URS

January 14, 2014

Ms. Maura S. O'Brien
Washington Department of Ecology
Northwest Region Office
3190 160th Avenue SE
Bellevue, Washington 98008

Re: **Stormwater Video Survey Report**
Shell Oil Products US Harbor Island Terminal
Seattle, Washington
Consent Decree No. 99-2-07176-0SEA

Dear Ms. O'Brien:

On behalf of Shell Oil Products US (Shell), URS Corporation (URS) is providing the Washington Department of Ecology (Ecology) this Stormwater Video Survey Report conducted near the Shell Harbor Island Terminal located in Seattle, Washington (Figure 1). This report summarizes the findings of the video survey conducted in accordance with the *Stormwater Survey Work Plan – TX-03A Area* dated September 6, 2013.

SCOPE OF WORK

URS conducted this video survey to assess if impacted groundwater is entering the stormwater system under Florida Street in the area north of the Terminal Main Tank Farm, identified as the TX-03A area (Figure 2). The work is summarized below:

- Field measuring the depth of the stormwater pipe at the observed locations, and observation of water in the pipe if present
- Gauge depth to water at monitoring wells MW-301, MW-302, MW-303, MW-304, MW-309, MW-310 and TX-03A.
- Video camera survey of stormwater lines from manhole locations D050-017, D050-016, D050-015, and D050-014.

VIDEO SURVEY

Video camera survey services were provided by Bravo Environmental of Tukwila, Washington, under the supervision of URS. Prior to conducting the stormwater survey, URS obtained work orders (4044131, 4044117, and 4044132) with the City of Seattle. The stormwater system that was video surveyed was from the City of Seattle manhole D050-014 to manhole D050-017. The location of the stormwater pipes video surveyed are presented on Figure 2.

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The video survey work was conducted on November 15, 2013. The video survey observations are presented below. Electronic copies of stormwater video surveys are included on a DVD in Attachment A. Still images from the video survey are included in Attachment B.

Manhole D050-016 to D050-017

Water was observed in the stormwater pipe at manhole D050-016. The stormwater pipe was approximately 24 inches in diameter. No cracks or water was observed infiltrating the stormwater pipe. An absorbent boom was observed at 142.85 feet and the survey was abandoned before manhole D050-17 at 143.10 feet east of manhole D050-016. See Note 1 on the attached Figure 2 and photographs included Section 1 in Attachment B.

Manhole D050-16 to D050-15

Water was observed in the stormwater pipe at manhole D050-016 and at 190.20 feet west of manhole D050-016 during the video survey. The stormwater pipe was approximately 24 inches in diameter.

Cracks were observed at 143.60 feet, 143.65 feet, and 204.60 feet west of manhole D050-16. Water infiltration was observed weeping from the crack at 174.60 feet and also running at 197.20 feet west of manhole D0550-16. See Notes 2 through 5 on Figure 2 for the location of these observations and photographs included in Section 2 of Attachment B.

Manhole D050-014 to D050-015

Water was observed in the stormwater pipe at manhole D050-014 and at 98.80 feet west of manhole D050-014. The stormwater pipe is approximately 24 inches in diameter. No cracks were observed between manhole D050-14 and D050-015, however; water was observed infiltrating at 214.50 feet west of manhole D050-014. See Note 6 for the location of this observation.

ELEVATION SURVEY

URS surveyed the north rim of manhole D050-016, relative to the elevations of the Shell Terminal monitoring well network to evaluate the relationship between the groundwater and the stormwater pipe. The elevation of the north rim of manhole D050-016 is 13.47

feet. The depth to the bottom of the pipe at manhole D050-016 is 8.67 feet and the calculated elevation for the bottom of the stormwater pipe at this location is 4.8 feet.

Groundwater elevations were collected for monitoring wells MW-301 through MW-304, MW-309, MW-310, and TX-03A on November 7, 2013 during the quarterly groundwater monitoring event. The groundwater elevations in the TX-03A area ranged from 5.81 feet at TX-03A to 6.03 feet bgs at monitoring well MW-303. These wells are located in the City of Seattle public parking area south of the Florida Street stormwater system. Historical groundwater elevation data is presented in Table 1.

SURVEY FINDINGS

The video survey observed groundwater infiltrating the stormwater pipe in the TX-03A area at three locations between manholes D050-015 and D050-017. Groundwater does not enter the stormwater system between manhole D050-14 and D050-015.

Based on the manhole survey and the groundwater elevation data (Table 1) it appears that the groundwater is contacting the stormwater pipes along Florida in the vicinity of the Shell Terminal. URS will prepare a work plan for sampling the stormwater system to characterize the water quality of the stormwater system in the area video surveyed. This work plan will be prepared during the first quarter of 2014.

If you have any questions or need additional information, please feel free to call the undersigned at (503) 222-7200.

Sincerely,
URS Corporation

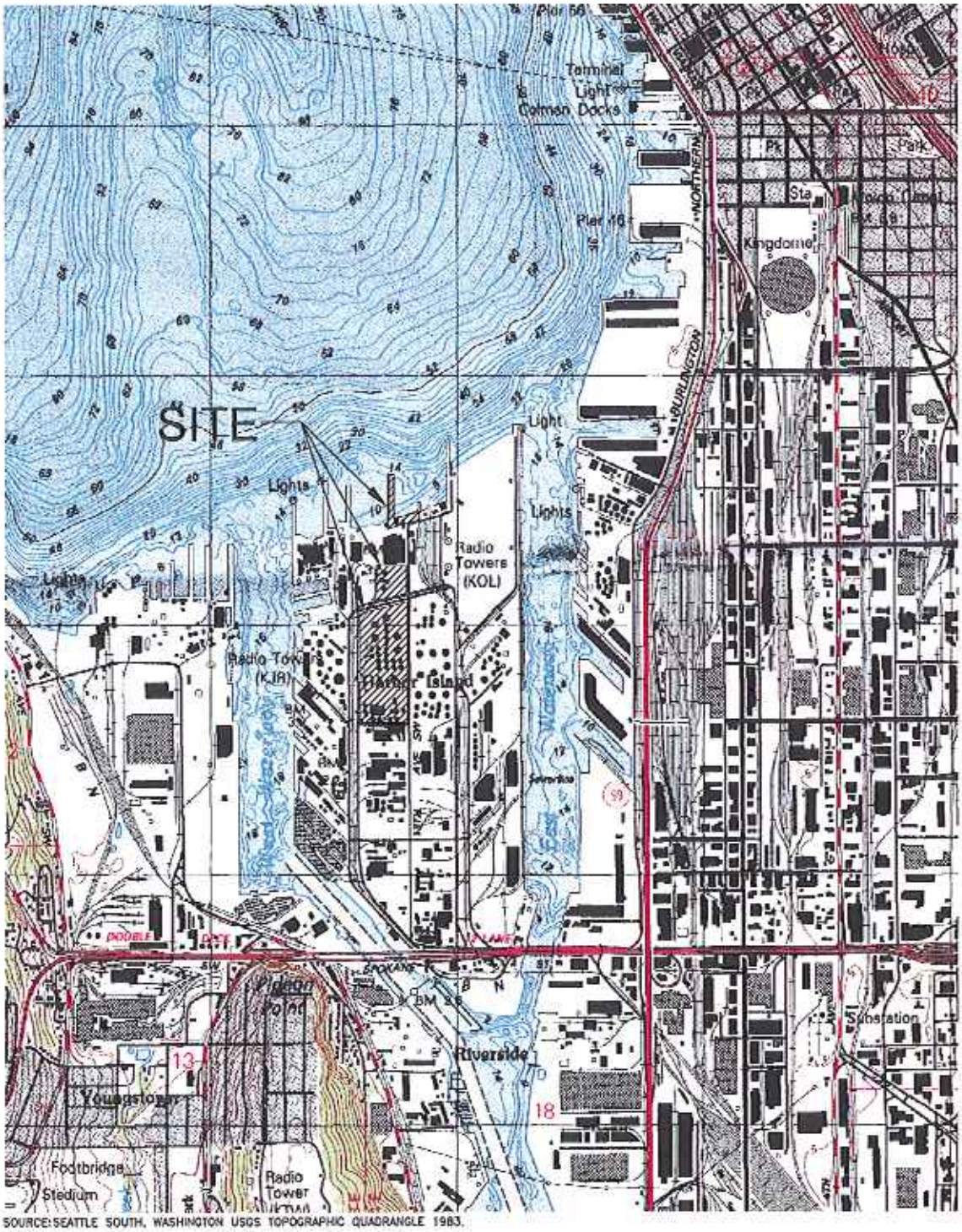
Brian J. Pletcher
Project Manager

cc: Mr. Perry Pineda, Shell Oil Products US
Mr. Paul Katz, Shell Oil Products US, Harbor Island Terminal Manager
Ms. Beth Schmoyer, City of Seattle

Attachments:

Figure 1 – Site Map
Figure 2 – TX-03A Area Video Survey
Table 1 – Stormwater Pipe and Groundwater Elevations
Attachment A – Stormwater Survey DVD
Attachment B – Inspection Report with Photo Log

FIGURES



SOURCE: SEATTLE SOUTH, WASHINGTON USGS TOPOGRAPHIC QUADRANGLE 1983.

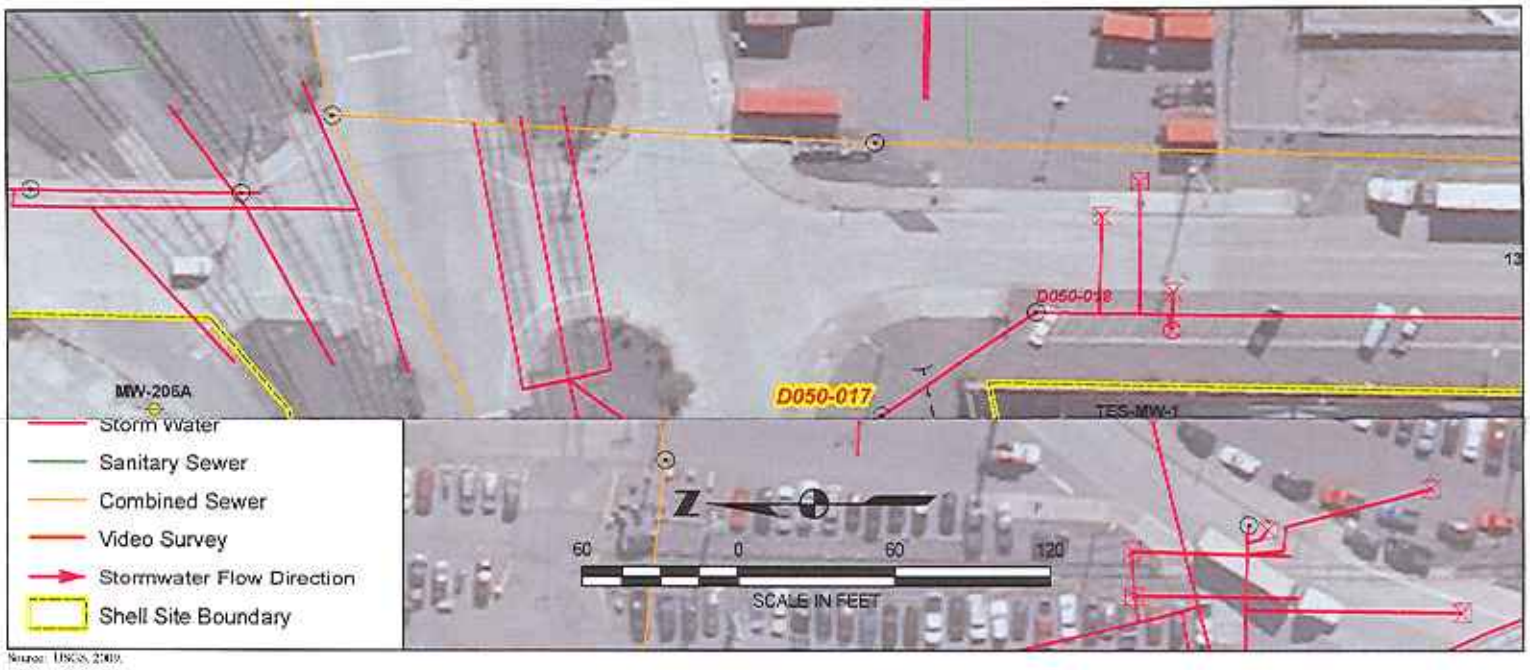
NOTE:
HARBOR ISLAND CULTURAL FEATURES DEPICTED ON THIS MAP DO NOT REFLECT ISLAND-WIDE RE-DEVELOPMENT BY THE PORT OF SEATTLE AND OTHER PARTIES.

SITE VICINITY MAP

SHELL
HARBOR ISLAND TERMINAL
SEATTLE, WASHINGTON

URS

FIGURE 1



Source: USGS, 2009.

K:\48104268 Seattle Terminal\MXD\2013\TX-03 Area Video Survey.mxd

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TX-03 AREA VIDEO SURVEY

SHELL
HARBOR ISLAND TERMINAL
SEATTLE, WASHINGTON

FIGURE 2

TABLE

Table 1
BTEX, TPH, and Natural Attenuation Parameters in Groundwater
TX-03A Area
Seattle, Washington

Well ID/ TOC Elevation	Depth to Water (ft)	Groundwater Elevation (ft)	Sample Date	Chemical (mg/L) Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline Range Hydrocarbons	Diesel Range Hydrocarbons	Motor Oil Range Hydrocarbons	Methane	Carbon Dioxide	Iron	Total Hardness	Total Alkalinity	Sulfate
MW-101 18.21	12.18	6.03	10/27/11	<0.0010	<0.0010	<0.0010	<0.0020	0.0936	<0.110	NA	NA	NA	NA	NA	NA	NA
	9.95	8.26	11/28/12	<0.00020	<0.00020	<0.00020	<0.00046	0.186 J	0.0937 J	<0.10	NA	NA	NA	NA	NA	NA
	10.24	7.97	02/21/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10.89	7.32	05/15/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11.99	6.22	09/05/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11.78	6.43	11/05/13	<0.00020	<0.00020	<0.00020	<0.00046	0.118 J	<0.045	<0.096	NA	NA	NA	NA	NA	NA
MW-102 15.90	9.59	6.31	10/25/11	<0.0010	<0.0010	<0.0010	<0.0020	<0.20	0.113	NA	NA	NA	NA	NA	NA	NA
	7.38	8.52	11/28/12	<0.00020	<0.00020	<0.00020	<0.00046	<0.050 U	<0.050	NA	NA	NA	NA	NA	NA	NA
	7.88	7.72	02/21/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8.40	7.20	05/16/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9.36	6.24	09/05/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9.18	6.42	11/07/13	<0.00020	<0.00020	<0.00020	<0.00046	<0.050	<0.047	0.144 J	NA	NA	NA	NA	NA	NA
MW-201 20.18	13.10	7.38	11/27/12	<0.00020	<0.00020	<0.00020	<0.00046	<0.050	0.122	<0.10	NA	NA	NA	NA	NA	NA
	13.74	6.44	02/21/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	14.45	5.73	05/16/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	14.78	5.40	09/06/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	14.7	5.45	11/06/13	<0.00020	<0.00020	<0.00020	<0.00046	0.0694 J	0.52	<0.094	NA	NA	NA	NA	NA	NA
MW-202 19.86	14.53	5.33	10/26/11	NA	NA	NA	NA	4.3	1.02	NA	NA	NA	NA	NA	NA	NA
	13.5	6.36	03/01/12	0.0053	0.0019	0.0107	0.0013 J	3.87	NA	NA	NA	NA	NA	NA	NA	NA
	13.75	6.11	06/13/12	NA	NA	NA	NA	3.31	1.54	NA	NA	NA	NA	NA	NA	NA
	14.42	5.44	09/26/12	0.0068	0.0029 J	0.0379	<0.0013	4.07	NA	NA	NA	NA	NA	NA	NA	NA
	13.09	6.77	11/27/12	0.0113	0.0034	0.0274	0.0022	6.07	2.57	<0.20	1.07	10.6	35.9	101	110	15.0
	13.27	6.59	02/21/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	13.80	6.06	05/15/13	NA	NA	NA	NA	3.83	1.62	<0.19	NA	NA	NA	NA	NA	NA
	14.38	5.48	09/06/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	14.25	5.61	11/06/13	<0.00020	0.0027	0.0335	0.0012 J	4.68	1.29	<0.095	3.570	22.100	37.900	71.8	90.0	0.79
MW-203 13.99	8.53	5.45	10/26/11	NA	NA	NA	NA	1.38	0.282	NA	NA	NA	NA	NA	NA	NA
	7.70	6.29	06/13/12	NA	NA	NA	NA	0.459	0.134	NA	NA	NA	NA	NA	NA	NA
	7.25	6.74	11/27/12	NA	NA	NA	NA	1.05	0.0943 J	<0.10	0.522	16.7	21.2	140	170	24.4
	7.26	6.73	02/21/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7.80	6.19	05/15/13	NA	NA	NA	NA	0.144	<0.048	<0.19	NA	NA	NA	NA	NA	NA
	8.37	5.62	09/06/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8.27	5.72	11/06/13	NA	NA	NA	NA	0.620	<0.047	<0.064	0.900	20.100	21.900	181	150	<0.50
MW-204 17.27	10.81	5.46	11/27/12	<0.00020	<0.00020	<0.00020	<0.00046	<0.050	0.975	<0.10	NA	NA	NA	NA	NA	NA
	10.81	5.46	02/21/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11.30	5.97	05/15/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11.77	5.50	09/06/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11.71	5.56	11/06/13	0.00057	<0.00020	<0.00020	<0.00046	0.0762 J	0.280	0.0976 J	NA	NA	NA	NA	NA	NA
MW-206A 15.90	10.31	5.59	10/26/11	<0.0010	<0.0010	<0.0010	<0.0020	<0.20	0.141	NA	NA	NA	NA	NA	NA	NA
	9.06	6.85	11/27/12	<0.00020	<0.00020	<0.00020	<0.00046	<0.050	0.118	0.111 J	NA	NA	NA	NA	NA	NA
	9.04	6.86	02/21/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8.44	7.46	05/15/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10.06	5.84	09/05/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10.04	5.86	11/05/13	<0.00020	<0.00020	<0.00020	<0.00046	<0.050	<0.047	<0.094	NA	NA	NA	NA	NA	NA
MW-301 12.56	6.91	5.62	11/08/11	0.174	0.012	0.0098	0.011	2.77	0.274	NA	NA	NA	NA	NA	NA	NA
	5.98	6.58	03/01/12	0.24	0.0138	0.0095	0.0212	3.37	NA	NA	NA	NA	NA	NA	NA	NA
	6.08	6.48	06/12/12	0.37	0.0156	0.0153	0.0244	4.18	NA	NA	NA	NA	NA	NA	NA	NA
	6.83	5.73	09/25/12	0.333	0.0137	0.0196	0.0192	4.02	NA	NA	NA	NA	NA	NA	NA	NA
	5.32	7.24	11/28/12	0.241	0.0098	0.0125	0.0108	2.76	NA	NA	NA	NA	NA	NA	NA	NA
	5.66	6.90	02/21/13	0.659	0.0175	0.0294	0.0173 J	3.98	0.315	<0.10	NA	NA	NA	NA	NA	NA
	6.14	6.42	05/15/13	0.357	0.0122	0.0231	0.0145	3.83	NA	NA	NA	NA	NA	NA	NA	NA
	6.71	5.85	09/09/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6.60	5.96	11/4/2013	0.160	0.0097	0.0184	0.0109	2.29	NA	NA	NA	NA	NA	NA	NA	NA
MW-302 12.85	7.29	5.56	11/08/11	0.787	0.0187	0.169	0.148	5.46	0.727	NA	NA	NA	NA	NA	NA	NA
	6.4	6.45	03/01/12	0.831	0.0275	0.213	0.248	5.33	NA	NA	NA	NA	NA	NA	NA	NA
	6.58	6.27	06/28/12	1.23	0.0437	0.403	0.288	5.65	NA	NA	NA	NA	NA	NA	NA	NA
	7.21	5.64	09/25/12	0.657	0.0247	0.180	0.106	4.07	NA	NA	NA	NA	NA	NA	NA	NA
	5.93	6.92	11/25/12	0.449	0.0152	0.151	0.177	4.68	NA	NA	NA	NA	NA	NA	NA	NA
	6.10	6.75	02/22/13	0.393	0.0146	0.124	0.116	4.15	0.435	<0.10	NA	NA	NA	NA	NA	NA
	6.61	6.24	05/14/13	0.673	0.0231	0.225	0.145	4.19	NA	NA	NA	NA	NA	NA	NA	NA
	7.11	5.74	09/05/13	0.783	0.0182	0.162	0.0746	3.70	NA	NA	NA	NA	NA	NA	NA	NA
	6.99	5.86	11/5/2013	0.607	0.0112	0.077	0.0526	2.69	NA	NA	3.410	15.700	21.100	84.3	102	19.2

Table 1
BTEX, TPH, and Natural Attenuation Parameters in Groundwater
TX-03A Area
Seattle, Washington

Well ID/ TOC Elevation	Depth to Water (ft)	Groundwater Elevation (ft)	Sample Date	Chemical (mg/L)													
				Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline Range Hydrocarbons	Diesel Range Hydrocarbons	Motor Oil Range Hydrocarbons	Methane	Carbon Dioxide	Iron	Total Hardness	Total Alkalinity	Sulfate
MW-303	6.93	5.71	11/26/12	1.37	0.0355	0.236	0.1[illegible]	8.57	0.799	NA	NA	NA	NA	NA	NA	NA
12.64	4.54	7.73	02/21/13	3.13	0.0759	0.76	0.232	12.3	NA	NA	NA	NA	NA	NA	NA	NA
	6.06	6.59	06/13/13	2.90	0.0657	0.854	0.268	12.5	NA	NA	NA	NA	NA	NA	NA	NA
	6.24	5.80	08/25/13	1.83	0.0635	0.474	0.145	9.14	NA	NA	NA	NA	NA	NA	NA	NA
	5.20	7.44	11/25/13	1.94	0.0875	1.16	0.379	12.6	NA	NA	NA	NA	NA	NA	NA	NA
	5.58	7.03	02/21/14	2.34	0.0655	1.29	0.335	12.8	0.674	<0.10	NA	NA	NA	NA	NA	NA
	6.10	6.54	06/16/14	1.90	0.0464	0.952	0.272	10.8	NA	NA	NA	NA	NA	NA	NA	NA
	6.20	5.84	08/06/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6.67	6.03	11/4/2014	0.884	0.0275	0.219	0.0644	6.11	NA	NA	NA	NA	NA	NA	NA	NA
MW-304	7.0[illegible]	5.69	11/26/12	0.74	0.0164	0.0723	0.0652	4.24	0.675	NA	NA	NA	NA	NA	NA	NA
12.70	6.06	6.64	02/21/13	0.680	0.0251	0.214	0.264	5.64	NA	NA	NA	NA	NA	NA	NA	NA
	6.20	6.50	06/12/13	1.04	0.0468	0.270	0.218	5.98	NA	NA	NA	NA	NA	NA	NA	NA
	6.36	6.34	08/25/13	0.630	0.0243	0.198	0.165	3.93	NA	NA	NA	NA	NA	NA	NA	NA
	5.4[illegible]	7.29	11/25/13	0.411	0.0244	0.306	0.252	5.69	NA	NA	NA	NA	NA	NA	NA	NA
	5.78	6.92	02/22/14	0.597	0.0225	0.236	0.149	5.96	0.762	0.186 j	NA	NA	NA	NA	NA	NA
	NA	NA	06/16/14	0.645	0.0283	0.239	0.144	4.73	NA	NA	NA	NA	NA	NA	NA	NA
	6.68	5.8[illegible]	08/05/14	0.862	0.0188	0.0849	0.0613	3.09	NA	NA	NA	NA	NA	NA	NA	NA
	6.75	5.93	11/5/2014	0.695	0.0163	0.0529	0.364	2.87	NA	NA	7.650	12.700	35.500	38.5	126	<0.50
MW-307	7.56	7.67	11/26/12	2.15	0.0868	0.833	0.513	10.9	NA	NA	7.92	16.0	33.5	64.9	144	1.5
15.62	8.42	7.20	02/22/13	0.487	0.0358	0.226	0.145	6.02	0.604	<0.054	NA	NA	NA	NA	NA	NA
	8.9[illegible]	6.7[illegible]	06/15/13	0.437	0.0461	0.157	0.120	4.96	NA	NA	NA	NA	NA	NA	NA	NA
	9.07	6.55	08/05/13	0.643	0.0345	0.154	0.137	5.30	NA	NA	NA	NA	NA	NA	NA	NA
	9.46	6.13	11/6/2013	0.568	0.0448	0.194	0.392	4.39	NA	NA	7.270	8.440	27.000	49.4	69.0	<0.50
MW-308	7.90	7.68	11/25/12	0.144	0.0016	0.0072	0.0013	0.778	NA	NA	2.45	6.17	0.542	384	295	97.0
15.58	8.22	7.37	02/22/13	0.668	0.0078	0.0443	0.0056	3.48	0.354	<0.10	NA	NA	NA	NA	NA	NA
	8.5[illegible]	6.79	06/15/13	0.392	0.0052	0.0427	<0.0045	2.54	NA	NA	NA	NA	NA	NA	NA	NA
	8.98	6.63	08/05/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9.45	6.14	11/6/2013	0.237	0.0032	0.0056	0.0026	1.65	NA	NA	NA	NA	NA	NA	NA	NA
MW-309	8.38	7.25	11/25/12	<0.00200	<0.00200	<0.00200	<0.00400	<0.250	NA	NA	0.158	7.34	36.5	94.7	86.0	32.[illegible]
12.67	8.73	6.94	02/21/13	<0.00200	<0.00200	<0.00200	<0.00400	<0.250	0.0793 j	<0.10	NA	NA	NA	NA	NA	NA
	9.21	6.46	06/[illegible]/13	<0.00200	<0.00200	<0.00200	<0.00400	<0.050	NA	NA	NA	NA	NA	NA	NA	NA
	9.64	5.82	08/05/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9.76	5.91	11/6/2013	<0.00200	<0.00200	<0.00200	<0.00400	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
MW-310	8.40	7.12	11/26/12	0.86	0.0265	0.271	0.147	5.74	NA	NA	6.7	13.3	29.0	132	136	<0.50
13.51	6.78	6.72	02/21/13	1.8	0.0768	0.665	0.16	8.37	0.803	<0.10	NA	NA	NA	NA	NA	NA
	7.20	6.31	05/[illegible]/13	0.993	0.0703	0.654	0.175	6.49	NA	NA	NA	NA	NA	NA	NA	NA
	7.72	5.79	08/05/13	0.960	0.0568	0.513	0.116	5.51	NA	NA	NA	NA	NA	NA	NA	NA
	7.91	5.60	11/6/2013	0.772	0.0409	0.223	0.0548	4.82	NA	NA	4.020	11.300	34.000	114	134	<0.50
TES-MW-1	10.45	5.56	11/26/12	<0.0010	<0.0010	<0.0010	<0.0020	<0.20	<0.10	<0.20	NA	NA	NA	NA	NA	NA
16.16	8.82	7.33	11/25/12	<0.00200	<0.00200	<0.00200	<0.00400	<0.250	<0.050	<0.10	NA	NA	NA	NA	NA	NA
	9.46	6.69	05/15/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10.06	6.09	11/6/2013	<0.00200	<0.00200	<0.00200	<0.00400	<0.050	<0.048	<0.095	NA	NA	NA	NA	NA	NA
TX-03A	-	-	11/27/12	3.44	0.0712	0.147	0.11[illegible]	8.51	NA	NA	NA	NA	NA	NA	NA	NA
12.26	5.94	6.42	02/21/13	1.74	0.026[illegible]	0.0272	0.0345 j	5.58	NA	NA	NA	NA	NA	NA	NA	NA
	5.97	6.29	05/[illegible]/13	1.57	0.023 j	0.0139 j	0.030 j	6.78	NA	NA	NA	NA	NA	NA	NA	NA
	6.36	5.90	08/25/13	1.70	0.0298	0.0410	0.050[illegible]	5.53	NA	NA	NA	NA	NA	NA	NA	NA
	5.20	7.06	11/26/13	1.18	0.0[illegible]8 j	0.0230	0.0357 j	4.91	NA	NA	5.68	19.4	33.8	127	134	<0.50
	5.55	6.71	02/21/13	2.81	0.0403	0.0421	0.0459 j	8.2	0.32	<0.10	NA	NA	NA	NA	NA	NA
	6.31	6.25	5/15/2013	2.15	0.0459 j	0.189	0.0643 j	3.11	NA	NA	NA	NA	NA	NA	NA	NA
	6.56	5.70	8/5/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6.49	5.51	11/5/2013	2.729	0.0363	0.0934	0.041[illegible]	6.01	NA	NA	6.270	16.400	44.900	152	188	<0.50
ASW-1	7.41	-	08/05/13	0.315	0.0056	0.0215	0.0058	1.32	NA	NA	NA	NA	NA	NA	NA	NA
TW-01	7.36	-	08/05/13	0.521	0.0251	0.359	0.197	5.47	NA	NA	NA	NA	NA	NA	NA	NA
	7.35	-	11/7/13	0.43	0.0245	0.132	0.0724	3.24	NA	NA	5.290	9.310	27.000	58.0	86.0	2.7
Cleanup Level* (mg/L)				0.071	200	29	NE	[illegible]	[illegible]0	10	NE	NE	NE	NE	NE	NE

Notes:
Bolded values indicate concentrations exceeding the associated Cleanup Level.
<= = concentration undetected at the method detection limit.
* Cleanup Levels per the Cleanup Action Plan (Ecology, 1995)
dj = Diesel pattern is not present; higher boiling gasoline compounds in Diesel range.
BTEX = Benzene, Toluene, Ethylbenzene, Total Xylenes
ft = feet
j = Laboratory qualifier, indicates an estimated value.
mg/L = milligrams per liter
NA = Not Analyzed
NE = Not Established
TOC = Top of Casing
TPH = Total Petroleum Hydrocarbon
u = The analyte was not detected above the sample method detection limit; however, the method detection limit is approximate.

ATTACHMENT B

Inspection Report and Photo Log

City : Seattle

Bravo Environmental
6437 S 144th
Tukwila, WA 98168
Tel: 425-424-9000
Fax: 425-424-9002

Inspection Report / Inspection: URS Harbor Island

Date	P/O. No.	Weather	Surveyor's Name	Pipe ID	Section No.
11/15/2013	4044132	Dry	Tim	D050-017 D050-016	1
Certificate No.	**Survey Customer**	**System Owner**	**Preset :**	**Pre-Cleaning**	**Sewer Category**
R-08-1009				No Pre-Cleaning	

Street	SW Floridia St	Use of Sewer	Stormwater	Upstream MH	D050-017
City	Seattle	Drainage Area		Downstream MH	D050-016
Loc. details		Flow Control		Dir. of Survey	Upstream
Location Code		Length surveyed	143.10 ft	Section Length	143.10 ft

Purpose of Survey	Maintenance Related	Joint Length	
Year Laid		Dia./Height	24 inch
Year Rehabilitated		Material	Reinforced Concrete Pipe
Tape / Media No.	URS	Lining Method	

Add. Information :

1:360 Position	Code	Observation	Photo	Grade
D050-016				
0.00	AMH	Manhole / D050-016		
1.10	MWL	Water Level, 10 %of cross sectional area		
47.45	DSF	Deposits Settled Fine, 5 %of cross sectional area, from 05 to 07 o'clock, , within 8 inches of joint: YES		M 2
56.05	TFC	Tap Factory Made Capped, at 03 o'clock, 8", within 8 inches of joint: NO		
91.40	TF	Tap Factory Made, at 02 o'clock, 8", within 8 inches of joint: NO		
133.50	TF	Tap Factory Made, at 10 o'clock, 8", within 8 inches of joint: NO		
136.00	DSZ	Deposits Settled Other, 5 %of cross sectional area, from 06 to 07 o'clock, , within 8 inches of joint: YES / Unknown	D050-017_D050-016_SW Floridia St_15112013_083248_A.JPG	M 2
142.85	TFA	Tap Factory Made Active, at 10 o'clock, 8", within 8 inches of joint: NO		
142.85	OBZ	Obstacles Other, 25 %of cross sectional area, from 04 to 08 o'clock / Absorbent Boom	D050-017_D050-016_SW Floridia St_15112013_083630_A.JPG	M 4
143.10	MSA	Survey Abandoned / Obstacle In Invert		

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4122	0	8	8	0	2.67	2.67

Bravo Environmental
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Tukwila, WA 98168
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Fax: 425-424-9002

Inspection photos / Inspection: URS Harbor Island

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Seattle	SW Floridia St			1

Photo: D050-017_D050-016_SW Floridia St_15112013_083248_A.JPG, VCR No.: URS
136FT, Deposits Settled Other, 5 %of cross sectional area, from 08 to 07 o'clock, , within 8 inches of joint: YES / Unknown

Photo: D050-017_D050-016_SW Floridia St_15112013_083630_A.JPG, VCR No.: URS
142.85FT, Obstacles Other, 25 %of cross sectional area, from 04 to 08
o'clock / Absorbent Boom

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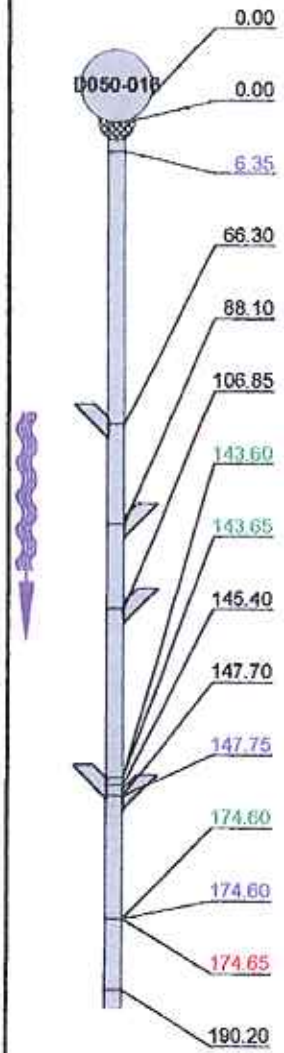
Inspection Report / Inspection: URS Harbor Island

Date	P/O, No.	Weather	Surveyor's Name	Pipe ID	Section No.
11/15/2013	4044131	Dry	Tim	D050-016 D050-015	2
Certificate No.	**Survey Customer**	**System Owner**	**Preset :**	**Pre-Cleaning**	**Sewer Category**
R-08-1009				No Pre-Cleaning	

Street	SW Floridia St	Use of Sewer	Stormwater	Upstream MH	D050-016
City	Seattle	Drainage Area		Downstream MH	D050-015
Loc. details		Flow Control		Dir. of Survey	Downstream
Location Code		Length surveyed	207.60 ft	Section Length	207.60 ft

Purpose of Survey	Maintenance Related	Joint Length	
Year Laid		Dia./Height	24 Inch
Year Rehabilitated		Material	Reinforced Concrete Pipe
Tape / Media No.	URS	Lining Method	

Add. Information :



1:486 Position	Code	Observation	Photo	Grade
0.00	AMH	Manhole / D050-016		
0.00	MWL	Water Level, 5 %of cross sectional area		
6.35	DAE	Deposits Attached Encrustation, 5 %of cross sectional area, from 04 to 06 o'clock, , within 8 inches of joint: YES / Unknown		M 2
66.30	TFA	Tap Factory Made Active, at 02 o'clock, 8", within 8 inches of joint: YES		
88.10	TFA	Tap Factory Made Active, at 10 o'clock, 8", within 8 inches of joint: NO		
106.85	TFC	Tap Factory Made Capped, at 09 o'clock, 8", within 8 inches of joint: NO		
143.60	CC	Crack Circumferential, 6", from 09 to 12 o'clock, within 8 inches of joint: YES	D050-016_D050-015_SW Floridia St_15112013_085956_A.JPG	S 1
143.65	CC	Crack Circumferential, 5", from 03 to 06 o'clock, within 8 inches of joint: YES		S 1
145.40	TF	Tap Factory Made, at 02 o'clock, 8", within 8 inches of joint: NO		
147.70	TF	Tap Factory Made, at 10 o'clock, 8", within 8 inches of joint: NO		
147.75	DAE	Deposits Attached Encrustation, 5 %of cross sectional area, from 07 to 09 o'clock, , within 8 inches of joint: NO		M 2
174.60	CC	Crack Circumferential, 15", from 08 to 04 o'clock, within 8 inches of joint: YES		S 1
174.60	IW	Infiltration Weeper, at 12 o'clock, within 8 inches of joint: YES		M 2
174.65	MWM	Water Mark, 95 %of cross sectional area		M 5
190.20	MWL	Water Level, 10 %of cross sectional area		

City : Seattle

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Tukwila, WA 98168
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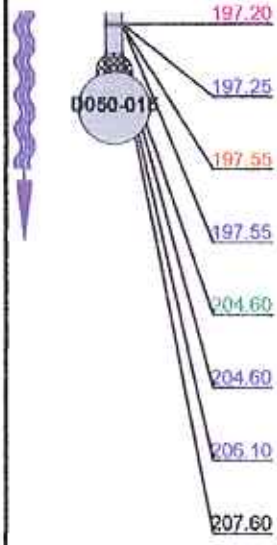
Inspection Report / Inspection: URS Harbor Island

Date	P/O. No.	Weather	Surveyor's Name	Pipe Segment Reference	Section No.
	4044131	Dry	Tim		
Certificate No.	**Survey Customer**	**System Owner**	**Preset :**	**Cleaned :**	**Sewer Category**
R-06-1009				No Pre-Cleaning	



1:486 Position	Code	Observation	Photo	Rate
197.20	IR	Infiltration Runner, from 07 to 08 o'clock, within 8 inches of joint: YES	D050-016_D050-015_SW Floridia St_15112013_091045_A.JPG	M 4
197.25	DAE	Deposits Attached Encrustation, 5 %of cross sectional area, from 07 to 09 o'clock, , within 8 inches of joint: YES		M 2
197.55	ISSR	Intruding Sealing Ring, 20 %of cross sectional area, from 09 to 03 o'clock	D050-016_D050-015_SW Floridia St_15112013_091153_A.JPG	M 3
197.55	DAE	Deposits Attached Encrustation, 5 %of cross sectional area, from 03 to 05 o'clock, , within 8 inches of joint: YES	D050-016_D050-015_SW Floridia St_15112013_091234_A.JPG	M 2
204.60	CC	Crack Circumferential, 10", from 09 to 03 o'clock, within 8 inches of joint: YES	D050-016_D050-015_SW Floridia St_15112013_091411_A.JPG	S 1
204.60	DAE	Deposits Attached Encrustation, 5 %of cross sectional area, from 03 to 09 o'clock, , within 8 inches of joint: YES	D050-016_D050-015_SW Floridia St_15112013_091446_A.JPG	M 2
206.10	DAE	Deposits Attached Encrustation, 10 %of cross sectional area, from 04 to 08 o'clock, , within 8 inches of joint: YES		M 2
207.60	AMH	Manhole / D050-015		

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
1400	5141	4	28	30	1	2.8	2.14

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Tukwila, WA 98168
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Inspection photos / Inspection: URS Harbor Island

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Seattle	SW Floridia St			2

Photo: D050-016_D050-015_SW Floridia St_15112013_085950_A.JPG, VCR No.: URS
143.6FT, Crack Circumferential, 6", from 09 to 12 o'clock, within 8 inches of joint: YES

Photo: D050-016_D050-015_SW Floridia St_15112013_091045_A.JPG, VCR No.: URS
197.2FT, Infiltration Runner, from 07 to 08 o'clock, within 8 inches of joint: YES

Bravo Environmental
6437 S 144th
Tukwila, WA 98168
Tel: 425-424-9000
Fax: 425-424-9002

Inspection photos / Inspection: URS Harbor Island

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Seattle	SW Floridia St			2

Photo: D050-016_D050-015_SW Floridia St_15112013_091153_A.JPG, VCR No.: URS
197.55FT, Intruding Sealing Ring, 20 %of cross sectional area, from 09
to 03 o'clock

Photo: D050-016_D050-015_SW Floridia St_15112013_091234_A.JPG, VCR No.: URS
197.55FT, Deposits Attached Encrustation, 5 %of cross sectional area,
from 03 to 05 o'clock, , within 8 inches of joint: YES

Bravo Environmental
5437 S 144th
Tukwila, WA 98168
Tel: 425-424-9000
Fax: 425-424-9002

Inspection photos / Inspection: URS Harbor Island

City :	Street :	Date :	Pipe Segment Reference :	Section No :
Seattle	SW Floridia St			2

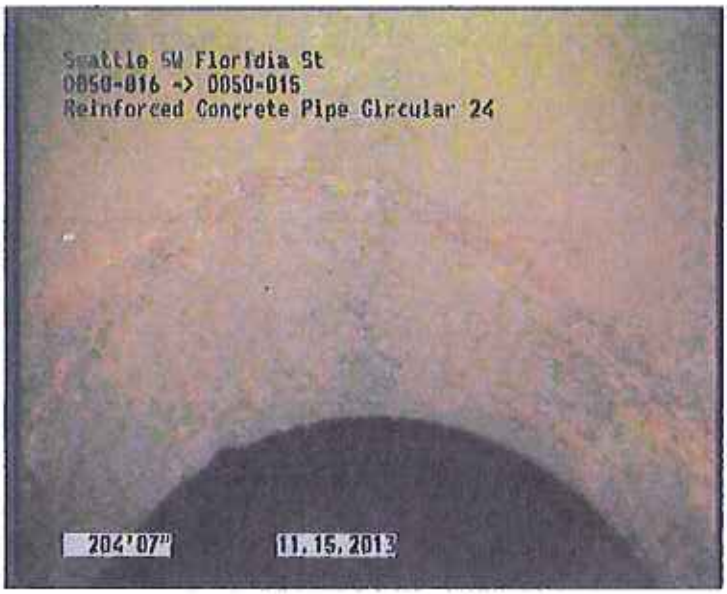

Photo: D050-016_D050-015_SW Floridia St_15112013_091411_A.JPG, VCR No.: URS
204.6FT, Crack Circumferential, 10", from 09 to 03 o'clock, within 8 inches of joint: YES

Photo: D050-016_D050-015_SW Floridia St_15112013_091446_A.JPG, VCR No.: URS
204.6FT, Deposits Attached Encrustation, 5 %of cross sectional area, from 03 to 09 o'clock, , within 8 inches of joint: YES

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Tukwila, WA 98168
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Inspection Report / Inspection: URS Harbor Island

Date	P/O. No.	Weather	Surveyor's Name	Pipe ID	Section No.
11/15/2013	4044117	Dry	Tim	D050-015 D050-014	3
Certificate No.	**Survey Customer**	**System Owner**	**Preset :**	**Pre-Cleaning**	**Sewer Category**
R-08-1009				No Pre-Cleaning	

Street	SW Florida St	Use of Sewer	Stormwater	Upstream MH	D050-015
City	Seattle	Drainage Area		Downstream MH	D050-014
Loc. details		Flow Control		Dir. of Survey	Upstream
Location Code		Length surveyed	217.90 ft	Section Length	217.90 ft

Purpose of Survey	Maintenance Related	Joint Length	
Year Laid		Dia./Height	24 Inch
Year Rehabilitated		Material	Reinforced Concrete Pipe
Tape / Media No.	URS	Lining Method	

Add. Information :

1:555 Position	Code	Observation	Photo	Grade
D050-014				
0.00	AMH	Manhole / D050-014		
1.00	MWL	Water Level, 5 %of cross sectional area		
31.20	MWM	Water Mark, 95 %of cross sectional area		M 5
98.80	MWL	Water Level, 10 %of cross sectional area		
118.70	DSZ	Deposits Settled Other, 5 %of cross sectional area, from 05 to 07 o'clock, , within 8 inches of joint: YES / Rocks		M 2
128.65	TFA	Tap Factory Made Active, at 02 o'clock, 8", within 8 inches of joint: YES		
180.50	TFA	Tap Factory Made Active, at 02 o'clock, 8", within 8 inches of joint: YES		
186.35	DSF	Deposits Settled Fine, 10 %of cross sectional area, from 04 to 08 o'clock, , within 8 inches of joint: YES		M 2
214.50	IW	Infiltration Weeper, at 12 o'clock, within 8 inches of joint: YES		M 2
217.90	AMH	Manhole / D050-015		
D050-015				

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5123	0	11	11	0	2.75	2.75