



December 20, 2024

Ty Peterson
King County Department of Local Services
Permitting Division
919 Southwest Grady Way, Suite 300
Renton, Washington 98057

Subject: Reserve Silica Response to Information Request
Permit # GRDE15-0011

Dear Ty Peterson:

On behalf of Reserve Silica Corporation (Reserve), I am submitting the first group of documents in response to King County's (County) information request letter, dated July 22, 2024. Reserve and the County corresponded regarding the schedule for providing the requested information, culminating in an email from Warren Clauss on November 4, 2024, that approved an initial deadline of December 22 for submittal of the first package of documents: the project narrative, a written response to the reclamation criteria in the Revised Code of Washington and King County Code; and cross sections comparing the current grades of Reserve's Ravensdale facility to Sections A-A' and B-B' of the 2014 Interim Reclamation Plan.

In November, Herrera completed an aerial topographic survey of the Ravensdale facility to allow for comparison of current topography with the 2014 Interim Reclamation Plan. The existing topography is included on a plan sheet with cross-section locations. The cross sections compare current topography for the fill areas with proposed grades digitized from the 2014 Interim Reclamation Plan. Current grades in the fill areas are about 25 to 30 feet higher in certain areas than identified in the earlier plan. The additional fill will be addressed in the Site Improvement and Reclamation Plans that are a key component of the second set of submittals.

Reserve proposes the following timeline for submitting the remainder of the requested information:

- Through January 31: Prepare draft Site Improvement Plan, Reclamation Plan, Technical Information Report, SEPA Checklist and Greenhouse Gas Worksheet, and Landscape Bond Quantity Form.
 - Incorporate County feedback on initial submittal, if any.
- February 10 through 21: Internal QA/QC review and Reserve review

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- February 24 through 27: Finalize and produce.
- February 28, 2025: Submit to County.

Please contact me with any questions about this submittal at oreese@herrerainc.com.

Sincerely,

Herrera Environmental Consultants, Inc.



Owen G. Reese, P.E.
Associate Water Resources Engineer

Enclosure: Project Narrative
 Responses to WAC and KCC Reclamation Criteria
 Cross Sections A-A' and B-B'

cc: Frank Melfi Jr., Reserve Silica Corporation
 Jim Chan, Permitting Division Director
 Mark Rowe, Permitting Deputy Division Director
 Warren Clauss, Planner/Project Manager III
 Teddy Taddese, Permitting Site Engineer II
 Darren Cernel, Senior Deputy Prosecuting Attorney, King County PAO

TECHNICAL MEMORANDUM

Date: December 20, 2024
To: King County Department of Local Services
Copy to: Frank Melfi, Jr., Reserve Silica Corporation
From: Owen Reese, P.E., Herrera Environmental Consultants, Inc.
Subject: Project Narrative for Fill Placement at Reserve Silica's Ravensdale Facility

Introduction

Reserve Silica Corporation (Reserve) operates a reclamation fill site located at 28131 Ravensdale-Black Diamond Road in Ravensdale, Washington (Facility). Activities at the Facility are covered under King County clearing and grading permit number GRDE15-0011 and Inert Waste Landfill permit number PR0082027.

On July 22, 2024, King County Department of Local Services issued a letter requesting additional information about reclamation activities at the Facility. The information request included a requirement to provide a "detailed narrative of the work completed to date, in accordance with the guidelines specified in the interim reclamation plan for the Upper Pit, North Pit (including the Tan Sand Pit), and Lower Pit (including the Middle Pit) areas." This technical memorandum provides the requested project narrative.

The Facility has a long history of prior mining and fill activities. From 1924 to 1948, coal was mined at the Facility by the Northwestern Improvement Company, a subsidiary of Northern Pacific Railway and their successor Burlington Northern using underground and surface strip mining methods. Surface strip mining for coal conducted between 1946 and 1950 created the Dale Strip Pit (DSP).

From 1967 to December 2007, sandstone was mined from the Facility to produce high-quality silica sand. Sandstone mining created the Lower Disposal Area (LDA) starting in 1968. In 1970, Northern Pacific merged with Great Northern and several other railways to form Burlington Northern Railroad Company. Northern Pacific and Burlington Northern Railroad Company (now known as BNSF Railway¹) leased the Facility to several different operators for sand mining between 1967 and 1997, when Reserve purchased the property. Mining activities were conducted under Surface Mining Permit #10346 issued by the Washington State Department of Natural Resources and grading permit L7061122 issued by King County.

¹ On September 22, 1995, the Atchison, Topeka, and Santa Fe Railway merged with the Burlington Northern to create the Burlington Northern Santa Fe Railway. However, the merger was not official until December 31, 1996. On January 24, 2005, the railroad shortened its name to BNSF Railway.

The mining permit was cancelled in 2010 in response to King County's request to regulate reclamation activities.

From 1979 to 1989, Industrial Mineral Products, Inc. hauled cement kiln dust (CKD) generated at the Ideal Basic Industries, Inc. (Ideal) Seattle Cement Manufacturing Plant to the Facility for use as fill material at the LDA and DSP. These areas have been capped with a 2-foot-thick layer of clayey material and a 7-foot layer of overburden from the sand mining operations and revegetated with grass. Holcim (US), Inc. is the successor in interest to Ideal. Holcim US, Inc. and Reserve are parties to Agreed Order No. DE16052 with the Washington State Department of Ecology (Ecology) for remedial activities related to the closed landfills. The LDA and DSP comprise a Closed Limited Purpose Landfill regulated by Public Health – Seattle & King County (Public Health) under permit PR0015708, issued annually. The DSP and LDA are separate and distinct from the reclamation fill activities at the Facility. No reclamation fill is planned for these areas.

Reserve began sandstone mining operations in 1986 under lease from Burlington Northern, then purchased the Facility in 1997. Reserve's operation included a processing area and wash plant located on parcel number 3522069018 on the north side of Ravensdale-Black Diamond Road. Mining ended in December 2007, and processing of remaining stockpiles of sandstone was completed in January 2010. Reclamation began in 2007 with the importation of fill to reclaim the surface excavations. Initial reclamation activities focused on the upper pit.

In 2012, the Facility obtained an inert waste landfill permit to allow for disposal of inert waste, particularly tunnel spoils from the State Route 99 tunnel project, in reclamation fill based on a Plan of Operation dated July 12, 2012. Public Health regulates the Facility under Inert Waste Landfill Permit No. PR0082027, issued annually. The most recent permit was issued on February 29, 2024; it is effective from January 1, 2024, to December 31, 2024.

Initially the Reserve Silica property consisted of three legal parcels: 012106-9002 (now Lot 3), 362206-9065, and 352206-9018 (plant site). In 2017, King County approved a further division of the parcel 362206-9065, creating five additional legal parcels: 362206-9065 (Lot 1), 012106-9010 (Lot 2), 012106-9011 (Lot 5), 012106-9012 (Lot 4), and 362206-9138 (Lot 6). Lot 6 is held by Ravensdale 6 LLC, a wholly owned subsidiary of Reserve.

Recent Fill History

In 2014, Reserve prepared and submitted an Interim Reclamation Plan, dated May 2014, to King County. The County approved the plan after striking a paragraph on potential rezoning and adding requirements to coordinate with the County on revegetation planting.

The Interim Reclamation Plan included a mine sequence map (Figure 5 in the Interim Reclamation Plan) that identified the Upper Pit, Lower Pit, and North Pit as former sandstone mining areas slated for reclamation fill placement. As fill placement reached a level at which former pits are no longer useful visual references, Reserve adapted its nomenclature and now refers to fill placement in Areas 1, 2, 3, 3/4,

4, 5, and 6 as shown on the existing topography plan sheet included with this submittal. Areas 1 and 2 cover the area formerly known as the Lower Pit. Area 3 covers the Upper Pit, and Area 4 covers the North Pit. Area 3/4 is an additional area of fill placement between Areas 3 and 4. Areas 5 and 6 are located east of the haul road and are aimed at reclaiming former coal mining features.

Reserve has been implementing the Interim Reclamation Plan. Review of Reserve's records and aerial photographs indicate the following sequence of activities:

- In 2015, reclamation fill was primarily placed in Areas 1 and 2, with some fill placement in Area 3.
- In 2016, fill continued in Areas 1, 2, and 3, and began in Area 4.
- In 2017, fill was primarily placed in Areas 1 and 4.
- In 2018, the northern portion of Area 4 slopes were nearing final grade. Fill placement continued in Areas 2 and 3.
- In 2019, fill placement continued in Areas 2 and 3, and the southern portion of Area 4 slopes were nearing final grade.
- In 2020, placement of reclamation fill was limited in response to the COVID pandemic. Fill placement occurred primarily in Area 2. Area 3/4 was prepared for fill placement, and fill placement began. Final grading was conducted on the slopes in Area 4.
- In 2021, fill placement continued in Areas 2, 3, and 3/4. Area 1 was expanded south to the haul road.
- In 2022, Areas 5 and 6 were logged, and construction of a haul road began. Topsoil was stockpiled on Area 3/4 for future use in reclamation. Fill placement began in Area 5 after July 2022. Fill placement continued in Areas 2, 3, and 3/4 periodically throughout the year.
- In 2023, fill placement continued in Areas 2, 3, and 5. Soil and inert waste (marble countertops) were placed in a former coal mine shaft in Area 5. Limited fill placement occurred on the southern portion of Area 3/4.
- In May 2023, Reserve became aware that 33 truckloads of soil contaminated by the former Asarco Smelter in Ruston/North Tacoma had been illegally disposed of at the Facility without their knowledge and had been inadvertently incorporated into reclamation fill in Area 5. Reserve notified Ecology (ERTS #724381) and conducted an independent study to determine the presence, nature, and extent of arsenic- and lead-contaminated soil delivered to the Facility. Ecology concluded that there had been a release of arsenic and lead, but that the arsenic and lead monitoring results were statistically in compliance with the MTCA Method A cleanup levels. On February 16, 2024, Ecology issued a determination that no further action is necessary related to the release.
- In 2024, fill placement continued in Area 3 and 5. Final grading was performed on the south-facing slopes of Area 2. A haul road was constructed to Area 6, and limited fill placement began.

Current topography of the Facility, as of November 12, 2024, is shown on the existing topography plan sheet included with this submittal. Cross-sections A-A' and B-B', also included with this submittal,

compare current grade with the proposed grades from the 2014 Interim Reclamation Plan. Fill placement has exceeded the proposed grades by 20 to 25 feet in some locations; however, the slopes that are nearing final grade are generally consistent with the 2014 Interim Reclamation Plan. A summary of annual fill volumes at the Facility is provided in Table 1, based on Reserve's load ticket records.

Table 1. Reclamation Backfill Volumes.

Year	Fill Quantity in Cubic Yards		
	Clean Soil	Inert Waste (e.g., concrete, asphalt, and marble)	Total
2022	85,172	1,000	86,172
2023	277,670	1,300	278,970
2024 (through November 30)	101,350	1,200	102,550
Total	464,192	3,500	467,692

TECHNICAL MEMORANDUM

Date: December 20, 2024
To: Frank Melfi, Jr., Reserve Silica Corporation
Copy to:
From: Owen Reese, P.E., Herrera Environmental Consultants, Inc.
Subject: Response to Reclamation Criteria in RCW 78.44.141 and King County Code 21A.22.081.C

As part of King County's (County) information request, dated July 22, 2024, regarding Reserve Silica Corporation's (Reserve) Ravensdale facility (Facility), a clean fill and inert waste mine reclamation fill location in Ravensdale, the County requested written responses to each of the reclamation requirements in the Revised Code of Washington (RCW) Chapter 78.44.141 and King County Code Chapter 21A.22.081.C. This technical memorandum describes how each code requirement will be incorporated into reclamation of the Facility, including incorporation into the Site Improvement Plan and Reclamation Plan required by the information request. The technical memorandum is organized to quote each requirement in italics, then provide the response.

These responses do not apply to the cement kiln dust (CKD) landfills on the Facility, which have already been closed, reclaimed, and revegetated with grasses.

RCW 78.44.141

(1) Prior to surface mining, permit holders shall carefully stockpile all topsoil on the site for use in reclamation, or immediately move topsoil to reclaim adjacent segments, except when the approved subsequent use does not require replacing the topsoil. Topsoil needed for reclamation shall not be sold as a mineral nor mixed with sterile soils. Stockpiled materials used as screening shall not be used for reclamation until such time as the appropriate county or municipal government has given its approval.

Response: In areas where topsoil remains on site (e.g., Areas 5 and 6), topsoil will be stripped and stockpiled prior to placement of reclamation fill. Topsoil will be used in reclamation of the Facility after placement of fill. Topsoil will remain on site and will not be sold.

(2) The department may require that clearly visible, permanent monuments delineating the permit boundaries and maximum extent of the disturbed area be set at appropriate places around the mine site. The permit holder shall maintain the monuments until termination of the reclamation permit.

Response: Boundary markers will be installed along the maximum extent of disturbed area along the northern and eastern boundaries of Areas 5 and 6 to delineate the area of reclamation fill placement. Boundary markers are not necessary for Areas 2, 3, 3/4, and 4 since these areas are well defined and constrained by the haul road. The monuments will be maintained until termination of the County's

grading permit. The reclamation permit from the Washington State Department of Natural Resources (WDNR) has already been terminated.

(3) All minimum reclamation standards may be waived in writing by the department in order to accommodate unique and beneficial reclamation schemes such as parks, swimming facilities, buildings, and wildlife reserves. Such waivers shall be granted only after written approval by the department of a reclamation plan describing the variances to the minimum reclamation standards, receipt of documentation of SEPA compliance, and written approvals from the landowner and by the local land use authority.

Response: Not applicable—Reserve is not seeking a waiver of minimum reclamation standards.

(4) All surface-mined slopes shall be reclaimed to the following minimum standards:

(a) In surface mines in soil, sand, gravel, and other unconsolidated materials, all reclaimed slopes shall:

(i) Have varied steepness;

(ii) Have a sinuous appearance in both profile and plan view;

(iii) Have no large rectilinear topographic elements;

(iv) Generally have slopes of between 2.0 and 3.0 feet horizontal to 1.0 foot vertical or flatter except in limited areas where steeper slopes are necessary in order to create sinuous topography and to control drainage;

(v) Not exceed 1.5 feet horizontal to 1.0 foot vertical except as necessary to blend with adjacent natural slopes;

(vi) Be compacted if significant backfilling is required to produce the final reclaimed slopes and if the department determines that compaction is necessary.

Response: Reclaimed slopes will be designed to blend with adjacent topography and will have varied steepness and a sinuous appearance similar to nearby natural slopes. There will be no large rectilinear topographic elements. Reclaimed slopes will be between 2 to 3 feet horizontal to 1 foot vertical or flatter except where necessary to tie into steeper natural slopes. Reserve will be responsible for placing reclamation fill using methods, including compaction, as needed to form stable slopes.

(b) Slopes in consolidated materials shall have no prescribed slope angle or height, but where a severely hazardous condition is created by mining and that is not indigenous to the immediate area, the slopes shall not exceed 2.0 feet horizontal to 1.0 foot vertical. Steeper slopes shall be acceptable in areas where evidence is submitted that demonstrates that the geologic or topographic characteristics of the site preclude reclamation of slopes to such angle or height or that such slopes constitute an acceptable subsequent use under local land use regulations.

Response: Not applicable—Although mining was previously conducted within consolidated materials, they are no longer present on the surface at the Facility.

(c) Surface mines in which the seasonal or permanent water tables have been penetrated, thereby creating swamps, ponds, or lakes useful for recreational, wildlife habitat, water quality control, or other beneficial wetland purposes shall be reclaimed in the following manner:

- (i) For slopes that are below the permanent water table in soil, sand, gravel, and other unconsolidated materials, the slope angle shall be no steeper than 1.5 feet horizontal to 1.0 foot vertical;*
- (ii) Generally, solid rock banks shall be shaped so that a person can escape from the water, however steeper slopes and lack of water egress shall be acceptable in rural, forest, or mountainous areas or where evidence is provided that such slopes would constitute an acceptable subsequent use under local land use regulations;*
- (iii) Both standpipes and armored spillways or other measures to prevent undesirable overflow or seepage shall be provided to stabilize all such water bodies within the disturbed area; and*
- (iv) Where lakes, ponds, or swamps are created, the permit holder shall provide measures to establish a beneficial wetland by developing natural wildlife habitat and incorporating such measures as irregular shoreline configurations, sinuous bathymetry and shorelines, varied water depths, peninsulas, islands, and subaqueous areas less than 1.5 foot deep during summer low-water levels. Clay-bearing material placed below water level may be required to avoid creating sterile wetlands.*

Response: Excavation below the groundwater table is only present in the former borrow area in the southwest corner of the Plant Site. Reclamation fill in the areas of concern will be placed to raise grade above the permanent water table in order to not create a water body or wetland. No excavations below the seasonal or permanent water table are present elsewhere on the Facility.

(d) Final topography shall generally comprise sinuous contours, chutes and buttresses, spurs, and rolling mounds and hills, all of which shall blend with adjacent topography to a reasonable extent. Straight planar slopes and right angles should be avoided.

(e) The floors of mines shall generally grade gently into postmining drainages to preclude sheet-wash erosion during intense precipitation, except where backgrading is appropriate for drainage control, to establish wetlands, or to trap sediment.

(f) Topsoil shall be restored as necessary to promote effective revegetation and to stabilize slopes and mine floors. Where limited topsoil is available, topsoil shall be placed and revegetated in such a way as to ensure that little topsoil is lost to erosion.

Response: Reclaimed slopes will be designed to blend with adjacent topography and avoid straight planar slopes and right angles. The Facility is located on a hillside that includes broader, flatter areas near the top, and steeper, fairly consistent slopes to the north and west. Undisturbed areas of the Facility and adjacent properties are not particularly irregular or sinuous, except where surface water drainages are present. Fill has already been placed on the floor of prior mining areas. Topsoil will be placed after placement of reclamation fill to promote revegetation. A native seed mix that includes a quick establishing species (such as ReGreen) will be used to stabilize exposed soils.

(g) Where surface mining has exposed natural materials that may create polluting conditions, including but not limited to acid-forming coals and metalliferous rock or soil, such conditions shall be addressed according to a method approved by the department. The final ground surface shall be graded so that surface water drains away from these materials.

Response: Not applicable—Natural materials that may create polluting conditions are not exposed at the Facility.

(h) All grading and backfilling shall be made with nonnoxious, noncombustible, and relatively incompactible solids unless the permit holder provides:

(i) Written approval from all appropriate solid waste regulatory agencies; and

(ii) Any and all revisions to such written approval during the entire time the reclamation permit is in force.

(i) Final reclaimed slopes should be left roughly graded, preserving equipment tracks, depressions, and small mounds to trap clay-bearing soil and promote natural revegetation. Where reasonable, final equipment tracks should be oriented in order to trap soil and seeds and to inhibit erosion.

(j) Pit floors should be bulldozed or ripped to foster revegetation.

Response: Reclamation fill will consist of nonnoxious, noncombustible, and relatively incompactible solids. Fill within the boundaries of the Facility's inert waste landfill permit will meet the requirements of that permit. Final reclaimed slopes will be track-walked after topsoiling. Compacted areas subject to vehicle traffic will be ripped prior to topsoiling to foster revegetation.

(5) Drainages shall be graded and contain adequate energy dissipation devices so that essentially natural conditions of water velocity, volume, and turbidity are reestablished within six months of reclamation of each segment of the mine. Ditches and other artificial drainages shall be constructed on each reclaimed segment to control surface water, erosion, and siltation and to direct runoff to a safe outlet. Diversion ditches including but not limited to channels, flumes, tightlines and retention ponds shall be capable of carrying the peak flow at the mine site that has the probable recurrence frequency of once in twenty-five years as determined from data for the twenty-five year, twenty-four hour precipitation event published by the national oceanic and atmospheric administration. The grade of such ditches and channels shall be constructed to limit erosion and siltation. Natural and other drainage channels shall be kept free of equipment, wastes, stockpiles, and overburden.

Response: Reclamation will include construction of permanent stormwater facilities including ditches, culverts, and water quality treatment, and flow control ponds. Facilities will be designed to limit erosion and siltation. Drainage design for new facilities, including stormwater facilities for Areas 5 and 6, will be consistent with the 2021 King County Surface Water Design Manual (KCSWDM). Conveyances will be designed to safely convey the 25-year peak flow; however, the design flow will be determined using continuous hydrologic modeling consistent with the KCSWDM, rather than the single event method (25-year, 24-hour) described in this RCW section.

(6) *Impoundment of water shall be an acceptable reclamation technique provided that approvals of other agencies with jurisdiction are obtained and:*

- (a) Proper measures are taken to prevent undesirable seepage that could cause flooding outside the permitted area or adversely affect the stability of impoundment dikes or adjacent slopes;*
- (b) Both standpipes and armored spillways or other measures necessary to control overflow are provided.*

Response: Not applicable—No impoundments of water are included in the reclamation approach.

(7) *Revegetation shall be required as appropriate to stabilize slopes, generate new topsoil, reduce erosion and turbidity, mask rectilinear contours, and restore the scenic value of the land to the extent feasible as appropriate to the approved subsequent use. Although the scope of and necessity for revegetation will vary according to the geography, precipitation, and approved subsequent use of the site, the objective of segmental revegetation is to reestablish self-sustaining vegetation and conditions of slope stability, surface water quality, and appearance before release of the reclamation permit. Revegetation shall normally meet the following standards:*

- (a) Revegetation shall commence during the first proper growing season following restoration of slopes on each segment unless the department has granted the permit holder a written time extension.*
- (b) In eastern Washington, the permit holder may not be able to achieve continuous ground cover owing to arid conditions or sparse topsoil. However, revegetation shall be as continuous as reasonably possible as determined by the department.*
- (c) Revegetation generally shall include but not be limited to diverse evergreen and deciduous trees, shrubs, grasses, and deep-rooted ground cover.*
 - (i) For western Washington, nitrogen-fixing species including but not limited to alder, white clover, and lupine should be included in dry areas. In wet areas, tubers, sedges, wetland grasses, willow, cottonwood, cedar, and alder are appropriate.*
 - (ii) In eastern Washington, lupine, white clover, Russian olive, black locust, junipers, and pines are among appropriate plants. In wet areas, cottonwood, tubers, and sedges are appropriate.*
- (d) The requirements for revegetation may be reduced or waived by the department where erosion will not be a problem in rural areas where precipitation exceeds thirty inches per annum, or where revegetation is inappropriate for the approved subsequent use of the surface mine.*
- (e) In areas where revegetation is critical and conditions are harsh, the department may require irrigation, fertilization, and importation of clay or humus-bearing soils to establish effective vegetation.*
- (f) The department may refuse to release a reclamation permit or performance security until it deems that effective revegetation has commenced.*

Response: Revegetation following placement of reclamation fill and topsoil will include grasses, shrubs, and evergreen and deciduous trees appropriate for western Washington and the site location. Reclaimed

fill areas will be revegetated as dry areas and will include nitrogen-fixing species. Revegetation will occur segmentally as an area reaches final grade. Requirements (7)(d) and (e) are not applicable to the Facility. Requirement (7)(f) is no longer applicable because WDNR has released the original reclamation permit and related performance security.

King County Code 21A.22.081.C

C. Mineral extraction and coal mine operations that are not required to have an approved reclamation plan under Chapter 78.44 RCW shall meet the following requirements:

1. Upon the exhaustion of minerals or materials or upon the permanent abandonment of the quarrying or mining operation, all nonconforming buildings, structures, apparatus or appurtenances accessory to the quarrying and mining operation shall be removed or otherwise dismantled to the satisfaction of the director;

Response: All nonconforming buildings, structures, apparatus or appurtenances accessory to the prior quarrying and mining operations will be removed at the conclusion of reclamation, with the exception of those structures necessary for ongoing treatment of seepage from the CKD landfill.

2. Final grades shall:

a. be such so as to encourage the uses permitted within the primarily surrounding zone or, if applicable, the underlying or potential zoning classification; and

b. result in drainage patterns that reestablish natural conditions of water velocity, volume, and turbidity within six months of reclamation and that precludes water from collecting or becoming stagnant. Suitable drainage systems approved by the department shall be constructed or installed where natural drainage conditions are not possible or where necessary to control erosion. All constructed drainage systems shall be designed consistent with the Surface Water Design Manual;

Response: The properties comprising the Facility are zoned as mineral lands (M) and is primarily surrounded by lands zoned for forestry (F). The final grades will support future forestry uses. Reclamation topography will support continued discharge at the natural locations. Stormwater ponds for recent reclamation fill placement in Area 3/4 and Areas 5 and 6 have been or will be designed consistent with KCSWDM.

3. All areas subject to grading or backfilling shall:

- a. incorporate only nonnoxious, nonflammable, noncombustible and nonputrescible solids; and
- b. except for roads and areas incorporated into drainage facilities, be surfaced with soil of a quality at least equal to the topsoil of the land areas immediately surrounding, and to a depth of the topsoil of land area immediately surrounding six inches, whichever is greater. The topsoil layer shall have an organic matter content of eight to thirteen percent and a pH of 6.0 to 8.0 or matching the pH of the original undisturbed soil layer. Compacted areas such as pit floors or compacted fill shall be tilled or scarified before topsoil placement;

Response: Reclamation fill will consist of nonnoxious, nonflammable, noncombustible, and nonputrescible solids. Fill within the boundaries of the Facility's inert waste landfill permit will meet the requirements of that permit. Stockpiled topsoil meeting the required specifications will be placed on reclaimed areas, except roads and drainage facilities, prior to revegetation. Compacted fill will be scarified prior to topsoil placement.

4. All reclaimed slopes shall comprise an irregular sinuous appearance in both profile and plan view and blend with adjacent topography to a reasonable extent;

Response: Reclaimed slopes will be designed to blend with adjacent topography. The Facility is located on a hillside that includes broader, flatter areas near the top, and steeper, fairly consistent slopes to the north and west. Undisturbed areas of the Facility and adjacent properties are not particularly irregular or sinuous, except where surface water drainages are present.

5. Where excavation has penetrated the seasonal or permanent water table creating a water body or wetland:

- a. All side slopes below the permanent water table and banks shall be graded or shaped as to not constitute a safety hazard;
- b. Natural features and plantings to provide beneficial wetland functions and promote wildlife habitat shall be provided; and
- c. Appropriate drainage controls shall be provided to stabilize the water level and not create potential flooding hazards;

Response: Excavation below the groundwater table is only present in the former borrow area in the southwest corner of the Plant Site. Reclamation fill in the areas of concern will be placed to raise grade above the permanent water table, so as to not create a water body or wetland. No other excavations below the seasonal or permanent water table are present on the Facility.

6. All cleared, graded or backfilled areas, including areas surfaced with topsoil, shall be planted with a variety of trees, shrubs, legumes and grasses indigenous to the surrounding area and appropriate for the soil, moisture and exposure conditions;

Response: As described in the response to RCW 78.44.141(7), revegetation following placement of reclamation fill and topsoil will include grasses, shrubs, and evergreen and deciduous trees indigenous to

and appropriate for western Washington and the site location, including nitrogen-fixing species such as legumes.

7. Waste or soil piles shall be used for grading, backfilling or surfacing if permissible under this section, then covered with topsoil and planted in accordance with subsection C.3. and 6. of this section. Waste or soil piles not acceptable to be used for fill in accordance with this chapter or as top soil in accordance with subsection C.3. of this section shall be removed from the site; and

Response: Waste or soil piles will be incorporated into the fill placement or, if not suitable, removed from the Facility prior to final reclamation activities.

8. Where excavation has exposed natural materials that may create polluting conditions, including, but not limited to, acid-forming coals and metalliferous rock or soil, such conditions shall be addressed to the satisfaction of the department. The final ground surface shall be graded so that surface water drains away from any such materials remaining on the site.

Response: Not applicable—Natural materials that may create polluting conditions are not exposed at the Facility.

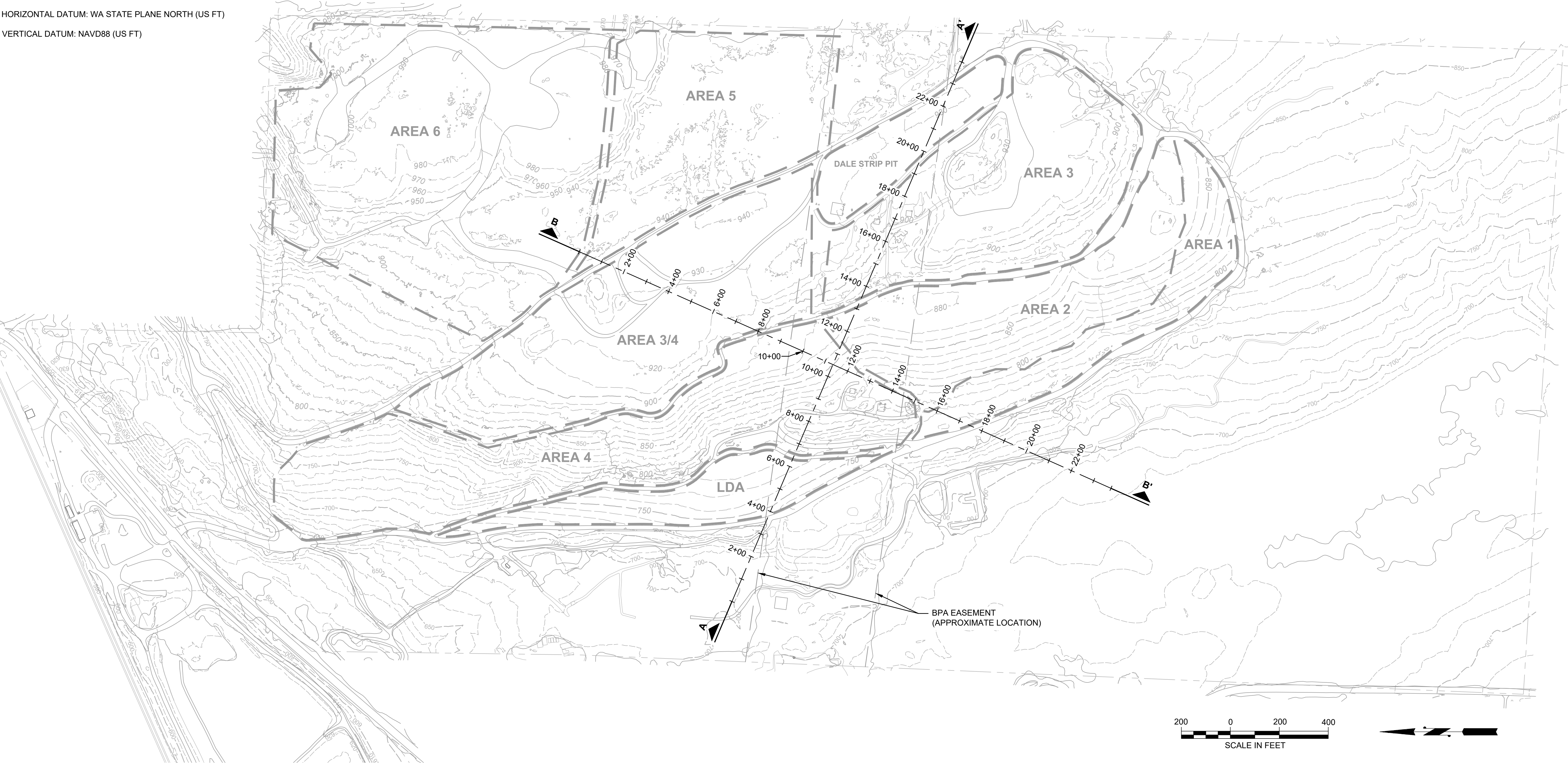
NOTES

SOURCE: AERIAL PHOTOGRAMMETRIC SURVEY PERFORMED BY HERRERA ENVIRONMENTAL CONSULTANTS USING A DJI MAVI 3E REMOTELY PILOTED AIRCRAFT ON NOVEMBER 6-7, 2024.

GROUND CONTROL ESTABLISHED BY A TRIMBLE DA-2 CATALYST RTK GNSS GPS.

HORIZONTAL DATUM: WA STATE PLANE NORTH (US FT)

VERTICAL DATUM: NAVD88 (US FT)



ISSUED FOR COUNTY REVIEW				
No.	REVISION	BY	APP'D	DATE

ONE INCH
↑
AT FULL SIZE IF NOT ONE
INCH SCALE ACCORDINGLY
↓



RESERVE SILICA CORPORATION
28131 RAVENSDALE - BLACK DIAMOND RD
RAVENSDALE, WA 98051

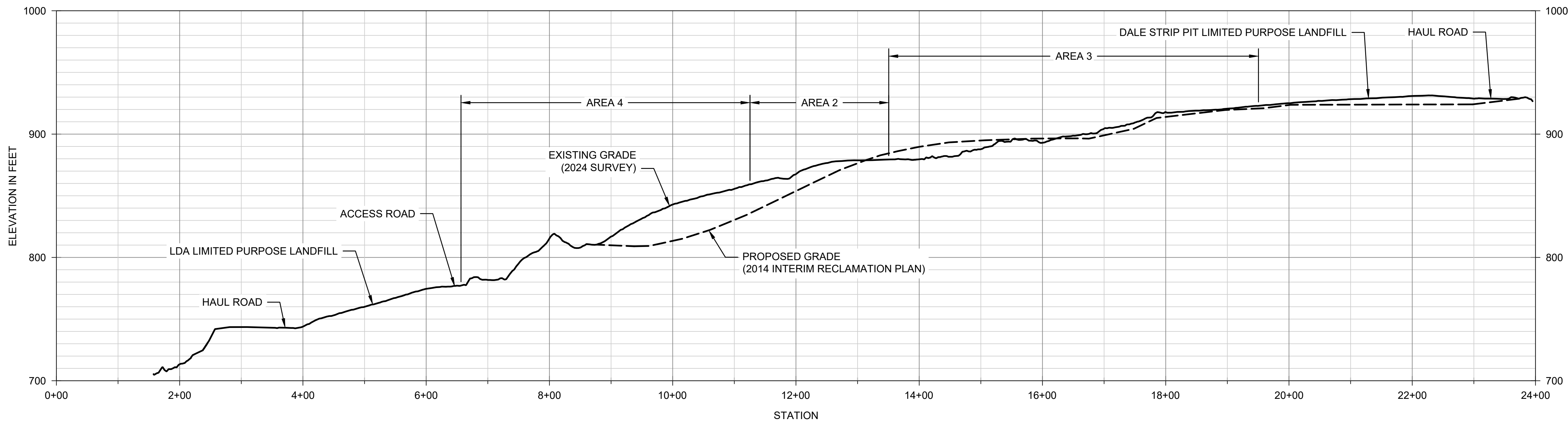


DESIGNED: D. WERNER	DRAWN: D. WERNER
DESIGNED: -	DRAWN: -
DESIGNED: -	CHECKED: O. REESE
SCALE: AS NOTED	APPROVED: O. REESE

RESERVE SILICA RAVENSDALE FACILITY
GRADING PERMIT NO. GRDE15-0011

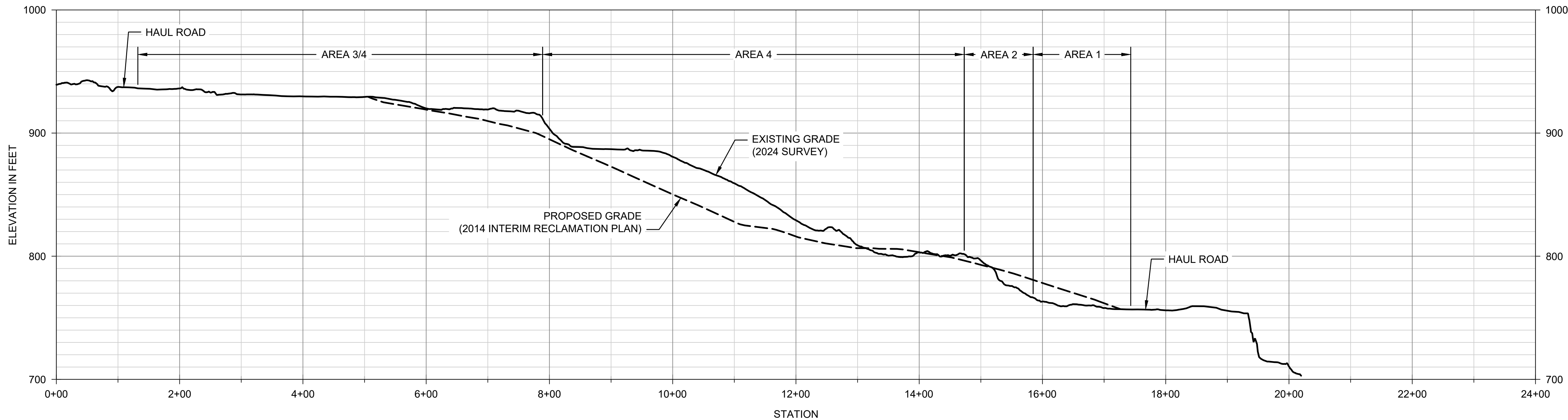
EXISTING TOPOGRAPHY

DATE: DECEMBER 2024
PROJECT NO: 24-08370-000
DRAWING NO:
SHEET NO: 1 OF 2



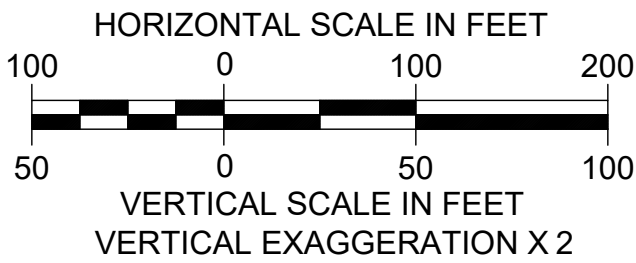
PROFILE A-A'

HORIZ. SCALE: 1"=100'
VERT. SCALE: 1"=50'



PROFILE B-B'

HORIZ. SCALE: 1"=100'
VERT. SCALE: 1"=50'



O:\proj\2024\04-08370-000\CA\SheetProfile.dwg | 12/19/2024 3:06 PM | Eric Marshall

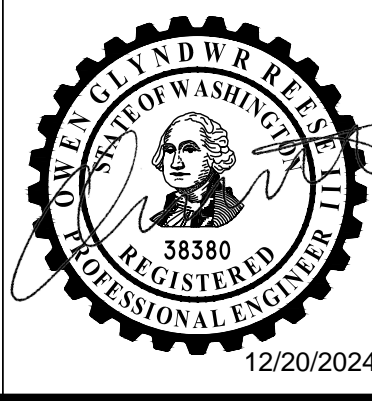
ISSUED FOR COUNTY REVIEW				
No.	REVISION	BY	APP'D	DATE

ONE INCH
AT FULL SIZE IF NOT ONE
INCH SCALE ACCORDINGLY



HERRERA
Science + Planning + Design
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RESERVE SILICA CORPORATION
28131 RAVENSDALE - BLACK DIAMOND RD
RAVENSDALE, WA 98051



DESIGNED: D. WERNER	DRAWN: D. WERNER
DESIGNED: -	DRAWN: -
DESIGNED: -	CHECKED: O. REESE
SCALE: AS NOTED	APPROVED: O. REESE

RESERVE SILICA RAVENSDALE FACILITY
GRADING PERMIT NO. GRDE15-0011

SECTIONS A-A' AND B-B'

DATE: DECEMBER 2024
PROJECT NO: 24-08370-000
DRAWING NO:
SHEET NO: 2 OF 2

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