WASHINGTON STATE DEPARTMENT OF
Natural Resources
Peter Goldmark - Commissioner of Public Lands

Caring for
your natural resources
... now and forever

September 4, 2013

Glacier Northwest, Inc. dba CalPortland
5975 E. Marginal Way South
Seattle, WA 98134-2414

RE: Surface Mine Reclamation Permit Number 70-012668

Gentlemen,

Enclosed is Surface Mine Reclamation Permit Number 70-012668, which authorizes surface mine reclamation within a 565-acre permitted area in a portion of the Northeast and Southeast quarters of Section 22 and the Northwest, Southwest and Northeast quarters of Section 23 and the Southwest quarter of Section 14 and the Southeast quarter of Section 15, Township 19 North, Range 1 East, Willamette Meridian, Pierce County. Please refer to the permit number listed above when submitting inquiries or reports.

RCW 78.44 requires that reclamation of each segment of the permitted area shall be completed within two years of cessation of mining in that segment. We strongly recommend, however, that reclamation of each segment occur concurrent with the removal of the minerals.

The Department acknowledges approval of reclamation performance security number 0142734 issued by Berkley Insurance Company in the amount of $403,500.00 dated December 28, 2009.

You are required to mail a Permit-Fee Invoice and Reclamation Report (Form SM-7) annually to Washington Department of Natural Resources. The form must be completed and returned to the department with the appropriate annual permit fee prior to the anniversary date of the permit.

Sincerely,

Rian Skov, LG
Senior Reclamation Geologist
Surface Mining Reclamation Program
Division of Geology & Earth Resources

enclosures: SM-9, Exhibit A, SM-8A, SM-6, Narrative, Maps
c: File No. 70-012668
City of DuPont Planning
Berkley Insurance Company

WASHINGTON STATE DEPARTMENT OF
Natural Resources

SURFACE MINING RECLAMATION PERMIT
(Form SM-9)

☐ new ■ expansion ☐ revision ☐ name change ☐ transfer

Permit Holder: Glacier Northwest, Inc. dba CalPortland
Mailing Address: 5979 E. Marginal Way S.
Seattle, WA 98134-2414

Pursuant to RCW 78.44, a Reclamation Permit hereby granted to the above-named permit holder to engage in surface mining on the property described in the application and material on file under this permit. The total area to be disturbed by surface mining, including the deposition of surface-mining refuse, shall be in accordance with the reclamation plan filed with and approved the by the Department of Natural Resources under this permit, and in accordance with the conditions and descriptions set forth in Exhibit "A" attached hereto and made a part hereof, and RCW 78.44.

TERM OF PERMIT
This permit shall be in effect from the date of issuance and shall remain in effect so long thereafter as the permit holder pays the annual basic fee for each site, complies with the Surface Mining Act and the rules promulgated thereunder, complies with the reclamation plan, and maintains a performance security as required by the Act.

CHANGE OR MODIFICATION OF RECLAMATION PLAN
The permit holder shall obtain written approval from the Department prior to any change or departure from the approved reclamation plan.

PERFORMANCE SECURITY
A performance security shall be submitted to and approved by the Department prior to commencement of surface mining. The permit holder may submit a cash deposit, assignment of a savings account or certificate of deposit, bank letter of credit, negotiable securities, or a corporate surety bond in the amount specified. The amount of the performance security shall be subject to adjustment according to RCW 78.44.

TRANSFER OF PERMIT
The transfer of this permit to another permit holder shall not be made unless approved in writing by the Department. A transfer shall not be approved unless the successor permit holder assumes all duties of the former permit holder to complete the reclamation of the land and the Department approves the successor permit holder's performance security.

PENALTIES
The Department may suspend surface mining or impose civil penalties if the permit holder conducts surface mining in any manner not authorized by RCW 78.44, the rules adopted thereunder, the approved reclamation plan, or this permit.

Permitted issued on January 19, 1994. Permit revised on September 4, 2013.

Signature _____
Name Ryan Skov, L.G.
Title Senior Reclamation Geologist
Division of Geology & Earth Resources

E 1/2	1/4, S	22	T	19	N, R	1 E	WM
W 1/2	1/4, S	23	T	19	N, R	1 E	WM
NE	1/4, S	23	T	19	N, R	1 E	WM
SW	1/4, S	14	T	19	N, R	1 E	WM
SE	1/4, S	15	T	19	N, R	1 E	WM

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

Total permit acreage 565
Maximum vertical depth below pre-mining topographic grade is 185 feet
Maximum depth of excavated mine floor is 25 feet relative to mean sea level

DNR Surface Mining Reclamation Permit No.
70-012668

EXHIBIT A

Conditions of the Permit

Surface Mining Reclamation Permit # 70-012668
September 4, 2013

1. This surface mining reclamation permit applies to the following permit area: within a 565-acre permitted area in a portion of the Northeast and Southeast quarters of Section 22 and the Northwest, Southwest and Northeast quarters of Section 23 and the Southwest quarter of Section 14 and the Southeast quarter of Section 15, Township 19 North, Range 1 East, Willamette Meridian, Pierce County.

2. All mining and reclamation shall comply with the rules and regulations pursuant to Chapter 78.44 RCW and Chapter 332-18 WAC.

3. All mining and reclamation shall comply with the reclamation plan dated June 11, 2013 by the permittee, and approved by the Department of Natural Resources on September 4, 2013. Any amendment or change to the plan must be submitted to and approved in writing by the Department. The Reclamation Plan consists of the following documents:

    - Permit Letter, dated September 4, 2013
    - Surface Mining Reclamation Permit (Form SM-9) dated September 4, 2013
    - Exhibit A, listing **14** conditions of the permit
    - Standard Reclamation Plan
        - Application for Reclamation Permit (Form SM-8A) dated by the permittee on June 11, 2013, date stamped received by Geology and Earth on June 18, 2013.
        - County or Municipality Approval for Surface Mining (Form SM-6) dated by the permittee on June 11, 2013, and approved by City of DuPont Planning on June 11, 2013, date stamped received by Geology and Earth on June 18, 2013.
        - Narrative, date stamped received by Geology and Earth on June 18, 2013.
        - Reclamation Plan Maps: Figures 1 thru 8 and Appendixes A thru D, each date stamped received by Geology and Earth on June 18, 2013.
        - Final Environmental Impact Statement (FEIS), dated June 24, 2013, date stamped received by Geology and Earth on June 25, 2013.

4. If there is any conflict between the conditions in Exhibit A and any other language of the approved reclamation permit (which includes the reclamation plan, maps, and supporting documents), the language in Exhibit A will prevail.

5. The permit holder shall mark the perimeter of the 565-acre permitted area with highly visible permanent marker posts as described in the Application for Reclamation Permit SM-8A. The markers will be used to delineate the permit boundary enabling the operator, permittee, and the Department of Natural Resources (DNR) to monitor the progress of

mining and reclamation. Permanent boundary markers shall be visible such that the entire perimeter of the site could be reestablished using the GPS, if any marker was destroyed.

6. The permitted depth at this site is 185 vertical feet from the original ground surface. No excavation shall occur below an elevation of 25 feet mean sea level (msl). If additional mining depth is anticipated the reclamation plan shall be revised prior to exceeding the permitted depth.

7. Reclamation slopes shall be created using the mine-to-grade method of slope creation. Backfilling to create reclamation slopes is not approved by this permit.

8. The site is to be mined dry; a minimum 10-foot separation between the mine floor and the Ordinary High Water Mark (OHWM) shall be maintained.

9. Reclaimed slopes will not exceed 2 ft horizontal and 1 ft to ensure that all slopes are stable and shall have a sinuous appearance in both plan and profile views.

10. A steep slope buffer shall be maintained on the west side of the site as described in the Reclamation Narrative; the buffer varies from 25 to 50-feet and is shown on Figure 3.1-5 in the FEIS. A 50-foot setback shall be maintained interior to the Permit Boundary on the east side of the site. Buffers and setbacks shall be marked on the ground to assist the Operator and DNR in ensuring no encroachment of the required buffers/setbacks occurs.

11. Topsoil shall be stockpiled along the top of slopes as shown on as shown on Reclamation Plan Map Figure 5. Stockpiles shall be seeded with grasses during storage and incorporate other Best Management Practices (BMPs) for erosion control as needed. Topsoil shall not be buried, removed or sold as a product from the permit area.

12. Topsoil used for reclamation must meet cleanup levels established by the Department of Ecology for soils affected by the Tacoma Smelter Plume (TSP) which allows an arsenic level of less than 20 ppm. Topsoil handling, stockpiling and sampling procedures shall be performed as outlined in the Reclamation Narrative. Prior to termination of the reclamation permit the Permit Holder shall provide DNR with documentation from Ecology that shows required TSP cleanup levels have been met.

13. Revegetation shall be completed as detailed in the narrative and in Form SM-8A. Noxious weeds shall not be considered acceptable vegetation and natural revegetation only shall not be deemed satisfactory. Prior to any variation from the revegetation plan, written approval must be obtained from the Department.

14. The permit holder or operator shall maintain a complete copy of this permit, including these conditions and the approved reclamation plan with additions and amendments, at the mine site during all mining and reclamation activities.

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.)*

Glacier Northwest, Inc., dba CalPortland

MAILING ADDRESS

5975 E. Marginal Way South
Seattle, WA 98134-2414

Telephone 206-768-7636

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 565 acres

Maximum vertical depth below pre-mining topographic grade is 185 feet

Maximum depth of excavated mine floor is 25 feet relative to mean sea level

COUNTY Pierce

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

1/4	1/4	Section	Township	Range
Portions	NE/SE	22	19N	R1E
Portions	NW/SW	23	19N	R1E
Portions	NE	23	19N	R1E
Portions	SW	14	19N	R1E
Portions	SE	15	19N	R1E

Proposed subsequent use of site upon completion of reclamation

Residential Reserve (RR), Residential 4 (R-4), Open Space/Sensitive Areas (OS), Community Park (CP), Manufacturing and Research (MRP), Industrial (IND).

Signature of company representative or individual applicant(s)	Name and title of company representative *(please print)*	Date signed
Scott Nicholson	Scott Nicholson Director	6/11/13

TO BE COMPLETED BY THE APPROPRIATE COUNTY OR MUNICIPALITY:

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

	Yes	No
1. Has the proposed surface mine been approved under local zoning and land-use regulations?	X	
2. Is the proposed subsequent use of the land after reclamation consistent with the local land-use plan/designation?	X	

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

RECEIVED
JUN 18 2013
Geology and Earth

Name of planning director or administrative official *(please print)*
Bill Kingman

Signature
Bill Kingman

Title *(please print)*
DUPONT PLANNING MANAGER

Address
CITY OF DUPONT
1700 CIVIC DRIVE
DUPONT, WA 98327

Telephone 253-912-5393

Date 6/11/13

FOR DEPARTMENT USE ONLY

DNR Reclamation Permit No. 70-012668

GEODESIGN INC

June 18, 2013

Washington State Department of Natural Resources
Geology and Earth Resources Division
1111 Washington Street SE
Olympia, WA 98504-7007

Attention: Mr. Rian Skov

Reclamation Plan Narrative
CalPortland DuPont North Parcel Expansion
City of DuPont, Pierce County, Washington
GeoDesign Project: CalPortCo-1-02

Dear Rian Skov,

On behalf of our client, CalPortland, GeoDesign Inc. (GDI) is providing the attached documents for the DuPont North Parcel Expansion Surface Mine and Reclamation Permit. To minimize duplication, this submittal does not include the Final Environment Impact Statement (Final EIS) and associated studies. The Final EIS document can be found on City of DuPont or CalPortland websites. The Draft EIS (March 2013) is currently on these web sites and is expected to be finalized in the very near future. The following documents are included:

- Reclamation Plan Narrative
- Attachment A - SM-6
- Attachment B - SM-8A
- Figures 1-8 & Appendix A-D

Should you have any questions regarding the submittal information please call me at 360-431-5120 or Pete Stoltz at 206-768-7636.

Sincerely,

Roy Garrison
Principal – Mining Consulting

Encl:
cc: Pete Stoltz - CalPortland

GEODESIGN INC

June 18, 2013

Washington State Department of Natural Resources
Geology and Earth Resources Division
1111 Washington Street SE
Olympia, WA 98504-7007

Attention: Mr. Rian Skov

Reclamation Plan Narrative
CalPortland DuPont North Parcel Expansion
City of DuPont, Pierce County, Washington
GeoDesign Project: CalPortCo-1-02

INTRODUCTION

On behalf of Glacier Northwest, Inc., dba CalPortland, GeoDesign, Inc. has prepared this surface mine reclamation plan for the Washington State Department of Natural Resources (DNR). This reclamation plan, including the narrative, DNR forms, maps, and figures, is intended to satisfy the requirements of the State Surface Mining Act (*Chapter 78.44 Revised Code of Washington*). DNR Forms SM-6 and SM-8A are presented in Attachments A and B, respectively.

SITE DESCRIPTION

SITE LOCATION

The North Parcel area is located approximately 1.5 miles north of DuPont City Hall, Pierce County, Washington. The site is situated in Portions of the NE & SE quarters of Section 22, NW, NE & SW of Section 23, SW quarter of Section 14, and SE quarter of Section 15, Township 19 North, Range 1 East; Willamette Meridian (Figure 1). The North Parcel is within the city limits of DuPont and adjoins the existing Pioneer Aggregates pit (DNR permit #70-012668) to the south.

BACKGROUND

The North Parcel property (201 acres) is owned by Northwest Aggregates, and over laps into the northern portion of their existing Pioneer Aggregates mine (467 acres) to the south. Within the North Parcel property, the mine permit boundary is being expanded 105 acres. There are 7 acres of undisturbed area proposed for removal from the existing permit boundary. These 7 acres are located in the northwestern corner of the existing permit boundary that overlaps the southwestern corner of the North Parcel property (Figure 2). Coupled with the 105 acres being

expanded in the North Parcel and removal of 7 acres within the 467 acre existing permit boundary, the total permit boundary will encompass 565 acres.

The existing mine was originally leased from the Weyerhaeuser Company and is now leased by the current property owner, WPP LLC. Refer to Figures 3 and 3A. The existing mine has been in operation since 1997. The existing operation will sequentially transition into the North Parcel expansion area while continuing to process the high quality Steilacoom Gravels at the onsite facility located in the northeast portion of the existing pit. The majority of the processed aggregate will continue to be shipped from the processing plant via conveyor to CalPortland' s barge transport dock at Tatsolo Point on Puget Sound (Figure 4).

The northern expansion area is bordered to the west by Puget Sound and adjoining bluffs. The Burlington Northern-Santa Fe Railroad is located between the Puget Sound shoreline and the toe of the slope. These forested slopes will not be disturbed by the mine expansion, and a prescribed buffer between the mineral extraction and the crest of the slope will be maintained.

The proposed mine expansion in the North Parcel has been extensively reviewed in an Final Environmental Impact Statement (FEIS) under the State Environmental Policy Act (SEPA). To avoid replication and redundancy, studies from the FEIS will be referenced throughout this document.

SUBSEQUENT USE

As stated on Form SM-6, the subsequent use of the site after reclamation is Residential Reserve (RR), Residential 4 (R-4), Open Space/Sensitive Areas (OS), Community Park (CP), Manufacturing and Research (MRP), Industrial (IND), (Attachment A). Refer to Section 3.6 - Land Use of the FEIS for a full description of subsequent uses and there locations identified (FEIS Figures 3.6-2 and 3.6-3).

GEOLOGY AND GROUNDWATER

The geology and groundwater section has been prepared by Aspect Consulting. The geology and groundwater of the North Parcel and existing mine have been studied extensively and are presented in the Final Environmental Impact Statement (FEIS) for the existing mine (City of DuPont and Ecology, 1993) and the Final Environmental Impact Statement (FEIS) for the North Parcel (City of DuPont and Ecology, 2013).

The pre-mining topography consists of a gently rolling forested upland that generally slopes gradually down to the northwest, and then descends steeply to Puget Sound. Elevations range from approximately 215 feet (NGVD 29) in the southeast corner to approximately 200 feet to 125 feet (NGVD 29) along the western boundary. Within 300 to 400 feet of its northwestern boundary, the topography dips steeply down toward the barge loading conveyor and transport dock. The railroad was cut into the original slope and slope material was used to construct the railroad embankment. The embankment lies at about elevation 32 feet and is about 50 feet wide with an armored, steep embankment on the northwest side that continues downward into the intertidal zone.

The geology of the area was formed when the Puget Sound lowland was repeatedly glaciated, or covered with thick sheets of ice that also covered much of Alaska, Canada and the Northern United States, during the last two million years. Soil and rocks carved from the landscape and deposited by these ice sheets and glacial rivers and lakes are termed glacial deposits. Sediments deposited in lowland river, floodplain, lake, and forest bog environments during intervening periods between times when glacial ice sheets occupied the landscape, are recognized as non-glacial deposits. The most recent glacial period in the area is the Vashon stade of the Fraser glaciation.

Geologic units of glacial and non-glacial origin were deposited in the area before, during, and after the Vashon glaciation. In the area of the mine, the surface geology consists primarily of Vashon-age recessional sand and gravel locally known as Steilacoom Gravel. This recessional glacial unit is underlain by older Vashon age glacial deposits, pre-Vashon non-glacial deposits, and pre-Vashon glacial deposits, all comprised primarily of sand and gravel.

The uppermost pre-Vashon non-glacial sequence in the area is identified as the Olympia beds. These non-glacial deposits are generally marked by an increase in silt, organics, and wood fragments. The Olympia beds underlie the Steilacoom gravel in the eastern portion of the existing mine. The Olympia beds are not present in the western portion of the existing mine and the North Parcel.

The first (shallowest) aquifer in the existing mine occurs within the Vashon outwash deposits. The Vashon outwash deposits comprise a productive, highly permeable groundwater zone that occurs at relatively shallow depths of approximately 15 to 25 feet [190 to 200 feet in elevation (NGVD 29)].

Beneath the North Parcel, however, the aquifer occurs well below the ground surface and lies within the Steilacoom Gravel at a depth of roughly 200 feet or greater (near sea level elevation). This change in depth to groundwater is because the North Parcel lies west of the truncation of the Olympia beds.

All mining is, and will be, above the seasonal high groundwater level. The mine floor would be established at an elevation intended to maintain a minimum separation of 10 feet between ground surface and regionally high groundwater.

MINING AND RECLAMATION

The reclamation plan for the expansion area will include returning the mined slopes to forest and leaving a relatively flat mine floor for residential use. All mining will be dry and maintain a minimum 10-foot separation between the mine floor and the seasonal high groundwater table. At the conclusion of mining, insitu slopes (2 feet horizontal to 1 foot vertical, or flatter) will surround the mine floor and sinuously join the existing mined area to the south. The pit floor will be developed to slope gently toward perimeter drainage leading to the wetponds and infiltration ponds. Slope stability was evaluated in the FEIS documents for the existing mine and the expansion area.

The North Parcel expansion boundary is 105 acres of which approximately 99 acres will be disturbed by mineral extraction. Prior to the in inception of mining, reclamation preparation starts by logging and clearing stumps, followed by removing and stockpiling native topsoil which will be applied to the slopes once postmining topography is achieved. Topsoil will be directly placed when applicable or stockpiled for future placement. As with the existing mine, segmental mining and reclamation is planned for the entire expansion area (Figure 5). Topsoil will be redistributed on the slopes at the completion of mining each segment, providing foot rooting medium for young tree seedlings. Reclamation will occur as each mining segment is completed, creating a contemporaneous approach to reclaiming the site. Topsoil will not be handled in overly wet or dry conditions. Historically, topsoil has been handled throughout the entire year, due to the gravely/sandy texture and high infiltration capacity of the native soil. Topsoil will not be placed on the completed mine floor due to the subsequent use being residential.

The maximum vertical depth of mining at any given point is 185 feet below ground surface, occurring between elevations 210 feet and 25 feet above MSL. A cut method of mining will be utilized creating a postmining topography with overall 2 foot horizontal to 1 foot vertical insitu slopes and a gently sloping pit floor. Backfilling will not be required to reclaim the site using a cut slope method of mining. Figure 6 illustrates the final configuration of the reclaimed mine area upon completion of mining activities. Figure 7 illustrates cross sections through the site. The perimeter of the mining disturbance area will be sinuously joined to the existing contours surrounding the site.

Eight soil test pits on the relatively flat expansion area indicate the presence of approximately 20 inches of salvageable topsoil/rooting medium (average), which is consistent with the Natural Resources Conservation Service description for the Spanaway Gravelly Sandy Loam soil series (41A). Approximately 259,000 cubic yards of topsoil will be salvaged within the 99 acre expansion, which will be utilized for reclamation.

After mining is complete in a segment, topsoil previously stripped and stored in advance of mining will be replaced to an approximate depth of 3 feet on the slopes for reforestation. This will provide adequate and substantial rooting medium and aid in revegetating the slopes. Historically, wood chips from onsite vegetation, pond sediments and filter press fines have been used to augment topsoil. This topsoil augmentation practice has produced an excellent rooting medium for a successfully proven reforestation program. All though pond sediments are in much smaller quantity than the filter press fines, both provide additional moisture holding capacity to the native soil.

The following section is an excerpt from the Earth and Water Resource Report, Sections 2.1.4.4 and 2.2.4 (Aspect Consulting) referencing topsoil and the Tacoma Smelter Plume: *The North Parcel is located within the Tacoma Smelter Plume (TSP). The TSP is an approximately 1,000-square-mile area where pollutants emitted from a former Asarco smelter before 1986, most notably arsenic and lead, settled onto surface soils. The Washington State Department of Ecology (Ecology) predicts more than 730,000 properties are within the TSP, including the entire City of DuPont and the portions of the existing mine and the North Parcel where mining is proposed.*

Ecology developed a model to predict the concentration of arsenic in surface soil throughout the TSP using wind speed, wind direction, and empirical results obtained from soil samples collected across the TSP (Ecology, 2012). The model indicates the concentration of TSP-related metals decreases as the distance from the former smelter increases (Ecology, 2012). Ecology has also determined elevated concentrations of metals in undisturbed areas within the TSP are generally confined to the top 6 inches of soil (Ecology, 2012).

The North Parcel is within an area where Ecology predicts surface soil concentrations of arsenic are between 40 and 100 parts per million (ppm). Ecology considers areas with these concentrations to be "moderate" zones where immediate action is not necessary (Ecology, 2012). Ecology has pre-approved certain approaches to achieve the established cleanup levels at properties within the TSP. Mixing of impacted surface soils with deeper clean soils is one of the approved approaches under the Final Interim Action Plan (Ecology, 2012).

The proposed mining and reclamation activities will serve as a permanent and final remedy for any TSP-impacted soils at the existing mine and North Parcel. Under the Proposed Action, topsoil within the North Parcel would be removed to facilitate extraction, and conserved and maintained on site to be incorporated into the reclaimed mine landscape and support re-vegetation and reclamation of mined areas consistent with the anticipated subsequent residential land use identified in the City of DuPont Comprehensive Land Use Plan (2001). Stripping, stockpiling, and replacement of topsoil would be completed using methods and procedures that are generally the same as those used in the existing mine area, including employment of BMPs to control erosion and fugitive dust. Samples would be collected from stockpiled topsoil and analyzed in accordance with the Final Interim Action Plan for the TSP (Ecology, 2012). If the sample results indicate the topsoil does not contain arsenic in concentrations exceeding 20 ppm (the conservative cleanup level established by Ecology for the TSP), then the topsoil would be used in reclamation. If the sample results indicate the topsoil contains arsenic in concentrations equal to or greater than 20 ppm, then clean soil would be mixed with the topsoil to reduce the arsenic concentration. Stockpiled topsoil would not be used for reclamation until sample results confirm the concentration of arsenic is below 20 ppm.

Mitigation measures recommended by Ecology for potential contamination from the TSP on the CalPortland-owned North Parcel include the following:

1. The applicant shall operate the facility to meet health and safety requirements and to limit worker exposure to potentially contaminated soils. The applicant shall notify operators, employees and construction workers that the property is located within the Tacoma Smelter Plume (TSP) and may contain contaminated soils and duff.

2. Before undertaking any grading activities, the applicant shall enter into a Voluntary Cleanup Program (VCP) with the Department of Ecology pursuant to the Model Toxics Control Act (MTCA) RCW 70.105D and WAC 173-340.

3. The applicant shall develop a cleanup action plan for the disturbed area of the property consistent with Ecology requirements, and will include compliance sampling and a remediation plan for area of the property, approximately 20 acres, that are not proposed for mining or open space. The cleanup action plan will acknowledge that the

45-acre open space area will be addressed in the Settlement Agreement process. The cleanup action plan will also include compliance sampling and a remediation plan for area on the property not proposed for mining and open space (approx. 20 acres).

4. Prior to initiating grading, the applicant shall obtain an opinion letter from Ecology for property areas outside of the open space area. The opinion letter will state that the proposed duff and soil remediation, and the human health and environmental protections, will likely result in no further action under MTCA. The opinion letter will also acknowledge that the open space area will be addressed later as part of the Settlement Agreement process.

5. City-permitted site development plans shall be consistent with the plans that Ecology reviewed and deemed consistent with MTCA.

6. Because the soil and duff may be contaminated, appropriate best management practices (BMPs) shall be installed to avoid escaping dust, soil erosion and water pollution during clearing and grading activities.

7. If contamination is left on the property, the applicant shall record a notice on title about the contamination to notify future buyers. The notice on title shall be recorded prior to any public access to the property, including the open space area.

8. Prior to the public gaining any access to the property, including the open space area and any un-mined areas, the property owner shall obtain a "No Further Action" determination from Ecology indicating that the remediation plan and protections for human health and the environment were successfully implemented under MTCA.

9. Any imported soil shall follow the Tacoma Smelter Plume Model Remedies Guidance, Chapter 9: Imported Soil Sampling.

After application of topsoil, slopes would be re-forested. When reclamation is complete, heavy equipment would generally not operate on the reclaimed slopes except for construction or maintenance of pedestrian paths, access roads, utilities, or other permitted facilities.

SETBACKS

The steep slope buffer associated with the west side of the pit, as negotiated in the 2011 Settlement Agreement (Ecology, City of DuPont, CalPortland, and Environmental Coalition, 2011) varies from a minimum of 25 feet in some locations to approximately 120 feet in others. The City of DuPont Municipal Code requires a 50 foot buffer between proposed development activity and hillslopes of 40 percent. The proposed development maintains a 50 foot buffer from the top of slopes greater than 40 percent with the exception of two areas. These areas are the two scallop-shaped former borrow pits along the bluff slope west of the expansion. The slope in these areas is greater than 40 percent at the top, but then becomes much more gradual downslope. The average slope from the top of the bluff to the railroad embankment in these areas is less than 40 percent. According to the City of DuPont Municipal Code (DMC 25.105.070(2)), the development buffer can be reduced to a minimum of 25 feet if the Geotechnical Engineer demonstrates that four criteria are met. As discussed in the FEIS, the

proposed development meets all four criteria for a buffer reduction to 25 feet where the project borders the two former borrow pits. A 50 foot setback from mine excavation is established along the eastern boundary of the expansion.

STORMWATER

Existing stormwater and processing water collected in the processing area are pumped to a water treatment facility located within the processing area. All water is treated and most is reused for washing sand and gravel. During periods of heavy rainfall, the supply of treated water exceeds plant needs. Excess treated water is discharged from the treatment pond to NPDES discharge monitoring point P3, where it infiltrates to recharge groundwater. During dry periods, the supply of treated water in not sufficient to meet plant needs and is supplemented by adding water from CalPortland's onsite water supply well. Stormwater from the conveyor and road collects at two pump stations (NPDES discharge points P5 and P6) and is pumped to an infiltration area in the adjacent forest.

As the area is mined, it will form a closed depression so all stormwater generated within the mine will either infiltrate or evaporate. Stormwater runoff will be collected and conveyed to separate pond systems in each drainage basin for treatment and infiltration. Each pond system will consist of a two-celled lined wetpond designed to remove sediments and provide spill control and an infiltration pond to dispose of stormwater and recharge groundwater. The predicted stormwater flows presented above were used in preliminary design of the water quality and infiltration ponds. Pond locations and the conceptual drainage patterns are shown on Figure 6.

The wetponds were designed to treat 91 percent of the total runoff under developed conditions in accordance with Ecology guidance (Ecology, 2005). Key pond dimensions are shown in Table 4-5 of the FEIS. The ponds were designed to be 7 feet deep, which includes one foot of sediment storage at the bottom of the first cell, and one foot of freeboard in both cells.

The conveyance system would consist of a network of open ditches that collect and route stormwater to the water quality facilities described above. In places where the slope is less than 2.5 percent, the ditches would be vegetated. Steeper ditches would require lining with cobbles for slopes up to 5 percent, or rip rap for steeper.

The final drainage calculations are presented in the FEIS.

REVEGETATION

Once topsoil has been placed on the slopes, tree seedlings will be planted during the dormant season. Douglas fir and Red Alder will be planted at 10ft.x10ft. spacing, establishing a stocking level of approximately 430 trees per acre on the reclaimed slopes. Based on the success of the reforested slopes in the existing mine, Douglas fir (1+1 seedling stock) and Red Alder (plug 1 or yearling pull-ups) are recommended. Based on existing reclamation at the site, volunteer seedlings are expected to propagate on the topsoiled slopes in addition to the planting described above. The mature forests that buffer the western mine boundary provide an excellent seed source of other native deciduous and conifer species.

Due to the high porosity and low erosion potential of the native topsoil, grasses are not recommended as part of the reforestation prescription. Grass cover can be detrimental to reforestation due to the competition for moisture and nutrients. In addition, grass cover provides a habitat for rodents that chew the bark around the base of the seedlings (girdling) which leads to seedling mortality and potential disease.

As the reclaimed areas mature, a native understory of herbaceous and woody species will also propagate from seed and rhizomes naturally occurring in the redistributed topsoil. Reclaimed slopes along the western boundary of the site are designed in a sinuous fashion to mimic and blend with the native topography that parallels the Puget Sound.

Deleterious vegetation such as blackberry and Scotch Broom will be removed either mechanically or with the use of herbicides to allow tree establishment and release from shading and competition for nutrients and moisture.

The following table prescribes a recommended specification for temporary revegetation on stockpiled topsoil to minimize the potential for erosion to occur. A comparable seed mix can substitute this specification.

Temporary Revegetation Specifications

Species Common Name	Scientific Name	Planting Method	Planting Density (percent)	Planting Season
Big bluegrass	*Poa secunda*	broadcast	5	spring/fall
Creeping wild rye	*Elymus repens*	broadcast	10	spring/fall
Blue creeping rye	*Elmyus glaucus*	broadcast	20	spring/fall
Timothy	*Phleum pratense*	broadcast	10	spring/fall
Idaho fescue	*Festuca idahoensis*	broadcast	20	spring/fall
White clover	*Trifolium repens*	broadcast	25	spring/fall
Ladak alfalfa	*Medicago sativa*	broadcast	5	Spring/fall
Burnet	*Sanguisorba sp.*	broadcast	5	spring/fall

LIMITATIONS

The services described in this narrative 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 narrative 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 narrative apply to conditions existing when services were performed. GeoDesign is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this narrative. GeoDesign does not warrant the accuracy of supplemental information that was supplied by others as incorporated in this narrative.

♦ ♦ ♦

Please call if you have questions concerning the information provided.

Sincerely,

GeoDesign, Inc.

Roy Garrison
Principal - Mining Consulting

cc: Pete Stolz, CalPortland, (two copies)

RLG:kt
Attachments
One copy submitted
Document ID: CalPortCo-1-02-061813-minl-reclamation-plan

REFERENCES

Final Environmental Impact Statement (FEIS) for the existing mine (City of DuPont and Ecology, 1993).

Aspect Consulting. Earth and Water Resources Report, DuPont Mine North Expansion, January 22, 2013 Draft.

Final Environmental Impact Statement (FEIS), CalPortland DuPont North Parcel Mining (City of DuPont and Ecology, 2013), http--www.calportlandresources.com.

WASHINGTON STATE DEPARTMENT OF
Natural Resources

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 "Instructions for Form SM-8A".

1. NAME OF APPLICANT/PERMIT HOLDER(S)
Glacier Northwest, Inc., dba CalPortland

2. MAILING ADDRESS
5975 E. Marginal Way South
Seattle, WA 98134-2414

3. Telephone **206-768-7636** UBI No. **601301145 Location 7**

4. NAME OF MINE
DuPont Pioneer Aggregates

5. Street address and milepost of surface mine
4301 Pioneer Avenue
DuPont, WA 98327-7736

6. Distance (miles)	7. Direction from	8. Nearest community
1.5	North	DuPont City Hall

9. COUNTY **Pierce**
No attachments will be accepted. Legal Description of permit area:

1/4	1/4	Section	Township	Range
Portions	NE&SE	22	19N	R1E
Portions	NW&SW	23	19N	R1E
Portions	NE	23	19N	R1E
Portions	SW	14	19N	R1E
Portions	SE	15	19N	R1E

10. TOTAL ACREAGE OF PERMIT AREA APPLIED FOR:
(Include all acreage to be permitted. See Form SM-6.) 565 acres

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? ☒ yes ☐ no
If you answered yes to the above, please list:

Permit Number	Active Operation?		Reclamation current/complete?	
	Yes	No	Yes	No
See Attached List	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐

12. Are all of these mines now in compliance with RCW 78.44, WAC 332-18, and conditions of the permits? ☒ yes ☐ no

13. Have you ever had a surface mine operating or reclamation permit revoked? ☐ yes ☒ no
Have you ever had a reclamation security forfeited? ☐ yes ☒ no
If you answered yes to either of the above, give permit number(s):

14. Type of proposed or existing mine: ☒ pit ☐ quarry
Material(s) to be mined: ☒ sand and gravel ☐ rock or stone
☐ clay ☐ metal ☐ limestone ☐ silica
☐ other

Deposit type: ☒ glacial ☐ river floodplain (alluvial)
☐ river channel deposits ☐ talus ☐ bedrock ☐ lode ☐ unknown
☐ other

15. Total disturbed acreage and maximum depth of permit area:
(Include all acreage to be disturbed by mining and reclamation during the life of the mine.)
Total area to be disturbed: 431 acres
Area to be disturbed in next 36 months: 116 acres.
Maximum vertical depth (thickness) mined below pre-mining topographic grade will be 185 feet.
Lowest elevation of excavated mine will be 25 feet (NGVD 29).
Highest elevation of excavated mine will be 210 feet (NGVD 29).

16. Expected start date of mining:	17. Estimated number of years:
2013	8-15

18. Total quantity to be mined over life of mine (estimated):	19. Estimated annual production:
26,600,000 ☐ tons or ☒ cu yds	2.8 million ☐ tons or ☒ cu yds

20. Subsequent land use: ☒ industrial ☐ commercial ☒ residential
☐ agricultural ☐ forestry ☐ wetlands and lakes
☒ other **Open Space/Sensitive Areas, Manufacturing and Research, Community Park.**
Reclaimed elevation of floor of mine: 25 feet relative to mean sea level
Reclaimed elevation is shown on cross sections? ☒ yes ☐ no
Subsequent land use is compatible with County or Municipal comprehensive plan? ☒ yes ☐ no
County or Municipality Approval for Surface Mining (Form SM-6) attached? ☒ yes ☐ no
SEPA Checklist required? ☒ yes ☐ no
If any answers are no, explain:

21. Application fee for a new reclamation permit is herewith attached? ☒ yes ☐ no

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APPLICATION FOR RECLAMATION PERMIT

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 painted tops.**

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

Thickness of topsoil is **1.67 (20 inches)** feet Thickness of subsoil is **0** feet Depth to bedrock is **1.67 (20 inches)** feet

Total volume of topsoil is **259,000** cubic yards Total volume of subsoil is **0** cubic yards

Volume of stored topsoil/subsoil is **86,000** cubic yards and will require **2-3** acres for storage.

Storage areas are shown on maps and have been marked on the ground with permanent boundary markers? ☒ yes ☐ no

Storage areas are shown on maps. Topsoil will be stored in berms at the top of the slopes in advance of mining which will not be staked since this material will be replaced on reclaimed slopes in a relatively short duration.

Topsoil will be salvaged? ☒ yes ☐ no

If no, explain:

Topsoil 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

The setback for this site will be **Varied** feet wide. **Refer to Setbacks Section of the Narrative.**

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:

Does this site have a backfilling plan that addresses the protection of adjacent property and how the final, stable slopes are to be achieved? ☐ yes ☒ no

If no, explain: **No backfill is planned.**

23D. Buffers to Protect Streams and Flood Plains

A stream buffer of at least 200 feet has been marked on the ground with permanent boundary markers? ☐ yes ☒ no

If yes, see "Additional Requirements for Mines in Flood Plains" in "Instructions for SM-8A".

A buffer of at least 200 feet from the 100-year flood plain has been marked on the ground with permanent boundary markers? ☐ yes ☒ no

If no, explain: **N/A**

Copy of Shoreline Permit from local government or the Department 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

EXISTING MINE:

High water table depth is **200** feet ☐ relative to mean sea level, ☐ below original surface, or ☒ NGVD 29.

Low water table depth is **5.73** feet ☐ relative to mean sea level, ☐ below original surface, or ☒ NGVD 29.

Annual fluctuation of water table is estimated at **5-10 feet.**

Direction of ground water flow: **Northwest**

Refer to narrative.

NORTH PARCEL

High water table depth is **9.59** feet ☐ relative to mean sea level, ☐ below original surface, or ☒ NGVD 29.

Low water table depth is **5.73** feet ☐ relative to mean sea level, ☐ below original surface, or ☒ NGVD 29.

Annual fluctuation of water table is from **5.73** feet on **9/29/09** to **9.30** feet on **1/19/10**.

Direction of ground water flow: **Northwest**

Refer to narrative.

Are well logs attached? **Well OB-1** ☒ yes ☐ no

Is the aquifer perched? ☐ yes ☒ no

The shallowest aquifer is ☐ confined ☒ unconfined?

The site will be mined: ☐ wet ☒ dry ☐ both

Describe mining method: **Open pit mining will continue as in the existing mine south of the expansion. Concurrent clearing, mining, and reclamation will occur in increments.**

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? **Groundwater study in attached EIS.** ☒ yes ☐ no

If yes, see "Additional Requirements for Mines in Hydrologically Sensitive Areas" in "Instructions for SM-8A". If no, explain:

23G. Archeology

Are archeological/cultural resource sites present? ☐ yes ☒ no

If yes, describe how you will protect these resources:

24. MINING PRACTICES TO FACILITATE RECLAMATION

24A. Soil Replacement

Topsoil will be saved? ☒ yes ☐ no

If no, explain:

Up to 4 feet of topsoil and (or) subsoil will be restored? ☒ yes ☐ no

If "yes" give details. If "no", explain: **All salvaged topsoil will be replaced to approximately 3 feet on the pit slopes as rooting medium.**

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: **Topsoil will be replaced on the slopes only and mine floor is for residential use.**	☒ yes ☐ no
Subsoil will be replaced to an approximate depth of 0 feet on the pit floor and a depth of 0 feet on slopes. Topsoil will be replaced to an approximate depth of 0 feet on the pit floor and a depth of 3 feet on slopes.	
Topsoil will be distributed evenly over the site? If no, explain: **Topsoil will be replaced on the slopes only and mine floor is for residential use.**	☐ yes ☒ no
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: **There will be a sufficient supply of topsoil to distribute evenly over the slopes.**	☐ 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: **There will be a sufficient supply of topsoil to distribute evenly over the slopes.**	☐ yes ☒ no
Synthetic topsoil made from compost, biosolids, or other amendments will be used and (or) made on site to supplement existing topsoil? **Wood chips from onsite vegetation and filter press fines will be used to augment topsoil as appropriate.**	☒ 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: **As explained in the following two questions, filter press fines, silt and clay materials will be utilized as topsoil supplement.**	☒ yes ☐ no
Silt from settling ponds or a filter press will be used for reclamation? **As appropriate, filter press material will continue to be blended with the native topsoil for reclamation.**	☒ yes ☐ no
Settling pond clay slurries will be pumped or hauled to other segments for reclamation? If yes, explain: **Only small quantities are generated from pond clean out and will supplement topsoil as appropriate.**	☒ yes ☐ no
Topsoil will be replaced with equipment that will minimize compaction, or it will be plowed, disked, or ripped following placement? If no, explain:	☒ yes ☐ no
Topsoil will be immediately stabilized with grasses and legumes to prevent loss by erosion, slumping, or crusting? If no, explain:	☒ yes ☐ no
Topsoil stockpile areas are shown on maps and will be marked on the ground with permanent boundary markers to protect from loss? If no, explain: **Storage areas are shown on maps. Topsoil will be stored in berms at the top of the slopes in advance of mining which will not be staked since this material will be replaced on reclaimed slopes in a relatively short duration.**	☒ yes ☐ no
Segmental topsoil removal and replacement is shown on maps? If no, explain:	☒ yes ☐ no
Topsoil salvage and replacement plan included? **Refer to narrative.** If no, explain:	☒ yes ☐ no
24B. Removal of Vegetation	
Vegetation will be removed sequentially from areas to be mined to prevent unnecessary erosion? If no, explain:	☒ yes ☐ no

Small trees and other transplantable vegetation will be salvaged for use in revegetating other segments? ☐ yes ☒ no
If yes, give details. If no, explain: **No transplanting is planned, but topsoil will contain seed and rhizomes that will augment revegetation.**

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? **N/A** ☐ 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: **Salvaged as needed for proposed stormwater ponds.**

24C. Erosion control for Reclamation

Pit floor will slope at gentle angles toward highwall, sediment retention pond, or proper drainage? ☒ yes ☐ no
If yes, give details. If no, explain: **Stormwater will be directed to infiltration ponds located at the toe of the reclaimed slopes. Refer to Figure 6. Refer to narrative for description of existing stormwater management.**

Revegetation, sheeting, and (or) matting will be used to protect areas susceptible to erosion? ☒ yes ☐ no
If yes, give details. If no, explain: **Reclaimed slopes will be reforested contemporaneously to minimize the potential for erosion. The mine plan is designed to eliminate the need for sheeting or matting materials. Erosion control BMP's will be used if necessary to protect areas susceptible to erosion.**

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

Divert clean water around pit?	☒ yes	☐ no
Trap sediment-laden runoff before it enters a stream?	☒ yes	☐ no
Result in essentially natural conditions of volume, velocity, and turbidity?	☒ yes	☐ no
Handle a 25-year, 24-hour peak event?	☒ yes	☐ no
(Have you attached calculation?) **Calculations are included in the FEIS.**	☒ yes	☐ no
Be removed or reclaimed?	☐ yes	☒ no

If any answers are no, explain: **Infiltration ponds will remain at the completion of mining.**

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

Water control measure will be established to prevent erosion of setbacks and neighboring properties? ☒ yes ☐ no
If yes, give details. If no, explain: **The pit is incised and all stormwater will infiltrate on site.**

Storm-water conveyance ditches and channels will be lined with vegetation or riprap? ☒ yes ☐ no
If yes, give details. If no, explain: **Ditches will be constructed in native gravel and cobbles.**

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

25. RECLAMATION TOPOGRAPHY

25A. Final Slopes

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

Slopes will be created by mining to the final slope using the cut method? ☒ yes ☐ no
Explain procedure to be used: **Final slopes will be created by cutting to final grade with dozer.**

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

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

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: **Slopes will be cut at 2:1, no blending will be required because the mine will be incised.**

Slope stability analysis required? ☐ yes ☒ no

If yes, see "Additional Requirements for Mines with Steep or Potentially Unstable Slopes" in "Instructions for SM-8A".

Slope stability analysis provided by: **Slope stability of reclaimed mine slopes were evaluated in the FEIS.**

25C. Slope Requirements for Quarries and Hardrock Metal Mines

If 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 Requirements for Mines with Steep or Potentially Unstable Slopes" in "Instructions for SM-8A".

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

Blasting plan is attached?

If no, explain:

Access to benches will be maintained for reclamation blasting? ☐ yes ☐ no

If no, explain:

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? ☐ yes ☒ no

Compaction analysis provided by N/A.

Backfilling plan and (or) permits are attached? If no, explain: **N/A.**	☐ yes ☒ no
Backfilling will be done with overburden material after topsoil has been separated? **N/A** If no, describe composition and source of backfill material: **N/A** Explain method of placement of fill: **N/A**	☐ yes ☒ no
Locations of stockpiles are shown on maps and will be marked on the ground with permanent boundary markers? **No backfill is required.**	☐ yes ☒ no
Will backfill be imported? **N/A** If yes, give volumes needed to meet reclamation plan:	☐ yes ☒ no
Areas to be backfilled are shown on maps? If no, explain: **N/A**	☐ yes ☒ no
All grading/backfilling will be done with clean, inert, non-organic solids? If yes, give details. If no, explain: **N/A**	☐ yes ☒ no
Backfilled slopes will be compacted? If yes, give details. If no, explain: **N/A**	☐ yes ☒ no
Will you be backfilling into water? **N/A** If yes, is slope stability analysis attached? **N/A** If yes, describe method:	☐ yes ☒ no ☐ yes ☒ no
25E. Mine Floors	
Flat areas will be formed into gently rolling mounds? If yes, give details. If no, explain: **Flat areas will be formed with features consistent with future land use. See attached narrative.**	☐ yes ☒ no
Mine floor will be gently graded into sinuous drainage channels to preclude sheetwash erosion during intense precipitation? If yes, give details. If no, explain: **Ditches along the toe of the reclaimed slopes direct stormwater to infiltration ponds.**	☒ yes ☐ no
Mine floor and other compacted areas will be bulldozed, plowed, ripped, or blasted to foster revegetation? If yes, give details. If no, explain: **Ripping will implemented on the slopes as necessary, floor will not be revegetated as its final use is residential.**	☒ yes ☐ no
25F. Lakes, Ponds, and Wetlands	
Is water currently present in the area or will the mining penetrate the water table? ***If no, go to Section 25G.***	☐ yes ☒ no
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? If yes, give details. If no, explain:	☐ yes ☐ no
If not already present, soils, silts, and clay-bearing material will be placed below water level to enhance revegetation? If yes, give details. If no, explain:	☐ yes ☐ no
Some parts of pond and lake banks will be shaped so that a person can escape from the water?	☐ yes ☐ no
Armored spillways or other measures to prevent undesirable overflow or seepage will be provided to stabilize bodies of water and adjacent slopes? If yes, give details. If no, explain:	☐ yes ☐ no

Wildlife habitat will be developed, incorporating such measures as:

- Sinuous and irregular shorelines? ☐ yes ☐ no
- Varied water depths? ☐ yes ☐ no
- Shallow areas less than 18 inches deep? ☐ yes ☐ no
- Islands and peninsulas? ☐ yes ☐ no

Give details:

Ponds or basins will:

- Be located in stable areas? ☐ yes ☐ no
- Have sufficient volume for expected runoff? ☐ yes ☐ no
- Have an emergency overflow spillway? ☐ yes ☐ no
- Spillways and outfalls will be protected (for example, rock armor) to prevent failure and erosion? ☐ yes ☐ no

If any answers are no, explain:

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? ☒ yes ☐ no
(*Data are available at DNR Region offices*)

If yes, are calculations attached? ☒ yes ☐ no

If yes, give details. If no, explain: **Drainage designed for 100-year event. Calculations are included in the FEIS.**

Drainages will be constructed on each reclaimed segment to control surface water, erosion, and siltation? ☒ yes ☐ no

Clean runoff is directed to a safe outlet? ☒ yes ☐ no

If either yes, give details. If no, explain: **Mine will create a closed depression where stormwater will infiltrate, existing stormwater system will remain in place (refer to narrative).**

Are these shown on maps? ☒ yes ☐ no

The grade of ditches and channels will be constructed to limit erosion and siltation? ☒ yes ☐ no

If yes, give details. If no, explain: **The ditches direct runoff at a very gentle grade to infiltration ponds.**

Natural-appearing drainage channels will be established upon reclamation? ☒ yes ☐ no

If yes, give details. If no, explain: **Drainage channels will be shallow vegetated ditches in native gravel.**

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: **The Conveyor may stay in place at the completion of mining should the processing facility remain in the existing mine.**

APPLICATION FOR RECLAMATION PERMIT

27. REVEGETATION

The mine site is in: ☐ eastern Washington ☒ western Washington

The mine site is: ☐ wet ☒ dry?

The average precipitation is **39 inches** per year.

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: **Reforestation will occur prior to bud break, typically before April 15th.**

Test plots will be used to determine optimum vegetation plans? N/A ☐ 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: **It is inappropriate to revegetated the mine floor as its subsequent use is residential. Slopes will be reforested.**

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

☐ alfalfa*	☐ lupine*	☐ clover*	☐ orchard grass
☐ cereal rye	☐ perennial rye	☐ colonial bent grass	☐ ponderosa pine
☐ creeping red fescue	☒ red alder*	☒ Douglas fir	☐ shore pine
☐ ground cover	☐ shrubs	☒ other **Volunteer Madrone and shrub seedlings will naturally propagate the site.**	

Western Washington Wet Areas

☐ birdsfoot trefoil	☐ sedges	☐ cedar	☐ tubers
☐ cottonwood	☐ wetland grasses	☐ creeping red fescue	☐ willow
☐ red alder*	☐ other		

Eastern Washington Dry Areas

☐ alder*	☐ grasses	☐ alfalfa*	☐ juniper
☐ black locust	☐ lodgepole pine	☐ clover	☐ lupine*
☐ deciduous trees	☐ ponderosa pine	☐ shrubs	☐ deep-rooted ground cover
☐ diverse evergreens	☐ other		

Eastern Washington Wet Areas

☐ alder*	☐ cottonwood	☐ poplar	☐ sedges
☐ serviceberry	☐ tubers	☐ willow	
☐ other			

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

Refer to revegetation specifications in narrative.

Describe weed control plan:

Deleterious species such as Scotts broom, Himalayan and Evergreen blackberry will be controlled so that they do not become competitive with the reforested slopes. Once the tree canopy closes, deleterious species are shaded out and are not of concern.

27B. Planting Techniques

Revegetation at this site will require:

Ripping and tilling?	☐ yes	☒ no
Blasting to create permeability?	☐ yes	☒ no
Mulching?	☐ yes	☒ no
Irrigation?	☐ yes	☒ no
Fertilization?	☐ yes	☒ no
Importation of clay- or humus-bearing soils?	☐ yes	☒ no
Other soil conditioners or amendments?	☒ yes	☐ no

Give details: **Refer to the narrative.**

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: **Topsoil may be amended with onsite process fines and wood chips as available.**

Mulch will be piled around the base of trees and shrubs?	☐ yes	☒ no
High quality stock will be used?	☒ yes	☐ no
Trees and shrubs will be planted while they are dormant?	☒ yes	☐ no
Stock will be properly handled, kept cool and moist, and planted as soon as possible?	☒ yes	☐ no
Seeds will be covered with topsoil or mulch no deeper than one-half inch? **N/A**	☐ yes	☒ no

If any answers are no, explain: **Mulching and seeding are not required to successfully reforest the slopes.**

28. FINAL CHECKLIST

All required maps are attached? (***See "Instructions for SM-8A" for detailed requirements.***)	☒ yes	☐ no
All required cross sections are attached? (***See "Instructions for SM-8A" for detailed requirements.***)	☒ yes	☐ no
Geologic map attached (if required)? (***See "Instructions for SM-8A" for detailed requirements.***)	☒ yes	☐ 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?	☒ yes	☐ no
The plan contains predominantly relevant information?	☒ yes	☐ no
Have you completed the SM-6 and has it been signed by the local jurisdiction?	☒ yes	☐ no
Have you provided the SEPA checklist?	☒ yes	☐ no
Have you provided a copy of the SEPA determination (DNS, MDNS, or DS)?	☒ yes	☐ no
Have you attached photographs?	☐ yes	☒ no
Are additional supplemental studies included?	☐ yes	☐ no

If yes, check the appropriate box(es) below:

☐ Archeological ☒ Geohydrologic ☐ Backfill ☒ Slope stability
☐ Topsoil ☐ Flood plain ☐ Conservational ☐ Vegetation
☐ Other

Other permits required? ☒ yes ☐ no

If yes, check the appropriate box(es) below:

☐ Shoreline Permit ☐ Water Discharge Permit ☐ Solid Waste Permit
☐ Air Quality Permit ☐ NPDS or General Discharge Permit ☐ Hydraulic Project Approval
☐ Special or Conditional Use Permit ☒ Other **Forest Practices Permit, City of DuPont Site Plan**

APPLICATION FOR RECLAMATION PERMIT

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. *Signature of applicant or company representative*	Name and Title of Company Representative *(Please print)*	Date signed
Scott Nicholson	Scott Nicholson Director	6/11/13

SURFACE OWNERSHIP

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*

Scott Nicholson for Cal Portland 6/11/13

I hereby verify that I have seen and approved this plan.

Signature of landowner(s) — *Date signed*

Scott Nicholson for Cal Portland 6/11/13

OWNERSHIP OF RIGHTS TO REMOVE MINERALS BY SURFACE MINING

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*

Scott Nicholson for Cal Portland 6/11/13

I hereby verify that I have seen and approved this plan.

Signature of rights owner(s) — *Date signed*

Scott Nicholson for Cal Portland 6/11/13

FOR DEPARTMENTAL USE ONLY

Date accepted	Accepted by:	Title:	Reclamation Permit No.
9/4/13		SENIOR RECLAMATION GEOLOGIST	70-012668

Comments by Department:

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Northwest Aggregates Co.
UBI Number: 601301145

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? yes no

If you answered yes to the above, please list:

Permit Number	Active Operation?		Reclamation current/complete?	
	Yes	No	Yes	No
Concrete - 70-012195		X	X	
DuPont – 70-012668	X		X	
Mats Mats – 70-010170	X		X	
Maury Island – 70-010256		X	X	
Snoqualmie – 70-012558	X		X	
Vashon – 70-010271 (10 acres)	X		X	
Vashon – 70-010272 (26 acres)	X		X	
White River – 70-012865	X		x	

SHES

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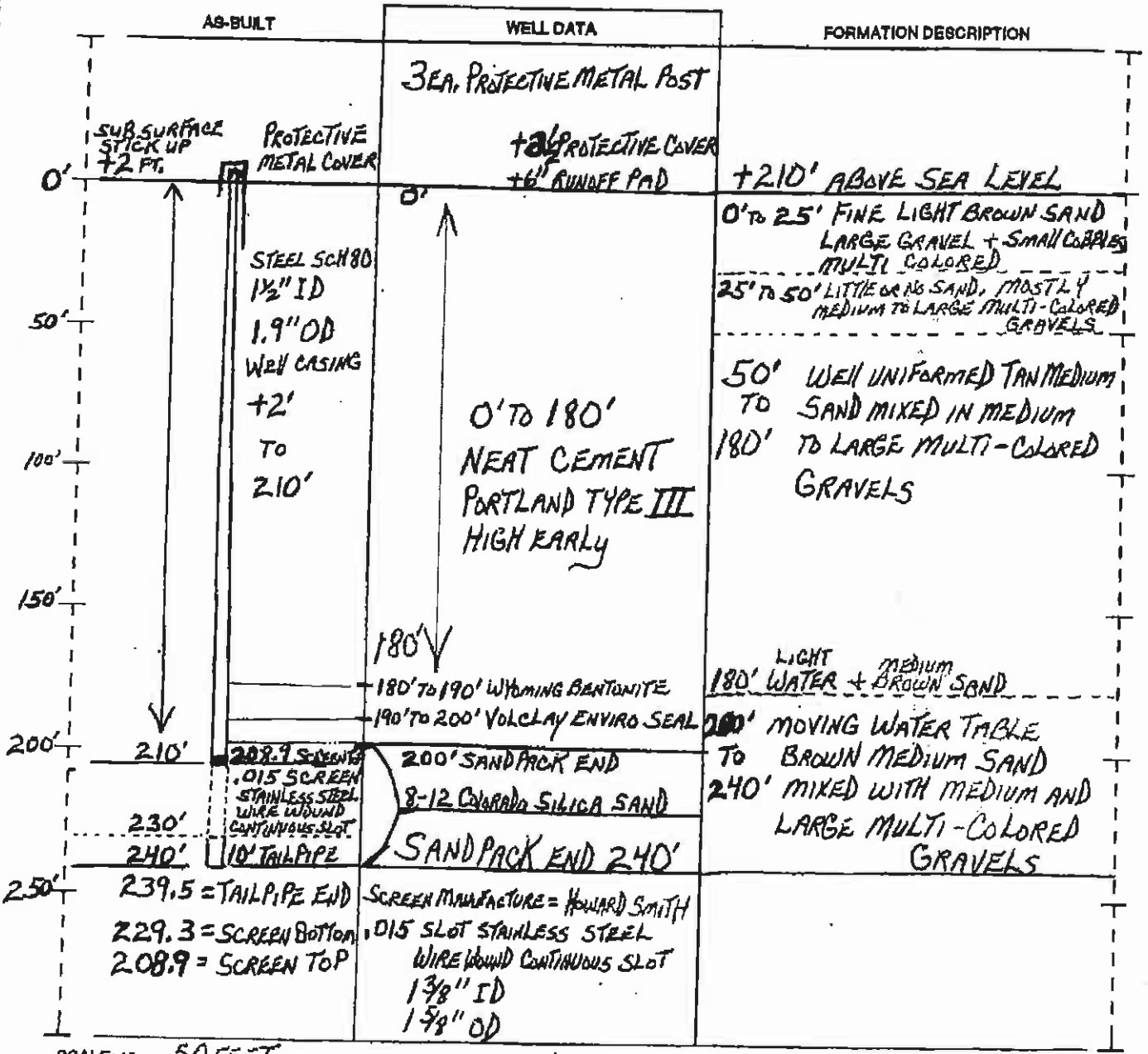
21 FEB 96

RESOURCE PROTECTION WELL REPORT

START CARD NO. 063977

PROJECT NAME: LONESTAR NW OBSERVATION WELL
WELL IDENTIFICATION NO. LONE STAR OB-1
DRILLING METHOD: REVERSE CIRCULATION ROTARY
DRILLER: DOUGLAS GRABOWSKI
FIRM: BECKER DRILLS INC.
SIGNATURE: William J. Flatley
CONSULTING FIRM: HART CROWSER
REPRESENTATIVE: TOM NOYES

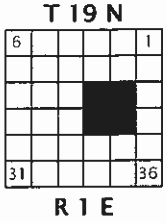
COUNTY: PIERCE
LOCATION: SE¼ SW¼ Sec 14 Twn 19N R 1E
STREET ADDRESS OF WELL: NORTHWEST LANDING ANNEX DUPONT STEILACOOM ROAD DUPONT WASHINGTON
WATER LEVEL ELEVATION: 200 FT. STATIC
GROUND SURFACE ELEVATION: +210
INSTALLED: FEBRUARY 15, 1991
DEVELOPED:



SCALE: 1" = 50 FEET

PAGE 1 OF 1

ECY 050-12 (Rev. 11/89)



SITE COORDINATES:

LATITUDE: 47° 87' 17 " N

LONGITUDE; 122° 38' 16" W

DIRECTIONS TO SITE:

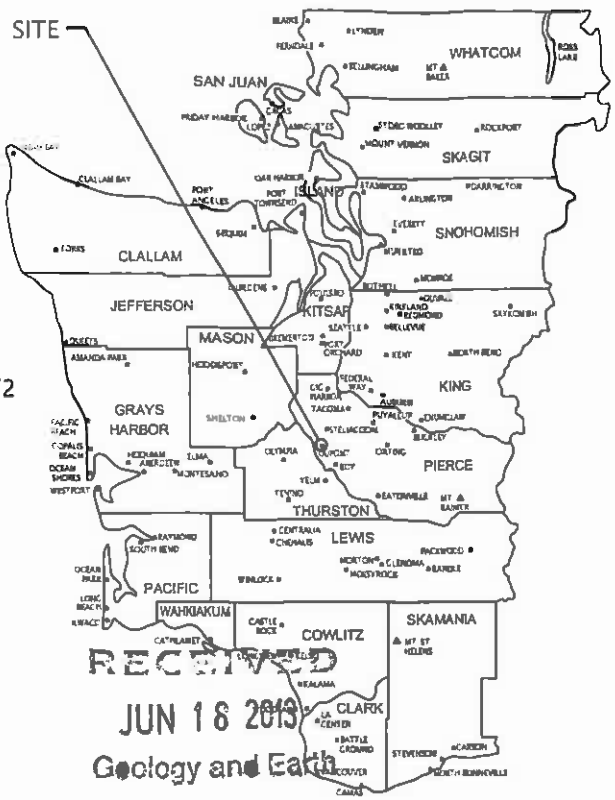
THE DUPONT PIONEER AGGREGATES SITE IS LOCATED WITHIN THE CITY OF DUPONT. FROM EXIT 119 FROM INTERSTATE 5 TO DUPONT, DRIVE NORTHBOUND ON DUPONT-STEILACOOM ROAD. TURN LEFT (WEST) ONTO WHARF ROAD, THEN TURN RIGHT (NORTH) ONTO PIONEER AVENUE. SITE ACCESS IS LOCATED ON THE LEFT SIDE OF PIONEER AVENUE, ROUGHLY 1/2 MILE NORTH OF THE INTERSECTION OF WHARF ROAD AND PIONEER AVENUE.

LEGAL DESCRIPTION:

THE CURRENT PERMIT BOUNDARY AND NORTHERN EXPANSION PERMIT BOUNDARY ARE LOCATED IN PORTIONS OF THE FOLLOWING SECTIONS;

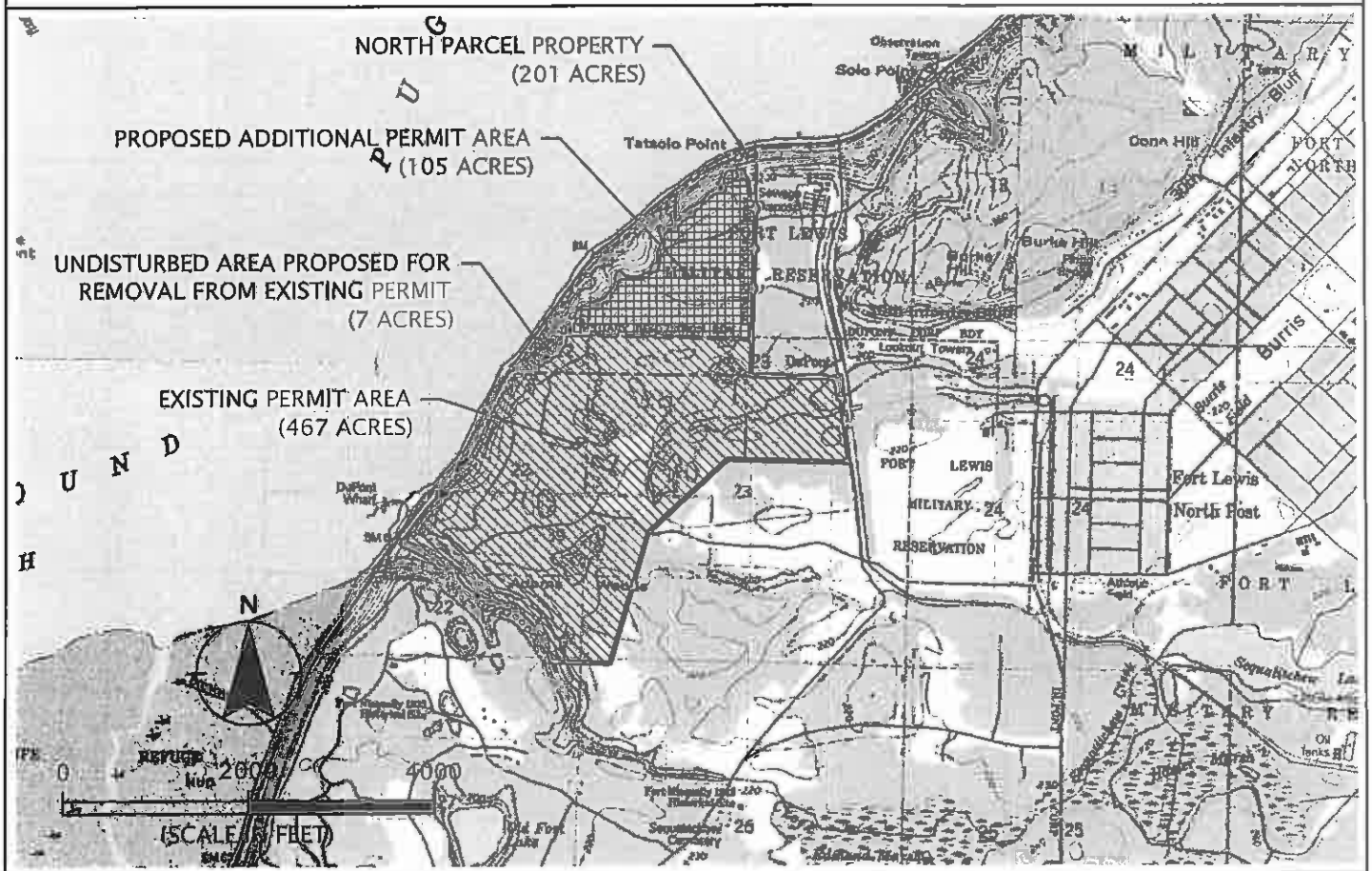
- NE QUARTER OF SECTION 22
- SE QUARTER OF SECTION 22
- NW QUARTER OF SECTION 23
- SW QUARTER OF SECTION 23
- NE QUARTER OF SECTION 23
- SW QUARTER OF SECTION 14
- SE QUARTER OF SECTION 15

WESTERN WASHINGTON



NOTE:

USGS TOPOGRAPHIC QUADRANGLE MAPS (MCNEIL ISLAND, STEILACOOM, FORT LEWIS, AND NISQUALLY) REPRODUCED USING MAPTECH TERRAIN NAVIGATOR PRO®



GEODESIGN INC 1157 3rd Avenue - Suite 2208 Longview, WA 98632 Off 360 200.4803 Fax 360 200.4803	GLACIER NW, INC. DBA CALPORTLAND	**VICINITY MAP** DUPONT PIONEER AGGREGATES (DNR #70-12668)
	CALPORTCO-1-02 JUNE 2013	CITY OF DUPONT, PIERCE COUNTY, WA SECTIONS 14, 15, 22, & 23, T19N, R1E, W.M. — **FIGURE 1**

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SUBJECT PROPERTY OWNERSHIP INFORMATION

PARCEL NUMBER	PROPERTY OWNER	OWNER ADDRESS
119231005	GLACIER NORTHWEST, INC.	2025 E FINANCIAL WAY GLENDORA, CA 91741-4692
0119232003 0119232006 0119221004 0119154000 0119143000 0119143001	NORTHWEST AGGREGATES CO.	2025 E FINANCIAL WAY GLENDORA, CA 91741-4692
0119221007 0119221013 0119221014 0119232008 0119232009 0119232010 0119232011 0119221015 0119221011 0119221012 0119221009 0119221010 0119233010 0119232012 0119233012 0119224008 0119224007 0119224006 0119224005 0119224004 0119221008 0119224009 0119233013	WPP LLC	5260 IRWIN RD HUNTINGTON, WV 25705-3247

ADJACENT PROPERTY OWNERSHIP INFORMATION

PARCEL NUMBER	PROPERTY OWNER	OWNER ADDRESS
0119224010	CITY OF DUPONT	1700 CIVIC DR DUPONT, WA 98327-9603
0119234017 0119234016	PIERCE COUNTY INVESTORS LLC	20415 72ND AVE S SUITE 210 KENT, WA 98032-2357
0119262015 0119233016 0119233014 0119233011	WPP LLC	5260 IRWIN RD HUNTINGTON, WV 25705-3247
JBLM (JOINT BASE LEWIS-MCCHORD)	USA	JBLM PUBLIC AFFAIRS OFFICE BOX 339500 MAIL STOP 14A JOINT BASE LEWIS-MCCHORD, WA 98433-9500
BNSF ROW	BURLINGTON-NORTHERN SANTA FE RAILROAD	TERRY FINN 2454 OCCIDENTAL AVE BLDG 1A SEATTLE, WA 98134

NOTES:

1. SEE FIGURE 3A FOR PROPERTY OWNERSHIP MAP.
2. PROPERTY OWNERSHIP INFORMATION OBTAINED ONLINE FROM PIERCE COUNTY ASSESSOR.

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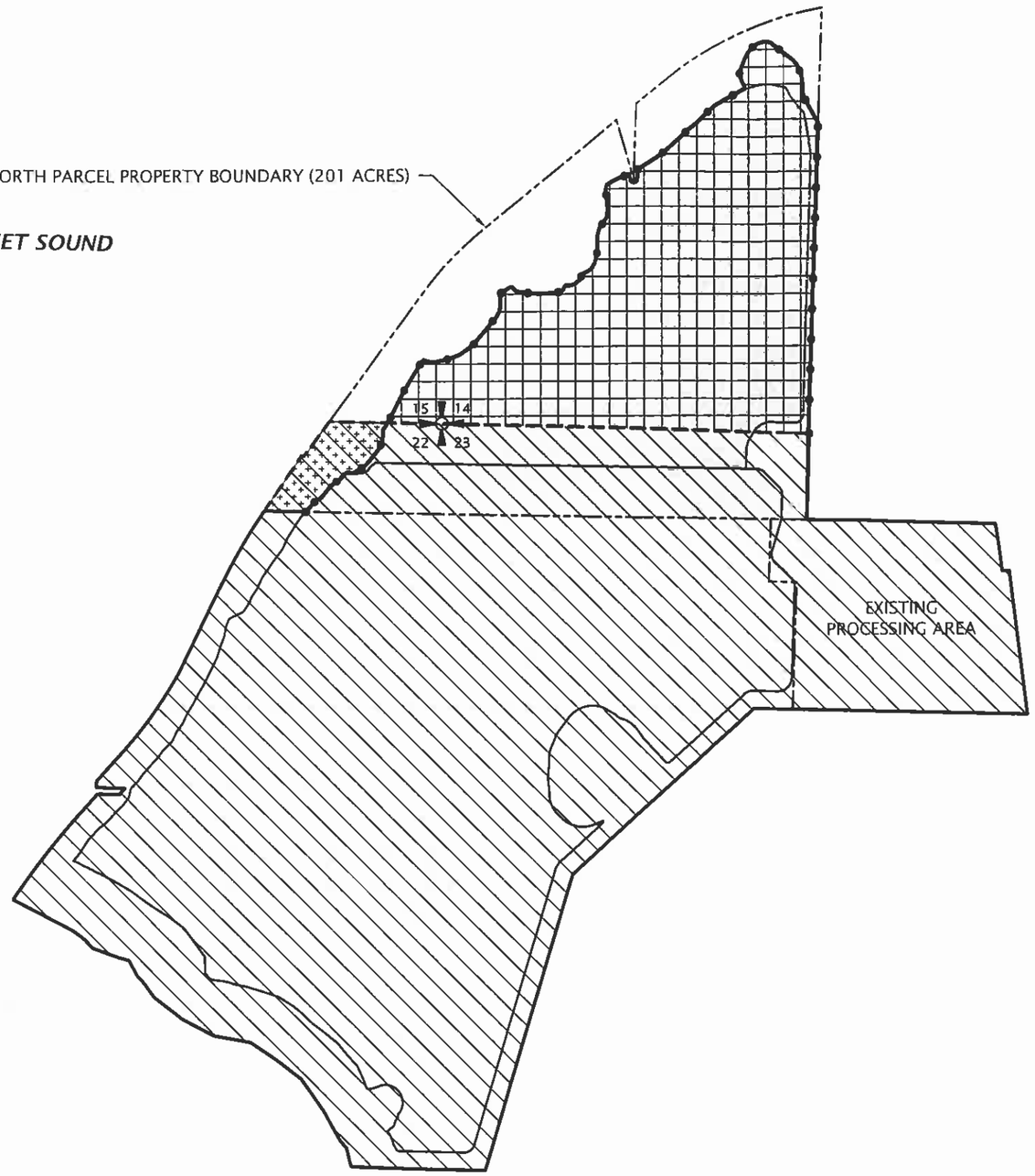
Off 360.200 4803 Fax 360.200 4803

GLACIER NW, INC. DBA CALPORTLAND	**PROPERTY OWNERSHIP INFORMATION TABLES** DUPONT PIONEER AGGREGATES (DNR #70-12668)	
CALPORTCO-1-02 JUNE 2013	CITY OF DUPONT, PIERCE COUNTY, WA SECTIONS 14, 15, 22, & 23, T19N, R1E, W.M.	**FIGURE 3B**



LEGEND:

- PROPOSED ADDITIONAL PERMIT AREA IN NORTH PARCEL (105 ACRES)
- EXISTING PERMIT AREA (467 ACRES)
- EXISTING PERMIT BOUNDARY TO BE RETAINED
- UNDISTURBED AREA PROPOSED FOR REMOVAL FROM EXISTING PERMIT (7 ACRES)
- EXISTING PERMIT BOUNDARY TO BE REMOVED
- PROPOSED NEW PERMIT BOUNDARY
- EXISTING PERMITTED EXTRACTION AREA (315 ACRES)
- PROPOSED ADDITIONAL EXTRACTION AREA (116 ACRES)
- EXISTING EXTRACTION AREA WHERE ADDITIONAL MINING IS PROPOSED TO FLATTEN SLOPE (NORTH PARCEL OVERLAP; 26 ACRES)
- PROPERTY LINE
- GEOREFERENCE - SECTION CORNER N47° 07' 35.16" W122° 39' 14.63"

N

0 1000 2000

(SCALE IN FEET)

NOTES:

1. TOTAL PROPOSED PERMIT AREA = 565 ACRES (467 ACRES EXISTING PERMIT - 7 ACRES TO BE EXCLUDED + 105 PROPOSED ADDITIONAL ACRES).
2. TOTAL EXTRACTION AREA IN NORTH PARCEL = 142 ACRES (26 ACRES IN EXISTING EXTRACTION AREA + 116 ACRES IN PROPOSED EXTRACTION AREA)

SITE MAP
DUPONT PIONEER AGGREGATES (DNR#70-12668)

CITY OF DUPONT, PIERCE COUNTY, WA
SECTIONS 14, 15, 22, & 23, TOWNSHIP 19N, RANGE 1E, W.M.

FIGURE 2

GLACIER NORTHWEST, INC.
DBA CALPORTLAND

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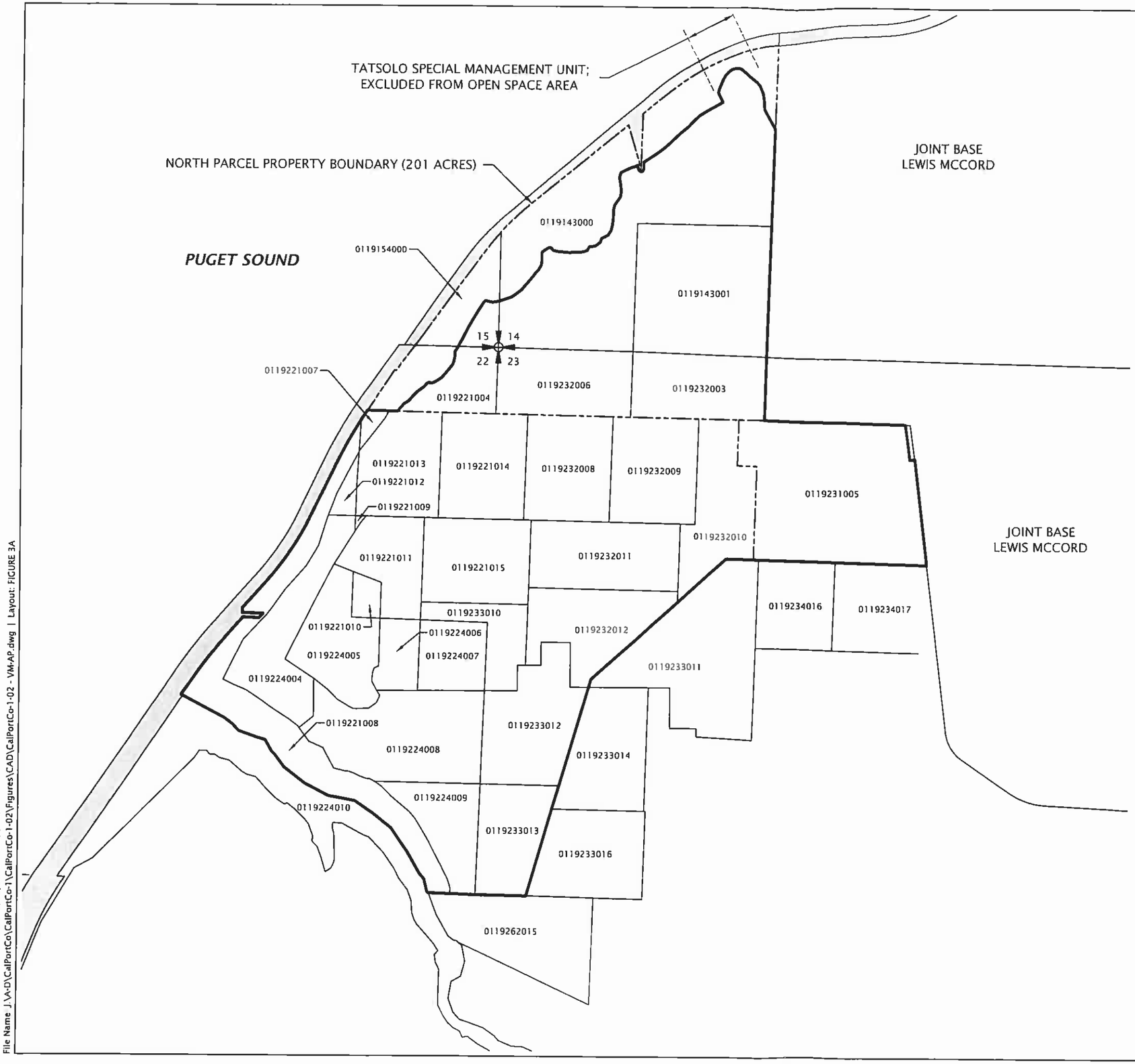

LEGEND:

- PROPOSED PERMIT BOUNDARY (565 ACRES; 460 ACRES EXISTING + 105 ACRES PROPOSED)
- BNSF RAILROAD ROW
- PROPERTY LINES
- PROPERTY PARCEL LINES
- 0119231005 — PROPERTY PARCEL NUMBERS
- 15 14 / 22 23 — GEOREFERENCE - SECTION CORNER N47° 07' 35.16" W122° 39' 14.63"

N

0 1000 2000

(SCALE IN FEET)

NOTES:

1. SEE FIGURE 3B FOR PROPERTY OWNERSHIP INFORMATION.
2. PARCEL MAP AND PARCEL NUMBERS OBTAINED FROM ASPECT CONSULTING, FEBRUARY 11, 2013.

PROPERTY OWNERSHIP MAP
DUPONT PIONEER AGGREGATES (DNR#70-12668)

CITY OF DUPONT, PIERCE COUNTY, WA
SECTIONS 14, 15, 22, & 23, TOWNSHIP 19N, RANGE 1E, W.M.

FIGURE 3A

GLACIER NORTHWEST, INC.
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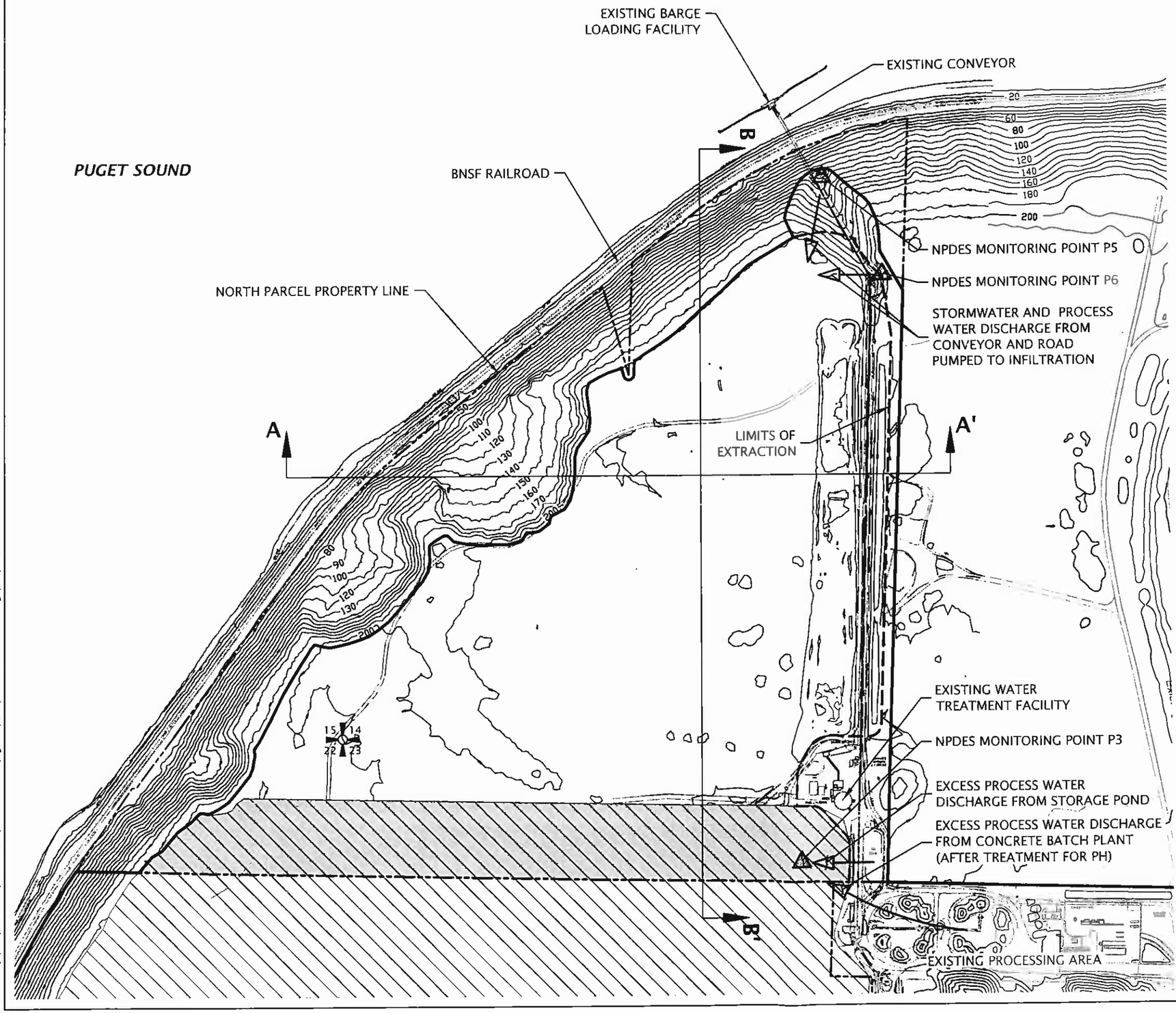

LEGEND:

- PROPOSED PERMIT BOUNDARY (565 ACRES)
- PROPOSED NORTH PARCEL EXTRACTION LIMIT (142 ACRES)
- PROPERTY LINES
- EXISTING TOPOGRAPHY (10' INTERVALS)
- EXISTING PERMITTED EXTRACTION AREA
- EXISTING PERMITTED EXTRACTION AREA/ NORTH PARCEL OVERLAP
- GEOREFERENCE - SECTION CORNER N47° 07' 35.16" W122° 39' 14.63"
- CROSS SECTION PROFILE LOCATIONS

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N

0 500 1000
(SCALE IN FEET)

NOTE:
BASE MAP DRAWING OBTAINED FROM ASPECT CONSULTING, FEBRUARY 11, 2013.

EXISTING TOPOGRAPHY MAP
DUPONT PIONEER AGGREGATES (DNR#70-12668)

FIGURE 4

CITY OF DUPONT, PIERCE COUNTY, WA
SECTIONS 14, 15, 22, & 23, TOWNSHIP 19N, RANGE 1E, W.M.

GLACIER NORTHWEST, INC.
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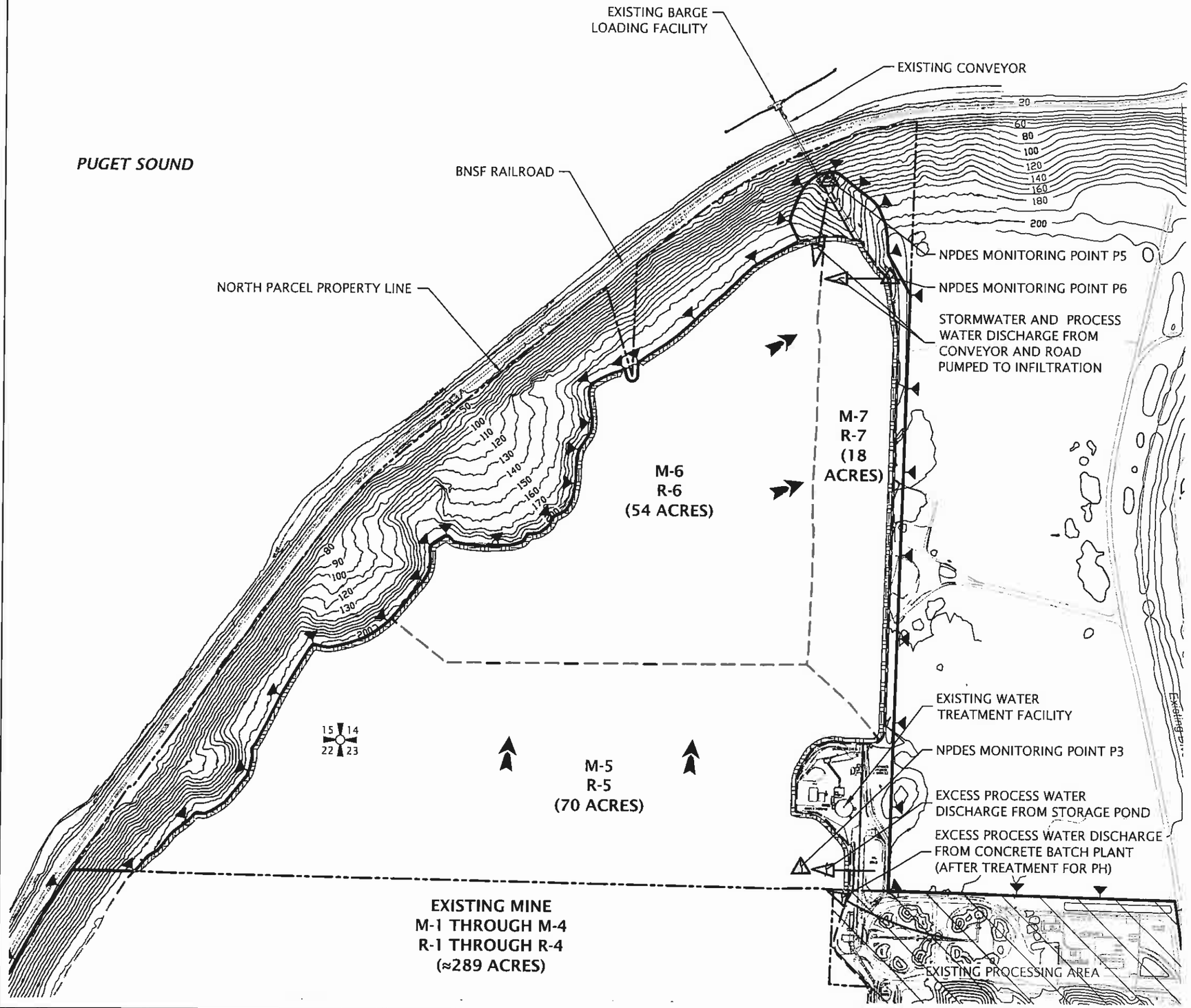

LEGEND:

- PROPOSED PERMIT BOUNDARY (565 ACRES)
- PROPERTY LINES
- EXISTING TOPOGRAPHY (10' INTERVALS)
- TOPSOIL STOCKPILES
- M-1 MINING PHASE
- R-1 RECLAMATION SEQUENCE
- PHASE BOUNDARY
- DIRECTION OF MINING
- PERMANENT MARKER (LINE OF SIGHT)

N

0 500 1000
(SCALE IN FEET)

NOTE:

1. BASE MAP DRAWING OBTAINED FROM ASPECT CONSULTING, FEBRUARY 11, 2013.
2. STOCKPILED TOPSOIL WILL MEET INTERIM TACOMA SMELTER PLUME CLEANUP OBJECTIVES PRIOR TO PLACEMENT FOR RECLAMATION.
3. FOR STORMWATER EROSION CONTROL MEASURES, SEE NARRATIVE.

RECLAMATION SEQUENCE MAP
DUPONT PIONEER AGGREGATES (DNR#70-12668)

CITY OF DUPONT, PIERCE COUNTY, WA
SECTIONS 14, 15, 22, & 23, TOWNSHIP 19N, RANGE 1E, W.M.

FIGURE 5

GLACIER NORTHWEST, INC.
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CALPORTCO-1-02
JUNE 2013

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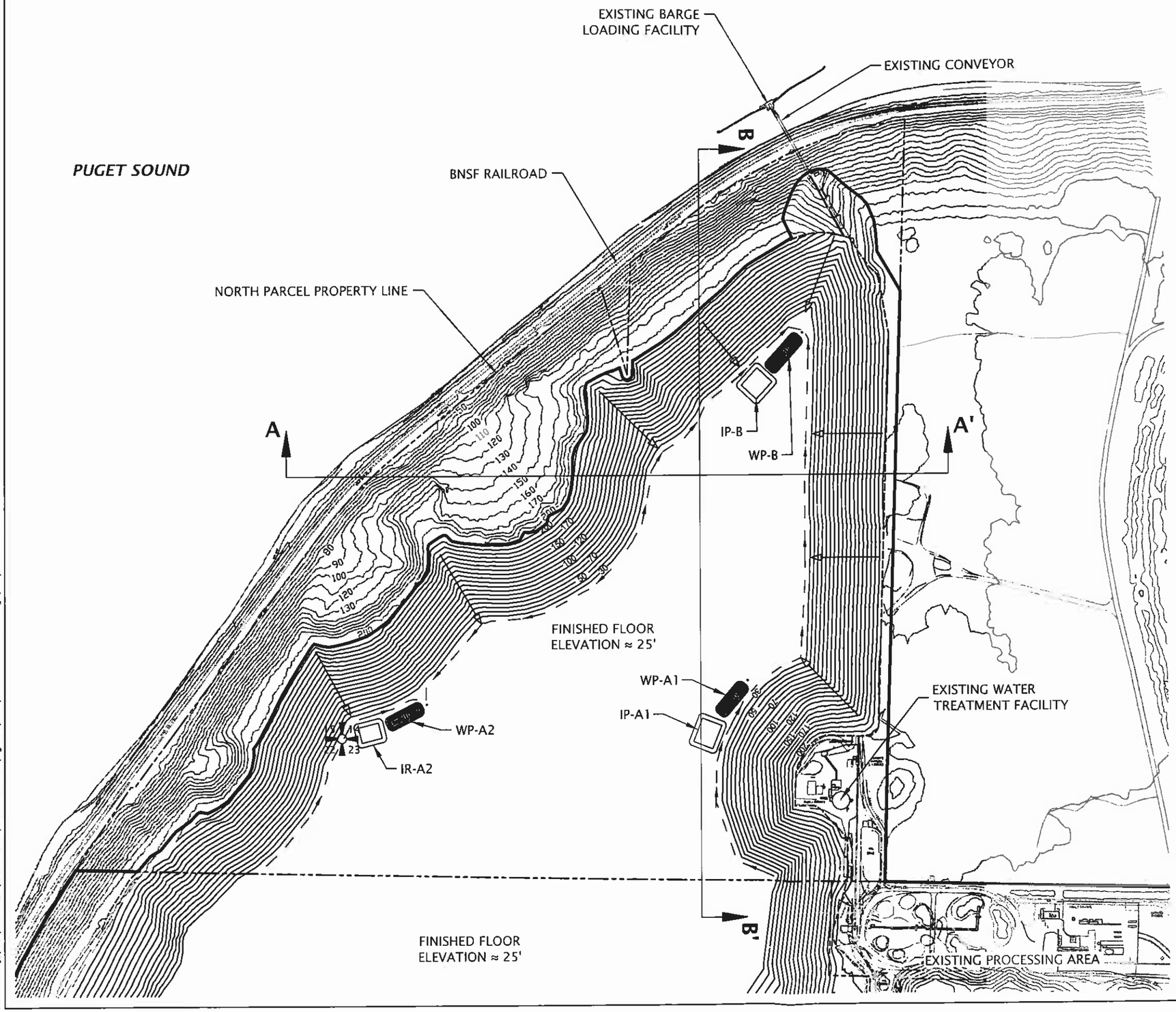

LEGEND:

- PROPOSED PERMIT BOUNDARY (565 ACRES)
- EXTRACTION LIMIT (431 ACRES TOTAL; 142 ACRES IN NORTH PARCEL)
- PROPERTY LINES
- RECLAIMED TOPOGRAPHY (10' INTERVALS)
- EXISTING TOPOGRAPHY (10' INTERVALS)
- ON-SITE DRAINAGE PATTERNS
- GEOREFERENCE - SECTION CORNER N47° 07' 35.16" W122° 39' 14.63"
- WET POND
- INFILTRATION POND
- SWALE
- CROSS SECTION PROFILE LOCATIONS

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N

0 500 1000
(SCALE IN FEET)

NOTE:

1. BASE MAP DRAWING OBTAINED FROM ASPECT CONSULTING, FEBRUARY 11, 2013.
2. FOR REVEGETATION AND PROPOSED SPECIES, SEE NARRATIVE.
3. FOR POSTMINING STORMWATER EROSION CONTROL MEASURES, SEE NARRATIVE. MAPPED FEATURES OBTAINED FROM ASPECT CONSULTING, FEBRUARY 11, 2013.

FINAL TOPOGRAPHY MAP
DUPONT PIONEER AGGREGATES (DNR#70-12668)

FIGURE 6

CITY OF DUPONT, PIERCE COUNTY, WA
SECTIONS 14, 15, 22, & 23, TOWNSHIP 19N, RANGE 1E, W.M.

GLACIER NORTHWEST, INC.
DBA CALPORTLAND

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JUNE 2013

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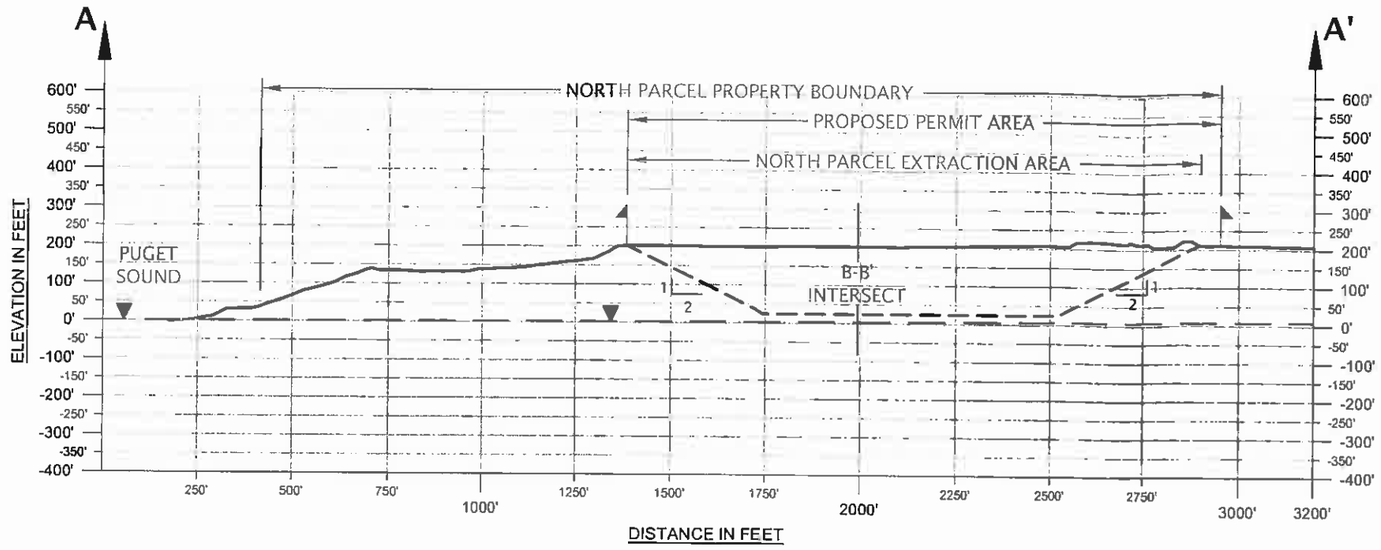

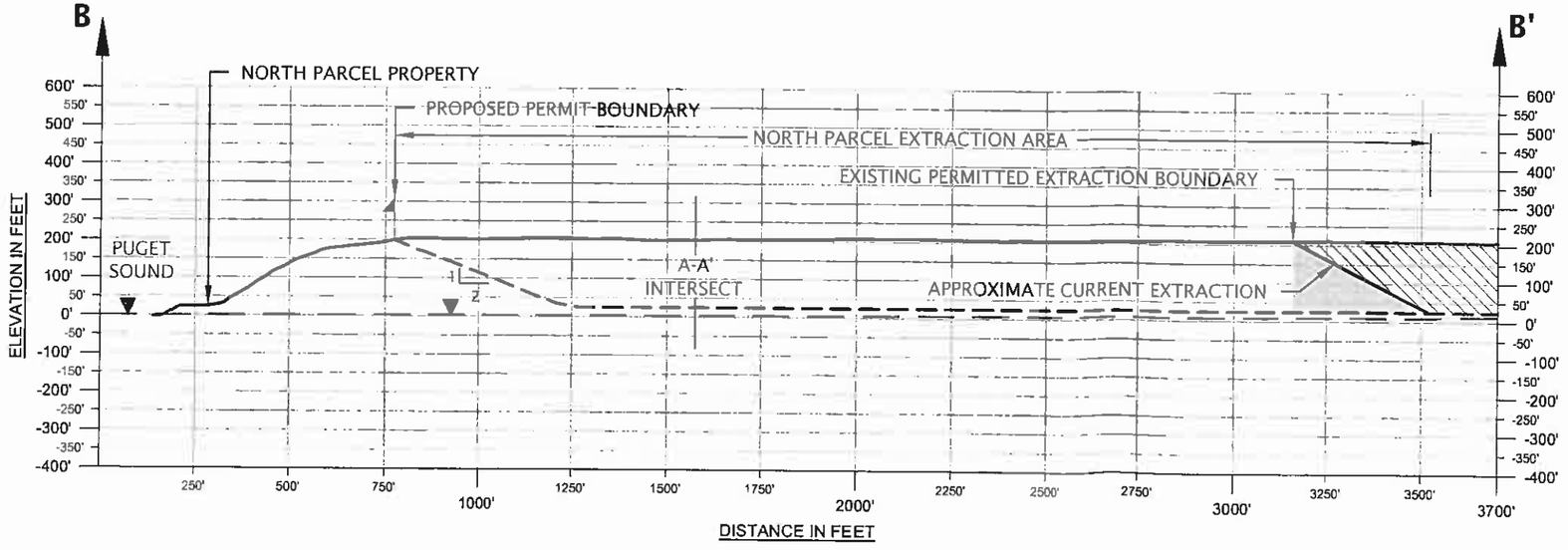

LEGEND:

- EXISTING TOPOGRAPHY
- RECLAIMED TOPOGRAPHY
- EXISTING PERMITTED EXTRACTION AREA
- EXISTING PERMITTED EXTRACTION AREA/ NORTH PARCEL OVERLAP AREA
- WATER

EXTRACTION CALCULATIONS	
EXTRACTION VOLUME*	**≈26,600,000 CUBIC YARDS**
MAXIMUM MINING DEPTH	185' (210' TO 25')

* DRAFT EIS

NOTE:
WATER LEVEL OBTAINED FROM ASPECT CONSULTING GROUNDWATER ELEVATIONS MAP DATED JANUARY 2013.

HORIZONTAL 0 400 800 (SCALE IN FEET)

VERTICAL 0 400 800 (SCALE IN FEET)

CROSS SECTIONS A-A' AND B-B'
DUPONT PIONEER AGGREGATES (DNR#70-12668)

CITY OF DUPONT, PIERCE COUNTY, WA
SECTIONS 14, 15, 22, & 23, TOWNSHIP 19N, RANGE 1E, W.M.

FIGURE 7

GLACIER NORTHWEST, INC.
DBA CALPORTLAND

CALPORTCO-1-02
JUNE 2013

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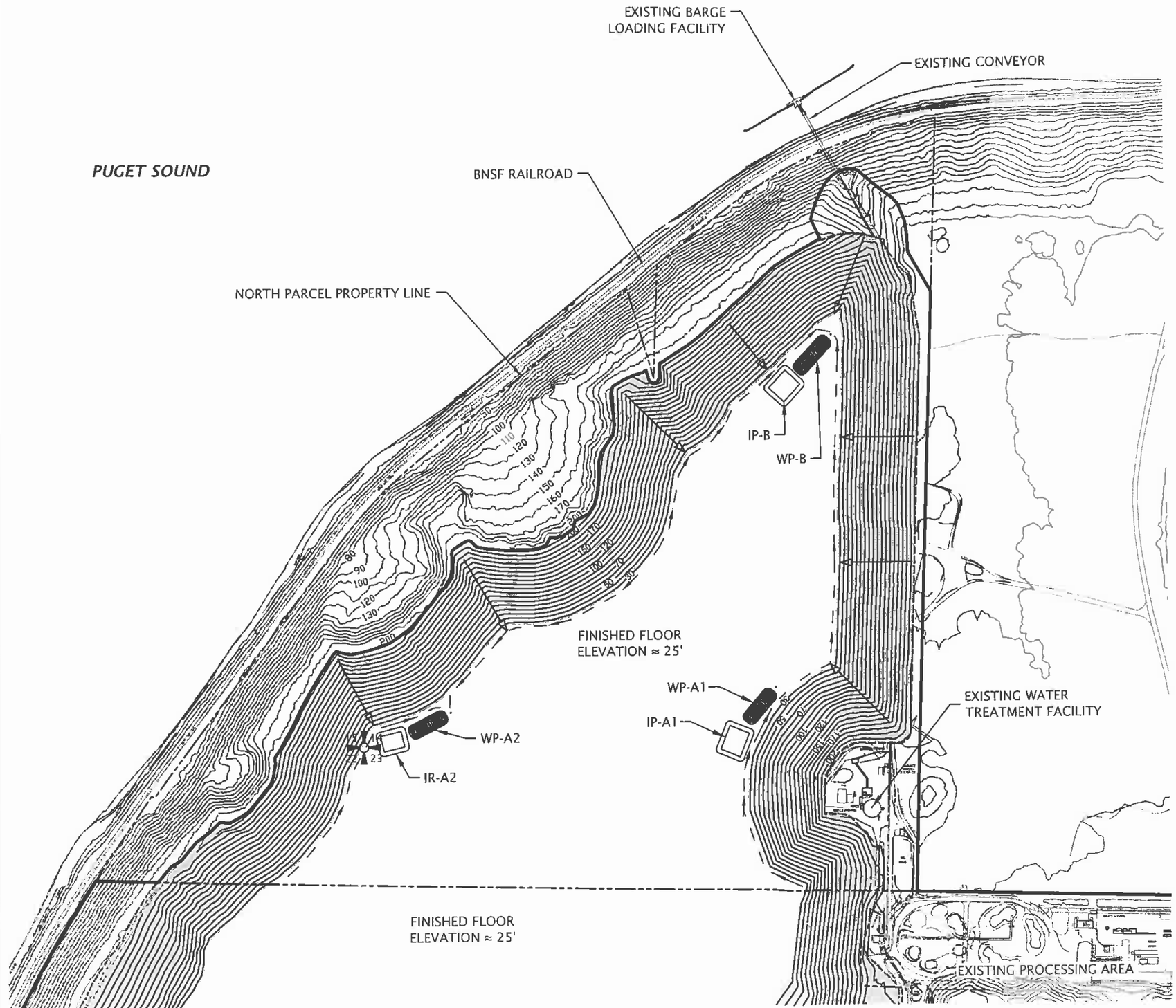

LEGEND:

- PROPOSED PERMIT BOUNDARY (565 ACRES)
- LIMITS OF EXTRACTION (431 ACRES TOTAL; 142 ACRES WITHIN NORTH PARCEL)
- PROPERTY LINES
- RECLAIMED TOPOGRAPHY (10' INTERVALS)
- EXISTING TOPOGRAPHY (10' INTERVALS)
- ON-SITE DRAINAGE PATTERNS
- GEOREFERENCE - SECTION CORNER N47° 07' 35.16" W122° 39' 14.63"
- WET POND
- INFILTRATION POND
- SWALE
- REFORESTED AREA
  REVEGETATION SPECIFICATIONS: DOUGLAS FIR, RED ALDER MIX PLANTED AT 10-FT X 10-FT OR 430 TREES PER ACRE INCLUDING VOLUNTEER TREE SPECIES. RECOMMEND 1+1 DOUGLAS FIR SEEDLING STOCK AND PLUG 1 OR YEARLING PULL-UPS FOR RED ALDER SEEDLING.

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N

0 500 1000
(SCALE IN FEET)

NOTE:

1. BASE MAP DRAWING OBTAINED FROM ASPECT CONSULTING, FEBRUARY 11, 2013.
2. FOR POSTMINING STORMWATER EROSION CONTROL MEASURES, SEE NARRATIVE. MAPPED FEATURES OBTAINED FROM ASPECT CONSULTING, FEBRUARY 11, 2013.

RECLAMATION REVEGATATION MAP
DUPONT PIONEER AGGREGATES (DNR#70-12668)

CITY OF DUPONT, PIERCE COUNTY, WA
SECTIONS 14, 15, 22, & 23, TOWNSHIP 19N, RANGE 1E, W.M.

FIGURE 8

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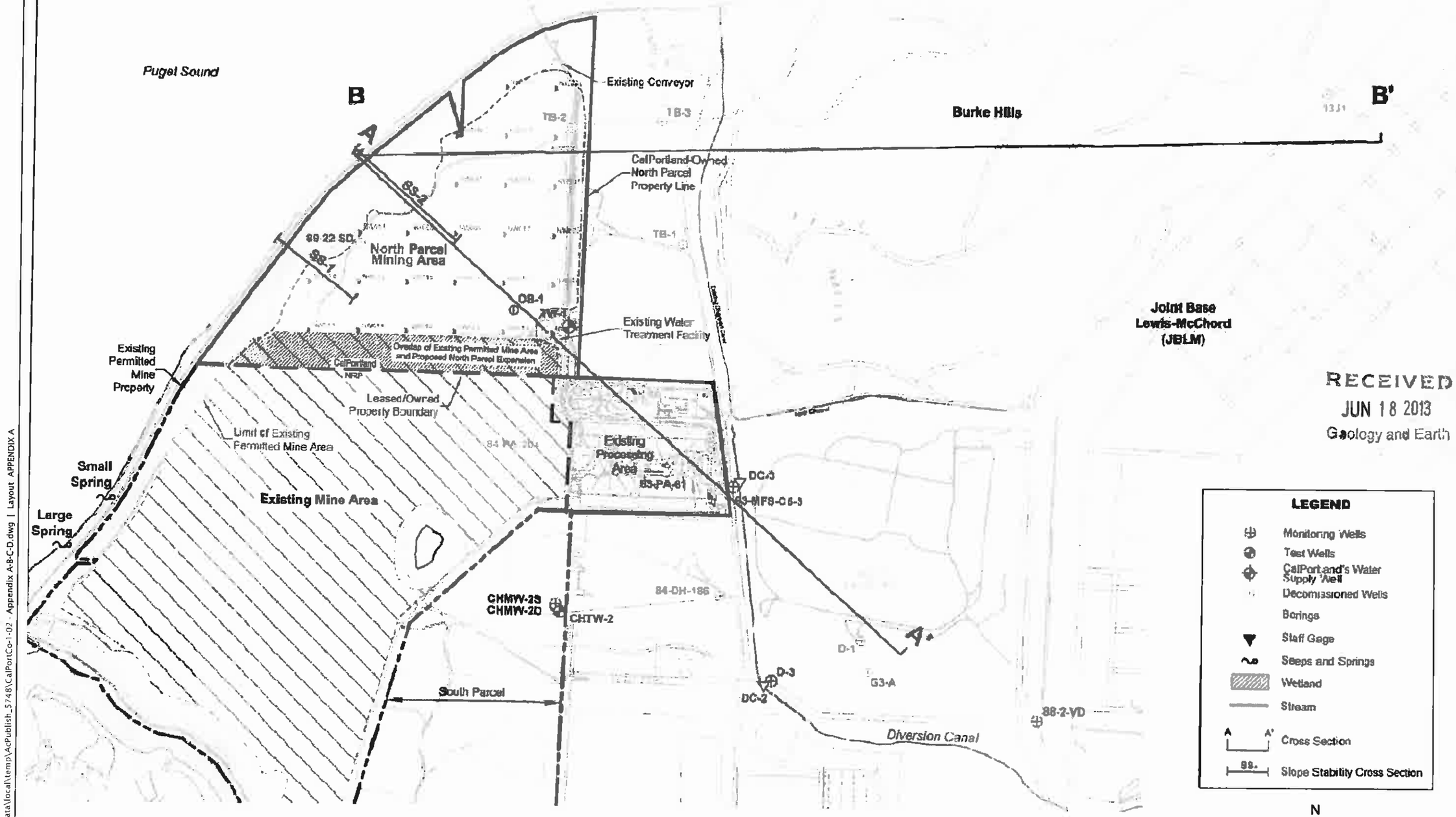

LEGEND

- Monitoring Wells
- Test Wells
- CalPortland's Water Supply Well
- Decommissioned Wells
- Borings
- Staff Gage
- Seeps and Springs
- Wetland
- Stream
- Cross Section
- Slope Stability Cross Section

N

0 1000 2000
(SCALE IN FEET)

Base Map Sources

1) Glacier Northwest Mining Facility by ESM Consulting Engineers, June 2003
2) Northwest Landing Development by ESM Consulting Engineers, June 2002
3) DuPont Corsen: Decree Area by ESM Consulting Engineers, April 2004
4) JBLM by USGS DEM, *Nisqually* and *Fort Lewis* 1994 and USGS Digital Line Graphs. *Hypsography* and *Transportation* Fort Lewis Military Reservation, 1973. McNeil Island, 1981, Nisqually, 1981, and Steilacoom, 1993

NOTE:
1. MAP BASED ON IMAGE PREPARED BY ASPECT CONSULTING, 2013.

EXPLORATION AND CROSS SECTION LOCATIONS
DUPONT PIONEER AGGRECATES (DNR#70-12668)

APPENDIX A

CITY OF DUPONT, PIERCE COUNTY, WA
SECTIONS 14, 15, 22, & 23, TOWNSHIP 19N, RANGE 1E, W.M.

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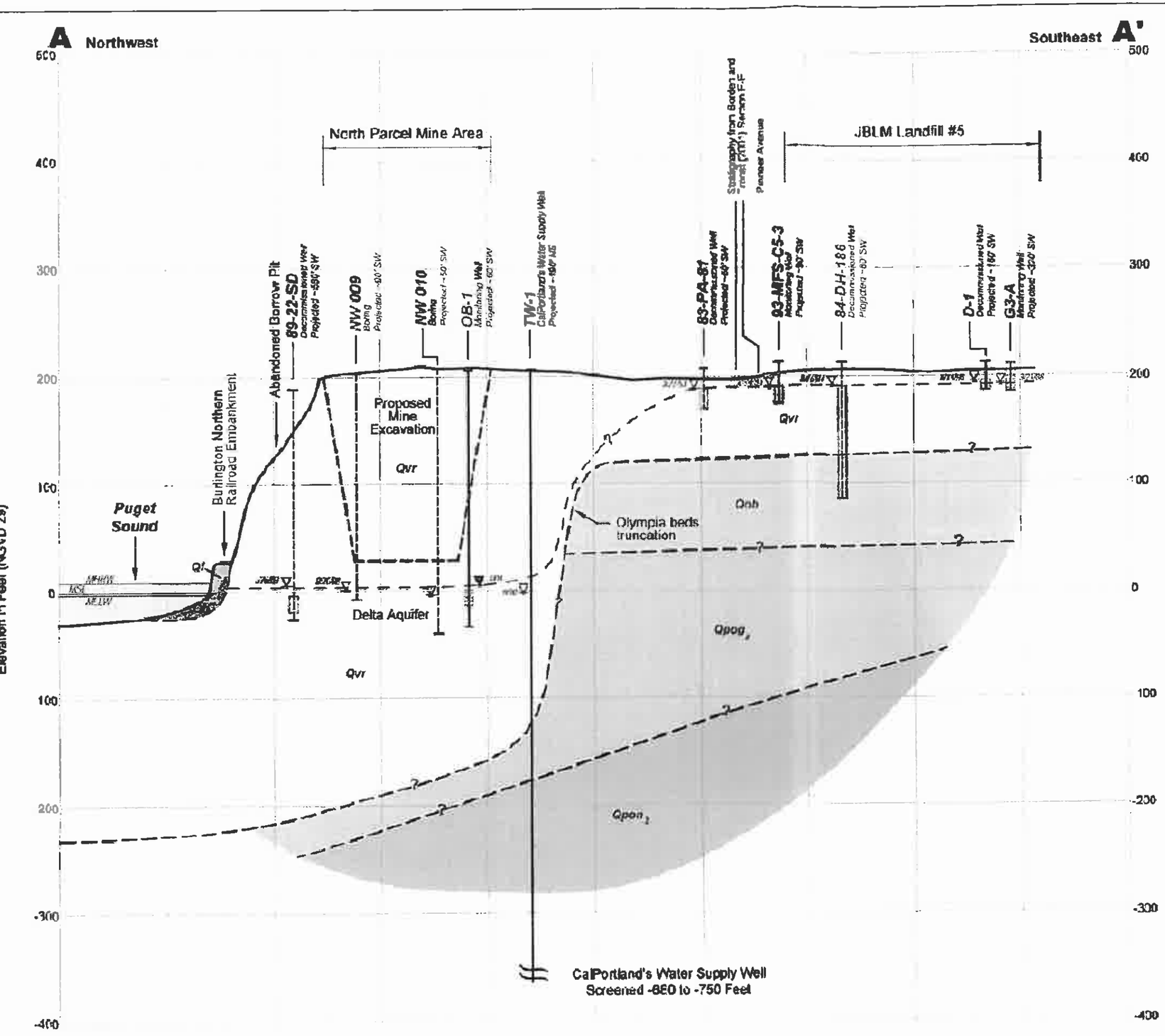
File Name C:\Users\mmiller\appdata\local\temp\AcPublish_5748\CalPortCo-1-02 - Appendix A-B-C-D.dwg | Layout APPENDIX A



Legend

- Measured Static Water Level
- Water Level Observation at Time of Drilling (ATD)
- Monitoring Well Location / Screen Interval
- Boring or Decommissioned Monitoring Well / Former Screen Interval
- Gf (Fill): Artificial fill material emplacement. Likely consists primarily of crushed rock and rip-rap.
- Qb (Beach Deposits): Loose sand and gravel.
- Qvr (Recessional Glacial Outwash): Medium dense to dense, slightly silty to clean sand and gravel, and occasional silty beds. The majority of near-surface Vashon recessional outwash on the site is made up of the Steilacoom Gravel member, which is composed of sandy gravel and gravelly sand, with minor amounts of silt.
- Qob (Olympia Beds): The Olympia Beds Qob unit is generally composed of interbedded lacustrine silt and clay and fluvial deposits.
- Qpog3 (Third Glacial Unit): Very dense to hard sandy and gravelly glacial outwash and till with variable silt content.
- Qpon3 (Third Nonglacial Unit): Very dense to hard fluvial overbank deposits including lowerdor silt, peat sand, and gravelly sand.

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Tidal Elevations (NGVD 1929)

MHHW	5.96 ft
MSL	1.00 ft
MLLW	-6.67 ft

Additional References:

1.) Section E-E' from Borden and Troost (2001)
2.) Section A-A' from Hart Crowser (1991).
3.) Figure 3 from CH2M HILL (2000)
4.) Geologic Map of McNeil Island (Walsh, Logan, and Polenz 2003)

Scale: 1" = 1000' -horiz
1" = 100' Vert
Vertical Exaggeration = 10x

HORIZONTAL 0 1000 2000 (SCALE IN FEET)

VERTICAL 0 100 200 (SCALE IN FEET)

NOTE:
1. MAP BASED ON IMAGE PREPARED BY ASPECT CONSULTING, 2013.

CROSS SECTION A-A'
DUPONT PIONEER AGGREGATES (DNR#70-12668)

CITY OF DUPONT, PIERCE COUNTY, WA
SECTIONS 14, 15, 22, & 23, TOWNSHIP 19N, RANGE 1E, W.M.

APPENDIX B

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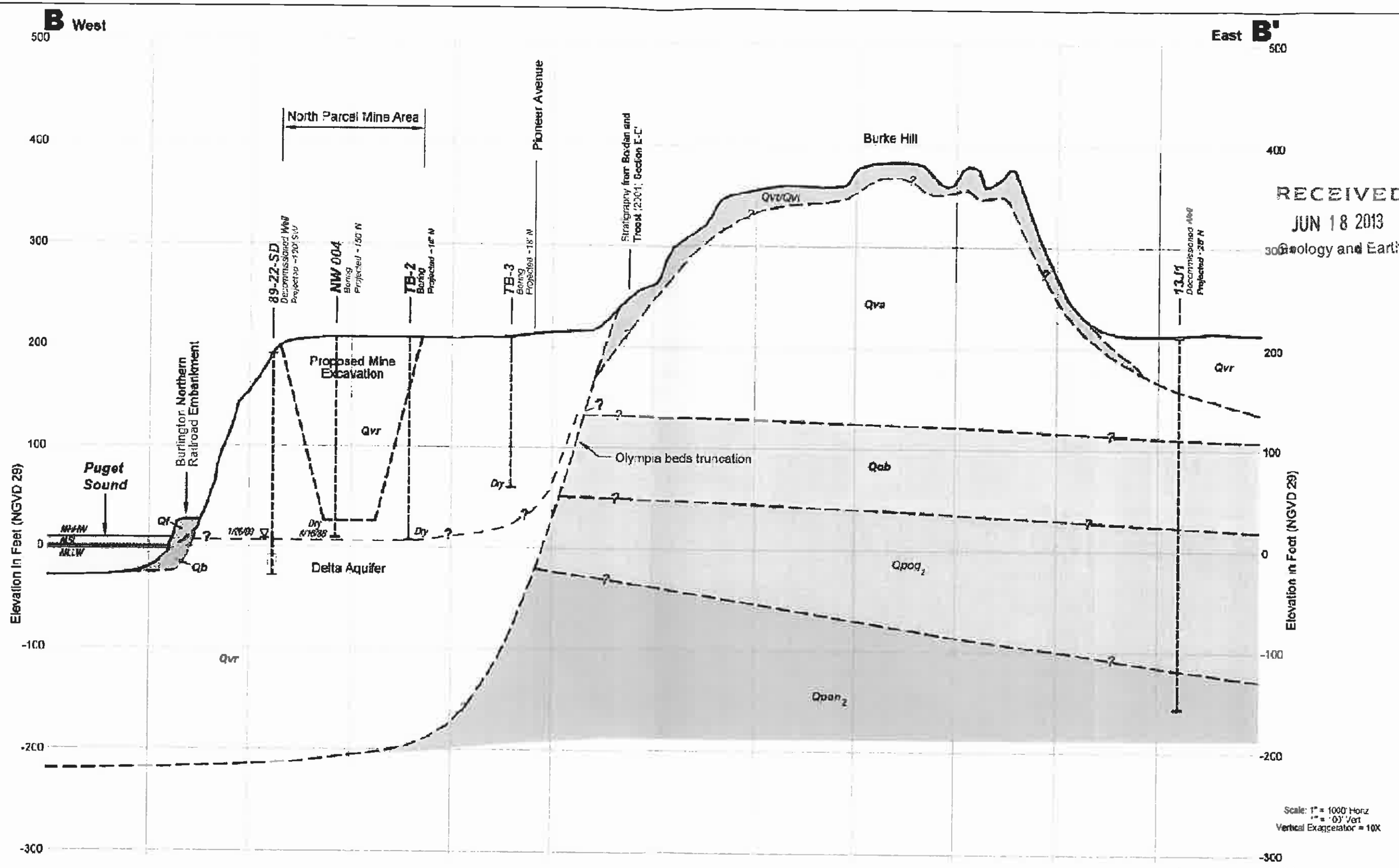

Legend

- Measured Static Water Level
- Water Level Observation at Time of Drilling (ATD)
- Boring or Decommissioned Well — Screen Interval
- Qf (Fill) — Artificial fill railroad embankment. Likely consists primarily of crushed rock and rip-rap
- Qb (Beach Deposits) — Loose sand and gravel
- Qva (Vashon Advance Outwash) — Sand and gravel and lacustrine clay silt and sand of northern source, deposited during Vashon glacial advance
- Qvr (Recessional Glacial Outwash) — Medium dense to dense, slightly silty to clean sand and gravel and indurated silty beds. The majority of near surface Vashon recessional outwash on the site is made up of the Steilacoom Gravel member which is composed of sandy gravel and gravelly sand, with minor amounts of silt
- Qvt/Qvi (Till and Ice Contact Deposits) — Dense to very dense diamicton (mixture of silt, sandy and gravelly lodgment till; ice contact deposits contain water-worked sands and gravels with interbeds and lenses of silty till-like deposits
- Qab (Olympia Beds) — The Olympia beds Qab unit is generally composed of interbedded diatomite, stone silt and clay and fluvial deposits
- Qpoq2 (Third Glacial Unit) — Very dense to hard sandy and gravelly glacial outwash and till with variable silt content
- Qpoa2 (Third Glaciofluvial Unit) — Very dense to hard fluvial sediments deposits including lacustrine silt, peat sand, and gravelly sand

Tidal Elevations (NGVD 1929)

MHHW	5.96 ft
MSL	1.00 ft
MLLW	-5.87 ft

Additional References:

1) Section E-E' from Borden and Troost (2001)
2) Section A-A' from Hart Crowser (1991)
3) Figure 3 from CH2M-HILL (2000)
4) Geologic Map of McNeil Island (Walsh, Logan, and Polenz 2003)

NOTE:
1. MAP BASED ON IMAGE PREPARED BY ASPECT CONSULTING, 2013.

CROSS SECTION B-B'
DUPONT PIONEER AGGREGATES (DNR#70-12668)

CITY OF DUPONT, PIERCE COUNTY, WA
SECTIONS 14, 15, 22, & 23, TOWNSHIP 19N, RANGE 1E, W.M.

APPENDIX C

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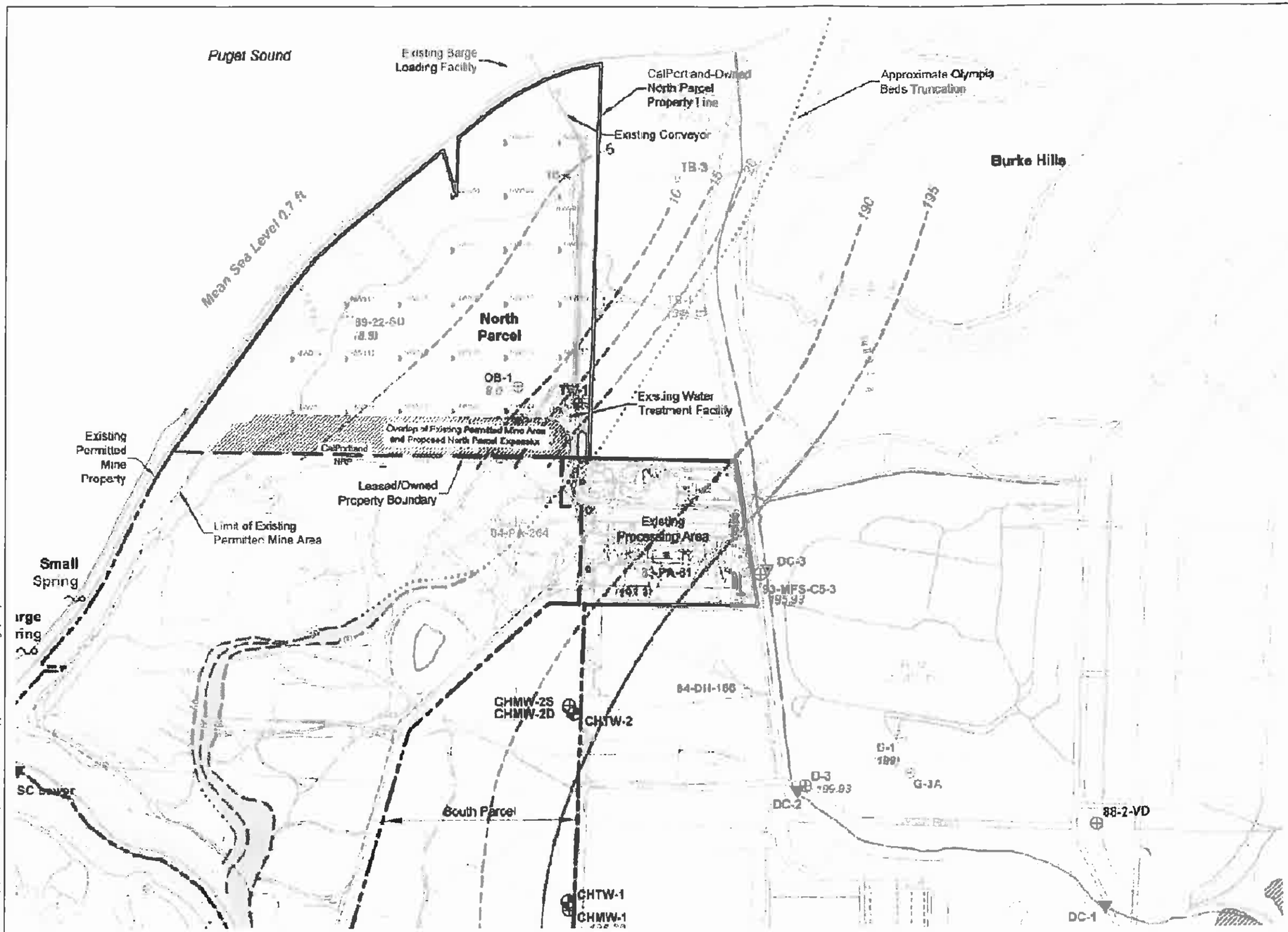

Note:
Elevation Datum NGVD 29

Base Map Sources

1.) Glacier Northwest Mining Facility by ESM Consulting Engineers, June 2003
2.) Northwest Landing Development by ESM Consulting Engineers, June 2002
3.) DuPont Consent Decree Area by ESM Consulting Engineers, April 2004
4.) LBLM by USGS DEM, *Nisqually* and *Fort Lewis*, 1994 and USGS Digital Line Graphs *Hypsography* and *Transportation* Fort Lewis Military Reservation 1073 McNeil Island 1081 Nisqually 1081 and Steilacoom 1060

NOTE:
1. MAP BASED ON IMAGE OBTAINED FROM ASPECT CONSULTING, 2013.

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GROUNDWATER ELEVATION CONTOUR MAP
DUPONT PIONEER AGGREGATES (DNR#70-12668)

CITY OF DUPONT, PIERCE COUNTY, WA
SECTIONS 14, 15, 22, & 23, TOWNSHIP 19N, RANGE 1E, W.M.

APPENDIX D

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