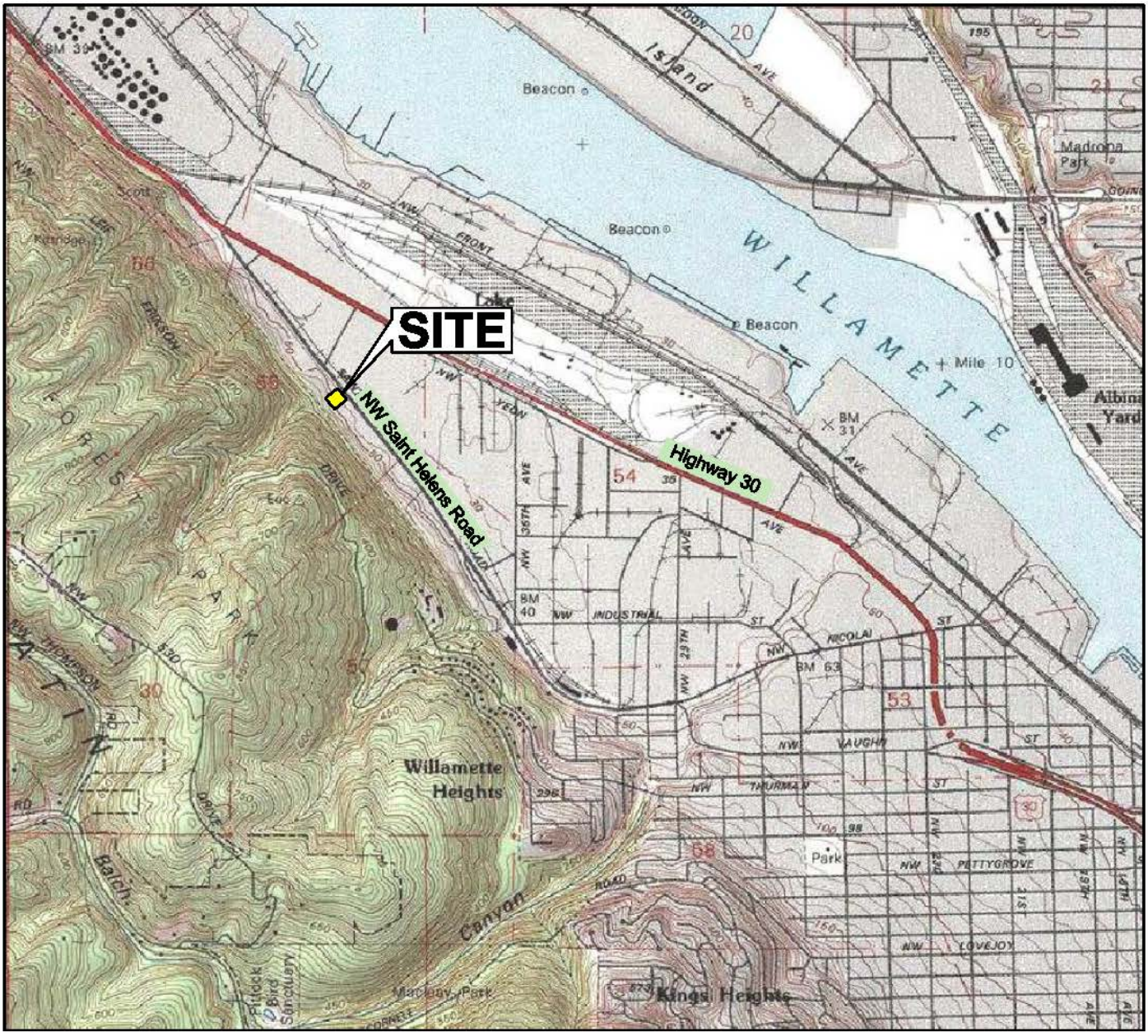

Source: TOPO! 2007

N

0 2000

Approximate Scale in Feet

11/26/2013 Drafting 123-001-004.dwg FIG 1

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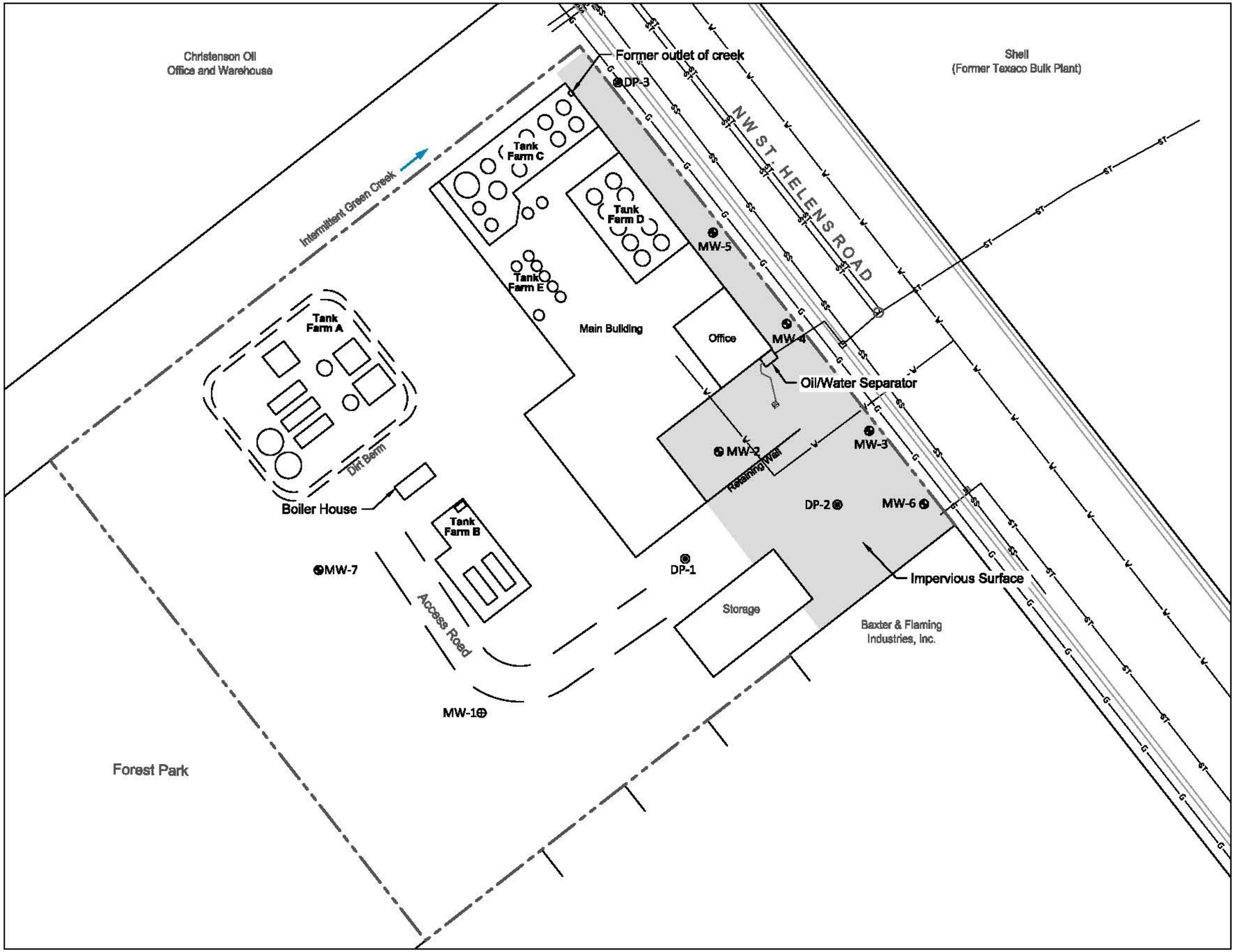
Figure 1

Site Location Map



Legend

- MW-4 Monitoring Well
- Catch Basin
- DP-1 Approximate Location of Soil Boring
- MW-1 Abandoned Well Water
- Impervious Area
- Property Boundary
- Street Edge/Curb
- Existing Structure Boundary
- Gas
- Sanitary Sewer
- Storm Sewer
- Water

N

0 50
Approximate Scale in Feet

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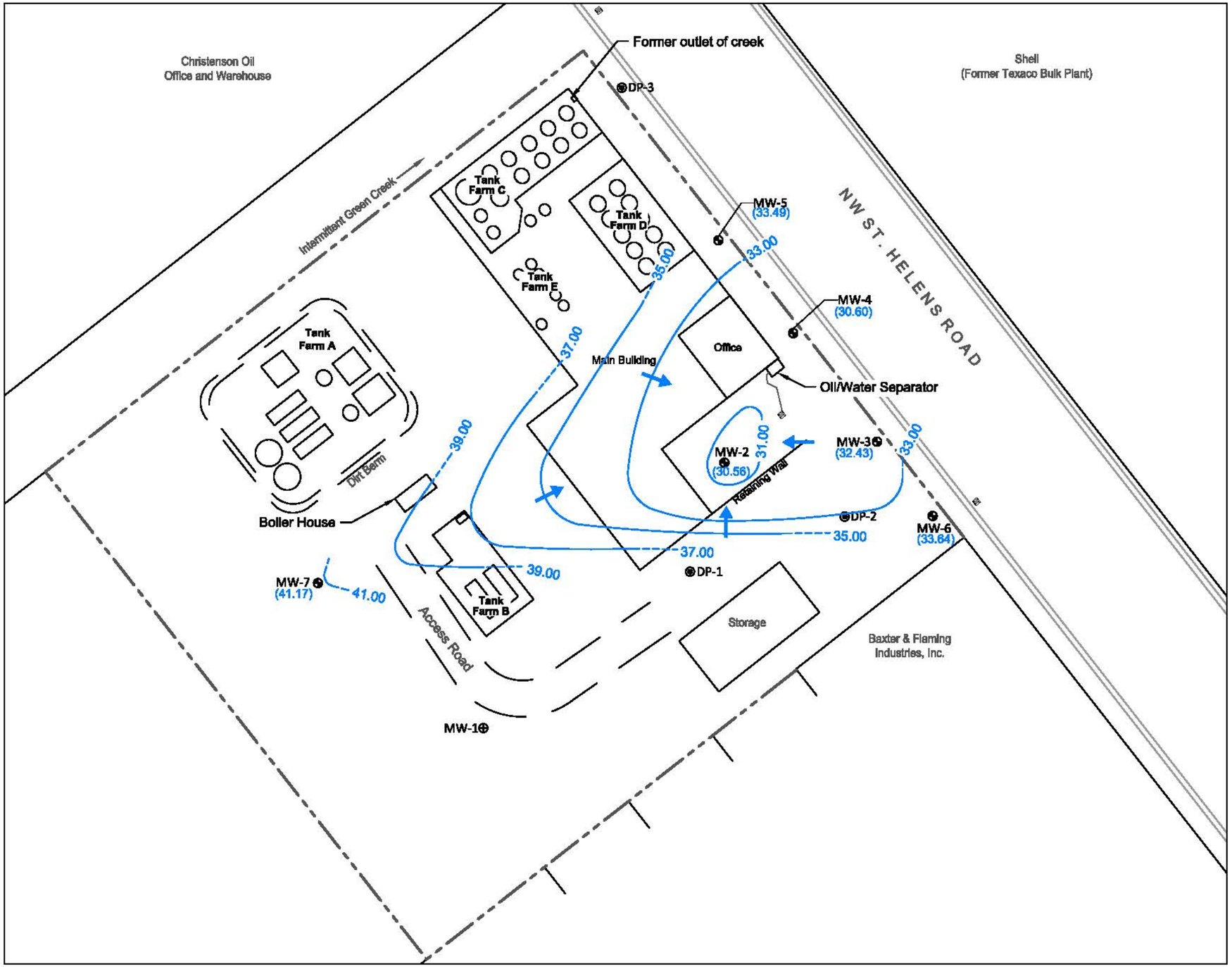
Figure 2

Detailed Site Plan

11/26/2013 Drafting 123-001-058.dwg FIG 2 SCERpt



Legend

33.00	Potentiometric Contour in Feet Contour Interval = 1.5 feet
(31.60)	Groundwater Elevation (amsl)
	Apparent Direction of Groundwater Flow
	Property Boundary
	Street Edge/Curb
	Existing Structure Boundary
MW-4	Monitoring Well
	Catch Basin
DP-1	Approximate Location of Soil Boring
MW-1	Abandoned Well
amsl	above mean sea level

N

0 50

Approximate Scale in Feet

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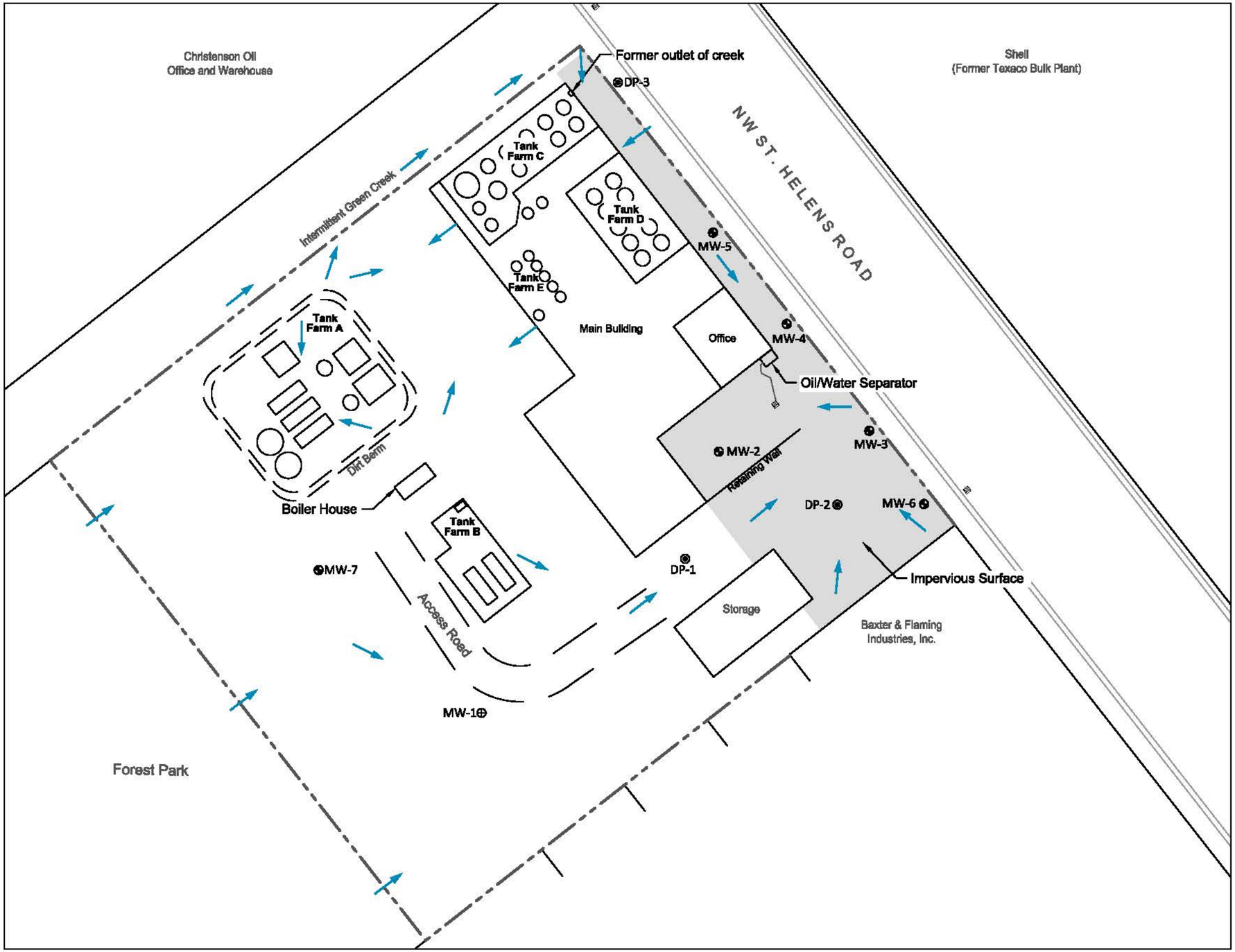
Figure 3

Potentiometric Surface Map
(December 12, 2012)

11/26/2013 Drafting 123-001-052.dwg FIG 3 - SCERport



Legend

- Impervious Area
- Property Boundary
- Street Edge/Curb
- Existing Structure Boundary
- Apparent Direction of Surface Flow
- MW-4 Monitoring Well
- Catch Basin
- DP-1 Approximate Location of Soil Boring
- MW-1 Abandoned Well

N

0 50
Approximate Scale in Feet

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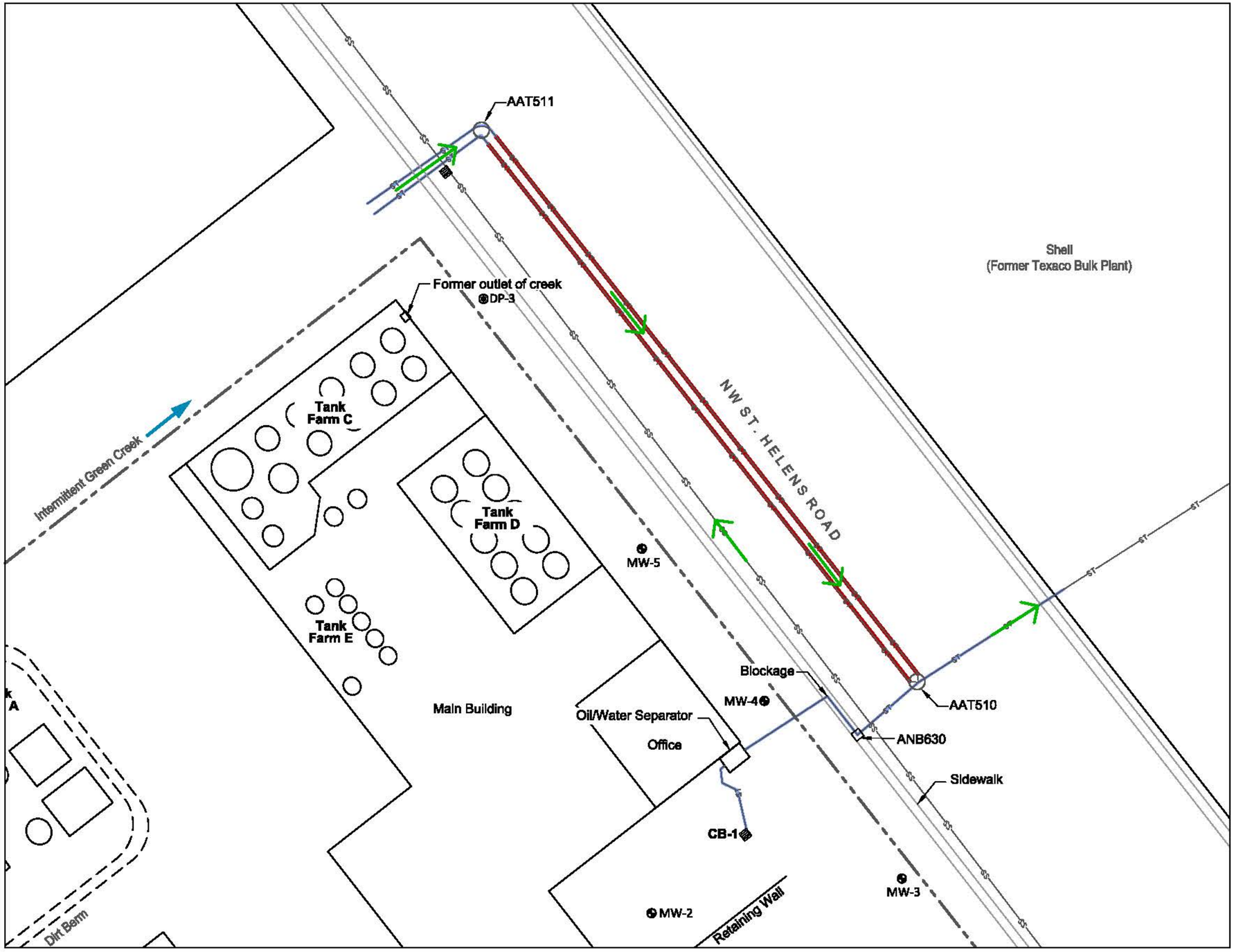
Figure 4

Site Drainage Map



Legend

- Municipal Storm Sewer
- Municipal Sanitary Sewer
- Camera Route in Municipal Storm Sewer
- Significant Gravel/Cobble
- Abandoned Main
- Direction of Flow
- Property Boundary
- Street Edge/Curb
- Existing Structure Boundary
- MW-4 Monitoring Well
- DP-3 Approximate Location of Soil Boring
- Catch Basin
- Manhole Access
- Sewer Access

N

0 30
Approximate Scale in Feet

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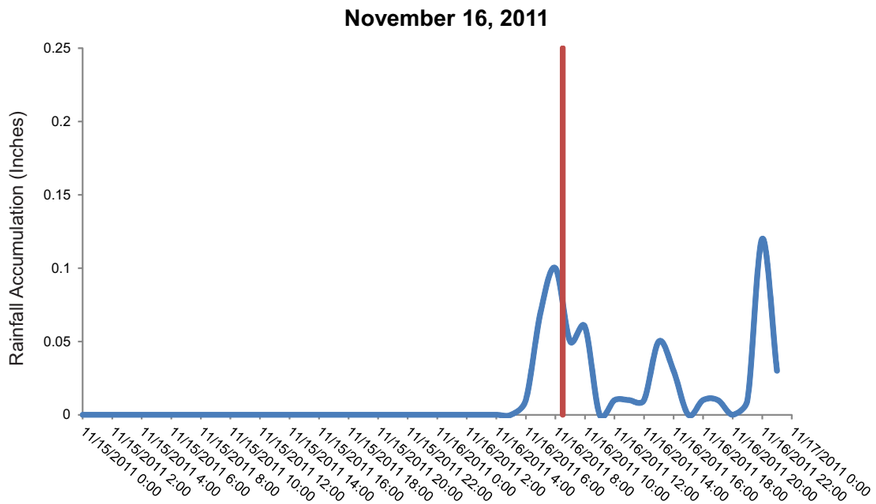
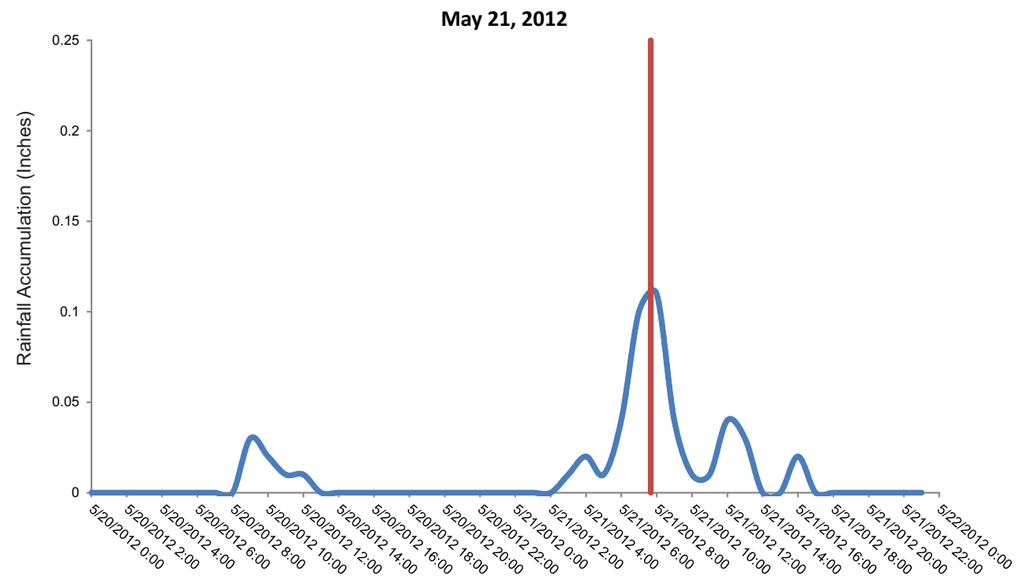
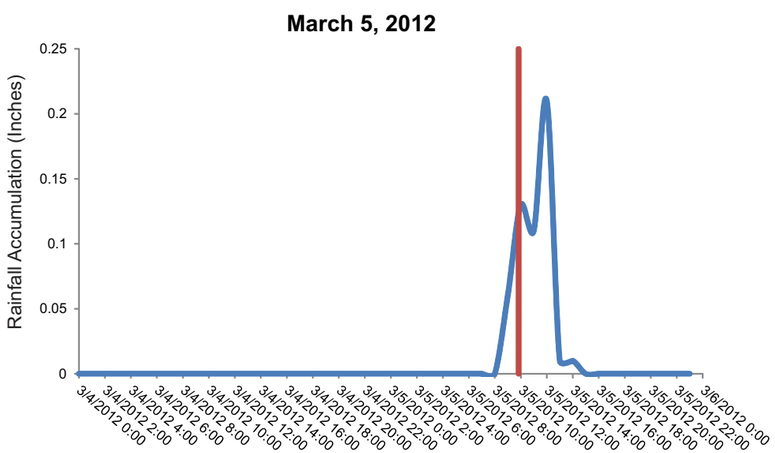
Figure 5

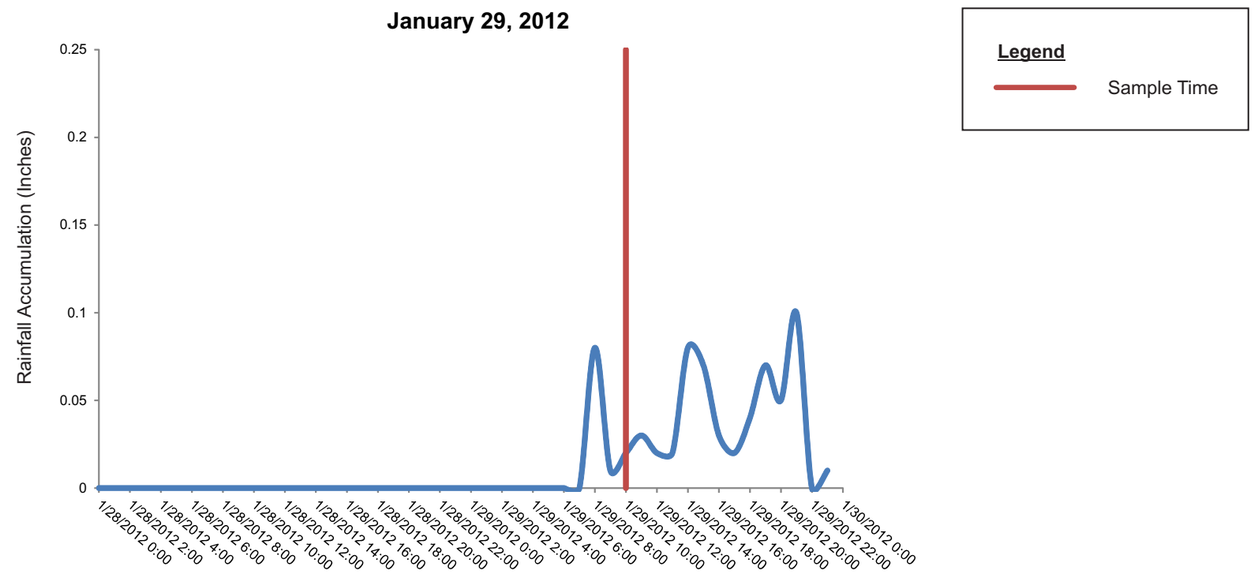
Storm Sewer Conveyance System Survey Map

11/26/2013 Drafting 123-001-063.dwg FIG 5 SCERport









11/26/2013 123-001 Christenson Oil\Figures\Fig 5 SCERprt Hydrograpahs.cdr

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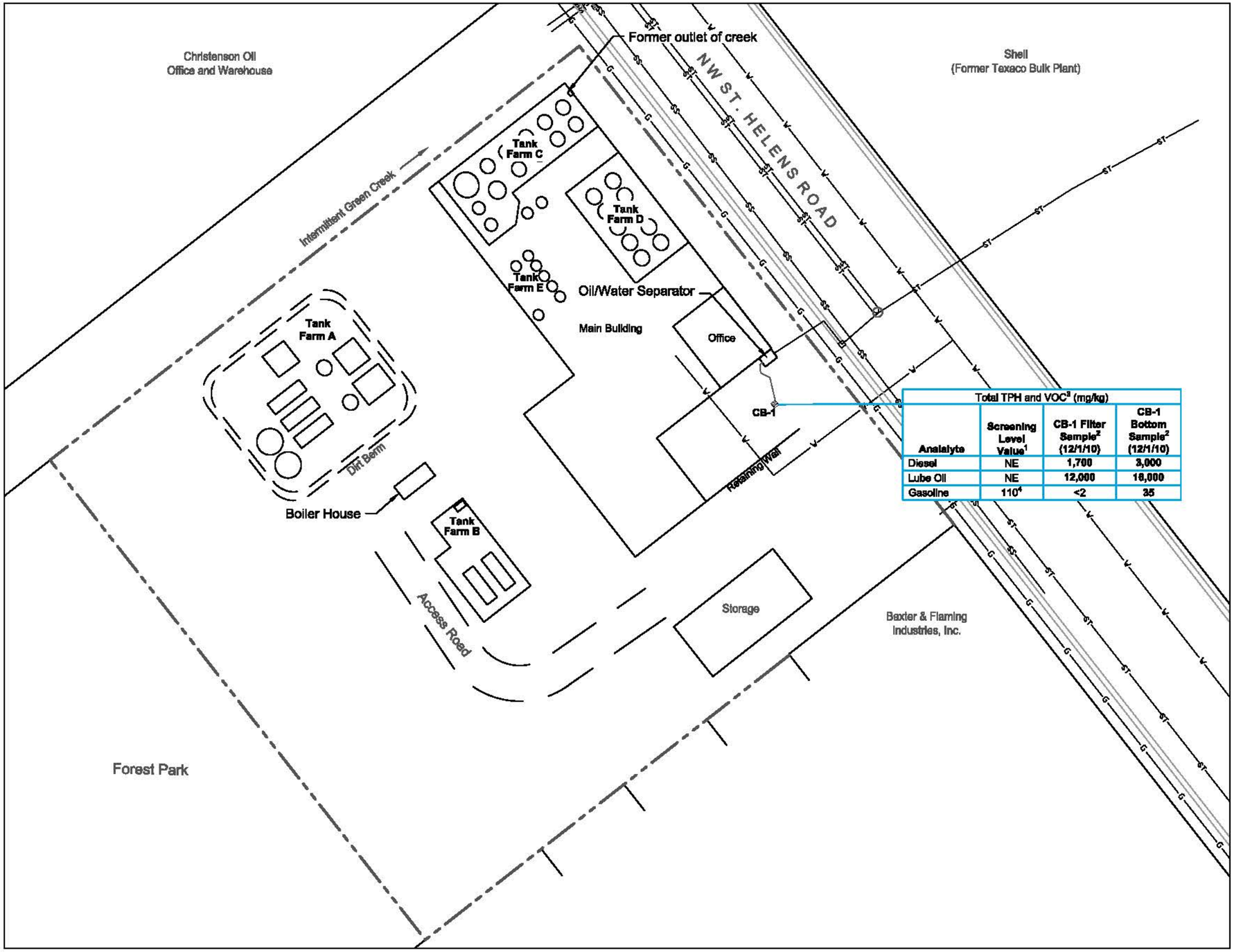
Figure 6

Storm Hydrographs



Total TPH and VOC[3] (mg/kg)			
Analalyte	Screening Level Value[1]	CB-1 Filter Sample[2] (12/1/10)	CB-1 Bottom Sample[2] (12/1/10)
Diesel	NE	1,700	3,000
Lube Oil	NE	12,000	16,000
Gasoline	110[4]	<2	35

Legend

- Catch Basin
- CB-1 Catch Basin 1
- SLV Screening Level Value
- mg/kg milligrams per kilogram
- NE not established
- MDL Method Detection Limit
- < Concentration was not detected at or above the laboratory MDL
- BOLD Concentration detected above the laboratory MDL
- TPH total petroleum hydrocarbons

- Property Boundary
- Street Edge/Curb
- Existing Structure Boundary
- Gas
- Sanitary Sewer
- Storm Sewer
- Water

N

0 50
Approximate Scale In Feet

Notes:

1. Value from Oregon Department of Environmental Quality: Portland Harbor Joint Source Control Strategy for Initial Upland Source Control Screening Evaluations for Soil and Stormwater Sediment, December, 2005, unless otherwise noted.
2. Catch basin sediment sample collected by Wohlers Environmental Services, Inc.
3. TPH analysis by Method NWTPH-Dx for diesel- and oil-range organics,and Method NWTPH-Gx for gasoline range organics.
4. Oregon Department of Environmental Quality: Risk-Based Concentrations for Soil (Leaching to Groundwater) in an Occupational Setting, September 2009.

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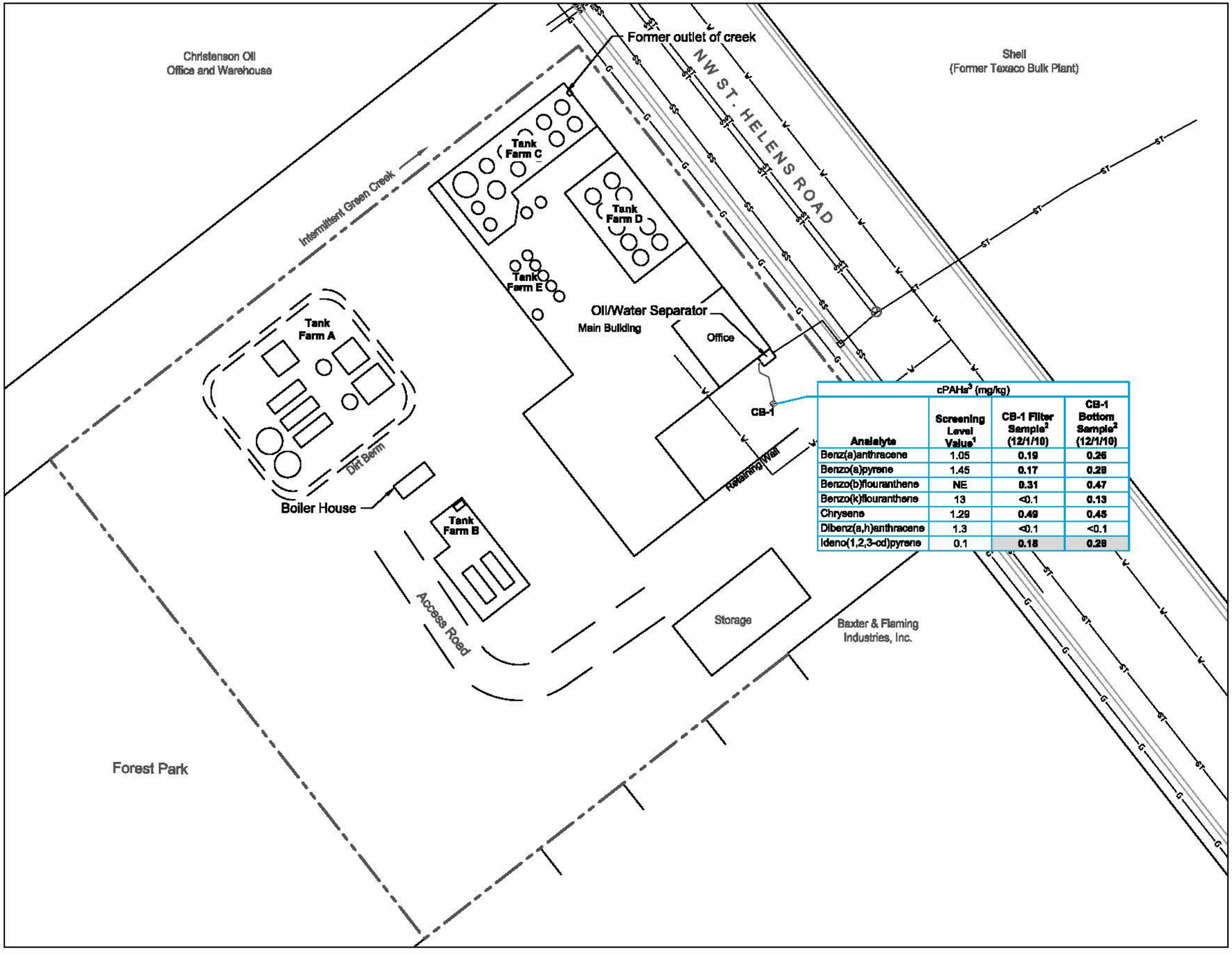
Figure 7

Catch Basin Analytical Results - TPH
December 1, 2010

11/26/2013 Drafting 123-001-030.dwg FIG 7 CB TPH SCERport



cPAHs[3] (mg/kg)			
Analalyte	Screening Level Value[1]	CB-1 Filter Sample[2] (12/1/10)	CB-1 Bottom Sample[2] (12/1/10)
Benz(a)anthracene	1.05	**0.19**	**0.26**
Benzo(a)pyrene	1.45	**0.17**	**0.28**
Benzo(b)flouranthene	NE	**0.31**	**0.47**
Benzo(k)flouranthene	13	<0.1	**0.13**
Chrysene	1.29	**0.49**	**0.45**
Dibenz(a,h)anthracene	1.3	<0.1	<0.1
Ideno(1,2,3-cd)pyrene	0.1	**0.18**	**0.28**

Legend

- Catch Basin
- CB-1 Catch Basin 1
- SLV Screening Level Value
- mg/kg milligrams per kilogram
- NE not established
- MDL Method Detection Limit
- < Concentration was not detected at or above the laboratory MDL
- BOLD Concentration detected above the laboratory MDL
- Concentration exceeds SLV
- cPAHs carcinogenic polycyclic aromatic hydrocarbons
- Property Boundary
- Street Edge/Curb
- Existing Structure Boundary
- Gas
- Sanitary Sewer
- Storm Sewer
- Water

N

0 50
Approximate Scale in Feet

Notes:

1. Value from Oregon Department of Environmental Quality: Portland Harbor Joint Source Control Strategy for Initial Upland Source Control Screening Evaluations for Soil and Stormwater Sediment, December, 2005, unless otherwise noted.
2. Catch basin sediment sample collected by Wohlers Environmental Services, Inc.
3. Semivolatile organic compound analysis by EPA Method 8270D SIM.

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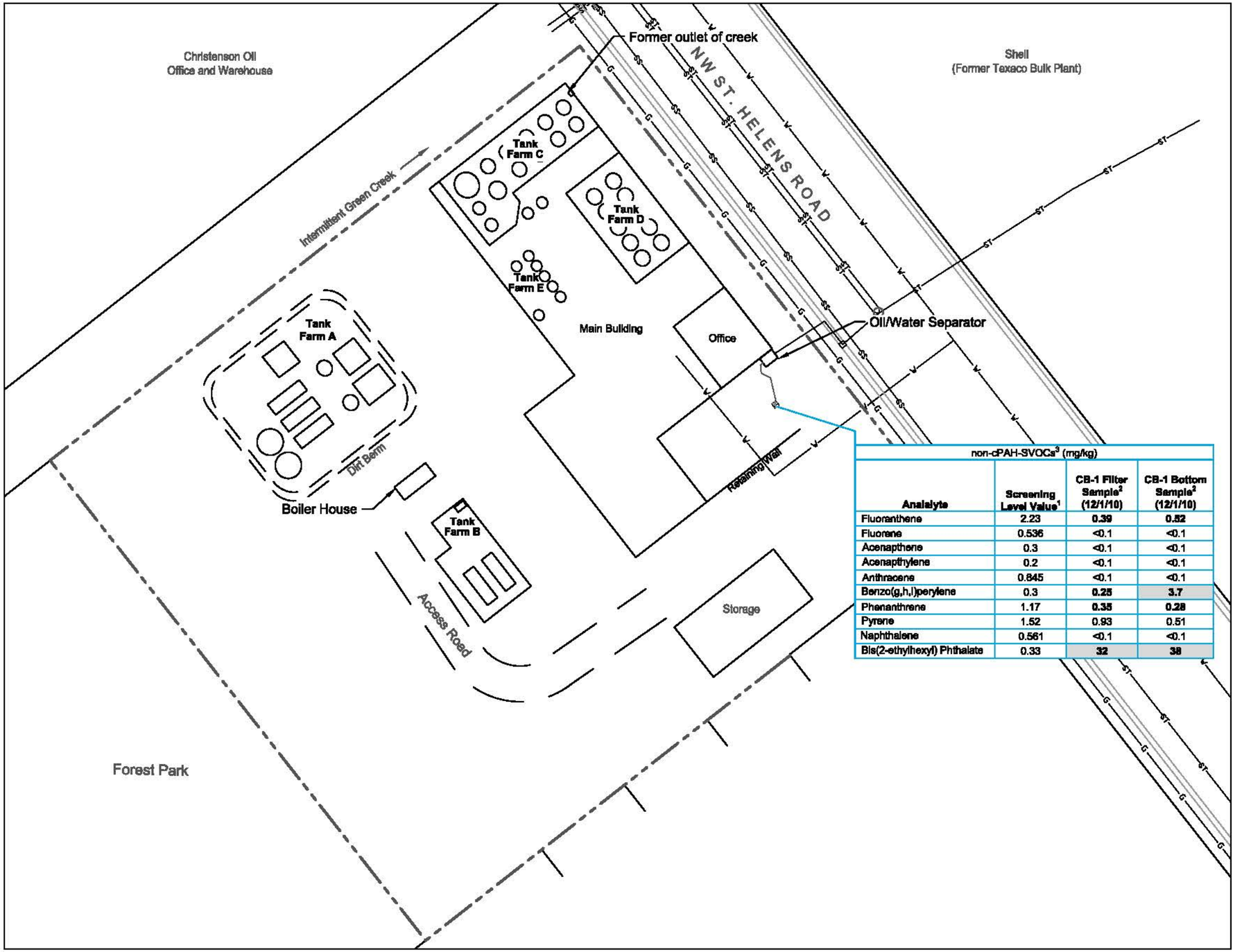
Figure 8

Catch Basin Analytical Results - cPAHs
December 1, 2010

11/26/2013 Drafting 123-001-032.dwg FIG 8 CB cPAH SCERprt



non-cPAH-SVOCs[3] (mg/kg)			
Analalyte	Screening Level Value[1]	CB-1 Filter Sample[2] (12/1/10)	CB-1 Bottom Sample[2] (12/1/10)
Fluoranthene	2.23	0.39	0.52
Fluorene	0.536	<0.1	<0.1
Acenapthene	0.3	<0.1	<0.1
Acenapthylene	0.2	<0.1	<0.1
Anthracene	0.845	<0.1	<0.1
Benzo(g,h,i)perylene	0.3	0.25	3.7
Phenanthrene	1.17	0.35	0.28
Pyrene	1.52	0.93	0.51
Naphthalene	0.561	<0.1	<0.1
Bis(2-ethylhexyl) Phthalate	0.33	32	38

Legend

- Catch Basin
- CB-1 — Catch Basin 1
- SLV — Screening Level Value
- mg/kg — milligrams per kilogram
- NE — not established
- MDL — Method Detection Limit
- < — Concentration was not detected at or above the laboratory MDL
- BOLD — Concentration detected above the laboratory MDL
- Concentration exceeds SLV
- non-cPAHs — non-carcinogenic polycyclic aromatic hydrocarbons
- SVOC — semivolatile organic compound
- Property Boundary
- Street Edge/Curb
- Existing Structure Boundary
- Gas
- Sanitary Sewer
- Storm Sewer
- Water

N

0 50
Approximate Scale in Feet

Notes:

1. Value from Oregon Department of Environmental Quality: Portland Harbor Joint Source Control Strategy for Initial Upland Source Control Screening Evaluations for Soil and Stormwater Sediment, December, 2005, unless otherwise noted.
2. Catch basin sediment sample collected by Wohlers Environmental Services, Inc.
3. Semivolatile organic compound analysis by EPA Method 8270D SIM.

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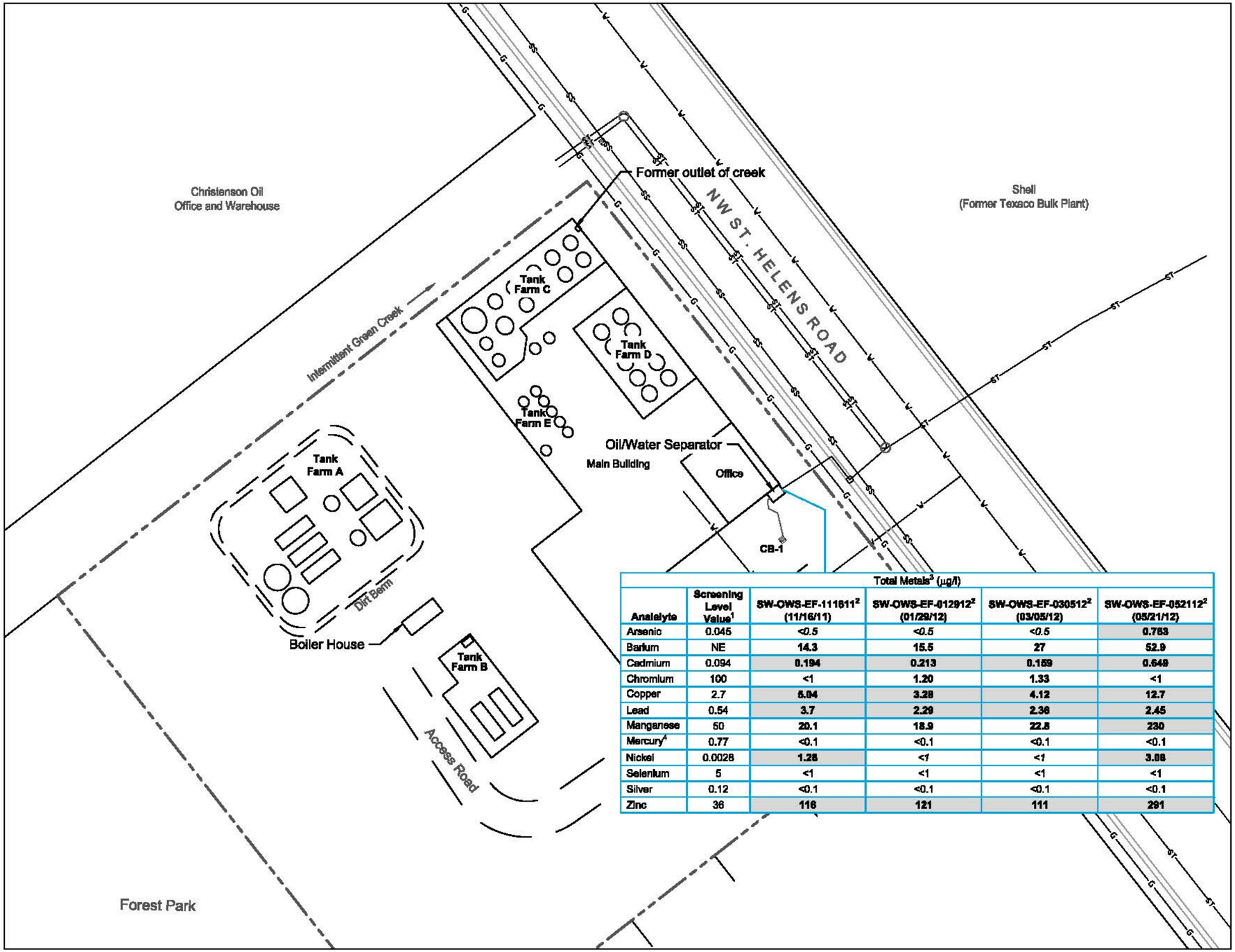
Figure 9

Catch Basin Analytical Results - non-cPAH and SVOCs
December 1, 2010

11/26/2013 Drafting 123-001-033.dwg FIG 9 CB non-cPAH SCERprt



Total Metals[3] (µg/l)					
Analalyte	Screening Level Value[1]	SW-OWS-EF-111611[2] (11/16/11)	SW-OWS-EF-012912[2] (01/29/12)	SW-OWS-EF-030512[2] (03/05/12)	SW-OWS-EF-052112[2] (05/21/12)
Arsenic	0.045	*<0.5*	*<0.5*	*<0.5*	**0.753**
Barium	NE	**14.3**	**15.5**	**27**	**52.9**
Cadmium	0.094	**0.194**	**0.213**	**0.159**	**0.649**
Chromium	100	<1	**1.20**	**1.33**	<1
Copper	2.7	**5.04**	**3.28**	**4.12**	**12.7**
Lead	0.54	**3.7**	**2.29**	**2.36**	**2.45**
Manganese	50	**20.1**	**18.9**	**22.8**	**230**
Mercury[4]	0.77	<0.1	<0.1	<0.1	<0.1
Nickel	0.0028	**1.28**	*<1*	*<1*	**3.08**
Selenium	5	<1	<1	<1	<1
Silver	0.12	<0.1	<0.1	<0.1	<0.1
Zinc	36	**116**	**121**	**111**	**291**

Legend

- Catch Basin
- CB-1 Catch Basin 1
- SLV Screening Level Value
- µg/l micrograms per liter
- NE not established
- MDL method detection limit
- < Concentration was not detected at or above the laboratory MDL
- BOLD Concentration detected above the laboratory MDL
- *ITALICS* Laboratory method detection limit is greater than the corresponding SLV
- Concentration exceeds SLV
- Property Boundary
- Street Edge/Curb
- Existing Structure Boundary
- Gas
- Sanitary Sewer
- Storm Sewer
- Water

N

0 50
Approximate Scale in Feet

Notes:

1. Value from Oregon Department of Environmental Quality: Portland Harbor Joint Source Control Strategy for Initial Upland Source Control Screening Evaluations for Soil and Stormwater Sediment, December, 2005, unless otherwise noted.
2. Stormwater samples collected by Wohlers Environmental Services, Inc.
3. Total metals analysis by EPA Method 200.8 unless otherwise noted.
4. Total mercury analysis by EPA Method 1631E.
5. Stormwater samples were collected from the oil/water separator point of discharge.

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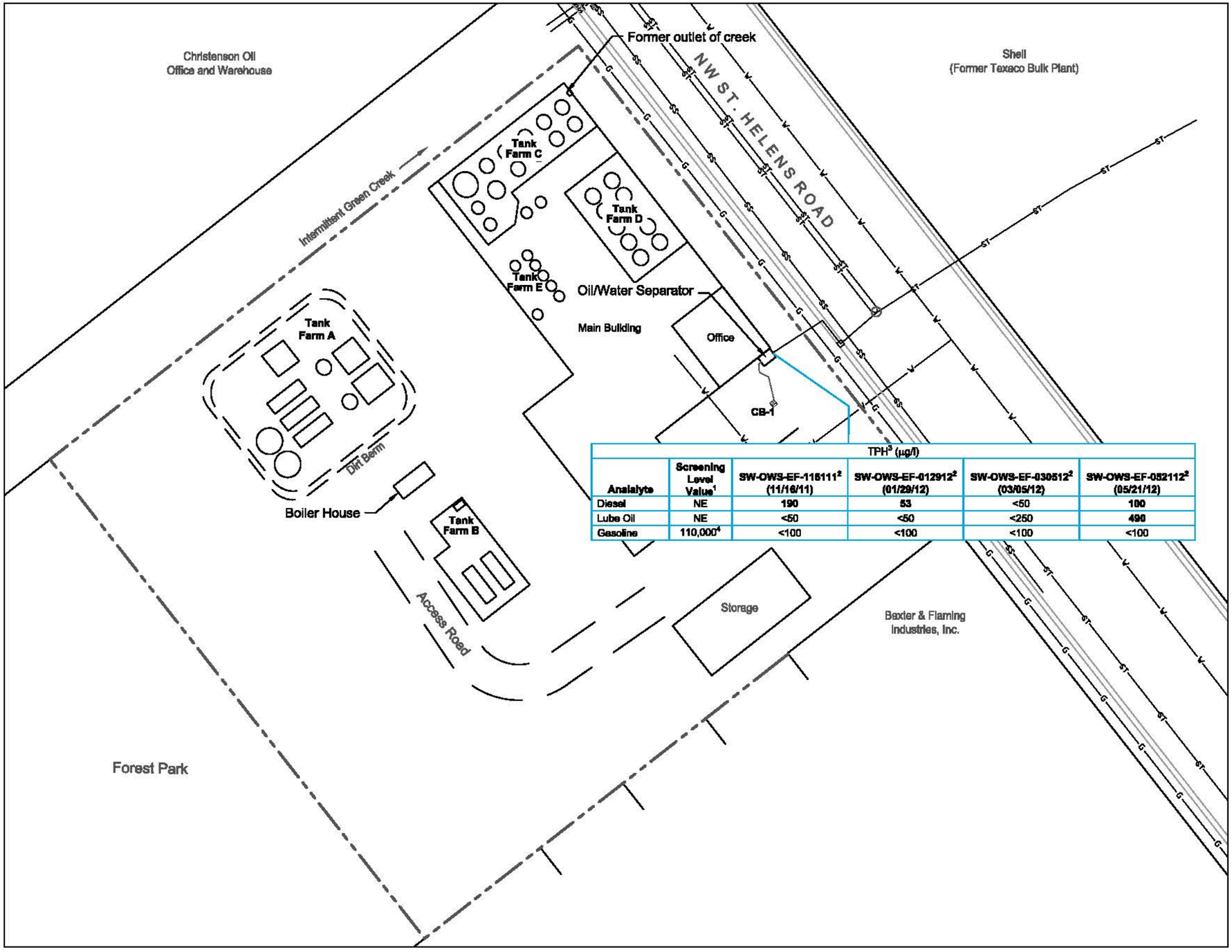
Figure 10

Stormwater Analytical Results - Total Metal

11/26/2013 Drafting 123-001-039.dwg FIG 10 SW TM SCERpt



	TPH[3] (µg/l)				
Analalyte	Screening Level Value[1]	SW-OWS-EF-115111[2] (11/16/11)	SW-OWS-EF-012912[2] (01/29/12)	SW-OWS-EF-030512[2] (03/05/12)	SW-OWS-EF-052112[2] (05/21/12)
Diesel	NE	**190**	**53**	<50	**100**
Lube Oil	NE	<50	<50	<250	**490**
Gasoline	110,000[4]	<100	<100	<100	<100

Legend

- Catch Basin
- CB-1 Catch Basin 1
- SLV Screening Level Value
- µg/l micrograms per liter
- NE not established
- MDL method detection limit
- < Concentration was not detected at or above the laboratory MDL.
- BOLD Concentration detected above the laboratory MDL.
- TPH total petroleum hydrocarbons
- VOC volatile organic compounds
- Property Boundary
- Street Edge/Curb
- Existing Structure Boundary
- Gas
- Sanitary Sewer
- Storm Sewer
- Water

N

0 50
Approximate Scale in Feet

Notes:

1. Value from Oregon Department of Environmental Quality: Portland Harbor Joint Source Control Strategy for Initial Upland Source Control Screening Evaluations for Soil and Stormwater Sediment, December, 2005, unless otherwise noted.
2. Stormwater samples collected by Wohlers Environmental Services, Inc.
3. TPH analysis by Method NWTPH-Dx for diesel- and oil-range organics, and Method NWTPH-Gx for gasoline range organics.
4. Oregon Department of Environmental Quality: Risk-Based Concentrations for Soil (Leaching to Groundwater) in an Occupational Setting, September 2009.
5. Stormwater samples were collected from the oil/water separator point of discharge.

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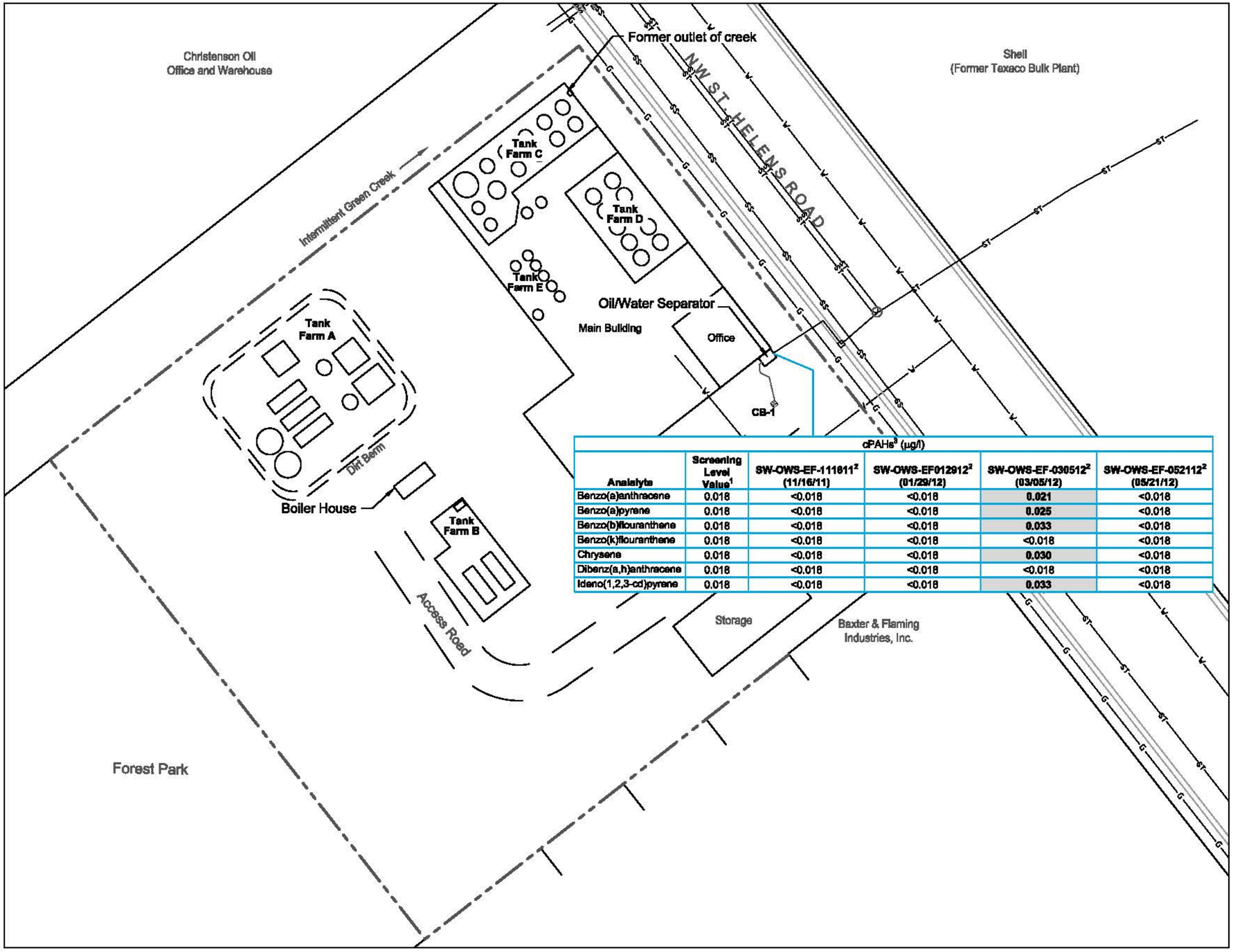
Figure 11

Stormwater Analytical Results - TPH

11/26/2013 Drafting 123-001-040.dwg FIG 11 SW TPH SCERpt



cPAHs[3] (µg/l)					
Analsiyte	Screening Level Value[1]	SW-OWS-EF-111611[2] (11/16/11)	SW-OWS-EF012912[2] (01/29/12)	SW-OWS-EF-030512[2] (03/05/12)	SW-OWS-EF-052112[2] (05/21/12)
Benzo(a)anthracene	0.018	<0.018	<0.018	**0.021**	<0.018
Benzo(a)pyrene	0.018	<0.018	<0.018	**0.025**	<0.018
Benzo(b)flouranthene	0.018	<0.018	<0.018	**0.033**	<0.018
Benzo(k)flouranthene	0.018	<0.018	<0.018	<0.018	<0.018
Chrysene	0.018	<0.018	<0.018	**0.030**	<0.018
Dibenz(a,h)anthracene	0.018	<0.018	<0.018	<0.018	<0.018
Ideno(1,2,3-cd)pyrene	0.018	<0.018	<0.018	**0.033**	<0.018

Legend

- Catch Basin
- CB-1 — Catch Basin 1
- SLV — Screening Level Value
- µg/l — micrograms per liter
- NE — not established
- MDL — method detection limit
- < — Concentration was not detected at or above the laboratory MDL
- BOLD — Concentration detected above the laboratory MDL
- Concentration exceeds SLV
- cPAHs — carcinogenic polycyclic aromatic hydrocarbons
- Property Boundary
- Street Edge/Curb
- Existing Structure Boundary
- Gas
- Sanitary Sewer
- Storm Sewer
- Water

N

0 50
Approximate Scale in Feet

Notes:

1. Value from Oregon Department of Environmental Quality: Portland Harbor Joint Source Control Strategy for Initial Upland Source Control Screening Evaluations for Soil and Stormwater Sediment, December, 2005, unless otherwise noted.
2. Stormwater samples collected by Wohlers Environmental Services, Inc.
3. Semivolatile organic compound analysis by EPA Method 8270D SIM.
4. Stormwater samples were collected from the oil/water separator point of discharge.

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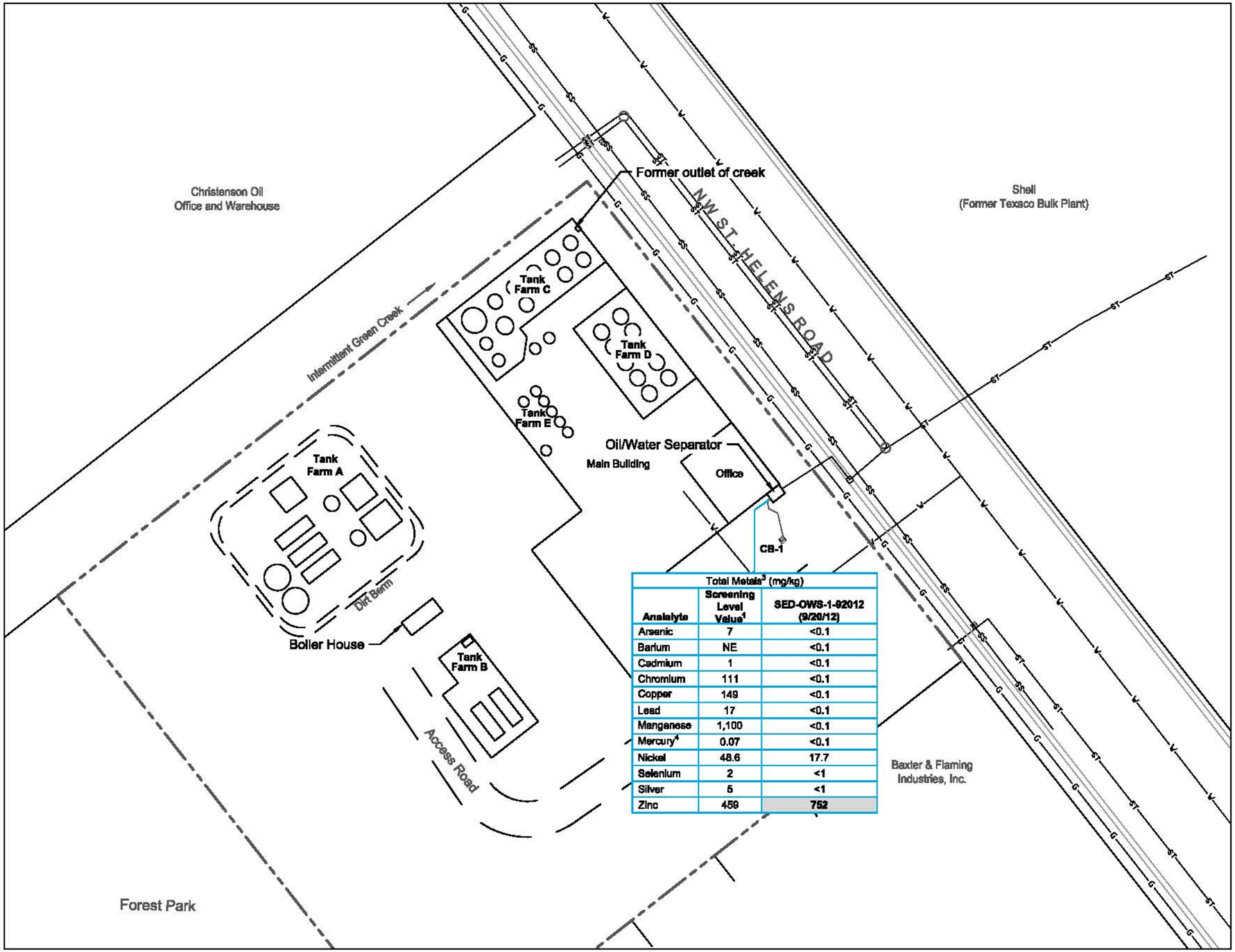
Figure 12

Stormwater Analytical Results - cPAHs

11/26/2013 Drafting 123-001-041.dwg FIG 12 SW cPAH SCERport



Total Metals[3] (mg/kg)		
Analalyte	Screening Level Value[1]	SED-OWS-1-92012 (9/20/12)
Arsenic	7	<0.1
Barium	NE	<0.1
Cadmium	1	<0.1
Chromium	111	<0.1
Copper	149	<0.1
Lead	17	<0.1
Manganese	1,100	<0.1
Mercury[4]	0.07	<0.1
Nickel	48.6	17.7
Selenium	2	<1
Silver	5	<1
Zinc	459	752

Legend

- Catch Basin
- CB-1 Catch Basin 1
- SLV Screening Level Value
- mg/kg micrograms per kilogram
- NE not established
- MDL method detection limit
- < Concentration was not detected at or above the laboratory MDL
- BOLD Concentration detected above the laboratory MDL
- *ITALICS* Laboratory method detection limit is greater than the corresponding SLV
- Concentration exceeds SLV
- Property Boundary
- Street Edge/Curb
- Existing Structure Boundary
- Gas
- Sanitary Sewer
- Storm Sewer
- Water

N

0 50
Approximate Scale in Feet

Notes:

1. Value from Oregon Department of Environmental Quality: Portland Harbor Joint Source Control Strategy for Initial Upland Source Control Screening Evaluations for Soil and Stormwater Sediment, December, 2005, unless otherwise noted.
2. Oregon Department of Environmental Quality: Risk-Based Concentrations for Soil (Leaching to Groundwater) in an Occupational Setting, September 2009.
3. Total metals analysis by EPA Method SW6020/200.8.
4. Total mercury analysis by EPA Method 1631E.

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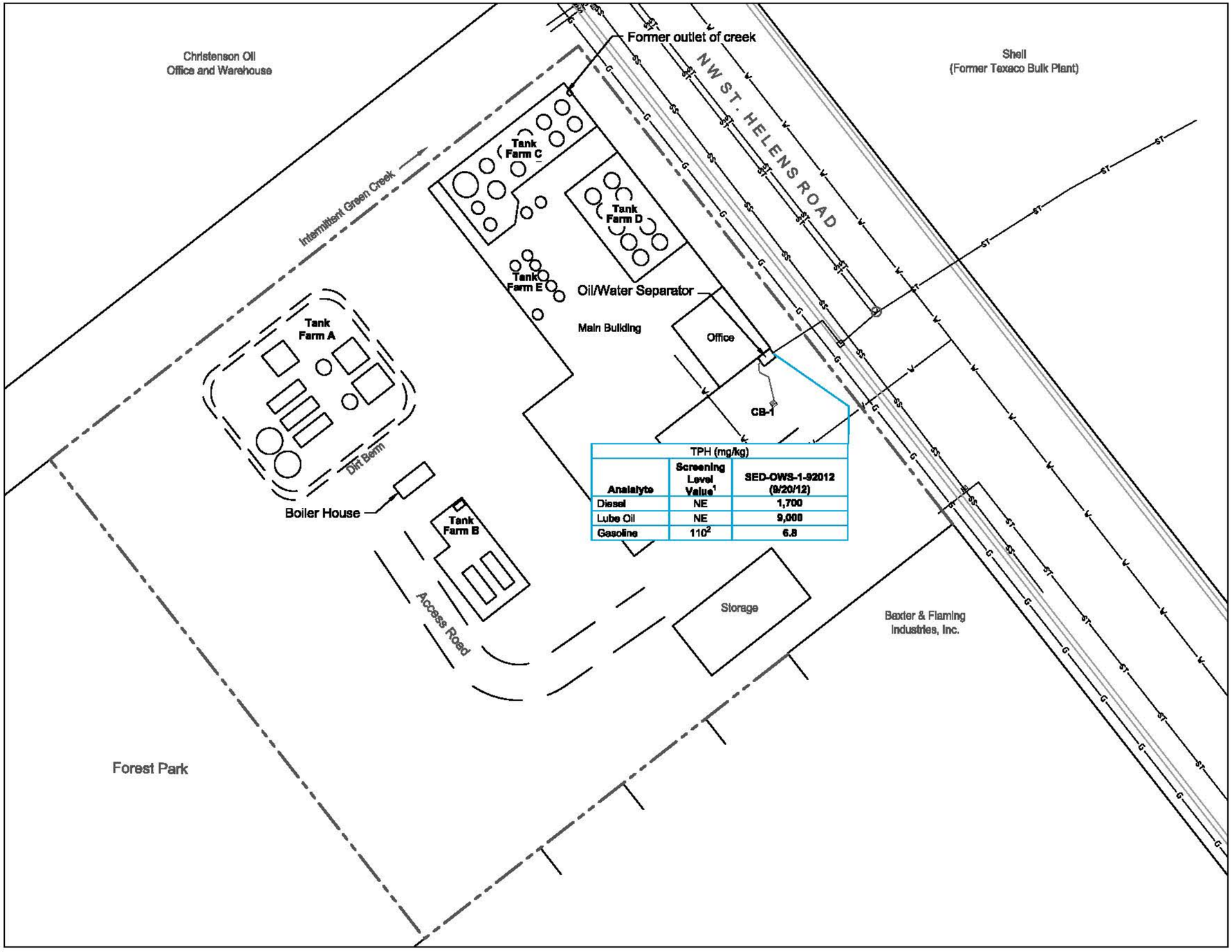
Figure 13

Oil Water Separator Sediment Analytical Results - Total Metals

11/26/2013 Drafting 123-001-060.dwg FIG 13



TPH (mg/kg)		
Analatyte	Screening Level Value[1]	SED-OWS-1-92012 (9/20/12)
Diesel	NE	1,700
Lube Oil	NE	9,000
Gasoline	110[2]	6.8

Legend

- Catch Basin
- CB-1 Catch Basin 1
- SLV Screening Level Value
- mg/kg micrograms per kilogram
- NE not established
- MDL method detection limit
- < Concentration was not detected at or above the laboratory MDL.
- BOLD Concentration detected above the laboratory MDL.
- TPH total petroleum hydrocarbons
- VOC volatile organic compounds
- Property Boundary
- Street Edge/Curb
- Existing Structure Boundary
- Gas
- Sanitary Sewer
- Storm Sewer
- Water

N

0 50
Approximate Scale in Feet

Notes:

1. Value from Oregon Department of Environmental Quality: Portland Harbor Joint Source Control Strategy for Initial Upland Source Control Screening Evaluations for Soil and Stormwater Sediment, December, 2005, unless otherwise noted.
2. Oregon Department of Environmental Quality: Risk-Based Concentrations for Soil (Leaching to Groundwater) in an Occupational Setting, September 2009.
3. TPH analysis by Northwest Method NWTPH-Dx for diesel- and oil-range organics and Northwest Method NWTPH-Gx for gasoline range organics.

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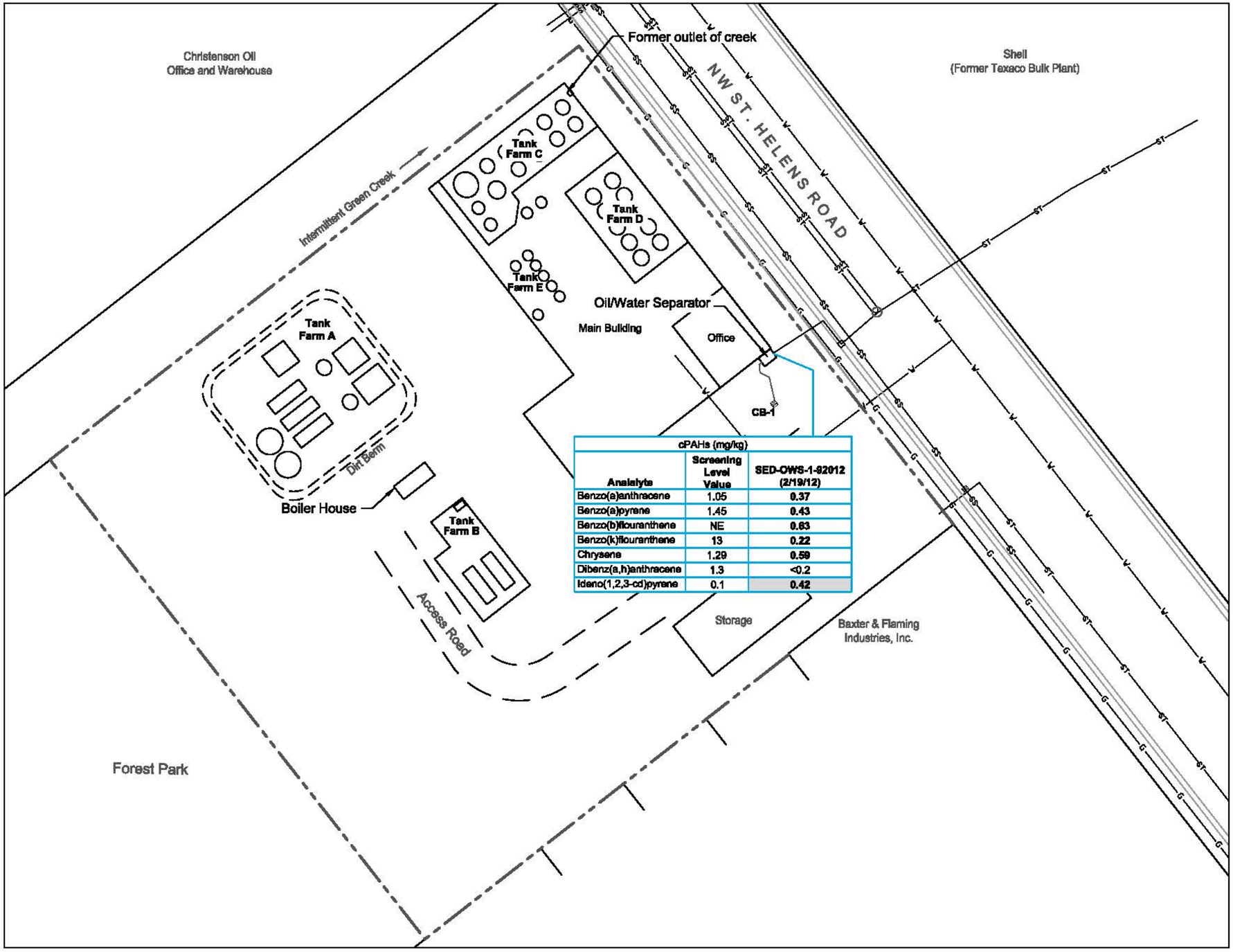
Figure 14

Oil Water Separator Sediment Analytical Results - TPH

11/26/2013 Drafting 123-001-061.dwg FIG 14 OWS TPH



cPAHs (mg/kg)		
Analsiyts	Screening Level Value	SED-OWS-1-92012 (2/19/12)
Benzo(a)anthracene	1.05	0.37
Benzo(a)pyrene	1.45	0.43
Benzo(b)flouranthene	NE	0.63
Benzo(k)flouranthene	13	0.22
Chrysene	1.29	0.59
Dibenz(a,h)anthracene	1.3	<0.2
Ideno(1,2,3-cd)pyrene	0.1	0.42

Legend

- Catch Basin
- CB-1 Catch Basin 1
- SLV Screening Level Value
- mg/kg micrograms per kilogram
- NE not established
- MDL method detection limit
- < Concentration was not detected at or above the laboratory MDL
- BOLD Concentration detected above the laboratory MDL
- Concentration exceeds SLV
- cPAHs carcinogenic polycyclic aromatic hydrocarbons
- Property Boundary
- Street Edge/Curb
- Existing Structure Boundary
- Gas
- Sanitary Sewer
- Storm Sewer
- Water

N

0 50
Approximate Scale in Feet

Notes:

1. Value from Oregon Department of Environmental Quality: Portland Harbor Joint Source Control Strategy for Initial Upland Source Control Screening Evaluations for Soil and Stormwater Sediment, December, 2005, unless otherwise noted.
2. Oregon Department of Environmental Quality: Risk-Based Concentrations for Soil (Leaching to Groundwater) in an Occupational Setting, September 2009.
3. Semivolatile organic compound analysis by EPA Method 8270D SIM.

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Figure 15

Oil Water Separator Sediment Analytical Results - cPAHs

11/26/2013 Drafting 123-001-062.dwg FIG 15 OWS cPAH