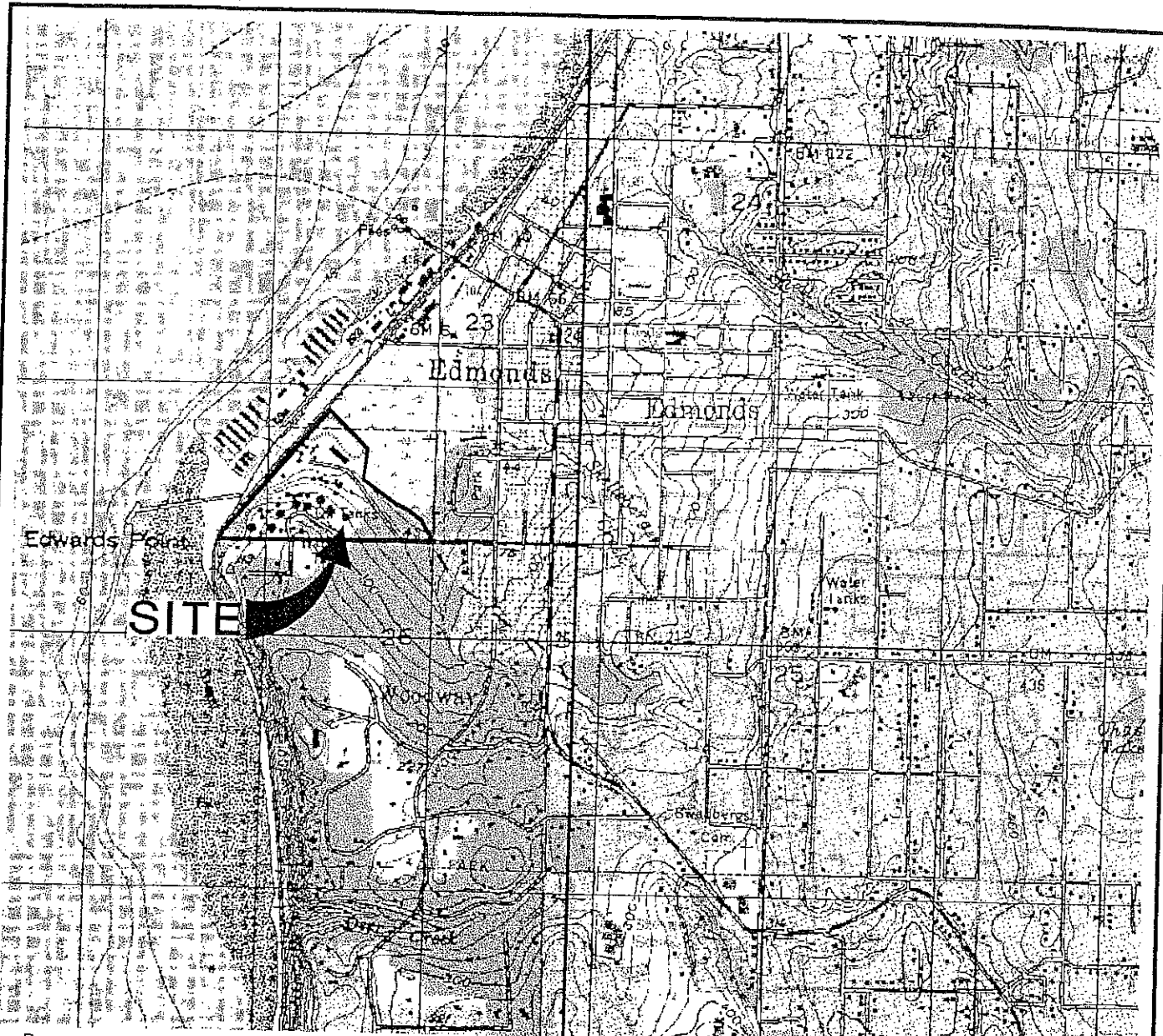
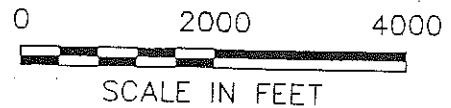


File: C:\9077-001_UNOCAL-EDMONDS\001\003-01.DWG Last edited: MAR. 28, 2000 @ 11:28 a.m. by: ayoung Xrefs: none black/white



Base map prepared from DeLorme 3-D TopoQuads (1999)

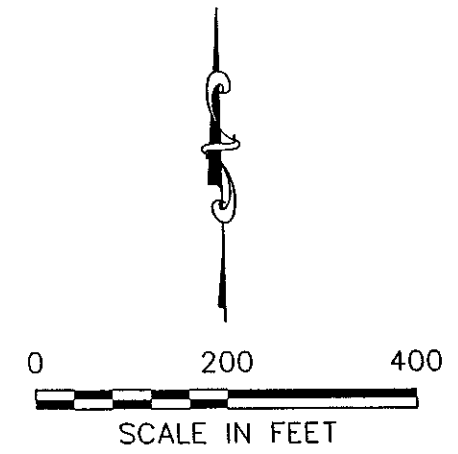
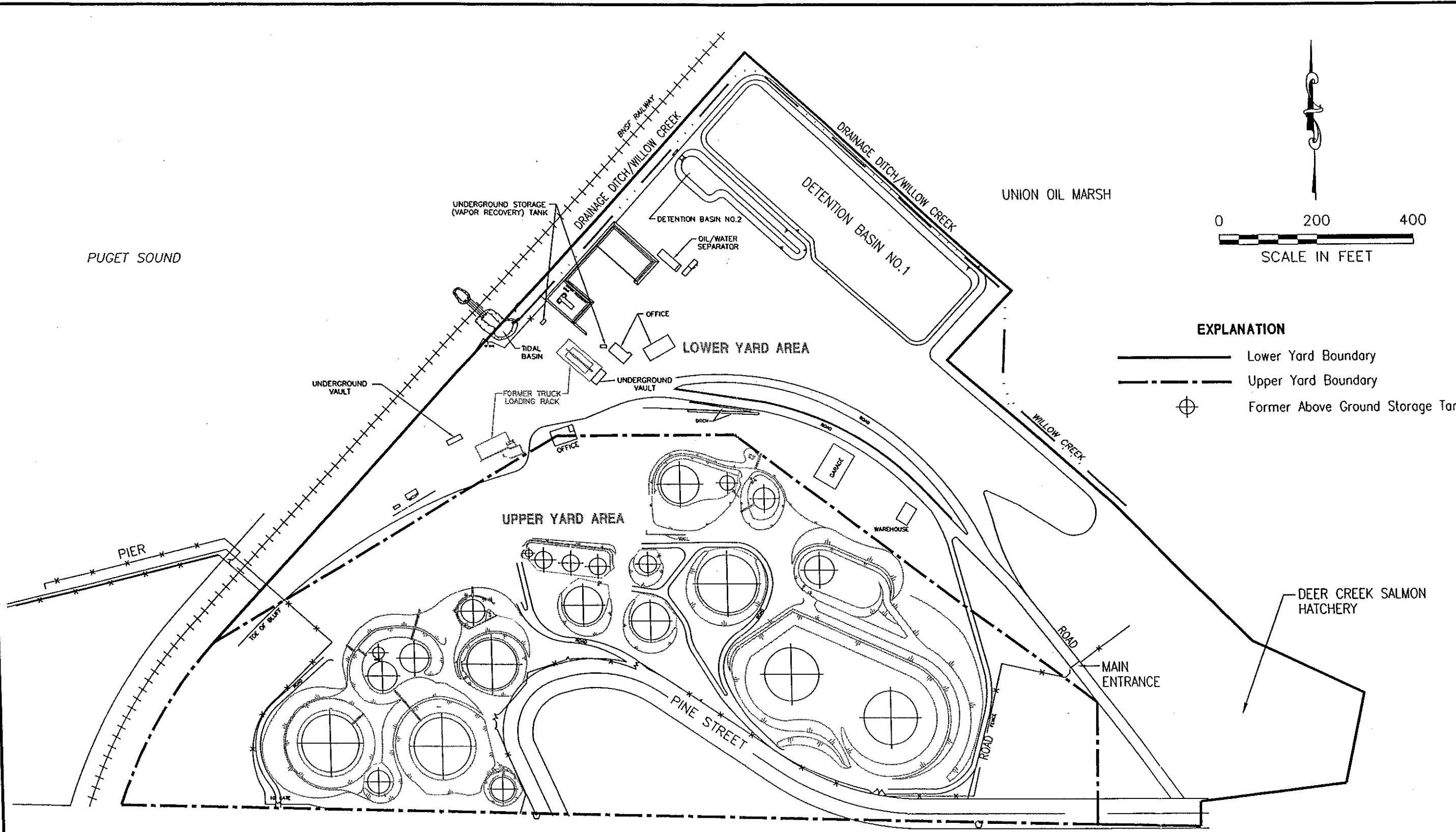


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9077.001.002

Figure 1-1
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
SITE LOCATION MAP

File: \9077\001.06\003-02-1.DWG Last edited: APR 06, 2002 by: btookey Xrefs: none black/white



- EXPLANATION**
- Lower Yard Boundary
 - - - - - Upper Yard Boundary
 - ⊕ Former Above Ground Storage Tank

Source: Union Oil Company of California - Los Angeles, California.
 Site area study General Arrangement Edmonds Terminal -
 Edmonds, Washington. 10/12/92

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 9077.01.06

Figure 2-1
 UNOCAL EDMONDS TERMINAL
 EDMONDS, WASHINGTON

SITE PLAN

File: \9077\01.05\006-4-1.DWG Last edited: APR 22, 03 by: btookey Xrefs: sitebase, wells Black/White

- LEGEND:
- ◻ FORMER TEST PIT LOCATION
 - ⊗ ABANDONED MONITORING WELL OR SUMP
 - RI SOIL BORING LOCATION
 - ⊕ EXISTING AND RI MONITORING WELL LOCATIONS
 - ⊙ LAI SOIL AND GROUNDWATER SAMPLE (1997) (GROUNDWATER SAMPLE IN PARENTHESES)
 - ⊙ CH₂M HILL BORING (2000)
 - ◆ LAI BORING (1996)



- ⊕ ADMIRAL WAY SOIL BORING
- ◻ MFA TEST PIT (2001)

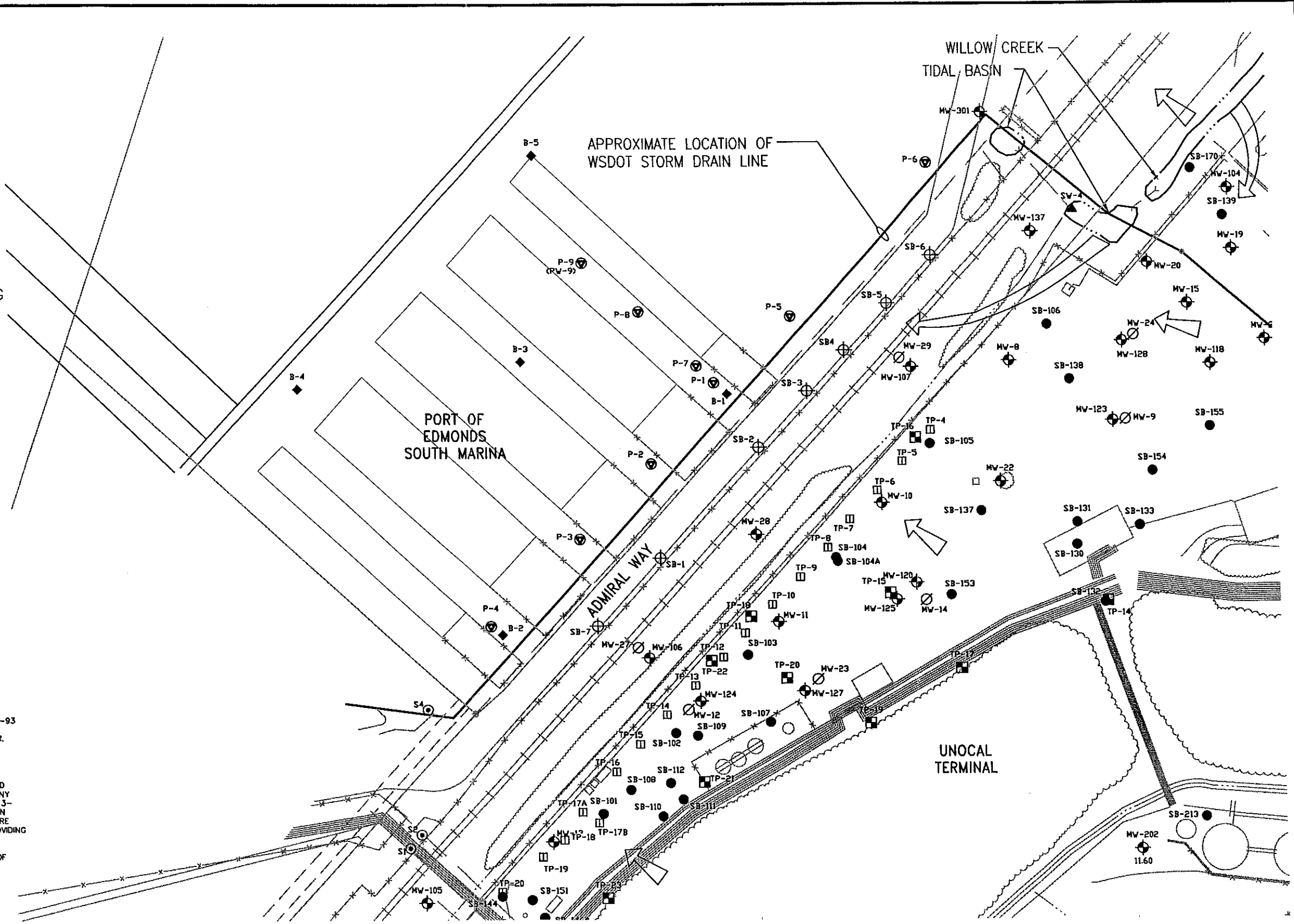
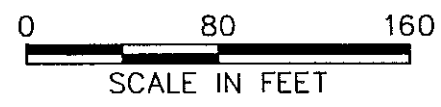
PROJECT DATUM

HORIZ: WASHINGTON STATE PLANE COORDINATE SYSTEM (NORTH ZONE)
 VERT: MLLW - CITY OF EDMONDS
 BENCHMARK: TIDAL BENCHMARK N.7 (1956) RESET STANDARD DISC, STAMPED "N.7 RESET 1956", SET IN TOP OF CONCRETE WALL APPROXIMATELY 3.5 FEET HIGH, SURROUNDING A FLOWER BED AT NORTHWEST CORNER OF BURLINGTON NORTHERN SANTA FE RAILROAD RAILWAY STATION. ELEV = 15.95 FEET ABOVE MEAN LOWER LOW WATER.

NOTE: TO CONVERT PROJECT VERTICAL DATUM TO NGVD (1929) SUBTRACT 6.03 FEET FROM NOTED ELEVATIONS.

TOPOGRAPHY SOURCE: DEGRESS AERIAL MAPPING 12-4-93 WITH SUPPLEMENTAL FIELD TOPOGRAPHY OBTAINED BY TRIAD ASSOCIATES IN AREAS OF DENSE TREE COVER.

- NOTES:
1. PARCEL BOUNDARIES HAVE BEEN DELINEATED BASED UPON A SURVEY PREPARED FOR UNION OIL COMPANY BY BUSH, ROED AND HITCHINGS, P.S., INC., DATED 3-3-1977. THE BOUNDARY CORNERS HAVE NOT BEEN VERIFIED BY FIELD SURVEY. FOUND MONUMENTS ARE SHOWN WHERE RECOVERED IN THE COURSE OF PROVIDING CONTROL FOR THE AERIAL MAPPING OF THE SITE.
 2. NO EASEMENTS, RESTRICTIONS OR RESERVATIONS OF RECORD ARE SHOWN.
 3. BASEMAP PREPARED BY TRIAD ASSOCIATES



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 Portland: (971) 544-2139

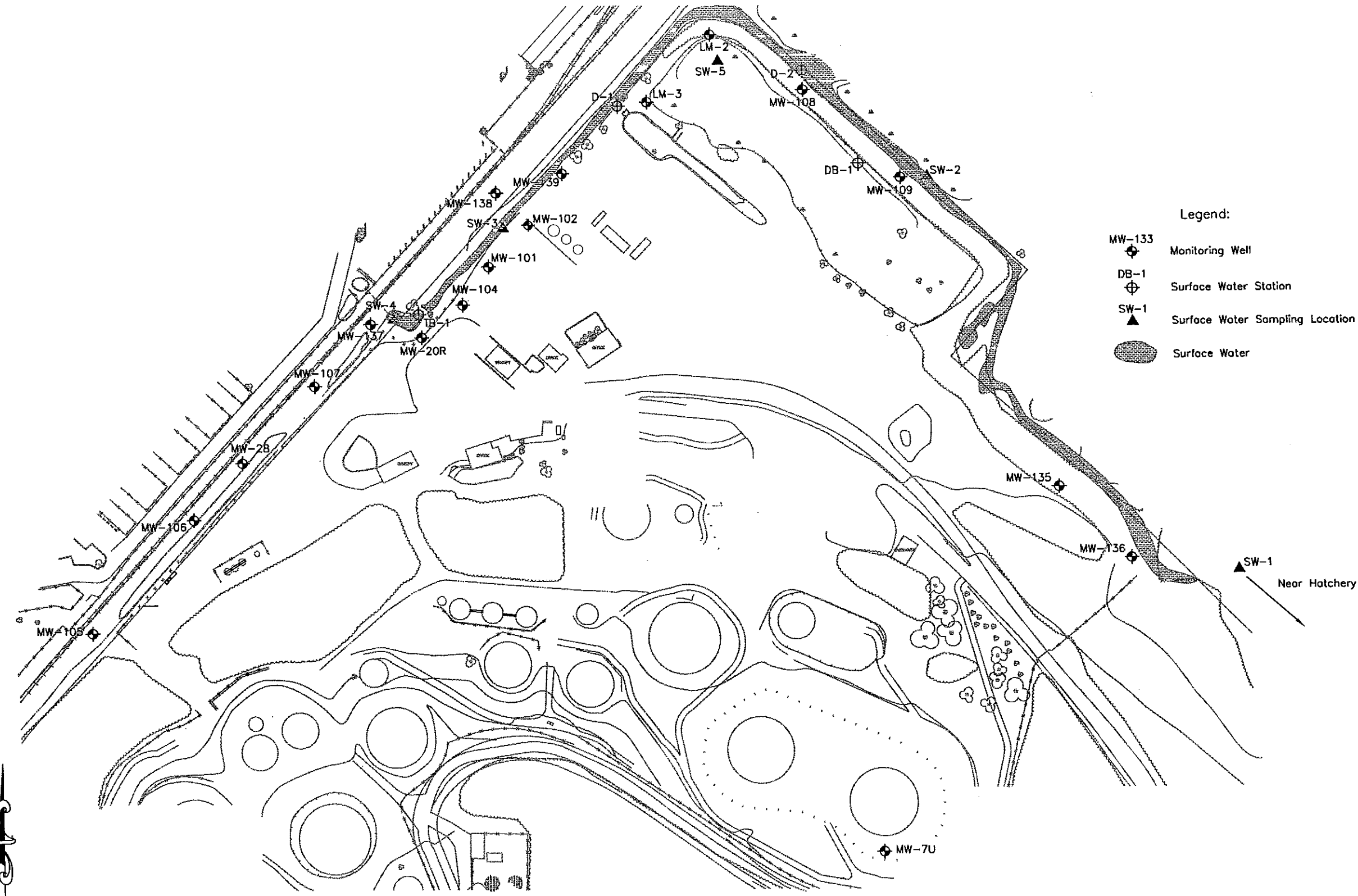
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ALONGI**

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REVIS.	
PROJECT NO.	9077.01.05

FIGURE 4-1
 UNOCAL EDMONDS TERMINAL
 EDMONDS, WASHINGTON

ADMIRAL WAY SOIL BORINGS AND
 SOUTHWEST LOWER YARD TEST PITS

File: E:\9077.01.05\006-4-2.DWG Last edited: APR 22, 2003 by: btooke Xrefs: none black/white



- Legend:
- MW-133 Monitoring Well
 - DB-1 Surface Water Station
 - SW-1 Surface Water Sampling Location
 - Surface Water

0 180 360
 SCALE IN FEET

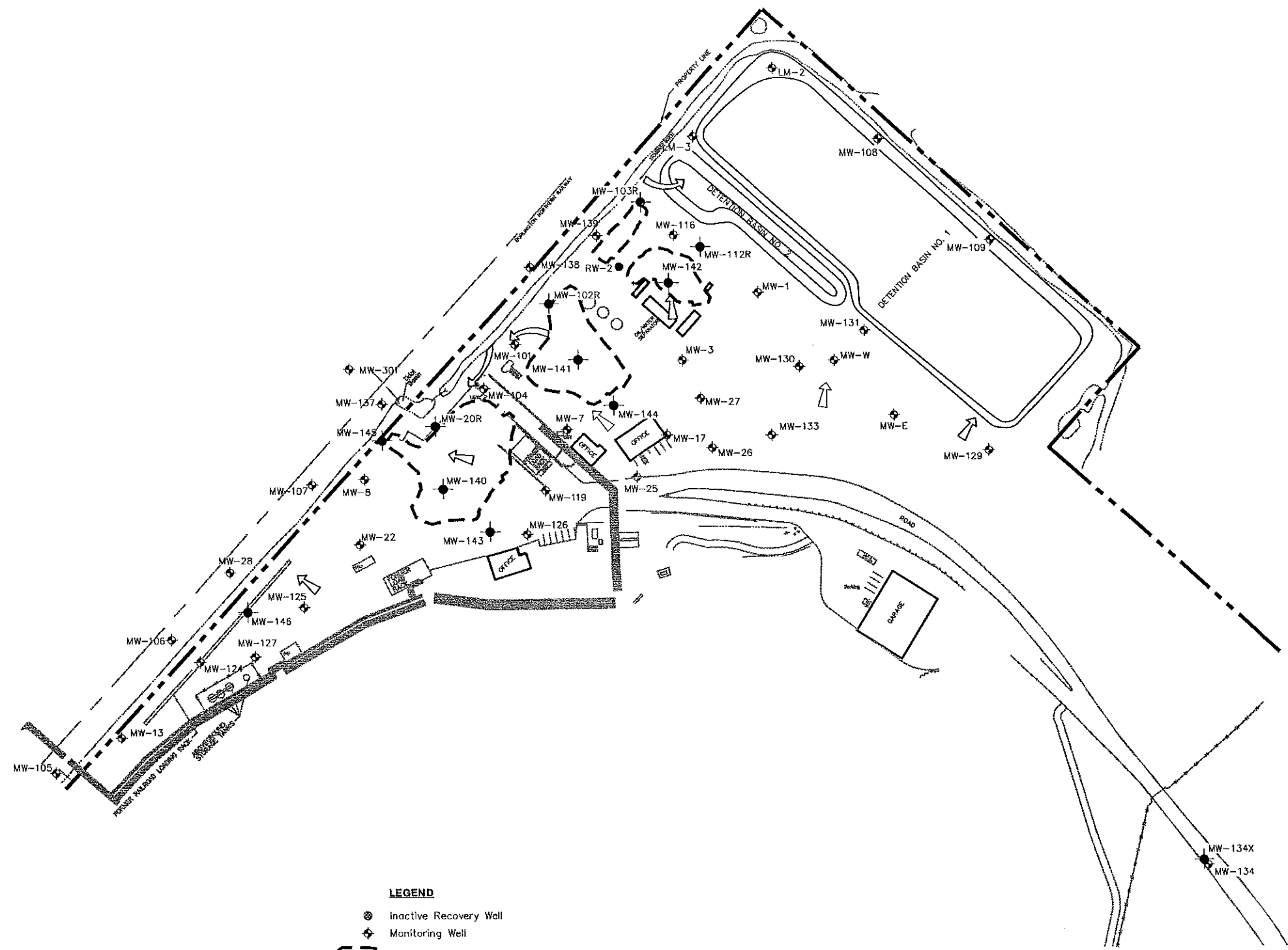
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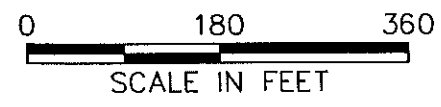
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FIGURE 4-2
 UNOCAL EDMONDS TERMINAL
 EDMONDS, WASHINGTON
 PERIMETER MONITORING WELL NETWORK AND
 SURFACE WATER MONITORING LOCATIONS

File: \\9077\01.05\006--4--3.DWG Last edited: APR 22, 2003 by: btookeby Xrefs: none black/white



- LEGEND**
- ⊗ Inactive Recovery Well
 - ◆ Monitoring Well
 - Surveyed Extents of Soil Excavation
 - ➔ General Groundwater Flow Direction
 - ◆ New Well



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Portland: (971) 544-2139

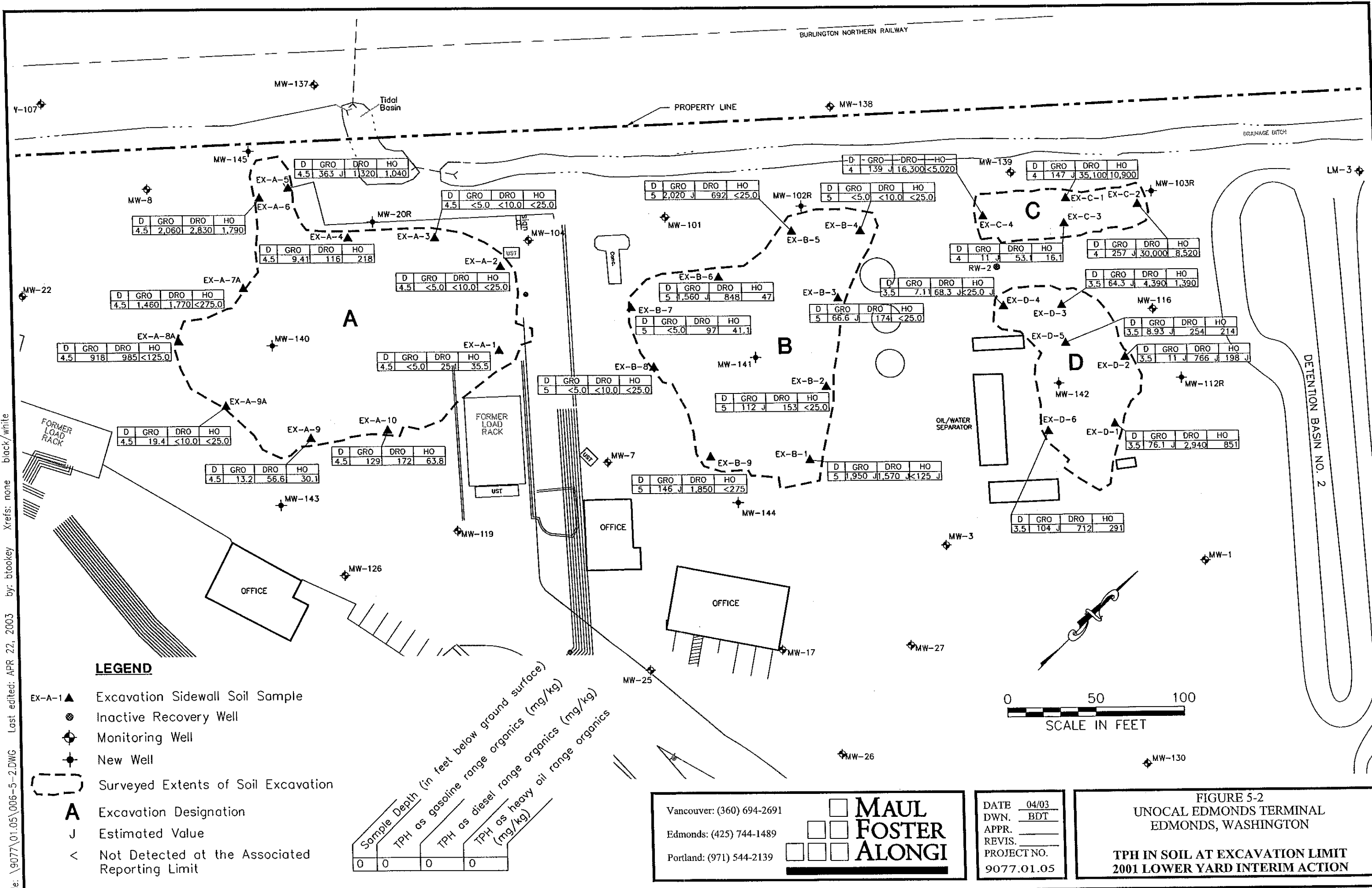
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9077.01.05

FIGURE 4-3
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

NEW MONITORING WELL LOCATIONS

File: \9077\01.05\006-5-2.DWG Last edited: APR 22, 2003 by: btookey Xrefs: none black/white



D	GRO	DRO	HO
4.5	363 J	1,320	1,040

D	GRO	DRO	HO
4.5	2,060	2,830	1,790

D	GRO	DRO	HO
4.5	9.41	116	218

D	GRO	DRO	HO
4.5	1,460	1,770	<275.0

D	GRO	DRO	HO
4.5	918	985	<125.0

D	GRO	DRO	HO
4.5	19.4	<10.0	<25.0

D	GRO	DRO	HO
4.5	13.2	56.6	30.1

D	GRO	DRO	HO
4.5	129	172	63.8

D	GRO	DRO	HO
4.5	<5.0	25	35.5

D	GRO	DRO	HO
5	<5.0	<10.0	<25.0

D	GRO	DRO	HO
5	146 J	1,850	<275

D	GRO	DRO	HO
5	112 J	153	<25.0

D	GRO	DRO	HO
5	<5.0	97	41.1

D	GRO	DRO	HO
5	2,020 J	692	<25.0

D	GRO	DRO	HO
5	<5.0	<10.0	<25.0

D	GRO	DRO	HO
3.5	7.11	68.3 J	<25.0 J

D	GRO	DRO	HO
5	66.6 J	174	<25.0

D	GRO	DRO	HO
4	139 J	16,300	<5,020

D	GRO	DRO	HO
4	11 J	53.1	16.1

D	GRO	DRO	HO
3.5	64.3 J	4,390	1,390

D	GRO	DRO	HO
3.5	8.93 J	254	214

D	GRO	DRO	HO
3.5	11 J	766 J	198 J

D	GRO	DRO	HO
3.5	104 J	712	291

D	GRO	DRO	HO
3.5	76.1 J	2,940	851

D	GRO	DRO	HO
4	147 J	35,100	10,900

D	GRO	DRO	HO
4	257 J	30,000	8,520

File: \9077\01.05\006-5-3.DWG Last edited: APR 24, 2003 by: btookee Xrefs: wells Black/White

LEGEND:

Sample Depth (in feet below ground surface)	TPH (as gasoline or gasoline-range) (mg/kg)	TPH (as diesel or diesel-range) (mg/kg)	TPH (as oil or heavy oil) (mg/kg)
0.0	0	0	0
2.5	0	0	0
5.0	0	0	0
7.5	0	0	0
10	0	0	0

U = NOT DETECTED AT OR ABOVE THE METHOD REPORTING LIMIT.
 CONCENTRATIONS IN mg/kg.

- NOTES:**
- 1) P-1 THROUGH P-9 DATA WERE COLLECTED BY LANDAU ASSOCIATES, INC. IN NOVEMBER 1997.
 - 2) MW-27 THROUGH MW-29 DATA WERE COLLECTED BY GEOENGINEERS IN 1991.
 - 3) SB-100 SERIES AND MW-100 SERIES DATA WERE COLLECTED BY EMCON IN 1995.
 - 4) SB-1 THRU SB-7 AND TP-4 THRU TP-20 DATA WERE COLLECTED BY MFA IN 2001.

- Property Boundary
- Test Pit
- Soil Boring
- ⊕ Monitoring Well/Boring
- ⊘ Abandoned Monitoring Well/Boring

PORT OF EDMONDS

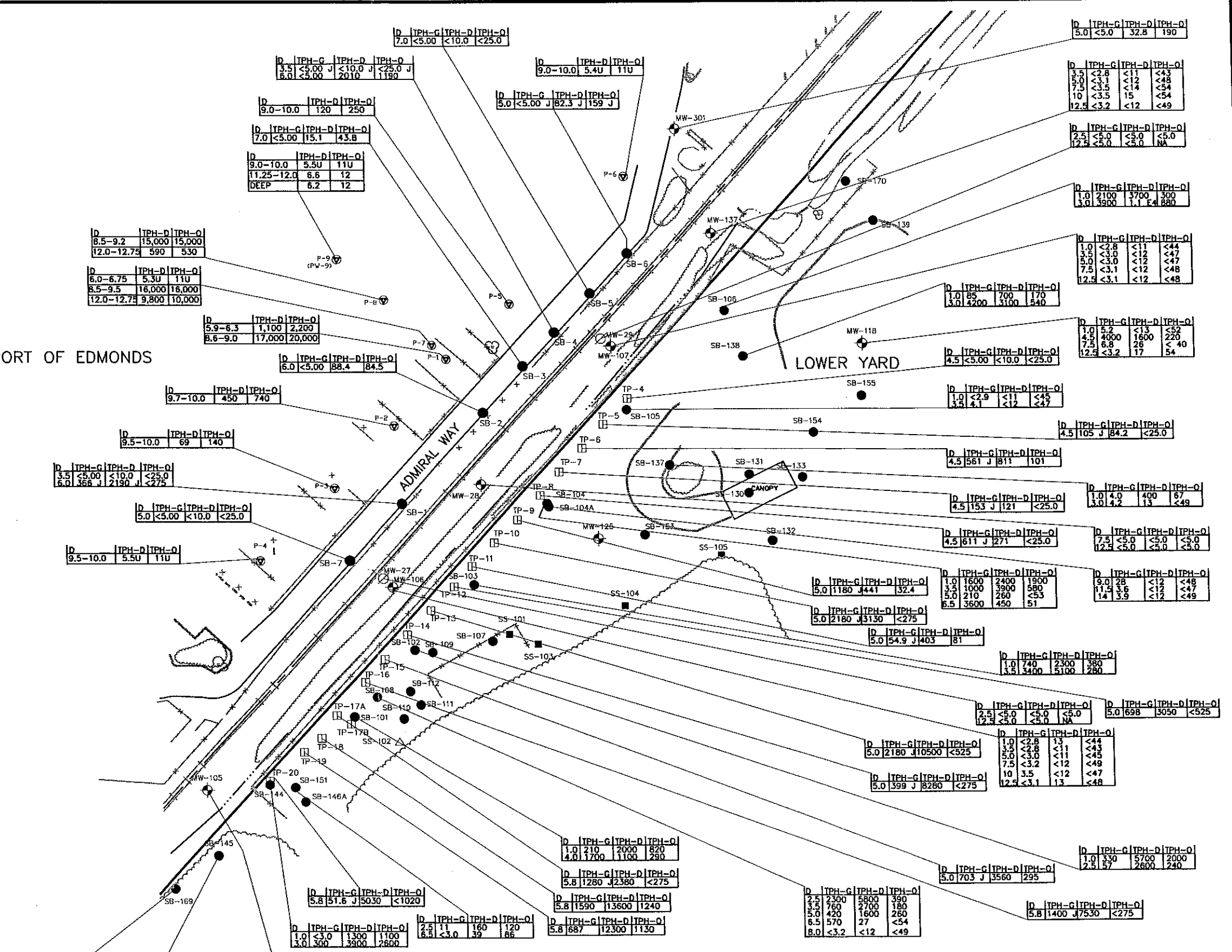
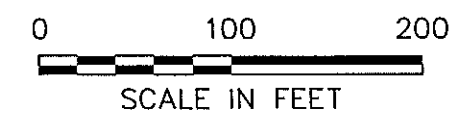
LOWER YARD

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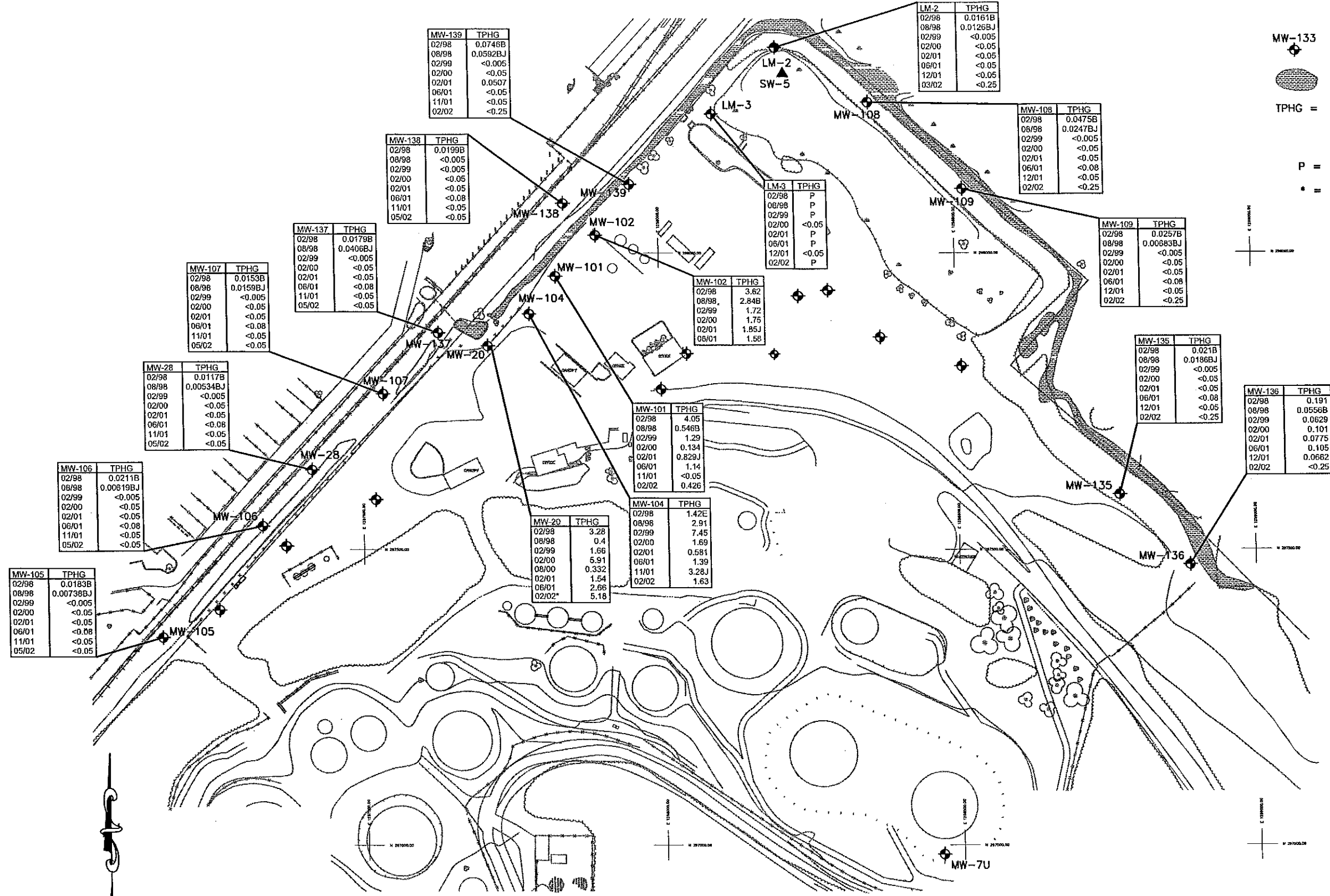
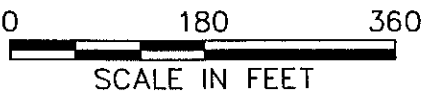
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**FIGURE 5-3
 UNOCAL EDMONDS TERMINAL
 EDMONDS, WASHINGTON
 TPH IN SOIL
 SOUTHWEST LOWER YARD,
 ADMIRAL WAY, PORT OF EDMONDS**



File: \9077\01.05\006-5-4.DWG Last edited: APR 22, 2003 by: bitokey Xrefs: none black/white



Legend

- MW-133 Monitoring Well
- Surface Water
- TPHG = Total Petroleum Hydrocarbons in the gasoline range
Concentrations in mg/L
- P = Product in well; sample not collected
- * = Result is from replacement well MW-20R

NOTE:
The method reporting limit for NWTPH-G_x is 0.25 mg/L.

MW-105	TPHG
02/98	0.0183B
08/98	0.00738BJ
02/99	<0.005
02/00	<0.05
02/01	<0.05
06/01	<0.08
11/01	<0.05
05/02	<0.05

MW-106	TPHG
02/98	0.0211B
08/98	0.00619BJ
02/99	<0.005
02/00	<0.05
02/01	<0.05
06/01	<0.08
11/01	<0.05
05/02	<0.05

MW-28	TPHG
02/98	0.0117B
08/98	0.00534BJ
02/99	<0.005
02/00	<0.05
02/01	<0.05
06/01	<0.08
11/01	<0.05
05/02	<0.05

MW-107	TPHG
02/98	0.0153B
08/98	0.0159BJ
02/99	<0.005
02/00	<0.05
02/01	<0.05
06/01	<0.08
11/01	<0.05
05/02	<0.05

MW-137	TPHG
02/98	0.0179B
08/98	0.0406BJ
02/99	<0.005
02/00	<0.05
02/01	<0.05
06/01	<0.08
11/01	<0.05
05/02	<0.05

MW-138	TPHG
02/98	0.0199B
08/98	<0.005
02/99	<0.005
02/00	<0.05
02/01	<0.05
06/01	<0.08
11/01	<0.05
05/02	<0.05

MW-139	TPHG
02/98	0.0746B
08/98	0.0592BJ
02/99	<0.005
02/00	<0.05
02/01	0.0507
06/01	<0.05
11/01	<0.05
02/02	<0.25

MW-20	TPHG
02/98	3.28
08/98	0.4
02/99	1.66
02/00	5.91
08/00	0.332
02/01	1.54
06/01	2.66
02/02*	5.18

MW-104	TPHG
02/98	1.42E
08/98	2.91
02/99	7.45
02/00	1.69
02/01	0.681
06/01	1.39
11/01	3.28J
02/02	1.63

MW-101	TPHG
02/98	4.05
08/98	0.546B
02/99	1.29
02/00	0.134
02/01	0.829J
06/01	1.14
11/01	<0.05
02/02	0.426

MW-102	TPHG
02/98	3.62
08/98	2.84B
02/99	1.72
02/00	1.75
02/01	1.85J
06/01	1.58

LM-3	TPHG
02/98	P
08/98	P
02/99	P
02/00	<0.05
02/01	P
06/01	P
12/01	<0.05
02/02	P

LM-2	TPHG
02/98	0.0161B
08/98	0.0126BJ
02/99	<0.005
02/00	<0.05
02/01	<0.05
06/01	<0.05
12/01	<0.05
03/02	<0.25

MW-108	TPHG
02/98	0.0475B
08/98	0.0247BJ
02/99	<0.005
02/00	<0.05
02/01	<0.05
06/01	<0.08
12/01	<0.05
02/02	<0.25

MW-109	TPHG
02/98	0.0257B
08/98	0.00683BJ
02/99	<0.005
02/00	<0.05
02/01	<0.05
06/01	<0.08
12/01	<0.05
02/02	<0.25

MW-135	TPHG
02/98	0.021B
08/98	0.0186BJ
02/99	<0.005
02/00	<0.05
02/01	<0.05
06/01	<0.08
12/01	<0.05
02/02	<0.25

MW-136	TPHG
02/98	0.191
08/98	0.0556B
02/99	0.0629
02/00	0.101
02/01	0.0775
06/01	0.105
12/01	0.0662
02/02	<0.25

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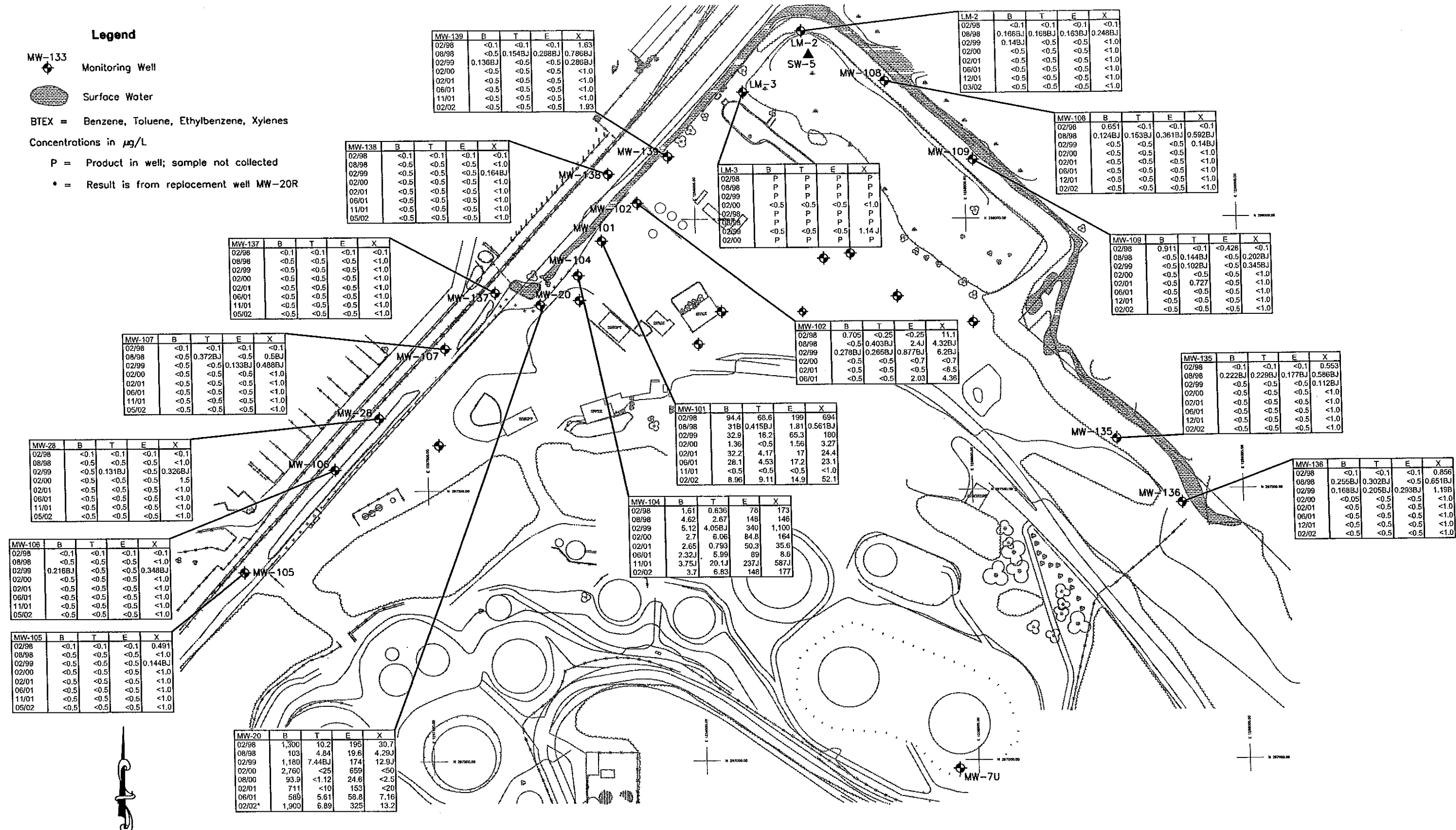
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FIGURE 5-4
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
TPH-G/GRO IN GROUNDWATER
PERIMETER MONITORING WELL NETWORK
1998 - 2002

File: E:\9077\01.05\006-5-5.DWG Last edited: APR 22, 2003 by: btoockey Xrefs: none black/white

Legend
 MW-133 Monitoring Well
 Surface Water
 BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
 Concentrations in µg/L
 P = Product in well; sample not collected
 * = Result is from replacement well MW-20R



MW-139	B	T	E	X
02/98	<0.1	<0.1	<0.1	1.63
08/98	<0.5	0.154BJ	0.288BJ	0.786BJ
02/99	0.136BJ	<0.5	<0.5	0.286BJ
02/00	<0.5	<0.5	<0.5	<1.0
02/01	<0.5	<0.5	<0.5	<1.0
06/01	<0.5	<0.5	<0.5	<1.0
11/01	<0.5	<0.5	<0.5	<1.0
02/02	<0.5	<0.5	<0.5	1.93

LM-2	B	T	E	X
02/98	<0.1	<0.1	<0.1	<0.1
08/98	0.166BJ	0.168BJ	0.163BJ	0.248BJ
02/99	0.148BJ	<0.5	<0.5	<1.0
02/00	<0.5	<0.5	<0.5	<1.0
02/01	<0.5	<0.5	<0.5	<1.0
06/01	<0.5	<0.5	<0.5	<1.0
12/01	<0.5	<0.5	<0.5	<1.0
03/02	<0.5	<0.5	<0.5	<1.0

MW-138	B	T	E	X
02/98	<0.1	<0.1	<0.1	<0.1
08/98	<0.5	<0.5	<0.5	<1.0
02/99	<0.5	<0.5	<0.5	0.164BJ
02/00	<0.5	<0.5	<0.5	<1.0
02/01	<0.5	<0.5	<0.5	<1.0
06/01	<0.5	<0.5	<0.5	<1.0
11/01	<0.5	<0.5	<0.5	<1.0
05/02	<0.5	<0.5	<0.5	<1.0

MW-108	B	T	E	X
02/98	0.651	<0.1	<0.1	<0.1
08/98	0.124BJ	0.153BJ	0.361BJ	0.592BJ
02/99	<0.5	<0.5	<0.5	0.14BJ
02/00	<0.5	<0.5	<0.5	<1.0
02/01	<0.5	<0.5	<0.5	<1.0
06/01	<0.5	<0.5	<0.5	<1.0
12/01	<0.5	<0.5	<0.5	<1.0
02/02	<0.5	<0.5	<0.5	<1.0

LM-3	B	T	E	X
02/98	P	P	P	P
08/98	P	P	P	P
02/99	P	P	P	P
02/00	<0.5	<0.5	<0.5	<1.0
02/01	P	P	P	P
06/01	P	P	P	P
12/01	P	P	P	P
02/02	P	P	P	P

MW-109	B	T	E	X
02/98	0.911	<0.1	<0.428	<0.1
08/98	<0.5	0.144BJ	<0.5	0.202BJ
02/99	<0.5	0.102BJ	<0.5	0.345BJ
02/00	<0.5	<0.5	<0.5	<1.0
02/01	<0.5	0.727	<0.5	<1.0
06/01	<0.5	<0.5	<0.5	<1.0
12/01	<0.5	<0.5	<0.5	<1.0
02/02	<0.5	<0.5	<0.5	<1.0

MW-137	B	T	E	X
02/98	<0.1	<0.1	<0.1	<0.1
08/98	<0.5	<0.5	<0.5	<1.0
02/99	<0.5	<0.5	<0.5	<1.0
02/00	<0.5	<0.5	<0.5	<1.0
02/01	<0.5	<0.5	<0.5	<1.0
06/01	<0.5	<0.5	<0.5	<1.0
11/01	<0.5	<0.5	<0.5	<1.0
05/02	<0.5	<0.5	<0.5	<1.0

MW-107	B	T	E	X
02/98	<0.1	<0.1	<0.1	<0.1
08/98	<0.5	0.372BJ	<0.5	0.58BJ
02/99	<0.5	<0.5	0.133BJ	0.488BJ
02/00	<0.5	<0.5	<0.5	<1.0
02/01	<0.5	<0.5	<0.5	<1.0
06/01	<0.5	<0.5	<0.5	<1.0
11/01	<0.5	<0.5	<0.5	<1.0
05/02	<0.5	<0.5	<0.5	<1.0

MW-102	B	T	E	X
02/98	0.705	<0.25	<0.25	11.1
08/98	<0.5	0.403BJ	2.4J	4.32BJ
02/99	0.278BJ	0.265BJ	0.877BJ	6.2BJ
02/00	<0.5	<0.5	<0.7	<0.7
02/01	<0.5	<0.5	<0.5	<6.5
06/01	<0.5	<0.5	2.03	4.36

MW-135	B	T	E	X
02/98	<0.1	<0.1	<0.1	0.553
08/98	0.222BJ	0.229BJ	0.177BJ	0.586BJ
02/99	<0.5	<0.5	<0.5	0.112BJ
02/00	<0.5	<0.5	<0.5	<1.0
02/01	<0.5	<0.5	<0.5	<1.0
06/01	<0.5	<0.5	<0.5	<1.0
12/01	<0.5	<0.5	<0.5	<1.0
02/02	<0.5	<0.5	<0.5	<1.0

MW-28	B	T	E	X
02/98	<0.1	<0.1	<0.1	<0.1
08/98	<0.5	<0.5	<0.5	<1.0
02/99	<0.5	0.131BJ	<0.5	0.326BJ
02/00	<0.5	<0.5	<0.5	1.5
02/01	<0.5	<0.5	<0.5	<1.0
06/01	<0.5	<0.5	<0.5	<1.0
11/01	<0.5	<0.5	<0.5	<1.0
05/02	<0.5	<0.5	<0.5	<1.0

MW-101	B	T	E	X
02/98	94.4	68.6	199	694
08/98	318	0.415BJ	1.81	0.561BJ
02/99	32.9	16.2	65.3	160
02/00	1.36	<0.5	1.56	3.27
02/01	32.2	4.17	17	24.4
06/01	28.1	4.53	17.2	23.1
11/01	<0.5	<0.5	<0.5	<1.0
02/02	8.96	9.11	14.9	52.1

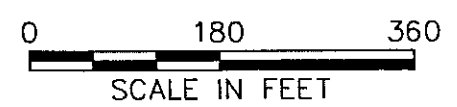
MW-106	B	T	E	X
02/98	<0.1	<0.1	<0.1	<0.1
08/98	<0.5	<0.5	<0.5	<1.0
02/99	0.216BJ	<0.5	<0.5	0.348BJ
02/00	<0.5	<0.5	<0.5	<1.0
02/01	<0.5	<0.5	<0.5	<1.0
06/01	<0.5	<0.5	<0.5	<1.0
11/01	<0.5	<0.5	<0.5	<1.0
05/02	<0.5	<0.5	<0.5	<1.0

MW-104	B	T	E	X
02/98	1.61	0.636	78	173
08/98	4.62	2.67	148	146
02/99	5.12	4.05BJ	340	1,100
02/00	2.7	6.06	84.8	164
02/01	2.65	0.793	50.3	35.6
06/01	2.32J	5.99	89	8.6
11/01	3.75J	20.1J	237J	587J
02/02	3.7	6.83	148	177

MW-136	B	T	E	X
02/98	<0.1	<0.1	<0.1	0.856
08/98	0.255BJ	0.302BJ	<0.5	0.651BJ
02/99	0.168BJ	0.205BJ	0.293BJ	1.19BJ
02/00	<0.5	<0.5	<0.5	<1.0
02/01	<0.5	<0.5	<0.5	<1.0
06/01	<0.5	<0.5	<0.5	<1.0
12/01	<0.5	<0.5	<0.5	<1.0
02/02	<0.5	<0.5	<0.5	<1.0

MW-105	B	T	E	X
02/98	<0.1	<0.1	<0.1	0.491
08/98	<0.5	<0.5	<0.5	<1.0
02/99	<0.5	<0.5	<0.5	0.144BJ
02/00	<0.5	<0.5	<0.5	<1.0
02/01	<0.5	<0.5	<0.5	<1.0
06/01	<0.5	<0.5	<0.5	<1.0
11/01	<0.5	<0.5	<0.5	<1.0
05/02	<0.5	<0.5	<0.5	<1.0

MW-20	B	T	E	X
02/98	1,300	10.2	195	30.7
08/98	103	4.84	19.6	4.29J
02/99	1,180	7.44BJ	174	12.9J
02/00	2,760	<25	659	<50
08/00	93.9	<1.12	24.6	<2.5
02/01	711	<10	153	<20
06/01	589	5.61	58.8	7.16
02/02*	1,900	6.89	325	13.2



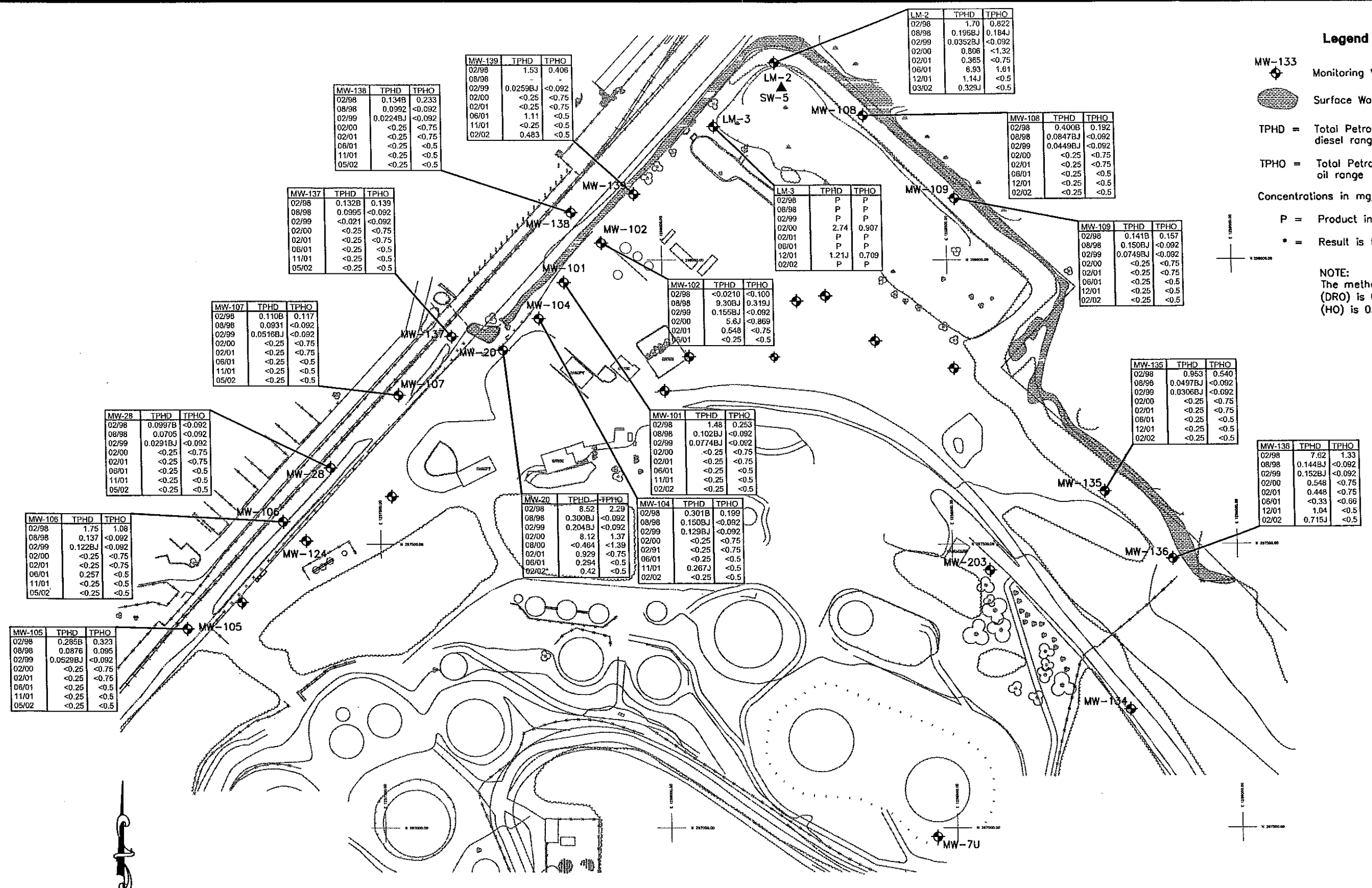
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 Edmonds: (425) 744-1489
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FIGURE 5-5
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
BTEX IN GROUNDWATER
PERIMETER MONITORING WELL NETWORK
1998 - 2002

File: E:\9077\01\05\006-5-6.DWG Last edited: APR 22, 2003 by: blookley Xrefs: none black/white



Legend

- MW-133 Monitoring Well
- Surface Water
- TPHD = Total Petroleum Hydrocarbons in the diesel range
- TPHO = Total Petroleum Hydrocarbons in the oil range
- Concentrations in mg/L
- P = Product in well; sample not collected
- * = Result is from replacement well MW-20R

NOTE:
The method reporting limit for NWTPH-D_x (DRO) is 0.25 mg/L; for NWTPH-D_x (HO) is 0.50 mg/L.

MW-106	TPHD	TPHO
02/98	1.75	1.08
08/98	0.137	<0.092
02/99	0.1228J	<0.092
02/00	<0.25	<0.75
02/01	<0.25	<0.75
06/01	0.257	<0.5
11/01	<0.25	<0.5
05/02	<0.25	<0.5

MW-28	TPHD	TPHO
02/98	0.0997B	<0.092
08/98	0.0705	<0.092
02/99	0.0291BJ	<0.092
02/00	<0.25	<0.75
02/01	<0.25	<0.75
06/01	<0.25	<0.5
11/01	<0.25	<0.5
05/02	<0.25	<0.5

MW-107	TPHD	TPHO
02/98	0.110B	0.117
08/98	0.0931	<0.092
02/99	0.0516BJ	<0.092
02/00	<0.25	<0.75
02/01	<0.25	<0.75
06/01	<0.25	<0.5
11/01	<0.25	<0.5
05/02	<0.25	<0.5

MW-137	TPHD	TPHO
02/98	0.132B	0.139
08/98	0.0995	<0.092
02/99	<0.021	<0.092
02/00	<0.25	<0.75
02/01	<0.25	<0.75
06/01	<0.25	<0.5
11/01	<0.25	<0.5
05/02	<0.25	<0.5

MW-138	TPHD	TPHO
02/98	0.134B	0.233
08/98	0.0992	<0.092
02/99	0.0224BJ	<0.092
02/00	<0.25	<0.75
02/01	<0.25	<0.75
06/01	<0.25	<0.5
11/01	<0.25	<0.5
05/02	<0.25	<0.5

MW-139	TPHD	TPHO
02/98	1.53	0.406
08/98	-	-
02/99	0.0259BJ	<0.092
02/00	<0.25	<0.75
02/01	<0.25	<0.75
06/01	1.11	<0.5
11/01	<0.25	<0.5
02/02	0.483	<0.5

MW-20	TPHD	TPHO
02/98	8.52	2.29
08/98	0.300BJ	<0.092
02/99	0.204BJ	<0.092
02/00	8.12	1.37
08/00	<0.464	<1.39
02/01	0.929	<0.75
06/01	0.294	<0.5
02/02*	0.42	<0.5

MW-104	TPHD	TPHO
02/98	1.46	0.253
08/98	0.102BJ	<0.092
02/99	0.0774BJ	<0.092
02/00	<0.25	<0.75
02/01	<0.25	<0.75
06/01	<0.25	<0.5
11/01	<0.25	<0.5
02/02	<0.25	<0.5

MW-102	TPHD	TPHO
02/98	<0.0210	<0.100
08/98	9.30BJ	0.319J
02/99	0.155BJ	<0.092
02/00	5.6J	<0.869
02/01	0.548	<0.75
06/01	<0.25	<0.5

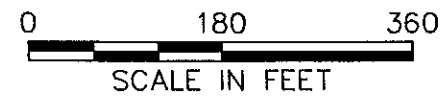
LM-2	TPHD	TPHO
02/98	1.70	0.822
08/98	0.195BJ	0.184J
02/99	0.0352BJ	<0.092
02/00	0.806	<1.32
02/01	0.365	<0.75
06/01	6.93	1.61
12/01	1.14J	<0.5
03/02	0.329J	<0.5

MW-108	TPHD	TPHO
02/98	0.400B	0.192
08/98	0.0847BJ	<0.092
02/99	0.0449BJ	<0.092
02/00	<0.25	<0.75
02/01	<0.25	<0.75
06/01	<0.25	<0.5
12/01	<0.25	<0.5
02/02	<0.25	<0.5

MW-109	TPHD	TPHO
02/98	0.141B	0.157
08/98	0.150BJ	<0.092
02/99	0.0749BJ	<0.092
02/00	<0.25	<0.75
02/01	<0.25	<0.75
06/01	<0.25	<0.5
12/01	<0.25	<0.5
02/02	<0.25	<0.5

MW-135	TPHD	TPHO
02/98	0.953	0.540
08/98	0.0497BJ	<0.092
02/99	0.0306BJ	<0.092
02/00	<0.25	<0.75
02/01	<0.25	<0.75
06/01	<0.25	<0.5
12/01	<0.25	<0.5
02/02	<0.25	<0.5

MW-136	TPHD	TPHO
02/98	7.62	1.33
08/98	0.144BJ	<0.092
02/99	0.152BJ	<0.092
02/00	0.548	<0.75
02/01	0.448	<0.75
06/01	<0.33	<0.66
12/01	1.04	<0.5
02/02	0.715J	<0.5



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FIGURE 5-6
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
TPH-D/DRO & TPH-O/HO IN GROUNDWATER
PERIMETER MONITORING WELL NETWORK
1998 - 2002

PROJECT DATUM

HORIZ: WASHINGTON STATE PLANE
COORDINATE SYSTEM (NORTH ZONE)

VERT: MLLW - CITY OF EDMONDS

BENCHMARK: TIDAL BENCHMARK N.7 (1956) RESET
STANDARD DISC, STAMPED "N.7 RESET
1956", SET IN TOP OF CONCRETE WALL
APPROXIMATELY 3.5 FEET HIGH, SUR-
ROUNDING A FLOWER BED AT NORTHWEST
CORNER OF GREAT NORTHERN RAILWAY
STATION. ELEV = 15.93 FEET ABOVE
MEAN LOWER LOW WATER.

NOTE: TO CONVERT PROJECT VERTICAL DATUM TO
NVD (1929) SUBTRACT 6.03 FEET FROM
NOTED ELEVATIONS.

TOPOGRAPHY SOURCE: DEGROSS AERIAL MAPPING 12-4-93
WITH SUPPLEMENTAL FIELD TOPOGRAPHY OBTAINED
BY TRIAD ASSOCIATES IN AREAS OF DENSE TREE COVER.

NOTES:

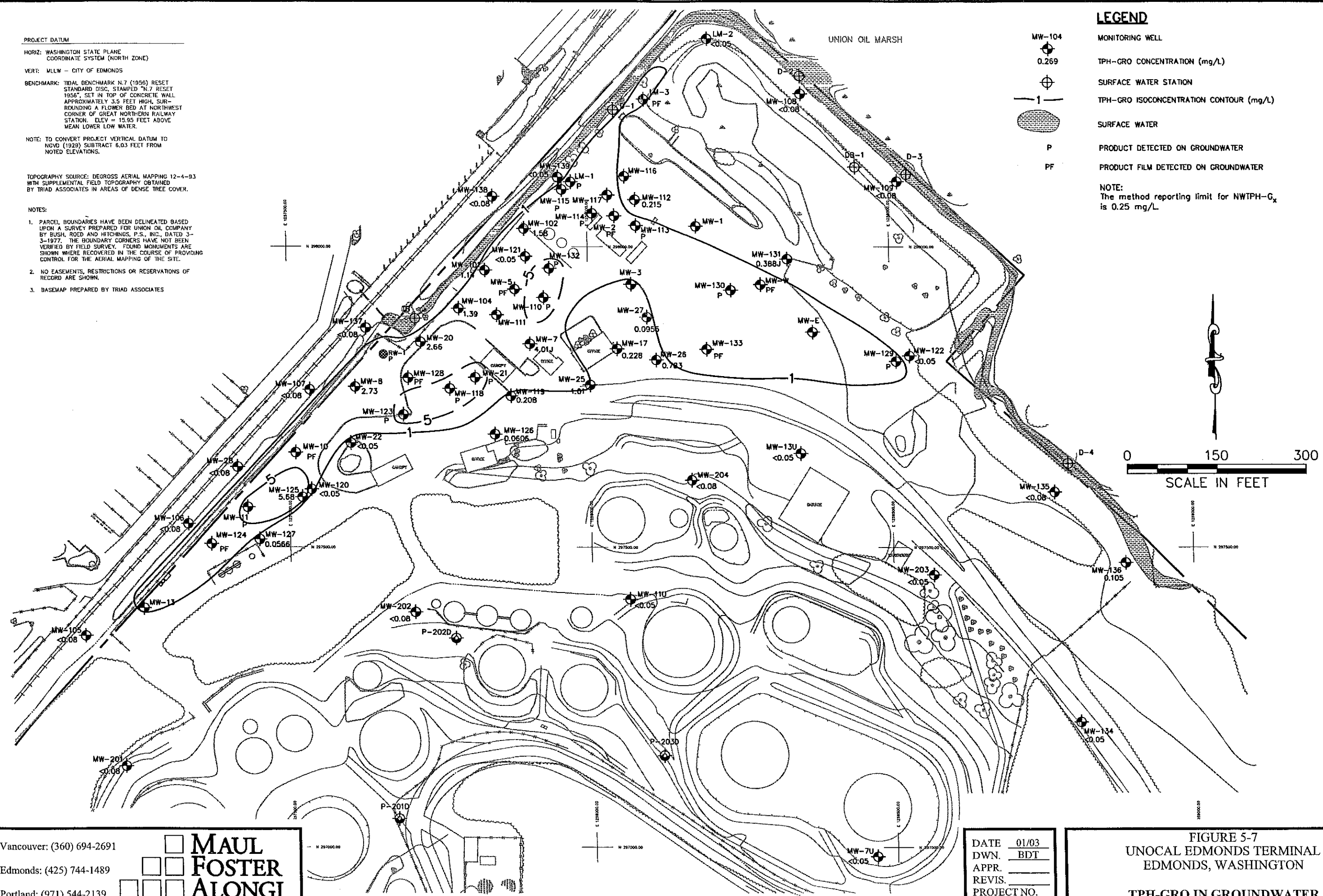
1. PARCEL BOUNDARIES HAVE BEEN DELINEATED BASED UPON A SURVEY PREPARED FOR UNION OIL COMPANY BY BUSH, ROED AND HITCHINGS, P.S., INC., DATED 3-3-1977. THE BOUNDARY CORNERS HAVE NOT BEEN VERIFIED BY FIELD SURVEY. FOUND MONUMENTS ARE SHOWN WHERE RECOVERED IN THE COURSE OF PROVIDING CONTROL FOR THE AERIAL MAPPING OF THE SITE.
2. NO EASEMENTS, RESTRICTIONS OR RESERVATIONS OF RECORD ARE SHOWN.
3. BASEMAP PREPARED BY TRIAD ASSOCIATES

LEGEND

- MW-104 MONITORING WELL
- 0.269 TPH-GRO CONCENTRATION (mg/L)
- ⊕ SURFACE WATER STATION
- 1 — TPH-GRO ISOCONCENTRATION CONTOUR (mg/L)
- ⊖ SURFACE WATER
- P PRODUCT DETECTED ON GROUNDWATER
- PF PRODUCT FILM DETECTED ON GROUNDWATER

NOTE:
The method reporting limit for NWTPH-G_x
is 0.25 mg/L

File: \9077\01.05\006-5-7.DWG Last Edited: APR 24, 2003 By: btookey Xrefs: None Black/White



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FIGURE 5-7
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
TPH-GRO IN GROUNDWATER
JUNE 2001

PROJECT DATUM
 HORIZ: WASHINGTON STATE PLANE
 COORDINATE SYSTEM (NORTH ZONE)
 VERT: MLLW - CITY OF EDMONDS
 BENCHMARK: TIDAL BENCHMARK N.7 (1955) RESET
 STANDARD DISC, STAMPED "N.7 RESET
 1956", SET IN TOP OF CONCRETE WALL
 APPROXIMATELY 3.5 FEET HIGH, SUR-
 ROUNDING A FLOWER BED AT NORTHWEST
 CORNER OF GREAT NORTHERN RAILWAY
 STATION. ELEV = 15.95 FEET ABOVE
 MEAN LOWER LOW WATER.

NOTE: TO CONVERT PROJECT VERTICAL DATUM TO
 NGVD (1929) SUBTRACT 6.03 FEET FROM
 NOTED ELEVATIONS.

TOPOGRAPHY SOURCE: DEGRESS AERIAL MAPPING 12-4-93
 WITH SUPPLEMENTAL FIELD TOPOGRAPHY OBTAINED
 BY TRIAD ASSOCIATES IN AREAS OF DENSE TREE COVER.

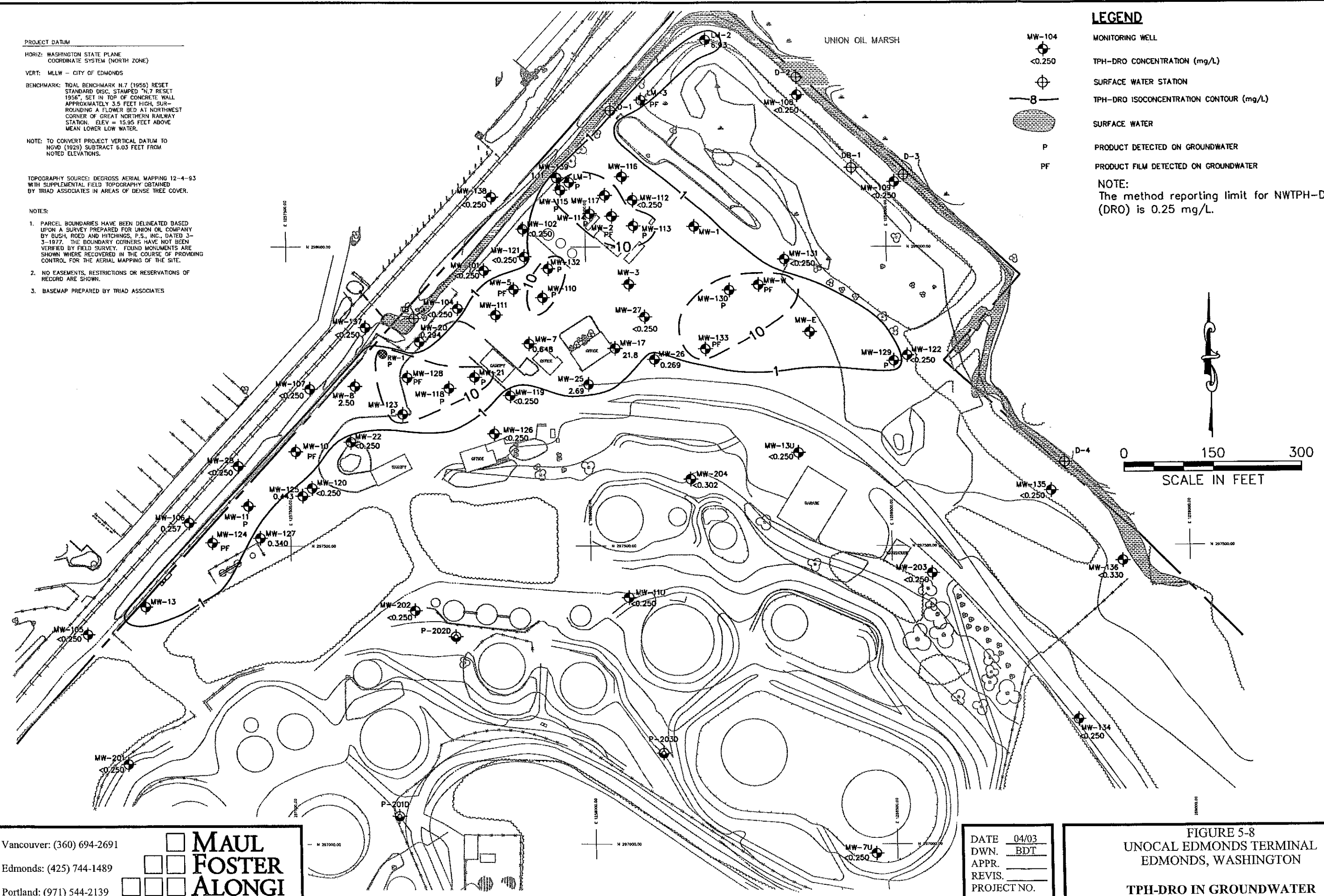
NOTES:
 1. PARCEL BOUNDARIES HAVE BEEN DELINEATED BASED
 UPON A SURVEY PREPARED FOR UNION OIL COMPANY
 BY BUSH, ROED AND HITCHINGS, P.S., INC., DATED 3-
 3-1977. THE BOUNDARY CORNERS HAVE NOT BEEN
 VERIFIED BY FIELD SURVEY. FOUND MONUMENTS ARE
 SHOWN WHERE RECOVERED IN THE COURSE OF PROVIDING
 CONTROL FOR THE AERIAL MAPPING OF THE SITE.
 2. NO EASEMENTS, RESTRICTIONS OR RESERVATIONS OF
 RECORD ARE SHOWN.
 3. BASEMAP PREPARED BY TRIAD ASSOCIATES

LEGEND

- MW-104 MONITORING WELL
- <0.250 TPH-DRO CONCENTRATION (mg/L)
- ⊕ SURFACE WATER STATION
- 8 TPH-DRO ISOCONCENTRATION CONTOUR (mg/L)
- SURFACE WATER
- P PRODUCT DETECTED ON GROUNDWATER
- PF PRODUCT FILM DETECTED ON GROUNDWATER

NOTE:
 The method reporting limit for NWTPH-D_x
 (DRO) is 0.25 mg/L.

File: \9077\01\05\006-5-8.DWG Last Edited: APR 24, 2003 By: btookey Xrefs: None Black/White



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Portland: (971) 544-2139	<input type="checkbox"/>	ALONGI

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FIGURE 5-8
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
TPH-DRO IN GROUNDWATER
JUNE 2001

PROJECT DATUM

HORIZ: WASHINGTON STATE PLANE
COORDINATE SYSTEM (NORTH ZONE)

VERT: MLLW - CITY OF EDMONDS

BENCHMARK: TIDAL BENCHMARK N.7 (1956) RESET
STANDARD DISC, STAMPED "N.7 RESET
1956", SET IN TOP OF CONCRETE WALL
APPROXIMATELY 3.5 FEET HIGH, SUR-
ROUNDING A FLOWER BED AT NORTHWEST
CORNER OF GREAT NORTHERN RAILWAY
STATION. ELEV = 15.95 FEET ABOVE
MEAN LOWER LOW WATER.

NOTE: TO CONVERT PROJECT VERTICAL DATUM TO
NGVD (1929) SUBTRACT 6.03 FEET FROM
NOTED ELEVATIONS.

TOPOGRAPHY SOURCE: DEGROSS AERIAL MAPPING 12-4-93.
WITH SUPPLEMENTAL FIELD TOPOGRAPHY OBTAINED
BY TRIAD ASSOCIATES IN AREAS OF DENSE TREE COVER.

NOTES:

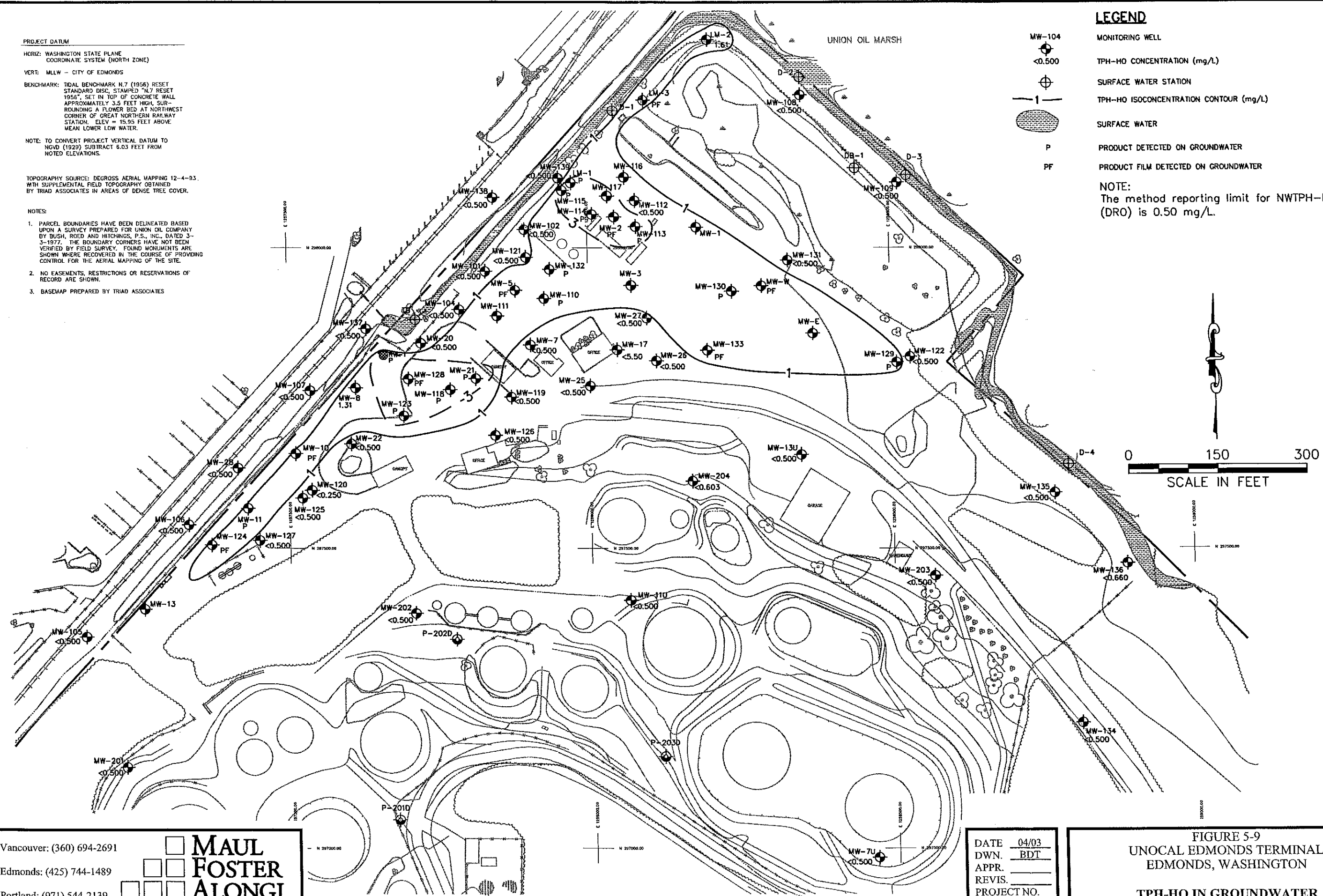
1. PARCEL BOUNDARIES HAVE BEEN DELINEATED BASED UPON A SURVEY PREPARED FOR UNION OIL COMPANY BY BUSH, ROED AND HITCHINGS, P.S., INC. DATED 3-3-1977. THE BOUNDARY CORNERS HAVE NOT BEEN VERIFIED BY FIELD SURVEY. FOUND MONUMENTS ARE SHOWN WHERE RECOVERED IN THE COURSE OF PROVIDING CONTROL FOR THE AERIAL MAPPING OF THE SITE.
2. NO EASEMENTS, RESTRICTIONS OR RESERVATIONS OF RECORD ARE SHOWN.
3. BASEMAP PREPARED BY TRIAD ASSOCIATES

LEGEND

- MW-104 MONITORING WELL
- <0.500 TPH-HO CONCENTRATION (mg/L)
- SURFACE WATER STATION
- TPH-HO ISOCONCENTRATION CONTOUR (mg/L)
- SURFACE WATER
- P PRODUCT DETECTED ON GROUNDWATER
- PF PRODUCT FILM DETECTED ON GROUNDWATER

NOTE:
The method reporting limit for NWTPH-D_x
(DRO) is 0.50 mg/L.

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FIGURE 5-9
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
TPH-HO IN GROUNDWATER
JUNE 2001

PROJECT DATUM

HORIZ: WASHINGTON STATE PLANE
COORDINATE SYSTEM (NORTH ZONE)

VERT: MLLW - CITY OF EDMONDS

BENCHMARK: TIDAL BENCHMARK N.7 (1956) RESET
STANDARD DISC, STAMPED "N.7 RESET
1956", SET IN TOP OF CONCRETE WALL
APPROXIMATELY 3.5 FEET HIGH, SUR-
ROUNDING A FLOWER BED AT NORTHWEST
CORNER OF GREAT NORTHERN RAILWAY
STATION. ELEV = 15.95 FEET ABOVE
MEAN LOWER LOW WATER.

NOTE: TO CONVERT PROJECT VERTICAL DATUM TO
NGVD (1929) SUBTRACT 6.03 FEET FROM
NOTED ELEVATIONS.

TOPOGRAPHY SOURCE: DEGROSS AERIAL MAPPING 12-4-93
WITH SUPPLEMENTAL FIELD TOPOGRAPHY OBTAINED
BY TRIAD ASSOCIATES IN AREAS OF DENSE TREE COVER.

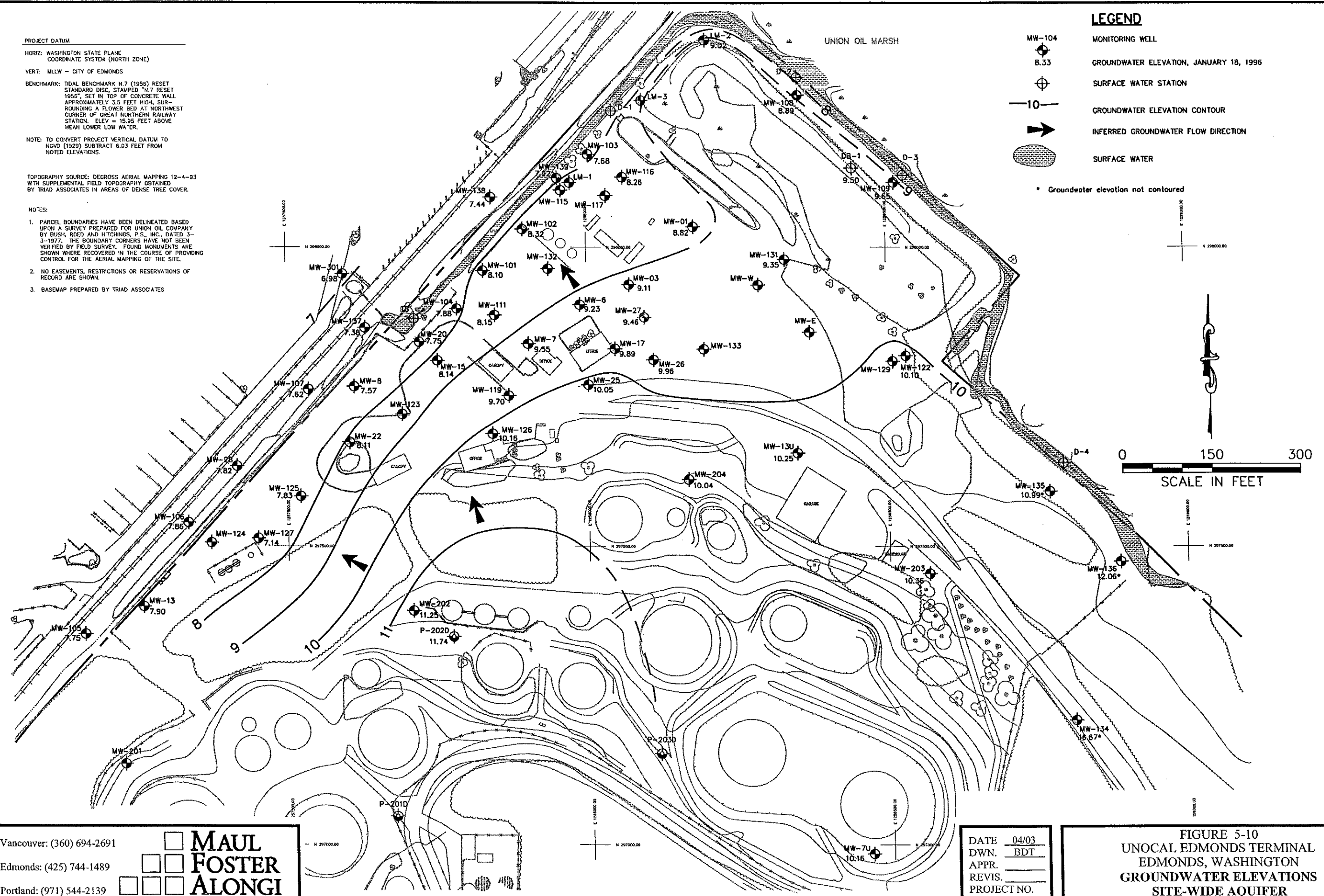
NOTES:

1. PARCEL BOUNDARIES HAVE BEEN DELINEATED BASED UPON A SURVEY PREPARED FOR UNION OIL COMPANY BY BUSH, ROED AND HITCHINGS, P.S., INC., DATED 3-3-1977. THE BOUNDARY CORNERS HAVE NOT BEEN VERIFIED BY FIELD SURVEY. FOUND MONUMENTS ARE SHOWN WHERE RECOVERED IN THE COURSE OF PROVIDING CONTROL FOR THE AERIAL MAPPING OF THE SITE.
2. NO EASEMENTS, RESTRICTIONS OR RESERVATIONS OF RECORD ARE SHOWN.
3. BASEMAP PREPARED BY TRIAD ASSOCIATES

LEGEND

- MW-104 MONITORING WELL
- 8.33 GROUNDWATER ELEVATION, JANUARY 18, 1996
- ⊕ SURFACE WATER STATION
- 10- GROUNDWATER ELEVATION CONTOUR
- ➔ INFERRED GROUNDWATER FLOW DIRECTION
- SURFACE WATER

• Groundwater elevation not contoured



File: \9077\01.05\006-5-10.DWG Last Edited: APR 22, 2003 By: btookey Xrefs: None Black/White

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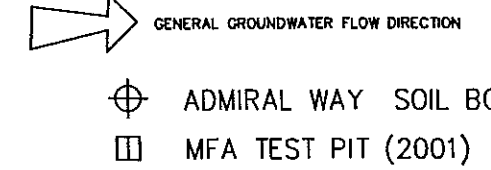
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FIGURE 5-10
 UNOCAL EDMONDS TERMINAL
 EDMONDS, WASHINGTON
 GROUNDWATER ELEVATIONS
 SITE-WIDE AQUIFER
 JUNE 25, 2001

File: \\9077\01.05\006-5-11.DWG Last edited: APR 24, 03 by: btookey Xrefs: sitebase, wells Black/White

- LEGEND:**
- ◻ FORMER TEST PIT LOCATION
 - ⊙ ABANDONED MONITORING WELL OR SUMP
 - RI SOIL BORING LOCATION
 - ⊕ EXISTING AND RI MONITORING WELL LOCATIONS
 - ⊙ LAI SOIL AND GROUNDWATER SAMPLE (1997)
(GROUNDWATER SAMPLE IN PARENTHESES)
 - ⊙ CH₂M HILL BORING (2000)
 - ◆ LAI BORING (1996)



PROJECT DATUM

HORIZ: WASHINGTON STATE PLANE
COORDINATE SYSTEM (NORTH ZONE)

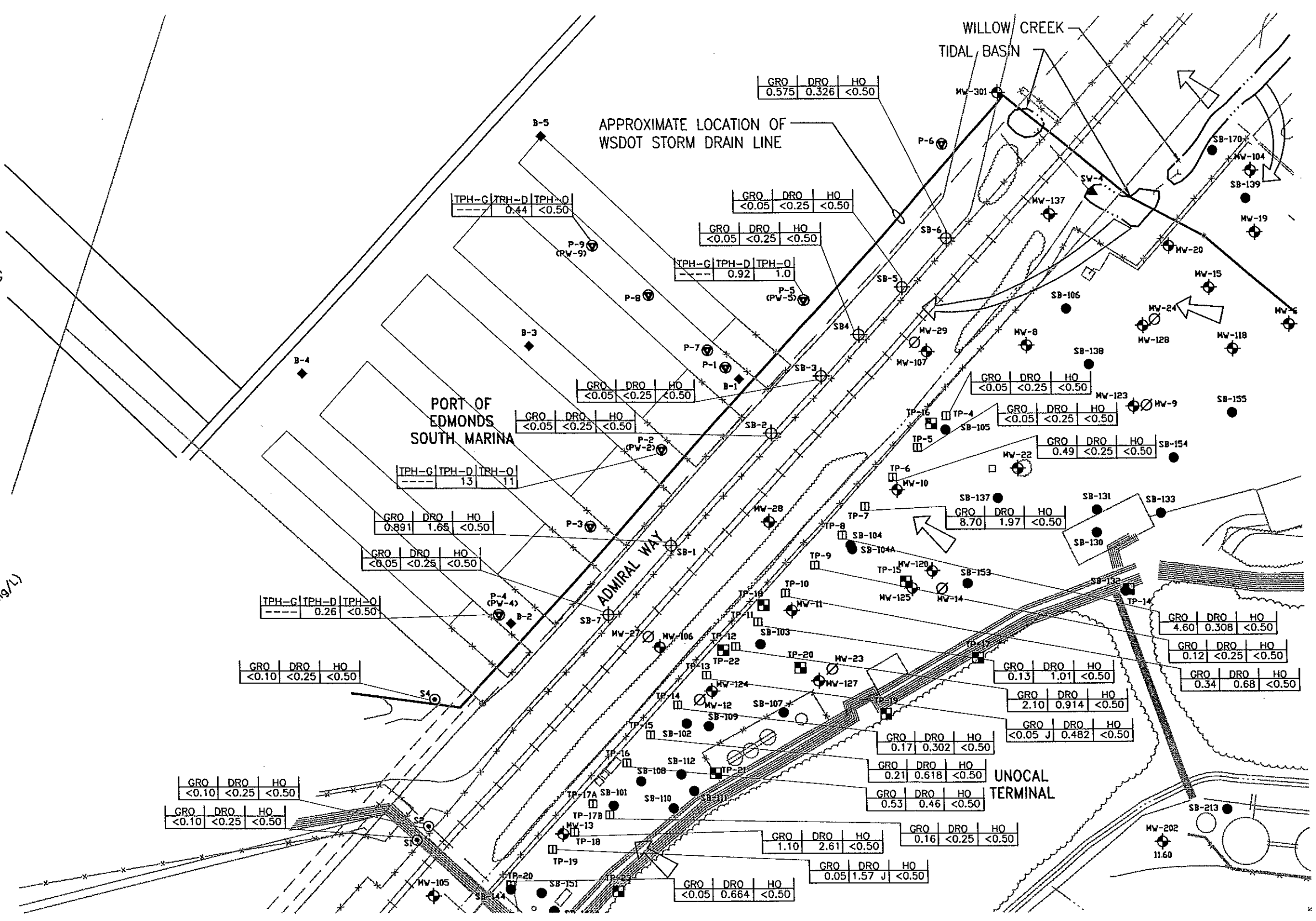
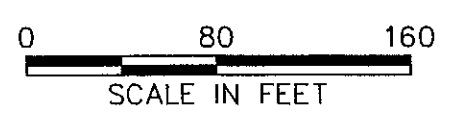
VERT: MLLW - CITY OF EDMONDS

BENCHMARK: TIDAL BENCHMARK N.7 (1956) RESET
STANDARD DISC, STAMPED "N.7 RESET
1956", SET IN TOP OF CONCRETE WALL
APPROXIMATELY 3.5 FEET HIGH, SUR-
ROUNDING A FLOWER BED AT NORTHWEST
CORNER OF BURLINGTON NORTHERN
SANTA FE RAILROAD RAILWAY STATION.
ELEV = 15.95 FEET ABOVE MEAN LOWER
LOW WATER.

NOTE: TO CONVERT PROJECT VERTICAL DATUM TO
NGVD (1929) SUBTRACT 6.03 FEET FROM
NOTED ELEVATIONS.

TPH (as gasoline-range organics) (mg/L)	TPH (as diesel-range organics) (mg/L)	TPH (as heavy oil-range organics) (mg/L)
<0.10	<0.25	<0.50

CONCENTRATIONS IN mg/L



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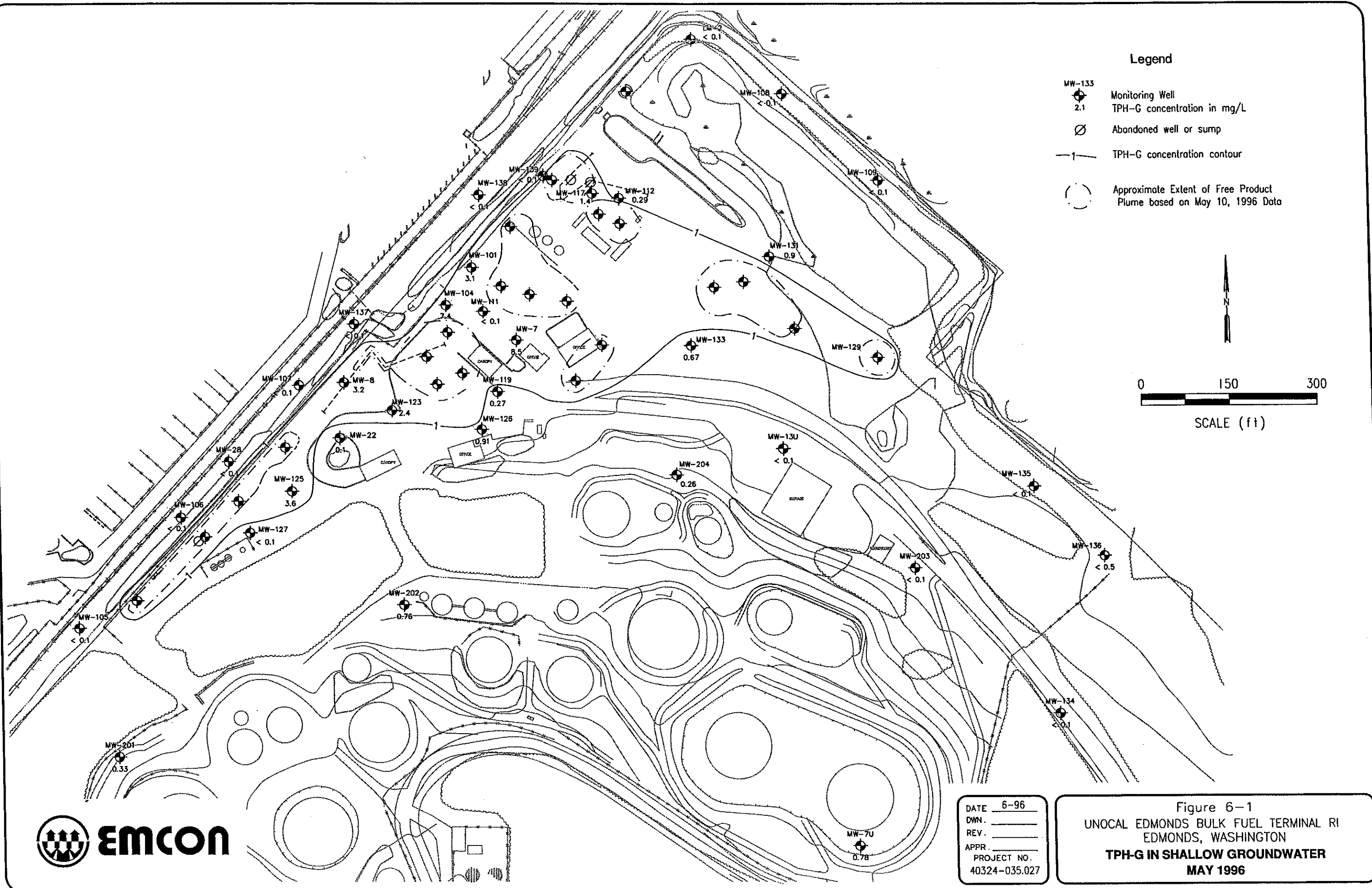
Edmonds: (425) 744-1489

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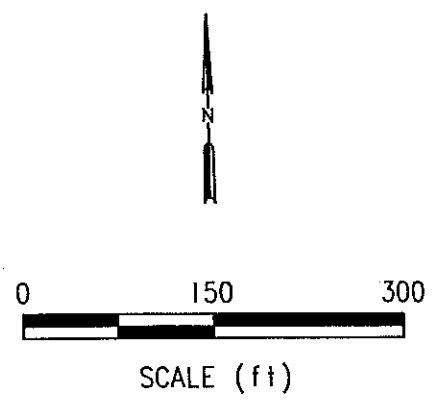
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PROJECT NO.
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FIGURE 5-11
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
TPH IN GROUNDWATER
SOUTHWEST LOWER YARD,
ADMIRAL WAY, PORT OF EDMONDS



Legend

- MW-133
Monitoring Well
- 2.1
TPH-G concentration in mg/L
- Abandoned well or sump
- TPH-G concentration contour
- Approximate Extent of Free Product Plume based on May 10, 1996 Data



DATE 6-96
 DWN. _____
 REV. _____
 APPR. _____
 PROJECT NO.
 40324-035.027

Figure 6-1
 UNOCAL EDMONDS BULK FUEL TERMINAL RI
 EDMONDS, WASHINGTON
TPH-G IN SHALLOW GROUNDWATER
 MAY 1996

