

McCormick and Baxter Creosoting Co. Superfund Site

Portland, Oregon

1944 to 1991 - Wood Treating
1980's - DEQ Investigations
1991 - Bankruptcy

1992 - Remedial Investigation
1994 - Superfund Listing
1995 - Feasibility Study
1996 - Record of Decision

1998 - ROD Amendment
2002 - Explanation of Significant Difference
1996 to 2005 - Remedial Design and Construction

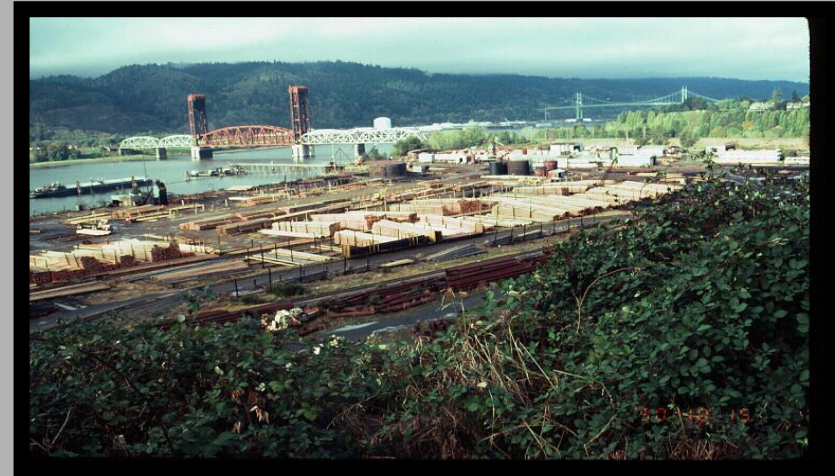
2001, 2006, 2011, 2016 - Five-Year Reviews

Operation and Maintenance
Ongoing

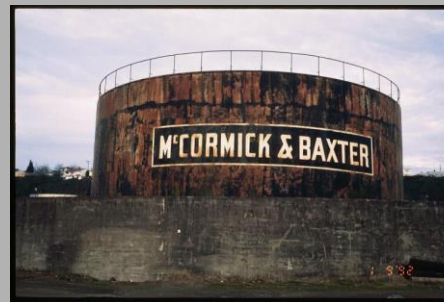
Marketing
Brochure



Facility Layout 1990



75,000 Gallon
Creosote Tank



**McCORMICK
& BAXTER**
CREOSOTING CO.

PRESERVATIVES:

PENTA IN OIL

A frequently used treatment for utility poles, crossarms and timbers.

CELLON®

Penta in liquified petroleum gas for maximum penetration in woods with hard heartwood.

CREOSOTE

Excellent treatment for poles subject to environmental extremes.

CHEMONITE®

A copper-based treatment excellent for extreme conditions. Penetrates deeply into hard-to-treat woods such as Douglas Fir.

Historic Site Features (Contaminated Soil, Sediments and Groundwater)

Facility Layout Circa 1973



Retorts 1968



Yard Fire 1966



Historic Operations (circa 1956)



Historic Operations (1979)



*Beachfront and Riverbank
Prior to Remedy
Implementation*



Initial Response and Investigation (1990 and 1991)



Subsurface Barrier Wall Construction (2003)



Sediment Cap Construction (2004)



Fish Exclusion (ESA Conservation Measure)



Cutting Pilings

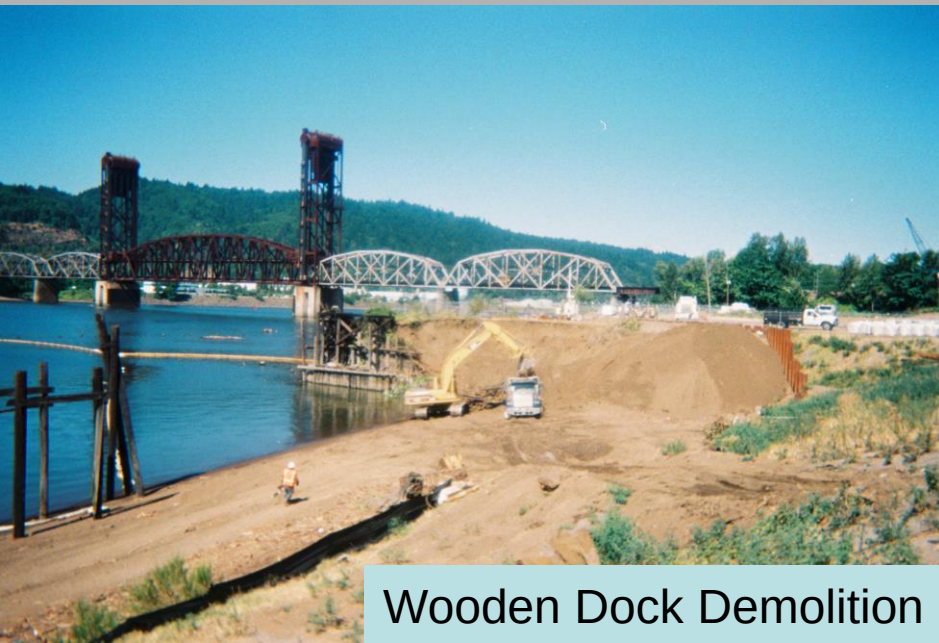


Pulling Additional Pilings (ESA Mitigation)

Sediment Cap Construction (2004)



Derelict Barge Demolition (ESA Mitigation)



Wooden Dock Demolition



Sand Placement

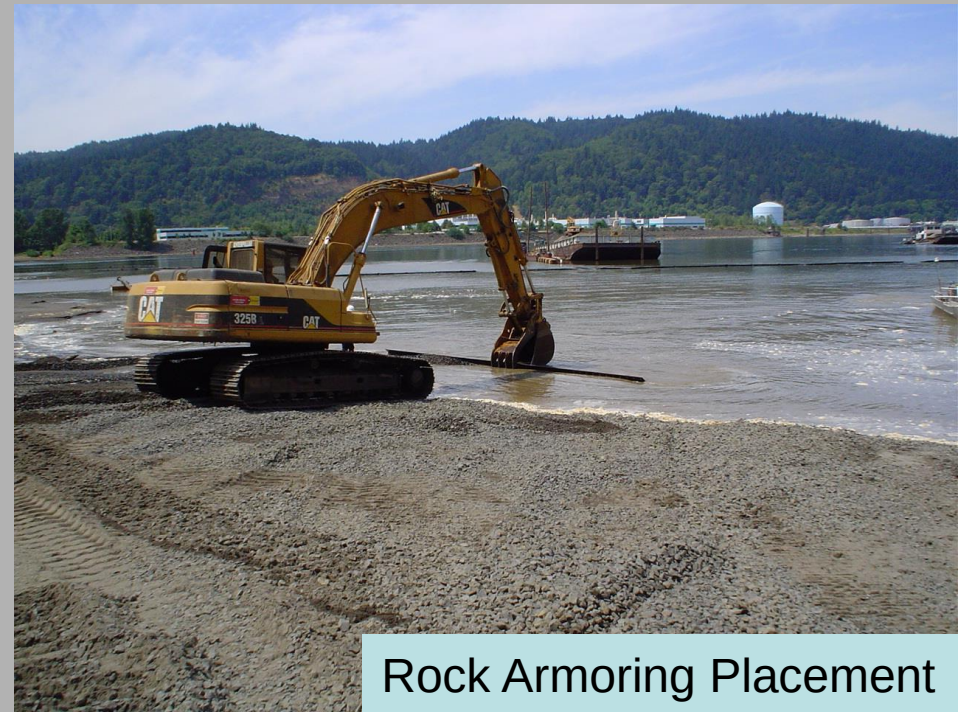
Sediment Cap Construction (2004)



Sand Placement



Rock Armoring Placement

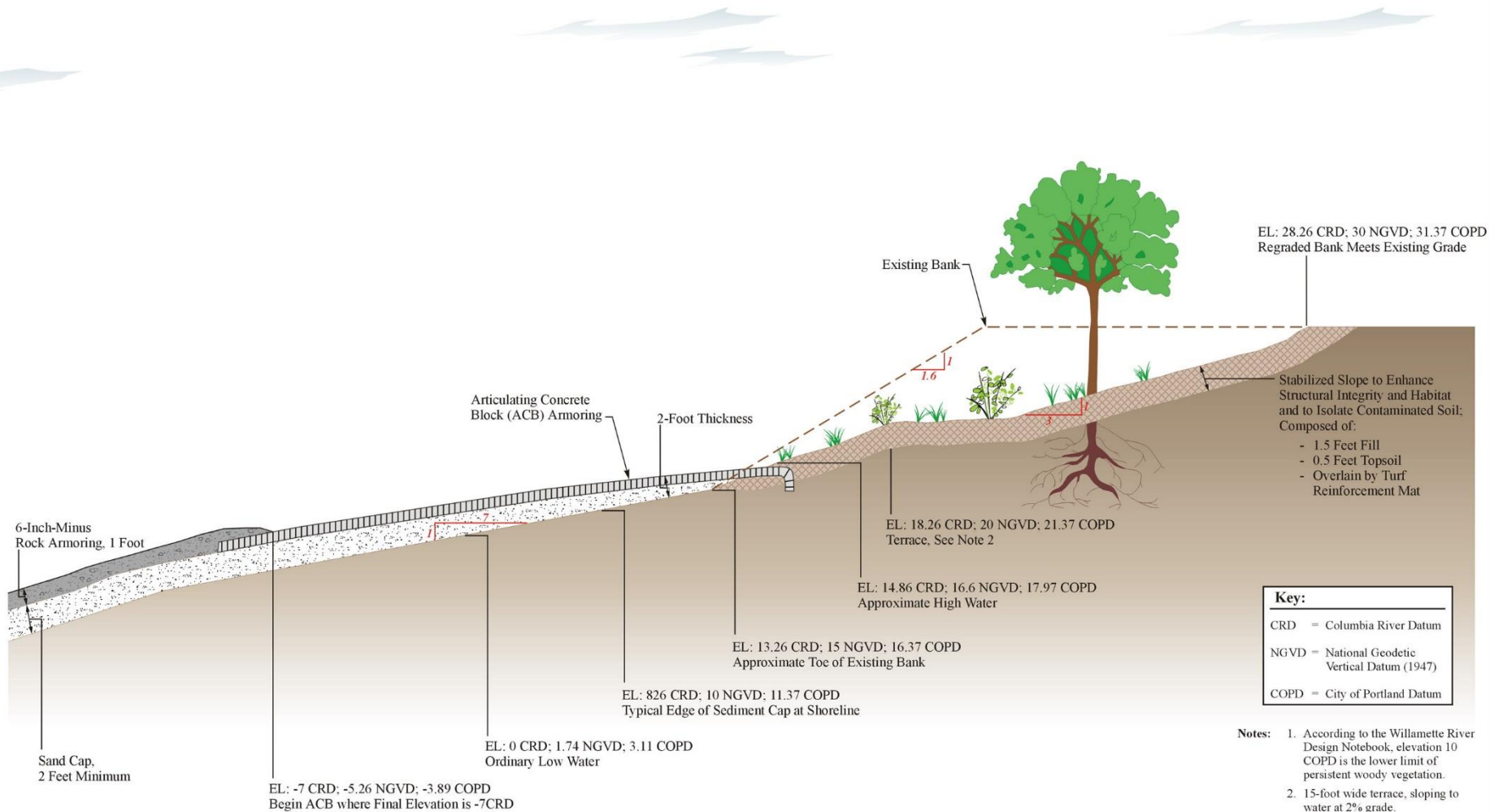


Rock Armoring Placement

Sediment Cap Construction (2004)



River Bank Design Cross-Section



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Portland, Oregon

McCORMICK AND BAXTER
CREOSOTING COMPANY SITE
Portland, Oregon

Figure 11
CROSS-SECTION: UPLAND BANK

Date:
3/29/02

Drawn by:
AES

10:000749OB051302/fig 11.cdr

ACB Anchor Trench



*Bank Stabilization and
Capping
(2004)*

Turf Reinforcement Mats



Impermeable (Upland) Cap Design Cross-Section

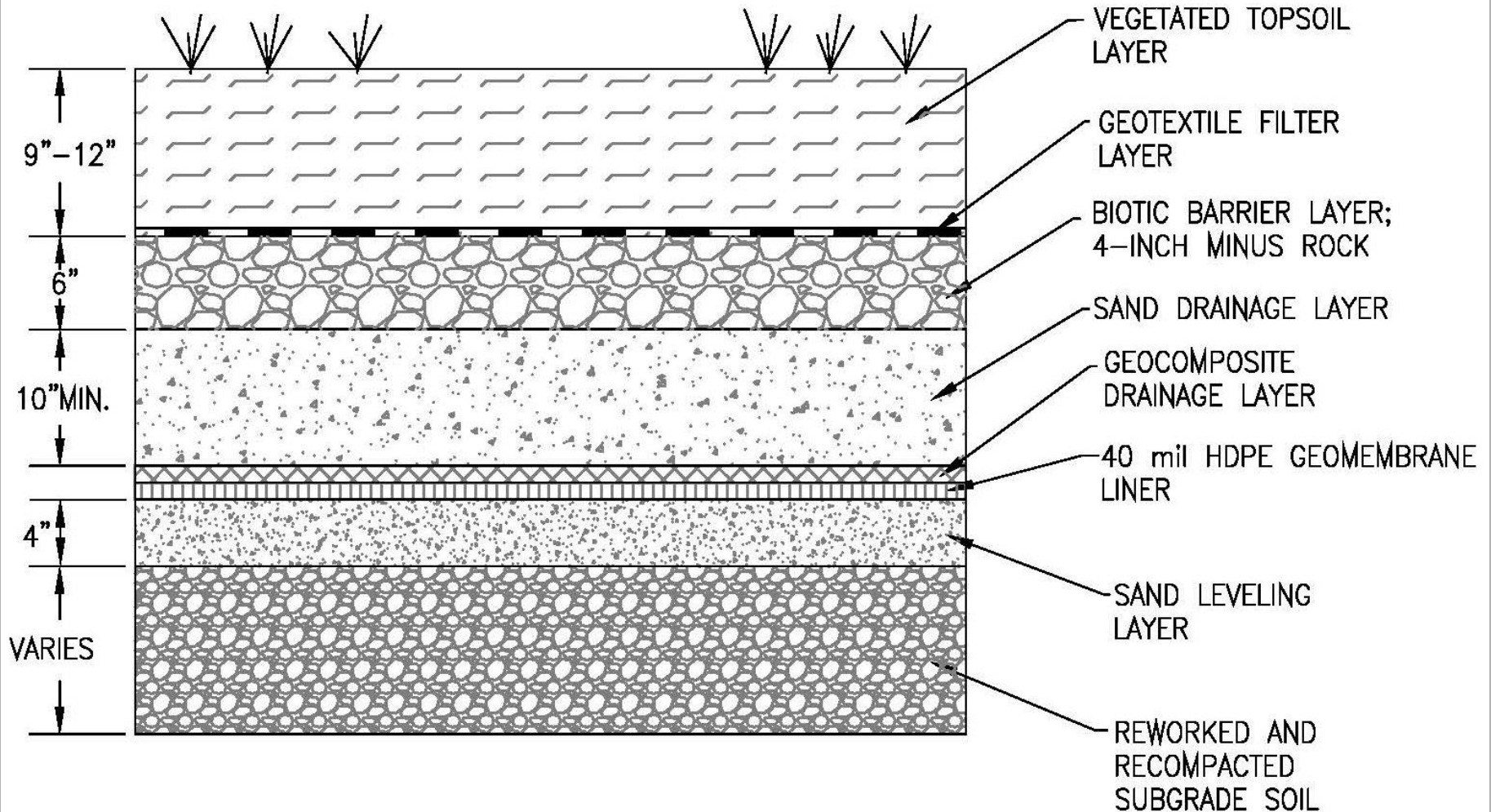




Photo 1 Subgrade preparation along eastern edge of property.



Photo 2 Subgrade grading and cut/fill near NE corner of property.



Photo 3 Subgrade activities for the impermeable cap.



Photo 4 Placement of large woody debris along the top of bank.



06.08.2005 14:20

Photo 8 Manhole D with a partially installed pipe to Manhole E.



06.10.2005 10:56

Photo 9 Applying grease to the ends of conveyance piping prior to coupling.



06.08.2005 18:18

Photo 10 Welding apparatus used for joining HDPE smooth wall interior conveyance pipe sections.



Photo 11 Excavator used to slide the smooth wall interior conveyance piping into the outer corrugated piping.



Photo 12 Installation of Manhole E.



Photo 13 Form for concrete outfall structure being constructed.



Photo 14 Outfall structure and 12" minus rock below the outfall.



Photo 17 Sand being loaded into the hopper from the barge.



Photo 18 Placing the leveling sand layer.



Photo 19 Rough placement of sand leveling layer nearly completed.



Photo 20 Haul road of clean topsoil being spread over demarcation fabric.



Photo 21 Topsoil from the existing stockpile being spread out over demarcation fabric.



Photo 22 First panel of geomembrane being installed along the north end of the impermeable cap footprint.



Photo 23 Geomembrane being deployed utilizing a roller.



Photo 24 Welding geomembrane panels with wedge welding machine.



Photo 25 Installation of boot around Manhole B.



Photo 26 Boot and clamp installed on monitoring well.



Photo 27 Air pressure testing geomembrane seam.



Photo 28 Vacuum testing geomembrane patch.



Photo 29 Overview of site with completed leveling layer and partial installation of geomembrane.



Photo 30 Seams of geocomposite zip-tied together (left), and seams after they've been heat-tacked (right).



Photo 31 Butt seam of geocomposite zip-tied together.



Photo 32 Overview of site showing four layers of impermeable cap. Starting from the foreground: sand leveling layer, geomembrane layer, geocomposite layer, and drainage sand layer.



Photo 33 Placement of the drainage sand layer.



Photo 34 Placement of 4" minus biotic rock.



Photo 35 Overview of site showing three layers of impermeable cap. Starting from the foreground: geocomposite layer, drainage sand layer, and 4" minus biotic rock layer.



Photo 36 Overview of site showing biotic rock layer and overlying geotextile layer.



Photo 37 Placement of gravel for access road across the impermeable cap.



Photo 38 Topsoil unloaded from barge with conveyor.



Photo 39 Topsoil being placed over geotextile within the impermeable cap footprint.



Photo 40 Overview of site showing three layers of impermeable cap. Starting from the foreground: 4" minus biotic rock, geotextile, and topsoil.



Photo 41 Topsoil placement complete over the impermeable cap footprint.



Photo 42 Deploying erosion control netting along the swale area.



Photo 43 Erosion control netting installed around pond spillway.



Photo 44 Gravel road along top of the bank.



Photo 45 Willamette Fence Co. digging post holes.



Photo 46 New fencing and gates installed in the south corner of support facility area.



Photo 47 Materials for hydroseeding arriving on-site.



Photo 48 Placing mineral supplements into hydroseeding mixing tank.



Photo 49 Applying hydroseed on the impermeable cap topsoil.

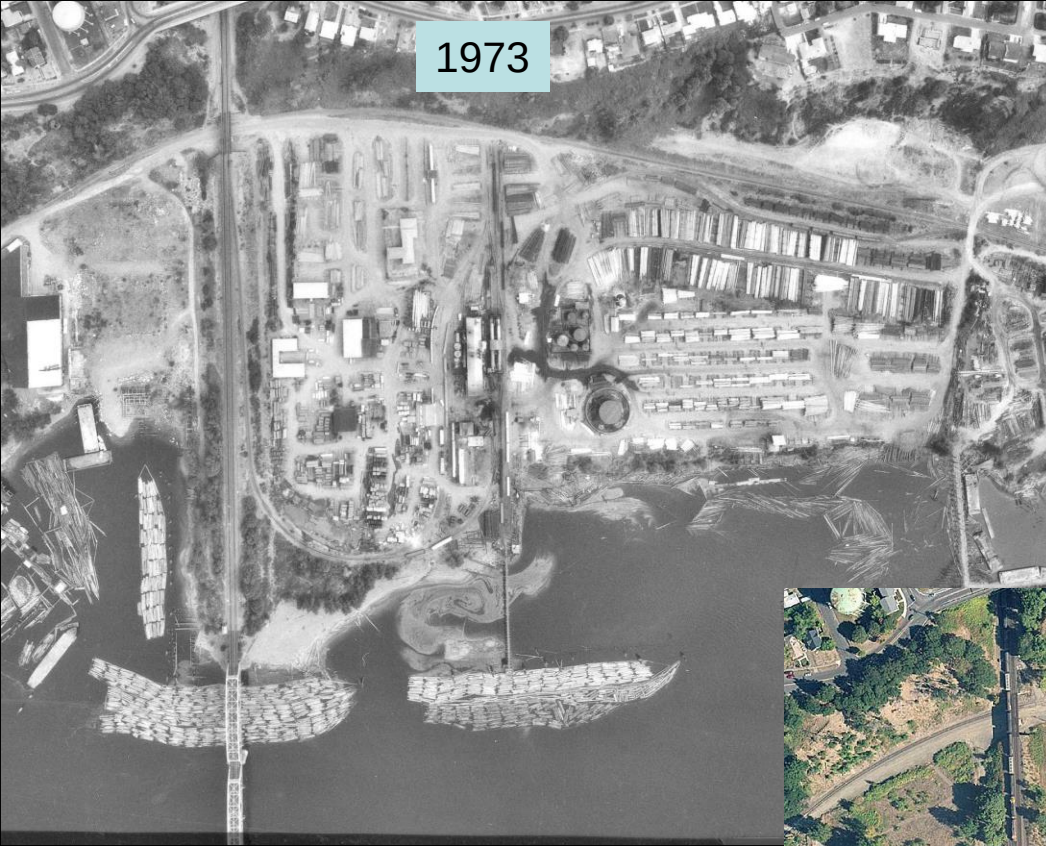


Photo 50 Applying compost prior to hydroseeding on bank areas disturbed during construction.

Community Celebration and Tree Planting (Feb 2006)



1973



*Then
&
Now*

October 2, 2006



1990



Then & Now

June 2005



August 2001



Then & Now

June 2005



06.21.2005 15:34

April 2001



*Then
&
Now*

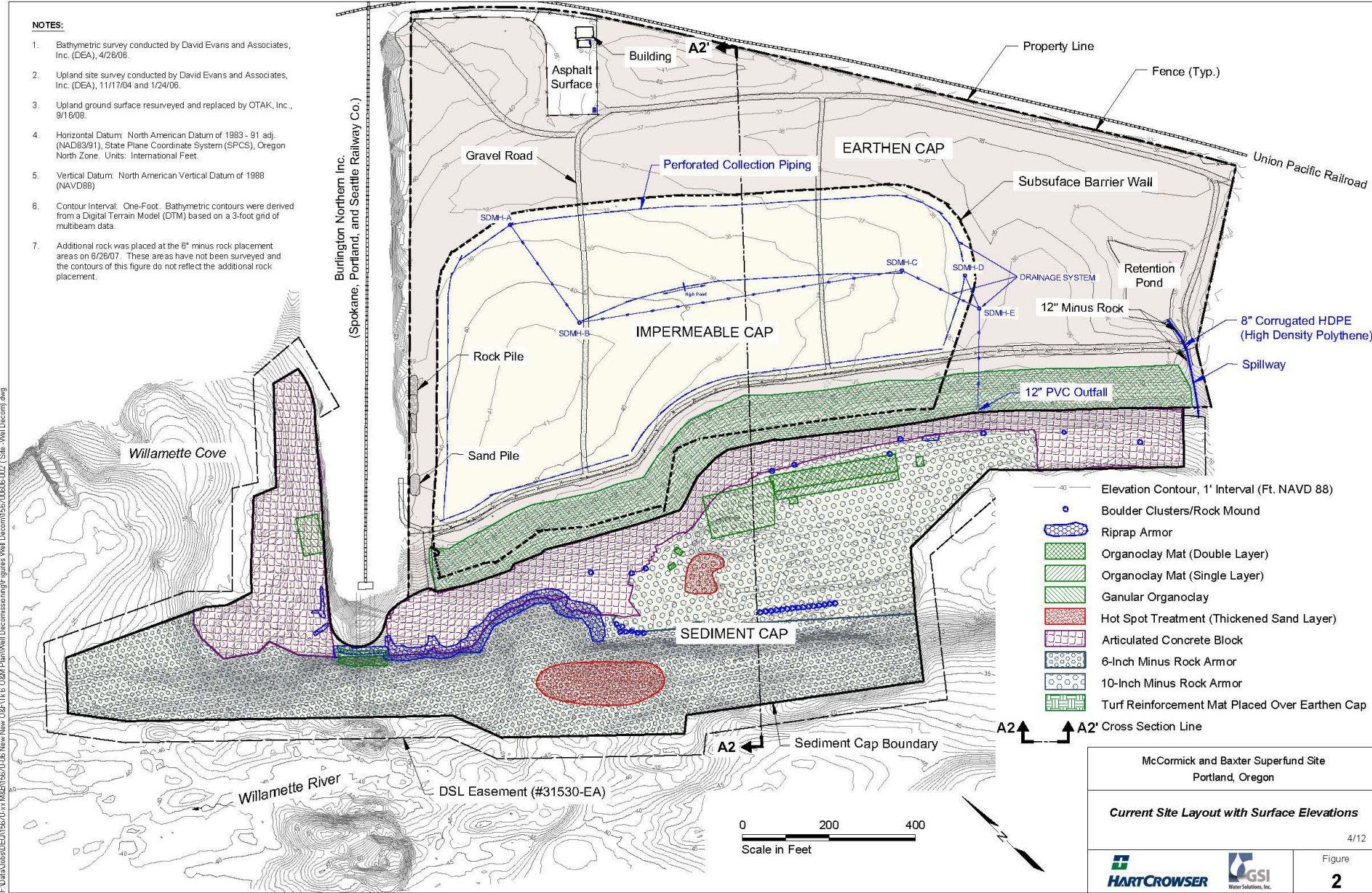
June 2005



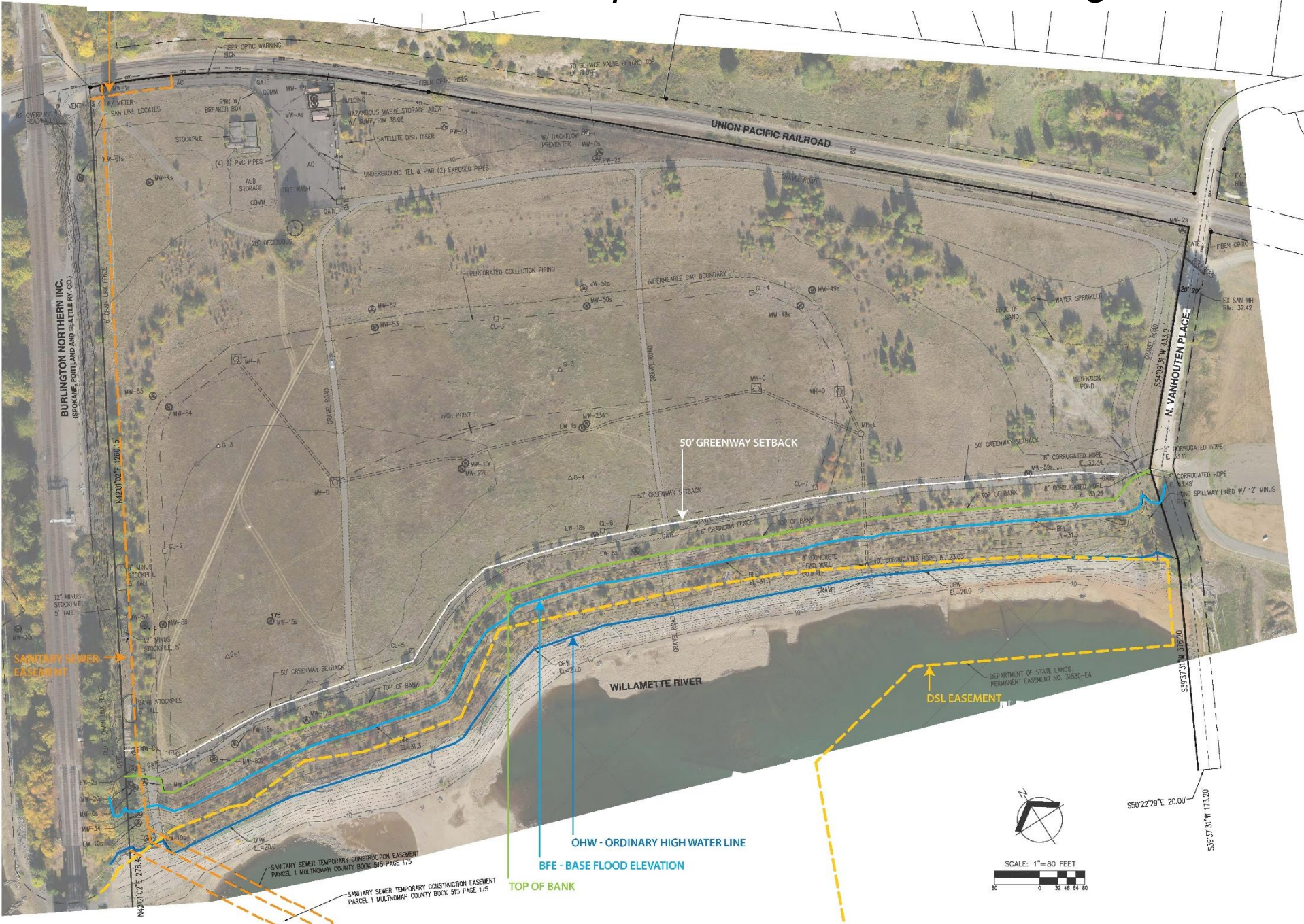
Current Site Layout with Surface Elevations

NOTES:

1. Bathymetric survey conducted by David Evans and Associates, Inc. (DEA), 4/28/06.
2. Upland site survey conducted by David Evans and Associates, Inc. (DEA), 11/17/04 and 1/24/06.
3. Upland ground surface resurveyed and replaced by OTAK, Inc., 9/16/06.
4. Horizontal Datum: North American Datum of 1983 - 91 adj. (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone. Units: International Feet.
5. Vertical Datum: North American Vertical Datum of 1988 (NAVD88).
6. Contour Interval: One-Foot. Bathymetric contours were derived from a Digital Terrain Model (DTM) based on a 3-foot grid of multibeam data.
7. Additional rock was placed at the 6" minus rock placement areas on 6/26/07. These areas have not been surveyed and the contours of this figure do not reflect the additional rock placement.



Site Visit Reference Map based on Alta Final Page 4



Supplemental

Record Drawings

SITEWIDE RECORD DRAWING

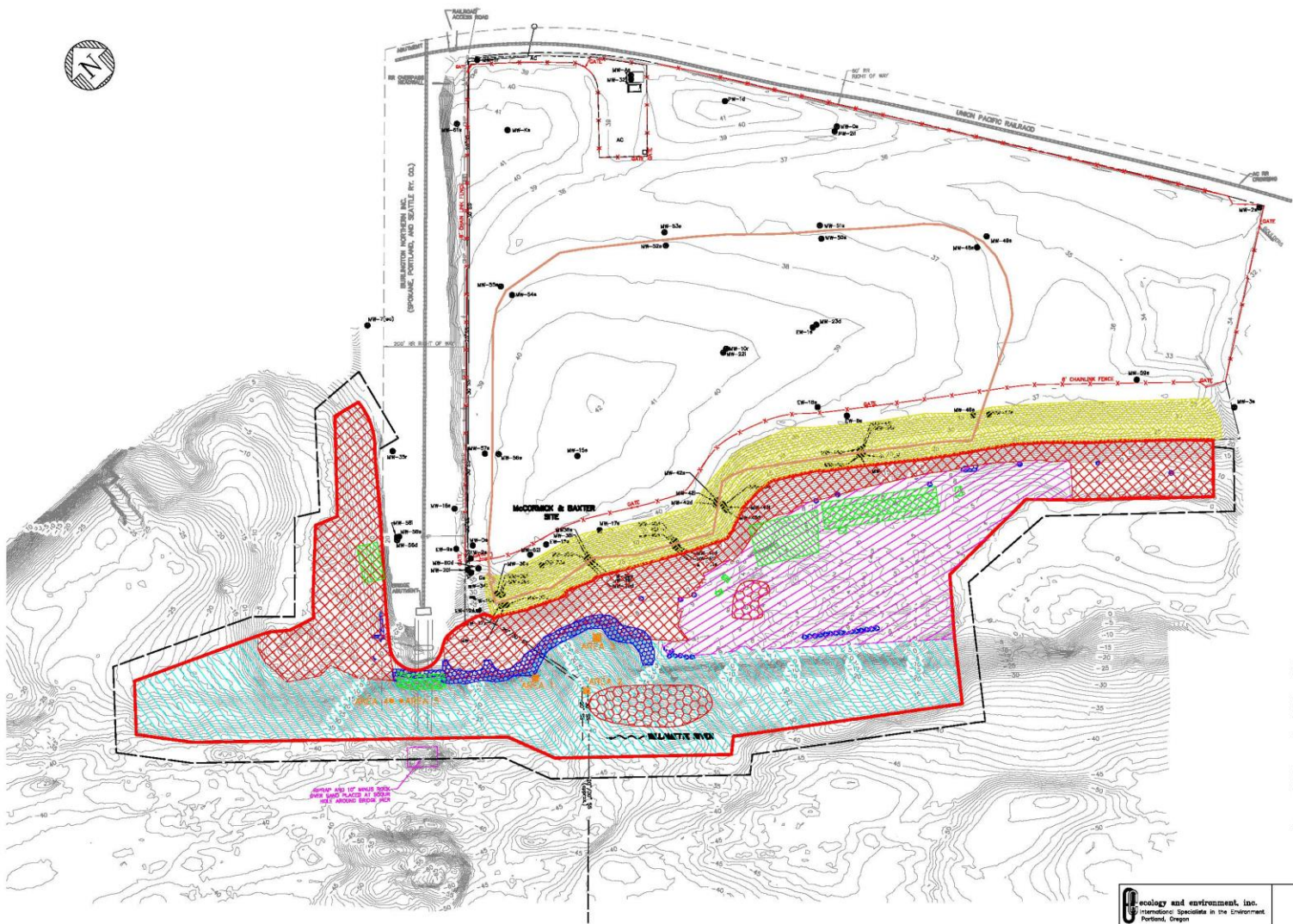


INDEX OF DRAWINGS	
DRAWING NUMBER	SHEET TITLE
1 OF 15	TITLE SHEET: SITE LOCATION
2 OF 15	SEDIMENT CAP FEATURES
3 OF 15	UPLAND CAP FEATURES
4 OF 15	HOT SPOT ELEVATION & BURIED DEBRIS AREAS
5 OF 15	GW MONITORING AND EXTRACTION WELLS
6 OF 15	BARRIER WALL: PLAN
7 OF 15	BARRIER WALL: PROFILE
8 OF 15	SITE ALIGNMENT
9 OF 15	SECTIONS
10 OF 15	SEDIMENT CAP DETAILS – SHEET 1
11 OF 15	SEDIMENT CAP DETAILS – SHEET 2
12 OF 15	UPLAND CAP DETAILS – SHEET 1
13 OF 15	UPLAND CAP DETAILS – SHEET 2
14 OF 15	UPLAND CAP DETAILS – SHEET 3
15 OF 15	BARRIER WALL DETAILS



Prepared for:
OREGON DEPARTMENT
OF
ENVIRONMENTAL QUALITY
AND QUALITY DIVISION
811 SW Sixth Ave.
Portland, Oregon 97204
by:
Ecology and Environment, Inc.
333 SW Fifth Ave.
Portland, Oregon 97204

 Ecology and Environment, Inc. International Specialists in the Environment Portland, Oregon	DRAWING 1 TITLE SHEET: SITE LOCATION Slidewick Record Drawings McCormick & Boxler Superfund Site Portland, Oregon	
	DESIGNED BY: C. NANCARROW	DATE: 11-24-97
	CHECKED BY:	DATE: 11-24-97
	DRAWN BY: C. NANCARROW	SlidewickDrawings_Cv330.dwg
APPROVED BY: A. WHITMAN	NOTES	



LEGEND:

- PROPERTY LINE
- DSL EASEMENT (#31530-EA)
- ELEVATION CONTOUR (FT. NAVD 88)
- SS— HIGH PRESSURE SEWER LINE
- STM— STORM SEWER
- FENCE
- GRAVEL ACCESS ROAD
- SUBSURFACE BARRIER WALL
- SEDIMENT CAP BOUNDARY
- BOULDER CLUSTERS/ROCK MOUND
- RIPRAP ARMOR
- ORGANOCLAY MAT (DOUBLE LAYER)
- ORGANOCLAY MAT (SINGLE LAYER)
- GRANULAR ORGANOCLAY
- HOT SPOT TREATMENT (THICKENED SAND LAYER)
- ARTICULATED CONCRETE BLOCK
- 6-INCH MINUS ROCK ARMOR
- 10-INCH MINUS ROCK ARMOR
- TURF REINFORCEMENT MAT PLACED OVER EARTHEN CAP
- ADDITIONAL 6-INCH MINUS ROCK PLACEMENT AREA

NOTES:

- Bathymetric and Terrestrial Surveys conducted by David Evans and Associates, Inc. (DEA).
- Dates of Bathymetric Survey: April 26, 2006 and October 8, 2007.
- Dates of Terrestrial Survey: November 17, 2004, and January 24, 2006.
- Horizontal Datum: North American Datum of 1983 - 91 adj. (NAD83/91), State Plane Coordinate System (SPCS), Oregon North Zone.
- Units: International Feet.
- Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
- Contour Interval: One-Foot. Bathymetric contours were derived from a Digital Terrain Model (DTM) based on a 3-foot grid of multibeam data.
- Additional rock was placed at the 6" minus rock placement areas on June 26, 2007 and June 27, 2007. These areas have not been surveyed, and the contours on this figure do not reflect the additional rock placement.

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Information Specialists in the Environment
Portland, Oregon

DESIGNED BY: C. NANCARROW

CHECKED BY:

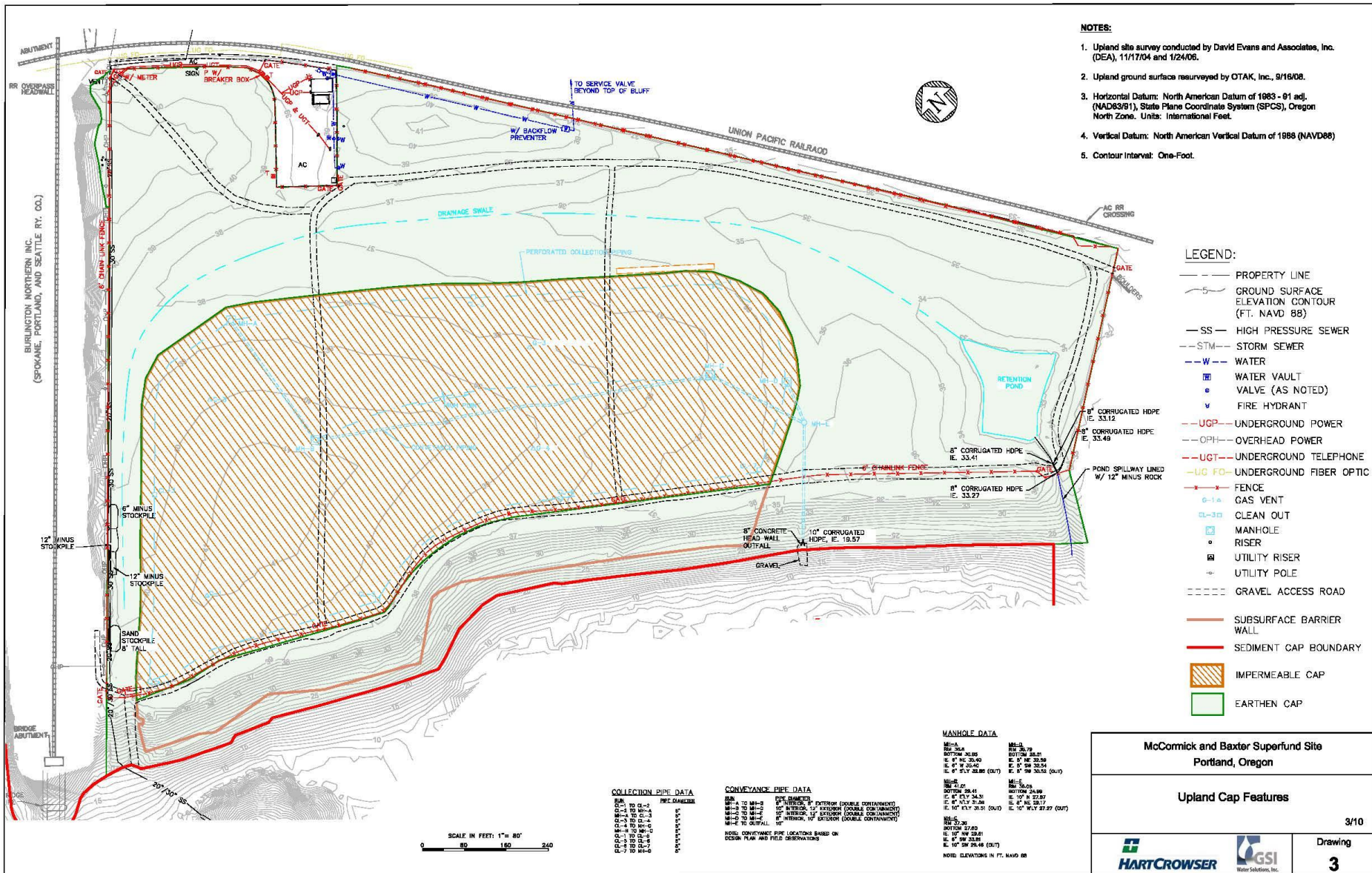
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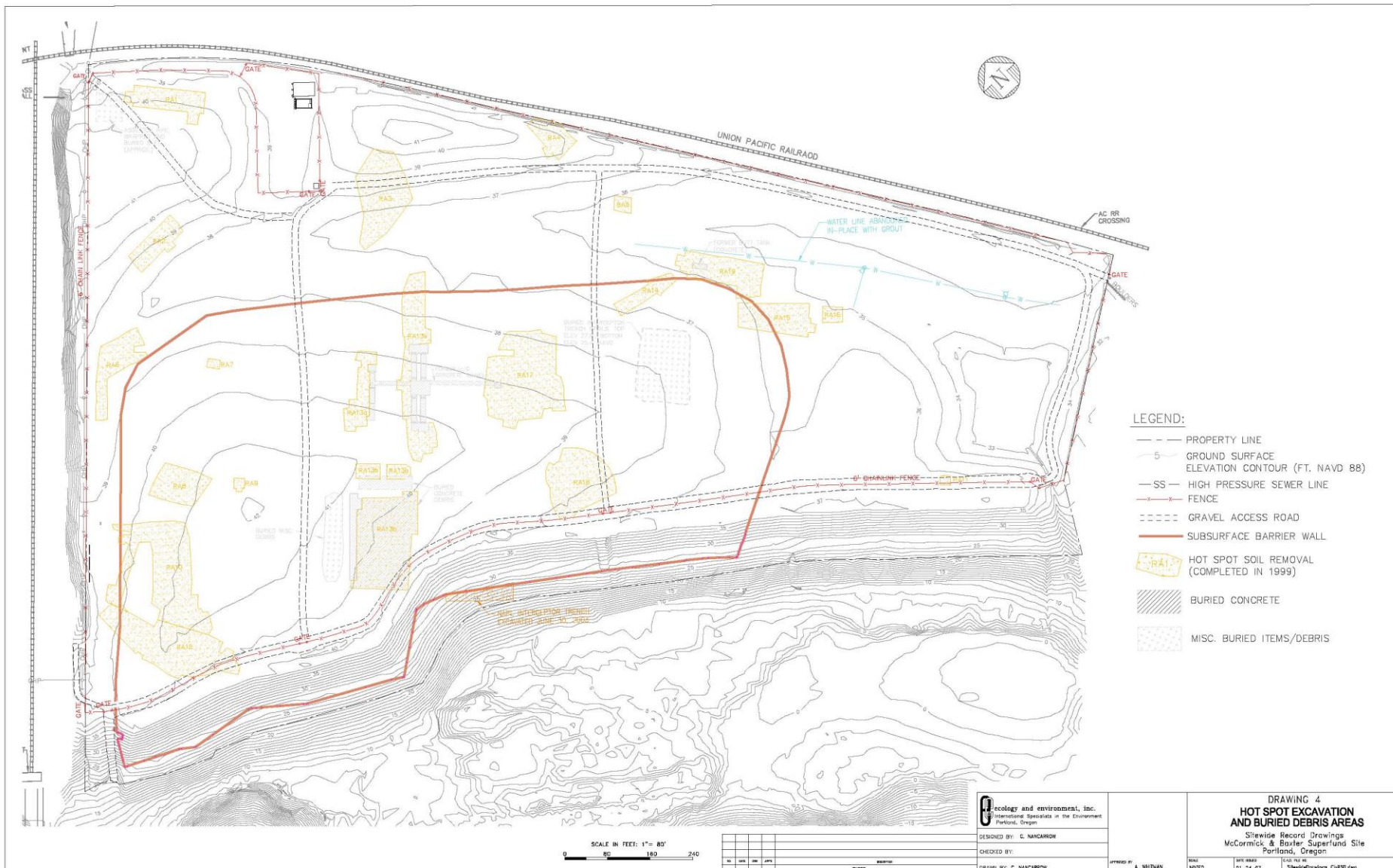
APPROVED BY: A. WHITMAN

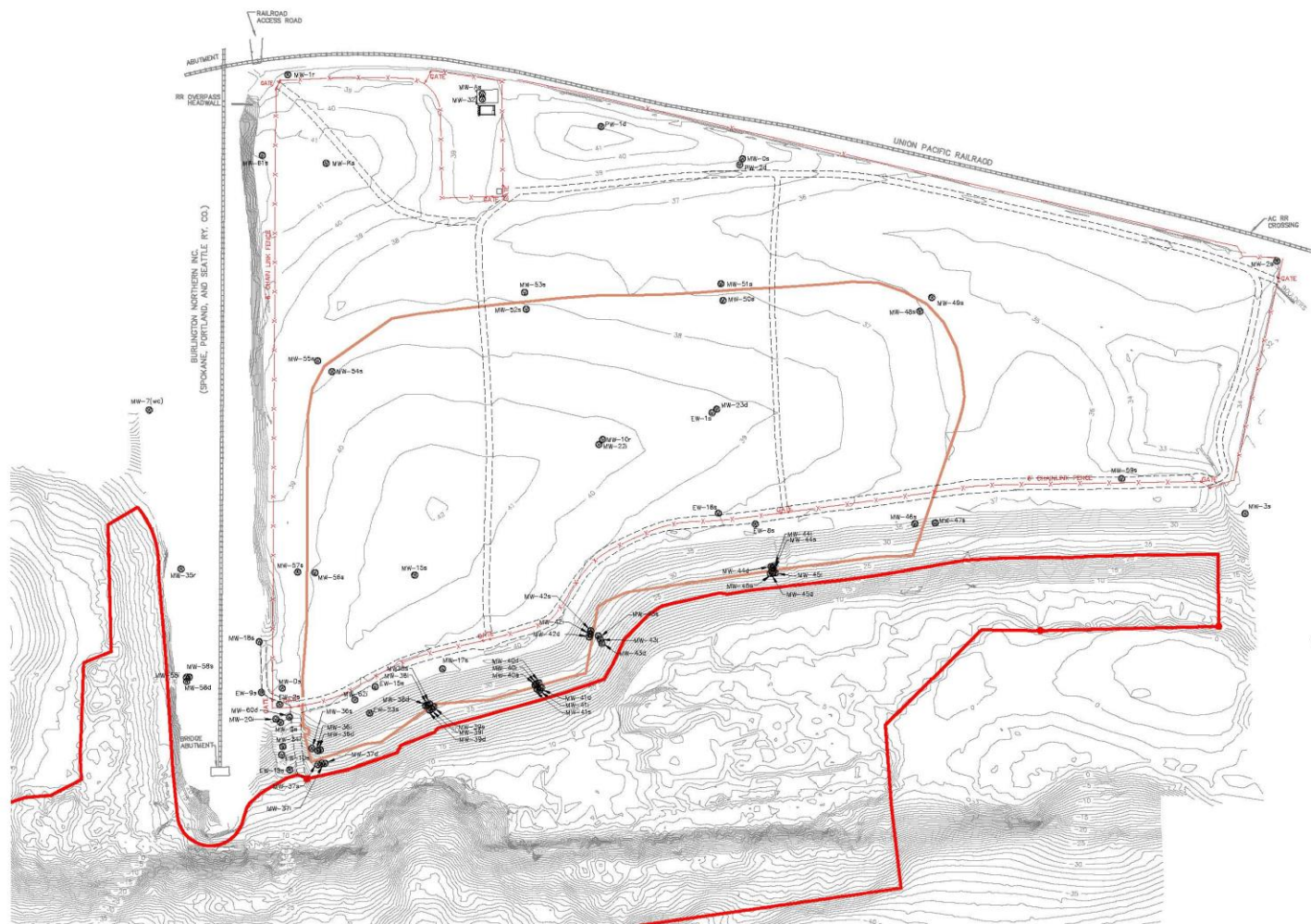
DRAWING 2
SEDIMENT CAP FEATURES

Sitewide Record Drawings
McCormick & Baxter Superfund Site
Portland, Oregon

DATE: 11-20-07
FILE: 11-20-07
DRAWN BY: C. NANCARROW
CHECKED BY: A. WHITMAN
APPROVED BY: A. WHITMAN







LEGEND:

- MW-55 (M) MONITORING WELLS
- 5 GROUND SURFACE ELEVATION CONTOUR (FT. NAVD 88)
- SS HIGH PRESSURE SEWER LINE
- FENCE
- GRAVEL ACCESS ROAD
- SUBSURFACE BARRIER WALL
- SEDIMENT CAP BOUNDARY

0 100 200 300

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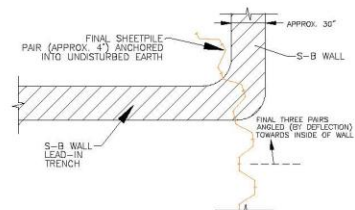
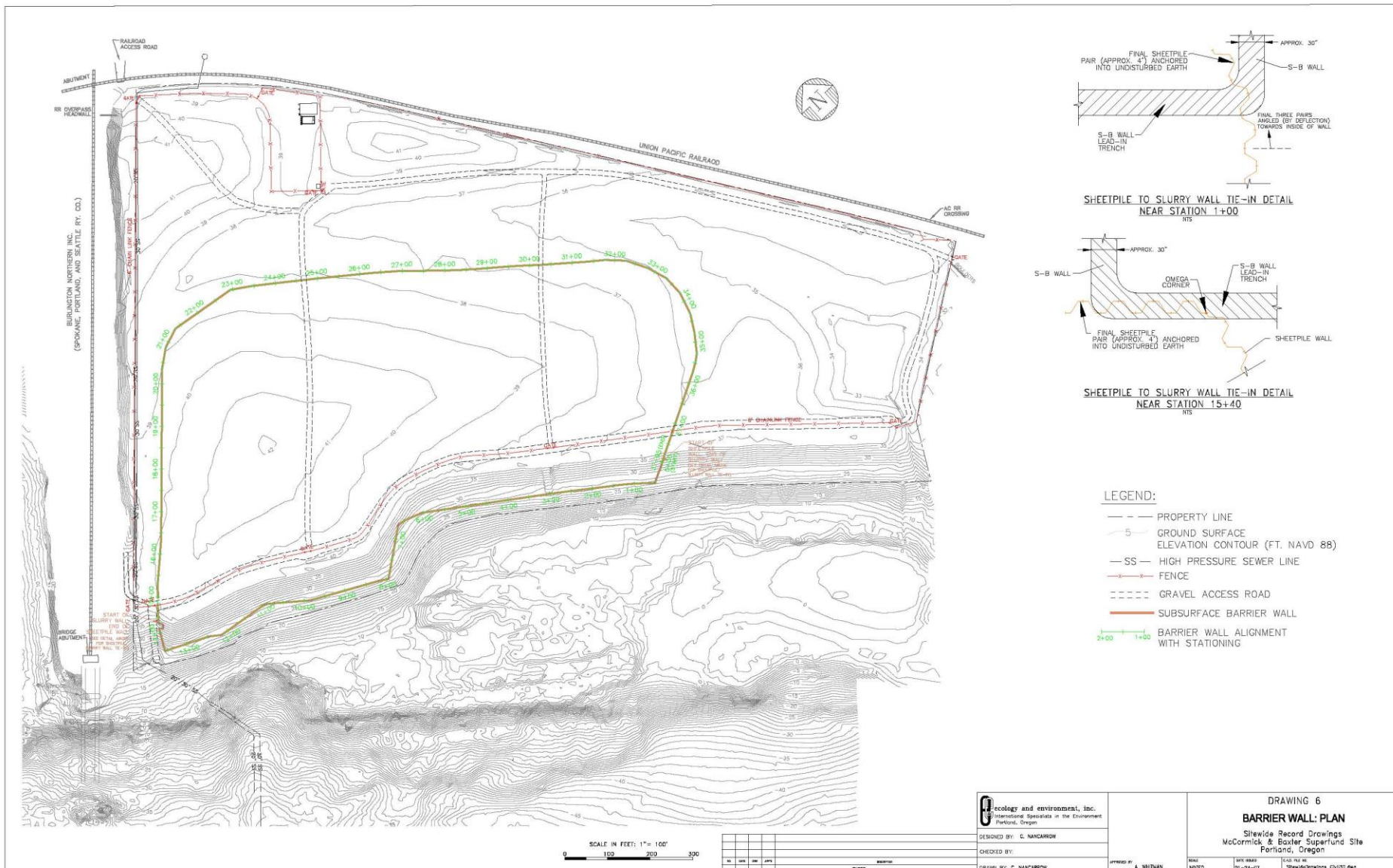
DRAWN BY: C. NANCARROW

APPROVED BY: A. WHITMAN

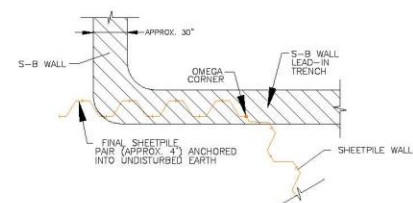
DRAWING 5 GW MONITORING AND EXTRACTION WELL

Sitewide Record Drawings
McCormick & Baxley Superfund Site
Portland, Oregon

DATE: 01-24-97
NOTED: 01-24-97
S:\mcc\drawings\CH050.dwg



SHEETPILE TO SLURRY WALL TIE-IN DETAIL
NEAR STATION 1+00



SHEETPILE TO SLURRY WALL TIE-IN DETAIL
NEAR STATION 15+40

LEGEND:

- — — — — PROPERTY LINE
- S — GROUND SURFACE
- — — — — ELEVATION CONTOUR (FT. NAVD 88)
- SS — HIGH PRESSURE SEWER LINE
- — — — — FENCE
- — — — — GRAVEL ACCESS ROAD
- — — — — SUBSURFACE BARRIER WALL
- — — — — BARRIER WALL ALIGNMENT WITH STATIONING

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Portland, Oregon

DESIGNED BY: C. NANCARROW
CHECKED BY:
DRAWN BY: C. NANCARROW

DRAWING 6

BARRIER WALL: PLAN

Shilwide Record Drawings
McCormick & Boxler Superfund Site
Portland, Oregon

APPROVED BY: A. WHITMAN

DATE: 01-24-07
FILE NO.: ShilwideDrawings_DW102.dwg

SCALE IN FEET: 1" = 100'

NO.	DATE	BY	APP.	REVISION



HORIZONTAL SCALE IN FEET: 1" = 150'

VERTICAL SCALE IN FEET: 1" = 15'
(10X VERTICAL EXAGGERATION)

LEGEND:

- EXISTING GROUND
- SOIL-BENTONITE WALL (SLURRY WALL)
- SHEETPILE WALL

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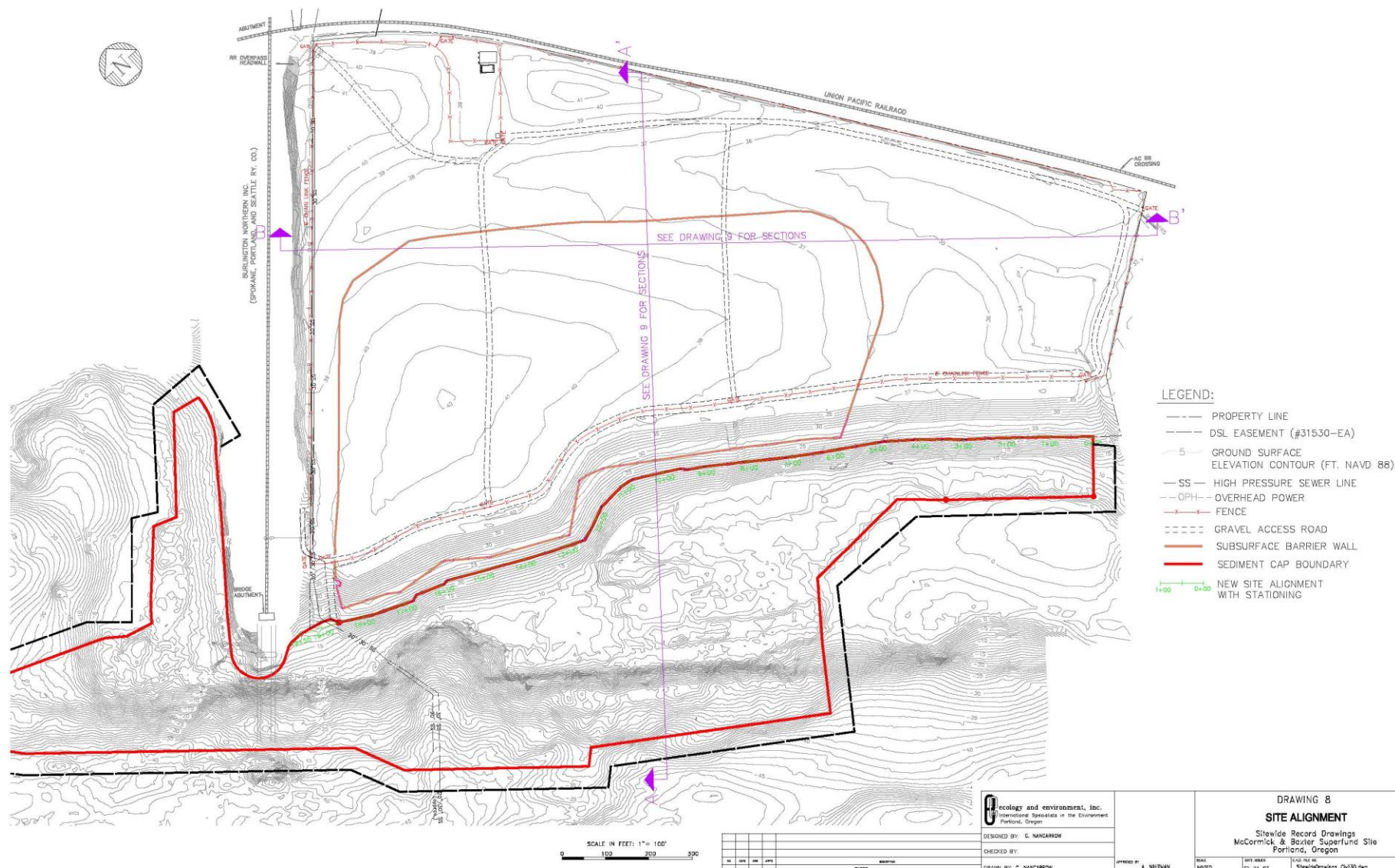
CHECKED BY:

DRAWN BY: C. NANCARROW

OFFERED BY: J. WHITMAN

DRAWING 7
BARRIER WALL: PROFILE
Sitewide Record Drawings
McCormick & Boxer Superfund Site
Portland, Oregon

DATE: 01-24-07
NOTES: SitewideDrawings_DWG33.dwg



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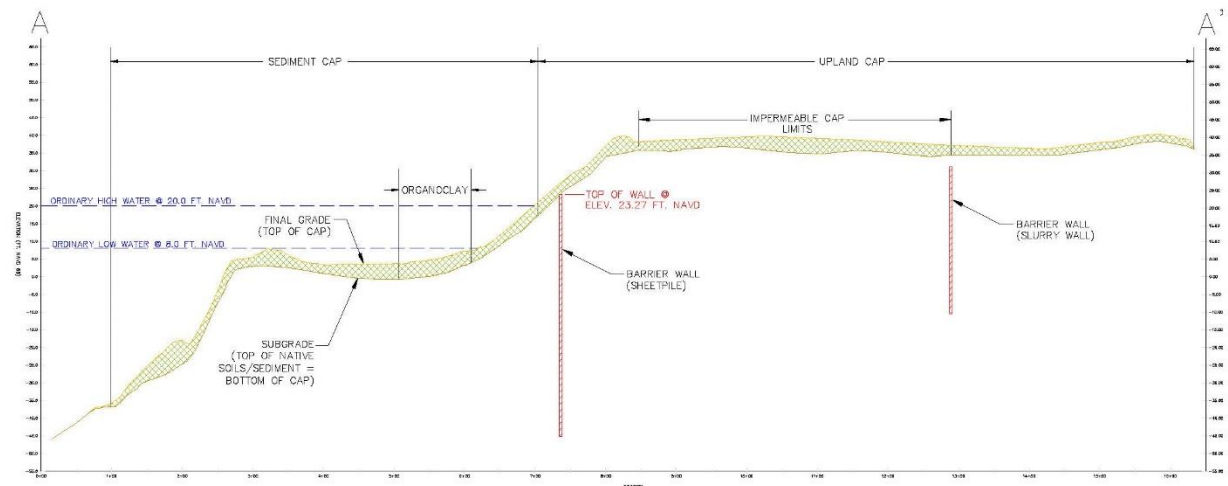
DESIGNED BY:	C. NANCARROW
CHECKED BY:	

DRAWN BY: C. NANCARROW

APPROVED BY: A. WHITMAN

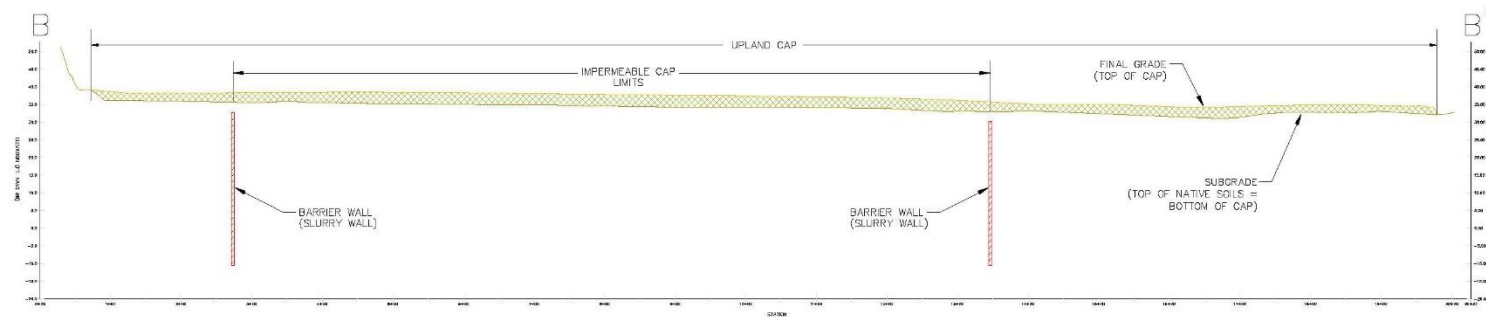
DRAWING 8
SITE ALIGNMENT
Sitewide Record Drawings
McCormick & Baxter Superfund Site
Portland, Oregon

SCALE	DATE ISSUED	CAD FILE NO.
NOTED	01-24-07	SitewideDrawings_Civil3D.dwg



LEGEND:

- FINAL GRADE (TOP OF CAP)
- SUBGRADE/EXISTING GROUND (NATIVE SOILS/SEDIMENTS = BOTTOM OF CAP)
- CAP
- BARRIER WALL



HORIZONTAL SCALE IN FEET: 1" = 80'

0 80 160 240

VERTICAL SCALE IN FEET: 1" = 10'

(3X VERTICAL EXAGGERATION)

0 10 20 30 40

NO.	REV.	DATE	BY	APP.	DESCRIPTION

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Environmental Specialists in the Environment
Portland, Oregon

DESIGNED BY: G. NANCARROW

CHECKED BY:

DRAWN BY: C. NANCARROW

APPROVED BY: A. SUETMAN

DRAWING 9

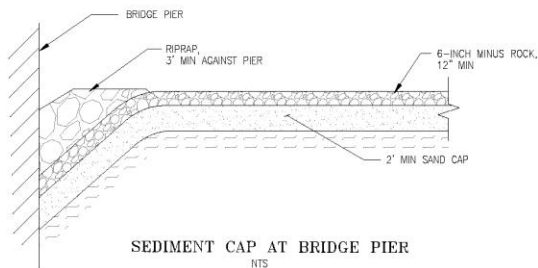
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McCormick & Baxter Superfund Site
Portland, Oregon

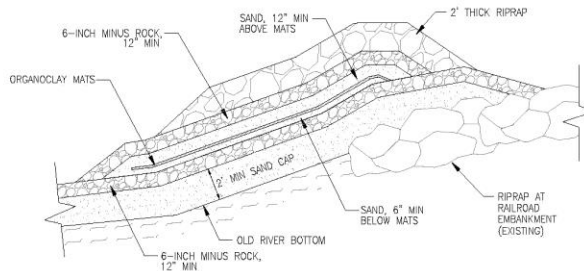
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DATE 08/01
01-24-07

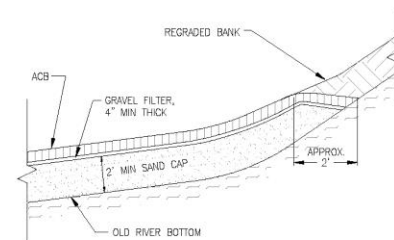
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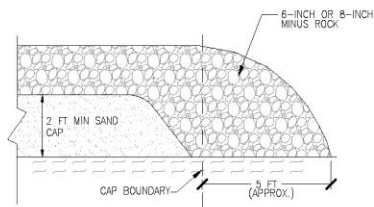
SEDIMENT CAP AT BRIDGE PIER
NTS



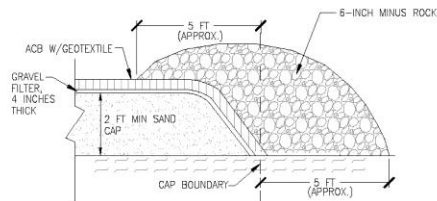
SEDIMENT CAP AT RAILROAD BRIDGE RIPRAP
NTS



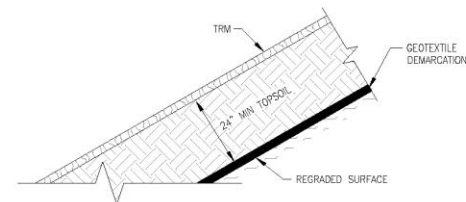
ACB/BANK REGRADE INTERFACE
NTS



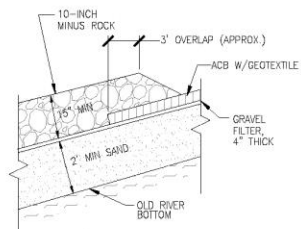
ROCK EDGE AT CAP BOUNDARY
NTS



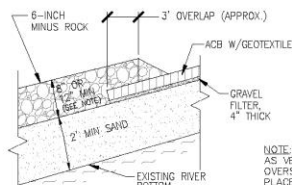
ACB EDGE AT CAP BOUNDARY
NTS



REGRADED BANK TREATMENT
NTS



ACB/10-INCH MINUS
ROCK INTERFACE
NTS



ACB/6-INCH MINUS
ROCK INTERFACE
NTS

NOTE:
AS VERIFIED THROUGH CONSTRUCTION
OVERSIGHT, 6-INCH MINUS ROCK WAS
PLACED TO THE DESIGN THICKNESS OF 12
INCHES DURING 2004 SEDIMENT CAP
CONSTRUCTION AND 8 INCHES DURING
2009 SEDIMENT CAP CONSTRUCTION.

EDGES AND INTERFACES

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Portland, Oregon

DESIGNED BY: G. NANCARROW

CHECKED BY:

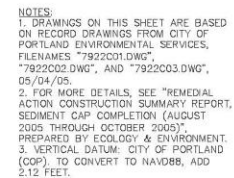
DRAWN BY: C. NANCARROW

APPROVED BY: A. WHITMAN

DRAWING 10
SEDIMENT CAP DETAILS - SHEET 1

Steward Record Drawings
McCormick & Baxley Superfund Site
Portland, Oregon

DATE: 01-24-07
ECS FILE NO: StewardDrawings_Civil000.dwg



A cross-sectional diagram of a pile foundation system installed in a sand layer. The diagram shows three vertical piles, each labeled "31.00% PILE". The piles are connected by a horizontal "12% STEEL PIPE PILES" at the top. The top layer of the soil is labeled "7.4% MIN SAND GAP". Below this is a layer of "8' OF 4'-MINUS ROCK ARMOR". The piles are shown passing through this rock armor. The area around the piles is labeled "MIN 24\"

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International Specialists in the Environment
Portland, Oregon

DESIGNED BY: C. NANCARROW

CLAUDE L. RAY

DATE	10/10/2010
CHECKED BY:	
REMARKS:	

DRAWN BY: C. NANCARROW

ACCEPTED BY

A. WHITMAN

DRAWING 11

SEDIMENT CAP DETAILS - SHEET 2

Sitewide Record Drawings
McCormick & Baxter Superfund Site
Portland, Oregon

SCALE

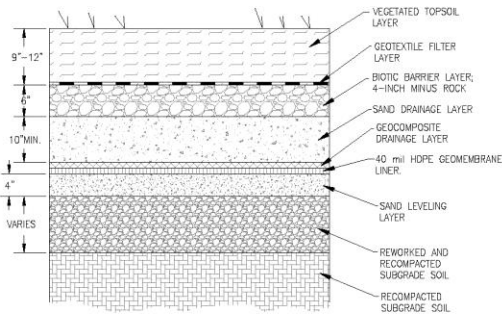
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DATE ISSUED

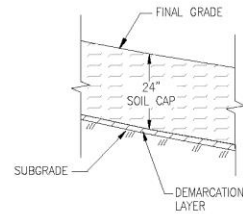
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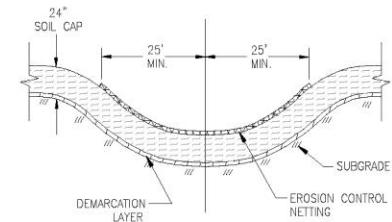
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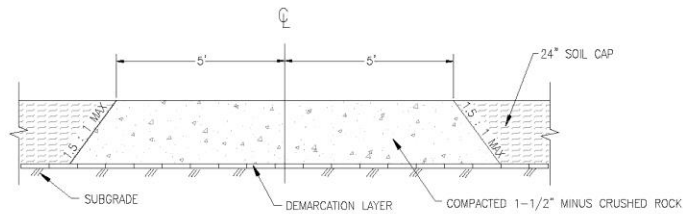
IMPERMEABLE CAP SECTION (TYP.)
NTS



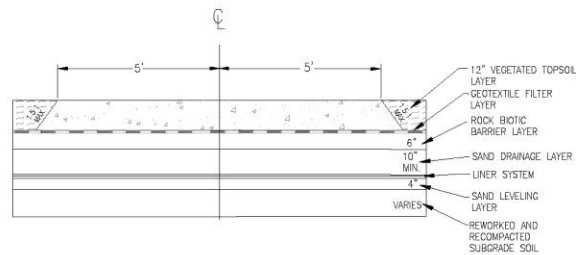
SOIL CAP SECTION (TYP.)
OUTSIDE BARRIER WALL
NTS



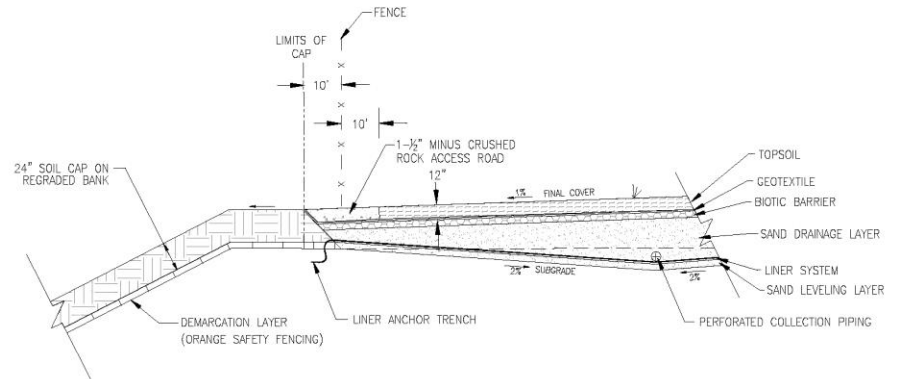
DRAINAGE SWALE
NTS



GRAVEL ACCESS ROAD OUTSIDE BARRIER WALL
NTS



GRAVEL ACCESS ROAD WITHIN BARRIER WALL
NTS



IMPERMEABLE CAP TRANSITION TO BANK
NTS

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DESIGNED BY: G. NANCARROW

CHECKED BY:

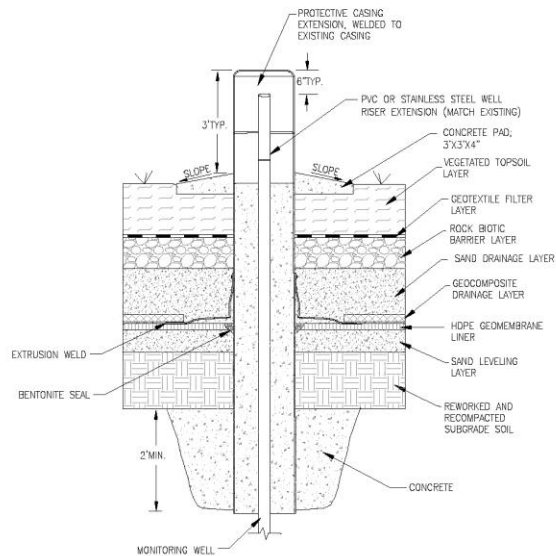
DRAWN BY: C. NANCARROW

OFFERED BY: A. WHITMAN

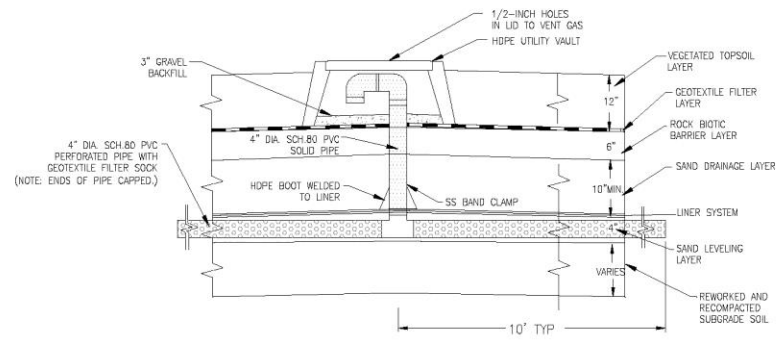
DRAWING 12
UPLAND CAP DETAILS - SHEET 1

Sitewide Record Drawings
McCormick & Boxer Superfund Site
Portland, Oregon

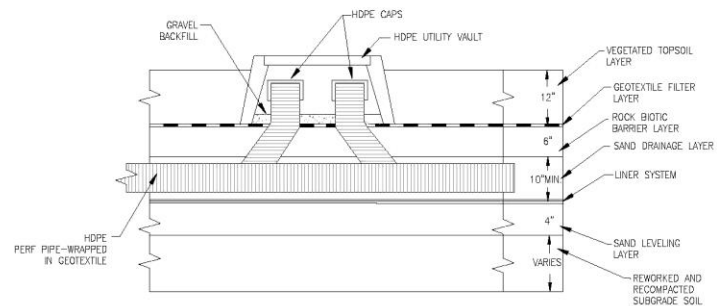
DATE: 01-24-07
FILE: 01-24-07
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**MONITORING WELL
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ecology and environment, inc.
International Specialists in the Environment
Portland, Oregon

DESIGNED BY: G. NANCARROW

CHECKED BY:

DRAWN BY: C. NANCARROW

APPROVED BY: A. WHITMAN

DRAWING 13

UPLAND CAP DETAILS - SHEET 2

Sitewide Record Drawings
McCormick & Boxer Superfund Site
Portland, Oregon

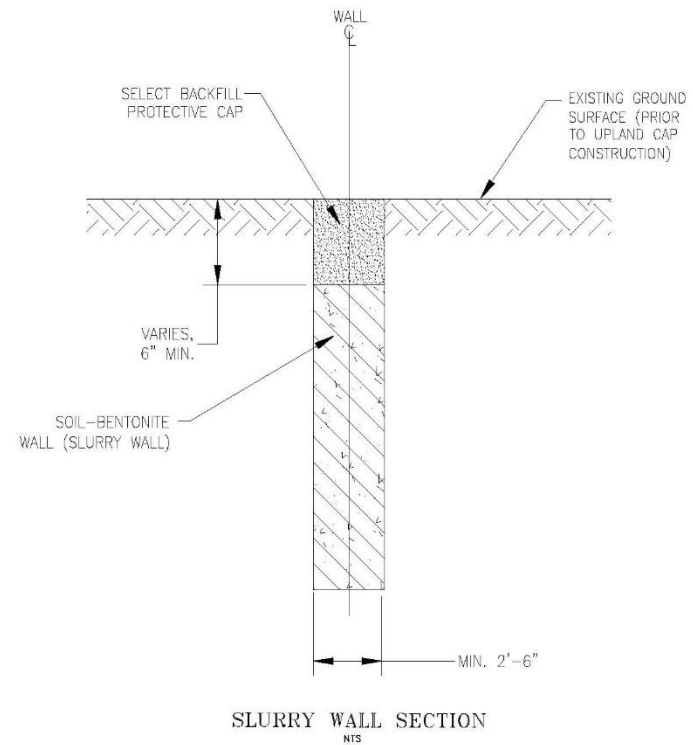
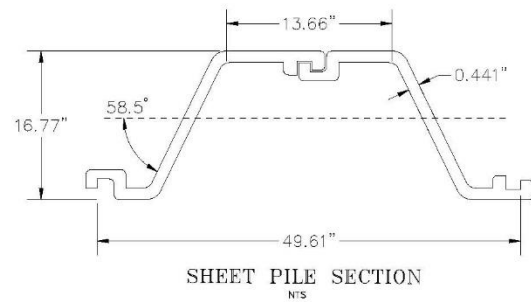
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 Ecology and environment, inc. International Specialists in the Environment Portland, Oregon				DRAWING 14 UPLAND CAP DETAILS - SHEET 3 Sitewide Record Drawings McCormick & Boxler Superfund Site Portland, Oregon			
DESIGNED BY: C. NANCARROW				CHECKED BY:			
DRAWN BY: C. NANCARROW				APPROVED BY: M. SUTKIN			
DATE: 01-14-07				DATE: 01-14-07			
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International Specialists in the Environment
Portland, Oregon

DESIGNED BY: G. NAKAMURA

CHECKED BY:

DRAWN BY: C. NAKAMURA

APPROVED BY: A. NUTMAN

DRAWING 15

BARRIER WALL DETAILS

Sitewide Record Drawings
McCormick & Boxier Superfund Site
Portland, Oregon

SCALE
NOTES

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