



ATTACHMENT M

Hydrologic Points of Interest Lists



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ASAP

ASAP STREAMS AND HYDROLOGIC POINTS OF INTEREST

A summary of probable centerline stream crossings was first reported to the Corps of Engineers in ASAP's 2010 Clean Water Act application leading up to the publication of the Project's Environmental Impact Statement in 2012. This list was developed by ASAP's engineering and wetlands teams through early desktop and field studies between 2009 and 2010 using the best available information at that time. Since then, changes in pipeline routing and the addition of new access roads and other facilities have occurred, and better desktop and field data for streams and wetlands have been collected.

ASAP's waterways engineering team and its wetlands delineation team played key roles in developing a list of field targets visited in 2014 and 2015 to best inform construction modes and methods through areas that could require special design. Many of these selected "stream targets" required on-site visits for engineering purposes to assess surface water features identified during desktop analysis.

In addition to the 312 streams crossed by the Project, ASAP engineers and scientists have identified 179 hydrologic points of interest (HPOIs). The HPOI features do not meet the criteria relative to possessing an ordinary high water mark defined in the USACE Regulatory Guidance Letter (RGL) 05-05, but are jurisdictional areas for which engineers may need to give special design consideration.

From a wetlands perspective, a stream is defined as having seasonally flowing water (at least in most years), and by having bed and bank. The reason is that a riverine classification includes all habitats contained within a channel. These systems can be Relatively Permanent Waters (RPWs) (i.e., tributaries that typically flow year-round or have continuous flow at least seasonally) or Non-RPWs. Channels are defined by overseeing agencies as displaying an ordinary high water mark, which refers to the line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider characteristics of a surrounding area.

Hydrologic features without an ordinary high water mark may be wetlands and may be important considerations for engineers, but these do not meet the wetlands definition for streams. The engineering definition of a stream crossing, either by the pipeline centerline or by an access road, is that there exists surface water that is likely to require application of a special design method or mode (whether meeting the wetlands definition of a stream or not). This includes areas of permanently-flooded emergent wetlands, which can convey water through the landscape and require special design.

In previous submittals, we have combined the engineering- and wetlands-identified streams into a single stream list. After review, however, many of the streams as determined by the engineering staff did not meet the wetlands stream definition and were removed from the stream list. The attached stream list is a complete list of features that meet the wetlands definition of a stream. The additional field targets that were identified by engineering but that do not meet the wetlands definition for a stream are now contained in a second list, termed "Hydrologic Points of Interest", or HPOI's.

HYDROLOGIC POINTS OF INTEREST
(HPOI) Mainline List

Hydrologic Points of Interest - Mainline

Mainline Feature ID	Anadromous	Proposed Crossing Method	Long. (DD 83)	Lat. (DD 83)	Feature width (ft)	Perm. Vol. (CY)	Temp. Vol. (CY)
ST_8.1	No	OC	-148.694	70.219	28	300	100
ST_8.8	No	OC	-148.696	70.210	88	1,100	500
ST_21.3	No	OC	-148.735	70.032	62	1,000	500
ST_35.1	No	OC	-148.763	69.838	209	2,100	1000
ST_39.5	No	OC	-148.741	69.775	5	100	100
ST_39.8	No	OC	-148.739	69.771	44	300	100
ST_40.3	No	OC	-148.736	69.764	93	1,100	550
ST_40.9	No	OC	-148.731	69.755	55	1,000	500
ST_67.2	No	OC	-148.717	69.394	96	1,100	550
ST_74.3	No	OC	-148.739	69.306	13	300	10
ST_90.1	No	OC	-148.838	69.096	65	1,000	500
ST_92.9	No	IOC	-148.830	69.059	28	300	100
ST_103.7	No	OC	-148.894	68.911	21	300	100
ST_104.5	No	OC	-148.891	68.900	5	100	100
ST_105	No	OC	-148.890	68.894	37	600	300
ST_105.6	No	OC	-148.888	68.885	116	1,900	950
ST_115.3	No	OC	-148.910	68.756	22	300	100
ST_136.3	No	IOC	-149.492	68.562	12	300	100
ST_136.6	No	IOC	-149.497	68.558	54	700	500
ST_137.1	No	IOC	-149.493	68.551	77	1,100	800
ST_137.6	No	IOC	-149.490	68.544	9	100	100
ST_142.4	No	IOC	-149.434	68.480	10	100	100
ST_142.8	No	OC	-149.423	68.477	47	300	300
ST_143	No	IOC	-149.417	68.474	70	1,000	700
ST_146.6	No	OC	-149.350	68.432	8	100	100
ST_146.7	No	OC	-149.349	68.431	21	400	200
ST_148.1_1	No	OC	-149.329	68.412	125	1,900	900
ST_149.8	No	IOC	-149.320	68.388	25	300	300
ST_152	No	IOC	-149.325	68.357	34	600	400
ST_153.1	No	IOC	-149.342	68.343	109	1,900	1100
ST_153.5	No	IOC	-149.348	68.337	30	300	300
ST_154	No	OC	-149.351	68.331	20	300	100
ST_155	No	OC	-149.352	68.316	52	1,000	400
ST_155.4	No	OC	-149.355	68.311	31	300	200
ST_155.5_1	No	OC	-149.356	68.309	20	300	100
ST_155.5_2	No	OC	-149.357	68.309	29	300	200
ST_155.6	No	OC	-149.357	68.308	26	500	200
ST_161.2	No	IOC	-149.412	68.233	12	300	100
ST_162.3	No	OC	-149.408	68.219	28	300	200
ST_163	No	OC	-149.414	68.209	42	300	300
ST_165	No	OC	-149.425	68.183	27	300	200
ST_165.1	No	OC	-149.427	68.182	60	1,000	400
ST_169.8	No	OC	-149.485	68.128	68	1,000	500

Hydrologic Points of Interest - Mainline

ST_173.1_1	No	OC	-149.549	68.094	6	100	100
ST_174	No	IOC	-149.568	68.083	10	100	100
ST_175.4	No	IOC	-149.599	68.068	105	1,300	1000
ST_175.5	No	IOC	-149.600	68.067	39	600	400
ST_182.5	No	OC	-149.758	67.996	31	300	200
ST_183.3	No	OC	-149.766	67.985	14	300	100
ST_183.4	No	IOC	-149.763	67.985	8	100	100
ST_183.7	No	IOC	-149.761	67.980	5	100	100
ST_188.9	No	IOC	-149.819	67.915	205	3,600	2100
ST_189	No	IOC	-149.818	67.913	40	300	400
ST_198	No	IOC	-149.797	67.788	10	100	100
ST_199.7	No	IOC	-149.767	67.765	33	300	300
ST_200.4	No	OC	-149.762	67.755	23	300	200
ST_200.8	No	IOC	-149.760	67.750	10	300	100
ST_201.2	No	IOC	-149.757	67.745	3	100	100
ST_202.7_2	No	OC	-149.740	67.725	5	100	100
ST_203.2	No	OC	-149.736	67.719	18	300	100
ST_203.3	No	IOC	-149.735	67.716	14	300	100
ST_203.7	No	OC	-149.732	67.711	8	100	100
ST_206.8	No	IOC	-149.721	67.668	6	100	100
ST_210.5	No	IOC	-149.784	67.625	28	300	300
ST_214.4	No	IOC	-149.809	67.572	9	100	100
ST_219.4	No	IOC	-149.855	67.505	88	1,100	900
ST_220	No	IOC	-149.857	67.497	11	300	100
ST_223.1	No	IOC	-149.934	67.469	8	100	100
ST_223.4	No	OC	-149.945	67.467	3	100	100
ST_226	No	OC	-150.035	67.455	120	1,400	900
ST_227.8	No	OC	-150.071	67.436	3	100	100
ST_232.2	No	IOC	-150.119	67.376	13	300	100
ST_232.4	No	IOC	-150.121	67.373	11	300	100
ST_234	No	OC	-150.135	67.351	24	300	200
ST_235.7	No	IOC	-150.153	67.327	84	1,100	600
ST_237.3	No	IOC	-150.165	67.304	79	1,100	800
ST_242.5	No	IOC	-150.189	67.237	10	100	100
ST_247.6	No	IOC	-150.300	67.179	15	300	200
ST_247.8	No	IOC	-150.305	67.177	13	300	100
ST_249	No	IOC	-150.339	67.169	450	3,700	4600
ST_250.3	No	OC	-150.349	67.151	7	100	100
ST_251.8	No	IOC	-150.344	67.129	18	300	200
ST_253.3	No	IOC	-150.344	67.110	4	100	100
ST_254.8	No	IOC	-150.351	67.088	24	300	200
ST_255.5	No	IOC	-150.351	67.079	12	300	100
ST_258.5	No	IOC	-150.319	67.043	6	100	100
ST_260.8	No	IOC	-150.282	67.014	268	2,300	2700
ST_263.4	No	IOC	-150.321	66.981	10	300	100
ST_265.7	No	IOC	-150.375	66.956	7	100	100
ST_266.8	No	IOC	-150.402	66.945	121	1,900	1200

Hydrologic Points of Interest - Mainline

ST_268.3	No	IOC	-150.429	66.927	49	400	500
ST_275.5	No	IOC	-150.565	66.842	11	300	100
ST_280.5	No	OC	-150.669	66.788	34	300	200
ST_285.8	No	IOC	-150.653	66.712	56	1,000	600
ST_293.4	No	IOC	-150.675	66.610	35	300	400
ST_296.9	No	IOC	-150.735	66.569	3	100	100
ST_304.5	No	IOC	-150.653	66.472	10	300	100
ST_304.9	No	IOC	-150.646	66.467	1	100	100
ST_309.8	No	IOC	-150.552	66.410	10	300	100
ST_312.4	No	OC	-150.510	66.382	16	300	100
ST_312.8	No	IOC	-150.502	66.378	10	300	100
ST_315.7	No	IOC	-150.451	66.341	6	100	100
ST_316.2	No	IOC	-150.445	66.335	8	100	100
ST_317	No	IOC	-150.426	66.326	9	100	100
ST_318.6	No	IOC	-150.402	66.307	6	100	100
ST_319.4	No	IOC	-150.391	66.297	5	100	100
ST_325.4	No	IOC	-150.275	66.224	32	300	300
ST_329	No	IOC	-150.214	66.180	5	100	100
ST_337.2	No	OC	-150.169	66.069	65	1,000	500
ST_341.4	No	OC	-150.099	66.018	20	300	100
ST_343	No	OC	-150.064	66.002	58	1,000	400
ST_344.4	No	IOC	-150.023	65.993	10	300	100
ST_345.8	No	OC	-149.996	65.977	41	300	300
ST_348.7	No	IOC	-149.920	65.948	5	100	100
ST_349.2	No	OC	-149.905	65.945	3	100	100
ST_350.9	No	OC	-149.856	65.931	4	100	100
ST_354.3	No	IOC	-149.772	65.900	11	300	100
ST_365.4	No	IOC	-149.499	65.801	4	100	100
ST_369.1	No	IOC	-149.405	65.770	3	100	100
ST_370.7	No	IOC	-149.361	65.756	55	1,000	600
ST_371.5	No	IOC	-149.340	65.748	31	300	300
ST_375.9	No	IOC	-149.210	65.718	3	100	100
ST_402.5	No	IOC	-148.619	65.445	4	100	100
ST_407.8	No	OC	-148.609	65.369	3	100	100
ST_425.2	No	OC	-148.689	65.155	13	300	100
ST_451.1	No	OC	-148.776	64.809	12	300	100
ST_493.7	No	OC	-149.302	64.273	44	300	100
ST_493.8	No	OC	-149.302	64.271	4	100	100
ST_494	No	OC	-149.302	64.268	71	1,000	500
ST_504.1	No	IOC	-149.245	64.130	682	4,900	7000
ST_505.7	No	IOC	-149.224	64.108	166	200	1900
ST_506.5	No	OC	-149.217	64.098	10	300	100
ST_518.2	No	OC	-149.104	63.941	25	300	200
ST_519.3	No	IOC	-149.089	63.927	37	300	400
ST_538.2	No	IOC	-148.840	63.715	8	100	100
ST_539.5	No	IOC	-148.813	63.703	4	100	100
ST_542.5	No	OC	-148.764	63.671	27	300	200

Hydrologic Points of Interest - Mainline

ST_546.4	No	OC	-148.758	63.619	10	300	100
ST_558.1	No	IOC	-148.804	63.463	5	100	100
ST_559.1	No	IOC	-148.811	63.451	47	300	500
ST_559.3	No	IOC	-148.811	63.448	23	300	200
ST_559.4	No	IOC	-148.813	63.447	55	1,000	600
ST_592.9	No	IOC	-149.457	63.113	5	100	100
ST_601.5	No	IOC	-149.553	63.003	2	100	100
ST_612.5	No	OC	-149.780	62.892	8	100	100
ST_655.7	Yes	OC	-150.264	62.405	26	300	100
ST_656.5	No	OC	-150.265	62.393	6	100	100
ST_657.5	Yes	OC	-150.269	62.379	10	100	100
ST_664	Yes	OC	-150.258	62.292	30	700	350
ST_665.7	No	OC	-150.249	62.268	15	300	100
ST_667.6	No	OC	-150.256	62.242	2	300	100
ST_679.5	Yes	OC	-150.064	62.116	37	300	100
ST_680.9	No	IOC	-150.061	62.102	39	300	100
ST_684	No	OC	-150.062	62.056	10	100	100
ST_705.7	No	TD	-150.124	61.774	10	100	100
ST_705.8	No	TD	-150.124	61.773	3	100	100
ST_708.5	Yes	IOC	-150.159	61.740	84	800	400
ST_731.3	Yes	IOC	-150.115	61.446	29	300	100
					Total	78,000	56,110

Notes:

IOC = Isolated Open Cut

OC = Open Cut

TD = Trenchless Drilling (HDD)

HYDROLOGIC POINTS OF INTEREST
(HPOI) Access Road Crossing List

Hydrologic Points of Interest - Access Roads

Crossing Description								
Access Rd Crossing ID	Anadromous	Long. (DD 83)	Lat. (DD 83)	Road Name	Type	Crossing Type	Feature Width (ft)	Fill (CY)
0089-01	No	-148.7334	69.765604	AR-BV-40.17	Perm.	Culvert	92	278
0212-02	No	-148.8008	69.091211	MS-91.02	Perm.	Culvert	3	88
0235-01	No	-148.8279	68.832378	AR-109.54	Temp.	Culvert	4	11
0360-01	No	-149.4127	68.21335	AR-162.78	Perm.	Culvert	17	49
0572-01	No	-149.7271	67.675578	CAMP-205.7	Perm.	Culvert	3	33
0730-01	No	-150.3825	67.081139	MS-255.22	Perm.	Bridge	17	636
0780-02	No	-150.5976	66.836355	AR-MS-276.12	Perm.	Culvert	28	412
0788-01	No	-150.6332	66.822946	AR-CAMP-YA-277.82	Perm.	Culvert	2	28
0872-02	No	-150.5143	66.384002	AR-MS-312.19	Perm.	Culvert	2	5
0929-02	No	-150.0025	65.997109	AR-N-343.77	Perm.	Culvert	2	11
1020-06	No	-148.9357	65.573128	AR-MS-387.99	Perm.	Culvert	3	17
1049-02	No	-148.6608	65.459909	AR-MS-401.56	Perm.	Culvert	5	10
1049-03	No	-148.6576	65.459749	AR-MS-401.56	Perm.	Culvert	3	8
1135-05	Yes	-149.1526	64.488313	AR-MS-477.94	Temp.	Culvert	61	449
1321-02	No	-148.7696	63.673474	AR-BV-MS-536.86	Perm.	Culvert	3	20
1321-07	No	-148.8368	63.715132	AR-BV-MS-536.86	Perm.	Culvert	19	40
1392-01	No	-149.0932	63.342376	AR-MS-571.76	Perm.	Culvert	2	11
1410-01	No	-149.2662	63.251497	AR-BV-580.67	Perm.	Culvert	16	26
1485-02	No	-149.5684	63.028324	AR-BV-599.45	Perm.	Culvert	13	62
1636-02	Yes	-150.0608	61.986819	MS-689.51	Perm.	Culvert	5	13
1695-03	Yes	-150.1379	61.570032	AR-BV-MS-721.68	Perm.	Culvert	22	126
							Total	2,330