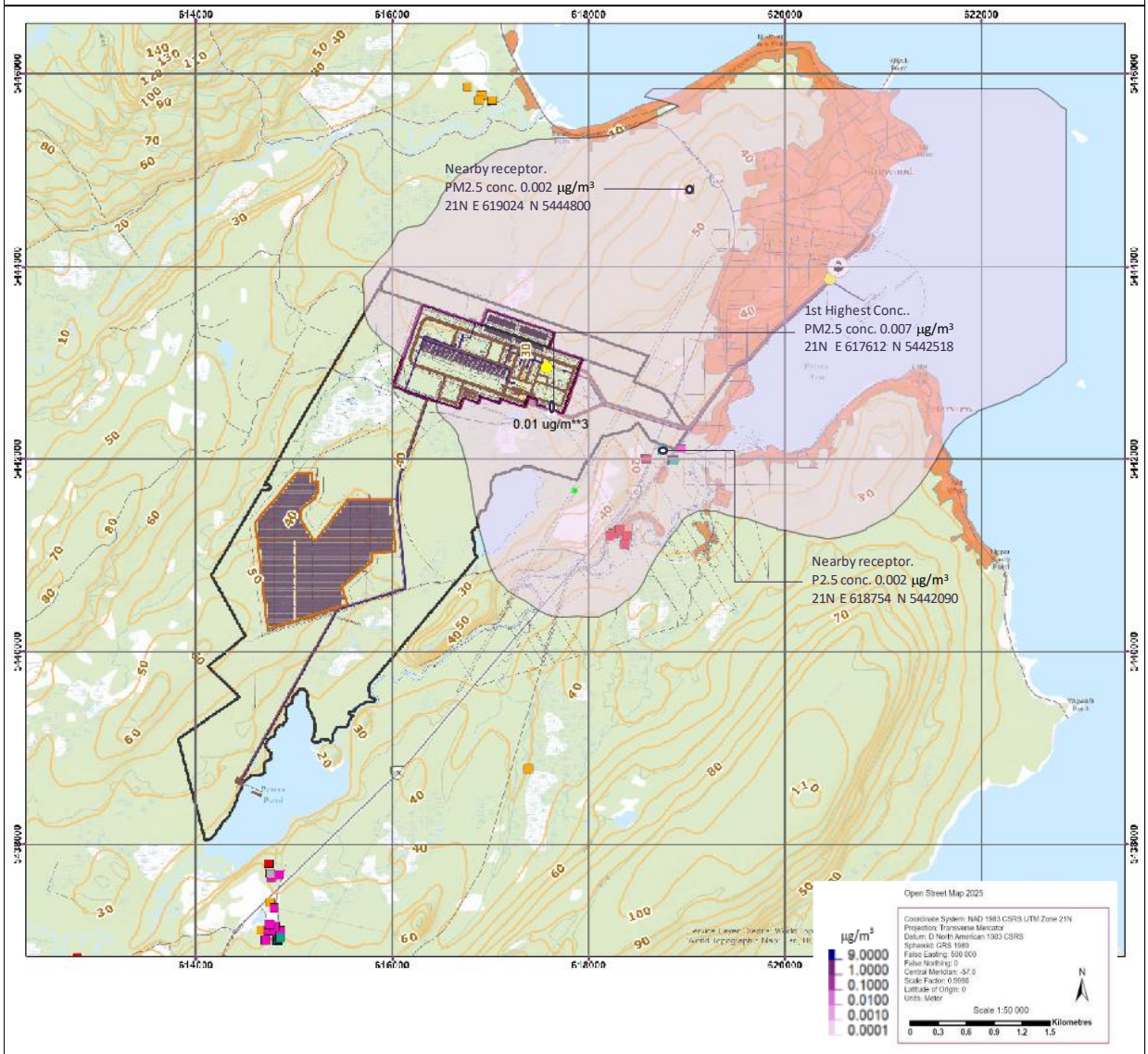


1st highest PM2.5 24hour average at E, N: 21N E 617866.2 N 5443064.5 PM2.5 conc. 0.05 µg/m^3

Regulatory Limit 25 µg/m^3	**Modeller** A Alva Sanchez
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 18-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1b Normal Operation | 2023
PM2.5 1yr average in units: µg/m^3



1 yr Highest value at E, N: 21N 21N E 617612 N 5442518 PM2.5 conc. 0.01 µg/m^3

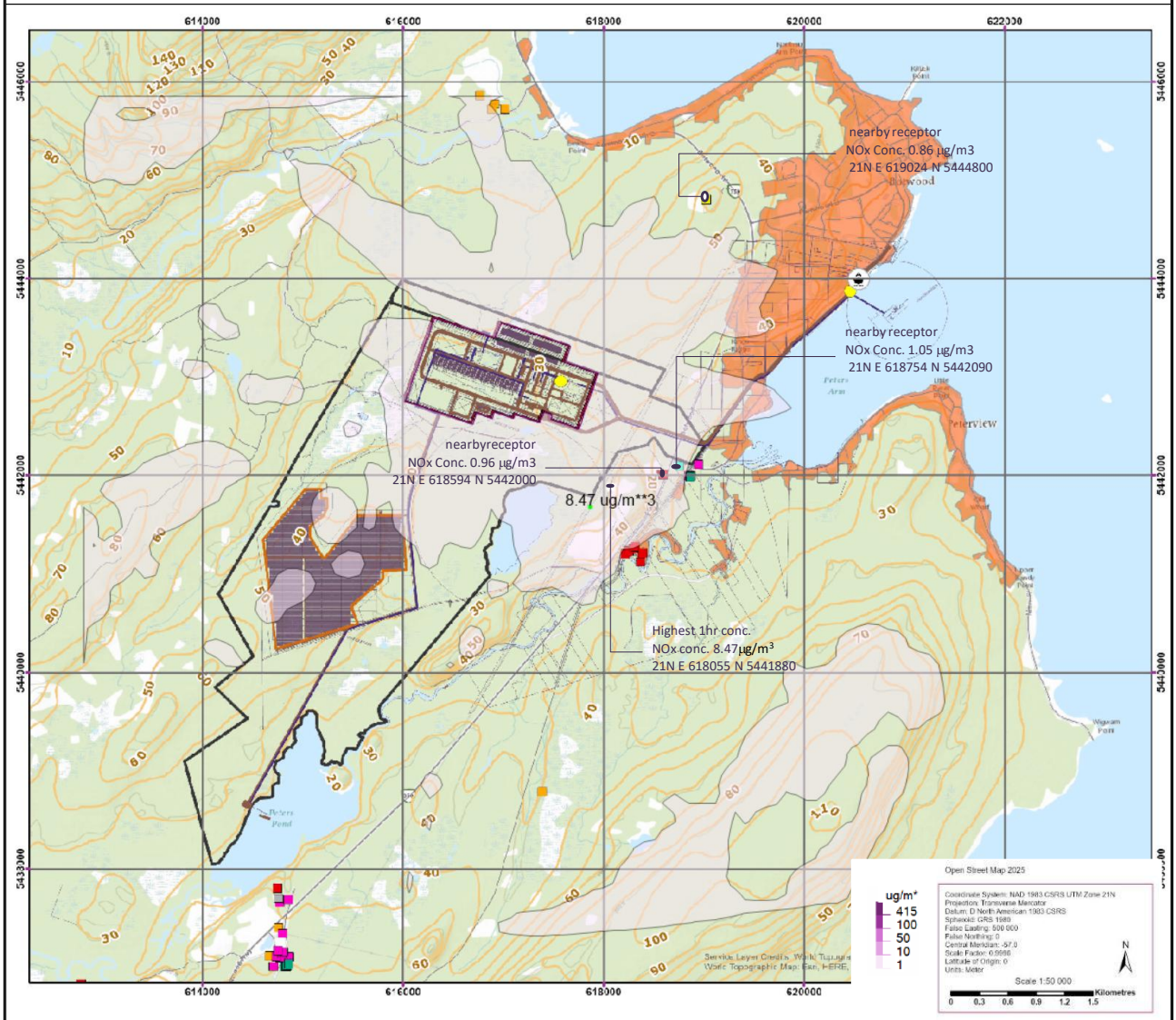
Regulatory Limit 25 µg/m^3	**Modeller** A Alva Sanchez
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 18-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling

AERMOD Results - 1c Normal Operation | 2024

NOx 1 hour average in units: µg/m^3



Hourly Highest value at E, N: 21N E 618055 N 5441880 NOx Conc. 8.47 µg/m^3

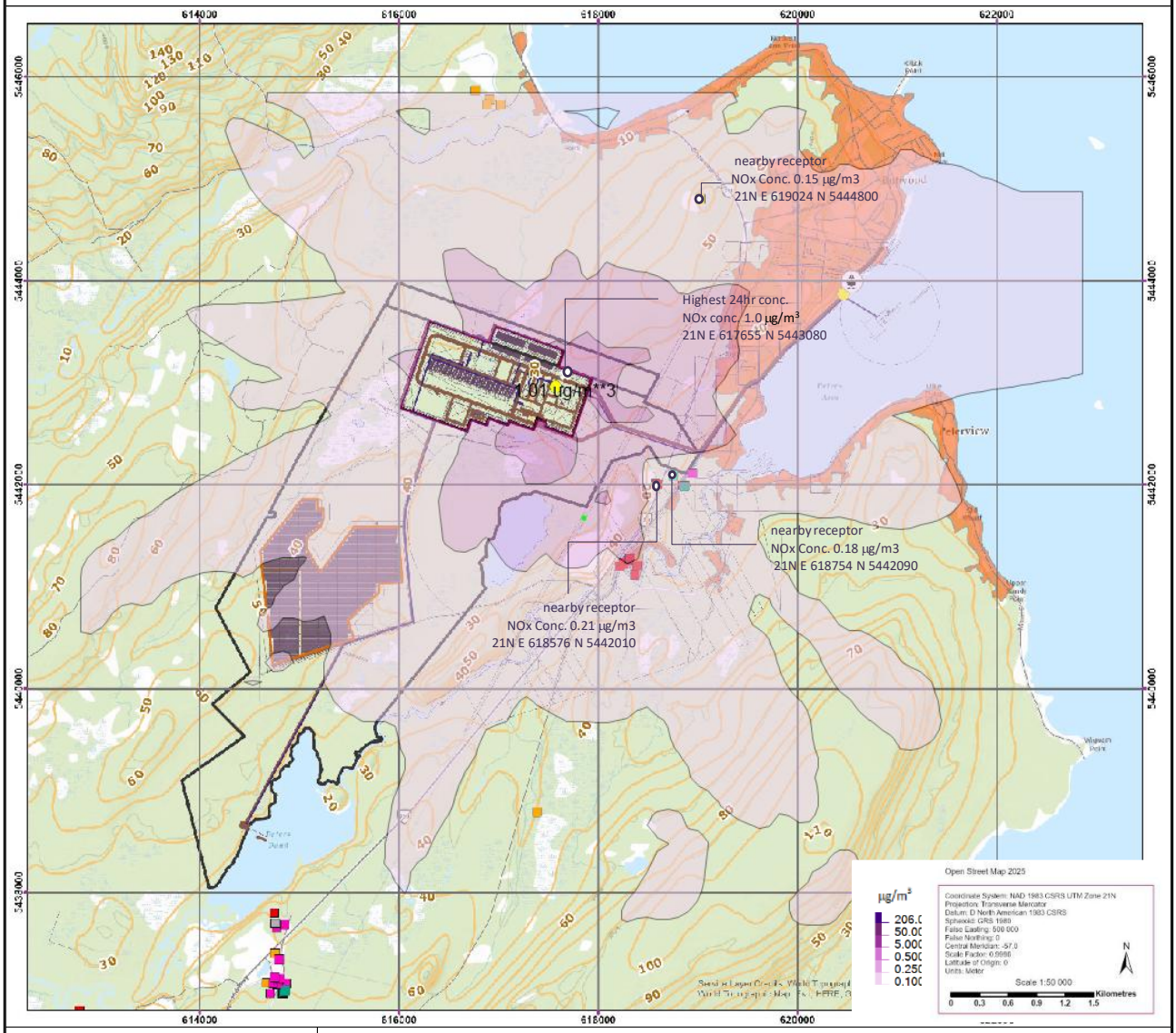
Regulatory Limit 415 µg/m^3	**Modeller** S Jivraj
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 12-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling

AERMOD Results - 1c Normal Operation | 2024

NOx 24 hour average in units: µg/m^3

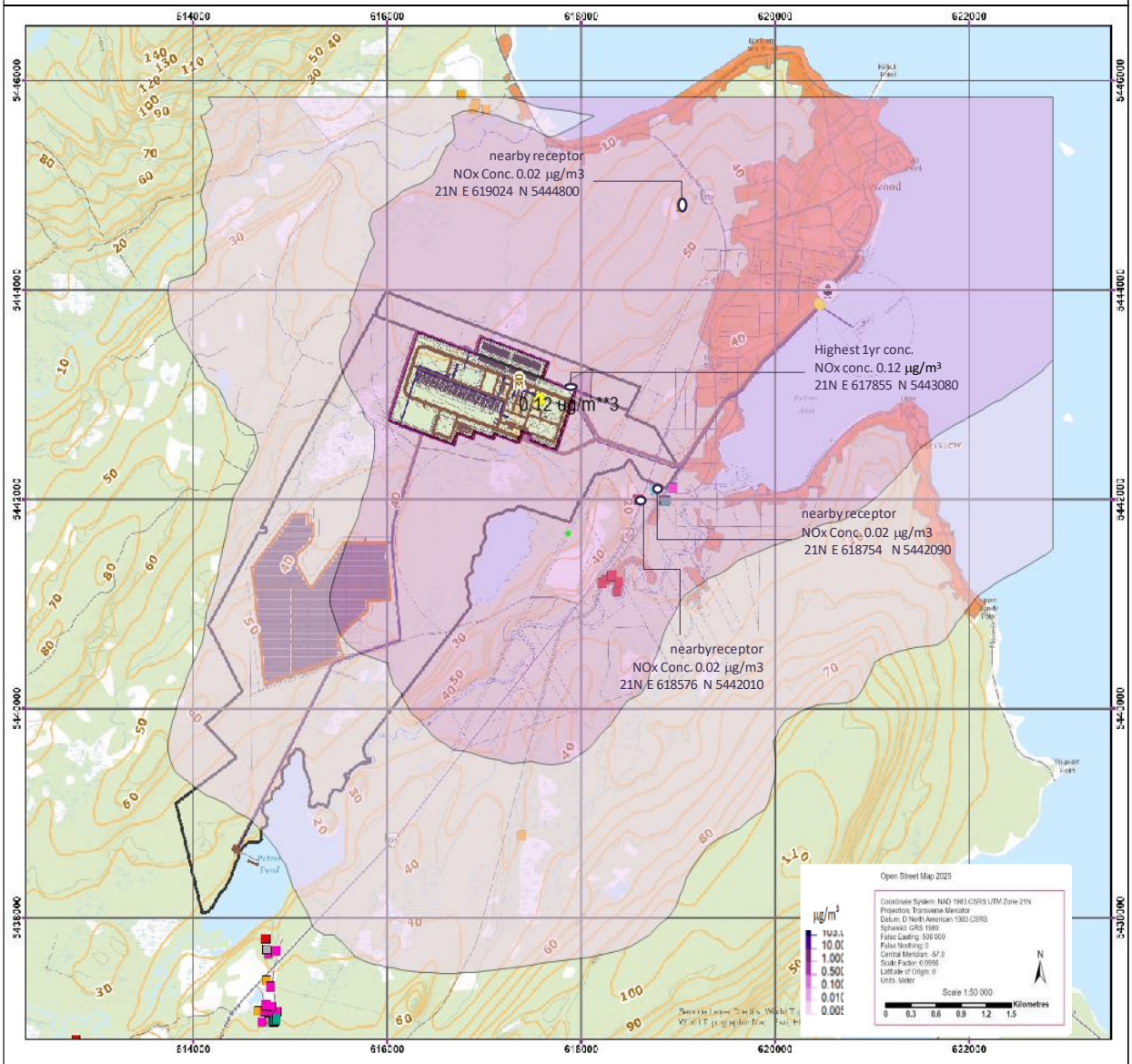


24 hr Highest value at E, N: 21N E 617655 N 5443080 NOx Conc. 1 µg/m^3

Regulatory Limit 206 µg/m^3	**Modeller** S Jivraj
Sources **R1** Normal	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 03-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1c Normal Operation | 2024
NOx 1 year average in units: µg/m^3

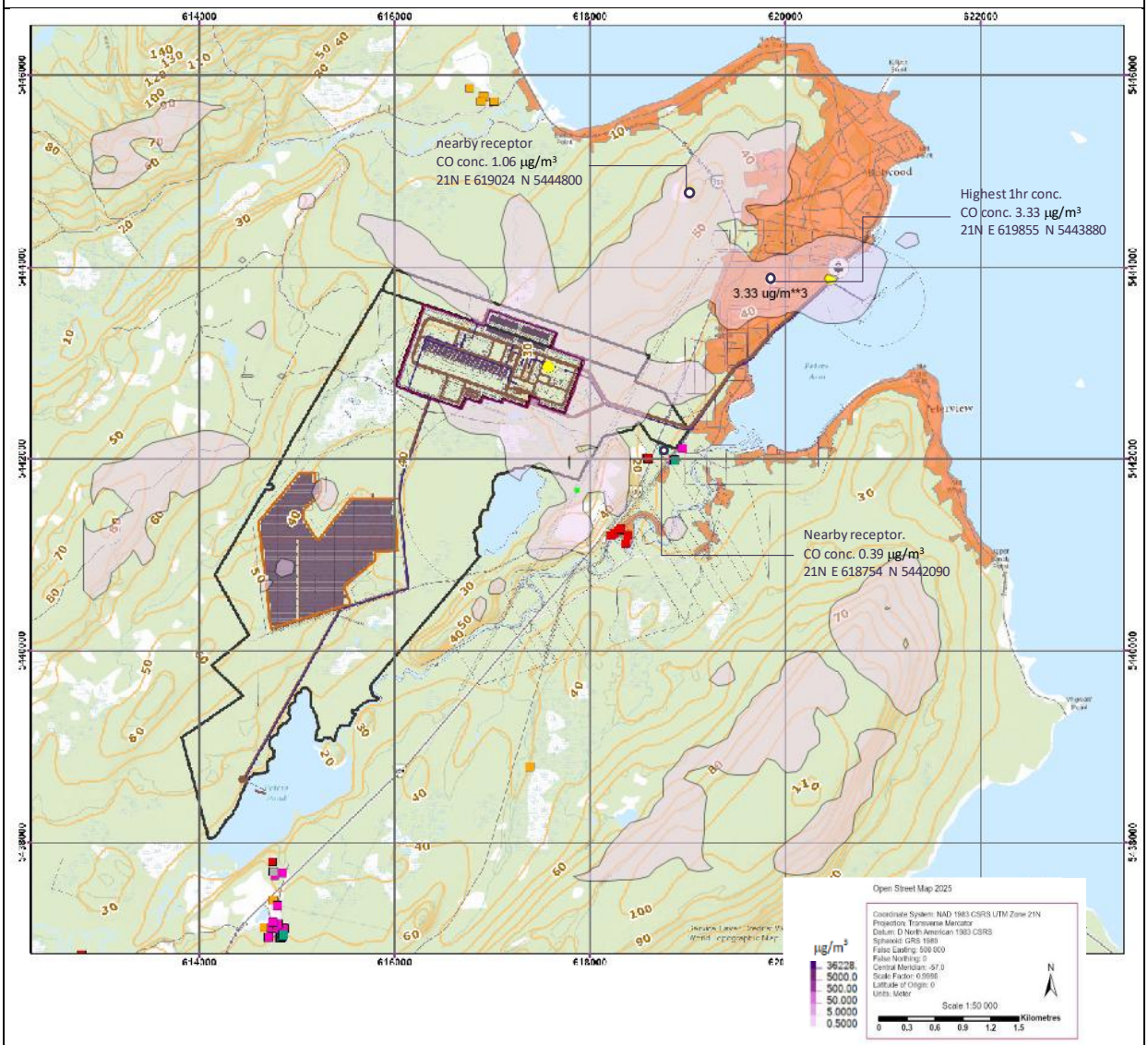


1 yr Highest value at E, N: 21N E 617855 N 5443080 NOx Conc. 0.12 µg/m^3

Regulatory Limit 103 µg/m^3	**Modeller** A Alva Sanchez
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 19-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1c Normal Operation | 2024
CO 1 hour average in units: µg/m^3

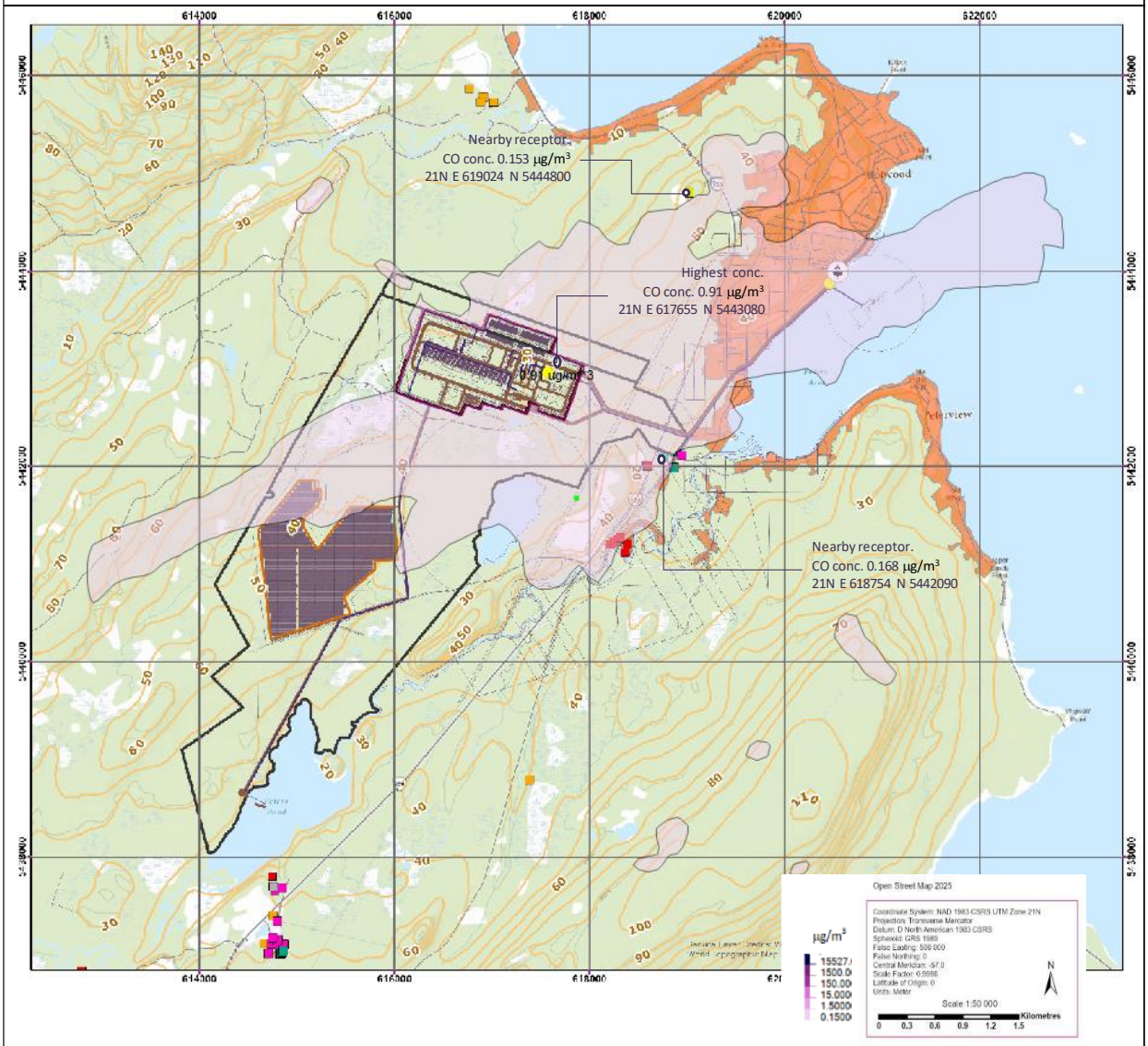


Hourly Highest value at 21N E 619855 N 5443880 CO conc. 3.33 µg/m^3

Regulatory Limit 36228 µg/m^3	**Modeller** A Alva Sanchez
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 18-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1c Normal Operation | 2024
CO 8 hour average in units: µg/m^3

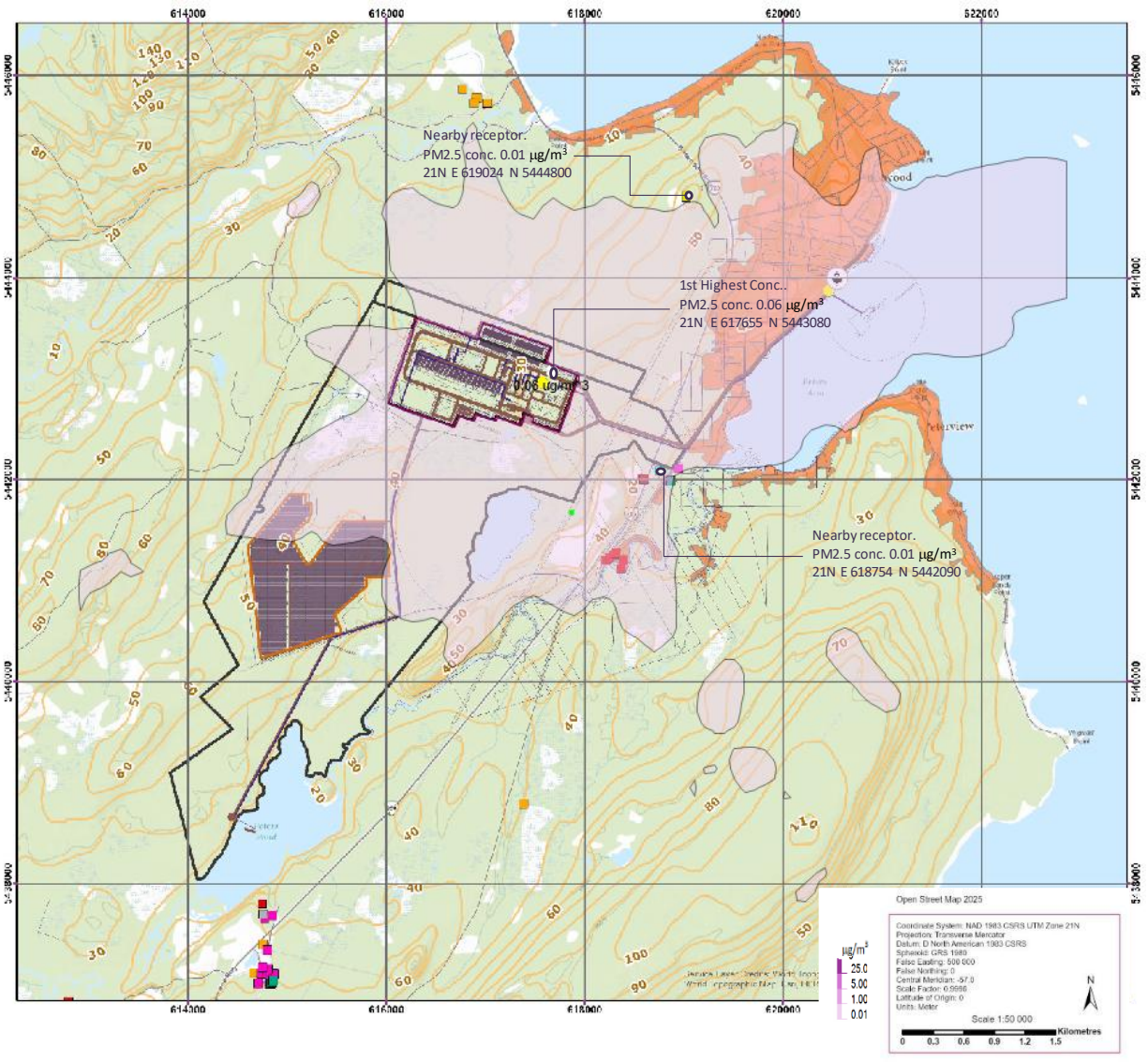


8hr Highest value at E, N: 21N E 617655 N 5443080 CO conc. 0.91 µg/m^3

Regulatory Limit 15527 µg/m^3	**Modeller** A Alva Sanchez
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 18-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1c Normal Operation | 2024
1st highest PM2.5 24 hour average in units: µg/m^3

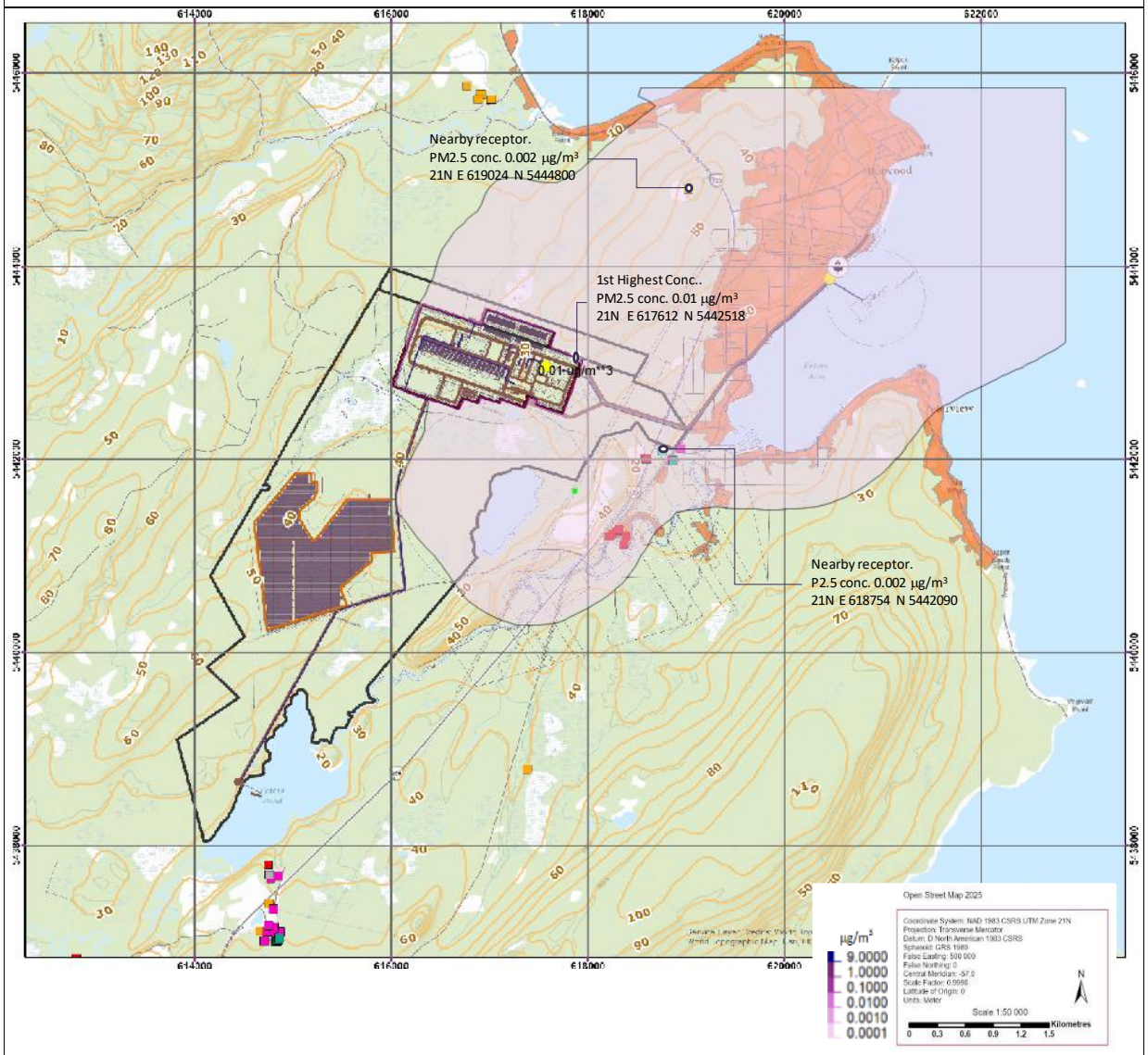


1st highest PM2.5 24hour average at E, N: 21N E 617655 N 5443080 PM2.5 conc. 0.06 µg/m^3

Regulatory Limit 25 µg/m^3	**Modeller** A Alva Sanchez
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 18-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - 1c Normal Operation | 2024
PM2.5 1yr average in units: µg/m^3



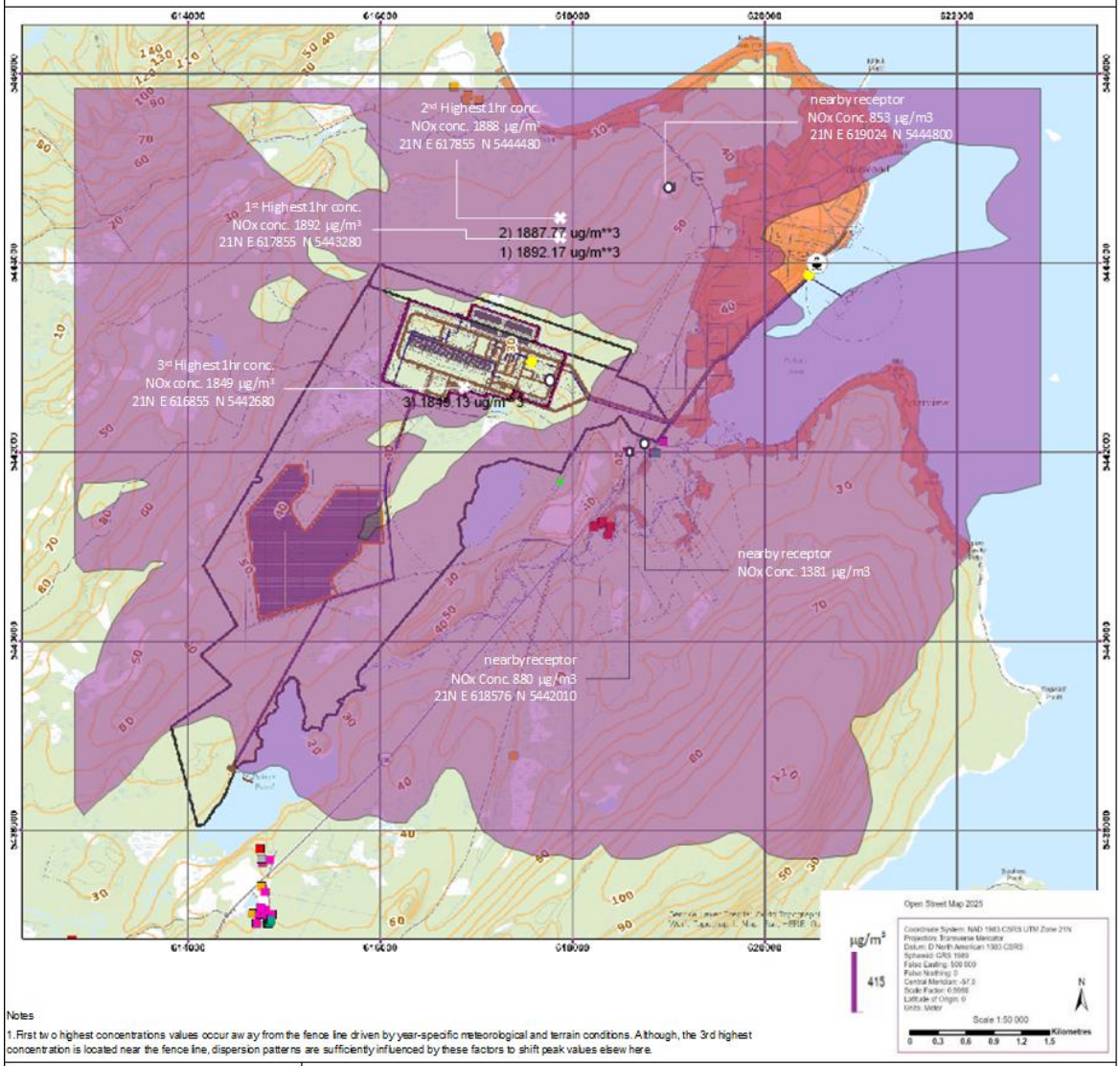
1 yr Highest value at E, N: 21N E 617612 N 5442518 PM2.5 conc. 0.01 µg/m^3

Regulatory Limit 25 µg/m^3	**Modeller** A Alva Sanchez
Sources **R1** Normal Operations: Based on 3 x Flare Pilots (at 50m in height) + Flash gas purge | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 19-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

Appendix D – Case 2 Commissioning Results

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R2a Commissioning | 2022
NOx 1 hour average in units: µg/m^3



Notes
1. First two highest concentrations values occur away from the fence line driven by year-specific meteorological and terrain conditions. Although, the 3rd highest concentration is located near the fence line, dispersion patterns are sufficiently influenced by these factors to shift peak values elsewhere.

Hourly Highest value at E, N: 21N E 617855 N 5443280 NOx Conc. 1892 µg/m^3	
Regulatory Limit 415 µg/m^3	**Modeller** A Alva Sanchez
Sources **R2-** Commissioning - based on 3 pilots 50m| 30 x 2MW Emergency Diesel Gen | 18 x 1 MW Electrolyser Gen | Syn Gas release in Ammonia Flare | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 18-Mar-26	**Revision** V7

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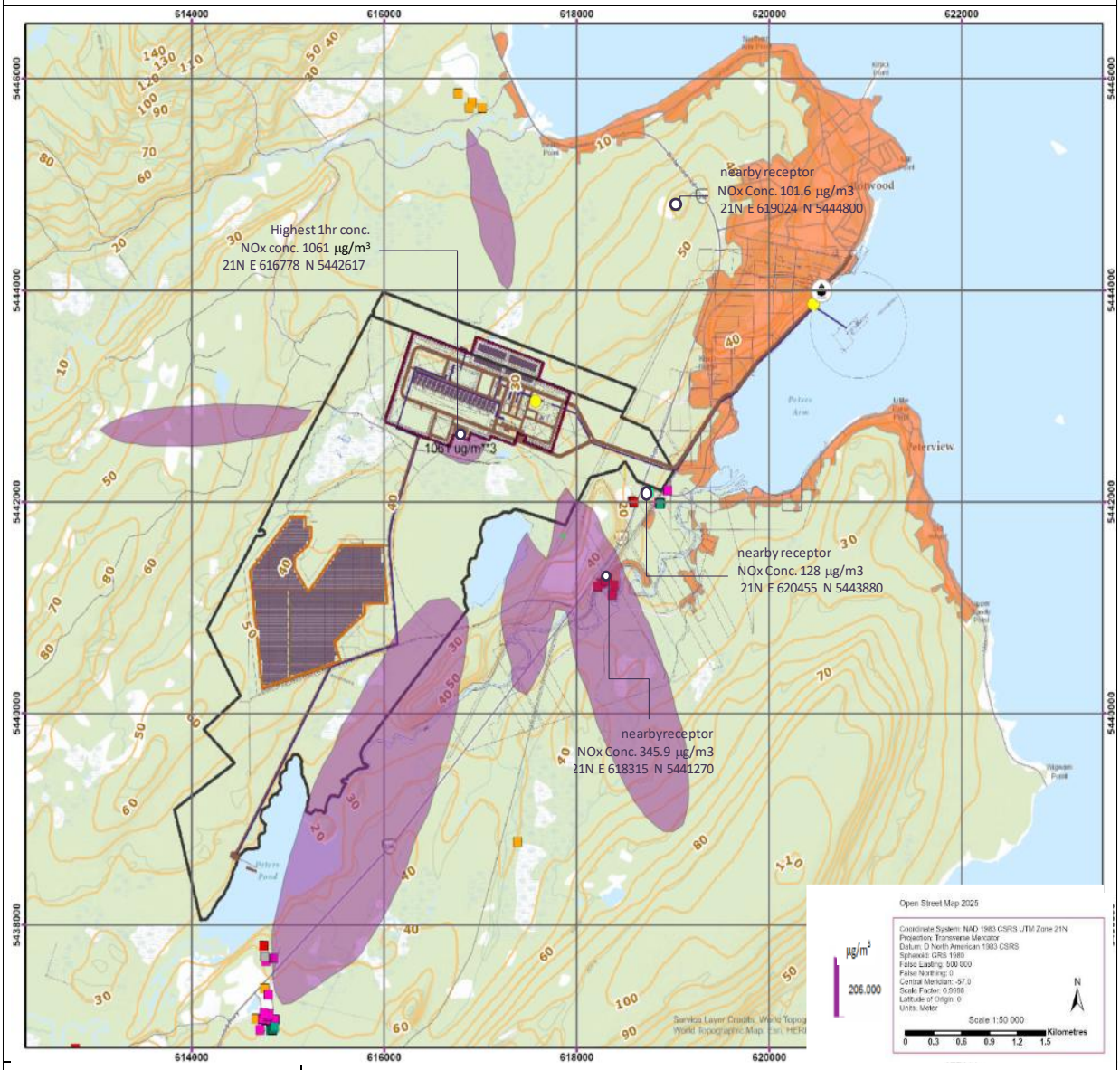
Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R2a Commissioning | 2022
NOx 24 hour average in units: µg/m^3



24 hr Highest value at E, N: 21N E 616778 N 5442617 NOx Conc. 1061 µg/m^3

Regulatory Limit 206 µg/m^3	**Modeller** A Alva Sanchez
Sources **R2**- Commissioning - based on 3 pilots 50m| 30 x 2MW Emergency Diesel Gen | 18 x 1 MW Electrolyser Gen | Syn Gas release in Ammonia Flare | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 19-Mar-26	**Revision** V7

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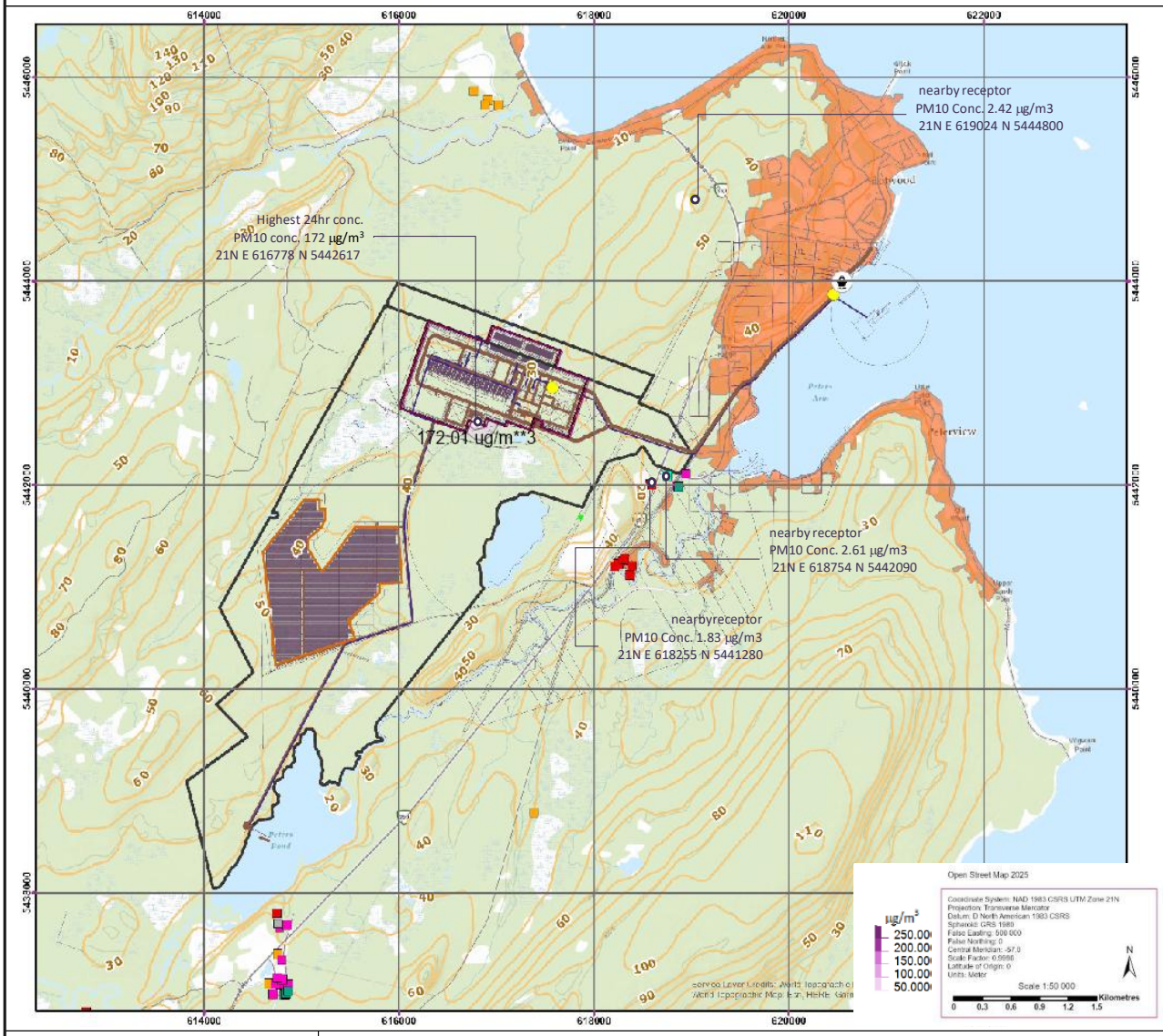
EVREC Project Emissions Dispersion Modelling
AERMOD Results - R2a Commissioning | 2022
PM10 24 hour average in units: µg/m^3

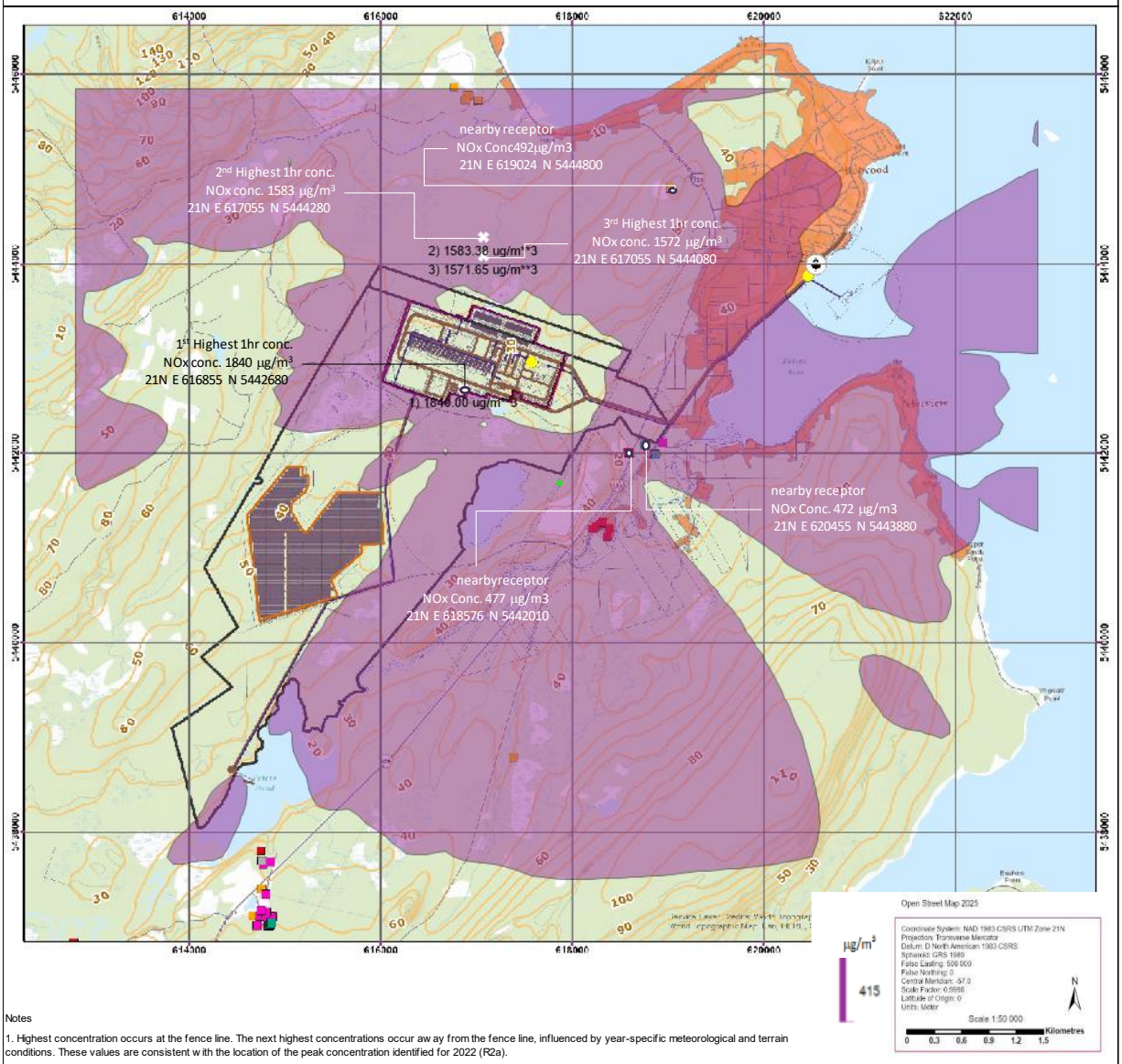


24 hr Highest value at E, N: 21N E 616778 N 5442617 PM10 Conc. 172 µg/m^3

Regulatory Limit 50 µg/m^3	**Modeller** S Jivraj
Sources **R2**- Commissioning - based on 3 pilots 50m| 30 x 2MW Emergency Diesel Gen | 18 x 1 MW Electrolyser Gen | Syn Gas release in Ammonia Flare | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 03-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R2b Commissioning | 2023
NOx 1 hour average in units: µg/m^3



Notes

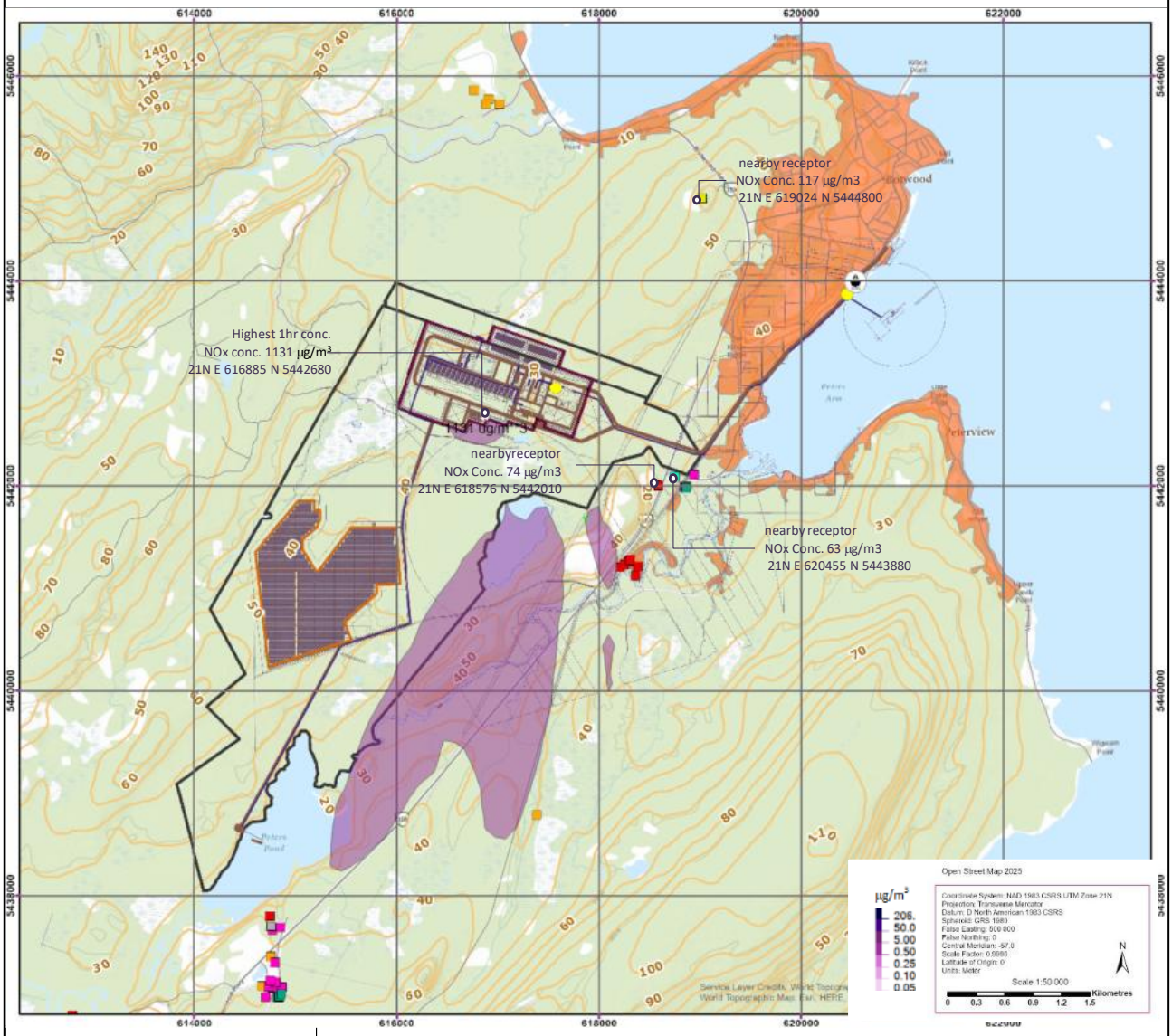
1. Highest concentration occurs at the fence line. The next highest concentrations occur aw ay from the fence line, influenced by year-specific meteorological and terrain conditions. These values are consistent w ith the location of the peak concentration identified for 2022 (R2a).

Hourly Highest value at E, N: 21N E 616855 N 5442680 NOx Conc. 1840 µg/m^3

Regulatory Limit 415 µg/m^3	**Modeller** A Alva Sanchez
Sources **R2-** Commissioning - based on 3 pilots 50m| 30 x 2MW Emergency Diesel Gen | 18 x 1 MW Electrolyser Gen | Syn Gas release in Ammonia Flare | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 18-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R2b Commissioning | 2023
NOx 24 hour average in units: µg/m^3



24 hr Highest value at E, N: 21N E 616885 N 5442680 NOx Conc. 1131 µg/m^3

Regulatory Limit 206 µg/m^3	**Modeller** S Jivraj
Sources **R2-** Commissioning - based on 3 pilots 50m| 30 x 2MW Emergency Diesel Gen | 18 x 1 MW Electrolyser Gen | Syn Gas release in Ammonia Flare | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 01-Nov-25	**Revision** V1

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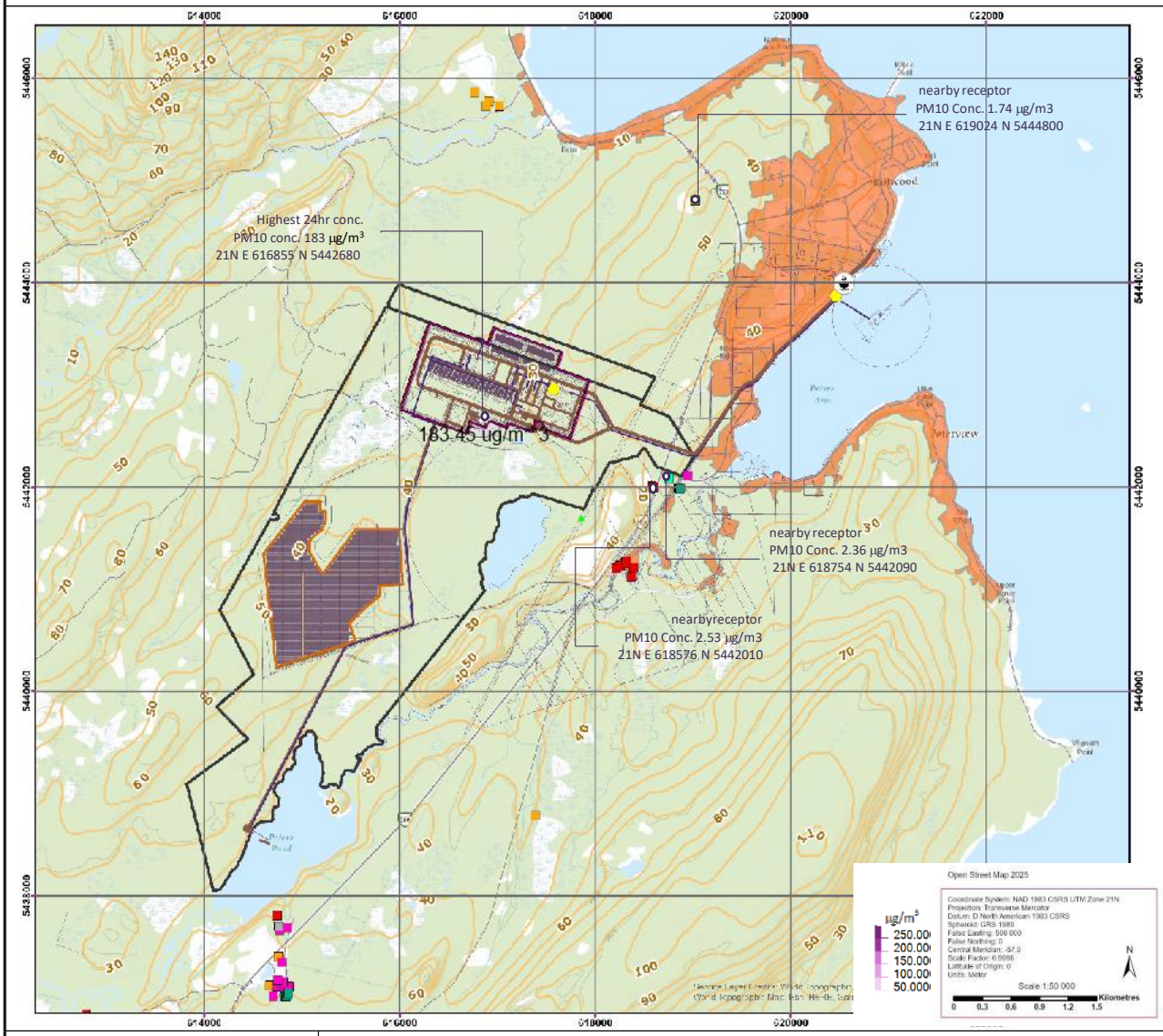
EVREC Project Emissions Dispersion Modelling
AERMOD Results - R2b Commissioning | 2023
PM10 24 hour average in units: µg/m^3



24 hr Highest value at E, N: 21N E 616855 N 5442680 PM10 Conc. 183 µg/m^3

Regulatory Limit 50 µg/m^3	**Modeller** S Jivraj
Sources **R2**- Commissioning - based on 3 pilots 50m| 30 x 2MW Emergency Diesel Gen | 18 x 1 MW Electrolyser Gen | Syn Gas release in Ammonia Flare | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 03-Mar-26	**Revision** V7

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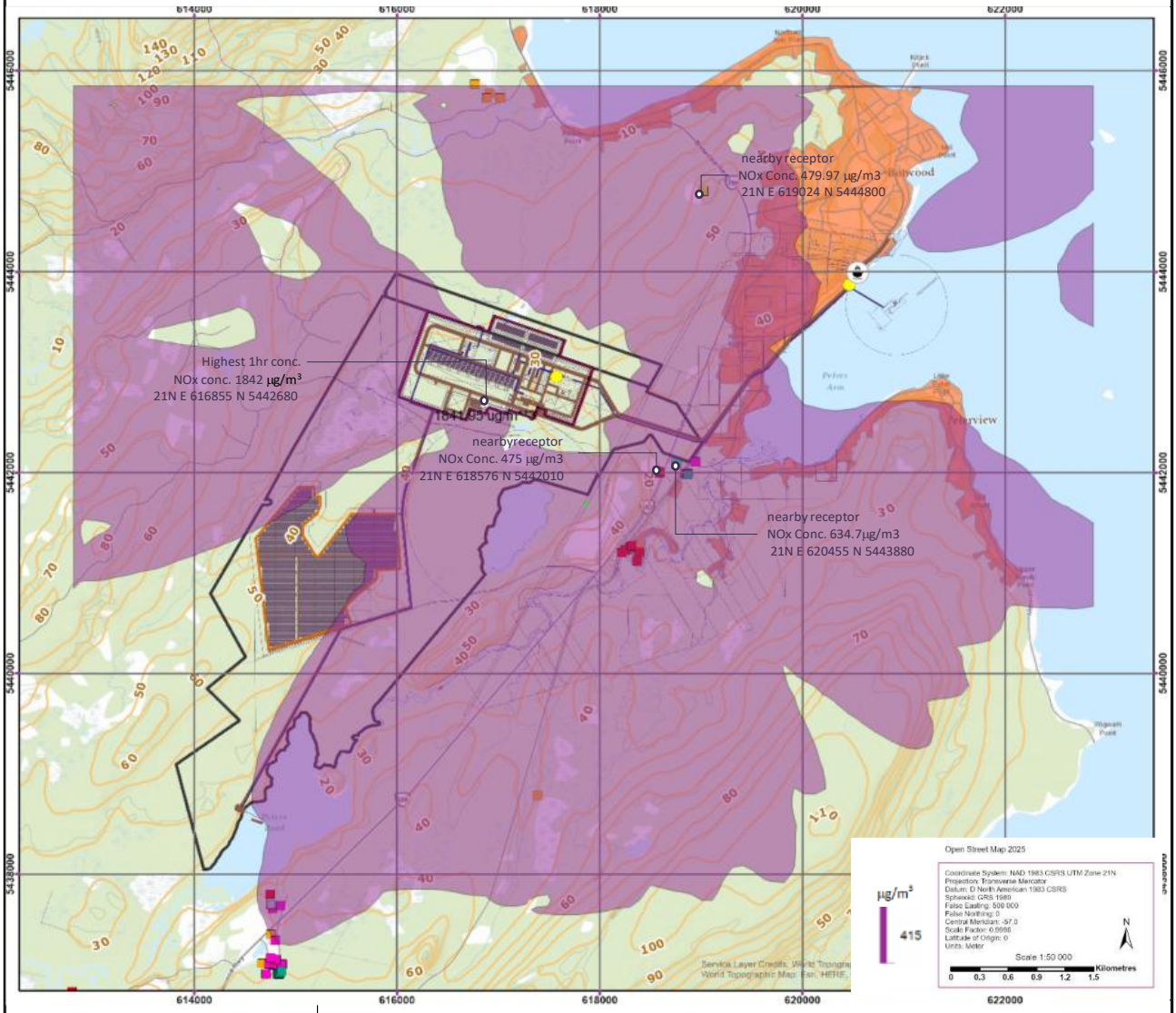
EVREC Project Emissions Dispersion Modelling
AERMOD Results - R2c Commissioning | 2024
NOx 1 hour average in units: µg/m^3



Hourly Highest value at E, N: 21N E 616855 N 5442680 NOx Conc. 1842 µg/m^3

Regulatory Limit 415 µg/m^3	**Modeller** S Jivraj
Sources **R2-** Commissioning - based on 3 pilots 50m| 30 x 2MW Emergency Diesel Gen | 18 x 1 MW Electrolyser Gen | Syn Gas release in Ammonia Flare | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
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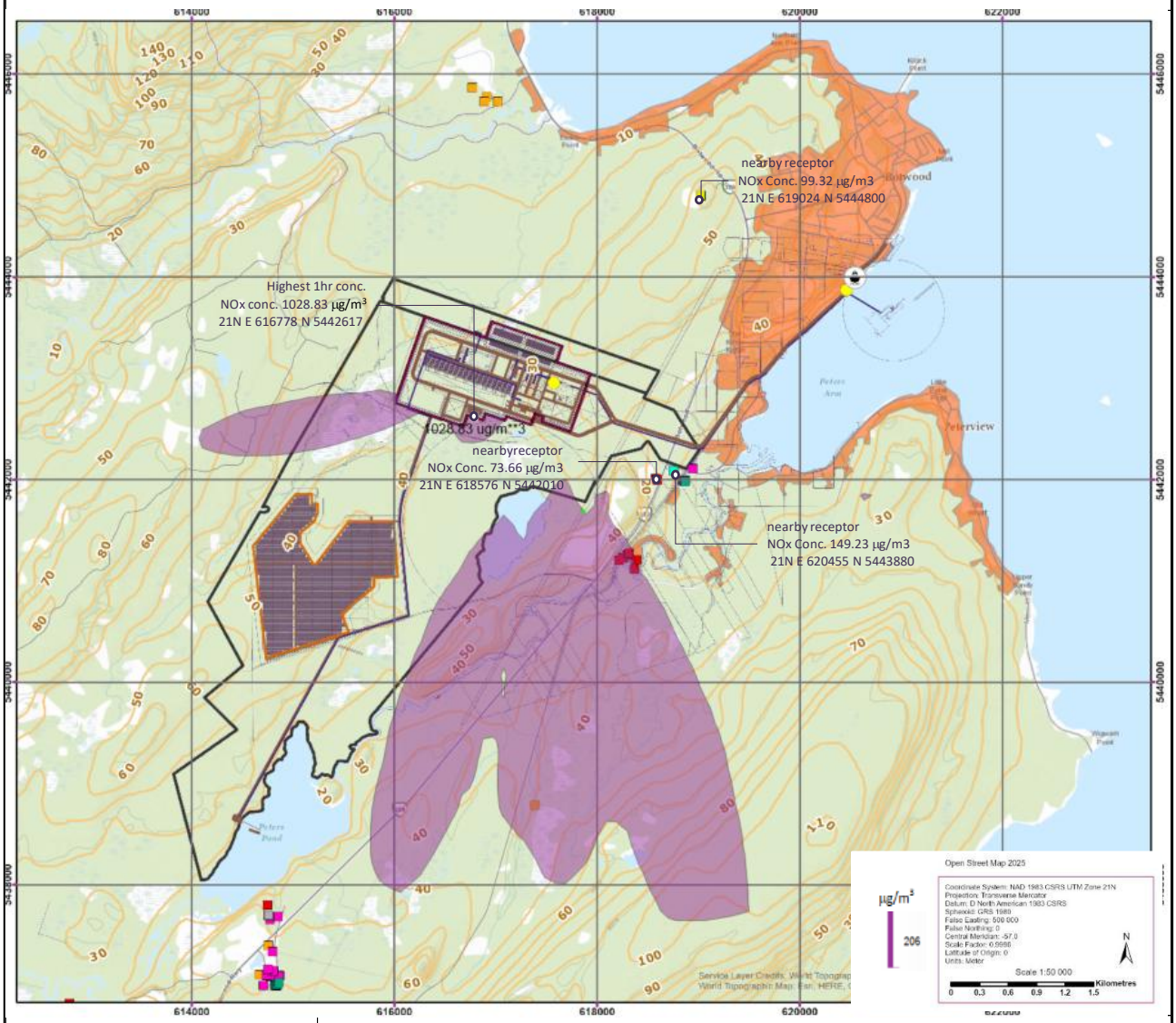
EVREC Project Emissions Dispersion Modelling
AERMOD Results - R2c Commissioning | 2024
NOx 24 hour average in units: µg/m^3



24 hr Highest value at E, N: 21N E 616778 N 5442617 NOx Conc. 1028.83 µg/m^3

Regulatory Limit 206 µg/m^3	**Modeller** S Jivraj
Sources **R2-** Commissioning - based on 3 pilots 50m| 30 x 2MW Emergency Diesel Gen | 18 x 1 MW Electrolyser Gen | Syn Gas release in Ammonia Flare | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 01-Nov-25	**Revision** V1

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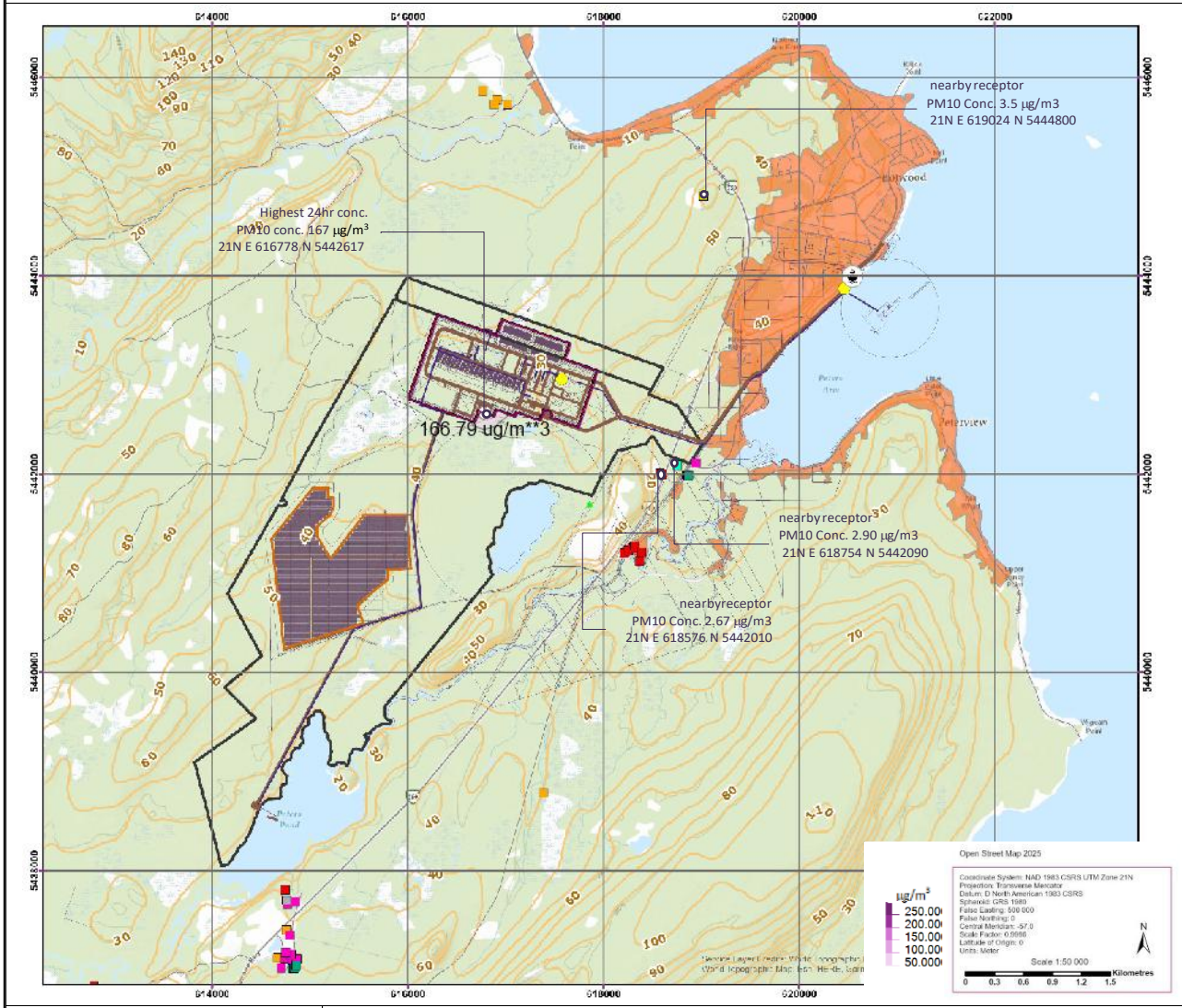
Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R2c Commissioning | 2024
PM10 24 hour average in units: µg/m^3



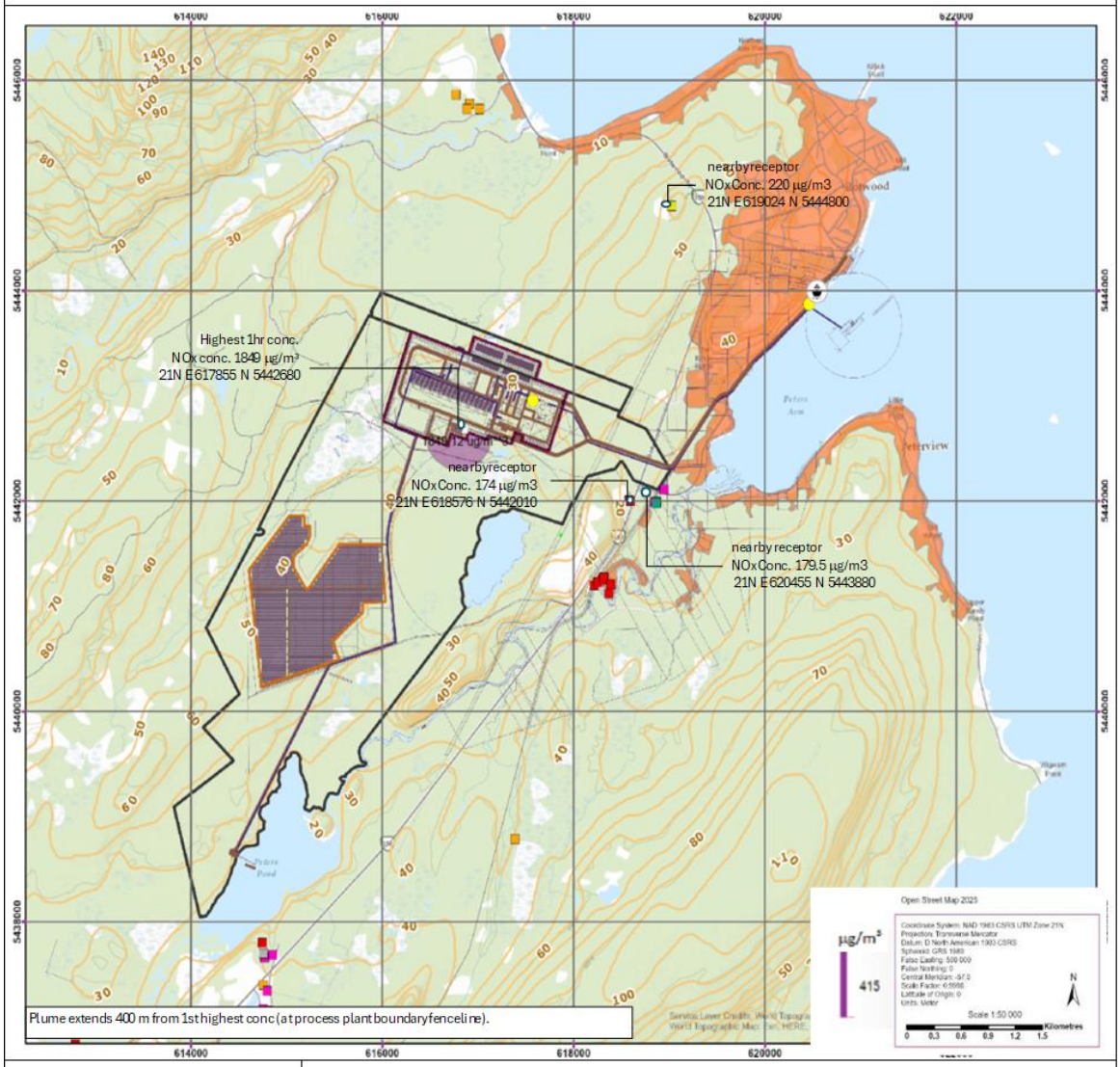
24 hr Highest value at E, N: 21N E 616778 N 5442617 PM10 Conc. 167 µg/m^3

Regulatory Limit 50 µg/m^3	**Modeller** S Jivraj
Sources **R2**- Commissioning - based on 3 pilots 50m| 30 x 2MW Emergency Diesel Gen | 18 x 1 MW Electrolyser Gen | Syn Gas release in Ammonia Flare | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 03-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

Appendix E – Case 3 Abnormal Results

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R3a ABNORMAL | 2022
NOx 1 hour average in units: µg/m^3



Hourly Highest value at E, N: 21N E 617855 N 5442680 NOx Conc. 1849 µg/m^3

Regulatory Limit 415 µg/m^3	**Modeller** S Jivraj
Sources **R3 -** ABNORMAL OPERATION - based on 3 x Flare Pilots | 30 x 2MW DG | 18 x 1 MW DGs | Flash gas Purge to NH3Storage flare| 50m stack height | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 09-Mar-26	**Revision** V7

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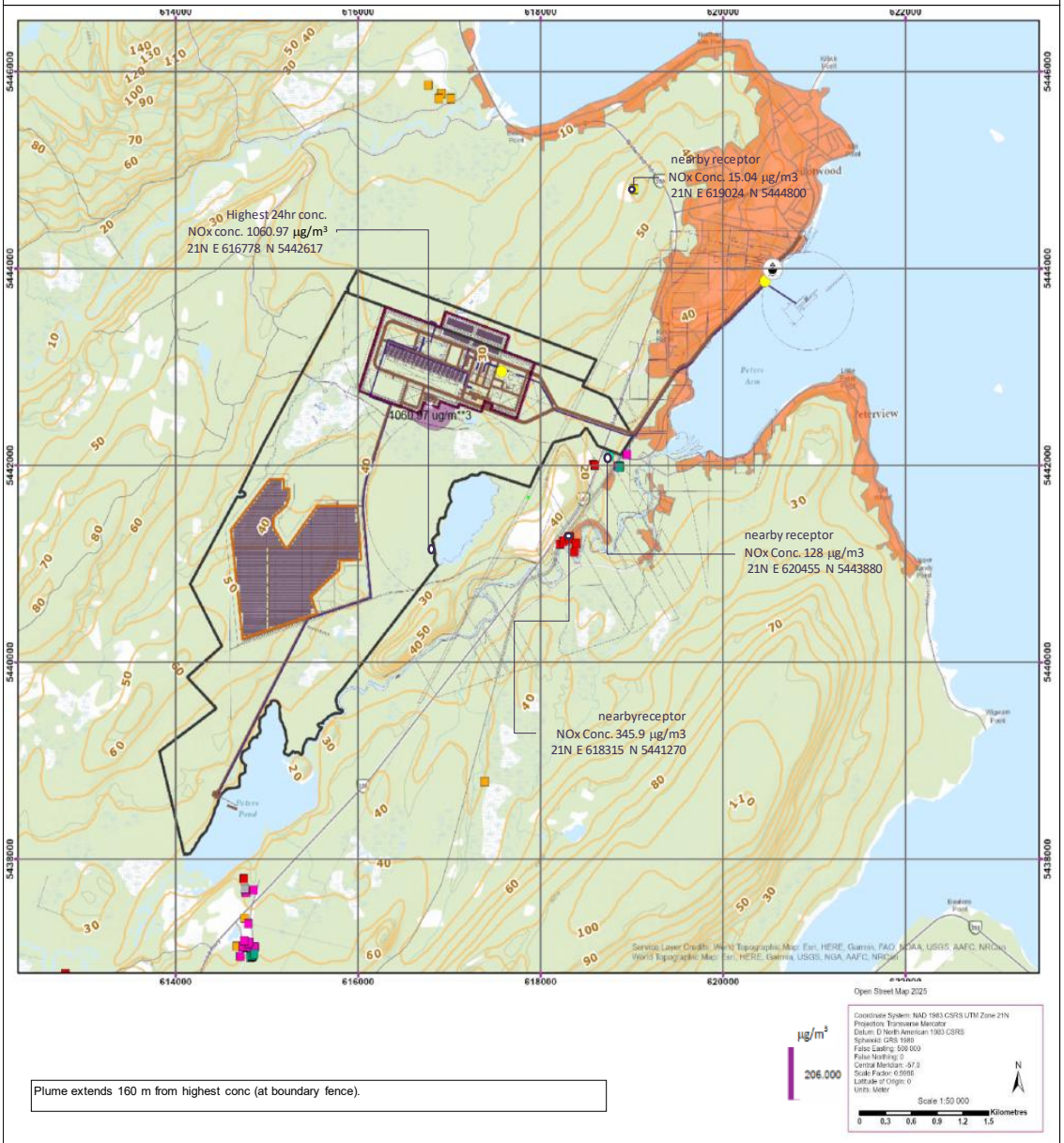
EVREC Project Emissions Dispersion Modelling
AERMOD Results - R3a Abnormal | 2022
NOx 24 hour average in units: µg/m^3



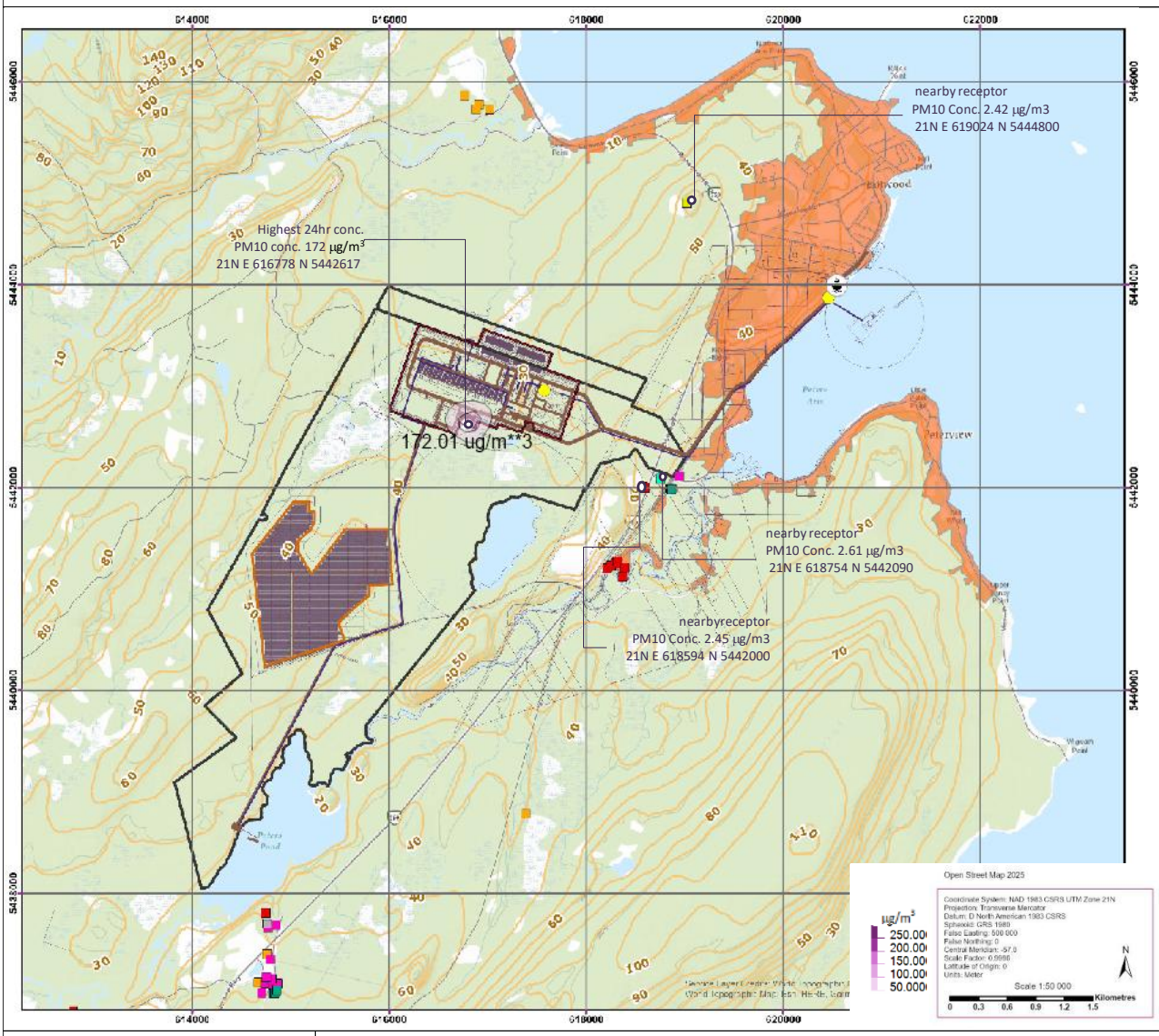
Plume extends 160 m from highest conc (at boundary fence).

24 hr Highest value at E, N: 21N E 616778 N 5442617 NOx Conc. 1060.97 µg/m^3

Regulatory Limit 206 µg/m^3	**Modeller** S Jivraj
Sources **R3 -** ABNORMAL OPERATION - based on 3 x Flare Pilots | 30 x 2MW DG | 18 x 1 MW DGs | Flash gas Purge to NH3Storage flare| 50m stack height | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 01-Nov-25	**Revision** V1

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R3a Abnormal | 2022
PM10 24 hour average in units: µg/m^3

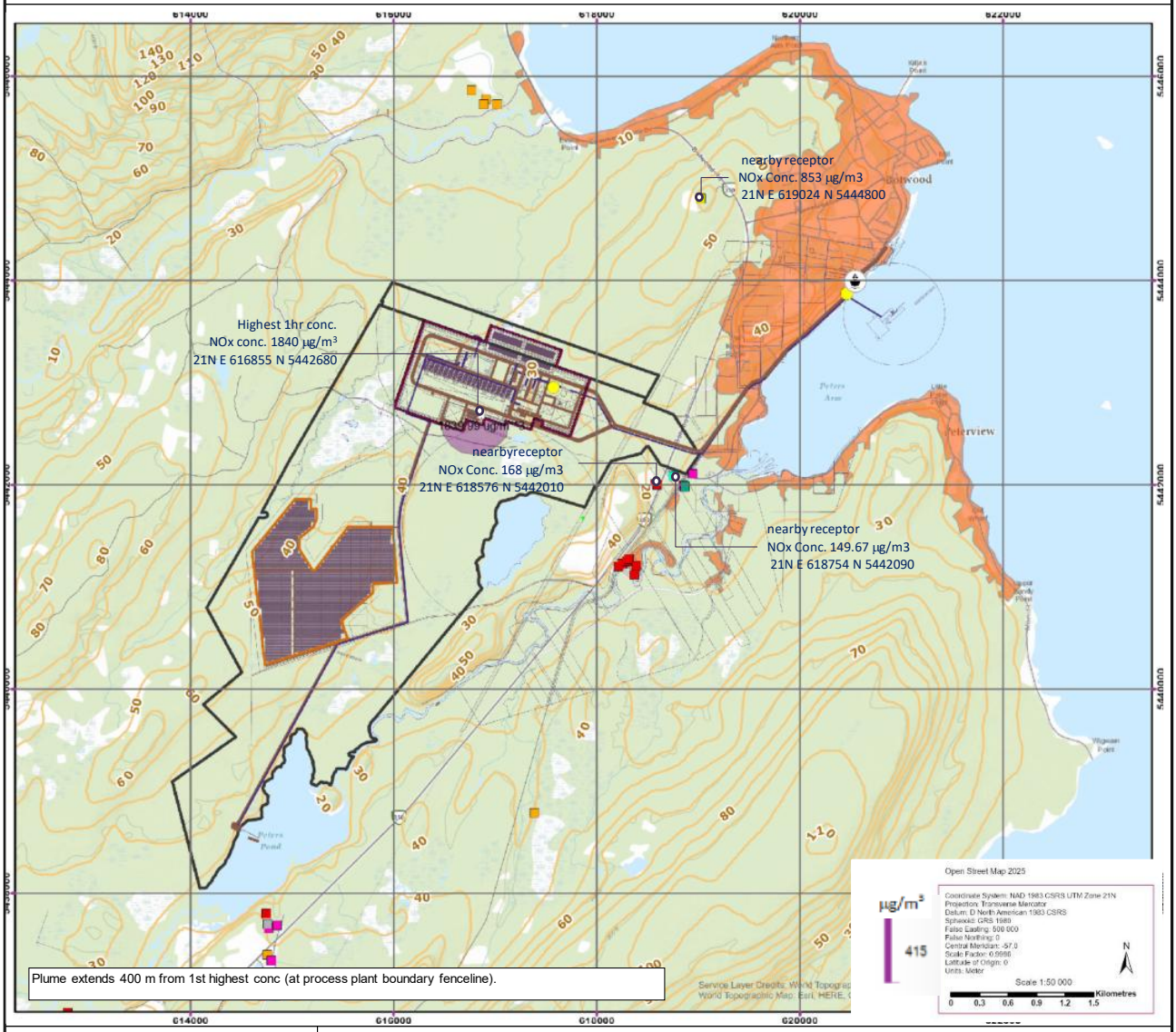


24 hr Highest value at E, N: 21N E 616778 N 5442617 PM10 Conc. 172 µg/m^3

Regulatory Limit 50 µg/m^3	**Modeller** S Jivraj
Sources **R3 -** ABNORMAL OPERATION - based on 3 x Flare Pilots | 30 x 2MW DG | 18 x 1 MW DGs | Flash gas Purge to NH3Storage flare| 50m stack height | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 03-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R3b ABNORMAL | 2023
NOx 1 hour average in units: µg/m^3



Hourly Highest value at E, N: 21N E 616855 N 5442680 NOx Conc. 1840 µg/m^3

Regulatory Limit 415 µg/m^3	**Modeller** S Jivraj
Sources **R3 -** ABNORMAL OPERATION - based on 3 x Flare Pilots | 30 x 2MW DG | 18 x 1 MW DGs | Flash gas Purge to NH3Storage flare| 50m stack height | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 01-Nov-25	**Revision** V1

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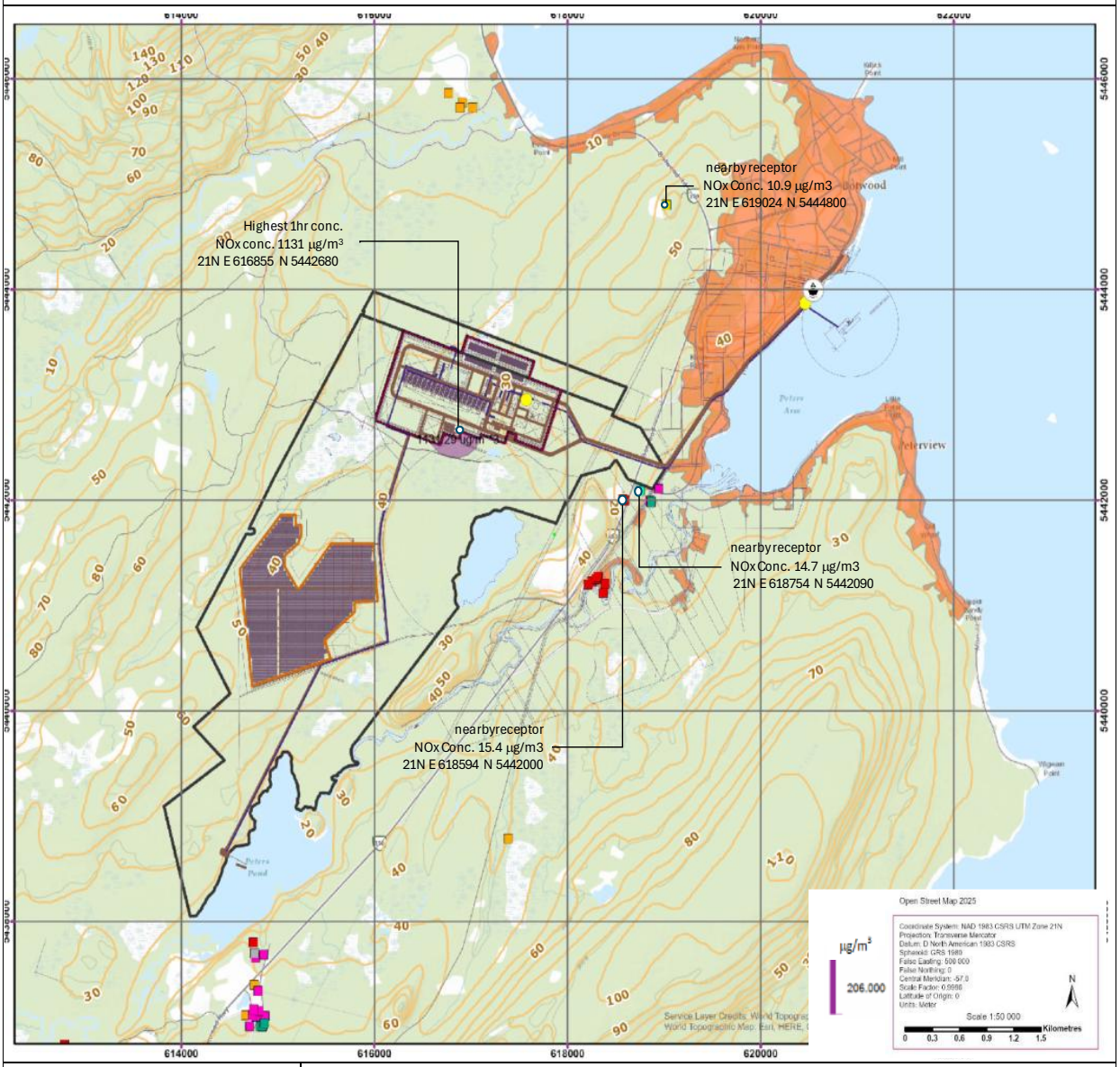
Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R3b Abnormal | 2023
NOx 24 hour average in units: µg/m^3

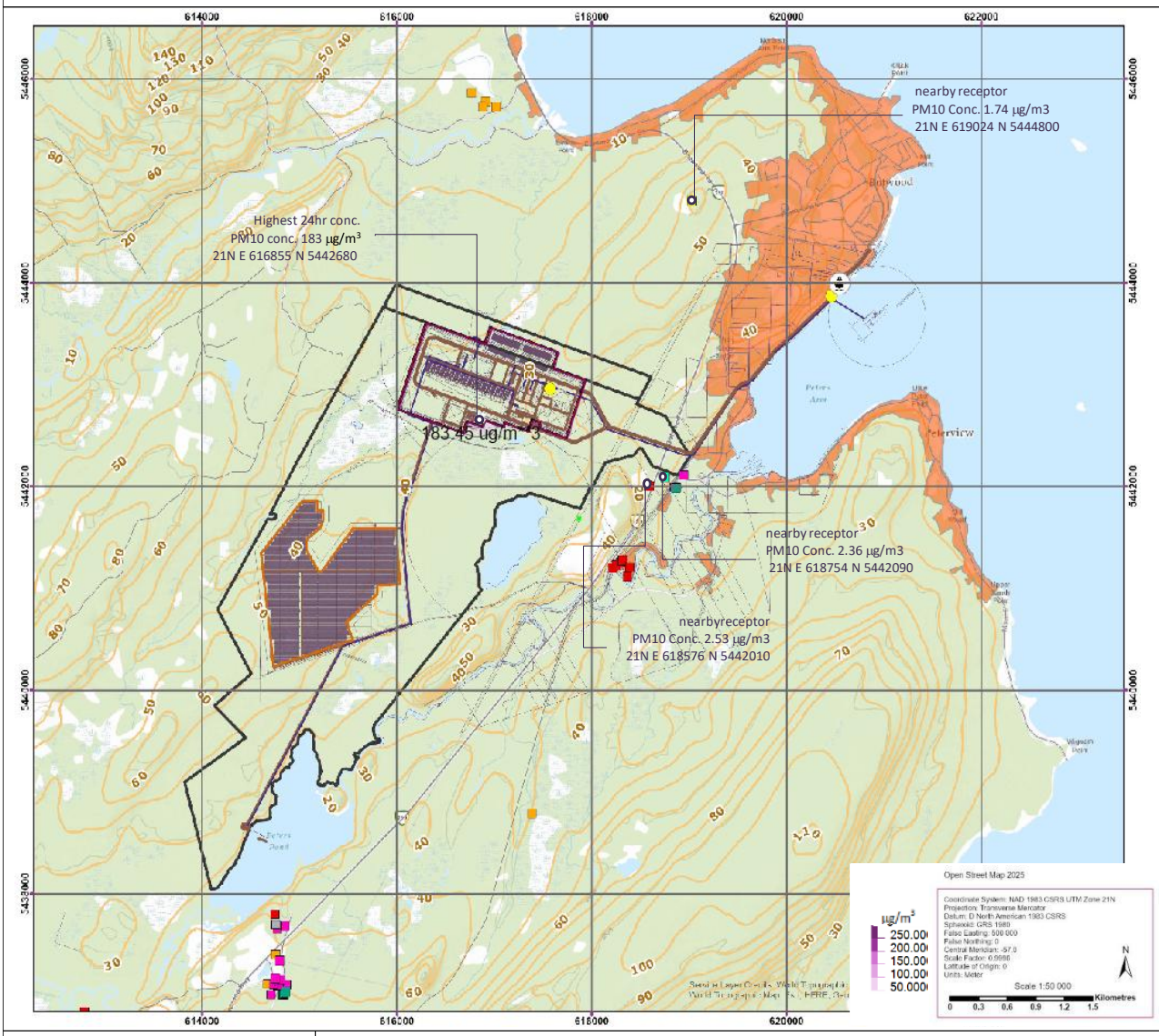


24 hr Highest value at E, N: 21N E 616855 N 5442680 NOx Conc. 1131 µg/m^3

Regulatory Limit 206 µg/m^3	**Modeller** S Jivraj
Sources **R3 -** ABNORMAL OPERATION - based on 3 x Flare Pilots | 30 x 2MW DG | 18 x 1 MW DGs | Flash gas Purge to NH3Storage flare| 50m stack height | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 09-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R3b Abnormal | 2023
PM10 24 hour average in units: µg/m^3

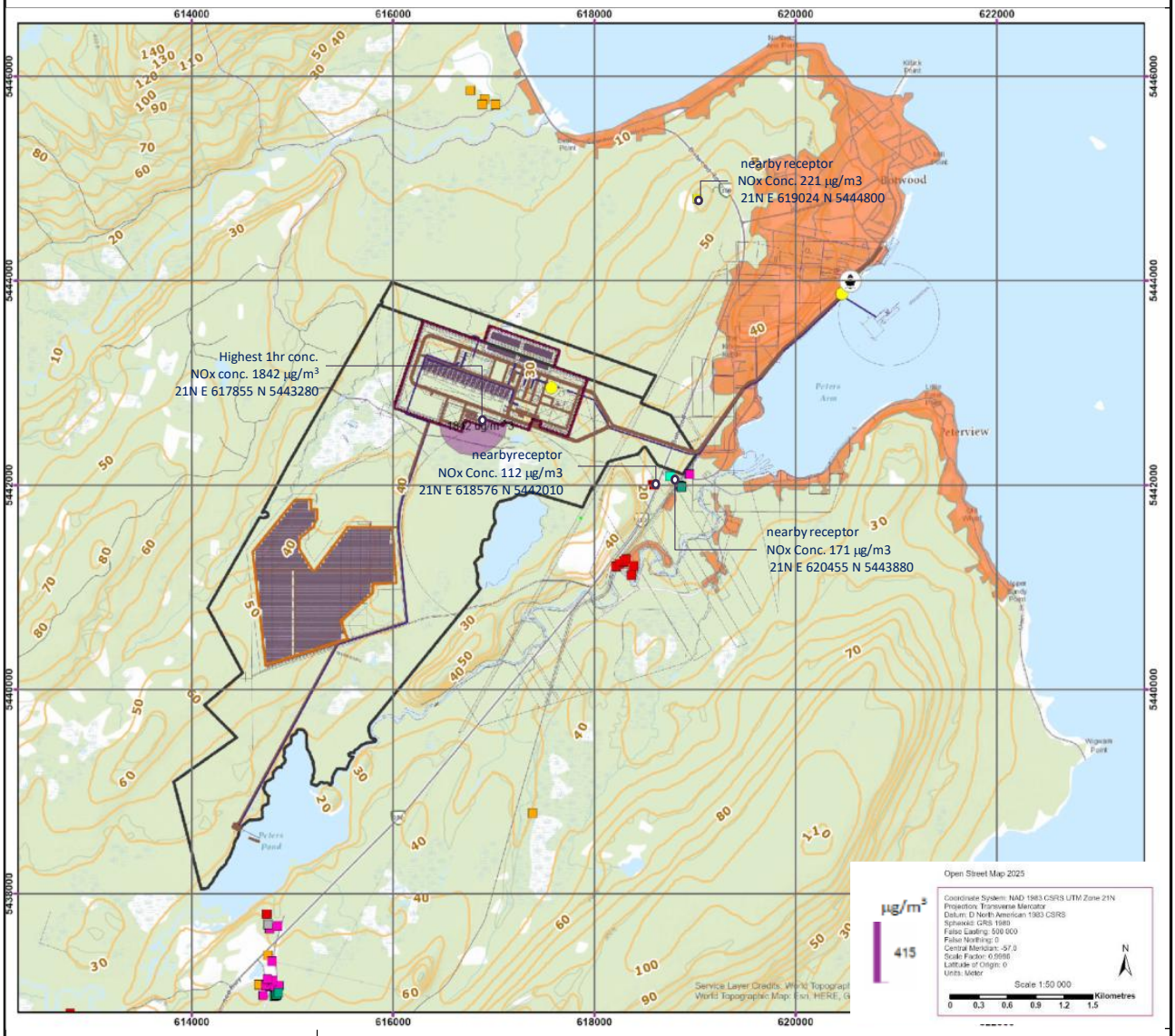


24 hr Highest value at E, N: 21N E 616855 N 5442680 PM10 Conc. 183 µg/m^3

Regulatory Limit 50 µg/m^3	**Modeller** S Jivraj
Sources **R3 -** ABNORMAL OPERATION - based on 3 x Flare Pilots | 30 x 2MW DG | 18 x 1 MW DGs | Flash gas Purge to NH3Storage flare| 50m stack height | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 03-Mar-26	**Revision** V7

Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R3c Abnormal | 2024
NOx 1 hour average in units: µg/m^3



Hourly Highest value at E, N: 21N E 617855 N 5443280 NOx Conc. 1842 µg/m^3

Regulatory Limit 415 µg/m^3	**Modeller** S Jivraj
Sources **R3 -** ABNORMAL OPERATION - based on 3 x Flare Pilots | 30 x 2MW DG | 18 x 1 MW DGs | Flash gas Purge to NH3Storage flare| 50m stack height | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 01-Nov-25	**Revision** V1

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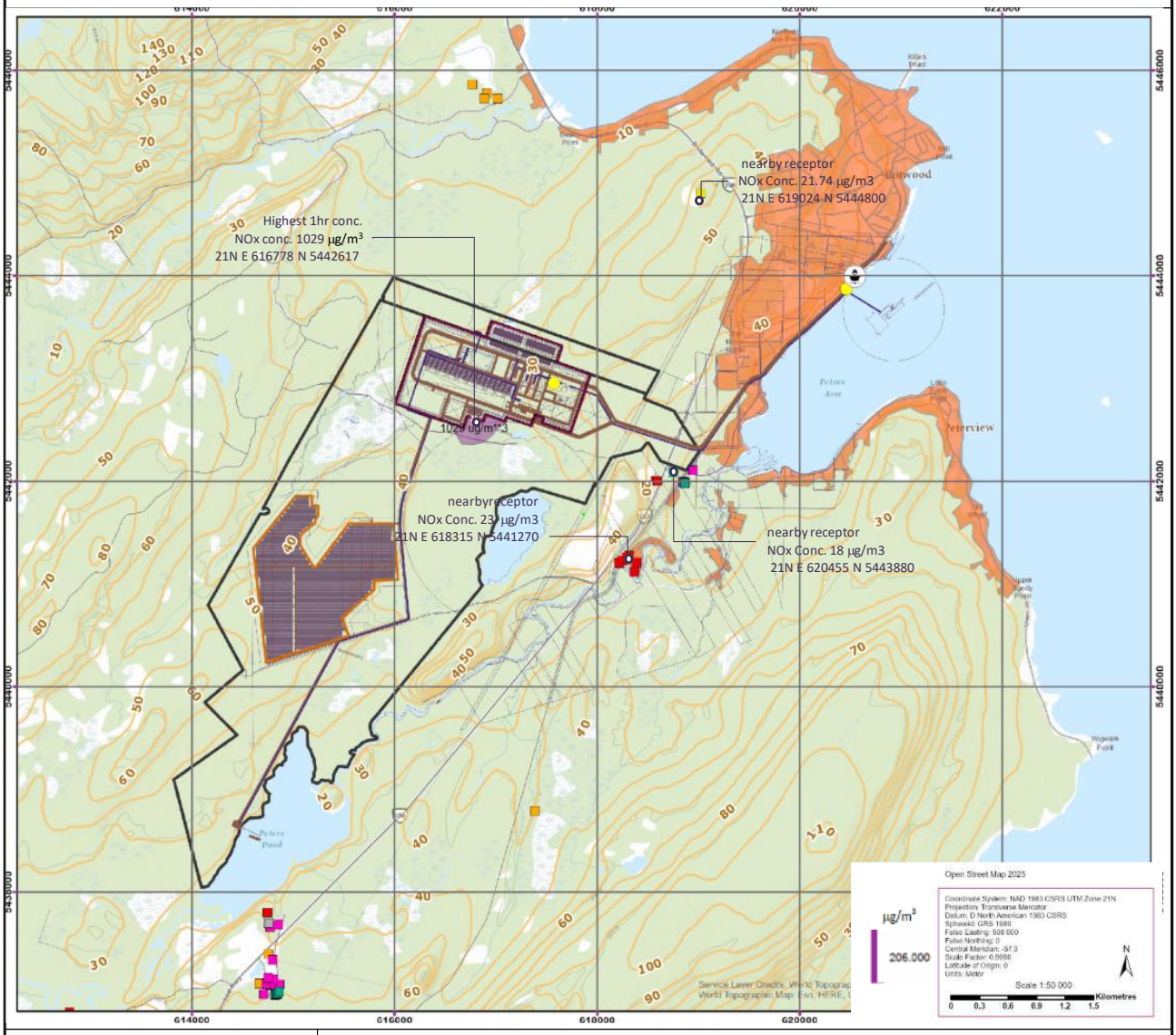
Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R3c Abnormal | 2024
NOx 24 hour average in units: µg/m^3



24 hr Highest value at E, N: 21N E 616778 N 5442617 NOx Conc. 1029 µg/m^3

Regulatory Limit 206 µg/m^3	**Modeller** S Jivraj
Sources **R3 -** ABNORMAL OPERATION - based on 3 x Flare Pilots | 30 x 2MW DG | 18 x 1 MW DGs | Flash gas Purge to NH3Storage flare| 50m stack height | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 01-Nov-25	**Revision** V1

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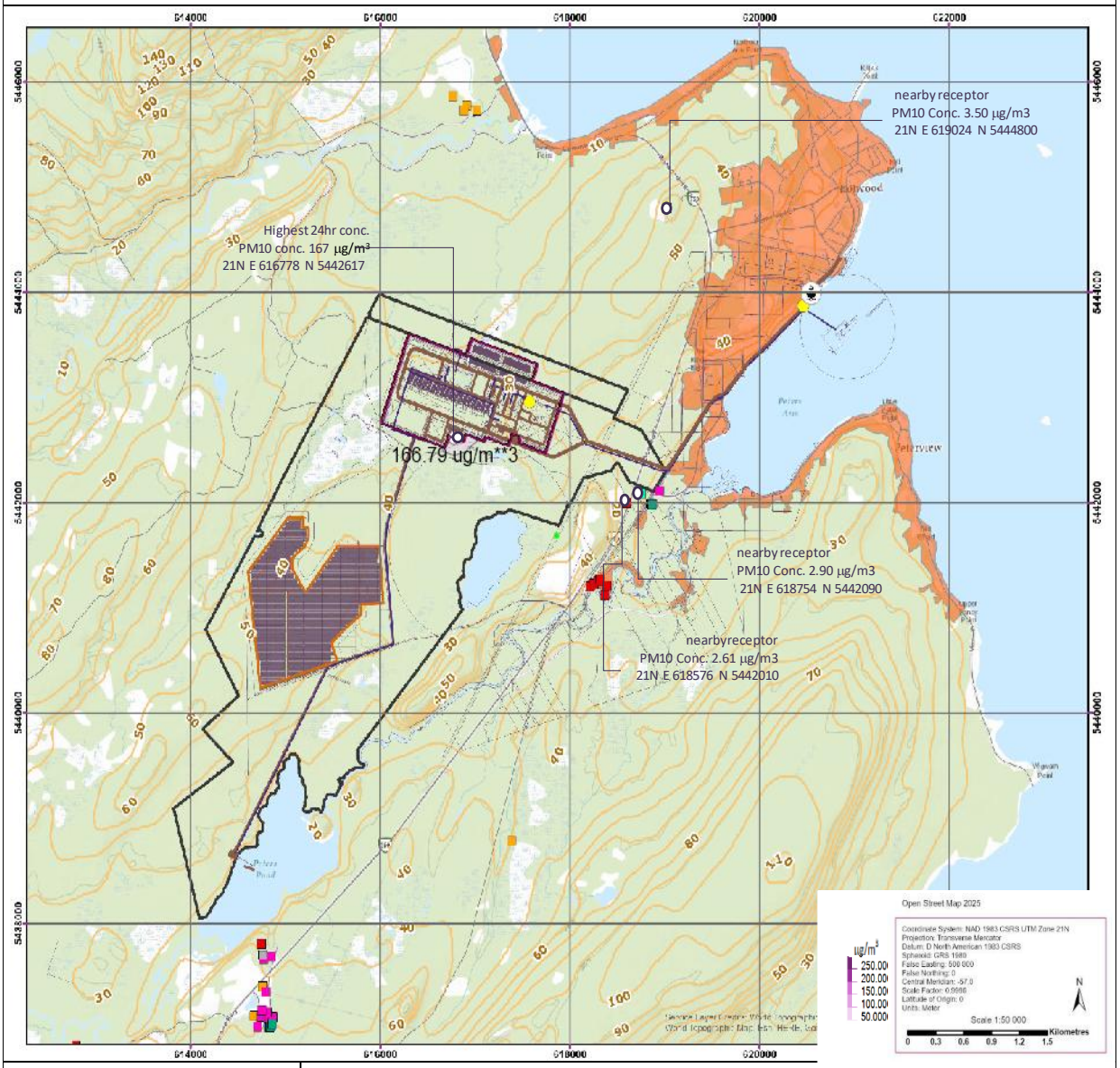
Docusign Envelope ID: 448DB5C8-8971-4630-8FB9-EE3684057B6F

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R3c Abnormal | 2024
PM10 24 hour average in units: µg/m^3



24 hr Highest value at E, N: 21N E 616778 N 5442617 PM10 Conc. 167 µg/m^3

Regulatory Limit 50 µg/m^3	**Modeller** S Jivraj
Sources **R3 -** ABNORMAL OPERATION - based on 3 x Flare Pilots | 30 x 2MW DG | 18 x 1 MW DGs | Flash gas Purge to NH3Storage flare| 50m stack height | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 19-Mar-26	**Revision** V7

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Table E.1 compares sulphur dioxide emissions for low-sulphur diesel and ultra-low-sulphur diesel under the abnormal operating case, where diesel is used to fuel the emergency and electrolyser generators. In both cases, predicted ground-level concentrations are well below the regulatory limits, although concentrations for ultra-low-sulphur diesel are significantly lower.

Table 2 Low Sulphur Diesel vs Ultra-Low Sulphur Diesel utilisation for Emergency and Electrolyser Generators

Pollutant [1]	Period	Units	NL AAQ Limits	Max Modelled Conc. (2022)	Location 21N		Max Modelled Conc. (2023)	Location 21N		Max Modelled Conc. (2024)	Location 21N	
					Easting	Northing		Easting	Northing		Easting	Northing
SO_x from Low Sulphur Diesel	1 hour	µg/m³	932	499.8	E. 616855	N 5442680	397	E 617855	N 5444280	498	E 617855	N 5444280
SO_x from Ultra-Low Sulphur Diesel				10	E. 616855	N 5442680	9.95	E 617855	N 5444280	9.96	E 617855	N 5444280

1. No ammonia shall be vented, additionally, O_3 and H_2S not included in the modelling as not sources expected.
2. Abnormal emissions are short-term in nature and activity duration is currently not expected to occur beyond one hour. Accordingly, longer-term averaging periods such as annual to measure against NL limits and three-year averages, used for comparison against national limits were not assessed.
3. SO_2 emission rates used for diesel equipment reflect a more conservative scenario of low sulphur diesel being used rather of ultra-low sulphur diesel should it not be available. If ultra-low sulphur diesel is available for a typical emergency diesel generator SO_2 emission release rate at stack would reduce from 0.01 to 0.002 g/s and for a typical electrolyser diesel generator would reduce from 0.05 to 0.0011 g/s.

As the emergency generators (2 MW) and electrolyser generators (1 MW) operate at the same load in all relevant cases (Cases 2, 3 and 4), the predicted SO_2 concentrations are representative of each of these scenarios.

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Appendix F – Case 4 Upset Results

EVREC Project Emissions Dispersion Modelling
AERMOD Results - R4a Upset Case| 2022
NOx 1 hour average in units: µg/m^3

Hourly Highest value at E, N: 21N E 616855 N 5442680 NOx Conc. 1849 µg/m^3

Regulatory Limit 415 µg/m^3	**Modeller** S Jivraj
Sources **R4-** Upset Case - based on 30 x 2 MW Emergency Diesel Generators | 18 x 1MW Electrolyser Generators | Process blowdown| firewater pump |50m flare stack | 2022	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 09-Mar-26	**Version** V7

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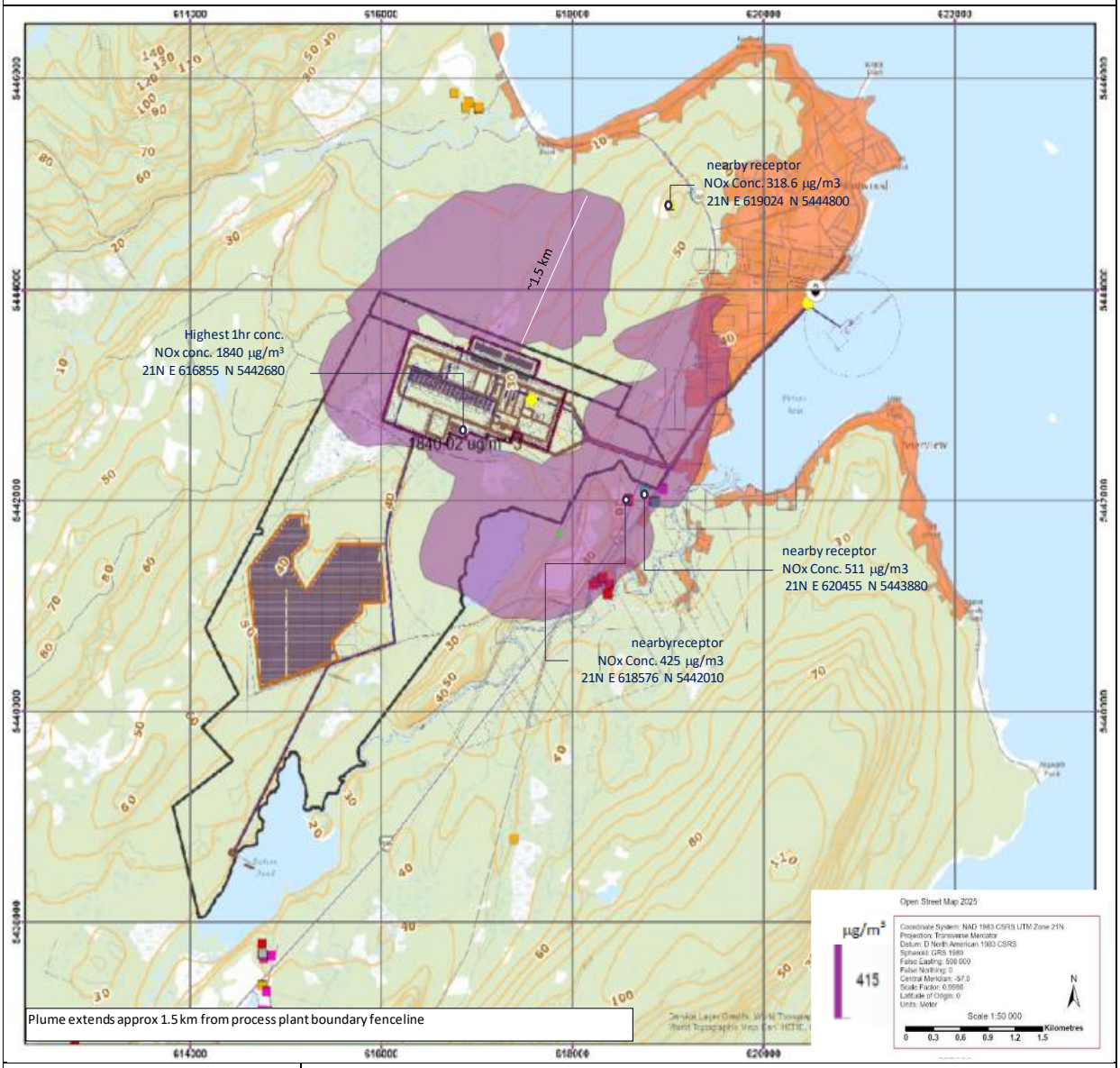
EVREC Project Emissions Dispersion Modelling
AERMOD Results - R4b Upset Case| 2023
NOx 1 hour average in units: µg/m^3



Hourly Highest value at E, N: 21N E 616855 N 5442680 NOx Conc. 1840 µg/m^3

Regulatory Limit 415 µg/m^3	**Modeller** S Jivraj
Sources **R4-** Upset Case - based on 30 x 2 MW Emergency Diesel Generators | 18 x 1MW Electrolyser Generators | Process blowdown| firewater pump |50m flare stack | 2023	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 01-Nov-25	**Version** V1

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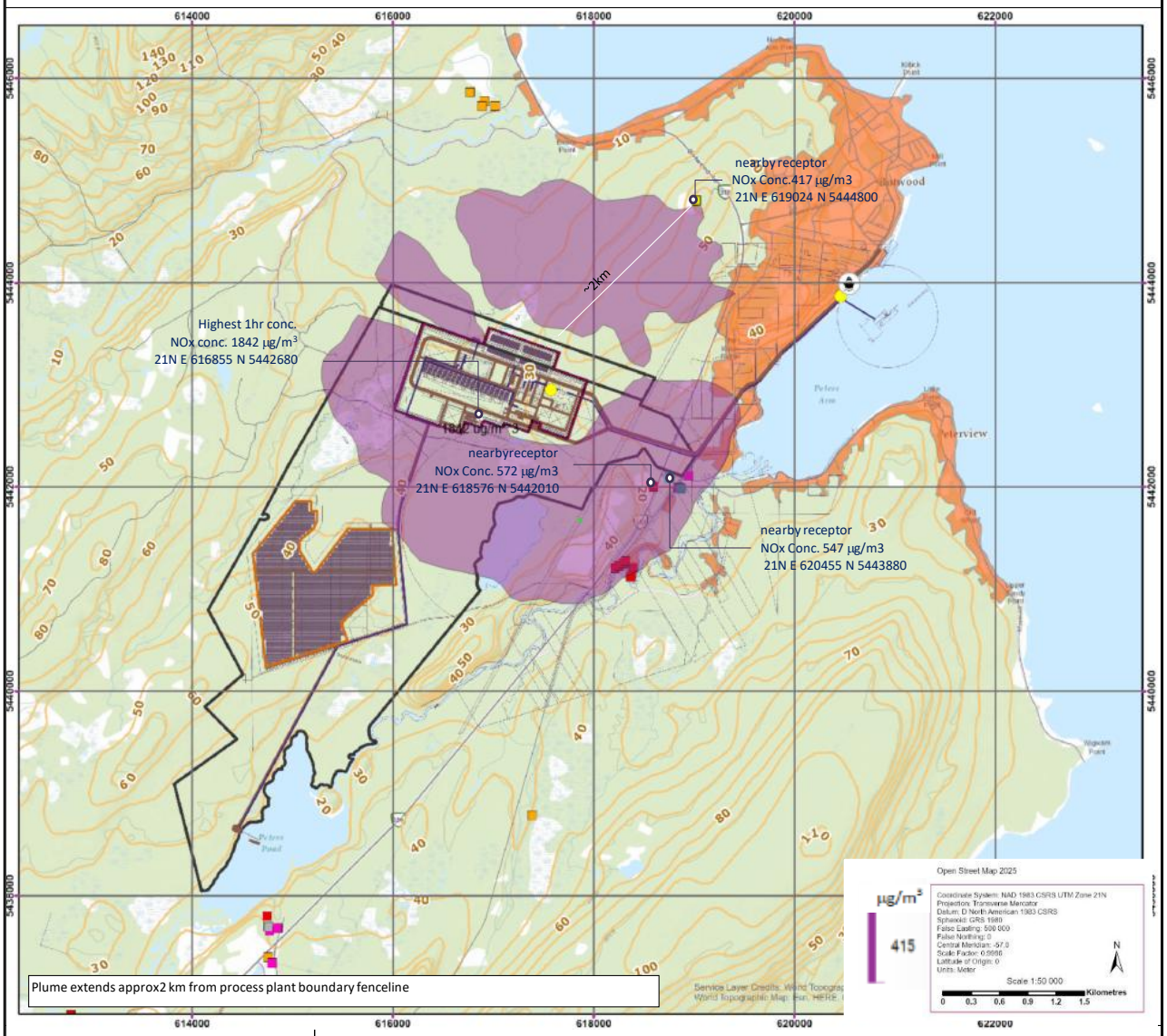
EVREC Project Emissions Dispersion Modelling

AERMOD Results - R4c Upset Case| 2024

NOx 1 hour average in units: µg/m^3



Hourly Highest value at E, N: 21N E 616855 N 5442680 NOx Conc. 1842 µg/m^3

Regulatory Limit 415 µg/m^3	**Modeller** S Jivraj
Sources **R4-** Upset Case - based on 30 x 2 MW Emergency Diesel Generators | 18 x 1MW Electrolyser Generators | Process blowdown| firewater pump |50m flare stack | 2024	**Project No.** PRJ 001817
Model Data Model area:10km x 8km (X 51 x Y 41 with 200m spacing) Met data: Gander Airport 2022-24	**Document** Doc. EVR-REP-CS-ENV-000001 Screening Level Air Dispersion Modelling
Date 01-Nov-25	**Version** V1

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Appendix G – Conversion Calculation from ppb to μg/m^3

Ideal Gas Law (1)

$$PV = nRT \quad (1)$$

Concentration (2)

$$Concentration = \frac{Mass}{Volume} = R \times TP \times MW \quad (2)$$

$$Concentration\left(\frac{ug}{m^3}\right) = ppm \times \frac{MW}{R} \times \frac{P}{T} \times 10^3$$

Standard Conditions

	Description	Unit	Value
P	Pressure	kPa	101.325
MW	Molecular Weight	g/mol	
R	Ideal Gas Constant	m³·kPa/(mol·K)	8.3145
T	Temperature	K	288

Conversion Equation (3)

$$ugm^{-3} = ppm \times \frac{MW \times 12.19}{T} \quad (3)$$

APPENDIX E.1
GHG Calculation Tables – Wind

Prepared by: Strum Consulting

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

Power Generation via Oil			
Parameter/Variable	Value	Unit	Comments
Quantity of Power Generated by NL Power Generation	14,594,860,800	kWh/year	Project Operational Capacity
Emission Factors			
Parameter/Variable	Value	Unit	Comments
NL Electricity Generation GHG Intensity	17	g CO_2e/kWh	[Source: CER, 2026]
Conversion Factor	0.000001	t CO_2e/g	1 g = 0.000001 Tonnes
Total Emissions	248,112.63	t CO_2e/year	B5*B8*B9

strum
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Turbine Fabrication			
Parameter/Variable	Value	Unit	Comments
Turbine	14,594,860,800	kWh/year	Project Operational Capacity
	2.35	gCO_2e/kWh	Life cycle assessment (EPDItaly, 2025)
Turbine Weight	960,000	kg/Turbine	Based on weights provided in NREL's 2015 Report [NREL, 2017]
	960	tonne/Turbine	1 kg = 0.001 Tonnes
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Conversion Factor	0.000001	$t\ CO_2e/g$	1 g = 0.000001 Tonnes
Emissions	1,131,831.46	$t\ CO_2e$	B5*B6*B11*33 years
WTG Transportation			
Parameter/Variable	Value	Unit	Comments
Transportation Vehicule			
Heavy Duty Truck (Diesel)	1	ea	
Distance Travelled	302,778	km	From manufacturing facility to the Dafeng Port, China (includes all the WTG components for all WTGs).
Distance Travelled	202,540	km	From Botwood Port, NL, to Wind Turbine Laydowns (includes all the WTG components for all WTGs).
Freight Weight	106.67	tonne	Based on weights provided in NREL's 2015 Report [NREL, 2017]. Estimate of each component; 960 tonnes/9 components
Marine Cargo and Containers (Diesel)	1	ea	
Distance Travelled	12,442,200	km	From Dafeng Port, China, to Botwood Port, NL (includes 534 WTGs).
Freight Weight	960	tonne	Based on weights provided in NREL's 2015 Report [NREL, 2017].
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Heavy Duty Truck	135	$g\ CO_2e/tonne{\cdot}km$	Freight emissions for calculating GHGs from freight (materials delivery, shipment of product to market, etc.) [Source: GHGenius v5.0d].
Conversion Factor	0.000001	$t\ CO_2e/gram$	1 g = 0.000001 Tonnes
Emissions	7,276.58	$t\ CO_2e/year$	B17*(B18+B19)*B20*B26*B27
Marine Cargo and Containers (Diesel)	15.1	$g\ CO_2e/tonne{\cdot}km$	Freight emissions for calculating GHGs from freight (materials delivery, shipment of product to market, etc.) [Source: GHGenius v5.0d]
Conversion Factor	0.000001	$t\ CO_2e/gram$	1 g = 0.000001 Tonnes
Emissions	180,362.13	$t\ CO_2e/year$	B22*B23*B29*B30
Electrical Tower Transportation			
Parameter/Variable	Value	Unit	Comments
Transportation Vehicule			
Heavy Duty Truck (Diesel)	5,772	ea	Assumed 5,654 truck rides for transportation of electrical towers and 118 truck rides to distribute electrical cables across WPA (Provided by EVREC)
Distance Travelled	40	km	Provided by EVREC
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Heavy Duty Truck Fuel Consumption	10	L/km	Provided by EVREC
Diesel Emission Factor	2.66	$kg\ CO_2e/L$	Source: NLECC, 2017
Conversion Factor	0.001	$t\ CO_2e/kg$	1 kg = 0.001 Tonnes
Emissions	6,141.41	$t\ CO_2e/year$	B36*B37*B38*B41*B42
Foundations			
Parameter/Variable	Value	Unit	Comments
Concrete Production Quantity	1,330,413,300	kg	Based on a volume of 912 m^3 (per Wind Turbine Pad), 7.1 m^3 (69 kV) and 19.6 m^3 (230 kV) per electrical towers, 800 m^3 per substation, and 1,800 m^3 per accommodation - calculated based on information provided by Proponent, and an estimated concrete density of 2,250 kg/m^3
	1,330,413	tonne	1 kg = 0.001 Tonnes
Concrete Truck	20.25	tonne/truck	Source: Ready Mixed Concrete Association of Ontario, n.d and concrete density of 2,250 kg/m^3
	65,700	ea	(B48/B49) Required trucks per Turbine Pad
Steel Production Quantity	146	tonnes	Based on assumed weights (per WTG foundation)
Heavy Duty Truck	38	tonne/truck	No more than 49,500 Gross Vehicle Weight (Assumed unladen weight of 11.5 tonnes)
	4	ea	(B52/B53) Trucks required for a WTG
Concrete Transportation Distances			
Distance Travelled (freight)	15	km	Foundation locations are assumed to be located no more than 30 kilometres from a mobile batch plant
Distance Travelled (no freight)	15	km	Based on one-way trip from Concrete Supplier to each Wind Turbine Pad
Steel Transportation Distances			
Distance Travelled (freight)	41,194	km	Based on one-way trip from Steel Supplier to each Wind Turbine Pad
Distance Travelled (no freight)	41,194	km	Based on one-way trip from Steel Supplier to each Wind Turbine Pad

Emission Factors			
Parameter/Variable	Value	Unit	Comments
Concrete Production	263	g CO_2e/kg	0.263 kg CO_2e/kg [Source: GHGenius v5.0d].
Concrete Truck (freight)	135	g CO_2e/tonne·km	Freight emissions for calculating GHGs from freight (materials delivery, shipment of product to market, etc.) [Source: GHGenius v5.0d].
Concrete Truck (no freight)	1,106	g CO_2e/km	Emissions for calculating GHGs where the volume of fuel consumed is unknown but the distance travelled is known [Source: GHGenius v5.0d].
General Steel Production	1.5	t CO_2e/tonne	Estimated from the UK's general steel type, excluding stainless steel (Inventory of Carbon & Energy (ICE), Version 2.0).
Heavy Duty Truck (freight)	135	g CO_2e/tonne·km	Freight emissions for calculating GHGs from freight (materials delivery, shipment of product to market, etc.) [Source: GHGenius v5.0d].
Heavy Duty Truck (no freight)	1,106	g CO_2e/km	Emissions for calculating GHGs where the volume of fuel consumed is unknown but the distance travelled is known [Source: GHGenius v5.0d].
Conversion Factor	0.000001	t CO_2e/g	1 g = 0.000001 Tonnes
Concrete Production Emissions	349,409.32	t CO_2e/year	B47*B63*B70
Concrete Truck (freight) Emissions	2,694.11	t CO_2e/year	B49*B50*B56*B64*B70
Concrete Truck (no freight) Emissions	1,089.96	t CO_2e/year	B50*B57*B65*B70
Steel Production Emissions	116,946.00	t CO_2e/year	B52*B67*534
Heavy Duty Truck (freight) Emissions	845.31	t CO_2e/year	B53*B54*B59*B68*B70
Heavy Duty Truck (no freight) Emissions	182.24	t CO_2e/year	B54*B60*B69*B70
Total Tower Foundation and Pedestal	471,166.94	t CO_2e/year	SUM(B71,B72,B73,B75,B76,B77)
Total Emissions (Construction Phase)	1,796,778.52	t CO_2e	B12+B28+B31+B43+B78

Construction Works													
Mobile Equipment List	Model	Consumption Type	Fuel Type	# Required	Operating Years	Operating Days/Year	Operating Days	Runtime/Day (hrs)	Hourly Fuel Consumption (L/hr)	Total fuel consumption (L)	Emission coefficient ($kgCO_2e/L$)	Total CO2e emissions (kg)	Total CO_2e emissions (tonnes)
Excavator:	470/349/PC 490	Mobile Equipement	Diesel	8	1.5	312	468	21	35	2,751,840	2.66	7,329,617	7,329.62
Excavator:	336/290/PC 360	Mobile Equipement	Diesel	15	1.5	312	468	21	25	3,685,500	2.66	9,816,451	9,816.45
Loading Unit:	Cat 390/JD 870	Mobile Equipement	Diesel	3	1.5	312	468	21	48	1,415,232	2.66	3,769,517	3,769.52
Shovel/Loading Unit:	CAT 6015B/Hitachi EX-1200/PC 1200	Mobile Equipement	Diesel	2	1.5	312	468	21	85	1,670,760	2.66	4,450,124	4,450.12
Dozer:	D8/D155/1050K	Mobile Equipement	Diesel	16	1.5	312	468	21	44	6,918,912	2.66	18,428,750	18,428.75
Dozer:	D6/P65	Mobile Equipement	Diesel	6	1.5	312	468	21	22	1,297,296	2.66	3,455,391	3,455.39
Roller:	10-Ton	Mobile Equipement	Diesel	14	1.5	312	468	21	15	2,063,880	2.66	5,497,212	5,497.21
Haul Truck:	JD 460/Cat 740	Mobile Equipement	Diesel	10	1.5	312	468	21	30	2,948,400	2.66	7,853,161	7,853.16
Haul Truck:	Live Bottom Trailers	Mobile Equipement	Diesel	5	1.5	312	468	21	18	884,520	2.66	2,355,948	2,355.95
Haul Truck:	CAT 777	Mobile Equipement	Diesel	7	1.5	312	468	21	64	4,402,944	2.66	11,727,387	11,727.39
Concrete Truck:	-	Mobile Equipement	Diesel	14	1.5	312	468	21	18	2,476,656	2.66	6,596,655	6,596.65
Other:	1/2 Ton Pickup	Mobile Equipement	Diesel	35	1.5	312	468	21	10	3,439,800	2.66	9,162,021	9,162.02
Other:	Fuel Truck	Mobile Equipement	Diesel	7	1.5	312	468	21	15	1,031,940	2.66	2,748,606	2,748.61
Other:	Maintenance Truck	Mobile Equipement	Diesel	7	1.5	312	468	21	15	1,031,940	2.66	2,748,606	2,748.61
Grader:	12M/672GP	Mobile Equipement	Diesel	6	1.5	312	468	21	16	943,488	2.66	2,513,011	2,513.01
Loader:	CAT 988	Mobile Equipement	Diesel	5	1.5	312	468	21	40	1,965,600	2.66	5,235,440	5,235.44
Loader:	CAT 980	Mobile Equipement	Diesel	2	1.5	312	468	21	22	432,432	2.66	1,151,797	1,151.80
Feller Buncher:	CAT 522	Mobile Equipement	Diesel	7	1.5	312	468	11	36	1,238,328	2.66	3,298,327	3,298.33
Utility Loader:	CAT 938	Mobile Equipement	Diesel	3	1.5	312	468	21	8	235,872	2.66	628,253	628.25
Excavator:	470/349/PC 490	Mobile Equipment (Roadworks)	Diesel	11	2.0	312	624	21	35	5,045,040	2.66	13,437,631	13,437.63
Excavator:	336/290/PC 360	Mobile Equipment (Roadworks)	Diesel	20	2.0	313	626	21	35	9,202,200	2.66	24,510,363	24,510.36
Loading Unit:	Cat 390/JD 870	Mobile Equipment (Roadworks)	Diesel	6	2.0	314	628	21	35	2,769,480	2.66	7,376,601	7,376.60
Shovel/Loading Unit:	CAT 6015B/Hitachi EX-1200/PC 1200	Mobile Equipment (Roadworks)	Diesel	2	2.0	315	630	21	35	926,100	2.66	2,466,698	2,466.70
Dozer:	D8/D155/1050K	Mobile Equipment (Roadworks)	Diesel	16	2.0	316	632	21	35	7,432,320	2.66	19,796,230	19,796.23
Dozer:	D6/P65	Mobile Equipment (Roadworks)	Diesel	13	2.0	317	634	21	35	6,057,870	2.66	16,135,337	16,135.34
Roller:	10-Ton	Mobile Equipment (Roadworks)	Diesel	19	2.0	318	636	21	35	8,881,740	2.66	23,656,808	23,656.81
Haul Truck:	JD 460/Cat 740	Mobile Equipment (Roadworks)	Diesel	12	2.0	319	638	21	35	5,627,160	2.66	14,988,126	14,988.13
Haul Truck:	Live Bottom Trailers	Mobile Equipment (Roadworks)	Diesel	7	2.0	320	640	21	35	3,292,800	2.66	8,770,481	8,770.48
Haul Truck:	CAT 777 or 775	Mobile Equipment (Roadworks)	Diesel	10	2.0	321	642	21	35	4,718,700	2.66	12,568,413	12,568.41
Concrete Truck:	-	Mobile Equipment (Roadworks)	Diesel	14	2.0	322	644	21	35	6,626,760	2.66	17,650,594	17,650.59
Other:	1/2 Ton Pickup	Mobile Equipment (Roadworks)	Diesel	52	2.0	323	646	21	35	24,690,120	2.66	65,762,949	65,762.95
Other:	Fuel Truck	Mobile Equipment (Roadworks)	Diesel	7	2.0	324	648	21	35	3,333,960	2.66	8,880,112	8,880.11
Other:	Maintenance Truck	Mobile Equipment (Roadworks)	Diesel	7	2.0	325	650	21	35	3,344,250	2.66	8,907,520	8,907.52
Grader:	12M/672GP	Mobile Equipment (Roadworks)	Diesel	8	2.0	326	652	21	35	3,833,760	2.66	10,211,346	10,211.35
Loader:	CAT 988	Mobile Equipment (Roadworks)	Diesel	7	2.0	327	654	21	35	3,364,830	2.66	8,962,336	8,962.34
Loader:	CAT 980	Mobile Equipment (Roadworks)	Diesel	3	2.0	328	656	21	35	1,446,480	2.66	3,852,747	3,852.75
Utility Loader:	CAT 938	Mobile Equipment (Roadworks)	Diesel	5	2.0	329	658	21	35	2,418,150	2.66	6,440,822	6,440.82
Feller Buncher:	CAT 522	Mobile Equipment (Roadworks)	Diesel	5	2.0	330	660	21	35	2,425,500	2.66	6,460,399	6,460.40
Mobile Equipment									**Total Fuel Usage**	146,272,560		**Total Emissions**	389,601.79

Stationary Equipment List	Model	Consumption Type	Fuel Type	# Required	Operating Years	Operating Days/Year	Operating Days	Runtime/Day (hrs)	Hourly Fuel Consumption (L/hr)	Total fuel consumption (L)	Emission coefficient ($kgCO_2e/L$)	Total CO2e emissions (kg)	Total CO_2e emissions (tonnes)
Diesel generators (Accomodations)	350 kW Generators	Stationary Equipment	Diesel	8	2	365	730	24	65	9,110,400	2.66	24,265,851	24,265.85
Diesel generators (Operate Small Machinery)	100 kW Generators	Stationary Equipment	Diesel	23	2	312	624	21	18	5,425,056	2.66	14,449,816	14,449.82
Diesel generators (Batch Plants)	130 kW Generator	Stationary Equipment	Diesel	6	2	312	624	21	25	1,965,600	2.66	5,235,440	5,235.44
Blasting	Model	Consumption Type	Fuel Type	# Required	Operating Years	Operating Days/Year	Operating Days	Runtime/Day (hrs)	Hourly Fuel Consumption (L/hr)	Total fuel consumption (L)	Emission coefficient ($kgCO_2e/kg$)(1)	Total CO2e emissions (kg)	Total CO_2e emissions (tonnes)
Explosives	-	Blasting	ANFO	11,721,600	-	-	-	-	-	-	0.19	2,190,345	2,190.35
Blasting and Stationary Equipment									**Total Fuel Usage**	16,501,056		**Total Emissions**	46,141.45

(1) ANFO 5.1% carbon content (provided by EVREC)

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Wind Energy			
Parameter/Variable	Value	Unit	Comments
Quantity of Power Generation via Wind	14,594,860,800	kWh/year	See Equation
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Wind Generated Electricity	0	t CO_2e/kWh	
Emissions	0	t CO_2e/year	B5*B8
Maintenance			
Parameter/Variable	Value	Unit	Comments
Nacelle Components Replacement	11,431	kg/Turbine	15% of Nacelle [Source: Source: Padey et al., 2012, (Number Three Wind LLC, 2018)]
Blade Replacement	18,688	kg/Turbine	One Blade [Source: Source: Padey et al., 2012, (Number Three Wind LLC, 2018)]
Emission Factors			
Parameter/Variable	Value	Unit	Comments
General Steel	1.5	kg CO_2e/kg	Estimated from the UK's general steel type, excluding stainless steel (Inventory of Carbon & Energy (ICE), Version 2.0).
Conversion Factor	0.001	t CO_2e/kg	1 kg = 0.001 Tonnes
Emissions	45.18	t CO_2e/turbine	(B13+B14)*B17*B18
Total Emissions	24,125.32	t CO_2e	B9+B19*534 (WT)

$$kWh = 534\ turbine * 8000\frac{kW}{turbine} \times \frac{365\ days}{year} \times \frac{24\ hours}{day} \times 0.39 = 14{,}594{,}860{,}800\ kWh/year$$

APPENDIX E.2
GHG Calculation Tables – Industrial

Prepared by: Strum Consulting

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

Power Generation via Oil			
Parameter/Variable	Value	Unit	Comments
Project Operational Capacity	907,185	tNH_3	Industrial Facility operational capacity (units presented in metric tonnes)
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Conventional Fossil-Based Ammonia Production	1.57	$tCO_2e/tNH3$	[Source: European Commission, 2021]
Total Emissions	1,424,280	$tCO_2e/year$	B5*B8

Foundations			
Parameter/Variable	Value	Unit	Comments
Concrete Production Quantity	1,318,032,000	kg	Based on a volume of 585,792 m^3 provided by EVREC, and an estimated concrete density of 2,250 kg/m^3
	1,318,032	tonne	1 kg = 0.001 Tonnes
Steel Production Quantity	46,279	tonnes	Based on assumed weights
Heavy Duty Truck	38	tonne/truck	No more than 49,500 Gross Vehicle Weight (Assumed unladen weight of 11.5 tonnes)
	1,218	ea	(B7/B8) Trucks required for steel transport
Steel Transportation Distances			
Distance Travelled (freight)	35	km	Based on one-way trip from Steel Supplier to the IPA
Distance Travelled (no freight)	35	km	Based on one-way trip from Steel Supplier to the IPA
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Concrete Production	263	g CO_2e/kg	0.263 kg CO_2e/kg [Source: GHGenius v5.0d].
General Steel Production	1.5	t CO2e/tonne	Estimated from the UK's general steel type, excluding stainless steel (Inventory of Carbon & Energy (ICE), Version 2.0).
Heavy Duty Truck (freight)	135	g CO_2e/tonne·km	Freight emissions for calculating GHGs from freight (materials delivery, shipment of product to market, etc.) [Source: GHGenius v5.0d].
Heavy Duty Truck (no freight)	1,106	g CO_2e/km	Emissions for calculating GHGs where the volume of fuel consumed is unknown but the distance travelled is known [Source: GHGenius v5.0d].
Conversion Factor	0.000001	t CO_2e/g	1 g = 0.000001 Tonnes
Concrete Production Emissions	346,157.59	t CO_2e/year	B5*B15*B20
Steel Production Emissions	69,418.41	t CO_2e/year	B7*B17
Heavy Duty Truck (freight) Emissions	218.69	t CO_2e/year	B8*B9*B11*B18*B20
Heavy Duty Truck (no freight) Emissions	47.15	t CO_2e/year	B9*B12*B19*B20
Total Tower Foundation and Pedestal	415,841.84	t CO_2e/year	SUM(B21,B23,B24,B25)
Total Emissions (Construction Phase)	415,841.84	t CO_2e	

Construction Works													
Mobile Equipment List	Model	Consumption Type	Fuel Type	# Required	Operating Years	Operating Days/Year	Operating Days	Runtime/ Day (hrs)	Hourly Fuel Consumption (L/hr)	Total fuel consumption (L)	Emission coefficient (kgCO2e/L)	Total CO2e emissions (kg)	Total CO2e emissions (tonnes)
Excavator:	470/349/PC 490	Mobile Equipement	Diesel	3	1.0	312	312	21	35	687,960	2.66	1,832,404	1,832.40
Excavator:	336/290/PC 360	Mobile Equipement	Diesel	7	1.0	312	312	21	25	1,146,600	2.66	3,054,007	3,054.01
Dozer:	D8/D155/1050K	Mobile Equipement	Diesel	6	1.0	312	312	21	44	1,729,728	2.66	4,607,188	4,607.19
Dozer:	D6/P65	Mobile Equipement	Diesel	3	1.0	312	312	21	22	432,432	2.66	1,151,797	1,151.80
Roller:	10-Ton	Mobile Equipement	Diesel	6	1.0	312	312	21	15	589,680	2.66	1,570,632	1,570.63
Haul Truck:	JD 460/Cat 740	Mobile Equipement	Diesel	12	1.0	312	312	21	30	2,358,720	2.66	6,282,529	6,282.53
Haul Truck:	Live Bottom Trailers	Mobile Equipement	Diesel	6	1.0	312	312	21	18	707,616	2.66	1,884,759	1,884.76
Other:	1/2 Ton Pickup	Mobile Equipement	Diesel	20	1.0	312	312	21	10	1,310,400	2.66	3,490,294	3,490.29
Other:	Fuel Truck	Mobile Equipement	Diesel	2	1.0	312	312	21	15	196,560	2.66	523,544	523.54
Other:	Maintenance Truck	Mobile Equipement	Diesel	2	1.0	312	312	21	15	196,560	2.66	523,544	523.54
Grader:	12M/672GP or 14M	Mobile Equipement	Diesel	3	1.0	312	312	21	16	314,496	2.66	837,670	837.67
Loader:	CAT 988	Mobile Equipement	Diesel	1	1.0	312	312	21	40	262,080	2.66	698,059	698.06
Loader:	CAT 980	Mobile Equipement	Diesel	1	1.0	312	312	21	22	144,144	2.66	383,932	383.93
Feller Buncher:	CAT 522	Mobile Equipement	Diesel	6	1.0	312	312	11	36	707,616	2.66	1,884,759	1,884.76
Utility Loader:	CAT 938	Mobile Equipement	Diesel	1	1.0	312	312	21	8	52,416	2.66	139,612	139.61
Mobile Equipment Discount (Split Usage Between SPA and IPA)												50%	
Mobile Equipment									**Total Fuel Usage**	5,418,504		**Total Emissions**	14,432.36

Pilot Flares			
Parameter/Variable	Value	Unit	Comments
Three Pilot Flares (Propane)	204,984	kg/year	Kilograms of fuel consumed per year
	3.05	$kgCO_2e/kg$	Propane emission factor [Source: Climatiq]
	625,201	$kgCO_2e/yr$	B5*B6
	0.001	tCO_2e/kg	1 kg = 0.001 Tonnes
Emissions	625.20	t CO2e/yr	
Diesel Generators			
Parameter/Variable	Value	Unit	Comments
2 MW Generator (30)	360.00	MWh	30 generators (2 MW) operating for 30 minutes once a month (12 times per year)
1 MW Generator (18)	108.00	MWh	18 generators (1 MW) operating for 30 minutes once a month (12 times per year)
Diesel Generators	0.87	tCO_2e/MWh	Diesel generator emission factor [Source: GHGenius v5.0d]
2 MW Generator (30)	313.20	tCO_2e/yr	(B13)*B16
1 MW Generator (18)	93.96	tCO_2e/yr	(B14)*B16
Emissions	407.16	tCO_2e/year	B18+B19
Total Emissions	1,032.36	tCO_2e	B9+B20

APPENDIX E.3
GHG Calculation Tables – Solar

Prepared by: Strum Consulting

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

Power Generation			
Parameter/Variable	Value	Unit	Comments
Quantity of Power Generated via Solar Project	157,680,000	kWh/year	Project Operational Capacity
Emission Factors			
Parameter/Variable	Value	Unit	Comments
NL Electricity GHG Emission Intentsity	17.0	g CO_2e/kWh	[Source: CER, 2026]
Conversion Factor	0.000001	t CO_2e/g	1 g = 0.000001 Tonnes
Total Emissions	2,680.56	t CO_2e/year	B5*B8*B9

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Solar Fabrication			
Parameter/Variable	Value	Unit	Comments
Turbine	157,680,000	kWh/year	Project Operational Capacity
	31.4	gCO2e/kWh	Life cycle assessment (NREL, 2025)
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Conversion Factor	0.000001	t CO_2e/g	1 g = 0.000001 Tonnes
Emissions	163,388.02	t CO_2e	B5*B6*B9*33 years
Solar Component Transportation			
Parameter/Variable	Value	Unit	Comments
Transportation Vehicule			
Heavy Duty Truck (Diesel)	1	ea	
Distance Travelled	106,074	km	From manufacturing facility to the Dafeng Port, China and the Botwood Port, NL, to SPA (includes all solar components).
Freight Weight	24,150.00	tonne	Based on weight of 650 W module (35 kg/module) [Source: Trinasolar 2024]; Assumed similar weight for all Solar Components (modules, racks, inverter systems)
Marine Cargo and Containers (Diesel)	1	ea	
Distance Travelled	93,200	km	From Dafeng Port, China, to Botwood Port, NL (one way).
Freight Weight	24,150.00	tonne	Based on weight of 650 W module (35 kg/module) [Source: Trinasolar 2024]; Assumed similar weight for all Solar Components (modules, racks, inverter systems)
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Heavy Duty Truck	135	g CO_2e/tonne·km	Freight emissions for calculating GHGs from freight (materials delivery, shipment of product to market, etc.) [Source: GHGenius v5.0d].
Conversion Factor	0.000001	g CO2e/tonne	1 g = 0.000001 Tonnes
Emissions	345,827.76	t CO_2e/year	B15*B16*B17*B23*B24
Marine Cargo and Containers (Diesel)	15.1	g CO_2e/tonne·km	Freight emissions for calculating GHGs from freight (materials delivery, shipment of product to market, etc.) [Source: GHGenius v5.0d]
Conversion Factor	0.000001	t CO_2e/tonne·km	1 g = 0.000001 Tonnes
Emissions	33,986.78	t CO_2e/year	B18*B19*B20*B26*B27
Total Emissions (Construction Phase)	543,202.55	t CO_2e	B10+B25+B28

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Construction Works													
Mobile Equipment List	Model	Consumption Type	Fuel Type	# Required	Operating Years	Operating Days/Year	Operating Days	Runtime/ Day (hrs)	Hourly Fuel Consumption (L/hr)	Total fuel consumption (L)	Emission coefficient (kgCO2e/L)	Total CO2e emissions (kg)	Total CO2e emissions (tonnes)
Excavator:	470/349/PC 490	Mobile Equipement	Diesel	3	1.0	312	312	21	35	687,960	2.66	1,832,404	1,832.40
Excavator:	336/290/PC 360	Mobile Equipement	Diesel	7	1.0	312	312	21	25	1,146,600	2.66	3,054,007	3,054.01
Dozer:	D8/D155/1050K	Mobile Equipement	Diesel	6	1.0	312	312	21	44	1,729,728	2.66	4,607,188	4,607.19
Dozer:	D6/P65	Mobile Equipement	Diesel	3	1.0	312	312	21	22	432,432	2.66	1,151,797	1,151.80
Roller:	10-Ton	Mobile Equipement	Diesel	6	1.0	312	312	21	15	589,680	2.66	1,570,632	1,570.63
Haul Truck:	JD 460/Cat 740	Mobile Equipement	Diesel	12	1.0	312	312	21	30	2,358,720	2.66	6,282,529	6,282.53
Haul Truck:	Live Bottom Trailers	Mobile Equipement	Diesel	6	1.0	312	312	21	18	707,616	2.66	1,884,759	1,884.76
Other:	1/2 Ton Pickup	Mobile Equipement	Diesel	20	1.0	312	312	21	10	1,310,400	2.66	3,490,294	3,490.29
Other:	Fuel Truck	Mobile Equipement	Diesel	2	1.0	312	312	21	15	196,560	2.66	523,544	523.54
Other:	Maintenance Truck	Mobile Equipement	Diesel	2	1.0	312	312	21	15	196,560	2.66	523,544	523.54
Grader:	12M/672GP or 14M	Mobile Equipement	Diesel	3	1.0	312	312	21	16	314,496	2.66	837,670	837.67
Loader:	CAT 988	Mobile Equipement	Diesel	1	1.0	312	312	21	40	262,080	2.66	698,059	698.06
Loader:	CAT 980	Mobile Equipement	Diesel	1	1.0	312	312	21	22	144,144	2.66	383,932	383.93
Feller Buncher:	CAT 522	Mobile Equipement	Diesel	6	1.0	312	312	11	36	707,616	2.66	1,884,759	1,884.76
Utility Loader:	CAT 938	Mobile Equipement	Diesel	1	1.0	312	312	21	8	52,416	2.66	139,427	139.43
Mobile Equipment Discount (Split Usage Between SPA and IPA)												**50%**	
Mobile Equipment									**Total Fuel Usage**	**5,418,504**	**Total Emissions**		**14,432.27**

Solar Energy			
Parameter/Variable	Value	Unit	Comments
Quantity of Power Generation via Solar	157,680,000	kWh/year	See Equation
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Solar Generated Electricity	0	t CO_2e/kWh	
Emissions	0	t CO_2e/year	B5*B8
Maintenance			
Parameter/Variable	Value	Unit	Comments
Operation and Maintenance	0.5	gCO2e/kWh	Life cycle assessment (NREL, 2025)
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Conversion Factor	0.000001	t CO_2e/g	1 g = 0.000001 Tonnes
Emissions	2,601.72	t CO_2e	(B5*B13*33 years)*B16
Total Emissions	2,601.72	t CO_2e	B9+B17

$$kWh = 150{,}000\ kW \times \frac{365\ days}{year} \times \frac{24\ hours}{day} \times 0.12 = 157{,}680{,}000\ kWh/year$$

APPENDIX E.4
Emission Inventory Report

Prepared by: io consulting

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

Docusign Envelope ID: 3424D2AD-A09D-40B9-A84C-639331A90C3C

Abraxas EVREC PtX Project

Emission Inventory Report

J-001817-ENV-TN-00004

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Revision History

Revision No	Section Ref	Description of Change
A		IDC
0		IFR – First Issue

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Holds

Hold No	Section Ref	Description of Hold
1	2.2, 3.1	Flash Gas Purge rates and emissions on an annual basis to be confirmed during FEED.
2	2.3, 3.2	Blowdown rates for Case 2 to be confirmed during FEED.
3	2.3, 3.4	Blowdown rates for Case 4 to be agreed with Abraxas and confirmed during FEED.

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1. Introduction

1.1 Background

Abraxas are developing a Green Hydrogen and Ammonia Production, Storage and Loading Facility located outside the town of Botwood, Central Newfoundland. The facility will be located on a historical brownfield forestry site selected for redevelopment under the mandate of the Central Newfoundland Task Force.

The renewable energy for the facility will predominately be supplied by a 3GW Wind farm developed by Abraxas and energy storage technologies will be investigated as part of this study, with initial feasibility work considering a 200MW, 16-hour A-CAES facility to provide baseload power to the facility.

The proposed project, at peak, will produce approximately of 1.05 mtpa of ammonia, requiring approximately 13,000 GWh of energy per year and 4,015 million litres of water per year.

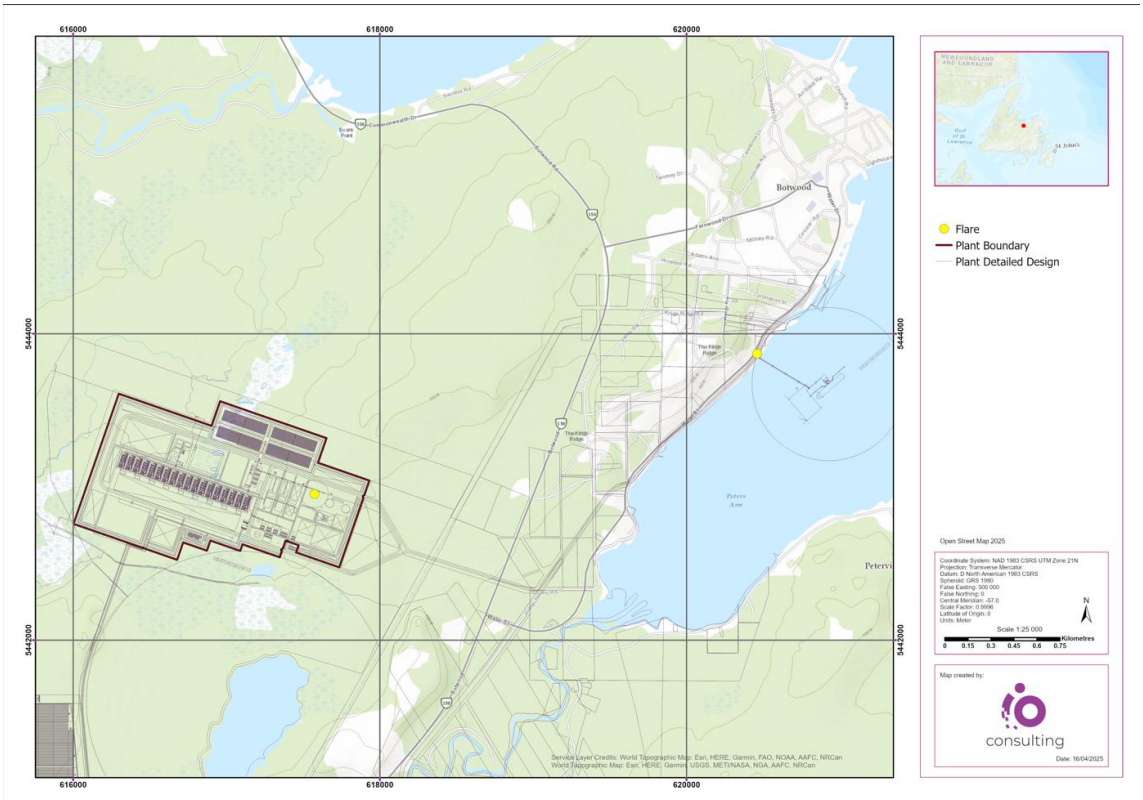

Figure 1-1 Project Location

Key project components in the main plan includes electrolysis units to produce hydrogen from deionized water; an air separation unit to generate nitrogen from the air; a Haber-Bosch ammonia synthesis unit to form anhydrous liquid ammonia through a catalytic reaction of hydrogen and nitrogen; bulk ammonia storage; and a marine terminal comprising a marine offloading facility and jetty to ship anhydrous liquid ammonia to market via speciality marine carriers. Neither the electrolysis units nor the Haber-Bosch ammonia synthesis unit will produce carbon emissions under normal operating conditions because no fossil fuels will be burned.

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1.2 Document Purpose

The purpose of this report is to provide an inventory of air emissions for four plant operating cases to reflect normal, commissioning, abnormal and upset conditions to service as an input to the air dispersion modelling study and provide a breakdown of component sources, and support impact assessment processes and permits/standards compliance.

For this specific air emissions inventory, emissions sources are identified for each plant operating case and include air emissions from diesel generators, diesel firewater pumps and flares.

Emissions are quantified using a hierarchy of data: vendor/design data, mass balance/stoichiometric calculations (e.g., fuel-to-exhaust conversions, flare heat input data), and published emission factors (e.g., EPA AP-42) where direct measurements are not available at this stage. Pollutant mass rates are calculated and presented in the units required for dispersion modelling (typically in g/s) with clear documentation of assumptions such as continuous or intermittent operation. This provides a consistent and auditable basis for modelling air emissions under normal, commissioning, abnormal, and upset conditions, and for refining the inventory as design and operating data mature in FEED.

1.3 Document Scope

The scope of this document is limited to providing an inventory of air emissions only to support the air dispersion modelling for the following cases:

- Case 1: Normal Operation.
- Case 2: Commissioning Run.
- Case 3: Abnormal Operations.
- Case 4: Upset Operations.

A full emissions inventory typically includes air emissions, liquid discharges and waste streams and encompasses construction include commissioning/start-up, operations and abnormal operations including upset conditions. It is expected that a full emissions inventory will be undertaken during FEED.

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2. Methodology

2.1 Pilot Gases

This methodology describes how air emissions associated with propane-fired flare pilots are estimated for the facility's three flare systems: the ammonia storage flare, jetty flare, and ammonia process flare. Although the flares are primarily safety devices intended for intermittent use during process upsets, maintenance, or emergency depressurisation, the pilot burners are typically operated continuously to ensure reliable ignition for whenever the flare is required. As a result, pilot fuel combustion represents a continuous, quantifiable emissions source even when routine flaring is minimal or absent.

The calculation approach uses EPA AP-42 emission factors (Table 2-1) [Ref.1] for combustion by-products from industrial flares [Ref.1] to estimate emissions from the pilot burners, assuming an average smoking flare. AP-42 is used as pilot burners function as small stationary combustion devices, and emissions can be reliably estimated from number of pilots in use, pilot rate and standardised emission factors. This pilot-fuel calculation is treated separately from any emissions associated with flaring of relief gas, as flare-event emissions depend on the composition and flow of the vented gas and are typically quantified using flare-specific methods, whereas pilot emissions depend only on the propane pilot rate and operating time.

The methodology assumes:

- Three pilots per flare with a design pilot fuel rate of 7.8 kg/hr per pilot [Ref.3] [Ref.4].
- Continuous operation for the duration of each case (365 days a year equating to 8,760 hours per year during Case 1 normal operation) [Ref.3] [Ref.4].
- Selected AP-42 combustion by-products from industrial flares emission factors and the heating value/conversion basis [Ref.1] (Table 2-1) used to translate fuel use into heat input data and annual mass emissions assuming an average smoking flare.

Table 2-1 Emission Factors for Elevated Flare Operations

Pollutant	Emission Factor (lb/10^6 Btu)
Total Hydrocarbons [a]	0.14
Carbon Monoxide	0.31
Nitrogen Oxides [b]	0.068
Soot (µg/L) [b]	0 - 274

All the Emission Factors (EF) in this table represent the emissions exiting the flare.
a Measured as methane equivalent.
b Soot in concentration values: nonsmoking flares: 0 µg/L, lightly smoking flares: 40 µg/L, average smoking flares: 177 µg/L and heavily smoking flares: 274 µg/L.

Pilot emissions are estimated using:

$$\textit{Pilot Emissions (lb/hr)} = \textit{Number of Pilots} \times \textit{Pilot Rate (lb/hr)} \times \textit{Emission Factors (lb/BTU)} \times \textit{Gas Lower Heating Value (BTU/lb)}$$

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2.2 Flash Gas Purge

This methodology describes how continuous emissions associated with flash gas/ purge gas from the ammonia synthesis trains (2 off) that are routed to the flare are estimated for the air emissions inventory.

The calculation approach is based on a combination of mass balance for the routed flash/ purge stream and EPA AP-42 flare emission factors for combustion by-products from industrial flares (Table 2-1) [Ref.2]. The methodology assumes:

- For normal operations (Case 1) a continuous flash/purge gas rate of 212 kg/h [HOLD 1] (106 kg/h per ammonia synthesis train) [Ref.5] is required to remove accumulation of inert gases. It should be noted that this is a peak figure which will not be continuous over an annual period as the ammonia plants will not be operating at full capacity all year. For the purposes of the emissions inventory however, this figure has been used to ensure a conservative approach and will be confirmed in future design development.
- For abnormal operations (Case 3), an intermittent flash/ purge gas relief rate of 21.2 kg/h (2 trains each purging 10.6 kg/h) or 10% of the normal operation case [Ref.5] is assumed. This models the ammonia synthesis trains operating at 10% turndown when there is no/ low wind.

A stream composition has been defined using licensor data (primarily H_2, N_2 and traces of Ar and water) [Ref.5]. The flare is treated as a control device, and combustion-related emissions are estimated using AP-42 industrial flare factors (e.g., NO_X). Note: soot is a product of incomplete combustion of hydrocarbon products. There is no hydrocarbon content present in the stream composition, so no soot is expected to be emitted through the burning of this stream.

For Case 2 (Commissioning) and Case 4 (Upset operation), the contents of the ammonia synthesis trains are released to flare via a blowdown event so a flash gas purge is not considered for those cases. See Section 2.3.

2.3 Syn Gas via Process Flare

This methodology sets out how air emissions from syngas blowdown routed to the process flare during commissioning (Case 2) and upset operations (Case 4) are estimated for the emissions inventory.

During commissioning and start-up, it is normal for facilities to generate temporary off-specification or non-saleable gas streams (e.g., purging/ inerting, pressure testing, and controlled start-up/shutdown sequences).

During upset operations (Case 4), there may be a requirement for a full system blowdown of the ammonia synthesis trains. These activities may require routing gas to the process flare to maintain safe operating conditions and protect downstream equipment.

Although these flaring events are time-limited, they can be a material contributor to the overall emissions profile and therefore need to be quantified and documented as a distinct operating mode.

EPA's AP-42 Chapter 13.5 (Industrial Flares) is used as the calculation basis as it provides published emission factors (Table 2-1) derived from flare studies and is widely accepted for preparing inventories when site-specific stack testing data are not available (typically available at pre-commissioning).

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The AP-42 flare factors (Table 2-1) [Ref.1] are applied on a heat-input basis (e.g., lb/MMBtu) and are intended for well-operated flares. AP-42 notes applicability conditions such as achieving at least 98% destruction efficiency and operating consistent with relevant General Provisions criteria (including minimum net heating value and velocity constraints, where applicable). Accordingly, flaring emissions from blowdown are estimated by:

- Defining a flaring blowdown case (syngas flow).
- Defining the syngas composition to determine heat input.
- Applying AP-42 flare emission factors (e.g., NOx, CO, THC as applicable) to estimate mass emissions for the commissioning run.

The methodology assumes:

- For commissioning operations (Case 2) a peak blowdown rate of 1.1 times the make-up gas flow [Ref. 5] or ~252,459 kg/hr [Ref.4, 6] [HOLD 2].
- For abnormal operations (Case 3), a blowdown rate lower than the 1.1 times peak make-up syn gas flowrate adopted in Case 2 of ~42,000 kg/hr on the basis that this can be engineered and managed during the period of upset operation [HOLD 3].

A stream composition has been defined using licensor data (primarily H_2, N_2 and traces of Ar and NH_3) [Ref.5]. The flare is treated as a control device, and combustion-related emissions are estimated using AP-42 industrial flare factors (e.g., NO_X). Note: there is no hydrocarbon content present in the stream composition, so no soot is expected to be emitted through the burning of this stream.

2.4 Emergency Diesel Generators

This methodology describes how air emissions from the 30 × 2 MW emergency diesel generators operating on Ultra-Low Sulphur Diesel (ULSD) are estimated for the air emissions inventory.

Emergency generators are installed to maintain critical safety and operability functions (e.g., emergency shutdown systems, essential instrumentation, emergency lighting, firewater systems, and critical utilities) during loss of grid power, major equipment outages, or other non-routine events.

While these units are not intended for continuous service, they may operate during commissioning (Case 2), abnormal operations (Case 3) and upset conditions (Case 4) to include genuine emergencies and also undergo periodic testing and maintenance runs during normal operation (Case 1) contributing to air emissions during these periods.

The calculation approach estimates emissions from each generator based on:

- A stoichiometric flue gas calculation to establish the stoichiometric Air to Fuel ratio (ATF) and the average Molecular Weight (MW) of the flue gas for diesel combustion. These parameters are used to support emissions estimation and air quality assessments by deriving exhaust flowrates and flue gas properties for dispersion modelling.
- Engine size and load during operation (e.g., rated power, typical emergency load factor, and testing load).
- Fuel consumption (vendor fuel curves where available, or a conservative brake-specific fuel consumption/heat rate).

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- Standard emission factors for diesel combustion/engine operation (for criteria pollutants and GHGs) [Ref.3], adjusted as appropriate for ULSD sulphur content.

This methodology reports emissions for each generator and aggregates across all 30 units, with results presented for:

- Intermittent emissions during normal operations (Case 1) for monthly emergency diesel generator testing (30-minute duration for 30 emergency diesel generators). Typically, monthly tests are undertaken one generator at a time (or in small groups) on a rotating schedule, avoiding peak emissions events.
- Non-routine emissions under Case 2, 3 and 4 operation scenarios for the duration of the event.

2.5 Electrolyser Diesel Generators

This methodology describes how air emissions from 18 × 1 MW diesel generator sets dedicated to the electrolyser systems are estimated for the project air emissions inventory.

These generators are provided to supply temporary or contingency power to critical electrolyser auxiliaries and balance-of-plant systems during periods when normal electrical supply is unavailable, unstable, or intentionally isolated (e.g., commissioning energisation and functional testing, grid/rectifier outages, protection trips, black-start or controlled restart sequences). While these units are not intended for continuous service, operation during these modes can produce high short-term emission rates and measurable annual totals that must be captured separately from normal, baseload operations.

While these units are not intended for continuous service, they may operate during commissioning (Case 2), abnormal operations (Case 3) and upset conditions (Case 4) to include genuine emergencies and also undergo periodic testing and maintenance runs during normal operation (Case 1) contributing to air emissions during these periods.

Case 1: Intermittent emissions (tpa) during normal operations (Case 1) for monthly emergency diesel generator testing (30-minute duration for 30 emergency diesel generators). Typically, monthly tests are undertaken one generator at a time (or in small groups) on a rotating schedule, avoiding peak emissions events.

Case 2: Commissioning activities (e.g., pre-start checks, functional testing, control system proving, temporary energisation, and staged start-up/shutdown trials) can require generator operation for defined periods before permanent electrical systems are fully available or proven.

Case 3: Abnormal operations (e.g., loss of external power, rectifier outages, temporary constraints on renewable supply, or planned switching/maintenance) may necessitate backup generation to maintain safe system states, prevent equipment damage, and support controlled shutdown.

Case 4: Upset operations (e.g., unplanned trips, emergency isolation, blackouts, or process safety events) can trigger automatic generator starts and concurrent running, making these scenarios important for both air quality impact assessment (short-term rates) and permit/inventory completeness (annual totals).

The calculation approach estimates emissions for each operating mode based on:

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- A stoichiometric flue gas calculation to establish the stoichiometric ATF and the average MW of the flue gas for diesel combustion. These parameters are used to support emissions estimation and air quality assessments by deriving exhaust flowrates and flue gas properties for dispersion modelling.
- Scenario Definition: Number of generators assumed to operate concurrently, run duration (hours per event), frequency (events per year), and any load-sharing/rotation philosophy.
- Generator Duty: Rated capacity (1 MW each) expected load factor during commissioning and contingency operation, and any warm-up or idling periods.
- Fuel Consumption: Vendor fuel curves (preferred) or conservative fuel use assumptions (e.g., heat rate or brake-specific fuel consumption) to quantify ULSD consumption by mode.
- Emission Factors: Standard diesel engine combustion factors for criteria pollutants and GHGs [Ref.3], adjusted as appropriate for ULSD sulphur content.

This methodology reports emissions for each generator and aggregates across all 18 units, with results presented for:

- Intermittent emissions during normal operations (Case 1) for monthly electrolyser diesel generator testing (30-minute duration for 18 electrolyser diesel generators). Typically, monthly tests are undertaken one generator at a time (or in small groups) on a rotating schedule, avoiding peak emissions events.
- Non-routine emissions are under Case 2, 3 and 4 operation scenarios for the duration of the event.

2.6 Firewater Pump

This methodology describes how air emissions from the diesel-driven firewater pump operating on ULSD are estimated for the facility air emissions inventory.

The firewater pump is a critical safety system designed to provide reliable firefighting water supply during abnormal events such as fires, major leaks, or loss of normal utilities. As a result, the pump engine may operate infrequently, but when activated it can run at high load for extended periods, and it may represent a significant short-term emissions source relevant to air quality impact assessment and permitting.

Quantifying firewater pump emissions is required to ensure the emissions inventory includes non-routine safety-related combustion sources that may operate during upset conditions. These sources are commonly addressed explicitly as they can drive peak-hour emission rates (e.g., g/s) used in dispersion modelling even if annual hours are low, contribute to annual totals of NO_X, CO, PM_{10}, and SO_2.

The calculation approach estimates emissions based on:

- A stoichiometric flue gas calculation to establish the stoichiometric ATF and the average MW of the flue gas for diesel combustion. These parameters are used to support emissions estimation and air quality assessments by deriving exhaust flowrates and flue gas properties for dispersion modelling.

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- Case 1: During normal operations the testing of two 360 kW FW pumps (1 operating and 1 spare) for a duration of 20 minutes per week. This is not used for gas dispersion analysis but is included in the air emissions inventory.
- Case 4: During upset operations 1 x 360 kW diesel FW pump will be running for the duration of the event. This is used for gas dispersion analysis and included in the air emissions inventory.
- Alignment with CFR 40 1039.102 Tier 4 Exhaust standards.
- Applying appropriate diesel engine emission factors for criteria pollutants and GHGs, with SO_2 determined from the ULSD sulphur specification.

Results are reported as intermittent emission rates for dispersion modelling (g/s) for Case 4 and presented as an annual rate for the air emissions inventory (tpa) for Case 1, with all assumptions on operating hours, load, and fuel properties clearly stated.

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3. Emissions Summary

3.1 Case 1 Normal Operations

During normal operations power is assumed to be supplied from renewable sources with Emergency Diesel Generators and Electrolyser Diesel Generators assumed to be on standby. The emissions during normal operation consist of continuous and intermittent sources. Continuous sources include:

- 3 Propane fuelled pilots at each of the Ammonia Process Flare, Ammonia Storage Flare and Jetty Flare with a design pilot fuel rate of 7.8 kg/hr per pilot [Ref 3] [Ref.4].
- Flash gas purge (consisting of predominantly Hydrogen and Nitrogen, plus NH_3, water and Argon) at a rate of 212 kg/h [HOLD 1] (106 kg/h per ammonia synthesis train) [Ref.5] from the Ammonia Washing Column to remove accumulation of inert gases. An average smoking flare is assumed.

Intermittent sources include:

- Weekly firewater pump testing (20-minute duration for 2 pumps (1 operating and 1 spare) rated at 360 kW each.
- Monthly emergency diesel generator testing (30-minute duration for 30 emergency diesel generators rated at 2 MW each).
- Monthly electrolyser diesel generator testing (30-minute duration for 18 electrolyser diesel generators rated at 1 MW each).

The emissions generated from normal operations include Total Hydrocarbons (THC), NO_X, CO, Soot (average smoking flare), SO_2, PM_{10} and Total Organic Carbon (TOC). The calculated preliminary emissions summary from normal operations are shown in Table 3-1 below with a detailed account of sources in Table 4-1.

Table 3-1 Summary of Atmospheric Emissions during Normal Operations (Case 1)

Pollutant	Amount (g/s)	Amount (tpa)	Amount (tpa)
	Continuous[1]		Intermittent[1]
Total Hydrocarbons[2]	0.045	1.703	-
NO_X	0.266	8.374	0.322
CO	0.143	4.5	1.682
Soot (average smoking flare)	0.023	0.713	-
SO_2	-	-	0.089
PM_{10}	-	-	0.048
Total Organic Carbon[3]	-	-	0.192

Notes:
1: Only continuous sources are included in air dispersion modelling. Intermittent sources (weekly FW pump testing and monthly diesel generator testing) are not included in air dispersion modelling.
2. THC (considered as non-methane hydrocarbons, NMHC) emissions associated with flare pilots
3. TOC emissions are associated with diesel generators

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3.2 Case 2 Commissioning Run

During commissioning, power is assumed to be supplied from the Emergency Diesel Generators and Electrolyser Diesel Generators as an assumption is made that there is no power available from the grid or renewable sources. The emissions during commissioning are a one-time only event occurring towards the end of the construction period. As the duration of the commissioning period is currently unknown, the emissions are reported on a kg/h basis rather than a tpa basis. The emissions during commissioning are intermittent in nature and the sources described below are only expected to be generated for the duration of the event(s) and include:

- 3 Propane fuelled pilots at each of the Ammonia Process Flare, Ammonia Storage Flare and Jetty Flare with a design pilot fuel rate of 7.8 kg/hr per pilot [Ref 3] [Ref.4].
- A Syn gas stream (consisting of predominantly H_2 and N_2, plus NH_3, and Argon) purged via blowdown from the loop and directed to the process flare with a basis of 1.1 times the peak make-up syn gas flowrate or ~252,459 kg/hr [Ref.4] [Ref.6] [HOLD 2]. An average smoking flare is assumed.
- 30 x 2 MW Emergency Tier 4 USLD Diesel Generators.
- 18 x 1 MW Electrolyser Tier 4 USLD Diesel Generators.

The emissions generated from commissioning include THC, NO_X, CO, Soot (average smoking flare), SO_2, PM_{10} and TOC. A summary of emissions generated from commissioning activities are shown in Table 3-2 below with a detailed account of sources in Table 4-2.

Table 3-2 Summary of Atmospheric Emissions during Commissioning (Case 2)

Pollutant	Amount (g/s)	Amount (kg/h)
Total Hydrocarbon (THC)[1]	0.054	0.194
NO_X	7,981	28,732
CO	75.98	273.51
Soot (average smoking flare)	0.023	0.081
SO_2	4.02	14.462
PM_{10}	2.17	7.8
Total Organic Carbon (TOC)[2]	8.67	31.2

Notes:
1: THC (NMHC) emissions associated with flare pilots
2: TOC emissions are associated with diesel generators

3.3 Case 3 Abnormal Operations

During abnormal operations power is assumed to be supplied from Emergency Diesel Generators and Electrolyser Diesel Generators as an assumption is made that there is no/ low wind and wind power is unavailable. The emissions during abnormal operations (no wind/ low wind) are intermittent and only expected to be generated for the duration of the event(s) and include:

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- 3 Propane fuelled pilots at each of the Ammonia Process Flare, Ammonia Storage Flare and Jetty Flare with a design pilot fuel rate of 7.8 kg/hr per pilot [Ref 3] [Ref.4].
- A continuous flash gas purge (consisting of predominantly H_2 and N_2, plus NH_3, and Argon) relief rate of 21.2 kg/hr (2 trains each purging 10.6 kg/hr) or 10% of the normal operation case [Ref.5] from the Ammonia washing column to remove the accumulation of inert gases [Ref.4] [Ref.5] at a rate consistent with operating at 10% turndown throughput during abnormal operation when there is no/ low wind [Ref.4].
- 30 x 2 MW Emergency Tier 4 USLD Diesel Generators.
- 18 x 1 MW Electrolyser Tier 4 USLD Diesel Generators.

The emissions generated from commissioning include THC, NO_X, CO, Soot (average smoking flare), SO_2, PM_{10} and TOC. A summary of emissions generated from commissioning activities are shown in Table 3-3 below with a detailed account of sources in Table 4-3.

Table 3-3 Summary of Atmospheric Emissions during Abnormal Operations (Case 3)

Pollutant	Amount (g/s)	Amount (kg/h)
Total Hydrocarbon (THC)[1]	0.054	0.194
NO_X	14.57	52.44
CO	75.98	273.51
Soot (average smoking flare)	0.023	0.081
SO_2	4.02	14.462
PM_{10}	2.17	7.8
Total Organic Carbon (TOC)[2]	8.67	31.2

Notes:
1: THC (NMHC) emissions associated with flare pilots
2: TOC emissions are associated with diesel generators

3.4 Case 4 Upset Operations

During upset operations power is assumed to be supplied from Emergency Diesel Generators and Electrolyser Diesel Generators as an assumption is made that there is no power available from the grid or renewable sources. The emissions during upset operations are intermittent and only expected to be generated for the duration of the event(s) and include:

- 3 Propane fuelled pilots at each of the Ammonia Process Flare, Ammonia Storage Flare and Jetty Flare with a design pilot fuel rate of 7.8 kg/hr per pilot [Ref 3] [Ref.4].
- A syn gas stream (consisting of predominantly H_2 and N_2, plus NH_3, and Argon) is relieved and directed to the process flare at a rate lower than the 1.1 times peak make-up syn gas flowrate adopted in Case 2 on the basis that it can be engineered and managed during the period of upset operation [HOLD 3].
- 1 x 360 kW Diesel Firewater Pump.

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- 30 x 2 MW Emergency Tier 4 USLD Diesel Generators.
- 18 x 1 MW Electrolyser Tier 4 USLD Diesel Generators.

The emissions generated from upset operations include THC, NO_X, CO, Soot (average smoking flare), SO_2, PM_{10} and TOC. A summary of emissions generated from upset operations are shown in Table 3-4 below with a detailed account of sources in Table 4-4.

Table 3-4 Summary of Atmospheric Emissions during Upset Operations (Case 4)

Pollutant	Amount (g/s)	Amount (kg/h)
Total Hydrocarbon (THC)[1]	0.054	0.194
NO_X	1,342	4,833
CO	76.33	274.77
Soot (average smoking flare)	0.023	0.081
SO_2	4.03	14.52
PM_{10}	2.18	7.84
Total Organic Carbon (TOC)[2]	8.71	31.34

Notes:
1: THC (NMHC) emissions associated with flare pilots
2: TOC emissions are associated with diesel generators

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4. Detailed Emissions Tables

4.1 Case 1 Normal Operations

Table 4-1 Detailed Atmospheric Emissions during Normal Operations (Case 1)

Description	Waste	Type	Amount	Amount	Production	Receptor	Comments
			g/s	tpa			
Pilot Gas from Ammonia Storage Flare	Total Hydrocarbons (NMHC)	Gas	0.018	0.568	Continuous	Air	Based on 7.8 kg/h of pilot gas. Three pilots ignited. Continuously lit, 365 days per year
	NO_X	Gas	0.0087	0.276	Continuous	Air	
	CO	Gas	0.0476	1.5	Continuous	Air	
	Soot (average smoking flare)	Gas	0.0075	0.238	Continuous	Air	
Pilot Gas from Jetty Flare	Total Hydrocarbons(NMHC)	Gas	0.018	0.568	Continuous	Air	Based on 7.8 kg/h of pilot gas. Three pilots ignited. Continuously lit, 365 days per year
	NO_X	Gas	0.0087	0.276	Continuous	Air	
	CO	Gas	0.0476	1.5	Continuous	Air	
	Soot (average smoking flare)	Gas	0.0075	0.238	Continuous	Air	
Pilot Gas from Ammonia Process Flare	Total Hydrocarbons (NMHC)	Gas	0.018	0.568	Continuous	Air	Based on 7.8 kg/h of pilot gas. Three pilots ignited. Continuously lit, 365 days per year
	NO_X	Gas	0.0087	0.276	Continuous	Air	
	CO	Gas	0.0476	1.5	Continuous	Air	
	Soot (average smoking flare)	Gas	0.0075	0.238	Continuous	Air	
Flash Gas Purge	NO_X	Gas	0.0087	0.276	Continuous	Air	

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Description	Waste	Type	Amount	Amount	Production	Receptor	Comments
			g/s	tpa			
	Soot (average smoking flare)	Gas	0.0087	0.276	Continuous	Air	Relief rate: 212 kg/h based on Casale Proposal for 2 trains (2 x 106 kg/h) Continuous emission.
FW Pumps Diesel Generators 360 kW	NO_X	Diesel	*	0.008	Intermittent	Air	Assumption that 1 Pump + 1 Standby Pump are tested for 20 minutes per week. Efficiency is 40%. Assume engines are compliant with CFR 40 1039.102 Tier 4 Exhaust Standards. *Not included in gas dispersion model as an intermittent source.
	CO	Diesel	*	0.044	Intermittent	Air	
	SO_2	Diesel	*	0.002	Intermittent	Air	
	PM_{10}	Diesel	*	0.001	Intermittent	Air	
	TOC	Diesel	*	0.005	Intermittent	Air	
Emergency Diesel Generators (60 MW) 30 x 2 MW Units	NO_X	Diesel	*	0.241	Intermittent	Air	Assumption that 30 Units are tested for 30 minutes, once per month. Efficiency is 33%. Assume engines are compliant with CFR 40 1039.102 Tier 4 Exhaust Standards. *Not included in gas dispersion model as an intermittent source.
	CO	Diesel	*	1.26	Intermittent	Air	
	SO_2	Diesel	*	0.066	Intermittent	Air	
	PM_{10}	Diesel	*	0.036	Intermittent	Air	
	TOC	Diesel	*	0.144	Intermittent	Air	
Electrolyser Diesel Generators (18 MW) 18 x 1 MW Units	NO_X	Diesel	*	0.072	Intermittent	Air	Assumption that 18 Units are tested for 30 minutes, once per month. Efficiency is 33%. Assume engines are compliant with CFR 40 1039.102 Tier 4 Exhaust Standards. *Not included in gas dispersion model as an intermittent source.
	CO	Diesel	*	0.378	Intermittent	Air	
	SO_2	Diesel	*	0.021	Intermittent	Air	
	PM_{10}	Diesel	*	0.011	Intermittent	Air	
	TOC	Diesel	*	0.043	Intermittent	Air	

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4.2 Case 2 Commissioning Run

Table 4-2 Detailed Atmospheric Emissions during Commissioning Run (Case 2)

Description	Waste	Type	Amount	Amount	Production	Receptor	Comments
			g/s	kg/h			
Pilot Gas from Ammonia Storage Flare	Total Hydrocarbons (NMHC)	Gas	0.018	0.065	Intermittent	Air	Based on 7.8 kg/h of pilot gas. Three pilots ignited. Continuously lit, 365 days per year
	NO_X	Gas	0.0087	0.031	Intermittent	Air	
	CO	Gas	0.0476	0.171	Intermittent	Air	
	Soot (average smoking flare)	Gas	0.0075	0.027	Intermittent	Air	
Pilot Gas from Jetty Flare	Total Hydrocarbons (NMHC)	Gas	0.018	0.065	Intermittent	Air	Based on 7.8 kg/h of pilot gas. Three pilots ignited. Continuously lit, 365 days per year
	NO_X	Gas	0.0087	0.031	Intermittent	Air	
	CO	Gas	0.0476	0.171	Intermittent	Air	
	Soot (average smoking flare)	Gas	0.0075	0.027	Intermittent	Air	
Pilot Gas from Ammonia Process Flare	Total Hydrocarbons (NMHC)	Gas	0.018	0.065	Intermittent	Air	Based on 7.8 kg/h of pilot gas. Three pilots ignited. Continuously lit, 365 days per year
	NO_X	Gas	0.0087	0.031	Intermittent	Air	
	CO	Gas	0.0476	0.171	Intermittent	Air	
	Soot (average smoking flare)	Gas	0.0075	0.027	Intermittent	Air	
Syn Gas (via Process Flare	NO_X	Gas	7,967	28,680	Intermittent	Air	Relief rate: 1.1 x make0up gas = 252,459 kg/h.
	Soot (average smoking flare)	Gas	0.0087	0.276	Intermittent	Air	

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Description	Waste	Type	Amount	Amount	Production	Receptor	Comments
			g/s	kg/h			
Emergency Diesel Generators (60 MW) 30 x 2 MW Units	NO_X	Diesel	11.17	40.2	Intermittent	Air	All 30 units are operational. Efficiency is 33%. Assume engines are compliant with CFR 40 1039.102 Tier 4 Exhaust Standards.
	CO	Diesel	58.33	210	Intermittent	Air	
	SO_2	Diesel	3.06	11.013	Intermittent	Air	
	PM_{10}	Diesel	1.67	6	Intermittent	Air	
	TOC	Diesel	6.67	24	Intermittent	Air	
Electrolyser Diesel Generators (18 MW) 18 x 1 MW Units	NO_X	Diesel	3.35	12.06	Intermittent	Air	All 18 units are operational. Efficiency is 33%. Assume engines are compliant with CFR 40 1039.102 Tier 4 Exhaust Standards.
	CO	Diesel	17.5	63	Intermittent	Air	
	SO_2	Diesel	0.96	3.45	Intermittent	Air	
	PM_{10}	Diesel	0.5	1.8	Intermittent	Air	
	TOC	Diesel	2.0	7.2	Intermittent	Air	

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4.3 Case 3 Abnormal Operations

Table 4-3 Detailed Atmospheric Emissions during Abnormal Operations (Case 3)

Description	Waste	Type	Amount	Amount	Production	Receptor	Comments
			g/s	kg/h			
Pilot Gas from Ammonia Storage Flare	Total Hydrocarbons (NMHC)	Gas	0.018	0.065	Intermittent	Air	Based on 7.8 kg/h of pilot gas. Three pilots ignited. Continuously lit, 365 days per year
	NO_X	Gas	0.0087	0.031	Intermittent	Air	
	CO	Gas	0.0476	0.171	Intermittent	Air	
	Soot (average smoking flare)	Gas	0.0075	0.027	Intermittent	Air	
Pilot Gas from Jetty Flare	Total Hydrocarbons (NMHC)	Gas	0.018	0.065	Intermittent	Air	Based on 7.8 kg/h of pilot gas. Three pilots ignited. Continuously lit, 365 days per year
	NO_X	Gas	0.0087	0.031	Intermittent	Air	
	CO	Gas	0.0476	0.171	Intermittent	Air	
	Soot (average smoking flare)	Gas	0.0075	0.027	Intermittent	Air	
Pilot Gas from Ammonia Process Flare	Total Hydrocarbons (NMHC)	Gas	0.018	0.065	Intermittent	Air	Based on 7.8 kg/h of pilot gas. Three pilots ignited. Continuously lit, 365 days per year
	NO_X	Gas	0.0087	0.031	Intermittent	Air	
	CO	Gas	0.0476	0.171	Intermittent	Air	
	Soot (average smoking flare)	Gas	0.0075	0.027	Intermittent	Air	
Flash Gas Purge	NO_X	Gas	0.0239	0.086	Intermittent	Air	Relief rate: 21.2 kg/h)10% of normal design throughput).
	Soot (average smoking flare)	Gas	0	0	Intermittent	Air	

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Description	Waste	Type	Amount	Amount	Production	Receptor	Comments
			g/s	kg/h			
Emergency Diesel Generators (60 MW) 30 x 2 MW Units	NO_X	Diesel	11.17	40.2	Intermittent	Air	All 30 units are operational. Efficiency is 33%. Assume engines are compliant with CFR 40 1039.102 Tier 4 Exhaust Standards.
	CO	Diesel	58.33	210	Intermittent	Air	
	SO_2	Diesel	3.06	11.013	Intermittent	Air	
	PM_{10}	Diesel	1.67	6	Intermittent	Air	
	TOC	Diesel	6.67	24	Intermittent	Air	
Electrolyser Diesel Generators (18 MW) 18 x 1 MW Units	NO_X	Diesel	3.35	12.06	Intermittent	Air	All 18 units are operational. Efficiency is 33%. Assume engines are compliant with CFR 40 1039.102 Tier 4 Exhaust Standards.
	CO	Diesel	17.5	63	Intermittent	Air	
	SO_2	Diesel	0.96	3.45	Intermittent	Air	
	PM_{10}	Diesel	0.5	1.8	Intermittent	Air	
	TOC	Diesel	2.0	7.2	Intermittent	Air	

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4.4 Case 4 Upset Operations

Table 4-4 Detailed Atmospheric Emissions during Upset Operations (Case 4)

Description	Waste	Type	Amount	Amount	Production	Receptor	Comments
			g/s	kg/h			
Pilot Gas from Ammonia Storage Flare	Total Hydrocarbons (NMHC)	Gas	0.018	0.065	Intermittent	Air	Based on 7.8 kg/h of pilot gas. Three pilots ignited. Continuously lit, 365 days per year
	NO_X	Gas	0.0087	0.031	Intermittent	Air	
	CO	Gas	0.0476	0.171	Intermittent	Air	
	Soot (average smoking flare)	Gas	0.0075	0.027	Intermittent	Air	
Pilot Gas from Jetty Flare	Total Hydrocarbons (NMHC)	Gas	0.018	0.065	Intermittent	Air	Based on 7.8 kg/h of pilot gas. Three pilots ignited. Continuously lit, 365 days per year
	NO_X	Gas	0.0087	0.031	Intermittent	Air	
	CO	Gas	0.0476	0.171	Intermittent	Air	
	Soot (average smoking flare)	Gas	0.0075	0.027	Intermittent	Air	
Pilot Gas from Ammonia Process Flare	Total Hydrocarbons (NMHC)	Gas	0.018	0.065	Intermittent	Air	Based on 7.8 kg/h of pilot gas. Three pilots ignited. Continuously lit, 365 days per year
	NO_X	Gas	0.0087	0.031	Intermittent	Air	
	CO	Gas	0.0476	0.171	Intermittent	Air	
	Soot (average smoking flare)	Gas	0.0075	0.027	Intermittent	Air	
Relief (via Process Flare) - Syngas	NO_X	Gas	1,328	4,7780	Intermittent	Air	Relief rate: 42,076.5 kg/h).
	Soot (average smoking flare)	Gas	0	0	Intermittent	Air	

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Description	Waste	Type	Amount	Amount	Production	Receptor	Comments
			g/s	kg/h			
FW Pumps Diesel Generators 360 kW	NO_X	Diesel	0.07	0.241	Intermittent	Air	
	CO	Diesel	0.35	1.26	Intermittent	Air	
	SO_2	Diesel	0.02	0.057	Intermittent	Air	
	PM_{10}	Diesel	0.01	0.036	Intermittent	Air	
	TOC	Diesel	0.04	0.144	Intermittent	Air	
Emergency Diesel Generators (60 MW) 30 x 2 MW Units	NO_X	Diesel	11.17	40.2	Intermittent	Air	All 30 units are operational. Efficiency is 33%. Assume engines are compliant with CFR 40 1039.102 Tier 4 Exhaust Standards.
	CO	Diesel	58.33	210	Intermittent	Air	
	SO_2	Diesel	3.06	11.013	Intermittent	Air	
	PM_{10}	Diesel	1.67	6	Intermittent	Air	
	TOC	Diesel	6.67	24	Intermittent	Air	
Electrolyser Diesel Generators (18 MW) 18 x 1 MW Units	NO_X	Diesel	3.35	12.06	Intermittent	Air	All 18 units are operational. Efficiency is 33%. Assume engines are compliant with CFR 40 1039.102 Tier 4 Exhaust Standards.
	CO	Diesel	17.5	63	Intermittent	Air	
	SO_2	Diesel	0.96	3.45	Intermittent	Air	
	PM_{10}	Diesel	0.5	1.8	Intermittent	Air	
	TOC	Diesel	2.0	7.2	Intermittent	Air	

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Appendix A – References and Acronyms

References

Table A1.1 References

Ref	Description
1	AP-42: 13.5 Industrial Flares, USEPA.
2	AP-42 3.3 Gasoline and Diesel Industrial Engines, USEPA.
3	Appendix Q, Ramboll Air Quality Modelling Report, November 2022.
4	Email from Gordon Birkett (io consulting) to Dean Comand, Gary Morin, Vlad Nicolescu, Wayne Allen (EVREC) entitled "EVREC: Air Dispersion and Noise Modelling - Operating Scenarios" dated 24th April 2025.
5	New Green Ammonia Synloop Technical Proposal, Casale Ref. Nr. A19880A-O-PRB-0001 Rev. 00, dated 15th April 2024.
6	J-001309-PR-HMB-20003, Heat and Material Balance, Rev 03.

Acronyms

Table A1.2 Acronyms

Acronym	Definition
Ar	Argon
ATF	Air to Fuel
CO	Carbon Monoxide
EF	Emission Factor
EPA	Environmental Protection Agency
FEED	Front End Engineering Design
FW	Fire Water
GHG	Greenhouse Gas
g/s	Grammes/ second
H_2	Hydrogen
MW	Molecular Weight
N_2	Nitrogen
NH_3	Ammonia
NMHC	Non Methane Hydrocarbons
NO_X	Oxides of Nitrogen (as nitrogen dioxide, NO_2)
$PM_{2.5}$	Particulate matter < 2.5 microns (soot)

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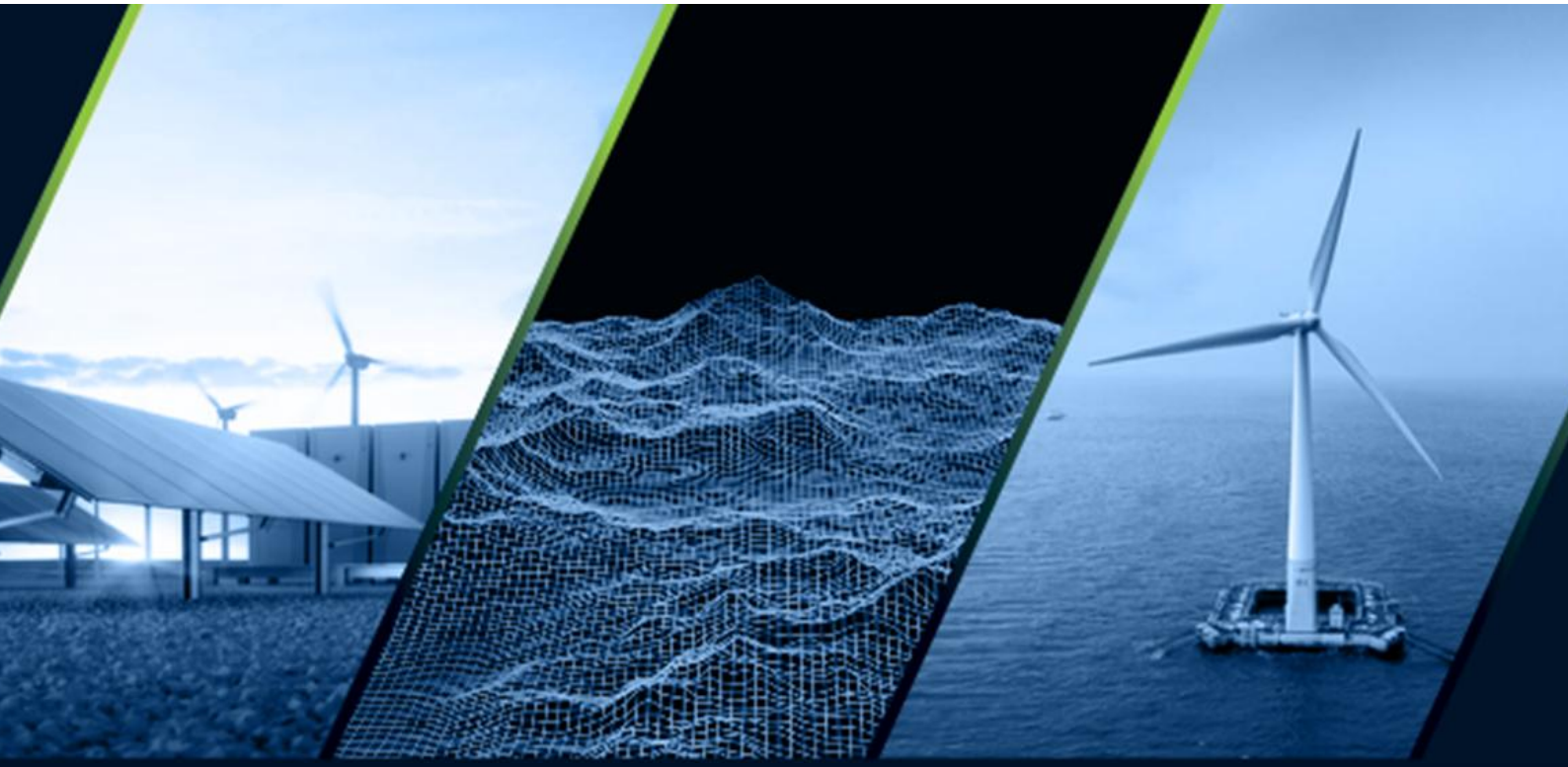
Acronym	Definition
PM_{10}	Particulate Matter <10 microns
SO_x	Oxides of Sulphur (as sulphur dioxide, SO_2)
THC	Total Hydrocarbon
TOC	Total Organic Carbon
Tpa	Tonnes per annum
ULSD	Ultra Low Sulphur Diesel

APPENDIX F.1
Operational Noise Assessment

Prepared by: Offshore Wind Consultants Limited

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

The **Renewable Energy** Consultants.



EVREC
Operational Noise Assessment

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A	2025-04-25	M. Willis, S. Wilcox	O. Davies	-	Draft issue for comment
B	2025-06-02	M. Willis	O. Davies	R. Abrams	Minor updates following review
C	2025-06-10	O. Davies	S. Wilcox	O. Davies	Inclusion of hub height
D	2025-07-07	M. Willis	O. Davies	O. Davies	Inclusion of power curves, WTG coordinates and minor wording update

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1 Introduction

OWC has been appointed by Exploits Valley Renewable Energy Corporation (EVREC) (the Client) to conduct a noise assessment for the operational phase of the EVREC Power-to-X (PtX) Project located in Newfoundland and Labrador, Canada (the Project). This assessment is supplied as a part of the Environmental Assessment (EA) for the Project.

1.1 Project overview

The Project is in the development stage and includes an onshore wind farm, located in Newfoundland, in the area northwest of Botwood, spanning four separate sites: Botwood, Twin Lakes, Seabrights Lake and Leading Tickles.

The Project consists of up to 534x Goldwind GWH182-8.0 MW Wind Turbine Generators (WTGs), with a target installed capacity of approximately 4.2 GW and 135 m hub height.

The Project area and WTG positions for each of the four sites are shown in Appendix A. WTG Coordinates are provided in Appendix B.

2 Assumptions and Methodology

2.1 Basis of study

This report has been undertaken to assess the potential noise levels of the Project during the operational phase only. No consideration to construction or decommissioning noise is included in this analysis. This report does not include discussion of potential human health impacts, baseline noise levels or percentage of 'highly annoyed' – it is assumed that these will be considered as part of the wider Environmental Assessment which this report feeds into.

2.2 Policy and Guidelines

The Government of Newfoundland and Labrador has published *Guidance for Registration of Onshore Wind Energy Generation and Green Hydrogen Production Projects* to provide advice for Environmental Assessments (EAs) in the province. However, the guidance does not specify compliance criteria regarding noise assessment.

The following guidance is used to inform the assessment and assign suitable noise thresholds:

- *Human Health Considerations when Assessing Noise Impacts Related to Wind Turbine Projects*[1], published by Health Canada and most recently updated in March 2024.
- *Environmental Noise Guidelines for the European Region*[2], published by the WHO Regional Office for Europe in 2018.
- Chapter 11 of *Compendium of WHO and other UN guidance on health and environment, 2022 Update*[3]. This report was published by the WHO in 2022.

2.3 Receptor identification

The receptors to be considered for this assessment were provided to OWC by Landmark Surveys and Engineering Ltd. The receptors were classified into four categories:

- **Residential Occupation** – receptors which were understood to comprise of 'permanent' residential occupation.
- **Remote Occupation (Crown title/Expected crown title)** – receptors that are considered to be legal occupation, however not permanent of full-time residential occupation, typically seasonal use.
- **Remote Occupation (No crown title found)** – receptors that are noted to be unlicenced temporary occupations and unoccupied under the crown lands licencing process.

A map of receptors relative to the site area are shown in Appendix B.

It is noted that for the 'Remote Occupation (No crown title found)' receptors, results are separated from the main analysis results.

[1] "Human Health Considerations when Assessing Noise Impacts Related to Wind Turbine Projects" (2024), *Health Canada*

[2] "Environmental Noise Guidelines for the European Region" (2018), *WHO Regional Office for Europe*

[3] "Compendium of WHO and other UN guidance on health and environment, 2022 Update" (2022), *WHO*

2.4 Noise assessment methodology

2.4.1 Noise emission

The WTG technology has not been finalised for the Project. Out of the three proposed Original Equipment Manufacturers (OEMs), the Goldwind WTGs were noted to have the highest maximum sound power level, and therefore they have been selected in this analysis as the most conservative assessment of noise impact.

Noise emission data for the WTGs was provided by the Client from the WTG OEM. The WTGs are modelled considering the inclusion of trailing-edge serrations (TES) for the WTG blades, which reduces noise emissions from the blades as they move through the air.

The data provided included sound power levels for varying wind speeds from 4 m/s to 24 m/s, in addition to 1/3 octave band data for the maximum noise level.

Appendix K includes the WTG data (noise curves, 1/3 octave data) used in the analysis for all noise modes considered.

2.4.2 Noise propagation

Noise propagation from WTGs to receptors was calculated within the WindPRO[4] v4.0.547 software provided by EMD, using the DECIBEL module for noise assessment calculations. The software implements propagation calculations according to ISO 9613-2[5].

The model parameters used in the assessment are set out in Table 2-1, with supporting commentary.

Table 2-1: Noise propagation parameters

Model parameter	Value	Commentary
Ground factor	0.7	A value of 0.7 was selected on the basis of the majority of ground being of porous in nature, in addition to large areas of forestry which provide absorbative properties, with areas of harder surfaces interspersed throughout.
Height of imission point (m)	1.5	Standard assumption
Meteorological Correction factor, C_{met}	0.0	Standard assumption
Air absorption coefficient (dB/km)	Various	Default ISO 9613-2 atmospheric attenuation coefficients adopted based on frequency

WindPRO calculation export summaries are included in Appendix J.

2.4.3 Noise thresholds

The noise level at each receptor is compared to the chosen noise threshold, to assess whether the noise disturbance due to the WTGs is compliant. The threshold has been chosen based

[4] https://www.emd-international.com/windpro/

[5] "ISO 9613-2 Attenuation of sound during propagation outdoors, Part 2. A general method of calculation" *ISO*

upon the guidance set out in Section 2.2 in the absence of specific guidelines for Newfoundland and Labrador.

Considering the effects of WTG noise on human health, the WHO guidance from 2018[2] and 2022[3] both recommend that noise levels produced by WTGs remain below an A-weighted sound level of 45 dBA. This is taken as the standard noise threshold for this assessment.

The Health Canada advice references older WHO material in its recommendations. These that the WTG noise, which is treated as an individual noise event, should not exceed 45 dBA indoors at night[1].

It is noted that the calculation has been undertaken based on predicted noise levels compared to demand (45 dBA), and no ambient noise levels are considered in this analysis.

2.4.4 Low frequency noise

Low frequency noise is used to refer to noise that occurs at frequencies lower than 200 Hz. According to the Health Canada advice, low frequency noise, although not well perceived by the human ear, may cause vibrations in buildings and produce a 'rattle' which has been shown to increase noise-related annoyance[1].

A separate assessment was conducted for low frequency noise, according to the Finish code[6], which is a variation on the ISO 9613-2 standard. The calculations were made within the WindPRO[4] v4.0.547 software, as described in Section 2.4.2. Analysis was undertaken based on low frequency 1/3 octave data provided by the WTG OEM. The results of the analysis indicated that low frequency noise at 100 Hz was lower than 43 dBA at all receptor locations.

[6] "Modellering av buller från vindkraftverk", Ympäristöhallinnon Ohjeita 2, 2014

3 Noise Assessment

The full results for each receptor are provided in Appendix D. Table 3-1 below provides a summary of the modelled sound levels at the receptors, based on 5 dBA bins. The results are separated into Residential Occupation receptors, Remote Occupation receptors, and receptors with No Crown Title.

Appendix E contains maps for Botwood, Twin Lakes, Seabrights Lake and Leading Tickles, showing noise iso-lines corresponding to the bin exceedance values.

Table 3-1: Binned receptor Sound Power Levels

Receptor count exceeding (dBA)	Residential Occupation	Remote Occupation	No Crown Title
30	533	301	29
35	234	275	29
40	16	237	26
45	3	79	15
50	0	1	6

The results show that a substantial number of receptors receive noise emissions above the threshold average noise levels. Of particular importance are the Residential Occupation and Remote Occupation receptors. Mitigations should be applied to bring the noise level at these receptors down to the threshold levels defined in Section 2.4.3. Section 4 describes the mitigations that are proposed, and updated results after application of the prescribed mitigations.

4 Mitigations

4.1 Proposed mitigations

To meet the threshold average sound levels at both the Residential and Remote Occupation receptors (45 dBA), mitigations are required. The two suggested mitigations are:

- Noise-reduced operation: The Goldwind GWH182-8.0 WTGs may be set to operate in Sound Reduced Modes (SRMs), such that they produce lower noise emissions.
- Removal of WTGs: As a last resort, WTGs that cause noise levels at receptors that cannot be mitigated via noise reduced operation will be removed from the design layout.

To reduce the noise levels at all Residential and Remote Occupation receptors, sound-reduced operating modes (SRM 1, 2, 3, and 4) are proposed to be applied to 69 WTGs, and seven WTGs have been removed from the layout. A WTG layout indicating the sound-reduced WTGs and removed WTGs is provided in Appendix F.

4.2 Updated Noise Assessment

The updated exceedance results are shown in Table 4-1.

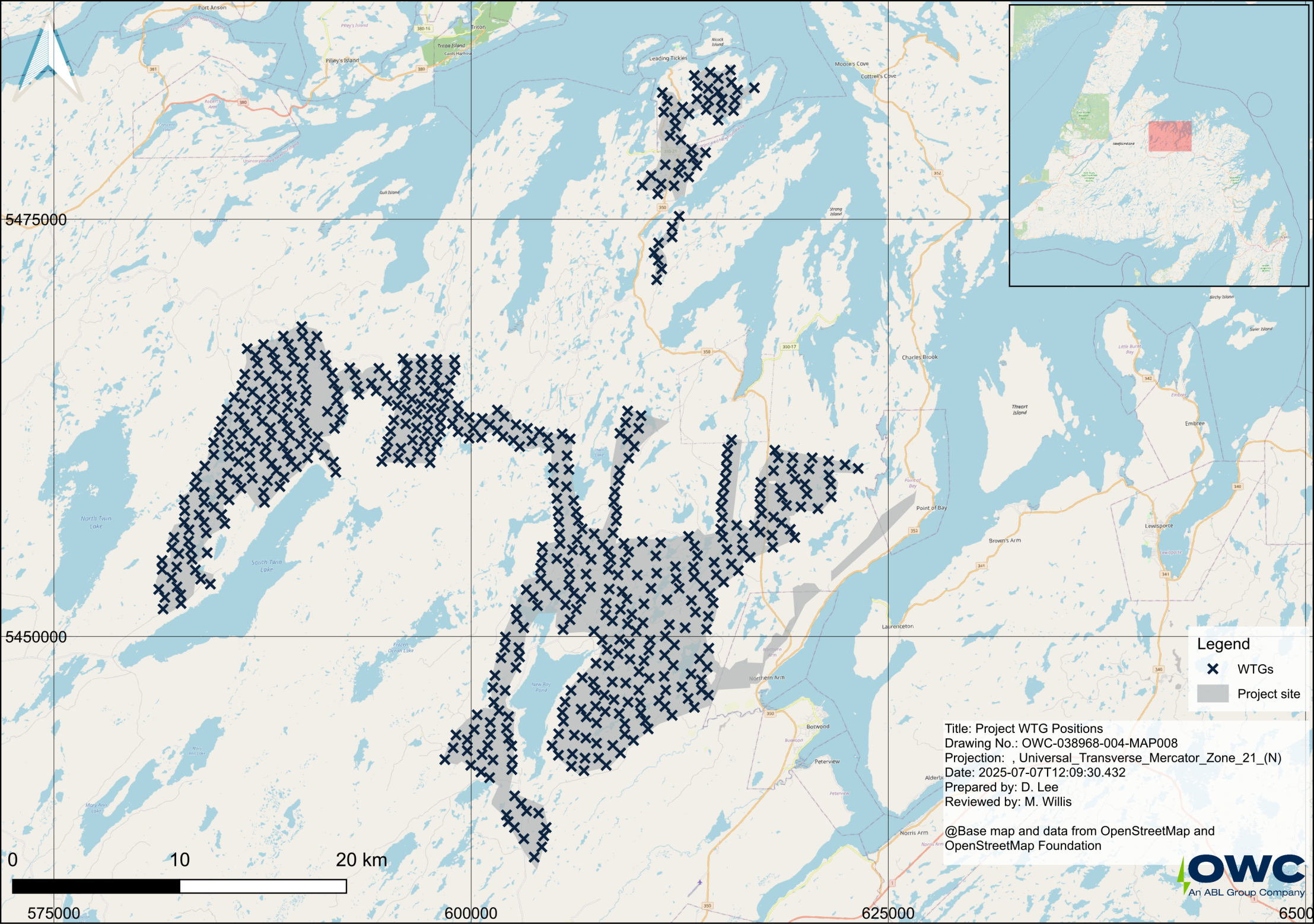
Table 4-1: Binned receptor Sound Power Levels – with mitigations

Receptor count exceeding (dBA)	Residential Occupation	Remote Occupation	No Crown Title
30	522	301	29
35	234	275	29
40	14	234	26
45	0	0	12
50	0	0	6

With the suggested mitigations and changes to the layout, the 45 dBA threshold is met at all Residential and Remote Occupations.

The full results, and updated noise iso-line maps, are provided in Appendix H and Appendix I.

Appendix A WTG Positions


5475000
5450000
0
10
20 km
575000
600000
625000
6500
Legend
WTGs
Project site
Title: Project WTG Positions
Drawing No.: OWC-038968-004-MAP008
Projection: , Universal_Transverse_Mercator_Zone_21_(N)
Date: 2025-07-07T12:09:30.432
Prepared by: D. Lee
Reviewed by: M. Willis
@Base map and data from OpenStreetMap and OpenStreetMap Foundation
OWC
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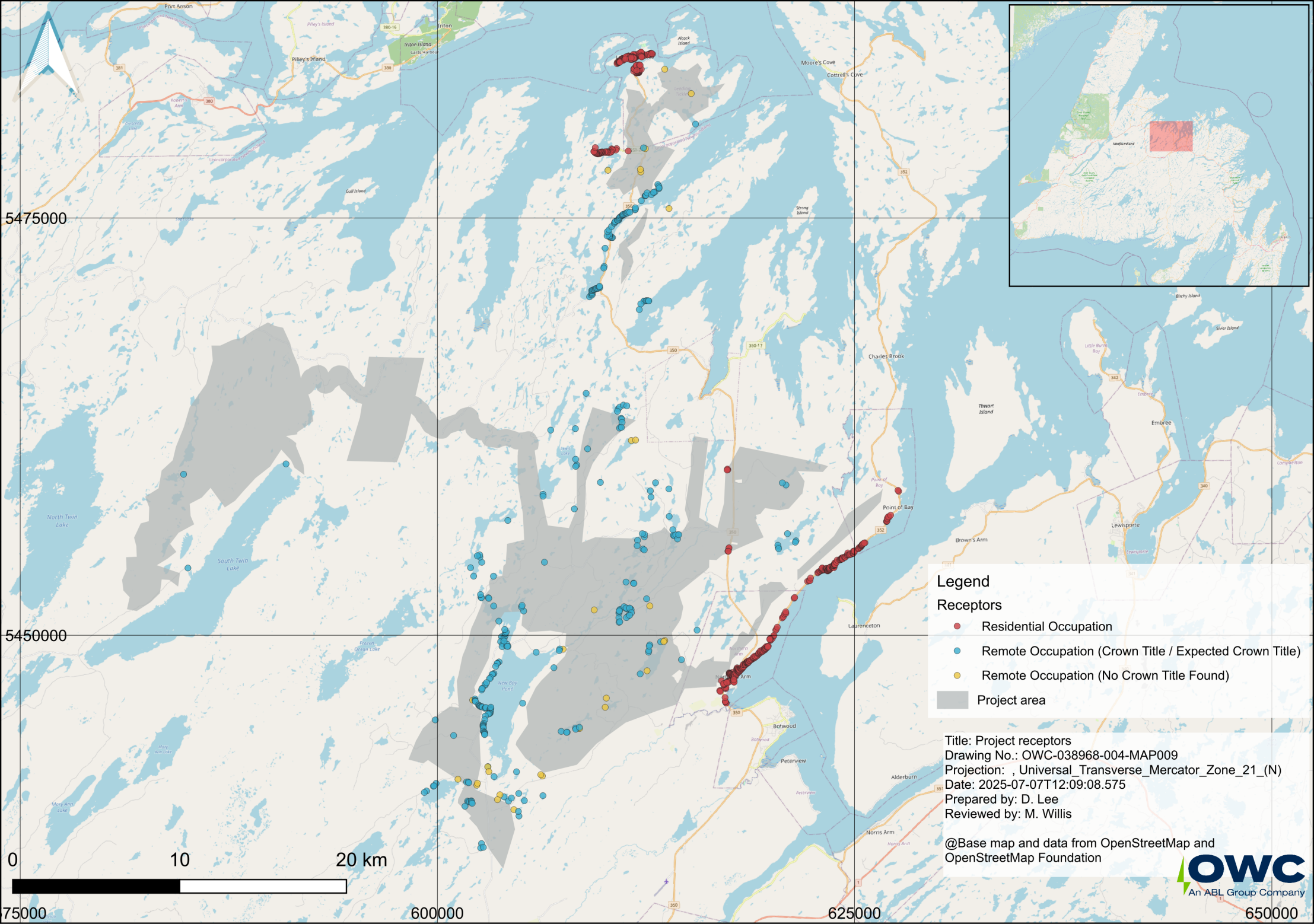
Appendix B WTG Coordinates

WTG No.	Easting (m)	Northing (m)	WTG No.	Easting (m)	Northing (m)	WTG No.	Easting (m)	Northing (m)
1	582374	5452981	179	588929.0	5465636.0	357	618649.0	5458361.0
2	582492	5454970	180	588938.0	5464850.0	358	618520.0	5458893.0
3	583196	5455188	181	589247.0	5464387.0	359	619215.0	5460055.0
4	590759	5467991	182	588072.0	5463622.0	360	619287.0	5460725.0
5	589540	5460182	183	588711.0	5463074.0	361	620439.0	5460713.0
6	590150	5462188	184	589987.0	5462815.0	362	621415.0	5460529.0
7	591679	5465795	185	588728.0	5461440.0	363	621442.0	5459678.0
8	590114	5464795	186	589768.0	5461545.0	364	621556.0	5459130.0
9	590089	5464147	187	590203.0	5460712.0	365	621578.0	5458377.0
10	611613	5445819	188	586262.0	5465039.0	366	620784.0	5457672.0
11	612046	5445285	189	591749.0	5460463.0	367	619762.0	5457776.0
12	610610	5444474	190	591892.0	5459853.0	368	620125.0	5458553.0
13	609403	5446075	191	591206.0	5460892.0	369	619997.0	5459125.0
14	603782	5436787	192	590636.0	5461338.0	370	620258.0	5460052.0
15	604234	5437397	193	590813.0	5461974.0	371	622407.0	5460301.0
16	604349	5438065	194	588235.0	5464249.0	372	623195.0	5460077.0
17	604497	5438562	195	589875.0	5465452.0	373	613389.0	5455434.0
18	602598	5438563	196	589054.0	5467522.0	374	613567.0	5454846.0
19	604044	5439423	197	589396.0	5466473.0	375	613028.0	5456008.0
20	602223	5438914	198	589263.0	5467011.0	376	611363.0	5455625.0
21	602116	5439314	199	588749.0	5468009.0	377	610266.0	5455692.0
22	598925	5443338	200	589848.0	5468575.0	378	611069.0	5454840.0
23	599775	5443820	201	591252.0	5466845.0	379	611120.0	5453803.0
24	602039	5446772	202	592135.0	5463015.0	380	612290.0	5453475.0
25	601797	5448736	203	591784.0	5465176.0	381	612470.0	5452898.0
26	602016	5449362	204	592318.0	5463618.0	382	613315.0	5454175.0
27	592727	5466103	205	591938.0	5464148.0	383	609156.0	5455585.0
28	595924	5466655	206	591816.0	5462480.0	384	608506.0	5456216.0
29	594475	5466075	207	582617.0	5451989.0	385	608690.0	5456938.0
30	593046	5465689	208	582358.0	5454174.0	386	608732.0	5457533.0
31	593170	5465003	209	583068.0	5455726.0	387	608551.0	5458081.0
32	597002	5466627	210	584130.0	5456218.0	388	608620.0	5458685.0
33	596182	5466225	211	585394.0	5459793.0	389	608828.0	5459361.0
34	594886	5465632	212	586067.0	5460479.0	390	608908.0	5459954.0
35	594026	5465165	213	584573.0	5461623.0	391	609448.0	5460694.0
36	593272	5464521	214	585050.0	5462907.0	392	609782.0	5461397.0
37	597945	5466603	215	585376.0	5463609.0	393	609388.0	5461826.0
38	597073	5466071	216	586442.0	5465720.0	394	608919.0	5462183.0
39	596071	5465652	217	587721.0	5465281.0	395	609257.0	5462830.0
40	594313	5464723	218	587561.0	5467501.0	396	609382.0	5463517.0
41	599007	5466577	219	588381.0	5466042.0	397	610038.0	5462487.0
42	597948	5465976	220	589949.0	5466092.0	398	610186.0	5463237.0
43	596966	5465387	221	590367.0	5466866.0	399	605862.0	5460019.0
44	596044	5465079	222	585702.0	5462129.0	400	604932.0	5460131.0
45	595332	5465042	223	588982.0	5460946.0	401	604932.0	5459230.0
46	599039	5465984	224	589209.0	5460490.0	402	605712.0	5458988.0
47	597821	5465367	225	589150.0	5462058.0	403	605133.0	5458282.0
48	595831	5464543	226	588982.0	5462594.0	404	606146.0	5458154.0
49	594963	5464119	227	588999.0	5463734.0	405	606293.0	5457498.0
50	598087	5464902	228	589718.0	5463374.0	406	609631.0	5451335.0
51	597224	5464706	229	591391.0	5463492.0	407	610300.0	5450833.0
52	596452	5464233	230	585058.0	5457316.0	408	610735.0	5449791.0
53	595565	5463857	231	603330.0	5439552.0	409	610644.0	5449184.0
54	598633	5464559	232	603162.0	5437887.0	410	610360.0	5448553.0
55	597762	5464362	233	602441.0	5442037.0	411	610671.0	5447504.0
56	597007	5463942	234	602472.0	5442621.0	412	611567.0	5447623.0
57	596166	5463594	235	602437.0	5443446.0	413	611657.0	5446798.0
58	598378	5463955	236	602240.0	5443915.0	414	611249.0	5446167.0
59	597608	5463680	237	602113.0	5444517.0	415	613378.0	5445763.0
60	596767	5463332	238	602247.0	5445206.0	416	613005.0	5446298.0
61	595367	5462966	239	601672.0	5445553.0	417	612637.0	5446984.0
62	599220	5463828	240	601362.0	5446072.0	418	613183.0	5447763.0
63	598209	5463417	241	601305.0	5446950.0	419	613797.0	5447415.0
64	597406	5463002	242	601428.0	5447676.0	420	613803.0	5446816.0
65	596082	5462747	243	602059.0	5449980.0	421	614222.0	5446494.0
66	595177	5462302	244	602861.0	5449343.0	422	614148.0	5448178.0
67	598880	5462762	245	602902.0	5448789.0	423	613688.0	5448678.0
68	598150	5462828	246	602688.0	5448147.0	424	614241.0	5449305.0
69	597392	5462318	247	603153.0	5450535.0	425	614690.0	5453712.0
70	597539	5460424	248	602742.0	5451053.0	426	614105.0	5450439.0
71	595011	5461691	249	602688.0	5451629.0	427	612826.0	5450532.0
72	599893	5463137	250	603979.0	5451860.0	428	611878.0	5450720.0
73	598172	5462290	251	603717.0	5452389.0	429	612187.0	5449500.0
74	597205	5461701	252	603303.0	5452816.0	430	611597.0	5448892.0
75	595796	5461286	253	604174.0	5453490.0	431	612118.0	5448285.0
76	594903	5461083	254	604166.0	5454114.0	432	607321.0	5447298.0
77	601577	5463579	255	604254.0	5454738.0	433	607430.0	5446784.0
78	600666	5463071	256	604282.0	5455374.0	434	606593.0	5445654.0
79	599249	5463333	257	605136.0	5454676.0	435	608035.0	5445507.0
80	597953	5461669	258	605920.0	5453740.0	436	607513.0	5444830.0
81	596775	5461102	259	605853.0	5453111.0	437	606900.0	5445196.0
82	595638	5460701	260	606156.0	5452606.0	438	606185.0	5444097.0
83	594648	5460498	261	606574.0	5452255.0	439	606879.0	5443929.0
84	599877	5461892	262	606308.0	5451647.0	440	607513.0	5443614.0
85	601113	5462703	263	605930.0	5451022.0	441	608486.0	5443480.0
86	600125	5462490	264	605511.0	5450432.0	442	608951.0	5443026.0
87	599224	5462278	265	605658.0	5451903.0	443	608095.0	5442288.0
88	597577	5461080	266	605043.0	5452494.0	444	607636.0	5442726.0
89	596370	5460444	267	604548.0	5453051.0	445	606827.0	5442723.0
90	601983	5463189	268	606889.0	5453747.0	446	606072.0	5442968.0
91	602696	5462698	269	607195.0	5454629.0	447	606008.0	5442231.0
92	604100	5462275	270	606808.0	5455164.0	448	606762.0	5441970.0
93	603376	5462476	271	606072.0	5455204.0	449	605233.0	5442893.0
94	604579	5461930	272	605331.0	5455578.0	450	604852.0	5443464.0
95	600620	5461942	273	605301.0	5456150.0	451	605248.0	5444175.0
96	602907	5461391	274	605254.0	5456872.0	452	605533.0	5444925.0
97	605939	5461850	275	606427.0	5456968.0	453	605464.0	5445460.0
98	602538	5461757	276	606653.0	5456455.0	454	605632.0	5446091.0
99	601574	5462344	277	607373.0	5456158.0	455	605986.0	5446778.0
100	601904	5461978	278	607894.0	5455521.0	456	606664.0	5447543.0
101	605455	5462146	279	608225.0	5455124.0	457	600363.0	5445318.0
102	603647	5461729	280	609440.0	5455081.0	458	600188.0	5444436.0
103	604675	5461293	281	609230.0	5454436.0	459	599769.0	5443168.0
104	596489	5461785	282	608804.0	5453690.0	460	599981.0	5442291.0
105	596715	5462505	283	608279.0	5452851.0	461	600592.0	5441890.0
106	598748	5465367	284	607158.0	5452981.0	462	601110.0	5441546.0
107	592022	5464700	285	608099.0	5452000.0	463	601311.0	5442615.0
108	581647	5452350	286	608067.0	5451299.0	464	600655.0	5442932.0
109	582800	5458199	287	608467.0	5450945.0	465	599094.0	5444108.0
110	582054	5453543	288	609371.0	5450757.0	466	598428.0	5442634.0
111	581283	5452835	289	608905.0	5449830.0	467	602607.0	5440457.0
112	581543	5451657	290	609483.0	5449570.0	468	603010.0	5440002.0
113	583797	5453446	291	608817.0	5448969.0	469	601144.0	5444855.0
114	583479	5453993	292	609517.0	5448641.0	470	601170.0	5444154.0
115	583274	5454635	293	610062.0	5447906.0	471	605806.0	5454414.0
116	582065	5455358	294	609263.0	5447220.0	472	608225.0	5454027.0
117	582200	5455949	295	610045.0	5446792.0	473	605217.0	5457518.0
118	589911	5468002	296	610150.0	5446026.0	474	606347.0	5455806.0
119	582806	5456849	297	610166.0	5445415.0	475	608373.0	5454616.0
120	582839	5457536	298	610432.0	5444969.0	476	608946.0	5451633.0
121	584000	5456849	299	609731.0	5443783.0	477	609890.0	5450337.0
122	584000	5458649	300	609210.0	5444152.0	478	607982.0	5446498.0
123	583435	5458969	301	609210.0	5444781.0	479	607459.0	5445831.0
124	583554	5459558	302	608873.0	5445389.0	480	613935.0	5453018.0
125	584042	5460223	303	608562.0	5446225.0	481	615132.0	5453275.0
126	584582	5460908	304	608460.0	5447286.0	482	615329.0	5455224.0
127	584000	5458049	305	608256.0	5448254.0	483	600997.0	5443486.0
128	584900	5462249	306	607485.0	5448404.0	484	619416.0	5459450.0
129	585429	5461503	307	608146.0	5449218.0	485	611635.0	5450033.0
130	586400	5463952	308	607858.0	5449820.0	486	611119.0	5471384.0
131	586100	5463149	309	607359.0	5450315.0	487	611421.0	5472033.0
132	586400	5462699	310	609338.0	5452261.0	488	611216.0	5472554.0
133	585070	5458560	311	609048.0	5452704.0	489	610965.0	5473003.0
134	586625	5462180	312	609958.0	5453688.0	490	611235.0	5473588.0
135	587073	5461732	313	610782.0	5452897.0	491	612470.0	5475186.0
136	585973	5459420	314	611738.0	5452214.0	492	611190.0	5476531.0
137	585501	5460805	315	610357.0	5451960.0	493	611386.0	5477127.0
138	586888	5459500	316	613439.0	5451471.0	494	610794.0	5477617.0
139	586220	5458890	317	614216.0	5451216.0	495	610251.0	5477047.0
140	586736	5461031	318	614506.0	5452021.0	496	612159.0	5477016.0
141	586744	5460195	319	614336.0	5452586.0	497	612595.0	5478317.0
142	584979	5459090	320	613203.0	5452167.0	498	613535.0	5478225.0
143	586204	5461399	321	613376.0	5453581.0	499	614048.0	5479002.0
144	587637	5460793	322	614563.0	5454448.0	500	613201.0	5479202.0
145	588059	5460370	323	615598.0	5454354.0	501	612573.0	5479773.0
146	588330	5459947	324	612243.0	5454204.0	502	611925.0	5480013.0
147	588800	5459549	325	616013.0	5453957.0	503	613063.0	5481328.0
148	588544	5458995	326	616727.0	5454749.0	504	611544.0	5481430.0
149	587557	5458627	327	616266.0	5455181.0	505	611767.0	5482095.0
150	587620	5458053	328	616265.0	5455887.0	506	611463.0	5482601.0
151	585500	5458199	329	615081.0	5455954.0	507	613572.0	5483012.0
152	584571	5457764	330	615917.0	5456667.0	508	613528.0	5482217.0
153	587796	5459333	331	614956.0	5456448.0	509	612675.0	5481731.0
154	585244	5456775	332	615065.0	5457146.0	510	614090.0	5481571.0
155	583700	5457299	333	614971.0	5457777.0	511	615538.0	5483955.0
156	583100	5456399	334	615070.0	5458355.0	512	614812.0	5483452.0
157	584184	5455028	335	615150.0	5458928.0	513	613376.0	5483623.0
158	584378	5453150	336	615242.0	5459505.0	514	615595.0	5483212.0
159	582601	5452510	337	615312.0	5460661.0	515	615046.0	5482211.0
160	581485	5454027	338	615301.0	5460099.0	516	615725.0	5481521.0
161	581476	5454563	339	615378.0	5461233.0	517	616971.0	5482886.0
162	587716	5461352	340	615606.0	5461792.0	518	611637.0	5478278.0
163	588042	5461983	341	618200.0	5461171.0	519	612044.0	5473949.0
164	587971	5462510	342	618407.0	5460715.0	520	612048.0	5474557.0
165	587483	5462907	343	618125.0	5459947.0	521	614208.0	5482844.0
166	587119	5463546	344	617362.0	5459246.0	522	614329.0	5483810.0
167	586897	5464658	345	617320.0	5458574.0	523	615965.0	5482753.0
168	591311	5466284	346	617308.0	5457932.0	524	612255.0	5480588.0
169	587298	5465640	347	617413.0	5457384.0	525	613039.0	5477546.0
170	588080	5464863	348	616973.0	5456671.0	526	612428.0	5477792.0
171	588235	5466589	349	617315.0	5456265.0	527	613306.0	5478701.0
172	588101	5467045	350	618031.0	5456077.0	528	614237.0	5482129.0
173	590339	5467399	351	618078.0	5455357.0	529	614809.0	5482659.0
174	586584	5467250	352	619396.0	5455939.0	530	612198.0	5481090.0
175	587077	5466857	353	619128.0	5456425.0	531	614807.0	5480952.0
176	587197	5466393	354	618600.0	5456822.0	532	614989.0	5481679.0
177	585806	5464349	355	618121.0	5457167.0	533	615812.0	5482134.0
178	587378	5464215	356	618897.0	5457853.0	534	605749.0	5460840.0

Appendix C Receptor Positions


5475000
5450000
75000
600000
625000
650000
0
10
20 km
Legend
Receptors
Residential Occupation
Remote Occupation (Crown Title / Expected Crown Title)
Remote Occupation (No Crown Title Found)
Project area
Title: Project receptors
Drawing No.: OWC-038968-004-MAP009
Projection: , Universal_Transverse_Mercator_Zone_21_(N)
Date: 2025-07-07T12:09:08.575
Prepared by: D. Lee
Reviewed by: M. Willis
@Base map and data from OpenStreetMap and OpenStreetMap Foundation
OWC
An ABL Group Company

Appendix D Full Results

Location (WGS84 UTM N Zone 21)					
Receptor ID	Easting	Northing	Receptor type	Demand (dBA)	Noise level (dBA)
1	611918	5483689	Residential	45.0	39.9
2	611948	5483706	Residential	45.0	39.9
3	611970	5483712	Residential	45.0	39.9
4	611997	5483725	Residential	45.0	39.9
5	612053	5483711	Residential	45.0	40.1
6	612081	5483722	Residential	45.0	40.1
7	612082	5483740	Residential	45.0	40.1
8	612031	5483766	Residential	45.0	39.9
9	612046	5483794	Residential	45.0	39.8
10	612086	5483763	Residential	45.0	40.0
11	612099	5483785	Residential	45.0	40.0
12	612111	5483796	Residential	45.0	40.0
13	612108	5483818	Residential	45.0	39.9
14	612077	5483824	Residential	45.0	39.8
15	612042	5483818	Residential	45.0	39.7
16	612080	5483864	Residential	45.0	39.6
17	612094	5483856	Residential	45.0	39.7
18	612063	5483889	Residential	45.0	39.5
19	612005	5483889	Residential	45.0	39.4
20	611983	5483873	Residential	45.0	39.4
21	611946	5483874	Residential	45.0	39.3
22	611920	5483886	Residential	45.0	39.2
23	611901	5483893	Residential	45.0	39.1
24	611880	5483925	Residential	45.0	39.0
25	611909	5483935	Residential	45.0	39.0
26	612222	5483923	Residential	45.0	39.8
27	612088	5483922	Residential	45.0	39.5
28	611759	5483807	Residential	45.0	39.2
29	611967	5484005	Residential	45.0	38.9
30	611959	5483983	Residential	45.0	38.9
31	611858	5483953	Residential	45.0	38.8
32	611840	5483959	Residential	45.0	38.7
33	611818	5483993	Residential	45.0	38.7
34	611818	5483959	Residential	45.0	38.6
35	611799	5483969	Residential	45.0	38.6
36	611781	5483950	Residential	45.0	38.7
37	611765	5483939	Residential	45.0	38.7
38	611794	5483936	Residential	45.0	38.7
39	611975	5484081	Residential	45.0	38.6
40	612018	5484122	Residential	45.0	38.6
41	612064	5484153	Residential	45.0	38.6
42	612043	5484152	Residential	45.0	38.6
43	612016	5484142	Residential	45.0	38.5
44	611984	5484154	Residential	45.0	38.4
45	611966	5484155	Residential	45.0	38.4
46	612090	5484177	Residential	45.0	38.6
47	612043	5484174	Residential	45.0	38.5
48	611934	5484102	Residential	45.0	38.5
49	611925	5484132	Residential	45.0	38.3
50	611918	5484153	Residential	45.0	38.2
51	612103	5484178	Residential	45.0	38.6
52	612150	5484159	Residential	45.0	38.8
53	612892	5484832	Residential	45.0	38.3
54	612814	5484800	Residential	45.0	38.2
55	612806	5484879	Residential	45.0	37.9
56	612783	5484886	Residential	45.0	37.8
57	612787	5484850	Residential	45.0	38.0
58	612748	5484820	Residential	45.0	38.0
59	612722	5484839	Residential	45.0	37.9
60	612694	5484833	Residential	45.0	37.8
61	612665	5484806	Residential	45.0	37.9
62	612620	5484805	Residential	45.0	37.8
63	612605	5484778	Residential	45.0	37.8
64	612576	5484783	Residential	45.0	37.7
65	612419	5484756	Residential	45.0	37.5
66	612375	5484742	Residential	45.0	37.4
67	612368	5484809	Residential	45.0	37.1
68	612272	5484753	Residential	45.0	37.1
69	612245	5484681	Residential	45.0	37.3
70	612257	5484721	Residential	45.0	37.2
71	612170	5484727	Residential	45.0	37.0
72	612257	5484824	Residential	45.0	36.8
73	612227	5484830	Residential	45.0	37.1
74	612206	5484827	Residential	45.0	36.7
75	612181	5484827	Residential	45.0	36.7
76	612239	5484784	Residential	45.0	36.9
77	612204	5484796	Residential	45.0	36.8
78	612177	5484872	Residential	45.0	36.5
79	612123	5484896	Residential	45.0	36.3
80	612196	5484909	Residential	45.0	36.4
81	612214	5484926	Residential	45.0	36.4
82	612076	5484747	Residential	45.0	36.7
83	612020	5484736	Residential	45.0	36.6
84	612118	5484746	Residential	45.0	36.8
85	612022	5484701	Residential	45.0	36.7
86	611973	5484711	Residential	45.0	36.6
87	611934	5484721	Residential	45.0	36.5
88	611942	5484760	Residential	45.0	36.4
89	611862	5484686	Residential	45.0	36.4
90	611823	5484736	Residential	45.0	36.2
91	611848	5484756	Residential	45.0	36.2
92	611868	5484771	Residential	45.0	36.2
93	611889	5484784	Residential	45.0	36.2
94	611905	5484806	Residential	45.0	36.2
95	611806	5484799	Residential	45.0	36.0
96	611766	5484776	Residential	45.0	36.0
97	611740	5484808	Residential	45.0	35.8
98	611685	5484679	Residential	45.0	36.1
99	611645	5484674	Residential	45.0	36.0
100	611608	5484653	Residential	45.0	36.0
101	611565	5484716	Residential	45.0	35.7
102	611495	5484698	Residential	45.0	35.7
103	611462	5484727	Residential	45.0	35.7
104	611483	5484684	Residential	45.0	35.7
105	611462	5484676	Residential	45.0	35.5
106	611439	5484660	Residential	45.0	35.7
107	611443	5484707	Residential	45.0	35.5
108	611407	5484683	Residential	45.0	35.5
109	611393	5484665	Residential	45.0	35.6
110	611422	5484602	Residential	45.0	35.8
111	611357	5484579	Residential	45.0	35.7
112	611321	5484598	Residential	45.0	35.6
113	611340	5484674	Residential	45.0	35.4
114	611380	5484690	Residential	45.0	35.5
115	611158	5484569	Residential	45.0	35.4
116	611147	5484550	Residential	45.0	35.4
117	611093	5484573	Residential	45.0	35.3
118	611076	5484550	Residential	45.0	35.3
119	611105	5484536	Residential	45.0	35.4
120	611108	5484503	Residential	45.0	35.5
121	611063	5484489	Residential	45.0	35.4
122	611029	5484473	Residential	45.0	35.4
123	611011	5484492	Residential	45.0	35.3
124	611131	5484463	Residential	45.0	35.6
125	611119	5484454	Residential	45.0	35.6
126	610978	5484437	Residential	45.0	35.4
127	610949	5484434	Residential	45.0	35.4
128	610914	5484421	Residential	45.0	35.3
129	610898	5484406	Residential	45.0	35.3
130	610891	5484390	Residential	45.0	35.5
131	610883	5484417	Residential	45.0	35.3
132	610877	5484381	Residential	45.0	35.4
133	610860	5484370	Residential	45.0	35.4
134	610834	5484349	Residential	45.0	35.4
135	610820	5484337	Residential	45.0	35.4
136	610775	5484323	Residential	45.0	35.3
137	610766	5484257	Residential	45.0	35.5
138	610833	5484306	Residential	45.0	35.5
139	610872	5484320	Residential	45.0	35.5
140	610891	5484336	Residential	45.0	35.4
141	610917	5484338	Residential	45.0	35.6
142	610936	5484350	Residential	45.0	35.6
143	611213	5484507	Residential	45.0	35.7
144	611274	5484559	Residential	45.0	35.6
145	611302	5484554	Residential	45.0	35.7
146	611281	5484573	Residential	45.0	35.6
147	611294	5484592	Residential	45.0	35.6
148	611260	5484620	Residential	45.0	35.4
149	611294	5484659	Residential	45.0	35.4
150	611637	5484623	Residential	45.0	36.2
151	611553	5484610	Residential	45.0	36.0
152	611516	5484592	Residential	45.0	36.2
153	611551	5484572	Residential	45.0	36.1
154	611557	5484557	Residential	45.0	36.2
155	611533	5484578	Residential	45.0	36.1
156	611516	5484558	Residential	45.0	36.1
157	611525	5484539	Residential	45.0	36.2
158	611528	5484607	Residential	45.0	36.0
159	611560	5484521	Residential	45.0	36.3
160	611595	5484503	Residential	45.0	36.4
161	611644	5484503	Residential	45.0	36.5
162	611516	5484520	Residential	45.0	36.0
163	611602	5484570	Residential	45.0	36.2
164	611693	5484509	Residential	45.0	36.6
165	611704	5484560	Residential	45.0	36.5
166	611745	5484571	Residential	45.0	36.5
167	611697	5484545	Residential	45.0	36.5
168	611796	5484561	Residential	45.0	36.7
169	611819	5484560	Residential	45.0	36.7
170	611817	5484599	Residential	45.0	36.6
171	611813	5484617	Residential	45.0	36.5
172	611798	5484616	Residential	45.0	36.6
173	611798	5484585	Residential	45.0	36.5
174	611774	5484609	Residential	45.0	36.5
175	612201	5484948	Residential	45.0	36.3
176	612853	5484862	Residential	45.0	38.1
177	611956	5483854	Residential	45.0	39.4
178	612227	5484726	Residential	45.0	36.8
179	612213	5484696	Residential	45.0	37.2
180	612244	5484657	Residential	45.0	37.4
181	611607	5484552	Residential	45.0	36.3
182	611617	5484534	Residential	45.0	36.4
183	611762	5484588	Residential	45.0	36.5
184	611609	5484616	Residential	45.0	36.1
185	611266	5484535	Residential	45.0	35.7
186	622180	5453239	Residential	45.0	32.3
187	622282	5453263	Residential	45.0	32.2
188	622323	5453281	Residential	45.0	32.2
189	622361	5453435	Residential	45.0	32.3
190	622790	5453747	Residential	45.0	32.0
191	622830	5453785	Residential	45.0	32.0
192	622904	5453832	Residential	45.0	32.0
193	622947	5453851	Residential	45.0	31.9
194	623018	5453886	Residential	45.0	31.9
195	623039	5453899	Residential	45.0	31.9
196	623075	5453911	Residential	45.0	31.8
197	623074	5454024	Residential	45.0	31.9
198	623074	5454024	Residential	45.0	31.9
199	623145	5453991	Residential	45.0	31.8
200	623109	5453965	Residential	45.0	31.8
201	623048	5453999	Residential	45.0	31.9
202	617933	5447983	Residential	45.0	33.6
203	617962	5448057	Residential	45.0	33.6
204	617963	5447998	Residential	45.0	33.6
205	617493	5447753	Residential	45.0	34.2
206	617480	5447696	Residential	45.0	34.2
207	617676	5447778	Residential	45.0	33.9
208	617894	5447790	Residential	45.0	33.6
209	617666	5447437	Residential	45.0	33.8
210	617459	5447285	Residential	45.0	34.1
211	617445	5447251	Residential	45.0	34.1
212	617415	5447244	Residential	45.0	34.1
213	617398	5447229	Residential	45.0	34.1
214	617384	5447216	Residential	45.0	34.2
215	617363	5447197	Residential	45.0	34.2
216	617022	5447276	Residential	45.0	34.9
217	616956	5446690	Residential	45.0	34.7
218	616915	5446682	Residential	45.0	34.8
219	616944	5446639	Residential	45.0	34.7
220	617471	5447216	Residential	45.0	34.0
221	617498	5447230	Residential	45.0	34.0
222	617411	5447170	Residential	45.0	34.1
223	617734	5447248	Residential	45.0	33.6
224	617771	5447308	Residential	45.0	33.6
225	617770	5447281	Residential	45.0	33.5
226	617759	5447364	Residential	45.0	33.6
227	617759	5447394	Residential	45.0	33.6
228	617766	5447417	Residential	45.0	33.6
229	617730	5447438	Residential	45.0	33.7
230	617774	5447434	Residential	45.0	33.6
231	617796	5447472	Residential	45.0	33.6
232	617818	5447510	Residential	45.0	33.6
233	617765	5447523	Residential	45.0	33.7
234	617724	5447546	Residential	45.0	33.7
235	617704	5447561	Residential	45.0	33.8
236	617682	5447573	Residential	45.0	33.8
237	617665	5447583	Residential	45.0	33.9
238	617644	5447590	Residential	45.0	33.9
239	617623	5447605	Residential	45.0	33.9
240	617600	5447613	Residential	45.0	34.0
241	617582	5447631	Residential	45.0	34.0
242	617564	5447643	Residential	45.0	34.1
243	617542	5447655	Residential	45.0	34.1
244	617526	5447667	Residential	45.0	34.1
245	617505	5447678	Residential	45.0	34.2
246	617509	5447731	Residential	45.0	34.2
247	617527	5447720	Residential	45.0	34.2
248	617548	5447710	Residential	45.0	34.1
249	617570	5447695	Residential	45.0	34.1
250	617592	5447685	Residential	45.0	34.0
251	617608	5447673	Residential	45.0	34.0
252	617648	5447650	Residential	45.0	33.9
253	617678	5447630	Residential	45.0	33.9
254	617696	5447620	Residential	45.0	33.8
255	617753	5447585	Residential	45.0	33.7
256	617746	5447648	Residential	45.0	33.8
257	617776	5447675	Residential	45.0	33.7
258	617800	5447655	Residential	45.0	33.7
259	617784	5447619	Residential	45.0	33.7
260	617813	5447607	Residential	45.0	33.6
261	617840	5447556	Residential	45.0	33.6
262	617914	5447651	Residential	45.0	33.5
263	617947	5447696	Residential	45.0	33.5
264	618002	5447763	Residential	45.0	33.4
265	618013	5447782	Residential	45.0	33.4
266	617900	5447750	Residential	45.0	33.6
267	617975	5447834	Residential	45.0	33.5
268	617999	5447866	Residential	45.0	33.5
269	618019	5447880	Residential	45.0	33.4
270	617977	5447925	Residential	45.0	33.5
271	617959	5447948	Residential	45.0	33.6
272	617989	5447970	Residential	45.0	33.5
273	618016	5447939	Residential	45.0	33.5
274	618043	5447909	Residential	45.0	33.4
275	618058	5447925	Residential	45.0	33.4
276	617769	5447219	Residential	45.0	33.5
277	617773	5447208	Residential	45.0	33.5
278	617777	5447192	Residential	45.0	33.5
279	617462	5455203	Residential	45.0	45.4
280	617473	5455248	Residential	45.0	45.5
281	618081	5447818	Residential	45.0	33.3
282	618112	5447859	Residential	45.0	33.3
283	618125	5447890	Residential	45.0	33.3
284	618180	5447929	Residential	45.0	33.2
285	618082	5447955	Residential	45.0	33.4
286	618225	5447980	Residential	45.0	33.2
287	618158	5448022	Residential	45.0	33.3
288	618170	5448034	Residential	45.0	33.3
289	618195	5448051	Residential	45.0	33.3
290	618229	5448088	Residential	45.0	33.2
291	618241	5447997	Residential	45.0	33.2
292	618282	5448034	Residential	45.0	33.1
293	618286	5448068	Residential	45.0	33.1
294	618319	5448091	Residential	45.0	33.1
295	618380	5448156	Residential	45.0	33.1
296	618349	5448131	Residential	45.0	33.1
297	618326	5448250	Residential	45.0	33.2
298	618373	5448251	Residential	45.0	33.1
299	618453	5448233	Residential	45.0	33.0
300	618454	5448301	Residential	45.0	33.0
301	618486	5448338	Residential	45.0	33.0
302	618504	5448355	Residential	45.0	33.0
303	618492	5448265	Residential	45.0	33.0
304	618550	5448324	Residential	45.0	32.9
305	618568	5448332	Residential	45.0	32.9
306	618586	5448333	Residential	45.0	32.9
307	618576	5448358	Residential	45.0	32.9
308	618532	5448397	Residential	45.0	33.0
309	618602	5448370	Residential	45.0	32.9
310	618622	5448361	Residential	45.0	32.8
311	618566	5448422	Residential	45.0	32.9
312	618590	5448439	Residential	45.0	32.9
313	618605	5448453	Residential	45.0	32.9
314	618665	5448438	Residential	45.0	32.8
315	618628	5448407	Residential	45.0	32.9
316	618663	5448405	Residential	45.0	32.8
317	618708	5448469	Residential	45.0	32.8
318	618728	5448496	Residential	45.0	32.8
319	618794	5448525	Residential	45.0	32.7
320	618842	5448560	Residential	45.0	32.7
321	618900	5448606	Residential	45.0	32.6
322	618943	5448621	Residential	45.0	32.6
323	618964	5448636	Residential	45.0	32.6
324	618989	5448661	Residential	45.0	32.5
325	618933	5448688	Residential	45.0	32.6
326	619037	5448675	Residential	45.0	32.5
327	619059	5448715	Residential	45.0	32.5
328	619010	5448752	Residential	45.0	32.6
329	619081	5448731	Residential	45.0	32.5
330	619166	5448778	Residential	45.0	32.4
331	619239	5448862	Residential	45.0	32.3
332	619271	5448897	Residential	45.0	32.3
333	619250	5448938	Residential	45.0	32.4
334	619264	5448950	Residential	45.0	32.4
335	619344	5448953	Residential	45.0	32.3
336	619374	5448975	Residential	45.0	32.2
337	619335	5449028	Residential	45.0	32.3
338	619359	5449071	Residential	45.0	32.3
339	619438	5449039	Residential	45.0	32.2
340	619482	5449031	Residential	45.0	32.2
341	619457	5449111	Residential	45.0	32.2
342	619521	5449078	Residential	45.0	32.1
343	619603	5449117	Residential	45.0	32.1
344	619590	5449207	Residential	45.0	32.1
345	619628	5449143	Residential	45.0	32.0
346	619667	5449189	Residential	45.0	32.0
347	619624	5449240	Residential	45.0	32.1
348	619663	5449272	Residential	45.0	32.1
349	619729	5449239	Residential	45.0	32.0
350	619688	5449216	Residential	45.0	32.0
351	619712	5449332	Residential	45.0	32.1
352	619756	5449278	Residential	45.0	32.0
353	619780	5449299	Residential	45.0	32.0
354	619806	5449341	Residential	45.0	32.0
355	619827	5449360	Residential	45.0	31.9
356	619800	5449308	Residential	45.0	32.0
357	619961	5449704	Residential	45.0	32.0
358	619977	5449730	Residential	45.0	32.0
359	620061	5449805	Residential	45.0	31.9
360	620141	5449946	Residential	45.0	31.9
361	620166	5450001	Residential	45.0	32.0
362	619942	5449817	Residential	45.0	32.1
363	619926	5449790	Residential	45.0	32.1
364	619916	5449756	Residential	45.0	32.1
365	620274	5450310	Residential	45.0	32.0
366	620310	5450372	Residential	45.0	32.0
367	620367	5450493	Residential	45.0	32.0
368	620664	5451045	Residential	45.0	32.1
369	620726	5451111	Residential	45.0	32.1
370	620796	5451270	Residential	45.0	32.1
371	620880	5451316	Residential	45.0	32.1
372	620872	5451408	Residential	45.0	32.2
373	621374	5452226	Residential	45.0	32.3
374	621410	5452271	Residential	45.0	32.3
375	623112	5453920	Residential	45.0	31.8
376	623139	5453920	Residential	45.0	31.7
377	623171	5453918	Residential	45.0	31.7
378	623193	5453949	Residential	45.0	31.7
379	623056	5454038	Residential	45.0	32.0
380	623263	5453985	Residential	45.0	31.7
381	623302	5454006	Residential	45.0	31.6
382	623329	5453968	Residential	45.0	31.6
383	623333	5454009	Residential	45.0	31.6
384	623347	5453970	Residential	45.0	31.5
385	623401	5453953	Residential	45.0	31.5
386	623366	5453884	Residential	45.0	31.4
387	623380	5453858	Residential	45.0	31.4
388	623398	5453866	Residential	45.0	31.4
389	623413	5453882	Residential	45.0	31.4
390	623415	5453901	Residential	45.0	31.4
391	623458	5453902	Residential	45.0	31.3
392	623428	5453954	Residential	45.0	31.4
393	623460	5453970	Residential	45.0	31.4
394	623478	5453985	Residential	45.0	31.4
395	623489	5453930	Residential	45.0	31.3
396	623507	5453947	Residential	45.0	31.3
397	623519	5453959	Residential	45.0	31.3
398	623554	5453990	Residential	45.0	31.3
399	623504	5454000	Residential	45.0	31.4
400	623502	5454035	Residential	45.0	31.4
401	623536	5454094	Residential	45.0	31.4
402	623535	5454065	Residential	45.0	31.4
403	623636	5454093	Residential	45.0	31.3
404	623643	5454115	Residential	45.0	31.3
405	623677	5454101	Residential	45.0	31.2
406	623662	5454135	Residential	45.0	31.3
407	623720	5454123	Residential	45.0	31.2
408	623741	5454091	Residential	45.0	31.2
409	623769	5454094	Residential	45.0	31.1
410	623765	5454118	Residential	45.0	31.1
411	623704	5454066	Residential	45.0	31.2
412	623734	5454070	Residential	45.0	31.1
413	623765	5454057	Residential	45.0	31.1
414	623733	5454155	Residential	45.0	31.2
415	623744	5454181	Residential	45.0	31.2
416	623762	5454203	Residential	45.0	31.2
417	623759	5454221	Residential	45.0	31.2
418	623741	5454220	Residential	45.0	31.3
419	623736	5454199	Residential	45.0	31.2
420	623767	5454228	Residential	45.0	31.2
421	623784	5454252	Residential	45.0	31.2
422	623787	5454274	Residential	45.0	31.2
423	623802	5454293	Residential	45.0	31.2
424	623803	5454320	Residential	45.0	31.3
425	623814	5454341	Residential	45.0	31.2
426	623836	5454263	Residential	45.0	31.2
427	623814	5454243	Residential	45.0	31.3
428	623828	5454254	Residential	45.0	31.2
429	623912	5454379	Residential	45.0	31.2
430	623957	5454509	Residential	45.0	31.2
431	624197	5454604	Residential	45.0	31.0
432	624141	5454524	Residential	45.0	31.0
433	624107	5454523	Residential	45.0	31.0
434	624157	5454533	Residential	45.0	31.0
435	624191	5454552	Residential	45.0	31.0
436	624225	5454567	Residential	45.0	30.9
437	624244	5454576	Residential	45.0	30.9
438	624225	5454632	Residential	45.0	31.0
439	624263	5454640	Residential	45.0	30.9
440	624277	5454638	Residential	45.0	30.9
441	624296	5454649	Residential	45.0	30.9
442	624327	5454669	Residential	45.0	30.9
443	624284	5454583	Residential	45.0	30.9
444	624403	5454669	Residential	45.0	30.8
445	624430	5454681	Residential	45.0	30.8
446	624442	5454692	Residential	45.0	30.7
447	624512	5454764	Residential	45.0	30.7
448	624568	5454809	Residential	45.0	30.7
449	624585	5454830	Residential	45.0	30.7
450	624593	5454936	Residential	45.0	30.7
451	624646	5454833	Residential	45.0	30.6
452	624689	5454824	Residential	45.0	30.5
453	624727	5454839	Residential	45.0	30.5
454	624823	5454873	Residential	45.0	30.4
455	624776	5454869	Residential	45.0	30.5
456	624896	5454903	Residential	45.0	30.3
457	624900	5454928	Residential	45.0	30.3
458	624935	5454938	Residential	45.0	30.3
459	624917	5455025	Residential	45.0	30.4
460	624947	5455051	Residential	45.0	30.4
461	624995	5455051	Residential	45.0	30.3
462	625224	5455185	Residential	45.0	30.1
463	625246	5455203	Residential	45.0	30.1
464	625276	5455262	Residential	45.0	30.1
465	625354	5455284	Residential	45.0	30.0
466	625387	5455337	Residential	45.0	30.0
467	625410	5455369	Residential	45.0	30.0
468	625428	5455391	Residential	45.0	30.0
469	625441	5455403	Residential	45.0	30.0
470	625444	5455430	Residential	45.0	30.0
471	625469	5455454	Residential	45.0	29.9
472	625508	5455483	Residential	45.0	29.9
473	625565	5455526	Residential	45.0	29.9
474	625621	5455547	Residential	45.0	29.8
475	625565	5455526	Residential	45.0	29.9
476	626913	5456816	Residential	45.0	28.7
477	626926	5456835	Residential	45.0	28.7
478	626943	5456863	Residential	45.0	28.7
479	626956	5456969	Residential	45.0	28.7
480	626968	5457020	Residential	45.0	28.7
481	627040	5457103	Residential	45.0	28.7
482	627075	5457098	Residential	45.0	28.6
483	627012	5

509	610741	5479170	Residential	45.0	40.4
510	610695	5479078	Residential	45.0	40.4
511	610441	5479154	Residential	45.0	39.4
512	610466	5479096	Residential	45.0	39.6
513	610494	5479084	Residential	45.0	39.7
514	610430	5478970	Residential	45.0	39.7
515	610371	5478941	Residential	45.0	39.5
516	610287	5478919	Residential	45.0	39.3
517	610196	5478975	Residential	45.0	38.9
518	610153	5478983	Residential	45.0	38.7
519	610176	5478932	Residential	45.0	38.9
520	610117	5478937	Residential	45.0	38.7
521	610051	5478937	Residential	45.0	38.5
522	610037	5478971	Residential	45.0	38.4
523	609905	5478922	Residential	45.0	38.1
524	609898	5478965	Residential	45.0	38.0
525	609853	5478965	Residential	45.0	37.8
526	609785	5478956	Residential	45.0	37.6
527	609813	5478958	Residential	45.0	37.7
528	609805	5478916	Residential	45.0	37.8
529	609786	5478915	Residential	45.0	37.7
530	609734	5478871	Residential	45.0	37.6
531	609693	5478857	Residential	45.0	37.5
532	609706	5478896	Residential	45.0	37.5
533	609674	5478878	Residential	45.0	37.4
534	609643	5478848	Residential	45.0	37.4
535	609608	5478847	Residential	45.0	37.3
536	609630	5478899	Residential	45.0	37.2
537	609692	5478922	Residential	45.0	37.4
538	609660	5478920	Residential	45.0	37.3
539	609600	5478899	Residential	45.0	37.1
540	609560	5478864	Residential	45.0	37.1
541	609534	5478877	Residential	45.0	37.0
542	609529	5478920	Residential	45.0	36.9
543	609505	5478889	Residential	45.0	36.9
544	609466	5478904	Residential	45.0	36.7
545	609443	5478925	Residential	45.0	36.6
546	609412	5478960	Residential	45.0	36.5
547	609373	5478995	Residential	45.0	36.3
548	609381	5478979	Residential	45.0	36.4
549	609460	5479229	Residential	45.0	36.3
550	612691	5449357	Remote	45.0	46.0
551	607743	5444187	Remote	45.0	46.7
552	608280	5444441	Remote	45.0	45.9
553	608292	5444375	Remote	45.0	45.9
554	608506	5444490	Remote	45.0	46.3
555	605039	5451699	Remote	45.0	45.8
556	605076	5451787	Remote	45.0	46.3
557	606414	5454381	Remote	45.0	47.5
558	611015	5463005	Remote	45.0	41.0
559	611042	5462946	Remote	45.0	40.9
560	611064	5462761	Remote	45.0	40.7
561	610915	5462419	Remote	45.0	41.5
562	611025	5462463	Remote	45.0	40.8
563	610788	5463424	Remote	45.0	42.4
564	606331	5458336	Remote	45.0	49.2
565	611971	5455376	Remote	45.0	44.7
566	611753	5453127	Remote	45.0	46.4
567	611774	5453110	Remote	45.0	46.5
568	611352	5451595	Remote	45.0	45.2
569	611299	5451640	Remote	45.0	45.2
570	611519	5451634	Remote	45.0	45.5
571	611626	5451353	Remote	45.0	45.3
572	610894	5451426	Remote	45.0	45.5
573	611327	5451059	Remote	45.0	45.6
574	614218	5455962	Remote	45.0	44.8
575	614291	5456021	Remote	45.0	45.1
576	614389	5455778	Remote	45.0	45.4
577	601810	5440067	Remote	45.0	43.4
578	601850	5440028	Remote	45.0	43.7
579	601927	5440039	Remote	45.0	44.0
580	602030	5440084	Remote	45.0	44.5
581	602053	5440046	Remote	45.0	44.7
582	602044	5439971	Remote	45.0	44.8
583	602086	5439935	Remote	45.0	45.2
584	603679	5450853	Remote	45.0	44.8
585	601746	5441209	Remote	45.0	43.8
586	601845	5441216	Remote	45.0	43.6
587	601879	5441170	Remote	45.0	43.5
588	603058	5452252	Remote	45.0	46.1
589	603081	5452219	Remote	45.0	46.1
590	603371	5451758	Remote	45.0	46.3
591	611518	5451202	Remote	45.0	45.6
592	610900	5451466	Remote	45.0	45.5
593	614110	5456330	Remote	45.0	44.2
594	608206	5457576	Remote	45.0	46.6
595	607328	5449178	Remote	45.0	45.5
596	607298	5449087	Remote	45.0	45.4
597	602636	5452253	Remote	45.0	44.5
598	602644	5437523	Remote	45.0	43.2
599	602595	5437260	Remote	45.0	41.4
600	608285	5460553	Remote	45.0	42.4
601	614464	5456031	Remote	45.0	46.0
602	603790	5449620	Remote	45.0	42.8
603	602646	5446729	Remote	45.0	44.0
604	602253	5446190	Remote	45.0	45.3
605	602250	5446100	Remote	45.0	45.2
606	602264	5446066	Remote	45.0	45.2
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609	602509	5445783	Remote	45.0	44.9
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611	602564	5445748	Remote	45.0	44.7
612	602617	5445717	Remote	45.0	44.6
613	602663	5445725	Remote	45.0	44.3
614	602697	5445702	Remote	45.0	44.2
615	602847	5445629	Remote	45.0	43.6
616	602878	5445664	Remote	45.0	43.3
617	602909	5445668	Remote	45.0	43.1
618	603203	5445635	Remote	45.0	42.0
619	603178	5445600	Remote	45.0	42.3
620	603152	5445569	Remote	45.0	42.3
621	603145	5445530	Remote	45.0	42.4
622	603178	5445489	Remote	45.0	42.2
623	603182	5445460	Remote	45.0	42.3
624	603164	5445344	Remote	45.0	42.5
625	603134	5445322	Remote	45.0	42.7
626	603091	5445294	Remote	45.0	42.9
627	603041	5445283	Remote	45.0	43.2
628	602870	5445166	Remote	45.0	44.4
629	602839	5444941	Remote	45.0	44.7
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631	602736	5444645	Remote	45.0	45.5
632	602741	5444586	Remote	45.0	45.4
633	602736	5444551	Remote	45.0	45.4
634	602744	5444497	Remote	45.0	45.4
635	602759	5444442	Remote	45.0	45.4
636	602745	5444263	Remote	45.0	45.8
637	602793	5444211	Remote	45.0	45.5
638	602829	5444178	Remote	45.0	45.3
639	602827	5444138	Remote	45.0	45.4
640	602828	5444095	Remote	45.0	45.6
641	602828	5444053	Remote	45.0	45.5
642	604852	5439448	Remote	45.0	42.3
643	602868	5447019	Remote	45.0	42.7
644	603201	5445693	Remote	45.0	42.0
645	608912	5464501	Remote	45.0	38.6
646	602585	5452445	Remote	45.0	43.6
647	603984	5449521	Remote	45.0	42.1
648	603927	5449482	Remote	45.0	42.2
649	604007	5449846	Remote	45.0	42.2
650	604062	5449994	Remote	45.0	42.3
651	604054	5450091	Remote	45.0	42.4
652	604067	5450127	Remote	45.0	42.4
653	604124	5450195	Remote	45.0	42.4
654	604034	5450349	Remote	45.0	42.8
655	603879	5449326	Remote	45.0	42.4
656	603694	5448407	Remote	45.0	42.6
657	603595	5448331	Remote	45.0	43.0
658	603575	5448311	Remote	45.0	43.1
659	603491	5448139	Remote	45.0	43.2
660	603388	5447717	Remote	45.0	42.5
661	603325	5447679	Remote	45.0	42.7
662	603280	5447659	Remote	45.0	42.8
663	603181	5447462	Remote	45.0	42.5
664	603124	5447397	Remote	45.0	42.5
665	602858	5447067	Remote	45.0	42.8
666	601653	5439759	Remote	45.0	43.6
667	602753	5437299	Remote	45.0	42.4
668	603396	5441534	Remote	45.0	41.7
669	612281	5456093	Remote	45.0	43.4
670	613888	5457127	Remote	45.0	42.4
671	602947	5447166	Remote	45.0	42.5
672	601987	5454049	Remote	45.0	38.6
673	599797	5440984	Remote	45.0	40.3
674	604150	5449351	Remote	45.0	41.6
675	604177	5449466	Remote	45.0	41.6
676	603996	5449659	Remote	45.0	42.1
677	604229	5449343	Remote	45.0	41.4
678	604194	5449343	Remote	45.0	41.5
679	605920	5448986	Remote	45.0	41.6
680	604741	5441822	Remote	45.0	41.3
681	606323	5440395	Remote	45.0	38.6
682	602692	5446829	Remote	45.0	43.7
683	602668	5446794	Remote	45.0	43.9
684	612800	5458285	Remote	45.0	38.8
685	612764	5458655	Remote	45.0	38.5
686	613072	5459145	Remote	45.0	38.5
687	613871	5458776	Remote	45.0	41.0
688	585053	5454032	Remote	45.0	41.1
689	590929	5460274	Remote	45.0	45.6
690	584791	5459647	Remote	45.0	47.2
691	620398	5455402	Remote	45.0	39.3
692	620445	5455193	Remote	45.0	38.6
693	609120	5470284	Remote	45.0	33.0
694	609208	5470389	Remote	45.0	33.3
695	609277	5470411	Remote	45.0	33.5
696	609267	5470486	Remote	45.0	33.6
697	609266	5470553	Remote	45.0	33.7
698	609244	5470661	Remote	45.0	33.8
699	609286	5470663	Remote	45.0	33.9
700	609325	5470693	Remote	45.0	34.0
701	609380	5470705	Remote	45.0	34.2
702	609398	5470722	Remote	45.0	34.3
703	609456	5470741	Remote	45.0	34.5
704	609494	5470777	Remote	45.0	34.7
705	609532	5470793	Remote	45.0	34.8
706	609578	5470781	Remote	45.0	34.9
707	609654	5470799	Remote	45.0	35.2
708	609725	5470824	Remote	45.0	35.5
709	609694	5470874	Remote	45.0	35.5
710	609719	5470914	Remote	45.0	35.7
711	609990	5472104	Remote	45.0	39.1
712	609971	5472008	Remote	45.0	38.9
713	610048	5473195	Remote	45.0	40.2
714	610492	5473834	Remote	45.0	41.8
715	610431	5473834	Remote	45.0	41.4
716	610345	5473854	Remote	45.0	40.7
717	610318	5473898	Remote	45.0	40.4
718	610303	5473936	Remote	45.0	40.2
719	610292	5474044	Remote	45.0	39.8
720	610170	5473938	Remote	45.0	39.5
721	610188	5474188	Remote	45.0	39.0
722	610279	5474296	Remote	45.0	39.1
723	610435	5474497	Remote	45.0	39.3
724	610599	5474697	Remote	45.0	39.5
725	610638	5474750	Remote	45.0	39.5
726	610655	5474798	Remote	45.0	39.5
727	610788	5474877	Remote	45.0	39.9
728	610861	5474882	Remote	45.0	40.1
729	610816	5474880	Remote	45.0	40.0
730	610872	5474946	Remote	45.0	40.1
731	610894	5474998	Remote	45.0	40.1
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733	610995	5475099	Remote	45.0	40.4
734	611060	5475151	Remote	45.0	40.6
735	611094	5475189	Remote	45.0	40.7
736	611110	5475203	Remote	45.0	40.7
737	611147	5475232	Remote	45.0	38.6
738	611226	5475244	Remote	45.0	41.1
739	611289	5475288	Remote	45.0	41.3
740	611327	5475296	Remote	45.0	41.4
741	611377	5475312	Remote	45.0	41.6
742	611431	5475374	Remote	45.0	41.7
743	611530	5475348	Remote	45.0	42.1
744	611847	5475494	Remote	45.0	43.1
745	611868	5475539	Remote	45.0	43.0
746	611860	5475616	Remote	45.0	42.8
747	612220	5476040	Remote	45.0	42.7
748	612447	5476332	Remote	45.0	43.1
749	612473	5476351	Remote	45.0	43.1
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752	612097	5469518	Remote	45.0	33.2
753	612185	5469860	Remote	45.0	33.9
754	615471	5480636	Remote	45.0	43.4
755	612352	5479209	Remote	45.0	45.9
756	612929	5476500	Remote	45.0	42.2
757	613033	5476571	Remote	45.0	42.1
758	613275	5476770	Remote	45.0	42.3
759	613279	5476831	Remote	45.0	42.7
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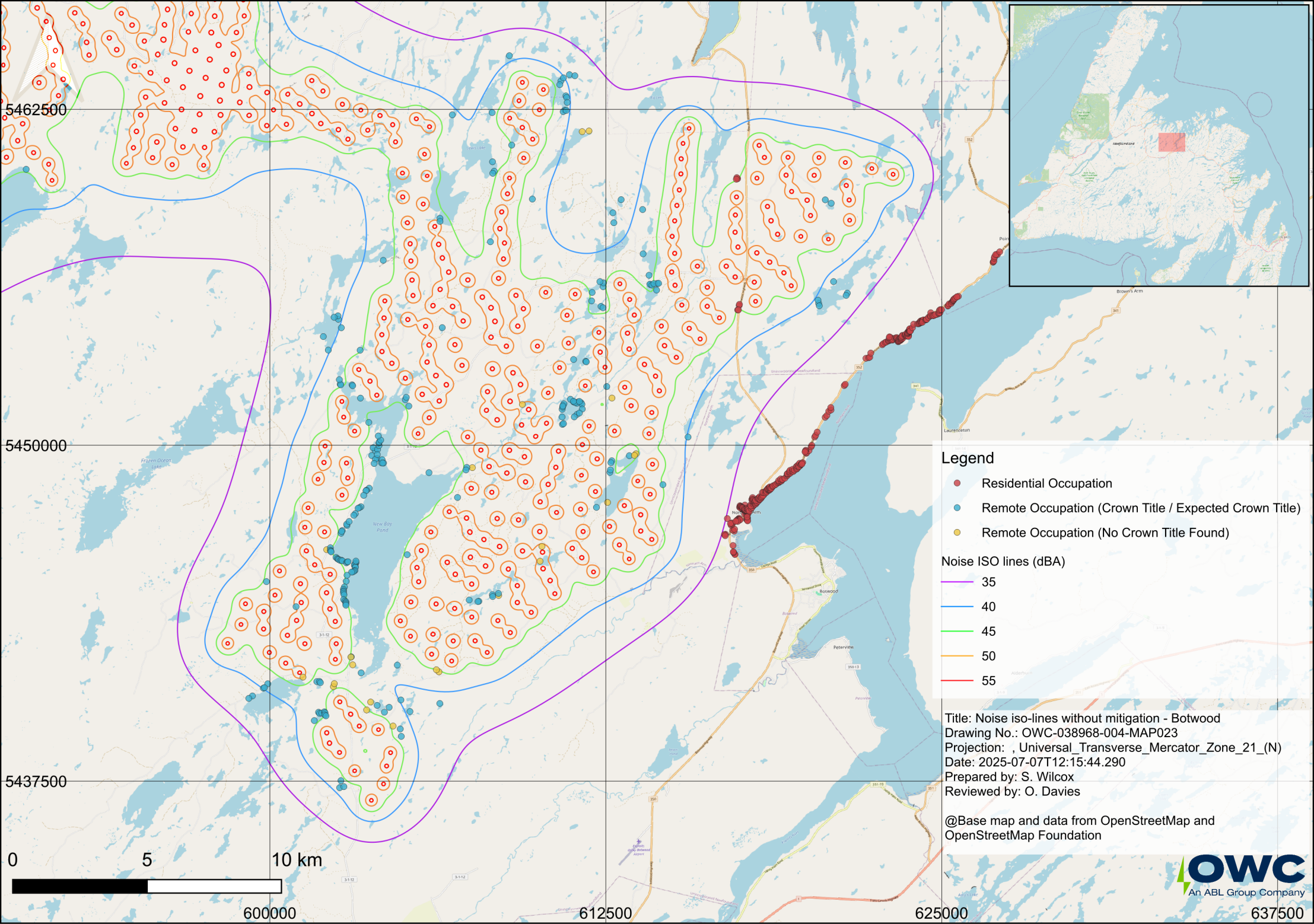
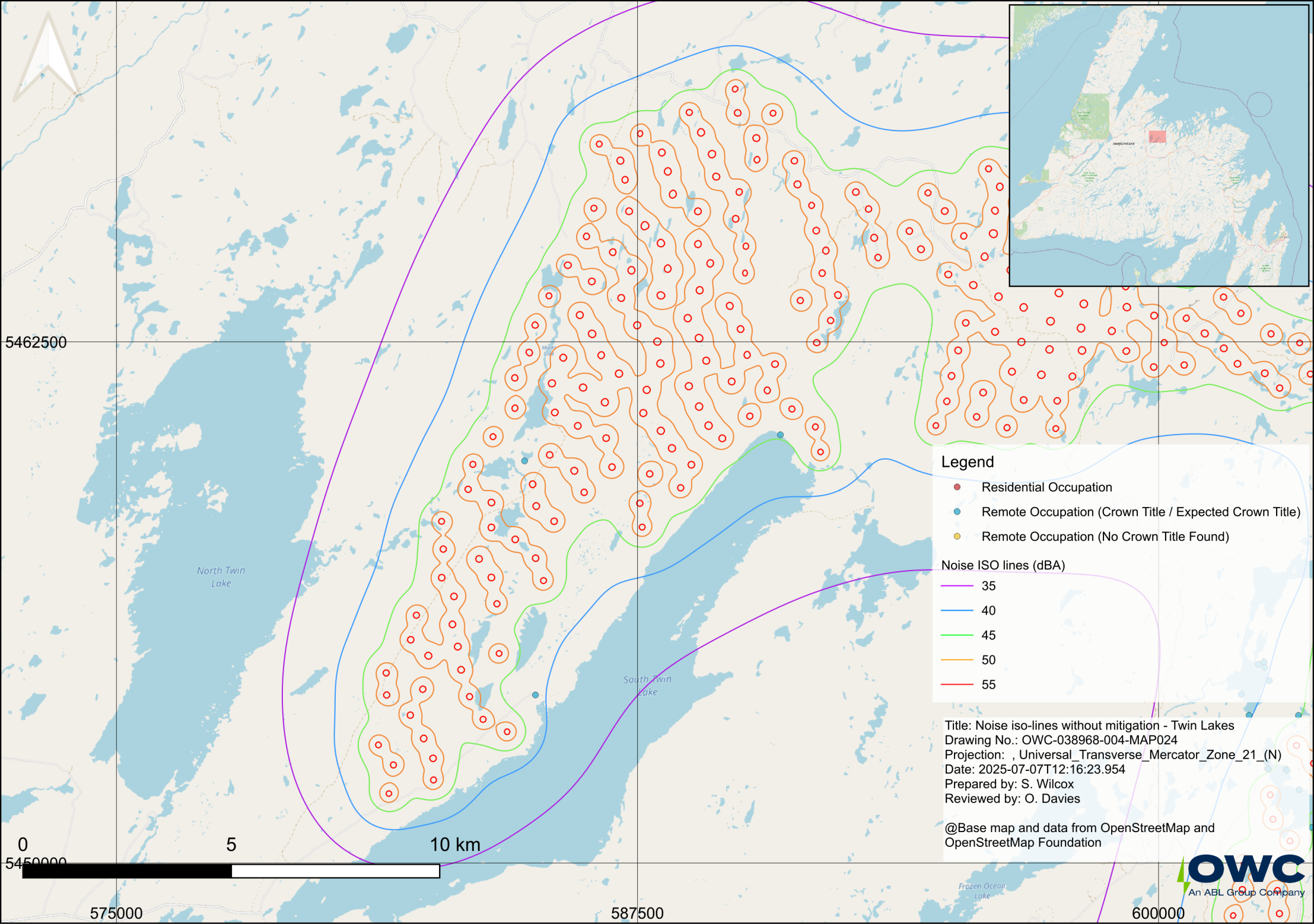
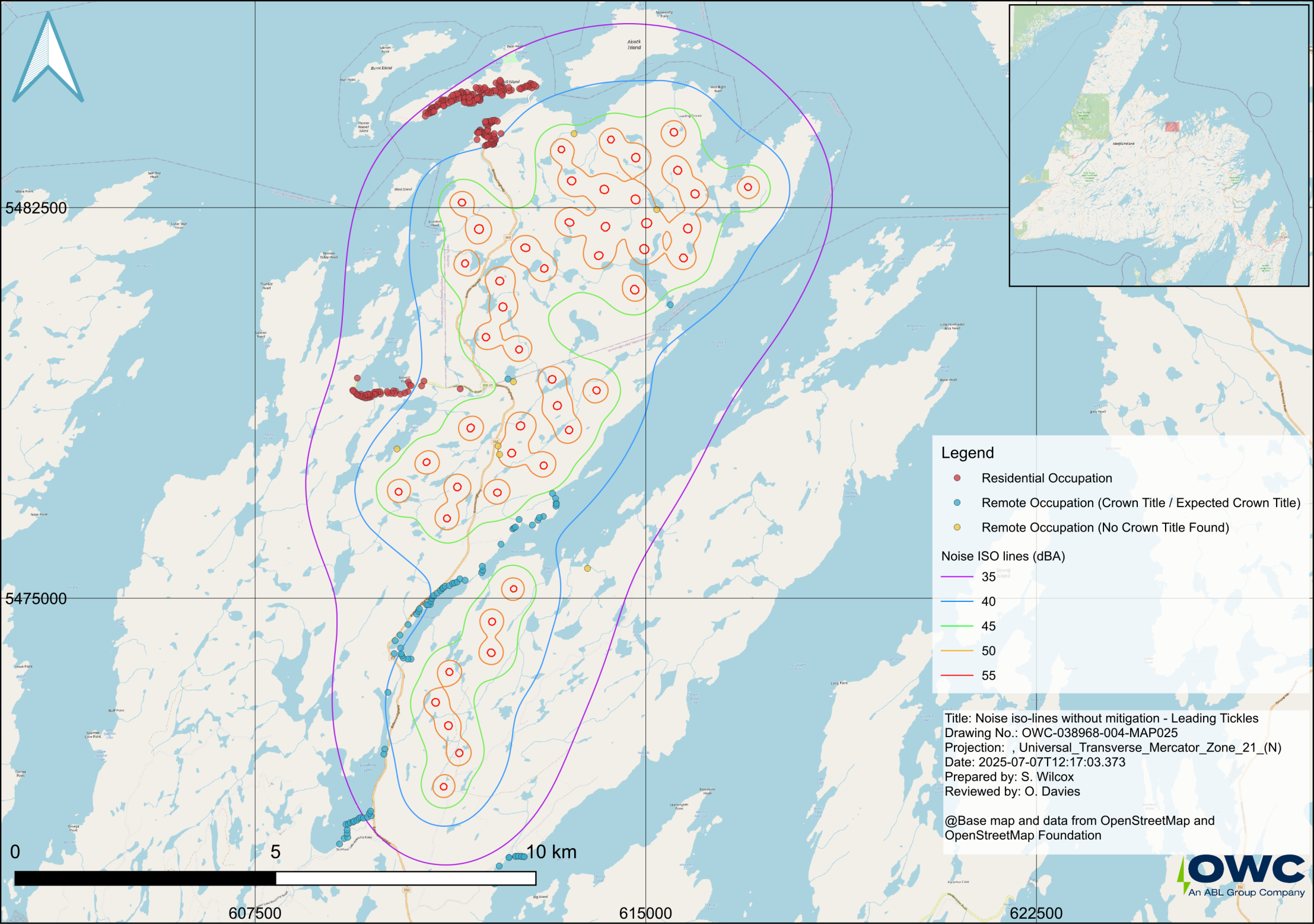
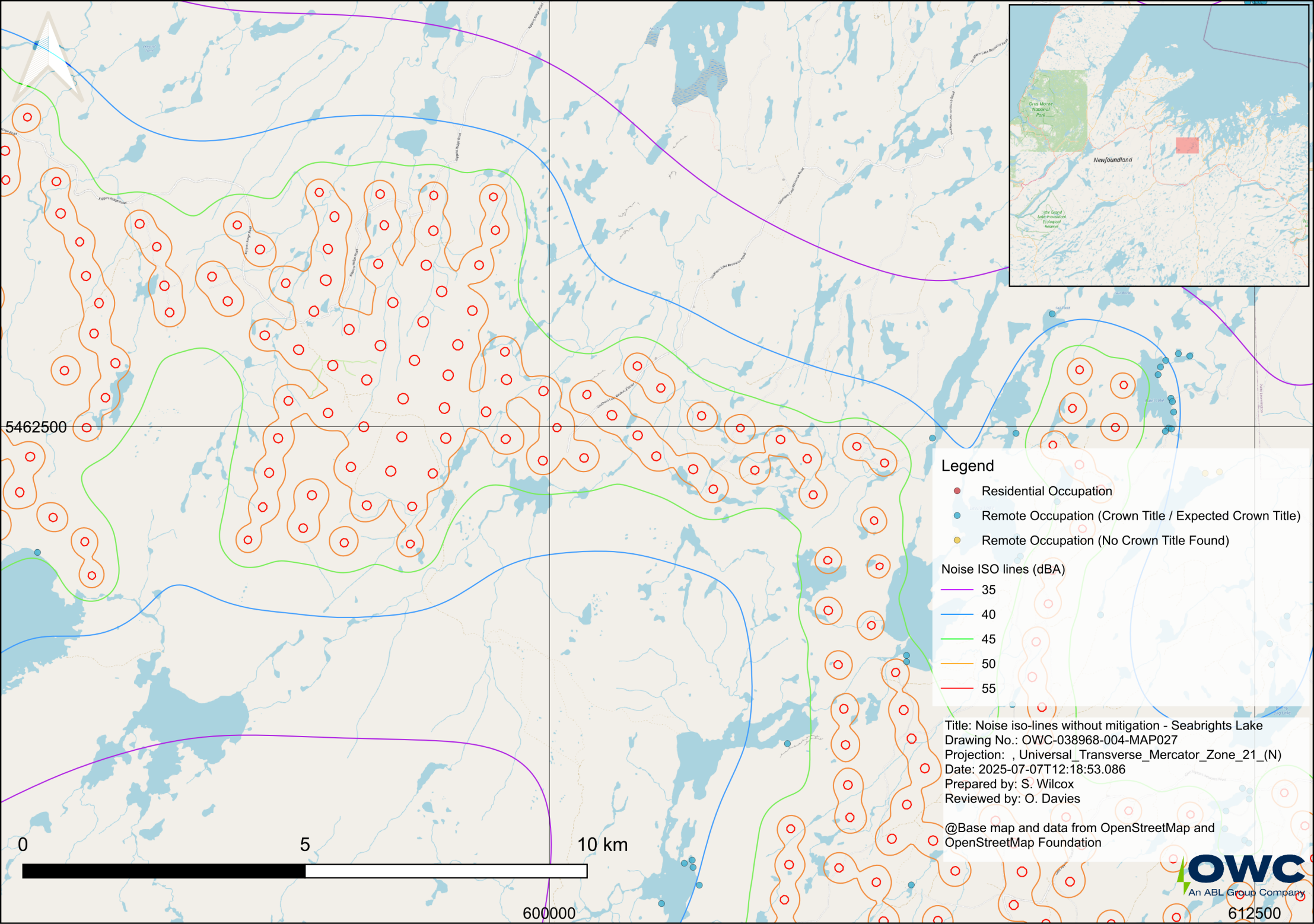
761	613267	5476919	Remote	45.0	43.3
762	613283	5476808	Remote	45.0	42.5
763	612823	5476407	Remote	45.0	42.2
764	612956	5476550	Remote	45.0	42.3
765	612152	5447693	Remote	45.0	47.1
766	614625	5448538	Remote	45.0	44.8
767	612653	5448996	Remote	45.0	45.5
768	612671	5449088	Remote	45.0	45.6
769	612724	5449427	Remote	45.0	45.9
770	613378	5449615	Remote	45.0	44.5
771	607418	5444245	Remote	45.0	47.4
772	610830	5463558	Remote	45.0	41.5
773	612322	5455172	Remote	45.0	44.3
774	612395	5455121	Remote	45.0	44.5
775	611991	5455690	Remote	45.0	44.4
776	620890	5459010	Remote	45.0	45.8
777	620668	5459138	Remote	45.0	46.0
778	611302	5453194	Remote	45.0	46.6
779	611299	5451620	Remote	45.0	45.2
780	611472	5451618	Remote	45.0	45.3
781	611581	5451586	Remote	45.0	45.4
782	611611	5451528	Remote	45.0	45.3
783	611430	5451154	Remote	45.0	45.5
784	610875	5451056	Remote	45.0	46.0
785	610888	5450781	Remote	45.0	46.3
786	610918	5451502	Remote	45.0	45.5
787	610943	5451550	Remote	45.0	45.5
788	610877	5451343	Remote	45.0	45.6
789	606982	5448062	Remote	45.0	46.4
790	612535	5452189	Remote	45.0	46.2
791	611185	5451716	Remote	45.0	45.3
792	612401	5455904	Remote	45.0	44.3
793	608348	5460204	Remote	45.0	43.8
794	604263	5440071	Remote	45.0	43.2
795	599872	5444930	Remote	45.0	45.8
796	611423	5451566	Remote	45.0	45.2
797	614412	5456027	Remote	45.0	45.7
798	612415	5456045	Remote	45.0	44.2
799	614159	5455986	Remote	45.0	44.7
800	608999	5461173	Remote	45.0	45.1
801	603358	5453540	Remote	45.0	44.8
802	603029	5442129	Remote	45.0	44.7
803	604438	5440251	Remote	45.0	41.6
804	605110	5445932	Remote	45.0	46.1
805	610972	5462476	Remote	45.0	41.1
806	610923	5463676	Remote	45.0	40.2
807	611147	5463796	Remote	45.0	40.8
808	611350	5463755	Remote	45.0	37.8
809	608270	5462384	Remote	45.0	43.0
810	609768	5459165	Remote	45.0	42.1
811	606329	5458448	Remote	45.0	47.7
812	608294	5460125	Remote	45.0	43.7
813	604219	5456884	Remote	45.0	42.6
814	603916	5449813	Remote	45.0	42.5
815	605212	5440096	Remote	45.0	39.5
816	604889	5439170	Remote	45.0	43.0
817	603991	5440324	Remote	45.0	42.7
818	599920	5441128	Remote	45.0	41.3
819	605169	5451460	Remote	45.0	45.6
820	603844	5449913	Remote	45.0	42.8
821	610926	5450808	Remote	45.0	46.1
822	602616	5452275	Remote	45.0	44.3
823	604875	5440525	Remote	45.0	39.9
824	602173	5453546	Remote	45.0	39.7
825	602658	5454376	Remote	45.0	40.2
826	602546	5454692	Remote	45.0	39.6
827	602532	5454820	Remote	45.0	39.4
828	602391	5454766	Remote	45.0	39.0
829	599756	5440965	Remote	45.0	40.1
830	599351	5440675	Remote	45.0	38.1
831	599214	5440584	Remote	45.0	37.6
832	620977	5456094	Remote	45.0	38.9
833	621489	5455664	Remote	45.0	36.7
834	621445	5455581	Remote	45.0	36.6
835	620422	5455283	Remote	45.0	38.9
836	606789	5462299	Remote	45.0	40.9
837	615561	5450309	Remote	45.0	39.8
838	614142	5455997	Remote	45.0	44.7
839	600973	5443997	Remote	45.0	50.6
840	607777	5444197	Remote	45.0	46.6
841	612374	5470025	Remote	45.0	34.1
842	612500	5470047	Remote	45.0	33.9
843	612553	5470049	Remote	45.0	33.8
844	612615	5470045	Remote	45.0	33.7
845	612664	5470039	Remote	45.0	33.6
846	612374	5470025	Remote	45.0	34.1
847	612500	5470047	Remote	45.0	33.9
848	612553	5470049	Remote	45.0	33.8
849	612615	5470045	Remote	45.0	33.7
850	612664	5470039	Remote	45.0	33.6
851	613624	5449687	No Crown Title	45.0	44.8
852	608513	5444414	No Crown Title	45.0	46.3
853	602364	5441021	No Crown Title	45.0	44.3
854	602397	5441134	No Crown Title	45.0	43.9
855	603749	5440448	No Crown Title	45.0	43.1
856	604583	5439556	No Crown Title	45.0	44.0
857	606292	5441571	No Crown Title	45.0	44.6
858	610054	5445689	No Crown Title	45.0	50.8
859	609396	5451522	No Crown Title	45.0	50.4
860	610124	5446241	No Crown Title	45.0	51.3
861	612729	5451761	No Crown Title	45.0	45.9
862	611621	5461675	No Crown Title	45.0	38.0
863	611875	5461700	No Crown Title	45.0	37.4
864	603600	5440154	No Crown Title	45.0	45.4
865	606197	5441649	No Crown Title	45.0	44.9
866	603014	5442122	No Crown Title	45.0	44.8
867	601232	5441375	No Crown Title	45.0	50.3
868	603082	5441833	No Crown Title	45.0	43.6
869	602114	5446118	No Crown Title	45.0	45.9
870	607534	5449170	No Crown Title	45.0	46.5
871	613565	5449628	No Crown Title	45.0	44.7
872	612566	5447876	No Crown Title	45.0	46.8
873	615210	5482464	No Crown Title	45.0	50.3
874	612459	5479159	No Crown Title	45.0	46.2
875	610222	5477867	No Crown Title	45.0	43.4
876	613881	5475575	No Crown Title	45.0	37.6
877	612192	5477761	No Crown Title	45.0	50.5
878	612164	5477925	No Crown Title	45.0	49.6
879	613623	5483920	No Crown Title	45.0	46.7

Appendix E Noise Iso-Lines

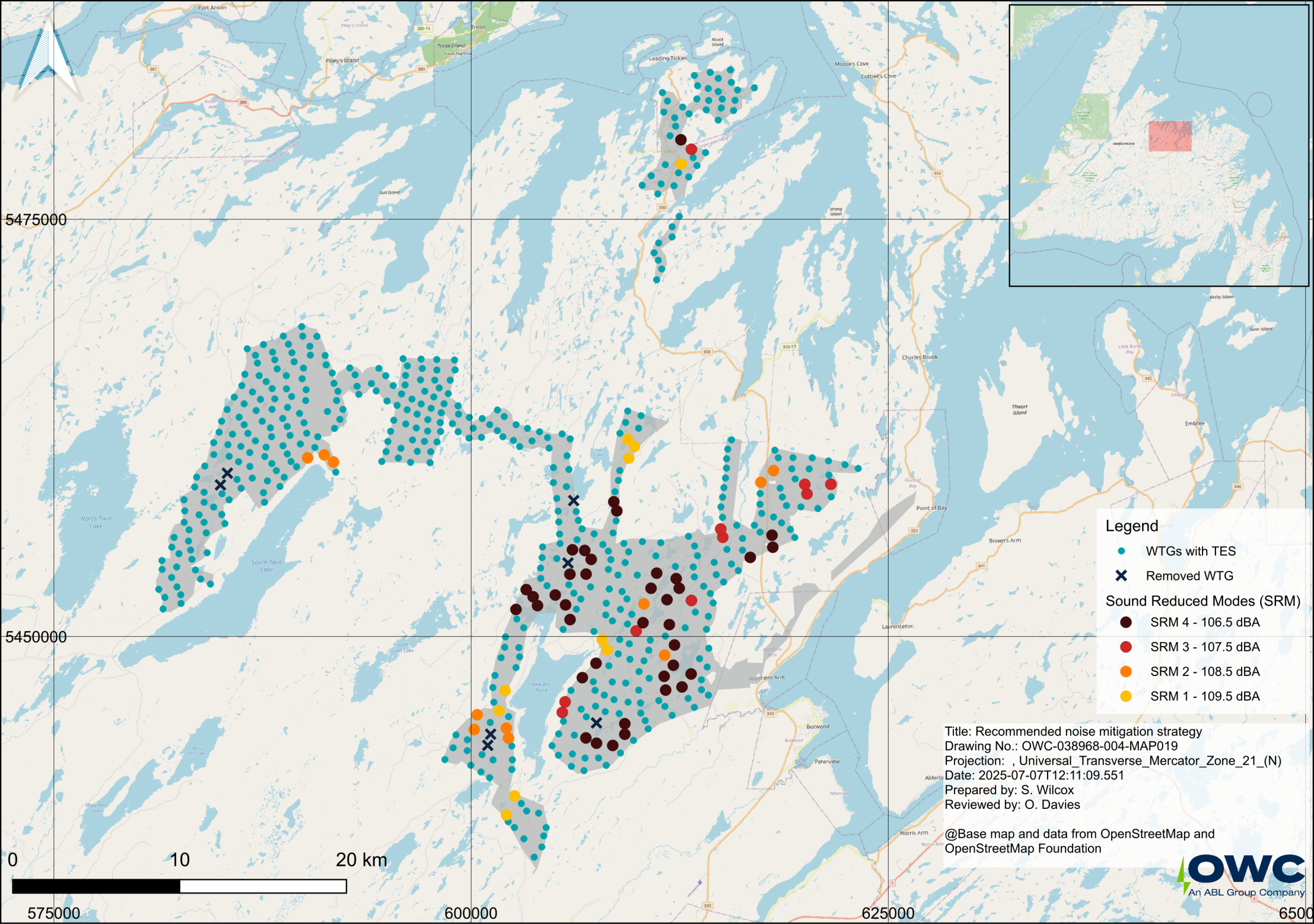

5462500
5450000
5437500
600000
612500
625000
637500
0
5
10 km
Legend
Residential Occupation
Remote Occupation (Crown Title / Expected Crown Title)
Remote Occupation (No Crown Title Found)
Noise ISO lines (dBA)
35
40
45
50
55
Title: Noise iso-lines without mitigation - Botwood
Drawing No.: OWC-038968-004-MAP023
Projection: , Universal_Transverse_Mercator_Zone_21_(N)
Date: 2025-07-07T12:15:44.290
Prepared by: S. Wilcox
Reviewed by: O. Davies
@Base map and data from OpenStreetMap and OpenStreetMap Foundation
OWC
An ABL Group Company


5462500
5450000
575000
587500
600000
North Twin Lake
South Twin Lake
Frozen Ocean Lake
0
5
10 km
Legend
Residential Occupation
Remote Occupation (Crown Title / Expected Crown Title)
Remote Occupation (No Crown Title Found)
Noise ISO lines (dBA)
35
40
45
50
55
Title: Noise iso-lines without mitigation - Twin Lakes
Drawing No.: OWC-038968-004-MAP024
Projection: , Universal_Transverse_Mercator_Zone_21_(N)
Date: 2025-07-07T12:16:23.954
Prepared by: S. Wilcox
Reviewed by: O. Davies
@Base map and data from OpenStreetMap and OpenStreetMap Foundation
OWC
An ABL Group Company


5482500
5475000
607500
615000
622500
0
5
10 km
Legend
Residential Occupation
Remote Occupation (Crown Title / Expected Crown Title)
Remote Occupation (No Crown Title Found)
Noise ISO lines (dBA)
35
40
45
50
55
Title: Noise iso-lines without mitigation - Leading Tickles
Drawing No.: OWC-038968-004-MAP025
Projection: , Universal_Transverse_Mercator_Zone_21_(N)
Date: 2025-07-07T12:17:03.373
Prepared by: S. Wilcox
Reviewed by: O. Davies
@Base map and data from OpenStreetMap and OpenStreetMap Foundation
OWC
An ABL Group Company


5462500
600000
612500
0
5
10 km
Legend
Residential Occupation
Remote Occupation (Crown Title / Expected Crown Title)
Remote Occupation (No Crown Title Found)
Noise ISO lines (dBA)
35
40
45
50
55
Title: Noise iso-lines without mitigation - Seabrights Lake
Drawing No.: OWC-038968-004-MAP027
Projection: , Universal_Transverse_Mercator_Zone_21_(N)
Date: 2025-07-07T12:18:53.086
Prepared by: S. Wilcox
Reviewed by: O. Davies
@Base map and data from OpenStreetMap and OpenStreetMap Foundation
Newfoundland
OWC
An ABL Group Company

Appendix F Updated WTG Positions


5475000
5450000
0
10
20 km
575000
600000
625000
6500
Legend
WTGs with TES
Removed WTG
Sound Reduced Modes (SRM)
SRM 4 - 106.5 dBA
SRM 3 - 107.5 dBA
SRM 2 - 108.5 dBA
SRM 1 - 109.5 dBA
Title: Recommended noise mitigation strategy
Drawing No.: OWC-038968-004-MAP019
Projection: , Universal_Transverse_Mercator_Zone_21_(N)
Date: 2025-07-07T12:11:09.551
Prepared by: S. Wilcox
Reviewed by: O. Davies
@Base map and data from OpenStreetMap and OpenStreetMap Foundation
OWC
An ABL Group Company

Appendix G Updated WTG Coordinates

WTG No.	Easting (m)	Northing (m)	Mode	WTG No.	Easting (m)	Northing (m)	Mode	WTG No.	Easting (m)	Northing (m)	Mode
1	611613	5445819	TES	177	608620.0	5458685.0	TES	353	596452.0	5464233.0	TES
2	612046	5445285	TES	178	608828.0	5459361.0	TES	354	595565.0	5463857.0	TES
3	610610	5444474	TES	179	608908.0	5459954.0	TES	355	598633.0	5464559.0	TES
4	609403	5446075	TES	180	609448.0	5460694.0	SRM1	356	597762.0	5464362.0	TES
5	603782	5436787	TES	181	609782.0	5461397.0	SRM1	357	597007.0	5463942.0	TES
6	604234	5437397	TES	182	609388.0	5461826.0	SRM1	358	596166.0	5463594.0	TES
7	604349	5438065	TES	183	608919.0	5462183.0	TES	359	598378.0	5463955.0	TES
8	604497	5438562	TES	184	609257.0	5462830.0	TES	360	597608.0	5463680.0	TES
9	602598	5438563	TES	185	609382.0	5463517.0	TES	361	596767.0	5463332.0	TES
10	604044	5439423	TES	186	610038.0	5462487.0	TES	362	595367.0	5462966.0	TES
11	602223	5438914	TES	187	610186.0	5463237.0	TES	363	598209.0	5463417.0	TES
12	602116	5439314	SRM1	188	605862.0	5460019.0	TES	364	597406.0	5463002.0	TES
13	598925	5443338	TES	189	604932.0	5460131.0	TES	365	596082.0	5462747.0	TES
14	599775	5443820	TES	190	604932.0	5459230.0	TES	366	595177.0	5462302.0	TES
15	602039	5446772	SRM1	191	605712.0	5458988.0	TES	367	598150.0	5462828.0	TES
16	601797	5448736	TES	192	605133.0	5458282.0	TES	368	597392.0	5462318.0	TES
17	602016	5449362	TES	193	606293.0	5457498.0	TES	369	597539.0	5460424.0	TES
18	605939	5461850	TES	194	609631.0	5451335.0	TES	370	595011.0	5461691.0	TES
19	605455	5462146	TES	195	610300.0	5450833.0	SRM4	371	598172.0	5462290.0	TES
20	603330	5439552	TES	196	610735.0	5449791.0	TES	372	597205.0	5461701.0	TES
21	603162	5437887	TES	197	610644.0	5449184.0	TES	373	595796.0	5461286.0	TES
22	602441	5442037	TES	198	610360.0	5448553.0	TES	374	594903.0	5461083.0	TES
23	602472	5442621	TES	199	610671.0	5447504.0	TES	375	597953.0	5461669.0	TES
24	602437	5443446	TES	200	611567.0	5447623.0	SRM4	376	596775.0	5461102.0	TES
25	602240	5443915	SRM2	201	611657.0	5446798.0	SRM4	377	595638.0	5460701.0	TES
26	602113	5444517	SRM2	202	611249.0	5446167.0	TES	378	594648.0	5460498.0	TES
27	602247	5445206	TES	203	613378.0	5445763.0	TES	379	597577.0	5461080.0	TES
28	601672	5445553	SRM1	204	613005.0	5446298.0	TES	380	596370.0	5460444.0	TES
29	601362	5446072	TES	205	612637.0	5446984.0	SRM4	381	596489.0	5461785.0	TES
30	601305	5446950	TES	206	613183.0	5447763.0	SRM4	382	596715.0	5462505.0	TES
31	601428	5447676	TES	207	613797.0	5447415.0	TES	383	598748.0	5465367.0	TES
32	602059	5449980	TES	208	613803.0	5446816.0	TES	384	592022.0	5464700.0	TES
33	602861	5449343	TES	209	614222.0	5446494.0	TES	385	581647.0	5452350.0	TES
34	602902	5448789	TES	210	614148.0	5448178.0	TES	386	582800.0	5458199.0	TES
35	602688	5448147	TES	211	613688.0	5448678.0	TES	387	582054.0	5453543.0	TES
36	603153	5450535	TES	212	614241.0	5449305.0	TES	388	581283.0	5452835.0	TES
37	602742	5451053	TES	213	614690.0	5453712.0	TES	389	581543.0	5451657.0	TES
38	602688	5451629	SRM4	214	614105.0	5450439.0	TES	390	583797.0	5453446.0	TES
39	603979	5451860	SRM4	215	612826.0	5450532.0	TES	391	583479.0	5453993.0	TES
40	603717	5452389	SRM4	216	611878.0	5450720.0	SRM4	392	583274.0	5454635.0	TES
41	603303	5452816	SRM4	217	612187.0	5449500.0	SRM4	393	582065.0	5455358.0	TES
42	604174	5453490	TES	218	611597.0	5448892.0	SRM2	394	582200.0	5455949.0	TES
43	604166	5454114	TES	219	612118.0	5448285.0	SRM4	395	589911.0	5468002.0	TES
44	604254	5454738	TES	220	607321.0	5447298.0	TES	396	582806.0	5456849.0	TES
45	604282	5455374	TES	221	607430.0	5446784.0	TES	397	582839.0	5457536.0	TES
46	605136	5454676	TES	222	606593.0	5445654.0	TES	398	584000.0	5456849.0	TES
47	605920	5453740	SRM4	223	608035.0	5445507.0	TES	399	584000.0	5458649.0	TES
48	605853	5453111	TES	224	606900.0	5445196.0	TES	400	583435.0	5458969.0	TES
49	606156	5452606	TES	225	606185.0	5444097.0	TES	401	583554.0	5459558.0	TES
50	606574	5452255	TES	226	606879.0	5443929.0	SRM4	402	584042.0	5460223.0	TES
51	606308	5451647	TES	227	607513.0	5443614.0	SRM4	403	584582.0	5460908.0	TES
52	605930	5451022	SRM4	228	608486.0	5443480.0	SRM4	404	584000.0	5458049.0	TES
53	605511	5450432	TES	229	608951.0	5443026.0	TES	405	584900.0	5462249.0	TES
54	605658	5451903	SRM4	230	608095.0	5442288.0	TES	406	585429.0	5461503.0	TES
55	605043	5452494	SRM4	231	607636.0	5442726.0	TES	407	586400.0	5463952.0	TES
56	604548	5453051	TES	232	606827.0	5442723.0	TES	408	586100.0	5463149.0	TES
57	606889	5453747	SRM4	233	606072.0	5442968.0	TES	409	586400.0	5462699.0	TES
58	607195	5454629	SRM4	234	606008.0	5442231.0	TES	410	585070.0	5458560.0	TES
59	606808	5455164	SRM4	235	606762.0	5441970.0	TES	411	586625.0	5462180.0	TES
60	606072	5455204	SRM4	236	605233.0	5442893.0	TES	412	587073.0	5461732.0	TES
61	605331	5455578	TES	237	604852.0	5443464.0	TES	413	585973.0	5459420.0	TES
62	605301	5456150	TES	238	605248.0	5444175.0	TES	414	585501.0	5460805.0	TES
63	605254	5456872	TES	239	605533.0	5444925.0	TES	415	586888.0	5459500.0	TES
64	606427	5456968	TES	240	605464.0	5445460.0	SRM3	416	586220.0	5458890.0	TES
65	606653	5456455	TES	241	605632.0	5446091.0	SRM3	417	586736.0	5461031.0	TES
66	607373	5456158	TES	242	605986.0	5446778.0	TES	418	586744.0	5460195.0	TES
67	607894	5455521	TES	243	606664.0	5447543.0	SRM4	419	586204.0	5461399.0	TES
68	608225	5455124	TES	244	600363.0	5445318.0	SRM2	420	587637.0	5460793.0	TES
69	609440	5455081	TES	245	600188.0	5444436.0	SRM2	421	588059.0	5460370.0	TES
70	609230	5454436	TES	246	599769.0	5443168.0	TES	422	588330.0	5459947.0	TES
71	608804	5453690	TES	247	599981.0	5442291.0	TES	423	588800.0	5459549.0	TES
72	608279	5452851	TES	248	600592.0	5441890.0	TES	424	588544.0	5458995.0	TES
73	607158	5452981	TES	249	601110.0	5441546.0	TES	425	587557.0	5458627.0	TES
74	608099	5452000	TES	250	601311.0	5442615.0	TES	426	587620.0	5458053.0	TES
75	608067	5451299	TES	251	600655.0	5442932.0	TES	427	585500.0	5458199.0	TES
76	608467	5450945	TES	252	599094.0	5444108.0	TES	428	584571.0	5457764.0	TES
77	609371	5450757	TES	253	598428.0	5442634.0	TES	429	587796.0	5459333.0	TES
78	608905	5449830	TES	254	602607.0	5440457.0	SRM1	430	585244.0	5456775.0	TES
79	609483	5449570	TES	255	603010.0	5440002.0	TES	431	583700.0	5457299.0	TES
80	608817	5448969	TES	256	601144.0	5444855.0	TES	432	583100.0	5456399.0	TES
81	609517	5448641	TES	257	608225.0	5454027.0	TES	433	584184.0	5455028.0	TES
82	610062	5447906	TES	258	605217.0	5457518.0	TES	434	584378.0	5453150.0	TES
83	609263	5447220	TES	259	606347.0	5455806.0	TES	435	582601.0	5452510.0	TES
84	610045	5446792	TES	260	608373.0	5454616.0	TES	436	581485.0	5454027.0	TES
85	610150	5446026	TES	261	608946.0	5451633.0	TES	437	581476.0	5454563.0	TES
86	610166	5445415	TES	262	609890.0	5450337.0	SRM3	438	587716.0	5461352.0	TES
87	610432	5444969	TES	263	607982.0	5446498.0	TES	439	588042.0	5461983.0	TES
88	609731	5443783	TES	264	607459.0	5445831.0	TES	440	587971.0	5462510.0	TES
89	609210	5444152	SRM4	265	613935.0	5453018.0	TES	441	587483.0	5462907.0	TES
90	609210	5444781	SRM4	266	615132.0	5453275.0	TES	442	587119.0	5463546.0	TES
91	608873	5445389	TES	267	615329.0	5455224.0	TES	443	586897.0	5464658.0	TES
92	608562	5446225	TES	268	619416.0	5459450.0	TES	444	591311.0	5466284.0	TES
93	608460	5447286	TES	269	611635.0	5450033.0	TES	445	587298.0	5465640.0	TES
94	608256	5448254	TES	270	605749.0	5460840.0	TES	446	588080.0	5464863.0	TES
95	607485	5448404	SRM4	271	611119.0	5471384.0	TES	447	588235.0	5466589.0	TES
96	608146	5449218	SRM1	272	611421.0	5472033.0	TES	448	588101.0	5467045.0	TES
97	607858	5449820	SRM1	273	611216.0	5472554.0	TES	449	590339.0	5467399.0	TES
98	607359	5450315	TES	274	610965.0	5473003.0	TES	450	586584.0	5467250.0	TES
99	609338	5452261	TES	275	611235.0	5473588.0	TES	451	587077.0	5466857.0	TES
100	609048	5452704	TES	276	612470.0	5475186.0	TES	452	587197.0	5466393.0	TES
101	609958	5453688	TES	277	611190.0	5476531.0	TES	453	585806.0	5464349.0	TES
102	610782	5452897	SRM4	278	611386.0	5477127.0	TES	454	587378.0	5464215.0	TES
103	611738	5452214	SRM4	279	610794.0	5477617.0	TES	455	588929.0	5465636.0	TES
104	610357	5451960	SRM2	280	610251.0	5477047.0	TES	456	588938.0	5464850.0	TES
105	613439	5451471	TES	281	612159.0	5477016.0	TES	457	589247.0	5464387.0	TES
106	614216	5451216	TES	282	612595.0	5478317.0	SRM1	458	588072.0	5463622.0	TES
107	614506	5452021	TES	283	613535.0	5478225.0	TES	459	588711.0	5463074.0	TES
108	614336	5452586	TES	284	614048.0	5479002.0	TES	460	589987.0	5462815.0	TES
109	613203	5452167	SRM3	285	613201.0	5479202.0	SRM3	461	588728.0	5461440.0	TES
110	613376	5453581	TES	286	612573.0	5479773.0	SRM4	462	589768.0	5461545.0	TES
111	614563	5454448	TES	287	611925.0	5480013.0	TES	463	590203.0	5460712.0	SRM2
112	615598	5454354	TES	288	613063.0	5481328.0	TES	464	586262.0	5465039.0	TES
113	612243	5454204	TES	289	611544.0	5481430.0	TES	465	591749.0	5460463.0	SRM2
114	616013	5453957	TES	290	611767.0	5482095.0	TES	466	591892.0	5459853.0	TES
115	616727	5454749	SRM4	291	611463.0	5482601.0	TES	467	591206.0	5460892.0	SRM2
116	616266	5455181	TES	292	613572.0	5483012.0	TES	468	590636.0	5461338.0	TES
117	616265	5455887	TES	293	613528.0	5482217.0	TES	469	590813.0	5461974.0	TES
118	615081	5455954	SRM3	294	612675.0	5481731.0	TES	470	588235.0	5464249.0	TES
119	615917	5456667	TES	295	614090.0	5481571.0	TES	471	589875.0	5465452.0	TES
120	614956	5456448	SRM3	296	615538.0	5483955.0	TES	472	589054.0	5467522.0	TES
121	615065	5457146	TES	297	614812.0	5483452.0	TES	473	589396.0	5466473.0	TES
122	614971	5457777	TES	298	613376.0	5483623.0	TES	474	589263.0	5467011.0	TES
123	615070	5458355	TES	299	615595.0	5483212.0	TES	475	588749.0	5468009.0	TES
124	615150	5458928	TES	300	615046.0	5482211.0	TES	476	589848.0	5468575.0	TES
125	615242	5459505	TES	301	615725.0	5481521.0	TES	477	591252.0	5466845.0	TES
126	615312	5460661	TES	302	616971.0	5482886.0	TES	478	592135.0	5463015.0	TES
127	615301	5460099	TES	303	611637.0	5478278.0	TES	479	591784.0	5465176.0	TES
128	615378	5461233	TES	304	612044.0	5473949.0	TES	480	592318.0	5463618.0	TES
129	615606	5461792	TES	305	612048.0	5474557.0	TES	481	591938.0	5464148.0	TES
130	618200	5461171	TES	306	614208.0	5482844.0	TES	482	591816.0	5462480.0	TES
131	618407	5460715	TES	307	614329.0	5483810.0	TES	483	582617.0	5451989.0	TES
132	618125	5459947	SRM2	308	615965.0	5482753.0	TES	484	582358.0	5454174.0	TES
133	617362	5459246	SRM2	309	612255.0	5480588.0	TES	485	583068.0	5455726.0	TES
134	617320	5458574	TES	310	613039.0	5477546.0	TES	486	584130.0	5456218.0	TES
135	617308	5457932	TES	311	612428.0	5477792.0	TES	487	586067.0	5460479.0	TES
136	617413	5457384	TES	312	613306.0	5478701.0	TES	488	584573.0	5461623.0	TES
137	616973	5456671	TES	313	614237.0	5482129.0	TES	489	585050.0	5462907.0	TES
138	617315	5456265	TES	314	614809.0	5482659.0	TES	490	585376.0	5463609.0	TES
139	618031	5456077	SRM4	315	612198.0	5481090.0	TES	491	586442.0	5465720.0	TES
140	618078	5455357	SRM4	316	614807.0	5480952.0	TES	492	587721.0	5465281.0	TES
141	619396	5455939	TES	317	614989.0	5481679.0	TES	493	587561.0	5467501.0	TES
142	619128	5456425	TES	318	615812.0	5482134.0	TES	494	588381.0	5466042.0	TES
143	618600	5456822	TES	319	582374.0	5452981.0	TES	495	589949.0	5466092.0	TES
144	618121	5457167	TES	320	582492.0	5454970.0	TES	496	590367.0	5466866.0	TES
145	618897	5457853	TES	321	583196.0	5455188.0	TES	497	585702.0	5462129.0	TES
146	618649	5458361	TES	322	590759.0	5467991.0	TES	498	588982.0	5460946.0	TES
147	618520	5458893	TES	323	589540.0	5460182.0	TES	499	589209.0	5460490.0	TES
148	619215	5460055	TES	324	590150.0	5462188.0	TES	500	589150.0	5462058.0	TES
149	619287	5460725	TES	325	591679.0	5465795.0	TES	501	588982.0	5462594.0	TES
150	620439	5460713	TES	326	590114.0	5464795.0	TES	502	588999.0	5463734.0	TES
151	621415	5460529	TES	327	590089.0	5464147.0	TES	503	589718.0	5463374.0	TES
152	621442	5459678	TES	328	592727.0	5466103.0	TES	504	591391.0	5463492.0	TES
153	621556	5459130	SRM3	329	595924.0	5466655.0	TES	505	585058.0	5457316.0	TES
154	621578	5458377	TES	330	594475.0	5466075.0	TES	506	599220.0	5463828.0	TES
155	620784	5457672	TES	331	593046.0	5465689.0	TES	507	598880.0	5462762.0	TES
156	619762	5457776	TES	332	593170.0	5465003.0	TES	508	599893.0	5463137.0	TES
157	620125	5458553	SRM3	333	597002.0	5466627.0	TES	509	601577.0	5463579.0	TES
158	619997	5459125	SRM3	334	596182.0	5466225.0	TES	510	600666.0	5463071.0	TES
159	620258	5460052	TES	335	594886.0	5465632.0	TES	511	599249.0	5463333.0	TES
160	622407	5460301	TES	336	594026.0	5465165.0	TES	512	599877.0	5461892.0	TES
161	623195	5460077	TES	337	593272.0	5464521.0	TES	513	601113.0	5462703.0	TES
162	613389	5455434	TES	338	597945.0	5466603.0	TES	514	600125.0	5462490.0	TES
163	613567	5454846	TES	339	597073.0	5466071.0	TES	515	599224.0	5462278.0	TES
164	613028	5456008	TES	340	596071.0	5465652.0	TES	516	601983.0	5463189.0	TES
165	611363	5455625	TES	341	594313.0	5464723.0	TES	517	602696.0	5462698.0	TES
166	610266	5455692	TES	342	599007.0	5466577.0	TES	518	604100.0	5462275.0	TES
167	611069	5454840	TES	343	597948.0	5465976.0	TES	519	603376.0	5462476.0	TES
168	611120	5453803	SRM4	344	596966.0	5465387.0	TES	520	604579.0	5461930.0	TES
169	612290	5453475	SRM4	345	596044.0	5465079.0	TES	521	600620.0	5461942.0	TES
170	612470	5452898	SRM4	346	595332.0	5465042.0	TES	522	602907.0	5461391.0	TES
171	613315	5454175	TES	347	599039.0	5465984.0	TES	523	602538.0	5461757.0	TES
172	609156	5455585	TES	348	597821.0	5465367.0	TES	524	601574.0	5462344.0	TES
173	608506	5456216	TES	349	595831.0	5464543.0	TES	525	601904.0	5461978.0	TES
174	608690	5456938	TES	350	594963.0	5464119.0	TES	526	603647.0	5461729.0	TES
175	608732	5457533	SRM4	351	598087.0	5464902.0	TES	527	604675.0	5461293.0	TES
176	608551	5458081	SRM4	352	597224.0	5464706.0	TES				

Appendix H Updated Results

Location (WGS84 UTM N Zone 21)					
Receptor ID	Easting	Northing	Receptor type	Demand (dBA)	Noise level (dBA)
1	611918	5483689	Residential	45.0	39.9
2	611948	5483706	Residential	45.0	39.9
3	611970	5483712	Residential	45.0	39.9
4	611997	5483725	Residential	45.0	39.9
5	612053	5483711	Residential	45.0	40.1
6	612081	5483722	Residential	45.0	40.1
7	612082	5483740	Residential	45.0	40.0
8	612031	5483766	Residential	45.0	39.8
9	612046	5483794	Residential	45.0	39.8
10	612086	5483763	Residential	45.0	40.0
11	612099	5483785	Residential	45.0	39.9
12	612111	5483796	Residential	45.0	39.9
13	612108	5483818	Residential	45.0	39.8
14	612077	5483824	Residential	45.0	39.7
15	612042	5483818	Residential	45.0	39.7
16	612080	5483864	Residential	45.0	39.6
17	612094	5483856	Residential	45.0	39.7
18	612063	5483889	Residential	45.0	39.5
19	612005	5483889	Residential	45.0	39.3
20	611983	5483873	Residential	45.0	39.3
21	611946	5483874	Residential	45.0	39.2
22	611920	5483886	Residential	45.0	39.1
23	611901	5483893	Residential	45.0	39.1
24	611880	5483925	Residential	45.0	38.9
25	611909	5483935	Residential	45.0	38.9
26	612222	5483923	Residential	45.0	39.8
27	612088	5483922	Residential	45.0	39.4
28	611759	5483807	Residential	45.0	39.1
29	611967	5484005	Residential	45.0	38.8
30	611959	5483983	Residential	45.0	38.9
31	611858	5483953	Residential	45.0	38.8
32	611840	5483959	Residential	45.0	38.7
33	611818	5483993	Residential	45.0	38.7
34	611818	5483959	Residential	45.0	38.5
35	611799	5483969	Residential	45.0	38.6
36	611781	5483950	Residential	45.0	38.6
37	611765	5483939	Residential	45.0	38.6
38	611794	5483936	Residential	45.0	38.7
39	611975	5484081	Residential	45.0	38.6
40	612018	5484122	Residential	45.0	38.6
41	612064	5484153	Residential	45.0	38.6
42	612043	5484152	Residential	45.0	38.5
43	612016	5484142	Residential	45.0	38.5
44	611984	5484154	Residential	45.0	38.4
45	611966	5484155	Residential	45.0	38.3
46	612090	5484177	Residential	45.0	38.6
47	612043	5484174	Residential	45.0	38.4
48	611934	5484102	Residential	45.0	38.4
49	611925	5484132	Residential	45.0	38.3
50	611918	5484153	Residential	45.0	38.2
51	612103	5484178	Residential	45.0	38.6
52	612150	5484159	Residential	45.0	38.8
53	612892	5484832	Residential	45.0	38.3
54	612814	5484800	Residential	45.0	38.2
55	612806	5484879	Residential	45.0	37.9
56	612783	5484886	Residential	45.0	37.8
57	612787	5484850	Residential	45.0	37.9
58	612748	5484820	Residential	45.0	38.0
59	612722	5484839	Residential	45.0	37.8
60	612694	5484833	Residential	45.0	37.8
61	612665	5484806	Residential	45.0	37.8
62	612620	5484805	Residential	45.0	37.7
63	612605	5484778	Residential	45.0	37.8
64	612576	5484783	Residential	45.0	37.7
65	612419	5484756	Residential	45.0	37.4
66	612375	5484742	Residential	45.0	37.4
67	612368	5484809	Residential	45.0	37.1
68	612272	5484753	Residential	45.0	37.1
69	612245	5484681	Residential	45.0	37.3
70	612257	5484721	Residential	45.0	37.1
71	612170	5484727	Residential	45.0	36.9
72	612257	5484824	Residential	45.0	36.8
73	612227	5484830	Residential	45.0	37.1
74	612206	5484827	Residential	45.0	36.7
75	612181	5484827	Residential	45.0	36.6
76	612239	5484784	Residential	45.0	36.9
77	612204	5484796	Residential	45.0	36.8
78	612177	5484872	Residential	45.0	36.5
79	612123	5484896	Residential	45.0	36.3
80	612196	5484909	Residential	45.0	36.4
81	612214	5484926	Residential	45.0	36.4
82	612076	5484747	Residential	45.0	36.6
83	612020	5484736	Residential	45.0	36.6
84	612118	5484746	Residential	45.0	36.7
85	612022	5484701	Residential	45.0	36.7
86	611973	5484711	Residential	45.0	36.5
87	611934	5484721	Residential	45.0	36.4
88	611942	5484760	Residential	45.0	36.3
89	611862	5484686	Residential	45.0	36.4
90	611823	5484736	Residential	45.0	36.1
91	611848	5484756	Residential	45.0	36.1
92	611868	5484771	Residential	45.0	36.1
93	611889	5484784	Residential	45.0	36.1
94	611905	5484806	Residential	45.0	36.1
95	611806	5484799	Residential	45.0	35.9
96	611766	5484776	Residential	45.0	35.9
97	611740	5484808	Residential	45.0	35.8
98	611685	5484679	Residential	45.0	36.0
99	611645	5484674	Residential	45.0	36.0
100	611608	5484653	Residential	45.0	36.0
101	611565	5484716	Residential	45.0	35.7
102	611495	5484698	Residential	45.0	35.6
103	611462	5484727	Residential	45.0	35.6
104	611483	5484684	Residential	45.0	35.6
105	611462	5484676	Residential	45.0	35.5
106	611439	5484660	Residential	45.0	35.6
107	611443	5484707	Residential	45.0	35.5
108	611407	5484683	Residential	45.0	35.5
109	611393	5484665	Residential	45.0	35.5
110	611422	5484602	Residential	45.0	35.7
111	611357	5484579	Residential	45.0	35.7
112	611321	5484598	Residential	45.0	35.6
113	611340	5484674	Residential	45.0	35.4
114	611380	5484690	Residential	45.0	35.4
115	611158	5484569	Residential	45.0	35.3
116	611147	5484550	Residential	45.0	35.4
117	611093	5484573	Residential	45.0	35.2
118	611076	5484550	Residential	45.0	35.2
119	611105	5484536	Residential	45.0	35.3
120	611108	5484503	Residential	45.0	35.4
121	611063	5484489	Residential	45.0	35.4
122	611029	5484473	Residential	45.0	35.3
123	611011	5484492	Residential	45.0	35.3
124	611131	5484463	Residential	45.0	35.6
125	611119	5484454	Residential	45.0	35.6
126	610978	5484437	Residential	45.0	35.3
127	610949	5484434	Residential	45.0	35.3
128	610914	5484421	Residential	45.0	35.3
129	610898	5484406	Residential	45.0	35.3
130	610891	5484390	Residential	45.0	35.5
131	610883	5484417	Residential	45.0	35.2
132	610877	5484381	Residential	45.0	35.3
133	610860	5484370	Residential	45.0	35.3
134	610834	5484349	Residential	45.0	35.3
135	610820	5484337	Residential	45.0	35.3
136	610775	5484323	Residential	45.0	35.2
137	610766	5484257	Residential	45.0	35.4
138	610833	5484306	Residential	45.0	35.4
139	610872	5484320	Residential	45.0	35.5
140	610891	5484336	Residential	45.0	35.3
141	610917	5484338	Residential	45.0	35.5
142	610936	5484350	Residential	45.0	35.5
143	611213	5484507	Residential	45.0	35.6
144	611274	5484559	Residential	45.0	35.6
145	611302	5484554	Residential	45.0	35.6
146	611281	5484573	Residential	45.0	35.5
147	611294	5484592	Residential	45.0	35.5
148	611260	5484620	Residential	45.0	35.4
149	611294	5484659	Residential	45.0	35.3
150	611637	5484623	Residential	45.0	36.1
151	611553	5484610	Residential	45.0	36.0
152	611516	5484592	Residential	45.0	36.2
153	611551	5484572	Residential	45.0	36.1
154	611557	5484557	Residential	45.0	36.1
155	611533	5484578	Residential	45.0	36.0
156	611516	5484558	Residential	45.0	36.1
157	611525	5484539	Residential	45.0	36.1
158	611528	5484607	Residential	45.0	35.9
159	611560	5484521	Residential	45.0	36.3
160	611595	5484503	Residential	45.0	36.4
161	611644	5484503	Residential	45.0	36.5
162	611516	5484520	Residential	45.0	36.0
163	611602	5484570	Residential	45.0	36.2
164	611693	5484509	Residential	45.0	36.6
165	611704	5484560	Residential	45.0	36.4
166	611745	5484571	Residential	45.0	36.5
167	611697	5484545	Residential	45.0	36.5
168	611796	5484561	Residential	45.0	36.6
169	611819	5484560	Residential	45.0	36.7
170	611817	5484599	Residential	45.0	36.5
171	611813	5484617	Residential	45.0	36.5
172	611798	5484616	Residential	45.0	36.5
173	611798	5484585	Residential	45.0	36.4
174	611774	5484609	Residential	45.0	36.4
175	612201	5484948	Residential	45.0	36.3
176	612853	5484862	Residential	45.0	38.0
177	611956	5483854	Residential	45.0	39.3
178	612227	5484726	Residential	45.0	36.7
179	612213	5484696	Residential	45.0	37.1
180	612244	5484657	Residential	45.0	37.3
181	611607	5484552	Residential	45.0	36.3
182	611617	5484534	Residential	45.0	36.3
183	611762	5484588	Residential	45.0	36.5
184	611609	5484616	Residential	45.0	36.1
185	611266	5484535	Residential	45.0	35.6
186	622180	5453239	Residential	45.0	31.9
187	622282	5453263	Residential	45.0	31.8
188	622323	5453281	Residential	45.0	31.8
189	622361	5453435	Residential	45.0	31.9
190	622790	5453747	Residential	45.0	31.6
191	622830	5453785	Residential	45.0	31.6
192	622904	5453832	Residential	45.0	31.6
193	622947	5453851	Residential	45.0	31.5
194	623018	5453886	Residential	45.0	31.5
195	623039	5453899	Residential	45.0	31.5
196	623075	5453911	Residential	45.0	31.4
197	623074	5454024	Residential	45.0	31.5
198	623074	5454024	Residential	45.0	31.5
199	623145	5453991	Residential	45.0	31.4
200	623109	5453965	Residential	45.0	31.4
201	623048	5453999	Residential	45.0	31.6
202	617933	5447983	Residential	45.0	33.1
203	617962	5448057	Residential	45.0	33.1
204	617963	5447998	Residential	45.0	33.0
205	617493	5447753	Residential	45.0	33.7
206	617480	5447696	Residential	45.0	33.7
207	617676	5447778	Residential	45.0	33.4
208	617894	5447790	Residential	45.0	33.1
209	617666	5447437	Residential	45.0	33.3
210	617459	5447285	Residential	45.0	33.5
211	617445	5447251	Residential	45.0	33.5
212	617415	5447244	Residential	45.0	33.6
213	617398	5447229	Residential	45.0	33.6
214	617384	5447216	Residential	45.0	33.6
215	617363	5447197	Residential	45.0	33.7
216	617022	5447276	Residential	45.0	34.4
217	616956	5446690	Residential	45.0	34.2
218	616915	5446682	Residential	45.0	34.3
219	616944	5446639	Residential	45.0	34.2
220	617471	5447216	Residential	45.0	33.5
221	617498	5447230	Residential	45.0	33.4
222	617411	5447170	Residential	45.0	33.6
223	617734	5447248	Residential	45.0	33.0
224	617771	5447308	Residential	45.0	33.0
225	617770	5447281	Residential	45.0	33.0
226	617759	5447364	Residential	45.0	33.1
227	617759	5447394	Residential	45.0	33.1
228	617766	5447417	Residential	45.0	33.1
229	617730	5447438	Residential	45.0	33.1
230	617774	5447434	Residential	45.0	33.1
231	617796	5447472	Residential	45.0	33.1
232	617818	5447510	Residential	45.0	33.0
233	617765	5447523	Residential	45.0	33.1
234	617724	5447546	Residential	45.0	33.2
235	617704	5447561	Residential	45.0	33.2
236	617682	5447573	Residential	45.0	33.3
237	617665	5447583	Residential	45.0	33.3
238	617644	5447590	Residential	45.0	33.4
239	617623	5447605	Residential	45.0	33.4
240	617600	5447613	Residential	45.0	33.4
241	617582	5447631	Residential	45.0	33.5
242	617564	5447643	Residential	45.0	33.5
243	617542	5447655	Residential	45.0	33.6
244	617526	5447667	Residential	45.0	33.6
245	617505	5447678	Residential	45.0	33.6
246	617509	5447731	Residential	45.0	33.7
247	617527	5447720	Residential	45.0	33.6
248	617548	5447710	Residential	45.0	33.6
249	617570	5447695	Residential	45.0	33.5
250	617592	5447685	Residential	45.0	33.5
251	617608	5447673	Residential	45.0	33.5
252	617648	5447650	Residential	45.0	33.4
253	617678	5447630	Residential	45.0	33.3
254	617696	5447620	Residential	45.0	33.3
255	617753	5447585	Residential	45.0	33.2
256	617746	5447648	Residential	45.0	33.2
257	617776	5447675	Residential	45.0	33.2
258	617800	5447655	Residential	45.0	33.1
259	617784	5447619	Residential	45.0	33.1
260	617813	5447607	Residential	45.0	33.1
261	617940	5447556	Residential	45.0	33.0
262	617914	5447651	Residential	45.0	33.0
263	617947	5447696	Residential	45.0	32.9
264	618002	5447763	Residential	45.0	32.9
265	618013	5447782	Residential	45.0	32.9
266	617900	5447750	Residential	45.0	33.0
267	617975	5447834	Residential	45.0	33.0
268	617999	5447866	Residential	45.0	32.9
269	618019	5447880	Residential	45.0	32.9
270	617977	5447925	Residential	45.0	33.0
271	617959	5447948	Residential	45.0	33.0
272	617989	5447970	Residential	45.0	33.0
273	618016	5447939	Residential	45.0	32.9
274	618043	5447909	Residential	45.0	32.9
275	618058	5447925	Residential	45.0	32.9
276	617769	5447219	Residential	45.0	33.0
277	617773	5447208	Residential	45.0	33.0
278	617777	5447192	Residential	45.0	32.9
279	617462	5455203	Residential	45.0	44.6
280	617473	5455248	Residential	45.0	44.7
281	618081	5447818	Residential	45.0	32.8
282	618112	5447859	Residential	45.0	32.8
283	618125	5447890	Residential	45.0	32.8
284	618180	5447929	Residential	45.0	32.7
285	618082	5447955	Residential	45.0	32.9
286	618225	5447980	Residential	45.0	32.7
287	618158	5448022	Residential	45.0	32.8
288	618170	5448034	Residential	45.0	32.8
289	618195	5448051	Residential	45.0	32.7
290	618229	5448088	Residential	45.0	32.7
291	618241	5447997	Residential	45.0	32.6
292	618282	5448034	Residential	45.0	32.6
293	618286	5448068	Residential	45.0	32.6
294	618319	5448091	Residential	45.0	32.6
295	618380	5448156	Residential	45.0	32.5
296	618349	5448131	Residential	45.0	32.6
297	618326	5448250	Residential	45.0	32.7
298	618373	5448251	Residential	45.0	32.6
299	618453	5448233	Residential	45.0	32.5
300	618454	5448301	Residential	45.0	32.5
301	618486	5448338	Residential	45.0	32.5
302	618504	5448355	Residential	45.0	32.5
303	618492	5448265	Residential	45.0	32.4
304	618550	5448324	Residential	45.0	32.4
305	618568	5448332	Residential	45.0	32.4
306	618586	5448333	Residential	45.0	32.4
307	618576	5448358	Residential	45.0	32.4
308	618532	5448397	Residential	45.0	32.5
309	618602	5448370	Residential	45.0	32.4
310	618622	5448361	Residential	45.0	32.3
311	618566	5448422	Residential	45.0	32.4
312	618590	5448439	Residential	45.0	32.4
313	618605	5448453	Residential	45.0	32.4
314	618665	5448438	Residential	45.0	32.3
315	618628	5448407	Residential	45.0	32.3
316	618663	5448405	Residential	45.0	32.3
317	618708	5448469	Residential	45.0	32.3
318	618728	5448496	Residential	45.0	32.3
319	618794	5448525	Residential	45.0	32.2
320	618842	5448560	Residential	45.0	32.1
321	618900	5448606	Residential	45.0	32.1
322	618943	5448621	Residential	45.0	32.1
323	618964	5448636	Residential	45.0	32.0
324	618989	5448661	Residential	45.0	32.0
325	618933	5448688	Residential	45.0	32.1
326	619037	5448675	Residential	45.0	32.0
327	619059	5448715	Residential	45.0	32.0
328	619010	5448752	Residential	45.0	32.0
329	619081	5448731	Residential	45.0	31.9
330	619166	5448778	Residential	45.0	31.9
331	619239	5448862	Residential	45.0	31.8
332	619271	5448897	Residential	45.0	31.8
333	619250	5448938	Residential	45.0	31.9
334	619264	5448950	Residential	45.0	31.8
335	619344	5448953	Residential	45.0	31.8
336	619374	5448975	Residential	45.0	31.7
337	619335	5449028	Residential	45.0	31.8
338	619359	5449071	Residential	45.0	31.8
339	619438	5449039	Residential	45.0	31.7
340	619482	5449031	Residential	45.0	31.6
341	619457	5449111	Residential	45.0	31.7
342	619521	5449078	Residential	45.0	31.6
343	619603	5449117	Residential	45.0	31.6
344	619590	5449207	Residential	45.0	31.6
345	619628	5449143	Residential	45.0	31.5
346	619667	5449189	Residential	45.0	31.5
347	619624	5449240	Residential	45.0	31.6
348	619663	5449272	Residential	45.0	31.6
349	619729	5449239	Residential	45.0	31.5
350	619688	5449216	Residential	45.0	31.5
351	619712	5449332	Residential	45.0	31.6
352	619756	5449278	Residential	45.0	31.5
353	619780	5449299	Residential	45.0	31.5
354	619806	5449341	Residential	45.0	31.5
355	619827	5449360	Residential	45.0	31.5
356	619800	5449308	Residential	45.0	31.5
357	619961	5449704	Residential	45.0	31.5
358	619977	5449730	Residential	45.0	31.5
359	620061	5449805	Residential	45.0	31.5
360	620141	5449946	Residential	45.0	31.5
361	620166	5450001	Residential	45.0	31.5
362	619942	5449817	Residential	45.0	31.6
363	619926	5449790	Residential	45.0	31.6
364	619916	5449756	Residential	45.0	31.6
365	620274	5450310	Residential	45.0	31.6
366	620310	5450372	Residential	45.0	31.6
367	620367	5450493	Residential	45.0	31.6
368	620664	5451045	Residential	45.0	31.7
369	620726	5451111	Residential	45.0	31.7
370	620796	5451270	Residential	45.0	31.7
371	620880	5451316	Residential	45.0	31.7
372	620872	5451408	Residential	45.0	31.7
373	621374	5452226	Residential	45.0	31.9
374	621410	5452271	Residential	45.0	31.9
375	623112	5453920	Residential	45.0	31.4
376	623139	5453920	Residential	45.0	31.4
377	623171	5453918	Residential	45.0	31.3
378	623193	5453949	Residential	45.0	31.3
379	623056	5454038	Residential	45.0	31.6
380	623263	5453985	Residential	45.0	31.3
381	623302	5454006	Residential	45.0	31.2
382	623329	5453968	Residential	45.0	31.2
383	623333	5454009	Residential	45.0	31.2
384	623347	5453970	Residential	45.0	31.2
385	623401	5453953	Residential	45.0	31.1
386	623366	5453884	Residential	45.0	31.1
387	623380	5453858	Residential	45.0	31.0
388	623398	5453866	Residential	45.0	31.0
389	623413	5453882	Residential	45.0	31.0
390	623415	5453901	Residential	45.0	31.0
391	623458	5453902	Residential	45.0	31.0
392	623428	5453954	Residential	45.0	31.0
393	623460	5453970	Residential	45.0	31.0
394	623478	5453985	Residential	45.0	31.0
395	623489	5453930	Residential	45.0	31.0
396	623507	5453947	Residential	45.0	30.9
397	623519	5453959	Residential	45.0	30.9
398	623554	5453990	Residential	45.0	30.9
399	623504	5454000	Residential	45.0	31.0
400	623502	5454035	Residential	45.0	31.0
401	623536	5454094	Residential	45.0	31.0
402	623535	5454065	Residential	45.0	31.0
403	623636	5454093	Residential	45.0	30.9
404	623643	5454115	Residential	45.0	30.9
405	623677	5454101	Residential	45.0	30.9
406	623662	5454135	Residential	45.0	30.9
407	623720	5454123	Residential	45.0	30.8
408	623741	5454091	Residential	45.0	30.8
409	623769	5454094	Residential	45.0	30.7
410	623765	5454118	Residential	45.0	30.7
411	623704	5454066	Residential	45.0	30.8
412	623734	5454070	Residential	45.0	30.8
413	623765	5454057	Residential	45.0	30.8
414	623733	5454155	Residential	45.0	30.8
415	623744	5454181	Residential	45.0	30.8
416	623762	5454203	Residential	45.0	30.8
417	623759	5454221	Residential	45.0	30.9
418	623741	5454220	Residential	45.0	30.9
419	623736	5454199	Residential	45.0	30.9
420	623767	5454228	Residential	45.0	30.9
421	623784	5454252	Residential	45.0	30.9
422	623787	5454274	Residential	45.0	30.9
423	623802	5454293	Residential	45.0	30.9
424	623803	5454320	Residential	45.0	30.9
425	623814	5454341	Residential	45.0	30.8
426	623836	5454263	Residential	45.0	30.8
427	623814	5454243	Residential	45.0	30.9
428	623828	5454254	Residential	45.0	30.8
429	623912	5454379	Residential	45.0	30.8
430	623957	5454509	Residential	45.0	30.8
431	624197	5454604	Residential	45.0	30.6
432	624141	5454524	Residential	45.0	30.6
433	624107	5454523	Residential	45.0	30.7
434	624157	5454533	Residential	45.0	30.6
435	624191	5454552	Residential	45.0	30.6
436	624225	5454567	Residential	45.0	30.5
437	624244	5454576	Residential	45.0	30.5
438	624225	5454632	Residential	45.0	30.6
439	624263	5454640	Residential	45.0	30.6
440	624277	5454638	Residential	45.0	30.5
441	624296	5454649	Residential	45.0	30.5
442	624327	5454669	Residential	45.0	30.5
443	624284	5454583	Residential	45.0	30.5
444	624403	5454669	Residential	45.0	30.4
445	624430	5454681	Residential	45.0	30.4
446	624442	5454692	Residential	45.0	30.4
447	624512	5454764	Residential	45.0	30.3
448	624568	5454809	Residential	45.0	30.3
449	624585	5454830	Residential	45.0	30.3
450	624593	5454936	Residential	45.0	30.4
451	624646	5454833	Residential	45.0	30.2
452	624689	5454824	Residential	45.0	30.2
453	624727	5454839	Residential	45.0	30.1
454	624823	5454873	Residential	45.0	30.0
455	624776	5454869	Residential	45.0	30.1
456	624896	5454903	Residential	45.0	30.0
457	624900	5454928	Residential	45.0	30.0
458	624935	5454938	Residential	45.0	29.9
459	624917	5455025	Residential	45.0	30.0
460	624947	5455051	Residential	45.0	30.0
461	624995	5455051	Residential	45.0	29.9
462	625224	5455185	Residential	45.0	29.7
463	625246	5455203	Residential	45.0	29.7
464	625276	5455262	Residential	45.0	29.7
465	625354	5455284	Residential	45.0	29.6
466	625387	5455337	Residential	45.0	29.6
467	625410	5455369	Residential	45.0	29.6
468	625428	5455391	Residential	45.0	29.6
469	625441	5455403	Residential	45.0	29.6
470	625444	5455430	Residential	45.0	29.6
471	625469	5455454	Residential	45.0	29.6
472	625508	5455483	Residential	45.0	29.5
473	625565	5455526	Residential	45.0	29.5
474	625621	5455547	Residential	45.0	29.4
475	625565	5455526	Residential	45.0	29.5
476	626913	5456816	Residential	45.0	28.4
477	626926	5456835	Residential	45.0	28.4
478	626943	5456863	Residential	45.0	28.4
479	626956	5456969	Residential	45.0	28.4
480	626968	5457020	Residential	45.0	28.4
481	627040	5457103	Residential	45.0	28.3
482	627075	5457098	Residential	45.0	28.3
483	627012	5

509	610741	5479170	Residential	45.0	40.2
510	610695	5479078	Residential	45.0	40.2
511	610441	5479154	Residential	45.0	39.2
512	610466	5479096	Residential	45.0	39.4
513	610494	5479084	Residential	45.0	39.5
514	610430	5478970	Residential	45.0	39.5
515	610371	5478941	Residential	45.0	39.3
516	610287	5478919	Residential	45.0	39.1
517	610196	5478975	Residential	45.0	38.7
518	610153	5478983	Residential	45.0	38.6
519	610176	5478932	Residential	45.0	38.7
520	610117	5478937	Residential	45.0	38.5
521	610051	5478937	Residential	45.0	38.3
522	610037	5478971	Residential	45.0	38.2
523	609905	5478922	Residential	45.0	37.9
524	609898	5478965	Residential	45.0	37.8
525	609853	5478965	Residential	45.0	37.7
526	609785	5478956	Residential	45.0	37.5
527	609813	5478958	Residential	45.0	37.5
528	609805	5478916	Residential	45.0	37.6
529	609786	5478915	Residential	45.0	37.5
530	609734	5478871	Residential	45.0	37.5
531	609693	5478857	Residential	45.0	37.3
532	609706	5478896	Residential	45.0	37.3
533	609674	5478878	Residential	45.0	37.3
534	609643	5478848	Residential	45.0	37.2
535	609608	5478847	Residential	45.0	37.1
536	609630	5478899	Residential	45.0	37.1
537	609692	5478922	Residential	45.0	37.2
538	609660	5478920	Residential	45.0	37.1
539	609600	5478899	Residential	45.0	37.0
540	609560	5478864	Residential	45.0	36.9
541	609534	5478877	Residential	45.0	36.8
542	609529	5478920	Residential	45.0	36.7
543	609505	5478889	Residential	45.0	36.7
544	609466	5478904	Residential	45.0	36.6
545	609443	5478925	Residential	45.0	36.5
546	609412	5478960	Residential	45.0	36.3
547	609373	5478995	Residential	45.0	36.2
548	609381	5478979	Residential	45.0	36.2
549	609460	5479229	Residential	45.0	36.2
550	612691	5449357	Remote	45.0	44.2
551	607743	5444187	Remote	45.0	44.2
552	608280	5444441	Remote	45.0	44.1
553	608292	5444375	Remote	45.0	44.0
554	608506	5444490	Remote	45.0	44.5
555	605039	5451699	Remote	45.0	43.8
556	605076	5451787	Remote	45.0	44.2
557	606414	5454381	Remote	45.0	44.8
558	611015	5463005	Remote	45.0	40.9
559	611042	5462946	Remote	45.0	40.7
560	611064	5462761	Remote	45.0	40.5
561	610915	5462419	Remote	45.0	41.3
562	611025	5462463	Remote	45.0	40.6
563	610788	5463424	Remote	45.0	42.4
564	606331	5458336	Remote	45.0	43.8
565	611971	5455376	Remote	45.0	44.4
566	611753	5453127	Remote	45.0	44.2
567	611774	5453110	Remote	45.0	44.2
568	611352	5451595	Remote	45.0	43.3
569	611299	5451640	Remote	45.0	43.4
570	611519	5451634	Remote	45.0	43.4
571	611626	5451353	Remote	45.0	43.5
572	610894	5451426	Remote	45.0	44.0
573	611327	5451059	Remote	45.0	43.9
574	614218	5455962	Remote	45.0	44.1
575	614291	5456021	Remote	45.0	44.1
576	614389	5455778	Remote	45.0	44.5
577	601810	5440067	Remote	45.0	42.9
578	601850	5440028	Remote	45.0	43.2
579	601927	5440039	Remote	45.0	43.5
580	602030	5440084	Remote	45.0	44.0
581	602053	5440046	Remote	45.0	44.2
582	602044	5439971	Remote	45.0	44.3
583	602086	5439935	Remote	45.0	44.6
584	603679	5450853	Remote	45.0	44.0
585	601746	5441209	Remote	45.0	43.5
586	601845	5441216	Remote	45.0	43.3
587	601879	5441170	Remote	45.0	43.2
588	603058	5452252	Remote	45.0	43.4
589	603081	5452219	Remote	45.0	43.5
590	603371	5451758	Remote	45.0	44.0
591	611518	5451202	Remote	45.0	43.7
592	610900	5451466	Remote	45.0	44.0
593	614110	5456330	Remote	45.0	43.5
594	608206	5457576	Remote	45.0	44.7
595	607328	5449178	Remote	45.0	44.5
596	607298	5449087	Remote	45.0	44.3
597	602636	5452253	Remote	45.0	42.1
598	602644	5437523	Remote	45.0	43.2
599	602595	5437260	Remote	45.0	41.3
600	608285	5460553	Remote	45.0	42.0
601	614464	5456031	Remote	45.0	44.8
602	603790	5449620	Remote	45.0	42.3
603	602646	5446729	Remote	45.0	43.4
604	602253	5446190	Remote	45.0	44.7
605	602250	5446100	Remote	45.0	44.6
606	602264	5446066	Remote	45.0	44.6
607	602277	5446041	Remote	45.0	44.6
608	602466	5445827	Remote	45.0	44.3
609	602509	5445783	Remote	45.0	44.3
610	602541	5445767	Remote	45.0	44.2
611	602564	5445748	Remote	45.0	44.2
612	602617	5445717	Remote	45.0	44.0
613	602663	5445725	Remote	45.0	43.7
614	602697	5445702	Remote	45.0	43.6
615	602847	5445629	Remote	45.0	43.0
616	602878	5445664	Remote	45.0	42.7
617	602909	5445668	Remote	45.0	42.5
618	603203	5445635	Remote	45.0	41.4
619	603178	5445600	Remote	45.0	41.6
620	603152	5445569	Remote	45.0	41.6
621	603145	5445530	Remote	45.0	41.7
622	603178	5445489	Remote	45.0	41.5
623	603182	5445460	Remote	45.0	41.6
624	603164	5445344	Remote	45.0	41.8
625	603134	5445322	Remote	45.0	42.0
626	603091	5445294	Remote	45.0	42.2
627	603041	5445283	Remote	45.0	42.5
628	602870	5445166	Remote	45.0	43.8
629	602839	5444941	Remote	45.0	43.9
630	602773	5444730	Remote	45.0	44.2
631	602736	5444645	Remote	45.0	44.4
632	602741	5444586	Remote	45.0	44.3
633	602736	5444551	Remote	45.0	44.4
634	602744	5444497	Remote	45.0	44.3
635	602759	5444442	Remote	45.0	44.3
636	602745	5444263	Remote	45.0	44.6
637	602793	5444211	Remote	45.0	44.4
638	602829	5444178	Remote	45.0	44.2
639	602827	5444138	Remote	45.0	44.3
640	602828	5444095	Remote	45.0	44.6
641	602828	5444053	Remote	45.0	44.5
642	604852	5439448	Remote	45.0	42.2
643	602868	5447019	Remote	45.0	42.2
644	603201	5445693	Remote	45.0	41.3
645	608912	5464501	Remote	45.0	38.5
646	602585	5452445	Remote	45.0	41.4
647	603984	5449521	Remote	45.0	41.6
648	603927	5449482	Remote	45.0	41.8
649	604007	5449846	Remote	45.0	41.7
650	604062	5449994	Remote	45.0	41.7
651	604054	5450091	Remote	45.0	41.8
652	604067	5450127	Remote	45.0	41.8
653	604124	5450195	Remote	45.0	41.7
654	604034	5450349	Remote	45.0	42.1
655	603879	5449326	Remote	45.0	42.0
656	603694	5448407	Remote	45.0	42.3
657	603595	5448331	Remote	45.0	42.8
658	603575	5448311	Remote	45.0	42.8
659	603491	5448139	Remote	45.0	42.9
660	603388	5447717	Remote	45.0	42.2
661	603325	5447679	Remote	45.0	42.3
662	603280	5447659	Remote	45.0	42.5
663	603181	5447462	Remote	45.0	42.1
664	603124	5447397	Remote	45.0	42.1
665	602858	5447067	Remote	45.0	42.3
666	601653	5439759	Remote	45.0	43.1
667	602753	5437299	Remote	45.0	42.3
668	603396	5441534	Remote	45.0	41.4
669	612281	5456093	Remote	45.0	43.2
670	613888	5457127	Remote	45.0	42.0
671	602947	5447166	Remote	45.0	42.1
672	601987	5454049	Remote	45.0	37.6
673	599797	5440984	Remote	45.0	40.0
674	604150	5449351	Remote	45.0	41.1
675	604177	5449466	Remote	45.0	41.0
676	603996	5449659	Remote	45.0	41.6
677	604229	5449343	Remote	45.0	40.9
678	604194	5449343	Remote	45.0	41.0
679	605920	5448986	Remote	45.0	40.8
680	604741	5441822	Remote	45.0	41.0
681	606323	5440395	Remote	45.0	38.2
682	602692	5446829	Remote	45.0	43.1
683	602668	5446794	Remote	45.0	43.2
684	612800	5458285	Remote	45.0	38.5
685	612764	5458655	Remote	45.0	38.1
686	613072	5459145	Remote	45.0	38.2
687	613871	5458776	Remote	45.0	40.8
688	585053	5454032	Remote	45.0	41.0
689	590929	5460274	Remote	45.0	44.7
690	584791	5459647	Remote	45.0	44.8
691	620398	5455402	Remote	45.0	39.1
692	620445	5455193	Remote	45.0	38.3
693	609120	5470284	Remote	45.0	32.9
694	609208	5470389	Remote	45.0	33.2
695	609277	5470411	Remote	45.0	33.4
696	609267	5470486	Remote	45.0	33.5
697	609266	5470553	Remote	45.0	33.6
698	609244	5470661	Remote	45.0	33.7
699	609286	5470663	Remote	45.0	33.8
700	609325	5470693	Remote	45.0	34.0
701	609380	5470705	Remote	45.0	34.1
702	609398	5470722	Remote	45.0	34.2
703	609456	5470741	Remote	45.0	34.4
704	609494	5470777	Remote	45.0	34.6
705	609532	5470793	Remote	45.0	34.7
706	609578	5470781	Remote	45.0	34.9
707	609654	5470799	Remote	45.0	35.2
708	609725	5470824	Remote	45.0	35.5
709	609694	5470874	Remote	45.0	35.5
710	609719	5470914	Remote	45.0	35.7
711	609990	5472104	Remote	45.0	39.1
712	609971	5472008	Remote	45.0	38.8
713	610048	5473195	Remote	45.0	40.2
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715	610431	5473834	Remote	45.0	41.3
716	610345	5473854	Remote	45.0	40.7
717	610318	5473898	Remote	45.0	40.4
718	610303	5473936	Remote	45.0	40.2
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720	610170	5473938	Remote	45.0	39.4
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726	610655	5474798	Remote	45.0	39.5
727	610788	5474877	Remote	45.0	39.9
728	610861	5474882	Remote	45.0	40.1
729	610816	5474880	Remote	45.0	39.9
730	610872	5474946	Remote	45.0	40.1
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732	610927	5475051	Remote	45.0	40.2
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737	611147	5475232	Remote	45.0	38.4
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741	611377	5475312	Remote	45.0	41.5
742	611431	5475374	Remote	45.0	41.7
743	611530	5475348	Remote	45.0	42.0
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746	611860	5475616	Remote	45.0	42.8
747	612220	5476040	Remote	45.0	42.6
748	612447	5476332	Remote	45.0	43.0
749	612473	5476351	Remote	45.0	43.0
750	612495	5476369	Remote	45.0	43.1
751	612567	5476514	Remote	45.0	43.6
752	612097	5469518	Remote	45.0	33.1
753	612185	5469860	Remote	45.0	33.9
754	615471	5480636	Remote	45.0	43.3
755	612352	5479209	Remote	45.0	44.7
756	612929	5476500	Remote	45.0	42.1
757	613033	5476571	Remote	45.0	42.0
758	613275	5476770	Remote	45.0	42.2
759	613279	5476831	Remote	45.0	42.6
760	613209	5477013	Remote	45.0	44.2
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763	612823	5476407	Remote	45.0	42.1
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772	610830	5463558	Remote	45.0	41.4
773	612322	5455172	Remote	45.0	44.0
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775	611991	5455690	Remote	45.0	44.1
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780	611472	5451618	Remote	45.0	43.4
781	611581	5451586	Remote	45.0	43.4
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787	610943	5451550	Remote	45.0	43.9
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804	605110	5445932	Remote	45.0	44.4
805	610972	5462476	Remote	45.0	40.9
806	610923	5463676	Remote	45.0	40.1
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809	608270	5462384	Remote	45.0	42.8
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812	608294	5460125	Remote	45.0	43.4
813	604219	5456884	Remote	45.0	42.2
814	603916	5449813	Remote	45.0	41.9
815	605212	5440096	Remote	45.0	39.3
816	604889	5439170	Remote	45.0	42.9
817	603991	5440324	Remote	45.0	42.5
818	599920	5441128	Remote	45.0	41.1
819	605169	5451460	Remote	45.0	43.8
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821	610926	5450808	Remote	45.0	44.6
822	602616	5452275	Remote	45.0	42.0
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824	602173	5453546	Remote	45.0	38.4
825	602658	5454376	Remote	45.0	39.4
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831	599214	5440584	Remote	45.0	37.2
832	620977	5456094	Remote	45.0	38.6
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837	615561	5450309	Remote	45.0	39.5
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839	600973	5443997	Remote	45.0	44.2
840	607777	5444197	Remote	45.0	44.1
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842	612500	5470047	Remote	45.0	33.8
843	612553	5470049	Remote	45.0	33.7
844	612615	5470045	Remote	45.0	33.6
845	612664	5470039	Remote	45.0	33.5
846	612374	5470025	Remote	45.0	34.0
847	612500	5470047	Remote	45.0	33.8
848	612553	5470049	Remote	45.0	33.7
849	612615	5470045	Remote	45.0	33.6
850	612664	5470039	Remote	45.0	33.5
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852	608513	5444414	No Crown Title	45.0	44.5
853	602364	5441021	No Crown Title	45.0	43.8
854	602397	5441134	No Crown Title	45.0	43.5
855	603749	5440448	No Crown Title	45.0	42.9
856	604583	5439556	No Crown Title	45.0	44.0
857	606292	5441571	No Crown Title	45.0	44.4
858	610054	5445689	No Crown Title	45.0	50.7
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860	610124	5446241	No Crown Title	45.0	51.2
861	612729	5451761	No Crown Title	45.0	44.5
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864	603600	5440154	No Crown Title	45.0	45.3
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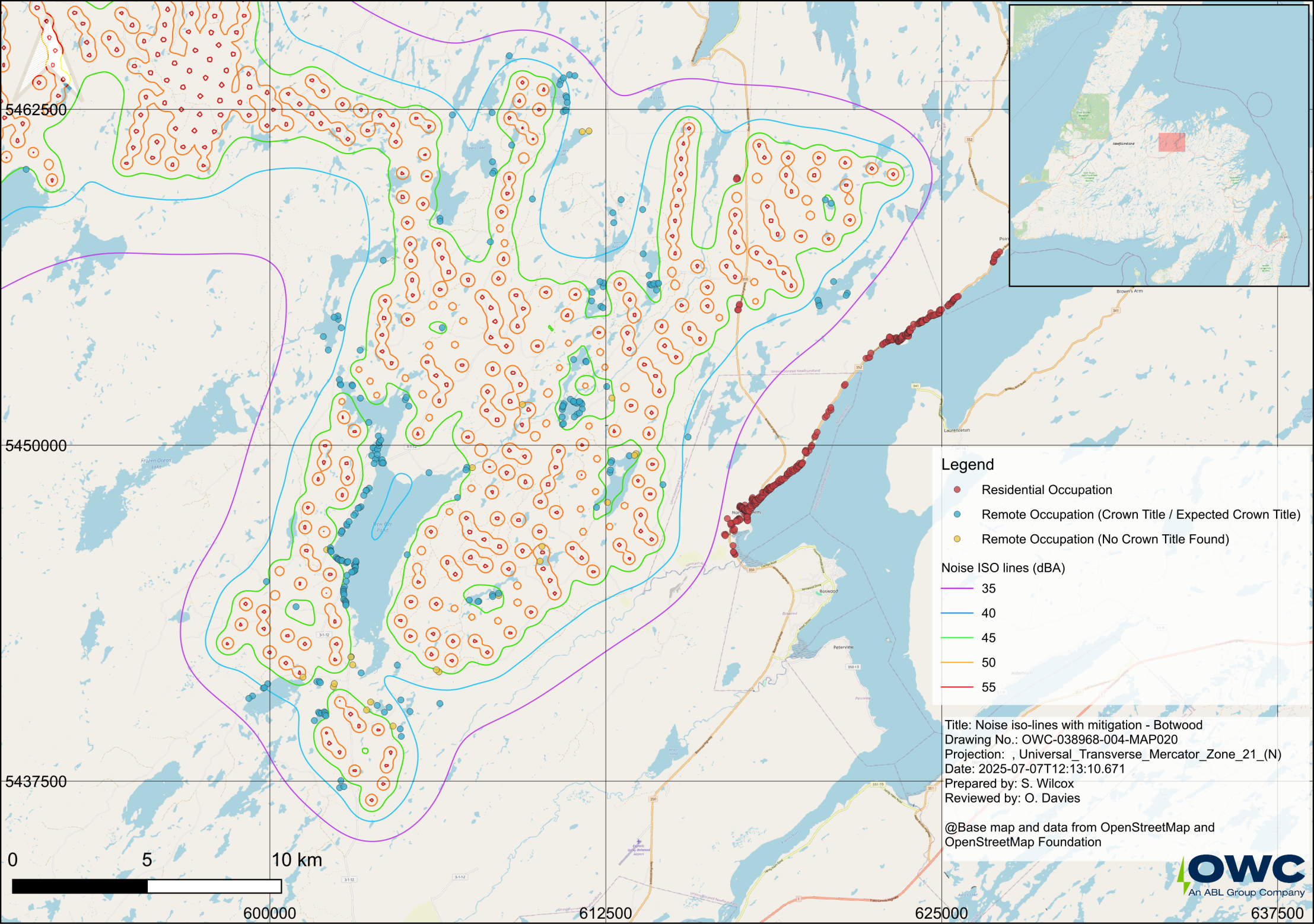
872	612566	5447876	No Crown Title	45.0	44.5
873	615210	5482464	No Crown Title	45.0	50.3
874	612459	5479159	No Crown Title	45.0	45.0
875	610222	5477867	No Crown Title	45.0	43.3
876	613881	5475575	No Crown Title	45.0	37.5
877	612192	5477761	No Crown Title	45.0	50.4
878	612164	5477925	No Crown Title	45.0	49.5
879	613623	5483920	No Crown Title	45.0	46.7

Appendix I Updated Noise Iso-lines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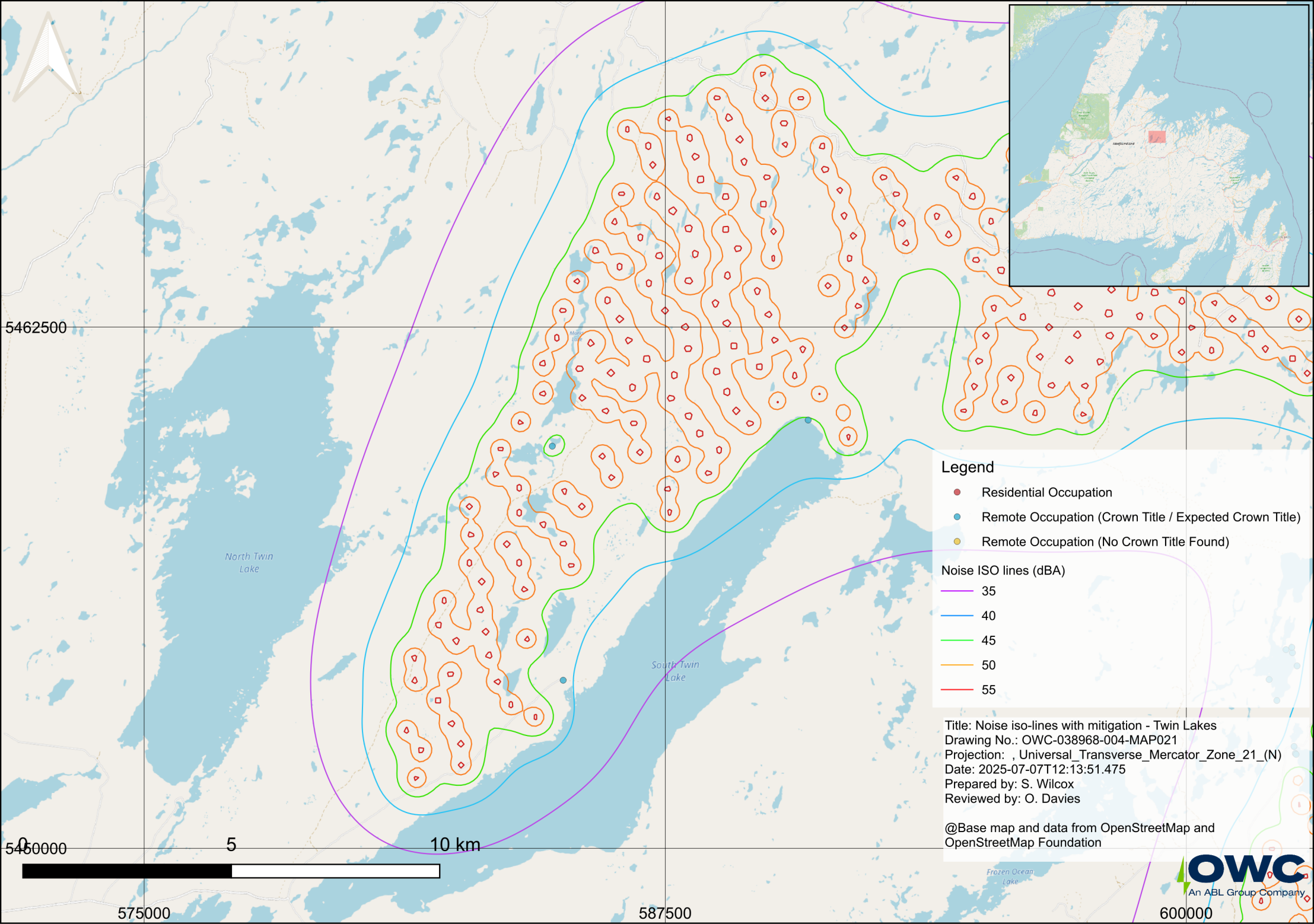
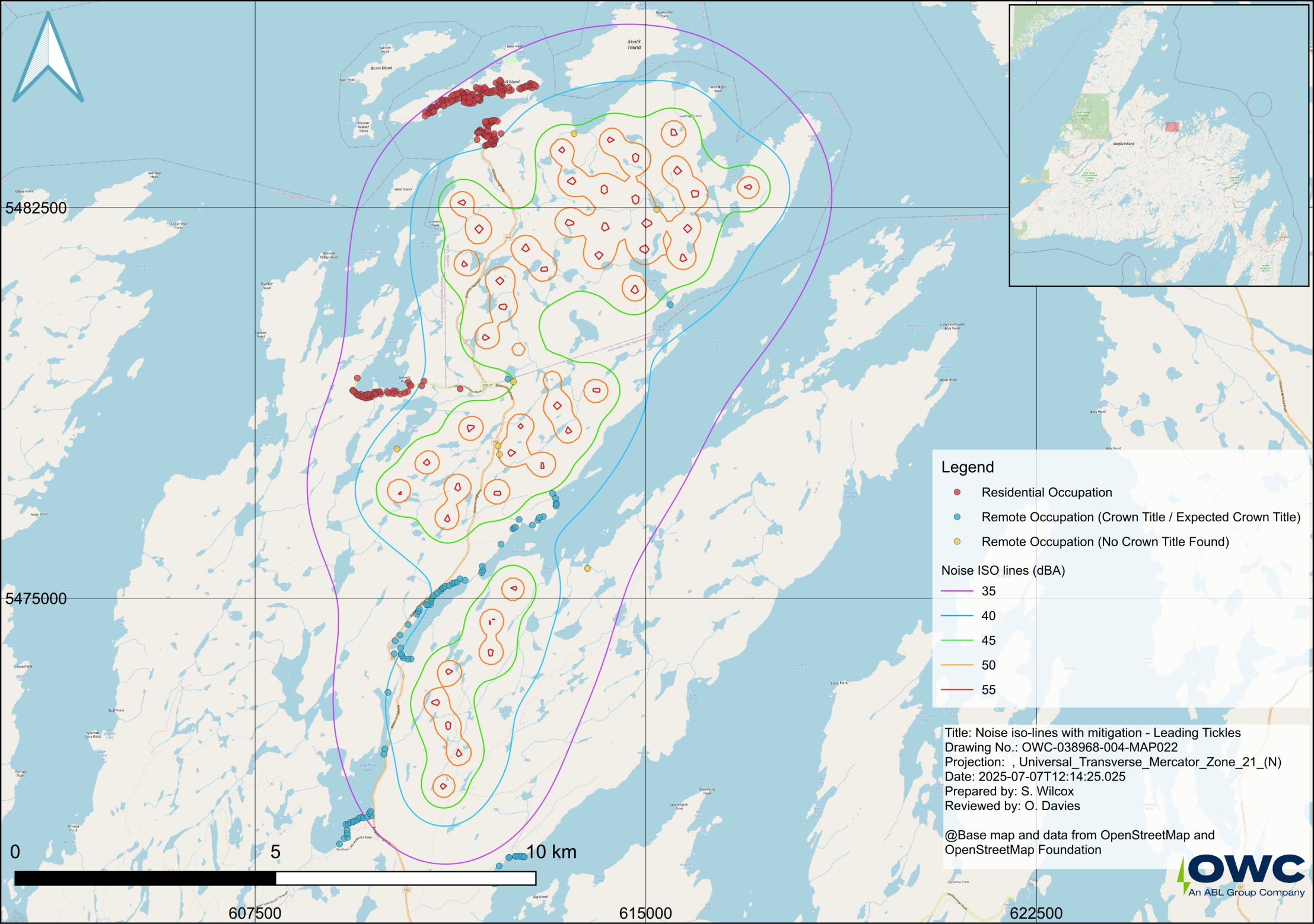
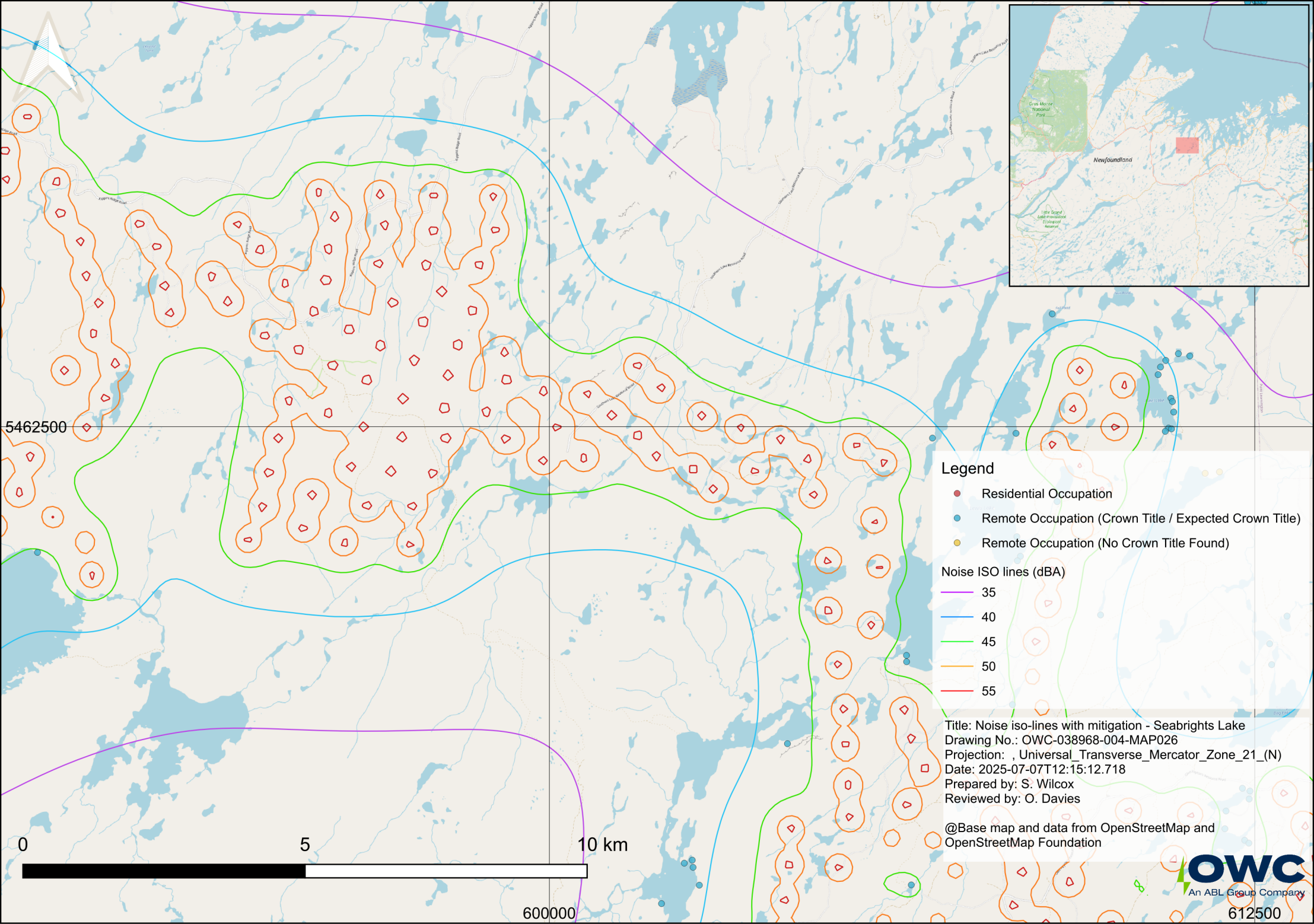
5450000
5437500
600000
612500
625000
637500
0
5
10 km
Legend
Residential Occupation
Remote Occupation (Crown Title / Expected Crown Title)
Remote Occupation (No Crown Title Found)
Noise ISO lines (dBA)
35
40
45
50
55
Title: Noise iso-lines with mitigation - Botwood
Drawing No.: OWC-038968-004-MAP020
Projection: , Universal_Transverse_Mercator_Zone_21_(N)
Date: 2025-07-07T12:13:10.671
Prepared by: S. Wilcox
Reviewed by: O. Davies
@Base map and data from OpenStreetMap and OpenStreetMap Foundation
OWC
An ABL Group Company


5462500
5450000
575000
587500
600000
North Twin Lake
South Twin Lake
Frozen Ocean Lake
0
5
10 km
Legend
Residential Occupation
Remote Occupation (Crown Title / Expected Crown Title)
Remote Occupation (No Crown Title Found)
Noise ISO lines (dBA)
35
40
45
50
55
Title: Noise iso-lines with mitigation - Twin Lakes
Drawing No.: OWC-038968-004-MAP021
Projection: , Universal_Transverse_Mercator_Zone_21_(N)
Date: 2025-07-07T12:13:51.475
Prepared by: S. Wilcox
Reviewed by: O. Davies
@Base map and data from OpenStreetMap and OpenStreetMap Foundation
OWC
An ABL Group Company


5482500
5475000
607500
615000
622500
0
5
10 km
Legend
Residential Occupation
Remote Occupation (Crown Title / Expected Crown Title)
Remote Occupation (No Crown Title Found)
Noise ISO lines (dBA)
35
40
45
50
55
Title: Noise iso-lines with mitigation - Leading Tickles
Drawing No.: OWC-038968-004-MAP022
Projection: , Universal_Transverse_Mercator_Zone_21_(N)
Date: 2025-07-07T12:14:25.025
Prepared by: S. Wilcox
Reviewed by: O. Davies
@Base map and data from OpenStreetMap and OpenStreetMap Foundation
OWC
An ABL Group Company


5462500
Legend
Residential Occupation
Remote Occupation (Crown Title / Expected Crown Title)
Remote Occupation (No Crown Title Found)
Noise ISO lines (dBA)
35
40
45
50
55
Title: Noise iso-lines with mitigation - Seabrights Lake
Drawing No.: OWC-038968-004-MAP026
Projection: , Universal_Transverse_Mercator_Zone_21_(N)
Date: 2025-07-07T12:15:12.718
Prepared by: S. Wilcox
Reviewed by: O. Davies
@Base map and data from OpenStreetMap and OpenStreetMap Foundation
0
5
10 km
600000
612500
Newfoundland
An ABL Group Company

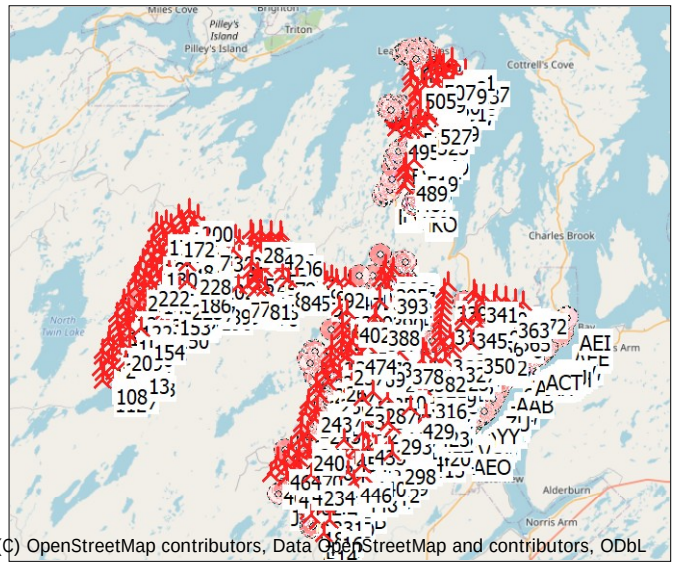
Appendix J WindPRO DECIBEL Exports

Licensed user:
OWC (Aqualis) GmbH
Alter Wall 67 - 69
DE-20457 Hamburg
+49 (0) 171 659 8163
Sara Santos / sara.santos@owcltd.com
Calculated:
25/04/2025 13:15/4.0.547

DECIBEL - Main Result

Calculation: Full layout_TES-Ground factor 0.7

Noise calculation model:
ISO 9613-2 General
Wind speed (at hubheight):
Highest noise value
Ground attenuation:
General, Ground factor: 0.7
Meteorological coefficient, C0:
Selected option: Fixed value: 0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Fixed penalty added to source noise of WTGs with pure tones
Model: 5.0 dB(A)
Height above ground level, when no value in NSA object:
1.5 m; Don't allow override of model height with height from NSA object
Uncertainty margin:
0.0 dB; Uncertainty margin in NSA has priority
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0.0 dB(A)



All coordinates are in
UTM (north)-NAD83(NSRS/CSRS) (US+CA ITRS-Epoche 1997), GRS80 Zone: 21

Scale 1:750,000
New WTG
Noise sensitive area

WTGs

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Noise data Creator	Name	Wind speed	LwA,ref
			[m]					[kW]	[m]	[m]			[m/s]	[dB(A)]
1	582,374	5,452,981	238.1	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
2	582,492	5,454,970	219.8	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
3	583,196	5,455,188	199.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
4	590,759	5,467,991	91.3	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
5	589,540	5,460,182	198.5	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
6	590,150	5,462,188	228.5	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
7	591,679	5,465,795	232.6	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
8	590,114	5,464,795	191.8	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
9	590,089	5,464,147	199.7	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
10	611,613	5,445,819	125.2	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
11	612,046	5,445,285	95.7	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
12	610,610	5,444,474	119.5	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
13	609,403	5,446,075	179.4	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
14	603,782	5,436,787	110.7	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
15	604,234	5,437,397	97.6	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
16	604,349	5,438,065	100.9	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
17	604,497	5,438,562	94.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
18	602,598	5,438,563	142.5	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
19	604,044	5,439,423	127.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
20	602,223	5,438,914	181.8	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
21	602,116	5,439,314	186.2	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
22	598,925	5,443,338	233.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
23	599,775	5,443,820	197.8	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
24	602,039	5,446,772	141.8	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
25	601,797	5,448,736	171.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
26	602,016	5,449,362	140.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
27	592,727	5,466,103	200.4	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
28	595,924	5,466,655	122.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
29	594,475	5,466,075	215.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
30	593,046	5,465,689	244.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
31	593,170	5,465,003	242.4	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
32	597,002	5,466,627	103.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
33	596,182	5,466,225	145.6	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
34	594,886	5,465,632	167.5	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
35	594,026	5,465,165	236.9	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
36	593,272	5,464,521	254.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
37	597,945	5,466,603	102.6	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
38	597,073	5,466,071	117.4	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
39	596,071	5,465,652	150.9	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
40	594,313	5,464,723	209.1	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
41	599,007	5,466,577	138.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
42	597,948	5,465,976	102.0	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
43	596,966	5,465,387	113.5	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
44	596,044	5,465,079	176.8	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
45	595,332	5,465,042	143.4	Goldwind GW182/8000 8...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5

To be continued on next page...

Project:
01v1_038968-004-WPR001-A_EVREC-Noise

Licensed user:
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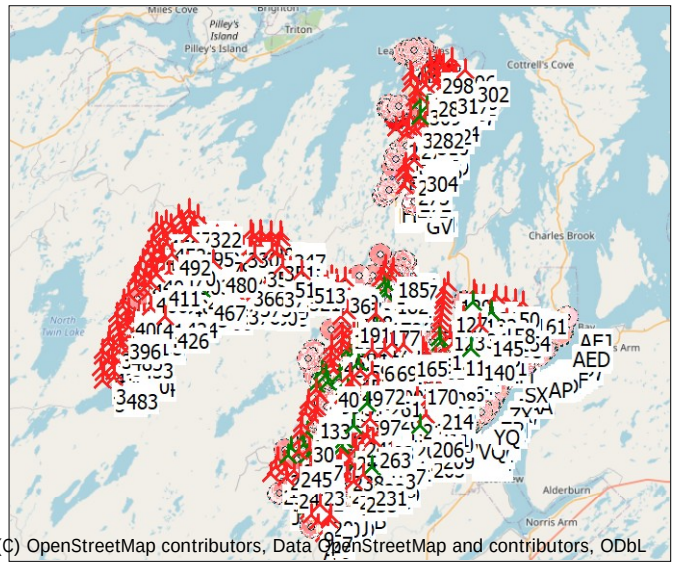
Sara Santos / sara.santos@owcltd.com
Calculated:
25/04/2025 14:26/4.0.547

DECIBEL - Main Result

Calculation: Reduced-compliant layout_TES-Ground factor 0.7

Noise calculation model:
ISO 9613-2 General
Wind speed (at hubheight):
Highest noise value
Ground attenuation:
General, Ground factor: 0.7
Meteorological coefficient, C0:
Selected option: Fixed value: 0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Fixed penalty added to source noise of WTGs with pure tones
Model: 5.0 dB(A)
Height above ground level, when no value in NSA object:
1.5 m; Don't allow override of model height with height from NSA object
Uncertainty margin:
0.0 dB; Uncertainty margin in NSA has priority
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0.0 dB(A)

All coordinates are in
UTM (north)-NAD83(NSRS/CSRS) (US+CA ITRS-Epoche 1997), GRS80 Zone: 21



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Scale 1:750,000
New WTG
Noise sensitive area

WTGs

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Noise data Creator	Name	Wind speed	LwA,ref
			[m]					[kW]	[m]	[m]			[m/s]	[dB(A)]
1	611,613	5,445,819	125.2	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
2	612,046	5,445,285	95.7	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
3	610,610	5,444,474	119.5	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
4	609,403	5,446,075	179.4	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
5	603,782	5,436,787	110.7	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
6	604,234	5,437,397	97.6	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
7	604,349	5,438,065	100.9	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
8	604,497	5,438,562	94.0	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
9	602,598	5,438,563	142.5	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
10	604,044	5,439,423	127.0	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
11	602,223	5,438,914	181.8	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
12	602,116	5,439,314	186.2	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM1s_109.5	10.0	109.6
13	598,925	5,443,338	233.0	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
14	599,775	5,443,820	197.8	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
15	602,039	5,446,772	141.8	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM1s_109.5	10.0	109.6
16	601,797	5,448,736	171.0	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
17	602,016	5,449,362	140.0	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
18	605,939	5,461,850	76.6	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
19	605,455	5,462,146	110.9	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
20	603,330	5,439,552	126.0	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
21	603,162	5,437,887	128.5	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
22	602,441	5,442,037	125.4	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
23	602,472	5,442,621	117.5	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
24	602,437	5,443,446	114.0	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
25	602,240	5,443,915	129.4	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM2s_108.5	10.0	108.6
26	602,113	5,444,517	135.6	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM2s_108.5	10.0	108.6
27	602,247	5,445,206	120.3	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
28	601,672	5,445,553	117.4	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM1s_109.5	10.0	109.6
29	601,362	5,446,072	139.2	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
30	601,305	5,446,950	161.2	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
31	601,428	5,447,676	175.8	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
32	602,059	5,449,980	148.7	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
33	602,861	5,449,343	127.7	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
34	602,902	5,448,789	132.8	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
35	602,688	5,448,147	151.7	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
36	603,153	5,450,535	116.7	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
37	602,742	5,451,053	124.3	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
38	602,688	5,451,629	116.4	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM4s_106.5	10.0	106.5
39	603,979	5,451,860	115.9	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM4s_106.5	10.0	106.5
40	603,717	5,452,389	147.3	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM4s_106.5	10.0	106.5
41	603,303	5,452,816	138.9	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM4s_106.5	10.0	106.5
42	604,174	5,453,490	170.3	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
43	604,166	5,454,114	174.0	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
44	604,254	5,454,738	180.4	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
45	604,282	5,455,374	177.2	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
46	605,136	5,454,676	171.1	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
47	605,920	5,453,740	111.1	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM4s_106.5	10.0	106.5
48	605,853	5,453,111	139.1	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
49	606,156	5,452,606	150.4	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
50	606,574	5,452,255	211.7	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5
51	606,308	5,451,647	200.5	Goldwind GW182/8000 8000...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	110.5

To be continued on next page...

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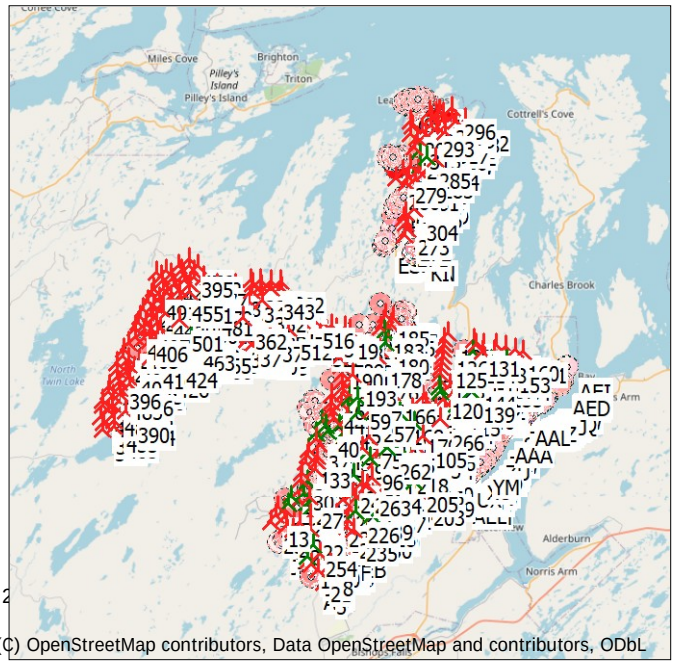
+49 (0) 171 659 8163
Sara Santos / sara.santos@owcltd.com
Calculated:
02/06/2025 16:25/4.0.547

DECIBEL - Main Result

Calculation: LowFrequency_TES-Ground factor 0.7

Noise calculation model:
Finland Low frequency
Wind speed (at 10 m height):
Highest noise value at receptor
Spectral distribution:
From 20.0 Hz to 200.0 Hz
Meteorological coefficient, C0:
Selected option: Fixed value: 0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Pure tone penalty is subtracted from demand
Model: 5.0 dB(A)
Height above ground level, when no value in NSA object:
4.0 m; Don't allow override of model height with height from NSA object
Uncertainty margin:
0.0 dB; Uncertainty margin in NSA has priority
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0.0 dB(A)

All coordinates are in
UTM (north)-NAD83(NSRS/CSRS) (US+CA ITRS-Epoche 1997), GRS80 Zone: 2



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All coordinates are in
UTM (north)-NAD83(NSRS/CSRS) (US+CA ITRS-Epoche 1997), GRS80 Zone: 21
New WTG
Scale 1:750,000
Noise sensitive area

WTGs

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Noise data Creator	Name	First wind speed	LwaRef	Last wind speed	LwaRef	
			[m]					[kW]	[m]	[m]			[m/s]	[dB(A)]	[m/s]	[dB(A)]	
1	611,613	5,445,819	125.2	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
2	612,046	5,445,285	95.7	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
3	610,610	5,444,474	119.5	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
4	609,403	5,446,075	179.4	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
5	603,782	5,436,787	110.7	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
6	604,234	5,437,397	97.6	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
7	604,349	5,438,065	100.9	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
8	604,497	5,438,562	94.0	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
9	602,598	5,438,563	142.5	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
10	604,044	5,439,423	127.0	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
11	602,223	5,438,914	181.8	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
12	602,116	5,439,314	186.2	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM1s_109.5	10.0	104.3	10.0	104.3	f
13	598,925	5,443,338	233.0	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
14	599,775	5,443,820	197.8	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
15	602,039	5,446,772	141.8	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM1s_109.5	10.0	104.3	10.0	104.3	f
16	601,797	5,448,736	171.0	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
17	602,016	5,449,362	140.0	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
18	605,939	5,461,850	76.6	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
19	605,455	5,462,146	110.9	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
20	603,330	5,439,552	126.0	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
21	603,162	5,437,887	128.5	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
22	602,441	5,442,037	125.4	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
23	602,472	5,442,621	117.5	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
24	602,437	5,443,446	114.0	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
25	602,240	5,443,915	129.4	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM2s_108.5	10.0	103.3	10.0	103.3	f
26	602,113	5,444,517	135.6	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM2s_108.5	10.0	103.3	10.0	103.3	f
27	602,247	5,445,206	120.3	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
28	601,672	5,445,553	117.4	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM1s_109.5	10.0	104.3	10.0	104.3	f
29	601,362	5,446,072	139.2	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
30	601,305	5,446,950	161.2	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
31	601,428	5,447,676	175.8	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
32	602,059	5,449,980	148.7	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
33	602,861	5,449,343	127.7	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
34	602,902	5,448,789	132.8	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
35	602,688	5,448,147	151.7	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
36	603,153	5,450,535	116.7	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
37	602,742	5,451,053	124.3	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
38	602,688	5,451,629	116.4	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM4s_106.5	10.0	101.2	10.0	101.2	f
39	603,979	5,451,860	115.9	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM4s_106.5	10.0	101.2	10.0	101.2	f
40	603,717	5,452,389	147.3	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM4s_106.5	10.0	101.2	10.0	101.2	f
41	603,303	5,452,816	138.9	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM4s_106.5	10.0	101.2	10.0	101.2	f
42	604,174	5,453,490	170.3	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
43	604,166	5,454,114	174.0	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
44	604,254	5,454,738	180.4	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
45	604,282	5,455,374	177.2	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
46	605,136	5,454,676	171.1	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
47	605,920	5,453,740	111.1	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES_SRM4s_106.5	10.0	101.2	10.0	101.2	f
48	605,853	5,453,111	139.1	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f
49	606,156	5,452,606	150.4	Goldwind GW182/8000 8000 1...	Yes	Goldwind	GW182/8000-8,000	8,000	182.0	135.0	USER	Goldwind GWH182-8.0_TES	10.0	103.6	10.0	103.6	f

To be continued on next page...

Appendix K WTG data

Table-Ap 1 below provides a summary of the Noise Power Modes and Sound Reduction Modes available for the Goldwind GWH182-8.0 WTG.

Table-Ap 1: Normal Power Modes and Sound Reduction modes – GWH182-8.0

Noise mode	Sound Power Level (dBa)	Rated Power (kW)	Trailing Edge Serration
NPM	112.0	8,000.0	No
NPMs	110.5	8,000.0	Yes
SRM1s	109.5	7,660.0	Yes
SRM2s	108.5	7,321.0	Yes
SRM3s	107.5	6,320.8	Yes
SRM4s	106.5	6,017.2	Yes

Table-Ap 2 below provides a summary of the 1/3 octave bands for the noise modes.

Table-Ap 2: 1/3 Octave Data – GWH182-8.0

Noise mode	NPM	NPMs	SRM1s	SRM2s	SRM3s	SRM4s
Frequency (Hz)	Noise level(dBA)	Noise level(dBA)	Noise level(dBA)	Noise level(dBA)	Noise level(dBA)	Noise level(dBA)
25	64.1	62.6	62.0	60.8	59.5	58.8
31.5	69.8	68.3	67.6	66.5	65.4	64.6
40	75.3	73.8	73.1	72.2	71.2	70.4
50	80.7	79.2	78.5	77.6	76.7	75.8
63	85.8	84.3	83.5	82.6	81.8	80.8
80	90.5	89.0	88.1	87.3	86.5	85.5
100	94.5	93.0	92.1	91.3	90.5	89.4
125	97.6	96.1	95.2	94.3	93.4	92.3
160	99.7	98.2	97.3	96.3	95.3	94.1
200	101.0	99.5	98.6	97.5	96.5	95.4
250	101.8	100.3	99.4	98.3	97.3	96.1
315	102.0	100.5	99.6	98.6	97.6	96.4

400	102.0	100.5	99.6	98.5	97.6	96.4
500	101.9	100.4	99.5	98.6	97.7	96.5
630	101.8	100.3	99.3	98.4	97.6	96.4
800	101.3	99.8	98.8	97.9	97.0	95.8
1000	100.4	98.9	98.0	97.0	96.1	94.9
1250	99.2	97.7	96.8	95.8	94.9	93.8
1600	97.6	96.1	95.2	94.3	93.3	92.2
2000	96.0	94.5	93.6	92.6	91.7	90.6
2500	94.2	92.7	91.9	90.9	89.9	88.8
3150	92.1	90.6	89.8	88.7	87.7	86.6
4000	89.7	88.2	87.4	86.3	85.2	84.2
5000	87.1	85.6	84.8	83.6	82.5	81.5
6300	84.1	82.6	81.8	80.6	79.4	78.4
8000	80.4	78.9	78.1	76.9	75.6	74.7
10000	76.2	74.7	74.0	72.7	71.3	70.4
12500	71.5	70.0	69.3	67.9	66.4	65.6
Sum	**112.0**	**110.5**	**109.5**	**108.5**	**107.5**	**106.5**

OWC
An ABL Group Company

APPENDIX F.2
Construction Noise Study Report

Prepared by: io consulting

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

Abraxas EVREC PtX Project

Construction Noise Study Report

J-001817-ENV-TN-00002

Document Control

0	IFR	C Anderson	07/07/25	S Jivraj	07/07/25	S Jivraj	07/07/25
A	IDC	C Anderson	20/06/25	S Jivraj	20/06/25	S Jivraj	20/06/25
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Revision History

Revision No	Section Ref	Description of Change
0	All	Incorporating io consulting changes on IDC

Holds

Hold No	Section Ref	Description of Hold
1	All	No details of blasting have been provided and IO Consulting should confirm that the noise study should not include it in this assessment.

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1. Introduction

Abraxas are developing a Green Hydrogen and Ammonia Production, Storage and Loading Facility located outside the town of Botwood, Central Newfoundland. The facility will be located on a historical brownfield forestry site selected for redevelopment under the mandate of the Central Newfoundland Task Force.

The renewable energy for the facility will predominately be supplied by a 3GW Wind farm developed by Abraxas and energy storage technologies will be investigated as part of this study, with initial feasibility work considering a 200MW, 16 hour A-CAES facility to provide baseload power to the facility.

The proposed project, at peak, will produce approximately of 1.05 mtpa of ammonia, requiring approximately 13,000 GWh of energy per year and 4,015 million litres of water per year.

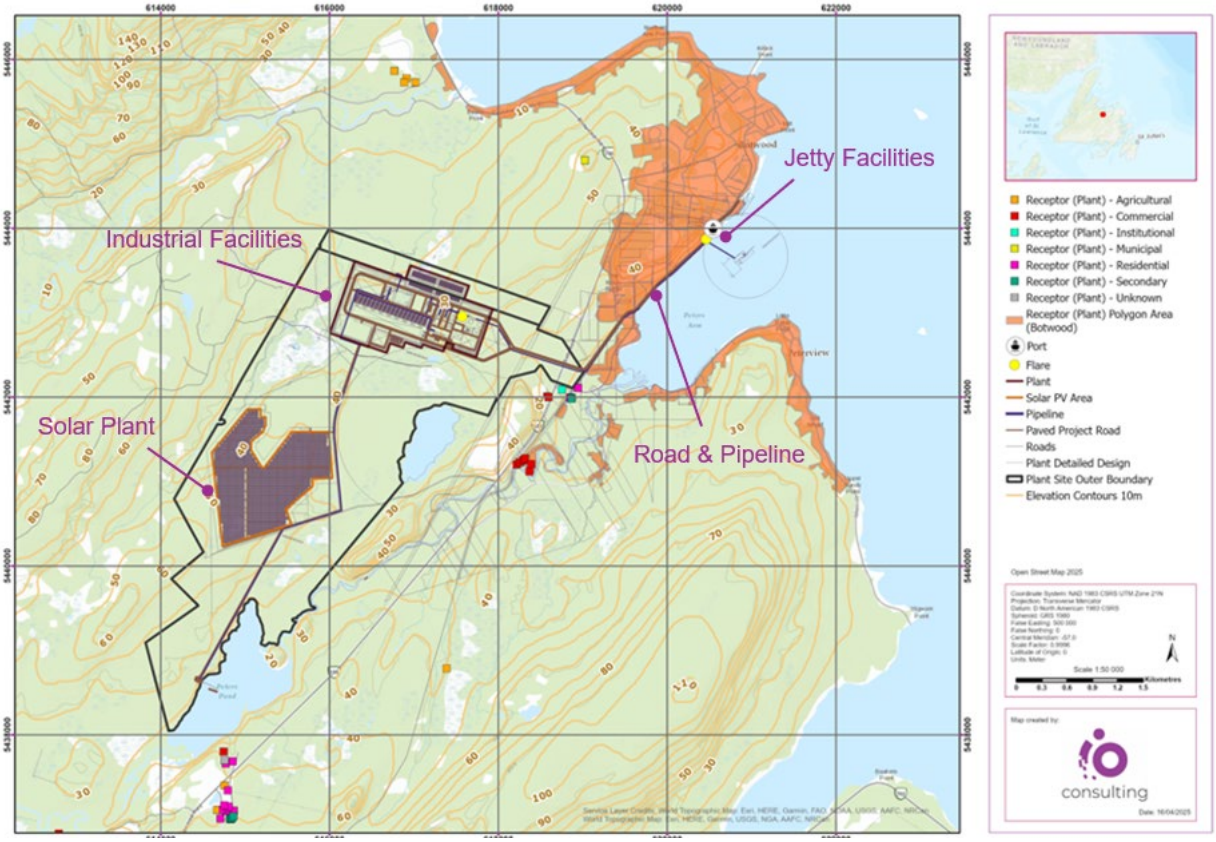

Figure 1-1 Project Location

Key project components include electrolysis units to produce hydrogen from deionised water; an air separation unit to generate nitrogen from the air; a Haber-Bosch ammonia synthesis unit to form anhydrous liquid ammonia through a catalytic reaction of hydrogen and nitrogen; bulk ammonia storage; and a marine terminal comprising a marine offloading facility and jetty to ship anhydrous liquid ammonia to market via speciality marine carriers. Neither the electrolysis units nor the Haber-Bosch ammonia synthesis unit will produce carbon emissions under normal operating conditions because no fossil fuels will be burned.

1.1 Document Purpose

The purpose of this document is to provide predicted unmitigated and, where appropriate, mitigated construction related environmental noise levels associated with the proposed development.

1.2 Document Scope

This scope of this document is limited to construction noise associated with the following:

- Industrial Facility
- Solar Farm
- Jetty
- Road and Underground Pipeline from Jetty to Industrial Facility

2. Construction Noise Assessment Approach

2.1 Modelling Tool

The sound power levels of the construction equipment anticipated for use have been utilised to predict environmental noise levels through a software-based, three-dimensional noise modelling approach.

For this assessment, the proprietary noise modelling software 'iNoise' has been employed. This model incorporates various noise propagation correction factors, including distance attenuation, ground effects, topographical screening, and atmospheric absorption.

The iNoise model is capable of calculating noise levels simultaneously across a site, providing both visual outputs in the form of noise contours and numerical data at specified receptor locations.

Importantly, the iNoise model adheres to the standards set out in ISO 9613-1 [Ref.1] and ISO 9613-2 [Ref.2], which are recognised international references for predicting the dispersion of airborne noise.

2.2 Model Set-up

In the absence of specific noise output data for the listed plant equipment, a preliminary screening has been conducted to identify the primary noise sources. The objective of this screening is to determine the key contributors to environmental noise emissions. It is important to note that, at this Front-End Engineering Design (FEED) stage, the assessment is inherently approximate and involves a degree of professional judgment. As vendor engagement has not yet occurred, the consultant has relied on a combination of publicly available data, proprietary databases, and experience derived from comparable project developments.

Due to the wide dynamic range of sound energy, noise is measured on a logarithmic decibel (dB) scale. This characteristic means that overall noise levels are typically influenced by a few dominant sources, while lower-level sources contribute minimally to off-site impacts.

Predicted noise levels have been calculated at a height of 1.5 meters above ground level, representing the average human ear height, across a grid covering the facility and adjacent areas. These predictions are based on the noise propagation and attenuation methods outlined in [Ref. 2], which assume moderately conservative downwind conditions. The model also incorporates environmental parameters—temperature and humidity—that influence sound propagation.

Specifically, the following environmental conditions, as defined in the Project Basis of Design (BOD) [Ref. 3] and through discussion with the Client (Abraxas) and FEED Contractor (MDR), have been used to represent a worst-case propagation scenario:

- Meteorological condition: Downwind (C = 0)
- Air temperature: 5°C (minimum)
- Relative humidity: 70% (maximum)
- Atmospheric pressure: 1 atmosphere (noting that actual site pressure may be slightly lower due to elevation)
- a ground attenuation factor of 0.5 has been applied, representing a mix of hard and soft ground surfaces typical of the near-site environment.

Significant attenuation effects are expected where porous soil, disturbed terrain, or vegetation is present between the noise source and receptor.

2.3 Regulatory Criteria

Newfoundland and Labrador has no provincial environmental noise regulations and reference is therefore made to the Nova Scotia Environment and Climate Change (NSECC) guidelines [Ref. 4].

Since the majority of the project footprint is in a rural setting, the more stringent permissible sound levels for a rural geographic classification are assumed to apply for the long-term construction activities associated with the Industrial Facility and Solar Farm, as detailed below.

Table 2-1 Proposed noise criteria for long-term construction activities

Period	Hours	Noise Limit at Receptor $L_{Aeq,1hr}$
Daytime	07:00 to 19:00	53 dB(A)
Evening	19:00 to 23:00	48 dB(A)
Nighttime	23:00 to 07:00	40 dB(A)

Whilst the above criteria may be appropriate for the long-term construction activities associated with the Industrial Facilities and Solar Farm, noise criteria for shorter term construction activities would tend to be less stringent due to their temporary impact at any specific receptor location.

This would be applicable for the Jetty (where the construction period will be much shorter than for the Industrial Facility), and for the Road and Pipeline from the Jetty to the Industrial Facility (where the construction activities will move along the route of the road and pipeline rather than remain at a single location for an extended period).

Hence, in the absence of specific short term construction noise limits, the criteria in Table 2-2 below [Ref. 5] are recommended for the Jetty, Road and Pipeline construction activities.

Table 2-2 Proposed noise criteria for short-medium term construction activities

Period	Hours	Averaging Time, T	Noise Limit at Receptor dB LAeq,T
Mon-Fri	07:00 - 08:00	1h	70
	08:00 – 18:00	10h	75
	18:00 – 19:00	1 h	70
	19:00 – 22:00	3h	65
	22:00 - 07:00	1 h	55
Sat	07:00 – 08:00	1h	70
	08:00 – 13:00	5h	75
	13:00-14:00	1h	70
	14:00-22:00	3h	65
	22:00-07:00	1h	55
Sunday and Public Holidays	07:00 – 21:00	1h	65
All noise levels are predicted or measures at point 1m in front of the most exposed of any windows and doors in any façade of any eligible dwelling.			

In circumstances where the above criteria were to be exceeded by 10 dB or more for 10 or more days of working in any 15 consecutive days, or for a total number of days exceeding 40 in any 6

consecutive months, then temporary re-housing or sound insulation might be appropriate if other means of mitigation are not practical.

2.4 Baseline Sound Levels

Baseline sound levels have been measured by Strum Consulting [Ref. 6] in noise sensitive areas likely to be affected by the proposed development as follows:

Table 2-3 Baseline Sound Levels

Location	Measured $L_{Aeq,T}$		
	Daytime	Evening	Nighttime
NM4: Within the Industrial Facility and Solar Farm area	28	28	32

2.5 Construction Noise Sources

Noise sources considered in the modelling are discussed below.

2.6 Industrial Facilities

Figure 2-1 Industrial Plant Facilities

To support the development of the EVERC Project (as illustrated in Figure 2-1), Abraxas provided an estimated list of construction equipment required for the industrial facilities. Typical sound power levels for standard construction equipment, referenced from published data sources [Ref. 5], have been used to estimate the total sound power output expected during peak construction periods (refer to Appendix B).

The calculated aggregate sound power level has been modelled as an area source distributed across the industrial facilities' footprint. This approach accounts for the spatial movement of equipment and associated noise emissions within the site boundary throughout the construction phase.

A summary of the total sound power level for all equipment operating simultaneously is provided in Appendix B and is also reproduced below for reference. For the purposes of the noise model, it has been conservatively assumed that only 50% of the equipment will be operational at any given time. Accordingly, the overall sound power level has been adjusted by a reduction of 3 dB to reflect partial equipment utilisation.

The final sound power level assumed for peak construction activity within the industrial facilities is presented below.

Table 2-4 Industrial Facilities Construction Equipment Sound Power Level (dB re 10^{-12}W)

		Octave Band Centre Frequency (Hz)							
	dB(A)	63	125	250	500	1k	2k	4k	8k
Total sound power level for all construction equipment	128	130	127	125	122	123	121	121	117
On-time correction		-3	-3	-3	-3	-3	-3	-3	-3
Corrected sound power level	125	127	124	122	119	120	118	118	114

2.7 Solar Farm

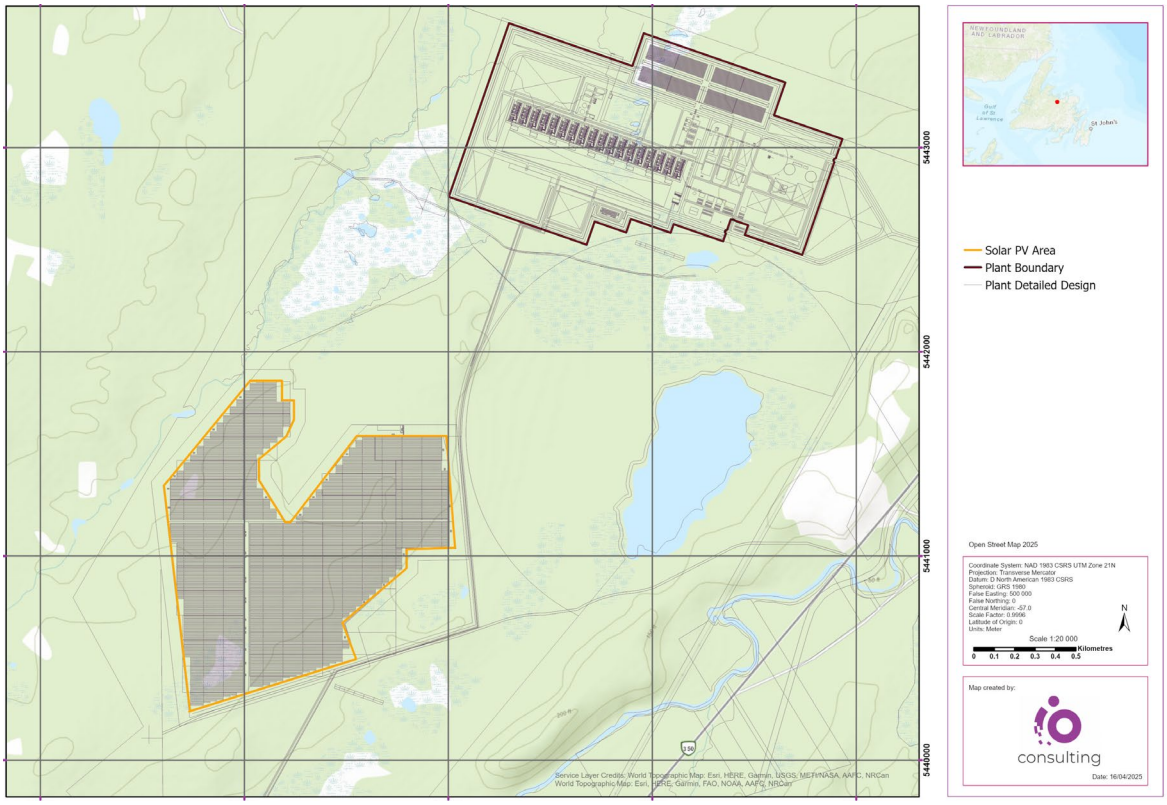

Figure 2-2 Solar Farm

io consulting have provided an estimated construction equipment list for the Solar Farm, and typical construction equipment sound levels [Ref. 5] have been used in order to estimate the overall sound power level generated during the peak construction period (see Appendix C).

The calculated overall sound power level has then been modelled as an area source across the footprint of the Solar Farm in order to allow for the movement of noise sources within the site boundary throughout the construction phase.

The total sound power level with all equipment operating is shown in Appendix C and below for reference.

For the purposes of the noise model, it is assumed that at any time 50% of the construction equipment would actually be operating, so that the total sound power level is reduced by 3 dB.

The resulting overall sound power level assumed during peak construction activity for the Solar Farm is given below.

Table 2-5 Estimated Solar Farm Construction Equipment Sound Power Level (dB re 10^{-12}W)

	Octave Band Centre Frequency (Hz)								
	dB(A)	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Total sound power level for all construction equipment	119	125	124	117	115	113	111	107	101
On-time correction		-3	-3	-3	-3	-3	-3	-3	-3
Corrected sound power level	116	122	121	114	112	110	108	104	98

Due to the large area of the site, the corrected sound power level is assumed to be evenly distributed across the site as an area source in the noise model.

2.8 Jetty Construction Noise

Figure 2-3 Jetty Facilities

Abraxas provided an estimated construction equipment list for the Jetty, and typical construction equipment sound levels [Ref. 5] have been used in order to estimate the overall sound power level generated during the peak construction period (see Appendix D).

The calculated overall sound power levels have then been modelled as an area source across the footprint of the Jetty in order to allow for the movement of noise sources throughout the construction phase. The total sound power level with all equipment operating is shown in Appendix D and below for reference.

For the purposes of the noise model, it is assumed that at any time 50% of the construction equipment would actually be operating, so that the total sound power level is reduced by 3 dB.

The resulting overall sound power level assumed during peak construction activity for the Jetty is given below.

Table 2-6 Estimated Jetty Construction Equipment Sound Power Level (dB re 10^{-12}W)

	Octave Band Centre Frequency (Hz)								
	dB(A)	63	125	250	500	1k	2k	4k	8k
Total sound power level for all construction equipment	119	123	121	115	115	114	112	108	101
On-time correction		-3	-3	-3	-3	-3	-3	-3	-3
Corrected sound power level	116	120	118	112	112	111	109	105	98

2.9 Road & Pipeline Construction Equipment Noise

This section considers the construction equipment form road and pipeline construction, that will be needed between Jetty to Industrial Facilities. Abraxas have provided an estimated construction equipment list for the road and pipeline, and typical construction equipment sound levels [Ref. 5] have been used in order to estimate the overall sound power level generated during the peak construction period (see Appendix E).

The calculated overall sound power level has then been modelled as a series of line sources (each approx. 240m long) along the route of the road and pipeline.

The total sound power level assumed for each segment with all equipment operating is shown in Appendix D and below for reference.

For the purposes of the noise model, it is assumed that at any time 50% of the construction equipment would actually be operating, so that the total sound power level is reduced by 3 dB.

The resulting overall sound power level assumed during peak construction activity for the road and pipeline is given below.

Table 2-7 Estimated Road & Pipeline Equipment Sound Power Level (dB re 10^{-12}W)

	Octave Band Centre Frequency (Hz)								
	dB(A)	63	125	250	500	1k	2k	4k	8k
Total sound power level for all construction equipment	118	120	120	115	112	112	111	111	109
On-time correction		-3	-3	-3	-3	-3	-3	-3	-3
Corrected sound power level	115	117	117	112	109	109	108	108	106

3. Predicted Construction Noise Levels

3.1 Industrial facilities

Predicted noise contours during the peak construction period are shown as noise contours in Figure 3-1 below.

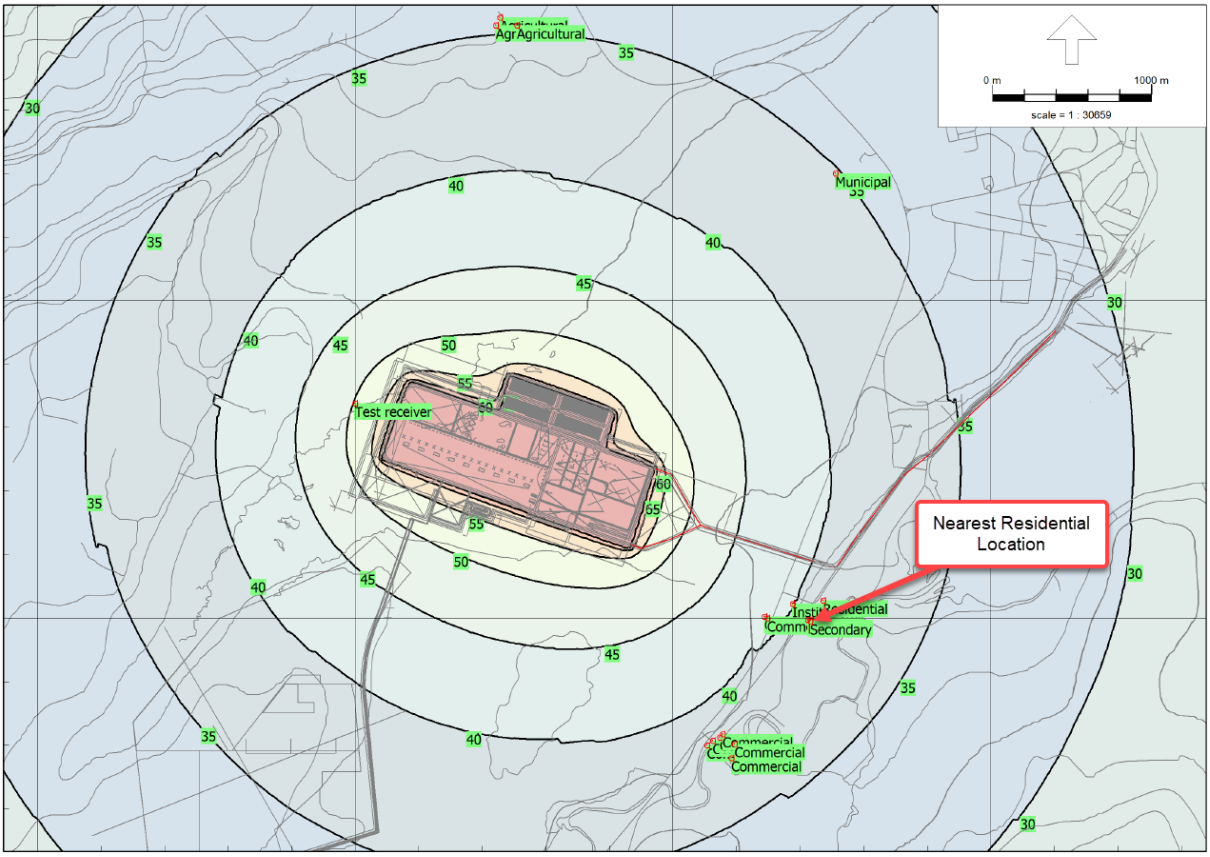

Figure 3-1 Predicted noise contours during peak construction of the Industrial Facility

The nearest residential location to the industrial facilities is to the South-East, with predicted noise levels given below.

Table 3-1 Predicted construction noise levels at nearest receptors to industrial plant

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Pumphouse Road, SW of junction with Water Street	X: 618849 Y: 5441990	39	Within daytime, evening and nighttime criteria (see Table 2.1)

Table 3-1 demonstrates that predicted construction noise for the peak construction period of the Industrial Facilities are well within the proposed criteria in Section 2 above.

3.2 Solar Farm

Predicted noise contours during the peak construction period are shown as noise contours in Figure 3-2 below.

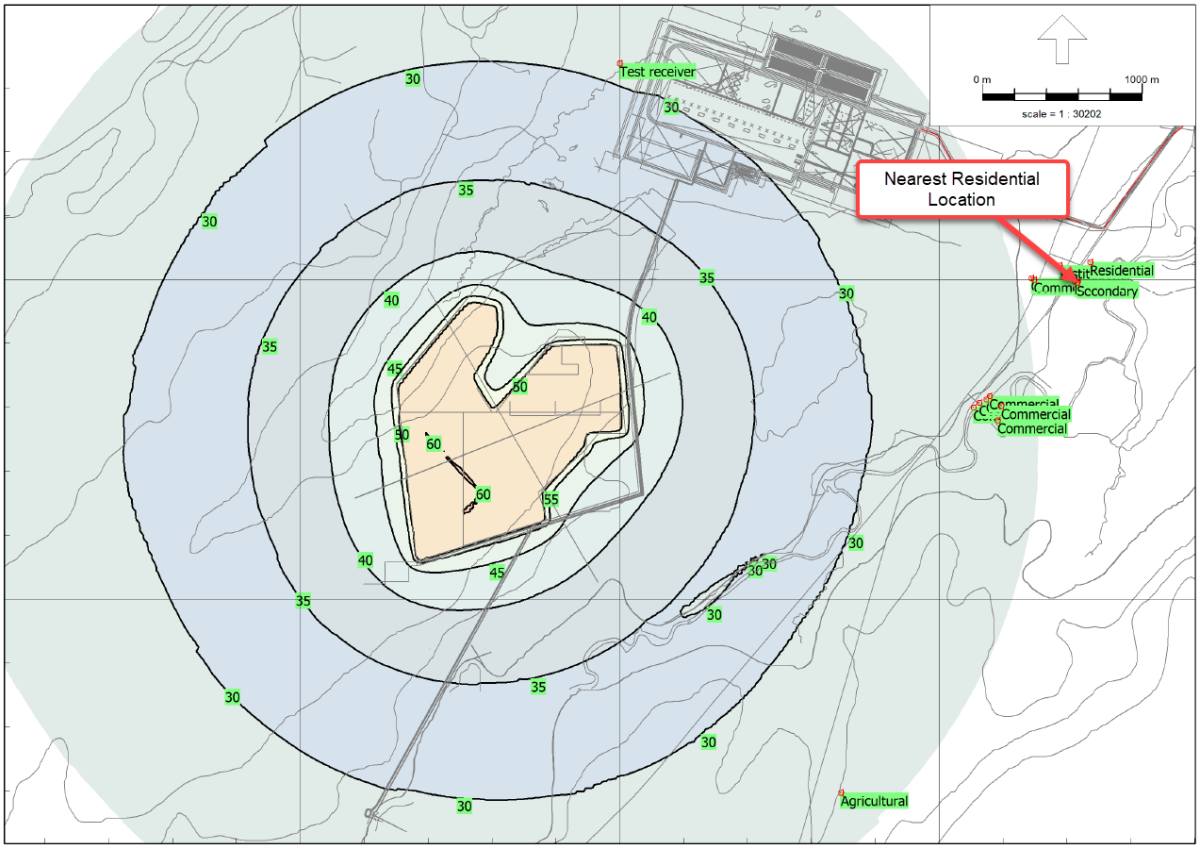

Figure 3-2 Predicted noise contours during peak construction of the Solar Farm

The nearest residential location to the solar farm is to the East, with predicted noise levels given below.

Table 3-2 Predicted construction noise levels at nearest receptors to Solar Farm

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Pumphouse Road, SW of junction with Water Street	21 X: 618849 Y: 5441990	24	Within daytime, evening and nighttime criteria (see Table 2.1)

Table 3-2 demonstrates that predicted construction noise for the peak construction period of the solar farm are well within the proposed criteria in Section 2 above.

3.3 Construction noise associated with the Jetty

Predicted noise contours during the peak construction period are shown as noise contours in Figure 3-3 below.

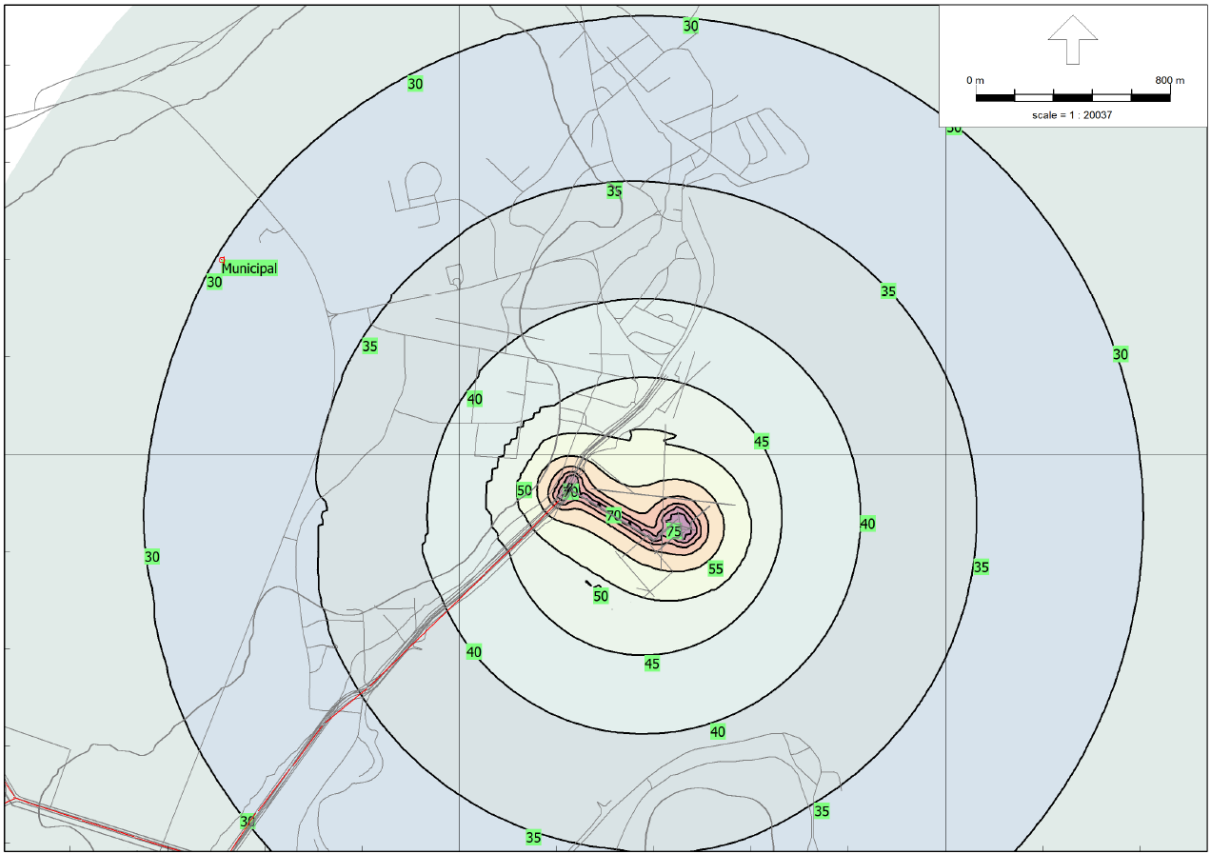

Figure 3-3 Predicted noise contours during peak construction of the Jetty

The nearest residential locations to the jetty are to the West, with predicted noise levels given below.

Table 3-3 Predicted construction noise levels at nearest residential location to Jetty

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Multiple residences along waterfront adjacent to jetty	21 X: 620443 Y: 5443870	65-77	May exceed daytime, evening and night-time criteria (see Table 2-2)

Table 3-3 demonstrates that predicted construction noise for the peak construction period of the jetty may exceed proposed criteria in Section 2 above due to the close proximity of residential properties. In view of the above, and depending upon the likely duration and predicted levels when the construction methodology has been developed in detail, it is proposed that acoustic screening may be required between the jetty and the nearest residences during the construction period. Typically, this might comprise a solid wooden hoarding 2-3m high and located so as to interrupt the line of sight between the construction equipment noise sources and the residences. This would then typically achieve a 5-10 dB attenuation at the receiver, reducing predicted sound levels to within the proposed

daytime criteria from Table 2-2. Due to the close proximity of residences, working hours are likely to be limited to the daytime, unless permission is granted for specific activities.

3.4 Construction noise associated with road building and pipeline installation from the Jetty to the Industrial Facility

Construction noise from road building and pipeline installation between the Jetty and the Industrial Facility will utilise similar equipment and follow the same route.

Typically, the noise generating equipment will move along the route as the work is undertaken, so any one location will only be subjected to maximum noise levels for a limited period.

However, in order to identify all areas likely to be affected by the construction of the road and pipeline in one image, Figure 3-4 below covers the entirety of the construction period

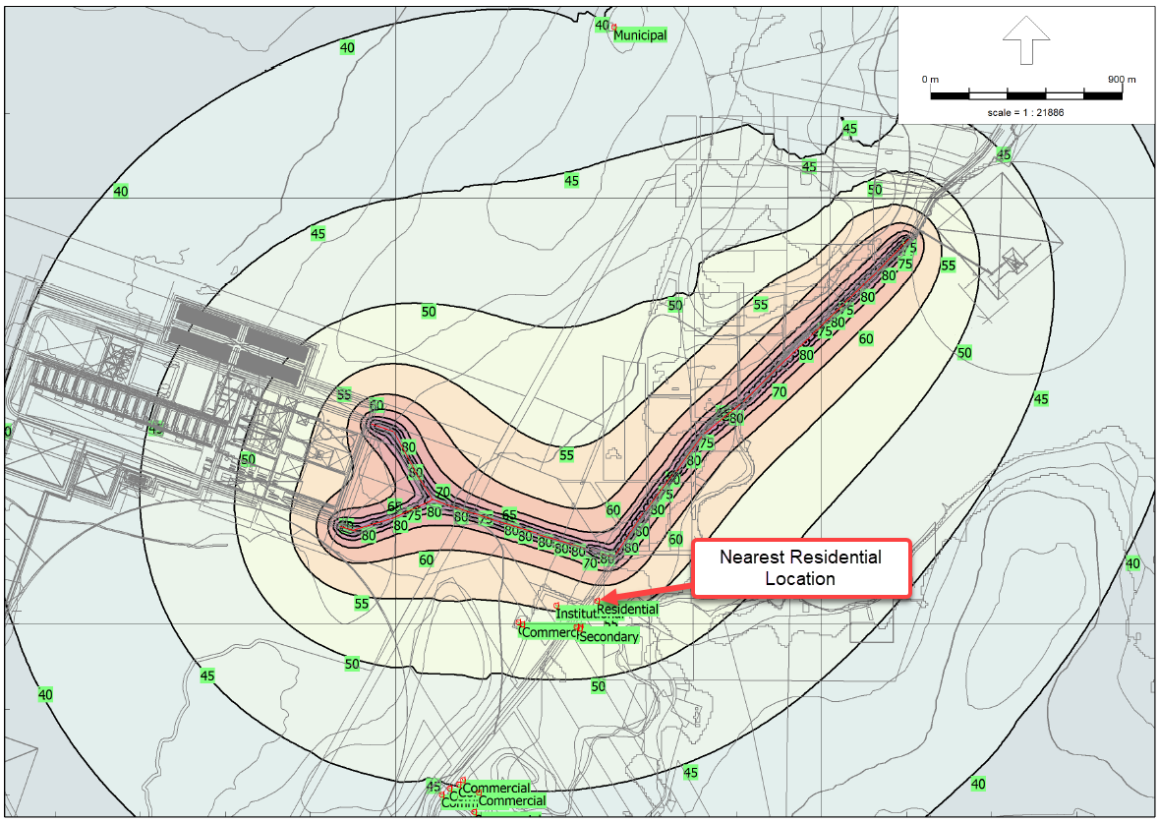

Figure 3-4 Predicted noise contours during peak construction of the Road and Pipeline

The nearest residential location to the road and pipeline outside of Botwood is to the South, with predicted noise levels given below.

Table 3-4 Predicted construction noise levels at nearest receptors to road and pipeline

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Pumphouse Road, SW of junction with Water Street	21 X: 618945 Y: 5442110	57	Within daytime criteria but likely to exceed evening and nighttime criteria (see Table 2-2)

Table 6-4 demonstrates that predicted construction noise for the peak construction period of the road and pipeline are within the proposed daytime criteria in Section 2 above at the nearest rural receptor.

Residential locations within Botwood will, however, be closer to the road and pipeline works. Preliminary predicted noise contours suggest that the 75 dB(A) $L_{Aeq,1hr}$ noise contour is likely to be approximately 20m from the road centre, which would potentially take some residences within the 75 dB(A) noise contour.

The need or otherwise for additional noise mitigation (e.g. temporary screening) or other forms of mitigation, should therefore be considered further when a detailed construction methodology has been developed, e.g. as part of a construction noise management plan.

4. Conclusions

Sound levels have been predicted based on currently available information for the construction of the EVREC Project Industrial Facilities, Solar Farm, Jetty, and the Road and Pipeline between the Jetty and the Industrial Facilities.

Appropriate noise criteria have been proposed, and predicted sound levels are generally within the proposed criteria, except for residential areas close to the Jetty and road/pipeline route in Botwood, where higher noise levels may occur, albeit for temporary periods.

In view of the above, it is suggested that the construction contractor should prepare a detailed construction noise management plan when details of the proposed construction works and methodology are known, and prior to commencement of the works, so that the requirement or otherwise for additional mitigation can be determined.

Appendix A – References and Acronyms

A.1 References

Table A1.1 References

Ref	Description
1	ISO 9613-1:1993 Acoustics – Attenuation of sound during propagation outdoors – Part 1: Calculation of the absorption of sound by the atmosphere
2	ISO 9613-2: 2024 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation
3	Pre-FEED Project Basis of Design
4	Nova Scotia Environment and Climate Change (NSECC). (2023) Guidelines for Environmental Noise Measurement and Assessment. Retrieved from https://novascotia.ca/nse/air/docs/guidelines-environmental-noise-measurement-and-assessment.pdf
5	BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration control on construction and open sites – Part 1: Noise
6	STRUM Consulting Baseline Noise Monitoring Report: Botwood & Area EVREC Green Energy Hub April 15,2025

A.2 Acronyms

Table A1.2 Acronyms

Acronym	Definition
A-CAES	Adiabatic Compressed Air Energy Storage
BOD	Basis of Design
dB(A)	Decibels (A-weighted)
FEED	Front End Engineering Design
GW	Giga-Watt
GWh	Giga-Watt Hour
ISO	International Standards Organisation
$L_{Aeq,T}$	time-average sound level (A-weighted equivalent), where T= 1 hour
MW	Mega-watt
NSECC	Nova Scotia Environment and Climate Change
Strum	EIA Consultants
SW	South-West

Appendix B – Industrial Facilities Construction Equipment Sound Power Level Tables

EQUIPMENT SOUND POWER LEVELS

Project: EVERC Newfoundland Construction
Client: IO Consulting
Model Reference: Main Site Total Construction Sound Power Levels Rev 0
Date: 29/04/2025

Plant Name	Ref	No. Off	Height (m)	Octave Band Centre Frequency / Hz									dB(A)
				31	63	125	250	500	1k	2k	4k	8k	
Earthworking Equipment	IO Consulting	1	1.5		128	125	123	120	121	119	117	114	126
Concrete Masonry Equipment	IO Consulting	1	1.5		120	113	112	111	111	112	115	112	120
Crane and Lifting Equipment	IO Consulting	1	1.5		121	120	119	117	116	113	109	106	121
Compressors and Generators	IO Consulting	1	1.5		114	119	113	112	113	112	107	101	118
Fabrication and Welding	IO Consulting	1	1.5		107	107	105	98	97	98	94	91	104
													0
													0
													0

EQUIPMENT SOUND POWER LEVELS

Project: EVERC Newfoundland Construction
Client: IO Consulting
Model Reference: Main Site Earth Working Equipment Rev 0
Date: 29/04/2025

Plant Name	Ref	No.	Height	Octave Band Centre Frequency / Hz									
		off	(m)	31	63	125	250	500	1k	2k	4k	8k	dB(A)
Backhoe/Loader	Table C.2 Ref. 8	1	1.5		102	94	92	92	91	88	87	78	95.8
Backhoe/Loader w/ Extension Boom	Table C.2 Ref. 8	1	1.5		102	94	92	92	91	88	87	78	95.8
Mini-Excavator (.37YD)	Table C.5 Ref. 35	1	1.5		104	101	90	94	90	87	82	77	95.6
PC120 Excavator (.75 YD)	Table C.5 Ref. 3	1	1.5		108	111	104	101	100	98	97	94	106
PC150 Excavator (1 YD)	Table C.5 Ref. 3	1	1.5		108	111	104	101	100	98	97	94	106
PC200 Excavator (1.25 YD)	Table C.5 Ref. 3	1	1.5		108	111	104	101	100	98	97	94	106
PC220 Excavator (1.50 YD)	Table C.5 Ref. 3	1	1.5		108	111	104	101	100	98	97	94	106
PC300 Excavator (2 YD)	Table C.5 Ref. 3	1	1.5		108	111	104	101	100	98	97	94	106
PC400 Excavator (3 YD)	Table C.5 Ref. 3	1	1.5		108	111	104	101	100	98	97	94	106
Backhoe w/ 1200 lb Breaker	Table C.5 Ref. 1	1	1.5		114	108	106	105	109	111	110	109	117
Excavator w/ 3000 lb Breaker	Table C.5 Ref. 1	1	1.5		114	108	106	105	109	111	110	109	117
Case 450 Dozer (47HP)	Table C.5 Ref. 13	1	1.5		110	112	104	103	106	104	98	90	110
Case 550 Dozer (67HP) D6	Table C.5 Ref. 13	1	1.5		110	112	104	103	106	104	98	90	110
Case 650 Dozer (89 HP) D8	Table C.5 Ref. 13	1	1.5		110	112	104	103	106	104	98	90	110
D6 Dozer (155 HP)	Table C.5 Ref. 13	1	1.5		110	112	104	103	106	104	98	90	110
Case 1840 Skid Steer Loader	Table C.6 Ref. 32	1	1.5		111	105	98	98	98	96	92	86	103
Case 1840 Skid Steer Loader w/ Auger	Table C.3 Ref. 21	1	1.5		109	109	106	104	102	100	96	91	107
Case 1840 Skid Steer Loader w/ Breaker	Table C.5 Ref. 1	1	1.5		114	108	106	105	109	111	110	109	117
Wheel Loader (1.75 YD)	Table C.6 Ref. 33	1	1.5		120	112	111	105	104	12	99	90	109
Wheel Loader (2.75 YD)	Table C.6 Ref. 33	1	1.5		120	112	111	105	104	12	99	90	109
Wheel Loader (3 YD)	Table C.6 Ref. 33	1	1.5		120	112	111	105	104	12	99	90	109
Trackloader (1.50 YD)	Table C.1 ref. 10	1	1.5		110	106	110	109	109	106	100	92	113
Trackloader (2.30 YD)	Table C.1 ref. 10	1	1.5		110	106	110	109	109	106	100	92	113
42" Smooth Drum Roller (Walk-Behind)	Table C.2 Ref. 37	1	1.5		100	103	109	106	102	98	91	83	107
Rammex P-24 Roller w/ Remote	Table C.2 Ref. 37	1	1.5		100	103	109	106	102	98	91	83	107
66" Smooth Drum Roller	Table C.2 Ref. 37	1	1.5		100	103	109	106	102	98	91	83	107
66" Sheepsfoot Roller	Table C.2 Ref. 37	1	1.5		100	103	109	106	102	98	91	83	107
84" Smooth Drum Roller	Table C.2 Ref. 37	1	1.5		100	103	109	106	102	98	91	83	107
84" Sheepsfoot Roller	Table C.2 Ref. 37	1	1.5		100	103	109	106	102	98	91	83	107
Motor Grader (FLAT 65C) - 80 HP	Table C.6 Ref. 31	1	1.5		116	115	111	107	112	106	102	93	114
Motor Grader (CAT120) - 125HP	Table C.6 Ref. 31	1	1.5		116	115	111	107	112	106	102	93	114
Motor Grader (CAT12h) - 140 HP	Table C.6 Ref. 31	1	1.5		116	115	111	107	112	106	102	93	114
Air-Driven Tamper	Table C4 Ref 35	1	1.5		87	98	82	84	85	83	83	77	90.7
Vibratory Plate Compactor	Table C.2 Ref. 42	1	1.5		109	104	100	101	100	100	96	91	106
Jumping Jack Compactor	Table C.2 Ref. 42	1	1.5		109	104	100	101	100	100	96	91	106
Walk-Behind Trencher	Table C.5 Ref. 35	1	1.5		104	101	90	94	90	87	82	77	95.6
Ride-On Trencher	Table C.5 Ref. 35	1	1.5		104	101	90	94	90	87	82	77	95.6
Sweeper Ride on	Table C.4 Ref. 90	1	1.5		108	103	98	102	99	96	79	86	104
													0
													0
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Overall Sound Power Level		38		-	128	125	123	120	121	119	117	114	126

EQUIPMENT SOUND POWER LEVELS

Project: EVERC Newfoundland Construction
Client: IO Consulting
Model Reference: Main Site Concrete & Masonry Equipment Rev 0
Date: 29/04/2025

Plant Name	Ref	No.	Height	Octave Band Centre Frequency / Hz									
		Off	(m)	31	63	125	250	500	1k	2k	4k	8k	dB(A)
Concrete Pump Truck	Table C.4 Ref. 29	1	1.5		111	105	103	103	102	103	95	91	108
Concrete Bucket - 1/2 YD	n/a												0
Concrete Bucket - 3/4 YD	n/a												0
Concrete Bucket - 1 YD	n/a												0
Concrete Bucket - 3 YD	n/a												0
Troweling Machine - 36"	SAC Estimate 85 dB LpA at 1m	1	0.5		88	93	93	90	90	88	85	83	95
Troweling Machine - 48"	SAC Estimate 85 dB LpA at 1m	1	0.5		88	93	93	90	90	88	85	83	95
Core Drill - 1-6"	Table C.4 Ref. 69	1	1		103	102	103	100	102	103	108	108	113
Concrete Cart (Georgia Buggy)	SAC Estimate 85 dB LpA at 1m	1	1		86	91	91	88	88	86	83	81	93
Concrete Mixer - 6 Cu. Ft.	Table C.4 Ref. 21	1	1		108	99	93	100	99	100	96	84	105
Concrete Mixer - 9-12 Cu. Ft.	Table C.4 Ref. 21	1	1		108	99	93	100	99	100	96	84	105
Mortar Mixer - 6 Cu. Ft.	Table C.4 Ref. 21	1	1		108	99	93	100	99	100	96	84	105
Mortar Mixer - 9-12 FT 3	Table C.4 Ref. 21	1	1		108	99	93	100	99	100	96	84	105
Rebar Cutter/Bender, Elec. 1/2 - 5/8"	Table C1 Ref. 18	1	1		100	100	97	100	101	100	99	99	107
Rebar Cutter/Bender, Elec. 3/4-1"	Table C1 Ref. 18	1	1		100	100	97	100	101	100	99	99	107
Rebar Cutter/Bender, Elec. 1 1/4 & up	Table C1 Ref. 18	1	1		100	100	97	100	101	100	99	99	107
Hand held Concrete Saw	Table C4 Ref. 71	1	1		113	102	100	98	102	104	110	105	113
Walk-Behind Concrete Saw	Table C4 Ref. 71	1	1		113	102	100	98	102	104	110	105	113
Vibrators 3HP Elect	Table C4 Ref. 33	1	1		110	108	108	101	97	100	98	93	106
													0
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Overall Sound Power Level		15		-	120	113	112	111	111	112	115	112	120

EQUIPMENT SOUND POWER LEVELS

Project: EVERC Newfoundland Construction
Client: IO Consulting
Model Reference: Main Site Cranes and Lifting Equipment Rev 0
Date: 29/04/2025

Plant Name	Ref	No.	Height	Octave Band Centre Frequency / Hz									
		Off	(m)	31	63	125	250	500	1k	2k	4k	8k	dB(A)
Heavy Lift Equipment													0
8 1/2 Ton Carry-deck													0
15 Ton Hydraulic Crane													0
20 Ton Hydraulic Crane	Table C4 Ref. 48	1	2		110	105	108	104	94	94	84	78	104
25 Ton Hydraulic Crane	Table C4 Ref. 48	1	2		110	105	108	104	94	94	84	78	104
36 Ton Hydraulic Crane	Table C4 Ref. 48	1	2		110	105	108	104	94	94	84	78	104
50 Ton Hydraulic Crane	Table C4 Ref. 48	1	2		110	105	108	104	94	94	84	78	104
65 Ton Hydraulic Crane	Table C4 Ref. 41	1	2		101	99	96	98	94	91	82	77	99.2
75 Ton Hydraulic Crane	Table C4 Ref. 41	1	2		101	99	96	98	94	91	82	77	99.2
100 Ton Crawler Crane	Table C4 Ref. 41	1	2		101	99	96	98	94	91	82	77	99.2
150 Ton Crawler Crane	Table C4 Ref. 41	1	2		101	99	96	98	94	91	82	77	99.2
175 Ton Crawler Crane	Table C4 Ref. 41	1	2		101	99	96	98	94	91	82	77	99.2
200 Ton Crawler Crane	Table C4 Ref. 41	1	2		101	99	96	98	94	91	82	77	99.2
230 Ton Crawler Crane	Table C4 Ref. 41	1	2		101	99	96	98	94	91	82	77	99.2
250 Ton Crawler Crane	Table C4 Ref. 50	1	2		96	99	96	90	94	94	83	74	98.5
300 Ton Crawler Crane	Table C4 Ref. 50	1	2		96	99	96	90	94	94	83	74	98.5
400 Ton Crawler Crane	Table C4 Ref. 50	1	2		96	99	96	90	94	94	83	74	98.5
600 Ton Crawler Crane	Table C4 Ref. 50	1	2		96	99	96	90	94	94	83	74	98.5
5000 lb Warehouse Forklift	SAC Estiate	1	1.5		101	106	106	103	103	101	98	96	108
6000 lb Rough Terrain Forklift	SAC Estiate	1	1.5		101	106	106	103	103	101	98	96	108
8000 lb Rough Terrain Forklift	SAC Estiate	1	1.5		101	106	106	103	103	101	98	96	108
10000 lb Rough Terrain Forklift	SAC Estiate	1	1.5		101	106	106	103	103	101	98	96	108
6000 lb Extend-a-boom Forklift	SAC Estiate	1	1.5		101	106	106	103	103	101	98	96	108
8000 lb Extend-a-boom Forklift	SAC Estiate	1	1.5		101	106	106	103	103	101	98	96	108
10000 lb Extend-a-boom Forklift	SAC Estiate	1	1.5		101	106	106	103	103	101	98	96	108
SPMT's	Table C.4 Ref. 65	1	1.5		104	102	96	98	93	91	87	83	99.3
Laminated Crane Mats - 8'X16'	n/a												0
Hardwood Timber Crane Mats - 4'X28'	n/a												0
Power Packs for SPMTs	Table C.1 Ref. 8	1	1.5		105	100	101	97	96	94	92	88	101
Stools 1.5m x 24	n/a												0
40' Manlift	Table C4 Ref. 59	1	1.5		108	105	102	102	102	99	93	91	106
60' Manlift	Table C4 Ref. 59	1	1.5		108	105	102	102	102	99	93	91	106
80' Manlift	Table C4 Ref. 59	1	1.5		108	105	102	102	102	99	93	91	106
100' Manlift	Table C4 Ref. 59	1	1.5		108	105	102	102	102	99	93	91	106
120' Manlift	Table C4 Ref. 59	1	1.5		108	105	102	102	102	99	93	91	106
16' Scissor Lift (750 lb)	Table C4 Ref. 59	1	1.5		108	105	102	102	102	99	93	91	106
17-21' Scissor Lift (750 lb)	Table C4 Ref. 59	1	1.5		108	105	102	102	102	99	93	91	106
17-21 Scissor Lift (1000 lb)	Table C4 Ref. 59	1	1.5		108	105	102	102	102	99	93	91	106
22-25' Scissor Lift (1000 lb)	Table C4 Ref. 59	1	1.5		108	105	102	102	102	99	93	91	106
26-31' Scissor Lift (1000 lb)	Table C4 Ref. 59	1	1.5		108	105	102	102	102	99	93	91	106
Manbasket	Table C4 Ref. 59	1	1.5		108	105	102	102	102	99	93	91	106
Personnel Elevator	Table C4 Ref. 59	1	1.5		108	105	102	102	102	99	93	91	106
													0
													0
													0
													0
													0
													0
													0
													0
													0
													0
													0
													0
Overall Sound Power Level		36		-	121	120	119	117	116	113	109	106	121

EQUIPMENT SOUND POWER LEVELS

Project: EVERC Newfoundland Construction
Client: IO Consulting
Model Reference: Main Site Compressors and Generators Rev 0
Date: 29/04/2025

Plant Name	Ref	No.	Height	Octave Band Centre Frequency / Hz									
		Off	(m)	31	63	125	250	500	1k	2k	4k	8k	dB(A)
Air Compressor - 185 CFM Diesel	Table C.3 Ref. 19	1	1		103	99	93	98	99	97	90	85	103
Air Compressor - 175 CFM Diesel	Table C.3 Ref. 19	1	1		103	99	93	98	99	97	90	85	103
Air Compressor - 375 CFM Diesel	Table C.3 Ref. 19	1	1		103	99	93	98	99	97	90	85	103
Air Compressor - 750 CFM Diesel	Table C.3 Ref. 19	1	1		103	99	93	98	99	97	90	85	103
Air Compressor - 750 CFM Electric	Table C.3 Ref. 19	1	1		103	99	93	98	99	97	90	85	103
Air Compressor - 1600 CFM Diesel	Table C.3 Ref. 19	1	1		103	99	93	98	99	97	90	85	103
Air Compressor - 1/2 - 1 HP Electric	Table C.3 Ref. 19	1	1		103	99	93	98	99	97	90	85	103
Air compressor - 20 CFM Electric	Table C.3 Ref. 19	1	1		103	99	93	98	99	97	90	85	103
Air Dryer - 1600 CFM	Table C.3 Ref. 19	1	1		103	99	93	98	99	97	90	85	103
Generators - Portable - 5-6KW	Table C.4 Ref. 94	1	1		105	102	99	98	97	96	94	90	103
Generators - Diesel - 15KW	Table C.4 Ref. 96	1	1		95	108	102	100	100	100	96	89	106
Generators - Diesel - 30KW	Table C.4 Ref. 96	1	1		95	108	102	100	100	100	96	89	106
Generators - Diesel - 50KW	Table C.4 Ref. 96	1	1		95	108	102	100	100	100	96	89	106
Generators - Diesel - 75KW	Table C.4 Ref. 96	1	1		95	108	102	100	100	100	96	89	106
Generators - Diesel - 100KW	Table C.4 Ref. 96	1	1		95	108	102	100	100	100	96	89	106
Generators - Diesel - 125KW	Table C.4 Ref. 96	1	1		95	108	102	100	100	100	96	89	106
Generators - Diesel - 150KW	Table C.4 Ref. 96	1	1		95	108	102	100	100	100	96	89	106
Generators - Diesel - 200KW	Table C.4 Ref. 96	1	1		95	108	102	100	100	100	96	89	106
Generators - Diesel - 300KW	Table C.4 Ref. 96	1	1		95	108	102	100	100	100	96	89	106
Generators - Diesel - 500KW	Table C.4 Ref. 96	1	1		95	108	102	100	100	100	96	89	106
Generators - Diesel - 750KW	Table C.4 Ref. 96	1	1		95	108	102	100	100	100	96	89	106
													0
													0
													0

EQUIPMENT SOUND POWER LEVELS

Project: EVERC Newfoundland Construction
Client: IO Consulting
Model Reference: Main Site Fabrication and Welding Rev 0
Date: 29/04/2025

Plant Name	Ref	No.	Height	Octave Band Centre Frequency / Hz									
		Off	(m)	31	63	125	250	500	1k	2k	4k	8k	dB(A)
Diesel Welder 250A	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
Diesel Welder 400A	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
Electric Welder - 4 Pack	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
Electric Welder - 8 Pack	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
Plasma Arc Cutting System	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
535 Threading Machine, 1/8 - 2"	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
141 Geared Threader, 2.5 - 4"	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
161 Geared Threader, 4-6"	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
Power Threading (Ridged 300)	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
HDPE Welder	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
													0
													0
													0

EQUIPMENT SOUND POWER LEVELS

Project: EVERC Newfoundland Construction
Client: IO Consulting
Model Reference: Main Site Blasting, Coating and Painting Rev 0
Date: 29/04/2025

Plant Name	Ref	No.	Height	Octave Band Centre Frequency / Hz									
		Off	(m)	31	63	125	250	500	1k	2k	4k	8k	dB(A)
Blasting Pot	SAC Estimate	1	1.5	106	106	106	106	111	114	118	118	116	123
Painting Pot	SAC Estimate	1	1.5	76	76	76	76	81	84	88	88	86	93.5
Paint Hose	SAC Estimate	1	1.5	76	76	76	76	81	84	88	88	86	93.5
													0
													0
													0

Appendix C – Solar Farm Construction Equipment Sound Power Level Tables

EQUIPMENT SOUND POWER LEVELS

Project: EVREC Newfoundland Construction
Client: IO Consulting
Model Reference: Solar Farm Construction Equipment
Date: 18/06/2025

Plant Name	Ref	No. of	Height (m)	Octave Band Centre Frequency / Hz									dB(A)
				31	63	125	250	500	1k	2k	4k	8k	
PC120 Excavator (.75 YD)	Table C.5 Ref. 3	2	1.5		108	111	104	101	100	98	97	94	106
D6 Dozer (155 HP)	Table C.5 Ref. 13	2	1.5		110	112	104	103	106	104	98	90	110
Large lorry concrete mixer	Table C.4 Ref. 21	2	1.5		108	99	93	100	99	100	96	84	105
Articulated Dump Truck	Table C.4 Ref. 1	3	1.5		118	115	105	107	103	101	95	91	109
Small Core Driller	Estimate	1	1.5		119	119	114	109	104	101	97	94	112
													0
													0
													0

Appendix D – Jetty Construction Equipment Sound Power Level Tables

EQUIPMENT SOUND POWER LEVELS

Project: EVREC Newfoundland Construction
Client: IO Consulting
Model Reference: Jetty Construction Equipment
Date: 18/06/2025

Plant Name	Ref	No. Off	Height (m)	Octave Band Centre Frequency / Hz								dB(A)
				31	63	125	250	500	1k	2k	4k	8k	
600 Ton Crawler Crane	Table C4 Ref. 50	1	1.5		96	99	96	90	94	94	83	74	98.5
Crawler Mounted CFA Piling Rig	Table C.3 Ref. 22	1	1.5		107	107	106	106	103	99	94	84	108
Sheet Steel Piling - vibratory piling rig	Table C.3 Ref. 8	1	1.5		111	110	107	110	112	110	105	95	116
Articulated Dump Truck	Table C.4 Ref. 1	2	1.5		118	115	105	107	103	101	95	91	109
Large lorry concrete mixer	Table C.4 Ref. 21	2	1.5		108	99	93	100	99	100	96	84	105
PC120 Excavator (.75 YD)	Table C.5 Ref. 3	2	1.5		108	111	104	101	100	98	97	94	106
20 Ton Hydraulic Crane	Table C4 Ref. 48	1	2		110	105	108	104	94	94	84	78	104
75 Ton Hydraulic Crane	Table C4 Ref. 41	1	2		101	99	96	98	94	91	82	77	99.2
Diesel Welder 250A	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
Electric Welder - 4 Pack	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
Plasma Arc Cutting System	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
141 Geared Threader, 2.5 - 4"	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
Power Threading (Ridged 300)	Table C.4 Ref. 85	1	1		97	97	95	88	87	88	84	81	94.1
													0
													0
													0

Appendix E – Road and Pipeline from Jetty to Industrial Facilities Construction Equipment Sound Power Level Tables

EQUIPMENT SOUND POWER LEVELS

Project: EVREC Newfoundland Construction
Client: IO Consulting
Model Reference: Road and Pipeline from Jetty to Industrial Facilities
Date: 18/06/2025

Plant Name	Ref	No. Off	Height (m)	Octave Band Centre Frequency / Hz								dB(A)
				31	63	125	250	500	1k	2k	4k	8k	
PC220 Excavator (1.50 YD)	Table C.5 Ref. 3	2	1.5		108	111	104	101	100	98	97	94	106
Case 550 Dozer (67HP) D6	Table C.5 Ref. 13	1	1.5		110	112	104	103	106	104	98	90	110
Dumper	Table C.4 Ref. 3	2	1.5		112	109	102	101	100	96	89	81	104
Hydraulic Vibratory Compactor	Table C.2 42	2	1.5		109	104	100	101	100	100	96	91	106
Hand held pneumatic breaker	Table C.1 Ref. 6	2	1.5		111	111	109	102	101	104	106	105	111
Wheeled Backhoe Loader	Table C.2 Ref. 8	2	1.5		102	94	92	92	91	88	87	78	95.8
Directional Drill (generator)	Table C.2 Ref. 44	2	1.5		95	108	102	100	100	100	96	89	106
													0
													0
													0

APPENDIX F.3
Operational Noise Study Report

Prepared by: io consulting

ENVIRONMENTAL IMPACT STATEMENT
EVREC Green Energy Hub
Exploits Valley Renewable Energy Corporation

Abraxas EVREC PtX Project

Operational Noise Study Report

J-001817-ENV-TN-00003

Document Control

0	IFR	C Anderson	07/07/25	S Jivraj	07/07/25	S Jivraj	07/07/25
A	IDC	C Anderson	24/06/25	S Jivraj	29/06/25	S Jivraj	29/06/25
Rev	**Reason for Issue**	**Author**	**Date**	**Checker**	**Date**	**Approver**	**Date**
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Revision History

Revision No	Section Ref	Description of Change
0	All	Incorporating io consulting changes on IDC

Holds

Hold No	Section Ref	Description of Hold
1	All	In order to meet noise criteria significant noise mitigation from initial estimated equipment and process sound power levels has been assumed. This particularly applies for the Ammonia Off-Spec flaring from the Jetty Flare, even with the Flare re-located to the Industrial Facilities (as has been assumed for this assessment). The project should determine whether or not the required mitigated sound power levels can be achieved in practice in order that cost and design implications can be established.
2		Noise from shipping arriving and departing from the Jetty is not included in this assessment as data has not been provided.

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1. Introduction

Abraxas are developing a Green Hydrogen and Ammonia Production, Storage and Loading Facility located outside the town of Botwood, Central Newfoundland. The facility will be located on a historical brownfield forestry site selected for redevelopment under the mandate of the Central Newfoundland Task Force.

The renewable energy for the facility will predominately be supplied by a 3GW Wind farm developed by Abraxas and energy storage technologies will be investigated as part of this study, with initial feasibility work considering a 200MW, 16 hour A-CAES facility to provide baseload power to the facility.

The proposed project, at peak, will produce approximately of 1.05 mtpa of ammonia, requiring approximately 13,000 GWh of energy per year and 4,015 million litres of water per year.

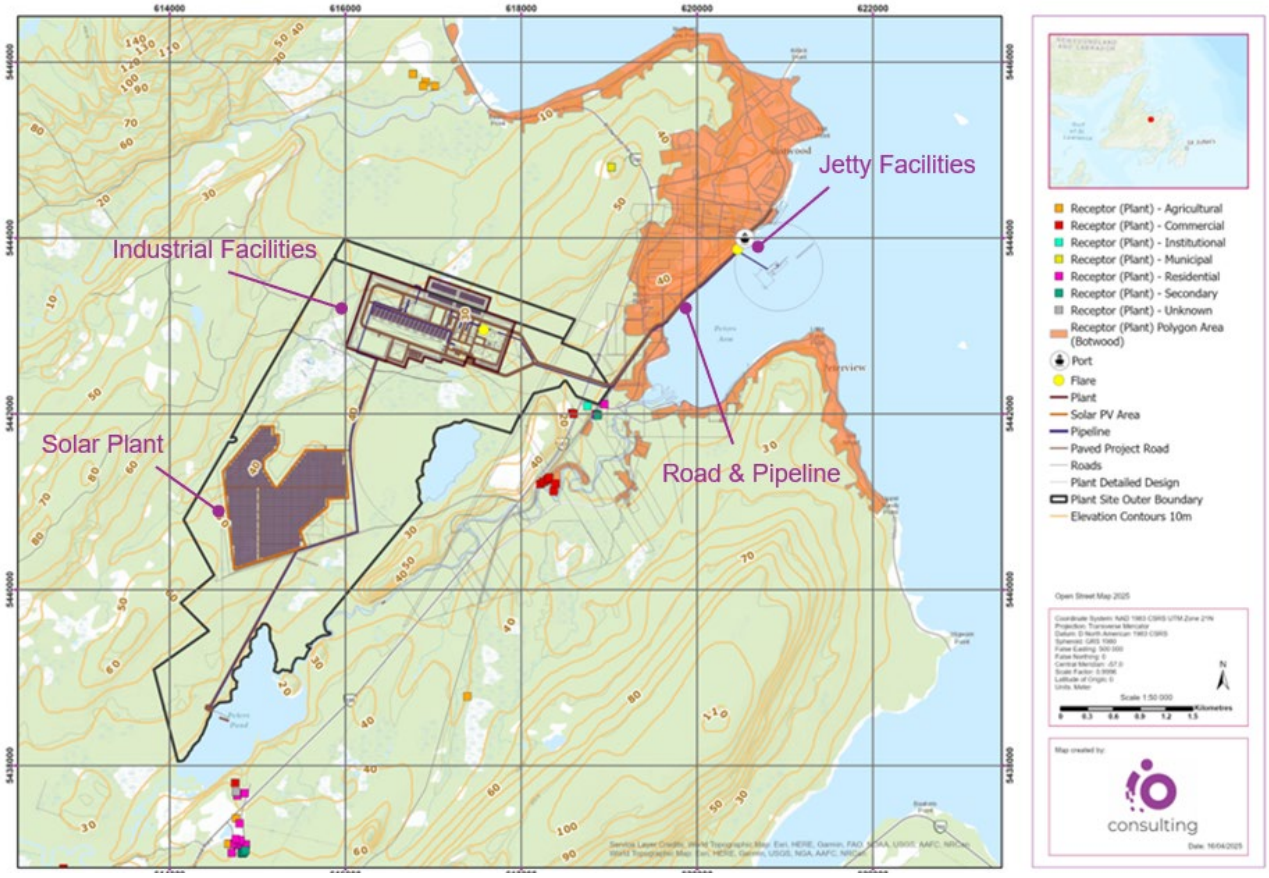

Figure 1-1 Project Location

Key project components include electrolysis units to produce hydrogen from deionized water; an air separation unit to generate nitrogen from the air; a Haber-Bosch ammonia synthesis unit to form anhydrous liquid ammonia through a catalytic reaction of hydrogen and nitrogen; bulk ammonia storage; and a marine terminal comprising a marine offloading facility and jetty to ship anhydrous liquid ammonia to market via speciality marine carriers. Neither the electrolysis units nor the Haber-Bosch ammonia synthesis unit will produce carbon emissions under normal operating conditions because no fossil fuels will be burned.

1.1 Document Purpose

The purpose of this document is to provide predicted unmitigated and, where appropriate, mitigated operational environmental noise levels associated with the proposed development.

1.2 Document Scope

This scope of this document is limited to the following:

- Industrial Facilities (comprising the Hydrogen Plant, Ammonia production and Storage, and the balance of plant)
- Solar Farm
- Jetty

2. Operational noise assessment Approach

2.1 Modelling Tool

The sound power levels of the operational equipment anticipated for use have been utilised to predict environmental noise levels through a software-based, three-dimensional noise modelling approach.

For this assessment, the proprietary noise modelling software 'iNoise' has been employed. This model incorporates various noise propagation correction factors, including distance attenuation, ground effects, topographical screening, and atmospheric absorption.

The iNoise model is capable of calculating noise levels simultaneously across a site, providing both visual outputs in the form of noise contours and numerical data at specified receptor locations.

Importantly, the iNoise model adheres to the standards set out in ISO 9613-1 [Ref.1] and ISO 9613-2 [Ref.2], which are recognised international references for predicting the dispersion of airborne noise.

2.2 Model Set-up

In the absence of specific noise output data for the listed plant equipment, a preliminary screening has been conducted to identify the primary noise sources. The objective of this screening is to determine the key contributors to environmental noise emissions. It is important to note that, at this Front-End Engineering Design (FEED) stage, the assessment is inherently approximate and involves a degree of professional judgment. As vendor engagement has not yet occurred, the consultant has relied on a combination of publicly available data, proprietary databases, and experience derived from comparable project developments.

Due to the wide dynamic range of sound energy, noise is measured on a logarithmic decibel (dB) scale. This characteristic means that overall noise levels are typically influenced by a few dominant sources, while lower-level sources contribute minimally to off-site impacts.

Predicted noise levels have been calculated at a height of 1.5 meters above ground level, representing the average human ear height, across a grid covering the facility and adjacent areas. These predictions are based on the noise propagation and attenuation methods outlined in ISO 9613-2 [Ref. 2], which assume moderately conservative downwind conditions. The model also incorporates environmental parameters—temperature and humidity—that influence sound propagation.

Specifically, the following environmental conditions, as defined in the Project Basis of Design (BOD) [Ref. 3] and through discussion with the Client (Abraxas) and FEED Contractor (MDR), have been used to represent a worst-case propagation scenario:

- Meteorological condition: Downwind (C = 0)
- Air temperature: 5°C (minimum)
- Relative humidity: 70% (maximum)
- Atmospheric pressure: 1 atmosphere (noting that actual site pressure may be slightly lower due to elevation)
- a ground attenuation factor of 0.5 has been applied, representing a mix of hard and soft ground surfaces typical of the near-site environment.

Significant attenuation effects are expected where porous soil, disturbed terrain, or vegetation is present between the noise source and receptor.

2.3 Regulatory Criteria

Newfoundland and Labrador has no provincial environmental noise regulations and reference is therefore made to the Nova Scotia Environment and Climate Change (NSECC) guidelines [Ref. 4].

Since the majority of the project footprint is in a rural setting, the more stringent permissible sound levels for a rural geographic classification are assumed to apply for the operational activities associated with the Industrial Facility and Solar Farm, as detailed below.

Table 2-1 Proposed noise criteria for operational activities

Period	Hours	Noise Limit $L_{Aeq,1hr}$
Daytime	07:00 to 19:00	53 dB(A)
Evening	19:00 to 23:00	48 dB(A)
Nighttime	23:00 to 07:00	40 dB(A)

The NSECC guidelines [Ref.4] state that the comprehensive sound level should not exceed the overall noise limits, where the comprehensive sound level is the combined level of both the existing baseline sound level and the project target sound level, with any tonal penalty associated with the project target sound level applied.

2.4 Baseline Sound Levels

Baseline sound levels have been measured by Strum Consulting [Ref. 5] in noise sensitive areas likely to be affected by the proposed development as follows:

Table 2-2 Baseline Sound Levels

Location	Measured $L_{Aeq,T}$		
	Daytime	Evening	Nighttime
NM4: Within the Industrial Facility and Solar Farm area	28	28	32

2.5 Operational Noise Sources

Noise sources considered in the modelling are discussed below. A full list of the estimated sound power levels allocated to individual noise sources or process areas is included in Appendix B for reference.

2.6 Industrial facilities

Figure 2-1 Industrial Plant Facilities

To support the development of the EVREC Project (as illustrated in Figure 2-1), Abraxas provided a plot plan and pre-FEED equipment list for the industrial facilities.

Equipment sound power levels are not currently available since vendors have not yet been selected.

The following data sources have therefore been used in order to estimate equipment sound power levels:

- Plot Plans
- Pre-FEED Equipment list
- Noise data from other projects
- Empirical calculation formulae

Since flare vendor noise data is not currently available, flare noise has been calculated using the calculation procedure given in VDI 3732 [Ref. 6].

The sound power levels allocated to each noise source for the purposes of this assessment are given in Appendix B, with the total sound power level for each of the 5 operational scenarios for the Industrial Facilities summarised below.

It should be noted that all scenarios assume that the Jetty Flare is located within the Industrial Facilities.

Table 2-3 Overall Sound Power Levels for the Industrial Facilities (unmitigated)

Scenarios	Octave Band Centre Frequency (Hz)									
	dB(A)	31	63	125	250	500	1k	2k	4k	8k
1. Normal Operation (flares on pilot gas)	131	133	133	133	130	127	126	123	120	118
2. Normal Operation (ammonia flare on purge gas)	131	133	133	133	130	127	126	123	120	118
3. Normal Operation (off-spec ammonia flaring)	147	155	155	155	150	145	139	137	133	130
4. 34 x Diesel Engines operating, balance of industrial facilities mainly off	121	120	120	121	119	116	115	113	110	108
5. Emergency (main plant flare on Blowdown Relief) and balance of industrial facilities mainly off	168	176	176	176	171	166	160	158	154	151

Table 2-3 demonstrates the following:

- **Scenario 1** Normal Operation (flares on pilot gas only)
- **Scenario 2** (ammonia flare on purge gas) shows no significant change in the predicted overall sound power level.
- **Scenario 3** (off-spec ammonia flaring) shows a significant increase in predicted overall sound power level due to flare noise.
- **Scenario 4** (34x Diesel Generators and ASU operating) shows a significant decrease in overall sound power levels, since the balance of plant is assumed to be off.
- **Scenario 5** (Main plant flare on blowdown relief) shows the highest increase in predicted overall sound power level due to noise from the flare under emergency conditions.

2.7 Solar Farm

The noise sources associated with the solar farm have been identified as follows:

- Rectifiers
- Transformers

Preliminary noise data for the Rectifiers has been provided for candidate equipment, and transformer sound power levels have been estimated. The resulting estimated equipment sound power levels are included in Appendix B.

The total estimated sound power level for the solar farm is given below for reference.

Table 2-4 Overall Sound Power Levels for the Solar Farm

Scenario	Octave Band Centre Frequency (Hz)									
	dB(A)	31	63	125	250	500	1k	2k	4k	8k
Normal Operation	109	109	109	110	108	104	104	102	98	96

As shown above, the overall estimated sound power level for the solar farm is significantly lower than that of the Industrial Facilities, as would be expected.

2.8 Jetty

The only significant noise source at the jetty is the Jetty Flare and potentially noise from the associated pipework. However, the Jetty Flare has been re-located to the Industrial Facilities and has been incorporated into the Industrial Facilities noise model, and so there are no longer any known continuous noise sources associated with the Jetty.

Note: Noise from shipping arriving and departing from the Jetty is not included in this assessment [Hold 2].

3. Predicted Operational Noise Levels (unmitigated)

Predicted noise contours for each of the 5 operating scenarios of the Industrial Facilities are shown as noise contours below.

For each scenario, the solar farm is assumed to be operating normally, although it should be noted that the noise contribution from the solar farm is relatively low in comparison to that of the Industrial Facilities.

3.1 Scenario 1: Normal Operation

Scenario 1 assumes the Industrial Facilities and Solar Farm are operating normally with no flaring.

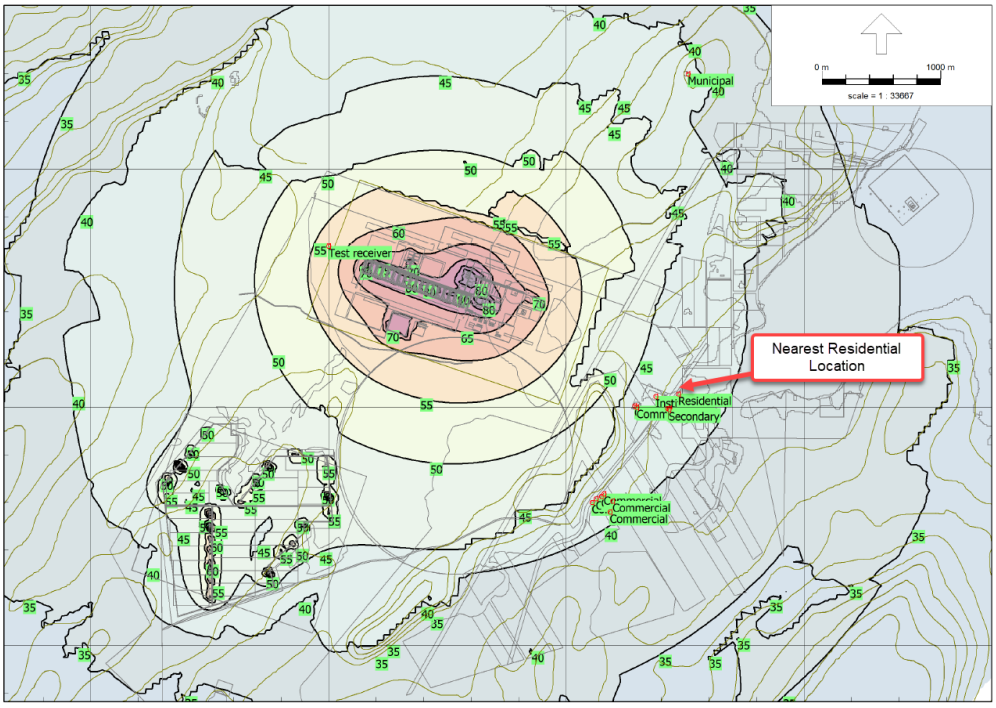

Figure 3-1 Predicted noise contours for operating Scenario 1

The nearest residential location to the industrial facilities is to the South-East, with predicted noise levels given below.

Table 3-1 Predicted noise levels at nearest residences for Scenario 1

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Pumphouse Road, SW of junction with Water Street	X: 618849 Y: 5441990	42	Marginally exceeds night-time criterion of 40 dB(A) (see Table 2.1)

Table 3-1 demonstrates that predicted operational noise for Scenario 1 exceeds the night-time noise criterion from Table 2-1.

3.2 Scenario 2: Ammonia Storage Flare on Purge Gas

Scenario 2 assumes the Industrial Facilities and Solar Farm are operating normally with the Ammonia Storage Flare on 0.1178 t/hr of Purge Gas.

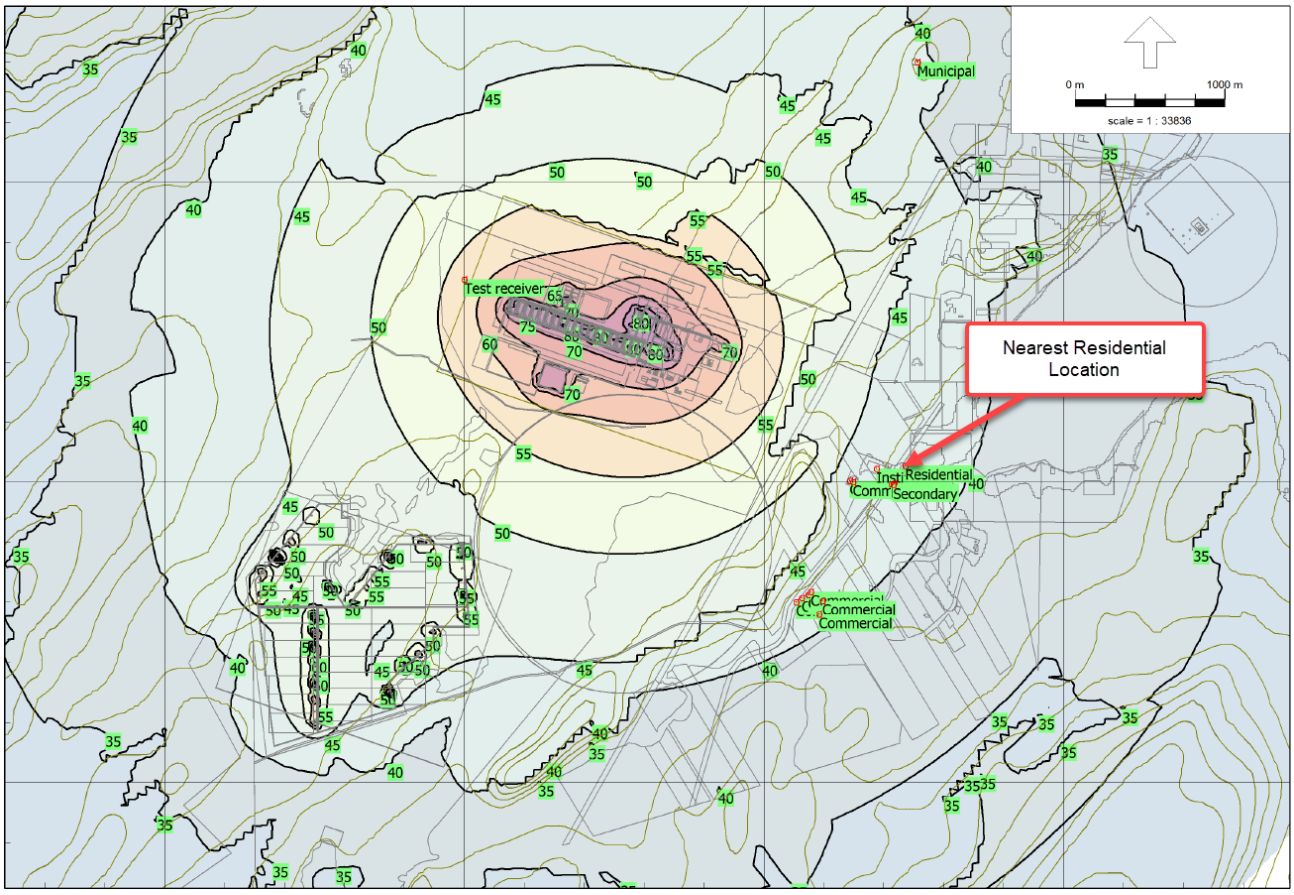

Figure 3-2 Predicted noise contours for operating Scenario 2

The nearest residential location to the industrial facilities is to the South-East, with predicted noise levels given below.

Table 3-2 Predicted noise levels at nearest residences for Scenario 2

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Pumphouse Road, SW of junction with Water Street	X: 618849 Y: 5441990	42	Marginally exceeds night-time criterion of 40 dB(A) (see Table 2.1)

Table 3-2 demonstrates that predicted operational noise for Scenario 2 exceeds the night-time noise criterion from Table 2.1.

3.3 Scenario 3: Jetty Flare on Off-Spec Ammonia Flaring

Scenario 3 assumes the industrial Facilities and Solar Farm are operating normally with the Jetty Flare (located within the Industrial Facilities) on 107 t/hr of Off-Spec Ammonia.

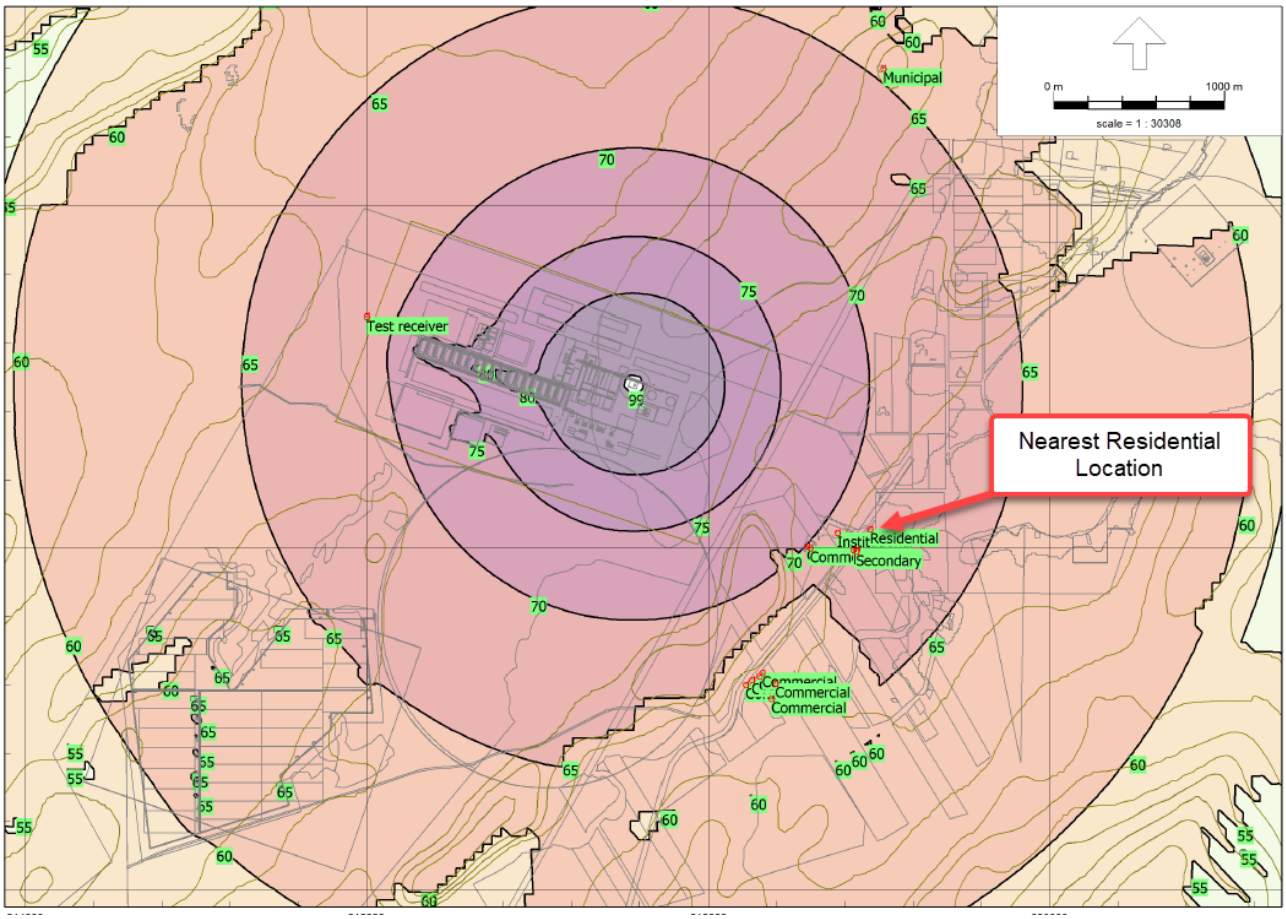

Figure 3-3 Predicted noise contours for operating Scenario 3

The nearest residential location to the industrial facilities is to the South-East, with predicted noise levels given below.

Table 3-3 Predicted noise levels at nearest residences for Scenario 3

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Pumphouse Road, SW of junction with Water Street	X: 618849 Y: 5441990	68	Significantly exceeds all noise criteria (see Table 2.1)

Table 3-3 demonstrates that predicted operational noise for Scenario 3 exceeds all of the noise criteria from Table 2.1.

3.4 Scenario 4: 34xDiesel Generators operating with 1xASU

Scenario 4 assumes all 34 of the Emergency Diesel Generators are operating, along with 1xASU. The balance of plant is assumed to be off except for some smaller equipment items (e.g. pumps).

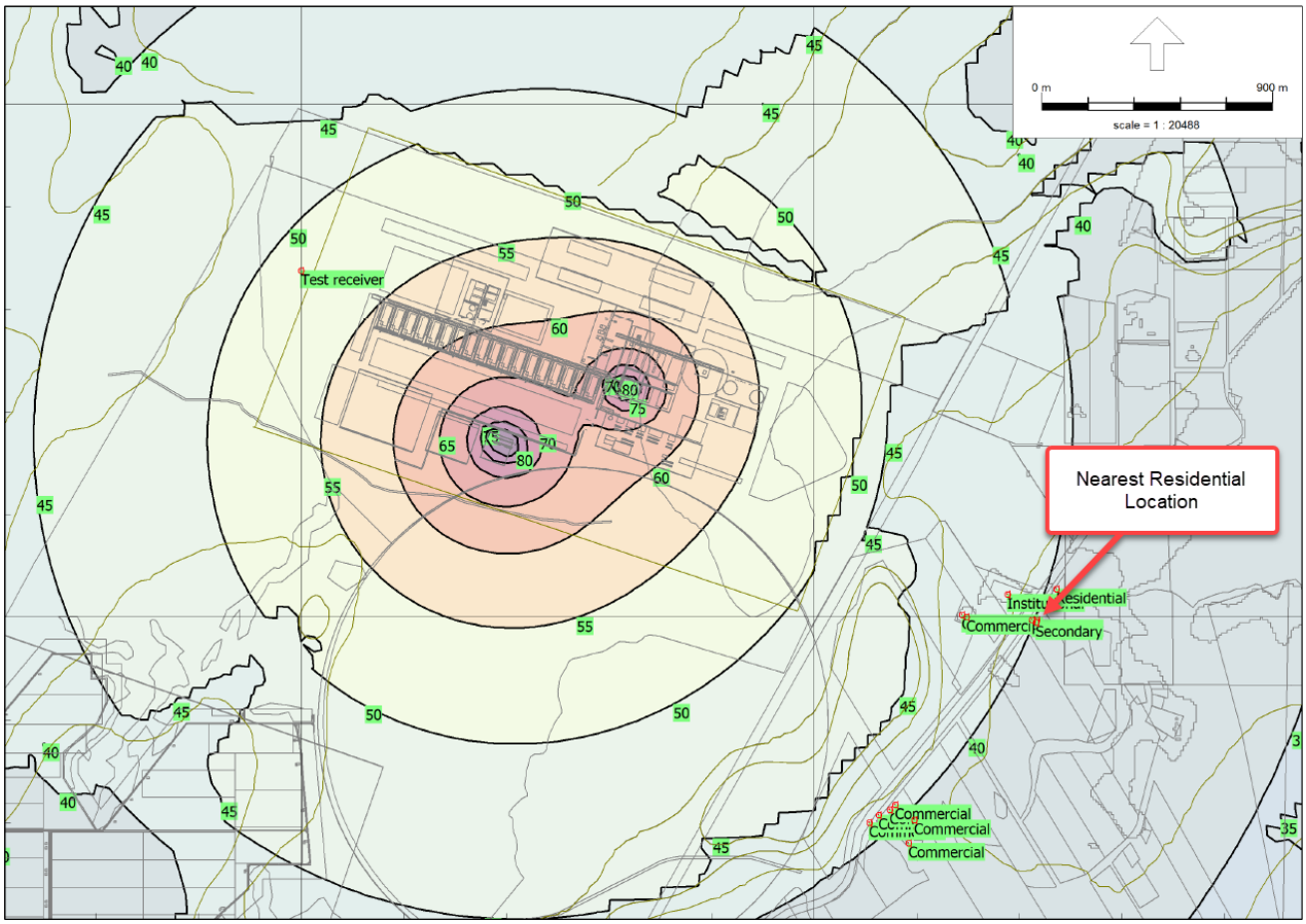

Figure 3-4 Predicted noise contours for operating Scenario 4

The nearest residential location to the industrial facilities is to the South-East, with predicted noise levels given below.

Table 3-4 Predicted noise levels at nearest residences for Scenario 4

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Pumphouse Road, SW of junction with Water Street	X: 618849 Y: 5441990	40	Meets all noise criteria (see Table 2.1)

Table 3-4 demonstrates that predicted operational noise for Scenario 4 meets all of the noise criteria from Table 2.1. However, taking the existing ambient sound level into consideration would cause a marginal excess (0.6 dB).

3.5 Scenario 5: Emergency (main plant flare on Blowdown Relief)

Scenario 5 assumes the main Industrial Facilities flare is in full emergency blowdown relief at 1837 t/hr.

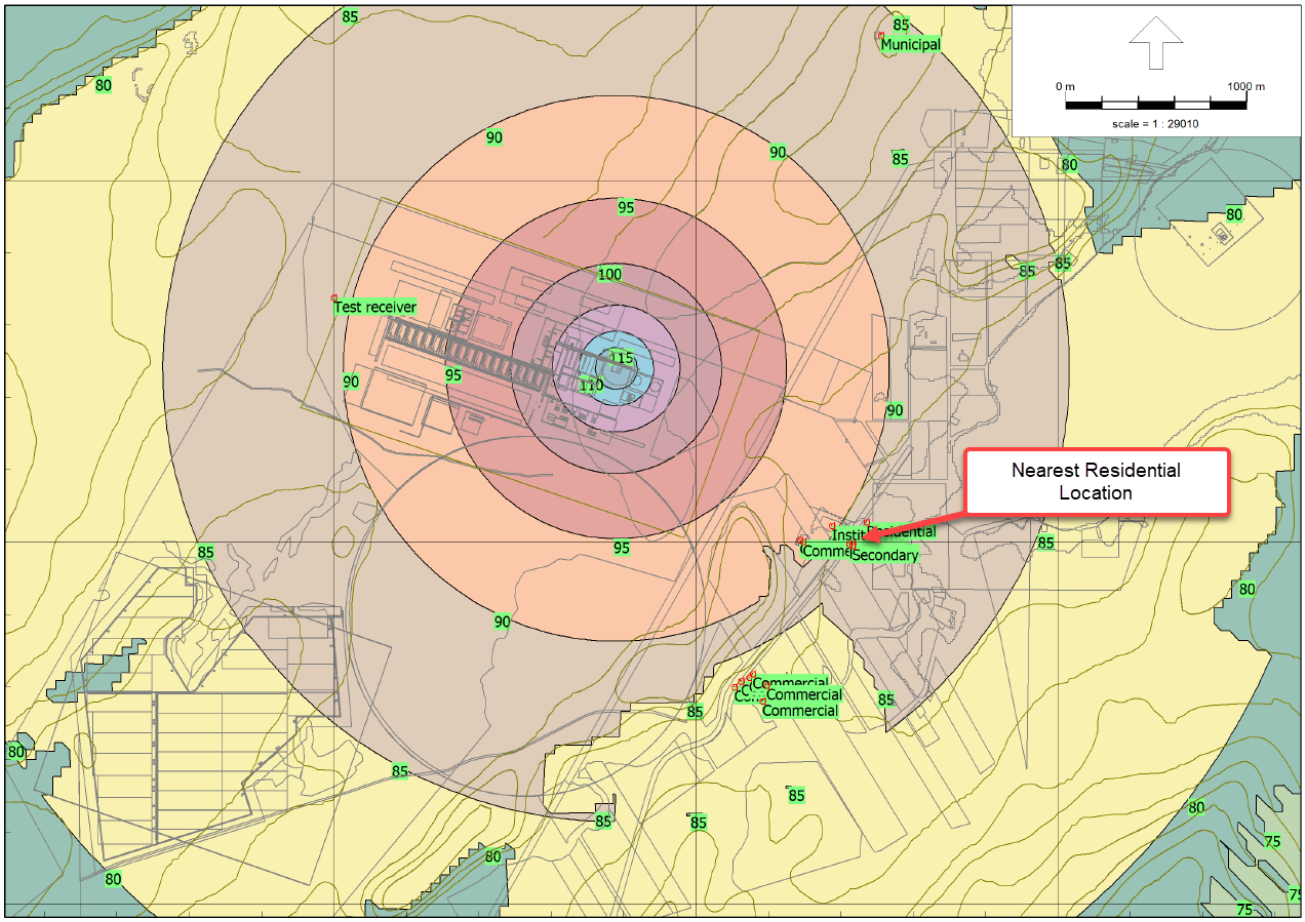

Figure 3-5 Predicted noise contours for operating Scenario 5

Table 3-5 Predicted noise levels at nearest residences for Scenario 5

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Pumphouse Road, SW of junction with Water Street	X: 618849 Y: 5441990	89	Substantially exceeds all noise criteria (see Table 2.1)

Table 3-5 demonstrates that predicted operational noise for Scenario 5 substantially exceeds all of the noise criteria from Table 2.1.

However, since this is an emergency situation it is not appropriate to apply the same criteria as for Normal Operation.

On site noise levels at the base of the flare would be in the region of 128 dB LpA, and less at greater distances.

4. Outline Noise Mitigation Measures

In order to reduce predicted environmental noise levels to be within the noise criteria from Table 2-1, the following provisional noise mitigation measures are proposed.

It should be noted, however, that these are only indicative requirements, since the need for noise mitigation or otherwise will only be determined when actual noise data for the equipment and processes has been obtained from equipment suppliers.

Using the current assumed equipment and process sound power levels from Appendix B, in conjunction with the noise model, the following provisional noise mitigation measures have been identified as being required to achieve the environmental noise criteria for Scenarios 1-4 (Scenario 5 is excluded since it is emergency only).

Table 4-1 Preliminary recommended noise mitigation measures

Noise Source	Contribution dB (LAeq)	Possible Noise Mitigation Measures	Provisional required additional attenuation based on estimated noise model sound power levels
Electrolyser Power Stations	34	Enclosures around rectifiers Low noise cooling fans	10 dB 7 dB
Electrolyser Dry Air-Cooling Fans	33	Low noise fans	7 dB
Air Separation Units (overall)	37	Compressors in enclosures and compressor piping acoustically insulated or underground, as required subject to a piping noise study at the detailed design stage	7 dB
Hydrogen Purification Packages	36	Compressors in enclosures and compressor piping acoustically insulated or underground, as required subject to a piping noise study at the detailed design stage	6 dB
Jetty Flare on Off-Spec Flaring (located within Industrial Facilities)	68	Enclosed, attenuated or low noise flare	35 dB
Emergency Diesel Generators	40	Higher performance package noise control	3 dB
All piping to be assessed at design stage as part of a piping noise study so that appropriate acoustic insulation or subterranean routing can be allowed for. This will particularly apply to piping connected to compressors.	Dependent upon connected equipment and process	High performance acoustic insulation, enclosure and/or subterranean pipe routing.	Dependent upon connected equipment and process

The list of assumed equipment and process area sound power levels incorporating the above mitigations is included in Appendix C for reference. They should not, however, be assumed to be final and will be subject to review when detailed noise data becomes available from equipment suppliers as part of the detailed design of the plant.

5. Predicted Operational Noise Levels (mitigated)

5.1 Scenario 1: Normal Operation

Scenario 1 assumes the Industrial Facilities and Solar Farm are operating normally with no flaring, and with the additional mitigation from Table 4.1 incorporated into the design so as to achieve the mitigated sound power levels for equipment and processes listed in Appendix C.

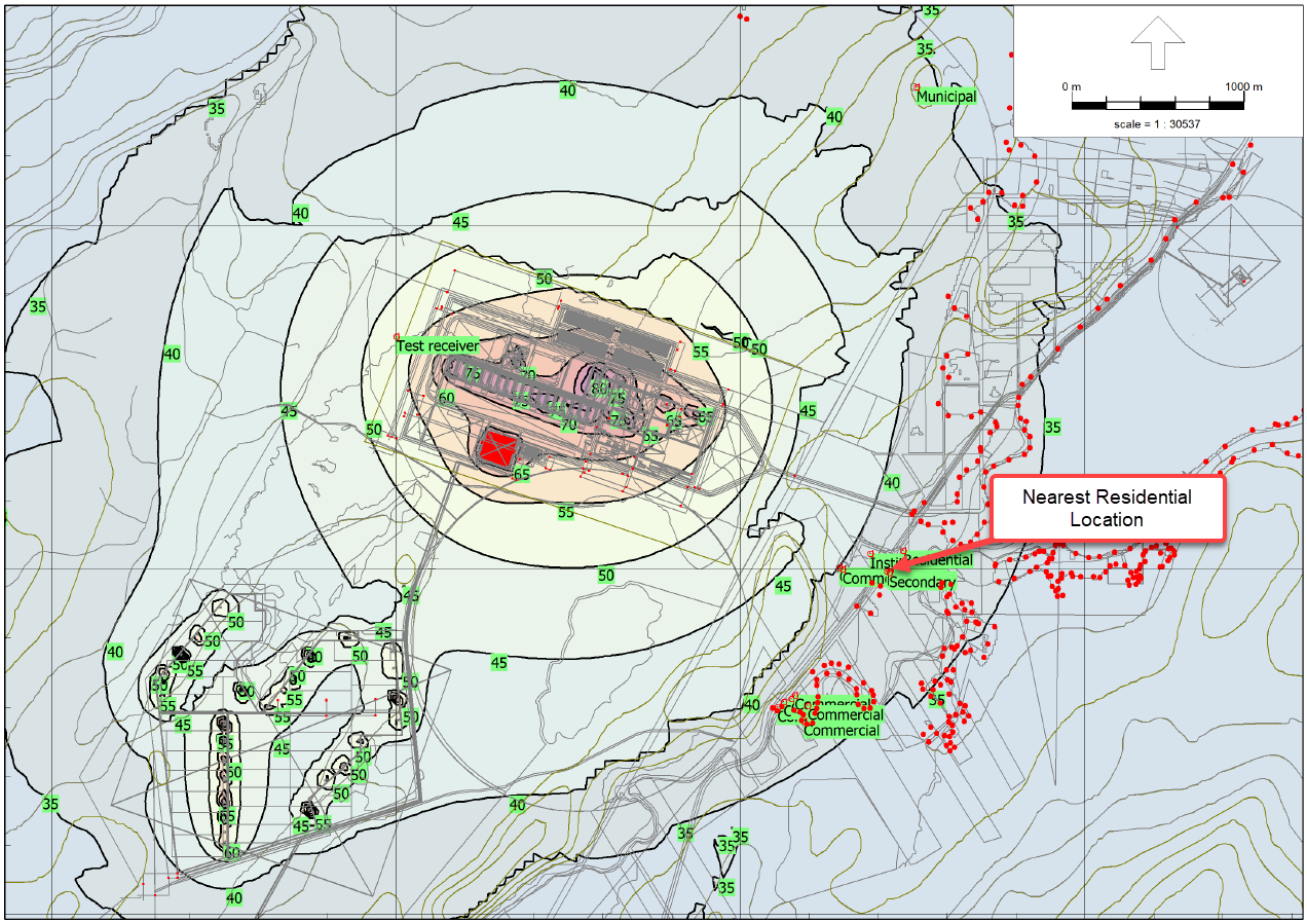

Figure 5-1 Predicted noise contours for operating Scenario 1 (mitigated)

The nearest residential location to the industrial facilities is to the South-East, with predicted noise levels given below.

Table 5-1 Predicted noise levels at nearest residences for Scenario 1 (mitigated)

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Pumphouse Road, SW of junction with Water Street	21 X: 618849 Y: 5441990	37	Within all criteria (see Table 2.1)

Table 5-1 demonstrates that predicted operational noise levels for Scenario 1 with mitigation in place are within all criteria from Table 2.1.

5.2 Scenario 2: Ammonia Storage Flare on Purge Gas

Scenario 2 assumes the Industrial Facilities and Solar Farm are operating normally with the Ammonia Storage Flare on 0.1178 t/hr of Purge Gas, and with the additional mitigation from Table 4.1 incorporated into the design so as to achieve the mitigated sound power levels for equipment and processes listed in Appendix C.

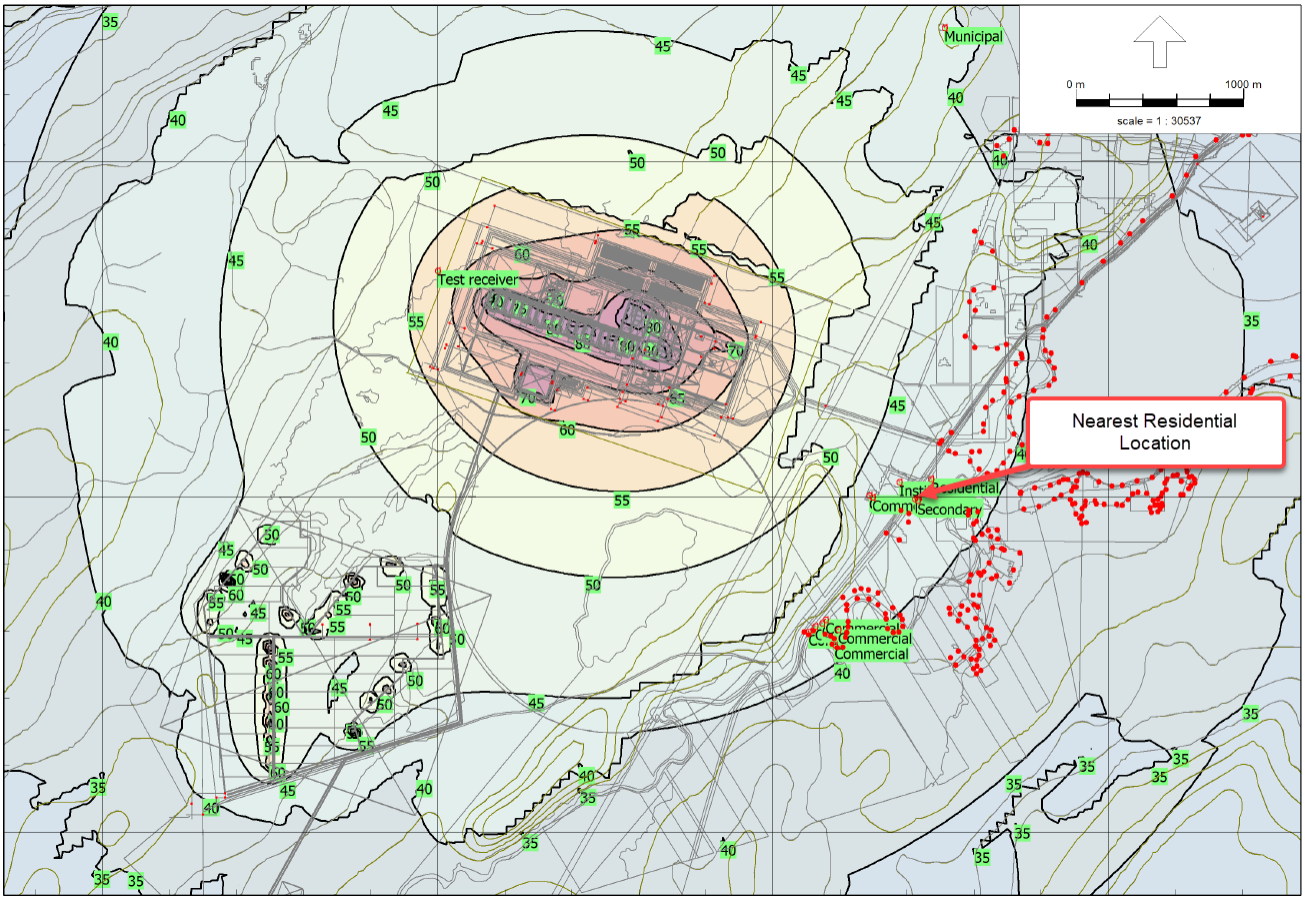

Figure 5-2 Predicted noise contours for operating Scenario 2 (mitigated)

The nearest residential location to the industrial facilities is to the South-East, with predicted noise levels given below.

Table 5-2 Predicted noise levels at nearest residences for Scenario 2 (mitigated)

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Pumphouse Road, SW of junction with Water Street	X: 618849 Y: 5441990	38	Within all criteria (see Table 2.1)

Table 5-2 demonstrates that predicted operational noise levels for Scenario 2 with mitigation in place are within all criteria from Table 2.1.

5.3 Scenario 3: Jetty Flare on Off-Spec Ammonia Flaring

Scenario 3 assumes the industrial Facilities and Solar Farm are operating normally with the Jetty Flare (located within the Industrial Facilities) on 107 t/hr of Off-Spec Ammonia, and with the additional mitigation from Table 4.1 incorporated into the design so as to achieve the mitigated sound power levels for equipment and processes listed in Appendix C.

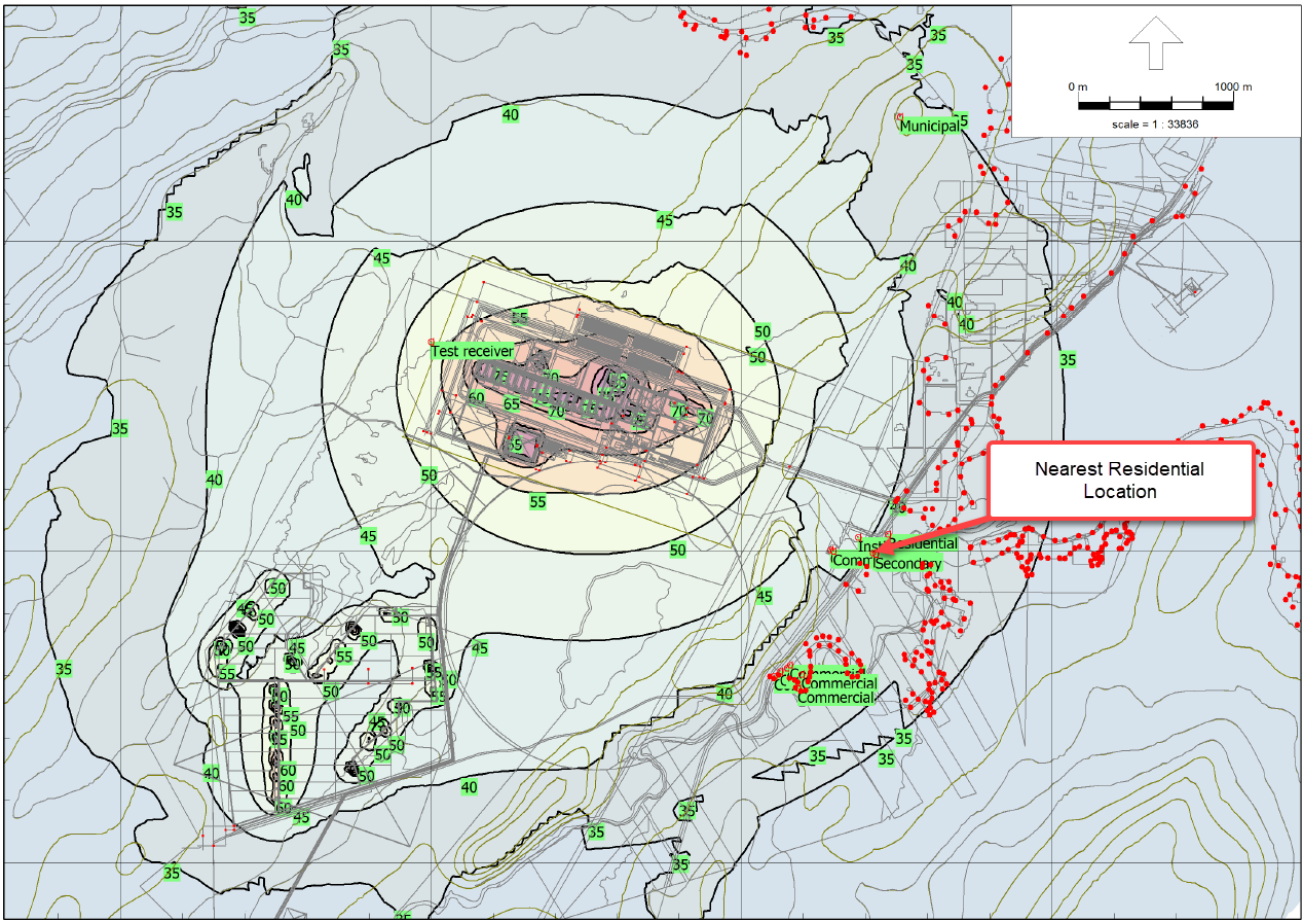

Figure 5-3 Predicted noise contours for operating Scenario 3 (mitigated)

The nearest residential location to the industrial facilities is to the South-East, with predicted noise levels given below.

Table 5-3 Predicted noise levels at nearest residences for Scenario 3 (mitigated)

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Pumphouse Road, SW of junction with Water Street	X: 618849 Y: 5441990	40	Within all criteria (see Table 2.1)

Table 5-3 demonstrates that predicted operational noise levels for Scenario 3 with mitigation in place are within all criteria from Table 2.1.

5.4 Scenario 4: 34xDiesel Generators operating with 1xASU

Scenario 4 assumes all 34 of the Emergency Diesel Generators are operating, along with 1xASU. The balance of plant is assumed to be off except for some smaller equipment items (e.g. pumps). The mitigation measures from Table 4.1 do not influence this scenario

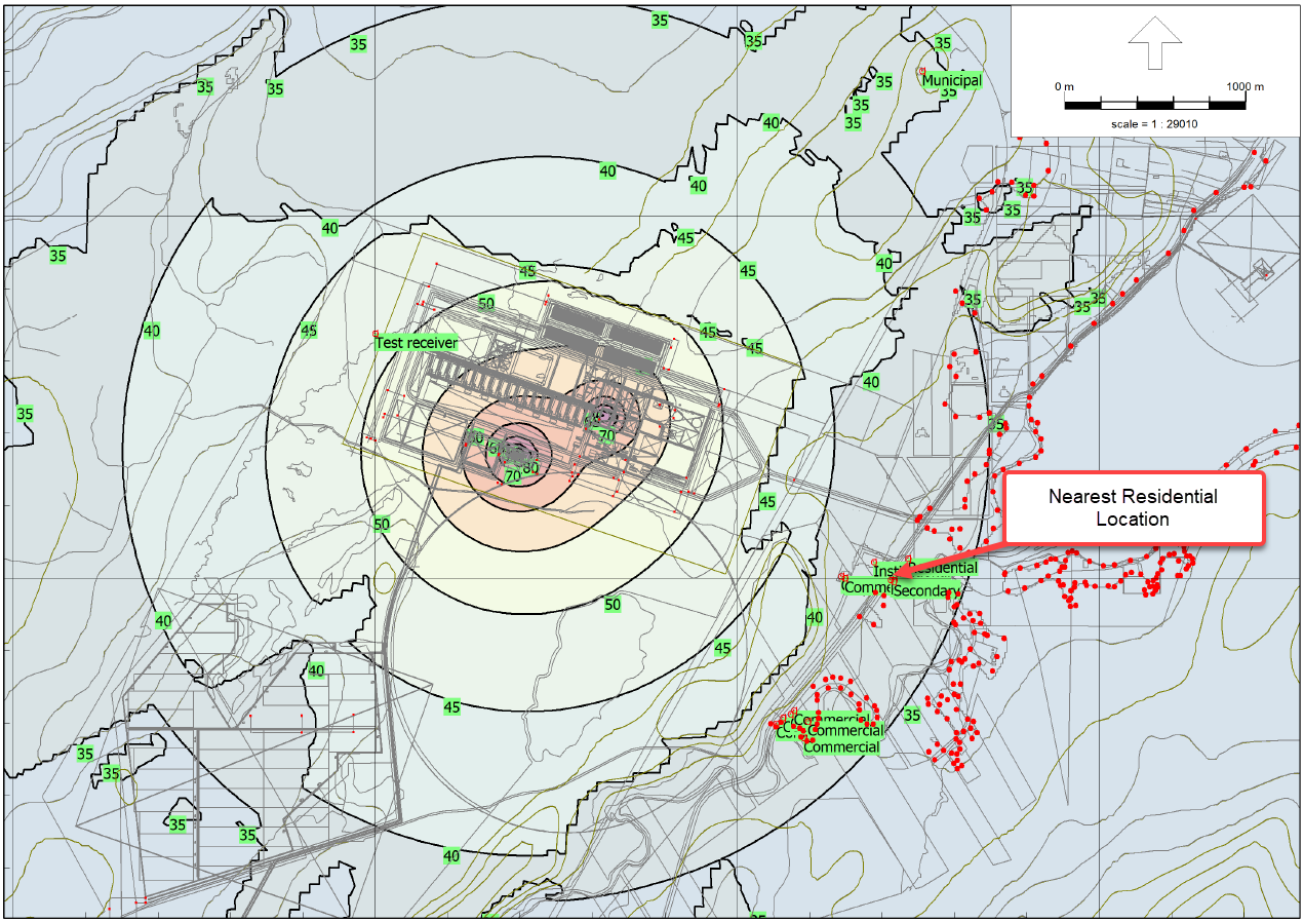

Figure 5-4 Predicted noise contours for operating Scenario 4 (mitigated)

The nearest residential location to the industrial facilities is to the South-East, with predicted noise levels given below.

Table 5-4 Predicted noise levels at nearest residences for Scenario 4 (mitigated)

Residential Location	Co-ordinates NAD 83 UTM 21N E	Predicted Noise Level dB $L_{Aeq,1hr}$	Comment
Pumphouse Road, SW of junction with Water Street	X: 618849 Y: 5441990	37	Meets all noise criteria (see Table 2.1)

Table 3-4 demonstrates that predicted operational noise for Scenario 4 meets all of the noise criteria from Table 2.1.

6. Conclusions

Sound levels have been predicted based on currently available information for the operation of the EVREC Project Industrial Facilities and Solar Farm.

Appropriate noise criteria have been proposed, and outline noise mitigation measures identified for equipment and processes where a reduction of the estimated sound power levels was required in order to meet the criteria.

Appendix A – References and Acronyms

A.1 References

Table A1.1 References

Ref	Description
1	ISO 9613-1:1993 Acoustics – Attenuation of sound during propagation outdoors – Part 1: Calculation of the absorption of sound by the atmosphere
2	ISO 9613-2: 2024 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation
3	Pre-FEED Project Basis of Design
4	Nova Scotia Environment and Climate Change (NSECC). (2023) Guidelines for Environmental Noise Measurement and Assessment. Retrieved from https://novascotia.ca/nse/air/docs/guidelines-environmental-noise-measurement-and-assessment.pdf
5	STRUM Consulting Baseline Noise Monitoring Report: Botswood & Area EVREC Green Energy Hub April 15,2025
6	VDI 3732 1999 Standard noise levels of technical sound sources - Flares

A.2 Acronyms

Table A1.2 Acronyms

Acronym	Definition
A-CAES	Adiabatic Compressed Air Energy Storage
ASU	Air Separation Unit
BOD	Basis of Design
dB(A)	Decibels (A-weighted)
FEED	Front End Engineering Design
GW	Giga-Watt
GWh	Giga-Watt Hour
ISO	International Standards Organisation
$L_{Aeq,T}$	time-average sound level (A-weighted equivalent), where T= 1 hour
MW	Mega-watt
NSECC	Nova Scotia Environment and Climate Change
Strum	EIA Consultants
SW	South-West

Appendix B – Operational Equipment Sound Power Level Tables

Equipment List Sound Power Levels

SPECTRUM

Equipment or source	Source Octave Band Sound Power Level, Lw (Linear)									Overall LwA (dB)	Comment (make, model, operating condition, etc)
	31Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz		
1. Water Treatment											
1.1 Feedwater Pumps 26-PB-101 A/B/C/D (each) 25kW		85	86	88	88	91	88	84	78	**95**	SAC estimate based on empiracle equations
1.2 Water Treatment Package 14-XE-101 A/B/C (each) 6kW		72	73	75	75	78	75	71	65	**81**	SAC estimate based on empiracle equations
1.3 Demin Treated Water Transfer Pumps 26-PB-102A/B (each) 0.3kW		71	72	74	74	77	74	70	64	**81**	SAC estimate based on empiracle equations
2. Electrolyser Packages (each of 18)											
2.1 Dry Air Cooling Fans (each of 15 fans Per Electrolyser Package)	96	96	96	95	94	93	91	88	88	**98**	SAC estimate based on 98 LwA per fan.
2.2 Power Station (PS) (each of 9 per Electrolyser Package)											
2.2.1. Rectifiers (each of 4 per PS Skid)	**98**	98	97	93	88	83	80	76	73	**90**	SAC Estimate
2.2.2. Aux Transformer (1 each of 1 per PS Skid)	93	93	93	88	82	78	75	71	68	**85**	SAC Estimate
2.2.3. Cooling Fans (each of 4 per PS skid)	84	84	89	89	86	86	84	81	79	**91**	SAC Estimate
2.2.4. MV Transformers (each of 3 per PS Skid)	103	103	103	98	93	88	85	81	78	**96**	SAC estimate. Assume 3/3 operating
2.2.5. Annode Pumps P-141/2/3 (each of 3 per PS)	85	85	86	88	88	91	88	84	78	**95**	SAC estimate. Assume 2/3 operating
2.2.6. Annode Resin Pumps P-144/5 (each of 2 per PS)	85	85	86	88	88	91	88	84	78	**95**	SAC estimate. Assume 1/2 operating
2.3 Cell Stack Enclosures (each of 3 per Electrolyser Package)	108	101	96	89	87	84	83	81	76	**91**	SAC Estimate
2.4 Switchgear Enclosure (each of 3 per Electrolyser Package)	99	92	85	78	73	66	65	62	56	**76**	SAC Estimate
2.5. Air Compressor Package (1 per Electrolyser Package)	73	73	73	73	78	80	85	85	83	**90**	SAC Estimate
2.6 Hydrogen Processing Skid (1 per Electrolyser Package)											
2.6.1 Hydrogen Processing Skid Pumps (each) (1 per Electrolyser Package)	85	85	86	88	88	91	88	84	78	**95**	SAC Estimate
2.7 Chiller	84	84	89	89	86	86	84	81	79	**91**	SAC Estimate
2.8. Water Purification Unit	99	92	89	87	85	83	83	80	75	**89**	SAC Estimate
2.9 Oxygen Vent Stack	81	81	86	86	83	83	81	78	76	**88**	SAC Estimate
3. Hydrogen Purification Package (each of 23)											
No mechanical equipment listed or indicated in PFDs except compressor	103	103	108	108	105	105	103	100	98	**110**	SAC Estimate for compressor and piping/vessels. Allow for acustic insulation on piping if centrifugal compressor.
4. Hydrogen Compression (6x2-stage reciprocating compressors)											
Reciprocating compressor (each of 6)	105	105	110	110	107	107	105	102	100	**112**	Spectrum estimate based on 87 dB LpA at 1m
5. Hydrogen Storage											
5. Hydrogen metering package	89	89	94	94	91	91	89	86	84	**96**	Estimate based on 75 dB LpA at 1m
Hydrogen storage package											estimate low noise
6. Ammonia Synthesis											
ASU (estimate for complete plant)	113	113	118	118	115	115	113	110	108	**120**	Schedule states 85 dB(A) at 1m compressor hoods will be invluded. Allow for high performance acoustic insulation on compressor piping.
7. Ammonia Storage											
7.1 Cold Ammonia Booster Pumps 5-PA-101 A/B/C/D/E/F (each)		87	88	90	90	93	90	86	80	**96**	SAC Estimate
7.1 Ammonia Loading Pumps 3-PA-101 A/B/C (each)		88	89	91	91	94	91	87	81	**98**	SAC Estimate
8. Instrument Air Package	100	100	105	105	102	102	100	97	95	**107**	Spectrum estimate based on 80 dB LpA at 1m
9a. Main Plant Flare 0.4229 t/hr (Pilot)	114	114	114	109	104	98	96	92	89	**106**	Estimate using VDI 3732
9b. Main Plant Flare 1,836.55 t/h (Blowdown Relief)	176	176	176	171	166	160	158	154	151	**168**	Estimate using VDI 3732
10a. Ammonia Storage Flare 0.4229 t/hr (Pilot)	114	114	114	109	104	98	96	92	89	**106**	Estimate using VDI 3732
10b. Ammonia Storage Flare 0.1178 t/h Purge Gas	104	104	104	99	94	89	86	82	79	**97**	Estimate using VDI 3732
11.1 Hazardous Drains Pump 25-PB-101 A/B 3kW (each if 2)		71	72	74	74	77	74	70	64	**80**	SAC estimate based on empiracle equations
11.2 Non-Hazardous Drains Pump 25-PB-102 A/B 3kW (each of 2)		71	72	74	74	77	74	70	64	**80**	SAC estimate based on empiracle equations
12. Effluent Treatment Package	99	92	89	87	85	83	83	80	75	**89**	SAC Estimate
13. Emergency Power Generation (each of 34 units)											
Emergency Diesel Generators (each)	120	120	120	115	110	105	102	98	95	**113**	Data provided by Project as 81 dB LpA at 7m
14. Firewater System											
14.1 Fire Water Pumps 30-PJ-101 A/B/C 360 kW		93	94	96	96	99	96	92	86	**102**	SAC estimate based on empiracle equations
14.2 Fire Water Jockey Pump 30-PJ-102 24 kW		82	83	85	85	88	85	81	75	**91**	SAC estimate based on empiracle equations
15. Buildings											
Typical ventilation external noise source (each)	70	70	75	75	72	72	70	67	65	**77**	SAC estimate
16. Solar Farm											
16.1 Inverters (each of 33)	**86**	86	91	91	88	88	86	83	81	**93**	Sunny Central data: 65 dBLpA at 10m
16.2 Transformers (each of 33)	93	93	93	88	83	77	75	71	68	**85**	Spectrum Estimate
17. Peter's Pond Pumphouse											
17.1 650 hp pump (480 kW) empirical		93	94	96	96	99	96	92	86	**103**	Estimated for 650 hp Pump
18. 180 MW Battery Storage Plant (BESS) (Total)	106	119	111	109	110	108	105	108	106	**114**	SAC Estimate
19a. Jetty Flare 0.4229t/h (Pilot)	114	114	114	109	104	98	96	92	89	**106**	Estimate using VDI 3732
19b. Jetty Flare 106.92 t/h (Off-Spec)	155	155	155	150	145	139	137	133	130	**147**	Estimate using VDI 3732

Source Mitigation Insertion Losses

SPECTRUM ACOUSTIC CONSULTANTS

Equipment or source	Silencer / acoustic kit insertion loss									Comment (make, model, design, etc)
	31Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
1. Water Treatment										
1.1 Feedwater Pumps 26-PB-101 A/B/C/D (each) 25kW										
1.2 Water Treatment Package 14-XE-101 A/B/C (each) 6kW										
1.3 Demin Treated Water Transfer Pumps 26-PB-102A/B (each) 0.3kW										
2. Electrolyser Packages (each of 18)										
2.1 Dry Air Cooling Fans (each of 15 fans Per Electrolyser Package)	7	7	7	7	7	7	7	7	7	Provisional mitigation requirement
2.2 Power Station (PS) (each of 9 per Electrolyser Package)										
2.2.1. Rectifiers (each of 4 per PS Skid)	10	10	10	10	10	10	10	10	10	Provisional mitigation requirement
2.2.2. Aux Transformer (1 each of 1 per PS Skid)										
2.2.3. Cooling Fans (each of 4 per PS skid)	7	7	7	7	7	7	7	7	7	Provisional mitigation requirement
2.2.4. MV Transformers (each of 3 per PS Skid)										
2.2.5. Annode Pumps P-141/2/3 (each of 3 per PS)										
2.2.6. Annode Resin Pumps P-144/5 (each of 2 per PS)										
2.3 Cell Stack Enclosures (each of 3 per Electrolyser Package)										
2.4 Switchgear Enclosure (each of 3 per Electrolyser Package)										
2.5. Air Compressor Package (1 per Electrolyser Package)										
2.6 Hydrogen Processing Skid (1 per Electrolyser Package)										
2.6.1 Hydrogen Processing Skid Pumps (each) (1 per Electrolyser Package)										
2.7 Chiller										
2.8. Water Purification Unit										
2.9 Oxygen Vent Stack										
3. Hydrogen Purification Package (each of 23)	6	6	6	6	6	6	6	6	6	Provisional mitigation requirement
No mechanical equipment listed or indicated in PFDs except compressor										
4. Hydrogen Compression (6x2-stage reciprocating compressors)										
Reciprocating compressor (each of 6)										
5. Hydrogen Storage										
5. Hydrogen metering package										
Hydrogen storage package										
6. Ammonia Synthesis										
ASU (estimate for complete plant)	7	7	7	7	7	7	7	7	7	Provisional mitigation requirement
7. Ammonia Storage										
7.1 Cold Ammonia Booster Pumps 5-PA-101 A/B/C/D/E/F (each)										
7.1 Ammonia Loading Pumps 3-PA-101 A/B/C (each)										
8. Instrument Air Package										
9a. Main Plant Flare 0.4229 t/hr (Pilot)										
9b. Main Plant Flare 1,836.55 t/h (Blowdown Relief)										
10a. Ammonia Storage Flare 0.4229 t/hr (Pilot)										
10b. Ammonia Storage Flare 0.1178 t/h Purge Gas										
11.1 Hazardous Drains Pump 25-PB-101 A/B 3kW (each if 2)										
11.2 Non-Hazardous Drains Pump 25-PB-102 A/B 3kW (each of 2)										
12. Effluent Treatment Package										
13. Emergency Power Generation (each of 34 units)										
Emergency Diesel Generators (each)	3	3	3	3	3	3	3	3	3	Provisional mitigation requirement
14. Firewater System										
14.1 Fire Water Pumps 30-PJ-101 A/B/C 360 kW										
14.2 Fire Water Jocley Pump 30-PJ-102 24 kW										
15. Buildings										
Typical ventilation external noise source (each)										
16. Solar Farm										
16.1 Inverters (each of 33)										
16.2 Transformers (each of 33)										
17. Peter's Pond Pumphouse										
17.1 650 hp pump (480 kW) empirical										
18. 180 MW Battery Storage Plant (BESS) (Total)										
19a. Jetty Flare 0.4229t/h (Pilot)										
19b. Jetty Flare 106.92 t/h (Off-Spec)	35	35	35	35	35	35	35	35	35	Provisional mitigation requirement

Attenuated Equipment Sound Power Levels

Equipment or source	Attenuated Octave Band Sound Power Level, Lw (Linear)									Overall LwA (dB)	Comment
	31Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz		
1. Water Treatment											- -
1.1 Feedwater Pumps 26-PB-101 A/B/C/D (each) 25kW		85	86	88	88	91	88	84	78		SAC estimate based on empiracle equations - -
1.2 Water Treatment Package 14-XE-101 A/B/C (each) 6kW		72	73	75	75	78	75	71	65		SAC estimate based on empiracle equations - -
1.3 Demin Treated Water Transfer Pumps 26-PB-102A/B (each) 0.3kW		71	72	74	74	77	74	70	64		SAC estimate based on empiracle equations - -
											- -
2. Electrolyser Packages (each of 18)											- -
2.1 Dry Air Cooling Fans (each of 15 fans Per Electrolyser Package)	89	89	89	88	87	86	84	81	81	**91**	SAC estimate based on 98 LwA per fan. - Provisional mitigation requirement -
2.2 Power Station (PS) (each of 9 per Electrolyser Package)											- -
2.2.1. Rectifiers (each of 4 per PS Skid)	88	88	87	83	78	73	70	66	63	**80**	SAC Estimate - Provisional mitigation requirement -
2.2.2. Aux Transformer (1 each of 1 per PS Skid)	93	93	93	88	82	78	75	71	68	**85**	SAC Estimate - -
2.2.3. Cooling Fans (each of 4 per PS skid)	77	77	82	82	79	79	77	74	72	**84**	SAC Estimate - Provisional mitigation requirement -
2.2.4. MV Transformers (each of 3 per PS Skid)	103	103	103	98	93	88	85	81	78	**96**	SAC estimate. Assume 3/3 operating - -
2.2.5. Anode Pumps P-141/2/3 (each of 3 per PS)	85	85	86	88	88	91	88	84	78	**95**	SAC estimate. Assume 2/3 operating - -
2.2.6. Anode Resin Pumps P-144/5 (each of 2 per PS)	85	85	86	88	88	91	88	84	78	**95**	SAC estimate. Assume 1/2 operating - -
2.3 Cell Stack Enclosures (each of 3 per Electrolyser Package)	107.856	101	96	89	87	84	83	81	76	**91**	SAC Estimate - -
2.4 Switchgear Enclosure (each of 3 per Electrolyser Package)	98.7152	92	85	78	73	66	65	62	56	**76**	SAC Estimate - -
2.5. Air Compressor Package (1 per Electrolyser Package)	73	73	73	73	78	80	85	85	83	**90**	SAC Estimate - -
2.6 Hydrogen Processing Skid (1 per Electrolyser Package)											- -
2.6.1 Hydrogen Processing Skid Pumps (each) (1 per Electrolyser Package)	85	85	86	88	88	91	88	84	78	**95**	SAC Estimate - -
2.7 Chiller	84	84	89	89	86	86	84	81	79	**91**	SAC Estimate - -
2.8. Water Purification Unit	98.5293	92	89	87	85	83	83	80	75	**89**	SAC Estimate - -
2.9 Oxygen Vent Stack	81	81	86	86	83	83	81	78	76	**88**	SAC Estimate - -
											- -
3. Hydrogen Purification Package (each of 23)											- Provisional mitigation requirement -
No mechanical equipment listed or indicated in PFDs except compressor	103	103	108	108	105	105	103	100	98	**110**	SAC Estimate for compressor and piping/vessels. Allow for acustic insulation on piping if centrifugal compressor. - -
											- -
4. Hydrogen Compression (6x2-stage reciprocating compressors)								#REF!	#REF!		- -
Reciprocating compressor (each of 6)	105	105	110	110	107	107	105	102	100	**112**	Spectrum estimate based on 87 dB LpA at 1m - -
											- -
5. Hydrogen Storage											- -
5. Hydrogen metering package	89	89	94	94	91	91	89	86	84	**96**	Estimate based on 75 dB LpA at 1m - -
Hydrogen storage package											estimate low noise - -
											- -
6. Ammonia Synthesis											- -
ASU (estimate for complete plant)	106	106	111	111	108	108	106	103	101	**113**	Schedule states 85 dB(A) at 1m compressor hoods will be invluded. Allow for high performance acoustic insulation on compressor piping. - Provisional mitigation
7. Ammonia Storage											- -
7.1 Cold Ammonia Booster Pumps 5-PA-101 A/B/C/D/E/F (each)	0	87	88	90	90	93	90	86	80	**96**	SAC Estimate - -
7.1 Ammonia Loading Pumps 3-PA-101 A/B/C (each)	0	88	89	91	91	94	91	87	81	**98**	SAC Estimate - -
											- -
8. Instrument Air Package	100	100	105	105	102	102	100	97	95	**107**	Spectrum estimate based on 80 dB LpA at 1m - -
											- -
9a. Main Plant Flare 0.4229 t/hr (Pilot)	114	114	114	109	104	98	96	92	89	**106**	Estimate using VDI 3732 - -
9b. Main Plant Flare 1,836.55 t/h (Blowdown Relief)	176	176	176	171	166	160	158	154	151	**168**	Estimate using VDI 3732 - -
											- -
10a. Ammonia Storage Flare 0.4229 t/hr (Pilot)	114	114	114	109	104	98	96	92	89	**106**	Estimate using VDI 3732 - -
10b. Ammonia Storage Flare 0.1178 t/h Purge Gas	104	104	104	99	94	89	86	82	79	**97**	Estimate using VDI 3732 - -
											- -
11.1 Hazardous Drains Pump 25-PB-101 A/B 3kW (each if 2)	0	71	72	74	74	77	74	70	64	**80**	SAC estimate based on empiracle equations - -
11.2 Non-Hazardous Drains Pump 25-PB-102 A/B 3kW (each of 2)	0	71	72	74	74	77	74	70	64	**80**	SAC estimate based on empiracle equations - -
											- -
12. Effluent Treatment Package	98.5293	92	89	87	85	83	83	80	75	**89**	SAC Estimate - -
											- -
13. Emergency Power Generation (each of 34 units)											- -
Emergency Diesel Generators (each)	117	117	117	112	107	102	99	95	92	**110**	Data provided by Project as 81 dB LpA at 7m - Provisional mitigation requirement -
											- -
14. Firewater System											- -
14.1 Fire Water Pumps 30-PJ-101 A/B/C 360 kW	0	93	94	96	96	99	96	92	86	**102**	SAC estimate based on empiracle equations - -
14.2 Fire Water Jocley Pump 30-PJ-102 24 kW	0	82	83	85	85	88	85	81	75	**91**	SAC estimate based on empiracle equations - -
											- -
15. Buildings											- -
Typical ventilation external noise source (each)	70	70	75	75	72	72	70	67	65	**77**	SAC estimate - -
											- -
16. Solar Farm											- -
16.1 Inverters (each of 33)	86	86	91	91	88	88	86	83	81	**93**	Sunny Central data: 65 dBLpA at 10m - -
16.2 Transformers (each of 33)	93	93	93	88	83	77	75	71	68	**85**	Spectrum Estimate - -
											- -
17. Peter's Pond Pumphouse											- -
17.1 650 hp pump (480 kW) empirical	0	93	94	96	96	99	96	92	86	**103**	Estimated for 650 hp Pump - -
											- -
18. 180 MW Battery Storage Plant (BESS) (Total)	106.017	119	111	109	110	108	105	108	106	**114**	SAC Estimate - -
											- -
19a. Jetty Flare 0.4229t/h (Pilot)	114	114	114	109	104	98	96	92	89	**106**	Estimate using VDI 3732 - -
19b. Jetty Flare 106.92 t/h (Off-Spec)	120	120	120	115	110	104	102	98	95	**112**	Estimate using VDI 3732 - Provisional mitigation requirement -