

**3DH AGGREGATES
SURFACE MINE
REVISED RECLAMATION PLAN**

**Located In
Rockport, Washington
Skagit County
DNR Permit #11785**

**Prepared For:
3DH Aggregates
PO Box 142
Stanwood, WA 98292
Phone: (360)-629-4633**

**Prepared By:
Ecological Land Services, Inc.
1339 Commerce Ave., Suite 311
Longview, WA 98632
(360) 578-1371**

December 2002

December 18, 2002

Matt Brookshire/Cindy Preston
Washington State Department of Natural Resources
Surface Mine Reclamation Program
PO Box 47007
Olympia, WA 98504-7007

Re: Revised Reclamation Plan for 3DH Aggregates Surface Mine, DNR Permit # 11785.

Dear Mr. Brookshire and Ms. Preston:

Enclosed is a revised reclamation plan with supporting materials on behalf of 3DH Aggregates for a surface mine on State Route 20, approximately 6.0 miles east of Concrete. 3DH and others have actively mined the site since the late 1970's typically removing relatively small quantities of sand and gravel as needed for road improvement and other projects. To date, approximately 12.3-acres within the existing 40.0-acre permit boundary have been disturbed by mining. 3DH Aggregate's propose is to mine the remaining resource within the existing permit boundary.

The revised plan would result in a disturbance of 39.1-acres, which includes the previously mined area, within the 40.0-acre permit boundary. The site topography is naturally situated to complement the proposed mining and reclamation plans. Due to the size and location of the proposed mining operation, coupled with the reclamation plan, potential negative environmental impacts will be insignificant. 3DH Aggregate and the owner of a surface mine (WSDOT) abutting the northern property boundary have agreed to connect mine plans and join reclamation features. Joining the two surface mines will best utilize the mineral resource and create a sinuous topography at the completion of both operations.

We believe you will find this update package complete. However, should you need additional information or have any questions, please call me. Additionally, please include me on your distribution list for any correspondence with 3DH Aggregate or other agencies during your project review.

Sincerely,



Roy Garrison
Reclamation and Soils Specialist

cc: Helen Weber – 3DH Aggregates

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ATTACHMENTS - ENDANGERED SPECIES DATA SEARCH

**Washington Department of Fish and Wildlife
*Habitats and Species Information***

**National Marine Fisheries Service
*Northwest Region Species List For Endangered, Threatened,
Proposed and Candidate Species***

**United States Department of the Interior Fish and Wildlife Service
*Listed and Proposed Endangered and Threatened Species,
Candidate Species and Species of Concern***

**Washington State Department of Natural Resources
*Natural Heritage Information System on Rare Plants, Select
Rare Animal Species, and High Quality Wetland and
Terrestrial Ecosystems***

DNR FORM SM-6



WASHINGTON STATE DEPARTMENT OF
Natural Resources

COUNTY OR MUNICIPALITY
**APPROVAL FOR
SURFACE MINING
(Form SM-6)**

NAME OF COMPANY OR INDIVIDUAL APPLICANT(S)
Same as name of the exploration permit holder. (Type or print in ink.)

3D-H Aggregates

TOTAL ACREAGE AND DEPTH OF PERMIT AREA
(Include all acreage to be disturbed by mining, setbacks, and buffers, and associated activities during the life of the mine.) (See SM-8A.)

Total area disturbed will be 40 acres

Maximum vertical depth below pre-mining topographic grade is 70 feet

Maximum depth of excavated mine floor is 450 feet relative to mean sea level

MAILING ADDRESS

P.O. Box 142
STANWOOD, WA 98292

COUNTY SKAGIT

No attachments will be accepted. Legal description of permit area:

1/4	1/4	Section	Township	Range
W 1/2	SW	NE 28	35	9
W 1/2	NW	SE 28	35	9

Telephone (360) 629-4633

Proposed subsequent use of site upon completion of reclamation

RURAL RESIDENTIAL

Signature of company representative or individual applicant(s)

Name and title of company representative (please print)

Date signed

TO BE COMPLETED BY THE APPROPRIATE COUNTY OR MUNICIPALITY:

Please answer the following questions 'yes' or 'no'.

- Has the proposed surface mine been approved under local zoning and land-use regulations?
- Is the proposed subsequent use of the land after reclamation consistent with the local land-use plan/designation?

Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

When complete, return this form to the appropriate Department of Natural Resources regional office.

Name of planning director or administrative official (please print)

Address

Tommy Alan / carsh

Skagit County Planning & Permit Center
700 W. Washington Street
Mount Vernon, WA 98273

Signature

[Handwritten signature]

Title (please print)

Director Planning & Permit Center
Skagit County, WA

Telephone

360-330-9410

Date

4/30/02

DNR Reclamation Permit No.

FOR DEPARTMENT USE ONLY:

DNR FORM SM-8



**APPLICATION FOR RECLAMATION PERMIT
FORM SM-8A**

Check appropriate box(es): new permit revision of existing permit transfer of permit expansion

NOTE: Do not attempt to complete this form until you have carefully read the accompanying instruction document (SM8AINST.PDF). Do not attempt to use this form as an MS Word Template unless you are familiar with the use of templates in MS Word.

<p>1. NAME OF APPLICANT/PERMIT HOLDER(S) 3DH Aggregates</p>			<p>12. Are all of these mines now in compliance with RCW 78.44, WAC 332-18, and conditions of the permits? n/a <input type="checkbox"/> yes <input type="checkbox"/> no</p>																														
<p>2. MAILING ADDRESS PO Box 142 Stanwood, WA 98292</p>			<p>13. Have you ever had a surface mine operating or reclamation permit revoked? n/a <input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>Have you ever had a reclamation security forfeited? n/a <input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>If you answered yes to either of the above, list the permit number(s): n/a</p>																														
<p>3. Telephone (360) 629-4633 UBI No. 966-457</p>			<p>14. Type of proposed or existing mine: Material(s) to be mined: <input checked="" type="checkbox"/> sand and gravel <input type="checkbox"/> rock or stone <input type="checkbox"/> clay <input type="checkbox"/> metal <input type="checkbox"/> limestone <input type="checkbox"/> silica <input type="checkbox"/> other _____</p> <p>Deposit type: <input checked="" type="checkbox"/> glacial <input type="checkbox"/> river floodplain (alluvial) <input type="checkbox"/> river channel deposits <input type="checkbox"/> talus <input type="checkbox"/> bedrock <input type="checkbox"/> lode <input type="checkbox"/> unknown <input type="checkbox"/> other _____</p>																														
<p>4. NAME OF MINE 3DH Aggregate Surface Mine</p>			<p>15. Total Acreage and Depth of Permit Area: 40.0 Acres (Include all acreage to be disturbed by mining, setbacks, buffers, and associated activities during the life of the mine.) (See Form SM-6.)</p> <p>Total area disturbed will be 39.1 acres. Area to be disturbed in next 36 months will be 10.0 acres.</p> <p>Maximum vertical depth below pre-mining topographic grade is 70.0 feet. Maximum depth of excavated mine floor is 450 feet relative to mean sea level</p>																														
<p>5. Street address and milepost of surface mine 50598 State Route 20, Mile Post 95, between Concrete and Rockport, WA.</p>																																	
<p>6. Distance (miles) 3.0</p>	<p>7. Direction from West</p>	<p>8. Nearest community Rockport, WA</p>	<p>16. Expected start date of mining Existing Operation</p>	<p>17. Estimated number of years 15-20</p>																													
<p>9. COUNTY Skagit No attachments will be accepted. Legal Description of permit area: 1/4 1/4 Section Township Range</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">SW</td> <td style="width:15%;">NE</td> <td style="width:15%;">28</td> <td style="width:15%;">35</td> <td style="width:15%;">9E</td> </tr> <tr> <td>NW</td> <td>SE</td> <td>28</td> <td>35</td> <td>9E</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>			SW	NE	28	35	9E	NW	SE	28	35	9E											<p>18. Total quantity to be mined over life of mine (estimated): 2.5-3.0 million <input type="checkbox"/> tons, or <input checked="" type="checkbox"/> cu yds</p> <p>19. Estimated annual production: 100-150,000 <input type="checkbox"/> tons, or <input checked="" type="checkbox"/> cu yds</p>										
SW	NE	28	35	9E																													
NW	SE	28	35	9E																													
<p>10. TOTAL ACREAGE OF PERMIT AREA APPLIED FOR (include all acreage to be disturbed by mining, setbacks, buffers, and associated activities during the life of the mine.) 10.0 acres</p>			<p>20. Subsequent land use: <input type="checkbox"/> industrial <input type="checkbox"/> commercial <input type="checkbox"/> residential <input type="checkbox"/> agricultural <input type="checkbox"/> forestry <input type="checkbox"/> wetlands and lakes <input checked="" type="checkbox"/> Other Rural Residential</p> <p>Reclaimed elevation of floor of mine: 450 feet relative to mean sea level</p> <p>Reclaimed elevation is shown on cross sections? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no</p> <p>Subsequent land use is compatible with County or Municipal comprehensive plan? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no</p> <p>County or Municipality Approval for Surface Mining (Form SM-6) attached? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no</p> <p>SEPA Checklist required? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no</p> <p>If any answers are no, explain: _____</p>																														
<p>11. Do you or any person, partnership, or corporation associated with you now hold, or have you held, a surface mining operating or reclamation permit? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no</p> <p>If you answered yes to the above, please list: n/a</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Permit Number</th> <th colspan="2">Active Operation?</th> <th colspan="2">Reclamation current/complete?</th> </tr> <tr> <th>Yes</th> <th>No</th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td> </td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td> </td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td> </td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td> </td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>			Permit Number	Active Operation?		Reclamation current/complete?		Yes	No	Yes	No		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>21. Application fee for a new reclamation permit is herewith attached? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no</p>	
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	Yes	No	Yes	No																													
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CHECKLIST OF RECLAMATION STANDARDS

22. SEGMENTAL RECLAMATION

Permit area has been divided into segments for mining and a mining schedule has been developed? yes no
 If no, explain:

Permit area has been divided into segments for reclamation and a reclamation schedule has been developed? yes no
 If no, explain:

23. SITE PREPARATION

23A. Permit and Disturbed Area Boundaries

Boundary of the permit area has been marked on the ground with permanent boundary markers? yes no
 Explain boundary markers: **Metal tee posts with florescent orange paint, placed line-of-sight around the permit boundary.**

23B. Saving Topsoil, Subsoil, and Overburden for Reclamation

Thickness of topsoil is **18-20 inches, which combines the A&B or E&B soil horizons (total being salvaged for Recl.)**
 Thickness of subsoil is **n/a**
 Depth to bedrock is **2.0** feet
 Total volume of topsoil is **88,197** cubic yards
 Total volume of subsoil is **n/a** cubic yards
 Volume of stored topsoil/subsoil is **11,378** cubic yards and will require **0.75** acres for storage.

Storage areas are shown on maps and have been marked on the ground with permanent boundary markers? yes no
 Topsoil will be salvaged? yes no
 If no, explain:

Soil and overburden will be moved to reclaim an adjacent depleted segment? yes no
 If no, explain:

Before materials are moved, vegetation will be cleared and drainage planned for soil storage areas? yes no
 If no, explain:

Soil storage areas will be stabilized with vegetation to prevent erosion if materials will be stored for more than one season? yes no
 If no, explain:

23C. Setbacks and Screens

Maximum depth of the mine will be **70.0** feet from **520** feet (*highest*) to **450** feet (*lowest*) elevation relative to mean sea level.

The setback for this site will be **10** feet wide.
 Is a permanent, undisturbed buffer planned for this site? yes no
 If no, explain:

Setbacks are shown on maps and have been marked on the ground with permanent boundary markers? yes no
 If no, explain: **Shown on maps but not marked in field.**

CHECKLIST OF RECLAMATION STANDARDS

Does this site have a backfilling plan that addresses the protection of adjacent property and how the final, stable slopes are to be achieved?

If no, explain: **Refer to narrative.**

yes no

23D. Buffers to Protect Streams and Flood Plains

If yes, see "Additional Information Requirements for Flood Plain Mines." This document is included in the SM&AINST.PDF file.

A stream buffer of at least 200 feet has been marked on the ground with permanent boundary markers? **n/a**

yes no

A buffer of at least 200 feet from the 100-year flood plain has been marked on the ground with permanent boundary markers? **n/a**

yes no

If no, explain: **No streams or flood plains are within 200 feet of the site.**

Copy of Shoreline Permit from local government or the Dept of Ecology is attached? **n/a**

yes no

Hydraulic Project Approval from the Department of Fish and Wildlife is attached? **n/a**

yes no

23E. Conservation Buffers

Conservation buffers will be established for the following purpose(s): (Check all that apply)

unstable slopes wildlife habitat water quality other _____

Describe the nature and configuration of the conservation buffer(s): **n/a**

Conservation setbacks are shown on maps and have been marked on the ground with permanent boundary markers? **n/a**

yes no

23F. Ground Water

High water table depth is 390 feet relative to mean sea level, below original surface, or unknown.

Low water table depth is 373 feet relative to mean sea level, below original surface, or unknown.

Annual fluctuation of water table is from 373 feet on fall 1989 to 390 feet on spring 1990.

Direction of ground water flow: **South, refer to narrative.**

Are well logs attached? **Refer to narrative.**

Is the aquifer perched? **Refer to narrative.**

yes no

Is the shallowest aquifer: confined unconfined

yes no

The site will be mined: wet dry both

Describe mining method: **Barrow pit, cut slope method and mined in segments. Refer to narrative.**

The site is in a: **n/a**

critical aquifer recharge area sole source aquifer public water supply watershed

wellhead protection area special protection area designated aquifer protection area

Ground water study attached?

yes no

If yes, see "Additional Information Requirements for Hydrologically Sensitive Areas." This document is included in the SM&AINST.PDF file.

If no, explain: **Site will be mined dry, ground water is over 70 feet below the proposed mine floor.**

23G. Archeology

Are archeological/cultural resource sites present? **None known.**

If yes, describe how you will protect these resources: **n/a**

yes no

CHECKLIST OF RECLAMATION STANDARDS

24. MINING PRACTICES TO FACILITATE RECLAMATION

24A. Soil Replacement

Topsoil will be saved?
If no, explain: yes no

Up to 4 feet of topsoil and (or) subsoil will be restored?
If no, explain: **Refer to narrative. There is only 20-24 inches of topsoil available on site. There is a 12,435 cubic yard deficit of topsoil in segment 1 due to previous mining. The deficit will be made up by averaging the topsoil depth over segments 1 & 2 with the remaining topsoil available from these two segments.** yes no

Topsoil will be restored and seedbeds prepared as necessary to promote effective revegetation and to stabilize slopes and mine floor?
If "yes" give details, if "no", explain: **Refer to narrative.** yes no

Subsoil will be replaced to an approximate depth of n/a feet on the pit floor and a depth of n/a feet on slopes.
Topsoil will be replaced to an approximate depth of **1.2-1.66** feet on the pit floor and a depth of **1.2-1.66** feet on slopes.
Topsoil will be distributed evenly over the site? yes no

If no, explain: **As mentioned above, to compensate for the deficit in segment 1&2, topsoil will be distributed at 1.2 feet on segments 1&2 and 1.66 feet on segments 3&4.**

If topsoil is in short supply, it will be strategically placed in depressions and low areas in adequate thickness to conserve moisture and promote revegetation?
If no, explain: yes no

Topsoil will be moved when conditions are not overly wet or dry?
If no, explain: yes no

Topsoil will be imported?
If yes, describe source. If no, explain: **Not required, there is adequate topsoil remaining on site for successful reclamation.** yes no

Synthetic topsoil made from compost, biosolids, or other amendments will be used and (or) made on site to supplement existing topsoil?
If yes, explain: yes no

Materials such as till, loess, and (or) silt are available on site that could be used to supplement topsoil for reclamation.
If yes, explain: yes no

Silt from settling ponds or a filter press will be used for reclamation?
If yes, explain: yes no

CHECKLIST OF RECLAMATION STANDARDS

Settling pond clay slurries will be pumped or hauled to other segments for reclamation? yes no

If yes, explain:

Topsoil will be replaced with equipment that will minimize compaction, or it will be plowed, disked, or ripped following placement? yes no

If no, explain:

Topsoil will be immediately stabilized with grasses and legumes to prevent loss by erosion, slumping, or crusting? yes no

If no, explain:

Topsoil stockpile areas are shown on maps and will be marked on the ground with permanent boundary markers to protect from loss? yes no

If no, explain:

Segmental topsoil removal and replacement is shown on maps? yes no

If no, explain:

Topsoil salvage and replacement plan included? yes no

If no, explain:

24B. Removal of Vegetation

Vegetation will be removed sequentially from areas to be mined to prevent unnecessary erosion? yes no

If no, explain:

Small trees and other transplantable vegetation will be salvaged for use in revegetating other segments? yes no

If yes, give details. If no, explain: **Refer to narrative and Revegetation Specifications.**

Wood and other organic debris will be:
 recycled removed from site chipped burned buried used to synthesize topsoil or mulch
 other (explain)

Solid waste disposal, burning, and land use permits are attached? yes no

Some coarse wood (logs, stumps) and other large debris will be salvaged for fish and wildlife habitats? yes no

If yes, give details. If no, explain: **Refer to narrative and Revegetation Specifications.**

24C. Erosion control for Reclamation

Pit floor will slope at gentle angles toward highwall, sediment retention pond, or proper drainage? yes no

If no, give details. If no, explain: **Refer to narrative.**

CHECKLIST OF RECLAMATION STANDARDS

Revegetation, sheeting, and (or) matting will be used to protect areas susceptible to erosion?
 If yes, give details. If no, explain: **Will not be necessary due to the high permeability of the soil/substrate.** yes no

Water control systems used for erosion control during segmental reclamation will:

Divert clean water around pit?	<input checked="" type="checkbox"/>	yes	<input type="checkbox"/>	no
Trap sediment-laden runoff before it enters a stream?	<input checked="" type="checkbox"/>	yes	<input type="checkbox"/>	no
Result in essentially natural conditions of volume, velocity, and turbidity?	<input checked="" type="checkbox"/>	yes	<input type="checkbox"/>	no
Handle a 25-year, 24-hour peak event? (Have you attached calculation?)	<input checked="" type="checkbox"/>	yes	<input type="checkbox"/>	no
Be removed or reclaimed?	<input type="checkbox"/>	yes	<input checked="" type="checkbox"/>	no

If any answers are no, explain: **n/a to both questions. Refer to narrative.**

Will any water control systems be removed upon final reclamation?
 If yes, explain: yes no

Water control measure will be established to prevent erosion of setbacks and neighboring properties?
 If yes, give details. If no, explain: **All drainage is contained in the pit and discharged through infiltration.** yes no

Storm-water conveyance ditches and channels will be lined with vegetation or riprap?
 If yes, give details. If no, explain: **n/a** yes no

Natural and other drainage channels will be kept free of equipment, wastes, stockpiles, and overburden?
 If no, explain: yes no

25. RECLAMATION TOPOGRAPHY

25A. Final Slopes

Final slopes will be created using the cut-and-fill method?
 Explain procedure to be used: **Cut method, refer to narrative.** yes no

Slopes will be created by mining to the final slope using the cut method?
 Explain procedure to be used: **Slopes will be mined to no greater than 2:1 slopes. Refer to narrative.** yes no

Slopes will vary in steepness?
 If no, explain: yes no

Slopes will have a sinuous appearance in both profile and plan view?
 explain: yes no

CHECKLIST OF RECLAMATION STANDARDS

Large rectilinear (that is, right angle, or straight, planar) areas will be eliminated? yes no

If no, explain:

Where reasonable, tracks of the final equipment pass will be preserved and oriented to trap moisture, soil, and seeds, and to inhibit erosion? yes no

If no, explain:

25B. Slope Requirements for Pits and Overburden/Waste Rock Dumps (non-saleable products)

If the mine is a quarry or in hard rock, skip to Quarry section(25C).

Slopes will vary between 2 and 3 feet horizontal to 1 foot vertical or flatter, except in limited areas where steeper slopes are necessary to create sinuous topography and control drainage? yes no

If no, explain:

For pits, slopes will not exceed 2 feet horizontal to 1 foot vertical except as necessary to blend with adjacent natural slopes? yes no

Give details: **Refer to narrative.**

Slope stability analysis required? yes no

If yes, see "Additional Information Requirements for Mines with Potentially Unstable or Steep Slopes." This document is included in the SM8AINST.PDF file.

Slope stability analysis provided by n/a

Slope Requirements for Quarries and Hardrock Metal Mines

If the mine is a pit in unconsolidated materials covered by Section 25B, go to Section 25D

Check the appropriate box(es)

- Slopes will not exceed 2 feet horizontal to 1 foot vertical.
- Slopes steeper than 1 foot horizontal to 1 foot vertical are an acceptable subsequent land use as confirmed on Form SM-6.
- Hazardous slopes or cliffs are indigenous to the immediate area and already present a potential threat to human life. Photo and maps attached to document presence of cliffs.
- Geologic or topographic characteristics of the site preclude slopes being reclaimed at a flatter angle and are an acceptable subsequent land use as confirmed on Form SM-6.

Slope stability analysis required? yes no

If yes, see "Additional Information Requirements for Mines with Potentially Unstable or Steep Slopes." This document is included in the SM8AINST.PDF file.

Slope stability analysis provided by _____

Measures will be taken to limit access to the top and bottom of hazardous slopes? yes no

Describe measures, or if no, explain:

Selective blasting will be used to remove benches and walls and to create chutes, buttresses, spurs, scree slopes, and rough cliff faces that appear natural? yes no

Describe procedures, or if no, explain:

Reclamation blasting will be used to reduce the entire highwall to a scree or rubble slope less than 2 feet horizontal to 1 foot vertical? yes no

_____ing plan is attached?

_____, explain:

yes no

yes no

CHECKLIST OF RECLAMATION STANDARDS

Access to benches will be maintained for reclamation blasting?

If no, explain:

yes no

Small portions of benches will be left to provide habitat for raptors and other cliff-dwelling birds?

yes no

25D. Backfilling

Slopes will require backfilling?

yes no

Depth of backfilling is n/a feet.

Slope stability compaction analysis required? n/a

yes no

Compaction analysis provided by n/a

Backfilling plan and (or) permits are attached?

yes no

If no, explain: **No backfilling proposed, refer to narrative.**

Backfilling will be done with overburden material after topsoil has been separated?

yes no

If no, describe composition and source of backfill material: n/a

Explain method of placement of fill: n/a

Locations of stockpiles are shown on maps and will be marked on the ground with permanent boundary markers?

yes no

Will backfill be imported? n/a

yes no

If yes, give volumes needed to meet reclamation plan: n/a

Areas to be backfilled are shown on maps?

yes no

If no, explain: n/a

All grading/backfilling will be done with clean, inert, non-organic solids?

yes no

If yes, give details. If no, explain: n/a

Backfilled slopes will be compacted?

yes no

If yes, give details. If no, explain: n/a

Will you be backfilling into water? n/a

yes no

If yes, is slope stability analysis attached? n/a

yes no

If yes, describe method:

25E. Mine Floors

Flat areas will be formed into gently rolling mounds?

yes no

Give details. If no, Explain: **Some grading will be required to leave mounds on the pit floor. Refer to narrative.**

Refer to narrative.

CHECKLIST OF RECLAMATION STANDARDS

Mine floor will be gently graded into sinuous drainage channels to preclude sheetwash erosion during intense precipitation? n/a yes no
 If yes, give details. If no, explain: **Refer to narrative.**

Mine floor and other compacted areas will be bulldozed, plowed, ripped, or blasted to foster revegetation? yes no
 If yes, give details. If no, explain: **Refer to narrative.**

25F. Lakes, Ponds, and Wetlands

Is water currently present in the area or will the mining penetrate the water table? yes no
 If no, go to Section 25G.

Reclaimed areas below the permanent low water table in soil, sand, gravel, and other unconsolidated material will have a slope no steeper than 1.5 feet horizontal to 1 foot vertical? yes no
 If yes, give details. If no, explain:

If not already present, soils, silts, and clay-bearing material will be placed below water level to enhance revegetation? yes no
 If yes, give details. If no, explain:

Some parts of pond and lake banks will be shaped so that a person can escape from the water? yes no
 If yes, give details. If no, explain:

Armored spillways or other measures to prevent undesirable overflow or seepage will be provided to stabilize bodies of water and adjacent slopes? yes no
 If yes, give details. If no, explain:

Wildlife habitat will be developed, incorporating such measures as:

Sinuous and irregular shorelines?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Varied water depths?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Shallow areas less than 18 inches deep?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Islands and peninsulas?	<input type="checkbox"/> yes	<input type="checkbox"/> no

Give details:

Ponds or basins will:

Be located in stable areas?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Have sufficient volume for expected runoff?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Have an emergency overflow spillway?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Spillways and outfalls will be protected (for example, rock armor) to prevent failure and erosion?	<input type="checkbox"/> yes	<input type="checkbox"/> no

If any answers are no, explain:

CHECKLIST OF RECLAMATION STANDARDS

Proper measures will be taken to prevent seepage from water impoundments that could cause flooding outside the permitted area or adversely affect the stability of impoundment dams or adjacent slopes? yes no
 If yes, give details. If no, explain:

Written approval from other agencies with jurisdiction to regulate impoundment of water is attached? yes no
 If no, explain:

25G. FINAL DRAINAGE CONFIGURATION

Drainage will be capable of carrying the peak flow of the 25-year, 24-hour precipitation event (*Data are available at DNR Region offices*) yes no
 If yes, are calculations attached? n/a yes no
 If yes, give details. If no, explain: **Refer to narrative. No drainage structures are required due to the high infiltration rate of the soils on site.**

Drainages will be constructed on each reclaimed segment to control surface water, erosion, and siltation? n/a yes no
 Clean runoff is directed to a safe outlet? yes no
 If either yes, give details. If no, explain: n/a

Are these shown on maps? n/a yes no

The grade of ditches and channels will be constructed to limit erosion and siltation? n/a yes no
 If yes, give details. If no, explain: n/a

Natural-appearing drainage channels will be established upon reclamation? n/a yes no
 If yes, give details. If no, explain: n/a

26. SITE CLEANUP AND PREPARATION FOR REVEGETATION

26A. Dealing with Hazardous Materials

Hazardous materials are present at the mine site? yes no

If no, go to Section 26B

The final ground surface drains away from any hazardous natural materials? yes no
 If yes, give details. If no, explain:

Plan for handling hazardous mineral wastes indigenous to the site is attached? yes no

If no, written approval from all appropriate solid waste regulatory agencies attached? yes no

26B. Removal of Debris

All debris (garbage, 'bone piles', treated wood, old mining equipment, etc.) will be removed from the mine site? yes no
 All sheds, scale houses, and other structures will be removed from the site? yes no
 If either answer is yes, give details. If no, explain: **All materials, equipment and scale shack will be removed at the completion of mining.**

27. REVEGETATION

The mine site is in: eastern Washington
 western Washington

The mine site is: wet dry?

The average precipitation is **65 inches** per year.

CHECKLIST OF RECLAMATION STANDARDS

Revegetation will start during the first proper growing season (fall for grasses and legumes, fall or late winter for trees and shrubs) following restoration of slopes? yes no

If yes, give details. If no, explain: Refer to narrative, Revegetation Specifications.

Test plots will be used to determine optimum vegetation plans? yes no

The site will not be revegetated because:

- It is a rural area with a rainfall exceeding 30 inches annually and erosion will not be a problem (requires approval of DNR).
- Demonstration plots and areas will be used to show that active revegetation is not necessary.
- Revegetation is inappropriate for the approved subsequent use of this surface mine.

Explain: n/a

Documentation is attached? yes no

27A. Recommended Pioneer Species

In the Sections below, check the species that will be planted at your mine site:

** indicates nitrogen-fixing species*

Western Washington Dry Areas

- | | | | |
|--|--|---|---|
| <input checked="" type="checkbox"/> alfalfa* | <input type="checkbox"/> Lupine* | <input checked="" type="checkbox"/> clover* | <input type="checkbox"/> orchard grass |
| <input type="checkbox"/> cereal rye | <input type="checkbox"/> perennial rye | <input type="checkbox"/> colonial bent grass | <input type="checkbox"/> ponderosa pine |
| <input type="checkbox"/> creeping red fescue | <input checked="" type="checkbox"/> red alder* | <input checked="" type="checkbox"/> Douglas fir | <input type="checkbox"/> shore pine |
| <input checked="" type="checkbox"/> ground cover | <input type="checkbox"/> shrubs | <input checked="" type="checkbox"/> other: Refer to narrative, Revegetation Specifications. | |

Western Washington Wet Areas

- | | | | |
|--|--|--|---------------------------------|
| <input type="checkbox"/> birdsfoot trefoil | <input type="checkbox"/> sedges | <input type="checkbox"/> cedar | <input type="checkbox"/> tubers |
| <input type="checkbox"/> cottonwood | <input type="checkbox"/> wetland grasses | <input type="checkbox"/> creeping red fescue | <input type="checkbox"/> willow |
| <input type="checkbox"/> red alder* | <input type="checkbox"/> other | | |

Eastern Washington Dry Areas

- | | | | |
|---|---|-----------------------------------|---|
| <input type="checkbox"/> alder* | <input type="checkbox"/> grasses | <input type="checkbox"/> alfalfa* | <input type="checkbox"/> juniper |
| <input type="checkbox"/> black locust | <input type="checkbox"/> lodgepole pine | <input type="checkbox"/> clover | <input type="checkbox"/> lupine* |
| <input type="checkbox"/> deciduous trees | <input type="checkbox"/> ponderosa pine | <input type="checkbox"/> shrubs | <input type="checkbox"/> deep-rooted ground cover |
| <input type="checkbox"/> diverse evergreens | <input type="checkbox"/> other | | |

Eastern Washington Wet Areas

- | | | | |
|---------------------------------------|-------------------------------------|---------------------------------|---------------------------------|
| <input type="checkbox"/> alder* | <input type="checkbox"/> cottonwood | <input type="checkbox"/> poplar | <input type="checkbox"/> sedges |
| <input type="checkbox"/> serviceberry | <input type="checkbox"/> tubers | <input type="checkbox"/> willow | |
| <input type="checkbox"/> other | | | |

Give planting details (stems/acres of trees and shrubs, see Forest Practices manual; lbs/acre of grass, legume, or forb mixture):
Refer to narrative, Revegetation Specifications.

Describe weed control plan:

Control deleterious vegetation that competes with the forest species.

27B. Planting Techniques

Revegetation at this site will require:

CHECKLIST OF RECLAMATION STANDARDS

- | | | | | |
|--|-------------------------------------|-----|-------------------------------------|----|
| Ripping and tilling? | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| Blasting to create permeability? | <input type="checkbox"/> | yes | <input checked="" type="checkbox"/> | no |
| Mulching? | <input type="checkbox"/> | yes | <input checked="" type="checkbox"/> | no |
| Irrigation? | <input type="checkbox"/> | yes | <input checked="" type="checkbox"/> | no |
| Fertilization? Only as needed. | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| Importation of clay- or humus-bearing soils? | <input checked="" type="checkbox"/> | yes | <input checked="" type="checkbox"/> | no |
| Other soil conditioners or amendments? | <input type="checkbox"/> | yes | <input checked="" type="checkbox"/> | no |
- Give details: **Refer to narrative, Revegetation Specifications.**

Trees and shrubs will be planted in topsoil or in subsoil amended with generous amounts of organic matter? yes no
 If yes, give details. If no, explain: **Native soils on-site. Refer to narrative, Revegetation Specifications.**

- | | | | | |
|---|-------------------------------------|-----|-------------------------------------|----|
| Mulch will be piled around the base of trees and shrubs? | <input type="checkbox"/> | yes | <input checked="" type="checkbox"/> | no |
| High quality stock will be used? | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| Trees and shrubs will be planted while they are dormant? | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| Stock will be properly handled, kept cool and moist, and planted as soon as possible? | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| Seeds will be covered with topsoil or mulch no deeper than one-half inch? | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
- If any answers are no, explain: **Refer to narrative, Revegetation Specifications.**

28. FINAL CHECKLIST

- | | | | | |
|---|---|---|--|----|
| All required maps are attached (<i>See Instructions for detailed requirements</i>)? | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| All required cross-sections are attached (<i>See Instructions for detailed requirements</i>)? | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| Geologic map attached (if required)? | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| All documents submitted have the date, the name and address of the permit holder, and the application number on every page of the material? | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| plan contains predominantly relevant information? | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| Have you completed the SM-6 and has it been signed by the local jurisdiction? | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| Have you provided the SEPA checklist? | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| Have you provided a copy of the SEPA Determination (DNS, MDNS, or DS)? | <input type="checkbox"/> | yes | <input checked="" type="checkbox"/> | no |
| Have you attached photographs? Figure 2 of the Reclamation Narrative. | <input checked="" type="checkbox"/> | yes | <input type="checkbox"/> | no |
| Are additional supplemental studies included? | <input type="checkbox"/> | yes | <input checked="" type="checkbox"/> | no |
| If yes, check the appropriate box(es) below: | | | | |
| <input type="checkbox"/> Archeological | <input type="checkbox"/> Geohydrologic | <input type="checkbox"/> Backfill | <input type="checkbox"/> Slope stability | |
| <input type="checkbox"/> Topsoil | <input type="checkbox"/> Flood plain | <input type="checkbox"/> Conservational | <input type="checkbox"/> Vegetation | |
| <input type="checkbox"/> Other | | | | |
| Other permits required? | <input type="checkbox"/> | yes | <input checked="" type="checkbox"/> | no |
| If yes, check the appropriate box(es) below: | | | | |
| <input type="checkbox"/> Shoreline permit | <input type="checkbox"/> Water Discharge Permit | <input type="checkbox"/> Solid Waste Permit | | |
| <input type="checkbox"/> Air Quality Permit | <input type="checkbox"/> NPDS or General Discharge Permit | <input type="checkbox"/> Hydraulic Project Approval | | |
| <input type="checkbox"/> Special or Conditional Use Permit | <input type="checkbox"/> Other | | | |

CHECKLIST OF RECLAMATION STANDARDS

When signed by the applicant and approved by the Department of Natural Resources, this document and the associated maps, cross sections, reclamation narrative, and other attachments will be the approved reclamation plan for this permit that the permit holder must follow. Significant variations from the approved reclamation plan may require that a new plan be submitted to the Department for approval.

The applicant shall be considered as the permit holder for this surface mine and shall be responsible for compliance with Chapter 78.44 RCW, Chapter 332-18 WAC, the approved reclamation plan and attachments, and the conditions of the permit if issued by the Department of Natural Resources.

I hereby agree to comply with this plan. <i>Signature of applicant or company representative</i>	Name and Title of Company Representative <i>(Please print)</i>	Date signed
---	---	-------------

SURFACE OWNERSHIP (For New Permits Only)
 Give names, addresses, and signatures of all individuals with possessory interest in land.
 (attach signed copies of this page if more than one)
 I verify that the applicant has my permission to mine from my land.
Signature of landowner(s) *Date Signed*

I hereby verify that I have seen and approved this plan.
Signature of landowner(s) *Date Signed*

OWNERSHIP OF RIGHTS TO REMOVE MINERALS BY SURFACE MINING (For New Permits Only)
 Give names, addresses, and signatures of all individuals with rights.
 (attach signed copies of this page if more than one)
 I verify that the applicant has my permission to mine this land.
Signature of rights owner(s) *Date Signed*

I hereby verify that I have seen and approved this plan.
Signature of rights owner(s) *Date Signed*

FOR DEPARTMENTAL USE ONLY

Date accepted	Accepted by: _____ Title: _____	Reclamation Permit No. _____
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Comments by Department:

RECLAMATION PLAN NARRATIVE

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RECLAMATION PLAN NARRATIVE

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APPENDICES

APPENDIX A – *Sauk Landfill Monitoring Well Logs*

APPENDIX B – *DOE Water Supply Well Logs*

1 – INTRODUCTION

On behalf of 3DH Aggregates (3DH), Ecological Land Services, Inc. (ELS) has prepared this revised reclamation plan for the Washington State Department of Natural Resources (DNR), Surface Mining Reclamation Permit Number 11785. This revision, including the narrative, DNR forms, additional supporting material, maps and figures, is intended to satisfy the DNR requirements as stated in *Chapter 78.44 Revised Code of Washington* (RCW).

2 – SITE DESCRIPTION

2.1 – Site Location

The site is accessed from State Route 20 on an access road south of milepost 95 that also serves the Sauk Transfer Station, between Concrete and Rockport, Washington (Figure 1). An 1996 aerial photograph also identifies the site (Figure 2). The permit boundary encompasses 40.0 acres, identified as parcel # P44865 (Figure 3). The legal description of the site is SW $\frac{1}{4}$ of the NE $\frac{1}{4}$, and NW $\frac{1}{4}$ of the SE $\frac{1}{4}$ in Section 28 Township 35 North, Range 9 east of the Willamette Meridian.

2.2 – Background

The site is currently permitted for mining under DNR reclamation permit # 11785. There are no plans to expand the existing permit boundary, however, this revised reclamation plan will join reclaimed contours with an existing surface mine (WSDOT Pit M-106) that borders the northern property boundary. The purpose for joining the two surface mines (at some point in the future) is to best utilize the mineral resource and combine a sinuous topography at the completion of both operations.

The 40.0 acres was originally permitted in 1978 in anticipation of supplying materials for road repairs and maintenance along the North Cascade Highway. Sand and gravel mining is currently in progress on the northern portion of the DNR-permitted area. Skagit County, through Conditional Use permit #77-031, has approved the 40.0-acre site; refer to SM-6 attached with this updated plan. The extracted materials are located within a glacio-fluvial deposit that is utilized for a variety of state road and bridge projects. Mining typically involves removing a relatively thin layer of topsoil before excavating the sandy/gravel deposit. The site currently has an active borrow area open to a maximum depth of approximately 30 feet below the existing topography.

The undisturbed area within the permit boundary consists of gently rolling topography with upland forest and shrub communities. The site was logged within the last decade and is heavily vegetated in areas that have not been cleared for gravel extraction. No streams or critical habitat are located within or immediately adjacent to the site. The Skagit River is located over 800-feet southwest of the property boundary. Currently a two-lane paved road provides a shared access to the active mining area and to the adjacent County Solid Waste Transfer Station.

2.3 – Subsequent Use

The subsequent use for the site is rural residential. Following mining, the site will be reclaimed by contouring the slopes to a sinuous and natural topography and revegetating them with conifer and deciduous trees. The subsequent use is consistent with the Skagit County zoning and comprehensive plan designation of RRv (Rural Reserve). The subsequent use is also consistent with land uses adjacent to the site, which include woodlands, mining, transfer station and rural residential.

- According to *Skagit County Code, Section 14.16.320 (1)(2e)*, “the purpose of the Rural Reserve district is to allow low-density development and to preserve the open space character of those areas Lands in this zoning district are transitional areas between resource land and non-resource lands for those uses that require moderate acreage. Permitted uses include cultivation, harvest and production of forest products or any forest crop, in accordance with the Forest Practice Act of 1974, and any regulations adopted pursuant thereto.”

3 - GEOLOGY AND HYDROLOGY

3.1 – Regional Geology

The 3DH property is located in the upper Skagit Valley approximately 800 feet east/northeast of the Skagit River. At this stretch, the river is approximately an elevation of 200 feet MSL, about 330 vertical feet below the pit (Figure 4). The area is covered by predominantly glacial and alluvial debris overlying metamorphic bedrock at an unknown depth. The nearest bedrock exposures are about 6,000 feet northeast of the site on the flanks of Sauk Mountain.

Previous study and monitoring of the abutting Sauk landfill/transfer station provides significant and adequate information to summarize the geology and hydrology of the 3DH surface mine. The landfill/transfer station borders the northeastern property boundary of the 3DH site. The landfill was previously backfilled and has been closed, covered and monitored. Currently, the landfill property is developed as a transfer station for Skagit County. The majority of geology and hydrology information provided in this report is based on the landfill/transfer station report by Hong West & Associates, *Monitoring Well Construction Report Gibraltar and Sauk Landfills Skagit County, Washington*, December 20, 1990.

Four monitoring wells (MW-1, MW-2, MW-3 and MW-4) were installed at the Sauk Landfill during the period October 12, 1989 to October 24, 1989 (Figure 5). All four wells were installed in the uppermost aquifer. Well MW-3 was installed in an upgradient position; the remaining wells were installed in the down gradient position. Table 3-1 summarizes the significant well parameters as provided in the aforementioned report.

TABLE 3-1

Monitoring Well Specifics Sauk Landfill

Well No.	Ground Surface Elevation (ft)	Top of Casing Elevation (ft)	Drill Depth (ft)	Screen Depth (ft)	Level Elevation (ft)
MW-1	522.38	524.23	182	157-167	365-355
MW-2	524.22	526.07	182	155-165	369-359
MW-3	551.80	553.65	198	168-178	384-374
MW-4	528.14	530.04	178	158-168	370-360

Note: All elevations are above sea level, USGS datum. Top of casing includes a Geoguard pump cap.

3.2 – Site Geology

Glacio-fluvial deposits underlie the site. Most of the material encountered in the boreholes of the Sauk landfill/transfer station study appears to be glacial material, which has been reworked and re-deposited by the Skagit River (Figure 5 Geologic X-section). Subsurface exploration and existing domestic water well logs reviewed by Hong West & Associates indicate five major geologic units beneath the site:

- 1) Well Graded Sand and Gravel
- 2) Poorly Graded Sand
- 3) Silty Gravel
- 4) Silt/Clay Strata
- 5) Deep Gravel Deposits

Well Graded Sand and Gravel

The materials exposed in the existing 3DH pit appear to be consistent with materials described in the adjacent study site. Well graded yellow-gray to olive-gray sand and gravel which varies in thickness from about 30 vertical feet on the northwest side of the study area to about 75 feet on the southeast side. Cobbles and boulders are scattered throughout the unit.

Poorly Graded Sand

The upper gravel unit is underlain by distinct pale yellowish-brown poorly graded sand with thin, infrequent still stringers. The Poorly Graded Sand is about 140 feet thick on the western margin of the site narrowing to about 65 feet thick on the eastern margin of the study area. The unit becomes gravelly with depth below elevation 390 above sea level (ASL).

A distinct upper silt interbed, approximately 10 feet thick, was identified in two of the four borings between elevation 390 and 400 feet ASL. The interbed is discontinuous beneath the landfill site and does not appear to be a perching layer.

Another distinctive silt layer at elevation 360 feet ASL characterizes the base of this unit. This lower silt layer is only about 2.5 feet thick but appears to be continuous across the study site. However, it was barely discernable in MW-3. The silt interbed has sufficient integrity to serve as a confining layer for the underlying aquifer.

Silty Gravel

The Silty Gravel is host to the uppermost aquifer and is encountered between elevation 350 and 360 feet ASL. The Silty Gravel varies considerably in texture and was significantly coarser grained (less silt) in monitoring wells MW-1 & 2 than MW-3 & 4. Monitoring wells 1 and 4 penetrated the full thickness of the Silty Gravel and were advanced into the underlying Silt/Clay strata.

Silt/Clay Strata

Beneath the Silty Gravel is a gray to brown clayey silt to silty clay. This material appears to be a glacial lake deposit. A thin stringer of gray sand and gravel was identified in MW-1. The total thickness of the Silt/Clay strata penetrated was about 20 feet. Nearby domestic well logs indicate the silt and clay unit as being 150 feet thick.

Deep Gravel Deposits

Domestic well logs show a gravel deposit beneath the Silt/Clay strata near elevation 200 feet ASL. The thickness of the unit is unknown.

3.3 – Groundwater

In addition to significant characterization of the geology at the adjoining Sauk landfill/transfer station, the Hong West & Associates study collected sufficient groundwater data that also adequately represents the 3DH site. The information provided in this report is based on the aforementioned study conducted on the adjoining Sauk Landfill/Transfer station site.

Two aquifers have been identified beneath the Sauk Landfill: a shallow semi-confined aquifer and a deep confined aquifer. Available data, per the Hong West & Associates report indicated that only the deep confined aquifer is used for water supply by residents in the vicinity of the mine.

Shallow Semi-Confined Aquifer

Based on fall 1989 and spring 1990 water level measurements by the Skagit County Health Department, the potentiometric level of the shallow semi-confined aquifer ranges from elevation 390.23 to 372.78 feet ASL, refer to Table 3-2 and Figure 5. Groundwater level monitoring between fall 1989 and spring 1990 indicated the potentiometric surface fluctuated up to >15 feet (MW-1). The following table summarizes groundwater levels at the Sauk Landfill for fall 1989 and spring 1990, per Hong West & Associates.

TABLE 3-2

Groundwater Levels Sauk Landfill

Well No.	Top of Casing Elevation (ft)	October 31, 1989		May 17, 1990	
		Depth (ft)	Elev. (ft)	Depth (ft)	Elev. (ft)
MW-1	524.23	151.45	372.78	135.92	388.31
MW-2	526.07	147.84	378.23	139.42	386.65
MW-3	553.65	176.81	376.84	163.42	390.23
MW-4	530.04	152.90	377.14	140.85	389.19

Note: All elevations are above sea level, USGS datum.

Groundwater flow in the shallow confined aquifer is south toward the Skagit River and appears to form a distinctive trough beneath the landfill. The average hydraulic gradient beneath the landfill ranges for 0.004 on the west side of the landfill to about 0.006 on the east side. Hong West & Associates' well logs (MW-1, MW-2, MW-3 and MW-4) are included in Appendix A.

Deep Confined Aquifer

The available data indicate the deep confined aquifer is separated from the shallow semi-confined aquifer by a 150-foot thick regional aquitard of silt and clay (Figure 5). The deep confined aquifer consists of gray to brown sandy gravel at approximately 200-foot ASL with a potentiometric level of approximately elevation 210-foot ASL.

Water level data collected by the Skagit County Health Department indicates the direction of groundwater flow in the deep confined aquifer is approximately south 45 degrees west toward the Skagit River. The deep confined aquifer is the principal water supply for residents in the area.

3.4 – Groundwater Use

The Skagit County Health Department has identified 16 water supply wells within one mile of the 3DH site, per Hong West & Associates report. ELS removed 2 well numbers from the original report because no well logs were identified. Additionally, there was no well log for a well (K1) that the Hong West report indicated near the eastern edge of the 3DH parcel. An on-site investigation was not able to locate this well and a subsequent discussion with a Skagit County Public Works Department senior hydrologist confirmed that well K1 might never have existed (Gary Sorensen, 9/23/02).

Of the remaining logged wells, eight are on the northeast side of the river. Four wells are between the mine site and the river and are potentially down-gradient locations (Figure 6). Refer to the following Table 3-3, Water Supply Wells, for well distance and direction from the 3DH pit.

TABLE 3-3**Water Supply Wells**

Section/ Well No.	Well Owner	Well Depth (ft)	Distance & Direction From 3DH Pit Site
21/E1	Dean Mallory	214	5,000 ft.NW
21/M1	Robert Taylor	60	3,600 ft.NW
21/P1	Mark Berg	312	1,700 ft.NW
27/E1	Otto Von Borcke	155	2,800 ft.E
28/D1	Bill Groth	60	2,100 ft.NW
28/D2	George Theodoratus	46	2,000 ft.NW
28/E1	Les Bridges	40	2,400 ft.W
28/E2	Lester Thistle	40	2,300 ft.W
28/E3	Walter Magini	40	2,200 ft.W
28/L1	Jack Albrech	260	1,000 ft.W
28/L2	Steve Hysten	140	700 ft.W
28/N1	James Fratello	50	2,100 ft.SW
28/M1	Bill Blunt	60	2,100 ft.W
28/M2	Roy Miller	37	1,900 ft.W
29/A1	Jan Nottingham	60	3,300 ft.W
29/A2	Rose J. Crouch	37	2,800 ft.W

Note: Well depths are feet below ground surface.

Based on the available information, it appears that wells 28/D1, 28/D2, 28/L1 and 28/L2 are potentially down gradient of the Sauk Landfill and produce from a shallow river-fed unconfined aquifer or the deep confined aquifer. There are no known water supply wells tapping the shallow semi-confined aquifer. Available data suggest that it is unlikely that any wells in the area tap into the shallow semi-confined aquifer for water supply due to its low yield potential. Insufficient data are available to determine the hydraulic relationship between the shallow semi-confined aquifer and the deep confined aquifer. Water supply well log reports are included in Appendix B.

4 – MINING AND RECLAMATION

4.1 – Segmental Mining and Reclamation

The permit boundary for this site is 40.0 acres. Approximately 12 acres have been disturbed from previously mining (Figure 4). All mining disturbance (previous and future) is included within the 40.0-acre permit boundary. The mining disturbance boundary includes all mining-related operations including excavation, product stockpiles, topsoil stockpiles and haul roads. Historically, a portion of the topsoil was salvaged and stockpiled along the northwest and southeast boundaries of the project (Mining Segment 1). Current topsoil stockpiles cover 0.75 acres in Segment 1. All remaining topsoil and subsoil in Segments 2-4 will be salvaged and considered a valuable resource for reclaiming the site.

Mining is divided into 4 segments (11.8, 8.8, 8.7 and 8.2 acres) followed by phased reclamation of each mining segment (Figure 7). Maximum depth of mining will be approximately 70 feet below ground surface (bgs), from elevation 520 to 450 feet MSL. A permanent access road running north-south will be constructed near the center of the pit and will also connect directly to SR 20. A sinuous post mining topography will be constructed during mining operations where slopes will be excavated to no steeper than 2:1 (Figure 8). No backfilling will be required using the cut method; refer to the cross sections in Figure 9). The final slope configuration will be created as part of the mining process. Some minor grading and shaping will be required to finish the pit floor and reclaimed slopes. The pit floor and reclaimed slopes will join the existing surface mine to the north creating a sinuous and natural looking topography between both operations. No imported materials are required for backfilling or reclaiming the site.

The mining and reclamation plans are designed to adjoin reclamation plans with the existing surface mine (WSDOT M-106) that borders the northern property boundary. At the completion of mining segment 1, the pit floors will be approximately 30 bgs or 500-foot MSL at the adjoining WSDOT and 3DH property boundaries. The final reclamation contours will also adjoin in a sinuous topography between the two pits.

4.2 – Topsoil and Subsoil Plan

United States Department of Agriculture Soil Conservation Service *Soil Survey of Skagit County Area, Washington 1989* describes the remaining topsoil onsite as Winston gravelly silt loam (158) and Barneston very gravelly sandy loam (6) (Figure 10). Based on ELS field observations, the soil survey is relatively accurate depicting the depth of soils found in the undisturbed areas of the permit boundary. The organic soil profile (E or A horizon) is relatively thin (4-6 inches) overlying the subsoil (B horizon), which is approximately 18-inches thick (both gravelly silt loam). The substratum is extremely gravelly sand. Soil pits revealed that the topsoil and subsoil thickness varied in depth (1-3 feet) with some pockets of sand for both soil series.

All available topsoil and subsoil will be removed (average 2 feet) prior to mining and stockpiled or directly placed on mined areas to assist in reclaiming the mine site. The proposed disturbance boundary is 37.7 acres of which approximately 12.0 acres have been previously disturbed with approximately 14,500 cu. yds. of topsoil/subsoil salvaged and stockpiled. Based on the soil conditions of the site, vegetation appears to adapt very well on the relatively shallow soils. Both the Barneston and the Winston soil have an effective rooting depth of 60 inches or more per the *SCS Soil Survey*. This demonstrates that the native vegetation is rooting well below the E, A and B horizons (approximately 24 inches) into the substratum. Conifer and deciduous trees are observed on-site growing on substrate that has little to no topsoil or organic horizon. Due to the shortage of topsoil in mining segment 1, topsoil will be replaced at a depth of 1.2 feet over reclamation phases 1 & 2 to offset the deficit. Based on the success of vegetation growing on existing soils and disturbed conditions, topsoil replaced to a depth of 1.2 feet (14.5 inches) over reclaimed slopes, staging areas and roads will be sufficient to promote effective revegetation. A minimum of 1.2 feet of topsoil will be left in place at stockpile locations and ripped prior

to revegetation. The topsoil removed from mining segment 3 & 4 will be replaced on reclaimed areas at the same depth, approximately 1.7 feet (20.0 inches). Refer to Soil Budget (Table 4-1).

Reclaimed sites will be ripped to reduce compaction and promote deep rooting. Topsoil will be replaced evenly over the graded slopes with scrapers or truck dozer operations. Dozers and or backhoes may be used to configure the final slope and prepare the seedbed. Some micro relief in the reclaimed surface, such as shallow depressions and ridges, will be left from ripping and topsoil replacement operations. This micro topography will promote species diversity in the understory of the forest and assist in stormwater runoff sediment capture during the initial years of reclamation. In all cases the final reclaimed surface will be ripped to reduce compaction and promote deep rooting, infiltration of precipitation, moisture-holding capacity, soil mixing and aggregate structure.

Topsoil will be handled only during conditions that are not overly wet or dry. Because the existing topsoil and subsoil is conducive to supporting native vegetation and those species planned for reclamation, no topsoil supplements will be required other than those mentioned above. Topsoil and other reclaimed areas will be revegetated with prescribed species during the first fall or winter after completion of mining to stabilize the site. Topsoil/subsoil stockpiles and temporary cut slopes will be "track walked" perpendicular to the slope and revegetated immediately to prevent erosion and promote stabilization.

4.3 – Setbacks and Buffers

A permanent setback of 10 feet has been established inside the permit boundary, except for a portion of the north boundary where the 3DH Aggregate mine adjoins the WSDOT mine. Reclamation setbacks are not applicable in this case due to the cut technique of mining. The final slope configuration will be created as part of the mining process; no backfilling will be required. No streams, unstable slopes or wildlife habitat are located on-site or adjacent to the project that might require additional buffers.

5 - EROSION CONTROL

5.1 – Existing Stormwater

Regional topography in the vicinity directs drainage west and southwest to the Skagit River, approximately 0.4 miles from the site. Due to the porous nature of the gravely substratum, infiltration is very rapid in the vicinity of the pit. There is no evidence of runoff leaving the site. During heavy storm events or rapid snowmelt, some shallow puddling may occur in the existing pit. It would appear that runoff infiltrates in the disturbed areas and disperses amongst heavy vegetation and infiltrates in the undisturbed areas of the property.

TABLE 4-1
Soil Budget For 3DH Aggregates Revised Reclamation Plan

Mining Segment	Reclamation Phase	Acres	ESTIMATED TOPSOIL VOLUME (cy)			ESTIMATED OVERBURDEN VOLUME (cy)		
			¹ Topsoil Available	Topsoil For Reclamation	² Surplus Topsoil	Overburden Available	Overburden For Reclamation	Overburden Surplus
Seg. - 1	Phase 1	12.3	11,378	23,813	(12,435)	-	-	-
Seg. - 2	Phase 2	9.2	29,685	17,811	11,874	-	-	-
Seg. - 3	Phase 3	9.0	24,103	24,103	-	-	-	-
Seg. - 4	Phase 4	8.6	23,031	23,031	-	-	-	-
Totals		39.1	88,197	88,758	(561)	-	-	-

¹ Topsoil available in segment 1 limited to 11,378 cubic yards of topsoil previously stockpiled.

² Total deficit is the result of rounding off depth to 2 decimal points.

Assumptions:

Maximum Mining Depth: 70 feet below ground surface.

Permit Boundary Acreage: 40.0 acres.

Mining Disturbance Boundary: 39.1 acres

Previous Mining Disturbance Boundary: Approximately 12.3 acres already disturbed; topsoil was salvaged from a portion of this area.

Topsoil Salvage Depth: Typically A&B or E&B soil horizons. Winston soil series ave. 2 feet or 24" (Seg. 1&2) and Bameston soil series ave. 20" (Seg. 3&4) (SCS 1989).

Overburden Depth: No overburden is available; all material below the topsoil horizons will be extracted as mineral resources.

Topsoil Placement Depth: 1.2 feet (14.5 inches) averaged over segments 1 and 2. Minimum 1.66 feet (20 inches) replaced over segments 3 & 4.

Volumes: Cubic yards based on in situ calculations (no swell factor included).

Calculations Notes:

Topsoil Available: Volume based on 2.0 feet of topsoil salvaged in the previously unmined area (26.8 acres) and includes 11,378 cu. yards of previously stockpiled topsoil.

Topsoil Placement: 1.2 foot averaged placement depth in segments 1 & 2. 1.66-foot placement depth in segments 3 & 4. Includes E, A and B soil horizons.

Overburden Available: No overburden available or required, all overburden will be extracted as product.

Existing Topsoil Stockpile Volume: Stockpile dimensions are 0.75 acre x 43,560 ft/acre x 12 ft/27 = 11,378 cubic yards.

5.2 – Proposed Stormwater and Erosion Control System

Historically, there is no evidence that runoff flows off site. It appears that normal to heavy precipitation and snowmelt infiltrate on-site. Based on the low runoff potential (Hydrologic Soil Group A and B and infiltration rate (>20 inch per hour) for the Winston and Barneston Soil Series as defined by the *Stormwater Management Manual For The Puget Sound Basin*, Washington State Department of Ecology and *SCS Soil Survey*, very little if any runoff is expected to leave the site. No runoff calculations are required for the 25-year 24-hour event based on no field observation of runoff and high infiltration of soils.

6 – REVEGETATION PLAN

6.1 – Upland Forestry

Native upland forested communities consisting of conifer and hardwood with small open space areas will be established to provide a diverse and successful revegetation scheme for the site. Forested communities will consist of conifer and hardwood species being planted (435 trees/acre) on replaced topsoil. Segments within designated phases of mining will be sown annually with the prescribed species to develop contemporaneous reclamation as mining progresses.

Preserving mature, existing vegetation around the edges of the permit boundary will maintain wildlife habitat and allow for natural vegetation propagation to occur. A mixture of grasses, shrubs, and trees remain on-site and border the property. The following revegetation specifications in Table 6-1 and 6-2 identify prescribed species to be installed to enhance vegetative diversity, wildlife habitat, slope protection and erosion control. Bareroot trees will be supplied by a nursery.

TABLE 6-1

Upland Forest Revegetation Specifications

Species Common Name	Scientific Name	Planting Method	Planting Density	Planting Season
Douglas fir	<i>Pseudotsuga menziesii</i>	Bareroot	435 per acre	Spring
Red alder	<i>Alnus rubra</i>	Bareroot	435 per acre	Spring

6.2 - Open Space

Small open space areas within the uplands will be seeded with a grass legume mix at 20 pounds per acre to promote wildlife forage. These small pockets will be located in areas that will not minimize the function and value of the upland forest. The following seed mix is a combination of native and non-native species recommended to provide effective soil stabilization, soil nutrients, wildlife forage and will be effective in achieving temporary erosion control and long-term reclamation goals for the site. This prescription can be substituted with a comparable mix.

TABLE 6-2

Open Space Revegetation Specifications

Species Common Name	Scientific Name	Planting Method	Planting Density	Planting Season
Big bluegrass	<i>Poa ampla</i>	broadcast	4 %	spring/fall
Columbia brome	<i>bromus vulgaris</i>	broadcast	20 %	spring/fall
Orchard grass	<i>Dactylis glomerata</i>	broadcast	19 %	spring/fall
Timothy	<i>Phleum pratense</i>	broadcast	10 %	spring/fall
Tall fescue	<i>Festuca arundinacea</i>	broadcast	9 %	spring/fall
NZ White clover	<i>Trifolium repens</i>	broadcast	10 %	spring/fall
W. Dutch clover	<i>Trifolium repens</i>	broadcast	19 %	spring/fall
Ladak alfalfa	<i>Medicago sativa</i>	broadcast	4 %	spring/fall
Burnet	<i>Sanguisorba</i>	broadcast	5 %	spring/fall

REFERENCES

3DH Aggregate, Inc. 2000, *Land Technologies – Alternative Cell 1 Phase 2 Reclamation Plan*.

Hong West & Associates, *Monitoring Well Construction Report Gibraltar and Sauk Landfills Skagit County, Washington*, prepared for R.W. Beck and Associates, December 20, 1990.

United States Department of Agriculture Soil Conservation Service, *Soil Survey of Skagit County Area, Washington 1989*.

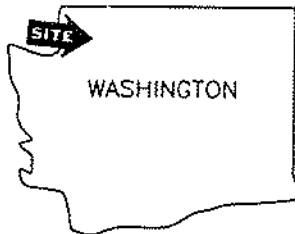
Washington State Department of Ecology, *Stormwater Management Manual For The Puget Sound Basin (The Technical Manual) February 1992*.

Washington State Department of Transportation, *Standard Specifications For Road, Bridge and Municipal Construction, 2002 M41-10*.

LIMITATIONS

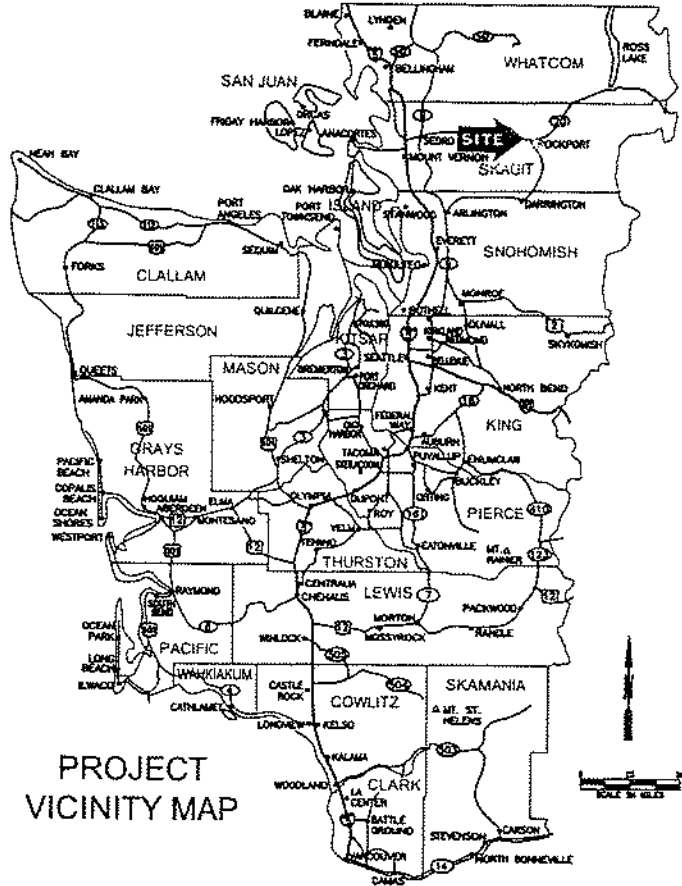
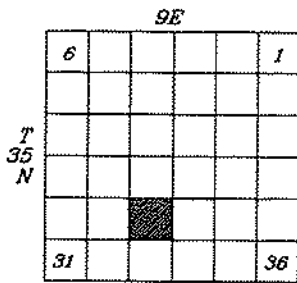
The services described in this report were performed consistent with generally accepted professional consulting principles and practices. There are no other warranties, express or implied. The services performed were consistent with our agreement with our client. This report is prepared solely for the use of our client and may not be used or relied upon by a third party for any purpose. Any such use or reliance will be at such party's risk.

The opinions and recommendations contained in this report apply to conditions existing when services were performed. Ecological Land Services, Inc. (ELS) is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report. ELS does not warrant the accuracy of supplemental information incorporated in this report that was supplied by others.

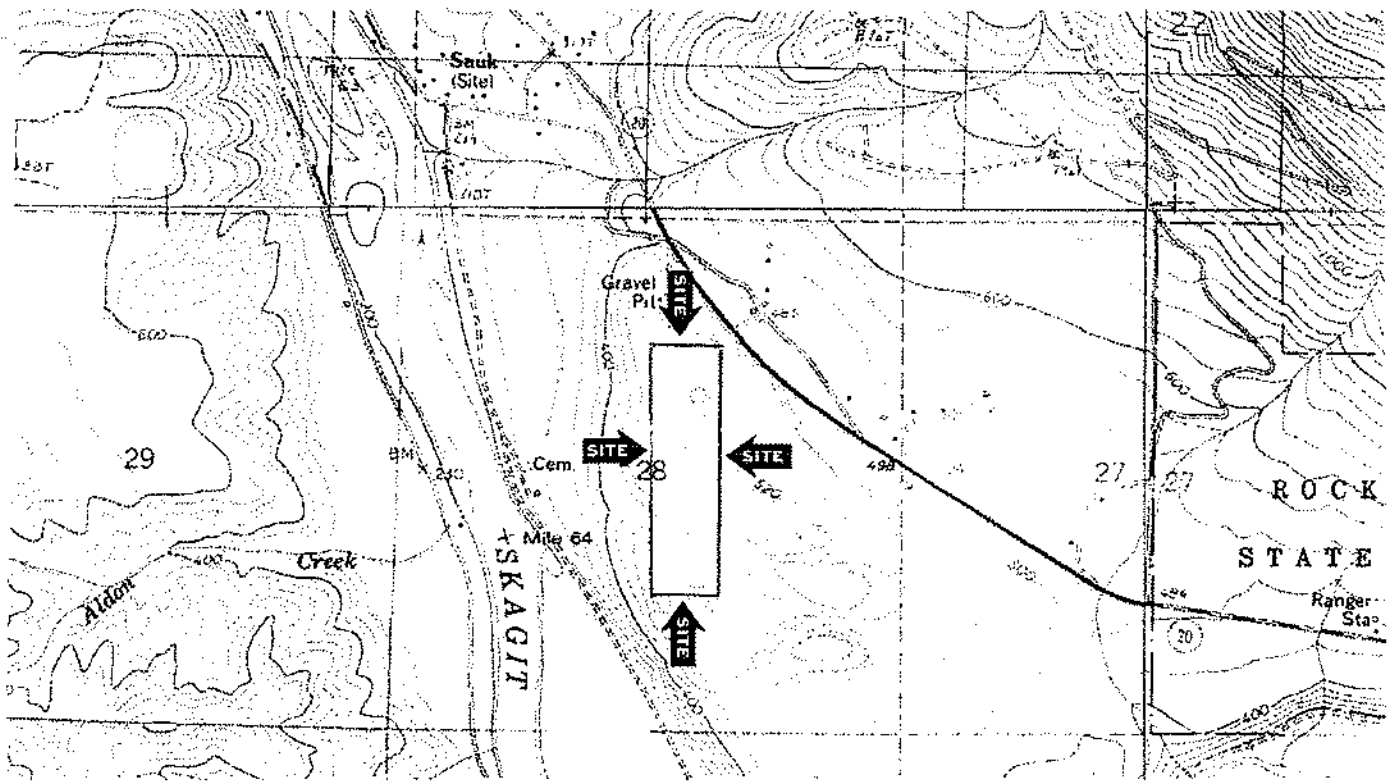


Latitude 48 29' 43" N
Longitude 121 38' 47" W

LOCATION MAP



PROJECT VICINITY MAP

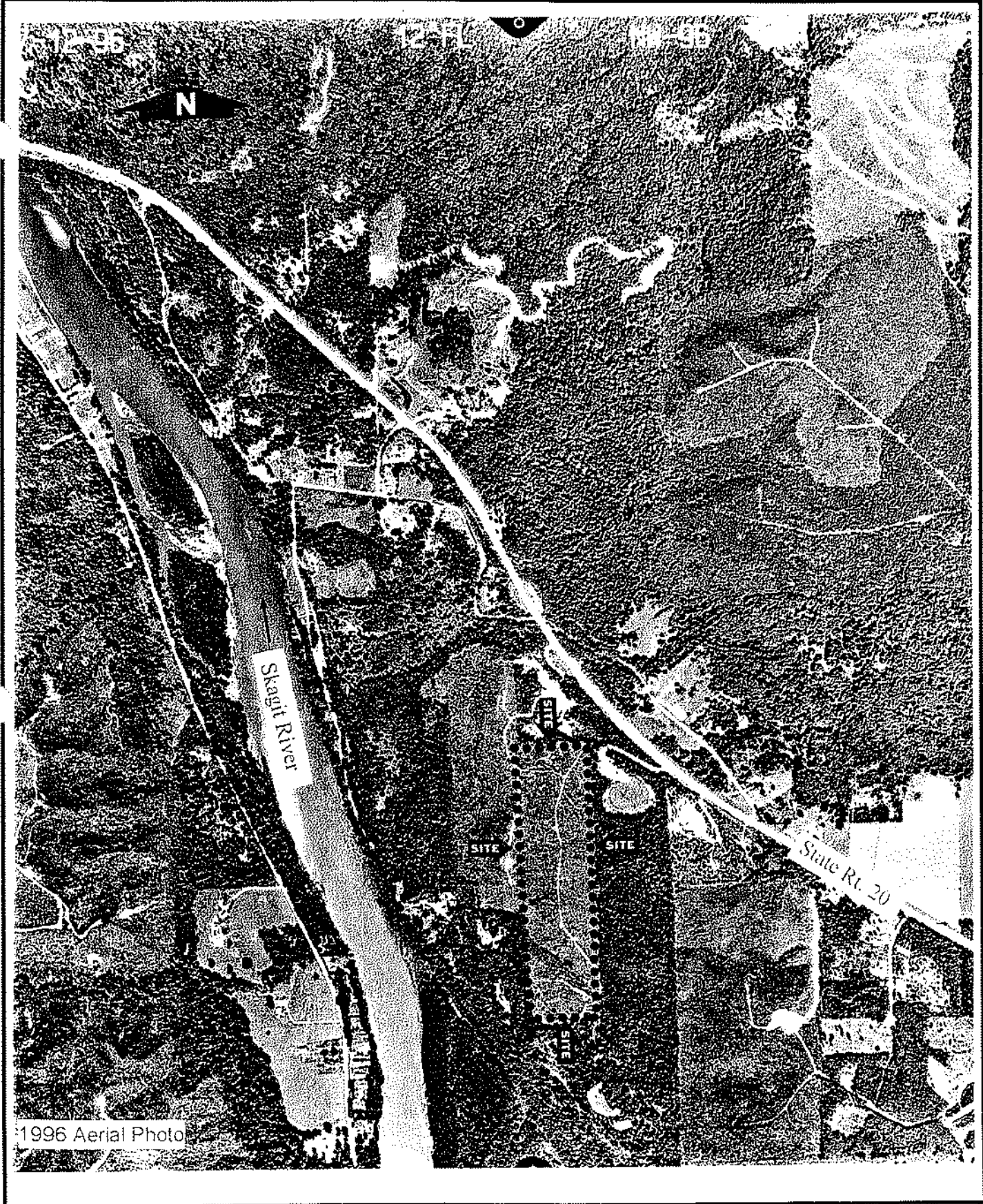


Approximate Scale 1" = 2,000'

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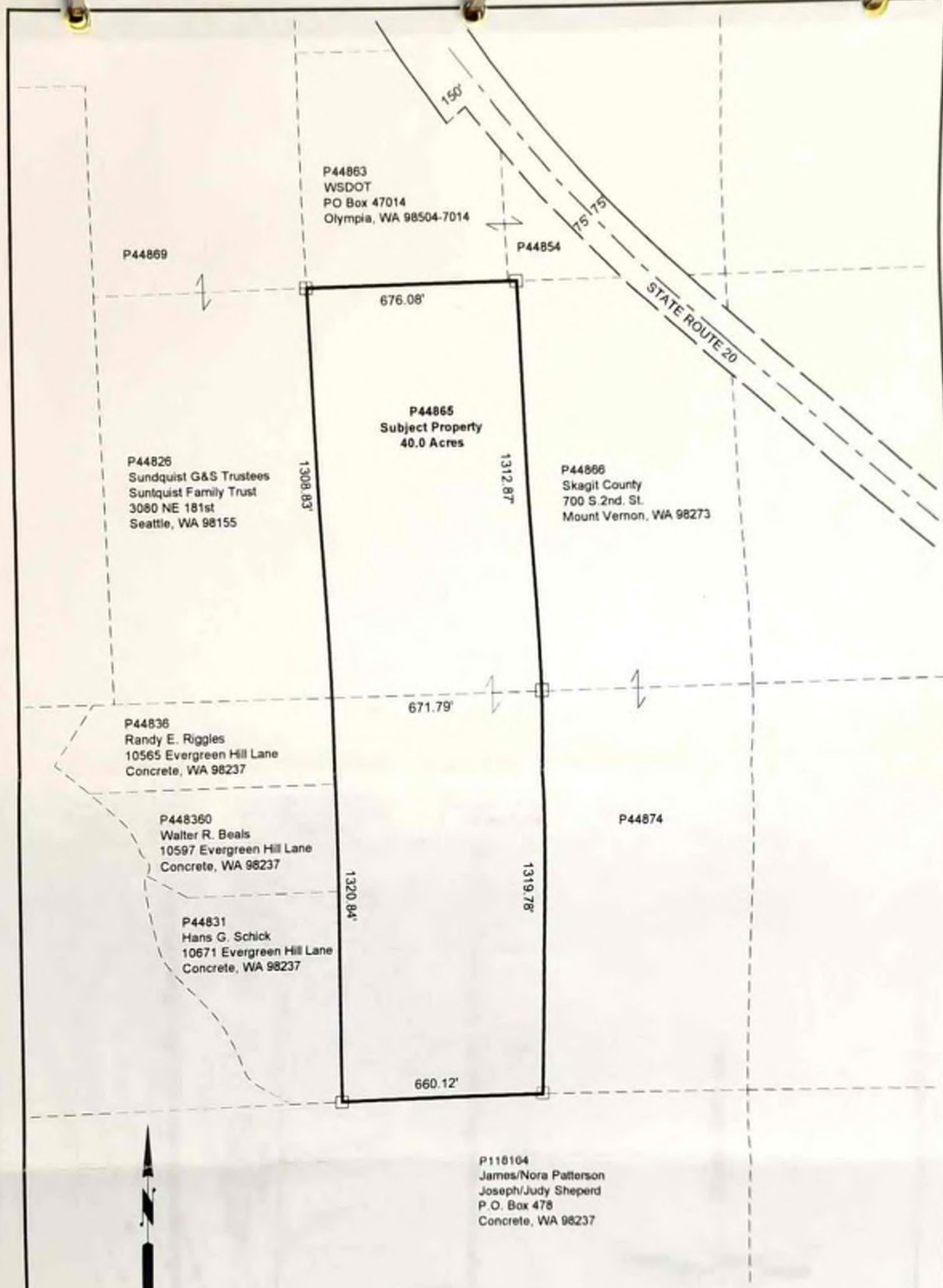
FIGURE 1
Site Location Map
3DH AGGREGATES - Revised Reclamation Plan
Rockport, Washington
Portion of S28, T35N, R9E, W.M. Skagit County, WA
DNR Permit #11785



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FIGURE 2
 1996 Aerial Photograph
 3DH Aggregates - Revised Reclamation Plan
 Rockport, Washington
 Portion of S28, T35N, R9E, W.M. - Skagit County, WA
 DNR Permit #11785



LEGEND:
 ——— Property/Permit Boundary
 - - - - - Adjacent Property Boundary

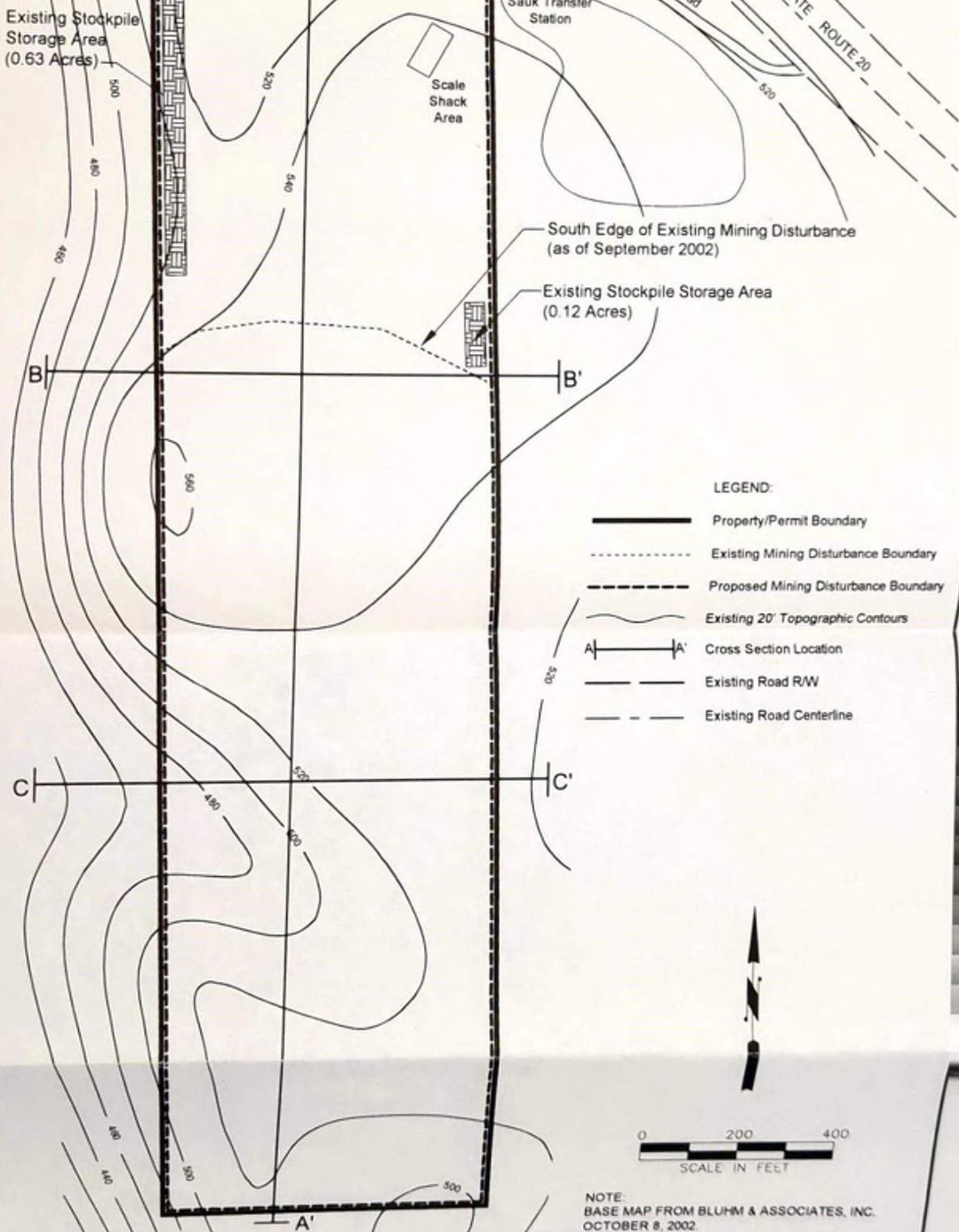
NOTE:
 BASE MAP FROM BLUHM & ASSOCIATES, INC.
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Figure 3
 Property Ownership Map
 3DH AGGREGATES - REVISED RECLAMATION PLAN
 Rockport, Washington
 Portion of Sec. 28, T35N, R9E, W.M. - Skagit County, Washington
 DNR Permit #11785

Existing Stockpile Storage Area
(0.63 Acres)



LEGEND:

-  Property/Permit Boundary
-  Existing Mining Disturbance Boundary
-  Proposed Mining Disturbance Boundary
-  Existing 20' Topographic Contours
-  Cross Section Location
-  Existing Road R/W
-  Existing Road Centerline

NOTE:
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Figure 4
Pre-mining Topography Map
3DH AGGREGATES - REVISED RECLAMATION PLAN
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Portion of Sec. 28, T35N, R9E, W.M. - Skagit County, Washington
DNR Permit #11785

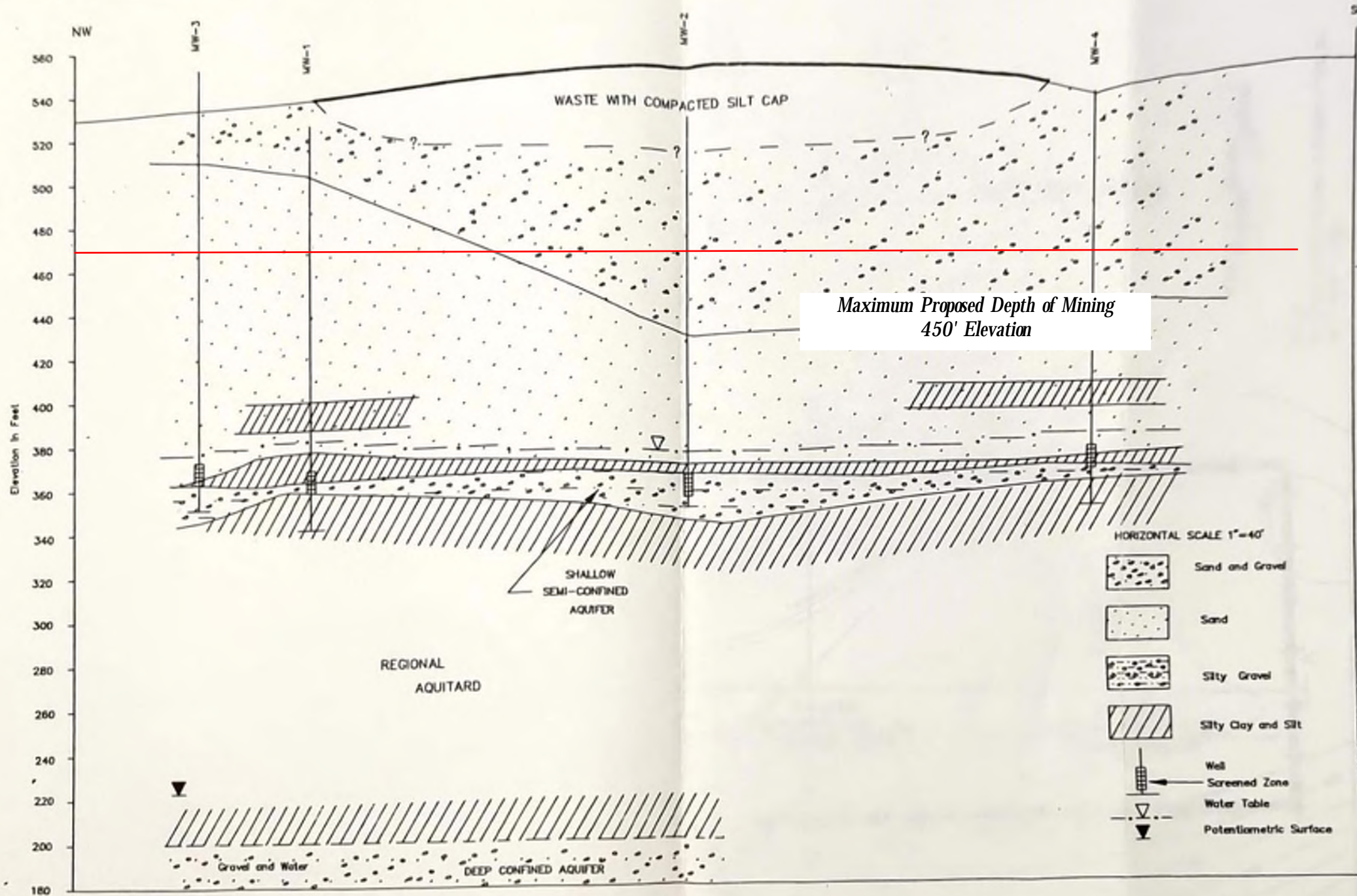
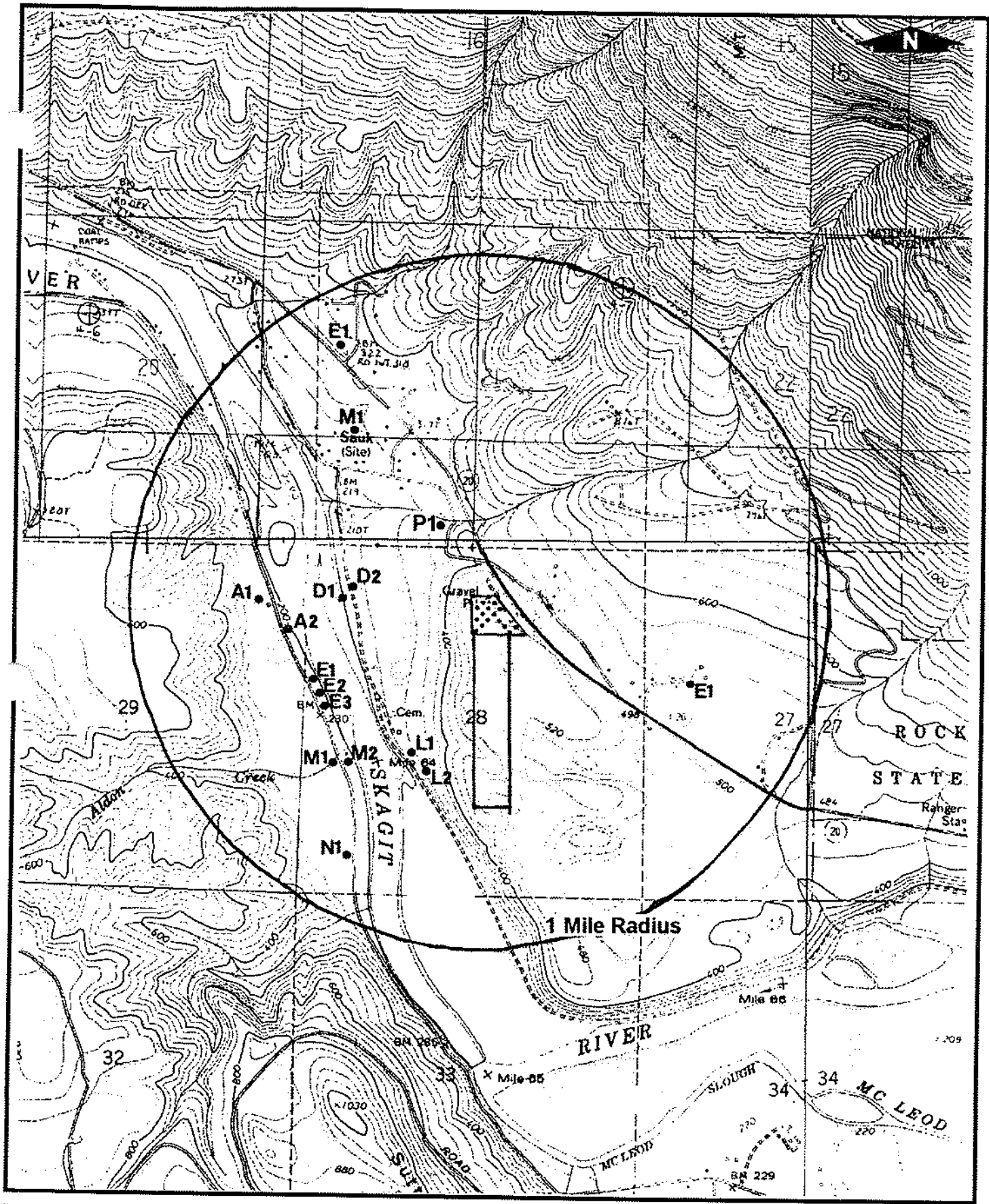


FIGURE 5
 Geologic Cross Section of Adjacent Sauk Landfill/Transfer Station
 3DH AGGREGATES - REVISED RECLAMATION PLAN
 Rockport, Washington
 Portion of Sec. 28, T35N, R9E, W.M. - Skagit County, Washington
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NOTE:
 Map from MONITORING WELL CONSTRUCTION REPORT GIBRALTAR AND SAUK LANDFILLS SKAGIT COUNTY, WASHINGTON.
 December, 20, 1980 Project No. 8938. Prepared for: R.W. BECK AND ASSOCIATES 2101 Fourth Avenue, Suite 600 Seattle, Washington 98121-2375.
 Prepared by: HONG WEST & ASSOCIATES P.O. BOX 596 Lynnwood, Washington 98046 (206) 7764-0106.

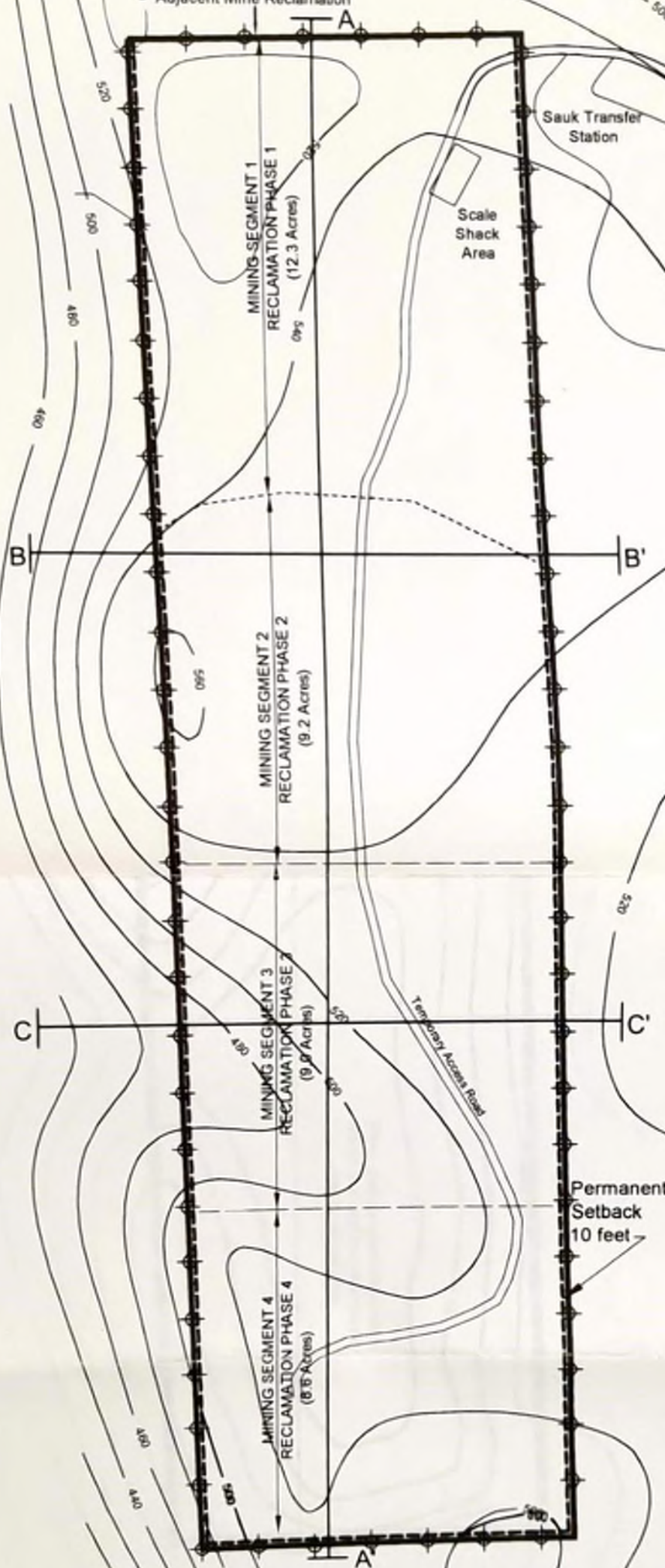


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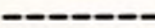




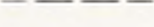
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FIGURE 6
 Water Supply Well Locations
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 DNR Permit #11785

Final Topography Joined with
Adjacent Mine Reclamation



LEGEND:

-  Property/Permit Boundary and Permanent Boundary Markers
-  Existing Mining Disturbance Boundary
-  Proposed Mining Disturbance Boundary
-  Existing 20' Topographic Contours
-  Cross Section Location
-  Existing Road R/W
-  Existing Road Centerline
-  Mining Segments



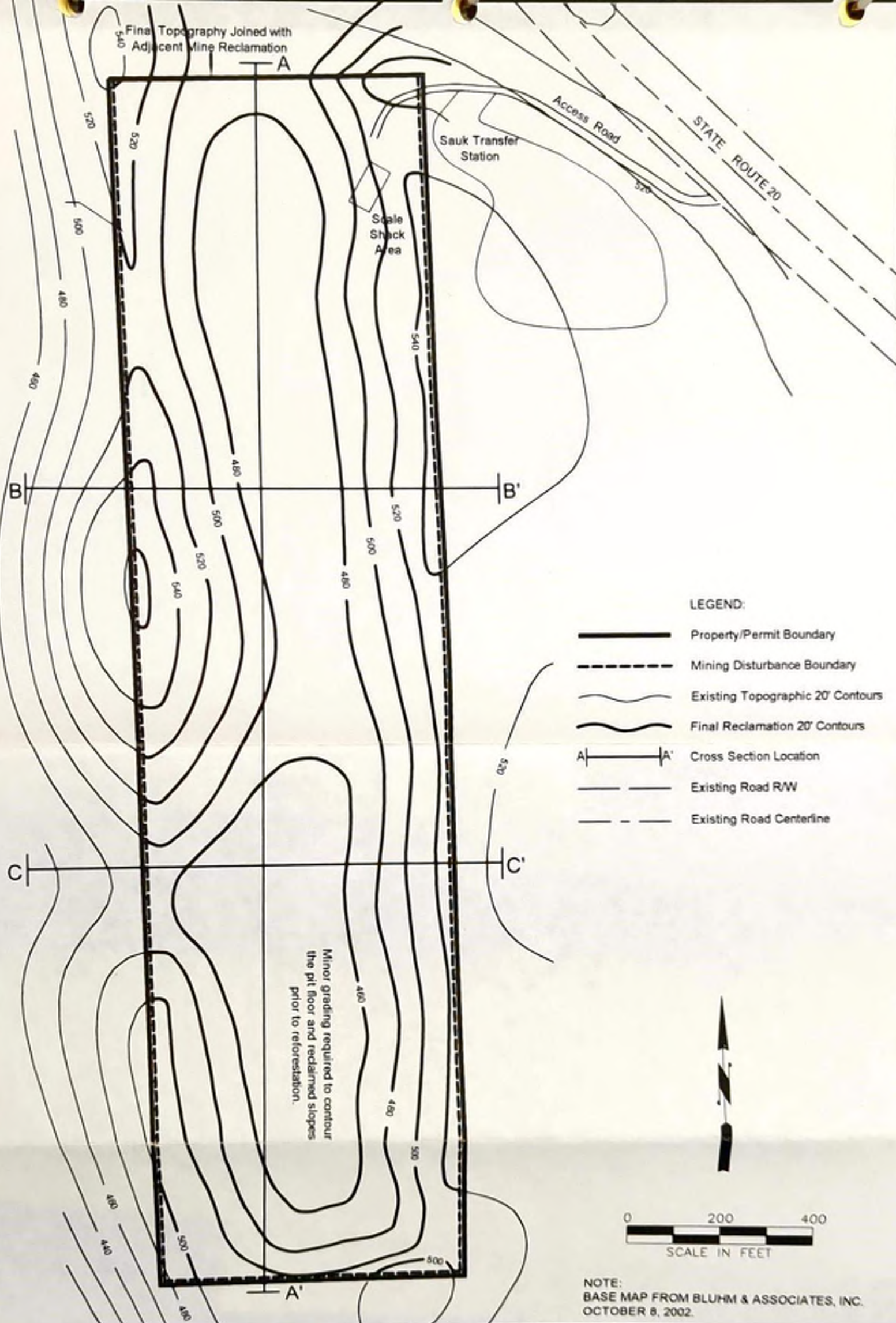
NOTE:
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Figure 7
Reclamation Sequence Map
3DH AGGREGATES - REVISED RECLAMATION PLAN
Rockport, Washington
Portion of Sec. 28, T35N, R9E, W.M. - Skagit County, Washington
DNR Permit #70-011785

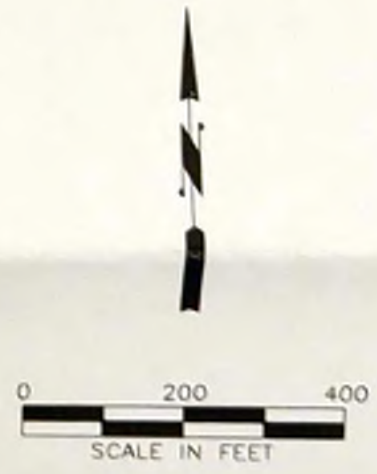
Final Topography Joined with
Adjacent Mine Reclamation



LEGEND:

- Property/Permit Boundary
- Mining Disturbance Boundary
- Existing Topographic 20' Contours
- Final Reclamation 20' Contours
- Cross Section Location
- Existing Road R/W
- Existing Road Centerline

Minor grading required to contour
the pit floor and reclaimed slopes
prior to reforestation.

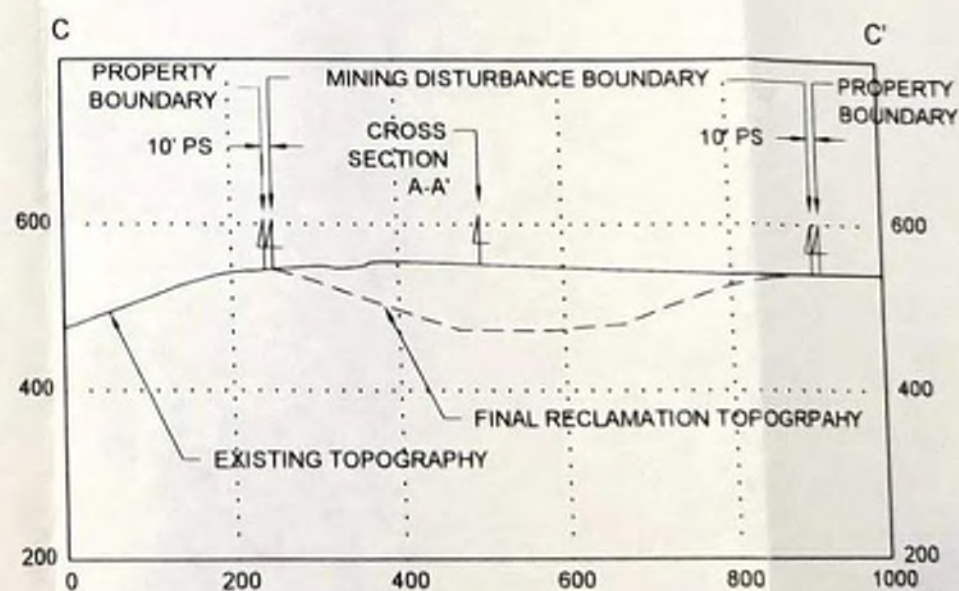
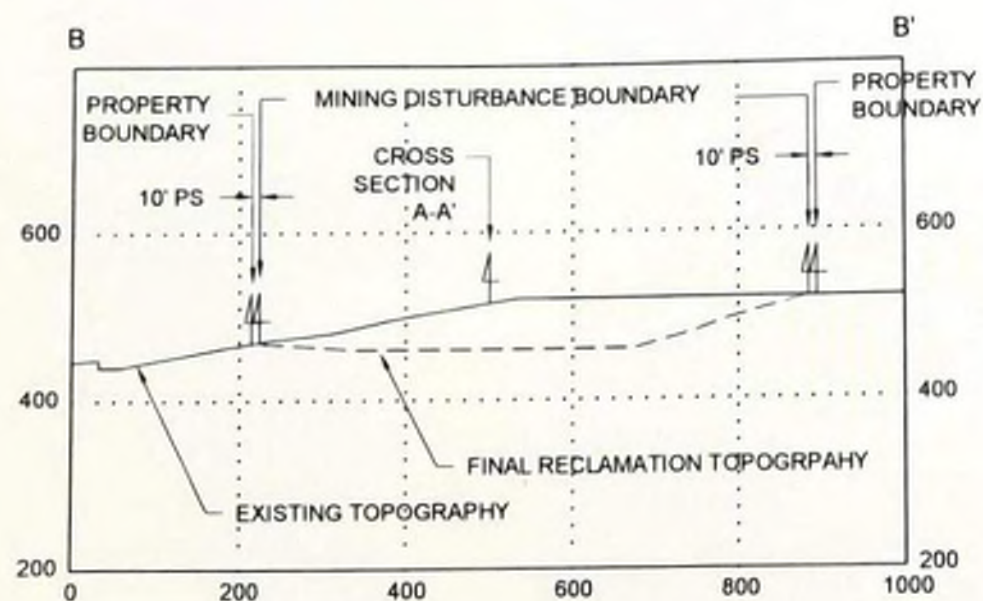
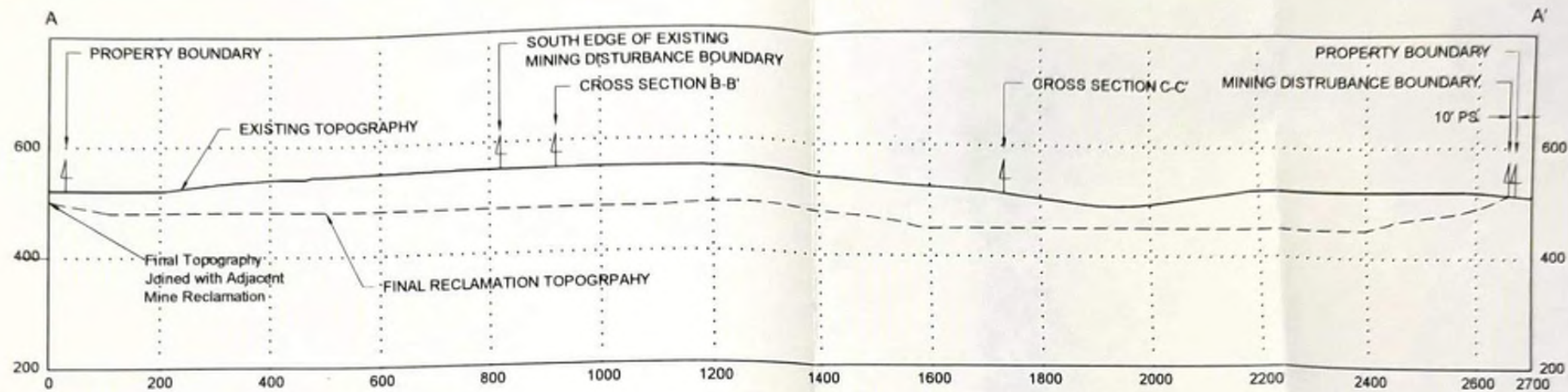


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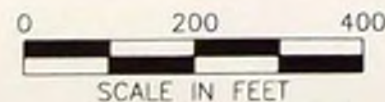
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Figure 8
Final Reclamation Map
3DH AGGREGATES - REVISED RECLAMATION PLAN
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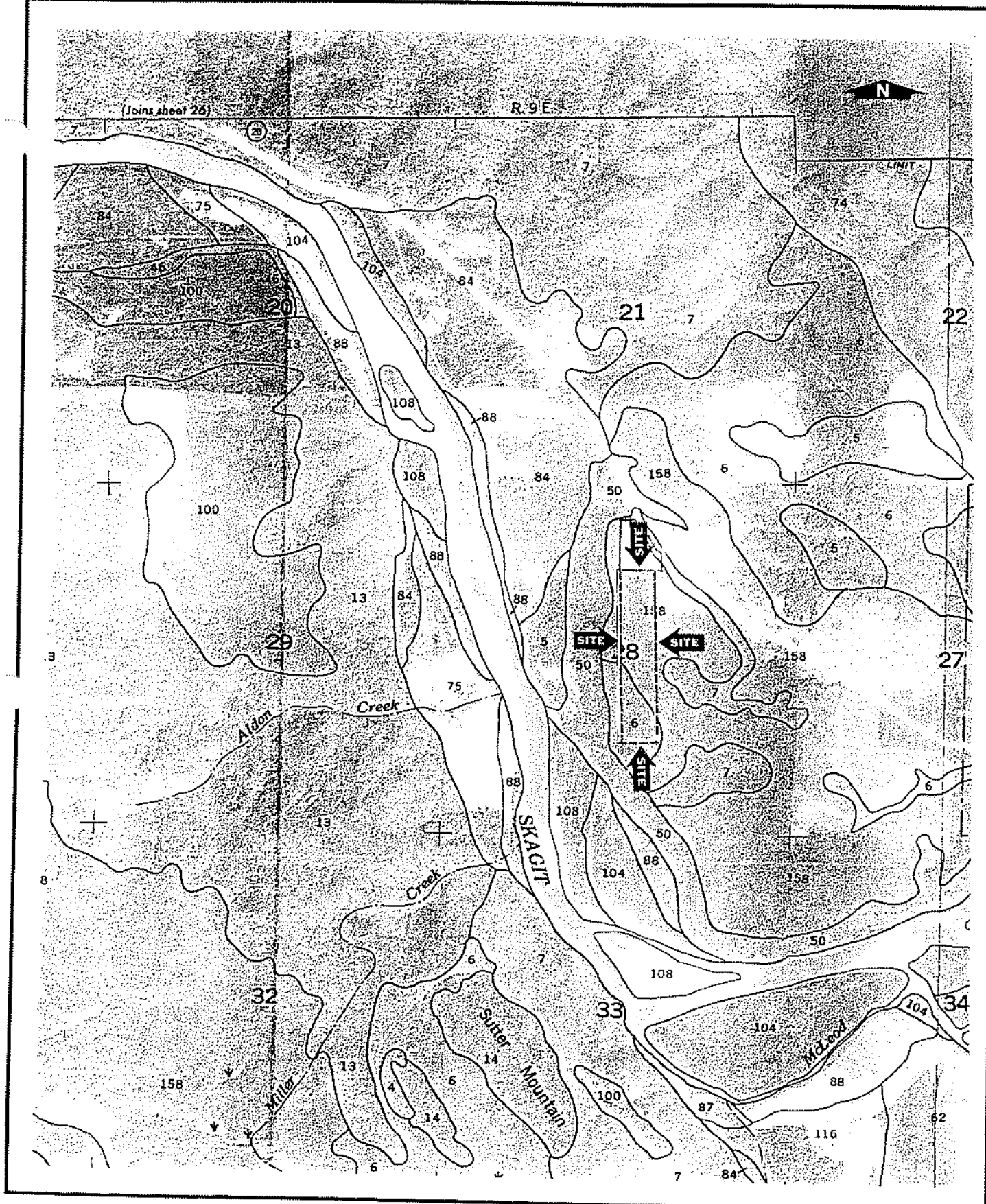
PS = Permanent Setback



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Figure 9
 Cross Section A-A', B-B', C-C'
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FIGURE 10
 Soil Survey Map
 3DH Aggregates - Revised Reclamation Plan
 Rockport, Washington
 Portion of S28, T35N, R9E, W.M. - Skagit County, WA
 DNR Permit #11785

**SEPA ENVIRONMENTAL
CHECKLIST**

SEPA ENVIRONMENTAL CHECKLIST
3DH Aggregates, Rockport, WA

A. BACKGROUND

1. Name of proposed project,if applicable:

3DH Aggregates Revised Reclamation Plan

2. Address and telephone number of applicant and contact person:

*3DH Aggregates
P.O. Box 142
Stanwood, WA 98292
Contact: Helen Weber*

3. Date checklist prepared:

December 13, 2002

4. Agency requiring checklist:

Washington Department of Natural Resources

5. Proposed timing or schedule (including phasing, if applicable):

Submittal of DNR permit renewal and revised reclamation plan is scheduled for December, 2002.

6. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain:

No.

7. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

DNR surface-mine permit renewal and revised reclamation plan has been prepared by Ecological Land Services (ELS) for this project.

8. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain:

No.

9. List any government approval or permits that will be needed for your proposal, if known.

Washington Department of Natural Resources – Revised Reclamation Plan of Existing Permit Approval.

10. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.

The 40.0-acre parcel (#P44865) is currently permitted for mining under DNR reclamation permit #11785. This proposal will upgrade the reclamation plan to meet current standards. Gravel and sand mining is in progress on a 12-acre portion of the permit area. The aggregate being extracted is from a glacio-fluvial deposit that has been utilized for a variety of state road and bridge projects.

11. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township and range, if known. If a proposal would occur over a large area, provide the boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available.

The property is located on State Route 20, south of milepost 95 between Concrete and Rockport, WA, and adjacent to the Skagit County Solid Waste Transfer Station. The legal description of the site is: the SW ¼ of the NE ¼, and the NW ¼ of the SE ¼ in Section 28, Township 35 North, Range 9 East of the Willamette Meridian.

B. ENVIRONMENTAL ELEMENTS

1. Earth

- a) **General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other.**

The site is partially disturbed from previous mining activity along the northern boundary. Unmined areas of the site contain gently rolling topography with sharply dropping slopes south and west of the site.

- b) **What is the measurement of the steepest slope on the site (approximate percent slope)?**

80% (cut bank in area currently being excavated).

- c) **What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farm land.**

The U.S.D.A. Soil Conservation Service, Soil Survey of Skagit County Area indentifies the soils on site as Winston gravelly silt loam, 0 to 8% slopes, and Barneston very gravelly sandy loam, 8 to 30% slopes.

- d) **Are there surface indications or history of unstable soils the immediate vicinity? If so, describe.**

No.

- e) **Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.**

No filling is proposed. All mining will be conducted in accordance with the attached revised reclamation

plan. Reclaimed slopes will be constructed during mining operations, requiring minimal grading.

- f) Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

Yes. The gravel/sand extraction will expose soils for sustained periods of time. Erosion will be controlled by implementing the best management practices outlined in the reclamation plan.

- g) About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?**

Zero.

- h) Proposed measures to reduce or control erosion, or other impacts to the earth, if any:**

Mining will be conducted in segments and each segment constructed to contain all potential runoff from leaving the site. Reclamation to stabilize and revegetate the site will occur at the completion of mining in each segment.

2. Air

- a) What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.**

Minimal fugitive dust from mining equipment and loading and hauling of material is likely to occur.

- b) Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.**

No.

- c) **Proposed measures to reduce or control emissions or other impacts to air, if any.**

Equipment will be kept well maintained and in good repair, with appropriate emission systems. The site will be reclaimed in phases to limit the amount of exposed surface at any one time. Haul roads will be watered down as necessary to control fugitive dust.

3. Water

- a) **Surface:**

- 1) **Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, salt water, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

None in immediate vicinity. The Skagit River is located over 800 feet southwest of the site.

- 2) **Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

No.

- 3) **Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands indicate the area of the site which would be affected. Indicate the source of fill material.**

None.

- 4) **Will the proposal require surface water withdrawals or diversions? Give general**

description, purpose, and approximate quantities if known.

No.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

No.

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

No.

b) Ground:

- 1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.**

No. Water to control dust will be hauled to the site and stored in large tanks.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: domestic sewage; industrial, containing the following chemicals...; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

Not Applicable.

c) Water Runoff (including storm water):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this**

**water flow? Will this water flow into other waters?
If so, describe.**

Stormwater is expected to infiltrate due to the excessive permeability of the soils and substrate (>20 inches/hour). Mining will be conducted in segments and each segment constructed to contain all potential runoff from leaving the site.

2) Could waste materials enter ground or surface waters? If so, generally describe.

Utilization of a spill prevention, containment and countermeasures plan will be practiced while operating at this site and should prevent any accidental oil or fuel spills from reaching ground water.

d) Proposed measures to reduce or control surface, ground and run-off water impacts, if any:

No impacts are expected.

4. Plants

a) List types of vegetation found on the site:

deciduous trees: *red alder*

evergreen trees: *western hemlock, Douglas fir*

shrubs: *dogwood, vine maple, huckleberry, bracken fern, bunchberry*

grass: *various species in disturbed areas of the site*

pasture: *none*

crop or grain: *none*

wet soil plants: *none*

water plants: water lily, eelgrass, milfoil, other:
none

- b) What kind and amount of vegetation will be removed or altered?**

Young forest and scrub/shrub vegetation will be sequentially removed from areas where active mining will take place.

- c) List threatened or endangered species known to be on or near the site.**

No known listed plant species are present on or near the site. Refer to the Natural Heritage Program data search findings, (attached).

- d) Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:**

The reclamation plan identifies the species to be replanted following active mining.

5. Animals

- a) List any birds and animals which have been observed on or near the site, or are known to be on or near the site:**

birds: *songbirds, red-tailed hawk, crows, blackbirds, swallows*

animals: *deer, elk, coyotes, rodents, rabbits*

fish: *none*

- b) List any threatened or endangered species known to be on or near the site.**

The Skagit River, located approximately 800 feet from the site, contains populations of chinook, coho,

chum, pink and sockeye salmon, sea-run cutthroat trout and steelhead.

Bald eagle: Transient bald eagles (threatened) may use the river within the general vicinity of the project for feeding and roosting. Bald eagle communal roost sites are located along the river over 1.0 miles to the SE of the mine. An osprey nest is located approximately 1.0 mile to the SW on the Skagit River. Searches of agency data bases are attached.

- c) Is the site part of a migration route? If so, explain.**

The site is within the Pacific flyway for migrating birds.

- d) Proposed measures to preserve or enhance wildlife, if any:**

At the completion of mining, the site will be reforested to provide forage and shelter for wildlife.

6. Energy and Natural Resources

- a) What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? describe whether it will be used for heating, manufacturing, etc.**

Diesel-fueled trucks and loading equipment will be utilized.

- b) Would your project affect the potential use of solar energy adjacent properties? If so, generally describe.**

No.

- c) What kinds of energy conservation features are included in the plans of this proposal? List other**

proposed measures to reduce or control energy impacts, if any:

None.

7. Environmental Health

- a) Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe:**

Risk to environmental health is low. The only potential spills might result from the oil and fuel used to power the equipment. Typical spill prevention, containment and countermeasures will be practiced while operating at this site.

- 1) Describe special emergency services that might be required.**

No special services.

- 2) Proposed measures to reduce or control environmental health hazards, if any:**

Typical spill prevention, containment and countermeasures will be practiced while operating at this site.

b) Noise

- 1) What types and levels of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?**

No noise effects to the project anticipated.

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic,**

construction, operation, other)? Indicate what hours noise would come from the site.

Operation of mining equipment and haul trucks will create sustained, short-term noise.

Typical hours of operation are 7:00 am to 7:00 pm, Monday-Saturday.

3) Proposed measures to reduce or control noise impacts if any:

Mining equipment and trucks will be outfitted with muffler systems.

8. Land and Shoreline Use

a) What is the current use of the site and adjacent properties?

The site includes an existing DNR-permitted sand and gravel operation. Adjacent uses include the Skagit County Solid Waste Transfer Station, WSDOT sand and gravel surface mine, rural residential property and forest lands.

b) Has the site been used for agriculture? If so, describe:

No.

c) Describe any structures on the site.

Scale shack near entrance.

d) Will any structures be demolished? If so, what?

No.

e) What is the current zoning classification of the site?

RRv -Rural Reserve

- f) **What is the current comprehensive plan designation of the site?**

RRv-Rural Reserve

- g) **If applicable, what is the current shoreline master program designation of the site?**

Not applicable

- h) **Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.**

No.

- i) **Approximately how many people would reside or work in the completed project?**

During active mining phases, 1-4 people would be expected to be working on-site during normal operating hours.

- j) **Approximately how many people would the completed project displace?**

None.

- k) **Proposed measures to avoid or reduce displacement impacts, if any:**

None.

- l) **Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:**

The revised reclamation plan (included in this submittal package) discusses the compatibility of the mining activity and the proposed site reclamation design with the County's Comprehensive Plan and zoning designations for the subject property and surrounding areas. The reclamation plan satisfies

the pre-existing, non-conforming use per Skagit County Code, Section 14.16.440.

9. Housing

- a) **Approximately how many units would be provided,if any? Indicate whether high-, middle-, or low- income housing.**

None.

- b) **Approximately how many units would be eliminated,if any? Indicate whether high-, middle-, or low- income housing.**

None.

- c) **Proposed measures to reduce or control housing impacts,if any:**

None.

10. Aesthetics

- a) **What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?**

Not applicable.

- b) **What views in the immediate vicinity would be altered or obstructed?**

None.

- c) **Proposed measures to reduce or control aesthetic impacts, if any:**

The phased reclamation plan would reduce the amount of exposed soils visible on-site at any one time. The plan is designed to include sinuous slopes with varied topography that will blend in with the

topography of the surrounding area and the adjacent mine. The reclaimed site will support a diversity of vegetation and wildlife habitat..

11. Light and Glare

- a) **What type of light or glare will the proposal produce? What time of day would it mainly occur?**

None.

- b) **Could light or glare from the finished project be a safety hazard or interfere with views?**

No.

- c) **What existing off-site sources of light or glare may affect our proposal?**

None.

- d) **Proposed measures to reduce or control light and glare impacts, if any:**

Not applicable.

12. Recreation

- a) **What designated and informal recreational opportunities are in the immediate vicinity?**

None.

- b) **Would the proposed project displace any existing recreational uses? If so, describe.**

No.

- c) **Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:**

None.

13. Historical and Cultural Preservation

- a) **Are there any places or objects listed on, or proposed for, national, state or local preservation registers known to be on or next to the site? If so, generally describe.**

None known..

- b) **Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.**

None known..

- c) **Proposed measures to reduce or control impacts, if any:**

None.

14. Transportation

- a) **Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on-site plans, if any.**

The site is accessed from SR-20 on an access road south of mile post 95 that also serves the Sauk Transfer Station, between Concrete and Rockport, Washington..

- b) **Is site currently served by public transit?**

No.

If not, what is the approximate distance to the nearest transit stop?

Rockport, WA, approximately 3 miles east of the site.

- c) How many parking spaces would the completed project have? How many would the project eliminate?**

None.

- d) Will the proposal require any new roads or streets or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).**

No.

- e) Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

No.

- f) How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.**

Current operations are sporadic and vary depending on the amount of material required for specific projects. Because of the inconsistent use and wide variety of projects for which the site will be utilized, traffic and peak volumes are unpredictable.

- g) Proposed measures to reduce or control transportation impacts, if any:**

None.

15. Public Services

- a) **Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.**

No.

- b) **Proposed measures to reduce or control direct impacts on public services, if any.**

None.

16. Utilities

- a) **Identify utilities currently available at the site:**

Electricity.

- b) **Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.**

None.

SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature:

A handwritten signature in black ink, appearing to be 'R. L.', written over a horizontal line.

Date submitted:

**WASHINGTON DEPARTMENT OF
FISH AND WILDLIFE**



FISH AND WILDLIFE ORDER FORM

HABITATS AND SPECIES INFORMATION

Agency/Organization: Ecological Land Services, Inc.
 Contact Person: Andrea Aberle
 Address: 1339 Commerce Ave, Suite 311
Longview, WA 98032
 Phone #: (360) 578-1371 Date of Request: 10/5/01

Does your agency/organization have a Memorandum of Understanding (MOU) on file with the Washington Department of Fish and Wildlife regarding confidentiality of sensitive information? yes no don't know

Identify yourself (or the party you represent if you are a consultant) as one of the following:
 owner of land covered by this request government agency tribe researcher with a university utility
 other (please specify) _____

REQUESTER READ AND SIGN

By receiving fish and wildlife information from the Washington Department of Fish and Wildlife (WDFW), you incur an obligation to use it in a way that does not cause undue harm to our public fish and wildlife resources.

All fish and wildlife species are vulnerable to harm from human activities. Harm can occur directly (e.g., an animal is harassed or injured) or indirectly (e.g., a nest tree is felled or a wetland is drained). Harm can occur unintentionally, even by those who value the fish and wildlife resources (e.g., repeated visits to a heron rookery which flushes birds from the nest and exposes eggs to cold weather and predators). The most serious threats to fish and wildlife, rather than being direct and malicious acts, are indirect human actions where harm to fish and wildlife was unintentional.

The Washington State constitution confers fish and wildlife ownership to all citizens of the state. WDFW is mandated to safeguard this ownership by preserving, protecting and perpetuating fish and wildlife resources. The public has a crucial role in fulfilling this mandate, for two reasons. First, the statewide distribution of fish and wildlife species and habitat is beyond the monitoring capability of any single agency. Second, the state's constitution gives to the people ownership of fish and wildlife but not of the habitat on which fish and wildlife's survival ultimately depends. Property owners are also habitat owners and their collective actions have a profound effect on the state's fish and wildlife.

The WDFW data gives you information on the location of many of Washington's most sensitive and vulnerable fish and wildlife resources. Use of this information must be commensurate with the vulnerability of fish and wildlife resources.

Fish and wildlife species are protected through specific legislation. Regulations most applicable to users of WDFW information include RCW 77.16.120 (taking of protected fish and wildlife), WAC 232-12-292 (Bald Eagle protection rules) and WAC 232-12-064 (live fish and wildlife).

I have read and understand the information above.

I understand that the species and habitats covered by this information are especially sensitive to human disturbance.

I understand human disturbance may be direct or indirect and may occur intentionally or unintentionally.

I understand that I have an obligation to use this information in a way that does not cause undue harm to the fish and wildlife resource."

REQUESTER'S SIGNATURE X Andrea W. Aberle

Use of Data: Update to Mine Reclamation Plan for WSDOT.

Special Requests: label as "site M-106" E 3PH

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE - HABITATS AND SPECIES REPORT
 IN THE VICINITY OF T35R09E SECTION 28
 Report Date: June 14, 2001

This map contains the following species and/or habitat locations that are deemed sensitive by the Washington Department of Fish and Wildlife Sensitive Fish and Wildlife Policy.

PHS CODE/ SPPCODE	COMMON NAME	USE CODE	USE DESCRIPTION
HALE	BALD EAGLE	B	BREEDING OCCURRENCE
HALE	BALD EAGLE	CR	COMMUNAL ROOST

PHS POLYGON FORM LIST - CROSS REFERENCE REPORT
 IN THE VICINITY OF T35R09E SECTION 28

PHSPOLY#	FORM NUMBER/ PHS CODE*USE CODE
2	900000 *_-
3	902823 RIPAR*-
4	902823 RIPAR*-
5	902823-902824 RIPAR*-WET*-
6	902823 RIPAR*-
7	902081 UNOS*-
8	902823 RIPAR*-
9	902823 RIPAR*-
10	900000 *_-
11	903637 HALE*B-
12	902823-903637 RIPAR*-HALE*B-
13	900026-902759 HALE*CR-HIHI*B-
14	902759 HIHI*B-
15	902759-903637 HIHI*B-HALE*B-
16	900000 *_-
17	902759-903637 HIHI*B-HALE*B-
18	902759 HIHI*B-

PHS POLYGON - SPECIES AND HABITAT LIST

PHS FORM#	PRIORITY	PHS CODE	COMMON NAME	USE CODE	USE DESCRIPTION
900,000					
900,026	YES	HALE	BALD EAGLE	CR	COMMUNAL ROOST
902,081	YES	UNOS	URBAN NATURAL OPEN SPACE		
902,759	YES	HIHI	HARLEQUIN DUCK	B	BREEDING OCCURRENCE
902,823	YES	RIPAR	RIPARIAN ZONES		
902,824	YES	WET	WETLANDS		
903,637	YES	HALE	BALD EAGLE	B	BREEDING OCCURRENCE

Form number 900000 indicates presence of PHS is unknown or the area was not mapped. Form numbers 909998, 909997, or 909996 indicate compilation errors.

YES under the "PRIORITY" column indicates that the species or habitat is considered a priority and is on the Priority Habitats and Species List and/or the Species of Concern List.

WILDLIFE HERITAGE POINT - SPECIES LIST AND REPORT
 IN THE VICINITY OF T35R09E SECTION 28

QUADPT	PRIORITY	SPPCODE	COMMON NAME	USE CODE	USE DESCRIPTION
4812145013	YES	HALE	BALD EAGLE	CR	COMMUNAL ROOST
4812145013	YES	HALE	BALD EAGLE	CR	COMMUNAL ROOST
312146007	YES	HALE	BALD EAGLE	CR	COMMUNAL ROOST
812146013	NO	PAHA	OSPREY	B	BREEDING OCCURRENCE
4812146014	YES	HALE	BALD EAGLE	B	BREEDING OCCURRENCE

YES under the "PRIORITY" column indicates that the species or habitat is considered a priority and is on the Priority Habitats and Species List and/or the Species of Concern List.

quadpt: 4812145013 sppcode: HALE use: CR name: BALD EAGLE
year: 1981 class: SA accuracy: C state status: ST fed status: FT
township - range - section: T35N R09E S34 occur#: 733 seqno: 1
general description:
MCLEOD COLONIAL ROOST, NEAR SKAGIT RIVER IN STAND DOMINATED BY BLACK COTTONWOODS.

quadpt: 4812145013 sppcode: HALE use: CR name: BALD EAGLE
year: 1981 class: SA accuracy: C state status: ST fed status: FT
township - range - section: T35N R09E S35 occur#: 733 seqno: 2
general description:
MCLEOD COLONIAL ROOST, NEAR SKAGIT RIVER IN STAND DOMINATED BY BLACK COTTONWOODS.

quadpt: 4812146007 sppcode: HALE use: CR name: BALD EAGLE
year: 1981 class: SA accuracy: C state status: ST fed status: FT
township - range - section: T35N R09E S34 occur#: 733 seqno: 3
general description:
MCLEOD COLONIAL ROOST, NEAR SKAGIT RIVER IN STAND DOMINATED BY BLACK COTTONWOODS.

quadpt: 4812146013 sppcode: PAHA use: B name: OSPREY
year: 1992 class: SA accuracy: C state status: SM fed status:
township - range - section: T35N R09E S33 NWOFNW occur#: 452 seqno: 1
general description:
MCLEOD SLOUGH TERR, OSPREY NEST ON THE WEST BANK OF THE SKAGIT RIVER IMMEDIATELY
DOWNSTREAM OF THE RIVERS CONFLUENCE WITH MCLEOD SLOUGH.

quadpt: 4812146014 sppcode: HALE use: B name: BALD EAGLE
year: 1993 class: SA accuracy: C state status: ST fed status: FT
township - range - section: T35N R09E S33 NWOFSE occur#: 483 seqno: 1
general description:
BALD EAGLE NEST, LOCATED IN COTTONWOOD TREE 200 FT SOUTH OF POINT ON NORTH END
OF ISLAND IN SKAGIT RIVER & EAST OF SUTTER MOUNTAIN.

Note:

If known occurrences of spotted owls and marbled murrelets exist they will
be displayed on the accompanying map, however, detailed information for
them are not included in this report.

form: 900,026 species/habitat: HALE species use: CR season: W accuracy: 1
sitename: MCLEOD
general description:
BALD EAGLE COMMUNAL NIGHT ROOST ON SOUTHSIDE OF THE SKAGIT RIVER IN A STAND DOM
INATED BY BLACK COTTONWORD.

source: KEISTER, G.P. (1981) AN ASSESSMENT OF B.E. COMM. ROOSTING IN NW WASH.
date: 02 81 code: LIT
synopsis:
AREA IDENTIFIED AS A COMMUNAL NIGHT ROOST DURING RESEARCH SUPPORTED BY WDW. UNPU
B REPT NGDS #3556

form: 902,081 species/habitat: UNOS species use: season: accuracy: 1
sitename: PARKS IN SKAGIT COUNTY
general description:
ROCKPORT STATE PARK, HEAVILY FORESTED OLD GROWTH

source: USGS QUAD MAP USED FOR BOUNDARY LINES.
date: 82 code: GSMAP
synopsis:

source: DNR ORTHOPHOTOS USED TO DETERMINE COVER TYPES
date: 84 code: ORTHO
synopsis:

form: 902,759 species/habitat: HIHI species use: B season: S accuracy: 1
sitename: LOWER SAUK RIVER RIPARIAN.
general description:
COLSED MIXED FOREST WITH SHRUB UNDERSTORY RIPARIAN KNOWN CHUM COHO SPAWNING AREA
AND BREEDING HABITAT FOR HAREQUIN DUCK.

source: MULLER, TED, WDW; PERSONAL OBSERVATION.
date: 90 code: PROF
synopsis:
PERSONAL OBSERVATIONS VIA OVERFLIGHT AND ON THE GROUND.

form: 902,823 species/habitat: RIPAR species use: season: accuracy: 1
sitename: UPPER SKAGIT RIVER RIPARIAN LANDS.
general description:
FORESTED FLOODPLAIN ALONG THE UPPER SKAGIT AND ITS TRIBUTARIES, FROM BAKER RIVER
UPSTREAM.

source: MULLER, TED; STENDAL, ART; FOLEY, STEVE; ET, AL; WDW PERSONAL OBSERVAT
date: 91 code: PROF
synopsis:
SITE VISITS, DRIVE-BY VISITS, AND AERIAL SURVEY FLIGHTS.

form: 902,824 species/habitat: WET species use: season: accuracy: 1
sitename: UPPER SKAGIT RIVER WETLANDS
general description:
SKAGIT RIVER WETLANDS. MOSTLY SIDE CHANNEL AREAS. MOST ARE FORESTED.

source: MULLER, TED; STENDAL, ART; FOLEY, STEVE; ET AL; WDW; PERSONAL OBS.
date: 91 code: PROF
synopsis:
SITE VISITS, DRIVE-BY SURVEYS, AND AERIAL FLIGHTS.

form: 903,637 species/habitat: HALE species use: B season: SU accuracy: 1
sitename: SUTTER MOUNTAIN BALD EAGLE TERRITORY
general description:
EAGLE TERRITORY IDENTIFIED IN 1992, ACTIVE

source: WATSON, JIM WDW HALE 1992 SURVEY
date: 04 92 code: NEST
synopsis:

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
 PRIORITY ANADROMOUS AND RESIDENT FISH PRESENCE REPORT FROM THE STREAMNET DATABASE
 IN THE VICINITY OF T35R09E SECTION 28
 Report Date: June 14, 2001

PRIORITY ANADROMOUS FISH PRESENCE

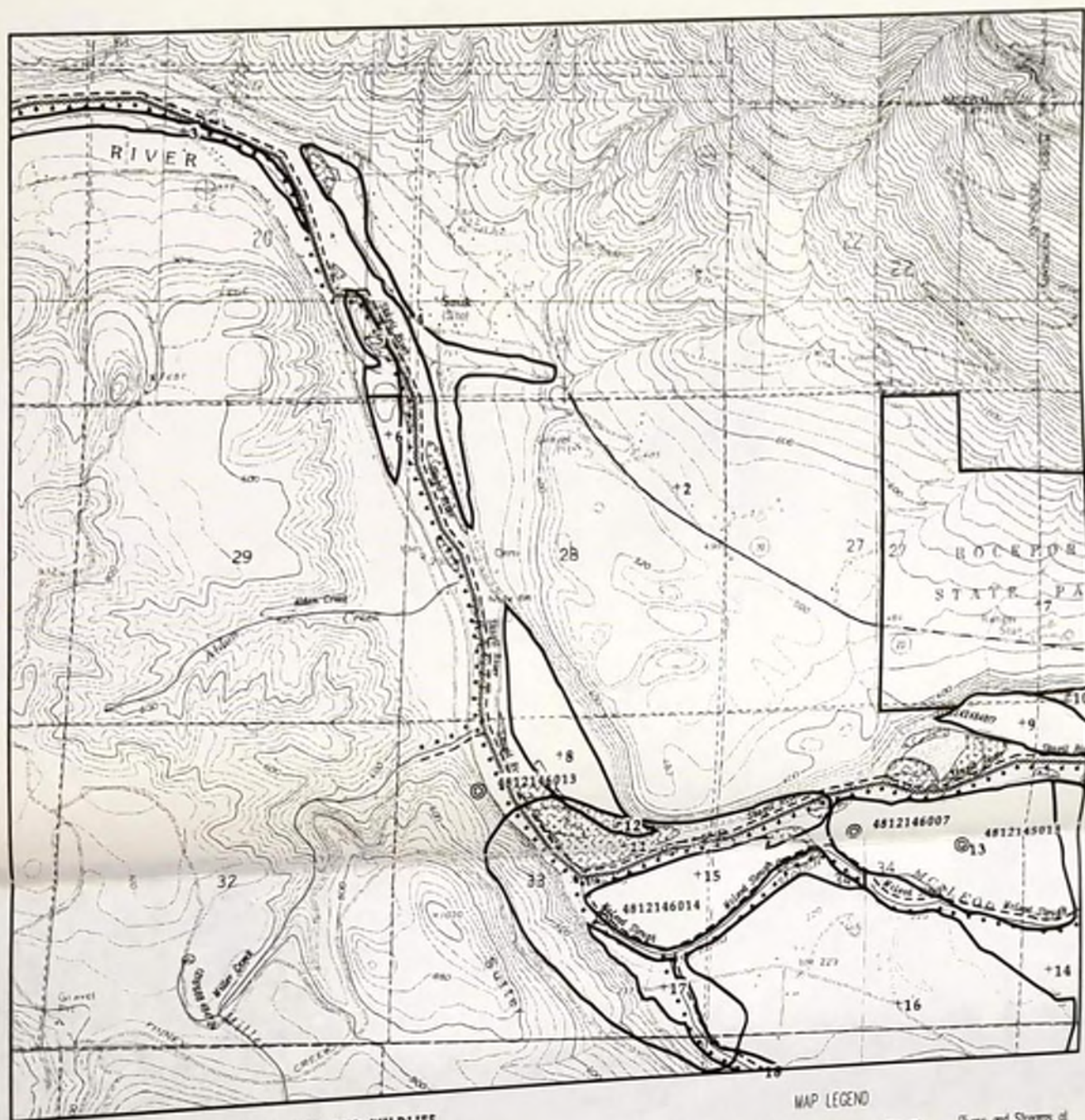
CODE	COMMON NAME	STREAM NAME	STREAM LLID	RECORD DATE	SOURCE
CHFA	Fall Chinook	McLeod Slough	1216446484778	06-17-97	P. Castle, WDFW
CHSP	Spring Chinook	McLeod Slough	1216446484778	06-09-97	P. Castle, WDFW
CHUM	Chum Salmon	McLeod Slough	1216446484778	06-26-97	D. Hendricks, WDFW
COHO	Coho Salmon	McLeod Slough	1216446484778	07-17-97	P. Castle, WDFW
PINK	Pink Salmon	McLeod Slough	1216446484778	06-26-97	D. Hendricks, WDFW
SOCK	Sockeye Salmon	McLeod Slough	1216446484778	06-25-97	D. Hendricks, WDFW
STSU	Summer Steelhead	McLeod Slough	1216446484778	04-15-97	Kurt Kramer, WDFW
STWI	Winter Steelhead	McLeod Slough	1216446484778	04-14-97	Kurt Kramer, WDFW
COHO	Coho Salmon	Miller Creek	1216517484848	07-16-97	P. Castle, WDFW
CHFA	Fall Chinook	Skagit River	1223661483874	06-17-97	P. Castle, WDFW
CHSP	Spring Chinook	Skagit River	1223661483874	06-16-97	P. Castle, WDFW
CHSU	Summer Chinook	Skagit River	1223661483874	06-16-97	P. Castle, WDFW
CHUM	Chum Salmon	Skagit River	1223661483874	06-24-97	D. Hendrick, WDFW
COHO	Coho Salmon	Skagit River	1223661483874	07-16-97	P. Castle, WDFW
PINK	Pink Salmon	Skagit River	1223661483874	06-24-97	D. Hendrick, WDFW
SOCK	Sockeye Salmon	Skagit River	1223661483874	06-05-97	D. Hendrick, WDFW
SRCT	Searun Cutthroat	Skagit River	1223661483874	01-01-90	WDFW Staff
STSU	Summer Steelhead	Skagit River	1223661483874	04-15-97	Kurt Kramer, WDFW
STWI	Winter Steelhead	Skagit River	1223661483874	04-14-97	Kurt Kramer, WDFW
COHO	Coho Salmon	Stream name(s) not in database	1216385484741	07-17-97	P. Castle, WDFW

PRIORITY RESIDENT FISH PRESENCE

CODE	COMMON NAME	STREAM NAME	STREAM LLID	RECORD DATE	SOURCE
RBT	Rainbow Trout	Skagit River	1223661483874	11/24/93	WDFW Staff

The fish information in this report only includes data that the Washington Department of Fish and Wildlife (WDFW) maintains in a central database. This information only documents the location of important fish resources to the best of our knowledge. It is not a complete inventory of the fish species in the state. Fish are identified as priority by WDFW if they meet 1 of 3 criterion as listed in the Priority Habitats and Species List.

For questions on the StreamNet Database, please contact Martin Hudson at (360) 902 2487.



**WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
HABITATS AND SPECIES MAP
IN THE VICINITY OF T35R09E SECTION 28**

Map Scale - 1 : 24000
Coordinate System - State Plane South Zone 5626 (NAD27)
Production Date - June 14, 2001
Cartography by WDFW Habitat Program DS

PLEASE NOTE

This map may contain some species not considered priority. If known occurrences of spotted owls and marbled murrelets exist, they will be displayed on this map. However, detailed information for them are not included in accompanying reports.

DISCLAIMER

This map only includes information that Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and is not intended to be one. Fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources.

Locations of mapped wildlife and habitat features are generally within a quarter mile of the locations displayed on this map. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using maps more than six months old. To insure appropriate use of this information, users are encouraged to consult with WDFW biologists.

MAIN DATA SOURCES

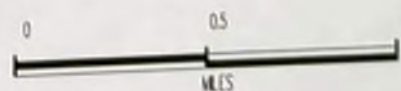
Priority Habitats and Species polygon and Habitat point data: WDFW Habitat Program.
Wildlife Heritage, Spotted Owl, and Marbled Murrelet data: WDFW Wildlife Program.
WDFW Stream and Fish presence data: WDFW StreamNet Database.
1:100,000 Streams and Wetlands Inventory data: US Fish and Wildlife Service.
National Wetlands Inventory data: US National Oceanic and Atmospheric Administration.
Seabird Colonies, Terrestrial Vegetation, and Townships/Sections data: US Dept. of the Interior, Bureau of Land Management.
Map, Dept. of Natural Resources.
Columbia River Tribal Marsh data: Oregon State Service Center.
Columbia River Information Systems (CRIS).
US Geological Survey.

MAP LEGEND

- Priority Habitats and Species (PHS) Polygon Borders
- Wildfire Heritage Points
- Marbled Murrelet Points (Occupancy Sites Only)
- Habitat Points
- Seabird Colonies
- Spotted Owl Site Centers (Official Status 1-4)
- Spotted Owl Management Grades Established Territory
- Spotted Owl Management Grades Insufficient Data To Establish Territory
- Township Lines
- Section Lines
- Rivers and Streams of 100,000 Scale Resolution
- Anadromous Fish Presence
- Resident Fish Presence
- Priority Anadromous/Resident Fish Presence
- National Wetlands Inventory



AREA LOCATION



**UNITED STATES DEPARTMENT
OF THE INTERIOR
FISH AND WILDLIFE SERVICE**

June 5, 2001

ATTN: Gerry A. Jackson, Supervisor
U.S. Dept. of the Interior
U.S. Fish and Wildlife Service (SE/HCP)
510 Desmond Dr. SE, Suite. 102
Lacey, WA 98503-1273

3DH + RE: Species Request Information for use in WSDOT Mine Reclamation Update for pit M-106 located in Skagit County, Washington.

Washington State Department of Transportation is in the process of updating their mining reclamation plans and permits for a site located in Skagit County, Washington within the NW ¼, NE ¼, of Sec. 28, T35N, R9E.

We are requesting information on the presence of any listed and proposed species under ESA priority habitat and species, and rare plants or high quality ecosystems, that may occur within the project area. A map showing the approximate locations of the projects has been included for your use. If you have any questions, please e-mail me at andrea@eco-land.com, or call me at (360) 578-1371.

Sincerely,


Andrea W. Aberle
Environmental Technician

Enclosures



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Western Washington Office

510 Desmond Drive SE, Suite 102

Lacey, Washington 98503

Phone: (360) 753-9440 Fax: (360) 534-9331

JUL 11 2001

Dear Species List Requester:

We are providing the information you requested to assist your determination of possible impacts of a proposed project to species of Federal concern. Attachment A includes the listed threatened and endangered species, species proposed for listing, candidate species, and/or species of concern that may be within the area of your proposed project.

Any Federal agency, currently or in the future, that provides funding, permitting, licensing, or other authorization for this project must assure that its responsibilities section 7(a)(2) of the Endangered Species Act of 1973, as amended (Act), are met. Attachment B outlines the responsibilities of Federal agencies for consulting or conferencing with us (U.S. Fish and Wildlife Service).

If both listed and proposed species occur in the vicinity of a project that meets the requirements of a major Federal action (i.e., "major construction activity"), impacts to both listed and proposed species must be considered in a biological assessment (BA) (section 7(c); see Attachment B). Although the Federal agency is not required, under section 7(c), to address impacts to proposed species if listed species are not known to occur in the project area, it may be in the Federal agency's best interest to address impacts to proposed species. The listing process may be completed within a year, and information gathered on a proposed species could be used to address consultation needs should the species be listed. However, if the proposed action is likely to jeopardize the continued existence of a proposed species, or result in the destruction or adverse modification of proposed critical habitat, a formal conference with us is required by the Act (section 7(a)(4)). The results of the BA will determine if conferencing is required.

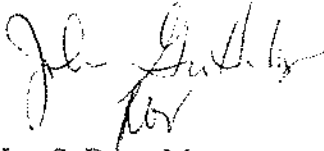
The Federal agency is responsible for making a determination of the effects of the project on listed species and/or critical habitat. For a Federal agency determination that a listed species or critical habitat is likely to be affected (adversely or beneficially) by the project, you should request section 7 consultation through this office. For a "not likely to adversely affect" determination, you should request our concurrence through the informal consultation process. For a "no effect" determination, we would appreciate receiving a copy for our information.

Candidate species and species of concern are those species whose conservation status is of concern to us, but for which additional information is needed. Candidate species are included as an advance notice to Federal agencies of species that may be proposed and listed in the future. Conservation measures for candidate species and species of concern are voluntary but recommended. Protection provided to these species now may preclude possible listing in the future.

For other federally listed species that may occur in the vicinity of your project, contact the National Marine Fisheries Service at (360) 753-9530 to request a list of species under their jurisdiction. For wetland permit requirements, contact the Seattle District of the U.S. Army Corps of Engineers for Federal permit requirements and the Washington State Department of Ecology for State permit requirements.

Thank you for your assistance in protecting listed threatened and endangered species and other species of Federal concern. If you have additional questions, please contact Yvonne Dettlaff (360) 753-9582.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ken S. Berg".

Ken S. Berg, Manager
Western Washington Office

Enclosure(s)

**LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES,
CANDIDATE SPECIES AND SPECIES OF CONCERN
WHICH MAY OCCUR WITHIN THE VICINITY OF THE PROPOSED
MINE RECLAMATION M-106 PROJECT
IN SKAGIT COUNTY, WASHINGTON**

(T35N R09E S28)

FWS REF: 1-3-01-SP-1780

LISTED

There is one bald eagle (*Haliaeetus leucocephalus*) nesting territory located in the vicinity of the project at T35N R09E S33. Nesting activities occur from January 1 through August 15.

Wintering bald eagles occur in the vicinity of the project. Wintering activities occur from October 31 through March 31.

There is one bald eagle night roost located in the vicinity of the project at T35N R09E S34.

There is one bald eagle winter concentration in the vicinity of the project at T35N R09E S20.

Bull trout (*Salvelinus confluentus*) occur in the vicinity of the project.

Major concerns that should be addressed in your biological assessment of the project impacts to listed species are:

1. Level of use of the project area by listed species.
2. Effect of the project on listed species' primary food stocks, prey species, and foraging areas in all areas influenced by the project.
3. Impacts from project construction (i.e., habitat loss, increased noise levels, increased human activity) which may result in disturbance to listed species and/or their avoidance of the project area.

PROPOSED

None.

CANDIDATE

None.

SPECIES OF CONCERN

The following species of concern may occur in the vicinity of the project:

Long-eared myotis (*Myotis evotis*)
Long-legged myotis (*Myotis volans*)
Olive-sided flycatcher (*Contopus cooperi*)
Pacific lamprey (*Lampetra tridentata*)
River lamprey (*Lampetra ayresi*)
Tailed frog (*Ascaphus truei*)
Western toad (*Bufo boreas*)

ATTACHMENT B

FEDERAL AGENCIES' RESPONSIBILITIES UNDER SECTIONS 7(a) AND 7(c) OF THE ENDANGERED SPECIES ACT OF 1973, AS AMENDED

SECTION 7(a) - Consultation/Conference

- Requires:
1. Federal agencies to utilize their authorities to carry out programs to conserve endangered and threatened species;
 2. Consultation with FWS when a federal action may affect a listed endangered or threatened species to ensure that any action authorized, funded, or carried out by a federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. The process is initiated by the federal agency after it has determined if its action may affect (adversely or beneficially) a listed species; and
 3. Conference with FWS when a federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or an adverse modification of proposed critical habitat.

SECTION 7(c) - Biological Assessment for Construction Projects *

requires federal agencies or their designees to prepare a Biological Assessment (BA) for construction projects only. The purpose of the BA is to identify any proposed and/or listed species which is/are likely to be affected by a construction project. The process is initiated by a federal agency in requesting a list of proposed and listed threatened and endangered species (list attached). The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the species list, please verify the accuracy of the list with the Service. No irreversible commitment of resources is to be made during the BA process which would result in violation of the requirements under Section 7(a) of the Act. Planning, design, and administrative actions may be taken; however, no construction may begin.

To complete the BA, your agency or its designee should: (1) conduct an onsite inspection of the area to be affected by the proposal, which may include a detailed survey of the area to determine if the species is present and whether suitable habitat exists for either expanding the existing population or potential reintroduction of the species; (2) review literature and scientific data to determine species distribution, habitat needs, and other biological requirements; (3) interview experts including those within the FWS, National Marine Fisheries Service, state conservation department, universities, and others who may have data not yet published in scientific literature; (4) review and analyze the effects of the proposal on the species in terms of individuals and populations, including consideration of cumulative effects of the proposal on the species and its habitat; (5) analyze alternative actions that may provide conservation measures; and (6) prepare a report documenting the results, including a discussion of study methods used, any problems encountered, and other relevant information. Upon completion, the report should be forwarded to our Endangered Species Division, 510 Desmond Drive SE, Suite 102, Lacey, WA 98503-1273.

*"Construction project" means any major federal action which significantly affects the quality of the human environment (requiring an EIS), designed primarily to result in the building or erection of human-made structures such as dams, buildings, roads, pipelines, channels, and the like. This includes federal action such as permits, grants, licenses, or other forms of federal authorization or approval which may result in construction.

**WASHINGTON DEPARTMENT
OF NATURAL RESOURCES**

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES NATURAL HERITAGE ORDER FORM

Instructions:

- Please do not send payment, an invoice will be sent to you.
- Product License Agreement (if required) must be completed and returned before the data is released.
- Response time may vary between one and four weeks. If response time is a concern, please make note of it in the "Special Requests" section of the form. We will try to meet your deadline but cannot guarantee doing so.
- Please provide the information requested below. If you need more information about the ordering process, contact Sandy Swope Moody at (360) 902-1667.

Date of Request: 6/5/01
 Organization: Ecological Land Services, Inc.
 Contact Person: Andrea Aberle
 Address: 1339 Commerce Ave, Suite 311
Longview, WA
 Zip: 98603-2
 Phone: (360) 578-1371 Fax: (360) 414-9305

Identify your organization:
 Landowner of the project area
 Government Agency
 Indian Tribe
 Private Consultant for WSDOT
 University Researcher
 Other _____

Use of Data: Update to mine Reclamation plan

Project Description: _____

Special Requests: label site as "M-106" + 3DH

Standard Products Available (Please check desired products):

Project Area Report - Please specify the geographic area covered by your project by providing the legal description and a map. Specify ASCII File (3.5" disks) or paper copy.
NW 1/4, NE 1/4, SEC. 28, T35N, R9E

WNHP Animal Species With Ranks List*

USGS Quad Overlays - Please specify scale (1:24,000 or 1:100,000), media (paper or mylar) and USGS quad map names. _____

Rare Plant Species Fact Sheet - Please specify plant species. _____

Natural Heritage Spatial Data Set - Specify: Arc/Info export file version 7.0+ (for workstation Arc/Info users)

8 mm Tape - UNIX TAR format
 Anonymous FTP

Rare Plant Species County List - Please specify county/counties. _____

ArcView Shapefile version 3.0+ (for PC ArcView users)

Mini Data Cartridge (120 MB)
 3.5" DOS formatted floppy disks
 Anonymous FTP

Rare Plant Species With Ranks List



July 30, 2001

Andrea Aberle
Ecological Land Services Inc
1339 Commerce Ave – Suite 311
Longview WA 98632

**SUBJECT: Update to Mine Reclamation Plan – Site M-106 + 3DH
(T35N R09E S28)**

We've searched the Natural Heritage Information System for information on rare plants, select rare animal species, and high quality wetland and terrestrial ecosystems in the vicinity of your project. A summary of this information, and corresponding materials, are enclosed. In your planning, please consider protection of these significant natural features. Please contact us for consultation on projects that may have an effect on these rare species or high quality ecosystems.

The information provided by the Washington Natural Heritage Program is based solely on existing information in the database. There may be significant natural features in your study area of which we are not aware. These data are being provided to you for informational and planning purposes only - the Natural Heritage Program has no regulatory authority. This information is for your use only for environmental assessment and is not to be redistributed. Others interested in this information should be directed to contact the Natural Heritage Program.

The Washington Natural Heritage Program is responsible for information on the state's rare plants as well as high quality ecosystems. We have begun to add to our database information on selected groups of animals of conservation concern, such as freshwater mussels, butterflies and bats. However, to ensure that you receive information on all animal species of concern, please contact Priority Habitats and Species, Washington Department of Fish and Wildlife, 600 Capitol Way N, Olympia, WA 98501-1091, or by phone (360) 902-2543.

If you have the opportunity, visit our website at <http://www.wa.gov/dnr> and click on *Programs & Topics* to locate the Natural Heritage Program. Please do not hesitate to call me at (360) 902-1667 if you have any questions, or by E-mail: sandra.moody@wadnr.gov.

Sincerely,

Sandy Swope Moody, Environmental Coordinator
Washington Natural Heritage Program
PO Box 47014
Olympia WA 98504-7014

Enclosures

WASHINGTON NATURAL HERITAGE INFORMATION SYSTEM
ENDANGERED, THREATENED AND SENSITIVE PLANTS,
SELECT RARE ANIMAL SPECIES,
HIGH QUALITY WETLAND ECOSYSTEMS AND HIGH QUALITY TERRESTRIAL ECOSYSTEMS
IN THE VICINITY OF MINE RECLAMATION SITE M-106
REQUESTED BY ECOLOGICAL LAND SERVICES INC

Data Current as of July 2001
Page 1 of 1

<u>TOWNSHIP, RANGE AND SECTION</u>	<u>ELEMENT NAME</u>	<u>STATE STATUS</u>	<u>FEDERAL STATUS</u>
T35N R09E S26 W2 S27 E2	TSUGA HETEROPHYLLA / POLYSTICHUM MUNITUM FOREST (WESTERN HEMLOCK / SWORDFERN)		

WASHINGTON NATURAL HERITAGE PROGRAM

CRITERIA FOR HIGH-QUALITY WETLAND ECOSYSTEMS

The WNHP does not maintain a comprehensive inventory of all wetlands in the state. The database includes information only on those areas that have been surveyed by the program scientists and found to be relatively undisturbed high-quality wetlands. For wetlands included in the database, the physical characteristics, biota, ecosystem functions, processes and settings are essentially natural. For example, to be included in the WNHP database, a freshwater wetland site must meet these six criteria:

1. A native wetland ecosystem type (element) considered important for preservation within the state.
2. Little or no human-caused changes to wetland topography or soils.
3. No human caused changes to hydrology of the wetland, or the wetland appears to have recovered from any changes.
4. Few or no exotic plant species.
5. Little human-caused disturbance of native vegetation, or vegetation has recovered from past disturbance.
6. No major water quality problems.

Criteria 2-6 are weighted based on the amount of disturbance present in all known examples of a given wetland type. Thus a disturbed wetland may be included in the WNHP Information System if it has one of the highest quality examples remaining of a particular wetland type. On the other hand, an equally disturbed site may not be included in the WNHP Information System if it contains a wetland type which has many other undisturbed examples. A severe degree of disturbance would exclude a site from being entered into the WNHP Information System, even if no better examples of that wetland type exist.

CRITERIA FOR HIGH-QUALITY TERRESTRIAL ECOSYSTEMS

Occurrences of terrestrial ecosystem types are determined by the characteristics of each individual ecosystem type. Ecological quality refers to both the ecological condition and the ecological viability of a particular community.

Condition is determined by relative importance of native versus non-native species, extent and nature of human-caused disturbance, and how well the occurrence represents the ecosystem type definition. Viability is determined by size of the area and landscape setting.

Minimum criteria for an occurrence of a terrestrial ecosystem:

1. Native plants dominate the site: tree layers composed of only native species, at least 80 percent of the shrub and herbaceous layers are composed of native plants. Non-native plants are generally insignificant.
2. Little or insignificant disturbance to vegetation by logging, conversion to agriculture, heavy grazing, residential development, or other recent human extractive activities that alter the ecosystem processes.
3. Large enough for minimal viability and ecological function: at least 100 acres for forests in the montane provinces and at least four average tree heights wide at its narrowest width, at least 20 acres for forest in the Puget Lowlands, and at least 10 acres for native grasslands.

The degree to which these criteria are applied to a site depends on characteristics of the particular ecosystem types present. Some ecosystem types are found almost exclusively as small patches, perhaps in areas smaller than in criterion 3. In this case, meeting criteria 1 and 2 would be sufficient. Large but moderately disturbed ecosystems representative of types that have been altered throughout their range because of various land uses may need only meet criteria 1 and 3.

**NATIONAL MARINE
FISHERIES SERVICE**

Andrea

From: Andrea Aberle [andrea@eco-land.com]
Content: Wednesday, June 06, 2001 9:16 AM
To: 'Bonnie.Shorin@noaa.gov'
Subject: spp. list request (WSDOT pits)

Hello Bonnie-
I'm told you are our new NMFS contact.

Ecological Land Services, Inc. has been contracted by WSDOT to update the mining reclamation plans and permits for the below pits. Information on listed or proposed species, or designated or proposed critical habitat in the vicinity of the proposed projects are necessary. I am providing the below species list and requesting NMFS concurrence for those species listed under the ESA.

Location of WSDOT Pits:

Pit M-106 (Skagit Co.), NW 1/4, NE 1/4, of Sec. 28, T35N, R9E + 3DH
Pit F-95 (Whatcom Co.), SE 1/4, SE 1/4, of Sec. 35, T41N, R1E
Pit IS-64 (Island Co.), SW 1/4, SE 1/4, SW 1/4, of Sec. 4, T29N, R2E
Pit IS-74 (Island Co.), SE 1/4, NW 1/4, of Sec. 31, T32N, R1E

LISTED SPECIES

Chinook Salmon (*O. tshawytscha*) Puget Sound ESU (Threatened)

CANDIDATES FOR LISTING

Coho Salmon (*O. kisutch*) Puget Sound/Straight of Georgia ESU

Thank You-
Andrea Aberle
Ecological Land Services, Inc.
(360)578-1371


Habitat Conservation Division

NOAA Fisheries
National Marine Fisheries Service

Northwest Region Species List

Endangered, Threatened, Proposed, and Candidate Species under National Marine Fisheries Service Jurisdiction that Occur in Oregon, Washington, and Idaho

Listed Species

Coho Salmon (*Oncorhynchus kisutch*)

- Southern Oregon/Northern California Coasts Evolutionarily Significant Unit (ESU) (Threatened)
- Oregon Coast ESU (Threatened)

Chinook Salmon (*O. tshawytscha*)

- Snake River Fall-run ESU (Threatened)
- Snake River Spring/Summer-run ESU (Threatened)
- Puget Sound ESU (Threatened) F-95, IS-74, IS-64
- Lower Columbia River ESU (Threatened)
- Upper Willamette River ESU (Threatened)
- Upper Columbia River Spring-run ESU (Endangered)

Chum Salmon (*O. keta*)

- Hood Canal Summer-run ESU (Threatened)
- Columbia River ESU (Threatened)

Sockeye Salmon (*O. nerka*)

- Snake River ESU (Endangered)
- Ozette Lake ESU (Threatened)

Steelhead (*O. mykiss*)¹

- Upper Columbia River ESU (Endangered)
- Snake River Basin ESU (Threatened)
- Lower Columbia River ESU (Threatened)
- Upper Willamette River ESU (Threatened)
- Middle Columbia River ESU (Threatened)

Sea-run Cutthroat Trout (*O. clarki clarki*)

- Umpqua River ESU (Endangered)

Proposed for Listing

Chinook Salmon

- Southern Oregon/Northern California Coastal ESU (Proposed Threatened)

Sea-run Cutthroat Trout

- Southwestern Washington/Columbia River ESU (Proposed Threatened)

Candidates for Listing

Coho Salmon

- Puget Sound/Straight of Georgia ESU F-95, ES-74, ES-64
- Lower Columbia River/Southwest Washington ESU

Steelhead

- Klamath Mountains Province ESU
- Oregon Coast ESU

Sea-run Cutthroat Trout

- Oregon Coast ESU

Andrea

From: John Winton [John.Winton@noaa.gov]
Sent: Friday, June 22, 2001 10:36 AM
To: andrea@eco-land.com
cc: DeeAnn Kirkpatrick
Subject: Re: [Fwd: spp. list request (WSDOT pits)]

Dear Andrea:

DeeAnn Kirkpatrick has asked that I answer your e-mail request for an updated species list for the four WSDOT pit mines in Skagit, Whatcom, and Island counties. Your list is correct. The present status of salmonids in those areas are:

Threatened - chinook, Puget Sound ESU;
Candidate - coho, Puget Sound/Strait of Georgia ESU.

As a candidate species, coho salmon are not afforded protection under the ESA and need not be addressed in a BA if the project is short-term. However, it may be prudent to address coho in a BA if there is a possibility that the project may be on-going for some period of time (perhaps a year or longer) during which the candidate species could be reclassified as threatened. In addition, these pits would have no affect on endangered marine mammals under NMFS jurisdiction.

If you have any questions don't hesitate to give me a call at 206-526-6121.

Sincerely yours:
John Winton
Fisheries Biologist

> _____
>
> Subject: RE: spp. list request (WSDOT pits)
> Date: Fri, 15 Jun 2001 15:16:43 -0700
> From: "Andrea Aberle" <andrea@eco-land.com>
> To: "DeeAnn Kirkpatrick" <Deeann.Kirkpatrick@noaa.gov>
>
>>
> Andrea Aberle wrote:
>>
>>> Hello DeeAnn~
>>> I'm told you are our new NW WA NMFS contact.
>>>
>>> Ecological Land Services, Inc. has been contracted by WSDOT to update
> the
>>> mining reclamation plans and permits for the below pits. Information on
>>> listed or proposed species, or designated or proposed critical habitat
> in
>>> the vicinity of the proposed projects are necessary. I am providing the
>>> below species list and requesting NMFS concurrence for those species
>> listed under the ESA.
>
>>>
>>>
>>> Location of WSDOT Pits - nearest/adjacent waterbody:
>>> Pit M-106 (Skagit Co.), NW 1/4, NE 1/4, of Sec. 28, T35N, R9E - Skagit + 3DH
>>> river
>>> Pit F-95 (Whatcom Co.), SE 1/4, SE 1/4, of Sec. 35, T41N, R1E - Strait
> of Georgia

>>> Pit IS-64 (Island Co.), SW 1/4, SE 1/4, SW 1/4, of Sec. 4, T29N, R2E -
> Puget Sound
>>> Pit IS-74 (Island Co.), SE 1/4, NW 1/4, of Sec. 31, T32N, R1E - Puget
> Sound
>>>
·>> LISTED SPECIES
>>> Chinook Salmon (*O. tshawytscha*) Puget Sound ESU (Threatened)
>>>
>>> CANDIDATES FOR LISTING
>>> Coho Salmon (*O. kisutch*) Puget Sound/Straight of Georgia ESU
>>>
>>> Thank You-
>>> Andrea Aberle
>>> Ecological Land Services, Inc.
>>> (360)578-1371

APPENDIX A

Sauk Landfill Monitoring Well Logs

HONG WEST & ASSOCIATES

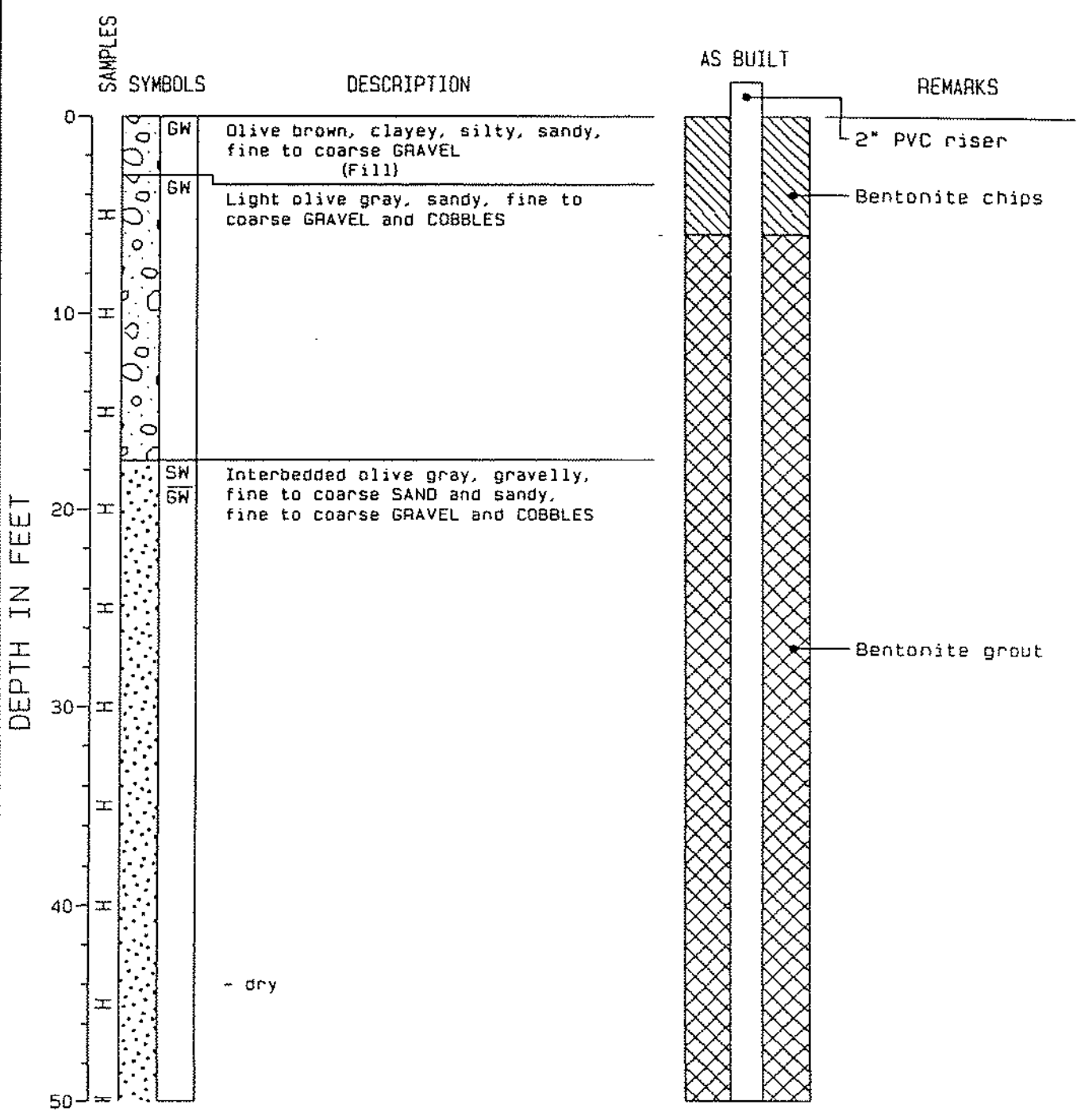
P.O. BOX 598, LYNNWOOD, WASHINGTON 98046, (206) 743-4774

DRILLING COMPANY: Hayes Drilling & Pump
DRILLING METHOD: Air Rotary - Tricone
SAMPLING METHOD: GRAB SAMPLE FROM AIR DISCHARGE TUBE

WELL LOG

LOGGED BY: PAUL WHITE

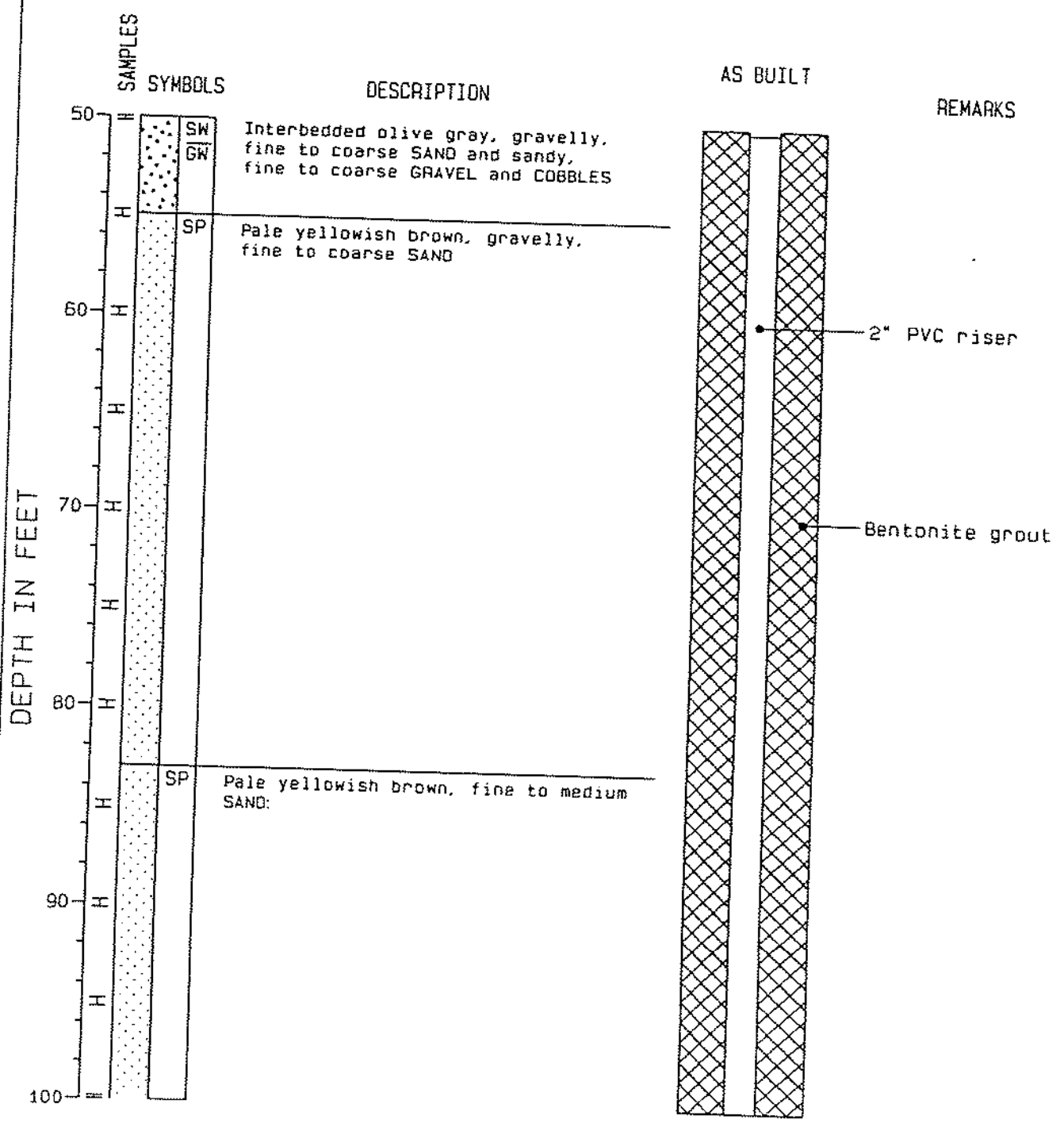
TOTAL DEPTH: 182 FEET
DATE STARTED: 10/11/89
DATE FINISHED: 10/16/89



PROJECT: SAUK LANDFILL
LOCATION: SKAGIT COUNTY, WASHINGTON
SURFACE ELEVATION: 522.78 FT

WELL MW-1
PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES WELL LOG

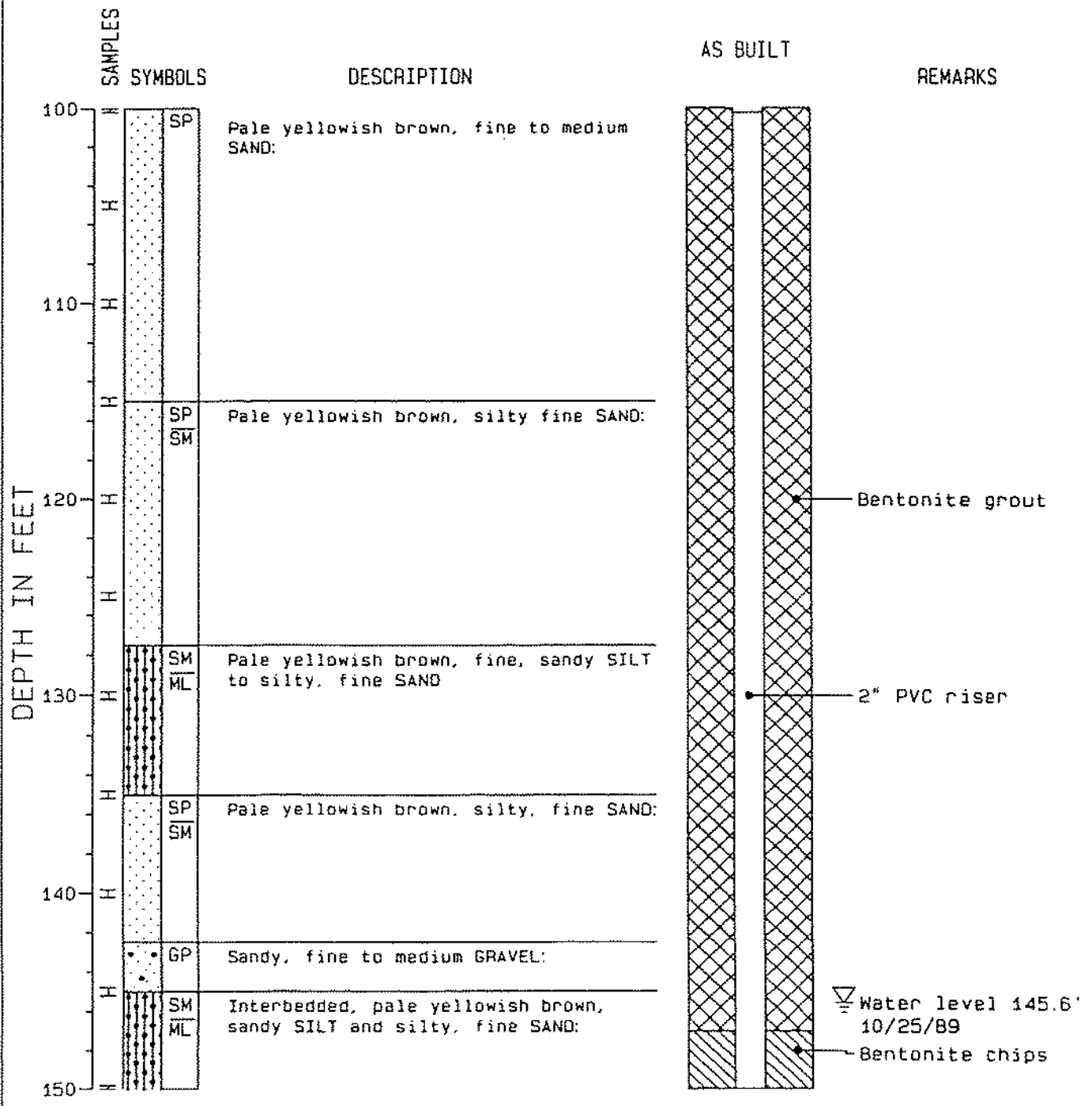


PROJECT: SAUK LANDFILL
 LOCATION: SKAGIT COUNTY, WASHINGTON
 SURFACE ELEVATION: 522.29 ft

WELL MW-1

PROJECT NUMBER: R038

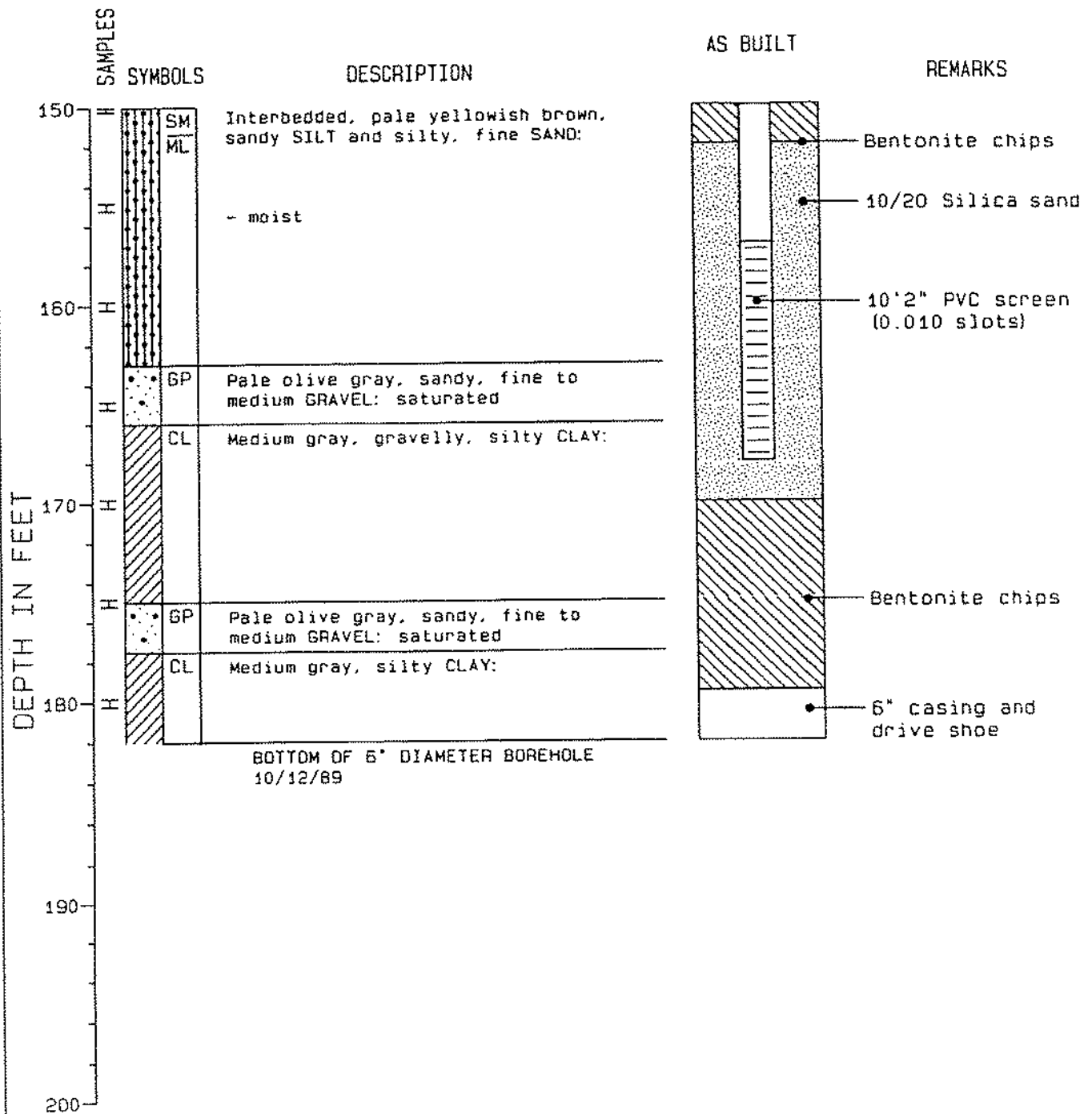
HONG WEST & ASSOCIATES WELL LOG



PROJECT: SAUK LANDFILL
 LOCATION: SKAGIT COUNTY, WASHINGTON
 SURFACE ELEVATION: 522.38 ft.

WELL MW-1
 PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES WELL LOG



HONG WEST & ASSOCIATES

P.O. BOX 598, LYNNWOOD, WASHINGTON 98046, (206) 743-4774

DRILLING COMPANY: Hayes Drilling & Pump

DRILLING METHOD: Air Rotary - Tricone

SAMPLING METHOD: Grab Sample From Air Discharge Tube

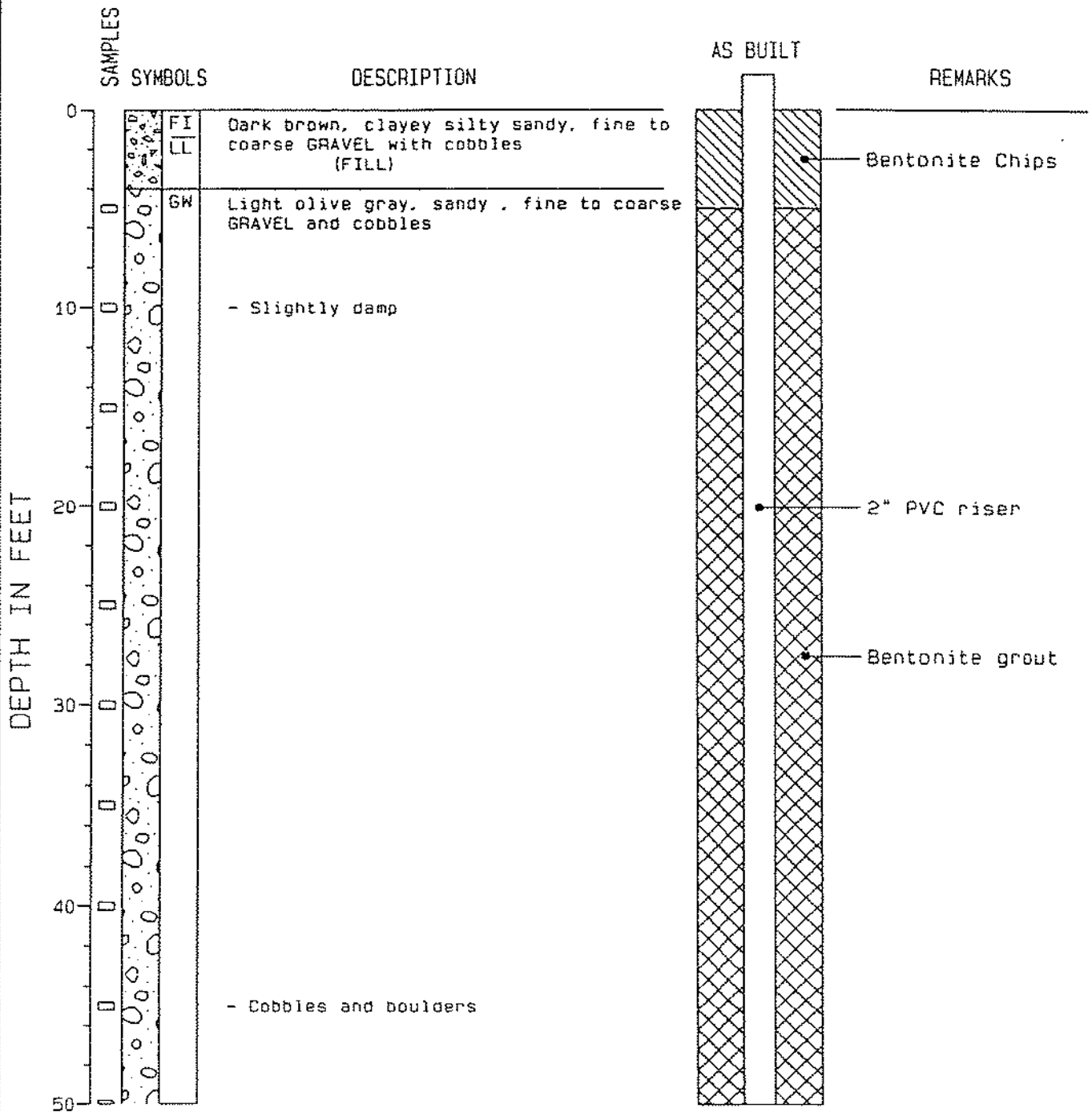
WELL LOG

LOGGED BY: Paul White

TOTAL DEPTH: 182 FEET

DATE STARTED: 10/17/89

DATE FINISHED: 10/18/89



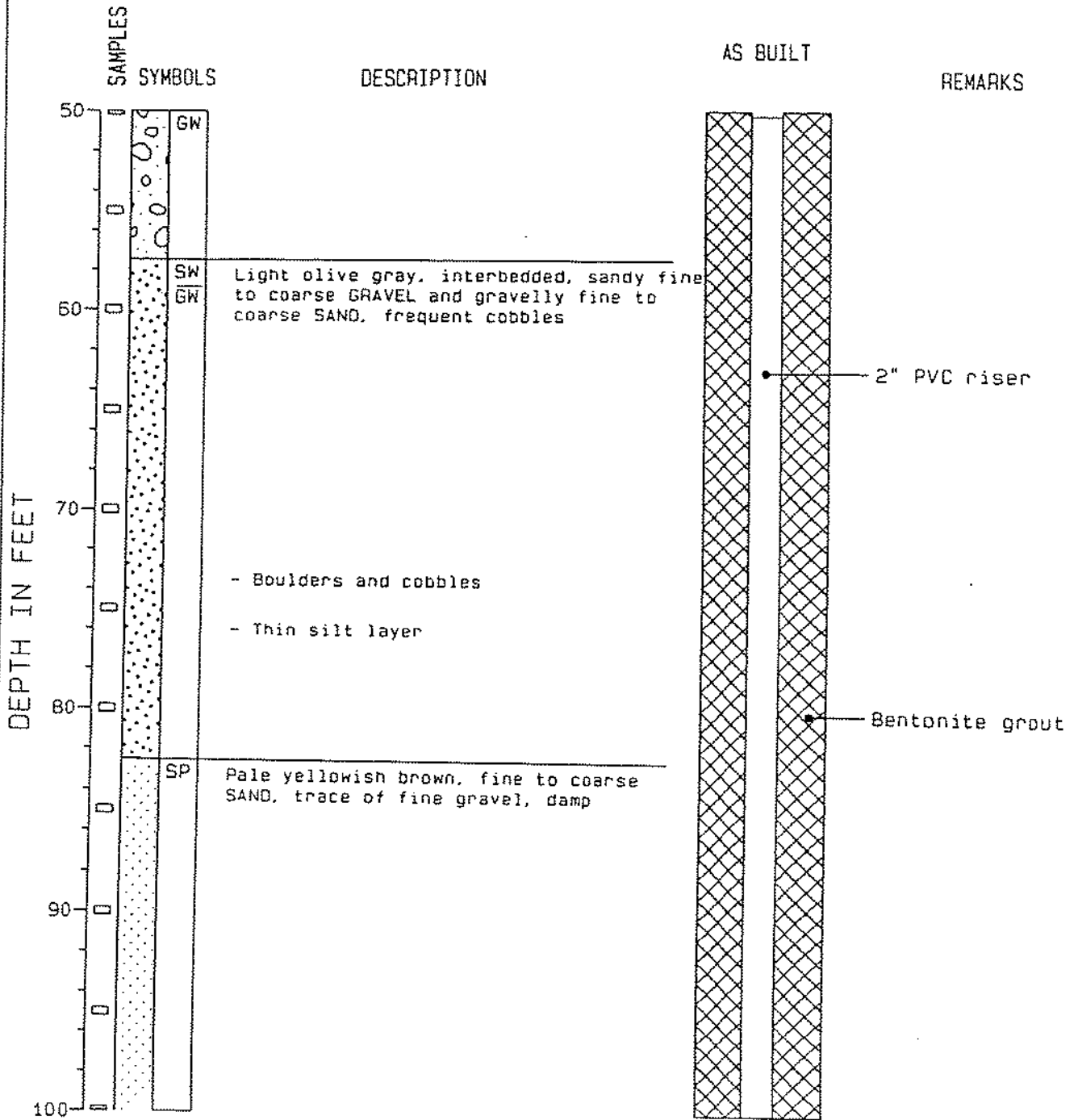
PROJECT: Sauk Landfill
 LOCATION: Skagit County, Washington
 SURFACE ELEVATION: 524.22 ft.
 TOP OF WELL CASING: 526.07 ft.

WELL MW-2

PROJECT NUMBER: 8938

PAGE: 1 OF 4

HONG WEST & ASSOCIATES WELL LOG



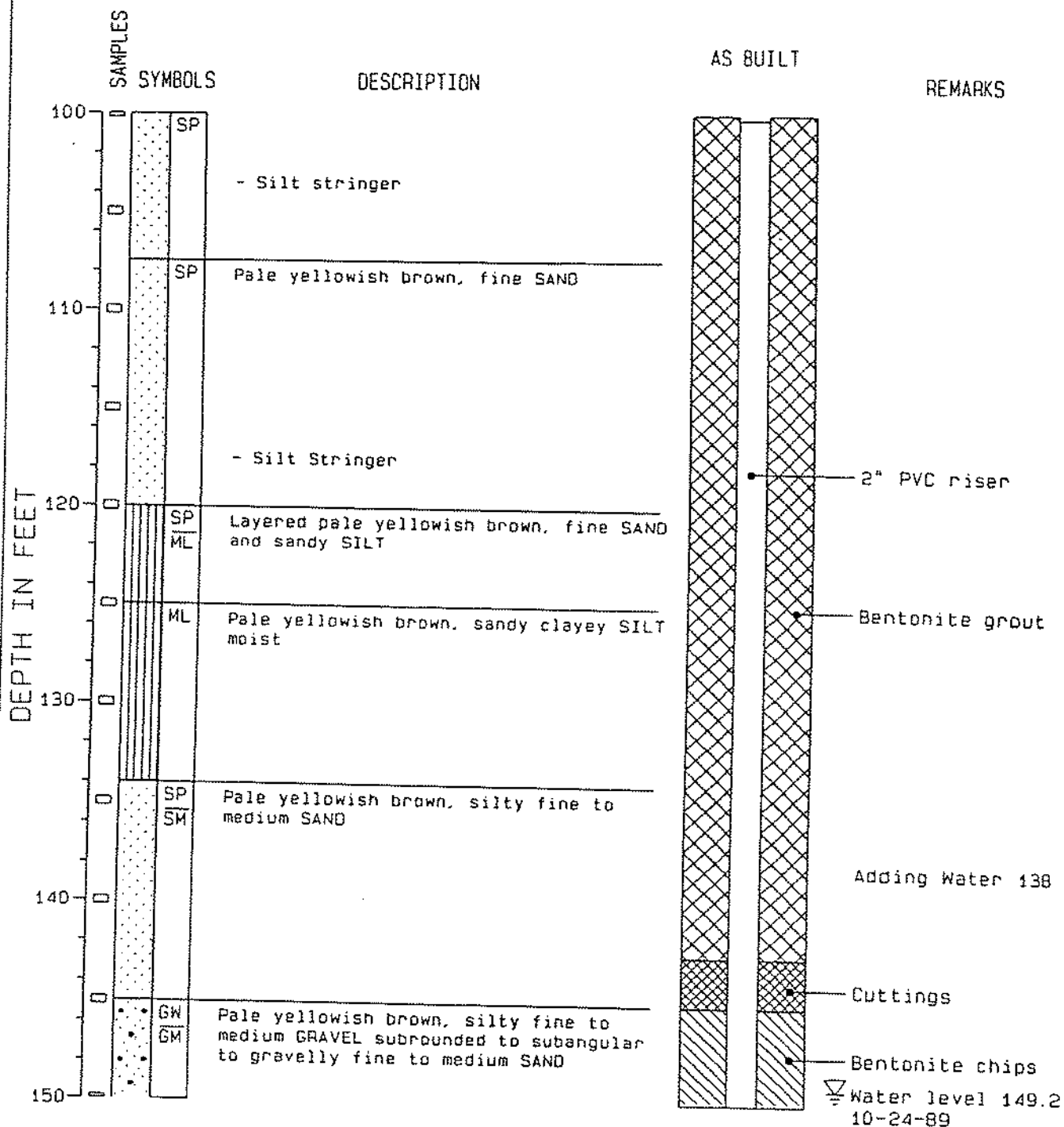
PROJECT: Sauk Landfill
 LOCATION: Skagit County, Washington
 SURFACE ELEVATION: 524.22 ft.
 TOP OF WELL CASING: 526.07 ft.

WELL MW-2

PROJECT NUMBER: 8938

PAGE: 2 OF 4

HONG WEST & ASSOCIATES WELL LOG

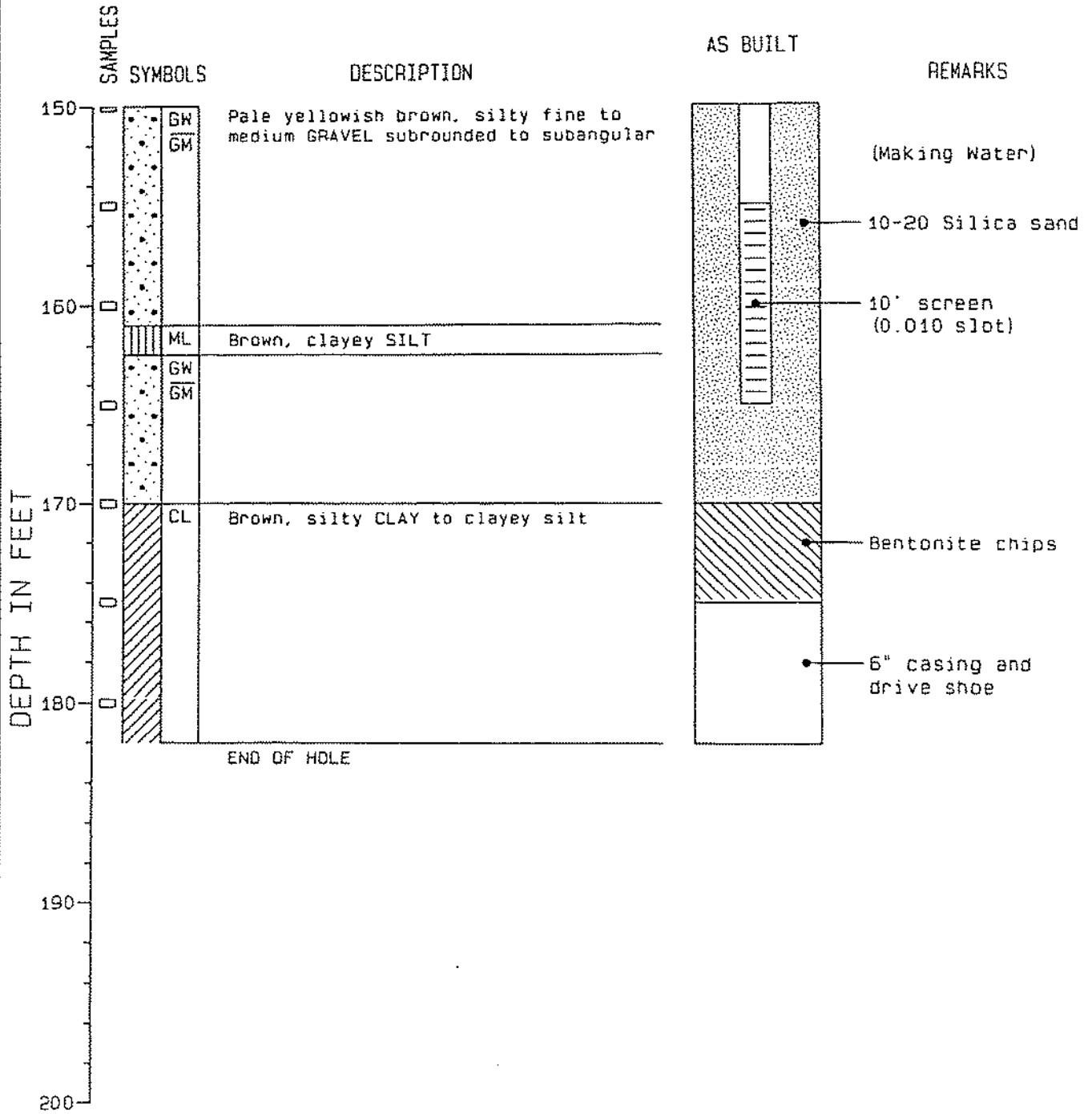


PROJECT: Sauk Landfill
 LOCATION: Skagit County, Washington
 SURFACE ELEVATION: 524.22 ft.
 TOP OF WELL CASING: 526.07 ft.

WELL MW-2

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES WELL LOG



PROJECT: Sauk Landfill
 LOCATION: Skagit County, Washington
 SURFACE ELEVATION: 524.22 ft.
 TOP OF WELL CASING: 526.07 ft.

WELL MW-2

PROJECT NUMBER: 8938

PAGE: 4 OF 4

HONG WEST & ASSOCIATES

P.O. BOX 598, LYNNWOOD, WASHINGTON 98046, (206) 743-4774

DRILLING COMPANY: Hayes Drilling & Pump

DRILLING METHOD: Air Rotary - Tricone

SAMPLING METHOD: Grab Sample From Air Discharge Tube

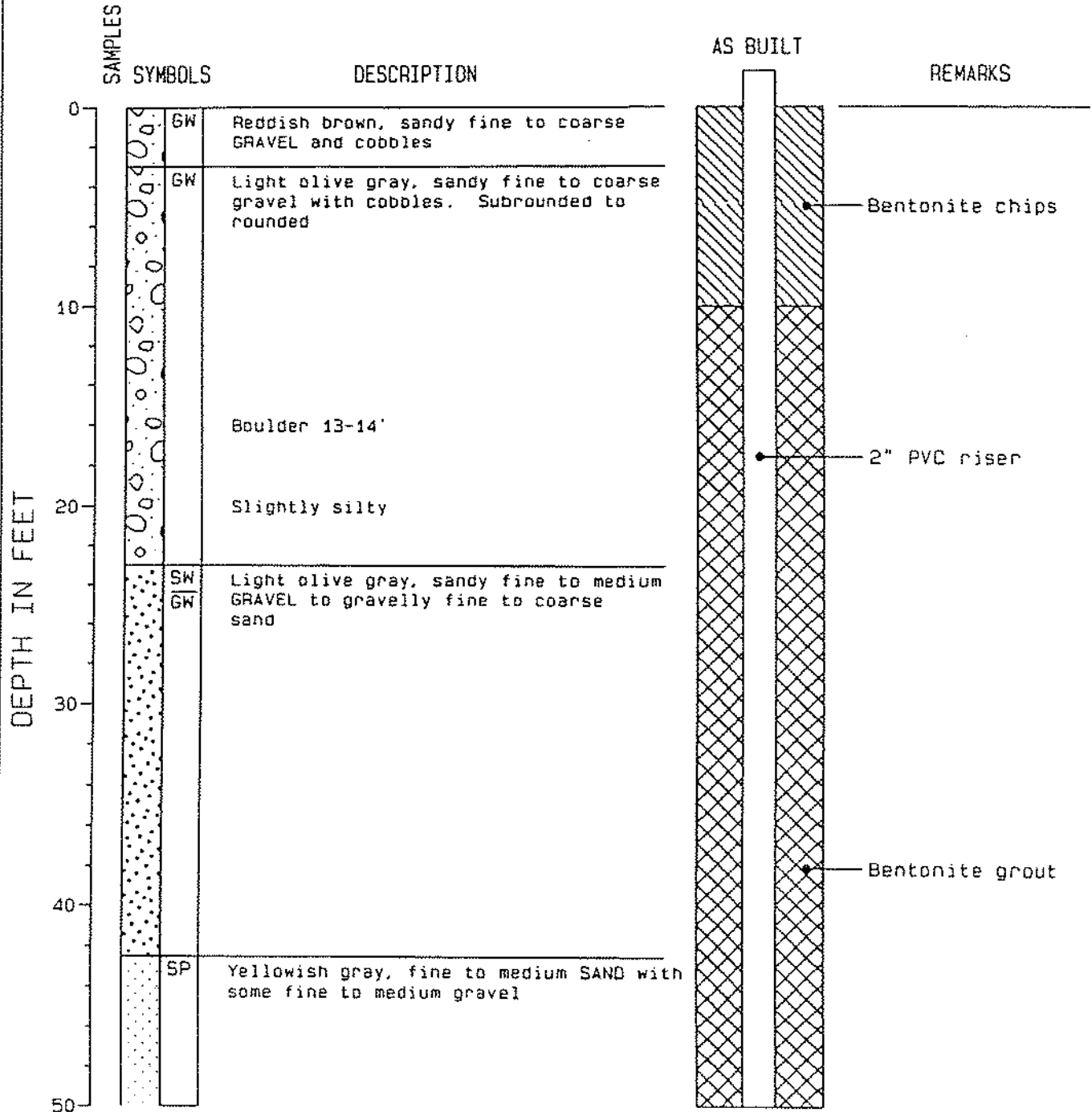
WELL LOG

LOGGED BY: Paul White

TOTAL DEPTH: 198 FEET

DATE STARTED: 10/19/89

DATE FINISHED: 10/20/89



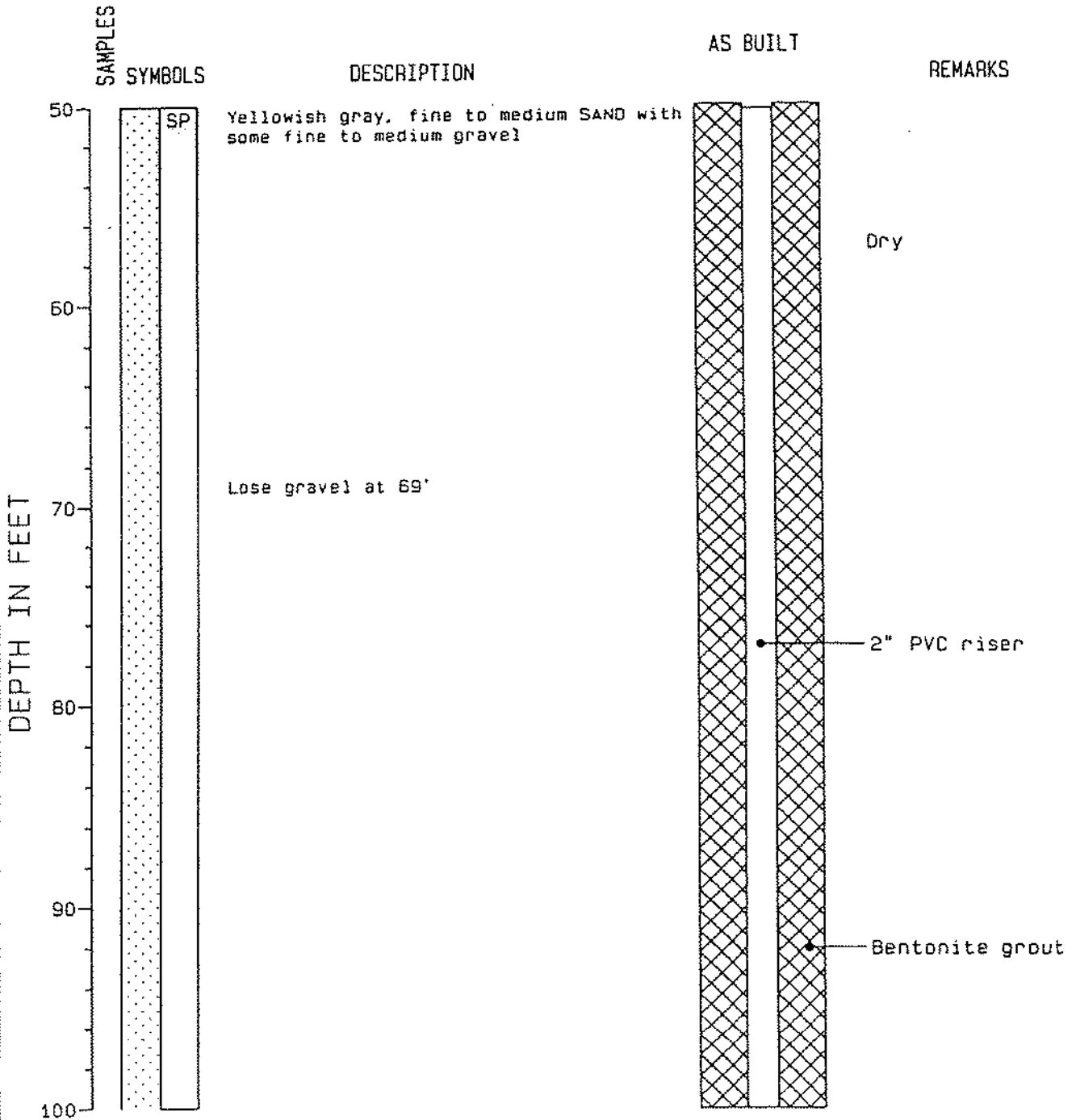
PROJECT: Sauk Landfill
 LOCATION: Skagit County, WA
 SURFACE ELEVATION: 551.80 ft.
 TOP OF WELL CASING: 553.65 ft.

WELL MW-3

PROJECT NUMBER: 8938

PAGE: 1 OF 4

HONG WEST & ASSOCIATES WELL LOG



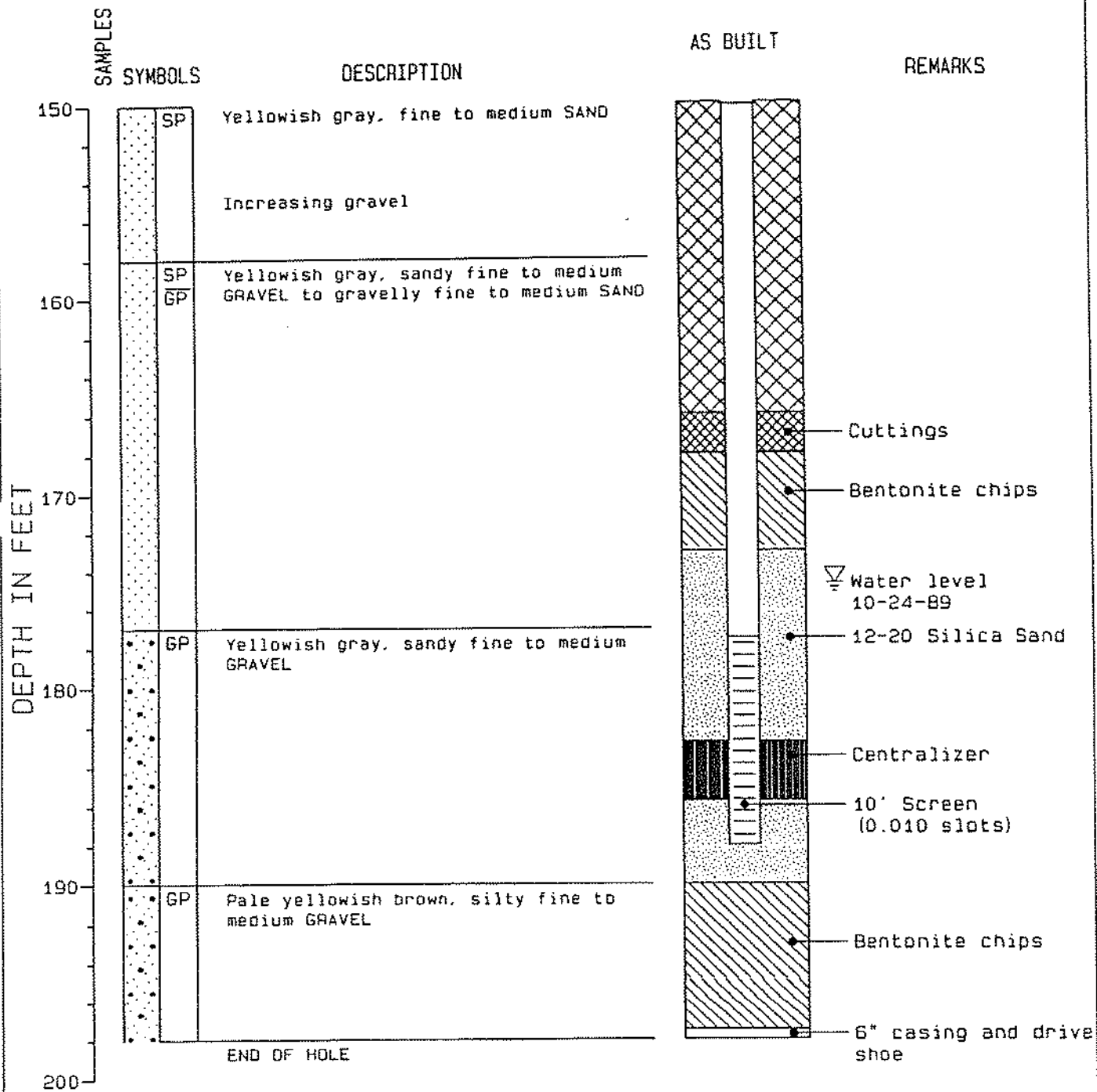
PROJECT: Sauk Landfill
 LOCATION: Skagit County, WA
 SURFACE ELEVATION: 551.80 ft.
 TOP OF WELL CASING: 553.65 ft.

WELL MW-3

PROJECT NUMBER: 8938

PAGE: 2 OF 4

HONG WEST & ASSOCIATES WELL LOG



PROJECT: Sauk Landfill
 LOCATION: Skagit County, WA
 SURFACE ELEVATION: 551.80 ft.
 TOP OF WELL CASING: 553.65 ft.

WELL MW-3

PROJECT NUMBER: 8938

HONG WEST & ASSOCIATES

P.O. BOX 598, LYNNWOOD, WASHINGTON 98046, (206) 743-4774

DRILLING COMPANY: Hayes Drilling and Pump

DRILLING METHOD: Air Rotary - Tricone

SAMPLING METHOD: GRAB SAMPLE FROM AIR DISCHARGE TUBE

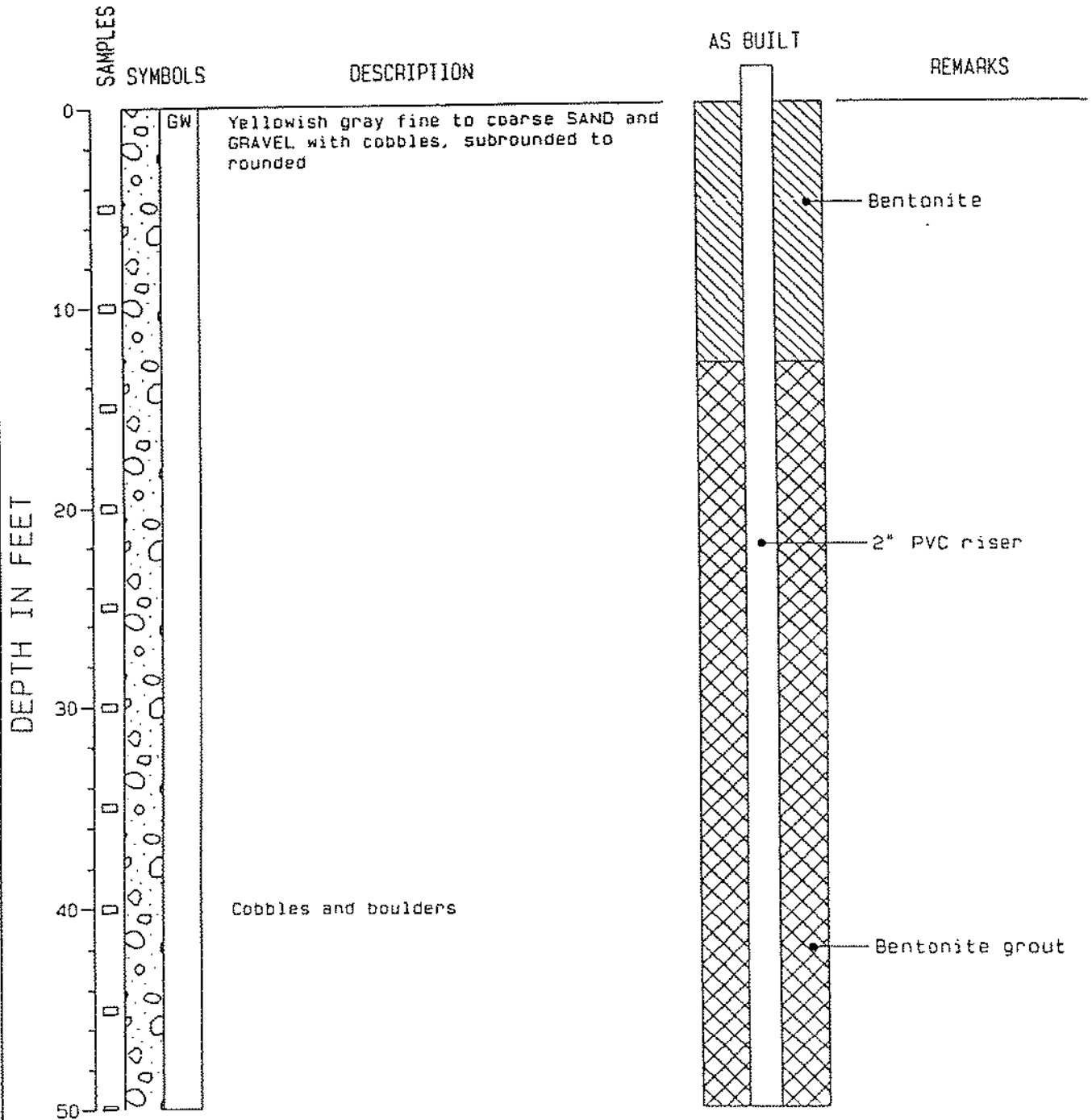
WELL LOG

LOGGED BY: PAUL WHITE

TOTAL DEPTH: 178 FEET

DATE STARTED: 10-23-89

DATE FINISHED: 10-24-89



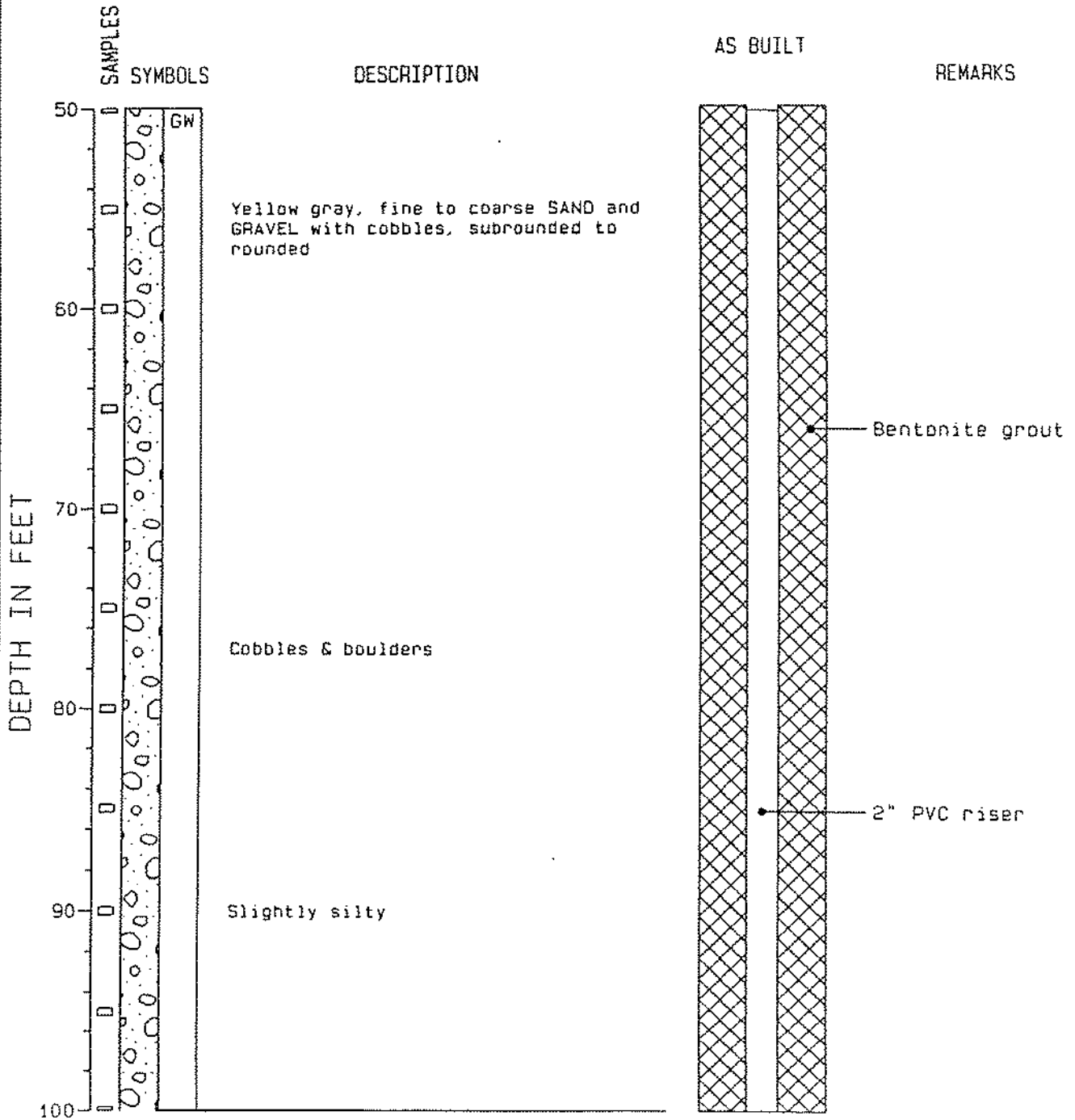
PROJECT: SAUK LANDFILL
LOCATION: SKAGIT COUNTY, WA
SURFACE ELEVATION: 528.14 ft.
TOP OF WELL CASING: 530.04 ft.

WELL MW-4

PROJECT NUMBER: 8938

PAGE: 1 OF 4

HONG WEST & ASSOCIATES WELL LOG



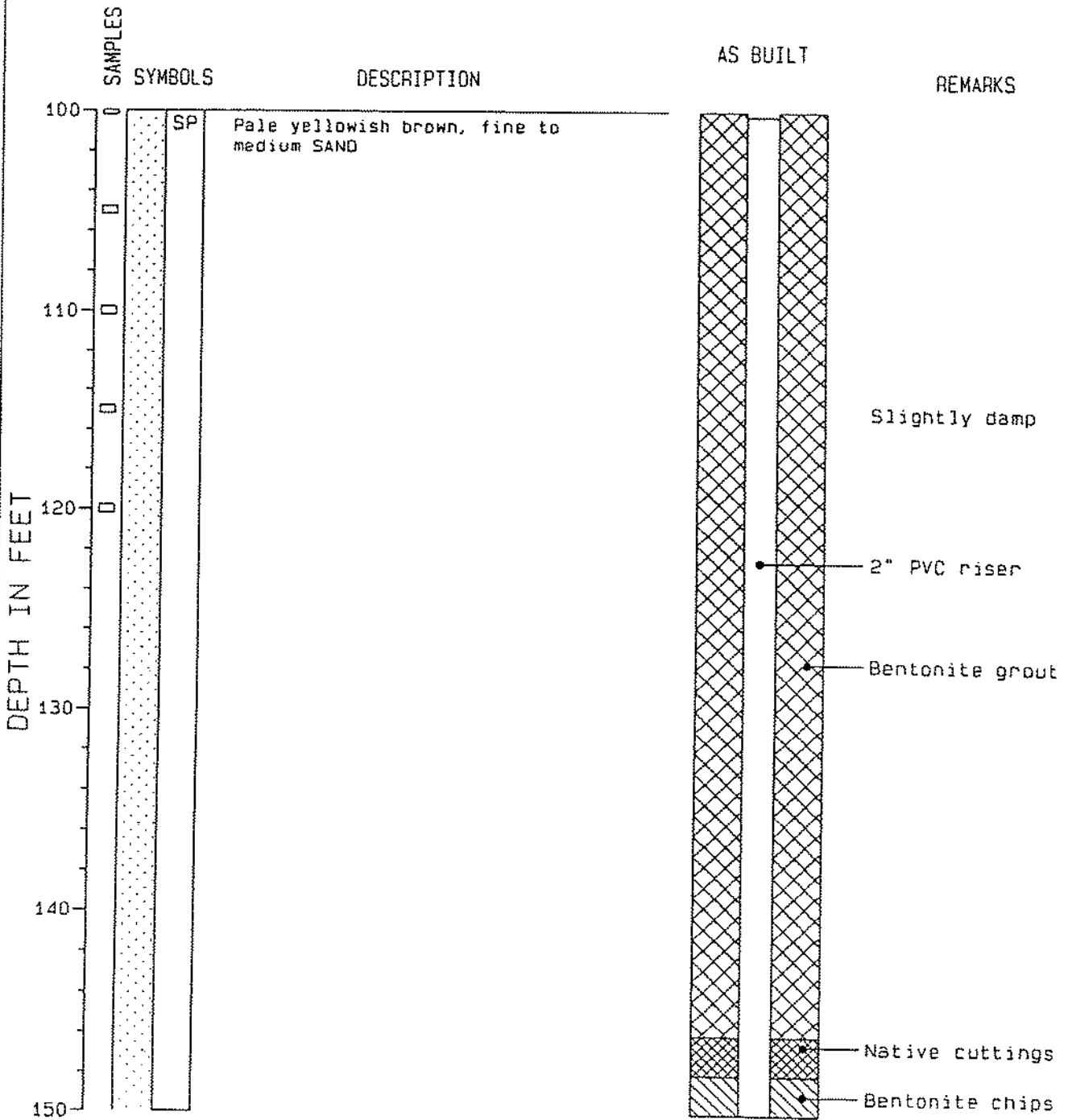
PROJECT: SAUK LANDFILL
 LOCATION: SKAGIT COUNTY, WA
 SURFACE ELEVATION: 528.14 ft.
 TOP OF WELL CASING: 530.04 ft.

WELL MW-4

PROJECT NUMBER: 8938

PAGE: 2 OF 4

HONG WEST & ASSOCIATES WELL LOG



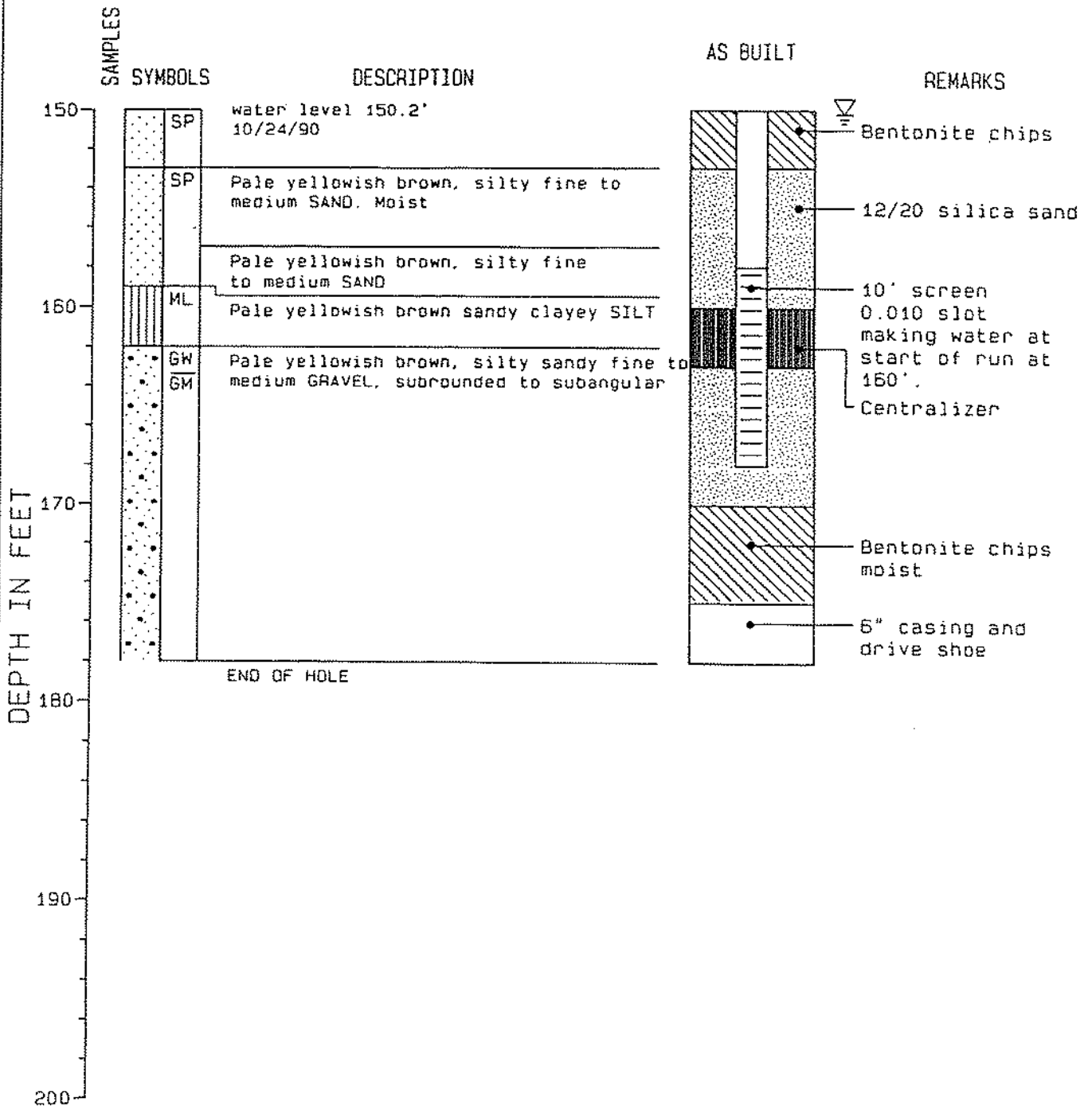
PROJECT: SAUK LANDFILL
 LOCATION: SKAGIT COUNTY, WA
 SURFACE ELEVATION: 528.14 ft.
 TOP OF WELL CASING: 530.04 ft.

WELL MW-4

PROJECT NUMBER: 8938

PAGE: 3 OF 4

HONG WEST & ASSOCIATES WELL LOG



PROJECT: SAUK LANDFILL
 LOCATION: SKAGIT COUNTY, WA
 SURFACE ELEVATION: 528.14 ft.
 TOP OF WELL CASING: 530.04 ft.

WELL MW-4

PROJECT NUMBER: 8938

PAGE: 4 OF 4

APPENDIX B

DOE Water Supply Well Logs

WATER WELL REPORT

STATE OF WASHINGTON

Application No. _____
Permit No. _____

30/1-212

(1) **OWNER:** Name Dean Mallory Address 944 Adams Dr., Concrete Wa. 98237
LOCATION OF WELL: County Skagit - SW 1/4 NW 1/4 Sec 21 T 35N R 9 W.M.
 and distance from section or subdivision corner PTN-SW 1/4 NW 1/4 AKATR 3 SIT PLT 107-75

(3) **PROPOSED USE:** Domestic Industrial Municipal
 Irrigation Test Well Other

(10) **WELL LOG:** AF=323832

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Brown Clay - Gravel	0	150
Gravel	150	164
Blue Clay @ gravel	164	180
Blue Clay - Gravel	180	212
Water Gravel	212	214

(4) **TYPE OF WORK:** Owner's number of well (if more than one) _____
 New well Method: Dug Bored
 Deepened Cable Driven
 Reconditioned Rotary Jetted

(5) **DIMENSIONS:** Diameter of well 6 inches.
 Drilled 214 ft. Depth of completed well 214 ft.

(6) **CONSTRUCTION DETAILS:**
 Casing installed: 6" Diam. from 0 ft. to 214 ft.
 Threaded " Diam. from _____ ft. to _____ ft.
 Welded " Diam. from _____ ft. to _____ ft.

Perforations: Yes No
 Type of perforator used _____
 SIZE of perforations _____ in. by _____ in.
 _____ perforations from _____ ft. to _____ ft.
 _____ perforations from _____ ft. to _____ ft.
 _____ perforations from _____ ft. to _____ ft.

Screens: Yes No
 Manufacturer's Name _____
 Type _____ Model No. _____
 Diam. _____ Slot size _____ from _____ ft. to _____ ft.
 Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes No Size of gravel: _____
 Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes No To what depth? 18 ft.
 Material used in seal BENTONITE
 Did any strata contain unusable water? Yes No
 Type of water? _____ Depth of strata _____
 Method of sealing strata off _____

(7) **PUMP:** Manufacturer's Name Jacuzzi
 Type: Submersible HP 3/4

(8) **WATER LEVELS:** Land-surface elevation _____ ft.
 above mean sea level _____ ft.
 Static level 150 ft. below top of well Date 9-7-83
 Artesian pressure _____ lbs. per square inch Date _____
 Artesian water is controlled by _____ (Cap. valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
 Was a pump test made? Yes No If yes, by whom? _____
 Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
 Bailor test: 5 gal./min. with 6 ft. drawdown after _____ hrs.
 Artesian flow _____ Date 9-6-83
 Temperature of water _____ Chemical analysis made? Yes No

RECEIVED

OCT 10 1983

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

DIVISION OF WELL LOGGING

Work started 9-6-83 19____ Completed 9-7-83 19____

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME DAHLMAN PUMP & DRILLING, INC.
 (Person, firm, or corporation) (Type or print)

Address PO. Box 422, BURLINGTON WA 98233

[Signed] H. Ken Fowler
 (Well Driller)

License No. 1192 Date 9-8 1983

